All information contained in the operating record must be furnished to the Division according to the permit or upon request, or be made available for inspection by the Division. Based on the nature of the C&D Landfill serving one waste generator, Green Recycling Solutions Recycling/Recovery Facility, the operating records associated with waste inspections, receipts and generators will be maintained at the Recycling/Recovery Facility.

The operating record must also include:

a) A copy of the approved operation plan required by this rule and the engineering plan required by Rule .0539 of 15A NCAC 13B
b) A copy of the current Permit to Construct and Permit to Operate; and
c) The Monitoring Plan, in accordance with Rule .0544 of 15A NCAC 13B, included as appendices to the Operations Plan.

2.8 Explosive Gases Control

An explosive gases monitoring program is proposed for the Maysville C&D Landfill Facility. This program will be implemented in accordance with the North Carolina Division of Waste Management Rule .0544. The program consists of quarterly air quality sampling within facility structures and within permanent gas monitoring wells. The purpose of the program is to protect the health and safety of personnel and public at the facility and detect methane gas migration off-site. The following describes the monitoring program, devices implemented, sampling frequency, sampling procedures, recordation and reporting.

2.8.1 Permanent Gas Monitoring Wells

Permanent gas monitoring wells are proposed between the landfill footprint and the facility boundary and structures to detect the horizontal migration of explosive gases from the landfill. The gas monitoring wells will be placed no further than 800 feet apart along the perimeter of the landfill and at varying distances from the landfill depending on location of facility boundary and nearby structures. Prior to implementing the permanent gas monitoring wells, a temporary monitoring system shall be used. This temporary system will consist of "punching" probe holes in the ground with a metal rod that is approximately 1/2-inch in diameter and 3 feet deep, then placing a methane and hydrogen sulfide gas detection instrument (with a minimum 30-inch metal extension) into the hole and recording the results of the instrument's readings. The probe locations will be in the immediate vicinity of ground water monitoring wells OWB-8 and OWB-15 as shown on the Groundwater Monitoring Plan and Potentiometric Plan. This area will be the likely location for permanent monitoring well construction.

The locations and spacing of the wells shall be determined based on a temporary monitoring system, soil conditions, hydrogeologic conditions, and location of facility structures. The wells should be installed to the top of groundwater elevations.

2.8.2 Gas Monitoring Well Construction

The gas monitoring wells extend to depths that are a minimum of three (3) feet below the depth of the liner system of the nearest landfill Cell. Depths of the wells are shallow to avoid intersecting the seasonal high water table. The wells will be constructed of Schedule 40 PVC casing attached to a section of 0.01-inch machine slotted PVC screen. The screen section shall be surrounded with No. 78M stone (Pea Gravel) to fill the eight-inch annulus of the borehole. The Pea Gravel shall extend a minimum of two feet above the machine slotted screen. A minimum 2-foot thick bentonite seal shall be installed above the Pea Gravel section. The bentonite seal shall be hydrated prior to filling the remaining annulus space with Portland cement to the ground surface. A 4-inch X 4-inch locking protective steel casing will be installed over the PVC casing stick-up. A minimum 2-foot X 2-foot concrete pad will be installed around the protective casing sloped to drain rainwater away from the well. The wells shall be installed by a North Carolina Certified Well Driller. A schematic of methane monitoring well construction will be submitted to the Division following final design after based on the temporary monitoring system. The well heads will be equipped with flexible tubing and a stopcock valve for sampling purposes.

2.8.3 Gas Monitoring Procedures and Frequency

The gas monitoring program shall be performed by Maysville C&D Landfill personnel properly trained to use an explosimeter (gas meter). The explosimeter used shall be a CES-Landtec GEM2000 or equivalent for methane and hydrogen sulfide detection. Gas monitoring wells and facility structures will be monitored quarterly for concentrations of methane and hydrogen sulfide gas using an explosimeter. The following testing procedures shall be used each quarter:

<u>Gas Monitoring Well Testing Procedure</u>

1. Calibrate the explosimeter in accordance with the manufacturer's recommendations for methane and hydrogen sulfide calibration. Calibration shall be performed in area known to be free of methane and hydrogen sulfide gas.
2. Aspirate to purge the explosimeter 4 to 5 times prior to each reading in an area known to be free of methane gas.
3. Open the cover of the gas monitoring well
4. Insert the explosimeter into the PVC casing approximately 1 to 2 feet below the top of the PVC casing.
5. Aspirate the explosimeter 5 to 7 times immediately before gas is evacuated from the well.
6. Record the percent methane and hydrogen sulfide (volume by air) and percent of lower explosive limit (LEL).

