

## PROFESSIONAL BIOGRAPHY D. JOSEPH HAGERTY

### Personal

Born 12/5/42, Louisville, Kentucky

Married, four children

### Education

University of Louisville, Louisville, Kentucky; BCE, MEngCE

University of Illinois, Urbana, Illinois; MSCE, Ph.D.

### Registration

Professional Engineer--Kentucky No. 8264; Indiana No. PE10101332

### Professional Affiliations

American Society of Civil Engineers

International Society for Soil Mechanics and Foundation  
Engineering

Association of Drilled Shaft Contractors (Honorary Technical Member)

### Professional Experience

1979-Present Professor of Civil & Environmental Engineering

1970-Faculty of Civil Engineering, University of Louisville

1969-70-Director of Soil Engineering, Vollmer Associates

1968-1969 Research Fellow, University of Illinois

1967-1968 Teaching Fellow, University of Illinois

1967 Research Engineer, Solid Waste, University of Louisville

1965-1967 Research/Teaching Assistant, University of Illinois

1965 Structural Engineer, Vollmer Associates, Louisville

### Professional Consultant

\* Solid Waste Management Specialist Consultant, World Health Organization

\* Consulting Editor, Van Nostrand Reinhold Publishing Company 1973-1977

\* Consulting Editor, Wiley InterScience, Inc. 1977-1983

\* Extramural Review Board, USEPA Hayes Drilling, Inc.

United States Army, Corps of Engineers Associated General Contractors of America

Louisville and Nashville Railroad Company \* Browning Ferris Industries

Hazelet and Erdal Consulting Engineers Law Engineering Testing Company

Louisville Gas and Electric Company H. C. Nutting Company

U.S. Department of Justice \* City of Jacksonville

Arthur D. Little Inc. \* Garver and Garver, Inc.

ATEC Associates, Inc. Chevron USA, Inc.

\* Haley & Aldrich, Inc. Pickands-Mather & Company

The Hartford Temco Coal Company

GAI, Inc. Ground Engineering and Testing, Inc.

Ardaman & Associates Martin Marietta Corporation

Ogden Environmental Consultants The Rogers Group

\* City of Louisville Louisville & Jefferson County Metropolitan

Kentucky Fried Chicken Sewer District

American Standard Company \* Kentuckians for the Commonwealth

### **Professional Consultant (cont.)**

Meridian Insurance	Dravo Mechling Corporation
Commonwealth of Kentucky	Wyatt, Tarrant & Combs
Miller & Miller	Frocht & Klingman
Continental Insurance	Grange Mutual Casualty Company
Wausau Insurance	Pedley, Ross, Zielke, & Gordinier
The Travelers	Farm Bureau Insurance
Fireman's Fund Insurance	Blue Diamond Coal Company
Greenebaum, Doll & McDonald	St. Paul Fire & Marine Insurance Company
Jackson, Kelly, Holt & O'Farrell	Karem & Karem
Gaylord, Inc.	Bizzack, Inc.
Frost Brown Todd, LLC	* Louisville Metro Government

\* denotes solid waste management consultation

### **Invited Lecturer**

- Virginia Polytechnic Institute and State University
- University of Illinois at Urbana - Champaign
- University of Dayton
- University of Cincinnati
- Special Lecturer on Foundation Engineering, University of Missouri at Rolla

### **University Activities**

Environmental Impact Analysis Group  
Chairman of Conference and Proceedings editor/Organizer for: Ohio River Valley Soils Seminar (1971, 1974, 1977, 1986, 1989, 1992, 1995)  
Quality Enhancement Plan; Signature Partnerships Initiative

### **Awards**

1971 Young Engineer of the Year, 1971, selected by KSPE  
1973 ASCE National Friedman Young Engineer Award for Professional Achievement  
1978 President's Award for Academic Excellence (University of Louisville)  
1985 Outstanding Scholarship, Research and Creative Activity Award Nominee  
1989 Trustees Award Nominee (College of Engineering)  
1992 ASCE Hilgard Prize (Outstanding Paper, Hydraulics Journal)  
2002 Red Apple Award from UL Alumni Association (teaching/counseling)  
2003 Robert M. Gillim Award for Professional Achievement, Kentucky Section, ASCE  
2004 J. B. Speed School of Engineering Alumni Scholar for Teaching 2005-2007  
2005 ASCE Louisville Branch Distinguished Service Award  
2005 President's Award for Distinguished University Teaching Professor  
2005 ASCE Outstanding Faculty Advisor, Zone II, National ASCE  
2006 Trustees Award, University of Louisville

### **Publications**

#### **Books**

*Solid Waste Management*, Van Nostrand Reinhold, New York, 1973, (with J. L. Pavoni and J. E. Heer, Jr.)  
*Preserving Man's Environment*, Data Courier, Inc., Louisville, 1974 (with J. L. Pavoni and J. E. Heer, Jr.)

