## TIMOTHY BUELOW, PE

### Education

MS Iowa State University, 1993 Environmental Engineering

BS Iowa State University, 1991 Civil Engineering

### Professional Licenses

Professional Engineer - Iowa License No. 14445

- Illinois License No. 062-054165

- Kansas License No. 16365

- Missouri License No. 2018034574

Certified Groundwater Professional - Iowa No. 1628

### Professional Experience

Mr. Buelow earned his bachelor's degree in Civil Engineering and a Master’s Degree in Environmental Engineering, both from Iowa State University in the early 1990’s. He has worked in the environmental consulting industry for over 30 years. Work experience includes numerous aspects of landfill design and compliance along with environmental site assessment and remediation. Areas of expertise include groundwater data analysis/interpretation, landfill gas migration evaluation/remediation, and identifying cost saving or cost avoiding compliance solutions. Groundwater data interpretation experience includes geochemical methods to determine contaminant sources and non-release related water quality changes. Work experience also includes developing leachate treatment options and preparing financial projections for landfill clients.

Example project experience includes:

**Landfill Design:** Project design experience includes landfill vertical and horizontal expansion design, alternative liner design, leachate recirculation system design, groundwater diversion trench design, leachate storage lagoon design, and storm water control structure design for numerous landfills throughout Iowa. Additional experience includes siting criteria review and property acquisition assistance.

**Landfill Financial Planning:** Project experience includes development of long-term capital improvement plans, review and projection of landfill annual budget components and revenue streams and preparing long-term financial plans to assess the economic viability of the facility operations and recommend changes for numerous landfills throughout Iowa. Additional experience includes airspace analysis and operational reviews to assess the efficiency of the operation and recommend changes.

**Landfill Compliance:** Project experience includes preparing semi-annual and annual groundwater quality reports, leachate control system performance evaluation reports, landfill inspections and inspection reports, permit renewals, permit amendments and variances.

**Landfill Gas Management:** Project experience includes designing landfill gas collection systems, performing Tier 1 and Tier 2 NMOC emissions analysis and reporting, and estimation of landfill gas generation over time for use in consideration of beneficial use of the energy value of the landfill gas.

**Remedial System Design:** Senior Project Engineer, project experience includes system design and final report preparation for numerous systems throughout Iowa utilizing technologies such as In-situ Air Sparging (IAS), Soil Vapor Extraction (SVE), Dual Phase Extraction (DPE), Oxygen Release Compound (ORC), Hydrogen Release Compound (HRC), grout curtain injection, and over excavation.

**Site Assessment:** Project Manager, field data collector and senior reviewer, project experience includes preparation and/or review of numerous Phase I and Phase II environmental site assessments, Site Cleanup Reports, Tier 1 and Tier 2 Risk Based Corrective Action Reports, and general assessment reports as sites throughout Iowa, Kansas, Missouri, and Illinois.

**Risk Assessment:** Project experience includes review of Superfund site risk assessment documents to preliminarily determine possible site development strategies to further mitigate health risks, thereby reducing the remedial costs and economic barriers to site development for a large downtown development in Des Moines, Iowa.

**NPDES Permitting:** Project experience includes preparing and/or reviewing numerous General Permit No. 1 applications and associated Storm Water Pollution Prevention Plans (SWPPPs) for landfills across Iowa. Also associated with the SWPPPs, project experience includes engineering design of storm water control structures including, terraces, letdowns, and sedimentation basins.

**Air Permitting:** Project experience includes modeling and permit application completion for discharge from both mobile and stationary emission sources for remedial systems in Polk and Lynn Counties in Iowa, review of existing permits or processes to assess possible operational alternatives and review of air construction permits and design capacity reports for permitted solid waste landfills. Project roles have included project engineer for document preparation and senior reviewer.

**Expert Witness and File Review:** Project experience includes file review, interrogatory preparation, deposition, and court testimony regarding contaminant transport through the subsurface, release dating, and allocation of responsible party contribution to a contaminant plume. Additional project experience includes review of file information for insurance claim and budgetary approval purposes related to the direction of project progression recommended by consultants. All projects were located in Iowa. Project roles have included serving as expert witness and principal engineer.

Publications

“Laboratory Batch Studies Assessing the Potential for In-situ Bioremediation of Fuel Contaminated Soil and Groundwater In Weathered Glacial Till”, Masters Thesis, Iowa State University, 1993.

Technical Presentations

“Remediation Technology”, presented at the *Environmental & Natural Resources Law Seminar*, West Des Moines, Iowa, October 21, 1999

“Soil and Groundwater Remediation Strategies,” presented at the *Iowa State University Graduate Student Seminar*, Ames, Iowa, April 1, 2003.

“Landfills 101”, presented at the *Iowa State Association of Counties Spring School*, Des Moines, Iowa, March 18, 2004

“Changes in Groundwater Monitoring Requirements for Municipal Landfills in Iowa”, presented at the *Iowa Groundwater Association 2007 Spring Meeting*, Ankeny, Iowa, March 22, 2007.

“Beyond Appendix II: A Geochemical Perspective”, presented at the *Iowa Society of Solid Waste Operators 2013 Fall Conference*, Council Bluffs, Iowa, October 9, 2013.

“Ending Post Closure: Progress Made”, presented at the *Iowa Society of Solid Waste Operators 2018 Fall Conference*, Council Bluffs, Iowa, October 9, 2018.

“Ending Post Closure: A Process More Than An End”, presented at the *Iowa Society of Solid Waste Operators 2019 Fall Conference*, Dubuque, Iowa, October 1, 2019.

“An Uncommon Approach to Leachate Pre-Treatment”, presented at the *Iowa Society of Solid Waste Operators 2021 Fall Conference*, Cedar Rapids, Iowa, October 5, 2021.