



Odor Management and Control Plan South Wake Landfill

Solid Waste Permit No. 92-22
Title V Air Permit No. 10114T01

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1.0 INTRODUCTION

Wake County (County) has prepared this Odor Management and Control Plan (Plan) for the active South Wake Landfill (Landfill) located in Apex, North Carolina. This Plan describes the current practices and technologies utilized by the County and the Landfill's operator, Wake County Disposal, LLC (referred to as GFL Environmental), to minimize off-site odors and address odor reports received by either the County or GFL. The Plan also discusses the best management practices (BMP) and available strategies to mitigate on-site odors in order to minimize off-site odors.

Odor mitigation has been emphasized by the County and GFL as a priority since the Landfill commenced operations in 2008. The County commissioned a previous odor study, titled "Preliminary Study of Odorous Emissions", dated January 2014, which provided an opinion regarding the generation and control of odor sources at and in the vicinity of the Landfill. In accordance with the Operations Agreement, the County is responsible for operating, maintaining, and expanding the Landfill Gas (LFG) Collection and Control System as well as response procedures for addressing fugitive LFG releases. GFL is responsible for managing the waste placement operations, applying and maintaining cover materials within the active waste disposal units, leachate management and disposal/treatment, and operations and maintenance of any odor neutralizing system(s). However, because both stakeholders collaborate on odor mitigation, abatement, and control measures, this Plan utilizes the term "Landfill" to refer to the joint efforts of both parties with respect to addressing potential odors.

The Plan is organized as follows:

Section 1 describes the Landfill, discusses odor perceptions, and cites existing regulatory requirements.

Section 2 describes odor sources and controls as they relate to Landfill conditions.

Section 3 describes strategies for controlling odors, including measures related to the efficiency of the LFG system and the odor neutralizing system (as well as measures unrelated to the LFG and odor neutralizing systems), and best available control technologies and practices.

Section 4 describes odor monitoring procedures, air monitoring procedures, as well as remedial actions and responses associated with the aforementioned monitoring procedures implemented at the facility.

Section 5 describes the management of odor reports, as well as the recordkeeping and reporting practices associated with documenting odor reports.

Section 6 describes the use of air dispersion modeling to assess the potential location and intensity of off-site odors that may be attributed to the Landfill.

Section 7 describes community outreach measures specific to potential detection of odors.

Section 8 lists the recordkeeping procedures implemented by the County and Operator.

1.1 FACILITY DESCRIPTION

The South Wake Landfill is a municipal solid waste (MSW) management facility located on Old Smithfield Road between the town of Apex to the north and Holly Springs to the south, off NC Highway 55. The Landfill is owned by Wake County, North Carolina and operated by GFL. An area map of the Landfill depicting the surrounding vicinity is included in **Appendix A**. The Landfill commenced operations on February 7, 2008 and is being developed in phases. Upon completion, the Landfill is anticipated to have a total footprint of 179 acres and a gross capacity of approximately 31 million cubic yards of waste.

The Landfill has received a Solid Waste Facility Permit-to-Operate for Phases 1A and 1B, which have a waste footprint of 26.2 acres and 20.9 acres, respectively. In April 2015, the Permit-to-Operate for Phase 2A was issued, which represents a waste footprint of 28.1 acres, as well as a Permit-to-Construct for Phase 2B, which consists of 17.8 acres. The site was subsequently permitted for Life-of-Site on December 15, 2017 that includes all remaining Phases (identified as Phases 3, 4 and 5), which consists of 86 acres. During a partial closure project performed in 2017 and early 2018, the slopes of Phase 1A and 1B received a final geomembrane cover system. The capped area covers approximately 20.2 acres in Phases 1A and 1B.

In addition to the Landfill, the County also operates a convenience center, multi-material recycling facility and household hazardous waste facility for citizens to drop off a variety of items for disposal and recycling. Other facilities on the Landfill property include the on-site landfill gas-to-energy (LFGE) power plant owned by Ingenco. The power plant commenced operation in September of 2013 and continuously expands to collect additional LFG as the Landfill matures.

The County owns a closed landfill on the same property as the South Wake Landfill, the Feltonville Landfill, which operated from 1977 to 2004. Adjacent to the Landfill property is a construction and demolition debris management landfill owned by Greenway Waste Solutions. There are other facilities in the general area including two wastewater treatment plants, a land clearing and inert debris landfill, and several closed landfill facilities.

The general surrounding area in the vicinity of the Landfill includes suburban residential properties and the Holly Springs Towne Center shopping center.

1.2 ASSIGNMENT OF DUTIES

Management activities at the Landfill and the corresponding responsible party are listed below in Table 1.

Table 1. Management Activities and Responsible Party

Responsible Party	Management Activity	Notes
Wake County Environmental Director	Environmental Management of County Operations	Both Contracts and Operations. Response to odor concerns.
GFL Regional Manager	Contract Management of the Solid Waste Facility	
Wake County Solid Waste Director	Overall Management of Solid Waste Facility	Both Contracts and Operations

Responsible Party	Management Activity	Notes
GFL General Manager	Management of the Landfill	Response to odor concerns
GFL Operations Manager	Day to Day Management of Landfill Operations	Will implement this plan including daily cover, waste management, odor management systems
Wake County Solid Waste Facility Manager	Quality Control of GFL Operations	Provides liaison for County regarding odor response
Wake County Facility Manager	Air Quality and Landfill Gas Management	Manages landfill gas operations, expansions, and air quality compliance

1.3 METEOROLOGICAL AND TERRAIN CONDITIONS

The nature of the terrain in and around the Landfill property is generally flat and gently rolling, mild variations in slope, with the obvious exception of the slopes that form the waste disposal units and create an abrupt increase in the elevation that constitutes the top of the Landfill. There are valleys to the South and East of the property where the terrain gains elevation with distance from the Landfill. To the North and West of the Landfill, the terrain is relatively flat, with the exception of the closed waste disposal units affiliated with the Feltonville Landfill.

Section 6 of the 2014 odor study presented detailed discussion of wind direction and intensity, as well as atmospheric cooling conditions at the site. Seasonally varying winds significantly impact the dispersion of any odors emitted from the Landfill.

A weather station is located on-site at the Landfill and provides the facility with real-time weather parameters including:

- Barometric pressure;
- Wind direction;
- Wind speed;
- Temperature; and,
- Precipitation.

The weather station data is recorded at approximately one-minute intervals. This meteorological information provides the Landfill with the means for evaluating when meteorological conditions may increase the potential for the surrounding development to detect odors generated by the Landfill and for confirming the validity of odor reports that the Landfill receives from off-site receptors.

1.4 FACILITY PERMITS AND REGULATORY REQUIREMENTS

The following State-Level Permits govern the operations of the South Wake Landfill:

1. The Solid Waste Permit (No. 9222-MSWLF-2008) governs construction and operations at the Landfill. The Landfill may not dispose of hazardous or liquid wastes, and requires a screening program to prevent unauthorized wastes from entering the Landfill. Requirements for waste cover, leachate management, monitoring, and reporting are discussed therein as well.
2. Air Quality Permit: The North Carolina Department of Environmental Quality (NCDEQ) issued Air Quality Permit No. 10114T01 to Wake County on February 11, 2014, which has an expiration date of January 31, 2019. The Facility submitted a Title V Air Permit Renewal with modification Application to NCDEQ on 4/20/18.
3. The North Carolina General Stormwater Permit Certificate of Coverage No. NCG120080.

Routine inspections of the Landfill conducted by representatives of the North Carolina Department of Environmental Quality (NCDEQ) have historically been satisfactory, with no violations or concerns noted by inspectors that visit the Landfill (see **Appendix B** for copies of recent NCDEQ inspection reports).

The Facility acquired an Industrial User Permit from the Town of Holly Springs on July 6, 2007 (Permit No. IUP 001) for the purpose of discharging leachate collected at the site. As a part of the IUP, leachate is analyzed on a weekly basis to satisfy any discharge limitations.

Odor control is addressed in the contract between Wake County and GFL regarding operations of the Landfill. Section 10.21 states that GFL must employ “whatever reasonable means necessary” to mitigate odors. It also discusses the use of daily cover and alternative daily cover, and indicates that any odors related to LFG are to be handled by Wake County.

1.4.1 Regulations

NCDEQ air quality regulations address the control and prohibition of objectionable odorous emissions under 15A NCAC 2D.1806 and there is a procedure for establishing “maximum feasible controls on odorous emissions” outlined in 2D.1807.

A definition of “objectionable odor” is documented in Condition 6 on Page 8 of the South Wake Landfill’s current Air Quality Permit, reflecting some of the language from 2D.1806.

Odor is briefly mentioned in the NCDEQ solid waste regulations (15A NCAC 13B.1600 et. al.), under operational requirements in .1626(2) related to cover material requirements.

2.0 POTENTIAL ODOR SOURCES

The South Wake Landfill is a comprehensive solid waste management facility with multiple potential sources of malodorous emissions, the primary sources being the active working face where waste placement activities occur and the decomposition gases emitted from the buried waste materials. Potential odor sources at the site include:

- The active working face;
- Waste-hauling vehicles;
- LFG fugitive emissions resulting from uncollected landfill gas;
- Leachate management activities and storage tanks;
- Stormwater detention basins;
- Wood waste storage piles;
- Construction activities involving drilling, trenching, or otherwise excavating into waste;
- The waste and recycling drop-off center; and,
- Closed landfill units.

Potential off-site odor sources that are not attributable to the South Wake Landfill operations include:

- The Feltonville Landfill (closed);
- Greenway Solutions C&D Landfill and Compost Facility;
- Holly Springs Wastewater Treatment Plant;
- Apex Wastewater Treatment Plant;
- Application of fertilizer on surrounding properties;
- Currin Bros. Land-Clearing and Inert Debris Landfill;
- Golf course pond located due west in 12 oaks subdivision;
- Residential trash carts;
- Commercial dumpsters;
- BFI-Holly Springs C&D landfill (closed);
- Dixie Pipeline north of the site on 55;
- Propane Trucks Inc. north of the site on 55; and,
- Site development involving mass clearing and grubbing activities.

There are instances where malodorous emissions generated off-site are mistakenly attributed to the Landfill.

2.1 ODOR PERCEPTIONS

Odor perception is by nature subjective. Human ability to detect odors varies by age, sex, health (e.g., illnesses that affect the nasal cavity, such as colds and allergies) and habits (e.g., smoking). Typically, odor is measured by the concentration of a substance at which 50 percent of humans can detect it. This is called an odor threshold.

Odors also vary by distance from the source, through diffusion and weather conditions. Diffusion is the process whereby compounds move from a region of higher concentration to one of a lower concentration. Applying this to human olfactory senses, typically the further away from an odor source a person is, the less likely the individual can detect it.

Conversely, human proximity in the general vicinity of the Landfill (for instance, say less than ½ mile) is likely to occasionally experience malodors, regardless of techniques, strategies, and best management practices employed at the facility to minimize odors. This Plan describes methods and protocols to minimize off-site odors, but close proximity between the Landfill and developed properties and parcels where community members reside and/or congregate will yield the possibility of experiencing occasional off-site malodors.

3.0 STRATEGIES FOR CONTROLLING ODORS

This section addresses various strategies that have been, are currently, or could potentially be implemented and utilized by the Landfill for effective control of malodorous emissions originating from the various odor sources identified in Section 2. The discussion in this section on operational practices and protocols, as well as odor mitigation, abatement, and control measures, is organized to distinguish these strategies and techniques into three categories:

1. Have already been implemented at the Facility;
2. Potential enhancement or expansion of a control measure that has already been implemented (i.e., “do more” of the existing techniques); and,
3. Measures that have not been implemented or executed at the Facility and, therefore, may warrant evaluation and consideration.

A condensed list of these strategies organized as such is provided in **Appendix C**.

3.1 LANDFILL GAS COLLECTION AND CONTROL SYSTEM (LFGCCS)

Installation of an active LFG collection and control system, and maximizing the efficiency of the system which thereby reduces the potential for fugitive LFG emissions through the landfill surface, is one of the most effective odor control measures at landfills.

3.1.1 Strategies Implemented

A primary odor control measure that has been implemented and is currently functioning at the Landfill is the LFGCCS, which commenced operation in 2010. The design, construction, operation, maintenance monitoring, and testing of the LFGCCS is regulated by the various regulatory documents, such as the Landfill’s NSPS Design Plan, Solid Waste Permit, and Title V Air Operating Permit.

The Landfill recognizes that one of the most critical factors in mitigating off-site nuisance odors is the LFG system collection efficiency and effectiveness in reducing fugitive LFG emissions. Thus, a significant portion of the Facility’s odor control efforts are focused on achieving and maintaining a high standard for LFG collection system efficiency.

The network of LFG extraction components (vertical wells and leachate cleanout connections) is a vital part of the functionality of the overall LFGCCS and contributes to controlling odors by collecting LFG generated within the waste mass and routing the LFG to one of the control devices. The LFG is combusted either at the utility flare or the engine generators located in the on-site power plant. Combustion of the extracted LFG at these control devices is the primary means of destroying malodorous compounds present in the LFG.

The LFGCCS components, which enable the system to control odors, are identified in routine reports and documentation submitted to NCDEQ. The design and implementation of the LFG system is discussed further in the LFGCCS NSPS Design Plan (dated 12/29/15). The major system components include:

- **Landfill Gas Wellfield** – The Phase 1A, 1B, and 2A wellfield currently consists of operating vertical extraction wells and leachate cleanout connections. The wells are connected via a network of above grade and below grade HDPE collection piping and the main

header pipes are equipped with butterfly isolation valves. The LFG collection piping transports the LFG from the wellfield to the blower/flare station.

- **Dewatering Pumps** – The Landfill has equipped certain LFG vertical extraction wells with dedicated dewatering pumps to more effectively recover gas from the landfill. This has evolved into a fairly standard practice for landfills throughout the high-precipitation areas of the country (northeast, mid-Atlantic, southeast, and northwest). The removal of liquids that accumulate in the well typically enables increased LFG recovery rates and improved performance. The Landfill routinely evaluates the need to remove or relocate pumps based on field conditions.
- **Automated Wellheads** – The Landfill has been piloting an automated wellhead monitoring system, which is intended to be instrumental in reducing odors by maximizing LFG collection. These wellheads are governed by gas quality/quantity to make adjustments in real time and the Landfill routinely evaluates the operational parameters recorded by the LOCi online data platform.
- **Condensate Management Components** – The LFGCCS utilizes multiple condensate sumps equipped with pneumatic pumps to remove condensate that accumulates at designated low points in the LFG collection piping. The condensate is ultimately conveyed to an above grade storage tank via a network of forcemain piping, where it can be introduced into the on-site leachate management system.
- **LFG Blower/Flare Station** – Up to three centrifugal blowers apply vacuum to the system to extract LFG from the landfill and the blower discharge piping conveys the LFG for combustion at a 14-inch utility flare with a maximum rated capacity of 3,500 cfm (at 50 percent methane). The blower/flare station is equipped with industry-standard instrumentation and controls (pressure transmitter, flowmeter, thermocouples, propane ignition system, programmable logic controller, human/machine interface, datalogger, telemetry for remote monitoring and alarm notification, etc.).
- **LFG Power Plant** – An on-site electrical generation power plant operated by Ingenco under a separate Air Permit, which diverts a portion of the collected LFG from the flares for combustion in engine generators. The LFG power plant provides a benefit by utilizing the potentially odorous LFG to generate electricity that is distributed to the utility's transmission system.

The Landfill conducts routine operations, maintenance, and monitoring of the LFGCCS and these efforts have enabled the system to maintain operational functionality (run time) of approximately 99 percent. Common attributes used to assess the effectiveness of the LFGCCS are described below.

Well Density and Coverage: The Landfill has an extensive wellfield, with an average well density of approximately 1.3 wells per acre, which is conservative by industry standards, and spaced at about 125 to 150 feet apart in areas where filling is inactive. In active cells, the leachate cleanout system is leveraged to collect LFG with wellheads at cleanouts, and wells are installed within select active filling areas.

Well Loss of Depth and Liquid Levels: The Landfill has installed replacement vertical wells when routine monitoring indicates certain wells have experienced a loss of depth, which may contribute to decreased effectiveness and efficiency. Furthermore, the Landfill has installed dedicated wellfield

dewatering pumps in select wells that exhibit elevated liquid levels that block the perforated portions of the well riser pipe.

LFG Collection Pipe Configuration and Sizing: The LFG system collection piping employs multiple redundant loop configurations, along with the prolific use of large (24-inch, 18-inch, and 14-inch diameter) header pipes, which is consistent with best management practices for LFG system design. LFG isolation valves are situated at various pipe junctures so that, in the event of a well or pipe malfunction, parts of the system can be isolated for repairs while maintaining gas collection in the majority of waste mass.

Blower Capacity: Since March 2017, the LFG system has been equipped with three 2-stage centrifugal blowers with variable frequency drives (VFDs) and each blower is rated to handle 2,000 cfm at 60 in-wc vacuum (cumulative blower capacity is 6,000 cfm). The three blowers provide additional redundancy in the event of a malfunction and the cumulative capacity is more than sufficient considering historical LFG recovery rates, which exhibit a maximum LFG flow of approximately 3,000 cfm during 2020.

3.1.1.1 Accelerated Installation of LFG System

The Landfill has historically accelerated the timeframe for installation and activation of LFG infrastructure in new cells compared to the schedule allowed by the air quality permit and air quality regulations. Although the regulations and Facility permit allow the commencement of LFG recovery from a waste disposal unit to occur up to 5 years after initial waste placement if the cell is active (refer to 40 CFR 60.755.b), the Landfill typically initiates LFG collection from a new fill area within 2 years of commencing waste placement operations. While this accelerated timeframe introduces additional operational challenges, increased difficulties to coordinate with waste filling activities, and substantial costs, the Landfill has historically installed and activated LFG system infrastructure in new fill areas well in advance of the schedule prescribed in applicable regulations.

3.1.2 Enhancement/Expansion of Strategies Implemented

Increasing the effectiveness and efficiency of the Facility's LFG collection and control system (via sufficient LFG wellfield coverage, adequately sized piping and mechanical equipment, appropriate condensate management, etc.) is an important aspect of the Landfill's odor mitigation strategy. Accordingly, the Landfill will continue to evaluate the potential to enhance and expand the equipment and infrastructure that comprises the existing LFGCCS. Specific considerations will likely include, but are not limited to:

- **Dewatering Pumps** – The liquid level measurement data for the LFG wellfield will be reviewed periodically. Based on this data, and other data that indicates potential for negative impact and restrictions attributed to elevated liquid levels within the waste mass, the Landfill will assess the potential to install additional dewatering pumps to yield a greater number of dual-extraction components. There may be an opportunity to enhance LFG recovery, and thereby reduce the potential for off-site odors associated with fugitive LFG emissions, by equipping additional vertical LFG extraction wells with dedicated pneumatic dewatering pumps.
- **Sacrificial Vertical Extraction Wells in Active Cells** – While there are substantial challenges and difficulties associated with maintaining the viability and integrity of vertical wells installed within a fill area subjected to continued waste filling operations, the Landfill will assess the potential to install (and subsequently raise) additional vertical

wells within existing and future cells anticipated to receive additional waste lifts. The use of remote wellheads (i.e., the riser pipes penetrate the landfill surface at a different location than the well borehole) will be employed to the extent practical for purposes of avoiding riser pipes being positioned within areas subjected to ongoing and/or future waste placement operations.

3.1.3 Additional Strategies for Evaluation

In addition to a program of continuous evaluation of the potential to enhance and expand the equipment and infrastructure that comprises the existing LFGCCS, the Landfill will also evaluate incorporating other elements into the LFGCCS. Specific considerations will likely include, but are not limited to:

- **Horizontal Collectors** – One potential additional strategy that has been implemented at landfills is the use of horizontal collectors, comprised of perforated piping installed at the landfill surface and surrounded by high-porosity backfill (such as aggregate), which anticipate being buried by additional waste lifts and are connected to the active LFG collection system. These horizontal collectors typically extend to an outer sideslope and penetrate the landfill surface where a wellhead can be positioned without interference to active filling operations. The alignment of these horizontal collectors are typically staggered and usually are sloped to facilitate positive drainage of condensate and/or leachate. In certain instances, the horizontal collector can be connected to perforated piping in a vertical orientation that has been installed via drilling or excavation to expand the zone-of-influence into deeper portions of the waste. The Landfill will assess the potential opportunity to supplement the LFG extraction wells and leachate cleanout connections that comprise the current wellfield with horizontal collectors in portions of the landfill that are anticipated to receive at least 30 feet or so of additional waste. The horizontal collectors may need to be supplemented with installation of traditional vertical wells at some future date.
- **Near-Surface Collectors** – One potential additional strategy that has been implemented at select landfills is the use of closely-spaced, small-diameter, shallow “pin” wells that are connected to the active LFG collection system. These pin wells (also referred to as “impact” wells due to the direct-push manner of installation), are shallow vertical extraction wells. Pin wells have not been employed at the Landfill to date. Other related temporary LFG collection features for odor control include shallow horizontal collectors and shallow excavated vertical wells. The Landfill will assess the potential opportunity to supplement the LFG extraction wells and leachate cleanout connections that comprise the current wellfield with pin wells and other temporary shallow LFG collection features. This assessment will target areas of the landfill surface where prevalent and persistent on-site LFG odors are noted.
- **Augmentation Features for LFG Recovery and Liquids Management** – Landfills throughout the USA have recently explored introducing variations on the configuration of traditional LFG vertical wells and LFG horizontal collectors in an effort to increase LFG collection and facilitate improved liquids extraction from the waste mass. These variations generally involve some augmentation feature associated with the leachate drainage layer or leachate collection piping at the bottom of the cell to provide additional drainage capabilities and typically require multi-stage construction in conjunction with waste filling activities. Some introduce applying vacuum to the perforated piping from

the landfill bottom (rather than via piping installed at the current landfill surface). While there is different terminology to refer to the numerous variations and configurations of LFG extraction and liquids management components that are being installed at landfill facilities, some of the more commonly-used names are:

- LFG aggregate target pile, stone gabion pile, rock points, etc.
- Caisson wells, slip wells, etc.
- Tiered bottom-up wells, upside-down wells, chimney drains, etc.
- Sloped collectors (with or without “just in time” construction)

The Landfill is in the process of introducing these features into Phase 2B, which is being constructed during 2020, for the purpose of improving LFG collection and liquids management from Phase 2B when waste filling activities are occurring at some future date. Based on the performance of these future LFG components, the Landfill will assess the potential to incorporate additional augmentation features in future cells.

3.2 ODOR NEUTRALIZING SYSTEM

Many landfills experiencing persistent odor complaints due to the close proximity of surrounding residential neighborhoods install and operate odor neutralizing systems, which are distinct from the LFGCCS. The odor masking and/or neutralizer products can be applied directly to the waste at the active working face or be dispersed into the atmosphere by fans or a distribution piping system (typically positioned at the perimeter of the cell limits). The odor neutralizing systems are either aqueous-based or vapor-based, and the effectiveness is dependent on the extent of interaction between molecules of the malodorous emissions and the distributed neutralizer product. Odor masking products are dispersed with an intent to supersede landfill-related odors.

3.2.1 Strategies Implemented

The Landfill has installed a Vapor-Phase Odor Control Machine (OCM) and extensive distribution piping network to neutralize odors. The OCM designed by Byers Scientific injects a vapor into the air that contains a blend of essential oils, food grade surfactants, and purified water. The OCM includes a heated 65-gallon capacity deodorizer reservoir, a 480v/3-Phase powered blower capable of producing approximately 42 inches of water-column static pressure, and a weatherproof machine enclosure. See **Appendix D** for more information on the equipment specifications.

The OCM is currently located at the southeast corner of the active Phase 2A area of the landfill with diffuser piping extending approximately 3,400 feet to the north and to the west along the landfill perimeter access road. The OCM is equipped with controls and telemetry that enables remote monitoring of critical operating aspects of the system.

The system operates at full capacity during the opening and closing hours of the landfill working face, when odorous emissions have historically been more prevalent. The system operates at reduced capacity during other times. The duration of full capacity operations is dependent on the odor prediction forecast generated by the on-site integrated continuous dispersion modeling platform (refer to Section 6.0 for a discussion of the Envirosuite package). This information is monitored daily by County staff and adjustments to the unit can be made in real time.

The following additional odor neutralizing products have been tested or are currently being tested at the Landfill:

- **SWAT Mobile Mistig** – The New Waste Concepts (NWC) SWAT Mobile Mistig Platform was evaluated between October 2015 and December of 2015. The mobile misting multipurpose platform sprays wide and has the capability of spraying odorous material coming into a landfill, which cover materials have been shown to suppress volatile organic compounds in not only laboratory conditions but also on USEPA superfund sites that are subject to tight regulatory air emission control. The machine can apply NWC's line of odor combatants topically, as well as mist the products. The misting system uses a hydraulically driven fan assisted rotary head misting system to send either the odor neutralizing products (Odor Sergeant) to combat either acidic or alkaline odors. The system was placed around the site with little effectiveness and the evaluation was discontinued.
- **Odor No More** – Odor No More by Cupri Dyne was used in Posi-Shell since about June of 2019 until recently with the discontinuation of Posi-Shell in July of 2020. The liquid formulation can be mixed with other products or dispersed through oscillating fan systems, vaporization, atomization nozzles, and even sprayed on waste with the compaction equipment.

Paint was mixed with Posi-Shell during the period from the end of 2008 through end of July 2020. Posi-Shell and use of paint were both discontinued as alternate daily cover.

- **Air Diversion Berm** – An air diversion berm was proposed and installed as a combined County and GFL initiative on or about December 2016 and was in place for about 2 years. The concept was to divert wind patterns higher into the atmosphere with the berm. However, the berm encountered a vacuum on the back side of the berm which tended to enhance the odor issue. Once the area was filled, this concept was discontinued.
- **Bio-Organic Catalyst** – An evaluation of the Bio-Organic Catalyst Product is currently being demonstrated at the South Wake Landfill (landfill) in accordance with correspondence with NC DEQ dated February 26, 2020. Bio-Organic Catalyst, Inc. (Bio-Cat) has supplied one of their odor management products labeled “Eco-Cat” to SWLF for use in this demonstration. During this use of the Bio-Cat product, odor observations from site staff, local community groups, and Bio-Cat employees are being received. The observation group includes the communities surrounding the landfill to broaden data. The demonstration period is intended to collect and review odor observations from the neighboring communities around the landfill and to evaluate the effectiveness of this product on reducing odor emissions.