### **Books (cont.)**

*Solid Waste Disposal and Resource Recovery*, Van Nostrand Reinhold, 1975 (with J. L. Pavoni and J. E. Heer, Jr.)

*Opportunities in Engineering Technology Careers*, Vocational Guidance Manuals, Inc., 1975 (with J. E. Heer, Jr.) (Revised Edition, 1979)

*Environmental Assessments and Statements*, Van Nostrand Reinhold, 1977 (with J. E. Heer, Jr.)

*Opportunities in Civil Engineering Careers*, International Textbooks, Inc., 1977 (with J. E. Heer, Jr.) 2nd Edition, 1987 (with L. F. Cohn)

*Opportunities in Chemical Engineering Careers*, International Textbooks, 1979 (with E. R. Gerhard and C. A. Plank)

"Environmental Impact Assessment," Chapter 8 in *Water Quality Management Planning*, Van Nostrand Reinhold, December 1977 (with J. E. Heer, Jr.)

"Environmental Assessment of Noise," Chapter 5 in *Handbook of Noise Abatement and Control: Principles and Practices*, Van Nostrand Reinhold, June 1978 (with J. E. Heer, Jr.)

### **Publications in Refereed Journals and Refereed Proceedings**

R1. "Heave and Lateral Movements Due to Pile Driving," *Journal SM&F Division*, ASCE, 97 (SM 11), Nov. 1971 (with R.B. Peck).

R2. "Analytical Singularities in Dynamic Analyses of Structural Systems," *Proc.*, First Iranian Civil Engineering Conference, Shiraz, May 1972, (with M. Paz).

R3. "Rock Property Changes Under Air Pollutant Action," *Proc.*, 14th International Rock Mechanics Symposium, State College, June 1972 (with C. R. Ullrich).

R4. "Consolidation Effects Around Driven Piles," *Proc.*, ASCE Spec. Conf. on Perf. of Earth-Supp. Struc., Purdue University, June 1972 (with J. E. Garlinger).

R5. "Comparative Physical Properties of Weathered Impregnated Marbles," *Engineering Geology*, December 1972 (with K. L. Gauri and C. R. Ullrich).

R6. "Environmental Impact Evaluation of Hazardous Waste Disposal on Land," *Water Resources Bulletin* 8(6), December 1972 (with J. L. Pavoni and R. E. Lee).

R7. "Geologic Aspects of Landfill Refuse Disposal," *Engineering Geology*, March 1974, Amsterdam (with J. L. Pavoni).

R8. "Power From Refuse," *IEEE Spectrum*, September 1974 (with J. E. Heer, Jr.).

R9. "Rock Evaluation for Engineered Facilities," *Tran. Res. Rec.*, 548, 1975 (with R.C. Deen, M. W. Palmer, and C. D. Tockstein).

R10. "Impact Assessment for Power Plants," *Journal of the Power Division*, ASCE, 102(P1), Jan. 1976, (With J. E. Heer, Jr.).

R11. "Environmental Considerations in Power Plant Siting," *Proc.*, 2nd Iranian Civil Engineering Congress, Shiraz, May 1976 (with D. A. Conner).

R12. "Gewinnung, Behandlung und Verwertung von Deponiegas: Beispiele aus USA," Mulltechnischen Sonderkolloquium, Internationaler Erfahrungsaustausch ueber Grundlagen, Errichtung und Betrieb von geordneten Deponien, Universitaet Stuttgart, June 1976 (Invited paper).

R13. "Current American Alternatives in Resource Recovery," *Solid Wastes*, Journal of the Institute of Solid Wastes Management, London, LXVII(6), June 1977; also Bulletin No. 24, International Solid Waste and Public Cleansing Association, Zurich, April 1978.

