Denise Wessels, PE, BCEE

Education

M.S. - Environmental Science, Indiana University, 2003

B.S. - Civil Engineering, The Pennsylvania State University, 1993

Professional Licenses

Professional Engineer, Pennsylvania, Maryland, New Jersey

Professional Affiliations

Pennsylvania Waste Industries Association

Solid Waste Association of North America – Keystone Chapter – President

Professional Experience

Ms. Wessels is a Vice President and Project Director with the Landfill Engineering Group in our Denver, PA office. She has 30 years of experience in the waste management industry and environmental consulting, including landfill design, project management, regulatory compliance, permitting, environmental monitoring and studies, auditing, and budgeting. Examples of her project experience include:

#### Landfill Engineering

**Salem County Improvement Authority, NJ, SCIA Landfill.** Quality Assurance Engineer for Cell 10 double geosynthetic bottom liner system, access road and drainage swales.

**Sussex County Municipal Utilities Authority, NJ, Sussex County Municipal Waste Landfill.** Quality Assurance Engineer for Stage 1 - Landfill Life Extension project which included installation of a Mechanically Stabilized Earth (MSE) berm along the northern and western sides of existing phases/cells 2B, 3A and 3B, construction of perimeter berm with access road, installation of bottom liner system, and extension of existing leachate management features.

**Atlantic County Utilities Authority, NJ, ACUA Landfill.** Quality Assurance Engineer for Phase 1 and 2 of the Mechanically Stabilized Earth (MSE) berm landfill expansion project which included construction of perimeter berm with access road and drainage swales, installation of bottom liner system, and extension of existing leachate management features.

**Monticello, NY, Sullivan County Landfill.** Prepared Construction Quality Assurance Plan, Specifications and Engineer’s Cost Estimate for the closure of 17 acres of the Phase I Landfill. Work includes grading with ash material, installation of a geosynthetic landfill cap system, barrier protection soil, and topsoil layers, installation of surface water drainage system, abandonment and capping of LFG wells and headers, re-use and relocation of selected LFG headers, installation of new header sections, and re-connection to existing wells above the new cap liner. Responsibilities also included review of contractor submittals in accordance with the specifications.

**Lebanon, PA, Greater Lebanon Refuse Authority Landfill.** Project Manager for various engineering assignments including:

* Mining Study to evaluate the feasibility of mining waste from an unlined area of the landfill and reclaiming soil and recyclable materials. Work includes reviewing historical information, completing a boring investigation, and preparing a waste mining/redeposit plan.
* Construction bid package to include technical specifications and construction plans to complete waste mining and screening on 200,000 CY of waste from an unlined landfill with recovery of soils and redeposition of waste in a lined landfill.
* Phase I and II Major Permit Amendment for 47-acre landfill expansion, a portion of which piggybacked over an unlined municipal solid waste landfill, including “Settlement Accommodation Plan” which allows filling above final grades in anticipation of settlement to maximize airspace utilization
* Construction bid package to include technical specifications and construction plans for the 8-acre Pad 8 double-synthetic lined bottom liner system, perimeter roads and new stormwater management ponds. Work included preparation of construction plans and specifications, construction quality assurance plan, bidding assistance and construction engineering.
* Landfill Conceptual Closure Design evaluating using of ClosureTurf and LiteEarth
* Construction bid package to include technical specifications and construction plans to complete final closure on approximately 17 acres of the landfill. Certifying engineer for construction quality assurance monitoring of the closure construction.
* Technical support for pro forma evaluation of waste management options in support of the 10-year update of the County Solid Waste Management Plan

**Blythe Township, PA, BRADS Landfill.** Project Director for various engineering assignments including:

* Construction bid package to include technical specifications and construction plans for the 8-acre Cell 2A synthetic lined bottom liner system and new stormwater management pond. Work included preparation of construction plans and specifications, construction quality assurance plan, bidding assistance and construction engineering.
* Compliance activities including groundwater monitoring data evaluation, perimeter landfill gas probe monitoring, NPDES permit compliance, solid waste Minor permit modifications for hauling leachate and updating the radiation monitoring plan, permit application for off-site leachate treatment, preparing PPC/SPCC Plan, groundwater well decommissioning.

