

SOWMYA BULUSU, P.E.

Education

MS – University of Maryland, Geo-environmental Engineering, 2005

BTech – Jawaharlal Nehru Technological University-India, Civil Engineering, 2003



Professional Licenses

Professional Engineer – Georgia, #36599

Specialty Certifications

40-Hour Hazardous Waste Operations (OSHA 29 CFR 1910.120)

Professional Affiliations

Solid Waste Association of North America (SWANA)

Professional Experience

Ms. Bulusu is a registered professional engineer with 15 years of experience as a project manager and design engineer for numerous landfill, environmental, and civil engineering projects. Her work focuses on waste disposal facility siting, design, permitting, and construction; design, permitting, and construction of landfill gas collection and utilization systems; landfill gas collection system operation and monitoring and air permitting and compliance; renewable energy projects; and construction management.

Ms. Bulusu has served as the project manager and engineer of record on numerous landfill and landfill gas permit applications and construction drawing preparations for municipal solid waste, construction and demolition waste, and inert landfills. She has performed professional duties and served as the engineer of record on several projects involving design, construction, operation, and maintenance of landfills gas collection and control systems (GCCS) for municipal solid waste landfills; GCCS construction quality assurance (CQA); investigation and analysis of GCCS operation and performance; evaluation of the feasibility of landfill-gas-to-energy (LFGTE) projects; and landfill air permitting and compliance reporting projects.

Ms. Bulusu is currently a Senior Project Manager with SCS and the SCS-Atlanta office manager. Her representative project experience includes:

Landfill Design, Permitting, and Construction

DeKalb County, GA, Seminole Road Landfill, Phase III Unit 2 Cells 1 and 2 Construction Drawings, Bid Documents and Specifications, and Construction Management & Certification. Project Manager and Certifying Engineer for Cells 1 and 2 totally 20 acres. The liner system included secondary containment of 60-mil HDPE, drainage geocomposite and primary containment of GCL, 60-mil HDPE geomembrane and drainage geocomposite. The project included construction of a leachate tank

and concrete secondary containment, and access roads. Construction is ongoing for the project and is anticipated to be completed in 2020.

DeKalb County, GA, Seminole Road Landfill, Minor Modifications to the Solid Waste Permit and Five-Year Permit Review. Served as project manager and engineer of record for minor modifications to the solid waste permit for the landfill. Revised the Design and Operation plan drawings as part of the new solid waste regulations in Georgia requiring a five-year permit review for the landfill. Other minor modifications include a request to encroach the landfill buffer for access to an offsite adjacent borrow area, revision of the methane monitoring plan network, and addition of an alternative liner system option for the landfill base liner (ongoing).

Waste Management, Inc., Engineering and Construction Support Services, Turkey Run Landfill, Georgia. Prepared construction drawings and bid documents for Cells 3A and 3B South of the Turkey Run Landfill and provided engineering support services during construction. Served as design engineer of record for preparing minor permit modification applications that included changes to the final cover system, liner and leachate collection system, CQA plan, and environmental monitoring plan. The changes were requested to improve design components and enhance operations. Prepared construction drawings and storm-water calculations for a large soil borrow area and associated access road.

Waste Management, Inc., Final Cover System Repair Construction Drawings and Construction Support, Bolton Road Landfill, Georgia, Engineer of Record. Served as the engineer of record and prepared construction drawings and bid documents for repairs to the constructed final cover system at the Bolton Road Landfill. Provided engineering support during construction.

Dalton-Whitfield Solid Waste Management Authority, Inert Landfill Expansion Permitting and Design, Westside Inert Landfill, Georgia. Design Engineer. Served as the design engineer of record for design of an expansion to the existing Westside Inert Landfill, located in Rocky Face, Georgia, and owned and operated by the Dalton-Whitfield County Regional Solid Waste Management Authority. The lateral expansion to the existing inert landfill consisted of demonstrating compliance with the siting requirements, design of the cell layout, surface water management system, and perimeter methane monitoring network, to meet the new GA EPD rules for inert landfills.

Catoosa County, Inert Landfill Certification, Catoosa County Inert Landfill, Georgia, Engineer. Conducted an evaluation and submitted documentation for the existing Catoosa County Inert Landfill, located in Ringgold, Georgia. The certification documents submitted to Georgia Environmental Protection Division (GA EPD) allowed the inert landfill to remain in operation under Permit-by-Rule guidelines.