## Publications in Refereed Journals and Refereed Proceedings (cont.)

- R14. "Engineering Properties of FGD Sludges," *Proc.*, 1977 ASCE Specialty Conference "Geotechnical Practice for Disposal of Solid Waste Materials," Ann Arbor, June 1977 (with C. R. Ullrich and B. K. Thacker).
- R15. "Vibrations Associated with Pile Driving," *Journal of the Construction Division*, ASCE, 104(C040), December 1978 (with W. S. Heckman).
- R16. "Bank Failure and Erosion on the Ohio River," *Engineering Geology*, 17, 141-158 (1981), Amsterdam, (with C. R. Ullrich and M. F. Spoor).
- R17. "Rising Groundwater--Problem or Resource?" *Ground Water*, 20(2), Mar-Apr 1982, 217-223 (with K. Lippert).
- R18. "Ethics Simulation in the Classroom," *Chemical Engineering Progress*, 79(7), 17-19, July 1983, (with G. C. Lindauer).
- R19. "Riverbank Change - Six-mile Island, Ohio River, USA," *Engineering Geology*, 19(2), 119-132, Spring 1983, Amsterdam (with T. A. Weigel).
- R20. "River Bank Erosion - A Case Study," *Bulletin*, Assn. Engrg. Geologists, XX(4), 411-437, Nov. 1983 (with M. Sharifounnasab and M. F. Spoor).
- R21. "Mechanisms of Erosion and Meandering of the Ohio River," *Proc.*, Rivers' 83, Specialty Conf., ASCE, New Orleans, October, 1983, 259-270.
- R22. "Studies of Underground Space Development in Louisville, Kentucky," *Underground Space*, 8, 1984, 196-205 (with C. R. Ullrich and J. C. Corradino).
- R23. "Technology and Society - An Upper Level Course," *Engineering Education*, 74(7), 1984, 666-668 (with G. C. Lindauer).
- R24. "An Analysis of Streambank Stability," *Journal of the Geotechnical Division*, ASCE, 111(GT5), 1985, 624-640 (with F. M. Springer, Jr. and C. R. Ullrich).
- R25. "Interactive Mechanisms of Alluvial-Stream Bank Erosion," *Proc.*, Third Int. Symp. on River Sedimentation, Jackson, MS, April, 1986, 1160-1168 (with M. F. Spoor and J. F. Kennedy).
- R26. "Surficial Failures of Alluvial Streambanks," *Canadian Geotechnical Journal*, 23(3), 1986, 304-316. (with C. R. Ullrich and R. Holmberg).
- R27. "Stabilization of FGC Wastes," *Proc.*, ASCE 1987 Spec. Conf. on Geotechnical Practice for Waste Disposal, Ann Arbor, June, 1987, 797-811. (with C. R. Ullrich).
- R28. "Shot-Rock Fill Construction - A Case History," *Journal of Construction Engineering and Management*, ASCE, 114(3), Sept. 1988, 489-502. (with N. G. Schmitt and G. T. Vandeveld).
- R29. "Load Redistribution in a Frame with Settling Footings," *Journal of Computing in Civil Engineering*, ASCE, 3(1), 1989, 75-92. (with T. A. Weigel and K. Ott).
- R30. "Evaluation of Navigation Dam Effects on Riverbanks," *Journal of Waterway, Port, Coastal, and Ocean Engineering*, ASCE, 115(3), 1989, 399-403. (with D. A. Beatty and R. A. Linker).
- R31. "Ohio River Bank Erosion- Traffic Effects," *Journal of Waterway, Port, Coastal, and Ocean Engineering*, ASCE, 115(3), 1989, 404-408. (with M. J. Hagerty).
- R32. "Geotechnical Aspects of River Bank Erosion," *Proc.*, National Conf. on Hydraulic Engineering, ASCE, New Orleans, 1989, 118-123. (with J. V. Hamel)
- R33. "Alluvial Stream Bank Erosion- A 10-Year Study," *Proc.*, Int. Symp. on Sediment Transport Modeling, ASCE, 1989, 594-599. (with M. F. Spoor).