The proposed target product is Eco-Cat, a product made by Bio-Organic Catalyst, Inc. (www.bioorganic.com), that reportedly “*treats hazardous odors (VOC’s) by solubilizing the cellular structure, through the breaking of ester molecular bonds, making these waste components more available to a system’s microorganisms as a carbon food source. The product increases dissolved oxygen (DO) and reduces odors, including hydrogen sulfide (H2S) and, most importantly, will shift the biological conditions that produce odors*”.

The product manufacturer recommends a spray application to effectively coat the waste volume whereby once reactive will require reductions in concentrations to maintain odor mitigating reactions. Two (2) methods of applications are proposed as further described below.

The mist application method would include an agricultural mister system mounted on the back of the compactor (or other suitable equipment) which includes a 55-gallon container and accompanying spray bars applied to the work face. The concentrate would be mixed with water at a ratio of 250:1 (water to concentrate). In general, the application periods would vary throughout the demonstration to occur during morning or mid-day correlating in advance of typical complaint periods. The spray rate is anticipated between $\frac{1}{4}$ to $\frac{1}{2}$ gallons per minute (gpm). The specific method of application, which was recently changed in August 2020, may be amended as appropriate.

The spray application method would include utilization of the hydro mixer unit (without Posi-Shell™ product) and manually spraying over the work face during morning or mid-day correlating in advance of typical complaint periods. The hydro mixer capacity is approximately 2,000 gallons and would be mixed with the same concentrate ratio of 250:1 or as recommended by BioCat personnel. The spray rate is anticipated to be between 10 to 15 gpm.

Evaluation of the demonstration will occur each time an odor application is performed. However, it is noted to best correlate with conditions that result in odor complaints, the demonstration is assumed to occur when wind patterns are southerly in the vicinity of the most affected communities. A Performance Evaluation Form is attached that will be completed by landfill staff before and after each application. The form includes basic weather information, application method, and observer information. The performance criteria include:

- Odor Intensity;
- Odor Description;
- Odor Persistence;
- Application Effectiveness;
- Ease of Operation; and
- Other Information.

3.2.2 Enhancement/Expansion of Strategies Implemented

Increasing the effectiveness and efficiency of the Facility's odor neutralizing system is an important aspect of the Landfill's odor mitigation strategy. Accordingly, the Landfill will continue to evaluate the potential to enhance and expand the equipment and infrastructure that comprises the existing odor neutralizing system. Specific considerations will likely include, but are not limited to:

- Upon completion of the Bio-Cat pilot program, the Landfill will either move to long-term use or explore other products to impact workforce odors while opening and during daily operations. This will depend upon an evaluation of its effectiveness in its ability to reduce odors.

- The Landfill has recently begun utilizing a combination of odor neutralizing products in combination with odor masking agents. The masking agents were introduced to the Landfill beginning in August 2020.
- The established OCM will be relocated as Landfill construction and filling progress to new cells based on continuous assessment of potential effectiveness and most suitable location to achieve optimum mixing with potential malodorous emissions.

3.2.3 Additional Strategies for Evaluation

In addition to a program of continuous evaluation of the potential to enhance and expand the equipment and infrastructure that comprises the existing odor neutralizing system, as well as topical application of other products, the Landfill will also evaluate incorporating other odor neutralizing measures. Specific considerations will likely include, but are not limited to:

- **Odor Boss System** – The site is currently piloting a BossTek Odor Boss System in July and August of 2020. The system uses an Odor Vore Air Treatment product (OB-60G). The Odor Boss OB-60G engineers a vapor that aggressively hunts volatile odorous molecules. This system creates a vapor and oscillating almost 360 degrees with a single air atomizing nozzle (such as a snow blower).
- The Landfill may consider separation and/or treatment of waste streams at transfer stations that receive waste prior to it being delivered to the Landfill for disposal.
- The Landfill may consider maintaining antecedent moisture to interim cover to prevent cracking and/or reduce permeability for cover effectiveness.
- The Landfill may consider applying neutralizing agent to select waste collection and/or transfer vehicles upon entrance to the site.
- The Landfill may consider adding odor masking/neutralizing agent “mistors” on equipment where waste is temporarily stockpiled before it is spread, compacted, and covered.

3.3 LIMIT WORKING FACE OPEN AREAS

The Landfill working face is the location where waste is unloaded or “tipped”, spread, compacted, and covered each day. The width and length of the working face will be maintained as follows:

The current operations manual for the Landfill limits the working face to “as small as practical” but assumes approximately a ½-acre area when operationally possible. With the exception of new cell transitions, placement of final waste lift, or other atypical situations that may periodically arise which warrant multiple active working faces for a limited period of time, only one working face will be active on any given day, with all deposited waste in other areas covered by either daily/periodic, intermediate, or final cover, as appropriate.

The working face will be managed throughout the day during operational hours to enable successful waste placement in the designated area. The staff will work to only open up an area of reasonable size to achieve successful waste placement that allows them to minimize the amount of exposed waste in the evening (generally less than 0.5 acres) that can be covered by additional dirt or by ADC in the form of tarps.

In the future, the Landfill may consider methods of increasing air flow at the working face, with technologies such as race track driers and/or drones.

3.4 COVER MATERIALS

3.4.1 Daily/Intermediate Cover

At the completion of waste placement each day, a six (6) inch minimum layer of earthen material or approved alternate daily cover (listed below) will be placed over the working face. This daily cover is intended to control vectors, fire, odors, and blowing litter.

The following alternate daily covers (ADC) have been approved by the DWM (see specifications for each in **Appendix E**):

- Posi-Shell™ - Discontinued utilization in July of 2020
- Tarpomatic.

Tarps would be applied over the working face, covering all exposed waste, following daily waste placement and compaction. Tarps will be inspected during application for tears, excessive wear or other impediments that may degrade their effectiveness. If the tarps are unable to perform as designed by the manufacturer, they will be either repaired or removed from service.

A 12-inch layer of soil cover should be placed on all waste surfaces that have not received waste in 30 days but are below final elevation. This intermediate cover should be seeded or mulched immediately and graded such that all precipitation run-off is channeled to the surface water systems.

3.4.2 Interim Cover

The Landfill may elect to install an interim cover system to manage stormwater infiltration, soil erosion, fugitive LFG emissions, and odors. Enhanced interim covers generally are comprised of fine-grained soils, compacted clay covers, geosynthetic covers, or artificial turf systems.

Enhanced soil covers use the natural properties of the soil to reduce infiltration as well as improving soil filtration of emissions. Other covers may include use of geosynthetic combinations such as an exposed thin geomembrane or other proprietary products such as ClosureTurf® which comprised of a textured geomembrane overlain by an engineered synthetic turf and specified infill material, or Solmax's LiteEarth™ monolithic geosynthetic cover. These are "hybrid" composite closure systems.

3.4.3 Final Cover

Installation of the final cover system will commence within the timeframes stipulated in the Closure Plan which is part of the Landfill's Solid Waste Permit. The methods utilized in the design and construction of the Landfill's final cap are explained in Section 4.b of the Closure Plan. The Landfill may consider accelerating the schedule for commencement of a final cover system, as one potential odor mitigation strategy.

3.4.4 Strategies Implemented

- **Daily/ADC/Intermediate Cover** – The Landfill recently executed a pilot study demonstration of the Rusmar ADC, however it was deemed ineffective and the practice was discontinued.

- **Interim Cover** – No interim cover has been installed to-date.
- **Final Cover** – During a partial closure project performed in 2017 and early 2018, the slopes of Phase 1A and 1B received a final geomembrane cover system. The capped area covers approximately 20.2 acres in Phases 1A and 1B. This area of final cover is an example of the accelerated schedule of final cover placement.

3.4.5 Enhancement/Expansion of Strategies Implemented

- **Daily/ADC/Intermediate Cover** – Although approved as a proper form of ADC, the Landfill has discontinued the use of Posi-Shell and plans to use more soil and tarps moving forward. However, the Landfill will continue to evaluate any other technologies that can assist with odor mitigation efforts.
- **Interim Cover** – No interim cover has been installed to-date
- **Final Cover** – The Landfill is evaluating continued accelerated application of final cover. The Landfill is assessing the potential to commence a partial closure project on the southern slope of Phase 2A within the next several years or so. Similarly, the potential to install final cover on an additional portion of the top area of Phases 1A and 1B will likely be assessed within the next several years or so.

3.4.6 Additional Strategies for Evaluation

If the Landfill should desire to use an alternate daily cover, a formal request and an appropriate demonstration will be made to the NCDEQ Division of Waste Management (DWM). Other ADC materials may be used upon successful demonstration by the Landfill and approved by the DWM.

- **Daily/Intermediate Cover** – No additional strategies at this time.
- **Interim Cover** – The Landfill may consider the following interim cover types:
 - Geosynthetic Rain Cover (GRC): GRC consists of a thin geomembrane and weighted by sandbags or the wind defender product. The GRC could assist with additional LFG capture and collection but should be evaluated for effectiveness, longevity, impact to stormwater systems, and impacts to landfill gas system operations.
 - Exposed Geomembrane Cover (EGC): EGC consists of more robust geomembrane for longer-term exposure.
 - ClosureTurf: ClosureTurf is a patented, three-component system comprised of a structured geomembrane, an engineered turf, and a specialized sand infill. It is an EPA, Subtitle D Compliant landfill closure solution that is specifically designed to address and solve soil erosion, slope integrity, gas emission, installation and maintenance cost control, EPA regulation compliance, and longevity of structure and appearance. ClosureTurf should be evaluated in conjunction with final cover as a means to allow natural landfill settlement before a final cover is placed. Similar products, such as LiteEarth, may also be considered.
- **Final Cover** – No additional strategies are likely to be evaluated for implementation.

3.5 CURTAILED RECEIPT OF HIGH-ODOR CONTAINING WASTE MATERIALS

3.5.1 Strategies Implemented

Waste transportation vehicles will arrive at the working face at random intervals. There may be a number of vehicles unloading waste at the same time, while other vehicles are waiting. In order to maintain control over the unloading of waste, a certain number of vehicles will be allowed on the working face at a time. This procedure is used in order to minimize the potential of unloading unacceptable waste and to control disposal activity. Waste unloading at the landfill will be controlled to prevent disposal in locations other than those specified by site management. Such control will also be used to confine the working face to a minimum width yet allow for safe and efficient operations.

The Landfill conducts routine and random inspections of incoming waste loads in accordance with the provisions of the Operations Manual. The Facility maintains records of these waste inspections, and the inspection form completed during these inspections. These forms also document the inspector's perception of odors emanating from the waste materials.

The Landfill has historically not accepted sludge or biosolids from wastewater treatment plants due to the odor generation potential associated with such materials, and typically refuses to accept construction and demolition (C&D) wastes and special event waste from the City of Raleigh for purposes of odor mitigation.

3.5.2 Additional Strategies for Evaluation

The Landfill may consider identifying and tracking high-odor wastes and, specifically, high-sulfur containing wastes during these inspections. High sulfate wastes are usually responsible for producing high levels of hydrogen sulfide (H₂S) in LFG. By not accepting such wastes, the Facility can reduce the potential for elevated H₂S levels and this will contribute to a reduction in odors.

An example of high-odor waste is wastewater biosolids (e.g., sludge), and an example of high-sulfur waste is pulverized gypsum drywall. Upon noticing such waste materials, the Landfill may reduce the quantities of these wastes accepted at the Facility or may notify customers not to send such waste. This does not prohibit the receipt of other sludges or ordinary C&D wastes that are not screened and/or ground. The Facility shall maintain records of customers identified as generating high-odor and high-sulfur wastes and the frequency of inspections for these customers will be increased above the minimum frequency.

The Landfill may also consider instituting a requirement that certain wastes be containerized by the generator or hauler before accepting them at the facility.

3.5.3 Special Wastes

In general, special wastes are not accepted at the Landfill. Currently, there are a few waste streams that are acceptable by regulation but are managed in a manner that reduces the impact on operations, odors, and worker safety. In the event a special waste is being considered, a rigorous process to evaluate the potential waste is required. The process includes evaluation of various properties including impact on operations, potential hazardous criteria, odor potential, and geotechnical characteristics. In the event a special waste is approved, the evaluation will provide

criteria for acceptance. Examples of included criteria are provided below for other waste streams allowed by regulation.

3.5.4 Sewage Sludge Management

Sewage sludge may be accepted for disposal within the Landfill in accordance with Federal and State requirements. Sewage sludge will be co-disposed along with other wastes if the sludge passes the liquids restriction criteria (i.e., the Paint Filter Test) and has an acceptable Toxicity Characteristic Leaching Procedure (TCLP) test. Sewage sludge may not exceed 1 percent of the daily waste quantities to minimize impacts on both odor and waste properties.

The Landfill voluntarily does not accept this type of waste due to potential odor considerations. The Landfill does receive some of the headworks waste (grit chamber and screenings) from a wastewater plant in Wake County but does not receive sewage sludge.

The practice of not accepting sewage sludge or biosolids does not affect the ability for the facility to utilize composted materials as a soil conditioner incorporated into the vegetative soil layer of the final cover or as daily/ADC/intermediate cover materials.

3.5.5 Spoiled Food and Animal Waste

As of July 2020, there are no specific protocols for the handling of food and animal wastes. In the future the Landfill may consider the following items regarding the disposal of spoiled foods, animal carcasses, and other animal wastes.

- Requiring generators of the material to call in advance to the landfill, and a determination will be made as to whether or not the waste will be accepted.
- If the waste is approved, require the generator to present the waste at a predetermined time.
- Preparing an area for disposal before the waste arrives and/or covering it immediately after placement.

3.6 LEACHATE COLLECTION, STORAGE, AND TREATMENT

The leachate management system for the Landfill consists of the Leachate Collection System (LCS), the leachate transmission piping, pumps, valve boxes, valves, the existing leachate storage tank.

Leachate from the landfill is collected in the leachate sumps at the low end(s) of each cell, phase, or sub-phase. Leachate collected in each sump is pumped to the leachate storage tank via a HDPE force main. At the storage tanks, aeration and mixing occurs to manage ammonia levels. From the storage tanks, the leachate is directly discharged into the Holly Springs sewer system via a manhole located near the southwest corner of Phase 1A per an Industrial User Permit with the Town of Holly Springs publicly owned treatment works (POTW). Trucking to an alternate POTW may be used if the Town of Holly Springs is unable to receive leachate. Refer to the appropriate permit application for a detailed discussion and details of the leachate management system.

The operation and maintenance (O&M) of leachate pumps and the storage tanks will be in accordance with the appropriate manufacturer's recommendations. The Operator or his designee will be responsible for following and documenting, as required, these activities.

3.6.1 Strategies Implemented

The leachate storage tank is covered to minimize impact of storm water and to manage potential odor. The tanks are mixed and aerated to maintain certain pre-treatment and discharge standards, which is anticipated to reduce potential odors by converting ammonia to nitrate, but the mixing operations may exacerbate odors.

3.6.2 Additional Strategies for Evaluation

The Landfill may consider prevention of liquid infiltration with specialized filling practices to promote storm water separation and runoff.

3.7 DISPOSAL CELL CONSTRUCTION

As the Landfill develops, new disposal areas are constructed, which includes installation of a liner system in accordance with the requirements of the Facility's Solid Waste Permit. Portions of the new liner system may require "tie-in" to an existing liner system, which requires exposure of the existing liner system and can sometimes involve exposure or relocation of buried wastes. The tie-in process may be a source of odor.

3.7.1 Strategies Implemented

The following measures will be implemented to minimize odor associated with the liner tie-in process:

- Uncovering of the existing liner directly prior to the tie-in, which limits the time of exposure.
- Use of a sacrificial flexible membrane liner flap on liner edges that require a future tie-in.
- The flap can be folded over to encapsulate the geocomposite and sand/aggregate drainage layers of the existing liner system, which are porous layers more likely to release odor.
- Connection of leachate system components, such as sideslope riser pipes and cleanouts, to the landfill gas collection system.
- Topical application of odor neutralizing products to the tie-in area.
- LFG collected outside of NSPS areas are routed to solar powered passive vent flares for destruction.
- A passive LFG collection system is placed along the tie-in or the anchor trench during construction to intercept LFG migrating in the lowest waste lift and along the bottom liner from the existing cell and routing it to a passive vent flare for destruction.

Other efforts include monitoring of perimeter air emissions with field instrumentation to identify areas of concern and implementing corrective actions with soil cover or plastic covers.

3.7.2 Enhancement/Expansion of Strategies Implemented

Starting with the construction of Phase 2B in 2020 and 2021, the Landfill is incorporating design elements intended to increase the effectiveness of the LFGCCS, listed below:

- **Vertical Well Targets** – Piles of stone are placed at strategic locations above the liner before waste placement. When the cell is filled with waste, the piles will be targeted by vertical wells. The stone facilitates the flow of liquids into the leachate collection system at the bottom of the landfill, freeing the slotted pipe of vertical wells to collect gas.
- **Horizontal Slope Collectors** – Branches of slotted horizontal collector pipe are placed on the slope of an adjacent landfill cell, connected to the leachate collection system in the new cell, acting as an extended leachate cleanout connection for the LFGCCS as the new cell is filled with waste. During the filling process, solar spark passive vent flares will be attached to combust collected gas until a height is reached in the new cell that the horizontal slope collectors can be connected to the LFGCCS.

3.7.3 Additional Strategies for Evaluation

The Landfill may consider implementing LFG or ambient air monitoring protocols during cell construction to detect fugitive LFG emissions and/or odors.

4.0 MONITORING AND REMEDIATION

This section discusses various monitoring, sampling, and testing programs, specifically procedures that constitute landfill gas monitoring, odor monitoring, air monitoring and cover integrity monitoring. This section also addresses the typical investigation/troubleshooting practices, as well as remedial and corrective actions, that are employed in response to these monitoring programs (or in response to odor report notifications. For purposes of this Plan, the following terms are defined below:

- “LFG monitoring” refers to sampling of LFG captured by the collection and control system (such as at the wellhead or blower/flare station);
- “Odor monitoring” refers to personnel using their olfactory senses to identify the character and intensity of odors; and,
- “Air monitoring” refers to sampling activities that measure concentrations of LFG-related chemical constituents in ambient air. Both odor monitoring and air monitoring may occur within the landfill facility boundary (“on-site”) and/or in surrounding communities (“off-site”).

4.1 LANDFILL GAS MONITORING

4.1.1 Monitoring Programs Implemented

The Landfill is required to conduct LFG extraction well monitoring at the NSPS-compliant wellheads on a monthly basis in accordance with 40 CFR 60.753(c), 60.755(a)(3) & (5). Although the regulations only require measurements be recorded for pressure, oxygen concentrations, and temperature, the Landfill records measurements for methane, carbon dioxide, balance gas, system pressure, and flow at the wellhead. Records of the monitoring results are maintained at the facility for at least 5 years and submitted to NCDEQ on a semi-annual basis in accordance with the Title V air permit.

The Landfill is required to measure and record LFG quantities (flowrate) conveyed to the flare and power plant, as well as temperature (or presence of flame) at the flare on a 15-minute interval. In addition, the LFGCCS records composite LFG composition at the blower/flare station via a methane analyzer and records vacuum at the blower inlet via a pressure transmitter, along with various other operational parameters.

There are several automated data recording systems for the LFGCCS, including the LOCi automated wellhead online platform, the Brainchild datalogger, the Automations Direct PLC/HMI, and the power plant SCADA system.

The landfill is required to perform quarterly migration probe monitoring at permanent gas probes (MG-1 through MG-3 and MG-24 through MG-26) located around the perimeter of the landfill. This monitoring is performed in accordance with 15A NCAC 13B.1626(4).

4.1.2 Additional Monitoring Programs for Evaluation

The Landfill may periodically obtain a sample of the composite LFG from the blower/flare station (or from select wellheads) and analyze the sample to measure certain chemical compounds if the information is warranted to assess existing or proposed odor mitigation, abatement, and control

practices. The sampling locations, procedures, and analytical methods will be established by the Landfill prior to field sampling based on the specific objectives for the additional monitoring efforts.

4.2 ODOR MONITORING

4.2.1 Monitoring Programs Implemented

Odor monitoring is conducted on-site by Landfill personnel during daily operations using olfactory senses. Furthermore, the Landfill periodically utilizes personnel who do not work on the Landfill site on a daily basis (who are not potentially “desensitized” to odors related to refuse and landfill gas) to conduct off-site odor monitoring based on the frequency and severity of odor reports. The Operations Manager or designee is notified if detectable and objectionable odors are identified at the Facility or off-site so that response procedures can be implemented. This odor monitoring is ongoing and an integral part of the overall odor mitigation program.

Odor monitoring will be conducted routinely each day by onsite staff. When an atypical number of odor reports are received in a single day, Landfill personnel will conduct a documented evaluation of the site to investigate potential causes. The current threshold for initiating a documented site odor evaluation is receipt of 24 or more odor reports within a 24-hour period or receipt of 10 or more reports within one hour. A sample Site Odor Evaluation Form is provided in **Appendix F** of this Plan.

4.2.2 Additional Monitoring Programs for Evaluation

The Landfill will periodically assess whether additional odor monitoring efforts may be beneficial to assess specific potential odor sources at the Facility and to assess the effectiveness of current and future strategies for controlling odors. Examples of additional odor monitoring activities that will be periodically evaluated for implementation include, but are not limited to:

- An assessment of the LFG well riser pipe penetrations for odor intensity on a periodic (annual or semi-annual) basis. During such an assessment, odor intensity would be evaluated and recorded for each penetration location using olfactory senses. Pipe penetrations that exhibit an odor intensity that is characterized as moderate to strong would be marked and follow-up air monitoring for certain chemical compounds (such as CH₄ or H₂S) would be conducted with a field gas analyzer. The Landfill would implement corrective action at those well riser pipe penetrations where CH₄ or H₂S concentrations exceed a certain threshold concentration. The nature of the corrective actions may involve wellhead adjustments, cover integrity improvements, or other activities intended to improve well performance at the discretion of the County and GFL (see Section 4.5).
- An assessment of certain loads of waste being delivered and unloaded at the Landfill for odor intensity on a periodic (monthly or weekly) basis. During such an assessment, odor intensity would be evaluated and recorded for the subject loads using olfactory senses. Waste loads that exhibit an odor intensity that is characterized as moderate to strong would be treated with an odor neutralizing agent prior to, or in conjunction with, being spread, compacted, and covered. This assessment and treatment activity could also occur at the site of origin, such as a transfer station.
- Similar assessments of odors associated with leachate pumping and handling operations and other site activities may also be considered.

4.3 AIR MONITORING

4.3.1 Monitoring Programs Implemented

The Landfill is required to conduct Surface Emissions Monitoring (SEM) using a flame ionization detector (FID) to record concentrations of methane at the landfill surface on a quarterly basis. This monitoring is performed in accordance with the requirements of 40 CFR 60.755(c) and (d), and 40 CFR 60, Appendix A, Method 21. The Landfill is required to perform corrective actions at locations that exhibit methane concentrations greater than the regulatory threshold value. Records of the monitoring results are maintained at the facility for at least 5 years and are submitted to NCDEQ on a semi-annual basis in accordance with the Title V air permit.

The Landfill has historically implemented periodic voluntary SEM monitoring in the general vicinity of select portions of the waste mass that are not subject to the air quality regulations in an effort to identify areas that warrant improved cover integrity or other odor mitigation efforts.

The Landfill has installed and operates multiple “Ambient eNose Odor Sensor” units positioned at the perimeter of the Facility as part of the Envirosuite system (refer to Section 6.0). The exact specification for this instrumentation is proprietary, but is likely comprised of a series of electrochemical sensors calibrated to measure certain chemical constituents. While the specific values are not reported, the inputs are utilized by the Envirosuite platform to evaluate the potential likelihood for the occurrence of odors at the Facility boundary.

4.3.2 Additional Monitoring Programs for Evaluation

The Landfill will periodically assess whether additional air monitoring efforts may be beneficial to assess specific potential odor sources at the Facility and to assess the effectiveness of current and future strategies for controlling odors. Examples of additional air monitoring activities that will be periodically evaluated for implementation include, but are not limited to:

- Conduct voluntary SEM monitoring events utilizing an FID to measure methane concentrations on a more frequent basis than required by the Facility’s air quality permit (i.e., monthly) in the general vicinity of select portions of the waste mass that comprise specific target areas based on the previous quarterly SEM event. The locations to be targeted for these monthly SEM events would be areas where methane concentrations recorded during the quarterly SEM events exceeded 300 ppm. The Landfill would implement corrective actions at locations that exhibit methane concentrations greater than the regulatory threshold value. The intent of this monitoring is to perform a more thorough investigation of these specific SEM exceedance target areas at a higher sampling frequency to optimize corrective actions on any additional exceedances identified in the specific target area in order to reduce overall surface fugitives and malodorous emissions in subsequent quarterly SEM monitoring events.
- Conduct voluntary SEM monitoring events utilizing an FID to measure methane concentrations within non-NSPS cells on a quarterly basis. The Landfill would implement corrective actions at locations that exhibit methane concentrations greater than the regulatory threshold value even though these fill areas are not yet subject to the air quality regulatory requirements.