**Chicopee, MA, Chicopee Landfill.** Developed plans and specifications to repair settlement and ponded areas on the final cover and drainage swale on the closed and geosynthetic-capped landfill.

**Narvon, PA, Lanchester Landfill.** Project Manager for various engineering assignments including:

* Phase I and II Major Permit Amendment for Area F landfill expansion, a portion of which piggybacked over a lined municipal solid waste landfill
* Certifying Engineer for two final cover construction projects using Closure Turf alternative final cover and the Agru Integrated Drainage System alternative final cover. Construction activities included preparation of subgrade, installation of 50-mil LLDPE Super Gripnet geomembrane, geotextile, and final cover soils. During construction, modifications to the existing landfill gas system were made.
* Design Engineer for the 9-acre Area E, Cell 2A double-synthetic lined bottom liner system. Work included preparation of construction plans and specifications, construction quality assurance plan, bidding assistance and construction engineering.
* Design Engineer for installation of approximately 3 acres of exposed temporary cover on the Area E, Cell 1 interim sideslope to minimize stormwater infiltration and odors.

**Morgantown, PA, Conestoga Landfill.** Certifying Engineer for Certification of Facility Construction Activity (Form 37) for modifications of the landfill gas collection and control system. Prepare Annual Operation Reports, including density calculations, disposal summary, site plans, and cross-sections. Other activities have included creating compliance tasks for applicable federal, state and local regulations.

**York, PA, Magnesita Refractories Residual Waste Monofill.** Project Manager for various engineering assignments:

* Phase I and II Major Permit Modification for a vertical expansion to increase disposal capacity by 375,000 cubic yards and provide an additional 75 years of landfill life.
* Construction engineering (construction plans and specifications, CQA oversight, construction certification report) for construction of the final disposal area perimeter berm for the residual waste monofill to comply with Mine Safety and Health Act (MSHA) regulations
* Construction plan for construction of new access road and associated stormwater management features.
* Landfill development evaluation for a potential landfill expansion

**Confidential Location, PA.** Conducted a landfill development evaluation for a potential 130-acre non-contiguous landfill expansion. Work involved evaluating siting criteria and setbacks established in PA Solid Waste Management Regulations, identification of critical issues, preparation of a conceptual site plan with base grades and final cover grades, and estimation of potential airspace, construction costs and soil balance.

**York, PA, Modern Landfill.** Prepared a detailed cost/benefit analysis of removing certified final cover to recapture “lost” airspace due to settlement. Prepare Annual Operation Reports, including density calculations, disposal summary, site plans, and cross-sections. Other activities have included preparing semi-annual airspace calculations, assistance with engineering budget model, and creating compliance tasks for applicable federal, state and local regulations. Prepared a minor permit amendment, including PADEP Department of Solid Wastes Form K (Gas Management), for adding new landfill gas flares and removing old flares.

**Confidential Locations in Pennsylvania, Confidential Client.** Conducted file review and site visits to identify possible environmental liabilities at two landfills in conjunction with a potential merger by a publicly-listed company.

**Anne Arundel County, MD, Millersville Landfill.** Technical support for evaluating design options for Cell 9 including opportunities to increase airspace and updating the permit design to current standards. Included evaluation of options for gaining airspace including mechanically stabilized earthen (MSE) berms. Also, provided technical support on subsequent phases including Schematic Design, Detailed Design and Construction Documents efforts for the initial Subcell 9.1.