Waste Management, Inc., Design and Permitting of Exposed Geomembrane Cover, Hickory Hill Landfill, South Carolina. Project Manager. Served as project manager and led the design team for the preparation of a permit application for an exposed geomembrane cover (EGC) system, as an alternative final cover system, for the Hickory Hill Landfill located in Jasper County, South Carolina. In addition to the EGC, the application included changes to the landfill final cover and liner system grades to enhance landfill operations and access, reduce impacts to existing on-site facilities, and improve the surface water management system. The design tasks included evaluation and selection of the geomembrane material, performing wind uplift and anchoring system design calculations, preparing design drawings including plan and detail sheets for the liner and leachate collection system modifications, final cover and stormwater components, and supporting construction quality assurance closure/post closure plans. The design was prepared and submitted as a permit modification application for review and approval by South Carolina Department of Health and Environmental Control (SC DHEC), and was approved for a Research, Development, and

Demonstration Permit (RD&D Permit) and will be provide a full permit after the two-year RD&D permit period expiration.

Waste Management, Inc., Engineering and Construction Support Services, Hickory Hill Landfill, South Carolina. Project Manager. Served as project manager and prepared construction drawings and bid documents for the overlay liner system and central drainage ditch consisting of an exposed geomembrane cover. The construction drawings consisted of grading plans and detail drawings associated with the overlay liner and drainage ditch. Provided engineering support during construction.

Waste Management, Inc., Cell Construction and Final Closure Drawings, Richland County Landfill, South Carolina. Project Manager. Served as project manager and design engineer for the preparation of construction drawings for. The design included tie-in details to the adjoining landfill cell and final cover, hydraulic design and sizing of the interim and final surface water management features of the landfill, including ponds, ditches, culverts, etc.

Honeywell, Sediment Consolidation Area for Containment of Dredge Material, Onondaga Lake, New York. Project Engineer. Served as the project engineer for the design of the final cover and associated stormwater management system for the sediment consolidation area (SCA) for the permanent disposal of contaminated dredge material (Solvay waste) from the Onondaga Lake. Managed and performed design tasks including design of a geosynthetic final cover system, stormwater management system design, slope stability analyses, and development of engineering drawings, plans, and technical specifications.

Honeywell, Design and Permitting of Process Pond Interim Cover, Uranium Conversion Plant, Illinois. Design Engineer. Served as the lead design engineer for interim cover system design and permit documents for process ponds that contain Calcium Fluoride waste, at a Honeywell uranium conversion plant located in Metropolis, IL. The facility has an active NRC license to convert uranium ore concentrates to uranium hexafluoride, while the ponds are managed under RCRA. The design tasks included evaluation and selection of the geomembrane material, performing uplift calculations and design of an anchoring system, performing Stormwater management system design and pond overtopping calculations, preparing engineering drawings, and preparation of a construction quality assurance (CQA) plan, technical specifications, an operation, maintenance, and monitoring (OM&M) plan, and a closure/post closure plans. Also prepared construction drawings, technical specifications, and bid documents for construction of the pond interim cover system.

Waste Management, Inc., Blast Densification Program Design, Oakridge Landfill Lateral Expansion, South Carolina. Project Manager. Served as the project manager and performed the design of the ground improvement zones for blast densification of a 15-ft thick, 30-ft deep very loose and saturated sand layer underlying the Oakridge Landfill Lateral Expansion site located in South Carolina. The effectiveness of the blast densification program was originally assessed as part of the original Oakridge Landfill design and the program was extended to the Oakridge Landfill Lateral Expansion. The objective of the blast densification program was increasing the density and shear strength of the sand, and thus decreasing the potential for liquefaction under seismic loading conditions. Performed static and seismic 2-D slope stability, and static 3-D slope stability analyses to design the extents of the blast densification zones for the lateral expansion.

