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## DANA L. MURRAY, PE, BCEE

### Education

B.S. - Civil Engineering, Old Dominion University, 1987

### Professional Licenses

Professional Engineer in VA (22389)

### Specialty Certifications

Board Certified Environmental Engineer (BCEE), Solid Waste Management

### Professional Affiliations

Solid Waste Association of North America (SWANA), Mid-Atlantic Chapter Representative  
International Board, Past Chapter President

### Professional Experience

Ms. Murray has twenty two years of professional experience in civil/environmental engineering, including landfill gas emissions modeling and collection system design; landfill gas energy technology evaluation, feasibility analysis, energy user outreach and analysis; landfill closures; transfer station design and construction; and stormwater hydrology and hydraulics. She serves as the Program Manager for SCS's contract with the US EPA Landfill Methane Outreach Program (LMOP). The LMOP mission is to reduce Greenhouse Gas emissions by beneficially capturing and utilizing the methane gas produced at landfills. In addition, Ms. Murray has managed multimillion dollar design and construction projects with multiple disciplines and subcontractors. Examples of her project experience include:

#### United States Environmental Protection Agency:

- **Landfill Methane Outreach Program (LMOP).** Current contract Program Manager for SCS' LMOP Contract. The LMOP mission is to reduce Greenhouse Gas emissions by beneficially capturing and utilizing the methane gas produced at landfills. This work involves technical outreach within the United State. Specifically, the work includes representing the EPA at National, Regional and State conferences for solid waste professionals, energy professionals and industrial energy users; providing technical feasibility analysis, location of energy users and landfills, project facilitation, and technical assistance; and preparing, coordinating and implementing workshops.
- **Climate and Clean Air Coalition (CCAC) Municipal Solid Waste Initiative (MSWI).** Program Manager for U.S. EPA's implementation of CCAC MSWI in Accra, Ghana; Addis Ababa, Ethiopia; Amman, Jordan; Dhaka, Bangladesh; Jakarta, Indonesia; and Rio de Janeiro, Brazil. CCAC is a partnership of countries, cities and non-state partners with a focus on short-lived climate pollutants such as methane and black carbon. SCS role is to work with the partner cities to analyze their solid waste management and identify projects that will result in reducing or avoiding methane and black carbon emissions. Projects include training

on all aspects of integrated solid waste management including collection, recycling, organic diversion, disposal, waste to energy, transfer stations, and landfill gas energy. In addition, our role is to provide feasibility analysis of landfill gas energy, organic diversion and recycling.

- **Global Methane Initiative (GMI) MSW Sector.** Program Manager for U.S. EPA GMI. GMI MSW Sector is a partnership of countries with a focus on reducing and avoiding methane emissions from solid waste. For over 10 years SCS has supported the U.S EPA in GMI in Argentina, Brazil, Chile, Colombia, the Dominican Republic, Indonesia, Jordan, Mexico, Nigeria, Poland, Russia, Serbia, Turkey, and the Ukraine. Work for GMI has included numerous workshops and training events on landfill operations, landfill gas collection, landfill gas energy and landfill gas generation models; landfill data collection; feasibility analysis for landfill gas energy projects; the development of several country and region specific landfill gas generation models; development of the International Best Practices Guide for Landfill Gas Energy Projects; and landfill gas end user searches.
- **Office of Solid Waste.** Developed training program covering the implementation of new Subtitle D regulations governing municipal solid waste landfill design, operation, and closure. Presented two-day training sessions for EPA regional personnel and state regulators.
- **Region III Sponsorship.** Project Manager for the development and presentation of a training program for VDEQ landfill permit writers.
- **Solid Waste Disposal Facility Criteria, 40 CFR Part 258.** Technical Editor for the Technical Manual, November 1993. The manual includes guidance for siting, operation, and design of MSW landfills, as well as guidance groundwater monitoring and closure/post-closure care.

**Alpha Ridge Landfill, Howard County, MD.** Project Manager for the design of the expansion of the residents' area and re-design of the Household Hazardous Waste Area. This work involves the addition of five drop off bays, expansion of the access road, HHW building, and stormwater wet pond for construction and water quality management after construction.

**Benning Road Transfer Facility, District of Columbia.** Project Coordinator for the redesign and construction of the existing Benning Road Transfer Facility. This work involves the coordination of a Surveyor, Structural Engineer, Electrical Engineer, Mechanical Engineer, Architect, and Civil Engineering. Tasks include the design of the demolition of electrostatic precipitators and exhaust stacks, partial demolition of the existing structure, the design of an addition onto the facility including tipping floor, load-out pits and scales, remediation of existing bridges, design of a new scalehouse and scales, design of a new citizen's convenience drop-off center and general site improvements. Assistance was also provided for permitting and zoning purposes. During construction, work involves providing quality assurance and coordination of submittal review and contractor's request for information.

**Fort Totten Transfer Facility, District of Columbia.** Project Director for the redesign and construction of the existing Fort Totten Transfer Facility. This work involves the coordination of a Surveyor, Structural Engineer, Electrical Engineer, Mechanical Engineer, Architect, and Civil Engineering. Tasks include the design of the existing tipping floor repairs and resurfacing, partial demolition of the existing structure, the design of an addition onto the facility including tipping floor, load-out pits and scales, design of new scales, design of a new citizen's convenience drop-

off center and general site improvements. Project Manager for the Planned Unit Development zoning process including public hearing testimony, citizen group meetings, and coordination with other District of Columbia Departments.