**Harford County, MD, Spencer’s Rubble Landfill.** Lead Engineer for the preparation of a Preliminary Closure Plan and Repermitting Cost Estimate. The Closure Plan describes activities necessary to close the 20-acre Spencer’s Rubble Fill, including a cost estimate for closure and post-closure care activities, and discusses potential end uses of the property. The report also presents procedures to re-permit the site to continue fill operations with a cost estimate for re-permitting, engineering, and construction. Provided technical support for plans and specifications for the closure of the entire landfill, and redevelopment for passive end uses to include a picnic pavilion, walking trails and dog park.

**Perry Hall, MD, Honeygo Run Reclamation Center.** Certifying Engineer for construction of the Southern Expansion. Construction activities included installation of Sedimentation Basin #3, access road construction, grading/preparation of storage tank and maintenance building area, a 25-foot high mechanically stabilized earthen (MSE) perimeter road, the four-acre Cell 4, and the four-acre Cell 5. Other activities have included preparing semi-annual airspace calculations, stormwater monitoring, and creating compliance tasks for applicable federal, state and local regulations.

**Harford County, MD, Abingdon Landfill.** Prepared an operations and maintenance manual for the landfill cap and environmental monitoring system at the closed landfill. Completed post-closure inspection of the landfill cap and associated features.

**Prince George’s County, MD, Brown Station Road Landfill**. Conducted a comprehensive environmental compliance audit covering solid waste, hazardous waste, air, surface water discharge, and industrial discharge regulations and permits.

**Lorton, VA, Fairfax County I-95 Sanitary Landfill.** Certifying Engineer for construction of the 11.3-acre Phase IIIB bottom liner construction, most of which piggy-backed over an existing closed landfill. Construction activities included regrading the piggyback area, preparation of subgrade, installation of geogrid, Prepared Subbase, geosynthetic clay liner (GCL), 60-mil textured HDPE geomembrane, geocomposite drainage net (GDN), protective cover, leachate collection system, and rain-cap. During construction, modifications to the existing leachate forcemain and landfill gas system were made.

**Staunton, VA, Augusta Regional Landfill.** Certifying Engineer for construction of Phase IV landfill cell. Construction activities included installation of sedimentation basins, access roads, and blasting and grading to construct the 17-acre Phase IV subgrade, geosynthetic bottom liner system and leachate collection system. Other activities have included preparing density and remaining capacity calculations, conceptual cap design, assistance with capital projects budgeting, and Major Permit Amendment to revise closure grades in Phases 1-3.

**Fort Belvoir, Lorton, VA, Cullum Woods Landfill.** Completed semi-annual post-closure inspection of the landfill cap and associated features (e.g., stormwater management system, landfill gas management system).

**Rockingham County, VA, Rockingham County Landfill.** Project Manager the Major Permit Amendment for the Phase V expansion, annual airspace/density calculations, updated Stormwater Pollution Prevention Plan.

**Page County, VA, Battle Creek Landfill.** Project Manager for various engineering tasks for the Landfill including the Phase I Major Permit Amendment (raised height of Phase I of the landfill), Phase II-IV Permit Amendment (to increase landfill capacity by raising final grades, and lowering bottom liner grades, and make several design improvements), Cell 8, 9 and 10 construction engineering (construction plans and specifications, CQA oversight, construction certification report), annual airspace/density calculations, plans and specifications for sedimentation basin cleanout, plans and specifications for seeding, obtaining a General Permit for Stormwater Discharges associated with Industrial Activity.

**Prince William County Landfill, VA:**

* Project Manager for preparing construction plans and specifications for 17.2-acre Phase II, Cell A construction and 24-acre Phase I, Sequence I Closure Project, and providing construction engineering services.
* Project Manager for the Ballfield Hollow Channel Relocation project to permit the relocation of approximately 4,000 linear feet of stream channel, which also impacts approximately three acres of wetlands.
* Led effort to prepare the Notice of Intent, Design Report, CQA Plan, and Specifications for the Phase II/III redesign project. Managed the completion of the traffic study and archaeological study.
* Completed a settlement analysis for the Ballfield Landfill and Project Manager for preparation of redevelopment plans to include a new athletic field and screening berm. The baseball fields, located over old municipal solid waste, were surcharged with soil and settlement plates were installed within the fill to monitor settlement over time. .