## Publications in Refereed Journals and Refereed Proceedings (cont.)

- R34. "Bank Failure and Erosion on the Illinois Waterway," *Proc.*, Int. Symp. on Sediment Transport Modeling, ASCE, 1989, 600-605. (with M. F. Spoor).
- R35. "Microwave Drying of Soils," *Geotechnical Testing Journal*, ASTM, 13(2), June, 1990, 138-141. (with C. R. Ullrich and M. M. Denton).
- R36. "Microwave Drying of Highly Plastic and Organic Soils," *Geotechnical Testing Journal*, ASTM, 13(2), June, 1990, 142-145. (with C. R. Ullrich and C. Callan).
- R37. "Highway Bridge Failure by Foundation Scour and Instability," *Proc.*, 42nd Highway Geology Symposium, May, 1991, Albany, NY, 151-168 (with A. C. Parola).
- R38. "Piping/Sapping Erosion I: Basic Considerations," *Journal of Hydraulic Engineering*, ASCE, 117 (HY8), August, 1991, 991-1008.
- R39. "Piping/Sapping Erosion II: Identification- Diagnosis," *Journal of Hydraulic Engineering*, ASCE, 117 (HY8), August, 1991, 1009-1025.
- R40. "Design Aids: Anchored Bulkheads in Sand," *Canadian Geotechnical Journal*, 29(5), October, 1992, 789-795 (with M. M. Nofal)
- R41. "One-dimensional High-pressure Compression of Granular Media," *Journal of Geotechnical Engineering*, ASCE, 119(1), January, 1993, 1-18 (with M. M. Hagerty, D. Hite, and C. R. Ullrich)
- R42. "Near-Bank Impacts of River Stage Control," *Journal of Hydraulic Engineering*, ASCE, 121(2), February, 1995, 196-209 (with M. F. Spoor and A. C. Parola).
- R43. "Impacts of the 1993 Upper Mississippi River Basin Floods on Highway Systems," *Trans. Res. Rec. No. 1483*, Trans. Res. Bd., Washington, 1995, 32-37 (with A. C. Parola and T. E. Fenske).
- R44. *Streambed Stresses and Flow Around Bridge Piers*, U. S. Geological Survey Water-Resources Investigations Report 96-4142, U.S. Department of the Interior, September, 1996 (with A. C. Parola, K. J. Ruhl, B. M. Brown, D. L. Ford and A. A. Korves)
- R45. "Blasting Vibrations Affected by Underground Cavities," *Journal of Explosives Engineering*, Vol. 18, No. 3, May/June 2001, 36-43. (with J. Harrell)
- R46. "Seepage Effects in Some Riprap Revetments," *Journal of Hydraulic Engineering*, ASCE, 127(7), July 2001, 556-566 (with A.C. Parola)
- R47. "Impoundment Failure Seepage Analyses," *Environmental & Engineering Geoscience*, (with A. Curini) Vol. X. No.1, February, 2004, pp. 57-68.
- R48. "Learning from Experience," *Proceedings*, ASEE Southeastern Conference, April, 2005, Chattanooga, TN (with J. P. Mohsen)
- R49. "Better Teaching Using Case Histories and Satisfying ABET Too," *Proceedings*, ASEE National Meeting, June, 2005, Portland, OR (with J.P. Mohsen and Z. Zhao)
- R50. "Radial Collector Well Modeling using FEFLOW in a River Bank Filtration System," *Proceedings*, International FEFLOW User Conference, September, 2006, Berlin, WASY (with Jintao Wen).
- R51. "Earth Pressure Cells: Environmental Effects, and Calibration." *Proceedings*, FMGM, Int. Symp. Field Meas. in Geomechanics, ASCE Geo-Institute, Boston, September, 2007 (with Troy S. O'Neal).
- R52. "Immobilizing Arsenic in Contaminated Soil Using Humic Mineral Concentrates." *Proceedings*, GeoCongress 2008, *Challenges of Sustainability in the Geoenvironment*, ASCE

Geo-Institute, New Orleans, March 2008 (with Alexander I. Shulgin)

R53. "Treating PCB/Petrochemical-Contaminated Soil With Humic Mineral Concentrates." *Proceedings, GeoCongress 2008, Challenges of Sustainability in the Geoenvironment*, ASCE Geo-Institute, New Orleans, March 2008 (with Alexander I. Shulgin)

R54. "Earth Pressures in Confined Cohesionless Backfill Against Tall Rigid Walls: Part I - Compaction and Environmental Effects." Submitted to (with Troy S. O'Neal).

