

KETAN SHAH, PHD

### **Education**

Ph.D.– Civil Engineering (Environmental), The University of Texas at Arlington,  
2021  
MBA – Technology Management, Centre for Environmental Planning and  
Technology, 2012  
B.E. – Chemical Engineering, The Maharaja Sayaji Rao University, 2009



*Shah, Ketan*

### **Specialty Certifications**

APNGA Portable Nuclear Gauge Safety and U.S. D.O.T. Hazmat Transportation  
HAZWOPER 40 hr Certified  
Nuclear Gauge Safety Training and Transportation  
Life Cycle Thinking in Business Decisions, Life Cycle Initiative  
Navigating Environmental Sustainability: A Guide for Leaders  
Progress and Challenges in International Solid Waste Management, Disposal and Greenhouse Gas  
Reductions

### **Professional Affiliations**

American Environmental and Engineering Science Professionals (AEESP)  
Solid Waste Association of North America (SWANA)  
Air and Waste Management Association (A&WMA)  
American Council of Life Cycle Assessment (ACLCA)  
Institute for Sustainability, American Institute for Chemical Engineers. (IfS, AIChE)  
International Solid Waste Association (ISWA)

### **Professional Experience**

Dr. Shah is a Project Professional at SCS Engineers in the Bellevue, Washington office. He has over ten years of environmental and solid waste engineering experience. He provides engineering support services for Landfill gas modeling, life cycle assessment, landfill design, permitting, construction management, and reporting for landfill projects all around the northwest region. He also supports projects involving GCCS system design, construction, and regulatory compliance. He is responsible for tasks involving regulatory compliance of several sites subject to the New Source Performance Standards (NSPS) throughout the state of Washington, and Alaska.

He is a result-driven environmental professional with experience in managing complex environmental engineering projects, includes wastewater treatment, sewer water sampling, air dispersion modeling, air pollution control methods, Solid Waste Management contract specifications, landfill facility design for scientific disposal of waste, Life Cycle Analysis Modeling.

Experienced in life cycle assessment, environmental systems modeling, optimization, and solid waste management systems he has developed an interest in a comparative statistical analysis between developed and developing countries Solid waste decision-support and decision-making tools with optimization framework.

Skilled at statistical interpretation of large and complicated data sets, project design and implementation, and economic forecasting and analysis. Highly skilled at preparing and delivering presentations to a variety of audiences: executive, and technical.

Examples of his project experience include the following:

As a Staff Professional, Dr. Shah is responsible for overseeing SCS's northwest region solid waste management practice, which includes landfill engineering, landfill gas management, solid waste studies, landfill environmental systems, operation and maintenance, and construction. Dr. Shah works closely with SCS's regional clients. He has completed solid waste, environmental assessment, facility design, compliance audit, and other environmental study projects for municipal and private clients.

Break detail into areas or more readable chunks followed by project experience by service areas at SCS. A few notable projects that Mr. Shah has been involved in are described below.

**Terrace Heights Landfill, Washington**, Landfill Gas Collection and Control System Design

- Assisted in design of the landfill gas collection and control system utilizing components of the ongoing initial GCCS design, the EPA LandGEM model. Well design and analysis.
- Provided assistance to prepare bidding documents for construction contractors.

**Wasco County Landfill, Oregon**, Responsible for preparing, reviewing, and submitting bimonthly compliance reviews for LFG extraction wells that are exceeding New Source Performance Standards (NSPS) regulatory limits and providing recommendations to remediate the exceedances by reviewing wellhead monitoring data, liquid level measurements, and OM&M evaluations.

**Kirby Canyon Landfill, Morgan Hill, California**: Designing the database review questions for the client Waste Management to estimate emissions from unpaved roads, LNG, RNG and transport vehicles. Tasks include evaluating landfill gas extraction well exceedances, monitoring excursions, and Environmental Protection Division (EPD) compliance submittals, landfill surface emissions monitoring (SEM) results, dust suppression plan recordkeeping, LFG flare data and other site-specific documentation to send to the state EPD.

**City of Vancouver landfill**: Condensate pump engineering calculation to find the pump head using the annual leachate and precipitation values. Using SDR 11 and 17 pipe types for T type joints and determining the elevation of water in the system side pipe.

**Meridian composting**: Operating plan specification review for compost facility of 175,000 TPA, Operating plan specification review to integrate process water, storm water and Roof water totaling 2 million gallons of water.

**State of Iowa**; Lifecycle Analysis of Single use Plastic Water Bottles: To evaluate all the life cycle stages of a single use plastics bottles for the state of Iowa with OpenLCA tool and using US Life cycle inventory (USLCI), hosted by the U.S. Federal LCA Commons Database selected: National Renewable Energy Laboratory/USLCI repository as JSON-LD. Comparative LCIA of scenarios, different permutations for single use water bottled parameter analysis.

**Hanes Inc**; Estimation of methane generation from biodegradation of polyester in the US landfills.

This research project includes providing the methane estimates that discusses the data, assumptions, and calculation methods used to develop the estimates. Methane emissions estimates to help assess the potential impacts that producing new consumer products made with biodegradable polyester will have on greenhouse gas (GHG) emissions. Objective 1 – Develop Estimates of Methane Generation from Disposed Polyester. Objective 2 – Prepare Estimates of Methane Recovery Rates and Emissions Reduction from Utilization. Objective 3 – Estimate Annual Net Methane Emissions for 100 Years.

**Annual reporting for Wasco County and Alaska regional landfill:** Title V Compliance, Responsible for preparing, reviewing, and submitting semi-annual and annual compliance reviews for landfills and LFG extraction wells that are exceeding New Source Performance Standards (NSPS) regulatory limits and providing recommendations to remediate the exceedances.

