PRELIMINARY DETERMINATION

PERMIT RENEWAL

Scottsboro Solid Waste Authority
27150 John T. Reid Parkway
Scottsboro, Alabama 35768

Scottsboro Landfill
Permit No. 36-02

October 15, 2025

The Scottsboro Solid Waste Authority has submitted to the Alabama Department of Environmental Management (ADEM) an application to continue to operate a municipal solid waste landfill known as the Scottsboro Landfill (Permit No. 36-02). The waste stream for the Scottsboro Landfill would remain non-hazardous, non-infectious, putrescible and non-putrescible wastes including but not limited to household garbage, commercial waste, industrial waste and construction and demolition wastes. The waste stream for the construction and demolition disposal area would remain non-putrescible and non-hazardous construction and demolition waste and rubbish as defined by ADEM Admin Code 335-13-1-.03, textile material such as clothing, rug remnants, yarn, and bedding, paper products such as office paper and unsuitable cardboard, and discarded tires. The service area for the Scottsboro Landfill would remain Jackson, Madison, Marshall and DeKalb Counties in Alabama. The maximum average daily volume of waste disposed at the Scottsboro Landfill would remain 350 tons per day. The application requested that all conditions of the current permit for the Scottsboro Landfill, including previously approved variances and special conditions, be granted in the renewed permit.

The Scottsboro Landfill is described as being located in Section 20 and 29, Township 3 South, Range 7 East, in Jackson County, Alabama. The Scottsboro Landfill facility consists of 103.68 acres with 28.2 acres approved for municipal and industrial waste disposal and 17.6 acres approved for construction and demolition waste disposal.

The Land Division has determined that the permit renewal application complies with the requirements of ADEM's Administrative Code Division 335-13 regulations.

Technical Contact:

Mr. Jonathan Crosby
Solid Waste Engineering Section
Land Division
(334) 270-5644

Alabama Department of Environmental Management

SOLID WASTE DISPOSAL FACILITY PERMIT

PERMITTEE:	**Scottsboro Solid Waste Authority**
FACILITY NAME:	**Scottsboro Landfill**
FACILITY LOCATION:	**Section 20 and 29, Township 3 South, Range 7 East in Jackson County, Alabama. The facility area consists of approximately 103.68 acres with 28.2 acres approved for municipal and industrial waste disposal and 17.6 acres approved for construction and demolition waste disposal.**
PERMIT NUMBER:	**36-02**
PERMIT TYPE:	**Municipal Solid Waste Landfill**
WASTE APPROVED FOR DISPOSAL:	**The Permittee may accept for disposal at the municipal solid waste disposal area non-hazardous, non-infectious, putrescible and non-putrescible wastes including but not limited to household garbage, commercial waste, industrial waste and construction and demolition wastes.** **The Permittee may accept for disposal at the construction and demolition disposal area non-putrescible and non-hazardous construction and demolition waste and rubbish as defined by ADEM Admin. Code 335-13-1-.03, textile material such as clothing, rug remnants, yarn, and bedding, paper products such as office paper and unsuitable cardboard, and discarded tires.**
APPROVED WASTE VOLUME:	**Maximum Average Daily Volume of 350 tons per day**
APPROVED SERVICE AREA:	**Jackson, Madison, Marshall, and DeKalb Counties in Alabama**

In accordance with and subject to the provisions of the Solid Wastes & Recyclable Materials Management Act, as amended, Code of Alabama 1975,§ 22-27-1 to 22-27-27 ("SWRMMA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, § 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:	**XXXXXXX, 2025**
EFFECTIVE DATE:	**XXXXXXX, 2025**
EXPIRATION DATE:	**XXXXXXX, 2035**

Alabama Department of Environmental Management

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE PERMIT

Permittee:	Scottsboro Solid Waste Authority 27150 John T. Reid Parkway Scottsboro, Alabama 35768
Landfill Name:	Scottsboro Landfill
Landfill Location:	Sections 20 and 29, Township 3 South, Range 7 East in Jackson County, Alabama
Permit No.	36-02
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 (the "Act"), and attendant regulations promulgated thereunder by the Alabama Department of Environmental Management (ADEM), this permit is issued to the Scottsboro Solid Waste Authority (hereinafter called the Permittee), to operate a solid waste disposal facility, known as the Scottsboro 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 any attachments), and the applicable regulations contained in Chapters 335-13-1 through 335-13-16 of the ADEM Administrative Code (hereinafter referred to as the "ADEM Admin. Code"). Rules cited are set forth in this document for the purpose of Permittee reference. Any 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 any revisions approved after permit issuance.

This permit is based on the information submitted to ADEM on September 12, 2023 for permit renewal, and as amended, and is known as the Permit Application (hereby incorporated by reference and hereinafter referred to as the Application). Any 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 any deviation 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 **????????????,** and shall remain in effect until **???????????**, unless suspended or revoked.

_____ _____
Alabama Department of Environmental Management 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 ADEM Administrative Code, Division 13. Issuance of this permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local laws or regulations. Except for actions brought under Code of Alabama 1975, Section 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 any 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 any permit condition.

C. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any 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 ADEM Administrative Code, Division 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" for purposes of this permit means the United States Environmental Protection Agency.

2. "Permit Application" for the purposes of this permit, 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 the Department 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 the Department. Any permit noncompliance constitutes a violation of Code of Alabama 1975, Section 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 the Department 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, Paragraph E, Subparagraph 2, and, through no fault of the Permittee, the Department 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, any 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 the Department 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 the Department 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, any records that must be kept under the conditions of this permit.

   c. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

   d. Sample or monitor, at reasonable times, any substances or parameters at any location for the purposes of assuring permit compliance or as otherwise authorized by Code of Alabama 1975, Section 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 ADEM Admin. Code 335-13-4 or the methods as specified in the Application 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, Paragraph 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 the Department at any time and are automatically extended during the course of any 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 the Department, in the form of a request for permit modification, at least 120 days prior to any 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 any 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 the Department. 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. Before the Permittee may commence disposal of waste in any new cell or phase:

a. The Permittee must submit a letter to the Department signed by both the Permittee and a professional engineer stating that the facility has been constructed in compliance with the permit.

b. The Department must inspect the constructed cells or phases unless the permittee is notified that the Department will waive the inspection.

c. The Permittee may not commence disposal activities in any cells or phases until approval of the new cells or phases is granted by the Department.

13. Noncompliance. The Permittee shall report all instances of noncompliance with the permit at the time noncompliance is discovered.

14. Other Information. If the Permittee becomes aware that information required by the Application was not submitted or was incorrect in the Application or in any report to the Department, the Permittee shall promptly submit such facts or information. In addition, upon request, the Permittee shall furnish to the Department, 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 any 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 of ADEM Admin. Code 335-13-4-.21(1)(b).

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 industrial waste and special waste.

    e. Groundwater monitoring records.

    f. Explosive gas monitoring records.

    g. Surface water and leachate monitoring records.

    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.

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, or as directed by ADEM, and the reports shall be submitted at least semi-annually, or as directed by ADEM. The reports should contain all monitoring results and conclusions from samples and measurements conducted during the sampling period. Explosive gas monitoring must be submitted once each year, and the reports should be submitted to ADEM and placed in the operating record within 30 days of the monitoring event. Copies of the groundwater and 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 ADEM Admin. Code 335-13 must be furnished upon request, and made available at reasonable times for inspection by any officer, employee, or representative of ADEM.

    b. All records, including plans, required under this permit or ADEM Admin. Code 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 any 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 the Scottsboro 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
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463

2. Physical Address.
Chief, Solid Waste Branch
Alabama Department of Environmental Management
1400 Coliseum Blvd.
Montgomery, Alabama 36110-2400

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 pursuant to ADEM Admin. Code 335-1-1-.06.

M. State Laws and Regulations. Nothing in this permit shall be construed to preclude the initiation of any legal action or to relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any 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 ADEM Admin. Code 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, as provided in the Application, for detecting and preventing the disposal of free liquids, regulated hazardous waste, PCB's, regulated medical waste, and other unauthorized waste streams 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. Any 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 in accordance with ADEM Admin. Code 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 REQUIREMENTS FOR MSW LANDFILLS

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, Paragraph B. Disposal of any other wastes is prohibited, except waste granted a temporary or one time waiver by the Director.

2. The total permitted area consists of approximately 103.68 acres with a municipal solid waste disposal area of 28.2 acres and a construction and demolition waste disposal area of 17.6 acres.

3. The maximum average daily volume of waste disposed at the facility, as contained in the permit application, shall not exceed 350 tons/day for the municipal solid waste disposal area and the construction and demolition waste disposal area combined. 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 ADEM Admin. Code 335-13-5-.06(2)(b)2. The average daily volume shall be computed as specified by ADEM Admin. Code 335-13-4-.22(2)(g).

B. Waste Streams. The Permittee may accept for disposal at the municipal solid waste disposal area non-hazardous, non-infectious, putrescible and non-putrescible wastes including but not limited to household garbage, commercial waste, industrial waste and construction and demolition wastes.

The Permittee may accept for disposal at the construction and demolition disposal area non-putrescible and non-hazardous construction and demolition waste and rubbish as defined by ADEM Admin. Code 335-13-1-.03, textile material such as clothing, rug remnants, yarn, and bedding, paper products such as office paper and unsuitable cardboard, and discarded tires.

C. Service Area. The service area for this landfill shall be Jackson, Madison, Marshall, and DeKalb Counties of Alabama.

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

1. Asbestos Waste. The Permittee shall dispose of asbestos waste in accordance with ADEM Admin. Code 335-13-4-.26(2).

2. Foundry Sand. The Permittee shall dispose of foundry waste in accordance with ADEM Admin. Code 335-13-4-.26(3).

3. Petroleum Contaminated Waste. The Permittee shall dispose of petroleum contaminated waste in accordance with ADEM Admin. Code 335-13-4-.26(4).

4. Municipal Solid Waste Ash. The Permittee shall dispose of municipal solid waste ash in accordance with ADEM Admin. Code 335-13-4-.26(5).

E. Liner Requirements. The City of Scottsboro has been approved to use an alternate liner. The approved liner is presented in Figure 2 Alternative Composite Liner Design Evaluation (September 2003), as amended October 23, 2003, and consists of, from bottom to top, 12" compacted clay with permeability of 10^{-5}cm/sec or less, a geomembrane supported geosynthetic clay liner installed membrane down, 60 mil textured HDPE Geomembrane, Triplanar Geocomposite drainage net, 12" drainage layer with a permeability of 10^{-3}cm/sec or greater. As a minimum, the liner systems shall be constructed and tested in accordance with the specifications as required by ADEM Admin. Code 335-13-4-.18. The Department shall be informed, in writing, if the alternate liner is to be installed. The base of the composite liner system shall be a minimum of five (5) feet above the highest measured groundwater level as determined by ADEM Admin. Code 335-13-4-.11(2)(a).

The Permittee shall not be required to construct a composite liner for the construction and demolition waste disposal area. The bottom of the construction and demolition waste shall be a minimum of five (5) feet above highest measured groundwater level as determined by ADEM Admin. Code 335-13-4-.11(2)(a).

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 ADEM Admin. Code 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 ADEM Admin. Code 335-13. The Permittee has been approved to utilize a 50/50 mix of woodchips to soil and synthetic tarps as alternate daily cover within the MSW disposal area. The construction and demolition waste disposal area shall be covered at the conclusion of each week's activities as required by ADEM Admin. Code 335-13-4-.23(1)(a). (See Section X.1.)

I. Waste Compaction. All waste shall be thoroughly compacted with adequate landfill equipment before the daily or weekly 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. The Permittee has been approved to operate two working faces at the landfill. One working face will be utilized for the municipal and industrial waste disposal area. The other working face will be utilized for the construction and demolition waste disposal area. Both working faces 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. (See Section X.2.)

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 ADEM Admin. Code 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 ADEM Admin. Code 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 ADEM Admin. Code 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 ADEM Admin. Code 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 address changes in the rate and extent of a plume of contamination or as otherwise deemed necessary to maintain compliance with the ADEM Admin. Code 335-13.

3. Prior to installing additional groundwater monitoring wells, the Permittee shall submit a plan to ADEM with a permit modification request specifying the design, location and installation of additional monitoring wells. This plan shall be submitted at least one hundred and twenty (120) 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).

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 ADEM Admin. Code 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 ADEM Admin. Code 335-13-4-.27, in all monitoring wells identified in Section IV.A.2. to establish background water quality and/or as directed by ADEM Admin. Code 335-13-4-.27(2)(j) and ADEM Admin. Code 335-13-4-.27(2)(a)(1).

4. The Permittee shall sample, and analyze all monitoring wells identified in Table 1 for the parameters listed in Appendix I of ADEM Admin. Code 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 ADEM Admin. Code 335-13-4-.27(3). Sampling shall be conducted during March and September of each year, beginning with the effective date of this permit. The records and results of this sampling and analysis activity shall be submitted to ADEM, within ninety (90) days of the date of sampling.

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. The Permittee has been approved to utilize inter and intra well statistics to analyze groundwater. (See Scottsboro Landfill Groundwater Monitoring Plan dated August 19, 2025)

3. Samples shall be tracked and controlled using the chain-of-custody and QA/QC procedures specified in 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 ADEM Admin. Code 335-13-4-.14 or Section IV.A. of this permit, the Permittee must, within 120 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	
BG-1	697.67	Entire Landfill
	Downgradient Wells	
MW-1	707.40	Closed Landfill
MW-2R	648.30	Closed Landfill
MW-4	663.92	Closed Landfill
MW-5A	635.35	Closed Landfill
MW-6	646.01	Closed Landfill
MW-7	658.90	Closed Landfill
MW-8R	678.85	Closed Landfill
MW-11	651.75	Closed Landfill
MW-12	649.66	Closed Landfill
SD-2	627.49	Lined Cells
SD-3	613.55	Lined Cells
SD-4	607.58	Lined Cells
SD-6R	613.87	Lined Cells
SD-7	617.61	Lined Cells
SD-8	621.12	Lined Cells

SECTION V. GAS MONITORING REQUIREMENTS.

The permittee must install and maintain an explosive gas monitoring system in accordance with ADEM Admin. Code 335-13.

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 ADEM Admin. Code 335-13.

A. Final Cover. The Permittee shall grade final soil cover such that surface water does not pond over the permitted area as specified in the Application.

B. Vegetative Cover. The Permittee shall establish a vegetative or other appropriate cover, as approved by the Department, 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 independent registered professional 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 a minimum 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.

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 independent registered professional engineer, verifying the post-closure has been completed according to the Post-Closure Plan.

J. Recording Instrument. The Permittee must provide documentation of compliance with the requirements of the Uniform Environmental Covenants Program in ADEM Admin. Code 335-5 and shall execute the following:

1. Record a notation onto the land deed within 90 days from the certification of closure. 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.

2. File the covenant at the courthouse where the land deed is held within thirty (30) days of receipt of the covenant signed by ADEM's Land Division Chief.

3. 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.

K. 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 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. A copy of this information shall be submitted to ADEM in accordance with ADEM Admin. Code 335-13-4-.28(5).

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 corrective 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

1. The Permittee has been approved to utilize a 50/50 mix of woodchips to soil and synthetic tarps as alternate daily cover within the MSW disposal area. The Permittee shall be required to cover the active cell with six inches of compacted earthen cover at the conclusion of each week's activities according to ADEM Admin. Code 335-13-4-.22 (1)(a)(1). (See Section III.H.)

2. The Permittee has been granted a variance from ADEM Admin. Code 335-13-4-.22(1)(b) requiring the waste to be confined to as small an area as possible within a single working face. The Permittee has been approved to operate two working faces at the Scottsboro Landfill. One working face will be utilized for the municipal and industrial waste disposal area. The other working face will be utilized for the construction and demolition waste disposal area. Both working faces must be confined to as small an area as possible (See Section III.J.)

Any variance granted by the Department may be terminated by the Department whenever the Department 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.

PERMIT APPLICATION

September 12, 2023
File No. 09222108.01

Mr. Jared D. Kelly, Chief
Solid Waste Engineering Section
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36130

Subject: Scottsboro Solid Waste Authority – Scottsboro Landfill
Solid Waste Disposal Facility Permit Renewal Application Package
Permit No. 36-02

Dear Mr. Kelly:

On behalf of the Scottsboro Solid Waste Authority (SSWA), SCS Engineers (SCS) hereby submits the attached application for the renewal of Solid Waste Disposal Facility Permit No. 28-08 for the Scottsboro Landfill. Attached to the application is a listing of adjacent property owners to the Scottsboro Landfill, a map depicting the parcels owned by SSWA and all adjacent parcels. Also included with the application is the documentation requested in the Alabama Department of Environmental Management's February 6, 2023, Permit Expiration Notice.

SSWA requests all previously approved Variances and Special Conditions listed in listed in Section X of the current Permit for Scottsboro Landfill be continued in the renewed Permit.

If you have any questions related to this submittal and/or need additional information, please contact Eric Sanderson of SCS via cell phone at 334-332-8402 or email at ESanderson@scsengineers.com.

Sincerely,

Eric L. Sanderson. P.E.
Project Director
SCS Engineers

Andres Velosa
Staff Professional II
SCS Engineers

Attachment: Solid Waste Disposal Facility Permit Renewal Application Package

Cc: Jonathan Crosby, ADEM, JEC@adem.alabama.gov

PERMIT APPLICATION
SOLID WASTE DISPOSAL FACILITY
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
(Submit in Triplicate)

1. **Facility type:**
   - [X] Municipal Solid Waste Landfill (MSWLF)
   - [ ] Industrial Landfill (ILF)
   - [X] Construction and Demolition Landfill (C/DLF)
   - [ ] CCR Landfill (CCRLF)
   - [ ] CCR Surface Impoundment (CCRSI)
   - [ ] Other (explain)_____

2. **Facility Name** Scottsboro Landfill

3. **Applicant/Permittee:**

   Name: Scottsboro Solid Waste Authority

   Address: 27150 John T. Reid Parkway
   Scottsboro, AL. 35768

   Telephone: (256) 259-5548

   If applicant/permittee is a Corporation, please list officers:

   NA

4. **Location: (Include county highway map or USGS map)**

   Township 3 S **Range** 7 E
   Section 20 & 29 **County** Jackson

5. **Land Owner:**

   Name: Scottsboro Solid Waste Authority

   Address: 27150 John T. Reid Parkway
   Scottsboro, AL. 35768

   Telephone: 256-259-5548

   (Attach copy of agreement from landowner if applicable.)

6. **Contact Person:**

Name Stacy Ledwell

Position or Affiliation Solid Waste Director

Address: 27150 John T Reid Parkway
Scottsboro, AL. 35768

Telephone: (256) 259-5548

7. **Size of Facility:** 103.68 **Acres**

Size of Disposal Area(s): MSW: 28.2 C/D: 17.6 **Acres**

8. **Identify proposed service area or specific industry that waste will be received from:**

Jackson, Madison, Marshall, and Dekalb Counties

9. **Proposed maximum average daily volume to be received at landfill (choose one):**

350 **Tons/Day** _____ **Cubic Yards/Day**

10. **List all waste streams to be accepted at the facility (i.e., household solid waste, wood boiler ash, tires, trees, limbs, stumps, etc.):**

Household garbage, commercial waste, industrial waste, and construction & demolition wastes

SIGNATURE (Responsible official of permit applicant):

Stacy L. Ledwell **TITLE:** Solid Waste Director

Stacy Ledwell **DATE:** 9-18-23

(please print or type name)

THREE NOTCH GROUP Environment & Infrastructure

August 14, 2025

Ms. Stacy Stevens
Solid Waste Engineering Section
Land Division
Alabama Department of Environmental Management
1400 Coliseum Blvd
Montgomery, AL 36130-1463

RE: Response to Scottsboro Landfill Permit Application Review Letter
Scottsboro Landfill
Solid Waste Facility Permit No. 36-02

Dear Ms. Stevens,

On behalf of the Scottsboro Solid Waste Authority (SSWA), Three Notch Group, Inc. submits this letter in response to the Alabama Department of Environmental Management's (Department) Permit Application Review Letter dated July 3, 2025. This submittal includes: (1) responses to all Department comments; (2) a formal request to continue existing permit variances; (3) an updated financial assurance estimate; (4) a revised Groundwater Monitoring Plan; and (5) the current list of adjacent property owners, as required by ADEM Admin Code r. 335-13-8-.02.

1. Continuation of Existing Variances
Pursuant to ADEM Admin Code r. 335-13-8-.03, SSWA formally requests that the following variances, currently included in the facility's permit, be continued in the reissued permit:

1. **Two Working Faces (ADEM Rule 335-13-4-.22(1)(b))** – The facility is authorized to operate two working faces: one for the municipal and industrial waste disposal area and one for the construction and demolition (C&D) waste disposal area. Both working faces are confined to as small an area as possible and operated in full compliance with Department regulations (See Section III.J).

2. **Alternate Daily Cover – 50/50 Woodchips to Soil and Synthetic Tarps** – The facility is authorized to utilize a 50/50 mix of woodchips and soil, and synthetic tarps, as alternate daily cover within the MSW disposal area. The active cell is covered with six inches of compacted earthen cover at the conclusion of each week's activities (See Section III.H).

2. Updated Financial Assurance
In compliance with ADEM Admin Code r. 335-13-4-.28(5)(e)(2)(iii), the facility's updated 2024 Financial Assurance Estimate is provided in Attachment B.

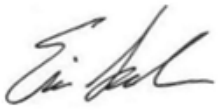
3. Groundwater Monitoring Plan (GWMP) Revisions
Attachment C provides a point-by-point response to each of the Department's GWMP comments. Attachment D contains the fully revised GWMP.

4. Adjacent Property Owners List
In accordance with ADEM Admin Code r. 335-13-8-.02, a list of all property owners adjacent to the Scottsboro Landfill is provided in Attachment A.

The SSWA remains committed to ensuring full compliance with Department regulations and hopes that this response satisfies the Department's request. Should you have any questions or need additional information regarding this response, please contact me at (334) 332-8402 or via email at eric.sanderson@3notch.com.

Sincerely,

Three Notch Group, Inc.

