

PREPARED FOR:



COASTAL REGIONAL SOLID WASTE AUTHORITY
TUSCARORA LONG-TERM REGIONAL LANDFILL
7400 OLD HIGHWAY 70 WEST
TUSCARORA, NC 28523

PERMIT No. 25-09

TUSCARORA LANDFILL PHASE 3 EXPANSION

VOLUME 2, SECTION VI OPERATIONS PLAN

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**VOLUME 2, SECTION VI
OPERATIONS PLAN**

TABLE OF CONTENTS

1.0	GENERAL	1
2.0	OPERATIONS DRAWINGS.....	1
2.1	Existing Conditions	1
2.2	Proposed Development.....	2
2.3	Operations	2
3.0	GENERAL OPERATING CONDITIONS	2
3.1	Hours of Operation.....	2
3.2	Site Access and Safety	2
3.3	Acceptable Waste	3
3.4	Prohibited Waste	4
3.5	Special Wastes.....	4
3.6	Litter Control.....	5
3.7	Equipment	6
3.8	Air Quality.....	6
3.9	Dust, Odor, Fire and Vector Control.....	6
3.10	Scavenging/Salvaging	8
4.0	RANDOM WASTE SCREENING PROGRAM	8
4.1	Authority	8
4.2	Random Selection.....	9
4.3	Record Keeping.....	9
4.4	Training	9
4.5	Inspection Site	9
4.6	Action Plan.....	9
5.0	SUBCELL PROGRESSION AND WASTE PLACEMENT	10
5.1	Subcell Progression	10
5.2	Waste Placement and Compaction	10
5.3	Filling Operations.....	11
5.4	Daily Cover	11
5.5	Intermediate Cover	11
6.0	ENVIRONMENTAL MONITORING PROGRAMS.....	12
6.1	Water Quality	12
6.2	Landfill Gas.....	12
6.2.1	Monitoring Procedure.....	13
6.2.2	Response to Detected Combustible Gases	13
7.0	EROSION AND SEDIMENT CONTROL REQUIREMENTS	14
8.0	RECORD KEEPING REQUIREMENTS.....	14
9.0	LEACHATE MANAGEMENT PLAN.....	15
9.1	Maintenance of the Leachate Collection System	15
9.2	Leachate Generation Records.....	15

9.3	Leachate Monitoring	15
9.4	Leachate Disposal.....	15
9.5	Contingency Plan for Extreme Conditions.....	16
10.0	CONTINGENCY PLAN.....	16
10.1	Implementation.....	16
10.2	Inoperable Periods	16
10.3	Emergency Response Procedures.....	17
10.4	Severe Weather Conditions	19

APPENDICES

Appendix VI – 1	Random Waste Screening Program Forms
	<ul style="list-style-type: none"> • Form A – Waste Inspection Forms • US EPA Hazardous Waste Inspection Decision Tree
Appendix VI – 2	Leachate Agreement
Appendix VI – 3	Title V Air Quality Permit

DRAWINGS

Drawing No. OP-T	Title Sheet
Drawing No. OP-L	Legend and General Notes
Drawing No. OP-01	Existing Conditions
Drawing No. OP-02	Phase 3 Site Development Plan
Drawing No. OP-03	Phase 3 Phasing Plan
Drawing No. OP-04	Stormwater/Leachate Segregation Plan

1.0 GENERAL

This operations plan describes how the design and construction plans will be implemented during the life of the facility. The plan consists of drawings and accompanying text that illustrate existing conditions, cell progression, waste placement and daily operations, leachate management, special waste management, and environmental monitoring.

The Tuscarora Landfill is owned and operated by CRSWMA. The landfill property is located in the western portion of Craven County, North Carolina, between Tuscarora and Cove City and is identified as Solid Waste Facility Permit #25-09. The landfill currently consists of two partially closed portions, the Interim Regional Landfill (IRL) and Phase 1, and an active disposal area, Phase 2. Phase 1 received a permit to operate on August 25, 1999 and Phase 2 received a permit to operate on May 8, 2006. Placement of waste in Phase 2 began in February of 2007. Phase 2 is expected to reach capacity by the end of September, 2011.

Currently, an average of 800 tons of waste is managed daily at the site, approximately two thirds of which is municipal solid waste and one third construction and demolition debris. The facility is open six days per week. Yard wastes and storm debris are collected and composted at the site, and scrap tires are collected for off-site recycling or disposal. Ancillary structures including a scalehouse and a maintenance building are also on the site.

2.0 OPERATIONS DRAWINGS

2.1 Existing Conditions

Closed Areas

The closed portions of the landfill which include the IRL (20.2 acres) and Phase 1 (20.5 acres) have an active landfill gas collection system consisting of 43 extraction wells and a buried HDPE pipe network. The landfill gas is routed to either an electricity generating facility onsite which is owned and operated by INGENCO Wholesale Power, LLC, or a utility open flare for control. The Tuscarora Landfill has been issued a Title V Operating Permit by the Division of Air Quality (Air Permit #09755T00).