**Woodbridge, VA, Mount Ray Debris Fill.** Project Manager for the environmental site investigation necessary for the redevelopment of a 42-acre fill site (fill area covers 14 acres) under the Virginia Voluntary Remediation Program (VRP). Work included installation and monitoring of gas probes, preparation of a sampling and analysis plan, groundwater, soil, surface water and sediment sampling and analysis, preparation of a site characterization report, risk assessment and remedial action plan, negotiations with the Virginia Department of Environmental Quality (VDEQ), and installation and monitoring of settlement monitoring stations.

**Lorton, VA, Telegraph Road Landfill.** Project Manager for the environmental site investigation necessary for the redevelopment of a 92.5-acre property (fill area covers approximately 60 acres) under the Virginia Voluntary Remediation Program (VRP). Work included installation and monitoring of gas probes, preparation of a site characterization report, negotiations with the Virginia Department of Environmental Quality (VDEQ), installation and monitoring of settlement monitoring stations, preparation of a risk assessment report and a remediation waste management unit (RWMU) application.

**Confidential Location, Confidential Client.** Conducted file review and site visits to identify possible environmental liabilities at a landfill and transfer station in conjunction with a potential transaction involving two publicly-listed companies.

**Cleveland Heights, OH, City View Center.** Conducted short-term and long-term settlement analysis for the City View Center, a shopping center to be built over an old municipal solid waste landfill.

**Closure and Post-Closure Cost Evaluation.** Complete annual review of closure and post-closure cost estimate for landfills in Kentucky, Virginia and West Virginia to verify cost estimates are reasonable and appropriate.

**Puebla, Mexico, Chiltepeque Landfill.** Evaluated potential landfill expansion opportunities and prepared density and remaining capacity calculations.

#### Solid Waste Facilities

**Finksburg Transfer Station, MD, Waste Connections.** Prepared Solid Waste Permit Application for the construction and demolition processing facility to accept municipal solid waste and also to begin transferring operations. Prepared Notice of Intent and Stormwater Pollution Prevention Plan for NPDES General Stormwater Permit, Oils Operations Permit and Spill Prevention, Control and Countermeasure Plan (SPCC).

**Fairfax, VA, Covanta Fairfax, Inc.** Prepared a Permit-by Rule Application to obtain a solid waste permit for the waste-to-energy facility. Also provided professional engineering certification of Spill Prevention, Control and Countermeasure Plan (SPCC) updates.

**Alexandria, VA, Covanta Alexandria/Arlington, Inc.** Prepared a Permit-by Rule Application to obtain a solid waste permit for the waste-to-energy facility.

**Troy, VA, Zion Crossroads Recycling Center.** Lead Engineer to prepare the Permit by Rule to operate the 1,000 tons per day construction and demolition debris recycling center. Efforts also included preparing air emission calculations and managing the preparation of a stormwater pollution prevention plan.

**Page County, VA, Stanley Landfill.** Project Manager for the design of a 100 ton per day transfer station. Work involved managing the design of the transfer station, obtaining necessary permits (stormwater, zoning, permit-by-rule), and development of a bid package.

#### Landfill Gas

**Pottstown, PA, Pottstown Landfill.** Prepared a minor permit amendment, including PADEP Department of Solid Wastes Form K (Gas Management), for landfill gas flare No. 4.

**Pine Grove, PA, Pine Grove Landfill.** Plan Approval Application prepared for a landfill expansion which also included the replacement of two 2,000 cfm enclosed ground flares with one 5,000 cfm enclosed ground flare. Prepared the PADEP Department of Solid Wastes Form K (Gas Management) and Form G(B) (NMOC Emission Estimates) in support of the Pad 12 Expansion permit application.