- Conduct voluntary SEM monitoring events utilizing a FID to measure methane concentrations in the general vicinity of the LFG well riser soil/pipe interface to assess fugitive LFG emissions on a periodic (annual or semi-annual basis). All LFG well riser soil/pipe interface locations that exhibit methane concentrations greater than 500 ppm above background would undergo corrective actions, which may include wellhead valve adjustments, additional compacted soil, geomembrane borehole skirts, and/or foam seal. Well riser soil/pipe interface locations that exhibit greater than 500 ppm methane would be remonitored subsequent to corrective actions.
- Conduct air monitoring at select on-site locations, such as the active operations area. The air monitoring procedures may utilize field instrumentation or involve obtaining ambient air samples via summa canisters (or tedlar bags or other suitable sampling techniques) and laboratory analyses for appropriate constituents at the discretion of the Landfill. The sampling locations, procedures, and analytical methods will be established by the Landfill prior to field sampling based on the specific objectives for the additional monitoring efforts.
- Conduct air monitoring at select off-site locations within the neighboring residential communities and commercial areas. The air monitoring procedures may utilize field instrumentation or involve obtaining ambient air samples via summa canisters (or tedlar bags or other suitable sampling techniques) and laboratory analyses for appropriate constituents at the discretion of the Landfill. The sampling locations, procedures, and analytical methods will be established by the Landfill prior to field sampling based on the specific objectives for the additional monitoring efforts.

4.4 COVER INTEGRITY MONITORING

4.4.1 Monitoring Programs Implemented

Closed areas will be monitored for a minimum of 30 years after complete facility closure. Inspections of closed areas will be scheduled to verify the integrity and effectiveness of the final cover system, surface water systems, groundwater monitoring system, landfill gas system, and to protect human health and the environment.

Inspections to be conducted by the County during the post-closure care period will occur regularly as shown below in Table 2.

Table 2. Closure Inspection Frequencies

Inspection Activity	Frequency
Vegetative Cover Condition	Quarterly ¹
Surface Water Systems	Quarterly ¹
Erosion Damage	Quarterly ¹
Cover Drainage System	Quarterly ¹
Cover Settlement, Subsidence, and Displacement	Quarterly ¹

Inspection Activity	Frequency
Landfill Gas System	Quarterly ²

Notes:

1. These items will be inspected after each large storm event (i.e., ≥ 1 inch in any 24 hours).
2. Or in accordance with the current Landfill Gas Management Plan or air quality permit(s).

Closure areas will be checked to ensure that the integrity of the final cover system is maintained, erosion damage is repaired, vegetative cover persists, and that cover settlement, subsidence, and displacement are minimal. A report of findings will be made to the responsible party, including recommendations for actions deemed necessary to ensure the site continues to meet the closure performance standard.

4.4.2 Additional Monitoring Programs for Evaluation

The Landfill will periodically assess whether additional cover integrity monitoring efforts may be beneficial to assess specific potential odor sources at the Facility and to assess the effectiveness of current and future strategies for controlling odors. Examples of additional cover integrity monitoring activities that will be periodically evaluated for implementation include, but are not limited to:

- The Landfill may consider monitoring as an additional means of assessing cover integrity, using the same response measures in areas exhibiting increased pressure as with other cover integrity issues. The monitoring locations, equipment, and procedures will be established by the Landfill prior to implementation based on the specific objectives for the additional monitoring efforts.
 - The monitoring protocols in Table 2 may be extended to interim cover areas.
 - Current final cover monitoring frequency may be increased.

4.5 REMEDIATION AND CORRECTIVE ACTIONS

When an “exceedance” is measured during the mandatory LFG or air monitoring tasks listed in this section, corrective actions are implemented as prescribed by the regulatory requirements and/or permit provisions. When odor monitoring activities, or non-mandatory LFG or air monitoring tasks, identify odors characterized as moderate to strong or identify an “exceedance” of an established threshold, which suggests that remediation and corrective actions are warranted, typical actions that may be implemented include, but are not limited to:

- Reduce the dimensions of the active working face
- Perform cover integrity improvements, such as additional soil cover
- Add Bio-Cover (mulch or compost)
- Make adjustments to the LFGCCS to increase applied vacuum to the area (localized)
- Make adjustments to the odor neutralizer system to increase product distribution
- Increase application of topical odor neutralizing product
- Consider temporary or permanent cover systems
- Lab testing to attempt to identify odor-causing agents
- Locating specific odor sources, with olfactory senses or detection equipment
- Adding staff to manage odor concerns

5.0 ODOR REPORTS

Odors may be reported by any County resident through an online odor reporting tool offered by Envirosuite (see example format in **Appendix G**). With the link provided on the Wake County Website's South Wake Landfill page, a reporter may provide their name, contact info, odor type, location and time. Once the odor report is submitted, the Envirosuite software sends a notification to the reporter that the report has been received and the County's response procedure begins.

5.1 ODOR RESPONSE PROCEDURES

The first step in the County's response to an odor report is a validation review. Within approximately two hours, Envirosuite has recorded weather data for the time of the odor report and runs a "backtrack model" showing the path of ambient air within an hour of the time listed in the report overlaid on an aerial image. County staff reviews the backtrack model, and, if the path alignment is positioned within 0.5 miles of the Landfill, it is considered valid. When a report is deemed invalid, the County sends an email to the reporter with a copy of the backtrack model, explaining why the odor is most likely not originating from the Landfill (see sample text in **Appendix H**).

Valid reports are used to evaluate the effectiveness of various techniques that are applied as well as provide for presentation to the community. All odor reports are summarized and discussed during monthly operations meetings between the County and GFL. Note that during September 2020, an additional feature is being built into the Envirosuite model such that both valid and invalid odor reports will get a response showing the backtrack model with some explanation of the determination(s).

During periods when a significant number of odor reports are being received by the online odor reporting tool, Landfill personnel investigate to confirm that the odor mitigation and abatement strategies and practices identified in this Plan are being implemented and that control systems are functional. Examples of such conformational activities include:

- Verifying the LFG collection and control system is operating in a typical manner;
- Verifying that the OCM is operating in a typical manner;
- Assessing the size and position of the active working face;
- Verifying that application of cover materials is being accomplished in a typical manner;
- Verifying that leachate management system is operating in a typical manner; and,
- Conducting a site reconnaissance for atypical conditions that may be present.

To advance the odor response process further, the Landfill is planning to develop a response action form. The form would provide the Landfill with a list of potential odor sources to check and identify, and space to document an action such as a short term repair or a longer term recommendation. A follow-up may also be documented to evaluate status of a resolution.

6.0 AIR DISPERSION MODELING

The Landfill submitted its most recent Air Dispersion Model Report (dated 4/20/18) with its Title V Permit Renewal Application. The Landfill considers the air modeling results to satisfactorily demonstrate compliance with 15A NCAC 2Q Section .0711. The Permit Renewal Application is currently being reviewed by NCDEQ and additional air dispersion modeling will be conducted as required by air quality regulatory requirements in accordance with protocols established by NCDEQ.

In 2020, Wake County implemented a comprehensive platform distributed by Envirosuite to provide real-time management of potential odors associated with the Landfill. The Envirosuite system consists of the following elements:

- Continuous odor monitoring via multiple “Ambient eNose Odor Sensor” units positioned at the perimeter of the Facility. Envirosuite documentation indicates that the eNose sensor is a continual air-sampling device that measures and analyses chemical concentrations to determine levels of odor risk in the ambient environment. Rather than an output value in Odor Units (OUs), these sensors provide an indicative intensity value (on a scale of 1 through 4) that may be configured according to site-specific circumstances.
- Automated air dispersion modeling software, which according to Envirosuite documentation enables real-time prediction of impacted areas downwind of the Landfill as well as forecast of the “odor risk” of potential impact areas over the next few days to inform odor mitigation planning.
- An incident management system that serves as an online odor reporting tool linked to a mobile App to collect field data for faster and more accurate investigation of odor reports from the surrounding community.

The dispersion modeling of atmospheric emissions on the Envirosuite platform, which evaluates the manner in which contaminants disperse around the Landfill, is based on the CALPUFF model. The model considers the topography and terrain in the vicinity of the Landfill and the on-site weather station data. Weather data is processed in the CALMET meteorological model. The output given by CALMET is then used as an input for CALPUFF. A receptor grid (square 10 km by 10 km with a spacing of 100 m) is used to cover the study domain. Concentrations in ambient air are calculated at each node of the receptor grid at ground level. The software then displays concentration isopleths with a specific color-code. The lowest concentration shown is 1 odor unit per cubic meter. Specific receptor points, called alert points, that allow continuous monitoring at a specific location have been added to the platform. The site-specific modeling input parameters are documented in a memorandum, dated 10/22/2019.

The models are updated hourly with weather data collected at receptor points strategically placed on the Landfill property and the prediction and forecast outputs, as well as the incident management system, can be accessed by County personnel. This modeling performed by the Envirosuite platform is non-regulatory and is intended as a voluntary exercise that is useful in assessing the magnitude and direction of potential odors that may be affiliated with the Landfill. This enables Landfill staff to focus implementation of odor mitigation efforts on targeted areas of the Landfill.

One advanced technique in assessing odor impacts from industrial facilities is the use of a “tracer” study, which can be useful to isolate specific sources, define the source/receptor relationship, define

the strength of a particular source, and define dispersion rates. At this time, the Landfill does not believe performing a tracer study that involves introducing and recovering tracer compounds is warranted. However, the Landfill will maintain vigilance in understanding how tracer studies or other advanced techniques in dispersion meteorology and air monitoring systems could be incorporated in the future, if deemed appropriate.

7.0 COMMUNITY OUTREACH

The County reaches out to the local community through the following channels:

- **Facility Tours** – Through the Wake County website, a tour of either the Landfill or the Sonoco Materials Recovery (Recycling) Facility can be scheduled up to 6 months in advance. The tour lasts one hour in a bus provided by the County, at no charge.
- **South Wake Landfill Citizens Committee** – Established before construction of the landfill in 2006, the South Wake Landfill Citizens Committee (Citizens Committee) meets twice per year. The Citizens Committee is intended to be a place where citizens and County staff can interact and share perspective.
- **Nextdoor** – The County’s communications team regularly uses the Nextdoor app to distribute information to specific communities. In relation to the Landfill, the County promotes landfill tours and Citizens Committee meetings.

In the future the County is considering expansion of communications through one or more of the initiatives listed below:

- **Notification of Landfill Activities** – Notification of Landfill activities may be added to this platform to both alert citizens to potentially odorous activities and, when applicable, explain the beneficial outcomes (e.g., improved gas collection as a result of drilling new wells). The County is also considering automatic notifications for certain events at the Landfill.
- **Additional Citizens Committee Meetings** – The County may consider increasing the frequency of these meetings to encourage more consistent communication between parties.
- **Publicity for Odor Reporting App** – The County can expand awareness of the Odor Reporting App by promoting it on County publications.
- **HOA Meetings** – Both the County and GFL have expressed willingness to attend homeowner’s association (HOA) meetings to provide more information about the Landfill. The County may consider approaching HOAs to spread the word.
- **Topical Tours** – Moving forward, the County may consider creating a tour to address odors specifically, and may market this tour to target groups such as odor reporters, homeowner’s associations, and members of local government.
- **Landfill Video Tour** – In response to COVID-19 social distancing measures, the County is producing a video tour of the landfill that will include information about operations and odor mitigation efforts.
- **PR Firm Review** – The County is actively pursuing the assistance of a communications/PR firm to assist and help make recommendations for the County’s outreach activities.

8.0 RECORDKEEPING AND REPORTING

Records maintained by the County and GFL include the following:

- **Odor Reports** – All odor report forms and other documentation mentioned as part of this Plan are maintained on-site for a minimum of 5 years. These documents are readily available for inspection by authorized Federal, State, or Local officials when necessary.
- **Odor Response and Remediation Efforts** – All records of odor response and remediation efforts mentioned as part of this Plan are maintained on-site for a minimum of 5 years. They are also reviewed at the Monthly Operations Report meetings between the County and GFL.
- **Regulatory Monitoring Results** – Reports and notes pertaining required methane SEM monitoring, wellfield monitoring, and probe monitoring are maintained by the Landfill for a minimum of 5 years.
- **Voluntary Monitoring Results** – Results from voluntary monitoring events will be maintained by the Landfill for a minimum of 5 years.

The Operator will maintain the following records in an operating record at the landfill:

- A. Current permit(s) (Permit to Construct, Permit to Operate, etc.);
- B. Current operations manual/plan and engineering plan;
- C. Inspection reports;
- D. Audit and compliance records;
- E. Annual landfill reports (including survey and other documentation related to airspace usage);
- F. Waste inspection records (see **Section 2.4.1**);
- G. Daily tonnage records and disposal records maintained at the scalehouse - including source of generation;
- H. Waste determination records;
- I. Quantity, location of disposal, generator, and special handling procedures for all special wastes disposed of at the site (if applicable);
- J. List of generators and haulers that have attempted to dispose of restricted wastes;
- K. Employee training procedures and records of training completed;
- L. All ground water monitoring and surface water quality information (See the current **Water Quality Monitoring Plan**) including:
 - 1. Monitoring well construction records;
 - 2. Sampling dates and results;
 - 3. Statistical analyses; and,
 - 4. Results of inspections, repairs, etc.
- M. LFG monitoring results and remedial measures as required (see the current **LFG Monitoring Plan**);
- N. All closure and post-closure information, where applicable, including:
 - 1. Notification of intent to close;
 - 2. Testing;
 - 3. Certification; and,
 - 4. Recording.
- O. Cost estimates or financial assurance documentation;

- P. A notation of the date of final cover placement;
- Q. NPDES records (see **Section 3.2.6**);
- R. Leachate records (see **Section 3.3.4**); and,
- S. Documentation of cell activation (see **Section 2.5.4**).

The operating record will be kept up to date by the Operator or his designee. It will be presented upon request to the DWM for inspection.

8.1 ASSESSMENT OF OMCP MEASURES

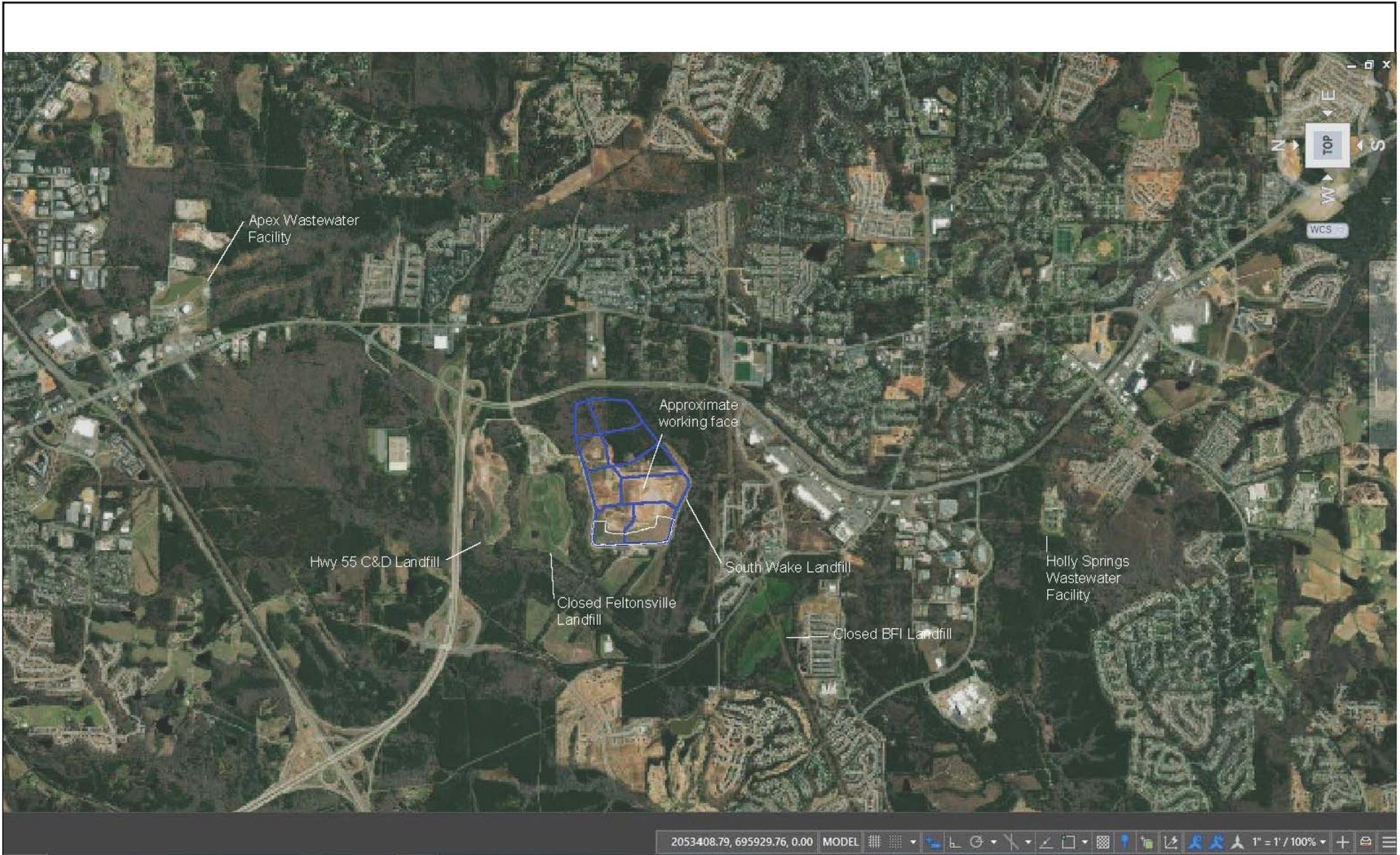
The following performance standards and verification procedures will be used to guide the implementation of new initiatives. The objectives of OMCP initiatives will be as follows:

1. Minimize odor migration from the landfill;
2. Identify sources of odor;
3. Implement remedial strategies;
4. Verify performance; and, if warranted,
5. Make adjustments to the Plan.

This Plan is reviewed on an annual basis and evaluated as appropriate according to response actions taken and number of odor reports received during that time. Any revisions to the Plan will be maintained in the Facility's Operating Record.



Appendix A
Area Map



Map Source: Esri World Imagery
 Imagery Date: 8/13/2020

Job No. 02199312.10-4
 Date: 9/8/2020

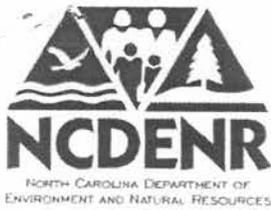
Appendix A
 Area Map
 South Wake Landfill
 Wake County, North Carolina

SCS ENGINEERS

15521 Midlothian Turnpike
 Suite 305
 Midlothian, VA 23113
 804.378.7440



Appendix B
NCDEQ Inspection Reports



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF		LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 92-28 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDFL	X	Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Audit: April 19, 2007Date of Last Audit: October 28, 2005**FACILITY NAME AND ADDRESS:**

Red Rock Disposal C&D Landfill
 7130 New Landfill Road
 Holly Springs, North Carolina 27540

GPS COORDINATES: N: 35.60445 E: -078.89737**FACILITY CONTACT NAME AND PHONE NUMBER:**

John Demary, Branch Manager
 (919)-557-9583
 (919)-557-9523 fax

FACILITY CONTACT ADDRESS:

Jerry Johnson, Disposal Operations Manager
 Red Rock Disposal, LLC
 3301 Benson Drive, Suite 601
 Raleigh, North Carolina 27609

AUDIT PARTICIPANTS:

Bradley W. Bailey, NCDENR – Solid Waste Section
 Dennis E. Shackelford, NCDENR - Solid Waste Section
 Jerry Johnson, Waste Industries – VP/Landfill Division
 John Demary, Waste Industries - General Manager
 Rebecca Deans, Public Weighmasters

STATUS OF PERMIT:

PTC issued October 18, 2001
 PTO issued November 19, 2001
 Modification #1 (PTO) June 6, 2002
 Cell IC-1 PTC issued June 4, 2004
 Cell IC-1 PTO Issued December 01, 2005 (expiration for review December 14, 2010)

PURPOSE OF AUDIT:

Comprehensive Audit

NOTICE OF VIOLATIONS:

None

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$5,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. If the violation(s) noted here continue, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

STATUS OF PAST NOTED VIOLATIONS:

None

OTHER COMMENTS /SUGGESTIONS:

1. The service area for this facility consists of: CHATHAM, DURHAM, FRANKLIN, GRANVILLE, HARNETT, JOHNSTON, NASH AND WAKE counties. You need to implement a contingency plan to ensure that your facility only receives waste from your designated service area.
2. The permit, operations plan, waste screening records and contingency plan were reviewed and appear to be well maintained
3. The facility handles approximately 15,000 tons per month or 800 to 850 tons per day.
4. The sign displayed was examined and is according to the permit.
5. The hours of operation are Monday thru Friday 7am – 5pm.
6. The windblown paper is being managed well.
7. The exposed area was at ½ acre in exposed waste. The area must be maintained less than ½ acre in exposed waste. Corrective actions need to be underway to ensure the area is maintained properly such as survey staking on the ground or the use of a range finder by equipment operators during the day.
8. Corrective actions need to be underway to ensure that the waste being disposed of at the construction and demolition landfill is, in fact, construction and demolition waste only.
9. Semi-annual sampling for the Groundwater Monitoring Plan is being performed by Golder Associates. Results did not reflect all monitoring points designated in the plan dated 26 November 2003. You must ensure that that your submitted results are in accordance with your approved Groundwater Monitoring Plan.
10. A ground cover sufficient to restrain erosion needs to be provided on all of the previously disturbed areas. As a minimum, disturbed areas need to be seeded and mulched within 30 days.
11. The Certified Landfill Operations Specialist is John Demary, expires January 9, 2009. I would strongly recommend having additional personnel available at the facility that are Certified.
12. **Corrective actions are needed as a result of this Audit.**

Please contact me if you have any questions or concerns regarding this audit report.


Bradley W. Bailey
Environmental Senior Specialist
Solid Waste Section
Regional Representative

Phone: (919)-508-8523

Delivered on: May 22, 2007 by		Hand delivery	X	US Mail	Certified No.
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Cc: Mark Poindexter, Field Operations Branch Head
Dennis E. Shackelford, Eastern District Supervisor
Amy Annechino, Compliance Officer



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Scanned by <i>BJS</i>	Date <i>1/18/08</i>	Doc ID # <i>RCO 3726</i>
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UNIT TYPE:											
Lined MSWLF	<input checked="" type="checkbox"/>	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 92-22 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Audit: January 14, 2008

Date of Last Audit: Not Applicable

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass
 Holly Springs, North Carolina 27615

FACILITY CONTACT NAME AND PHONE NUMBER:

James S. Reynolds, Wake County Solid Waste Director
 (919)-856-5520

FACILITY CONTACT ADDRESS:

James S. Reynolds, Wake County Solid Waste Director
 Wake County Solid Waste Management
 PO Box 550
 Raleigh, North Carolina 27602-0550

AUDIT PARTICIPANTS:

Dennis E. Shackelford, NCDENR - Solid Waste Section - Eastern District Supervisor
 Bradley Bailey, NCDENR - Solid Waste Section - Compliance
 Andrew Hammonds, NCDENR - Solid Waste Section - Compliance
 Donald Herndon, NCDENR - Solid Waste Section - Compliance
 Sarah Terranova, NCDENR - Solid Waste Section - Compliance
 Zinith Barbec, NCDENR - Solid Waste Section - Permitting
 Donna Wilson, NCDENR - Solid Waste Section - Permitting
 Karim Pathan, NCDENR - Solid Waste Section - Permitting
 Ming Chao, NCDENR - Solid Waste Section - Permitting
 Dan LaMontagne, P.E., Wake County Solid Waste Management Division
 Johnny Beal, Wake Co. - Wake County Solid Waste Management Division
 Ben Habets, Waste Industries - General Manager
 Pieter K. Scheer, P.E., Richardson, Smith, Gardner & Associates - Senior Engineer
 Douglas T. DeCesare, P.E., HDR Engineering, Inc. of the Carolinas - Project Engineer

STATUS OF PERMIT:

PTC: March 27, 2001
 Mod: March 21, 2007
 PTO: Pending - currently under review

PURPOSE OF AUDIT:

Pre-Operational Inspection

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

NOTICE OF VIOLATIONS: None

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. If the violation(s) noted here continue, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

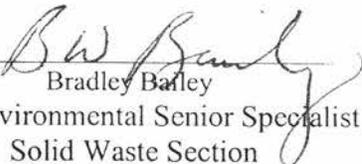
STATUS OF PAST NOTED VIOLATIONS:

None

AREAS OF CONCERN AND COMMENTS:

1. A tour of the facility and pre-operational inspection was performed today with members of the staff, Wake County and contracted consultants.
2. All signage must be posted and in accordance with conditions of permit.
3. The MSWLF must be adequately secured by means of gates, chains, berms, fences and other security measures approved by the Division to prevent unauthorized entry.
4. The permit, operations plan, groundwater and surface water monitoring plan, and licenses of all operators shall be onsite and available for inspection.
5. (a) The owners or operators of all MSWLF units must cover disposed solid waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.
(b) Alternative materials of an alternative thickness (other than at least six inches of earthen material) may be approved by the Division 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.
6. Upon commencement of waste disposal, adequate screening must be performed to ensure that the initial waste is material that will not puncture the liner to the depth of at least eight (8) feet as indicated in the approved operations plan.
7. Digital photos were taken during the Audit.
8. **The operator is to contact Dennis Shackelford, Eastern Area Supervisor, at 910-433-3349 prior to the first day of receiving waste.**

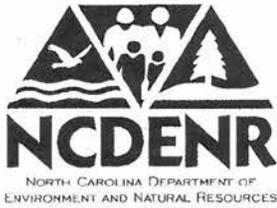
Please contact me if you have any questions or concerns regarding this audit report.