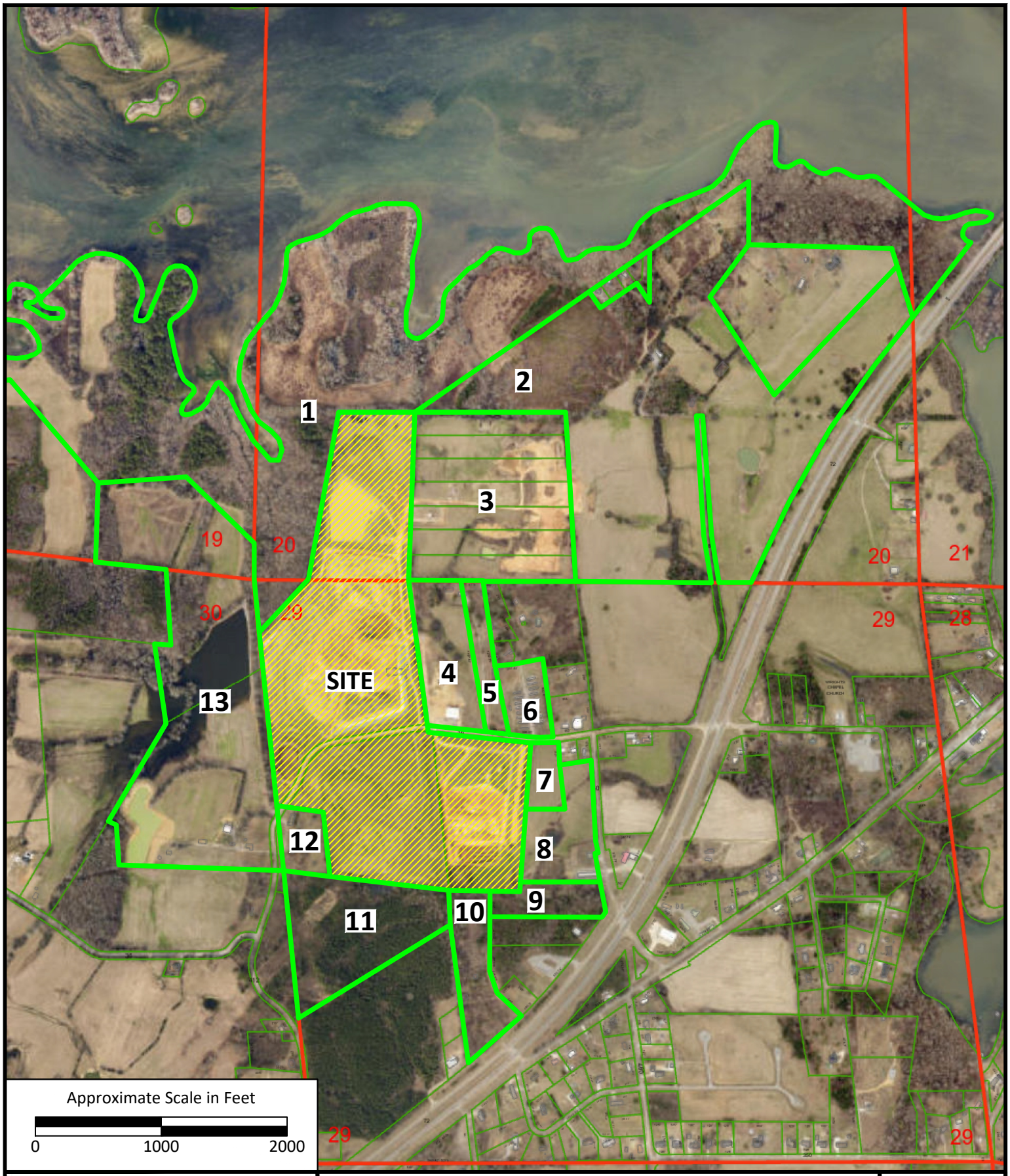


Eric Sanderson, P.E.
Environmental Practice Lead

Brad Anders, P.G.
Project Manager

ATTACHMENTS:
Attachment A – Adjacent Property Owners
Attachment B – 2024 Financial Assurance
Attachment C – Response to Groundwater Monitoring Plan Comments Letter
Attachment D – Revised Groundwater Monitoring Plan

ATTACHMENT A



THREE NOTCH GROUP

Adjacent Property Owners Map

Scottsboro Landfill
650 County Road 412
Hollywood, Jackson County, Alabama

Property Owners Adjacent to Scottsboro Landfill				
Number	**Name**	**Address**	**Parcel Number**	**Date Checked**
SITE	THE SOLID WASTE DISPOSAL AUTHORITY - CITY OF SCOTTSBORO	916 S BROAD ST SCOTTSBORO, AL 35768	1904200000006000 1909290000010000 1909290000012003	7/28/2025
1	TVA	CHATTANOOGA, TN 37410	1904200000010000 1909290000010001 1904190000003000	7/28/2025
2	THE SOLID WASTE DISPOSAL AUTHORITY - CITY OF SCOTTSBORO	476 CO RD 188 SCOTTSBORO, AL 35768	1904200000008000	7/28/2025
3	THE CITY OF SCOTTSBORO ALABAMA	916 S BROAD ST SCOTTSBORO, AL 35768	1904200000007001 1904200000007002 1904200000007003 1904200000007004 1904200000007005 1904200000007006 1904200000007000	7/28/2025
4	THE SOLID WASTE DISPOSAL AUTHORITY - CITY OF SCOTTSBORO	316 S BROAD ST SCOTTSBORO, AL 35768	1909290000009000	7/28/2025
5	MATHIAS RONEY A & WILMA G	977 CO RD 412 HOLLYWOOD, AL 35752	1909290000008000	7/28/2025
6	BLEVINS PAUL D	8 S KINGSBERRY DR KIMBALL, TN 37347	1909290000007002	7/28/2025
7	WALLACE BILLY JOE	4036 CO RD 39 FACKLER, AL 35746	1909290000012000	7/28/2025
8	ROANOKE HOLDINGS LLC	107 E LAUREL ST SCOTTSBORO, AL 35768	1909290000012000	7/28/2025
9	MUD CREEK BAPTIST CHURCH STEVENSON	1808 EDWIN ST SCOTTSBORO, AL 35768	1909290000049003	7/28/2025
10	MATHIAS WILMA & RONEY A	977 CO RD 412 HOLLYWOOD, AL 35752	1909290000051000	7/28/2025
11	THE SOLID WASTE DISPOSAL AUTHORITY - CITY OF SCOTTSBORO	316 S BROAD ST SCOTTSBORO, AL 35768	1909290000050000	7/28/2025
12	ROBERTSON TERRY W & DEBORAH W	100 CO RD 554 HOLLYWOOD, AL 35752	1909290000011000	7/28/2025
13	MUD CREEK FARM INC LLC	1656 OSCAR PATTERSON RD NEW MARKET, AL 35761	1909300000001000 1909300000001003 1904190000001000	7/28/2025

ATTACHMENT B

THREE NOTCH GROUP Environment & Infrastructure

August 8, 2025

Ms. Stacy Stevens
Solid Waste Engineering Section
Land Division
Alabama Department of Environmental Management
1400 Coliseum Blvd
P.O. Box 301463
Montgomery, AL 36130-1463

RE: **FY2024 Financial Assurance**
Scottsboro Landfill
Solid Waste Permit No. 36-02

Dear Ms. Stevens,

Please find attached the updated 2024 Financial Assurance Estimate for the Scottsboro Landfill. All unit costs are based on the Producer Price Index - Final Demand Construction for Government as published by the U.S. Department of Labor.

Should you have any questions or comments about the estimate, please feel free to give me a call at (850) 631-2443.

Sincerely,

Three Notch Group, Inc.

Brad Anders, P.G.
Project Manager

FINANCIAL ASSURANCE COST ESTIMATE

Date: August 8, 2025

I. GENERAL INFORMATION:

Facility Name: Magonlia Sanitary Landfill

Permit/Application No.: 36-02 Expiration Date: _____

Facility Address: 650 County Road 412, Hollywood, AL 35752

Permitee: Solid Waste Disposal Authority of City of Scottsboro

Mailing Address: 27150 John T. Reid Parkway, Scottsboro, AL 35768

Solid Waste Disposal Units Included in Estimate:

Cell	Acres	Total Acres Requiring Closure
1	10.10	10.10
2	11.50	21.60
3	6.60	28.20

Total Landfill Acreage included in this estimate. 31.02 Closure

28.20 Long-Term Care

II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

_____	Letter of Credit*	_____	Insurance Certificate
_____	Surety Bond*	_____	Escrow Account
_____	Trust Fund Agreement	X	Financial Test

III. ESTIMATED CLOSURE COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitoring Wells				
	EA	-	$ -	$ -
2. Slope and Fill (bedding layer between waste and barrier layer):				
Grading of Waste	LS	1	$ 39,385.58	$ 39,385.58
Structural Fill	CY	38,331	$ 6.57	$ 251,834.67
			Subtotal Slope and Fill:	$ 291,220.25
3. Cover Material (Barrier Layer):				
12" Soil Cap	CY	38,331	$ 5.98	$ 229,219.38
40 mill LLDPE Geomembrane	SF	1,486,354	$ 0.75	$ 1,114,765.50
Geocomposite (10 oz/SY)	SF	1,486,354	$ 0.81	$ 1,203,946.74
Erosion Layer (12" thick)	CY	38,331	$ 7.11	$ 272,533.41
Topsoil (6" thick)	CY	19,165	$ 8.53	$ 163,477.45
			Subtotal Cover Material:	$ 2,983,942.48
4. Vegetative Layer				
Seeding / Grassing	AC	31.02	$ 2,133.55	$ 66,182.72
Fertilizer	AC	31.02	$ 2,133.55	$ 66,182.72
Mulch	AC	31.02	$ 355.60	$ 11,030.71
Drainage Matting	SY	7,500	$ 1.56	$ 11,700.00
			Subtotal Vegetative Layer:	$ 155,096.15
5. Stormwater Control System:				
Piping	LF	950	$ 49.79	$ 47,300.50
Excavation of existing pipes	LF	320	$ 22.76	$ 7,283.20
			Subtotal Stormwater Controls:	$ 54,583.70
6. Gas Control: Active Extraction				
Wells	EA	3	$14,223.67	$42,671.01
Collection System	LF	800	$78.23	$62,584.00
Condensate Control System	LS	-	$42,671.00	$0.00
Blowers	EA	-	$21,335.50	$0.00
Flare Station	EA	-	$142,236.64	$0.00
			Subtotal Active Gas Extraction:	$105,255.01

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
7. Security System:				
Fencing	LF	-	$ -	$ -
Gate(s)	EA	-	$ -	$ -
Sign (s)	EA	2	$ 2,844.73	$ 5,689.46
			Subtotal Security System:	$ 5,689.46
8. Engineering:				
Closure Plan Report	LS	1	$ 35,559.16	$ 35,559.16
QA/QC Construction Management	LS	1	$ 106,677.49	$ 106,677.49
Final Survey	LS	1	$ 21,335.50	$ 21,335.50
Certification of Closure	LS	1	$ 12,090.12	$ 12,090.12
			Subtotal Engineering:	$ 175,662.27
			Subtotal of 1-8 Above:	$3,771,449
			Contingency	$377,145
			Total Closure Cost	$4,148,594

IV. ANNUAL COST FOR LONG-TERM CARE

Description	Sampling Frequency (events/yr.)	Number of Wells		$/Event	$/Year
1. Groundwater Monitoring					
Semi-Annual	2	18		$ 17,025.73	$ 34,051.46
				Subtotal Groundwater Monitoring:	$ 34,051.46
2. Surface Water Monitoring					
Quarterly	4	1		$ 917.43	$ 3,669.72
				Subtotal Surface Water Monitoring:	$ 3,669.72
3. Gas Monitoring (Perimeter)					
Quarterly	4	74		$ 1,413.83	$ 5,655.32
				Subtotal Gas Monitoring:	$ 5,655.32
4. Gas System Monitoring					
Quarterly	4			$ -	$ -
Well Field					
Monthly	12			$ -	$ -
				Subtotal SEMS Monitoring:	$ -
5. Leachate Collection/Treatment Systems Maintenance					
Maintenance					
Lift Stations		LS	2	$ 1,687.96	$ 3,375.92
Treatment / Disposal		Gal/Month	-	$ -	$ -
* No charge for the disposal of the leachate					
			Subtotal	Leachate Collection/Treatment System Maintenance	$ 3,375.92
6. Maintenance of Groundwater Monitoring Wells					
*Assume replacement of 1 well per 5 years					
Replacement		EA	0.2	$ 7,111.83	$ 1,422.37
Abandonment		EA	0.2	$ 7,111.83	$ 1,422.37
			Subtotal	Groundwater Monitoring Well Maintenance:	$ 2,844.73

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
7. Gas System Maintenance				
Blower / Flare Station	LS	-	$ -	$ -
Operation and Maintenance	LS	-	$ -	$ -
			Subtotal Gas System:	$ -
8. Erosion Repair & Cover Maintenance				
	LS	1	$ 21,335.50	$ 21,335.50
			Subtotal Erosion Repair and Cover Maintenance:	$ 21,335.50
9. Stormwater Management System Maintenance				
Conveyance Maintenance	LS	1	$ 7,111.83	$ 7,111.83
			Subtotal Stormwater System Maintenance:	$ 7,111.83
10. C/D Disposal Area				
Seeding / Grassing	AC	9.00	$ 1,209.01	$ 10,881.09
Erosion Repair & Cover Maintenance	LS	1	$ 14,223.67	$ 14,223.67
			Subtotal C/D Disposal Area:	$ 25,104.76
		ANNUAL LONG-TERM CARE COST ($/Year):		$103,149
		NUMBER OF YEARS OF LONG-TERM CARE		30
		TOTAL LONG-TERM CARE COST ($)		$ 3,094,477.26

ATTACHMENT C

July 23, 2025

Alabama Department of Environmental Management
Post Office Box 301463
Montgomery, Alabama 36130-1463

Attention: Stacy Stevens
Solid Waste Branch

RE: **Response to ADEM Comment Letter Dated July 3, 2025**
Scottsboro Landfill Permit Application Review
Scottsboro Landfill
Scottsboro, Jackson County, Alabama
Permit No.: 36-02
LaBella Project No.: 2253665.00

Dear Stacy Stevens:

On behalf of the Scottsboro Solid Waste Authority of the City of Scottsboro, LaBella Associates, D.P.C. (LaBella) is submitting this response to the Alabama Department of Environmental Management (ADEM) comment letter dated July 3, 2025. Our response addresses the ADEM's comments to the *Groundwater Monitoring Plan* (GWMP) (dated December 20, 2018) previously submitted for the Scottsboro Landfill located in Scottsboro, Jackson County, Alabama. Below are the ADEM comments followed by a detailed response to each comment.

<u>Groundwater Monitoring Plan Comments & Response:</u>

1. *There are currently no records of any modification regarding the abandonment of monitoring well SD-1. The facility will be required to apply for a minor modification to their permit along with the permit reissuance. The facility will also be required to pay the appropriate fee for a Municipal Solid Waste Permit Modification $3,275. This modification must be reflected in the GWMP before the permit renewal and modification process can continue.*

Response: A *Monitoring Well Abandonment Plan* dated August 12, 2019 for SD-1 was submitted to the ADEM as part of a modification to the Permit for a proposed landfill expansion. Monitoring well SD-1 was located in the area of the proposed expansion area. The Permit fees were paid in May 2019. Upon approval of the *Monitoring Well Abandonment Plan* by the ADEM, monitoring well SD-1 was abandoned and a *Monitoring Well Abandonment Letter* dated June 2, 2020 was submitted to the ADEM following abandonment activities. The *Monitoring Well Abandonment Plan*, the *Monitoring Well Abandonment Letter*, and the Fee Sheet for the former Permit Modification are provided as an Attachment to this response. These forms are also provided as an Appendix in the Revised GWMP. Section 4.1 of the Revised GWMP has been updated to show the current monitoring well network.

2. *Section 4.2 indicates monitoring well MW-8 was replaced in 2015 and in accordance with the plan, the background from MW-8 will be used for and combined with background from MW-8R. The Department requires that an ANOVA be performed prior to combining datasets.*

Response: Section 4.2 has been revised and language related to historical data for MW-8 being used for MW-8R has been removed. Section 4.5 has been added to the GWMP and provides information concerning how statistical analysis will be conducted for newly installed groundwater monitoring wells, including the use of ANOVA testing. ANOVA testing was conducted for MW-8 and MW-8R using the historical dataset for MW-8 and the first eight sampling points for MW-8R. The results of this analysis are discussed in Section 7.1 of the Revised GWMP.

3. *Section 7.0 states that reports will be submitted within 60 days of a monitoring event, however Section IV.B.3 of the permit states 90 days. Revise to 90 days.*

Response: Section 7.0 has been updated to indicate 90 days.

4. *Section 7.3 says that outlier screening will be performed when multiple values in a dataset appear anomalously low or high. Outlier screening must be performed during each background update.*

Response: Section 7.3 is now Section 7.3.3 and the language indicating when outlier analysis is to be completed has been updated.

5. *Section 7.4 of the GWMP states that target chemicals are the Appendix I metals and 7 of the Appendix I VOCs. In accordance with the regulations, the facility must sample for each of the Appendix I parameters during each sampling event.*

Response: The GWMP has been revised, and Section 7.2 lists the target chemicals of concern for the site as Appendix I VOCs and Appendix I metals. Section 7.4 has been revised and now discusses the identification of a statistically significant increase (SSI), and the procedures to be followed once an SSI has been indicated.

6. *Section 7.4.1 provides specific information that was current at the time of the GWMP was drafted (late 2018). Conditions at the site have likely changed and the information presented is better presented in the GWMR rather than specified in the GWMP. This section of the GWMP must be revised to describe procedures to be followed for identifying an SSI and what happens when the facility moves to assessment monitoring.*

Response: Information related to current monitoring wells in assessment monitoring at the landfill has been removed from the GWMP. Section 7.2.1 (Double Quantification Rule – Appendix I VOCs) discusses the Double Quantification Rule (DQR) and retesting procedures for an Appendix I volatile organic compound (VOC) that has been detected in a well with a history of non-detects for that constituent. Section 7.3.5 of the Revised GWMP discusses how statistical analysis will be

completed due to an SSI for Appendix I VOCs and Section 7.4 of the Revised GWMP discusses the procedures to be conducted in the event an SSI is identified, including establishing an assessment monitoring program, and the analysis of confidence intervals and subsequent movement to an Alternate Source Demonstration (ASD) or Assessment of Corrective Measures (ACM), if needed (Section 7.4.2).

7. *Section 7.4.2 must describe when and how the DQR will be applied, etc. rather than listing the constituents for which it was applied until 2018.*

Response: The DQR is now discussed in Section 7.2.1 of the Revised GWMP. The list of constituents has been removed.

8. *Section 7.5 specifies that intrawell analysis will be used for As, Ba, Co, Hg, Ni, and Zn. Justification is given and it appears that intrawell was previously approved (it is included in the current permit issued in 2022). Section 7.5.1 discusses background updates, but the GWMP must detail how the initial background dataset will be determined once intrawell analysis was used. For example, what we have found is that once a facility begins using intrawell (in this case, it appears to have happened in 2018), they set everything prior to 2018 as background and then update from that point on. However, to try to "reconstruct" a pre-waste scenario, the facility should start with the first 4-8 sampling points and update iteratively with the next 4-8 monitoring points until background can no longer be updated due to an SSI or indication of significance during ANOVA testing.*

Response: Section 7.5.1 has been updated and is now Section 7.3.4. This Section discusses background screening and states that background will not be updated if a significant difference exists between historical data and new data. Additionally, background will not be updated for a constituent/well pair analyzed using intrawell analysis, if an SSI has been indicated.

It should be noted that background screening has been conducted for background well BG-1 for constituents analyzed using interwell analysis and for each of the constituent/well pairs for constituents using intrawell analysis using data from March 2002 to March 2024. This screening was conducted in accordance with the procedures outlined in Comment 8 above. Data from March 2002 to the present is used for this facility due to the change in the groundwater sampling method to low-flow sampling in March 2002, and at the request of the ADEM in prior discussions (prior to development of the GWMP in 2018). The results of the background screening are provided in the semi-annual groundwater monitoring reports submitted to the ADEM. The next background screening is scheduled to be conducted following the March 2026 semi-annual groundwater monitoring event.

9. *The last paragraph of Section 7.5 describes a procedure when an initial SSI is determined for a metal, then a decision will be made whether interwell or intrawell analysis is to be used. Because the GWMP already details which constituents will be analyzed via intrawell, this must be removed.*

Response: Section 7.5 is now Section 7.3.1. This above referenced language has been removed.

10. *The last paragraph of Section 7.5.1 describes a procedure for conducting an ANOVA for determining significance within a dataset before updating background. However, the GWMP states that if significance is identified an evaluation of more recent data will be performed to determine if further investigation is warranted. This is inconsistent with the Unified Guidance which states "A determination of significance suggests that the compliance observations should be reviewed to determine whether a gradual trend or other change has occurred that was missed by the intervening predication limit or control chart tests. If intrawell tests make use of a common pooled variance, the assumption of equal variance in the pooled wells should also be checked with the newer data" (EPA Unified Guidance pg 5-13, 2009). This must be revised.*

Response: Section 7.5.1 has been updated and is now Section 7.3.4. Language has been added discussing the use of trend tests, if needed.

11. *Due to the comments above, Section 7.6 shouldn't specify which constituents will have statistical analysis performed (due to prior detections) as conditions may have changed since the GWMP was written.*

Response: Section 7.6 has been removed. Language concerning how Appendix I VOC detections will be handled is now discussed in Section 7.2.1 (if not historically detected [DQR]), and Section 7.3.5 (statistical analysis for Appendix I VOCs identified as SSIs). Language specifying historically detected Appendix I VOCs has been removed.

<u>Additional changes to the GWMP:</u>

- Section 4.3 (Groundwater Flow) has been updated to use groundwater elevation and flow data from the most recent semi-annual groundwater monitoring event (March 2025).
- Figure 3 – Potentiometric Map – Updated using the potentiometric surface from the March 2025 semi-annual groundwater monitoring event.
- Section 4.4 (Monitoring Well Inspection) - New Section added to the GWMP that discusses monitoring well inspections and steps that will be taken in the event a monitoring well is observed to be damaged.
- Section 4.5 (Background Sampling) – New section added to the GWMP that discusses how background sampling will be conducted and how statistical analysis will initially be conducted for newly installed monitoring wells.
- Section 7.0 (Semi-Annual Reporting) – This Section has been updated and Sections added (and procedures clarified) based on ongoing conversations with the ADEM regarding information contained in facility GWMPs since the submittal of the GWMP for the Scottsboro Landfill in 2018.

LaBella Associates, D.P.C. appreciates your consideration in this matter. If you have any questions concerning this submittal or require any additional information, please contact our office me at (205) 354-3419.

Sincerely,
LABELLA ASSOCIATES, D.P.C.

Lori K. Norton, P.G.
Senior Project Geologist

Attachments: Attachment A – Monitoring Well SD-1 – *Monitoring Well Abandonment Plan*, *Monitoring Well Abandonment Letter*, Permit Fee Sheet

cc: Stacy Ledwell, Scottsboro Solid Waste Authority

ATTACHMENT A

August 9, 2019

Alabama Department of
Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463

Attention: Mr. Paul Searcy
Solid Waste Branch

RE: Monitoring Well Abandonment Plan
Scottsboro Landfill
Scottsboro, Jackson County, Alabama
Permit No.: 36-02

Dear Mr. Searcy,

On behalf of Scottsboro Landfill, Highland Technical Services, Inc. (HTSI) is submitting this Scottsboro Landfill Monitoring Well Abandonment Plan to conduct monitoring well abandonment activities associated with the recently submitted and pending approval, proposed landfill expansion at the Scottsboro Landfill, Solid Waste Disposal Facility (SWDF). A request for permit modification was submitted to the Alabama Department of Environmental Management (ADEM) by CDG Engineers and Associates, Inc. in December 2018.

The Site currently consists of two adjacent landfill cells, one of which is permitted for the disposal of solid waste from municipal and industrial waste and the other for construction and demolition wastes. The proposed landfill expansion will include the addition of one landfill cell adjacent to the two existing cells. An existing compliance monitoring well (SD-1) is located within the proposed landfill expansion cell and will require abandoning prior to landfill cell construction. With the anticipated approval of the aforementioned request for permit modification, HTSI has prepared a monitoring well abandonment work plan for monitoring well SD-1.

1.0 SITE INFORMATION AND BACKGROUND

The Scottsboro Landfill, Solid Waste Disposal Facility (SWDF), Permit Number 36-02, is located at 650 County Road 412 in Hollywood, Alabama in the Southwest ¼ of the Southwest ¼ of Section 20, the Northwest ¼ of the Northwest ¼ of Section 29, and the Southwest ¼ of the Northwest ¼ of Section 29, Township 3 South, Range 7 East in Jackson County, Alabama. The size of the entire facility is approximately 105.7 acres, while the size of the disposal area is approximately 40.3 acres with a maximum average daily volume of 350 tons/day. There are two existing cells at the current Site, one of which is permitted for the disposal of solid waste from municipal and industrial waste and the other for construction and demolition wastes. The Site accepts and disposes of solid waste from locations including Jackson, Madison, Marshall, and DeKalb Counties. These solid waste streams include non-hazardous, non-infectious, putrescible and non-putrescible wastes such as household garbage, commercial waste, industrial waste, and construction and demolition wastes. No infectious or hazardous waste materials are handled or disposed of at the Site.

2.0 PROPOSED MONITORING WELL ABANDONMENT ACTIVITIES

The Site currently maintains seventeen (17) monitoring wells for the collection of groundwater samples for the purpose of monitoring groundwater quality. Based on the location of the proposed landfill cell, monitoring well SD-1 will require abandonment. Monitoring well SD-1 is one of sixteen (16) compliance wells, while monitoring well BG-1 remains the only background well for groundwater quality comparisons. Monitoring well SD-1 is a Type II groundwater monitoring well, constructed using a 2-inch diameter Schedule 40 PVC riser casing and equivalent diameter 0.010-inch slotted PVC screen. A sand filter pack was installed to an elevation at least one foot above the well screen with a one-foot bentonite seal installed above the filter pack. The remainder of the annulus was grouted to the surface using neat cement. The well was completed with a protective steel cover, concrete pad, and locking well cap. Table 2.0 on the following page summarizes the construction details and location of monitoring well SD-1.