Multiple Clients, Landfill Expansion Permit Designs for Big River Landfill, Mississippi; Tontitown Landfill, Arkansas; TVA Kingston Peninsula Disposal Facility, Tennessee; Grady Road Landfill, Georgia; and Richland County Landfill, South Carolina. Engineer. Part of the design team for permit applications. Responsibilities included preparation of several calculation packages such as Surface Water Management and Analyses, Slope Stability Analyses, Settlement Analyses, Hydraulic Evaluation of Landfill Performance, Leachate Management System Pipe Design, Leachate

Transmission System Design, Leachate Pump Design. Helped in preparation of base grading plans, design details, engineering reports, and technical specifications and construction quality assurance plans.

Landfill Gas Control, Air Permitting, and Renewal Energy

Multiple Sites (2017-2020), Republic Services and Advanced Disposal Services, Landfill Gas Collection and Control System (GCCS) Expansion Designs and Construction Engineering Services, Georgia, Alabama and Louisiana. Sites include, Republic Services - Pine Ridge, Oak Grove, Richland Creek, and Hickory Ridge Landfills in Georgia; Advanced Disposal Services – Eagle Point, Wolf Creek, and Evergreen Landfills in Georgia, Stone's Throw, Star Ridge, Cedar Hill, and Turkey Trot Landfills in Alabama, East Baton Rouge Parish North Landfill in Louisiana. Design and Certification Engineer for GCCS expansions in Georgia. Project Manager and design lead for GCCS Expansions in Alabama and Louisiana. Tasks included evaluation of existing GCCS coverage, design of new and replacement vertical extraction wells and horizontal collectors and header / lateral piping for compliance with NSPS regulations, evaluation of liquid levels in the wells and design of a liquids extraction system (air and forcemain lines and sumps). Oversaw construction quality assurance services during installation of the systems. Reviewed and approved submittals, shop drawings, and provided guidance on field changes, for production of a final certification report of construction.

Santek Waste Services, Bradley County Landfill, Gas Collection and Control System Design and Final-Buildout Design, McDonald, TN. Project manager and design lead for a GCCS design for the final buildout of the landfill, and GCCS construction drawings for the current phase of the landfill.

DeKalb County Public Works Sanitation Division, Design, Operation and Maintenance, and Monitoring of Gas Collection and Control Systems (GCCS), DeKalb County Seminole Road Landfill, Georgia. Design Engineer. Served as design engineer for preparing the final GCCS Design Plan for the Seminole Road Landfill owned and operated by DeKalb County Sanitation Division, located in Ellenwood, Georgia. Tasks performed included preparation of drawings showing layout of vertical gas extraction wells, gas collection laterals and headers, condensate management structures, and GCCS component details; development of gas generation curves; and performing calculations to estimate gas generation rate, pipe sizing, and headloss through pipes. Served as the Engineer of Record for preparation of construction drawings Responsible for managing GCCS Operation and Maintenance (O&M) activities such as compliance monitoring, maintenance, shutdown response, coordination with landfill gas utilization facility operators (landfill gas to energy and landfill gas to compressed natural gas facilities), and regulatory reporting for the landfill. Specific O&M activities managed include quarterly and supplemental perimeter methane monitoring, surface emission monitoring, monthly GCCS and Perimeter Gas Control System monitoring and adjustments, GCCS flare/blower shutdown response, and GCCS maintenance. The work involved compiling and reviewing the monitoring data, identifying and promptly addressing issues and exceedances, and preparing reports for submission to the County and GA EPD.

DeKalb County Public Works Sanitation Division, GCCS Construction Drawings, Bid Package Development, and Construction Support, Seminole Road Landfill, Georgia. Design Engineer. Served as the design engineer for developing construction drawings and bid documents for the GCCS expansion work for Phase 2A, and Phase 3 Unit 1 at the Seminole Road Landfill. Responsible for preparing construction drawings showing the layout of temporary and permanent gas wells and piping system, detailed pipe profiles, and GCCS component details; developing the technical specifications; and preparing the Bid Form and Engineer's Cost Estimate. Assisted in preparing the Invitation to Bid document submitted to potential bidders for the construction project. Evaluated the technical submittals received as part of the bid process and prepared a technical evaluation memo for the client. Provided engineering support and CQA certification during construction. Reviewed

material submittals and shop drawings, evaluated and approved design modifications and change requests, conducted weekly construction progress meetings with the contractor and client, reviewed contractor invoices, and prepared the as-built report and drawings.