Bradley Bailey
Environmental Senior Specialist
Solid Waste Section
Regional Representative

Phone: (919)-508-8523

Delivered on: January 17, 2008 by		Hand delivery	X	US Mail	Certified No.
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Cc: Mark Poindexter, Field Operations Branch Head
Dennis E. Shackelford, Eastern District Supervisor
Amy Kadrie, Compliance Officer
Donna Wilson, Permitting Engineer



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Scanned by <i>BWB</i>	Date <i>06/26/09</i>	Doc ID # <i>7873</i>
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UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 92-22 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incineration		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO	X	SDTF	

Date of Audit: May 20, 2009

Date of Last Audit: January 14, 2008

FACILITY NAME AND ADDRESS:

SOUTH WAKE MSW LANDFILL
 Highway 55 Bypass (6000 Old Smithfield Road)
 Holly Springs, NC 27615

GPS COORDINATES: N: 35.68272 E: -078.84424

FACILITY CONTACT NAME AND PHONE NUMBER:

OWNER: WAKE COUNTY – Director of Environmental Services: Tommy Esqueda (919) 856-5520
 - Scale house: (919) 303-0866
OPERATOR: WAKE COUNTY DISPOSAL, LLC – Registered Agent: Stephen D. Grissom (919) 325-3000
 Landfill Manager: James Cummings (919) 625-6796 (cell) (919) 325-3000 (ext 31520) (site)
OPERATIONS: WASTE INDUSTRIES USA, Inc – Mid-South Area Landfill Manager: David Pepper (919) 877-2235 (ofc) (919) 427-1506 (cell) david.pepper@wasteindustries.com (e-mail)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472 (cell) (919) 325-3000 (ext 31520) (site)
 WAKE COUNTY DISPOSAL, LLC
 3301 Benson Drive Suite 501
 Raleigh, NC 27609

AUDIT PARTICIPANTS:

Bradley Bailey, NCDENR – Solid Waste Section - Compliance
 Joe Alexander, Wake County Environmental Services
 Johnny Beal, Wake County Environmental Services
 Troy Mitchell, Wake County Disposal, LLC – General Manager
 David W. Pepper, Waste Industries USA, Inc. – Mid-South Area Landfill Manager

STATUS OF PERMIT:

PTC March 27, 2001
 PTO January 28, 2008 (shall expire January 28, 2013, submit application no later than September 28, 2012)

PURPOSE OF AUDIT:

Partial Audit
 Issuance of ACM Demonstration Approval (May 21, 2009 for a period of eight months, shall expire January 20, 2010)

NOTICE OF VIOLATION(S):

None

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. For the violation(s) noted here, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

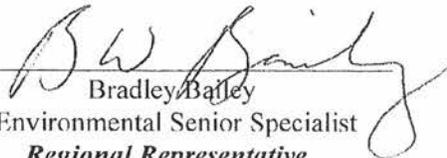
STATUS OF PAST NOTED VIOLATIONS:

None

AREAS OF CONCERN AND COMMENTS:

1. The permit, operations plan, and annual report were available for inspection.
2. Waste screening records were reviewed and waste screening is being performed on approximately 1-2% of the waste. Three (3) trucks per day are being inspected and about 170 trucks per day arrive.
3. The facility is currently receiving about 1500 tons/day.
4. Facility does not accept asbestos.
5. The hours of operation are Monday thru Saturday, 7am – 4pm.
6. Signage appears to be in accordance with permit requirements.
7. The service area for the facility is Wake County.
8. **An Alternative Cover Material Demonstration for Posi-Shell has been approved.**
9. Groundwater monitoring records were available for inspection. The first monitoring event occurred October 20-21, 2008 and the second event was March 31-April 31, 2009. Thirteen (13) monitor wells and five (5) surface sites are being sampled semi-annually as required. Wells will be inspected for locks and labeling at a later date.
10. Methane monitoring was being performed quarterly until SCS Engineers submitted a notification of exceedance for MG-25. Currently monthly monitoring is being performed as part of the remediation plan.
11. Leachate sampling was performed April 10, 2008 and October 06, 2008 and is being conducted semi-annually as required.
12. The certified operators are as follows:
James Cummings – Certified Landfill Manager #92825 – expires May 06, 2011
Joseph J. Russell – Certified Landfill Operations Specialist #2008055 – expires April 15, 2011
Kirsten J. Richardson – Certified Landfill Operations Specialist #2008051 – expires April 15, 2011
Von H. Patterson III – Certified Landfill Operations Specialist #2008048 – expires April 15, 2011
Brian M. Fowler – Certified Landfill Operations Specialist #2009214 – expires February 13, 2012
13. Edge of liner stakes appear to be in place. **Please note, that Permanent Edge-of-Waste Markers shall be installed and maintained effective January 01, 2010.** Please find attached May 29, 2009 Memorandum.
14. Cell Activation Form dated August 23, 2008 for cell 1A was completed as directed in part II item 23.
15. **Benchmarks need to be added to all future facility maps.**

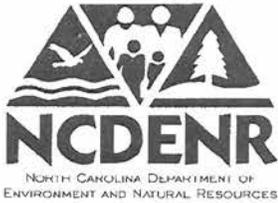
Please contact me if you have any questions or concerns regarding this audit report.


Bradley Bailey
Environmental Senior Specialist
Regional Representative

Phone: (919) 508-8565

Delivered on : June 26, 2009 by	X	E-mail		US Mail		Certified No. <input type="checkbox"/>
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cc: Mark Poindexter, Field Operations Branch Supervisor
Jason Watkins, Central District Supervisor
Donald Herndon, Compliance officer
Donna Wilson, Permitting Engineer



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Scanned by <i>RWB</i>	Date <i>10/08/09</i>	Doc ID # <i>8732</i>
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UNIT TYPE:										COUNTY: WAKE PERMIT NO.: 92-22 FILE TYPE: COMPLIANCE	
Lined MSWLF	<input checked="" type="checkbox"/>	LCID		YW		Transfer		Compost			SLAS
Closed MSWLF		HHW		White goods		Incin		T&P			FIRM
CDFL		Tire T&P Collection		Tire Monofill		Industrial Landfill		DEMO	<input checked="" type="checkbox"/>	SDTF	

Date of Audit: September 24, 2009

Date of Last Audit: May 20, 2009

FACILITY NAME AND ADDRESS:

SOUTH WAKE MSW LANDFILL
 Highway 55 Bypass (6000 Old Smithfield Road)
 Holly Springs, NC 27615

GPS COORDINATES: N: 35.68272 E: -078.84424

FACILITY CONTACT NAME AND PHONE NUMBER:

OWNER: WAKE COUNTY – Director of Environmental Services: Tommy Esqueda (919) 856-5520
 Landfill Scale house: (919) 303-0866

OPERATOR: WAKE COUNTY DISPOSAL, LLC – Registered Agent: Stephen D. Grissom (919) 325-3000
 Landfill Manager: James Cummings (919) 625-6796 (cell), (919) 325-3000 ext. 31520 (site)

OPERATIONS: WAKE INDUSTRIES USA, Inc. – Mid-South Area Landfill Manager: David Pepper (919) 877-2235 (ofc), (919) 427-1506 (cell) david.pepper@wasteindustries.com (e-mail)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472 (cell), (919) 325-3000 ext. 31520 (site)
 WAKE COUNTY DISPOSAL, LLC
 3301 Benson Drive, Suite 501
 Raleigh, NC 27609

AUDIT PARTICIPANTS:

Bradley Bailey, NCDENR – Solid Waste Section
 Joe Alexander, Wake County Environmental Services
 Troy Mitchell, Wake County Disposal, LLC – General Manager

STATUS OF PERMIT:

PTO Phase 1A issued September 15, 2009
 PTC Phase 1A and 1B issued September 15, 2009

PURPOSE OF AUDIT:

Partial Audit/DEMO inspection

NOTICE OF VIOLATION(S):

None

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. For the violation(s) noted here, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

STATUS OF PAST NOTED VIOLATIONS:

None

AREAS OF CONCERN AND COMMENTS:

1. On August 05, 2009, a pre-opening unannounced inspection to observe the previous day's application of Posi-Shell was performed. Photographs were taken and the application of Posi-Shell appeared to be satisfactory. Today's inspection commenced after opening, working face was being worked, but judging the perimeter of the working face, proper application of Posi-Shell is being performed.
2. The updated certified operators are as follows:
Troy Mitchell – Certified Landfill Manager #58763 – expires February 06, 2012
Dwight Francis – Certified Landfill Manager #87089 – expires September 20, 2012
James Cummings – Certified Landfill Manager #92825 – expires May 06, 2011
Kirsten J. Richardson – Certified Landfill Operations Specialist #2008051 – expires April 15, 2011
Von H. Patterson III – Certified Landfill Operations Specialist #2008048 – expires April 15, 2011
Brian M. Fowler – Certified Landfill Operations Specialist #2009214 – expires February 13, 2012
George Moot – Certified Landfill Operations Specialist #2009814 – expires August 21, 2012
Andrew Burns – Certified Landfill Operations Specialist #2009816 – expires August 21, 2012
3. Semi-annual groundwater, surface water and leachate sampling was performed March 31, 2009 to April 01, 2009 and results submitted. Second sampling occurred September 30, 2009 to October 01, 2009. Samples were collected by Golder Associates NC, Inc. and results are currently being analyzed.
4. Thirteen monitor wells (MW1,1A,2,2A,3,3A,4,5,6,6A,7,8,8A) were inspected and all are locked and labeled. There are five surface water sites.
5. Benchmarks have been added to facility/site map.

Please contact me if you have any questions or concerns regarding this audit report.


Brad Bailey
Environmental Senior Specialist
Regional Representative

Phone: (919) 508-8565 _____

Delivered on : <u>October 08, 2009</u> by	X	E-mail	US Mail	Certified No. []
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cc: Mark Poindexter, Field Operations Branch Supervisor
Jason Watkins, Central District Supervisor
Shawn McKee, Compliance Officer



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 92-22 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO	X	SDTF	

Date of Audit: January 27, 2010

Date of Last Audit: September 24, 2009

FACILITY NAME AND ADDRESS:

SOUTH WAKE MSW LANDFILL
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68272 E: -078.84424

FACILITY CONTACT NAME AND PHONE NUMBER:

OWNER: WAKE COUNTY – Director of Environmental Services: Tommy Esqueda (919) 856-5520
 Landfill Scale house: (919) 303-0866
OPERATOR: WAKE COUNTY DISPOSAL, LLC – Registered Agent: Stephen D. Grissom (919) 325-3000
 Landfill Manager: James Cummings (919) 625-6796 (cell), (919) 325-3000 ext. 31520 (site)
OPERATIONS: WAKE INDUSTRIES USA, Inc. – Mid-South Area Landfill Manager: David Pepper (919) 877-2235 (ofc), (919) 427-1506 (cell) david.pepper@wasteindustries.com (e-mail)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472 (cell), (919) 325-3000 ext. 31520 (site)
troy.mitchell@wasteindustries.com
 WAKE COUNTY DISPOSAL, LLC
 3301 Benson Drive, Suite 501
 Raleigh, NC 27609

AUDIT PARTICIPANTS:

Bradley Bailey, NCDENR – Solid Waste Section
 Zinith Barbee, NCDENR – Hydrogeologist
 Megan Mueller, NCDENR – Veterinary Public Health, Land Application & Composting Intern
 Troy Mitchell, Wake County Disposal, LLC – General Manager
 Seth Heath, Waste Industries USA, Inc. – Management Development Trainee

STATUS OF PERMIT:

PTO Phase 1A issued August 20, 2008 (shall expire January 28, 2013)
 PTC Phase 1A and 1B issued September 15, 2009 (shall expire September 15, 2014)
 ACM Demonstration Extension issued December 22, 2009 (report due June 01, 2010)

PURPOSE OF AUDIT:

Partial Audit/DEMO inspection

NOTICE OF VIOLATION(S):

None

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. For the violation(s) noted here, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

STATUS OF PAST NOTED VIOLATIONS:

None

AREAS OF CONCERN AND COMMENTS:

1. On January 27, 2010, an announced inspection to observe the previous day's application of Posi-Shell mixed with latex paint was performed. Photographs were taken and the application of Posi-Shell appeared to be satisfactory. Today's inspection observed areas adjacent to the working face. It appears that proper application of Posi-Shell is being performed.



2. Two new operators have been added and the updated certified operators list is as follows:
Troy Mitchell – Certified Landfill Manager #58763 – expires February 06, 2012
Dwight Francis – Certified Landfill Manager #87089 – expires September 20, 2012
James Cummings – Certified Landfill Manager #92825 – expires May 06, 2011
Kirsten J. Richardson – Certified Landfill Operations Specialist #2008051 – expires April 15, 2011
Von H. Patterson III – Certified Landfill Operations Specialist #2008048 – expires April 15, 2011
Brian M. Fowler – Certified Landfill Operations Specialist #2009214 – expires February 13, 2012
George Moot – Certified Landfill Operations Specialist #2009814 – expires August 21, 2012
Andrew Burns – Certified Landfill Operations Specialist #2009816 – expires August 21, 2012
James L. Foureau – Certified Landfill Operations Specialist #20091213 – expires December 04, 2012
Roy Eason – Certified Landfill Operations Specialist #20091210 – expires December 04, 2012
3. Semi-annual groundwater, surface water and leachate sampling was performed March 31, 2009 to April 01, 2009 and results submitted (April sampling scanned doc# 7720). Second sampling occurred September 30, 2009 to October 01, 2009. Samples were collected by Golder Associates NC, Inc. and results submitted.

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 3 of 3

4. Quarterly Methane monitoring results (December 11, 2009, September 24, 2009, June 18, 2009, and March 09, 2009) were reviewed for six sites (MG1 thru MG3 and MG24 thru MG26).
5. Signage at the facility is as follows:



The facility is contiguous with the following permitted facilities:

- 92-03-CDLF-1997 Inactive/Closed
- 92-03-HHW-2009 Active
- 92-03-MSWLF-1980 Inactive/Closed
- 92-21-Transfer-1997 Active

Each of these facilities have different signage requirements. For the MSWLF, .1626 states (e) Signs providing information on dumping procedures, the hours during which the site is open for public use, the permit number and other pertinent information specified in the permit conditions shall be posted at the site entrance. (f) Signs shall be posted stating that no hazardous or liquid waste can be received.

It is recommended that signage be updated and placed to more clearly delineate the activities onsite. In addition, the new landfill bans (Oct. 2009) oil filters, plastic bottles, pallets and upcoming bans (Jan. 2011) computer equipment and televisions be incorporated with the updated signage.

6. Signage at the convenience center is as follows:



7. The current permit was approved with the Operations Plan prepared by CDM, February 10, 1999. Some of the operations listed are not reflective of current practices. **The Operations Plan needs to be updated.** Of specific note, is that when the document was prepared, SANTEK ENVIRONMENTAL was listed as the solid waste contractor. North Wake (92-09) was in operation at that time, but was closed May 29, 2008. The South Wake Transfer facility 92-21(subject to review on or before December 20, 2011) remains permitted, but idle and not receiving waste. The City of Raleigh Transfer facility 92-33, Permit to Operate (PTO) was issued May 29, 2008.

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 4 of 4

8. Animal carcass operations and procedures were reviewed. No livestock or poultry is accepted by the facility. Small domestic animals are received from county and private animal services in a 15 yard container/compactor, bagged from the facilities, approximately three times per week and are moved to the working face and buried. The county has contracted with a vendor and receives road side carcasses up to two times per day and burial procedures are similar. The Operations Plan needs to reflect current operational practices.
9. Waste screening procedures and other items in the 1999 Operations Plan need to be updated to reflect current practices and differentiate between the duties/responsibilities of Wake County Environmental Services and Waste Industries as the contractor.
10. Leachate lines were recently cleaned by Jet Clean, and the Leachate Collection System High Pressure Water-Jetting & Explosion-Proof Video inspection was performed December 28, 2009. Video was not viewed while onsite but is available for review.



11.  Edge of liner/waste markers are in place.

Please contact me if you have any questions or concerns regarding this audit report.

Bradley Bailey

Phone: (919) 508-8565

Brad Bailey
 Environmental Senior Specialist
Regional Representative

Delivered on : <u>February 26, 2010</u> by	X	E-mail		US Mail		Certified No. []
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- cc: Mark Poindexter, Field Operations Branch Supervisor
 Jason Watkins, Central District Supervisor
 Shawn McKee, Compliance Officer
 Donna Wilson, Permitting Engineer
 Tommy Esqueda, Director, Wake County Environmental Services



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 92-30 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Audit: April 19, 2011

Date of Last Audit: January 27, 2010

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: **N:** 35.68140

E: -078.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Director of Environmental Services: Tommy Esqueda (919) 856-7444
 Landfill Scale House: (919) 303-0866

Operator: Wake County Disposal, LLC –Registered Agent: Stephen D. Grissom (919) 325-3000
 Landfill Manager: Troy Mitchell (919) 291-6472 (cell)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472(cell); (919) 325-3000 ext. 31520 (site)
troy.mitchell@wasteindustries.com
 Wake County Disposal, LLC
 6124 Old Smithfield Road
 Apex, NC 27615

AUDIT PARTICIPANTS:

Chris Marriott, NCDENR-Solid Waste Section
 Troy Mitchell, Wake County Disposal, LLC (Waste Industries)-General Manager
 Casey Fulghum, Wake County Environmental Services-Environmental Health Specialist

Johnny Beal, Wake County Environmental Services-Solid Waste Facility Manager
 Lee Squires, Wake County Environmental Services-Solid Waste Facility Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1:	February 18, 1999
PTC-Phase 1 rescinded:	April 7, 2000
PTC-Phase 1:	March 27, 2001
PTC-Phase 1 modification:	March 21, 2007
PTO-Phase 1A:	January 28, 2008
PTO-Phase 1A (error corrected):	August 20, 2008
PTC-Phase 1 modification (changes to 1B):	September 15, 2009
PTO-Phases 1A & 1B:	July 21, 2010

PURPOSE OF AUDIT:

Comprehensive Audit

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

NOTICE OF VIOLATION(S):

None

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. For the violation(s) noted here, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

STATUS OF PAST NOTED VIOLATIONS:

None

AREAS OF CONCERN AND COMMENTS:

- 1) Facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc.
- 2) The Permit and Operations Plan were reviewed with all participants of the audit.
- 3) The service area for the facility is Wake County and the municipalities in Wake County.
- 4) The permit allows for co-disposal of wastewater treatment sludge generated within the service area of the facility. According to Troy Mitchell, sludge is currently accepted from the City of Raleigh WWTP.
- 5) Posi-Shell has been approved for use as an alternate cover material for the facility. Although leachate is allowed to be used as the liquid medium for the Posi-Shell mixture, per Mr. Mitchell, it is not being used in the mixture at this time.
- 6) Financial assurance costs were updated most recently on August 13, 2010.
- 7) Leachate system maintenance has been completed at the facility within the last 18 months. Phase 1B was completed in December 2009. The toe drains of Phase 1B were cleaned in May 2010. Phase 1A cleaning/maintenance was completed in August 2010.
- 8) Groundwater sampling events are being completed twice annually as required. Sampling events and submittal dates for the corresponding reports are listed below:

<u>Event date</u>	<u>Submittal date</u>
October 6-7, 2010	December 3, 2010
March 31 & April 1, 2010	May 28, 2010
September 30 & October 1, 2009	November, 29, 2009
March 31 & April 1, 2009	May 28, 2009

According to Mr. Mitchell, the first sampling event for 2011 occurred in early April 2011 and no data has been received from the consultant at this time. In a brief review of the submitted groundwater reports there did not appear to be any constituents detected above an action level for each sampling event.

- 9) A review of landfill gas boundary probe monitoring indicated that monitoring was completed on the following dates: 3/9/2009, 6/18/2009, 9/24/2009, 12/11/2009, 3/23/2010, 6/22/2010, 9/22/2010, 12/7 & 9/2010, 3/4/2010. The reported indicated that no detections of methane occurred in any probe during any event. The facility contracts with SCS Engineers (SCS) to complete the LFG monitoring. SCS included the instrument calibration records in the report to the facility.
- 10) A North Carolina Division of Water Quality Stormwater General Permit (NCG 120000) is in effect for the facility until October 31, 2012. The facility's Certificate of Coverage for this general permit is NCG120080. The qualitative monitoring results were reviewed. The Facility has obtained representative status on three (3) outfalls for the purpose of analytical monitoring. The most recent semi-annual stormwater sampling occurred on 4/9/2010, 11/16/2010, and 3/30/2011. A Division of Water Quality inspection was conducted at the facility on May 20, 2010. The inspection report deemed that the facility was in compliance with the permit.
- 11) A review of daily logs for landfill operations was completed for the 1st quarter of 2011 and 4th quarter of 2010. The logs ensure that all equipment is properly checked; records the area of waste placement, leachate tank measurements, rain gauge, and the conditions of the cover material from the previous day.
- 12) A record of Posi-Shell application and inspections are kept as part of the operating record. A form is completed each day with the amount of material used in mixing the daily batch of Posi-Shell and the condition of the previous day's application of Posi-Shell.
- 13) A folder of random waste screenings was reviewed. Personnel at the facility complete 1 or 2 recorded

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

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- inspections per operating day. The screening forms note any prohibited items observed and a description of the load. A picture of the hauling truck is also taken and attached to each screening form.
- 14) Tonnage records indicate the facility is averaging approximately 1320 tons per day based on a 6 day week. This acceptance rate is slightly (<1%) less than the rate for the prior calendar year.
 - 15) Staff training records were reviewed.
 - a. A waste screening refresher for staff was completed on June 25, 2010.
 - b. Posi-Shell operator training was completed by staff on the following dates: June 30, 2009; September 20, 2009; and November 10, 2009.
 - c. The following personnel are SWANA Managers of Landfill Operations (MOLO):

Troy Mitchell	expires February 6, 2012
James Cummings	expires May 6, 2011
 - d. The following employees are Certified Landfill Operation Specialists by NC SWANA:

Andrew Burns	expires August 21, 2012
George Moot	expires August 21, 2012
Brian Fowler	expires February 13, 2012
Alexander Boone	expires August 26, 2011
Roy Eason	expires December 4, 2012
James Faureau	expires December 4, 2012
 - 16) Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
 - 17) The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with dirt and applied Posi-Shell around the edges.
 - 18) No prohibited or banned items were observed in any incoming loads or anywhere within the working face.
 - 19) The intermediate cover at the facility appeared in good condition and well applied. However, in some locations cover needed to be graded or low spots filled to prevent the ponding of water within the waste footprint.
 - 20) The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B) to pump leachate from the liner to the storage tank. Based on observations at the pump control panel, the amount of liquid head on the liner can be calculated at each pump location.
 - 21) Groundwater monitoring wells MW-3 and MW-3A were inspected. Both wells were tagged with correct labeling and locked.

Please contact me if you have any questions or concerns regarding this audit report.



Chris Marriott
 Environmental Senior Specialist
Regional Representative

Phone: 336-771-5090

Delivered on : <u>May 2, 2011</u> by		Hand delivery	X	e-Mail	Certified No. []
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cc: Mark Poindexter, Field Operations Branch Supervisor
 Jason Watkins, Central District Supervisor
 Donald Herndon, Compliance Officer



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 92-22 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: February 26, 2013

Date of Last Inspection: April 19, 2011

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -078.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472(cell); (919) 325-3000 ext. 31520 (site)
 troy.mitchell@wasteindustries.com
 Wake County Disposal, LLC
 6124 Old Smithfield Road
 Apex, NC 27615

PARTICIPANTS:

Shawn McKee, NCDENR-Solid Waste Section
 Dennis Shackelford, NCDENR-Solid Waste Section
 Pat Backus, NCDENR-Solid Waste Section
 Troy Mitchell, Wake County Disposal, LLC (Waste Industries)-General Manager
 Jim Cummings, Wake County Disposal, LLC (Waste Industries)-Operations Supervisor
 Casey Fulghum, Wake County Environmental Services - Environmental Health Specialist
 Johnny Beal, Wake County Environmental Services - Solid Waste Facility Manager
 Lee Squires, Wake County Environmental Services - Solid Waste Facility Manager
 Stacey Smith, Smith & Gardner

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC – Phase 2 –under review

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

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 4

PURPOSE OF SITE VISIT:

Comprehensive Audit

STATUS OF PAST NOTED VIOLATIONS:

None.

OBSERVED VIOLATIONS:

None.

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

1. The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County.
2. The Permit and Operations Plan were reviewed with all participants of the inspection.
3. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record. A form is completed each day with the amount of material used in mixing the daily batch of Posi-Shell and the condition of the previous day's application of Posi-Shell.
4. Financial assurance costs were updated most recently on November 29, 2011. Wake County is currently working on an updated financial assurance mechanism to reflect the permit which is under review.
5. Leachate system maintenance is planned for 2013. Phase 1B maintenance was completed in December 2009. The toe drains of Phase 1B were cleaned in May 2010. Phase 1A cleaning/maintenance was completed in August 2010.
6. Groundwater sampling events are being completed twice annually as required. Sampling events and submittal dates for the corresponding reports are listed below:

<u>Event date</u>	<u>Submittal date</u>
September 27&28, October 1, 2012	November 19, 2012
March 31 & April 1, 2010	May 28, 2010
September 30 & October 1, 2009	November, 29, 2009
March 31 & April 1, 2009	May 28, 2009

7. A review of landfill gas boundary probe monitoring indicated that monitoring was completed on the following dates: 12/11/2012, 9/27/2012, 6/1/2012, 3/15/2012, 12/20/2011, 9/27/2011, 6/3/2011, 3/4/2011, 12/7&9/2010. The reported indicated that no detections of methane occurred in any probe during any event. The facility contracts with SCS Engineers (SCS) to complete the LFG monitoring. SCS included the instrument calibration records in the report to the facility.

