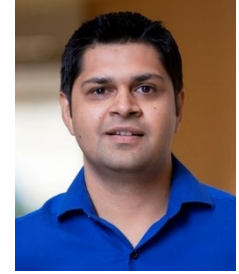


KARAMJIT (KARAM) SINGH, P.E.

Education

ME – Environmental Engineering, University of Florida, 2010
BS – Civil Engineering, Punjab Engineering College, India, 2008



Professional Licenses

Professional Engineer – Washington and Florida

Professional Affiliations

Solid Waste Association of North America (SWANA): *Evergreen Chapter Board Member, Past Board Member on SWANA, YP Steering Committee Mentor*

Professional Experience

With over 13 years of solid waste industry experience, Karam specializes in solid waste planning and engineering, and has worked on projects throughout the U.S. (including Washington, Alaska, Oregon, California, Iowa, South Dakota, Nebraska, Texas, Virginia, Florida, South Carolina, Georgia, Alabama, and Puerto Rico), Australia, Canada (Ontario), Chile, India and Maldives. Karam’s experience in solid waste planning includes facility (landfill and transfer station) assessments and feasibility studies, solid waste masterplans, landfill gas to energy (LFGTE) systems’ evaluation, financial evaluations, rate studies, collections and hauling contracts related procurement assistance, and stakeholder engagement.

Karam’s experience in solid waste engineering includes landfill design and permitting; Landfill Gas (LFG) collection systems design; facility compliance (air, groundwater and stormwater) and landfill remediation. The diversity of atmospheric and meteorological conditions encountered in his career mirrors the variety of regulatory climates, delivering his solid waste engineering expertise to sites in the United States, Canada, Australia, Maldives, Chile, and India – a true testament to his ability to provide context-based solutions in any regulatory or stakeholder environment. He has implemented unique techniques for LFG collection, including the use of tires and crushed glass in collection trenches, evaluation and design of leachate recirculation systems, development of caisson wells for LFG collection, development of chimney drain concept, installation of chimney drains to promote vertical connectivity in the cell, and site-specific reconnaissance to resolve “hot issues” within the waste mass at multiple sites.

Outside work, Karam is heavily engaged with the solid waste industry by serving as Washington SWANA’s board member, chair to the 2023 Northwest Regional Symposium, member of 4-member planning committee for SWANA Leadership Academy, and mentor to the national SWANA YP Committee. Outside work, Karam has contributed to the solid waste industry by voluntarily leading regional recycling initiative, Beyond 34, in Central Florida through the Chamber of Commerce. As Project Manager for Beyond 34 initiative, Karam engaged four Counties, multiple Cities and private sector businesses to explore regional solutions to the recycling challenges in Central Florida region. Karam also developed and delivered an LFG 101 Training Course to landfill operators in the State of Florida through the University of Florida.

Notable projects that Mr. Singh has been involved in are described below. Karam joined SCS in March 2022, so some of his experience is through his prior employment (noted in projects).

Solid Waste Engineering

Pierce County Recycling, Composting, and Disposal (PCRCD dba LRI), LRI Landfill, Graham Washington. Project Manager for various projects for the LRI Solid Waste facility. Since March 2022, project assignments include: Landfill Gas (LFG) expansion planning, design and engineering services; LFG controls (Flare and Blowers) upgrades planning, permitting and engineering; LFG sulfur treatment system conceptual planning, permitting and engineering; Cells 9A and 9B landfill expansion design, permitting and construction services; Phase VB and Phase IVB landfill partial closure design, permitting and construction services; compliance monitoring and reporting (groundwater, air permit reporting, closure and long term care plan update, stormwater reporting, GHG reporting, etc.); overall facility master planning services etc.

Area 8 Closure for Cedar Hills Regional Landfill, King County, WA (2022-2023). Client: Herrera Inc. (Owner: King County, WA). Karam served as a Project Engineer on this Area 8 Closure Project, in which SCS worked as a sub-consultant to Herrera Inc. and SCS's scope is focused on Landfill Gas design and permitting. Work has been executed in different phases. In the first phase, the project team completed an alternatives analysis and provided King County preliminary design phase services (up to 30% design level). A Basis of Design Report was developed that documented engineering calculations and pertinent assumptions associated with the design. Project then moved into developing a 60% design that is on-going as of March 2023.