Leachate collected from the closed portions of the landfill is pumped into the leachate lagoons west of the landfill.

Active Area

Waste filling is currently under way in Phase 2, a 17.2 acre area adjoining Phase 1 to the north. Truck access to Phase 2 is provided by a road which ramps up the south side of the IRL and across the east side of Phase 1. Additional access roads are provided around the perimeter of the landfill for site personnel to maintain and operate the facility.

The base of Phase 2 slopes from east to west, with a sump being located at the west side of the cell to collect leachate. Leachate is pumped through a 4" dual contained HDPE forcemain into the leachate lagoons.

Other On-site Facilities

Other on-site development consists of a scale house and office, maintenance garage, a yard waste/storm debris composting facility, tire collection, inert debris disposal, and a public convenience center area. See Drawing OP-1 for an illustration of existing conditions at the site.

2.2 Proposed Development

Four additional phases (Phases 3, 4, 5 and 6) of development for municipal solid waste disposal are proposed. The proposed development is located in areas that have previously been designated as suitable for landfill development. The Phase 3 disposal area described in the Engineering Plan consists of 19.7 acres immediately north of the active Phase 2 cell and extending the footprint to the east. Development of the subsequent phase (Phase 4) will complete the footprint with an expansion to the south of Phase 3 and east of Phase 2. The final two phases will be vertical expansions. Development in accordance with the phasing plan will allow portions of the landfill side slopes to be closed at various times during its projected operating life.

The on-site soil resources, usage, and balances are shown by phase in the Facility Plan. The deficit of soil during the operation of Phase 3 can be satisfied by borrowing soil from on-site borrow areas or from off-site locations such as the Martin Marietta quarry. Overall, based on conceptual design volumes, there is an estimated soil requirement over the life of the facility of approximately 2,414,796 cubic yards.

2.3 Operations

The progression of operations for Phase 3 is presented on Drawing No. OP-03. This drawing includes the progression of initial waste placement, transition contours and final contours.

3.0 GENERAL OPERATING CONDITIONS

3.1 Hours of Operation

The landfill is open to private waste haulers and the public from 7:30 a.m. to 4:30 p.m. Monday through Friday, and on Saturday from 7:30 a.m. to 2:00 p.m. Three holidays are observed; Thanksgiving, Christmas and New Year's Day.

3.2 Site Access and Safety

Access to the landfill is controlled through a single access road with a secure gate to prevent access when the landfill is not open. Other access roads located around the perimeter of the landfill are used for logging purposes with any entry points into the landfill being gated. A sign containing information required in Rule .1626(6)(e) (i.e., dumping procedures, hours, permit number, etc.) is posted at the landfill entrance. During operating hours, traffic is routed from the entrance gate and scale house to a paved and gravel road leading to the disposal area. Directional signs and speed limit signs are posted to provide traffic control. The road is

maintained so that it is passable during all weather conditions. An attendant is on duty at the scale house at all times during operating hours.

3.3 Acceptable Waste

The landfill will accept only those solid wastes included in the current permit, including household, commercial and industrial solid wastes. These are defined in Rules .0532 and .1602 as follows:

- Household waste means any solid waste derived from households including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas.
- Commercial solid waste means all types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes.
- Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/ foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.
- Construction and Demolition Debris Waste means solid waste generated solely from the construction, remodeling, repair, or demolition operations on pavement and building structures.
- Land Clearing and Inert Debris means solid waste created during land clearing including untreated wood, yard trash, uncontaminated soils and rock.

On or before August 1 of each year, CRSWMA will report to the Solid Waste Section the amount of waste received in tons at this facility and disposed in the landfill units. Data will be transmitted on forms prescribed by the Section. The report will include the following:

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

- The completed report shall be forwarded to the Regional Waste Management Specialist for the facility. A copy of the completed report shall be forwarded to the County Manager of each county from which waste was received.

3.4 Prohibited Waste

A sign is posted at the landfill gate (see Section 2.2 above) that reads "No hazardous or liquid waste accepted without written permission from the Division of Solid Waste Management". The landfill will not accept:

- Hazardous waste as defined within 15A NCAC 13A, including hazardous waste from conditionally exempt small quantity generators;
- Polychlorinated biphenyl (PCB) wastes as defined in 40 CFR 761;
- Liquid wastes Rule .1626(9) (i.e., any waste material that is determined to contain "free liquids" as defined by SW-846 Method 9095 (Paint Filter Liquids Test), unless the waste is household waste other than septic waste or waste oil, or leachate or gas condensate derived from the landfill; and
- Barrels and drums unless they are empty and sufficiently perforated to ensure that no liquid or hazardous waste is contained therein, except fiber drums containing asbestos;
- Motor vehicle oil filters
- Recyclable rigid plastic bottles
- Wooden pallets;
- Discarded computer equipment and televisions (effective July 1, 2011);
- Other wastes specifically banned from landfill disposal by rule or statute, such as lead acid batteries.