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

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8. A North Carolina Division of Water Quality Stormwater General Permit (NCG 120000) is in effect for the facility until October 31, 2017. The facility's Certificate of Coverage for this general permit is NCG120080. The qualitative monitoring results were reviewed. The Facility has obtained representative status on three (3) outfalls for the purpose of analytical monitoring. The most recent semi-annual stormwater samplings occurred on 12/26/2012, 2/27/2012, 10/11/11 and 3/30/2011.
9. A review of daily logs for landfill operations was completed for the 4th quarter of 2012. The logs ensure that all equipment is properly checked; records the area of waste placement, leachate tank measurements, rain gauge, and the conditions of the cover material from the previous day.
10. A folder of random waste screenings was reviewed for the dates between 1/2/2013 to 2/25/2013. Personnel at the facility complete 1 or 2 recorded inspections per operating day. The screening forms note any prohibited items observed and a description of the load. A picture of the hauling truck is also taken and attached to each screening form.
11. Tonnage records indicate the facility is averaging approximately 1,400 tons per day based on a 6 day week.
12. Staff training records were reviewed:
 - a. A waste screening refresher for staff was completed on July 26, 2012.
 - b. Posi-Shell operator training was completed by staff on the following dates: October 2, 2010.
 - c. The following personnel are SWANA Managers of Landfill Operations (MOLO):
 - Troy Mitchell expires 2/26/15 (#58763)
 - James Cummings expires 5/6/14 (#92825)
 - d. The following employees are Certified Landfill Operation Specialists by NC SWANA:
 - George Moot expires 5/21/2015
 - Brian Fowler expires 2/13/2015
 - Alexander Boone expires 8/26/2014
 - Roy Eason expires 12/4/2015
 - James Foureau expires 12/4/2015
 - Kristen Richardson expires 4/15/2014
 - Glenn Russell expires 6/3/2014
 - Matthew Coursen expires 10/21/2014
 - Clemmis Futrell expires 10/21/2014
13. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
14. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch.
15. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with dirt and applied Posi-Shell around the edges.
16. The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B) to pump leachate from the liner to the storage tank. From the leachate collection tanks, approximately 2,000 gallons of leachate per day is pumped, via forced main, into the Holly Springs sanitary sewer system which flows to the Town of Holly Springs waste water treatment plant.

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 4 of 4



- 17. No prohibited or banned items were observed within the working face. A pallet was removed from the working face during the inspection for proper recycling or disposal.
- 18. Windblown waste was being well managed.

Please contact me if you have any questions or concerns regarding this inspection report.

Shawn McKee
Environmental Senior Specialist
Regional Representative

Phone: 919-707-8284

Sent on: March 21, 2013	Email: <input checked="" type="checkbox"/>	Hand Delivery <input type="checkbox"/>	US Mail <input type="checkbox"/>	Certified No. []
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cc: Dennis Shackelford, Eastern District Supervisor – Solid Waste Section
Ellen Lorscheider, Programs and Planning Branch Head
Jessica Montie, Compliance Officer – Solid Waste Section



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 92-22 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: April 3, 2013

Date of Last Inspection: February 26, 2013

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -078.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472(cell); (919) 325-3000 ext. 31520 (site)
 troy.mitchell@wasteindustries.com
 Wake County Disposal, LLC
 6124 Old Smithfield Road
 Apex, NC 27615

PARTICIPANTS:

Shawn McKee, NCDENR-Solid Waste Section
 Troy Mitchell, Wake County Disposal, LLC (Waste Industries)-General Manager
 Jim Cummings, Wake County Disposal, LLC (Waste Industries)-Operations Supervisor
 Casey Fulghum, Wake County Environmental Services - Environmental Health Specialist
 Johnny Beal, Wake County Environmental Services - Solid Waste Facility Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC – Phase 2 –under review

PURPOSE OF SITE VISIT:

Partial Audit - Review of ACM Demonstration Project

STATUS OF PAST NOTED VIOLATIONS:

None.

OBSERVED VIOLATIONS:

None.

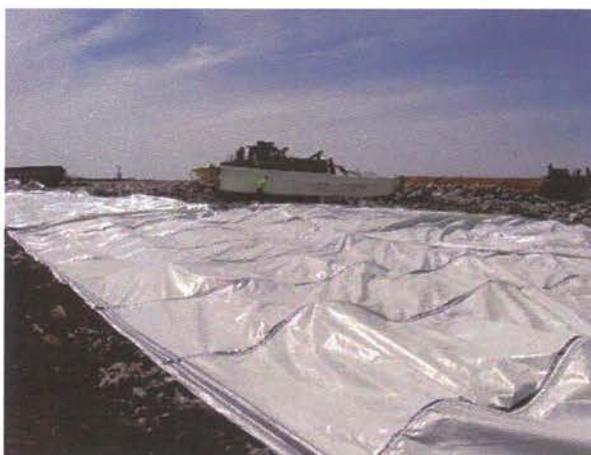
1646 Mail Service Center, Raleigh, North Carolina 27699-1646
 Phone: 919-707-8200 \ Internet: <http://portal.ncdenr.org/web/wm/>

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

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ADDITIONAL COMMENTS

1. Inspection conducted to observe daily cover operations and use of tarping system as Alternative Daily Cover.
2. Tarps were approved for a demonstration project for use as alternative daily cover by the SWS on March 22, 2013. The demonstration project was approved for a period of 3 months and requires the submittal of a Demonstration Summary Report to the SWS by September 13, 2013.
3. The tarps were being tested for the first time during the inspection. Upon arrival at the working face, one tarp had already been placed utilizing the compactor. Two more tarps were unrolled during the inspection utilizing the Tarpomatic system. The tarps have weights both in the sides and in the "ribs" horizontally across the tarps which aid in rolling out the tarp and keeping the tarp flush with the waste. The tarping system appears to be working well as cover.



Tarp being unrolled

4. No prohibited or banned items were observed within the working face. A tire was removed from the working face during the inspection for proper recycling or disposal.
5. Windblown waste was being well managed.

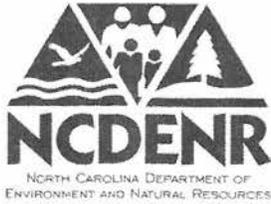
Please contact me if you have any questions or concerns regarding this inspection report.

Shawn McKee
 Environmental Senior Specialist
Regional Representative

Phone: 919-707-8284

Sent on: April 18, 2013		Email: X		Hand Delivery		US Mail	Certified No. <input type="checkbox"/>
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cc: Dennis Shackelford, Eastern District Supervisor – Solid Waste Section
 Ellen Lorscheider, Programs and Planning Branch Head
 Jessica Montie, Compliance Officer – Solid Waste Section
 Pat Backus, Permitting Engineer – Solid Waste Section
 Johnny Beal, Wake County Environmental Services



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: January 28, 2014

Date of Last Inspection: April 3, 2013

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -078.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472(cell); (919) 325-3000 ext. 31520 (site)
 troy.mitchell@wasteindustries.com
 Wake County Disposal, LLC
 6124 Old Smithfield Road
 Apex, NC 27615

PARTICIPANTS:

Shawn McKee, NCDENR-Solid Waste Section
 Dennis Shackelford, NCDENR-Solid Waste Section
 Troy Mitchell, Wake County Disposal, LLC (Waste Industries)-General Manager
 Jim Cummings, Wake County Disposal, LLC (Waste Industries)-Operations Supervisor
 Johnny Beal, Wake County Environmental Services - Solid Waste Facility Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC – Phase 2 –under review

PURPOSE OF SITE VISIT:

Comprehensive Audit

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 4

STATUS OF PAST NOTED VIOLATIONS:

None.

OBSERVED VIOLATIONS:

None.

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County.

1. The Permit and Operations Plan were reviewed with all participants of the inspection.
2. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record. A form is completed each day with the amount of material used in mixing the daily batch of Posi-Shell and the condition of the previous day's application of Posi-Shell.
3. Tarps have also been approved for use as an alternate cover material for the facility. The tarps are used as weather conditions permit.
4. Groundwater sampling events are being completed twice annually as required. Sampling events and submittal dates for the corresponding reports are listed below:

<u>Event date</u>	<u>Submittal date</u>
September 26 & October 8, 2013	November 25, 2013
April 1-3, 2013	May 31, 2013
September 27-28, October 1, 2012	November 19, 2012
March 29-30 and April 2, 2012	May 25, 2012

5. A review of landfill gas boundary probe monitoring indicated that monitoring was completed quarterly. The report indicated that no detections of methane occurred in any probe during any event. The facility contracts with SCS Engineers (SCS) to complete the LFG monitoring. SCS included the instrument calibration records in the report to the facility.
6. A North Carolina Division of Water Quality Stormwater General Permit (NCG 120000) is in effect for the facility until October 31, 2017. The facility's Certificate of Coverage for this general permit is NCG120080. The qualitative monitoring results were reviewed. The Facility has obtained representative status on three (3) outfalls for the purpose of analytical monitoring.
7. A review of daily logs for landfill operations was reviewed for the 4th quarter of 2013. The logs ensure that all equipment is properly checked; records the area of waste placement, leachate tank measurements, rain gauge, and the conditions of the cover material from the previous day.

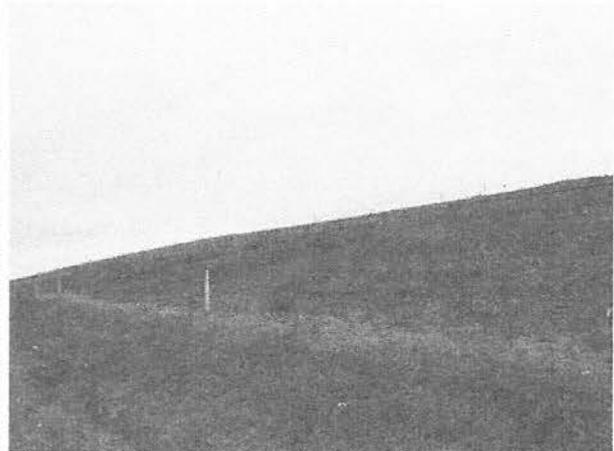
FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 3 of 4

8. A folder of random waste screenings was reviewed for the dates between 1/2/2014 to 1/27/2014. Personnel at the facility complete an average of 2 recorded inspections per operating day. The screening forms note any prohibited items observed and a description of the load. A picture of the hauling truck is also taken and attached to each screening form.
9. Tonnage records indicate the facility is averaging approximately 1,300 tons per day based on a 6 day week.
10. Staff training records were reviewed:
 - c. The following personnel are SWANA Managers of Landfill Operations (MOLO):
 - Troy Mitchell expires 2/26/15 (#58763)
 - James Cummings expires 5/6/14 (#92825)
 - d. The following employees are Certified Landfill Operation Specialists by NC SWANA:
 - George Moot, LF-2009069, expires 5/21/2015
 - Brian Fowler, LF-2009143, expires 2/13/2015
 - Alexander Boone, LF-2008061, expires 8/26/2014
 - Roy Eason expires, LF-2009097, 12/4/2015
 - James Foureau, LF-2009160, expires 12/4/2015
 - Kristen Richardson, LF-2008051, expires 4/15/2014
 - Glenn Russell, LF-2011039, expires 6/3/2014
 - Matthew Coursen, LF-2011059, expires 10/21/2014
 - Clemmis Futrell, LF-2011062, expires 10/21/2014
11. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
12. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch and are well maintained.
13. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with soil and applied Posi-Shell around the edges. No prohibited or banned items were observed within the working face.



Working face



Side slope

14. The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B) to pump leachate from the liner to the storage tank. From the leachate collection tanks, approximately 2,000 gallons of leachate per day is pumped, via forced main, into the Holly Springs sanitary sewer system which flows to the Town of Holly Springs waste water treatment plant.

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 4 of 4

- 15. Monitoring wells were not observed during this inspection but were observed during previous inspections.
- 16. Windblown waste was being well managed.

Please contact me if you have any questions or concerns regarding this inspection report.



Shawn McKee
Environmental Senior Specialist
Regional Representative

Phone: 919-707-8284

Sent on: February 3, 2014		Email: X		Hand Delivery		US Mail		Certified No. []
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CC: Dennis Shackelford, Eastern District Supervisor – Solid Waste Section
Ellen Lorscheider, Programs and Planning Branch Head
Jessica Montie, Compliance Officer – Solid Waste Section



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: June 5, 2014

Date of Last Inspection: January 28, 2014

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -078.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager (919) 291-6472(cell); (919) 325-3000 ext. 31520 (site)
 troy.mitchell@wasteindustries.com
 Wake County Disposal, LLC
 6124 Old Smithfield Road
 Apex, NC 27615

PARTICIPANTS:

Shawn McKee, NCDENR-Solid Waste Section
 Pat Backus, NCDENR-Solid Waste Section
 Troy Mitchell, Wake County Disposal, LLC (Waste Industries)-General Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013

PURPOSE OF SITE VISIT:

Pre-construction meeting for Phase 2A and Partial Audit

STATUS OF PAST NOTED VIOLATIONS:

None.

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

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 3

OBSERVED VIOLATIONS:

None.

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County. The Permit to Construct shall expire February 28, 2015. The Permit to Operate shall expire January 28, 2018.

1. Mobilization for construction of Phase 2A is scheduled to begin June 9, 2014 with substantial completion of the cell scheduled for late November 2014.
2. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record. A form is completed each day with the amount of material used in mixing the daily batch of Posi-Shell and the condition of the previous day's application of Posi-Shell. Tarps have also been approved for use as an alternate cover material for the facility. The tarps are used as weather conditions permit.
3. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
4. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch and are well maintained.
5. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with soil and applied Posi-Shell around the edges. No prohibited or banned items were observed within the working face.



Working face



Side slope

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 3 of 3

- 6. Monitoring wells were not observed during this inspection but were observed during previous inspections.
- 7. Windblown waste was being well managed. Fences had been located to collect waste being blown off the working face. Litter pickers were scheduled to be at the facility the following day.

Please contact me if you have any questions or concerns regarding this inspection report.

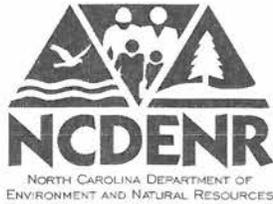


Shawn McKee
Environmental Senior Specialist
Regional Representative

Phone: 919-707-8284

Sent on: June 17, 2014		Email: X		Hand Delivery		US Mail		Certified No. []
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cc: Dennis Shackelford, Eastern District Supervisor – Solid Waste Section
Ellen Lorscheider, Programs and Planning Branch Head
Jessica Montie, Compliance Officer – Solid Waste Section



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: Wake PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: March 25, 2015 **Date of Last Inspection:** June 5, 2014

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -078.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Johnny Roberson, Wake County Solid Waste Director
 (919) 856-6365
Operator: Troy Mitchell, Wake County Disposal, LLC – Landfill Manager
 (919) 291-6472(cell); (919) 325-3000 ext. 31520 (site)

FACILITY CONTACT ADDRESS:

Troy Mitchell, General Manager
 Wake County Disposal, LLC
 6124 Old Smithfield Road
 Apex, NC 27615
 troy.mitchell@wasteindustries.com

PARTICIPANTS:

Dennis E. Shackelford – Solid Waste Section	Casey Fulghum – Wake County
Pat Backus – Solid Waste Section	Troy Mitchell – Waste Industries
Christine Ritter – Solid Waste Section	David Pepper – Waste Industries
John Roberson – Wake County	Stacey Smith – S+G
Johnny Beal – Wake County	John Farrington S+G

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013

PURPOSE OF SITE VISIT:

Pre-construction meeting & Partial Inspection

STATUS OF PAST NOTED VIOLATIONS:

None.

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 3

OBSERVED VIOLATIONS:

None.

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

1. A pre-operative inspection was conducted today for the operation of Phase 2.
2. The inspection of the future phase was performed and no problems were noted during the inspection.
3. The leachate collection was reviewed as part of the pre-operative inspection.
4. Additional information will be sent to Pat Backus for final approval to use the new cell.
5. The working face was reviewed and no problems were noted. The waste type was according to permit.
6. The facility is currently using posi-shell and tarps for operational cover.
7. The facility is currently accepting around 1650 tons per day of waste.
8. The perimeter slopes have been provided with adequate ground cover.
9. The sedimentation and erosion control measures were reviewed and appear to be functioning properly at this time.
10. The haul roads are in excellent shape and are being maintained well.
11. No leachate seeps were noted on perimeter areas.
12. The windblown litter is being managed well.
13. The facility is being managed well. Good Job!
14. Digital pictures were taken during the inspection.

Please contact me if you have any questions or concerns regarding this inspection report.



Digitally signed by Dennis Shackelford
DN: cn=Dennis Shackelford, o=Division of
Waste Management - Solid Waste Section,
ou=DENR,
email=dennis.shackelford@ncdenr.gov, c=US
Date: 2015.05.29 10:18:57 -04'00

Dennis E. Shackelford
Eastern District Supervisor
Phone: 910-433-3349

Sent on: May 28, 2015		Email:		Hand Delivery	<input checked="" type="checkbox"/>	US Mail		Certified No. [<input type="checkbox"/>]
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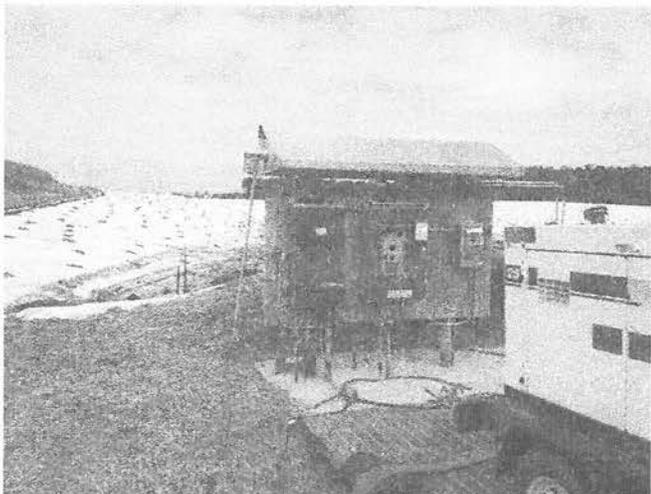
cc: Jason Watkins, Field Operations Branch Head
Jessica Montie, Compliance Officer
Pat Backus, Permitting Engineer
Christine Ritter, Permitting Hydro-geologist
John Roberson – John.Roberson@wakegov.com
Johnny Beal – jbeal@wakegov.com

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 3 of 3



New Cell Construction



Leachate Collection System



Perimeter haul road slopes



Working Face



Previous day cover



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT
Department of Environmental Quality
Division of Waste Management - Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: December 9, 2015

Date of Last Inspection: March 25, 2015

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com

Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDENR-Solid Waste Section
 Dennis Shackelford, NCDENR-Solid Waste Section
 John College, NCDENR-Solid Waste Section
 Troy Mitchell, Waste Industries - General Manager
 Brian Fowler, Waste Industries – Operations Support
 Casey Fulghum, Wake County – Solid Waste Facilities Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
 PTC Phase 2 and PTO Phases 1A, 1B, and 2A: April 24, 2015
 PTO expires January 28, 2018

PURPOSE OF SITE VISIT: Comprehensive Inspection

STATUS OF PAST NOTED VIOLATIONS:

NONE

OBSERVED VIOLATIONS

NONE

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

1. The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County.
2. The approved Facility Permit, Operations Plan, and Contingency Plan were complete, in order, and presented for review during this Facility Compliance Inspection.
3. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record.
4. The use of geotextile or tarp as alternate daily cover is approved. The use must be consistent with the approved plan.
5. Groundwater sampling events are being completed twice annually by Golder Associates, Inc. Sampling occurred on September 29 & 30, 2015 and April 1, 2015.
6. A review of landfill gas boundary probe monitoring indicated that monitoring was completed on the following dates: 3/9/15, 4/28/15, 6/17/15, and 9/15/15. LFG monitoring returned to quarterly on 5/19/15 as previous three monthly monitoring activities at Probe MG-25 have shown methane concentrations below the LEL. The June and September monitoring reports indicated that no detections of methane occurred in any probe during any event. The facility contracts with SCS Engineers to complete the LFG monitoring. SC included the instrument calibration records in the report to the facility.
7. Random waste screenings records were up-to-date through 12/4/2015. Personnel at the facility complete 1 or 2 recorded inspections per operating day. The screening forms note any prohibited items observed and a description of the load. A picture of the hauling truck is also taken and attached to each screening form.
8. Tonnage records indicate the facility is averaging approximately 1,500 tons per day based on a 6 day week.
9. Staff training records were reviewed:
The following personnel are SWANA Managers of Landfill Operations (MOLO):
Troy Mitchell expires 2/6/15 (#58763)
Alexander S. Boone expires 6/5/18 (#994707)
The following employees are Certified Landfill Operation Specialists by NC SWANA:
James L. Foreau expires 12/4/2015 Roy Eason expires 12/4/15
George Moot expires 8/21/15 Brian Fowler expires 2/13/18
Alexander S. Boone expires 8/26/17 John T. Ford expires 3/6/201
Matthew J. Courson expires 10/21/2017
10. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.

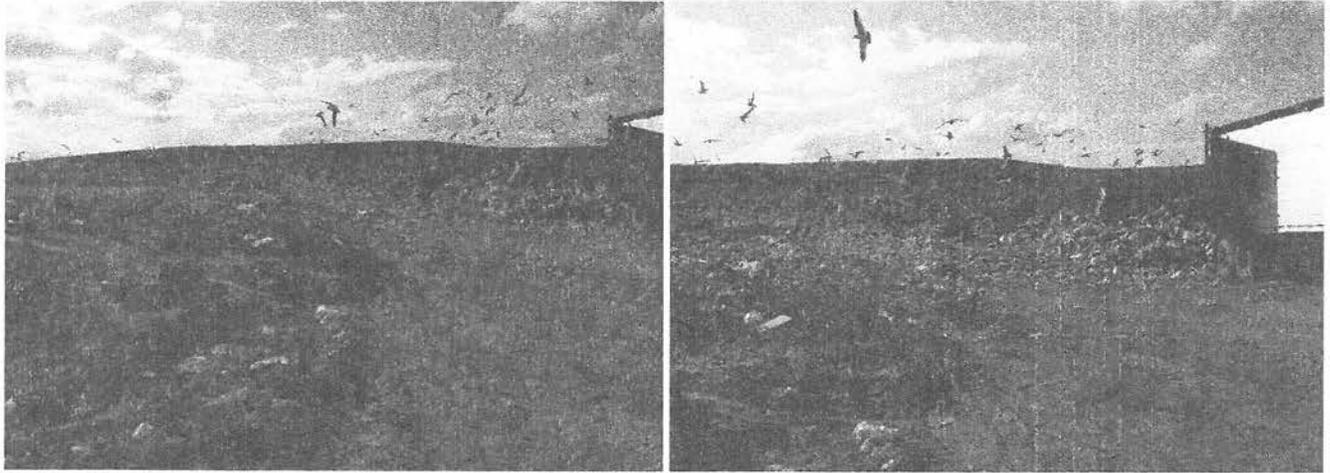


Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

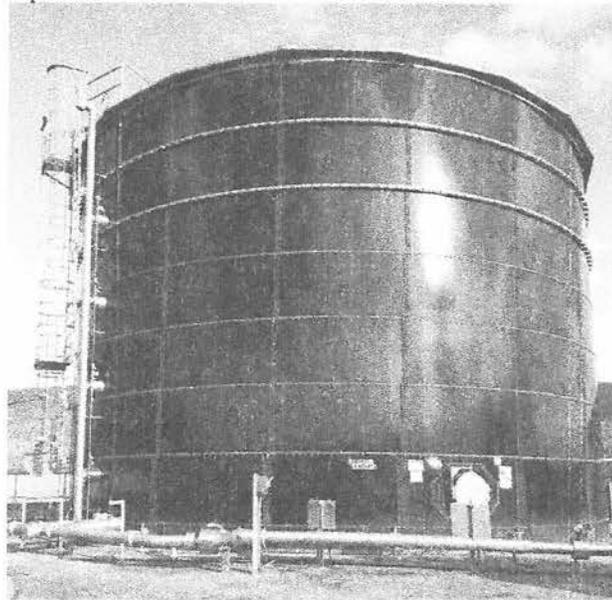
11. The intermediate cover at the facility appeared in good condition and well applied.

12. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with dirt and applied Posi-Shell around the edges.



Working face of landfill

13. The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B to pump leachate from the liner to the storage tank. From the leachate collection tanks, approximately 2,000 gallons of leachate per day is pumped, via forced main, into the Holly Springs sanitary sewer system which flows to the Town of Holly Springs waste water treatment plant.



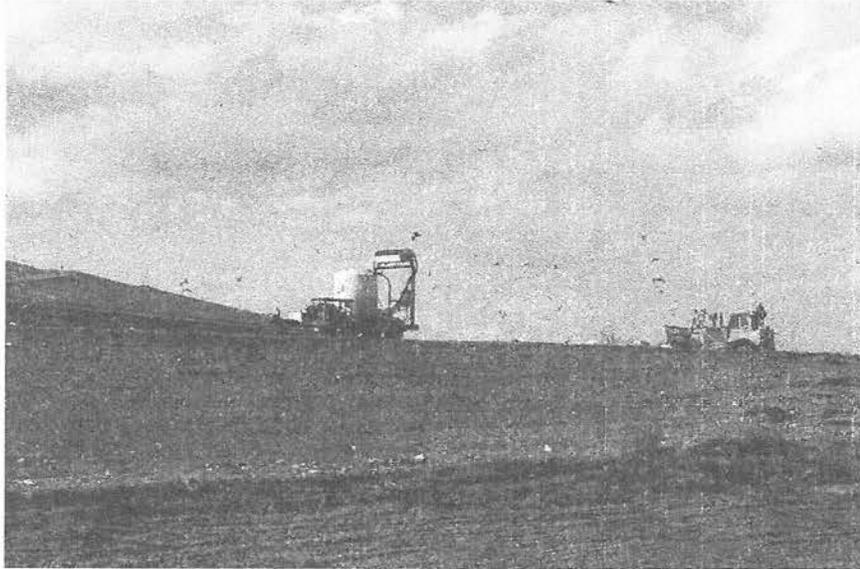
Leachate storage tank

14. No prohibited or banned items were observed within the working face.

15. Windblown waste was being well managed.



- 16. To ameliorate negative odors from the working face impacting residents south of the landfill, the South Wake facility plans to utilize an odor misting system. This system will be positioned either north or south of the working face in line with the primary wind direction, but may be relocated as needed to provide optimal odor neutralizing benefit.



