



Alabama Department of Environmental Management
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August 30, 2017

Mr. Dan Johnson
City of Birmingham
Department of Public Works
501 6th Avenue South
Birmingham, Alabama 35205

RE: Permit Renewal
Eastern Area Landfill
Permit No. 37-12

Dear Mr. Johnson:

On September 10, 2016, the Department received an application to renew the solid waste disposal facility permit for the Eastern Area Landfill. The Department has reviewed and approves the application. Enclosed please find the renewal permit for the Eastern Area Landfill. The permit is effective August 30, 2017, and the permit will expire on August 29, 2022.

If you have any questions on this matter, please contact Mr. Devin Jenkins of the Solid Waste Branch at (334) 270-5605.

Sincerely,

S. Scott Story, Chief
Solid Waste Engineering Section
Land Division

SSS/dmj



FINAL DETERMINATION

Permit Renewal
City of Birmingham
501 6th Avenue South
Birmingham, AL 35205

Eastern Area Landfill
Permit No. 37-12

August 30, 2017

The City of Birmingham submitted to the Alabama Department of Environmental Management (ADEM) an application to continue to operate a municipal solid waste landfill known as the Eastern Area Landfill. The application requested that all conditions of the current permit for the Eastern Area Landfill including previously approved variances and special conditions be granted in the renewed permit.

The Eastern Area Landfill is located in Sections 4 and 36, Township 16 and 17 South, Range 1 West in Jefferson County, Alabama. The Eastern Area Landfill consists of 370 acres with a disposal area of 72 acres.

A public comment period was announced by ADEM on February 15, 2017, and ended on March 22, 2017. The permit application and draft permit was available to the public at the Alabama Department of Environmental Management. All comments were considered and the appropriate responses have been prepared.

The Solid Waste Engineering Section has determined that the permit application complies with the requirements of ADEM's Administrative Code Division 13 regulations for a municipal solid waste landfill.

Technical Contact:

Mr. Devin Jenkins
Solid Waste Engineering Section
Land Division
(334) 270-5605



SOLID WASTE DISPOSAL FACILITY PERMIT

PERMITTEE: City of Birmingham

FACILITY NAME: Eastern Area Landfill

FACILITY LOCATION: Sections 4 and 36, Township 16 and 17 South, Range 1 West, in Jefferson County, Alabama, comprising 370 acres with a disposal area of 72 acres.

PERMIT NUMBER: 37-12

WASTE APPROVED FOR DISPOSAL: Nonhazardous solid wastes, noninfectious putrescible and nonputrescible wastes including but not limited to household garbage, industrial waste, construction and demolition debris, commercial waste, rubbish, appliances, tires, trees, limbs, stumps, dried sludge, paper and other similar type materials. Special waste approved by ADEM may also be accepted.

APPROVED WASTE VOLUME: Maximum Average Daily Volume of 1200 tons per day

APPROVED SERVICE AREA: The City of Birmingham and Jefferson County, Alabama

In accordance with and subject to the provisions of the Solid Wastes & Recyclable Materials Management Act, as amended, Code of Alabama 1975, SS 22-27-1 to 22-27-27 ("SWRMMA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, SS 22-22A-1 to 22-22A-15, and rules and regulations adopted thereunder, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to dispose of the above-described solid wastes at the above-described facility location.

ISSUANCE DATE: August 30, 2017

EFFECTIVE DATE: August 30, 2017

EXPIRATION DATE: August 29, 2022

Alabama Department of Environmental Management

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE PERMIT**

Permittee: City of Birmingham
501 6th Avenue South
Birmingham, Alabama 35205

Landfill Name: Eastern Area Landfill

Landfill Location: Sections 4 and 34, Township 16 and 17 South, Range 1 West
Jefferson County, Alabama

Permit No. 37-12

Landfill Type: Municipal Solid Waste

Pursuant to the Solid Wastes & Recyclable Materials Management Act, Code of Alabama 1975, §§22-27-1, et seq., as amended, and attendant regulations promulgated thereunder by the Alabama Department of Environmental Management (ADEM), this permit is issued to the City of Birmingham (hereinafter called the Permittee), to operate a solid waste disposal facility, known as the Eastern Area Landfill.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions set forth herein (including those in all attachments), and the applicable regulations contained in Chapters 335-13-1 through 335-13-14 of the ADEM Administrative Code (referred to as the "ADEM Admin. Code" or "335-13"). Rules cited are set forth in this document for the purpose of Permittee reference. A Rule that is cited incorrectly in this document does not constitute grounds for noncompliance on the part of the Permittee. Applicable ADEM Administrative Codes are those that are in effect on the date of issuance of this permit or the revisions approved after permit issuance.