CRSWMA will notify the Division within 24 hours of attempted disposal of any waste the landfill is not permitted to receive, including waste from outside the area the landfill is permitted to serve. The waste-screening program is described later in this Operation Plan.

3.5 Special Wastes

The landfill handles the following "special wastes" as described below.

Scrap Tires

The scrap tires are collected in a dedicated area and stored on-site where they can be loaded directly into trailers for off-site processing. Contracts with tire processors may vary from year to year. The current processor is Central Carolina Tire Disposal, 1616 McKoy Town Road, Cameron, North Carolina 28326. Tire collection must comply with the Rule .1107, *Scrap Tire Collection Site Operational Requirements*.

Yard Waste/Storm Debris

Yard waste and storm debris are accepted at this facility, but are not disposed of in the landfill. This waste stream is processed in the composting area (Permit #25-11), where it is chipped, shredded, and placed in windrows for composting. The final product is sold to the public.

Animal Carcasses

Animal carcasses, slaughterhouse or hatchery waste, or other animal waste received will be immediately buried and covered with a layer of soil, followed by non-putrescible municipal solid waste.

Asbestos

Asbestos waste received shall be managed in accordance with 40 CFR 61. The waste will be covered immediately with soil in a manner that will not cause airborne conditions and must be disposed of separate and apart from other solid wastes, either at the bottom of the working face, or in an area not contiguous with other disposal areas.

Sludge

Wastewater treatment sludges may be accepted for disposal if the waste is utilized as a soil conditioner and incorporated or applied onto the vegetative growth layer, but in no greater than six inches in depth, or (ii) if the facility meets all design requirements contained within Rule .1624, and approved within the permit, or has been previously approved as a permit condition.

Oyster Shells

Oyster shells are collected at the public convenience center and recycled.

Wood Pallets

Pallets are shredded and used as road bed material as necessary on the landfill working face. CRSWMA occasionally supplies woodchips from pallets to a nearby energy plant as an alternative fuel source.

White Goods

A collection container for White Goods is located at the public convenience center. White goods are the responsibility of Craven County. The white goods collection container is removed and replaced by the County as needed. Chlorofluorocarbon refrigerant removal is not the responsibility of the Authority. No Chlorofluorocarbon refrigerant is removed at the facility.

3.6 Litter Control

Prompt compaction of waste at the working face is the primary method used to control blowing litter. Also, temporary fences are provided to contain windblown material during operations. In addition, landfill personnel pick up windblown litter at the conclusion of each day of operation

and as needed along the access road and in locations around the active disposal area. The facility purchased a trailer mounted vacuum unit in 2002 to facilitate pick-up of windblown litter.

3.7 Equipment

The following list of equipment is currently in use at the landfill.:

Type	Status	Quantity
Compactor	Active	2
Compactor	Reserve	1
Dozer	Active	1
Dozer	Reserve	1
Excavator	Active	2
Off-road Dump Truck	Active	1
Loader	Active	1
Motor Grader	Active	1
Tractor	Active	1
Water Truck	Active	1
Vacuum	Active	1

As the waste stream changes during the operational life of the facility, equipment needs will be periodically reviewed and additional equipment purchased or leased as needed. New equipment will be phased in as older equipment is retired.

3.8 Air Quality

Open burning of solid waste including yard waste and brush is prohibited at the landfill. Burning of brush and/or stumps would only be requested on an infrequent basis in conjunction with clearing or construction events, if at all. Open burning will not be done without prior approval from Division of Air Quality and local fire department and will be subject to subject to the requirements of Rule .1626(5)(b).

The facility operates an active landfill gas collection and control system. Operations of the landfill gas collection and control system is regulated by the Division of Air Quality (DAQ). The Tuscarora Landfill operates under Air Permit #09755T00, which is included as Appendix VI-3.

3.9 Dust, Odor, Fire and Vector Control

Dusty road surfaces will be sprayed with water or leachate from the existing on-site leachate storage lagoons from a water truck during windy, dry weather. The working face of the landfill

may also be sprayed with leachate from the existing on-site leachate storage lagoons via a water truck during windy, dry weather. Odors and disease vectors will be controlled by promptly covering the waste at the working face, and by the use of daily cover. Daily cover is described in more detail in a Section 5.4 of this Plan.