TABLE2.0 MONITORING WELL CONSTRUCTION SUMMARY

Monitoring Well ID	Measuring Point Elevation (ft-amsl)	Well Diameter (inches)	Screened Interval (ft- bgs)	Total Depth of Well (ft-btoc)	Location (Latitude, Longitude)
SD-1	626.97	2.0	29.0 - 49.0	50.30	34.754968N, -85.918921W

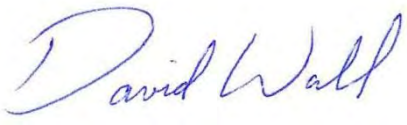
ft-amsl – feet above mean sea level
ft-btoc – feet below top of casing

Following ADEM's approval, HTSI will abandon monitoring well SD-1 in accordance with the most recent edition of the *Alabama Environmental Investigation and Remediation Guidance (AEIRG)*. The recommended abandonment method is as follows:

- The well will be measured for total depth and depth to static water level prior to abandonment.
- The 2-inch diameter well will be grouted in place using a cement/bentonite grout as a primary sealing material and placed in the well casings from the bottom up through a tremmie pipe.
- The protective cover and pad for the monitoring well will be removed, the riser casing cut approximately one foot below ground surface (ft-bgs), and the excavation filled with concrete forming a permanent plug over the well casing.
- The remainder of the surface will be capped with material to match the surrounding surface.
- Records of the abandonment procedure will be kept for the well. The record of abandonment will include, at a minimum, the quantity of sealing materials used, final measurements of static water levels and total measured depths, and any changes made to the well during the sealing.

Upon completion of the field activities, a letter report documenting abandonment activities will be submitted to your office. HTSI appreciates your consideration in this matter. If you have any questions concerning this submittal or require any additional information, please contact our office at (205) 985-4874.

Sincerely,
HIGHLAND TECHNICAL SERVICES, INC.



David Wall, REM
Senior Project Scientist

Attachments: Figure 1 Site Location Topographic Map
Figure 2 Monitoring Well Location Map

cc: Sarah Sightler
CDG Engineers and Associates, Inc.
1840 E 3 Notch Street
Andalusia, AL 36421

Director, RCRA Division
USEPA Region 4
Atlanta Federal Center
61 Forsyth St
Atlanta, GA 30303-3104

Stacey Ledwell, Director
Scottsboro Solid Waste Department
27150 John T. Reid Parkway
Scottsboro, AL 35768

Legend

Approximate Expansion Boundary

USGS Quad Id: 34085-G8
USGS Quad Name: Wannville, Alabama

Highland Technical Services, Inc.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE:

Site Location Map

Scottsboro Landfill

Scottsboro, Alabama

SCALE:

0 1,000 2,000

1 inch = 2,000 feet

FIGURE NO.	1
PROJECT NO.	18-030407.03
DRAWN BY	JTB
DATE DRAWN	8/6/2019

Legend

- Monitoring Well Location

Highland Technical Services, Inc.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE: Monitoring Well Location Map

Scottsboro Landfill
Scottsboro, Alabama

SCALE: 0 250 500
1 inch = 500 feet

FIGURE NO. 2

PROJECT NO. 18-030407.03

DRAWN BY JTB

DATE DRAWN 08-06-2019

June 2, 2020

Alabama Department of
Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463

VIA ELECTRONIC MAIL

Attention: Ms. Nichole Shaw
Solid Waste Branch

RE: Monitoring Well Abandonment Letter
Scottsboro Landfill
Scottsboro, Jackson County, Alabama
Permit No: 36-02

Dear Ms. Shaw,

This letter serves as documentation of the work performed on May 20, 2020 to abandon one groundwater monitoring well SD-1 at the Scottsboro Landfill, Solid Waste Disposal Facility (SWDF), Permit No. 36-02, in accordance with the *Monitoring Well Abandonment Plan*, dated August 12, 2019.

On May 20, 2020, HTSI personnel mobilized to the site to oversee the abandonment of monitoring well SD-1. Prior to abandonment activities, the total depth and depth to groundwater of the monitoring well was gauged. Information regarding the monitoring well is provided in Table 1.0 below.

TABLE 1.0 - ABANDONED MONITORING WELL SUMMARY

Monitoring Well ID	Well Diameter (inches)	Screened Interval (ft-bgs)	Measured Total Depth (ft-btoc)	Static Water Level (ft-btoc)	Location (Latitude, Longitude)
SD-1	2-inch	29.0-49.0	50.21	19.75	34.754968N, -85.918921W

ft-bgs – feet below ground surface
ft-btoc – feet below top of casing
NA – Not available

As described in the *Monitoring Well Abandonment Plan*, the protective cover and surrounding bollards for the monitoring well were removed. A cement/bentonite grout was used as a primary sealing material and was placed in the well casing from the bottom up through a tremie pipe to ensure the boring was adequately sealed. At least three feet of riser casing was removed and the excavation filled with a cement grout forming a permanent plug over the well casing. The remainder of the surface was finished with a material matching the surrounding surface.

Highland Technical Services, Inc. appreciates your consideration in this matter. If you have any questions concerning this submittal or require any additional information, please contact me at dwall@htsienv.com or at (205) 985-4874.

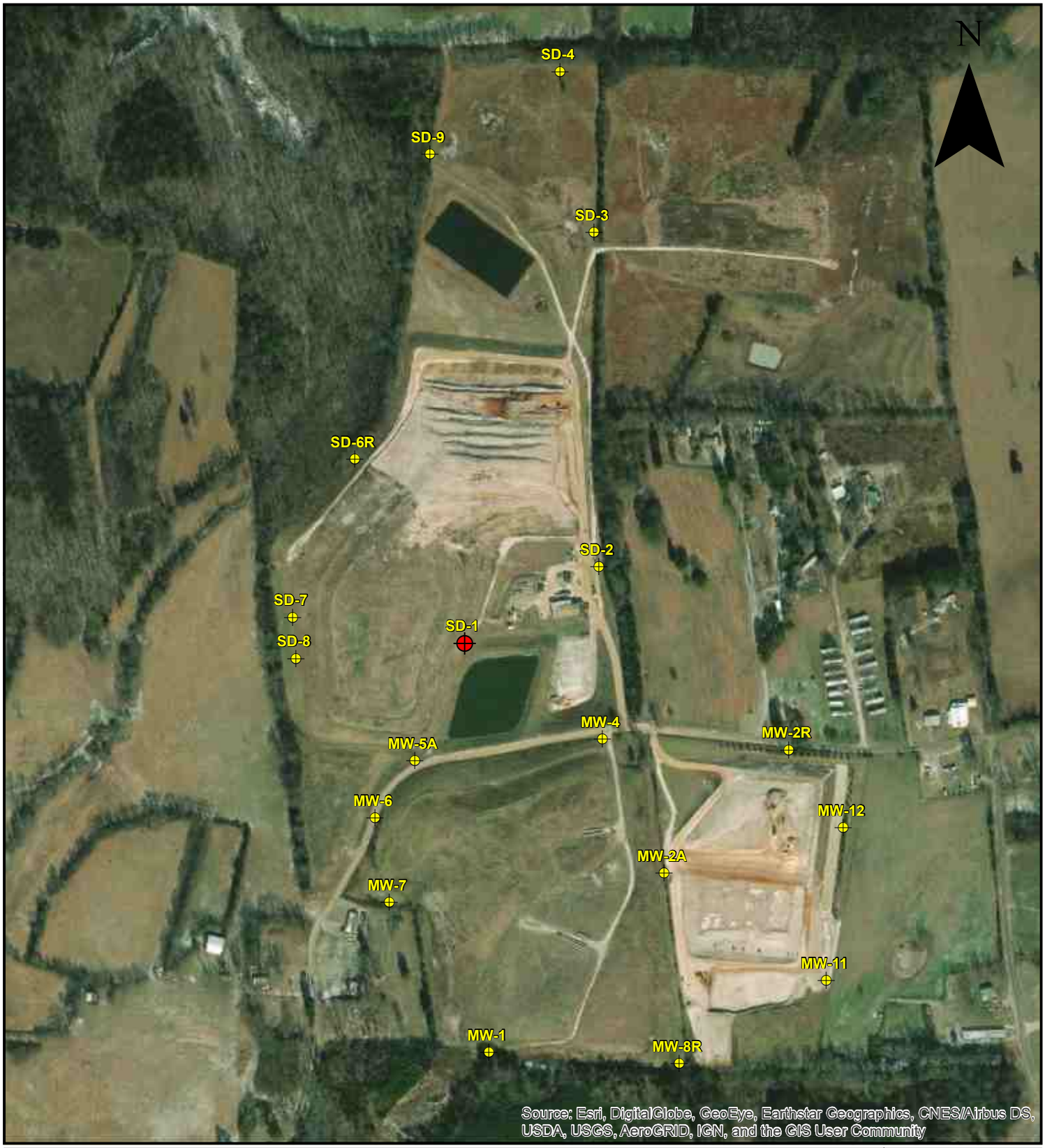
Sincerely,
HIGHLAND TECHNICAL SERVICES, INC.

David Wall, REM
Senior Project Scientist

Attachments: Figure 1 Monitoring Well Location Map

cc: Daniel Wells
CDG Engineers and Associates, Inc.
1840 E 3 Notch Street
Andalusia, AL 36421

Stacy Ledwell, Director
Scottsboro Solid Waste Department
27150 John T. Reid Parkway
Scottsboro, AL 35768



Legend

- Abandoned Monitoring Well
- Monitoring Well

Highland Technical Services, Inc.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE:
Monitoring Well Location Map

Scottsboro Landfill
Scottsboro, Alabama

FIGURE NO. 1

PROJECT NO. 18-030407.03

DRAWN BY AJH

SCALE: 0 250 500
1 inch = 500 feet

DATE DRAWN 05-21-2020

FEE SHEET FOR SOLID WASTE PERMITS

ADEM No.: 10851

Applicant: City of Scottsboro
Location: Scottsboro Landfill
Jackson County

Permit No.: 36-02 Date Application Received: 05/14/19

Permit Fees Required	Initial Issuance	Modification	Reissuance	Total
Municipal Solid Waste Landfill	$83,880		$18,635	
Minor Modification [1]		$3,275		
Major Modification [2]		$32,615		$32,615
Construction/Demolition Landfill	$7,145		$2,700	
Minor Modification [1]		$1,460		
Major Modification [2]		$2,915		
Industrial Landfill	$12,670		$4,075	
Minor Modification [1]		$1,460		
Major Modification [2]		$4,375		
Compost Facility	$4,860		$1,835	
Minor Modification [1]		$1,225		
Major Modification [2]		$1,945		
Environmental Covenants				
Engineering Controls	$6,425	$1,610		
Registry Fee for Class 1 Controls	$13,705	$635		
Registry Fee for Class 2 Controls	$9,420	$635		
Registry Fee for Class 3 Controls	$5,245	$635		

Additional Fees				
Geological Review:	$4,865	$3,275	$3,275	$3,275
Greenfield Site:	$1,610			
Public Hearing:	$8,450	$8,450	$8,450	
Name Change/Transfer:		$800		
Variance Request	$1,460	$1,460	$1,460	
Solid Waste Disposal Notification	$215	$215	$215	

[1] These are modifications as included in ADEM Admin. Code Rule 335-13-5-.06(2)
[2] These are modifications as included in ADEM Admin. Code Rule 335-13-5-.06(1)

RECEIVED
MAY 21 2019
ADEM
EDDS

Total Fee Due:	$35,890
Amount Submitted with Application:	$35,890
Amount Received:	$35,890
Amount to be Billed:	$0
Amount Received:	35,890
Date Received: JHC	5-23-19
Amount to be Refunded:	⊘

"103358"

Fee Schedule Prepared by: [signature] Date: 5/21/19
Fee Schedule Reviewed by: GSS Date: 5/24/19

ATTACHMENT D

GROUNDWATER MONITORING PLAN

SCOTTSBORO LANDFILL
SCOTTSBORO, ALABAMA 35802
JACKSON COUNTY, ALABAMA
PERMIT NO.: 36-02
PROJECT NO.: 2253665.00

PREPARED FOR:

SCOTTSBORO SOLID WASTE DISPOSAL AUTHORITY OF THE
CITY OF SCOTTSBORO
27150 JOHN T. REID PARKWAY
SCOTTSBORO, ALABAMA 35768

AUGUST 18, 2025

PREPARED BY:

LABELLA ASSOCIATES, D.P.C.
528 MINERAL TRACE
BIRMINGHAM, ALABAMA 35244
PHONE: (205) 985-4874 FAX: (205) 987-6080

Lori K. Norton, P.G.
Project Geologist

William W. Cooch, P.G.
Principal Geologist

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Stacy Ledwell

Mr. Stacy Ledwell
Director
Scottsboro Solid Waste Department

9-3-25

Date

GEOLOGIST CERTIFICATION

I certify under penalty of law that I am a Registered Professional Geologist, licensed to practice in the State of Alabama and experienced in conducting hydro-geological investigations. The information submitted herein, to the best of my knowledge and belief is true, accurate and complete.

Lori K. Norton

8/18/2025

Lori K. Norton, P.G.
Senior Project Geologist
LaBella Associates, D.P.C.

Date

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 PURPOSE AND SCOPE

The Scottsboro Solid Waste Disposal Authority of the City of Scottsboro has prepared this *Groundwater Monitoring Plan* (GWMP) as part of a forthcoming renewal for Solid Waste Facility Disposal Permit Number 36-02 for the Scottsboro Landfill located in Scottsboro, Jackson County, Alabama. This Plan has been prepared in accordance with the Alabama Department of Environmental Management (ADEM) Administrative Code 335-13. The following is a discussion of the site history, environmental setting, description of the monitoring requirements, and activities to be conducted over the life of the permitted facility.

2.0 SITE LOCATION AND STATUS

The Scottsboro Landfill is located at 650 County Road 412 in Hollywood, Alabama. The landfill is located predominantly in the southwest ¼ of the southwest ¼ of Section 20, the northwest ¼ of the northwest ¼ of Section 29, and the southwest ¼ of the northwest ¼ of Section 29, Township 3 South, Range 7 East in Jackson County, Alabama. The site location is displayed on Figure 1.

The Scottsboro Solid Waste Disposal Authority of the City of Scottsboro was issued Permit Number 36-02 for the Scottsboro Landfill by the ADEM on March 21, 2019 with modifications on April 7, 2020 and December 15, 2022 (most current). The facility is approximately 103.68 acres and is used for the disposal of municipal and industrial waste (28.2 acres) and construction and demolition waste disposal (17.6 acres).

3.0 ENVIRONMENTAL SETTING

3.1 SITE GEOLOGY AND HYDROGEOLOGY

According to geologic information published by the Geological Survey of Alabama, the site is located in the Sequatchie Valley of the Cumberland Plateau Physiographic Province. The southeastern one-third of the site is underlain by the Cambrian- to Ordovician-Aged Knox Group Undifferentiated and the northwestern two-thirds of the site are underlain by the Ordovician-Aged Nashville and Stones River Groups undifferentiated which is typically mapped as part of the Ordovician-Aged Stones River Group.

The Knox Group in Jackson County consists largely of massive to blocky chert. Much of it is light colored, porous, and highly fractured. A few scattered zones of nodular chert are also present. Areas of chert mining (chert pits) are common along the Knox outcrop belt. The Knox Group comprises the oldest rocks mapped in Jackson County.

The Nashville and Stones River Groups undifferentiated is a formation that occurs in the uppermost portion of the Stones River Group and un-conformably overlies formations of the Knox Group. The Nashville and Stones River Groups undifferentiated consist of medium to dark gray fossiliferous limestone, argillaceous in part; yellowish-gray laminated silty limestone in the upper part, and contains one or more thin beds of bentonite and bentonitic shale.

The major structural feature in Jackson County is the Sequatchie Valley Anticline, which is an asymmetrical northeast-trending upward fold with the steeper limb of the fold on the northwest side of the axis. The anticlinal structure is superficial and is bottomed by the Sequatchie Valley Fault. The valley itself is a “breached” anticline, the topographic expression of the preferential erosion of relatively “soft” rock units, which underlie the axis of the anticline. A geologic map is provided as Figure 2.

The landfill is located approximately 2,500 feet southeast of the northeast-trending surface trace of the Sequatchie Valley Fault. The Sequatchie Valley Fault is considered to have been inactive since the end of the Paleozoic Era, which was approximately 250 million years ago. There is no available evidence suggesting that reactivation of the fault will occur in the near future or that recent faulting has occurred in the area. The uppermost aquifer in the vicinity of the Scottsboro Landfill is represented by water in the residual soil near the bedrock interface.

3.2 SURFACE WATER

Based on an interpretation of topographic features presented on the *Hollywood and Wannville, Alabama* United States Geological Survey (USGS) 7.5 minute quadrangles (Figure 1), surface water flow from the subject site is generally to the north into an unnamed tributary of Guntersville Lake of the Tennessee River. A backwater area (Mud Creek) of Guntersville Lake is located approximately one half mile north of the subject property.

4.0 MONITORING WELL NETWORK AND GROUNDWATER FLOW

4.1 MONITORING WELL NETWORK

The Scottsboro Landfill maintains sixteen (16) monitoring wells at the site (BG-1, MW-1, MW-2R, MW-4, MW-5A, MW-6, MW-7, MW-8R, MW-11, MW-12, SD-2, SD-3, SD-4, SD-6R, SD-7, and SD-8) for the collection of groundwater samples for the purpose of monitoring groundwater quality at the subject facility. Monitoring well BG-1 is designated as the background well and is located in the southern portion of the landfill property. Wells MW-1, MW-2R, MW-4, MW-5A, MW-6, MW-7, MW-8R, MW-11, MW-12, SD-2, SD-3, SD-4, SD-6R, SD-7, and SD-8 are designated as compliance wells. The monitoring well locations are shown in Figure 3. The available well construction details for monitoring wells at the site are included in Table 4.1 below.

TABLE 4.1 – MONITORING WELL CONSTRUCTION DETAILS

MONITORING WELL NUMBER	WELL DESIGNATION	MEASURING POINT ELEVATION (ft-amsl)	MEASURED TOTAL DEPTH (ft-btoc)	CASING DIAMETER	SCREENED INTERVAL (FEET)
BG-1	Background	697.67	118.39	2-inch	98.0 – 118.0
MW-1	Compliance	707.40	134.43	2-inch	113.0 – 133.0
MW-2R	Compliance	648.30	96.30	2-inch	86.5 – 96.5
MW-4	Compliance	663.92	64.70	2-inch	48.3 – 68.3
MW-5A	Compliance	635.35	76.85	2-inch	21.8 – 41.8
MW-6	Compliance	646.01	74.14	2-inch	45.5 – 75.5
MW-7	Compliance	658.90	75.25	2-inch	54.5 – 74.5
MW-8R	Compliance	678.85	87.83	2-inch	66.1 – 86.1
MW-11	Compliance	651.75	101.70	2-inch	79.0 – 99.0
MW-12	Compliance	649.66	110.73	2-inch	91.08 – 111.08
SD-2	Compliance	627.49	50.10	2-inch	29.6 – 49.6
SD-3	Compliance	613.55	43.55	2-inch	20.5 – 40.5
SD-4	Compliance	607.58	41.60	2-inch	19.0 – 39.0
SD-6R	Compliance	613.87	45.20	2-inch	25.1 – 45.1
SD-7	Compliance	617.61	65.03	2-inch	43.1 – 63.1
SD-8	Compliance	621.12	53.50	2-inch	38.5 – 53.5

ft-amsl – feet above mean sea level
ft-btoc – feet below top of casing

4.2 HISTORICAL SITE INFORMATION

Monitoring well MW-1 is a replacement well that was installed in February 2002. This well was replaced in accordance with the request of the ADEM in a letter dated October 25, 2001. In that letter, ADEM addressed concerns regarding the well's inability to produce a sufficient amount of

water for semi-annual sampling. The replacement well was installed by over-drilling the original well and was completed to a depth of approximately 133 feet below ground surface (ft-bgs).

Monitoring well MW-2A was replaced in February 2002 in an effort to determine if volatile organic compounds (VOCs) detected in samples collected from this well during past sampling events were the result of landfill gas migrating into the well column. An attempt was made to install the replacement well within the original boring by over-drilling; however, the attempt was unsuccessful. As a result, the original well was abandoned and a new well was installed at a position approximately 10 feet from the original location. The replacement well, also designated MW-2A, was completed to a depth of approximately 115 ft-bgs and was constructed such that the bentonite seal and well screen were completely below the water table in an attempt to prevent landfill gas from entering the well column. MW-2A was subsequently abandoned in January 2011, as directed by a permit modification, and a final well abandonment report was submitted to ADEM on January 24, 2011.

Prior to the March 2004 semi-annual groundwater monitoring event, monitoring well SD-6 was abandoned and replaced due to its location on the berm of a new cell. The replacement well (SD-6R) was installed at a location approximately 80 feet west of the original SD-6.

Former monitoring wells MW-9 and MW-10 were abandoned prior to the March 2007 semi-annual monitoring event in accordance with a *Monitoring Well Abandonment Plan* dated May 10, 2006. These wells were abandoned in order to accommodate a proposed new construction and demolition (C & D) cell that would cover the area in which these wells were located.

Three monitoring wells (MW-11, MW-12, and MW-2R) were installed prior to the March 2007 sampling event as part of the proposed C & D expansion activities. These wells were added to the permit as compliance wells by modification in January 2011. Semi-annual sampling of monitoring well MW-2R began in September 2006 and wells MW-11 and MW-12 began in September 2011.

Monitoring well SD-9 was installed in October 2014 as part of a hydrogeological evaluation for a proposed landfill expansion. This well is currently only being utilized for potentiometric surface water level data for the existing landfill permit number 36-02.

Monitoring well MW-8 was replaced on September 16, 2015 with monitoring well MW-8R due to blockage within the casing. Monitoring well MW-8 was properly abandoned in accordance with

ADEM guidelines and the *Monitoring Well Abandonment and Replacement Plan* dated September 8, 2015.

Monitoring well SD-1 was abandoned on May 20, 2020 in accordance with ADEM guidelines and the *Monitoring Well Abandonment Plan* dated August 12, 2019. Monitoring well SD-1 was located within a proposed landfill expansion cell and required abandonment prior to construction of a new cell. The *Monitoring Well Abandonment Plan* dated August 12, 2019 and the *Monitoring Well Installation Report* dated June 2, 2020, both submitted to the ADEM under separate cover, are provided as Appendix G on this GWMP. Also included in Appendix G is the fee sheet showing the Permit modification fees that were paid at the time of the abandonment of SD-1.

4.3 GROUNDWATER FLOW

During each semi-annual monitoring event, static water level depth will be measured in each of the monitoring wells prior to purging. For reference, static water level depth measured during the March 2025 semi-annual groundwater monitoring event ranged from 4.62 to 105.30 feet below top of casing (ft-btoc) and the groundwater elevations ranged from 597.52 to 610.11 feet above mean sea level (ft-amsl). Groundwater elevation data from the March 2025 event is included in Table 4.3 on the following page. A map depicting the potentiometric surface and flow direction for shallow groundwater beneath the site at the time of the March 2025 event is provided as Figure 3.

