

Professional Record

Professional Synopsis:

Dr. Richardson has directed solid waste containment and geosynthetic design projects over the past two decades for national clients that include: U.S. Environmental Protection Agency, U.S. Department of Defense, New York State Department of Environmental Control, the CECOS Division of Browning Ferris Industries (BFI), Waste Management, Inc., Waste Industries, Inc., Tennessee Eastman, International Paper, and Dow Chemical.

Dr. Richardson's background in geosynthetics dates to 1976. He was a founding member of ASTM D-35 Committee on Geosynthetics and the Geosynthetics Research Institute. Dr. Richardson co-authored a book on the design of geotextiles for IFAL. In 1985, Dr. Richardson co-authored a geosynthetic design manual for U.S. EPA on the design of hazardous waste landfills and surface impoundments (EPA/600/S2-87-097), taught three national landfill design courses for EPA, and co-authored a landfill seismic design manual for U.S. EPA (EPA/600/R-95/051).

For municipal solid waste landfills, Dr. Richardson provided design review and CQA for the first lined municipal solid waste (MSW) landfill constructed in North Carolina (1989 at Rowan County). Also, within North Carolina, he has been responsible for the design and permitting of Subtitle D landfills for Alamance County, Halifax County, Johnston County, Robeson County, Sampson County, and the City of High Point. In 1997, he designed a piggy-backed lined landfill for Winston-Salem. This was the first piggyback MSW landfill operating in North Carolina. Currently, he has permitted a similar piggy-back landfill for Johnston County, NC. Dr. Richardson has assisted in the design of 13 piggyback landfills in the southeast. Outside of North Carolina, he has designed and permitted Subtitle D landfills in South Carolina, Virginia, New York, and Pennsylvania.

Dr. Richardson's industrial landfill design experience includes design of a hazardous waste landfill for the Tennessee Eastman Company at Kingsport, TN., and a composite lined industrial landfill for Mead Paper in Tennessee. This landfill site was the first to be permitted in Karst geology since the new and more rigorous landfill laws were passed in Tennessee. In North Carolina, he designed the first lined coal ash disposal facility in the State for Westmoreland Energy and designed and permitted a double

Gregory Richardson, Ph.D., P.E. Senior Engineer

Academic Credentials:

B.S., California State University at Los Angeles, 1969
M.S.C.E., University California at Los Angeles, 1973
Ph.D., University of California at Los Angeles, 1976

Professional Credentials:

Professional Engineer - California, North Carolina,
South Carolina, Virginia, Tennessee, Michigan,
Connecticut, Georgia, New York (inactive),
West Virginia (inactive)

Employment Record:

1994-present - Richardson Smith Gardner & Associates
(formerly G.N. Richardson & Associates, Inc.)
1993-1994 - Harding Lawson Associates, Inc.
1992-1993 - Hazen & Sawyer, P.C.
1991-1992 - G.N. Richardson & Associates, Inc.
1980-1990 - Westinghouse Environmental &
Geotechnical (formerly S&ME)
1976-1980 - North Carolina State University

Principal Areas of Expertise:

Landfill design, permitting, and operations
Geosynthetic design and testing

Professional Activities:

American Society of Civil Engineers
North American Geosynthetics Association
International Geosynthetics Society
American Society for Testing and Materials

Professional Awards:

ASCE, J. James R. Cross Medal - 1978
North Carolina Consulting Engineers Council -
Research Award - 1989

RICHARDSON SMITH GARDNER & ASSOCIATES, INC.

Engineering and Geological Services

lined landfill within what had been a wastewater treatment pond for International Paper's Riegelwood (NC) Mill. Dr. Richardson also completed the design and construction of a lined landfill expansion for International Paper's Franklin (VA) Mill.

Additionally, Dr. Richardson has directed RI/FS activities at NPL sites in both South Carolina and Washington. This work included remedial design (RD) and construction oversight/CQA for a Superfund site in Lexington, South Carolina. This facility has recently successfully passed its mandatory agency 5-year review.

Dr. Richardson is also involved in the design and permitting of mixed waste storage facilities at U.S. Department of Energy facilities at Hanford, WA; Oak Ridge, TN; and Savannah River, SC. This work has included evaluation of storage vault facilities, the design of interim (30 year) closure systems, and long-term (1000 year) isolation systems. This work was key to the permitting of the Monticello mixed waste repository in Utah and the Bear Creek mixed waste repository under construction in Oak Ridge, Tennessee.

Dr. Richardson has also provided guidance to landfill operators with regards to extinguishing landfill fires and leachate disposal alternatives. He developed the strategy that successfully extinguished a deep fire at the Killingsworth Fast Disposal Landfill in Portland, Oregon and has assisted landfills in Maryland and Guam in putting out similar landfill fires.

Dr. Richardson is currently directing one of the largest leachate recirculation programs being performed in the USA. This facility receives more than 4,000 ton/day and treats no leachate. Work is ongoing to define the impact of recirculation on long term waste properties and the serviceability of the leachate collection system.

His current research is focused on the role of GCL's in landfill systems and in the development of more economical final covers. This may lead to a strategy of tying the from of final closure to the presence of active gas recovery systems and adequacy of the collector system design. It is hoped that this research will reduce the cost of closure so resources can be more focused on energy recovery and the potential of cover failure lessened.

Gregory Richardson, Ph.D., P.E. Senior Engineer

Selected Publications:

"Design of Geosynthetic Systems for Water Disposal" (Koerner, R.M. and Richardson, G.N.), ASCE-GT Specialty Conference, Geotechnical Practices for Waste Disposal, Ann Arbor, MI, 1987.

"Geosynthetic Design Considerations for Double Liner Systems" (Richardson, G.N. and Koerner, R.M.) 13th Annual Hazardous Waste Seminar, U.S. EPA, Cincinnati, OH, 1987.

EPA/600/S2-87/097, Geosynthetic Design Guidance for Hazardous Waste Landfill Cells and Surface Impoundments (Richardson, G.N. and Koerner, R.M.), EPA Guidance Document, 1988.

"Design of State-of-the-Art Landfill" (Richardson, G.N. and Horton, G.W.), Proceedings - First Annual Southeastern Regional Solid Waste Symposium, Savannah, GA, 1990.

EPA/540/R-92/073, Construction Quality Management for Remedial Action and Remedial Design Waste Containment Systems.

EPA/625/4-89/022, Requirements for Hazardous Waste Landfill Design, Construction and Closure, (Richardson, G.N.), Chapters on Flexible Membrane Liners, 1989.

"Composite Liner and Floating Cover for Nuclear Reactor Emergency Effluent Basins" (Sentelle, R.H. and Richardson, G.N.), Third International Symposium on Sanitary Landfills, CISA, Sardinia, Italy, 1992.

EPA/600/R-95/051, RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities, 1995.

"Lessons Learned From Failure: Landfill Covers," Gregory N. Richardson, Kevin Pavlik, Geotechnical Fabrics Report, IFAI, St.Paul, MN, September, 2004.