

Steven F. Bartlett, Ph.D., P.E.

Resume

October 2001

Page 1

**Areas of Research**

Geotechnical Earthquake Engineering  
Ground Response Modeling  
Geotechnical Instrumentation  
Site Characterization  
Behavior of Soft Soils  
Risk Assessment  
Hazard Mapping

**Areas of Expertise**

Geotechnical Engineering  
Earthquake Engineering  
Transportation Engineering  
Geoenvironmental Engineering  
Applied Statistics  
Project Management

**Education**

Ph.D., Civil Engineering (geotechnical emphasis),  
Brigham Young University, 1992.

B.S., Geology, Brigham Young University, 1983.

**Professional History**

Assistant Professor, Civil and Environmental  
Engineering Department, University of Utah, 2000-  
current.

Adjunct Assistant Professor, Brigham Young  
University, Department of Civil and Environmental  
Engineering, Brigham Young University, 2001.

Instructor, Civil and Environmental Engineering  
Department, University of Utah,

Utah Dept. of Transportation, Research Project  
Manager, Research Division, 1998 - 2000.

Woodward-Clyde Consultants, Project Engineer, 1996-  
1998.

Westinghouse Savannah River Company, Senior  
Engineer, 1991-1995.

**Professional Experience**

- Assistant Professor, Civil and Environmental Engineering - Teaching of graduate and undergraduate courses in geotechnical engineering and performing research.
- Research Project Manager, I-15 Reconstruction Testbed - UDOT Project manager for I-15 research involving construction and instrumentation of innovative embankment systems, foundation treatments and ground modification; long-term settlement monitoring and performance of embankments, mechanically stabilized earth walls, geofoam fills, etc.; response of pile and geopolymer foundation systems to lateral and uplift loads; carbon fiber retrofitting and non-destructive testing of bridges.
- I-15 Design-Build Project Geotechnical Designer - Design engineer for Woodward-Clyde Consultants responsible for geotechnical design from 800 South to 2100 South of I-15 in Salt Lake City, Utah. Design included foundation treatments, ground modification, slope stability, settlement considerations, geofoam fills, liquefaction assessments, and seismic modeling of embankment and MSE wall systems.
- Value Engineering and Design Team - Geotechnical member of the Value Engineering and Concept Design Team for the University Parkway Interchange (1300 South) at I-15, Orem, Utah.
- Private Fuels Storage Facility - Geotechnical expert witness for the State of Utah in the proceedings before the Nuclear Regulatory Commission for the Private Fuel Storage, LLC proposed interim high-level radioactive waste storage facility. Lead reviewer of the safety analysis report (SAR) and supporting calculations for geotechnical investigations, Skull Valley, Utah.
- Kennecott Utah Copper Tailing Impoundment Modernization Project - Performed steady state and transient seepage analyses for dewatering system for the upgrade and expansion of Kennecott's tailings impoundment, Magna, Utah.

**Steven F. Bartlett, Ph.D., P.E.**

**Resume**

**October 2001**

**Page 2**

Brigham Young University, Research Assistant, 1988-1991.

Utah Department of Transportation, Preconstruction Materials Engineer, 1987-1988.

Utah Department of Transportation, Construction Technician, 1984-1987.

Geokinetics In-Situ Oil Shale Development, Retort Engineer and Technical Writer, 1984.

**Awards and Recognitions**

BYU Presidential Scholar (University Scholarship).

Alvin Barrett Scholar (Geology Department).

Civil Engineering Departmental Scholar.

BYU Scientific Research Society (Sigma-Chi) Recipient, Outstanding Ph.D. Dissertation, 1992.

Total Quality Achievement Award, Environmental Restoration Department, Westinghouse Savannah River Company, 1992, 1993.

Finalist for outstanding paper, ASCE Journal Geotechnical Engineering, 1995.

Vice President's Award, Westinghouse Engineering and Construction Services Division, 1995.

Excellence in Research Award, Utah Dept. of Transportation, 1999, 2000.

**Registrations**

Professional Engineer: Utah.

**Affiliations**

American Society of Civil Engineers.

Transportation Research Board.

National Council of Examiners for Engineering and Surveying.

American Society of Engineering Educators?

Boy Scouts of America.