The following Operational Conditions shall be implemented to use leachate from the existing leachate storage lagoon as dust control:

- Using leachate for dust control is not an approved approach to dispose of leachate required by the Rule .0162(12)(d);
- The leachate to be used for dust control must come from the existing on-site leachate storage lagoons, not imported from other sources including off-site areas;
- Within the waste disposal areas the leachate can only be sprayed on working face which is 100 feet away from the edge of the waste footprints and/or haul roads which are 150 feet away from the edge of the waste footprints;
- The leachate may be transported by a water truck, must be sprayed by a control manner that will not cause a nuisance to the environment and airborne emission of pollutants, and must not be applied near people, animals, equipment, or vehicles;
- Odors and disease vectors becoming concerns resulting from spraying leachate must be controlled by promptly covering the waste at the working face by using daily cover;
- The amount of leachate to be sprayed on the working face and road surface must be properly designed and managed so that the following conditions shall not be observed:
 - a) Muddy and rutting surface conditions.
 - b) Runoff or sheet flow on the surfaces.
 - c) Seepage on the side slopes.
- No leachate shall be applied on less than one lift (10 feet) of wastes and be sprayed on working face and haul road when it is raining and the weather condition is not favorable to the practice such as strong windy condition;
- Leachate will be sprayed on working face or haul road during daylight hours only; and
- Records will be kept, including:
 - a) Daily/weekly record of leachate generated and used for dust control.
 - b) Weather conditions and other pertinent daily information when the leachate is used as dust suppressant.

Incoming waste loads shall be observed by site operators for evidence of fire, such as flames, smoke, or the odor of burning material. Burning loads will be extinguished before dumping if possible. If there is evidence of fire in the landfill itself, the CRSWMA Director will be notified immediately. If possible, the waste will be removed or segregated from other waste in the disposal area. The landfill operator will evaluate the situation to determine whether the fire can be extinguished using fire extinguishers or equipment present at the site, or if off-site equipment will be needed. If necessary, the local fire department will be called to render assistance in extinguishing the fire. The Division of Waste Management Rule .1626(5)(d) requires that the fires that occur at the landfill will be reported verbally to the Division within 24 hours and in writing within 15 days.

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

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

Owners and operators of municipal solid waste landfills must prevent and control on-site populations of disease vectors such as rodents, insects, or other animals capable of transmitting disease to humans (Rule .1626(3)).

3.10 Scavenging/Salvaging

The unauthorized removal of waste and scavenging at the landfill is prohibited. The general public is not allowed to scavenge items from the working face. Landfill personnel may remove recyclable salvageable materials and process them.

4.0 RANDOM WASTE SCREENING PROGRAM

4.1 Authority

CRSWMA has developed this "Random Waste Screening Program" in accordance with North Carolina's Solid Waste Management Regulations, Rule .1626(1)(f). Key elements of Rule .1626(1)(f) addressing waste screening are as follows:

No hazardous or liquid wastes as defined in 15A NCAC 13A, or materials shall be accepted at the landfill, except as specifically authorized by the facility permit or by the Division. The owner or operator shall implement an inspection program to detect and prevent disposal of hazardous and liquid wastes and polychlorinated biphenyls (PCB). This program shall include, at a minimum:

- Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous or liquid wastes or PCB wastes;
- Records of any inspections;
- Training of facility personnel to recognize regulated hazardous waste, liquid waste, and PCB wastes; and
- Development of a contingency plan to properly manage any identified hazardous and/or liquid wastes.

4.2 Random Selection

Random selection of vehicles to be inspected will be conducted on a regular basis. The selection may be at least one vehicle per week, but not less than one percent by weight of the waste stream based on the previous week's total. The personnel conducting the inspection will randomly select the load at the working face. A random truck and time will be selected (e.g., the tenth load after 10:00 a.m.) on the day of inspections.

4.3 Record Keeping

Report forms for record-keeping purposes are included in Appendix VI-1. These forms are completed at each inspection. All reports and resulting correspondence are maintained at the CRSWMA Landfill office for the life of the landfill and during the post-closure period.

4.4 Training

The Landfill Operations Manager and/or staff from the Department of Solid Waste who are trained to identify and manage MSW waste and hazardous and liquid waste will supervise inspections. Landfill operators, recycling attendants, and landfill clerks responsible for screening waste will be properly trained to identify hazardous and liquid waste.

4.5 Inspection Site

Inspections will be conducted in a designated area near the working face of the landfill.

4.6 Action Plan

The following action plan details the procedure for conducting random waste inspections.

- 1) Dump single load in prepared area. Detain truck and driver until inspection is completed.
- 2) Spread waste with compactor and/or hand tools as appropriate. Hand rake loads that include large closed containers to avoid possible rupturing of the containers. Have appropriate safety equipment present. Minimum safety equipment will include:
 - Rubber gloves;
 - Rubber boots;
 - Safety glasses; and
 - Long handled hoe.
- 3) Examine waste for excluded waste and/or safety hazards:
 - Containers labeled hazardous;
 - Excessive or unusual moisture;
 - Regulated biomedical (red bag) waste;

- Powders, dusts, smoke, vapors, or chemical odors;
- Sludges, pastes, slurries, or bright colors (such as dyes); and
- Unauthorized out-of-area waste.