This permit is based on the information submitted to ADEM on September 9, 2016, and as amended for permit renewal and is known as the Permit Application (hereby incorporated by reference and hereinafter referred to as the Application). Inaccuracies found in this information could lead to the termination or modification of this permit and potential enforcement action. The Permittee must inform ADEM of deviations from or changes in the information in the Application that would affect the Permittee's ability to comply with the applicable ADEM Admin. Code or permit conditions.

This permit is effective as of **August 30, 2017**, and shall remain in effect until **August 29, 2022**, unless suspended or revoked.


Alabama Department of Environmental Management

8/30/17
Date Signed

SECTION I. STANDARD CONDITIONS.

- A. Effect of Permit. The Permittee is allowed to dispose of nonhazardous solid waste in accordance with the conditions of this permit and 335-13. Issuance of this permit does not convey property rights of any sort or an exclusive privilege, nor does it authorize the injury to persons or property, the invasion of other private rights, or the infringement of state or local laws or regulations. Except for actions brought under Code of Alabama 1975, §§22-27-1, *et seq.*, as amended, compliance with the conditions of this permit shall be deemed to be compliance with applicable requirements in effect as of the date of issuance of this permit and future revisions.
- B. Permit Actions. This permit may be suspended, revoked or modified for cause. The filing of a request for a permit modification or the notification of planned changes or anticipated noncompliance on the part of the Permittee, and the suspension or revocation does not stay the applicability or enforceability of permit condition.
- C. Severability. The provisions of this permit are severable, and if a provision of this permit, or the application of a provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- D. Definitions. For the purpose of this permit, terms used herein shall have the same meaning as those in 335-13, unless this permit specifically provides otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.
1. "EPA" means the United States Environmental Protection Agency.
 2. "Permit Application" means all permit application forms, design plans, operational plans, closure plans, technical data, reports, specifications, plats, geological and hydrological reports, and other materials which are submitted to ADEM in pursuit of a solid waste disposal permit.
- E. Duties and Requirements.
1. Duty to Comply. The Permittee must comply with all conditions of this permit except to the extent and for the duration such noncompliance is authorized by a variance granted by ADEM. A permit noncompliance, other than noncompliance authorized by a variance, constitutes a violation of Code of Alabama 1975, §§22-27-1 *et seq.*, as amended, and is grounds for enforcement action, permit suspension, revocation, modification, and/or denial of a permit renewal application.
 2. Duty to Reapply. If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. The renewal application must be submitted to ADEM at least 180 days before this permit expires.
 3. Permit Expiration. This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application as required by Section I.E.2., and, through no fault of the Permittee, ADEM has not made a final decision regarding the renewal application.
 4. Need to Halt or Reduce Activity Not A Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit.
 5. Duty to Mitigate. In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

6. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit.
7. Duty to Provide Information. If requested, the Permittee shall furnish to ADEM, within a reasonable time, the information that ADEM may reasonably need to determine whether cause exists for denying, suspending, revoking, or modifying this permit, or to determine compliance with this permit. If requested, the Permittee shall also furnish ADEM with copies of records kept as a requirement of this permit.
8. Inspection and Entry. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the employees of ADEM or their authorized representative to:
 - a. Enter at reasonable times the Permittee's premises where the regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
 - b. Have access to and copy, at reasonable times, the records that must be kept under the conditions of this permit.
 - c. Inspect, at reasonable times, the facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
 - d. Sample or monitor, at reasonable times, the substances or parameters at a location for the purposes of assuring permit compliance or as otherwise authorized by Code of Alabama 1975, §§22-27-1 *et seq.*
9. Monitoring, Corrective Actions, and Records.
 - a. Samples and measurements taken for the purpose of monitoring or corrective action shall be representative of the monitored activity. The methods used to obtain representative samples to be analyzed must be the appropriate method from 335-13-4 or the methods as specified in the Application attached hereto and incorporated by reference. Laboratory methods must be those specified in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), other appropriate EPA methods, or as specified in the Application. All field tests must be conducted using approved EPA test kits and procedures.
 - b. The Permittee shall retain records, at the location specified in Section I.I., of all monitoring, or corrective action information, including all calibration and maintenance records, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report or record or for periods elsewhere specified in this permit. These periods may be extended by the request of ADEM at any time and are automatically extended during the course of an unresolved enforcement action regarding this facility.
 - c. Records of monitoring and corrective action information shall include.
 - i. The exact place, date, and time of sampling or measurement.
 - ii. The individual(s) and company who performed the sampling or measurements.
 - iii. The date(s) analyses were performed.
 - iv. The individual(s) and company who performed the analyses.
 - v. The analytical techniques or methods used.
 - vi. The results of such analyses.