Odor misting system

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz Patterson
DN: cn=Liz Patterson, o=Division
of Waste Management, ou=Solid
Waste Section,
email=elizabeth.patterson@ncden
r.gov, c=US
Date: 2016.01.05 08:29:15 -05'00'

Phone: 919-707-8286(O) 919-805-6499(C)
elizabeth.patterson@ncdenr.gov

Liz Patterson, Environmental Senior Specialist
Regional Representative

Sent on: 1-5-2016	<input checked="" type="checkbox"/>	Email	<input type="checkbox"/>	Hand delivery	<input type="checkbox"/>	US Mail	<input type="checkbox"/>	Certified No. []
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- Copies: Jason Watkins, Field Operations Branch Head – Solid Waste Section
 Jessica Montie, Compliance Officer – Solid Waste Section
 John College, Environmental Senior Specialist – Solid Waste Section
 Casey Fulghum, Wake County – Solid Waste Facilities Manager
 John Roberson, Wake County – Solid Waste Director



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:

Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS		COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incineration		T&P		FIRM		
CDFL		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF		

Date of Site Inspection: December 22, 2015 Date of Last Inspection: December 9, 2015

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
Highway 55 Bypass (6124 Old Smithfield Road)
Apex, NC 27615

GPS COORDINATES: N: 35.68140 E: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
Troy Mitchell, Waste Industries - General Manager
Casey Fulghum, Wake County - Solid Waste Facilities Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
PTC-Phase 1 rescinded: April 7, 2000
PTC-Phase 1: March 27, 2001
PTC-Phase 1 modification: March 21, 2007
PTO-Phase 1A: January 28, 2008
PTO-Phase 1A (error corrected): August 20, 2008
PTC-Phase 1 modification (changes to 1B): September 15, 2009
PTO-Phases 1A & 1B: July 21, 2010
PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
PTC Phase 2 and PTO Phases 1A, 1B, and 2A: April 24, 2015
PTO expires January 28, 2018

PURPOSE OF SITE VISIT: Odor Complaint

STATUS OF PAST NOTED VIOLATIONS:

NONE

OBSERVED VIOLATIONS

NONE

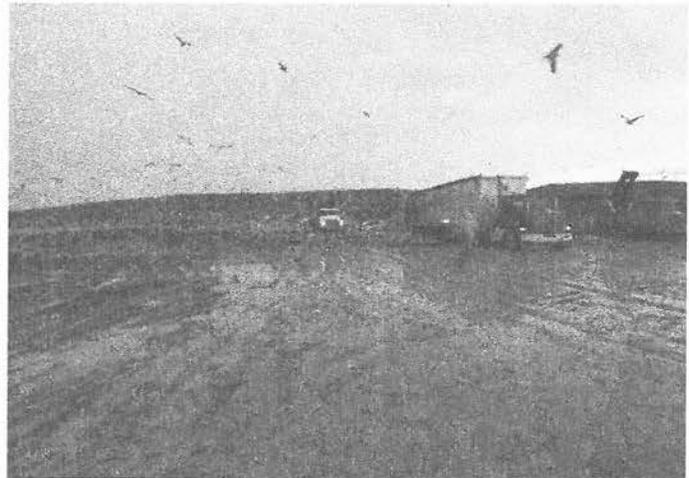
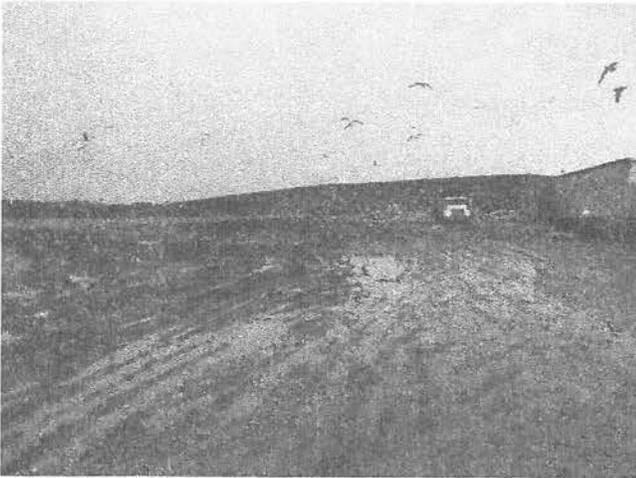
FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

1. The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County.
2. Liz Patterson, Environmental Senior Specialist, with the Division of Waste Management was at the facility to investigate an odor complaint from Hank Dickson, Councilman for Town of Holly Springs that was emailed to Ellen Lorscheider, Section Chief of the Solid Waste Section on Monday, December 21, 2015 at 11:46 AM. Casey Fulghum, Solid Waste Facilities Manager with Wake County was also at the facility to investigate odor complaints received by John Roberson, Solid Waste Director for Wake County.
3. Troy Mitchell, General Manager and his staff are keeping an odor log and driving neighborhoods when complaints are received. Facility will continue to maintain odor log and remain responsive to complaints.
4. Moderate odor from the working face was detected onsite as Troy Mitchell, Casey Fulghum, and Liz Patterson drove the landfill road immediately circling the facility. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with dirt and applied Posi-Shell around the edges.



5. Troy Mitchell, Casey Fulghum, and Liz Patterson spent approximately an hour from 10:45 to 11:45 driving through the neighborhoods surrounding South Wake MSW Landfill where recent complaints to the Division of Waste Management had come from (Arbor Creek and Sunset Ridge North subdivisions) and also where typical complaints are called in from south of the landfill. No objectionable odors were detected.
6. No prohibited or banned items were observed within the working face.
7. Windblown waste was being well managed.

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 3 of 3

8. Smith Gardner has presented an odor management strategy for South Wake landfill and to ameliorate negative odors from the working face impacting residents south of the landfill, the South Wake facility plans to utilize an odor misting system. This system will be positioned either north or south of the working face in line with the primary wind direction, but may be relocated as needed to provide optimal odor neutralizing benefit.

Please contact me if you have any questions or concerns regarding this inspection report.



Digitally signed by Liz
Patterson
DN: cn=Liz Patterson,
o=Division of Waste
Management, ou=Solid
Waste Section,
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-05'00'

Phone: 919-707-8286(O) 919-805-6499(C)
elizabeth.patterson@ncdenr.gov

Liz Patterson
Environmental Senior Specialist
Regional Representative

Sent on: 1-20-2016	X	Email		Hand delivery		US Mail	Certified No. <input type="checkbox"/>
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Copies: Jason Watkins, Field Operations Branch Head – Solid Waste Section
Jessica Montie, Compliance Officer – Solid Waste Section
Casey Fulghum, Wake County – Solid Waste Facilities Manager
John Roberson, Wake County – Solid Waste Director



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HIW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P/Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: March 7, 2016 Date of Last Inspection: December 22, 2015

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
Highway 55 Bypass (6124 Old Smithfield Road)
Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com

Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
Troy Mitchell, Waste Industries - General Manager
Brian Fowler, Waste Industries – Operations Support

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
PTC-Phase 1 rescinded: April 7, 2000
PTC-Phase 1: March 27, 2001
PTC-Phase 1 modification: March 21, 2007
PTO-Phase 1A: January 28, 2008
PTO-Phase 1A (error corrected): August 20, 2008
PTC-Phase 1 modification (changes to 1B): September 15, 2009
PTO-Phases 1A & 1B: July 21, 2010
PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
PTC Phase 2 and PTO Phases 1A, 1B, and 2A: April 24, 2015
PTO expires January 28, 2018

PURPOSE OF SITE VISIT: Odor Complaint

STATUS OF PAST NOTED VIOLATIONS:

NONE

OBSERVED VIOLATIONS:

NONE

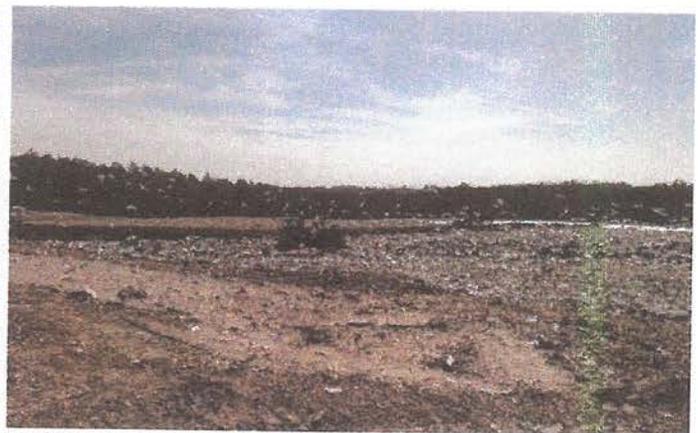
FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 2 of 2

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

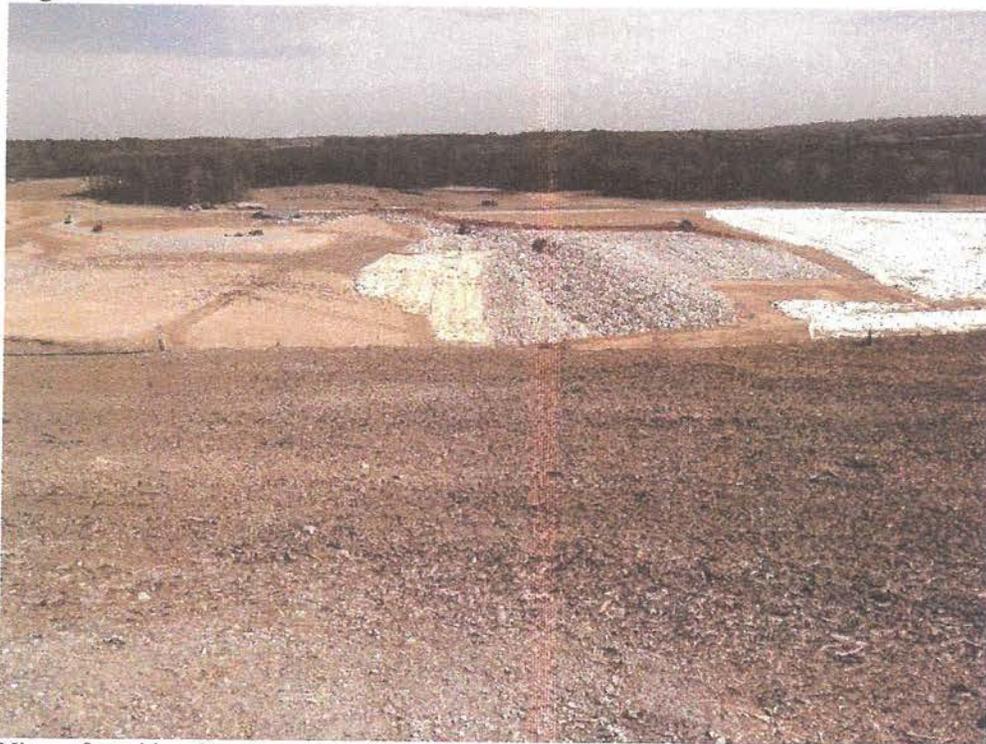
1. The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County.
2. Liz Patterson, Environmental Senior Specialist, with the Division of Waste Management was at the facility to investigate an odor complaint from, Trish Dare that was emailed to Liz Patterson on Thursday, March 3, 2016 at 6:38 PM.
4. Troy Mitchell, General Manager and his staff are keeping an odor log and driving neighborhoods when complaints are received. Facility will continue to maintain odor log and remain responsive to complaints.
5. Weather conditions were sunny, clear, and windy. Liz Patterson spent the morning from 10:00AM to 11:30AM inspecting the closed BFI-Holly Springs Disposal Inc C&D landfill (9214-CDLF-1993) located at 4300 Holly Springs Apex Road. South Wake landfill is clearly visible from the top of the closed landfill. Two strong wind gusts carried a moderate odor across the closed landfill which dissipated within thirty seconds to one minutes. Liz Patterson traveled from 4300 Holly Springs – Apex Road to South Wake Landfill along Highway 55 and did not detect odors between 11:45AM and 12:00PM when traveling to and arriving at the entrance to South Wake Landfill.
6. Moderate odor from the working face was detected onsite as Brian Fowler and Liz Patterson approached the working face of the landfill. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with dirt. Dirt was being applied as cover on the southern edge of the working face to minimize odors and also reduce the size of the working face.



Working face of Landfill

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Page 3 of 3



View of working face from top of landfill

- 7. No prohibited or banned items were observed within the working face.
- 8. Windblown waste was being well managed.
- 9. South Wake landfill has tested two odor misting systems so far. The facility is not satisfied with the systems and will continue working with Smith Gardner on their odor management strategy to ameliorate negative odors from the working face impacting residents south of the landfill. The odor misting system was not operating while Liz Patterson was on site.

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz Patterson
 DN: cn=Liz Patterson, o=Division
 of Waste Management, ou=Solid
 Waste Section,
 email=elizabeth.patterson@ncde
 nr.gov, c=US
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Phone: 919-707-8286(O) 919-805-6499(C)
elizabeth.patterson@ncdenr.gov

Liz Patterson
Environmental Senior Specialist
Regional Representative

Sent on: 3-24-2016	X	Email		Hand delivery		US Mail	Certified No. []
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Copies: Jason Watkins, Field Operations Branch Head – Solid Waste Section
 Jessica Montie, Compliance Officer – Solid Waste Section
 Casey Fulghum, Wake County – Solid Waste Facilities Manager
 John Roberson, Wake County – Solid Waste Director



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	<input checked="" type="checkbox"/>	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: February 16, 2017 **Date of Last Inspection: December 28, 2016**

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
Highway 55 Bypass (6124 Old Smithfield Road)
Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
Mary Whaley, NCDEQ – Solid Waste Section
Amanda Freeman, NCDEQ - Solid Waste Section
Troy Mitchell, Waste Industries - General Manager
Casey Fulghum, Wake County – Solid Waste Facilities Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
PTC-Phase 1 rescinded: April 7, 2000
PTC-Phase 1: March 27, 2001
PTC-Phase 1 modification: March 21, 2007
PTO-Phase 1A: January 28, 2008
PTO-Phase 1A (error corrected): August 20, 2008
PTC-Phase 1 modification (changes to 1B): September 15, 2009
PTO-Phases 1A & 1B: July 21, 2010
PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
PTC Phase 2B and PTO Phases 1A, 1B, and 2A: April 24, 2015
PTC and PTO expires January 28, 2018

PURPOSE OF SITE VISIT:

Parial Inspection

STATUS OF PAST NOTED VIOLATIONS:

NONE



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

OBSERVED VIOLATIONS:

NONE

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENT

The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County. The Permit to Construct and the Permit to Operate shall expire January 28, 2018.

1. The facility is fenced and is secured by a locking gate when it is not open for operation. The correct signage is at the entrance of the facility listing the facility name, permit number and emergency contact information as well as materials accepted at the facility. The facility accepts waste Monday through Saturday from 7:00am until 4:00pm and is closed Sundays.
2. Records were not reviewed during this inspection.
3. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record.
4. The use of geotextile or tarp as alternate daily cover is approved. The use must be consistent with the approved plan.
5. Troy Mitchell, General Manager and his staff are keeping an odor log and driving neighborhoods when complaints are received. Facility staff also monitor complaints received through the Odor Complaint Form that is posted on the WakeGov.com website on the South Wake Landfill page at <http://www.wakegov.com/recycling/division/swl/Pages/default.aspx>. Facility will continue to maintain odor log and remain responsive to complaints.
6. Discussed the Byers Scientific & Manufacturing waterless vapor system that will be installed along the perimeter of the landfill to neutralize landfill odors. The system is anticipated to be up and running by June.
7. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
8. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch.

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

- 9. The size of the working face was appropriately sized for the expected tonnage. The working face was well defined with dirt around the edges.



- 10. The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B to pump leachate from the liner to the storage tank. From the leachate collection tanks, approximately 2,000 gallons of leachate per day is pumped, via forced main, into the Holly Springs sanitary sewer system which flows to the Town of Holly Springs waste water treatment plant.
- 11. No prohibited or banned items were observed within the working face.
- 12. Windblown waste was being well managed.

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz Patterson
DN: cn=Liz Patterson, o=Division
of Waste Management, ou=Solid
Waste Section,
email=elizabeth.patterson@ncden
r.gov, c=US
Date: 2017.03.03 13:43:04 -05'00'
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2015.007.00000

Phone: 919-707-8286(O) 919-805-6499(C)
elizabeth.patterson@ncdenr.gov

Liz Patterson
Environmental Senior Specialist
Regional Representative

Sent on: 3/3/2017	X	Email		Hand delivery		US Mail	Certified No. []
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Copies: Drew Hammonds, Eastern District Supervisor - Solid Waste Section
Jessica Montie, Compliance Officer - Solid Waste Section
John Roberson, Wake County – Solid Waste Director



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incineration		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: November 14, 2017

Date of Last Inspection: February 16, 2017

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
Highway 55 Bypass (6124 Old Smithfield Road)
Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com

Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
Troy Mitchell, Waste Industries - General Manager
Chris Sutter, Waste Industries – Operations Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
PTC-Phase 1 rescinded: April 7, 2000
PTC-Phase 1: March 27, 2001
PTC-Phase 1 modification: March 21, 2007
PTO-Phase 1A: January 28, 2008
PTO-Phase 1A (error corrected): August 20, 2008
PTC-Phase 1 modification (changes to 1B): September 15, 2009
PTO-Phases 1A & 1B: July 21, 2010
PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
PTC Phase 2B and PTO Phases 1A, 1B, and 2A: April 24, 2015
PTC and PTO expires January 28, 2018

PURPOSE OF SITE VISIT:

Comprehensive Inspection

STATUS OF PAST NOTED VIOLATIONS:

NONE

OBSERVED VIOLATIONS:

NONE



FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENT

The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County. The Permit to Construct and the Permit to Operate shall expire January 28, 2018.

1. The facility is fenced and is secured by a locking gate when it is not open for operation. The correct signage is at the entrance of the facility listing the facility name, permit number and emergency contact information as well as materials accepted at the facility. The facility accepts waste Monday through Saturday from 7:00am until 4:00pm and is closed Sundays.
2. The approved Facility Permit, Operations Plan, and Contingency Plan were complete, in order, and reviewed during this Facility Compliance Inspection.
3. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record.
4. The use of geotextile or tarp as alternate daily cover is approved. The use must be consistent with the approved plan.
5. Groundwater sampling events are being completed semiannually by Golder Associates, Inc. Sampling occurred on March 29, 2017 and September 28, 2016.
6. The facility conducts methane monitoring quarterly. Methane monitoring records were verified for samplings taken on March 14, 2017, June 21, 2017, and September 17, 2017. No exceedances noted.
7. Random waste screenings records were up-to-date through 11/13/2017. Personnel at the facility complete 1 or 2 recorded inspections per operating day. The screening forms note any prohibited items observed and a description of the load. A picture of the hauling truck is also taken and attached to each screening form. Good job!
8. Staff training records were reviewed:
 - The following personnel are SWANA Managers of Landfill Operations (MOLO):
 - George Moot expires 6/10/19 (#1169654)
 - Troy Mitchell expires 2/6/18 (#58763)
 - Lauchlin M. Muse, III expires 6/10/19 (#1169646)
 - Chris Sutter expires 6/7/19 (#910252)
 - The following employees are Certified Landfill Operation Specialists by NC SWANA:
 - Bernelcey T. Butler LF-2017007 expires 2/28/20
 - Brian Fowler LF-2009143 expires 2/13/18
 - Tyler Jones LF-2017008 expires 2/28/20
 - Chad McNeill LF-2017005 expires 2/28/20
 - Allan Sinanan LF-2017006 expires 2/28/20

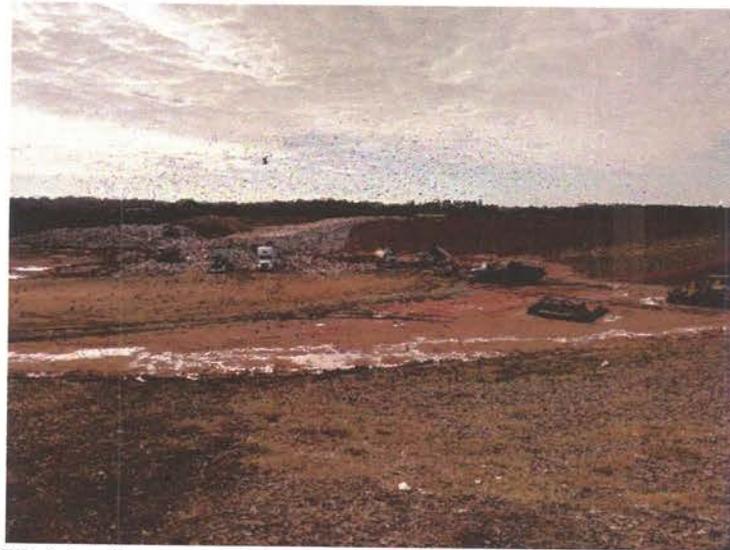


FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

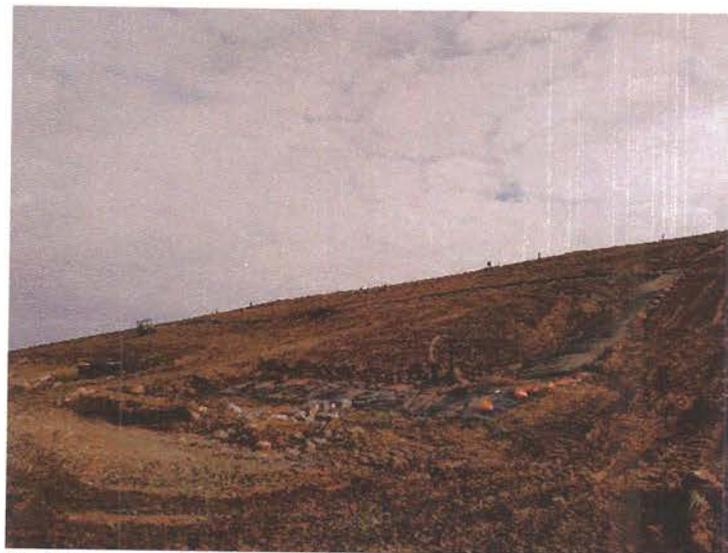
Solid Waste Section

9. Troy Mitchell, General Manager, and his staff are keeping an odor log and driving neighborhoods when complaints are received. Facility continues to monitor complaints received through the Odor Complaint Form posted on the WakeGov.com website on the South Wake Landfill page at <http://www.wakegov.com/recycling/division/swl/Pages/default.aspx>.
10. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
11. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch.
12. The size of the working face was appropriately sized for the expected tonnage. No prohibited or banned items were observed in the working face.



Working face

13. Partial closure of Phase One began in May 2017 and is scheduled for completion by April 2018.



Progress on section of partial closure



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

- 14. The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B to pump leachate from the liner to the storage tank. From the leachate collection tanks, approximately 2,000 gallons of leachate per day is pumped, via forced main, into the Holly Springs sanitary sewer system which flows to the Town of Holly Springs waste water treatment plant.
- 15. Windblown waste was being well managed.

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz Patterson
DN: cn=Liz Patterson, o=Division
of Waste Management, ou=Solid
Waste Section,
email=elizabeth.patterson@ncde
nr.gov, c=US
Date: 2017.12.11 18:55:28 -05'00'
Adobe Acrobat version:
2015.007.00000

Phone: 910-433-3353(O) 919-805-6499(C)
elizabeth.patterson@ncdenr.gov

Liz Patterson
Environmental Senior Specialist
Regional Representative

Sent on: 12/11/2017	<input checked="" type="checkbox"/>	Email	<input type="checkbox"/>	Hand delivery	<input type="checkbox"/>	US Mail	Certified No. []
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Copies: Drew Hammonds, Eastern District Supervisor - Solid Waste Section
John Roberson, Wake County – Solid Waste Director



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:										COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE	
Lined MSWLF	X	LCID		YW		Transfer		Compost			SLAS
Closed MSWLF		HHW		White goods		Incin		T&P			FIRM
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO			SDTF

Date of Site Inspection: February 19, 2018

Date of Last Inspection: November 14, 2017

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
Highway 55 Bypass (6124 Old Smithfield Road)
Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com

Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
Chris Sutter, Waste Industries – Operations Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
PTC-Phase 1 rescinded: April 7, 2000
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PTO-Phase 1A: January 28, 2008
PTO-Phase 1A (error corrected): August 20, 2008
PTC-Phase 1 modification (changes to 1B): September 15, 2009
PTO-Phases 1A & 1B: July 21, 2010
PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
PTC Phase 2B and PTO Phases 1A, 1B, and 2A: April 24, 2015
PTC and PTO expires January 28, 2018
Life-of-Site PTC Phase 2 and PTO Phases 1A, 1B, and 2A: December 15, 2017

PURPOSE OF SITE VISIT:

Partial Inspection

STATUS OF PAST NOTED VIOLATIONS:

NONE

OBSERVED VIOLATIONS:

NONE



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENT

The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County.

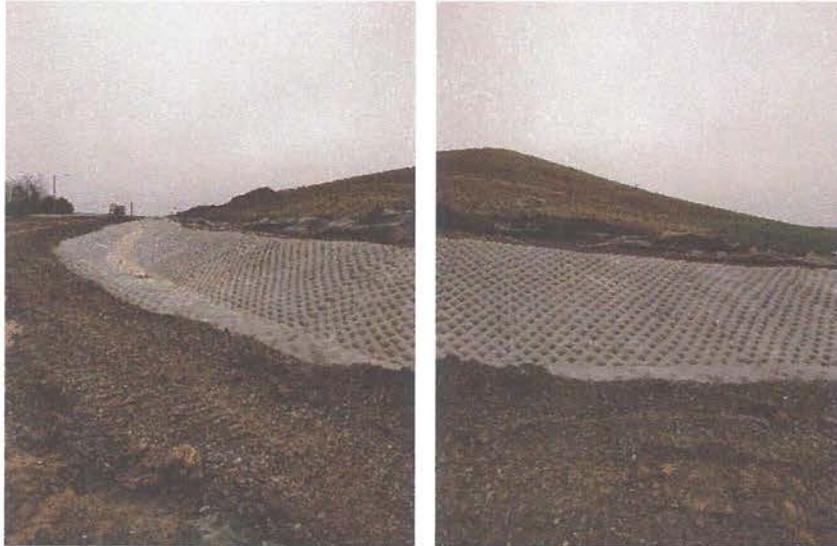
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4. The use of geotextile or tarp as alternate daily cover is approved. The use must be consistent with the approved plan.
5. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
6. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch.
7. The size of the working face was appropriately sized for the expected tonnage. No prohibited or banned items were observed in the working face.