Area 8 Development for Cedar Hills Regional Landfill, King County, WA (2013-2022). Project Engineer in prior employment (with HDR Inc.); Client: King County, WA. Karam served as a Project Engineer on this Area 8 Project, which was executed in different phases. In the first phase, approximately 500,000 cubic yards of in-place waste from a 36-acre unlined area was relocated to a lined area. During the next phase, the project team completed an alternatives analysis and provided King County preliminary design phase services (up to 30% design level). A Basis of Design Report was developed that documented engineering calculations and pertinent assumptions associated with the design. Project then moved into developing a final design. Lastly engineering services during bidding and construction were provided for this project. Various design aspects of this project include: subsurface investigations (geotechnical and hydrogeological); conceptual planning to support cell development (waste relocation, support facilities, utilities, stormwater management, leachate collection, leachate conveyance, leachate storage/removal); preparation of specific grading plans and design details; design calculations, geosynthetics evaluation and pump selection; landfill gas (LFG) collection system design; and O&M support including fill plans etc.

Area 7 Closure for Cedar Hills Regional Landfill, WA (2012-2022). Project Engineer in prior employment (with HDR Inc.); Client: BHC Consultants. Karam served as a Project Engineer on this Area 7 closure project at the Cedar Hills Regional Landfill. The project involved consultant services for design permitting and services during construction for the staged closure of Area 7. Various design aspects of this project include: alternative analysis for different closure cover options; final closure system design (grading and geosynthetics design); leachate and contaminated stormwater control system design; landfill gas system design; erosion and sedimentation control design; basis of design report; 30% plans, specifications and cost estimate for closure design; final plans, specifications and cost estimate for closure design; closure final design report; O&M support, including updating fill/lift plans and updating operations plan; and engineering support during bidding and construction.

Landfill Master planning and Expansion for Lee-Hendry County Landfill, FL (2019-2022). Project Manager in prior employment (with HDR Inc.); Client: Lee County, FL. Karam managed a 56-acre landfill expansion project for Lee-Hendry County Landfill in Florida. Various tasks on this project include sub-surface investigations, landfill master planning for phased cell expansion, landfill design and permitting, bidding assistance and construction support services. Landfill design and permitting will focus on 56-acres of Class I (Municipal Solid Waste) landfill expansion in accordance with the regulations of FAC 62-701, and various tasks include leachate collection system design including HELP model runs, preparation of specific grading plans & design details, design calculations such as leachate pipe capacity & strength, global stability, geosynthetics evaluation, dewatering system design, anchor trench evaluation, and pump selection, preparation of construction quality assurance (CQA) plan along with materials specifications, and preparation of closure cost estimates for the facility.

Valley Fill Landfill Expansion for Cedar Trail Landfill, FL (2015-2017). Project Manager in prior employment (with HDR Inc.); Client: Republic Services. Karam managed landfill design project for Cedar Trail Class I Landfill (Polk County, FL). The tasks included permitting cell expansion in accordance with the regulations of FAC 62-701, leachate collection system design including HELP model runs, preparation of specific grading plans & design details, design calculations such as leachate pipe capacity & strength, geosynthetics evaluation, anchor trench evaluation, and pump selection, preparation of construction quality assurance (CQA) plan along with materials specifications, and preparation of closure cost estimates for the facility.

Winfield Solid Waste Management Facility, Cell 4 Expansion, FL (2011-2013). Project Engineer in prior employment (with HDR Inc.); Client: Columbia County, FL. Karam managed multiple tasks associated with designing this 10-acre cell expansion project. Tasks included designing and permitting the cell expansion in accordance with the regulations of FAC 62-701 (adopted from federal regulations 40 CFR Part 258 and equivalent to Chapter 173-351 WAC); leachate collection system design including HELP model runs, preparation of specific grading plans and design details, design calculations such as leachate pipe capacity and strength, geosynthetics evaluation, anchor trench evaluation, and pump selection; preparation of CQA plan along with materials specifications; and preparation of closure cost estimates for the facility. Karam assisted with the production of construction-level drawings and specifications.