R55. "Earth Pressures in Confined Cohesionless Backfill Against Tall Rigid Walls: Part II – Soil Arching Effects Compared to Predicted and Measured Pressures." Submitted to (with Troy S. O'Neal).

### **Other Publications**

1. "Some Heave Phenomena Associated with Pile Driving," Ph.D. Thesis, University of Illinois, Urbana, Illinois, October 1969.

### **Other Publications (cont.)**

2. "Innovations in Foundation Design and Construction," *Proc.*, First Ohio River Valley Soil Seminar, ORVSS-1, Lexington, October 1970.

3. "Engineering Soil Report, Will County, Illinois," *Bulletin 501*, Eng. Exp. Sta., U. Illinois, Urbana, June 1970 (with T. K. Liu and T. H. Thornburn).

4. "Noise in the Urban Environment," *Public Works*, October 1971 (with J. E. Heer, Jr. and J. L. Pavoni).

5. "Environmental Considerations in Soils Engineering," *Proc.*, ORVSS-2, Louisville, October 1971 (with J. L. Pavoni).

6. "Solid Wastes Management," *Proc.*, Ohio River Valley Municipal and Industrial Waste Treatment Seminar, Clarksville, November 1971.

7. "Recycling Solid Wastes," *Proc.*, Second Env. Sci. and Tech. Conf., Louisville, April 1972 (with J. L. Pavoni and J. E. Heer, Jr.).

8. "Earth Pressures and Movements Due to Pile Driving," *Proc.*, ORVSS-3, Cincinnati, October 1972.

9. "Evaluation of Sanitary Landfill Sites," *Public Works*, February 1973 (with J. L. Pavoni and J. E. Heer, Jr.).

10. "Full-Scale Field Application of the Leachate Recycling Process," *Proc.*, Third Env. Sci. and Tech. Conf., Louisville, March 1973 (with J. L. Pavoni, J. E. Heer, Jr., W. Koster and D. R. Fielding).

11. "Retrieval and Use of Geotechnical Information," *Proc.*, ORVSS-4, Lexington, October 1973 (with N. G. Schmitt and W. J. Pfalzer).

12. "Effects of An Interstate Highway on Urban Noise Levels," *Public Works*, January 1974 (with J. E. Heer, Jr., and D. J. Knadler).

13. "A Survey of European Solid Waste Management Techniques," *Proc.*, Fourth Env. Sci. and Tech. Conf., Louisville, March 1974 (with J. L. Pavoni and J. E. Heer, Jr.).

14. "Energy Conversion from Solid Wastes," *Proc.*, Energy Symposium, Louisville, March 1974 (with J. E. Heer, Jr.).

15. "A Recent Review of European Refuse Management," *Public Works*, July-Aug-Sept 1974 (with J. E. Heer, Jr. and J. L. Pavoni).