- d. The Permittee shall submit all monitoring and corrective action results at the interval specified elsewhere in this permit.
- 10. Reporting Planned Changes. The Permittee shall notify ADEM, in the form of a request for permit modification, at least 90 days prior to a change in the permitted service area, increase in the waste received, or change in the design or operating procedure as described in this permit, including planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- 11. Transfer of Permit. This permit may be transferred to a new owner or operator. All requests for transfer of permits shall be in writing and shall be submitted on forms provided by ADEM. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of this permit.
- 12. Certification of Construction. The Permittee may not commence disposal of waste in a new cell or phase until the Permittee has submitted to ADEM, by certified mail or hand delivery, a letter signed by both the Permittee and a professional engineer stating that the facility has been constructed in compliance with the permit. An engineer must attest or certify that the installation, seaming, etc., as proposed or as depicted on the plan or layout specified in a above would meet the standards or criteria prescribed, or required by the manufacturers of the components and ADEM's regulations, and that the panels or components would be expected to perform satisfactorily, without failure, to the required standards over a normally expected lifetime or performance period for typical panels or components. ADEM must inspect the constructed cells or phases before the owner or operator can commence waste disposal unless the Permittee is notified that ADEM will waive the inspection.
- 13. Compliance Schedules. Reports of compliance or noncompliance with or progress reports on interim and final requirements contained in a compliance schedule required and approved by ADEM shall be submitted no later than 14 days following each schedule date.
- 14. Other Noncompliance. The Permittee shall report all instances of noncompliance with the permit at the time monitoring reports are submitted.
- 15. Other Information. If the Permittee becomes aware that information required by the Application was not submitted or was incorrect in the Application or in a report to ADEM, the Permittee shall promptly submit such facts or information. In addition, upon request, the Permittee shall furnish to ADEM, within a reasonable time, information related to compliance with the permit.
- F. Design and Operation of Facility. The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or an unplanned sudden or nonsudden release of contaminants (including leachate and explosive gases) to air, soil, groundwater, or surface water, which could threaten human health or the environment.
- G. Inspection Requirements.
 - 1. The Permittee shall comply with all requirements set forth under 335-13.
 - 2. The Permittee shall conduct random inspections of incoming loads.
 - 3. Records of all inspections shall be included in the operating record.
- H. Recordkeeping and Reporting.
 - 1. The Permittee shall maintain a written operating record at the location specified in Section I.I. The operating record shall include:
 - a. Documentation of inspection and maintenance activities.
 - b. Daily Volume reports.

- c. Personnel training documents and records.
 - d. Solid/Hazardous Waste Determination Forms for Industrial Wastes, and associated ADEM disposal approval correspondence for special wastes, industrial wastes, etc.
 - e. Groundwater monitoring records.
 - f. Explosive gas monitoring records.
 - g. Surface water and leachate monitoring records. Monitoring is subject to applicable conditions of Section VII. of the permit.
 - h. Copies of this Permit and the Application.
 - i. Copies of all variances granted by ADEM, including copies of all approvals of special operating conditions (such as approvals for open burning.).
2. Quarterly Volume Report. Beginning with the effective date of this permit, the Permittee shall submit, within thirty (30) days after the end of each calendar quarter, a report summarizing the daily waste receipts for the previous (just ended) quarter. Copies of the quarterly reports shall be maintained in the operating record.
3. Monitoring and Corrective Action Reports. The Permittee shall submit reports on all monitoring and corrective activities conducted pursuant to the requirements of this permit, including, but not limited to, groundwater, surface water, explosive gas and leachate monitoring. The groundwater monitoring shall be conducted in March and September of each year and the reports shall be submitted at least semi-annually. The reports should contain all monitoring results and conclusions from samples and measurements conducted during the sampling period. Explosive gas monitoring must be submitted on a quarterly basis, and the reports should be submitted to ADEM and placed in the operating record within 30 days of the monitoring event. Copies of the semi-annual groundwater and quarterly explosive gas monitoring reports shall be maintained in the operating record.
4. Availability, Retention, and Disposition of Records.
- a. All records, including plans, required under this permit or 335-13 must be furnished upon request, and made available at reasonable times for inspection by an officer, employee, or representative of ADEM.
 - b. All records, including plans, required under this permit or 335-13 shall be retained by the Permittee for a period of at least three years. The retention period for all records is extended automatically during the course of an unresolved enforcement action regarding the facility, or as requested by ADEM.
 - c. A copy of records of waste disposal locations and quantities must be submitted to ADEM and local land authority upon closure of the facility.
- I. Documents to be Maintained by the Permittee. The Permittee shall maintain at Eastern Area Landfill office the following documents and amendments, revisions and modifications to these documents until an engineer certifies closure:
- 1. Operating record.
 - 2. Closure Plan.
- J. Mailing Location. All reports, notifications, or other submissions which are required by this permit should be sent via signed mail (i.e. certified mail, express mail delivery service, etc.) or hand delivered to:

1. Mailing Address.
Chief, Solid Waste Branch, Land Division
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463
 2. Physical Address.
Chief, Solid Waste Branch, Land Division
Alabama Department of Environmental Management
1400 Coliseum Blvd.
Montgomery, Alabama 36110-2059
- K. Signatory Requirement. All applications, reports or information required by this permit, or otherwise submitted to ADEM, shall be signed and certified by the owner as follows:
1. If an individual, by the applicant.
 2. If a city, county, or other municipality or governmental entity, by the ranking elected official, or by a duly authorized representative of that person.
 3. If a corporation, organization, or other legal entity, by a principal executive officer, of at least the level of Vice President, or by a duly authorized representative of that person.
- L. Confidential Information. The Permittee may claim information submitted as confidential if the information is protected under Code of Alabama 1975 §22-39-18, as amended.
- M. State Laws and Regulations. Nothing in this permit shall be construed to preclude the initiation of a legal action or to relieve the Permittee from the responsibilities, liabilities, or penalties established pursuant to an applicable state law or regulation.

SECTION II. GENERAL OPERATING CONDITIONS.

- A. Operation of Facility. The Permittee shall operate and maintain the disposal facility consistent with the Application, this permit, and 335-13.
- B. Open Burning. The Permittee shall not allow open burning without prior written approval from ADEM and other appropriate agencies. A burn request should be submitted in writing to ADEM outlining why that burn request should be granted. This request should include, but not be limited to, specifically what areas will be utilized, types of waste to be burned, the projected starting and completion dates for the project, and the projected days and hours of operation. The approval, if granted, shall be included in the operating record.
- C. Prevention of Unauthorized Disposal. The Permittee shall follow the approved procedures for the detecting and preventing the disposal of free liquids, regulated hazardous waste, PCB's, and medical waste at the facility.
- D. Unauthorized Discharge. The Permittee shall operate the disposal facility in such a manner that there will be no water pollution or unauthorized discharge. A discharge from the disposal facility or practice thereof may require a National Pollutant Discharge Elimination System permit under the Alabama Water Pollution Control Act.
- E. Industrial and Medical Waste Disposal. The Permittee shall dispose of industrial process waste as required by 335-13, and as specified in the Application. The Permittee, prior to disposal of industrial waste and/or medical waste, shall obtain from each generator a written certification that the material to be disposed does not contain free liquids, regulated hazardous wastes, regulated medical waste, or regulated PCB wastes.
- F. Boundary Markers. The Permittee shall ensure that the facility is identified with a sufficient number of permanent boundary markers that are at least visible from one marker to the next.

- G. Certified Operator. The Permittee shall be required to have an operator certified by the Department on-site during hours of operation, in accordance with the requirements of ADEM Admin. Code 335-13-12.

SECTION III. SPECIFIC MSW LANDFILL REQUIREMENTS.

A. Waste Identification and Management.

1. Subject to the terms of this permit, the Permittee may dispose of the nonhazardous solid wastes listed in Section III.B. Disposal of other waste streams is prohibited, except waste that is granted a temporary or one-time waiver by the Director.
2. The permitted facility boundary for the Eastern Area Landfill is approximately 370 acres with a solid waste disposal area of 72 acres.
3. The maximum average daily volume of waste disposed at the facility, as contained in the permit application, shall not exceed 1200 tons/day. Should the average daily volume exceed this value by 20% or 100 tons/day, whichever is less, for two (2) consecutive quarters the permittee shall be required to modify the permit in accordance with 335-13-5-.06(2)(a)5. An increase in maximum average daily volume shall not be approved by ADEM unless the permittee has received local approval for the increased maximum average daily volume. The average daily volume shall be computed as specified by 335-13-5-.06(2)(a)5.(i).