- **Wasatch County Water Efficient Project** - Performed geologic and geotechnical assessments of canal stability and pump station locations, Heber Valley, Utah.
- **Bear River Pipeline** - Performed geologic and geotechnical assessments of pipeline route alternatives for the Salt Lake Water Conservancy District, Weber, Davis and Salt Lake Counties, Utah.
- **Cainville Dam Investigation** - Project Engineer responsible for preliminary geologic and geotechnical assessments of foundation conditions at this proposed dam site. Performed drilling of abutment areas, pump testing, and seepage assessments, Wayne County, Utah.
- **DMAD and Gunnison Bend Dam Investigations** - Performed geotechnical investigations and assessments to determine the piping potential and seismic stability of these embankment dams for the State of Utah, Dam Safety Program, Delta, Utah.
- **Seismic Retrofit of Salt Lake City Waste Water Treatment Plant** - Lead geotechnical design engineer and field oversight engineer of jet grouting operations to stabilize potentially liquefiable soils under an effluent pump station, North Salt Lake City, Utah.
- **Hurricane Bridge Foundation Investigation** - Performed geologic and bridge foundation investigations and analyses for UDOT, Hurricane Bridge Crossing, Hurricane, Utah.
- **ITP/H-Area Tank Farm Geotechnical Investigation and Seismic Qualification, Department of Energy, Savannah River Site** - Westinghouse's principal geotechnical investigator on a multi-disciplinary team overseeing the seismic qualification of the ITP/H-Area high-level radioactive waste storage tank farm. This project included extensive subsurface investigations, strong ground motion modeling, probabilistic liquefaction hazard evaluations, dynamic settlement and slope stability calculations, and risk assessment.
- **Review Team for the Seismic Design of the Defense Waste Processing Facility, Department of Energy Savannah River Site** -

October 2001

### Committees and Panels

Chairman of Utah Strong Motion Advisory Committee, 2001-current.

Member of Transportation Research Board, Committee on Soils and Rock Instrumentation, 2000-current.

Member of Utah Seismic Safety Commission Lifelines Subcommittee, 1998-current.

Program Committee Chair, EPS Geofoam 2001 3<sup>rd</sup> International Conference, Salt Lake City, December 10-12, 2001.

Member of Organizing Committee, Geologic Hazards in Utah, Salt Lake City, Utah, April 12-13, 2001.

Member of FEMA Project Impact and Salt Lake City Seismic Hazard Ordinance Committee, 2000.

Member of Organizing Committee, 34<sup>th</sup> Annual Symposium on Engineering Geology and Geotechnical Engineering, Logan, Utah, April, 1999.

Member of Organizing Committee, Environmental Geotechnology, ASCE, Salt Lake City, Utah, March, 1997.

Member of Municipal Landfill Site Selection Committee, Columbia County, Georgia, 1993.

### Training and Certifications

OSHA 1910.120 Health and Safety Training for Hazardous Waste Operations and Emergency Response.

Department of Energy, Radiation Worker Training, Westinghouse Savannah River Company.

U.S. Department of Labor Mine Safety and Health Administration (MSHA) Underground Mining Training.

### Peer Reviewed Publications and Reports

Bartlett S. F., and Farnsworth, C. "Performance of Lime Cement Stabilized Soils for the I-15 Reconstruction Project, Salt Lake City, Utah, "Transportation Research Board Annual Meeting, Jan. 2002, Washington, D.C. (in press).

Bartlett S. F., Farnsworth, C., Negussey, D., and Stuedlein, A. W., 2001, "Instrumentation and Long-

Westinghouse's principal geotechnical investigator reviewing the Safety Analysis Report (SAR) for the seismic qualification and start-up of this high-level radioactive waste vitrification and storage facility, Savannah River Site, Aiken, South Carolina.

- Department of Energy Savannah River Site Hazardous Waste Landfill Closure -Project manager and lead design engineer for the RCRA Facility Investigation and closure of a 51-acre hazardous waste landfill. Also, oversaw the preparation of CERCLA feasibility study for the same closure, Savannah River Site, Aiken South Carolina.
- RCRA/CERCLA Investigations - Project Manager for hazardous waste investigations at the Bingham Pump Outage Pits, Burma Road Rubble Pits, and H-Area Retention Ponds, Savannah River Site, Aiken, South Carolina.
- UDOT Region 2 Preconstruction Materials Engineer - Performed material testing and pavement design for highway alignment and urban interchanges in West Valley City and the I-215 interchange at California Avenue. Evaluated compaction and quality of subgrade for east-side I-215 between 2700 South and 4500 South. Conducted geologic investigations on new and existing highway alignments in Salt Lake and Wasatch Counties, located fill and gravel sources for construction. Instrumented and monitored I-215 fill slopes for settlement and slope stability.
- Construction/Survey Technician - Survey of highway projects and construction inspection. Development of construction project accounting system for UDOT.
- Retort Engineer - Monitored process control of underground retorting of oil shale for Geokinetics under Syn-Fuels research contracts for the Department of Energy, Vernal, Utah.

### Research and Educational Experience

- Development of Design Response Spectra for Soft Soil Site from Probabilistic Based Bedrock Spectra - Principal Investigator, Utah

Term Monitoring of Geofam Embankments, I-15 Reconstruction Project, Salt Lake City, Utah," Proceedings of EPS 2001, (in press).