TABLE 4.3 – SUMMARY OF GROUNDWATER ELEVATIONS – MARCH 2025

MONITORING WELL NUMBER	TOP OF CASING ELEVATION (FT-AMSL)	MEASURED TOTAL DEPTH (FT-BTOC)	DEPTH TO WATER (FT-BTOC)	GROUNDWATER ELEVATION (FT-AMSL)
BG-1	697.67	112.00	98.50	599.17
MW-1	707.40	134.40	105.30	602.10
MW-2R	648.30	96.23	50.60	597.70
MW-4	663.92	64.73	DRY	NA
MW-5A	635.35	72.56	26.40	608.95
MW-6	646.01	72.78	35.90	610.11
MW-7	658.90	74.12	55.56	603.34
MW-8R	678.85	87.80	75.50	603.35
MW-11	651.75	101.70	53.47	598.28
MW-12	649.66	110.35	52.10	597.56
SD-2	627.49	49.96	23.24	604.25
SD-3	613.55	43.40	10.83	602.72
SD-4	607.58	41.05	5.90	601.68
SD-6R	613.87	45.15	16.35	597.52
SD-7	617.61	65.35	17.42	600.19
SD-8	621.12	53.47	19.05	602.07
SD-9	604.75	22.23	4.62	600.13

ft-amsl – feet above mean sea level
ft-btoc – feet below top of casing

As illustrated by the potentiometric surface map, the direction of groundwater flow beneath the site at the time of the March 2025 groundwater monitoring event was generally to the west-northwest in the northwestern portion of the site, to the southwest in the southwestern portion of the site, and to the east from the central portion of the site.

At the time of the March 2025 monitoring event the hydraulic gradient (dh/dl) was calculated to be approximately 0.0005 feet per foot (ft/ft). Groundwater flow velocity in the subsurface materials underlying the Landfill was calculated using the formula V = (K) (dh/dl)/ne, where K is hydraulic conductivity and ne is effective porosity. Using an estimated hydraulic conductivity of 1.0×10^{-6} centimeters per second (cm/sec), an effective porosity of 30%, and the calculated hydraulic gradient of 0.0005 ft/ft, the groundwater flow rate was estimated to be approximately 0.0015 feet per year (ft/year) at the time of the March 2025 event. This flow rate is consistent with past groundwater monitoring events. An example of the groundwater flow rate calculations (March 2025) is provided as Appendix A.

Since the calculated gradient and flow rate are derived under the assumption that groundwater flow occurs through a homogeneous, isotropic, porous medium, these calculations should only be considered a rough estimate of actual groundwater flow. This seepage velocity does not take into account the effects of vertical flow gradients, flow along secondary fracture pathways, or other conditions caused by lateral heterogeneity.

It should be noted that the potentiometric surface elevation map is a model of the groundwater potentiometric surface based upon available measured groundwater levels and should be considered only a general depiction of groundwater flow direction for the local area of the Landfill. While the potentiometric surface typically parallels surface topography, the accuracy of the potentiometric surface map is limited to available data from the control points and may conflict with surface topography and/or the actual groundwater potentiometric surface at certain locations.

4.4 MONITORING WELL INSPECTION

During each semi-annual groundwater monitoring event the monitoring wells will be inspected for damage. If it is determined that a well should be replaced for any reason, a *Monitoring Well Abandonment and Installation Plan* will be prepared for submittal to ADEM within 60 days of making the determination. The *Monitoring Well Abandonment and Installation Plan* will be accompanied by a request for a Minor Permit Modification and a revised *Groundwater Monitoring Plan* to update the facility Permit to include the proposed new well into the Permit compliance well network and payment of the appropriate ADEM fee. The plan will include, at a minimum, consideration of the following:

- The appropriate method for abandonment.
- The need for relocation to protect the replacement well from future damage.
- The anticipated replacement well type, depth, screened interval, casing diameter and surface completion in accordance with ADEM Admin Code 335-13-4-.27(2)(c).
- The need for background sample collection and, if required, the number of background samples.

Upon approval of the *Monitoring Well Abandonment and Installation Plan*, and the subsequent replacement of the new well, a report documenting the abandonment and replacement activities will be prepared and submitted to the ADEM along with a revised *Groundwater Monitoring Plan* which will include the monitoring well construction details for the newly installed well(s). Background

sampling and analysis will be conducted in accordance with Section 4.5 of this Plan to determine if pooling data from the abandoned well with the new well is appropriate. Once this analysis is complete, the results will be submitted to the ADEM in the semi-annual report following completion of the background sampling activities.

4.5 BACKGROUND SAMPLING

Background sampling events will be conducted for newly installed background wells and compliance wells on a quarterly basis. Samples collected will be analyzed for Appendix I VOCs and Appendix I metals, as required by the Permit. Statistical analysis will be conducted for the newly installed monitoring wells as follows:

- For replacement wells installed in close proximity to an original well, an Analysis of Variance (ANOVA) test will be conducted in order to determine if pooling data from the abandoned well with the replacement well is appropriate following the collection and analysis of a minimum of four background groundwater samples for Appendix I parameters. Either a parametric or non-parametric ANOVA test will be conducted, depending on normality. The results from these tests will be submitted to the ADEM in the semi-annual report following the completion of the background sampling activities, along with the groundwater analytical data and field sampling logs from each of the sampling events.

- For a newly installed monitoring well, or a replacement well that was not installed in close proximity to an original well that it is replacing, at least four quarterly background sampling events will be conducted for Appendix I parameters. Groundwater analytical data and field sampling logs from each of the sampling events will be submitted to the ADEM in the semi-annual report following completion of the background sampling activities.

5.0 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples will be collected at the Scottsboro Landfill on a semi-annual basis throughout the active life of the facility and the post-closure care period in accordance with ADEM Administrative Rule 335-13-4-.27. Unless otherwise specified by the ADEM, groundwater sampling will be conducted during March and September of each year.

During the semi-annual groundwater monitoring events, and prior to sample collection, static water level measurements will be taken in each monitoring well using an electronic water-level indicator to determine the depth of water and the measured water level as it relates to the screened interval of the well.

All groundwater samples will be collected using either a peristaltic or bladder pump following low-flow sampling protocols. In order to collect water in the screened interval, low-flow purging will be conducted by situating the pump-intake in the middle or slightly above the middle of the screened interval of the well. The intake velocity of the pump will then be set to a flow rate that minimizes draw-down inside the well casing, thereby reducing turbidity and agitation of the water column in the well in order to prevent volatilization of VOCs, if present, and the introduction of suspended sediment into the water column. The pumping rate will be maintained between 200 to 500 milliliters per minute and the water level will be monitored every three to five minutes to determine steady-state flow. An attempt will be made to maintain a draw-down of one foot or less during purging.

Prior to sample collection, groundwater will be purged from each well at a rate approximately equal to the well recharge rate. The turbidity, temperature, specific conductance, dissolved oxygen (DO), oxidation-reduction (redox) potential, and pH of groundwater will be monitored and recorded every three to five minutes as the wells are purged. Samples will be collected when stabilization of these indicator parameters is recorded in three consecutive readings. The three successive readings should be within ± 0.1 for pH, ± 3% for conductivity, ± 10 mv for redox potential, and ± 10% for turbidity and DO. DO and turbidity usually require the longest time for stabilization. Conductivity, DO, and turbidity are the most sensitive parameters. The above stabilization guidelines are provided as estimates and may not always be achieved. Samples will be collected after field indicator parameters have stabilized and will be placed directly into the laboratory containers with minimal agitation to minimize volatilization of chemicals of concern (COCs), if present. The field indicator parameters will be recorded for each well on a field sampling log. An example groundwater sampling log is included as Appendix B. Data collected in the field during sampling activities will be

documented on a Monitoring Well Sampling Record (MWSR). An example MWSR is included as Appendix C.

Groundwater samples will be obtained by filling appropriate laboratory-prepared sample containers directly from the discharge tubing connected to the pump or from disposable polyethylene bailers. New tubing will be used for each sample and the pump will be decontaminated prior to use at each sample location. Subsequent to sample collection, the containers will be labeled and placed in a cooler with ice in an effort to achieve and maintain a sample temperature of < 6°Celcius (C). In the event one or more wells is purged dry, those wells will be allowed to recharge sufficiently prior to sampling. Once recharged, samples from those wells will be collected using a disposal bailer.

The samples will be delivered to a National Environmental Laboratory Accreditation Program (NELAP) certified laboratory, along with proper chain of custody documentation including project name and number; sampler's name and signature; sample identification numbers; sample date, time, and location; requested analyses; and sample container type and quantity. The samples collected from site monitoring wells will be analyzed for Appendix I VOCs and Appendix I metals using the EPA Methods shown in Table 5.0 below.

TABLE 5.0 – LABORATORY ANALYTICAL METHODS

PARAMETER	SAMPLE MATRIX	EPA METHOD
Appendix I Metals	Water	6010 or 6020
Mercury	Water	7470
Appendix I VOCs	Water	8260

The laboratory analysis will follow the protocols provided in the *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846* (SW-846), *Standard Methods for the Examination of Water and Wastewater (latest edition),* or other appropriate methods approved by the ADEM.

5.1 GROUNDWATER SAMPLE MANAGEMENT

In accordance with this GWMP, each groundwater sample will be tracked from the time of collection by completing sample custody documentation. The sample custody documentation will include the field documentation and the chain of custody report. All samples will be placed in laboratory provided containers and preserved in a manner appropriate to the analytical method requested. Sample containers will be stored in a clean, secure area prior to use. Containerized samples will be

labeled as they are collected and placed in a cooler with ice to maintain a sample temperature of < 6°C until delivered to the analytical laboratory. Sample criteria are summarized in the Table 5.1 below.

TABLE 5.1 – GROUNDWATER SAMPLING CRITERIA

ANALYSIS	SAMPLE MATRIX	BOTTLE TYPE	PRESERVATIVE	HOLDING TIMES
Appendix I Metals	Water	250 ml Plastic	6°C / HNO_3	180 Days Mercury 28 Days
Appendix I VOCs	Water	40 ml Vials	6°C / HCL	14 Days

VOCs – Volatile Organic Carbons
ml – Milliliter
C – Celsius
HNO_3 – Nitric Acid
HCL – Hydrochloric Acid

Sample labels will be filled out and affixed to appropriate containers immediately prior to or following sample collection, as appropriate. The label will be filled out in indelible ink and will include the following information on the portion affixed to the sample container: sample ID number; analyses requested; project name; the person's name collecting the sample; and, sample location number.

The field data recorded at the time of sample collection provides an unambiguous identification of each sample. These field data will be recorded on groundwater monitoring well field logs. Field notes will include the date and time of sampling; name(s) of field personnel conducting sampling; name(s) of any observers at the sampling site; purpose of sampling; description of sample point; number and size(s) of sample(s) taken; field sample identification number(s); deviation from sampling plan, if any; field observations; references (such as maps) of sampling site; and sample handling and shipping information.

Sample handling and shipping procedures will assure that samples are properly preserved, protected, and secured until delivered to the analytical laboratory. After sample containers are labeled, they will be sealed in plastic air cushion bags and wrapped in clear plastic bags to protect sample bottles and labels from potential moisture damage. Ice packs will be sealed in plastic bags and placed on top of samples in order to maintain an optimum temperature of <6°C until the samples are delivered to the laboratory. Any remaining void space in the ice chest will be filled with appropriate bubble-wrap packing material.

Samples will be hand delivered or shipped via overnight delivery service to the laboratory. Shipped samples will be accompanied by an appropriate freight (shipment) bill of lading form with the completed freight bill number recorded on the Chain of Custody accompanying each cooler shipment. The Chain of Custody will be sealed in a plastic bag and taped to the underside of the cooler lid. Coolers will be sealed with tape and a custody seal that will be initialed and dated to prevent any tampering during shipping and handling. The laboratory will be notified prior to shipment of samples that would arrive at the laboratory on a weekend or holiday to assure that the samples are properly received.

Sample custody documentation procedures will be maintained throughout initial sample collection; transportation from sample collection site to analytical laboratory; receipt and preparation of laboratory sample extracts and digestives; storage at laboratory until an evaluation of analytical results determines that re-analysis is not required; and final sample disposition.

At the time of sample collection, samples will be labeled and a record of the sampling activity will be recorded in the daily field log. Sample labeling procedures were discussed previously. Information required to identify sample custody and to request sample analyses are then entered on the Chain of Custody. The information recorded on the Chain of Custody will include the project name and number; sampler's name and signature; sample identification numbers; sample date, time, and location; requested analyses; sample container type and quantity; requested analytical turnaround time; and person to receive results and a contact telephone number to call in case problems arise.

A Sample Chain of Custody is included as Appendix D.

6.0 DECONTAMINATION OF EQUIPMENT

All non-disposable equipment and tools will be decontaminated in accordance with the most recent edition of the *Alabama Environmental Investigation and Remediation Guidance* (AEIRG). Personnel decontamination will be performed on an as-needed basis only. Sampling equipment will be either disposable or decontaminated prior to use and between sampling locations. New disposable nitrile gloves will be used during the collection each groundwater sample. Disposable polyethylene tubing will be used with the purge-pump during well purging. The water level indicator and bladder pump will be decontaminated by washing with distilled water and laboratory grade detergent wash, followed by rinsing with distilled water.

7.0 SEMI-ANNUAL REPORTING

Upon receipt of the laboratory analytical results, and within ninety (90) days of the date of sampling, a semi-annual report will be submitted to the ADEM discussing groundwater quality beneath the subject facility. The report will include a statistical analysis of groundwater in accordance with ADEM Administrative Code R. 335-13-4-.27(2)(l) and the Environmental Protection Agency (EPA) standards referenced in the *Statistical Analysis of Groundwater Monitoring Data at Resource Conservation Recovery Act (RCRA) Facilities Unified Guidance*, U.S. EPA, 2009 (Unified Guidance).

7.1 STATISTICAL PROCEDURES

In the application of statistics to groundwater monitoring data from this site, all data will be treated as independent and representative of the quality of groundwater at the site. Statistical methods used, and their application to data from this site, will be in general accordance with the EPA standards referenced in the Unified Guidance. The groundwater monitoring data will be analyzed statistically using the Sanitas statistical software or comparable statistical software.

Historical groundwater data available for use in future statistical evaluations for the subject facility are as follows:

- Historical data for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, selenium, thallium, vanadium, and zinc is available dating back to September 1993 for compliance wells MW-1, MW-4, MW-5A, MW-6, MW-7, and MW-8; back to July 1995 for compliance wells SD-2 through SD-4; and back to March 1998 for background well BG-1 and compliance wells SD-7 and SD-8.

- Historical data for mercury is available dating back to March 1999 for background well BG-1, and compliance wells MW-4, MW-5A, MW-6, MW-7, MW-8, SD-2, SD-3, SD-4, SD-6, SD-7, and SD-8.

- Historical data for silver is available dating back to September 1995 for compliance wells MW-1, MW-4, MW-5A, MW-6, MW-7, and MW-8; from July 1995 for compliance wells SD-2 through SD-4; and from March 1998 for background well BG-1 and compliance wells SD-7 and SD-8.

- Historical data for Appendix I metals dating back to September 2011 is available for compliance wells MW-11 and MW-12, and from September 2015 for compliance well MW-8R.

- Historical data for Appendix I metals dating back to September 2006 is available for compliance well MW-2R, and from March 2004 for compliance well SD-6R.

- Historical data for Appendix I VOCs dating back to March 1998 is available for background well BG-1, and compliance wells SD-7 and SD-8; from September 1993 for compliance wells MW-1, MW-4, MW-5A, MW-6, MW-7, and MW-8; from July 1995 for compliance wells SD-2, SD-3, and SD-4; from March 2004 for compliance well SD-6R; from September 2006 for compliance well MW-2R; from September 2011 for compliance wells MW-11 and MW-12; and from September 2025 for compliance well MW-8R.

- Compliance well MW-8R was installed as a replacement well for MW-8 prior to the September 2015 semi-annual groundwater monitoring event. In order to determine if it would be appropriate to combine (pool) the historical data from MW-8 with data from MW-8R an ANOVA was conducted using the historical dataset for MW-8 and the results of the laboratory analysis of the first eight groundwater samples collected from MW-8R. The results of this analysis are provided in Appendix E.

    - Appendix I Metals - Based on the results of this analysis, historical data from MW-8 for arsenic, barium, beryllium, cadmium, chromium, copper, lead, silver, vanadium, and zinc will be added to the dataset for MW-8R. The remaining metals (antimony, cobalt, mercury, nickel, selenium, and thallium) will be analyzed using historical data from MW-8R only.

    - Appendix I VOCs - In order to determine which Appendix I VOCs should be pooled, a review was conducted to determine which VOCs have historically been detected in samples collected from MW-8 and MW-8R. Based on this review, it was determined that 1,1-Dichloroethane (1,1-DCA), acetone, benzene, carbon disulfide, chlorobenzene, and toluene have been detected in one or more of the samples collected from MW-8 and/or MW-8R. As such, an ANOVA analysis was conducted for these constituents. Based on the results of this analysis, historical data from MW-8 for 1,1-DCA, benzene, carbon disulfide, chlorobenzene, and toluene will be added to the dataset for MW-8R. Acetone will be analyzed using historical data from MW-8R only. The remaining Appendix I VOCs will be analyzed by pooling the data from MW-8 and MW-8R as the historical datasets for each of these constituents consist completely of non-detects.

When determining which historical data to use when evaluating current concentrations of COCs in samples collected from the monitoring well network, data from more recent events (from March 2002 to the present when it appears that low flow purging of monitoring wells began) will be used in order to account for changes in sampling procedures and groundwater geochemistry over the life of the monitoring well program.

Upon receipt of the laboratory analytical results, the results will be reviewed to assess the potential for statistically significant increases (SSIs) of detected Appendix I VOCs and metals in groundwater

samples collected from the monitoring well network. Statistical analysis will only be conducted for parameters that were reported in groundwater samples collected during each groundwater monitoring event.

7.2 TARGET CHEMICALS OF CONCERN

Target COCs for the Scottsboro Landfill will include each of the Appendix I VOCs and Appendix I metals.

7.2.1 Double Quantification Rule – Appendix I VOCs

Pursuant to the Unified Guidance, when background sample data consists entirely of non-detects for a specific constituent, but there are detections above the laboratory detection limit in samples collected from compliance wells, then the Double Quantification Rule (DQR) can be applied. The DQR states that an SSI is declared when a constituent/compliance well pair displays consecutive quantified detections above the detection limit and the background contains only non-detects. If there are no consecutive detects (either from scheduled events and/or sampling following a detection), then the constituent/compliance well pair is not subjected to statistical analysis.

In the event an Appendix I VOC is detected in a compliance monitoring well that has a history of non-detects, the DQR will be applied. If the constituent is detected during a retesting event, to be completed within two months of the original event, then that constituent/well pair will be subjected to statistical analysis as discussed in Section 7.3.5.

7.3 STATISTICAL ANALYSIS

7.3.1 Statistical Method for Detection Monitoring

Based on a review of the historical laboratory analytical results from groundwater samples collected from the background well location (BG-1) and compliance wells MW-1, MW-2R, MW-4, MW-5A, MW-6, MW-7, MW-8R, MW-11, MW-12, SD-2, SD-3, SD-4, SD-6R, SD-7, and SD-8, an inter-well statistical analysis is recommended for a select group of inorganics. An inter-well evaluation will be used for the presence of SSIs in detected concentrations of antimony, beryllium, cadmium, chromium, copper, lead, selenium, silver, thallium, and vanadium in samples collected from each compliance well during each semi-annual event. Based on actual evidence or supported justification of spatial variation in constituent concentrations for certain inorganics, an intra-well evaluation is recommended for determining the presence of a SSI for arsenic, barium, cobalt, mercury, nickel, and zinc. The rational for the use of an intra-well analysis is provided in the following discussion.

A review of Table 5-1 of the Unified Guidance, which summarizes typical background data patterns for common constituents in groundwater monitoring programs, barium is listed as typically having a very high frequency of detections with a high rate of mean differences between wells. At the Scottsboro Landfill, barium has consistently been detected in the background well (BG-1) and each of the compliance monitoring wells since sampling began for this constituent in 1993 indicating that barium occurs naturally in the groundwater underlying the site and, based on a review of historically data going back to 1993, at differing concentrations. Barium has had non-detect rates that have ranged from 0% to 32% in the compliance wells, and a non-detect rate of 0% in background well BG-1 (when accounting for outliers) over the life of the monitoring program. Since March 2002, the non-detect was 3% in background well BG-1 and ranged from 0% to 19% in the compliance wells.

Arsenic has also been detected consistently in background well BG-1 (since March 1998 when sampling began for this well), and since September 1996 in one or more of the compliance wells. Arsenic is listed in Table 5-1 of the Unified Guidance as having a high frequency of detection in some wells, while others may be low to zero. This is consistent with arsenic at the Scottsboro Landfill which has arsenic detected in wells on the southern portion of the landfill, but limited detections from wells on the northern portion of the property. It should be noted that the landfill is underlain by two separate geological formations as discussed in Section 3.0.

Cobalt has consistently been detected in the background well (BG-1) and most of the compliance monitoring wells since September 2006 when the laboratory detection limit was decreased from <0.05 mg/l, indicating that cobalt occurs naturally in the groundwater underlying the site and, based on a review of historical data going back to 2006, at differing concentrations. Cobalt has been detected in samples collected from MW-8 and MW-8R since sampling began for these wells in March 1996 (MW-8) and September 2015 (MW-8R).

Mercury has consistently been detected in one or more of the compliance monitoring wells since at least September 2002, indicating that mercury occurs naturally in the groundwater underlying the site and, based on a review of historical data going back to 2002, at differing concentrations. Mercury has been detected in every sample collected from MW-7 since September 2000 with the exception of March 2001 and September 2015.

Nickel and zinc have consistently been detected in the background well (BG-1) and most of the compliance monitoring wells since at least September 1993 (March 1998 for BG-1), indicating that

nickel and zinc occur naturally in the groundwater underlying the site and, based on a review of historical data going back to 1993, at differing concentrations.

A review of the USGS publication *Geochemical and Mineralogical Maps for Soils of the Conterminous United States* indicates that metals arsenic, cobalt, mercury, nickel, and zinc occur naturally and at high concentrations in the soils in Jackson County, Alabama. Arsenic concentrations in the portion of northeast Alabama, in the area of the Scottsboro Landfill, range from 6.0 to 7.0 milligrams per kilogram (mg/kg) with concentrations increasing with depth. Cobalt ranges from 10.2 to 12.2 mg/kg, mercury from 0.05 to 0.07 mg/kg (increasing to 1.75 mg/kg with depth), nickel ranges from 13.5 to 15.7 mg/kg, and zinc ranges from 58 to 66 mg/kg. The known presence of these constituents in the subsurface provides the potential for the metals to be released to groundwater due to changes in groundwater geochemistry over time.

As presented above, the justification for the use of intra-well analysis for arsenic, cobalt, mercury, nickel, and zinc is supported by the following:

- Each of these metals has been consistently detected in samples collected from each of the compliance wells in the monitoring well network, and at background well BG-1;
- As described above, these constituents are documented to exist naturally at elevated concentrations in soils in this area of north Alabama.

The type of statistical method that will be used for evaluating groundwater data will be the Parametric or Non-Parametric Prediction Limit analysis in accordance with ADEM Administrative Code R. 335-13-4-.27(2)(l)3. As discussed in Section 7.3.2, the decision to use Parametric or Non-Parametric analysis will depend on the percentage of non-detects for each constituent, and if required, the results of tests for normality for constituents with a non-detect rate of less than 50%.

7.3.2 Test For Normality

In accordance with the EPA Unified Guidance, a test for normality should be conducted to determine the appropriate statistical method to be used to evaluate groundwater analytical data as it relates to the distribution of the data. A test for normality will be completed for the appropriate constituents and will satisfy the performance standards required for the selection of the statistical procedures to be used at a facility in accordance with ADEM Administrative Code R. 335-13-4-.27(2)(m)1. It should

be noted that any transformation performed on a dataset will be the same transformation used for subsequent statistical tests.

Typically, groundwater analytical data is subjected to a distribution analysis to determine if the data is normally distributed or can be transformed to a normal distribution using either log-normal or ladder of powers data transformations. If data is normally distributed, or can be transformed to create a normal distribution, a parametric statistical analysis is recommended. However, when the data contains a large percentage of non-detects (greater than 50%), the validity of distribution tests are questionable, suggesting that a non-parametric statistical analysis be used.

In order to determine if a parametric or non-parametric statistical analysis should be conducted, a test for normality will be completed for the detected constituent(s) with less than 50% non-detects in an effort to determine if the data set for the detected constituent(s) is normally distributed or can be transformed to a normal distribution. The Shapiro-Wilks Test for Normality will be used for constituents with less than 50 measurements and the Shapiro-Francia Test for Normality will be used for constituents with greater than 50 measurements, as discussed in Chapter 10 of the Unified Guidance.