Aucilla Area Solid Waste Management Facility, Class I Landfill Expansion, FL (2011-2013). Project Engineer in prior employment (with HDR Inc.); Client: Madison County, FL. This project involved designing and permitting a 9-acre MSW landfill expansion, including leachate recirculation system design. Karam assisted with performing engineering calculations for the liner and leachate collection systems, leachate recirculation system design, financial assurance cost estimates, and preparation of the CQA plan and technical material specifications in accordance with the regulations of FAC 62-701 (adopted from federal regulations 40 CFR Part 258 and equivalent to Chapter 173-351 WAC).

MSW Landfill Final Closure Projects, Multiple Municipal Clients, FL (2010-2015). Project Engineer in prior employment (with HDR Inc.); Clients: Volusia County, Lake County, Bay County, Hernando County in FL. Karam served as a project engineer for multiple landfill final closure projects in Florida, including Volusia County Tomoka Farms Landfill, Lake County Central Landfill, Bay County Steelfield Landfill, and Hernando County NW Waste Management Facility. Karam was responsible for closure design and permitting in accordance with the regulations of FAC 62-701 (adopted from federal regulations 40 CFR Part 258 and equivalent to Chapter 173-351 WAC), performing closure cover engineering calculations; cover design with liner and drainage systems; designing LFG collection and stormwater conveyance systems; and preparing materials specifications, CQA plans, and closure cost estimates.

Landfill Operations Permit Renewal, Multiple Clients, FL (2010-2018). Project Engineer in prior employment (with HDR Inc.); Clients: Bay County, Lake County, Volusia County, Charlotte County in FL. Karam is responsible for preparing operation permit renewal application packages for several landfill facilities including Bay County Steelfield Road Landfill (Panama City Beach, FL), Lake County Central Landfill (Tavares, FL), Volusia County Tomoka Farms Landfill (Port Orange, FL) and Charlotte County Zemel Road Landfill (Punta Gorda, FL) in accordance with the regulations of FAC 62-701 (adopted from federal regulations 40 CFR Part 258 and equivalent to Chapter 173-351 WAC). Karam was able to carry out each of these permit renewals with minimal Requests for Information (RAIs) from the FDEP.

Landfill Closure and LTC Permit Renewal, Multiple Clients, FL (2010-2015). Project Engineer in prior employment (with HDR Inc.); Clients: Volusia County, Baker County, Columbia County, Jefferson County in FL. Mr. Singh is responsible for preparing closure permit renewal application packages for several landfill facilities including Volusia County Tomoka Farms Landfill (Port Orange, FL), and long-term care permit renewal for several County owned landfills including Baker County Landfill (Baker County, FL), Columbia County Landfill (Columbia County, FL), Jefferson County Landfill (Jefferson County, FL).

Groundwater Monitoring & Remediation Systems, Multiple Clients (2010-2022). Project Manager/Engineer in prior employment (with HDR Inc.). Karam is responsible for designing groundwater monitoring systems and/or remedial systems, and associated monitoring and reporting for Niceville and Wright Landfills (Okaloosa County, FL), Leon County Landfill (Tallahassee, FL), Amarillo Landfill (City of Amarillo, TX), Tomoka Farms Landfill (Volusia County, FL), Charlotte County Zemel Road Landfill (Charlotte County, FL), Richland Creek Landfill (Republic Services – site in GA), Sarasota Central Landfill (Sarasota County, FL) and Roberts Road Landfill (Republic Services – site in GA).

Landfill Gas Operation & Design Support, Zemel Road Landfill, Charlotte County, FL (2019-2022). Project Manager/Engineer in prior employment (with HDR Inc.). Karam assisted Charlotte County Florida with landfill gas operations and design support for the voluntary landfill gas collection system. Karam assisted with monthly landfill gas monitoring and reporting, landfill gas O&M repairs, well-field tuning and optimization, consulting services to navigate landfill gas to energy contract, and engineering design services. Karam has led this project and demonstrated success through improving landfill gas quality from 45% methane (in beginning of 2019) to 55% methane (in 2022).