**Construction, Demolition and Land Clearing Debris Disposal Analysis, Prince William County, VA.** Project included a review of all private and public sector CD&L Debris Landfills in the region for remaining capacity. The study also looked at the need and the siting of a County owned CD&L Debris Landfill.

**Solid Waste Management Plan, Patuxent River Naval Air Station, MD.** Project Engineer. Project included a review of existing solid waste management activities and to recommend potential improvements.

**Solid Waste Management Alternatives Analysis, Northampton County, VA.** Project Engineer for the landfill expansion, landfill closure and transfer station construction.

**Landfill Gas Collection System ,Chesapeake, VA.** Preliminary design, detail design (including mechanical equipment layout), and preparation of contract.

**Anne Arundel County, MD.** Facilities Master Plan Project Engineer. Project includes individual facility design and siting for three citizens convenience centers, administration building, maintenance facilities, scale house, fueling facilities, vehicle washing, and internal roadway. The citizens' convenience centers were designed to accommodate 500 to 900 vehicles per day. The majority of the type of vehicle to use the convenience center is pick-up trucks. The design includes a separation of sedan unloading and pick-up truck unloading for aesthetic purposes. The internal roadway was redesigned to eliminate dangerous conditions. The project also included capital cost estimates and land acquisition evaluation.

**Charles City County Landfill, VA.** Project Engineer for the design of the maintenance and scale house/office facilities, citizens' convenience center, leachate storage and pump out facilities, and entrance road.

**Accomack County, VA, Northern and Southern Sanitary Landfill Designs.** Project Engineer responsible for preparation of Part A and Part B permit applications for the southern (140 acres) and northern (110 acres) landfills. The southern landfill design encompasses a 10-acre vertical expansion over a previous shallow trench method solid waste disposal area. The northern landfill design encompasses a 10-acre lateral expansion area adjacent to the existing active cell. The designs incorporate some of the modern features of sanitary landfills including composite liners, leachate collection systems and landfill gas controls. SCS is closely coordinating the designs with the Virginia Department of Waste Management, particularly with regard to the required hydrogeological investigations at each site. Preparation of construction bid documents is included.

**Landfill Seminars,VA and MD.** Managed development of landfill seminars for landfill owners and operators, local government employees and private industry. She was a presenter at these seminars.

**Charles City County Landfill, VA.** Project included design of administrative offices, equipment maintenance garage, leachate storage tanks, access road, and vehicle scales. Project deliverables

included preliminary, interim, final designs, and construction documents.

**Oaks Landfill, Montgomery County, MD.** Construction services for the vertical expansion of the existing landfill. Project included leachate management facilities, access road, gate house stormwater management facilities, environmental control facilities and landfill cells.

**Water Treatment Plant, Dover, DE.** Project included mechanical, electrical, and structural design of a facility to house the groundwater wells and water treatment equipment. The water treatment process included ozonation for VOCs and disinfections, lime addition for pH and alkalinity adjustment, GAC filtration, and Chloramines residual.

**Bull Run Mountain Sanitary District Water Storage Alternatives, Knoxville County, TN.** Project included feasibility analysis of different water storage alternatives to best address the challenges with difficult topography, limited access, and large pressure difference.

**Powells Creek Interceptor / Oak Ridge Force Main, Prince William County, VA.** Project consisted of 7,800 feet of force main and 30,000 feet of gravity interceptor sewer.

**Water Treatment Plant Feasibility Study, Town of Round Hill, VA.** Project include an analysis of an existing lade for potential use as a drinking water source, analysis of appropriate treatment, and a cost analysis.

**Stormwater and Sewage Pump Stations Design Upgrades, Norfolk, VA.** The project included assessment and recommendations for upgrading of over 50 facilities that pump either stormwater or sewage for the city and preparation of Stormwater and Sewage Pump Stations Operation and Maintenance Manuals.

**Landfill Gas Collection System, Chesapeake, VA.** Project included design of well field and mechanical, electrical, and structural design of landfill gas collection and flaring facility.

**Virginia Department of Highways Secondary Roads.** Project included hydrology and hydraulic analysis using HEC-2 and HY-8 for culvert design.

## **Publications**

Hall, C., and D. Murray. "Get the Mercury Out: Implementing a CESQG Program to Collect Mercury and Other Hazardous Wastes." Presented at the Solid Waste Association of North America's 2005 Winter Technical Symposium

Turner, D.L., L.K. McDaniel, and K.B. Gotwals. "Subtitle D Implementation: An Update."

[presented at] SWANA's 4th Annual Southeastern Regional Solid Waste Symposium. Myrtle Beach, South Carolina. November 1-3, 1994.

Briggs, J.L. and D.L. Turner. "Complying with the Wetlands Siting Restrictions in 40 CFR Part 258: Case Study." [presented at] ASTSWMO 1993 National Solid Waste Forum on Integrated Municipal Waste Management. September 1993.

Turner, D.L. and J.R. Harriman. "Leachate Pumping Systems: Side Sloper Riser Pipe vs. Liner Penetration Pipe." [presented at] the International Madison Waste Conference. Madison, Wisconsin. September 22-23, 1993.

Ward, C.G., D.L. Turner, and A.J. DiPuccio. "Subtitle D: You Have A Choice." MSW Management. October 1992. 2 (6): 70-75.