4) Take appropriate action(s) as follows:

- Incorporate acceptable waste into working face.
- Hold suspect waste for identification by on-site personnel and, if necessary, confirmation by others such as a contract laboratory, hazardous waste management firm, or state and/or federal regulator.
- Interview driver and hauler to identify the source of suspect waste in the load.
- Hold rejected hazardous or liquid waste for generator.
- Arrange for hazardous or liquid waste collection by licensed collector.

5) Document Actions:

- Record Inspection.
- Retain Reports.
- Report hazardous liquid, or PCB wastes to Solid Waste Section - DENR.

5.0 SUBCELL PROGRESSION AND WASTE PLACEMENT

5.1 Subcell Progression

The method of filling shall be the area method in accordance with the filling sequence shown on Drawing OP-3.

Uncontaminated stormwater can be collected and removed along the western portion of the Phase 3 which is separated from the eastern portion by a berm. Stormwater will be pumped from the collection area into the stormwater channels that conveys flow into a sediment basin. Details of the stormwater/leachate segregation plan for Phase 3 are shown on Drawing OP-4.

5.2 Waste Placement and Compaction

The waste will be tipped in the active subcell as closely as possible to the working face then pushed to the desired area. The length of the daily working face will be maintained as small as practicable to provide space for several trucks to unload at the same time. The width of the working face will vary somewhat depending on the rate of waste acceptance on a given day, weather conditions and other factors, but will be maintained as small as practicable. The waste will be compacted as described below with the compactor (see equipment list earlier in this report).

To minimize the chance of damage to the liner in any new subcell, the initial lift of waste will be at least 5 feet thick, and will consist of mostly residential, non-bulky waste. Compaction will be minimal because later lifts will surcharge the initial lift so that there is no net loss of density.

Typical compaction procedures on lifts above the initial one will involve placement of waste in thin layers (1-2 feet thick) as flat as is practical. The compactor will roll across and slightly past the waste (to prevent wind-blown material leaving from the edge of the lift) a minimum of three times. Waste density calculation will be reviewed periodically, and operational procedures may be revised to improve the efficiency of the site.

5.3 Filling Operations

Each lift of waste shall be approximately 10 feet thick, including an allowance for weekly cover. The proposed waste to total soil volume ratio is approximately 7:1.

5.4 Daily Cover

At the end of each day's operation, compacted waste in the subcell shall be covered with either a minimum six inches of soil, or an approved alternative daily cover (ADC) as required in Rule .1626(2)(b). When soil is used, at least two passes of heavy equipment will be made over the area to provide adequate soil compaction. Waste may be covered more frequently than once per day if necessary to control fires, odors, or blowing litter.

As an alternate daily cover to soil, an Enviro™ Cover System (or equivalent) manufactured by EPI Environmental Technologies, Inc. (EPI) may be used to cover waste for up to one week. At least once per week, soil will be used as daily cover as prescribed in the facility's permit to operate. Following a trial period, CRSWMA was granted permission by the Solid Waste Section to use a degradable plastic film as an approved alternate daily cover in October 2000. The 2-mil film will be deployed by 16 foot wide rolls from an applicator attached to the dozer blade. The applicator, manufactured by In-Line Plastics, Inc. (the predecessor to EPI), also includes a hopper from which sand is dropped as ballast to hold the film in-place. In periods of high wind, more sand will be used as ballast, and in the occurrence of storm events, soil cover is used. The film is deployed down the slope of the working face, with a 2 foot overlap on each side.

The following conditions apply to the use of alternate daily cover:

- The alternative daily cover, an Enviro™ Cover System (or equivalent), in lieu of a 6-inch soil material must be used to cover wastes at the end of each day's operation for up to 5 consecutive days. In the end of the fifth day, a 6-inch soil material must be used as daily cover; and
- The 6-inch soil material shall be used as daily cover material in the occurrence of inclement weather conditions (including strong wind and storm events).

5.5 Intermediate Cover

In areas where another lift of waste will not be placed for at least 12 months, an additional 6 inches of soil shall be placed over the daily cover for a total of 12 inches of intermediate cover

(Rule .1626(2)(c)). Provisions for a vegetative ground cover sufficient to restrain erosion in accordance with Rule .1626(7)(c) shall be carried out within 30 working days or 120 calendar days following completion of each phase of development.

6.0 ENVIRONMENTAL MONITORING PROGRAMS

6.1 Water Quality

The water quality-monitoring program for groundwater and surface water is described in the Design Hydrogeologic Report in Volume 3 of this application.

6.2 Landfill Gas

Active Landfill Gas Collection and Control

Operations of the active landfill gas system are regulated by DAQ. The Tuscarora Landfill Operates the gas system under Air Quality Permit No. 09755T00 which is provided as Appendix VI-3 of the Operations Plan.