Working face

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

- 8. Progress continues on partial closure of Phase One which began in May 2017 and is scheduled for completion by May 2018.



Progress on section of partial closure

- 9. Windblown waste was being well managed.
- 10. Digital photos were taken during the inspection.

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz Patterson
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of Waste Management, ou=Solid
Waste Section,
email=elizabeth.patterson@ncde
nr.gov, c=US
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2018.009.20050

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elizabeth.patterson@ncdenr.gov

Liz Patterson
Environmental Senior Specialist
Regional Representative

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Copies: Drew Hammonds, Eastern District Supervisor - Solid Waste Section
John Roberson, Wake County – Solid Waste Director
Roy Baldwin, Wake County – Solid Waste Facilities Manager



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incin		T&P		FIRM	
CDLF		Tire T&P/Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: April 26, 23018

Date of Last Inspection: February 19, 2018

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365

john.roberson@wakegov.com

Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)

troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
 Ethan Caldwell, NCDEQ – Solid Waste Section
 Ervin Lane, NCDEQ – Solid Waste Section
 Troy Mitchell, Waste Industries - General Manager
 Chris Sutter, Waste Industries – Operations Manager
 Roy Baldwin, Wake County – Solid Waste Facilities Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
 PTC Phase 2B and PTO Phases 1A, 1B, and 2A: April 24, 2015
 PTC and PTO expires January 28, 2018
 Life-of-Site PTC Phase 2 and PTO Phases 1A, 1B, and 2A: December 15, 2017

PURPOSE OF SITE VISIT:

Partial Inspection

FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

STATUS OF PAST NOTED VIOLATIONS:

NONE

OBSERVED VIOLATIONS:

NONE

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENT

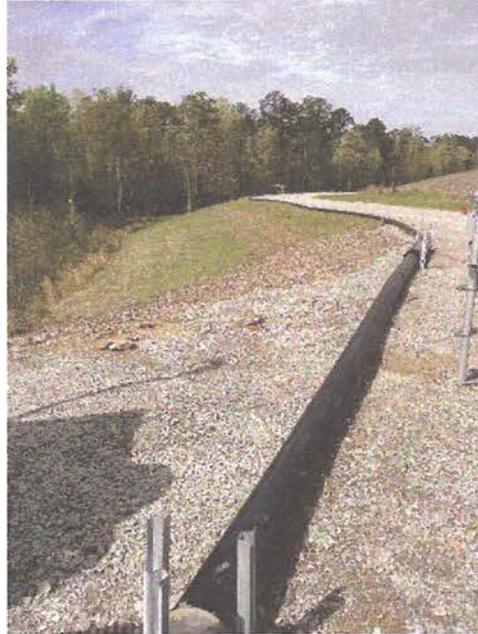
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2. Records were not reviewed at this inspection.
3. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record.
4. The use of geotextile or tarp as alternate daily cover is approved. The use must be consistent with the approved plan.
5. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
6. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch.
7. The size of the working face was appropriately sized for the expected tonnage. No prohibited or banned items were observed in the working face.



Working face

8. Vapor based odor system received several upgrades at the beginning of April and is fully operational again.



Section of odor control system

9. Progress continues on partial closure of Phase One which began in May 2017 and is scheduled for completion by May 2018.



Progress on section of partial closure

10. Windblown waste was being well managed.
11. Digital photos were taken during the inspection.



Waste Management
ENVIRONMENTAL QUALITY

FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz Patterson
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Phone: 910-433-3353(O)
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Liz Patterson
Environmental Senior Specialist
Regional Representative

Sent on: 5-16-2018	X	Email		Hand delivery		US Mail	Certified No. []
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Copies: Drew Hammonds, Eastern District Supervisor - Solid Waste Section
John Roberson, Wake County – Solid Waste Director



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
Closed MSWLF		HHW		White goods		Incineration		T&P		FIRM	
CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: December 11, 2018 Date of Last Inspection: April 26, 2018

FACILITY NAME AND ADDRESS:

South Wake MSW Landfill
 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

FACILITY CONTACT NAME AND PHONE NUMBER:

Owner: Wake County – Solid Waste Director: John Roberson (919) 856-6365
john.roberson@wakegov.com
Operator: Wake County Disposal, LLC – Landfill Manager: Troy Mitchell (919) 291-6472 (cell)
troy.mitchell@wasteindustries.com

FACILITY CONTACT ADDRESS:

Same as above

PARTICIPANTS:

Liz Patterson, NCDEQ - Solid Waste Section
 Davy Conners, NCDEQ – Solid Waste Section
 Troy Mitchell, Waste Industries - General Manager
 Chris Sutter, Waste Industries – Operations Manager
 Roy Baldwin, Wake County – Solid Waste Facilities Manager

STATUS OF PERMIT:

PTC-Original Issue, Phase 1: February 18, 1999
 PTC-Phase 1 rescinded: April 7, 2000
 PTC-Phase 1: March 27, 2001
 PTC-Phase 1 modification: March 21, 2007
 PTO-Phase 1A: January 28, 2008
 PTO-Phase 1A (error corrected): August 20, 2008
 PTC-Phase 1 modification (changes to 1B): September 15, 2009
 PTO-Phases 1A & 1B: July 21, 2010
 PTC Phase 2 and PTO Phases 1A and 1B: August 28, 2013
 PTC Phase 2B and PTO Phases 1A, 1B, and 2A: April 24, 2015
 Life-of-Site PTC Phase 2 and PTO Phases 1A, 1B, and 2A: December 15, 2017

PURPOSE OF SITE VISIT:

Comprehensive Inspection

STATUS OF PAST NOTED VIOLATIONS: NONE

OBSERVED VIOLATIONS: NONE



FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

The item(s) listed above were observed by Section staff and require action on behalf of the facility in order to come into or maintain compliance with the Statutes, Rules, and/or other regulatory requirements applicable to this facility. Be advised that pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Laws, Regulations, Conditions of a Permit, or Order under Article 9 of Chapter 130A of the N.C. General Statutes. Further, the facility and/or all responsible parties may also be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

ADDITIONAL COMMENTS

The facility is a MSW landfill owned by Wake County and operated by Wake County Disposal, LLC. Wake County Disposal is a subsidiary of Waste Industries, Inc. The service area for the facility is Wake County and the municipalities in Wake County. Life-of-Site Permit to Construct(PTC) Phase 2 and Permit To Operate(PTO) Phases 1A, 1B, and 2A was issued December 15, 2017.

1. The facility is fenced and is secured by a locking gate when it is not open for operation. The correct signage is at the entrance of the facility listing the facility name, permit number and emergency contact information as well as materials accepted at the facility. The facility accepts waste Monday through Saturday from 7:00am until 4:00pm and is closed Sundays.
2. The approved Facility Permit, Operations Plan, and Contingency Plan were complete, in order, and reviewed during this Facility Compliance Inspection.
3. Posi-Shell has been approved for use as an alternate cover material for the facility. Recycled paint from the Wake County HHW collection sites is used in the Posi-Shell mixture. A record of Posi-Shell application and inspections are kept as part of the operating record.
4. Cover logs reviewed and well-maintained to August 2, 2018. Recent staff changes caused a lapse in cover logs. Staff to be retrained on cover logs at next monthly training to help
5. The use of geotextile or tarp as alternate daily cover is approved. The use must be consistent with the approved plan.
6. Groundwater sampling events are being completed semiannually by Golder Associates, Inc. Sampling occurred on March 29, 2017 and November 7, 2018.
7. The facility conducts methane monitoring quarterly. Methane monitoring records were verified for samplings taken on March 21, 2018, June 21, 2018. No exceedances noted.
8. Staff training records were reviewed:
 - The following personnel are SWANA Managers of Landfill Operations (MOLO):
 - George Moot expires 6/10/19 (#1169654)
 - Troy Mitchell expires 6/27/21 (#58763)
 - Lauchlin M. Muse, III expires 6/10/19 (#1169646)
 - Chris Sutter expires 6/7/19 (#910252)
 - Seth C. Gunderson 6/27/2021 (#1531434)
 - The following employees are Certified Landfill Operation Specialists by NC SWANA:
 - Bernelcey T. Butler LF-2017007 expires 2/28/20
 - Tyler Jones LF-2017008 expires 2/28/20
 - Chad McNeill LF-2017005 expires 2/28/20
 - Allan Sinanan LF-2017006 expires 2/28/20
 - The following are Certified Technical Associate of Landfill Operations:
 - James T. Faicloth expires 6/15/2020 (#1418301)



FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

9. Random waste screenings records were up-to-date through 12/4/2018. Personnel at the facility complete 1 or 2 recorded inspections per operating day. The screening forms note any prohibited items observed and a description of the load. A picture of the hauling truck is also taken and attached to each screening form. Good job!
10. Troy Mitchell, General Manager, and his staff are keeping an odor log and driving neighborhoods when complaints are received. Facility continues to monitor complaints received through the Odor Complaint Form posted on the WakeGov.com website on the South Wake Landfill page at <http://www.wakegov.com/recycling/division/swl/Pages/default.aspx>.
11. Edge of waste markers are in place and easily identifiable around the waste footprint at the facility.
12. The intermediate cover at the facility appeared in good condition and well applied. Side slopes are being stabilized with mulch.
13. The size of the working face was appropriately sized for the expected tonnage.



Working face

14. Partial closure of Phase One completed in 2018.





FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

15. The facility has two (2) leachate pumps (one for each sub-phase, 1A & 1B to pump leachate from the liner to the storage tank. From the leachate collection tanks, approximately 2,000 gallons of leachate per day is pumped, via forced main, into the Holly Springs sanitary sewer system which flows to the Town of Holly Springs waste treatment plant.



16. Windblown waste was being well managed.

Please contact me if you have any questions or concerns regarding this inspection report.

Digitally signed by Liz
Patterson
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o=Division of Waste
Management, ou=Solid
Waste Section,
email=elizabeth.patterson@
ncdenr.gov, c=US
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-05'00'
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Phone: 910-433-3353(O) 919-805-6499(C)
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Liz Patterson
Environmental Senior Specialist
Regional Representative

Sent on:1/21/2019	<input checked="" type="checkbox"/>	Email	<input type="checkbox"/>	Hand delivery	<input type="checkbox"/>	US Mail	Certified No. []
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Copies: Drew Hammonds, Eastern District Supervisor - Solid Waste Section
John Roberson, Wake County – Solid Waste Director



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF	X	LCID		YW		Transfer		Compost		SLAS	COUNTY: WAKE PERMIT NO.: 9222-MSWLF-2008 FILE TYPE: COMPLIANCE
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CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Date of Site Inspection: April 4, 2019

Date of Last Inspection: December 11, 2018

FACILITY NAME AND ADDRESS:

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 Highway 55 Bypass (6124 Old Smithfield Road)
 Apex, NC 27615

GPS COORDINATES: N: 35.68140 W: -78.84475

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john.roberson@wakegov.com

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 Life-of-Site PTC Phase 2 and PTO Phases 1A, 1B, and 2A: December 15, 2017

PURPOSE OF SITE VISIT:

Partial Inspection

STATUS OF PAST NOTED VIOLATIONS: NONE

OBSERVED VIOLATIONS: NONE



FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

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FACILITY COMPLIANCE INSPECTION REPORT

Division of Waste Management

Solid Waste Section

9. The size of the working face was appropriately sized for the expected tonnage.



10. Partial closure of Phase One completed in 2018.



11. Litter pickers onsite during inspection. Windblown waste was being well managed.



FACILITY COMPLIANCE INSPECTION REPORT
Division of Waste Management
Solid Waste Section

Please contact me if you have any questions or concerns regarding this inspection report.

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 Waste Management ,
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Liz Patterson
 Environmental Senior Specialist
Regional Representative

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Copies: Drew Hammonds, Eastern District Supervisor - Solid Waste Section
 John Roberson, Wake County – Solid Waste Director
 Roy Baldwin, Wake County – Solid Waste Facilities Manager

Appendix C

Odor Mitigation Strategies – Actionable Solutions Summary

ODOR MITIGATION STRATEGIES – ACTIONABLE SOLUTIONS SUMMARY

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 3.1 - LFG Collection & Control System	
<ul style="list-style-type: none"> • Increase comprehensive infrastructure to enhance wellfield performance (including vertical LFG wells, dewatering pumps, automated wellheads, leachate cleanout connections, redundancy in collection pipe, and additional isolation valves) • Increase frequency of assessing system efficiency and routine O&M activities (including well density and coverage, liquid level measurements, vacuum distribution, wellhead flowrates, pump cleaning, etc.) • Accelerate LFG system installation in conjunction with waste placement operations prior to regulatory obligations 	<ul style="list-style-type: none"> • Assess potential to install horizontal collectors, slope collectors, sacrificial wells, shallow direct-push wells, vertical well target piles, caisson bottom-up wells, etc. for LFG extraction • Assess potential to install near-surface collectors and additional bottom-of-cell LFG infrastructure
Section 3.2 - Odor Neutralizing System	
<ul style="list-style-type: none"> • Expand and/or relocate vapor-phase OCM • Increase/implement direct-application products (e.g., NWC SWAT, Odor No More, Bio-Organic Catalyst) 	<ul style="list-style-type: none"> • OdorBoss odor control equipment to enhance odor neutralizing system • Moving vapor-phase OCM with start of waste placement in Phase 2B or 3 • Consider separation and/or treatment of waste streams at transfer stations • Adding odor masking/neutralizing agent “mistlers” to certain equipment • Applying odor neutralizing agent to select incoming waste collection/transfer vehicles
Section 3.3 - Working Face Operations	
	<ul style="list-style-type: none"> • Containerizing odorous materials before delivery to working face • Increasing air flow and dispersion
Section 3.4 - Cover Materials	
<ul style="list-style-type: none"> • Daily and intermediate cover protocols keeping the working face to a minimum size and the exclusive use of dirt and tarps for daily cover operations. • Continued pilot study demonstration of ADC products and protocols • Accelerated deployment of final cover 	<ul style="list-style-type: none"> • Installing additional final cap ahead of schedule • Installing interim cover systems such as geosynthetic rain cover or exposed geomembrane cover in areas that will be inactive for extended periods of time, but are not ready for final cover • Use of hybrid final cover systems

ODOR MITIGATION STRATEGIES – ACTIONABLE SOLUTIONS SUMMARY

Current Strategies (with Planned Improvements)	New Strategies Under Development
Section 3.5 - Waste Receipt	
<ul style="list-style-type: none"> Prohibition of WWTP sludge and biosolids Curtailment of C&D materials and special event waste from the City of Raleigh 	<ul style="list-style-type: none"> Identification and curtailment of odorous wastes and restricting hours for this material to be delivered Regular odor assessment of incoming waste loads
Section 3.6 - Leachate	
<ul style="list-style-type: none"> Covered leachate storage tank with aeration 	<ul style="list-style-type: none"> Leachate minimization and prevention of infiltration
Section 3.7 - Cell Construction	
<ul style="list-style-type: none"> Procedures to limit LFG emissions during tie-ins in new cell construction including the installation of anchor trench solar gas collectors Development of odor control practices to minimize the impact and duration from onsite projects such as well drilling, well extending and cell expansion activities 	
Section 4 - Monitoring & Remediation	
<ul style="list-style-type: none"> Standard LFG monitoring (blower/flare station data recording, wellhead monitoring, probe monitoring, etc.) Off-site odor monitoring in response to odor reports Standard SEM events, as well as voluntary SEM on an as-needed basis Envirosuite Ambient eNose Odor Sensors and associated dispersion models Cover integrity monitoring of final closure cap 	<ul style="list-style-type: none"> Analyze samples of LFG from LFG collection and control system Olfactory odor evaluation at LFG well pipe penetrations Regular voluntary SEM events at the working face, in “hot spots”, non-NSPS cells, etc. Ambient air sampling at off-site locations Cover integrity monitoring on non-closed areas of landfill
Miscellaneous	
<ul style="list-style-type: none"> Receiving and responding to odor reports from the public Community outreach and education – including tours, Nextdoor notifications, and meetings of the South Wake Landfill Citizens Committee 	<ul style="list-style-type: none"> Annual evaluation and update of Odor Management and Control Plan Collecting stormwater from active filling area to divert infiltration Hiring staff to oversee odor-related activities Expanded public notification of landfill activities using a 3rd party PR or communication group Presentations at HOA meetings

Appendix D

Odor Neutralizing System Product and Equipment Information

WATERLESS VAPOR DISTRIBUTION SYSTEM FOR ODOR CONTROL



KEY FEATURES

- Remote monitoring 24/7 by Byers Scientific staff on status of all machine operating parameters
- Operational data are logged to provide evidence of compliance to local/state/federal agencies
- Key personnel receive email/SMS text notifications alerting of machine needs such as low tank level or air filter replacement
- Each system is custom designed and engineered for a client's site-specific characteristics

- Patent-pending Uniform Vapor-Distribution Technology ensures that a consistent and controllable level of product is dispersed via the perimeter piping
- Rugged weather resistant enclosure capable of withstanding prolonged exposure to wind, rain and other elements
- UL Listed control panel is designed for site specific electrical requirements (e.g. 480 VAC, 3 Phase)
- Air filter replacement can be done safely from outside, no need to open/unlock door
- Interior access via lockable 120-degree angle, gas assisted door for general machine maintenance such as product tank filling
- Product reservoir tank provides up to three weeks of uninterrupted operation before needing refill

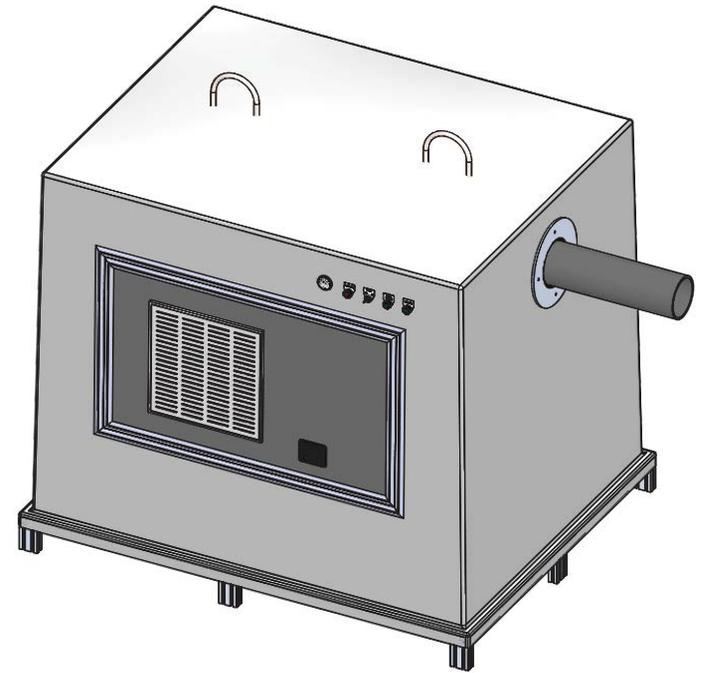
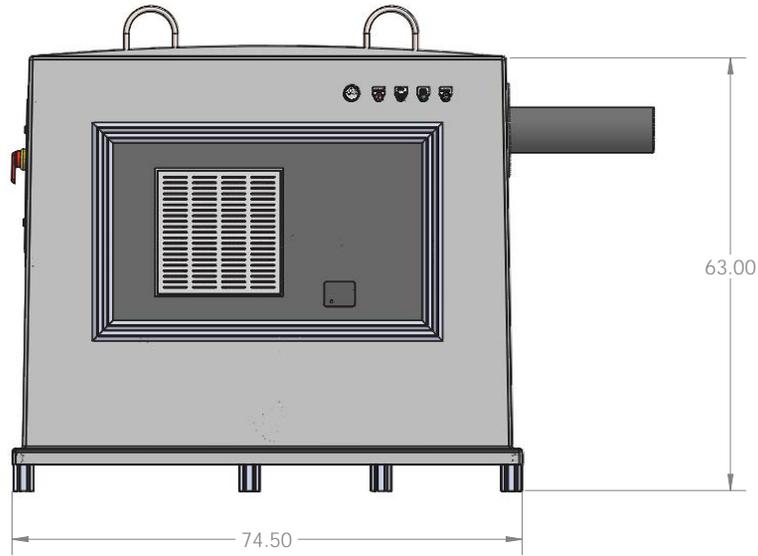


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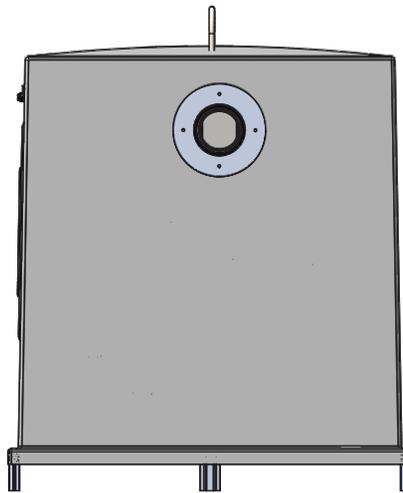
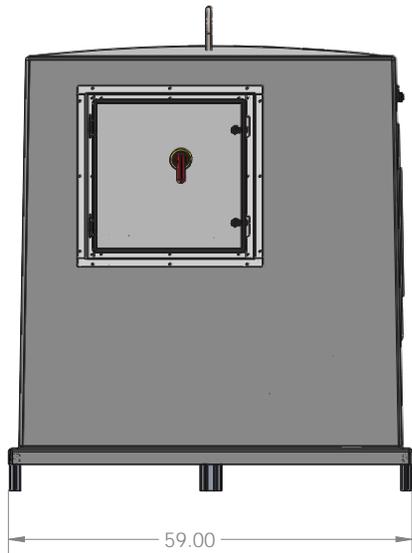


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B

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Byers Scientific & Manufacturing
Industrial Odor Management

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 SUITE B Ph: (812) 269-6218
 BLOOMINGTON, IN 47401 Email: info@byers-scientific.com

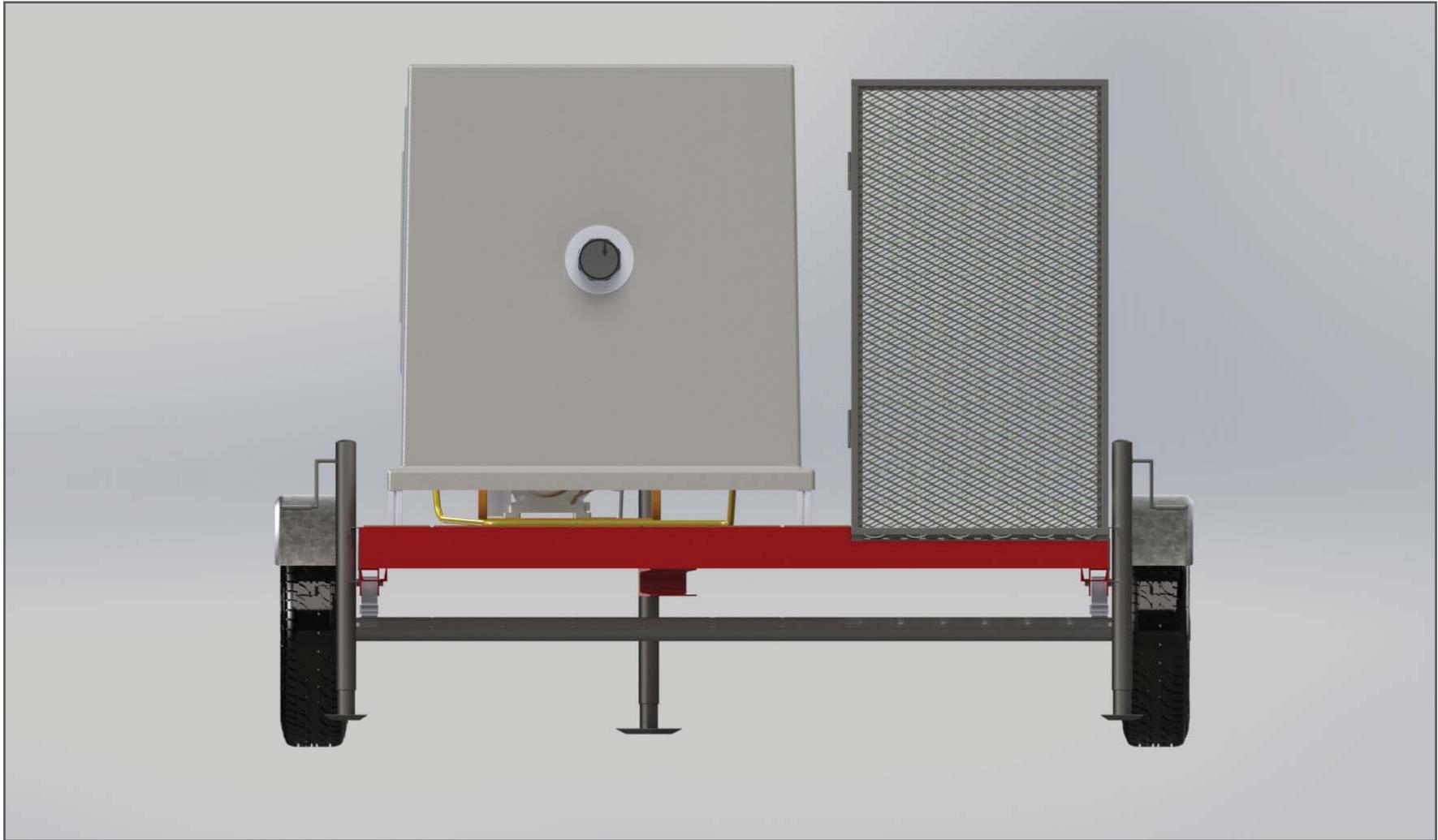
TITLE: INDUSTRIAL DUTY
 UNIFORM VAPOR-DISTRIBUTION
 TECHNOLOGY SYSTEM

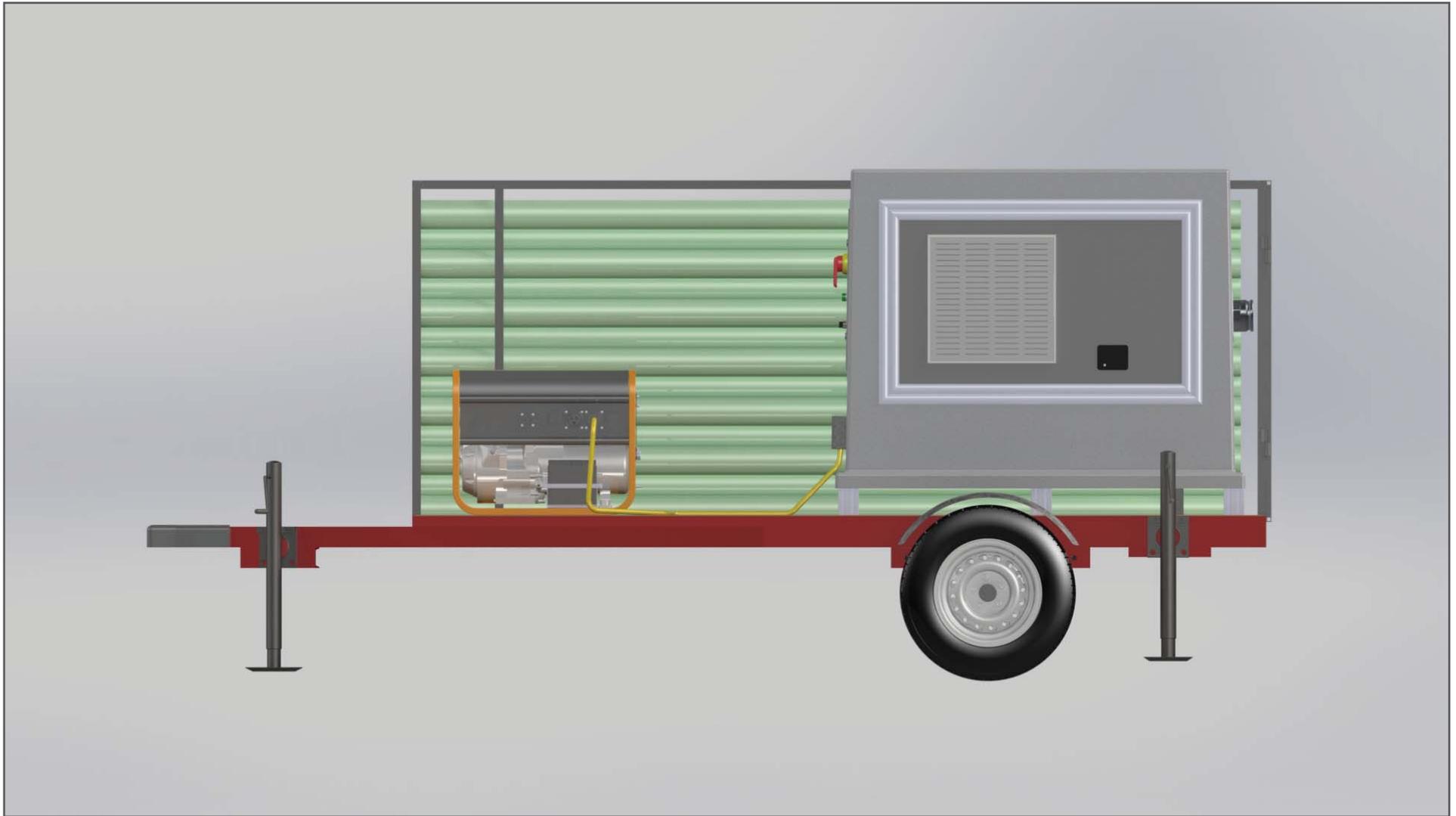
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SIZE B	DWG. NO. BSM HPII.SLDASM	REV 05
SCALE: 1:18		SHEET 1 OF 1