City of San Diego Miramar Landfill Gas to Energy Study, San Diego, CA (2018-2019). Project Engineer in prior employment (with HDR Inc.). Karam assisted with identifying the “highest and best” use of the LFG generated at Miramar; and achieve and maintain environmental compliance at Miramar. Pursuant to these goals, Karam led a feasibility study to characterize and analyze alternate feasible uses for LFG collected at Miramar to determine the most economical and practical LFGTE option(s) for LFG beneficial use.

Santa Rosa County Central Landfill, LFG Collection System Design (2016-2017). Project Engineer in prior employment (with HDR Inc.). Project Engineer for designing Landfill gas collection system – a project initiated to remediate landfill gas migration issues. The project entailed permitting and designing a new landfill gas collection and control system with over 40 vertical extraction wells (traditional and caisson wells), four horizontal wells, condensate management system and flare/blower system. He was also responsible for conducting preliminary evaluation of the three different LFGTE options (offsite piping, electricity generation and CNG) based on site-specific conditions and financial evaluation of each of three options.

Landfill Green House Gas (GHG) Reporting (2010-2022). Project Engineer or Manager in prior employment (with HDR Inc.). Responsible for preparation of the GHG reports, to meet EPA regulations, for different landfills including Three Rivers Landfill (Aiken, SC), Hernando County NW Landfill (Brooksville, FL), Whitestreet Landfill (Greensboro, NC), Bee Ridge Landfill (Sarasota, FL), New Georgia landfill (Birmingham, AL), Eastern Area Landfill (Birmingham, AL), Charlotte County Zemel Road Landfill (Punta Gorda, FL) and Hillsborough County South East Landfill (Lithia, FL).

Solid Waste and Facility Planning

Kittitas County, Lower County Transfer Station, Ellensburg, WA. As Permitting Lead, Karam is currently providing permitting and engineering services for a solid waste transfer station, compost facility, household hazardous waste facility and administrative office to be located on approximately 38.84 acres. Work involves obtaining all necessary permits, and designing the facility to meet all requirements and criteria, as well as providing documents for the County to go out to bid for construction. Construction will meet all Federal, State, and local requirements. The SCS Team will obtain all applicable permits for construction and for the operation of a Transfer Station, Compost Facility, Household Hazardous Waste facility, as well as administrative offices.

Transfer Station Feasibility Study, Island County Coupeville Solid Waste Management Facility (CSWMF), Island County, WA (2022-2023). Project Manager. The project involved conducting a feasibility study for the CSWMF Transfer Station. The project entailed providing a thorough analysis and options for aging infrastructure (building, compactor etc.), capacity analysis, efficiency analysis, and recommendations for both operational and capital improvements for the CSWMF. The project team collected operational data and waste generation data to project the future needs for the facility, including upgrading existing facility with new compactor versus recommending a new Transfer Station. The County is currently reviewing facility improvements recommendations that would increase the capacity and efficiency of the transfer station operations.

South Transfer Station (STS) Redevelopment, WA (2015-2022). Project Manager in prior employment (with HDR Inc.); Client: Seattle Public Utilities (SPU), WA. Karam served as Project Manager for the Phase II of this STS Project for SPU. After SPU constructed a new South Transfer Station, the Phase II was initiated aimed at developing facility and site options for the 10-acre parcel where the old station is located. The former transfer building is located on a closed landfill so the technical team coordinated closely with SPU and the state and local regulatory agencies to develop viable options for facility demolition, final landfill closure, and site redevelopment. The project team developed facility and site master plan options for demolition of the existing onsite buildings, final landfill closure, and site redevelopment. Various design aspects of this project include: landfill closure design; stormwater management system design; landfill gas design; support facilities design (civil, structural, architectural, mechanical, electrical etc.) to support site redevelopment, etc.