Monitoring for Explosion Hazards

To protect public health and safety in the vicinity of the landfill, landfill gas produced by the decomposition of refuse will be controlled and monitored during the operational, closure, and post-closure periods. The following regulatory levels must be maintained:

- The concentration of methane gas generated is not to exceed 25 percent of the lower explosive limit (LEL) for methane in on-site structures (excluding gas control or recovery system components); and
- The concentration of methane gas is not to exceed the LEL for methane at the facility property boundary.

Gas monitoring will be conducted during the active life of the landfill and throughout the closure and post-closure periods to ensure compliance with the regulatory limits. At a minimum, quarterly monitoring of explosive gases will be conducted in on-site structures. Currently these structures include the scalehouse, a maintenance building, an office, and storage shed. If additional structures are built, the monitoring program will be expanded to include the new structures.

The Tuscarora Landfill does not have the potential for subsurface methane migration since the base grades of the landfill are elevated above the existing ground in order to achieve the required separation from groundwater. Therefore, the waste and the generation of landfill gas is occurring above-ground and any lateral migration from the landfill would release the gas to the atmosphere

within the landfill property boundary. Additionally, the water table, which is near ground surface and the ditches around the landfill hold water year around, serve as a barrier to subsurface migration. However, quarterly landfill gas monitoring will include probes GP-6, GP-7 and GP-8 for continued monitoring of the IRL and Phase 1 of the Tuscarora Landfill for potential subsurface migration. Landfill gas monitoring probes GP-2, GP-3, GP-4 and GP-5 will no longer be monitored for landfill gas migration. GP-8 has replaced GP-2 and GP-3 as a more acceptable location for monitoring at the property boundary southwest of the IRL. GP-4 and GP-5 are located to the south of the IRL, centrally located away from the property boundary, and no longer satisfy the requirements of monitoring for landfill gas migration toward the property boundary.

6.2.1 Monitoring Procedure

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

On-site Structures: Gas monitoring in on-site structures will attempt to identify the "worst case" concentrations. Monitoring will be conducted at the earliest possible time after the structure has been unused (e.g., a morning after a weekend or holiday). The monitoring locations will be in corners along floors and ceilings, at cracks in the floor, and at other areas likely to accumulate gas. Gas monitoring will also be conducted in any confined space requiring the entry of personnel for maintenance or inspection. The monitoring will take place prior to entry by personnel in accordance with OSHA regulations.

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

6.2.2 Response to Detected Combustible Gases

The regulatory (Rule .1626(4)) action levels for combustible gas monitoring in gas detection probes are 100% LEL at the facility boundary and 25% LEL in on-site structures. Readings exceeding the regulatory action levels shall be reported immediately. The Authority will notify the North Carolina Department of Environment, and Natural Resources, Solid Waste Section in writing and will take immediate steps to ensure safety and protection of human health.

At a minimum, the following actions will be taken if the methane concentration exceeds 25% in any structure:

- Put out all smoking materials and turn off all ignition sources;

- Evacuate all personnel;
- Vent the structure;
- Do not allow personnel to reenter the building except to perform gas monitoring until the results of additional monitoring indicate that methane concentrations are sustained or stabilized below 25% LEL;
- Begin continuous monitoring within the structure; and
- Undertake an assessment to determine the origin and pathways of the gas migration.

Within seven days of detection (Rule .1626(4)(c)(ii)), the monitoring results will be placed in the Operating Record and the Authority will indicate actions taken and actions proposed to resolve the problem. Within 60 days of detection (iii), the Authority will develop and implement a landfill gas remediation plan for the combustible gas releases and notify the Division that the plan has been implemented. The plan will describe the nature and extent of the problem and the proposed remedy.

The Operator will also use monitoring action levels of 15% LEL in structures. If the monitoring action level is exceeded in structures, options will be evaluated to permanently reduce the current levels and to prevent a further increase in gas levels in the structures.

7. EROSION AND SEDIMENT CONTROL REQUIREMENTS

Erosion and sediment control features have been designed in accordance with all applicable requirements, as will all future structures. As required, the facility will be operated in a manner which will not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to Section 402. The facility will not cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or State-wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, as amended.

Surface water shall be diverted from the operational area and shall not be impounded over or in waste. Drainage structures and embankment slopes are regularly inspected for erosion, and maintained as needed. The vegetation on the slopes is mowed at least once a year. These slopes are maintained with reseeding, fertilizer, and other means, as necessary, to promote a healthy stand of vegetation.

8. RECORD KEEPING REQUIREMENTS

The following records will be maintained in the Operating Record at the landfill office and made available to the Division upon request:

- The operating permit and pertinent correspondence;
- Operation Plan;
- Emergency Response Plan;

- Inspection records, waste determination records, and training procedures for waste screening programs;
- Amounts by weight of solid waste received at the facility, including the source of generation;
- Gas monitoring plan, monitoring results and any remediation plans developed in accordance with Division requirements if required as a response to elevated gas concentrations;
- Water Quality Monitoring Plan and any demonstration, certification, finding, monitoring, testing, or analytical data required by the water quality monitoring program at the site;
- Required cost estimates and financial assurance documentation;
- Closure and Post-Closure Plans;
- Leachate generation and disposal quantities (including the amount used as dust suppressant); and
- Safety training records.