**Greencastle, PA, Mountain View Reclamation Landfill.** Prepared a minor permit amendment, including PADEP Department of Solid Wastes Form K (Gas Management), for landfill gas flare No. 2.

**Bethlehem, PA, IESI PA Bethlehem Landfill.** Prepared permitting documents necessary for expansion of the landfill, including PADEP Solid Waste Forms, G(A), G(B) and Form K. Prepared annual Title V Certification Report, and Semi-annual Operational Reports for NSPS and NESHAP, and completed a Title V renewal application.

**Birdsboro, PA, Pioneer Crossing Energy, LLC.** Prepared a Municipal Waste General Permit Application and Renewal Application for a landfill-gas-to-energy beneficial use project at Pioneer Crossing Landfill.

**Birdsboro, PA, Western Berks Community Landfill.** Project Manager and Lead Engineer for preparing permitting documents necessary for expansion of the landfill, including PADEP Solid Waste Form G(B) and Form K, and air plan approval application. Work involved creating a master plan of the existing landfill gas control and collection system (GCCS), designing the GCCS in the expansion areas, and preparing an operations manual for the system.

**Perry Hall, MD, Honeygo Run Reclamation Center.** Prepared Methane Monitoring Plan and Conceptual Design and Cost Estimate for a landfill gas collection and control system for the rubble landfill. Project Manager for the installation of seven gas monitoring probes and quarterly perimeter probe monitoring.

**Lothian, MD, Sands Road Park (formerly Al-Ray Super Concrete Rubble Landfill).** Prepared Methane Monitoring Plan for the rubble landfill. Project Manager for the installation of seven gas monitoring probes and quarterly perimeter probe monitoring.

**Page County, VA, Stanley Landfill.** Conducted an assessment of landfill gas extraction wells (21 wells), collection and control system (candle stick flare), and provided recommendations for system improvements. Prepared an Addendum to the Landfill Gas Management and Remediation Plan to address landfill gas migration. Project Manager for the installation of four horizontal gas collectors. On-going work at the site includes preparation of monthly monitoring reports of the landfill gas perimeter monitoring system, and managing activities associated with the Addendum to the Remediation Plan.

**Page County, VA, Battle Creek Landfill.** Prepared annual emissions inventory, Stationary Source Air Permit Amendment (VDEQ Form 7), and Title V permit application. On-going work includes preparing the annual emissions statement and annual NMOC report.

**Lorton, VA, Telegraph Road Landfill.** Project Manager for the Major Permit Modification to transfer the solid waste permit for the Telegraph Road Landfill to a new owner, decommissioning the blower/flare station, installation of new perimeter landfill gas monitoring probes, preparation of a Gas Remediation Plan to address methane detections at perimeter monitoring probes, and installation of solar powered flares. On-going work at the site includes preparing monthly monitoring reports of the landfill gas perimeter monitoring system, and managing activities associated with the Remediation Plan.

#### Environmental Services

**Spill Prevention, Control and Countermeasures (SPCC) Plans.** Prepared SPCC Plans for various sites throughout Pennsylvania, Maryland, Connecticut and Virginia.

**Stormwater Pollution Prevention Plans (SWPPPs).** Prepared SWPPPs for various sites throughout Pennsylvania, Virginia, Maryland, Connecticut and Massachusetts.

### Publications

Boeglin ML, Wessels D, Henshel D. 2006. An Investigation of the Relationship between Air Emissions of Volatile Organic Compounds and the Incidence of Cancer in Indiana Counties. Environmental Research 100:242-254.

Wessels D, Barr DB, Mendola P. 2003. Use of Biomarkers to Indicate Exposure of Children to Organophosphate Pesticides: Implications for a Longitudinal Study of Children’s Environmental Health. Environmental Health Perspectives 111:1939-1946.