Youd, T.L., Hansen, C.M., Bartlett S.F., 2001, "Revised MLR Equations for Prediction of Lateral Spread Displacement," Journal of Geotechnical (in press).

Bartlett, S.F., Monley, G., Soderborg, A., Palmer, A., 2001, "Instrumentation and Construction Performance Monitoring for the I-15 Reconstruction Project, Salt Lake City, Utah," Transportation Research Board Annual Meeting, Jan. 2001, Washington, D.C.

Bartlett, S. F., Negusse, D., Kimball, M., 2000, "Design and Use of Geofam on the I-15 Reconstruction Project," Transportation Research Board Annual Meeting, Jan. 2000, Washington, D.C.

Bartlett, S. F. and Youd, T. L., April 1995, "Empirical Prediction of Liquefaction-Induced Lateral Spread," Journal of Geotechnical Engineering, ASCE.

Bartlett, S. F., 1992, "Empirical Analysis of Horizontal Ground Displacement Generated by Liquefaction-Induced Lateral Spreads," Ph.D. dissertation and report published by National Earthquake Engineering Research Center, NCEER Report #92-0021.

Bartlett, S. F. and Youd, T. L., 1992, "Case Histories of Lateral Spreads from the 1964 Alaska Earthquake," NCEER Report #92-0002.

### Other Publications and Reports

Saye, S. R., Esrig, M. I., Williams, J. L., Pilz J., Bartlett S.F., "Lime Cement Columns for the Reconstruction of Interstate 15 in Salt Lake City, Utah." ASCE Geo-Odessey, Blacksburg, VA. , June 10 - 13<sup>th</sup>, 2001.

Bartlett, S. F., 1999, "Research Initiatives for Monitoring Long Term Performance of I-15 Embankments, Salt Lake City, Utah," 34<sup>th</sup> Annual Symposium on Engineering Geology and Geotechnical Engineering, Logan, Utah, April, 1999.

Youd, T. L., Hansen C. M., Bartlett, S. F., 1999, "Improved MLR Model for Predicting Lateral Spread Displacement," 7th US-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Soil Liquefaction, Seattle, Washington, August, 1999.

Department of Transportation (2000-2001).

- **I-15 Long Term Monitoring of Embankments and Innovative Foundation Treatments** - Principal Investigator, Utah Department of Transportation (1998 - 2008).
- **Deformation and Modeling of MSE Wall Behavior** - Co-Principal Investigator, Utah Department of Transportation and Utah State University (1999-2000).
- **Evaluation of Properties and Long-Term Performance of Geofam Fills** - Co-Principal Investigator, Utah Department of Transportation and Syracuse University (1998-2000).
- **Geostatistical Assessment of In-Situ and Engineering Properties at H-Tank Farm** - Co-Principal Investigator, Westinghouse Savannah River Company and Georgia Institute of Technology (1994 - 1995).
- **Evaluation of Geopiers and Pile Foundation to Lateral and Uplift Loads** - Project Manager, Utah Department of Transportation, University of Utah, and Brigham Young University (1999).
- **Design, Application, and Use of Carbon-Fiber Composites in Bridge Repair and Seismic Retrofitting** - Project Manager, Utah Department of Transportation and University of Utah (1998-2000).
- **Use of Forced Vibration Testing to Assess Bridge Damage** - Project Manager, Utah Department of Transportation and Utah State University (1998).
- **Identification and Ranking of UDOT Lifelines** - Project Manager, Utah Department of Transportation (1998 - 2000).
- **Wick Drain Performance** - Project Manager, Utah Department Transportation (1998 - 1999).
- **Assessment of Dynamic Soil Properties for the Savannah River Site** - Geotechnical Reviewer, Westinghouse Savannah River Company and University of Texas at Austin.
- **Research Assistant, Brigham Young University**, "Empirical Prediction of Liquefaction-Induced Lateral Spread," U.S. Army Corps of Engineers and National Center

Steven F. Bartlett, Ph.D., P.E.  
Resume

October 2001

Page 5

Simon, D. B., Shlemon, R. J., and Bartlett, S.F., 1999, "Holocene Ground Failure in Downtown Salt Lake City, Utah," Geological Society of America, Cordilleran Section, Vol. 31, Number 6, Berkeley, California, May 1999.

WSRC, 1995, "In-Tank Precipitation Facility (ITP) and H-Tank Farm (HTF) Geotechnical Report," Report No. WSRC-TR-95-0057, Rev. 0, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F., 1995, "Probabilistic Liquefaction Settlement Evaluation for the In-Tank Precipitation Facility (ITP)," Report No. C-CLC-H-00815, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F., 1995, "Geotechnical Seismic Assessment Report for the Defense Waste Processing Facility (DWPF)," Report No. SRC-TR-95-0072, Westinghouse Savannah River Company, Aiken, S.C.