If data is normally distributed, or can be transformed to create a normal distribution, a parametric statistical method will be used. Datasets that are determined to be normally distributed, using the referenced distribution analysis, will not undergo additional transformations according to ADEM Admin code r. 335-13-4-.27(2)(m)(1). When the data is not normally distributed, or cannot be transformed to create a normal distribution, a non-parametric statistical method will be used. Additionally, when the data contains a large percentage of non-detects (greater than 50%), the validity of distribution tests are questionable and it is suggested that a non-parametric method be used. The results for the tests for normality will be submitted in each semi-annual groundwater monitoring report.

7.3.3 Tests for Outliers

Tests for outliers will be conducted in accordance with the Unified Guidance prior to updating background (background screening is discussed in Section 7.3.4). In order to screen for outliers a Dixon's Test (for smaller sample sizes) or a Rosner's Test will be conducted if the data is determined to be normally distributed, and the Tukey's Outlier Screening will be utilized if the data is determined to not be normally distributed.

Prior to conducting outlier analysis, a test for normality will be conducted using either the Shapiro-Wilks or Shapiro-Francia Test for Normality, depending on the number of datapoints. If the normality test indicates that the data is normally distributed, then the Dixon's or Rosner's Outlier Analysis (depending on sample size), will be conducted. Per the Unified Guidance, a Rosner's test, as an alternative to Dixon's test, will be conducted if the sample size is at least 20 or more. In the event it is determined that the data is not normally distributed then the outlier analysis will be conducted using Tukey's analysis.

If an outlier is identified using either Dixon's/Rosner's or Tukey's, an attempt will be made to determine the cause of the outlier, i.e. lab error, field error, etc., if possible, and a determination will be made as to whether the outlier(s) should remain in, or be removed, from the dataset prior to completing the statistical analysis. Justification for any identified outliers that remain in the dataset will be provided in each semi-annual groundwater monitoring report.

It should be noted that additional datapoints may be removed from a data set even if they are not identified as outliers during outlier testing. These may include elevated non-detect values, that could potentially increase the prediction limit if included with detected values, etc. Datapoints will not be removed from the dataset without justification. Justification for the removal of any datapoints will be provided in each semi-annual groundwater monitoring report, and subject to Department approval.

If an outlier is identified using one of the referenced outlier screenings, the datapoint will be identified with an (o) on the historical analytical summary pages in each semi-annual report. Any additional datapoints that are removed prior to conducting statistical analysis (for example elevated non-detects, etc.) will also been identified with an (o) on the statistical analytical data summary pages in each semi-annual report. Data points removed, and justification for their removal, will be provided in each semi-annual report, and subject to Department approval.

7.3.4 Updating Background Datasets

Background screening will be conducted in accordance with the Unified Guidance. Updating background datasets will be completed after four new compliance observations have been collected (every 2 years for sites undergoing semi-annual groundwater monitoring). Following receipt of the results of the fourth monitoring event, either a t-test (non-detects ≤ 75%) or Wilcoxon rank-sum comparison (non-detects ≥ 75%) will be conducted.

For constituents evaluated using inter-well analysis, historical data in the background well will be evaluated. Should the comparison indicate no significant difference between the newer data and the existing background data, the newer data will be re-classified as background measurements and added to background. Should the comparison indicate a significant difference between newer data and historical background data, background will not be updated. Additionally, an investigation may be conducted using trend tests to determine if there has been a natural shift in background groundwater quality. Should an investigation indicate that there has been a natural shift in background quality the newer data will not be re-classified as background measurements and added to background without prior ADEM approval.

For constituents evaluated using intra-well analysis, historical data in the monitoring well will be evaluated. Should the comparison indicate no significant difference between the newer data and the existing background data, the newer data will be re-classified as background measurements and added to background. Should the comparison indicate that a significant difference exists between the historical data and new data, the datasets will not be updated. The background datasets for a constituent/well pair will also not be updated if an SSI has been indicated for that pair.

Results of the background screening will be submitted to the ADEM for review with the semi-annual groundwater report following the results of the fourth monitoring event.

In the event a replacement monitoring well is installed in close proximity to the monitoring well it is replacing, background samples will be collected from the replacement monitoring well on a quarterly basis as discussed in Section 4.5 of this Plan. Once at least four background samples have been collected, the historical dataset from the original well and the four newly acquired background samples will be analyzed using ANOVA to determine if the historical dataset for the original well should be combined with the current data from the new well.

7.3.5 Sen's Slope/Mann-Kendall Statistical Evaluation – Appendix I VOCs

According to the Unified Guidance, the Sen's Non-Parametric Estimator of Slope is a method of estimating the true slope (change over time) of analytical data. If the data shows an upward slope, there is evidence of an upward trend or increase in a constituent concentration. No identifiable trend would indicate no significant increase or decrease in a particular constituent concentration over time. A decreasing trend would indicate decreasing constituent concentrations over time. Since this method is non-parametric, it is considered suitable for a high percentage of non-detects and is not significantly affected by outliers.

During each semi-annual groundwater monitoring event, samples are collected from the monitoring well network for analysis of Appendix I VOCs. In the event there is an initial exceedance of an Appendix I VOC, the procedures discussed in Section 7.2.1 and Section 7.4 of this Plan will be initiated and will include a notification to the ADEM, as well as, retesting of the well to confirm the existence of the constituent, if needed, based on historical detections in the well in which it was detected.

A Sen's Slope/Mann-Kendall statistical evaluation will be performed for each detected Appendix I VOC/well pair that has been designated as an SSI to determine if there is an identifiable trend in the target constituent concentration over time. Confidence intervals will also be generated for detected Appendix I VOCs designated as SSIs in compliance wells as discussed in Section 7.4.2 of this Plan.

7.4 IDENTIFICATION OF AN SSI (OR INITIAL EXCEEDANCE)

Should the statistical analysis confirm the presence of an initial exceedance for one or more target constituents over background groundwater quality, the Landfill will comply with the requirements of ADEM Admin. Code 335-13-4-.27(2)(n)3 and notify the Department within 14 days of the finding, and a retesting plan will be initiated in accordance with the Unified Guidance and this Plan as discussed in Section 7.2.1 and Section 7.4.1, if needed. If an SSI is indicated for a constituent/well pair after following the procedures outlined in Section 7.4.1 below, the facility will establish an assessment monitoring program in accordance with the procedures outlined in ADEM Admin. Code 335-13-4-.27(4).

7.4.1 Retesting Plan

In the event there is an initial exceedance over background, the results will be verified by conducting one retesting event (1 of 2), if needed. The retesting event will be completed for each of the constituents in each of the monitoring wells that returned an initial exceedance, if needed, and will be completed within 30-90 days of the initial groundwater sampling event. It should be noted that an initial exceedance could be identified in the semi-annual groundwater report as an SSI without conducting a retesting event if, for example, the detected concentration is consistent with historical concentrations. In the event a retesting event is not conducted for an initial exceedance (SSI) for a constituent/well pair, justification for not retesting will be provided in the semi-annual groundwater monitoring report.

Power curves were generated to determine the proper number of retesting events that would be needed in order to meet the EPA recommended power requirements for determining if a release has

occurred at the facility. These power curves are provided in Appendix F. The results of this analysis indicated that if there is an initial exceedance over background using inter-well or intra-well analysis, the results will be verified by conducting one retesting event (1 of 2).

The results of the retesting event will be submitted to the ADEM as part of the semi-annual report. If the results will not be available by the time the semi-annual report is due to ADEM (90 days from the date of original sample collection) a request for an extension to the due date for the report will be submitted to ADEM in order to include the retesting results in the semi-annual report. If the results of the retesting event indicate an SSI for a constituent/well pair, statistical analysis using confidence intervals will be conducted for those constituent/well pairs as discussed in Section 7.4.2.

7.4.2 Confidence Intervals

Confidence Intervals will be generated for each Appendix I VOC/well pair that was identified as an SSI. Confidence intervals will also be generated for each metal in each well that has been identified as an SSI through prediction limit analysis. The compliance limits (Groundwater Protection Standards [GWPS]) will be set at the EPA Maximum Contaminant Level (MCL), the EPA Regional Screening Level (RSL) for tap water if an MCL is not available, or at an alternate background concentration with the approval of ADEM. If the constituent is in assessment monitoring, the lower confidence limit (LCL) will be compared to the GWPS.

If the results of the confidence intervals indicate an LCL above the GWPS, an assessment of corrective measures (ACM) will be initiated within 90 days unless a determination can be made that a source other than the Landfill unit caused the exceedance, or there was an error in sampling, analytical testing, or statistical analysis. When conducting the ACM, the upper confidence limit (UCL) will be compared to the GWPS. In the event there is a determination of an alternate source, a report will be submitted to the ADEM for approval and placed in the operating record.

7.5 REPORTING

In addition to statistical analysis discussed above, the semi-annual report will also include, at a minimum, the following information:

- A discussion of the environmental setting of the facility.
- Summary tables of the laboratory analysis.
- Monitoring well sampling records.

- A table of historic groundwater elevations.
- Historical groundwater analytical results.
- Copies of the laboratory reports.
- Potentiometric surface map(s) illustrating groundwater elevation and flow direction.
- Time versus Concentration Graphs for each detected constituent.
- Other supporting figures, such as site and well location maps.

8.0 REFERENCES

Alabama Department of Environmental Management, Administrative Code R. 335-13-x-xx.

Alabama Department of Environmental Management, Scottsboro Landfill, Solid Waste Disposal Permit No. 36-02, Issuance Date and Effective Date March 21, 2019, Modification Dates April 7, 2020 and December 15, 2022, Expiration Date March 20, 2024.

Bossong, C.R., 1989. Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 2: United States Geological Survey, Water Resources Investigations Report 88-4177, 22p.

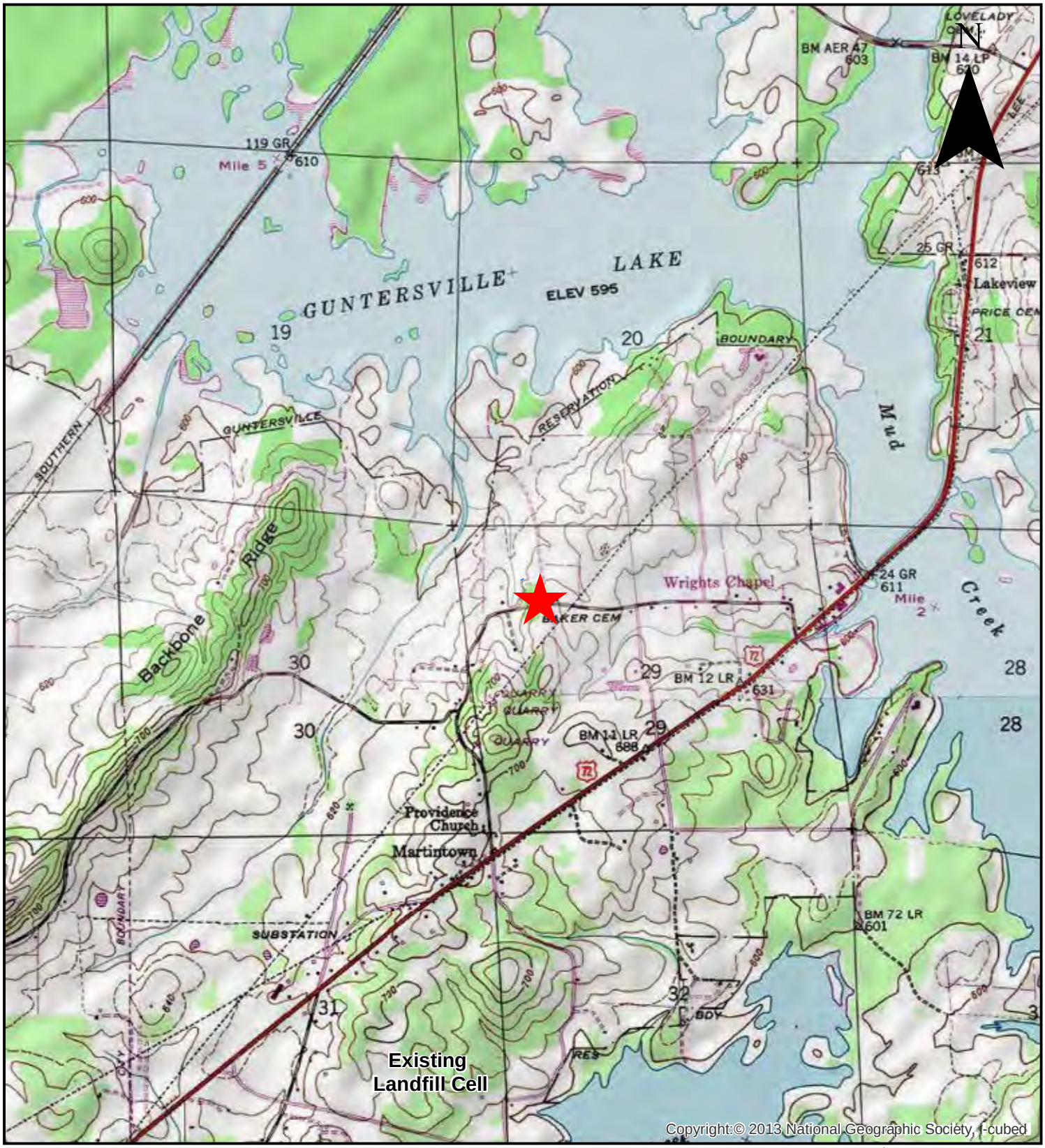
Geological Survey of Alabama, Special Map 220, Geologic Map of Alabama, 1988.

LaBella Associates, D.P.C., Scottsboro Landfill, March 2025 Semi-Annual Groundwater Monitoring Report, June 9, 2025.

US EPA Region II, Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling, September 2001.

US EPA, Office of Solid Waste, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009.

FIGURES



Legend

Site Location

USGS Quad Id: 34085-G8
USGS Quad Name: Wannville, Alabama

LaBella
Powered by partnership.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE:
Site Location Map
Scottsboro Landfill
Scottsboro, Alabama

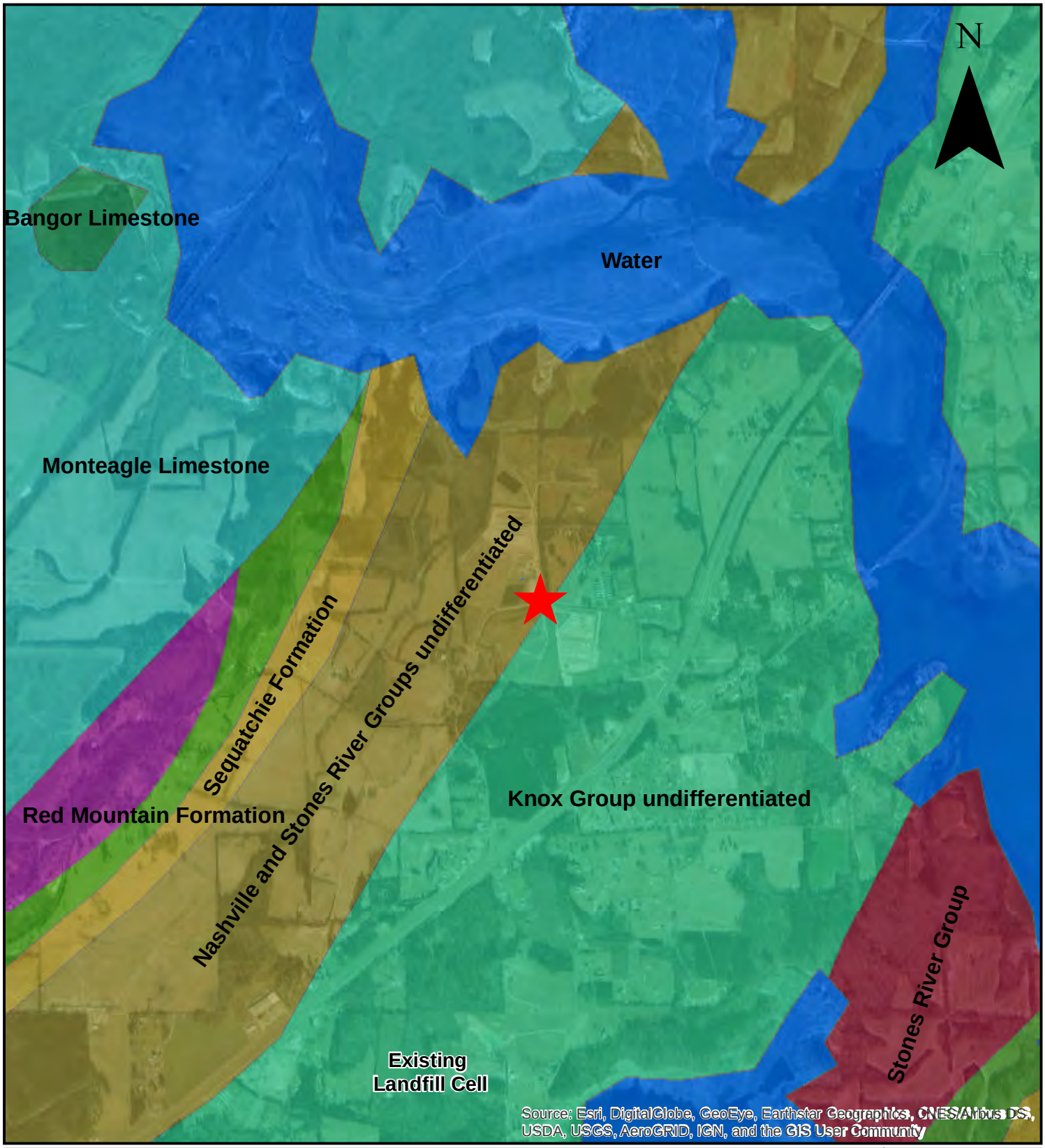
SCALE:
0 1,000 2,000
1 inch = 2,000 feet

FIGURE NO.
1

PROJECT NO.
General Map

DRAWN BY
AJH

DATE DRAWN
5/20/2021



Legend

Site Location

LaBella
Powered by partnership.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE:
Geologic Map
Scottsboro Landfill
Scottsboro, Alabama

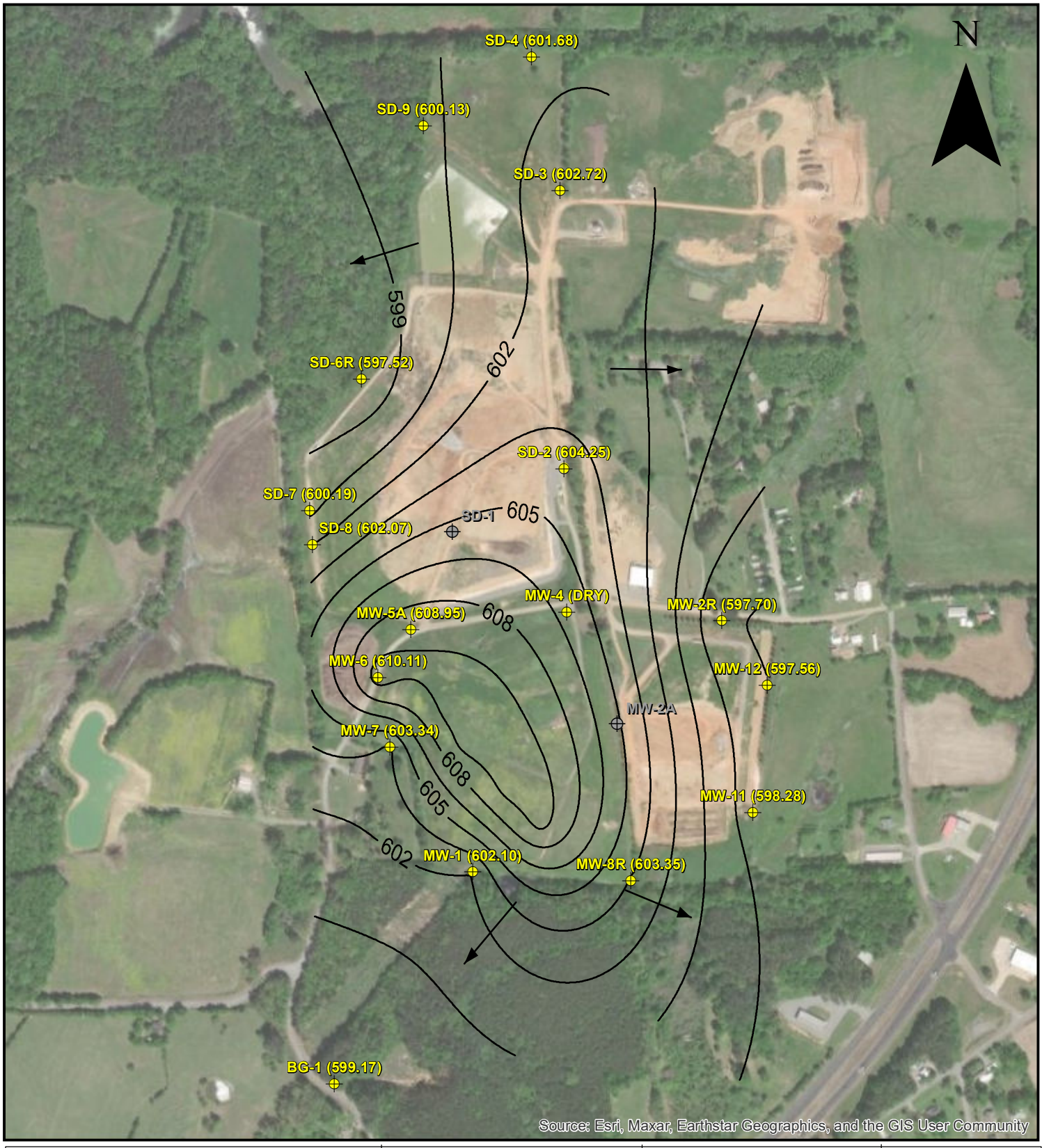
SCALE:
0 1,000 2,000
1 inch = 2,000 feet

FIGURE NO.
2

PROJECT NO.
General Map

DRAWN BY
AJH

DATE DRAWN
5/20/2021



Legend

- Monitoring Well Location
- Abandoned Monitoring Well Location
- Potentiometric Contour Line
- Groundwater Flow Direction
- (599.17) Measured Groundwater Elevation

LaBella
Powered by partnership.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE: Potentiometric Surface Map

March 2025

Scottsboro Landfill
Scottsboro, Alabama

SCALE: 0 300 600
1 inch = 600 feet

FIGURE NO. 3

PROJECT NO. 2253665.00

DRAWN BY LKN

DATE DRAWN 06-06-2025

APPENDIX A

Appendix A Calculated Groundwater Flow Velocities March 19-21, 2025						
Monitoring Well	Groundwater Elevation (ft-amsl)	Distance from up- to down-gradient well (feet)	Gradient (i)	Hydraulic Conductivity (cm/sec)	Effective Porosity ne	Estimated Flow Velocity (feet/year)
BG-1	599.17	2,716	0.0005	0.000001	0.30	0.0019
MW-2R	597.70					
BG-1	599.17	2,242	0.0004	0.000001	0.30	0.0014
MW-11	598.28					
		average gradient	0.0005		average velocity	0.0015

Notes:

1. Effective porosity values from Freeze & Cherry (1979) Table 2.4.
2. Hydraulic conductivity values were obtained from Freeze and Cherry (1979) Table 2.2

cm/sec - centimeters per second

ft-amsl - feet above mean sea level

APPENDIX B

GROUNDWATER SAMPLING LOG

SITE NAME:	PROJECT:	PROJECT NO:
FIELD PERSONNEL/SAMPLER:	WEATHER CONDITIONS:	DATE:
WELL NO:	WELL DIAMETER (in):	PURGE PUMP TYPE OR BAILER:
TOTAL WELL DEPTH (feet):	SCREEN (feet):	
STATIC WATER LEVEL (feet):	TIME:	
DEPTH TO FREE PRODUCT (feet):		
LENGTH OF WATER COLUMN:		
WELL VOLUME (gallons):		