B. Waste Streams.

The Permittee may accept for disposal nonhazardous solid wastes, noninfectious putrescible and nonputrescible wastes including but not limited to household garbage, industrial waste, construction and demolition debris, commercial waste, rubbish, appliances, tires, trees, limbs, stumps, dried sludge, paper and other similar type materials. Special waste approved by ADEM may also be accepted.

C. Service Area. The service area for this landfill shall be The City of Birmingham and Jefferson County, Alabama.

D. Special Waste. The Permittee may dispose of special wastes in accordance with 335-13.

1. Asbestos Waste. The Permittee shall dispose of asbestos waste in accordance with 335-13-4-.26.
2. Foundry Sand. The Permittee shall dispose of foundry waste in accordance with 335-13-4-.26.
3. Petroleum Contaminated Waste. The Permittee shall dispose of petroleum contaminated waste in accordance with 335-13-4-.26.
4. Municipal Solid Waste Ash. The Permittee shall dispose of municipal solid waste ash in accordance with 335-13-4-.26.

E. Liner Requirements. The Permittee shall install a composite liner system as described in the Application consisting of a minimum of two feet of clay with a hydraulic conductivity of 1×10^{-7} cm/sec or less, overlain by a 60 mil. High Density Polyethylene (HDPE) geomembrane, 12 inch drainage layer with a minimum hydraulic conductivity of 1×10^{-2} cm/sec, 12 inch protective layer. The City of Birmingham has been approved for an alternate liner at the Eastern Area Landfill. The Alternate liner consists of 12 inch recompacted layer with a hydraulic conductivity of 1×10^{-5} , overlain with a 60 mil. High Density Polyethylene (HDPE) geomembrane, 12 inch drainage layer with a minimum hydraulic conductivity of 1×10^{-3} cm/sec, 12 inch protective layer. The base of the composite liner system shall be a minimum of five (5) feet above the temporal fluctuation of the groundwater table.

F. Septic Tank Pumpings and Sewage Sludge. The Permittee shall not dispose of septic tank pumpings and/or sewage sludge unless specifically approved in writing by ADEM.

- G. Large Dead Animals and Highly Putrescible Wastes. The Permittee shall handle the disposal of large dead animals and/or highly putrescible waste as required by 335-13-4-.22(1)(j). Disposal is allowed only in the municipal solid waste disposal area.
- H. Cover Requirements. The Permittee shall cover all wastes as required by 335-13. The Permittee may also utilize contaminated soils and Waste Cover as alternate daily covers for the Eastern Area Landfill. Contaminated soils should be stockpiled within the disposal cell and used in the same manner as earthen cover. The Permittee shall be required to cover the active cell with six inches of earthen cover at the conclusion of each week's activities (See Section X., A.).
- I. Waste Compaction. All waste shall be thoroughly compacted with adequate landfill equipment before the daily cover is applied. A completed daily cell shall not exceed eight feet in vertical thickness measured perpendicular to the slope of the preceding cell.
- J. Daily Cells. All waste shall be confined to an area as small as possible and spread to a depth not exceeding two feet prior to compaction, and such compaction shall be accomplished on a face slope not to exceed 4 to 1 or as otherwise approved by ADEM.
- K. Security. The Permittee shall provide artificial and/or natural barriers, which prevent entry of unauthorized vehicular traffic to the facility.
- L. All Weather Access Roads. The Permittee shall provide an all-weather access road to the dumping face that is wide enough to allow passage of collection vehicles.
- M. Adverse Weather Disposal. The Permittee shall provide for disposal activities in adverse weather conditions.
- N. Personnel. The Permittee shall maintain adequate personnel to ensure continued and smooth operation of the facility.
- O. Equipment. The Permittee shall provide the landfill equipment as required by 335-13-4-.22(1)(f).
- P. Environmental Monitoring and Treatment Structures. The Permittee shall provide protection and proper maintenance of environmental monitoring and treatment structures.
- Q. Vector Control. The Permittee shall provide for vector control as required by 335-13.
- R. Bulk or Noncontainerized Liquid Waste. The Permittee shall not dispose of bulk or noncontainerized liquid waste, or containers capable of holding liquids, unless the conditions of 335-13-4-.22(1)(k) are met.
- S. Empty Containers. The Permittee shall render empty containers larger than normally found in household waste unsuitable for holding liquids prior to delivery to the landfill unit unless otherwise approved by ADEM.
- T. Other Requirements. ADEM may enhance or reduce the requirements for operating and maintaining the landfill as deemed necessary by the Land Division.
- U. Other Permits. The Permittee shall operate the landfill according to this and other applicable permits.
- V. Scavenging and Salvaging Operations. The Permittee shall prevent scavenging and salvaging operations, except as part of a controlled recycling effort.
- W. Signs. The Permittee shall provide a sign outlining instructions for use of the site. The sign shall be posted and have the information required by 335-13-4-.22(1)(i).
- X. Litter Control. The Permittee shall control litter.
- Y. Fire Control. The Permittee shall provide fire control measures.