Rouhani, S., Lin, Y. P., and Bartlett, S. F., 1995, "H-Area/ITP Geostatistical Assessment of In-Situ and Engineering Properties," Final Technical Report, ERDA Project No. 93044, Site Geotechnical Services, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F., 1994, "Determination of Soft Zones and Consolidation Properties for the Santee Formation," Report No. K-CLC-H-00058, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F. and Youd, T. L., 1993, "Prediction of Liquefaction-Induced Ground Displacement Near Bridges," Proceedings from the U.S. National Earthquake Conference, Memphis, Tenn., May, 1993.

Bartlett, S. F., 1993, "RCRA Facility Investigation / CERCLA Remedial Investigation for the Burma Road Rubble Pit," Environmental Restoration Department, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F., McMullin, S. R., and Serrato, M., 1993, "State of the Art Design: A Closure System for the Largest Hazardous Waste Landfill at the Savannah River Site," Proceedings of Waste Management '93 Symposium.

Bartlett, S. F. and Youd, T. L., 1992, "Empirical Prediction of Lateral Spread Displacement," Proceedings of 4th Japan-U.S. Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Soil Liquefaction, May, 1992.

Bartlett, S. F. and Youd, T. L., 1990, "Evaluation of

for Earthquake Engineering Research (1988-1991).

- Thesis Committee Member, Kiehl, S.J. "Distribution of Ground Displacements and Strains Induced by Lateral Spread During the 1964 Niigata Earthquake, Brigham Young University (1996).
- Thesis Committee Member, Hansen C. M., "Improved MLR Model for Predicting Lateral Spread Displacement, Brigham Young University (1999).

### Teaching Experience

- Assistant Professor, University of Utah, Fall 2000 to current.
- Teaching Assistant, Earthquake Engineering, Brigham Young University, Winter Semester, 1989.
- Teaching Assistant, Soil Mechanics, Brigham Young University, Fall Semester, 1989.
- Teaching Assistant, Field and Laboratory Testing of Soil, Brigham Young University, Spring Term, 1989.
- Missionary - Church of Jesus Christ of Latter-Day Saints, Catania, Italy, 1979 - 1981.

### Graduate Courses Taught

- CVEEN 7330 Geotechnical Earthquake Engineering (1 time)
- CVEEN 7340 Advanced Geotechnical Testing

### Undergraduate Courses Taught

- CVEEN 3310 Geotechnical Engineering I (2 times)
- CVEEN 3320 Geotechnical Engineering II (2 times)

### Papers Reviews

Steven F. Bartlett, Ph.D., P.E.  
Resume

October 2001

Page 6

Ground Failure Displacement Associated with Soil Liquefaction: Compilation of Case Histories," Miscellaneous Paper S-73-1, U.S. Army Corps of Engineers.

**Invited Lectures**

"UDOT Guidance for Developing Design Response Spectra for Soft Soils," Geologic Hazards in Utah, Sponsored by AEG and ASCE, Salt Lake City, Utah, April 12 -13, 2001.

"Instrumentation and Research of Geofoam Embankments for the I-15 Reconstruction," Huntsman Chemical Geofoam Seminar" May 16<sup>th</sup>, 2000, Salt Lake City, Utah

"Design of Geofoam Embankment for the I-15 Reconstruction," Conference on Application and Design of Expanded Polystyrene, Sponsored by Taiwan Area National Expressway Engineering Bureau and China Engineering Consultants, Inc., March 3<sup>rd</sup>, 2000, Taipei, Taiwan.

"Issues Related to the Seismic Design of I-15 Reconstruction Project - A Geotechnical Perspective," Association of Engineering Geologist 42<sup>nd</sup> Annual Meetings, Sept. 28, 1999, Salt Lake City, Utah.

"Assessment of the Hazard Potential for the East Side of I-80," Conference on the Sesimic Retrofit of Utah's Highway Bridges, sponsored by the Utah Department of Transportation, January 20-22, 1999. Salt Lake City, Utah.

"Geofoam Design, Construction and Research on the I-15 Corridor Reconstruction Project," Annual Meeting of the Society of the Plastics Industry, Inc., April 23 and 24, 1998, New Orleans, La.

DOCKETED  
USNRC.

2003 JAN 29 PM 2: 56

OFFICE OF THE SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

CLEAR REGULATORY COMMISSION

Docket No. \_\_\_\_\_ Official Est. No. 92  
In the matter of PFS  
Staff \_\_\_\_\_ IDENTIFIED   
Applicant \_\_\_\_\_ RECEIVED   
Intervenor  REJECTED \_\_\_\_\_  
Other 5-8-02 WITHDRAWN \_\_\_\_\_  
DATE 4/7/02 Witness \_\_\_\_\_  
Clerk D. Kent