Gas Monitoring for Facility Structures

1. Calibrate the explosimeter in accordance with the manufacturer's recommendations for methane calibration. Calibration shall be performed in area known to be free of methane gas.
2. Aspirate to purge the explosimeter 4 to 5 times prior to each reading in an area known to be free of methane gas.
3. For Structures Built Upon Concrete Slabs: Place the explosimeter tube near penetrations through interior walls such as floor drains, electrical outlets, switches or any cracks in concrete slab or around the base of the walls if none of the previously mentioned items are present. Aspirate the explosimeter 5 to 7 times at each location. Record the percent methane and hydrogen sulfide (volume by air) and percent of lower explosive limit (LEL). Purge the explosimeter prior to performing another reading.
4. For Structures with a Crawl Space: Perform testing as described in item 3 above with the addition of performing testing at the opening and vents of the crawl space. Insert the explosimeter 2 to 3 feet into the crawl space area and aspirate 5 to 7 times at each location. Record the percent methane and hydrogen sulfide (volume by air) and percent of lower explosive limit (LEL). Purge the explosimeter prior to performing another reading.

Permanent gas monitors may be installed within structures to monitor the presence of methane and/or hydrogen sulfide gases.

2.8.4 Reporting Requirements and Response Plan

The results of the quarterly gas monitoring shall be recorded for each well and facility structure and placed in the operating record. Regulations require that explosive gases be controlled such that concentrations of gases are less than 25 percent of the Lower Explosive Limit (LEL) for methane and hydrogen sulfide in structures and below the LEL at the facility boundary. If monitoring results exceed either of these requirements, the following procedures shall be followed:

1. Immediately report levels to the Landfill Manager
2. Evacuate and restrict access to facility structures or exterior areas that have recorded the non-compliance gas levels.
3. Prohibit use of equipment and materials that may cause sparks or an open flame.
4. Turn off the main electrical supply switch or breaker at the structure containing high gas levels.
5. The Landfill Manager shall direct qualified and properly equipped response teams (or subcontracted response) to locate the gas source for capping or isolation.
6. Do not allow re-entry or normal operations until the gas levels are acceptable.

Within seven days of detecting non-compliance gas levels, the recorded gas levels shall be placed in the operating record along with the actions taken to protect on-site personnel and public health. Within seven days of detecting non-compliance gas levels the landfill manager will contact the Division of Waste Management to report an exceedance of gas concentration levels. Within 60 days of detecting non-compliance gas levels, a remediation plan for the gas release shall be implemented to avoid reoccurrence. This plan shall also be placed in the operating record and the Division of Waste Management shall be notified of the implementation of remediation plan. The Division may grant an extension of time if warranted.

2.9 Leachate Management System

A leachate collection system will be constructed above the composite liner system in each Cell. The collection system for each Cell is connected to a dedicated sidewall riser with pump and external leachate storage tank. Leachate will be pumped and hauled from each storage tank to permitted waste water treatment plants as needed for treatment. Leachate shall be sampled semi-annually concurrently with groundwater sampling and analyzed for Appendix I constituents, pH, BOD, COD, TDS, phosphate nitrate and sulfate.

2.9.1 Leachate Management System Design and Maintenance

The leachate collection system within landfill cells will consist of a geocomposite drainage media that rests on a 60-mil high density polyethylene liner to collect and transport leachate along the Cell floor. A network of leachate collection pipes surrounded by #57 washed stone will be placed at various locations along the Cell floor to intersect flow of leachate along the top of protective cover and the geocomposite. The collection pipe will convey leachate to the sump area for extraction. At each sump area, a stainless steel pump will rest on the Cell floor housed in a high density polyethylene side-wall riser pipe to remove leachate from within the Cell and transport into the leachate storage tank located near each sump area. Leachate will be pumped and hauled from each storage tank to permitted waste water treatment plants as needed for treatment.

Periodic maintenance of the system requires inspection of all the associated pumps, valves, fittings and control panels to ensure that the leachate management system components are in “good working condition”. If required, the leachate transmission piping may be flushed with water to remove accumulated sediments. The same is true for the leachate collection system within individual landfill Cells. The systems contain cleanouts at the ends of header lines that may be “back-flushed” with water to maintain the efficiency of the system.

Any components that are found to not be in “good working condition” shall be replaced or repaired immediately.