SECTION IV. GROUNDWATER MONITORING REQUIREMENTS.

- A. The Permittee shall install and/or maintain a groundwater monitoring system, as specified below.
1. The permittee shall maintain the groundwater monitoring wells and piezometers identified in Table 1 at the locations specified in the Application, and any other groundwater monitoring wells which are added during the active life and the post closure care period.
 2. The Permittee shall install and maintain additional groundwater monitoring wells as necessary to assess changes in the rate and extent of a plume of contamination or as otherwise deemed necessary to maintain compliance with the 335-13.
 3. Prior to installing additional groundwater monitoring wells, the Permittee shall submit a report to ADEM with a permit modification request specifying the design, location and installation of additional monitoring wells. This report shall be submitted within ninety (90) days prior to the installation which, at a minimum, shall include.
 - a. Well construction techniques including proposed casing depths, proposed total depth, and proposed screened interval of well(s);
 - b. Well development method(s);
 - c. A complete analysis of well construction materials;
 - d. A schedule of implementation for construction; and
 - e. Provisions for determining the lithologic characteristics, hydraulic conductivity and grain-size distribution for the applicable aquifer unit(s) at the location of the new well(s).
 4. The Permittee is approved to use the intrawell method for statistical analysis.
- B. Groundwater Monitoring Requirements.
1. The Permittee shall determine the groundwater surface elevation at each monitoring well and piezometer identified in Table 1 each time the well or piezometer is sampled and at least semi-annually throughout the active life and post-closure care period.
 2. The Permittee shall determine the groundwater flow rate and direction in the first zone of saturation at least annually or each time groundwater is sampled and submit as required by 335-13.
 3. Prior to the initial receipt of waste at the facility, the Permittee shall sample, and analyze for the parameters listed in Appendix I of 335-13-4-.27, in all monitoring wells identified in Section IV.A.2. to establish background water quality and/or as directed by 335-13-4-.27(2)(j) and 335-13-4-.27(2)(a)(1). The records and results of this sampling and analysis activity shall be submitted to ADEM, within sixty (60) days of the date of sampling.
 4. The Permittee shall sample, and analyze all monitoring wells identified in Table 1 for the parameters listed in Appendix I of 335-13-4-.27(3), on a semi-annual basis throughout the active life of the facility and the post-closure care period in accordance with 335-13-4-.27(3). Sampling shall be conducted during March and September of each year, beginning with the effective date of this permit.
 5. In addition to the requirements of Sections IV., B.1., B.2., B.3. and B.4., the Permittee shall record water levels, mean sea level elevation measuring point, depth to water, and the results of field tests for pH and specific conductance at the time of sampling for each well.

- C. Sampling and Analysis Procedures. The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from the groundwater monitoring wells described in Section IV.A. to provide a reliable indication of the quality of the groundwater.
1. Samples shall be collected, preserved, and shipped (when shipped off-site for analysis) in accordance with the procedures specified in the Application. Monitoring wells shall be bailed or pumped to remove at least four times the well volume of water. Slow recharge wells shall be bailed until dry. Wells shall be allowed to recharge prior to sampling.
 2. Samples shall be analyzed according to the procedures specified of the Application, Standard Methods for the Examination of Water and Wastewater (American Public Health Association, latest edition), Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Publication SW-846, latest edition), or other appropriate methods approved by this Department. All field tests must be conducted using approved EPA test kits and procedures.
 3. Samples shall be tracked and controlled using the chain-of-custody and QA/QC procedures specified of the Application.
- D. Recordkeeping and Reporting Requirements.
1. Recording of Results. For each sample and/or measurement taken pursuant to the requirements of this permit, the Permittee shall record the information required by Section I.E.9.c.
 2. Recordkeeping. Records and results of all groundwater monitoring, sampling, and analysis activities conducted pursuant to the requirements of this permit shall be included in the operating record required by Section I.I.1.
- E. Permit Modification. If the Permittee or ADEM determines that the groundwater monitoring system no longer satisfies the requirements of 335-13-4-.14 or Section IV.A. of this permit, the Permittee must, within 90 days, submit an application for a permit modification to make necessary and/or appropriate changes to the system.