16. "Noise and Pile Driving," *Roads and Streets*, 117(8), August 1974 (with W. S. Heckman).
17. "Noise, Pile Driving and OSHA," *Proc.*, 2nd Piletips Symposium, St. Louis, September 1974.
18. "Exploration and Testing in Rock," *Proc.*, 5th ORVSS, Clarksville, October 1974 (with J. Coulson).
19. "Environment, Law, and Government," *Environmental Quality Abstracts*, I(2), November 1974 (with J. L. Pavoni and J. E. Heer, Jr.).
20. "Lateral Stresses Related to Driven Piles," *Proc.*, Seminar on Lateral Pressures Related to Large Diameter Pipes, Piles, Tunnels and Caissons, ASCE, Dayton, February 1975.
21. "Investigation of Leachate Heavy Metal and Organic Carbon Content Stabilization," *Proc.*, Fifth Annual Environ. Engrg. and Science Conf., Louisville, March 1975 (with M. E. Tittlebaum and J. L. Pavoni).
22. "Noise Effects of Construction on the Environment," *Proc.*, Fifth Annual Environ. Engrg. and Science Conf., Louisville, March 1975 (with J. E. Heer, Jr.).
23. "Pile Driving Noise--A Problem for Engineers and Contractors," *Proc.*, 3rd Piletips Symposium, Atlanta, 1975.
24. "Reconnaissance and Field Testing in Rock," *Proc.*, 22nd Annual Geotechnical Conference, Lawrence, Kansas, 1975.
25. "Controlling Pile Driving Noise," *World Construction*, 28(4), New York, April 1975.
26. "Engineering Data System for Bedrock Occurrences and Properties," Research Report No. 420, Bureau of Highways, Kentucky Department of Transportation, March 1975 (with R. C. Deen, M. W. Palmer, and C. D. Tockstein).
27. "Wastes to Watts," *Georgia Government Review*, 7(1), July 1975 (with J. E. Heer, Jr.).
28. "Energy Recovery From Refuse," *Proc.*, International Symp. on Energy Recovery from Refuse, Louisville, September, 1975.
29. "Refuse to Power," *Solid Waste Management*, Nov-Dec 1975.
30. "Disposal of Flue Gas Cleaning Effluents," *Proc.*, Fifth National Conf. on Energy and Environment; AIChE-PACA, Cincinnati, November 1977.
31. "A Practical Case Study on Productivity Improvement in the Urban Services Sector," *Proc.*, 29th Annual Conf., Amer. Inst. Ind. Engrs., Toronto, May 1978 (with M. R. Wilhelm).
32. "Physical Properties of FGC Waste Deposits at the Cane Run Plant of Louisville Gas and Electric Company," *Proc.*, EPA Symposium on Flue Gas Desulfurization, Las Vegas, March, 1974 (with C. R. Ullrich and R. P. Van Ness).
33. "R and D Needs in Disposal of FBC Solid Wastes," (invited), *Proc.*, ASCE/PRC -EPRI Workshop on Solid Waste Research and Development Needs for Emerging Coal Technologies, San Diego, ASCE, April, 1979.
34. "Multi-Factor Analysis of Bank Caving Along a Navigable Stream," *Proc.*, National Waterways Roundtable, Corps of Engineers, Norfolk, April, 1980 (invited).
35. "Environmental Consideration in Hydraulic Design," *Proc.*, Training Course on Hydraulic Design of Flood Control Channels, Waterways Experiment Station, Vicksburg, 1980 (with M. F. Spoor) (invited).
36. "Fundamental Aspects of Groundwater Flow," *Proc.*, 12th ORVSS, Cincinnati, October 9, 1984 (invited).
37. "An Interactive Design Module Library for Foundation-Structure Systems," *Proc.*, First National Microcomputers in Civil Engineering Conference, Orlando, Florida, No. 1-3, 1983,

259-262 (with T. A. Weigel).

38. "Effects of Blasting on Residential Structures," *Proc.*, ORVSS XVI, Lexington, October, 1985, 1-26.

**Other Publications (cont.)**

39. "A Case Study of Slope Stability in New Providence Shale," *Proc.*, ORVSS XVII, Louisville, October 1986, (with M.A. Sites) 5-1 to 5-13.

40. "Geotechnical Considerations in Storage Sewer Operations," in *Environmental Geotechnics*, Ed. by A. S. Balasubramaniam, Balkema Printers, Amsterdam, 1988, 261-268.

41. "Erosion Mechanisms on Midwest Alluvial Streams," *Proc.*, 19th Ann. Conf. Int. Erosion Control Assn., New Orleans, February 1988, 421-434.

42. "An Investigation into Causes of Bank Caving," *Proc.*, ASCE Specialty Conference on Water Resources, Norfolk, 1988, 254-257. (with M. N. French).

43. "Improvement of Subgrade Support with Blasted Rock," *Proc.*, ORVSS XIX, Lexington, October 1988, 7-1 to 7-30 (with J. W. Storm).

44. "Bank Failures Caused by Ground Water Flow in Alluvium," in Chap. 15, *Groundwater Geomorphology*, edited by C. G. Higgins and D. R. Coates, Geological Society of America, Special Paper 252, 1990, 327-334.

45. "Rotten Eggs? Look Out! Hydrogen Sulfide Poisoning," *Foundation Drilling*, XXX, (4), 15-18, June, 1991.

46. "Evaluation of Palmiter Erosion Remediation Techniques--A Case Study," *Proc.*, Water Forum '92, ASCE, Baltimore, August, 1992, 660-665 (with A. C. Parola).

47. "Seepage Influence on Stability of Bridge Abutments," *Proc.*, Water Forum '92, ASCE, Baltimore, August, 1992, 900-905 (with A. C. Parola).

48. "Seepage Effects on Bridge Pier Scour," *Proc.*, Water Forum '92, ASCE, Baltimore, August, 1992, 919-924 (with A. C. Parola).