Waste Management, Inc., GCCS Design Plans for Superior Landfill and Recycling Center, Georgia; Richland County Landfill, South Carolina; and Catawba County Landfill, North Carolina. Design Engineer. Served as design engineer for preparation of final GCCS Design Plans in compliance with NSPS requirements. Tasks performed included preparation of drawings showing layout of vertical gas extraction wells, gas collection laterals and headers, condensate management structures, and GCCS component details; development of gas generation curves; and performing calculations to estimate gas generation rate, pipe sizing, and headloss through pipes.

Waste Management, Inc., GCCS Phasing Plans (also referred to as Lifecycle or Master) Plans for Superior Sanitary Landfill and Recycling Center, Georgia; Oakridge Landfill, South Carolina; Hickory Hill Landfill, South Carolina; and Richland County Landfill, South Carolina. Engineer. Prepared GCCS Phasing Plans including the anticipated waste filling plans. The GCCS phasing plans included engineering drawings that illustrated temporary and final GCCS components for different stages of the landfill operational life, showed which measures to install and which measures to abandon for every phase, and provided GCCS construction quantity estimates for each phase. The phasing plans emphasized system requirements to maintain landfill NSPS compliance.

Multiple Clients, Conceptual GCCS Design Plans for J.E.D Landfill, Florida; Grady Road Landfill, Georgia; Anguilla County Landfill, St. Croix, U.S. Virgin Islands; and Richland Landfill Lateral Expansion, South Carolina. Engineer. Developed conceptual GCCS Design Plans for submittal to the solid waste division regulators as part of expansion permit applications. Design plans included final GCCS layout plans and detail drawings including vertical and horizontal gas collection systems, header and lateral piping, condensate management system, and blower/flare location.

DeKalb County and City of Macon, Investigation and Analysis of GCCS Performance for Seminole Road Landfill, DeKalb County, Georgia; Macon-Walker MSW Landfill, Macon, Georgia; and Big Run Landfill, Kentucky. Engineer. Performed a comprehensive GCCS evaluation. Investigated the blockage of gas extraction well screens in wells located in the waste and soil using water level measurements. Performed subsurface methane migration investigation and surface emission monitoring testing for compliance reporting. The work included an evaluation of the gas generation and gas recovery rates; original GCCS design; GCCS performance and operation; available vacuum in the system and head losses; and recommendations for improvement of the GCCS.

Athens-Clarke County, Landfill Gas to Energy Feasibility Study, Athens-Clarke County Landfill, Georgia. Engineer. Performed a feasibility study to evaluate LFGTE project development. The option of generating pipeline quality natural gas generation and sale was also evaluated. Calculated Net Revenues, Cash Flows, and Break-even Periods for different options and provided recommendations.

Republic Services, Inc., Design and Installation of In-Waste Passive Vent System, East DeKalb C&D Landfill, Georgia. Project Engineer. Designed a passive in-waste vent system for the East DeKalb C&D landfill, owned and operated by Republic Services Inc., for landfill gas migration control. Supervised installation of the vent system, and prepared and submitted the installation and monitoring report to GA EPD.

Dalton-Whitfield Solid Waste Management Authority, Methane Migration Control System Design and Installation, Westside Landfill, Georgia. Engineer of Record. Served as the engineer of record for design of an active in-soil perimeter gas extraction system to control landfill gas migration, at the Westside Landfill, owned and operated by Dalton-Whitfield Regional Solid Waste Management Authority. The 47-acre Westside Landfill, located in Rocky Face, Georgia, began operations in 1972 and was closed with a soil cap in 2000. Landfill gas migration was occurring along one of the landfill

boundaries. Prepared the design and construction documents for the in-soil perimeter gas extraction system consisting of ten vertical extraction wells, a below-ground header, u-trap, and a skid-mounted blower station and vent with basic instrumentation and control system. Supervised the construction team, and prepared and submitted the installation and monitoring report to GA EPD.