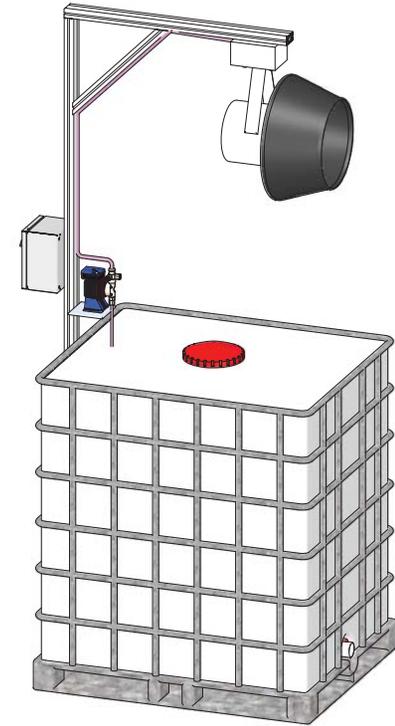
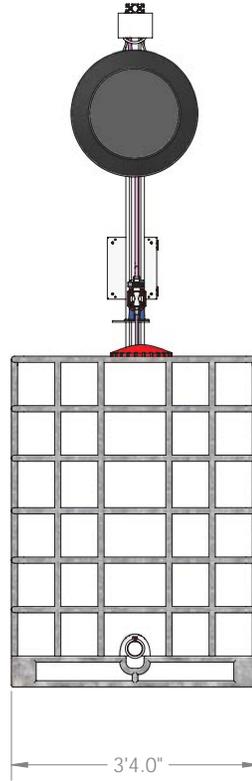
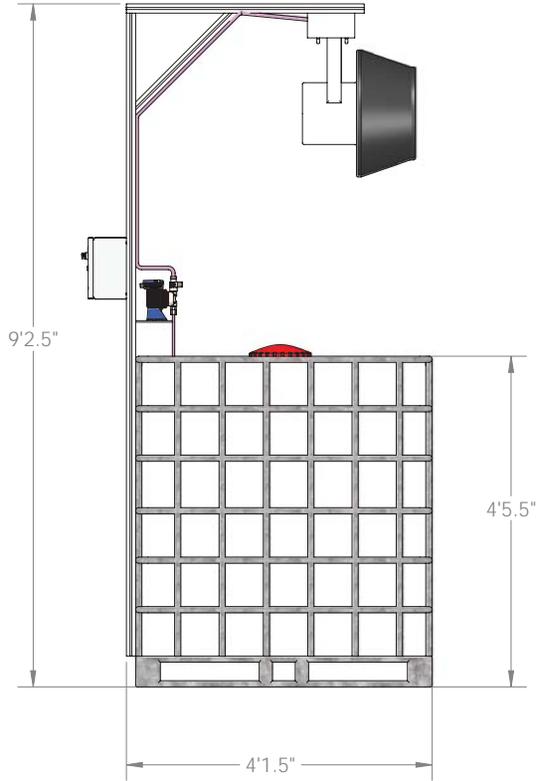


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www.byers-scientific.com
Ph: (812) 269-6218
Email: info@byers-scientific.com

TITLE:
**TOTE-MOUNTED
OSCILATING FAN SYSTEM**

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SIZE B	DWG. NO. BSM TOTE SYSTEM.SLDASM	REV 02
------------------	------------------------------------	-----------

SCALE: 1:20 SHEET 1 OF 1



Byers Scientific & Manufacturing

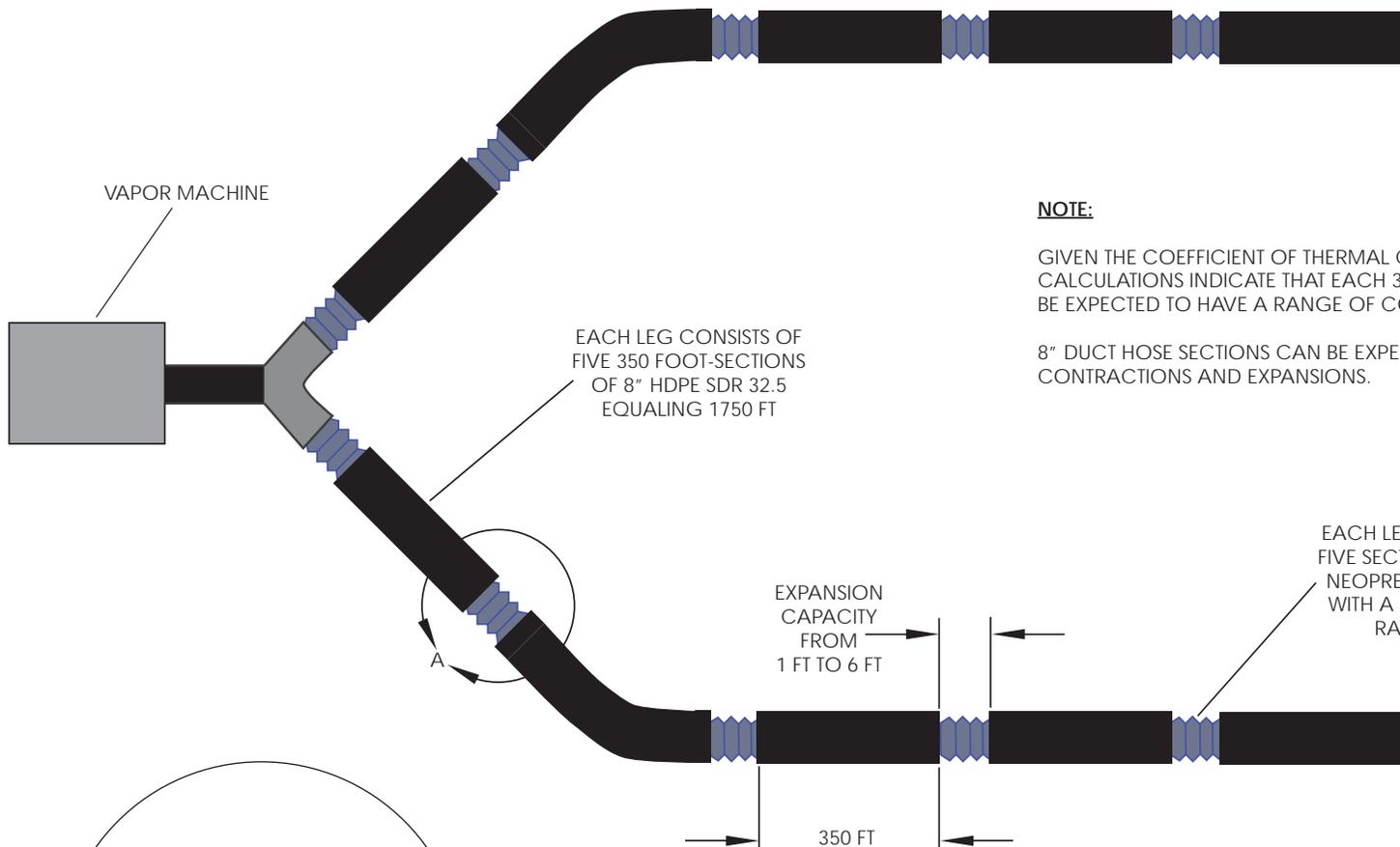
Industrial Odor Management

APPENDIX A

SOUTH WAKE LANDFILL, APEX, NC

VAPOR PHASE ODOR CONTROL SYSTEM





VAPOR MACHINE

EACH LEG CONSISTS OF FIVE 350 FOOT-SECTIONS OF 8" HDPE SDR 32.5 EQUALING 1750 FT

NOTE:

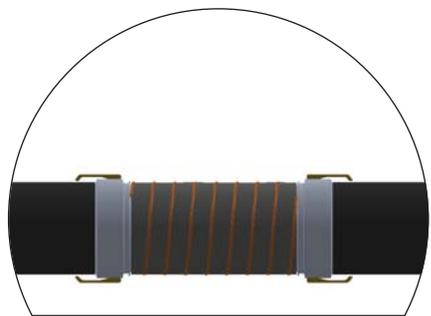
GIVEN THE COEFFICIENT OF THERMAL CONTRACTION AND EXPANSION, CALCULATIONS INDICATE THAT EACH 350 FT SECTION CAN CONSERVATIVELY BE EXPECTED TO HAVE A RANGE OF CONTRACTION AND EXPANSION OF 2.1 FT.

8" DUCT HOSE SECTIONS CAN BE EXPECTED TO ABSORB THE ABOVE STATED CONTRACTIONS AND EXPANSIONS.

EACH LEG CONSISTS OF FIVE SECTIONS OF 8" TD7 NEOPRENE DUCT HOSE WITH A COMPRESSION RATIO OF 6:1

EXPANSION CAPACITY FROM 1 FT TO 6 FT

350 FT



DETAIL A

ASSUMPTIONS:

COEFFICIENT OF THERMAL EXPANSION/CONTRACTION
 $\Delta L = \alpha(T_2 - T_1)L$

WHERE

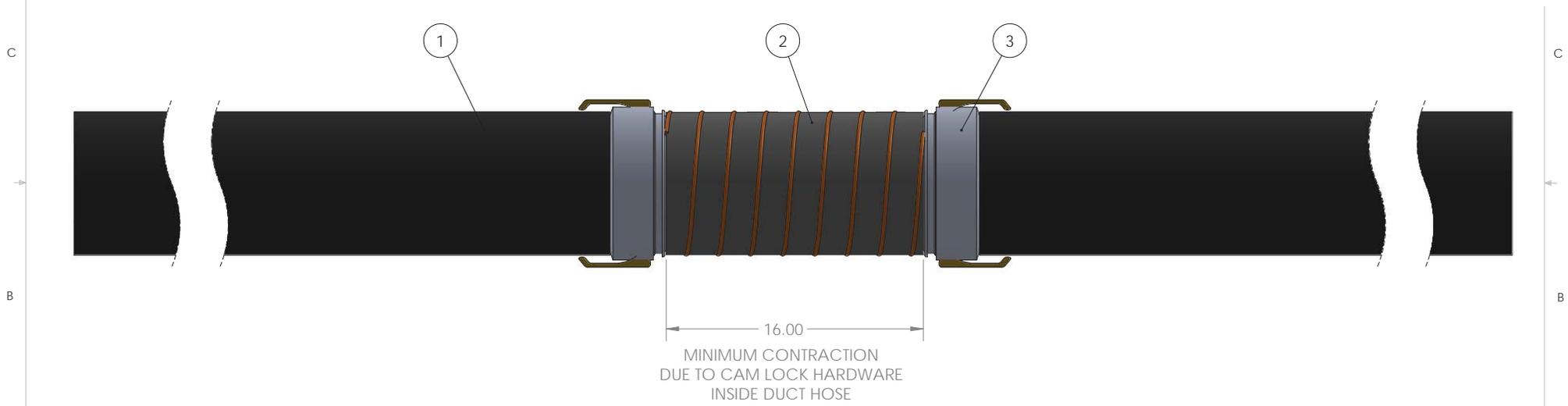
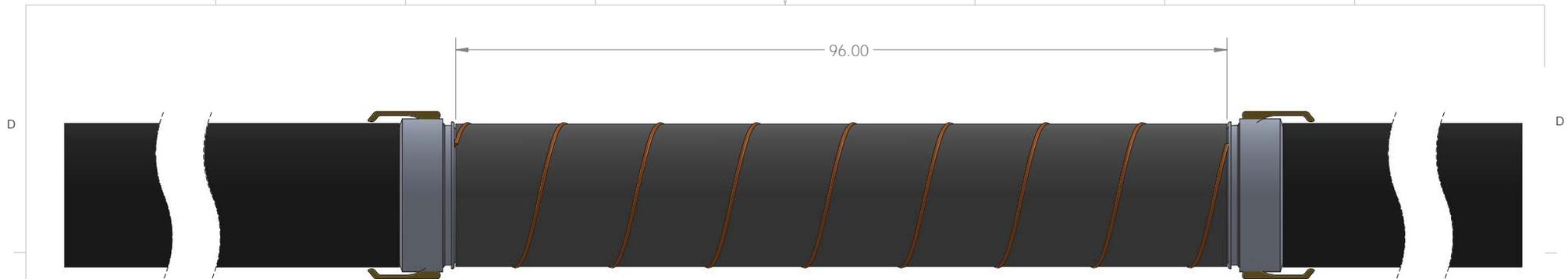
- $\alpha = 8 \times 10^{-5}$
- $T_2 = 95^\circ \text{ F}$
- $T_1 = 25^\circ \text{ F}$
- $L = 350 \text{ ft}$ (ASSUMES FIVE 350 ft- SECTIONS IN 1750 ft)
- $\Delta L = 2.10 \text{ ft}$



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TITLE:	HDPE PIPE EXPANSION/CONTRACTION PROPOSAL	
SIZE	DWG. NO.	REV
B		0
		SHEET 1 OF 2

6 5 4 3 2 1



PARTS:

- 1. 8" HDPE SDR 32.5
- 2. 8" TD7 NEOPRENE COATED DUCT HOSE
- 3. 8" CAST ALUMINUM MALE/FEMALE CAM LOCK ASSEMBLY



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TITLE:	HDPE PIPE EXPANSION/CONTRACTION PROPOSAL	
SIZE	DWG. NO.	REV
B	8INHDPHOSE.SLDASM	0
SCALE: 1:8		SHEET 2 OF 2

8 7 6 5 4 3 2 1

ODOR CONTROL MACHINE RELOCATION CRITERIA

On a periodic basis, the Landfill will assess whether it is appropriate to relocate the distribution network of the odor masking/neutralizing system to maintain optimum effectiveness. This assessment may be performed in consultation with the system or product manufacturer or distributor, but may also be conducted based on consensus of appropriate personnel that relocation should occur to increase the extent of interaction between molecules of the malodorous emissions and the distributed neutralizer product.

The criteria to be considered when evaluating the potential to relocate the distribution network will include, but are not limited to:

- Horizontal positioning of the distribution network in relation to the active waste placement operations area, waste collection vehicle staging area, and location of downwind off-site receptors. Substantial movement of the active working face shall be one of the primary factors in assessing whether a relocation would be beneficial for improved odor control.
- Vertical positioning (elevation) positioning of the distribution network in relation to the active waste placement operations area, waste collection vehicle staging area, and location of downwind off-site receptors. As filling in an area progresses from the lower slopes that generally coincide with the elevation of the perimeter access road and surrounding terrain to the upper slopes and top plateau portions that are situated 50 to 100 feet higher in elevation, the relocation of the distribution network to higher elevations shall be evaluated.
- Seasonal variations in predominant wind direction, temperature, precipitation, and other meteorological conditions.
- Trends revealed by location of the incoming odor reports.



Appendix E
Daily Cover Specifications



The most effective, versatile, and cost-efficient cover system for landfills.

- Extends landfill life
- Reduces operational costs
- Addresses multiple challenges





ENVIRONMENTAL COATINGS

Use Posi-Shell® to effectively address multiple landfill challenges:

- Daily Waste Cover
- Intermediate Cover
- Erosion Control
- Odor Suppression
- Coal Ash
- Landfill Emergencies
- Fire Supression
- Waste Latex Recycling
- Waste Transport Cover
- Leachate Prevention and Recycling

Brief Specifications

- Non-flammable
- Adheres to any surface
- Up to 95% water shed (run off)
- Durability from overnight to years with minimal maintenance

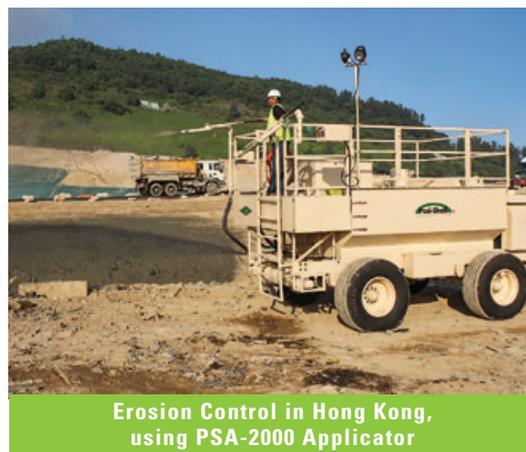
Use Posi-Shell® to reduce your operational costs, extend your landfill life, and address many of your site’s daily challenges.

Using Posi-Shell® instead of natural soil for daily cover is your ticket to achieving maximum airspace utilization. Posi-Shell® is the one system that gives you easy access to every cubic yard of airspace formerly consumed by thick soil covers.

Posi-Shell® is affordable in your existing landfill budget as it allows you to reduce equipment usage and manpower hours.

Mixing and application

Mixing is accomplished using LSC Equipment or standard hydroseeding units. Mixing and application can be completed with one operator, and typically takes 45-60 minutes. Clean up takes about 10 minutes.



Erosion Control in Hong Kong, using PSA-2000 Applicator

Packaging

Bags: 50 lb. (22.7 kg.)

60 bags per pallet

Bulk Sacks: 500 lb (227 kg.)

4 sacks per pallet

For technical services or to locate your nearest Posi-Shell® dealer:



ENVIRONMENTAL PRODUCTS, LLC™

Call: **1-800-800-7671** • Email: **Sales@LSCenv.com**

Visit LSC online at: **www.LSCenv.com**

LSC Environmental Products, LLC

2183 Pennsylvania Ave., Apalachin, NY 13732



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SPECIFICATIONS



Specifications

Sample Dimensions for 40 ft Tarp:

48 ft (14.63 m) wide x 67 in (170 cm) high Weight: 6,000 lb (2,727.3 kg)

- Dedicated remote system that controls all functions.
- Powered by a 26 1/2 Horse Power Caterpillar Tier 4 Diesel Engine
- Heavy duty, variable speed, electrically controlled hydraulic drive --system Hydraulic spool carrying arms
- Includes one spool assembly (additional spool assemblies available)
- Accommodates 20 ft, 30ft, 40 ft, 50 ft wide panels, custom sizes are available as well.
- Supports 2,500 lb (1,136.4 kg) maximum tarp weight
- Adjustable mounting brackets can be easily changed to hook up to --various pieces of your equipment

Tarpomatic Inc

512 45th St SW | Canton, OH 44706

(800) 500-5069

tarpomatic.marlon@gmail.com

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Appendix F
Sample Site Odor Evaluation Form

Sample Site Odor Evaluation Form
South Wake Landfill – Apex, North Carolina

General Information		Meteorological Conditions	
Site Personnel Name: _____ Date: _____ (mm/dd/yyyy) Time: _____ Location Being Assessed for Odors: _____		Temperature: _____ °F Wind Speed & Direction: _____ Precipitation: _____ Barometric Pressure: _____ mmHg General Weather Description: _____	
Odor Intensity & Characteristics		Suspected Odor Source	
<input type="checkbox"/> None <input type="checkbox"/> Light <input type="checkbox"/> Moderate <input type="checkbox"/> Strong	<input type="checkbox"/> Trash <input type="checkbox"/> Gas <input type="checkbox"/> Sewage <input type="checkbox"/> Mulch <input type="checkbox"/> Other	<input type="checkbox"/> Working Face Operations <input type="checkbox"/> High-Odor Waste Materials <input type="checkbox"/> Waste Vehicles <input type="checkbox"/> Landfill Gas Emissions <input type="checkbox"/> Leachate <input type="checkbox"/> Construction Activities <input type="checkbox"/> Off-Site Source <input type="checkbox"/> Other	
Verify Control Systems		Verify Cover Integrity	
<input type="checkbox"/> Landfill Gas System <input type="checkbox"/> Odor Neutralizing System <input type="checkbox"/> Leachate Management System		<input type="checkbox"/> Working Face Open Areas <input type="checkbox"/> Daily/Intermediate Cover <input type="checkbox"/> Final Cap Areas	
Response Actions		Additional Comments	
<input type="checkbox"/> Odor Monitoring <input type="checkbox"/> Air Monitoring <input type="checkbox"/> Landfill Gas System Adjustments <input type="checkbox"/> Odor Neutralizing System Adjustments <input type="checkbox"/> Working Face Adjustments <input type="checkbox"/> Cover Improvements <input type="checkbox"/> Other (describe): _____			



Appendix G
Sample Odor Report Log



Odor Report Form

We are sorry that you are experiencing an unpleasant odor. We track and measure odors to better understand and minimize them, as well as to identify the most likely source for specific odors. The information that you provide is reviewed daily by Wake County Solid Waste staff and entered a program that allows us to look at the relationship between an odor report and the weather, wind direction, and other environmental factors. If possible, submittal of odor reports within 2 hours of when it was experienced is preferred.

Sometimes, based on this review, it may be deemed unlikely that the odor detected is related to the landfill. We would notify you about this via email **within 2 days**. In all other cases, your report will provide valuable data that allows us to constantly improve the way we understand and minimize landfill related odors.

Please complete all fields so that we can accurately register your report. You will receive a confirmation email immediately following your submission. Thank you! If you have difficulties completing this form, please email the necessary information (name, address where odor was experienced, day and time) to john.roberson@wakegov.com

First Name:

Last Name:

Email:

Phone Number:

Type of Observation:

 ▼

Street Number and Name:

City:

 ▼

Date:

Time:

Submit

Powered by [Envirosuite](#)



Appendix H
Sample Odor Response

Sample Odor Report Response from Wake County

Dear Mr. <Reporter Name

Based upon an Odor Report you provided for **August Xth** at **XX:00 AM** (for <address here>), below you will find our backtrack model (based upon wind speed and direction for up to 60 minutes prior to the time of your odor report) that indicates that the odor you experienced was most likely not from the South Wake Landfill. Please note that the green dots and purple shading reflect the most likely location from which an odor may have originated. Note that the landfill is indicated by the blue shading which is to the west of the purple shading. If you believe you may have entered the time/date incorrectly, please let me know. For your information, approximately 80% of the odor reports that we receive are considered valid based upon a similar analysis to below. Let me know of any further questions.



John Roberson, PE

Solid Waste Management Director

Wake County Government

Environmental Services / Solid Waste Division

John.Roberson@wakegov.com

919.856.6365 office | 919.612.9687 mobile | 919.743.4772 fax

WCOB 7th Floor, PO Box 550, Raleigh, NC 27602

wakegov.com/recycling

Wake County Environmental Services would like your feedback.

In order to participate please [CLICK HERE!](#)

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