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December 6, 2024

Reference No. 626

Mr. Larry Garrett  
County Manager  
Union County  
65 Courthouse Street, Suite 3  
Blairsville, GA 30512

Dear Mr. Garrett:

Re: Proposal for 2025-2027  
Union County Landfill  
Union County, GA

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Environmental Management Associates, LLC (EMA) is pleased to submit this cost estimate to Union County for the annual contract services at the above-referenced facility (Facility). The proposed scope of work and associated estimated costs are detailed in the following sections. We have enjoyed a long association with Union County and Mr. Reid Dyer of Hussey Gay Bell (HGB - formerly Hayes James & Associates) and hope that we can continue this partnership on this project and others. As discussed, this proposal is intended to remove the burden of the field work, reporting, and administrative duties from HGB while still retaining the relationship between Union County and HGB. As such, EMA proposes to perform all field and reporting activities and invoice the County directly.

### SCOPE OF WORK

The annual contract tasks that EMA has been providing for this project include semiannual groundwater and surface water monitoring and quarterly methane monitoring. This proposal includes all labor, equipment, and materials to provide all monitoring, report preparation, hardcopy report, Georgia EPD correspondence/interaction, and electronic reporting to Georgia EPD via GEOS.

#### Task 1 - Groundwater and Surface Water Monitoring

The existing 16 monitoring wells will be purged and sampled on a semiannual basis, typically in April and October, of each year by the low-flow purging and sampling technique referenced in USEPA Region IV's SESD Operating Procedures - Groundwater Sampling dated April 2023.

The groundwater samples for the First Semi-annual event (Spring) will be submitted to the independent contract laboratory for the Appendix I volatile organic compounds (VOCs) by SW-846 method 8260 and Appendix I metals by SW-846 method 6010/7000 series on all 16 wells, monitored natural attenuation (MNA) parameters (total alkalinity, chloride, dissolved methane, sulfate, total organic carbon, carbon dioxide, and ferrous iron).

The groundwater samples for the Second Semi-annual (Fall) event will be submitted to AES for the Appendix I VOCs by SW-846 method 8260 and Appendix I metals by SW-846 method 6010/7000 series only. EMA has also included the price for trip blank samples to monitor for volatile organic compound cross-contamination between samples during shipment and storage and four field duplicate samples for quality control assessment purposes.

In addition to the groundwater sampling during both events, surface water samples will be collected from up to four surface water locations. Field measurements of dissolved oxygen, pH, conductivity, and temperature will be performed concurrently with sample collection. Seven surface water samples will be submitted to AES for analysis of chemical oxygen demand (COD), chloride, total organic carbon (TOC), cyanide, and select metals.

For the Spring 2026 monitoring event we are also required to analyze groundwater samples from six monitoring wells (GWA-02, GWC-3, GWC-8, GWC-11, GWC-13, and GWC-14R) for Appendix II parameters which includes an expanded list of semi-volatile compounds, PCBs, pesticides, and herbicides as required by EPD. This Appendix II monitoring must be performed every Spring every three years to assess if additional compounds are potentially being released.

Following receipt of the analytical reports, statistical data evaluations will be performed. A general summary of the EPD requirements for statistical data evaluations for landfill groundwater monitoring is as follows:

- i) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method will include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent; and
- ii) comparison of the monitoring results with water quality criteria to identify constituents which are close to and/or have exceeded the water quality criteria.

Groundwater historical data and the most recent groundwater results will be analyzed using EMA's registered copy of the statistical software, ChemStat® version 2.1, to determine if a statistically significant increase (SSI) in concentrations of contaminants are present in the groundwater from the Facility. The Kruskal-Wallis Test is one of the accepted methods that can be used to determine if an SSI in contaminant concentrations is present within the downgradient groundwater monitoring wells when compared to the values from the background (upgradient) monitoring wells. ChemStat® software conducts two comparisons, 1 percent and 5 percent individual well comparison error levels. The 1 percent error level is compliant with the USEPA Statistical Analysis Final Guidance and will be used by EMA for evaluation purposes.

An electronic copy will be uploaded in GEOS to EPD.

### Task 2 - Quarterly Methane Monitoring

On a quarterly basis, each of the 14 barhole punch locations will be monitored for the presence of methane, lower explosive level (LEL), and oxygen in addition to the three structures on-site (Transfer Building, Recycling Center and Scale House). The barhole punch locations will be advanced to a minimum of three feet (ft) below ground surface (bgs) and allowed to stabilize up to 20 minutes as required by EPD.

Within 10 days of the methane monitoring, the results will be submitted to EPD via GEOS.

### Estimated Lump Sum Costs

#### 2025

- First Semi-Annual Monitoring - \$18,000;
  - Second Semi-Annual Event - \$15,500
  - Quarterly Methane Monitoring and reporting - \$6650
- Subtotal = \$40,150

#### 2026

- First Semi-Annual Monitoring + Appendix II analyses - \$18,000 + \$6,500
  - Second Semi-Annual Event - \$15,500
  - Quarterly Methane Monitoring and reporting - \$6650
- Subtotal = \$46,650\*

#### 2027

- First Semi-Annual Monitoring - \$18,000
  - Second Semi-Annual Event - \$15,500
  - Quarterly Methane Monitoring and reporting - \$6650
- Subtotal = \$40,150

Note \* - This cost includes the Appendix II monitoring required every 3 years unless a detection is observed per EPD March 18, 2017. Unless a detection is observed, Appendix II monitoring will not be required again until Spring 2026 and again in Spring 2029. This proposal does not reflect any additional work required to address any exceedances or Performance Evaluations that may be required. These tasks can be addressed separately.

If this proposal is acceptable to you with payment within 45 days of invoice, please sign and return this proposal to our office at [jschwaller@emallc.net](mailto:jschwaller@emallc.net).

December 6, 2024

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If you have any questions regarding this cost estimate, please contact the undersigned at (770) 271-4628.

Yours truly,

Environmental Management Associates, LLC

John O. Schwaller, PG  
GA Reg PG 1617

Encl.  
BC/bc/02

ACCEPTED AND AGREED:

UNION COUNTY  
Company Name

Harold Collins, Commissioner  
Owner / Representative Name

Harold Collins  
Duly Authorized Signature

3/18/2025  
Date