PURGING DATA

INITAIL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	
PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	DEPTH TO WATER (feet)	pH (standard units)	COND. (mS/cm)	TURBIDITY (NTUs)	DISSOLVED OXYGEN (mg/L)	TEMP. (°C)	REDOX (ORP) (mV)	COLOR	ODOR

REMARKS:

SAMPLING DATA

SAMPLE DATE:	SAMPLE TIME:	SAMPLE METHOD:

ANALYSIS AND/OR METHOD	VOLUME	#CONTAINERS	PRESERVATIVE USED:	COMMENTS:

REMARKS:

Verify Well Cap Secured and Locked*	**Yes:**		

CALIBRATION INFORMATION:

SAMPLED BY (PRINT):	SAMPLER(S) SIGNATURES:

LaBella Associates, D.P.C.
528 Mineral Trace
Hoover, Alabama 35244
Phone (205) 985-4874 Fax (205) 987-6080

APPENDIX C

MONITORING WELL SAMPLING RECORD

PROJECT NO:
PROJECT NAME: Scottsboro Landfill
SITE LOCATION: Scottsboro, Alabama
RECORDED BY:

WELL NUMBER	BG-1	MW-1	MW-2R	MW-4	MW-5A
GENERAL WELL DATA					
Top of Casing (TOC) Elevation (ft)	697.67	707.40	648.30	663.92	635.35
Original Total Depth (ft below TOC)	118.54	135.00	96.50	68.35	76.85
TOC Height (ft above/below grade)	3.0	2.0	3.0	3.0	3.0
Screened Interval (ft below grade)	98.0-118.0	113.0-133.0	86.5-96.5	48.3-68.3	21.8-41.8
Well Diameter (in)/Material	2 in./PVC	2 in./PVC	2 in./PVC	2 in./PVC	2 in./PVC
Current Well Condition	Good	Good	Good	Good	Good
WATER LEVEL DATA					
Date (mm/dd/yyyy)					
Time (military)					
Measured Total Depth (ft below TOC)					
Static Water Level (ft below TOC)					
Static Water Elevation (ft - AMSL)					
WELL PURGE DATA					
Purge Date (mm/dd/yyyy)					
Purge Time (military)					
Minimum Purge Volume (gal)					
Actual Purge Volume (gal)					
Equipment Used					
WELL SAMPLING DATA					
Sampling Date (mm/dd/yyyy)					
Sampling Time (military)					
Weather Conditions					
Equipment Used					
Groundwater pH (std units)					
Specific Conductance (mS/cm)					
Turbidity (NTU)					
Dissolved Oxygen (mg/L)					
Groundwater Temperature (degrees C)					
Oxidation-Reduction Potential (mV)					
Number of Containers Filled					
Water Clarity					
Parameters to be Analyzed					

I certify that all water level measurement devices, purging equipment, and sampling equipment were properly cleaned prior to use in each well. Signature

REMARKS
NR = Not Recorded
NA = Not Applicable
NS = Not Sampled

LABELLA ASSOCIATES, D.P.C.
528 Mineral Trace
Birmingham, Alabama 35244
Phone (205) 985-4874 Fax (205) 987-6080

APPENDIX D

LABELLA ASSOCIATES, D.P.C.
528 MINERAL TRACE
BIRMINGHAM, ALABAMA 35244
PHONE: (205) 985-4874
FAX: (205) 987-6080
EMAIL:

Analysis Required

Remarks:

Collected By:	Project Name:	Laboratory Name:
Signature:	Project No.:	Laboratory Address:

Sample ID	Lab ID	Comp/ Grab	Sample Matrix	Sample Date	Sample Time	Sample Preservative

Matrix: **SS** – Soil/Solid **GW** – Groundwater **WW** – Waste Water
DW – Drinking Water **SW –** Stormwater **OT** - Other

Special Instructions:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Samples Shipped Via:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Lab Remarks:
Relinquished By:	Date:	Time:	Received for Lab By:	Date:	Time:	

APPENDIX E

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 11:55 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Antimony (mg/l)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Antimony Analysis Run 7/11/2025 11:54 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 3.902

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 6 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 3.798
Adjusted Kruskal-Wallis statistic (H') = 3.902

Non-Parametric ANOVA

Constituent: Antimony (mg/l) Analysis Run 7/11/2025 11:55 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.005	
9/5/2002	<0.005	
3/17/2003	<0.005	
9/4/2003	<0.005	
3/15/2004	<0.01	
9/21/2004	<0.01	
3/14/2005	<0.01	
9/14/2005	<0.01	
3/13/2006	<0.005	
9/20/2006	<0.0034	
3/22/2007	<0.0068	
9/18/2007	<0.0033	
3/20/2008	<0.0033	
9/11/2008	<0.0045	
3/12/2009	<0.0045	
9/10/2009	<0.0045	
3/9/2010	<0.0035	
9/15/2010	<0.012	
3/10/2011	<0.006	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.002	<0.002
3/22/2016	<0.002	<0.002
9/27/2016	<0.002	<0.002
3/9/2017	<0.002	<0.002
9/20/2017	<0.002	<0.002
3/8/2018	<0.002	<0.002
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 11:57 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Arsenic (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (eq. var.)

Non-Parametric ANOVA

Constituent: Arsenic Analysis Run 7/11/2025 11:56 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 2.523

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 2.507
Adjusted Kruskal-Wallis statistic (H') = 2.523

Non-Parametric ANOVA

Constituent: Arsenic (mg/l) Analysis Run 7/11/2025 11:57 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.007	
9/5/2002	<0.005	
3/17/2003	<0.005	
9/4/2003	<0.005	
3/15/2004	<0.01	
9/21/2004	<0.01	
3/14/2005	<0.01	
9/14/2005	<0.01	
3/13/2006	<0.01	
9/20/2006	0.0063	
3/22/2007	0.0047	
9/18/2007	0.0075	
3/20/2008	<0.0037	
9/11/2008	0.0008	
3/12/2009	<0.0054	
9/10/2009	0.0089	
3/9/2010	<0.0054	
9/15/2010	<0.01	
3/10/2011	0.0145	
9/15/2011	0.0054	
3/15/2012	0.0019	
9/19/2012	0.016	
3/21/2013	0.0028	
9/18/2013	0.0024	
3/19/2014	0.021	
9/25/2014	0.014	
9/22/2015	<0.002	<0.002
3/22/2016	0.013	0.013
9/27/2016	0.0233	0.0233
3/9/2017	0.00791	0.00791
9/20/2017	0.0276	0.0276
3/8/2018	0.0696	0.0696
3/13/2019	0.00478	0.00478
9/11/2019	0.00355	0.00355

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 11:58 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Barium (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	Param.

Parametric ANOVA

Constituent: Barium Analysis Run 7/11/2025 11:58 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test indicates NO VARIATION at the 5% significance level. Because the calculated F statistic is less than or equal to the tabulated F statistic, the hypothesis of a single homogeneous population is accepted.

Calculated F statistic = 0.3986

Tabulated F statistic = 4.18 with 1 and 29 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.00003804	1	0.00003804	0.3986
Error Within Groups	0.002767	29	0.00009542	
Total	0.002805	30		

The Shapiro Wilk normality test on the residuals passed on the raw data. Alpha = 0.01, calculated = 0.9473, critical = 0.902. Levene's Equality of Variance test passed. Calculated = 0.1514, tabulated = 4.18.

Parametric ANOVA

Constituent: Barium (mg/l) Analysis Run 7/11/2025 11:59 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.06	
9/5/2002	0.031	
3/17/2003	0.023	
9/4/2003	0.044	
3/15/2004	0.027	
9/21/2004	0.022	
3/14/2005	0.025	
9/14/2005	0.0192	
3/13/2006	<0.2 (o)	
9/20/2006	0.0232	
3/22/2007	0.0209	
9/18/2007	0.0258	
3/20/2008	0.0276	
9/11/2008	0.0292	
3/12/2009	0.0264	
9/10/2009	0.0345	
3/9/2010	0.0504	
9/15/2010	<0.2 (o)	
3/10/2011	<0.2 (o)	
9/15/2011	0.031	
3/15/2012	0.028	
9/19/2012	0.033	
3/21/2013	0.043	
9/18/2013	0.034	
3/19/2014	0.031	
9/25/2014	0.034	
9/22/2015	0.0416	0.0416
3/22/2016	0.0369	0.0369
9/27/2016	0.0298	0.0298
3/9/2017	0.0417	0.0417
9/20/2017	0.0409	0.0409
3/8/2018	0.041	0.041
3/13/2019	0.0191	0.0191
9/11/2019	0.0208	0.0208

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:00 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Beryllium (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Beryllium Analysis Run 7/11/2025 12:00 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 0.2625

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 0.2374
Adjusted Kruskal-Wallis statistic (H') = 0.2625

Non-Parametric ANOVA

Constituent: Beryllium (mg/l) Analysis Run 7/11/2025 12:00 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.004	
9/5/2002	<0.004	
3/17/2003	<0.004	
9/4/2003	<0.004	
3/15/2004	<0.004	
9/21/2004	<0.004	
3/14/2005	<0.004	
9/14/2005	<0.004	
3/13/2006	<0.004	
9/20/2006	<0.0004	
3/22/2007	<0.001	
9/18/2007	<0.002	
3/20/2008	<0.001	
9/11/2008	0.00013	
3/12/2009	<0.001	
9/10/2009	<0.001	
3/9/2010	<0.001	
9/15/2010	<0.004	
3/10/2011	<0.004	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.002	<0.002
3/22/2016	<0.002	<0.002
9/27/2016	<0.002	<0.002
3/9/2017	<0.002	<0.002
9/20/2017	<0.002	<0.002
3/8/2018	<0.002	<0.002
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:02 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Cadmium (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (eq. var.)

Non-Parametric ANOVA

Constituent: Cadmium Analysis Run 7/11/2025 12:01 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 1.547

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 1.434
Adjusted Kruskal-Wallis statistic (H') = 1.547

Non-Parametric ANOVA

Constituent: Cadmium (mg/l) Analysis Run 7/11/2025 12:02 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.004	
9/5/2002	0.003	
3/17/2003	<0.001	
9/4/2003	<0.001	
3/15/2004	0.0013	
9/21/2004	<0.001	
3/14/2005	<0.01	
9/14/2005	<0.001	
3/13/2006	<0.005	
9/20/2006	0.00032	
3/22/2007	<0.001	
9/18/2007	0.0011	
3/20/2008	0.0014	
9/11/2008	<0.001	
3/12/2009	0.0012	
9/10/2009	<0.001	
3/9/2010	0.0016	
9/15/2010	<0.005	
3/10/2011	<0.005	
9/15/2011	<0.0005	
3/15/2012	0.00089	
9/19/2012	<0.0005	
3/21/2013	0.0025	
9/18/2013	0.0011	
3/19/2014	<0.0005	
9/25/2014	<0.0005	
9/22/2015	0.00113	0.00113
3/22/2016	<0.001	<0.001
9/27/2016	<0.001	<0.001
3/9/2017	<0.001	<0.001
9/20/2017	<0.001	<0.001
3/8/2018	<0.001	<0.001
3/13/2019	<0.001	<0.001
9/11/2019	<0.001	<0.001

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:04 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Chromium (mg/l)	n/a	n/a	n/a	n/a	n/a	ln(x)	No	0.05	Param.

Parametric ANOVA

Constituent: Chromium Analysis Run 7/11/2025 12:03 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 9/5/2002 and 9/11/2019 the parametric analysis of variance test (after natural log transformation) indicates NO VARIATION at the 5% significance level. Because the calculated F statistic is less than or equal to the tabulated F statistic, the hypothesis of a single homogeneous population is accepted.

Calculated F statistic = 0.3926

Tabulated F statistic = 4.17 with 1 and 30 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.3547	1	0.3547	0.3926
Error Within Groups	27.11	30	0.9035	
Total	27.46	31		

The Shapiro Wilk normality test on the residuals passed after natural log transformation. Alpha = 0.01, calculated = 0.9318, critical = 0.904. Levene's Equality of Variance test passed. Calculated = 2.389, tabulated = 4.17.

Parametric ANOVA

Constituent: Chromium (mg/l) Analysis Run 7/11/2025 12:04 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.046 (o)	
9/5/2002	<0.005	
3/17/2003	<0.005	
9/4/2003	0.075 (o)	
3/15/2004	<0.005	
9/21/2004	<0.005	
3/14/2005	<0.005	
9/14/2005	<0.005	
3/13/2006	0.0333	
9/20/2006	0.0017	
3/22/2007	0.0012	
9/18/2007	0.0088	
3/20/2008	0.0031	
9/11/2008	0.0094	
3/12/2009	0.002	
9/10/2009	0.0116	
3/9/2010	0.0261	
9/15/2010	<0.01	
3/10/2011	0.0202	
9/15/2011	<0.01	
3/15/2012	<0.01	
9/19/2012	<0.01	
3/21/2013	<0.01	
9/18/2013	<0.01	
3/19/2014	<0.01	
9/25/2014	<0.01	
9/22/2015	<0.002	<0.002
3/22/2016	<0.01	<0.01
9/27/2016	<0.01	<0.01
3/9/2017	<0.01	<0.01
9/20/2017	0.0166	0.0166
3/8/2018	0.0188	0.0188
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:06 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Cobalt (mg/l)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	Param.

Parametric ANOVA

Constituent: Cobalt Analysis Run 7/11/2025 12:05 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 18.98

Tabulated F statistic = 4.152 with 1 and 32 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.005171	1	0.005171	18.98
Error Within Groups	0.008719	32	0.0002725	
Total	0.01389	33		

The Shapiro Wilk normality test on the residuals passed on the raw data. Alpha = 0.01, calculated = 0.9405, critical = 0.908. Levene's Equality of Variance test passed. Calculated = 0.04934, tabulated = 4.152.

Parametric ANOVA

Constituent: Cobalt (mg/l) Analysis Run 7/11/2025 12:06 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.088	
9/5/2002	0.056	
3/17/2003	0.057	
9/4/2003	0.083	
3/15/2004	0.063	
9/21/2004	0.058	
3/14/2005	0.039	
9/14/2005	0.0531	
3/13/2006	0.0856	
9/20/2006	0.0773	
3/22/2007	0.0799	
9/18/2007	0.0833	
3/20/2008	0.0863	
9/11/2008	0.0763	
3/12/2009	0.0911	
9/10/2009	0.0755	
3/9/2010	0.0756	
9/15/2010	0.0775	
3/10/2011	0.0889	
9/15/2011	0.079	
3/15/2012	0.038	
9/19/2012	0.084	
3/21/2013	0.068	
9/18/2013	0.094	
3/19/2014	0.11	
9/25/2014	0.091	
9/22/2015	0.0501	0.0501
3/22/2016	0.0365	0.0365
9/27/2016	0.0634	0.0634
3/9/2017	0.0564	0.0564
9/20/2017	0.0539	0.0539
3/8/2018	0.0564	0.0564
3/13/2019	0.0256	0.0256
9/11/2019	0.0277	0.0277

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:08 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Copper (mg/l)	n/a	n/a	n/a	n/a	n/a	ln(x)	No	0.05	Param.

Parametric ANOVA

Constituent: Copper Analysis Run 7/11/2025 12:07 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test (after natural log transformation) indicates NO VARIATION at the 5% significance level. Because the calculated F statistic is less than or equal to the tabulated F statistic, the hypothesis of a single homogeneous population is accepted.

Calculated F statistic = 0.4156

Tabulated F statistic = 4.152 with 1 and 32 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.5392	1	0.5392	0.4156
Error Within Groups	41.52	32	1.297	
Total	42.06	33		

The Shapiro Wilk normality test on the residuals passed after natural log transformation. Alpha = 0.01, calculated = 0.9352, critical = 0.908. Levene's Equality of Variance test passed. Calculated = 0.08697, tabulated = 4.152.

Parametric ANOVA

Constituent: Copper (mg/l) Analysis Run 7/11/2025 12:08 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.055	
9/5/2002	<0.01	
3/17/2003	<0.01	
9/4/2003	0.029	
3/15/2004	<0.01	
9/21/2004	<0.01	
3/14/2005	0.048	
9/14/2005	<0.01	
3/13/2006	0.0441	
9/20/2006	0.004	
3/22/2007	<0.001	
9/18/2007	0.0089	
3/20/2008	0.007	
9/11/2008	0.0193	
3/12/2009	0.009	
9/10/2009	0.0243	
3/9/2010	0.0307	
9/15/2010	<0.025	
3/10/2011	0.0306	
9/15/2011	0.004	
3/15/2012	0.0056	
9/19/2012	0.0067	
3/21/2013	0.0083	
9/18/2013	0.0043	
3/19/2014	<0.002	
9/25/2014	0.0039	
9/22/2015	0.0115	0.0115
3/22/2016	<0.005	<0.005
9/27/2016	<0.005	<0.005
3/9/2017	<0.005	<0.005
9/20/2017	0.0392	0.0392
3/8/2018	0.0256	0.0256
3/13/2019	<0.005	<0.005
9/11/2019	0.0055	0.0055

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:10 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Lead (mg/l)	n/a	n/a	n/a	n/a	n/a	ln(x)	No	0.05	Param.

Parametric ANOVA

Constituent: Lead Analysis Run 7/11/2025 12:10 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test (after natural log transformation) indicates NO VARIATION at the 5% significance level. Because the calculated F statistic is less than or equal to the tabulated F statistic, the hypothesis of a single homogeneous population is accepted.

Calculated F statistic = 0.9853

Tabulated F statistic = 4.152 with 1 and 32 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	1.051	1	1.051	0.9853
Error Within Groups	34.13	32	1.067	
Total	35.18	33		

The Shapiro Wilk normality test on the residuals passed after natural log transformation. Alpha = 0.01, calculated = 0.9453, critical = 0.908. Levene's Equality of Variance test passed. Calculated = 0.6673, tabulated = 4.152.

Parametric ANOVA

Constituent: Lead (mg/l) Analysis Run 7/11/2025 12:10 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.032	
9/5/2002	<0.003	
3/17/2003	<0.003	
9/4/2003	<0.003	
3/15/2004	<0.005	
9/21/2004	<0.005	
3/14/2005	<0.005	
9/14/2005	<0.005	
3/13/2006	0.027	
9/20/2006	0.0056	
3/22/2007	<0.0017	
9/18/2007	0.008	
3/20/2008	0.0074	
9/11/2008	0.0115	
3/12/2009	0.0041	
9/10/2009	0.0138	
3/9/2010	0.0214	
9/15/2010	0.0051	
3/10/2011	0.0205	
9/15/2011	0.0059	
3/15/2012	0.0029	
9/19/2012	0.0059	
3/21/2013	0.0074	
9/18/2013	0.0053	
3/19/2014	0.0036	
9/25/2014	0.0027	
9/22/2015	<0.002	<0.002
3/22/2016	0.00392	0.00392
9/27/2016	0.00345	0.00345
3/9/2017	0.00261	0.00261
9/20/2017	0.0258	0.0258
3/8/2018	0.0165	0.0165
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:11 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Mercury (mg/l)	n/a	n/a	n/a	n/a	n/a	ln(x)	Yes	0.05	Param.

Parametric ANOVA

Constituent: Mercury Analysis Run 7/11/2025 12:11 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test (after natural log transformation) indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 28.63

Tabulated F statistic = 4.161 with 1 and 31 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	26.87	1	26.87	28.63
Error Within Groups	29.1	31	0.9386	
Total	55.97	32		

The Shapiro Wilk normality test on the residuals passed after natural log transformation. Alpha = 0.01, calculated = 0.9289, critical = 0.906. Levene's Equality of Variance test passed. Calculated = 1.966, tabulated = 4.161.

Parametric ANOVA

Constituent: Mercury (mg/l) Analysis Run 7/11/2025 12:12 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.0006	
9/5/2002	<0.0002	
3/17/2003	<0.0002	
9/4/2003	<0.0002	
3/15/2004	<0.0002	
9/21/2004	0.0257 (o)	
3/14/2005	<0.0002	
9/14/2005	0.000211	
3/13/2006	<0.001	
9/20/2006	<0.0001	
3/22/2007	<0.0001	
9/18/2007	<0.00011	
3/20/2008	<0.00011	
9/11/2008	0.00029	
3/12/2009	0.00015	
9/10/2009	0.00017	
3/9/2010	0.00093	
9/15/2010	<0.001	
3/10/2011	<0.001	
9/15/2011	<0.0002	
3/15/2012	<0.0002	
9/19/2012	<0.0002	
3/21/2013	<0.0002	
9/18/2013	<0.0002	
3/19/2014	<0.0002	
9/25/2014	<0.0002	
9/22/2015	<0.0002	<0.0002
3/22/2016	0.001	0.001
9/27/2016	0.00145	0.00145
3/9/2017	0.000995	0.000995
9/20/2017	0.00378	0.00378
3/8/2018	0.000365	0.000365
3/13/2019	0.00293	0.00293
9/11/2019	0.00635	0.00635

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:13 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Nickel (mg/l)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	Param.

Parametric ANOVA

Constituent: Nickel Analysis Run 7/11/2025 12:13 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 9.011

Tabulated F statistic = 4.161 with 1 and 31 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.002708	1	0.002708	9.011
Error Within Groups	0.009315	31	0.0003005	
Total	0.01202	32		

The Shapiro Wilk normality test on the residuals passed on the raw data. Alpha = 0.01, calculated = 0.9726, critical = 0.906. Levene's Equality of Variance test passed. Calculated = 0.05269, tabulated = 4.161.

Parametric ANOVA

Constituent: Nickel (mg/l) Analysis Run 7/11/2025 12:13 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.102	
9/5/2002	0.044	
3/17/2003	0.044	
9/4/2003	0.155 (o)	
3/15/2004	0.044	
9/21/2004	0.042	
3/14/2005	0.032	
9/14/2005	0.0398	
3/13/2006	0.0812	
9/20/2006	0.0531	
3/22/2007	0.0526	
9/18/2007	0.0638	
3/20/2008	0.0605	
9/11/2008	0.0585	
3/12/2009	0.0691	
9/10/2009	0.0642	
3/9/2010	0.0647	
9/15/2010	0.06	
3/10/2011	0.0796	
9/15/2011	0.046	
3/15/2012	0.023	
9/19/2012	0.04	
3/21/2013	0.047	
9/18/2013	0.038	
3/19/2014	0.055	
9/25/2014	0.079	
9/22/2015	0.0332	0.0332
3/22/2016	0.0211	0.0211
9/27/2016	0.0474	0.0474
3/9/2017	0.0367	0.0367
9/20/2017	0.0534	0.0534
3/8/2018	0.0512	0.0512
3/13/2019	0.0136	0.0136
9/11/2019	0.0169	0.0169

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:14 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Selenium (mg/l)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Selenium Analysis Run 7/11/2025 12:14 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 3.924

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 6 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 3.798
Adjusted Kruskal-Wallis statistic (H') = 3.924

Non-Parametric ANOVA

Constituent: Selenium (mg/l) Analysis Run 7/11/2025 12:15 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.005	
9/5/2002	<0.005	
3/17/2003	<0.005	
9/4/2003	<0.005	
3/15/2004	<0.01	
9/21/2004	<0.01	
3/14/2005	<0.01	
9/14/2005	<0.01	
3/13/2006	<0.01	
9/20/2006	<0.0028	
3/22/2007	<0.0028	
9/18/2007	0.0056	
3/20/2008	<0.004	
9/11/2008	<0.0034	
3/12/2009	<0.0034	
9/10/2009	<0.0034	
3/9/2010	<0.0036	
9/15/2010	<0.01	
3/10/2011	<0.01	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.002	<0.002
3/22/2016	<0.002	<0.002
9/27/2016	<0.002	<0.002
3/9/2017	<0.002	<0.002
9/20/2017	<0.002	<0.002
3/8/2018	<0.002	<0.002
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:16 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Silver (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Silver Analysis Run 7/11/2025 12:16 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 2.279

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 5 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 2.136
Adjusted Kruskal-Wallis statistic (H') = 2.279

Non-Parametric ANOVA

Constituent: Silver (mg/l) Analysis Run 7/11/2025 12:16 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.005	
9/5/2002	<0.005	
3/17/2003	<0.005	
9/4/2003	<0.005	
3/15/2004	<0.005	
9/21/2004	<0.005	
3/14/2005	<0.005	
9/14/2005	<0.005	
3/13/2006	<0.01	
9/20/2006	<0.009	
3/22/2007	<0.0009	
9/18/2007	<0.00077	
3/20/2008	<0.00077	
9/11/2008	<0.0014	
3/12/2009	<0.0014	
9/10/2009	<0.0014	
3/9/2010	<0.001	
9/15/2010	<0.01	
3/10/2011	<0.01	
9/15/2011	<0.01	
3/15/2012	<0.01	
9/19/2012	<0.01	
3/21/2013	<0.01	
9/18/2013	<0.01	
3/19/2014	<0.01	
9/25/2014	<0.01	
9/22/2015	<0.002	<0.002
3/22/2016	<0.005	<0.005
9/27/2016	<0.005	<0.005
3/9/2017	<0.005	<0.005
9/20/2017	<0.002	<0.002
3/8/2018	<0.002	<0.002
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:17 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Thallium (mg/l)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Thallium Analysis Run 7/11/2025 12:17 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 12.23

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 2 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 11.01
Adjusted Kruskal-Wallis statistic (H') = 12.23

Non-Parametric ANOVA

Constituent: Thallium (mg/l) Analysis Run 7/11/2025 12:18 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.002	
9/5/2002	<0.002	
3/17/2003	<0.002	
9/4/2003	<0.002	
3/15/2004	<0.01 (o)	
9/21/2004	<0.01 (o)	
3/14/2005	<0.01 (o)	
9/14/2005	<0.01 (o)	
3/13/2006	<0.02 (o)	
9/20/2006	<9E-05	
3/22/2007	0.00016	
9/18/2007	0.00079	
3/20/2008	<0.00048	
9/11/2008	0.00015	
3/12/2009	0.00012	
9/10/2009	<0.0015	
3/9/2010	0.00027	
9/15/2010	<0.001	
3/10/2011	<0.001	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.002	<0.002
3/22/2016	<0.002	<0.002
9/27/2016	<0.002	<0.002
3/9/2017	<0.002	<0.002
9/20/2017	<0.002	<0.002
3/8/2018	<0.002	<0.002
3/13/2019	<0.002	<0.002
9/11/2019	<0.002	<0.002

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:19 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Vanadium (mg/l)	n/a	n/a	n/a	n/a	n/a	x^(1/3)	No	0.05	Param.