9.0 LEACHATE MANAGEMENT PLAN

9.1 Maintenance of the Leachate Collection System

The operator will conduct weekly visual inspections of the leachate collection and storage system and perform maintenance as required. Leachate levels in the storage lagoons will be monitored at least weekly and after storm events to assess the need for leachate removal and hauling. Cleanouts are provided to allow access to the leachate collection system. Water under pressure has been and will continue to be introduced through these cleanouts periodically as preventive maintenance of the piping system. Mechanical equipment or chemical cleaning agents may also be used to mitigate clogging. Maintenance needs will be re-evaluated if there is an unexpected decrease or increase in leachate production rates.

9.2 Leachate Generation Records

CRSWMA maintains records of leachate hauled from the leachate pond at the landfill to the wastewater treatment plant. Records will be maintained at the landfill throughout the operating life and during the post-closure care period. In addition to leachate generation quantities, the Landfill maintains analytical data from leachate sampling events.

9.3 Leachate Monitoring

The chemical composition of untreated leachate generated will be analyzed, at a minimum, semi-annually, concurrent with water quality sampling. The leachate will be analyzed for the Detection Monitoring constituents (EPA Appendix I list from Subtitle D) as well as pH, specific conductance, BOD, COD, phosphate, nitrate and sulfate. Test results will be submitted to the Solid Waste Section.

9.4 Leachate Disposal

Leachate will continue to be collected on site and stored in the existing on-site leachate storage lagoons. Leachate is periodically removed by pumping into a tanker truck for transport to the

City of New Bern Wastewater Treatment Facility for treatment and disposal. A copy of the current approval documentation from the receiving plant is included in Appendix VI-2.

9.5 Contingency Plan for Extreme Conditions

If required, due to extreme conditions, additional hauling capacity will be obtained from subcontract haulers or by the rental of additional tanker trucks. If for some reason the receiving facility no longer accepts the leachate, it will be pre-treated to facilitate acceptance, or hauled to another POTW or commercial pretreatment facility.

10.0 CONTINGENCY PLAN

This section details the Contingency Plan for the CRSWMA Landfill. This plan has been developed to protect human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste to the air, soil, or surface water.

The Landfill Manager and serves as the Primary Emergency Coordinator (PEC). He can be reached at the following numbers:

PHONE: (252) 633-1564
FAX: (252) 633-6515

Depending on the type of emergency, all or some of the following agencies will be notified as soon as possible:

Emergency Preparedness Agency	911
Fire Department	911
Emergency Medical Services (EMS)	911

10.1 Implementation

If an emergency situation develops at the facility, the person discovering the emergency should contact the emergency coordinator immediately. The decision to implement the Contingency Plan depends upon whether or not a situation exists which presents a threat to human health or the environment. The Contingency Plan should be implemented due to any of the following situations:

- Personnel Injury
- Fire
- Explosion
- Spills
- Potential Hazardous Waste

10.2 Inoperable Periods

In the event of equipment breakdown, adequate backup equipment will be available onsite to maintain operations, or replacement equipment will be brought onsite within 24 hours. Routine preventative maintenance will be performed on equipment, including: routine inspections, following manufacturer's recommendations, and keeping accurate maintenance records.

The landfill will maintain a soil stockpile onsite to be used to repair and maintain roads to ensure that all-weather access is maintained.

10.3 Emergency Response Procedures

Landfill personnel will be properly trained to respond to emergencies, as described in this section. In the event of an imminent or actual emergency situation, the following responses will be implemented, as applicable.

Accident/Injury Response

In the event of an accident or injury, the following procedure will be observed:

- 1) Notify the PEC immediately;
- 2) Take action to prevent further injury/damage to personnel or property;
- 3) Provide emergency first aid;
- 4) If the injury is deemed serious, obtain additional medical assistance by notifying EMS. If medical attention is required but ambulance service is not needed, the injured party should be transported to a nearby medical facility; and
- 5) The PEC will investigate the accident to gather the facts and determines the causes of the accident.

Fire in the Waste

In the event of fire in the waste, the following procedure will be observed:

- 1) Notify the PEC immediately;
- 2) If the fire is deemed manageable, the fire will be extinguished by covering the burning waste with soil;
- 3) If the fire is deemed unmanageable, the area will be evacuated and the fire department notified; and
- 4) Incoming solid waste haulers will not be allowed entrance to the landfill until the fire is extinguished.