49. "Damage to Highway Infrastructure--1993 Mississippi River Basin Flooding," *Proc.*, ASCE Nat. Conf. on Hydraulic Engineering, Buffalo, 26-30, 1994 (with A. C. Parola and T. E. Fenske).

50. "Analysis of 1993 Upper Mississippi Flood Highway Infrastructure Damage," *Proc.*, First Int. Conf. on Water Resources Engineering, ASCE, San Antonio, 1995, 2, 1061-1065 (with S. Kamojjala, N. P. Gattu, and A. C. Parola).

51. "Failure to Plug Caused Plugging--and Failure," *Geotechnical Fabrics Report*, Vol. 15, No. 7, September 1997 (with L.C. Davis and M.F. Spoor)

52. "Building a Tunnel to Leak," *Proceedings, Ohio River Valley Soil Seminar XXXV*, Kentucky Geotechnical Engineering Group, ASCE, Louisville, October 2004 (with K. Ball, M.H. Duffy and T. Tharpe)

**Major Reports (2000- )**

*Engineering Geology Report*, Riverbank Infiltration Project, Louisville Water Company, July 2000.

*Preliminary Limited Environmental Assessment*, Riverbank Infiltration Project, Louisville Water Company, July 2000.

*Project Report on Remediation of Groundwater Contamination, Paducah Gaseous Diffusion Plant, submitted to KENTUCKY RESEARCH CONSORTIUM FOR ENERGY AND ENVIRONMENT, University of Kentucky, September 2005 (with J. N. Uhl and J. C. Watters)*

*Project Report, Evaluation of Technology Characterization for Soils, Landfills and Groundwater: Part I, Evaluation of S and T Landfills, Paducah Gaseous Diffusion Plant, submitted to KENTUCKY RESEARCH CONSORTIUM FOR ENERGY AND ENVIRONMENT, University of Kentucky, October 2005 (with P. J. Cooper)*

### **Research (1973-2006)**

1. Project Principal Investigator (Geology and Soils) for the following studies:
  - a. Environmental Impact Assessment, Cannelton Locks and Dam, Army Corps of Engineers (1973-74)
  - b. Water Management Planning Study; Jefferson County, Kentucky, and Floyd and Clark Counties, Indiana (1974-75)
  - c. Environmental Impact Assessment, Newburgh Locks and Dam, Army Corps of Engineers (1974-75)
  - d. Environmental Impact Assessment, Uniontown Locks and Dam, Army Corps of Engineers (1974-75)
  - e. Environmental Impact Assessment, Clark Maritime Port, Charlestown, Indiana (1976-77)
2. Principal Investigator or Geotechnical Consultant for the following studies:
  - a. State-of-the-Art Study of Refuse Disposal and Recycling in U.S. and Europe (private funding) (1973-74)
  - b. Leachate Recycling Study (Illinois Institute of Environmental Quality) (1974)
  - c. Disposal of SO<sub>2</sub> Removal Sludges (UK Inst. Mining and Minerals Research) (1975-1977)
  - d. Field Demonstration of SO<sub>x</sub> Sludge Disposal, EPA - Louisville Gas & Electric Company (Geotechnical Studies) (1976-1978)
  - e. Economic Analysis of Coal Desulfurization versus Stack Gas Clean-Up (Kentucky Center for Energy Research) (1977)
  - f. Technology Assessment for Control of Waste and Water Pollution from Combustion Sources," Contract 68-02-2654, U.S. Environmental Protection Agency (1978-1980)
  - g. "Characterization & Environmental Monitoring of Full Scale Utility Waste Disposal Sites," Contract 68-02-3167, U.S. Environmental Protection Agency (1979-1982)
  - h. Bank Failure Incidence - Eighteenmile Island, Ohio River - US Army Corps of Engineers (1981-1982)
  - i. Feasibility Study for Underground Quarry Development - City of Louisville (with C. R. Ullrich) (1982)
  - j. Groundwater Movements, Louisville, KY - City of Louisville (1979-1986)
  - k. Groundwater Contamination by Brines from Secondary Oil Production, U. S. Army Corps of Engineers (1982-1983)
  - l. Geotechnical Exploration and In-Situ Testing, Law Engineering Testing Company, (1985-1988)
  - m. Riverbank Stability Study - US Army Corps of Engineers (1986-1988)
  - n. Evaluation of Piping-Sapping Erosion Mechanisms- U.S. Army Corps of Engineers/Waterways Experiment Station (1989-1990)
  - o. Performance of Palmiter Erosion Control Measures- Sixmile Island, Ohio River--U.S. Army

Corps of Engineers (1990-1992).

p. Mechanics of Soil Nailed Fill Retention--Ground Engineering and Testing Services, Inc. (1991-1992).

q. Guidance Manual for Landfill Operators and Managers, Commonwealth of Kentucky, Cabinet for Natural Resources and Environmental Protection (1993).