TABLE 1
GROUNDWATER MONITORING WELLS.

Monitoring Well Number	Top of Casing (feet msl)	Part Monitoring
Upgradient Wells		
MW-1A	869.22	Entire Landfill
NMW-2	818.13	Entire Landfill
NMW-3	824.75	Entire Landfill
Downgradient Wells		
MW-2	804.30	Entire Landfill
MW-4	773.36	Entire Landfill
MW-5	799.10	Entire Landfill
MW-2A	765.70	Entire Landfill
MW-3A	790.33	Entire Landfill
NMW-1	871.38	Entire Landfill
NMW-4	817.49	Entire Landfill
NMW-7	794.70	Entire Landfill
NMW-8	760.45	Entire Landfill

SECTION V. GAS MONITORING REQUIREMENTS.

- A. The permittee shall design, construct, and operate the facility so as to control and monitor the generation and emission of explosive gases (such as methane), and so as to prevent said gases from collecting in, or around structures at concentrations exceeding the limits imposed by this permit.
- B. Systems and Equipment. The Permittee shall provide, install, and maintain gas monitoring and/or recovery systems and equipment.
- C. Concentration Limits. The Permittee shall prevent explosive gases from exceeding:
 - 1. The lower explosive limit at the facility boundary.
 - 2. Twenty-five percent (25%) of the lower explosive limit in a facility structure other than those which are components of the gas control and/or recovery system.
- D. Explosive Gas Monitoring.
 - 1. The Permittee shall monitor explosive gases at the facility. The gas monitoring program shall monitor explosive gas concentrations in the atmosphere, in the soil, and inside all structures at the facility, including but not limited to buildings, under bridges, and at other locations which are conducive to gas accumulation. Gas monitoring data shall be included in the operating record and be made available to ADEM during inspections and at other times upon request.
 - 2. The Permittee shall conduct the gas monitoring at least once in each quarter. The Permittee shall submit a report to ADEM within thirty (30) days after each monitoring event documenting the levels of explosive gases measured at the facility.
 - 3. In the event that explosive gas levels exceed the limits specified in this permit, the Permittee shall:
 - a. Immediately take all necessary steps to ensure immediate protection of human health and property.
 - b. Immediately notify ADEM of the explosive gas levels detected and the immediate steps taken to protect human health and property.
 - c. Within twenty (20) days, submit to ADEM for approval a remedial plan for the explosive gas releases. This plan shall describe the nature and extent of the problem and the proposed remedy. The plan shall be implemented upon approval by ADEM, but within sixty (60) days of detection. Within the sixty (60) days the plan shall be placed in the operating record of the facility and ADEM notified that the plan has been implemented.
 - 4. Monitoring points for the measurement of explosive gas concentrations in the soil and/or atmosphere shall be located along the landfill boundaries and shall be spaced no more than 300 feet apart. In areas where the landfill boundary is within 1000 feet of a structure, the monitoring points shall be not more than 100 feet apart.

SECTION VI. MUNICIPAL SOLID WASTE LANDFILL AIR EMISSIONS.

This landfill may be subject to ADEM Admin. Code Division 3 and the Federal Clean Air Act. Contact the ADEM Air Division for applicable requirements and permits.

SECTION VII. LEACHATE AND SURFACE WATER MANAGEMENT REQUIREMENTS.

The Permittee must collect and dispose of the leachate that is generated at the facility. The Permittee shall install a leachate collection system designed to maintain less than 12 inches (30 cm) depth of leachate over the liner. Prior to initial disposal, the permittee shall provide the Department with a letter from the receiving publicly or privately owned treatment works, approving the acceptance of the leachate. Discharges to publicly or privately owned treatment works may be subject to the requirements of the ADEM Water Division's State Indirect Discharge (SID) Program. The permittee shall construct and maintain run-on and run-off control structures. Surface water discharges from drainage control structures shall be permitted through the ADEM Water Division's National Pollutant Discharge Elimination System (NPDES) Program.

SECTION VIII. CLOSURE AND POST-CLOSURE REQUIREMENTS.

The Permittee shall close the landfill and perform post-closure care of the landfill in accordance with 335-13.