Transfer Station Feasibility Study, Baker Transfer Station, Okaloosa County, FL (2018-2020). Project Manager/Planner in prior employment (with HDR Inc.); Client: Okaloosa County, FL. The project involved conducting a feasibility study for the Baker Transfer Station (TS) located in Okaloosa County, FL. The project entailed providing a capacity analysis, efficiency analysis, and recommendations for both operational and capital improvements for the TS. The project team collected operational data and waste generation data to project the future needs for the facility. The needs analysis focused on three criteria: scale house throughput, tip floor management, and loadout capabilities. Each individually, as well as collectively, represent a potential “pinch-points” limiting current and future processing capacity. The project team then reviewed site operations through data analysis and site assessments and observations. The County staff were struggling to determine whether locally collected recyclables could be consolidated onsite for transfer trailer transport. The team identified

operational and facility improvements that would increase the capacity and efficiency of the transfer station operations.

Transfer Station Feasibility Study, Fort Walton Beach Transfer Station, Okaloosa County, FL (2019-2020). Project Manager/Planner in prior employment (with HDR Inc.); Client: Okaloosa County, FL. The project involved conducting a feasibility study for the Fort Walton Beach Transfer Station (FWBTS) located in Okaloosa County, FL. The project entailed providing a capacity analysis, efficiency analysis, and recommendations for both operational and capital improvements for the TS. The project team collected operational data and waste generation data to project the future needs for the facility. The needs analysis focused on three criteria: scalehouse throughput, tip floor management, and loadout capabilities. Each individually, as well as collectively, represent a potential “pinch-points” limiting current and future processing capacity. Then site operations were reviewed through data analysis and site assessments and observations. At FWBTS, operations were spread, and trailer load out was from the ground level reducing load visibility and increasing load out timing. The study report (end deliverable) recommended rehabilitation of the loading bay to recess the load out to allow the loader operator to see over the trailer rails. The project team also identified several operational and facility improvements that would increase the capacity and efficiency of the transfer station operations.

Cedar Hills Regional Landfill Site Development Plan Phase 2, King County, Maple Valley, WA (2018-2022). Project Manager in prior employment (with HDR Inc.); Client: Herrera Inc. Karam served as project manager for HDR, working with Herrera Inc. and King County to prepare site development options, evaluate alternatives, identify and evaluate any environmental impacts, and develop conceptual plans for the preferred site development options. The team developed expansion alternatives at the site that explored both horizontal and vertical expansion options. The team also assessed the air quality impacts associated with the development options for consideration in the EIS and updated the economic cost model to further extend the useful life of the Cedar Hills Regional Landfill beyond 2040.

Landfill Master Planning for Lee-Hendry Solid Waste Management Facility, FL (2020 -2022). Project Manager in prior employment (with HDR Inc.); Client: Lee County, FL. This project was aimed at future planning of the regional solid waste management facility. Karam led various Master Planning aspect of the project, including, evaluating existing facility operations – including landfill capacity constraints, leachate management system, stormwater management system, on-site wetland constraints, traffic movement constraints, power and utilities to support facility operations etc. The project also involved a number of stakeholders, including Lee County, Hendry County, four neighboring property owners, landfill operator (Waste Management), regulatory agencies (Florida DEP, Water Management District etc.). Conceptual planning document, which was end deliverable for the planning piece of the project, included available options and recommendations for future planning of this facility from capacity, efficiency and regulatory standpoints.

Solid Waste Services for Republic of Maldives and Republic of India (2011-2013). Project Planner in prior employment (with HDR Inc.); Client: UPL Environmental Engineers Limited. Karam served as lead planner for the solid waste management program for Maldives and for MSW landfills in Gujrat and Mumbai, India. The projects in Maldives included feasibility studies and preliminary design of various solid waste management techniques to provide a comprehensive solution to solid waste management problems in Maldives. Karam is responsible for the preliminary design of a biomodule landfill (landfill with only organic waste for enhanced methane generation). Various tasks include determining methane generation based on site specific parameters, and designing leachate recirculation system and gas collection system. The projects in India were focused on evaluating two existing landfills and developing landfill expansion masterplan for each landfill.