**Research (1973-2007) (cont.)**

r. Effects of 1993 Mississippi River Basin Floods on Highway Facilities, Transportation Research Board, NCHRP (1993-4).

s. Scour at Bridge Foundations: Research Needs--Transportation Research Board, NCHRP Project 24-8 (1994-6).

t. Countermeasures Against Scour of Bridge Piers--Transportation Research Board, NCHRP Project 24-7 (1995-7).

u. Effects of Gravel Extraction on Streams in South-Central Kentucky--US EPA and Division of Water, Commonwealth of Kentucky (1997-8)

v. Monitoring and Investigation of Scour at Bridges with Contracted Flood Flow--NCHRP project 24-14 (1998-2001)

w. Monitoring of Streambank Remediation on Winding Falls stream--MSD project (2000-2001)

x. Relocation of Obion Creek, Hickman County, KY--US EPA and Division of Water, Commonwealth of Kentucky (2000-2005)

y. Regional Bankfull Geomorphic Curves, KY--US EPA and Division of Water, Commonwealth of Kentucky (2000-2005)

z. Restoration of Wilson Creek, Bernheim Forest, Division of Water, Commonwealth of Kentucky (2002-2005)

aa. Evaluation of MSD Biosolids Land Application, Metropolitan Sewer District, Louisville, KY (2003)

bb. Remediation of Groundwater Contamination, Paducah Gaseous Diffusion Plant, subcontract to KENTUCKY RESEARCH CONSORTIUM FOR ENERGY AND ENVIRONMENT, UK (2004-2005)

cc. Finite Element Method Model Development for Riverbank Filtration System, Louisville Water Company (2004-2006)

dd. Feasibility of Application of Humic Acid and Derivatives to Remediation of Environmental Contamination, AST Companies, 2005-2006.

3. Principal Author:

Environmental Impact Statement (Draft); Combined, Cannelton, Newburgh, Uniontown Locks and Dams (1975)

4. Unsponsored Studies:

a. Rock Engineering for Highway Purposes (supervising funded research engineers) (1974-1975)

b. Noise Abatement for Pile Driving (1973-1976)

c. Deterioration of Clay Shales (1976-1983)

d. Energy from Refuse at University Power Plant (1977)

e. Pile and Soil Movements Caused by Pile Driving (1978-1979)

- f. Soil Consolidation Around Driven Piles (1978-1981)
- g. Hazardous Waste Landfill Siting (1979-1984)
- h. Interactive Design Programs for Soil-Structure Interaction (1981-1989)
- i. River Bank Stability Studies (not Corps of Engineers) (1980- )
- j. Crack Formation in Buried Concrete Pipe (1983-1985)

**Research (1973-2007) (cont.)**

- k. Effects of Blasting Operations on Residential Structures (1979- )
- l. Auger-cast pile behavior (1985-1988)
- m. Parametric Studies of Anchored Bulkheads (1988-92)
- n. High-pressure compression of granular materials (1988-93 )
- o. Expert systems for sewer evaluation (1993-4)
- p. Expert systems for landfill monitoring (1993-4)
- q. Design of mechanically stabilized earth retaining structures (1994-2000 )
- r. Effects of underground cavities on blast vibration transmission (1995-2000 )
- s. Preventing cracks in landfill liners and covers (1997- 1999)
- t. Optimal densification of soils for streambank remediation (1999-2001)
- u. Phytoremediation of petroleum contaminated soils (1999-2001)
- v. Effects of blasting vibrations on manufactured housing (2000-2001 )
- w. Riverbank infiltration for water supply (2001- )
- x. Impoundment failure in coal mine (2001-3)
- y. Earth pressures against lock walls (2002-6)
- z. Evaluation of Earthquake simulation system for structural assessment (2004- )