- A. Final Cover. The landfill shall be closed in accordance with the approved application and 335-13.
- B. Vegetative Cover. The Permittee shall establish a vegetative or other appropriate cover within 90 days after completion of final grading requirements in the Application. Preparation of a vegetative cover shall include, but not be limited to, the placement of seed, fertilizer, mulch, and water.
- C. Notice of Intent. The Permittee shall place in the operating record and notify ADEM of their intent to close the landfill prior to beginning closure.
- D. Completion of Closure Activities. The Permittee must complete closure activities of each landfill unit in accordance with the Closure Plan within 180 days of the last known receipt of waste.
- E. Certification of Closure. Following closure of each unit, the Permittee must submit to ADEM a certification, signed by an engineer, verifying the closure has been completed according to the Closure Plan.
- F. Post-Closure Care Period. Post-closure care activities shall be conducted after closure of each unit throughout the life of this permit and continuing for a period of thirty (30) years following closure of the facility. ADEM may shorten or extend the post-closure care period applicable to the solid waste disposal facility. The Permittee shall reapply in order to fulfill the post-closure care requirements of this permit.
- G. Post-Closure Maintenance. The Permittee shall provide post closure maintenance of the facility to include regularly scheduled inspections. This shall include maintenance of the cover, vegetation, monitoring devices and pollution control equipment and correction of other deficiencies that may be observed by ADEM. Monitoring requirements shall continue throughout the post closure period as determined by ADEM unless all waste is removed and no unpermitted discharge to waters of the State have occurred.
- H. Post-Closure Use of Property. The Permittee shall ensure that post closure use of the property never be allowed to disturb the integrity of the final cover, liner, or other components of the containment system. This shall preclude the growing of deep-rooted vegetation on the closed area.
- I. Certification of Post-Closure. Following post-closure of each unit, the Permittee must submit to ADEM a certification, signed by an engineer, verifying the post-closure has been completed according to the Post-Closure Plan.
- J. Notice in Deed to Property. The Permittee shall record a notation onto the land deed containing the property utilized for disposal within 90 days after permit expiration, revocation or when closure requirements are achieved as determined by ADEM as stated in the Application. This notation shall state that the land has been used as a solid waste disposal facility, the name of the Permittee, type of disposal activity, location of the disposal facility and beginning and closure dates of the disposal activity.
- K. Recording Instrument. The Permittee shall submit a certified copy of the recording instrument to ADEM within 120 days after permit expiration, revocation, or as directed by ADEM as described in the Application.

- L. Removal of Waste. If the Permittee or other person(s) wishes to remove waste, waste residues, the liner, or any contaminated soils, the owner must request and receive prior approval from ADEM.

SECTION IX. FINANCIAL ASSURANCE

- A. The Permittee shall maintain detailed written cost estimates, in current dollars, at the landfill office and on file with ADEM in accordance with ADEM Admin. Code 335-13-4-.28.
- B. All cost estimates must be updated annually as required by ADEM Admin Code 335-13-4-28.
- C. The Permittee must place a copy of the financial assurance mechanism along with other items required by ADEM Admin. Code 335-13-4-28. into the landfill operating record and submitted to ADEM before the initial receipt of waste in the case of closure, post-closure care, or no later than 120 days after corrective action remedy has been selected.
- D. The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed.
- E. The financial assurance mechanisms must be legally valid, binding, and enforceable under state and federal law.
- F. The Permittee shall demonstrate continuous compliance with ADEM Admin. Code 335-13-4-28. by providing documentation of financial assurance in at least the amount that equals or exceeds the cost estimate. Changes in the financial assurance mechanism must be approved by the Department.
- G. The Permittee shall increase the closure, post-closure or corrective action cost estimates and the amount of financial assurance if changes in the closure, post-closure or correction action plans or landfill conditions increase the maximum cost.
- H. The Permittee may reduce the amount of financial assurance by submitting justification and a revised estimate to ADEM for approval.

SECTION X. VARIANCES AND SPECIAL CONDITIONS.

- A. The Permittee may utilize contaminated soils and Waste Cover as alternate daily covers for the Eastern Area Landfill. Contaminated soils should be stockpiled within the disposal cell and used in the same manner as earthen cover. The Permittee shall be required to cover the active cell with six inches of earthen cover at the conclusion of each week's activities. (See Section III.H.)

Any variance granted by ADEM may be terminated by ADEM whenever ADEM finds, after notice and opportunity for hearing, that the petitioner is in violation of any requirement, condition, schedule, limitation or any other provision of the variance, or that operation under the variance does not meet the minimum requirements established by state and federal laws and regulations or is unreasonably threatening the public health.