Multiple Clients, Greenhouse Gas Monitoring Plan, Database Development, and Reporting for Several Landfill Sites. Engineer. Prepared greenhouse gas (GHG) monitoring plans and databases to comply with the U.S. Environmental Protection Agency (USEPA) Mandatory Greenhouse Gas (GHG) Reporting Rule for Catoosa County Landfill, Dalton-Whitfield Regional Solid Waste Management Authority Old-Dixie Landfill, and DeKalb County Seminole Road Landfill, all located in Georgia. The monitoring plans identified the processes and methods used for data collection as well as calibration of the various monitors (e.g., landfill gas flow meter, gas analyzer, and waste truck scale). The databases included detailed information for each GHG source category (e.g., landfill itself, flare, etc.) and GHG monitors. They also included the GHG monitoring data records and calculations of total methane quantity generated by landfill, methane destroyed by each landfill gas destruction device (e.g., flare), and emissions from the landfill and from each destruction device. Performed the GHG generation and emissions calculations and submitted the required data and reporting using the USEPA online e-GGRT reporting system.

DeKalb County Public Works Sanitation Division, Air Permitting and Emission Reporting, Seminole Landfill, Georgia. Project Manager. Served as the project manager and assisted in preparation of the Title V permit renewal application for the DeKalb County Seminole Road Landfill located in Ellenwood, Georgia. The application included facility-wide information, an inventory of emission units and applicable rules, and estimates of potential emissions as well as anticipated actual emissions. Prepared semi-annual and annual compliance reports in accordance with Title V, NSPS, and MACT requirements. Assisted in performing actual emissions calculations as part of the Emission Statement and Inventory requirements.

Waste Management, Inc., Semi-Annual and Annual Title V Reports, Several Landfill Sites. Engineer. Prepared deviation reports, and semi-annual monitoring reports for six Waste Management landfill sites in South Carolina and Georgia using data from Waste Management's Landfill Gas Management System (LGMS).

DeKalb County Public Works Sanitation Division, Solar Farming Project, Seminole Road Landfill, Georgia. Project Manager. Served as project manager and performed the preliminary design for developing a solar project at the DeKalb County Seminole Road Landfill in Georgia. The preliminary design included evaluation existing site data for selecting the areas for installation of solar panels, evaluation of potential interference with existing landfill systems and structures, and designing the layout plan and foundation for solar panels. Prepared technical documents for responding to the Georgia Power Advanced Solar Initiative (ASI) program.

Landfill and Landfill Gas Construction Management

Waste Management, Inc., Ground Improvement Program Implementation, Oakridge Sanitary Landfill, South Carolina. Project Manager. Served as project manager for implementation of five phases of the ground improvement program at the landfill. The program consisted of blast densification of a 15-ft thick, 30-ft deep very loose and saturated sand layer underlying the site located in a seismic area along the eastern U.S. The objective of the program was to assess the effectiveness of blasting on increasing the density and shear strength of the sand, and thus decreasing the potential for liquefaction under seismic loading conditions. The project work included planning, overseeing, and managing the surveying, subsurface exploration, drilling, blasting, and ground monitoring, components of the project implemented using several subcontractors. Reviewed records from the

ground elevation surveys, and vibration monitors installed to monitor response of soil due to different blasting events.

DeKalb County Public Works Sanitation Division, Landfill Gas to Compressed Natural Gas Project, DeKalb County, Georgia. Project Manager. Served as the project manager and Owner's Representative on the multi-million dollar landfill gas (LFG) to renewable natural gas (RNG) and compressed natural gas (CNG) fueling station project for DeKalb County, Department of Public Works, Sanitation Division in Georgia. Assisted in developing a Department of Energy (DOE) and American Recovery and Reinvestment Act (ARRA) "stimulus" grant application for DeKalb County and several partners. The County was one of 25 projects (out of a total 110 projects) selected for award of the grant funding by the DOE, and was the only one that included converting landfill gas to renewable natural gas (RNG) and compressed natural gas (CNG). The grant awarded funding to develop an LFG to RNG conversion facility, two CNG fueling stations, and purchase of forty (40) CNG fuel vehicles. Prepared the Invitation to Bids (ITBs) for the Turnkey Design, Construction, and Operation and Maintenance (O&M) of the LFG to RNG conversion facility and CNG fueling stations, conducted pre-bid meetings for these projects, assisted with response to questions from bidders, assisted with preparation of solid waste and air permitting applications. Conducted weekly progress meetings with the design-build contractors, reviewed their design submittals, provided construction work progress oversight, and reviewed budget and invoices on behalf of the County to complete the project successfully and on an expedited time schedule. Ongoing work on the project includes preparation and submittal of required project progress reports and reimbursement request reports related to the grant funding to Center for Transportation (CTE) / DOE, and providing overall project oversight during the operation and maintenance phase.