Parametric ANOVA

Constituent: Vanadium Analysis Run 7/11/2025 12:19 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test (after cube root transformation) indicates NO VARIATION at the 5% significance level. Because the calculated F statistic is less than or equal to the tabulated F statistic, the hypothesis of a single homogeneous population is accepted.

Calculated F statistic = 0.1168

Tabulated F statistic = 4.152 with 1 and 32 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.0003919	1	0.0003919	0.1168
Error Within Groups	0.1073	32	0.003354	
Total	0.1077	33		

The Shapiro Wilk normality test on the residuals passed after cube root transformation. Alpha = 0.01, calculated = 0.9224, critical = 0.908. Levene's Equality of Variance test passed. Calculated = 0.4862, tabulated = 4.152.

Parametric ANOVA

Constituent: Vanadium (mg/l) Analysis Run 7/11/2025 12:19 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.04	
9/5/2002	<0.02	
3/17/2003	<0.02	
9/4/2003	<0.02	
3/15/2004	<0.02	
9/21/2004	<0.02	
3/14/2005	<0.02	
9/14/2005	<0.02	
3/13/2006	<0.05	
9/20/2006	0.0036	
3/22/2007	0.0019	
9/18/2007	0.0081	
3/20/2008	0.0046	
9/11/2008	0.0094	
3/12/2009	0.0023	
9/10/2009	0.0131	
3/9/2010	0.0301	
9/15/2010	<0.05	
3/10/2011	<0.05	
9/15/2011	<0.01	
3/15/2012	<0.01	
9/19/2012	<0.01	
3/21/2013	<0.01	
9/18/2013	<0.01	
3/19/2014	<0.01	
9/25/2014	<0.02	
9/22/2015	<0.005	<0.005
3/22/2016	<0.02	<0.02
9/27/2016	<0.02	<0.02
3/9/2017	<0.02	<0.02
9/20/2017	0.0331	0.0331
3/8/2018	0.0165	0.0165
3/13/2019	<0.005	<0.005
9/11/2019	<0.005	<0.005

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/11/2025, 12:20 PM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Zinc (mg/l)	n/a	n/a	n/a	n/a	n/a	sqrt(x)	No	0.05	Param.

Parametric ANOVA

Constituent: Zinc Analysis Run 7/11/2025 12:20 PM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019 the parametric analysis of variance test (after square root transformation) indicates NO VARIATION at the 5% significance level. Because the calculated F statistic is less than or equal to the tabulated F statistic, the hypothesis of a single homogeneous population is accepted.

Calculated F statistic = 1.337

Tabulated F statistic = 4.152 with 1 and 32 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	0.005796	1	0.005796	1.337
Error Within Groups	0.1387	32	0.004334	
Total	0.1445	33		

The Shapiro Wilk normality test on the residuals passed after square root transformation. Alpha = 0.01, calculated = 0.9529, critical = 0.908. Levene's Equality of Variance test passed. Calculated = 0.007126, tabulated = 4.152.

Parametric ANOVA

Constituent: Zinc (mg/l) Analysis Run 7/11/2025 12:21 PM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	0.114	
9/5/2002	0.049	
3/17/2003	0.032	
9/4/2003	0.174	
3/15/2004	0.052	
9/21/2004	0.086	
3/14/2005	0.065	
9/14/2005	0.0603	
3/13/2006	0.114	
9/20/2006	0.0531	
3/22/2007	0.0495	
9/18/2007	0.071	
3/20/2008	0.0778	
9/11/2008	0.0675	
3/12/2009	0.0659	
9/10/2009	0.0695	
3/9/2010	0.068	
9/15/2010	0.0301	
3/10/2011	0.0993	
9/15/2011	0.032	
3/15/2012	0.029	
9/19/2012	0.024	
3/21/2013	0.034	
9/18/2013	0.029	
3/19/2014	0.034	
9/25/2014	0.034	
9/22/2015	0.0435	0.0435
3/22/2016	0.0412	0.0412
9/27/2016	0.0514	0.0514
3/9/2017	0.048	0.048
9/20/2017	0.0994	0.0994
3/8/2018	0.0822	0.0822
3/13/2019	<0.025	<0.025
9/11/2019	<0.025	<0.025

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/16/2025, 8:40 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
1,1-Dichloroethane (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (normality)

Non-Parametric ANOVA

Constituent: 1,1-Dichloroethane Analysis Run 7/16/2025 8:40 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 3.715

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 2.839
Adjusted Kruskal-Wallis statistic (H') = 3.715

Non-Parametric ANOVA

Constituent: 1,1-Dichloroethane (mg/l) Analysis Run 7/16/2025 8:40 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.002	
9/5/2002	<0.001	
3/17/2003	<0.001	
9/4/2003	<0.001	
3/15/2004	<0.001	
9/21/2004	<0.001	
3/14/2005	<0.001	
9/14/2005	<0.001	
3/13/2006	<0.001	
9/20/2006	0.00065	
3/22/2007	0.00072	
9/18/2007	0.00065	
3/20/2008	0.00046	
9/11/2008	0.00051	
3/12/2009	0.00059	
9/10/2009	0.00059	
3/9/2010	0.00025	
9/15/2010	<0.001	
3/10/2011	<0.001	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.001	<0.001
3/22/2016	0.00118	0.00118
9/27/2016	<0.001	<0.001
3/9/2017	<0.001	<0.001
9/20/2017	0.001	0.001
3/8/2018	<0.001	<0.001
3/13/2019	0.00106	0.00106
9/11/2019	0.00135	0.00135
3/11/2020	0.00141	0.00141
9/16/2020	0.00267	0.00267
3/10/2021	0.00194	0.00194
9/22/2021	0.00187	0.00187
3/9/2022	0.00148	0.00148
9/15/2022	0.00139	0.00139
3/16/2023	0.0012	0.0012
9/21/2023	0.00116	0.00116
3/20/2024	0.00109	0.00109
9/18/2024	0.00105	0.00105
3/19/2025	<0.001	<0.001

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/16/2025, 8:48 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Acetone (mg/l)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Acetone Analysis Run 7/16/2025 8:47 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 6.924

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 5.934
Adjusted Kruskal-Wallis statistic (H') = 6.924

Non-Parametric ANOVA

Constituent: Acetone (mg/l) Analysis Run 7/16/2025 8:48 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.05	
9/5/2002	<0.05	
3/17/2003	<0.025	
9/4/2003	<0.025	
3/15/2004	<0.025	
9/21/2004	<0.025	
3/14/2005	<0.025	
9/14/2005	<0.05	
3/13/2006	<0.025	
9/20/2006	<0.005	
3/22/2007	<0.005	
9/18/2007	<0.01	
3/20/2008	<0.01	
9/11/2008	<0.01	
3/12/2009	<0.01	
9/10/2009	<0.01	
3/9/2010	<0.01	
9/15/2010	<0.025	
3/10/2011	<0.025	
9/15/2011	<0.05	
3/15/2012	0.074	
9/19/2012	<0.05	
3/21/2013	<0.05	
9/18/2013	<0.05	
3/19/2014	<0.05	
9/25/2014	<0.05	
9/22/2015	<0.05	<0.05
3/22/2016	<0.05	<0.05
9/27/2016	<0.05	<0.05
3/9/2017	<0.05	<0.05
9/20/2017	<0.05	<0.05
3/8/2018	<0.05	<0.05
3/13/2019	<0.05	<0.05
9/11/2019	<0.05	<0.05
3/11/2020	<0.05	<0.05
9/16/2020	<0.05	<0.05
3/10/2021	<0.05	<0.05
9/22/2021	<0.05	<0.05
3/9/2022	<0.05	<0.05
9/15/2022	<0.05	<0.05
3/16/2023	<0.05	<0.05
9/21/2023	<0.05	<0.05
3/20/2024	<0.05	<0.05
9/18/2024	<0.05	<0.05
3/19/2025	<0.05	<0.05

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/16/2025, 8:50 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Benzene (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Benzene Analysis Run 7/16/2025 8:49 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 2.147

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 1.292
Adjusted Kruskal-Wallis statistic (H') = 2.147

Non-Parametric ANOVA

Constituent: Benzene (mg/l) Analysis Run 7/16/2025 8:50 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.002	
9/5/2002	<0.001	
3/17/2003	<0.001	
9/4/2003	<0.001	
3/15/2004	<0.001	
9/21/2004	<0.001	
3/14/2005	<0.001	
9/14/2005	<0.001	
3/13/2006	<0.001	
9/20/2006	<0.0005	
3/22/2007	<0.0005	
9/18/2007	<0.0002	
3/20/2008	<0.0002	
9/11/2008	<0.0004	
3/12/2009	<0.0004	
9/10/2009	<0.0004	
3/9/2010	<0.00021	
9/15/2010	<0.001	
3/10/2011	<0.001	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.001	<0.001
3/22/2016	<0.001	<0.001
9/27/2016	<0.001	<0.001
3/9/2017	<0.001	<0.001
9/20/2017	<0.001	<0.001
3/8/2018	<0.001	<0.001
3/13/2019	<0.001	<0.001
9/11/2019	<0.001	<0.001
3/11/2020	<0.001	<0.001
9/16/2020	0.00108	0.00108
3/10/2021	0.0011	0.0011
9/22/2021	<0.001	<0.001
3/9/2022	<0.001	<0.001
9/15/2022	<0.001	<0.001
3/16/2023	<0.001	<0.001
9/21/2023	<0.001	<0.001
3/20/2024	<0.001	<0.001
9/18/2024	<0.001	<0.001
3/19/2025	<0.001	<0.001

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/16/2025, 8:52 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Carbon Disulfide (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Carbon Disulfide Analysis Run 7/16/2025 8:52 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 0.03836

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 0.02637
Adjusted Kruskal-Wallis statistic (H') = 0.03836

Non-Parametric ANOVA

Constituent: Carbon Disulfide (mg/l) Analysis Run 7/16/2025 8:53 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.002	
9/5/2002	<0.001	
3/17/2003	<0.001	
9/4/2003	<0.001	
3/15/2004	<0.001	
9/21/2004	<0.001	
3/14/2005	<0.001	
9/14/2005	0.0056	
3/13/2006	<0.002	
9/20/2006	<0.001	
3/22/2007	<0.001	
9/18/2007	<0.0002	
3/20/2008	<0.0002	
9/11/2008	<0.0004	
3/12/2009	<0.0004	
9/10/2009	<0.0004	
3/9/2010	<0.0004	
9/15/2010	<0.002	
3/10/2011	<0.002	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.001	<0.001
3/22/2016	<0.001	<0.001
9/27/2016	<0.001	<0.001
3/9/2017	<0.001	<0.001
9/20/2017	<0.001	<0.001
3/8/2018	<0.001	<0.001
3/13/2019	<0.001	<0.001
9/11/2019	<0.001	<0.001
3/11/2020	<0.001	<0.001
9/16/2020	<0.001	<0.001
3/10/2021	<0.001	<0.001
9/22/2021	<0.001	<0.001
3/9/2022	<0.001	<0.001
9/15/2022	<0.001	<0.001
3/16/2023	<0.001	<0.001
9/21/2023	<0.001	<0.001
3/20/2024	<0.001	<0.001
9/18/2024	<0.001	<0.001
3/19/2025	<0.001	<0.001

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/16/2025, 8:55 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Chlorobenzene (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Chlorobenzene Analysis Run 7/16/2025 8:55 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 2.149

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 1.292
Adjusted Kruskal-Wallis statistic (H') = 2.149

Non-Parametric ANOVA

Constituent: Chlorobenzene (mg/l) Analysis Run 7/16/2025 8:56 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.002	
9/5/2002	<0.001	
3/17/2003	<0.001	
9/4/2003	<0.001	
3/15/2004	<0.001	
9/21/2004	<0.001	
3/14/2005	<0.001	
9/14/2005	<0.001	
3/13/2006	<0.001	
9/20/2006	<0.0005	
3/22/2007	<0.0005	
9/18/2007	<0.0002	
3/20/2008	<0.0002	
9/11/2008	<0.00022	
3/12/2009	<0.00022	
9/10/2009	<0.00022	
3/9/2010	<0.0002	
9/15/2010	<0.001	
3/10/2011	<0.001	
9/15/2011	<0.001	
3/15/2012	<0.001	
9/19/2012	<0.001	
3/21/2013	<0.001	
9/18/2013	<0.001	
3/19/2014	<0.001	
9/25/2014	<0.001	
9/22/2015	<0.001	<0.001
3/22/2016	<0.001	<0.001
9/27/2016	<0.001	<0.001
3/9/2017	<0.001	<0.001
9/20/2017	<0.001	<0.001
3/8/2018	<0.001	<0.001
3/13/2019	<0.001	<0.001
9/11/2019	<0.001	<0.001
3/11/2020	<0.001	<0.001
9/16/2020	0.00118	0.00118
3/10/2021	0.00136	0.00136
9/22/2021	0.00106	0.00106
3/9/2022	<0.001	<0.001
9/15/2022	0.00108	0.00108
3/16/2023	<0.001	<0.001
9/21/2023	<0.001	<0.001
3/20/2024	<0.001	<0.001
9/18/2024	<0.001	<0.001
3/19/2025	<0.001	<0.001

ND substitution: RL/2.

Analysis of Variance

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data Printed 7/16/2025, 8:57 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Toluene (mg/l)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)

Non-Parametric ANOVA

Constituent: Toluene Analysis Run 7/16/2025 8:56 AM
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

For observations made between 3/29/2002 and 9/11/2019, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 1.507

Tabulated Chi-Squared value = 3.841 with 1 degree of freedom at the 5% significance level.

There were 5 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 1.339
Adjusted Kruskal-Wallis statistic (H') = 1.507

Non-Parametric ANOVA

Constituent: Toluene (mg/l) Analysis Run 7/16/2025 8:57 AM

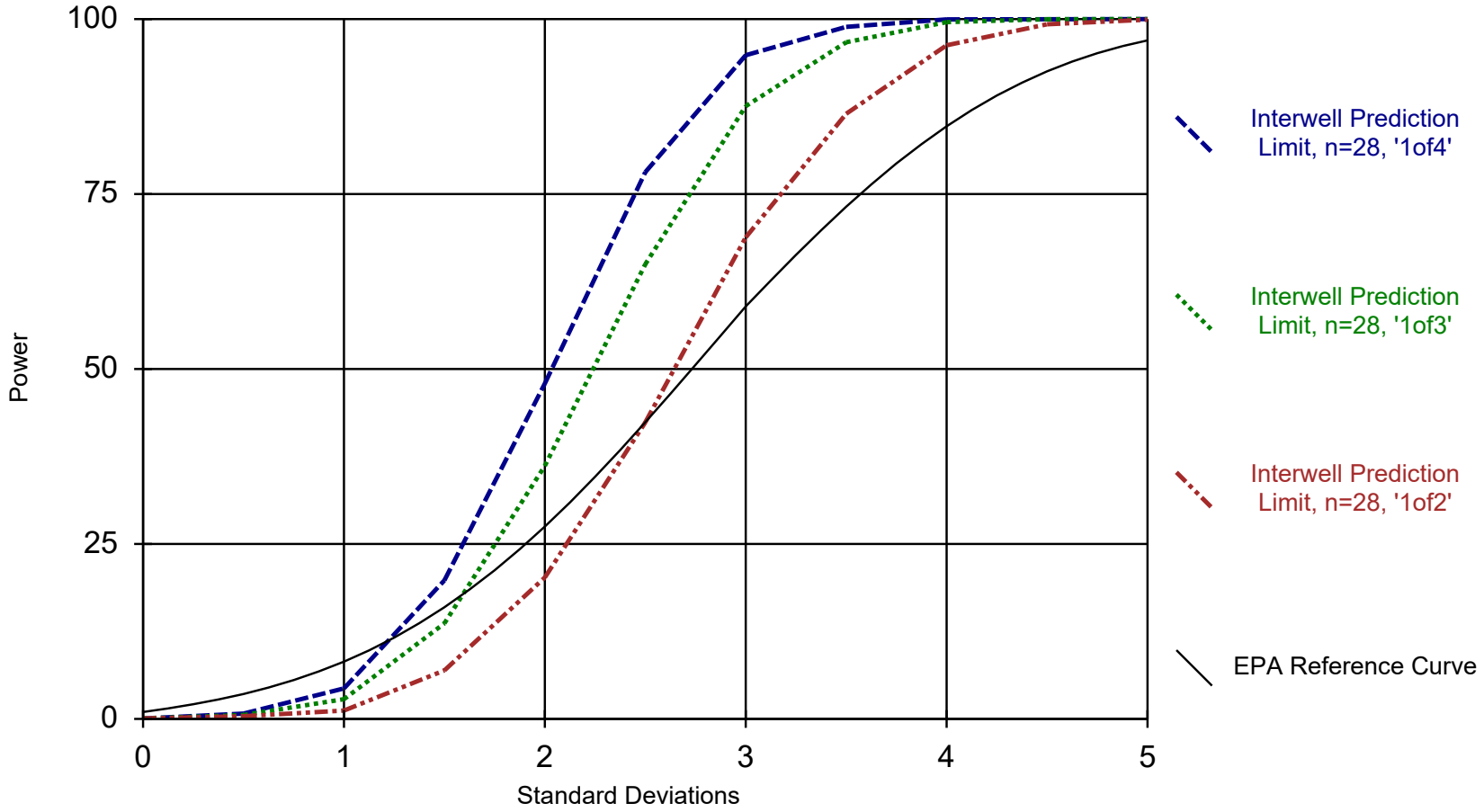
Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

	MW-8	MW-8R
3/29/2002	<0.002	
9/5/2002	<0.001	
3/17/2003	<0.001	
9/4/2003	<0.001	
3/15/2004	<0.001	
9/21/2004	<0.001	
3/14/2005	<0.001	
9/14/2005	<0.001	
3/13/2006	<0.001	
9/20/2006	<0.0005	
3/22/2007	<0.0005	
9/18/2007	<0.00027	
3/20/2008	<0.00027	
9/11/2008	<0.00035	
3/12/2009	<0.00035	
9/10/2009	<0.00035	
3/9/2010	<0.0002	
9/15/2010	<0.001	
3/10/2011	<0.001	
9/15/2011	<0.005	
3/15/2012	<0.005	
9/19/2012	<0.005	
3/21/2013	<0.005	
9/18/2013	<0.005	
3/19/2014	<0.005	
9/25/2014	<0.005	
9/22/2015	<0.005	<0.005
3/22/2016	<0.005	<0.005
9/27/2016	<0.005	<0.005
3/9/2017	<0.001	<0.001
9/20/2017	<0.001	<0.001
3/8/2018	<0.001	<0.001
3/13/2019	<0.001	<0.001
9/11/2019	<0.001	<0.001
3/11/2020	<0.001	<0.001
9/16/2020	<0.001	<0.001
3/10/2021	<0.001	<0.001
9/22/2021	<0.001	<0.001
3/9/2022	<0.001	<0.001
9/15/2022	<0.001	<0.001
3/16/2023	<0.001	<0.001
9/21/2023	<0.001	<0.001
3/20/2024	0.00135	0.00135
9/18/2024	0.00228	0.00228
3/19/2025	<0.001	<0.001

ND substitution: RL/2.