Organics Recycling Feasibility Study for Alachua County, FL (2011-2012). Project Planner in prior employment (with HDR Inc.); Client: Alachua County, FL. Karam served as lead planner to evaluate the feasibility of a County owned and operated organics recycling facility. The evaluation included preparation of a conceptual site model with various facility and traffic layouts, a conceptual operations plan, an evaluation of the permitting process, and a financial feasibility model.

Non-Exclusive Franchise Agreement Assistance for Commercial Waste, Okaloosa County, FL (2019). Project Manager/Planner in prior employment (with HDR Inc.); Client: Okaloosa County, FL. Karam provided consulting services to Okaloosa County Solid Waste to develop and implement a non-exclusive franchise agreement for commercial waste collection. Karam led various tasks under this project, including benchmarking, developing and reviewing technical information for the NEF agreement packet, assisting the County with financial evaluation to quantify impacts under different tonnage scenarios, and presenting recommendations to Okaloosa County Board of County Commissioners.

Franchise Collection Agreement Assistance for Residential Waste, Charlotte County, FL (2017-2018). Project Manager/Planner in prior employment (with HDR Inc.); Client: Charlotte County, FL. The project involved providing procurement consulting support for franchise collection agreement for County's residential waste. Karam assisted the County with various tasks, including benchmarking, developing and reviewing technical information of the solicitation package, completeness review of submitted proposals, reference checks and contract negotiation support.

Franchise Collection Agreement Assistance for Residential Waste, Okaloosa County, FL (2016-2022). Project Manager/Planner in prior employment (with HDR Inc.); Client: Okaloosa County, FL. The project involved providing procurement consulting support for franchise collection agreement for County's residential waste. Karam assisted the County with various tasks, including benchmarking, developing and reviewing technical information of the solicitation package, completeness review of submitted proposals, reference checks and contract negotiation support. Since execution of the Contract, Karam provided continued consulting services to the County to navigate various contractual issues stemming from recycling markets downward trend and aging infrastructure. In 2021, Karam assisted the County in re-negotiating key contract terms before the contract was extended for another team.

Recycling Procurement Assistance, Seminole County, FL (2019-2020). Lead Project Planner/Deputy Project Manager in prior employment (with HDR Inc.); Client: Seminole County, FL. This project was aimed to assist the County in procuring recycling processor for transportation, processing and marketing its recyclable materials. Mr. Singh served as the Assistant Project Manager and lead planner to undertake various tasks on this project, including benchmarking analysis, recycling markets assessment, waste composition study, developing and reviewing technical information of the solicitation package and interviewing potential submitters.

Solid Waste Tip Fee and Assessment Rate Study, Okaloosa County, FL (2018-2019). Project Manager/Planner in prior employment (with HDR Inc.); Client: Okaloosa County, FL. Karam provided consulting services to Okaloosa County Solid Waste in performing Solid Waste Tip Fee and Assessment Rate Study. The project involved working with County's budgeting office to compile solid waste system revenue and expenses (budgeted and actuals), assets and liabilities etc. Based on information provided by the solid waste department and budgeting office, Karam developed a rate model to plan for next 5-year period. The rate study recommended rate changes in certain categories that were presented to BOCC and adopted subsequently.

Solid Waste System Masterplan, Seminole County, FL (2019-2022). Lead Project Planner/Deputy Project Manager in prior employment (with HDR Inc.); Client: Seminole County, FL. Karam provided

consulting services to the County in developing a comprehensive 30-year solid waste Masterplan. Mr. Singh served as the Assistant Project Manager and lead planner to undertake various tasks on this project, including baseline study to determine current condition of the solid waste system set up and recyclable market assessment study for this project. As part of the baseline study Mr. Singh evaluated solid waste system's facilities, processes, policies, financials and documented those in a comprehensive report to support future strategy development.

Solid Waste Masterplan, Pinellas County, FL (2017-2019). Project Planner in prior employment (with HDR Inc.); Client: Pinellas County, FL. Pinellas County Solid Waste retained HDR to develop a comprehensive 30-year solid waste masterplan. As a project planner, Karam led baseline study and market assessment study for this project to baseline and benchmark County's solid waste system against a variety of factor. From benchmarking various strategies were developed through County's input and stakeholder engagement that included 24 different municipalities. The strategies were further fine tuned and implemented towards the end of the Masterplan to streamline County's solid waste system.