Multiple Clients, GCCS Construction Management, Seminole Road Landfill, DeKalb County, Georgia; Hickory Ridge Landfill, Georgia; and Catoosa County Gateway Landfill, Georgia. Project Manager. Served as project manager for the construction of vertical gas extraction wells, and lateral and header collection pipes at the Specific tasks included managing the on-site CQA technician, reviewing and approving construction submittals and design change requests by Contractor, reviewing Contractor invoices and change order requests, conducting weekly construction progress meetings, and preparing the as-built report and drawing.

Waste Management, Inc., West Camden Landfill GCCS Construction Quality Assurance (CQA), Tennessee. CQA Engineer. Served as sole full-time field CQA Engineer on site for the GCCS expansion work at the. Work included installation of about 25 gas extraction wells in lined areas and a gas collection header pipe line. Responsible for reviewing Contractor submittals. Provided full time field monitoring of construction work for compliance with design. Coordinated between the Contractor, Owner, and Designer to make important decisions and implement design modifications on-site to accommodate actual field conditions and unforeseen issues. Maintained proper documentation of construction activities, and prepared as-built drawings and final CQA certification report. The work was conducted successfully without causing any disruption to the continuous operation of the blower/flare system and was completed in a very short time to meet the client's deadline.

Environmental Services

Scotts Miracle-Gro Facilities in Jackson, Georgia, and Groveland Florida. Air Emissions Calculations, SWPPP Updates, and SPCC Plan Revisions. Project Manager and lead. Scope included for review and updates to air emissions air emissions calculations to account for a new piece of equipment/process onsite, updating the stormwater pollutions prevention plans (SWPPPs) and spill prevention control and countermeasure (SPCC) plans to account for new equipment and removing any necessary items/processes that are no longer onsite/being done.

SMI, Environmental Support, College Park, FL. Air Permit Review and SWPPP Site Inspection.

Conducted site visits to understand the site's processes and discuss the air and stormwater permit needs. Evaluated the site for general compliance with the SWPPP and provided an observation report that included general housekeeping notes recommendations based on the observations made onsite. Summarized the air permit requirements and primary action items to maintain compliance with the site's air permit.

DeKalb County, Seminole Road Landfill, Transfer Stations, Collection Lots, and Roads and Drainage Facilities, Georgia. SWPPP Updates and Annual SWPPP Compliance Inspections and reporting, Annual SWPPP training . Performed SWPPP related site visits and updated the SWPPPs for the DeKalb County facilities for compliance with the NPDES Industrial General Permit. Coordinated with a subcontractor and oversaw performance of quarterly SWPPP inspections. Conducted annual SWPPP compliance site visits and provided the annual comprehensive SWPPP inspection reports for the facilities. Part of the team that conducted annual NPDES SWPPP training for the site personnel.

Publications and Presentations

2014. Bulusu, S., Amini, H., Othman, M. A., "Landfill Gas Migration Control – What Works, What Doesn't?". Global Waste Management Symposium, June.

2014. Carr, M. K., and Bulusu, S., "Remediation of Mercury in Groundwater at Solid Waste Landfills". American Institute of Professional Geologists, Georgia Section Innovative Environmental Assessment and Remediation Technology Symposium, April.

2013. Bulusu, S., "Landfill Gas Migration Control – What Works, What Doesn't?". Solid Waste Association of North America – Georgia Chapter Fall 2013 Meeting, November.

2011. Carr, M. K., and Bulusu, S., "NPDES Industrial Stormwater Management at DeKalb County, Georgia Facilities". Solid Waste Association of North America – Georgia Chapter Fall 2011 Meeting, November.

2007. Bulusu, S., Aydilek, A.H., and Rustagi, N., "CCB-based Encapsulation of Pyrite for Remediation of Acid Mine Drainage". Journal of Hazardous Materials, Vol. 143, January 2007, pp 609 - 619.

2005. Bulusu, S., Aydilek, A.H., Petzrick, P., and Guynn, R., "Remediation of Abandoned Mines Using Coal Combustion By-Products". ASCE Journal of Geotechnical and Geoenvironmental Engineering, Vol. 131(8), August 2005, pp 958 - 969.