APPENDIX F

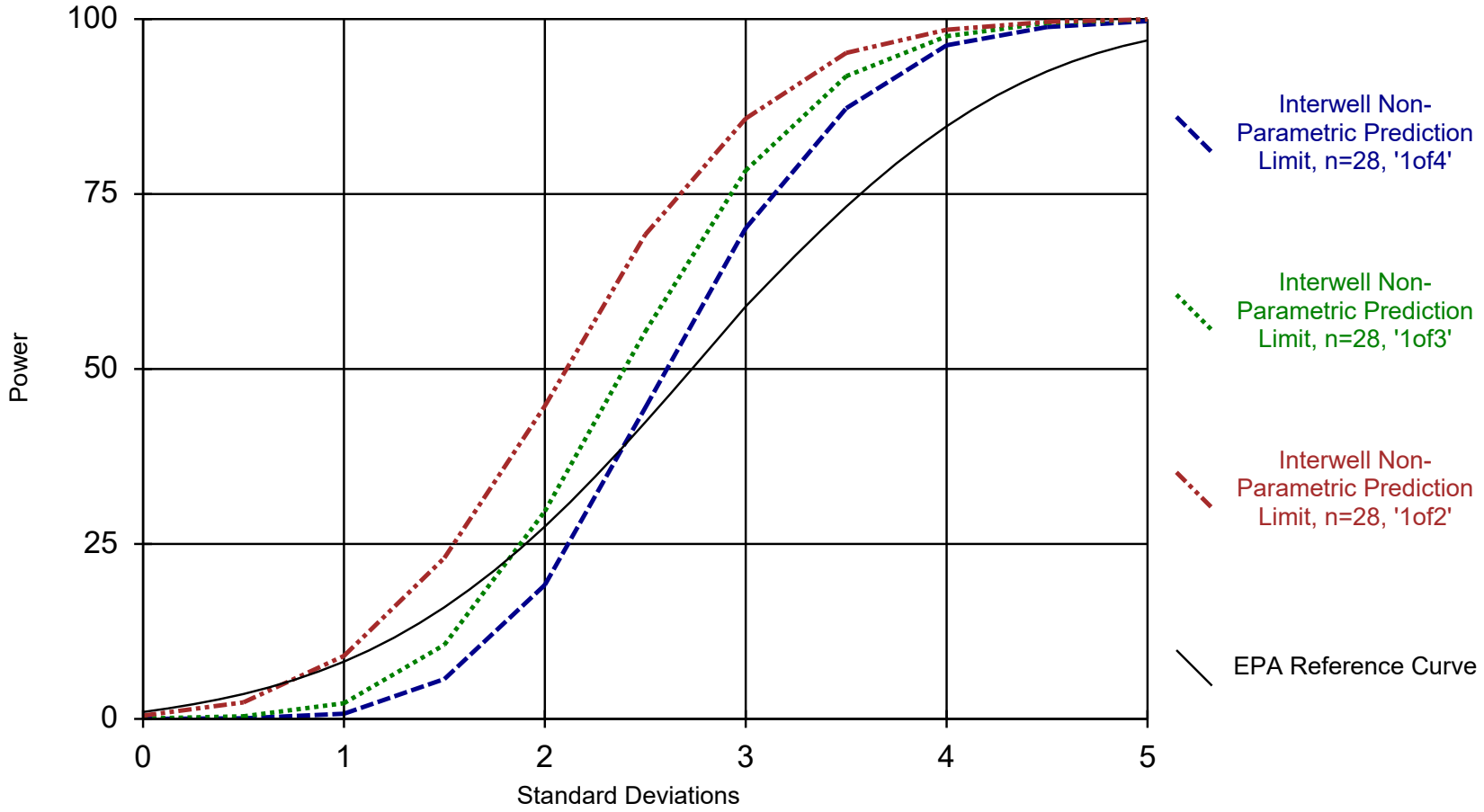
Power Curve



Analysis Run 7/16/2025 10:02 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

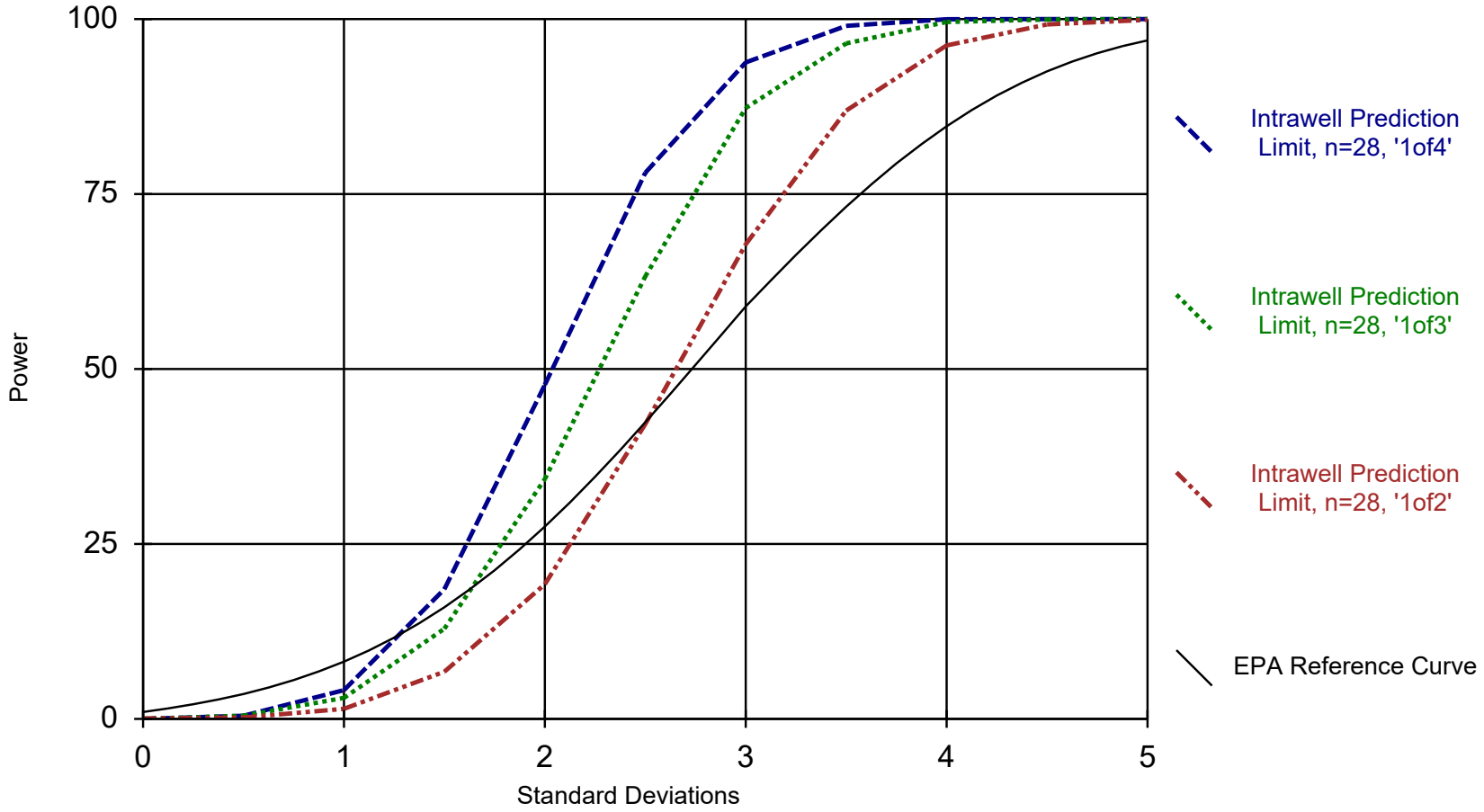
Power Curve



Analysis Run 7/16/2025 10:05 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

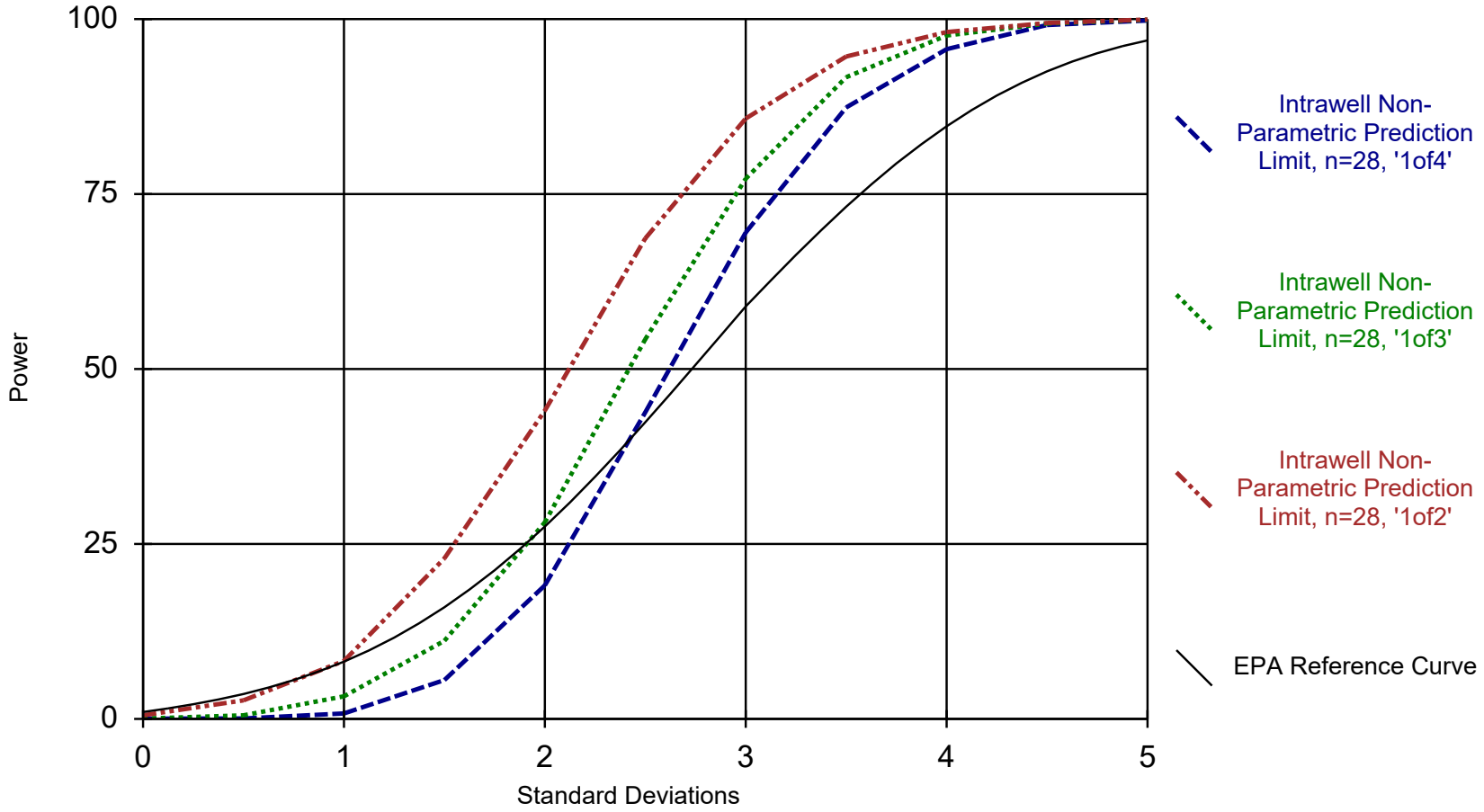
Power Curve



Analysis Run 7/16/2025 10:06 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

Power Curve



Analysis Run 7/16/2025 10:07 AM

Scottsboro Landfill Client: Scottsboro Solid Waste Data: Scottsboro LF Statistical Data

APPENDIX G

August 9, 2019

Alabama Department of
Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463

Attention: Mr. Paul Searcy
Solid Waste Branch

RE: Monitoring Well Abandonment Plan
Scottsboro Landfill
Scottsboro, Jackson County, Alabama
Permit No.: 36-02

Dear Mr. Searcy,

On behalf of Scottsboro Landfill, Highland Technical Services, Inc. (HTSI) is submitting this Scottsboro Landfill Monitoring Well Abandonment Plan to conduct monitoring well abandonment activities associated with the recently submitted and pending approval, proposed landfill expansion at the Scottsboro Landfill, Solid Waste Disposal Facility (SWDF). A request for permit modification was submitted to the Alabama Department of Environmental Management (ADEM) by CDG Engineers and Associates, Inc. in December 2018.

The Site currently consists of two adjacent landfill cells, one of which is permitted for the disposal of solid waste from municipal and industrial waste and the other for construction and demolition wastes. The proposed landfill expansion will include the addition of one landfill cell adjacent to the two existing cells. An existing compliance monitoring well (SD-1) is located within the proposed landfill expansion cell and will require abandoning prior to landfill cell construction. With the anticipated approval of the aforementioned request for permit modification, HTSI has prepared a monitoring well abandonment work plan for monitoring well SD-1.

1.0 SITE INFORMATION AND BACKGROUND

The Scottsboro Landfill, Solid Waste Disposal Facility (SWDF), Permit Number 36-02, is located at 650 County Road 412 in Hollywood, Alabama in the Southwest ¼ of the Southwest ¼ of Section 20, the Northwest ¼ of the Northwest ¼ of Section 29, and the Southwest ¼ of the Northwest ¼ of Section 29, Township 3 South, Range 7 East in Jackson County, Alabama. The size of the entire facility is approximately 105.7 acres, while the size of the disposal area is approximately 40.3 acres with a maximum average daily volume of 350 tons/day. There are two existing cells at the current Site, one of which is permitted for the disposal of solid waste from municipal and industrial waste and the other for construction and demolition wastes. The Site accepts and disposes of solid waste from locations including Jackson, Madison, Marshall, and DeKalb Counties. These solid waste streams include non-hazardous, non-infectious, putrescible and non-putrescible wastes such as household garbage, commercial waste, industrial waste, and construction and demolition wastes. No infectious or hazardous waste materials are handled or disposed of at the Site.

2.0 PROPOSED MONITORING WELL ABANDONMENT ACTIVITIES

The Site currently maintains seventeen (17) monitoring wells for the collection of groundwater samples for the purpose of monitoring groundwater quality. Based on the location of the proposed landfill cell, monitoring well SD-1 will require abandonment. Monitoring well SD-1 is one of sixteen (16) compliance wells, while monitoring well BG-1 remains the only background well for groundwater quality comparisons. Monitoring well SD-1 is a Type II groundwater monitoring well, constructed using a 2-inch diameter Schedule 40 PVC riser casing and equivalent diameter 0.010-inch slotted PVC screen. A sand filter pack was installed to an elevation at least one foot above the well screen with a one-foot bentonite seal installed above the filter pack. The remainder of the annulus was grouted to the surface using neat cement. The well was completed with a protective steel cover, concrete pad, and locking well cap. Table 2.0 on the following page summarizes the construction details and location of monitoring well SD-1.

TABLE2.0 MONITORING WELL CONSTRUCTION SUMMARY

Monitoring Well ID	Measuring Point Elevation (ft-amsl)	Well Diameter (inches)	Screened Interval (ft- bgs)	Total Depth of Well (ft-btoc)	Location (Latitude, Longitude)
SD-1	626.97	2.0	29.0 - 49.0	50.30	34.754968N, -85.918921W

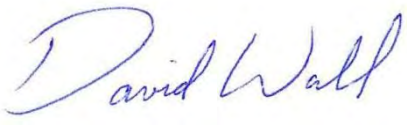
ft-amsl – feet above mean sea level
ft-btoc – feet below top of casing

Following ADEM's approval, HTSI will abandon monitoring well SD-1 in accordance with the most recent edition of the *Alabama Environmental Investigation and Remediation Guidance (AEIRG)*. The recommended abandonment method is as follows:

- The well will be measured for total depth and depth to static water level prior to abandonment.
- The 2-inch diameter well will be grouted in place using a cement/bentonite grout as a primary sealing material and placed in the well casings from the bottom up through a tremmie pipe.
- The protective cover and pad for the monitoring well will be removed, the riser casing cut approximately one foot below ground surface (ft-bgs), and the excavation filled with concrete forming a permanent plug over the well casing.
- The remainder of the surface will be capped with material to match the surrounding surface.
- Records of the abandonment procedure will be kept for the well. The record of abandonment will include, at a minimum, the quantity of sealing materials used, final measurements of static water levels and total measured depths, and any changes made to the well during the sealing.

Upon completion of the field activities, a letter report documenting abandonment activities will be submitted to your office. HTSI appreciates your consideration in this matter. If you have any questions concerning this submittal or require any additional information, please contact our office at (205) 985-4874.

Sincerely,
HIGHLAND TECHNICAL SERVICES, INC.



David Wall, REM
Senior Project Scientist

Attachments: Figure 1 Site Location Topographic Map
Figure 2 Monitoring Well Location Map

cc: Sarah Sightler
CDG Engineers and Associates, Inc.
1840 E 3 Notch Street
Andalusia, AL 36421

Director, RCRA Division
USEPA Region 4
Atlanta Federal Center
61 Forsyth St
Atlanta, GA 30303-3104

Stacey Ledwell, Director
Scottsboro Solid Waste Department
27150 John T. Reid Parkway
Scottsboro, AL 35768

Legend

Approximate Expansion Boundary

USGS Quad Id: 34085-G8
USGS Quad Name: Wannville, Alabama

Highland Technical Services, Inc.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE:

Site Location Map

Scottsboro Landfill

Scottsboro, Alabama

SCALE:

0 1,000 2,000

1 inch = 2,000 feet

FIGURE NO.	1
PROJECT NO.	18-030407.03
DRAWN BY	JTB
DATE DRAWN	8/6/2019

Legend

- Monitoring Well Location

Highland Technical Services, Inc.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE: Monitoring Well Location Map

Scottsboro Landfill
Scottsboro, Alabama

SCALE: 0 250 500
1 inch = 500 feet

FIGURE NO. 2

PROJECT NO. 18-030407.03

DRAWN BY JTB

DATE DRAWN 08-06-2019

June 2, 2020

Alabama Department of
Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463

VIA ELECTRONIC MAIL

Attention: Ms. Nichole Shaw
Solid Waste Branch

RE: Monitoring Well Abandonment Letter
Scottsboro Landfill
Scottsboro, Jackson County, Alabama
Permit No: 36-02

Dear Ms. Shaw,

This letter serves as documentation of the work performed on May 20, 2020 to abandon one groundwater monitoring well SD-1 at the Scottsboro Landfill, Solid Waste Disposal Facility (SWDF), Permit No. 36-02, in accordance with the *Monitoring Well Abandonment Plan*, dated August 12, 2019.

On May 20, 2020, HTSI personnel mobilized to the site to oversee the abandonment of monitoring well SD-1. Prior to abandonment activities, the total depth and depth to groundwater of the monitoring well was gauged. Information regarding the monitoring well is provided in Table 1.0 below.

TABLE 1.0 - ABANDONED MONITORING WELL SUMMARY

Monitoring Well ID	Well Diameter (inches)	Screened Interval (ft-bgs)	Measured Total Depth (ft-btoc)	Static Water Level (ft-btoc)	Location (Latitude, Longitude)
SD-1	2-inch	29.0-49.0	50.21	19.75	34.754968N, -85.918921W

ft-bgs – feet below ground surface
ft-btoc – feet below top of casing
NA – Not available

As described in the *Monitoring Well Abandonment Plan*, the protective cover and surrounding bollards for the monitoring well were removed. A cement/bentonite grout was used as a primary sealing material and was placed in the well casing from the bottom up through a tremie pipe to ensure the boring was adequately sealed. At least three feet of riser casing was removed and the excavation filled with a cement grout forming a permanent plug over the well casing. The remainder of the surface was finished with a material matching the surrounding surface.

Highland Technical Services, Inc. appreciates your consideration in this matter. If you have any questions concerning this submittal or require any additional information, please contact me at dwall@htsienv.com or at (205) 985-4874.

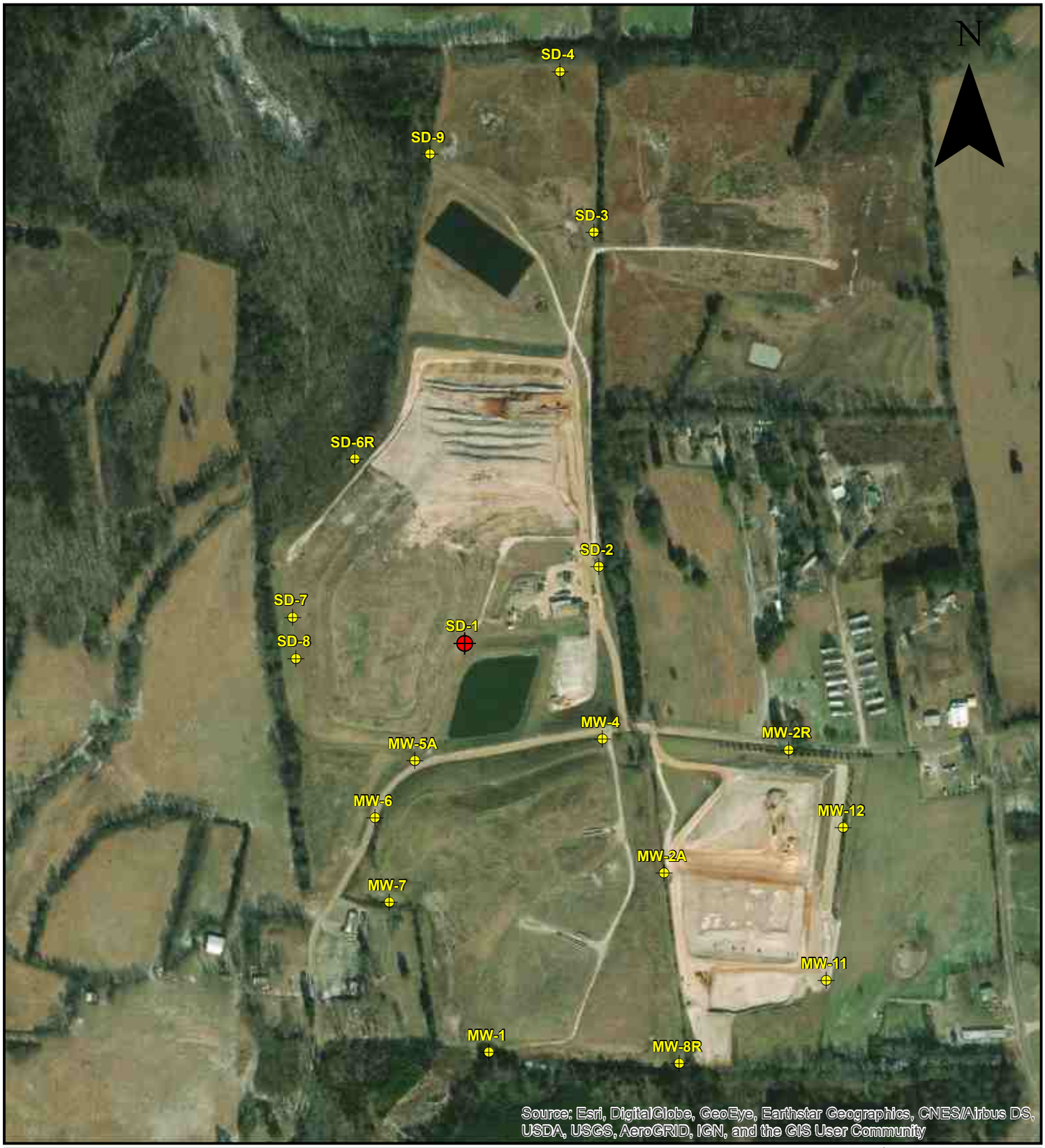
Sincerely,
HIGHLAND TECHNICAL SERVICES, INC.

David Wall, REM
Senior Project Scientist

Attachments: Figure 1 Monitoring Well Location Map

cc: Daniel Wells
CDG Engineers and Associates, Inc.
1840 E 3 Notch Street
Andalusia, AL 36421

Stacy Ledwell, Director
Scottsboro Solid Waste Department
27150 John T. Reid Parkway
Scottsboro, AL 35768



Legend

- Abandoned Monitoring Well
- Monitoring Well

Highland Technical Services, Inc.

528 MINERAL TRACE
HOOVER, AL 35244
(205) 985-4874

TITLE:
Monitoring Well Location Map

Scottsboro Landfill
Scottsboro, Alabama

FIGURE NO. 1

PROJECT NO. 18-030407.03

DRAWN BY AJH

SCALE: 0 250 500
1 inch = 500 feet

DATE DRAWN 05-21-2020

FEE SHEET FOR SOLID WASTE PERMITS

ADEM No.: 10851

Applicant: City of Scottsboro
Location: Scottsboro Landfill
Jackson County

Permit No.: 36-02 Date Application Received: 05/14/19

Permit Fees Required	Initial Issuance	Modification	Reissuance	Total
Municipal Solid Waste Landfill	$83,880		$18,635	
Minor Modification [1]		$3,275		
Major Modification [2]		$32,615		$32,615
Construction/Demolition Landfill	$7,145		$2,700	
Minor Modification [1]		$1,460		
Major Modification [2]		$2,915		
Industrial Landfill	$12,670		$4,075	
Minor Modification [1]		$1,460		
Major Modification [2]		$4,375		
Compost Facility	$4,860		$1,835	
Minor Modification [1]		$1,225		
Major Modification [2]		$1,945		
Environmental Covenants				
Engineering Controls	$6,425	$1,610		
Registry Fee for Class 1 Controls	$13,705	$635		
Registry Fee for Class 2 Controls	$9,420	$635		
Registry Fee for Class 3 Controls	$5,245	$635		

Additional Fees				
Geological Review:	$4,865	$3,275	$3,275	$3,275
Greenfield Site:	$1,610			
Public Hearing:	$8,450	$8,450	$8,450	
Name Change/Transfer:		$800		
Variance Request	$1,460	$1,460	$1,460	
Solid Waste Disposal Notification	$215	$215	$215	

[1] These are modifications as included in ADEM Admin. Code Rule 335-13-5-.06(2)
[2] These are modifications as included in ADEM Admin. Code Rule 335-13-5-.06(1)

RECEIVED
MAY 21 2019
ADEM
EDDS

Total Fee Due:	$35,890
Amount Submitted with Application:	$35,890
Amount Received:	$35,890
Amount to be Billed:	$0
Amount Received:	35,890
Date Received: JHC	5-23-19
Amount to be Refunded:	⊘

"103358"

Fee Schedule Prepared by: [signature] Date: 5/21/19
Fee Schedule Reviewed by: GSS Date: 5/24/19