**Transfer Station Feasibility Study, Island County Coupeville Solid Waste Management Facility (CSWMF), Island County, WA (2022-Ongoing).** The ongoing study will provide an analysis and options for their existing transfer station, a capacity analysis, compactor analysis, an efficiency analysis, and recommendations for both operational and capital improvements for the CSWMF. Future facility needs will be projected based on operational and waste generation data collected, to facilitate the County's decision-making process to upgrade the existing facility with new compactor, versus recommending a new transfer station. The study focuses on identifying operational and facility improvements that would increase the capacity and efficiency of the transfer station operations, especially as a low footprint and high throughput facility.

**Pierce County Recycling, Composting and Disposal LLC dba LRI, LRI Landfill, Graham, WA.**

- **Phase VB Closure Construction Quality Assurance (CQA):** Supported thoroughly the CQA tasks and activities for the installation of geosynthetic clay liner and geomembrane for landfill final closure at the LRI Landfill (Graham, WA). That included testing of soils and geomembrane through destructive and non-destructive techniques, and oversight for the installation of a temporary and permanent GCCS system on the Closure, with regulatory compliance and documentation.
- **Cell 9A: Construction Quality Assurance:** Performed CQA for the construction of cell during the summer of 2022. Responsibilities involved contractor communications, construction observation, and testing. Included production and installation of engineered soils, geosynthetic installation including geosynthetic clay liner (GCL), geomembrane. Facilitated communication between the construction contractors, SCS project managers and directors, and the client to ensure that the design specifications and intentions were adhered to the clients' expectations. Worked with all parties to identify and troubleshoot field changes that occurred during the projects and to come up with timely solutions. geotextile, soil compaction testing, precast concrete structures and HDPE pipe installation.

**Waste Management Inc., Kirby Canyon Landfill, Morgan Hill, California;** Designing the database review questions for the client Waste Management to estimate emissions from unpaved roads, LNG, RNG and transport vehicles. Tasks include evaluating landfill gas extraction well exceedances, monitoring excursions, and Environmental Protection Division (EPD) compliance submittals, landfill surface emissions monitoring (SEM) results, dust suppression plan recordkeeping, LFG flare data and other site-specific documentation to send to the state EPD.

**Victorville, CA air compliance using HARP2EIM tool;** To determine the level of toxicity of carcinogens in the pollutants and quantifying pollutants from flare system.

**Ecowaste landfill, BC; Landfill gas modelling** methane recovery potential from the C&D waste stream. Working on the coverage, efficiency and actual emissions. Finding total recovery potential, recovery from existing/planned system and actual LFG recovery.

**Global Infrastructure Management:** All USA, 18 LFG models for sites located in different regions of the States, to help make investment decision for the Renewable Natural Gas facility. The analysis involved thorough usage of GHGreporting tool, precipitation data, Methane generation potential and decay rate constant analysis and interpretation. Proper documentation in form of Technical memo was provided to client.

## Magazine Articles

**Shah, K V.** and Sattler, M. (Jan. 2020 issue), Solid Waste Management Challenges and Solutions in India, Air and Waste Management Association, EM, The Magazine for Environmental Managers. <https://pubs.awma.org/flip/EM-Jan-2020/emjan20.pdf>

## Publications and Presentations

**Shah, K V.**, and Sattler, M., Decision Support Tool Process Module for Municipal Solid Waste Collection and Transportation for Developing Countries. The Air & Waste Management Association's 116th Annual conference & Exhibition, Ontario, FL, June 2023.

**Shah, K V.**, Single use plastic bottle emissions using Life cycle assessment for the US States, challenges, impact and recommendations. The Air & Waste Management Association's 116th Annual conference & Exhibition, Ontario, FL, June 2023.

**Shah, K V.**, (June 2022) Methane Emissions from Disposal of Biodegradable Polyester in U.S. Landfills. The Air & Waste Management Association's 115th Annual conference & Exhibition, San Francisco, CA 2022.

**Shah, K V.** and Sattler, M. (March 2021), Existing Solid Waste Management Challenges and Solutions in Developing countries: Case study of India. Thirty- Sixth International Conference on Solid Waste Technology and Management., Maryland, 2021

**Shah, K V.** (March 2021), Status of Municipal Solid Waste Management in Gujarat, India. Thirty-Sixth International Conference on Solid Waste Technology and Management., Maryland, 2021

**Shah, K V.** and Sattler, M. (October 2020) Solid Waste Management Life Cycle Assessment Decision-Making Tools for Developing Countries: A State-of-the-Art Review. 5th Eurasia Waste Management Symposium. *Under review for publication in the Journal of Environmental Research and Technology*

**Shah, K V.**, Shanru, T., and Jose, V., The study of environmental impact on industrial methane dispersion in the atmosphere based on GIS technology, ArcGIS, Plume plotter and Gaussian Equations were used for Air Dispersion modelling: Dallas, Texas, (2019).

**Shah, K V.**, Kumar, S., Kumar G., Multivariate Statistical Modelling on Integrated Municipal Solid Waste Management for the City with population of 50,000 and generating 40,000 TPA, detailed analysis on response and various independent variables. Statistical Regression Analysis was done using SAS software, (2018).

**Shah, K V.**, Effective ways, and sustainability of processing technologies along with strategies for solid waste management in India: 31st International Conference on Solid Waste Technology and Management; The Journal of Solid Waste Technology and Management to be convened on April 3rd – 6th 2016, Warwick, Philadelphia, USA