Solid Waste Tip Fee and Assessment Rate Study, Charlotte County, FL (2017-2019). Project Manager/Planner in prior employment (with HDR Inc.); Client: Charlotte County, FL. Karam assisted Charlotte County in performing 5-year Solid Waste Tip Fee and Assessment Rate Study. The project involved reviewing collections program for different collection areas; analyzing and projecting tonnages by account and waste type; analyzing historical revenues and expenses and performing future projections; developing methodology for cost center allocation of expenses; developing revenue sufficiency model and designing rate structure; and presenting preferred options to the Board of County Commissioners.

Solid Waste System Alternatives Analysis, Escambia County, FL (2015-2018). Project Manager/Planner in prior employment (with HDR Inc.); Client: Escambia County FL. Karam assisted the County with this project that started in exploring landfill alternatives. A solid waste advisory committee (SWAC) was formed and first phase of this project involved soliciting alternative technologies. To evaluate the system needs and alignment of those with received responses, Karam led developing a financial model to evaluate various technicities. The County selected mixed waste processing (MWP) based on SWAC's input. Karam developed a comprehensive model for evaluating MWP technology under different scenarios. The model aimed at evaluating County's solid waste system holistically with a baseline scenario, 40% waste reduction scenario, 50% waste reduction scenario, and 60% waste reduction scenarios. Each scenario was modeled to evaluate financial direct impacts (revenues) and indirect impacts (equipment needs, landfill air space needs) to County's solid waste system. Existing landfill, transfer station and other facilities and infrastructure was evaluated as part of this assessment as tonnage impacts site life, traffic, capacity, staff and other logistics of solid waste system. Karam also supported the County with technical guidance and model updates during negotiations with the selected vendor. The model results indicated the project was financially unviable.

Solid Waste Tip Fee and Assessment Rate Study, Horry County, SC (2018-2019). Project Planner in prior employment (with HDR Inc.); Client: Horry County, SC. The project initiated due to revenue sufficiency concerns raised by Horry County, SC, especially in light of some upcoming capital projects. Karam served as the Project Analyst and led the rate study tasks including developing revenue sufficiency model and designing rate structure.

Publications

Singh K., et. al. “Temporal and Spatial Pore Water Pressure Distribution Surrounding a Vertical Landfill Leachate Recirculation Well”, International Journal of Environmental Research and Public Health, 8, pp. 1692-1706.

Singh K., et al., “Anisotropy estimation of compacted municipal solid waste using pressurized vertical well liquids injection”, Waste Management & Research, 2011, 8 (no. 5), pp. 1692- 1706, Published May 13, 2014.

Singh K., et al., “Evaluation of a buried vertical well leachate recirculation system for municipal solid waste landfills”, Waste Management & Research, vol. 34, 12: pp. 1300- 1306, Published August 1, 2016.

Presentations

“What Happens After 75% Recycling Goal by 2020” at Joint Summit by Florida SWANA and Recycle Florida Today (February 2016).

“Rumble in Indianapolis – a No-Holds Barred Look at the Future of Solid Waste – a panel discussion” at WASTECON 2016 (August 2016).

“Aggressive Recycling Goals? Let’s Strategize to Achieve Such Goals! – an interactive session”, at WASTECON 2016 (August 2016).

Moderator for various SWANA Sessions: Biogas Session (SWANAPalooza 2018), Conversion of Landfill Gas to Drop-In Renewable Diesel (Florida SWANA 2017), Post-Landfill-Mining Soils Testing use Incremental Sampling and Methodology (Florida SWANA 2017).

“Innovatively Quantifying Landfill Green House Gas Emissions”, at 2020 Northwest Symposium Virtual Session.

“Trash Talks – A Panel Discussion on Sustainable Waste Management Planning”, at 2021 Northwest Symposium in Oregon (November 2021).

“Good Neighbors – A Case Study on LFG Migration at Adjacent Landfills”, at 2021 Northwest Symposium in Oregon (November 2021).