Fire in the Tire Storage Area

In the event of fire in the tire storage area, the following procedure will be observed:

- 1) Notify the PEC immediately;
- 2) If the fire is deemed manageable, the fire will be extinguished by covering the burning waste with soil;
- 3) Liquid runoff from fire shall be captured within property boundaries;
- 4) If the fire is deemed unmanageable, the area will be evacuated and the fire department notified; and

- 5) Incoming solid waste haulers will not be allowed entrance to the landfill until the fire is extinguished.

Equipment Fire

In the event of an equipment fire, the following procedure will be observed:

- 1) The equipment will be evacuated as quickly and safely as possible;
- 2) Notify the PEC immediately;
- 3) If there are injured personnel, implement the procedures discussed in the Accident/Injury Response section;
- 4) If the fire is deemed manageable, the fire will be extinguished;
- 5) If the fire is deemed unmanageable, the area will be evacuated and the fire department notified;
- 6) Incoming solid waste haulers will not be allowed entrance to the landfill until the fire is extinguished; and
- 7) The PEC will investigate the incident to gather the facts and determine suspected causes of the fire.

Explosions

In the event of an explosion, the following procedure will be observed:

- 1) Evacuate the area;
- 2) Notify the PEC immediately;
- 3) If there are injured personnel, implement the procedures discussed the Accident/Injury Response section;
- 4) If there is a resulting fire, implementation of the procedures discussed in the Fire in the Waste or Equipment Fire sections;
- 5) The PEC will investigate the incident to gather the facts and determine suspected causes of the explosion.

Hazardous and Infectious Waste in Landfill

No hazardous or infectious wastes will be accepted at the site. Vehicles are inspected as stated in Section 4 – Waste Screening Program.

Explosive Gas Detection

In the event that methane gas levels exceed the limits described in section 6.2 – Landfill Gas, the following procedure will be observed:

- 1) Evacuation of the area
- 2) Notification to the local Fire Marshal
- 3) Notification to the PEC immediately

- 4) Venting the structure
- 5) Intercepting the gas before it reaches the building
- 6) Notify the County Emergency Preparedness Agency
- 7) Prepare and implement a remediation plan for methane gas exceedances within 60 days

Spills or Release

In the event of a spill or release, the following procedure will be observed:

- 1) Notify the PEC immediately;
- 2) Immediate action will be taken to control/limit the spread of the spill or release;
- 3) County Emergency Preparedness Agency will be notified;
- 4) Perform appropriate cleanup procedures; and
- 5) The PEC will investigate the incident to gather the facts and causes of the spill or release.

Evacuation Plan

The PEC is responsible for determining whether or not an emergency situation warrants evacuation of the facility. If conditions warrant, the following actions will be taken:

- 1) The PEC gives the evacuation alarm;
- 2) All personnel (visitors, contractors, and employees) will be assembled at the main gate;
- 3) Only qualified personnel may reenter the affected area after approval by the emergency coordinator;
- 4) The PEC will make a tally of all facility employees, visitors, and contractors;
- 5) The PEC or a designated representative will notify County Emergency Preparedness Agency; and
- 6) Reentry to the affected area will be allowed only after the clear signal is given by the PEC.

Report Requirements

The PEC will notify the Division immediately in the event of a fire or other emergency if that emergency has potential off-site effects.

Within two weeks of any emergency involving a potential off-site impact, the PEC shall submit to the Division a written report describing the cause(s) of the emergency, actions taken, results of actions taken, and an analysis of the success or failure of those actions. A copy of the report shall be placed in the landfill operating record.

10.4 Severe Weather Conditions

Ice Storms

An ice storm can make access to the landfill dangerous, prevent movement or placement of periodic cover, and thus, may require closure of the landfill until the ice is removed or melted.

Heavy Rains

Exposed soil surfaces can create a muddy situation in some portions of the landfill during rainy periods. The control of drainage and use of crushed stone on unpaved roads should provide all-weather access for the site and promote drainage away from critical areas. In areas where the aggregate surface is washed away or otherwise damaged, new aggregate should be used for repair.

Intense rains can affect newly constructed drainage structures such as swales, diversions, cover soils, and vegetation. After such a rain event, inspection by landfill personnel will be initiated and corrective measures taken to repair any damage found before the next rainfall.

Electrical Storms

The open area of a landfill is susceptible to the hazards of an electrical storm. If necessary, landfilling activities will be temporarily suspended during such an event. To guarantee the safety of all field personnel, refuge will be taken in the on-site buildings or in rubber-tired vehicles.

Windy Conditions

The proposed operational sequence minimizes the occurrence of unsheltered operations relative to prevailing winds. If this is not adequate during a particularly windy period, work will be temporarily shifted to a more sheltered area. When this is done, the previously exposed face will be immediately covered with daily cover.

Violent Storms

In the event of hurricane, tornado, or severe winter storm warning issued by the National Weather Service, landfill operations may be temporarily suspended until the warning is lifted. Daily cover will be placed on exposed waste and buildings and equipment will be properly secured.

(End)