

IN THE CIRCUIT COURT OF ST. LOUIS COUNTY, MISSOURI

STATE OF MISSOURI ex rel. )  
Attorney General Chris Koster and )  
Missouri Department of )  
Natural Resources, )

Plaintiff, )

v. )

Case No. 13SL-CC01088

REPUBLIC SERVICES, INC., )

ALLIED SERVICES, LLC, d/b/a )  
Republic Services of Bridgeton, and )

BRIDGETON LANDFILL, LLC, )

Defendants. )

**AFFIDAVIT OF TIMOTHY D. STARK, Ph.D., P.E.**

Timothy D. Stark, Ph.D., P.E., being duly sworn, states that he has personal knowledge of the facts set forth herein.

1. I, Timothy D. Stark, am over 18 years of age and a resident of the County of Champaign, State of Illinois.

2. I am a Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign. Attached as Exhibit 1 is a true and accurate copy of my curriculum vitae (CV).

3. A significant focus of my research, published articles, and consulting work involves landfill construction, operation, maintenance,

stability, and landfill fires. My professional work, consulting experience, and publications are listed in detail in my attached CV.

4. I have substantial experience with landfill fires. For example, I was retained by the Ohio EPA to provide analysis and assistance in regard to a subsurface landfill fire at a landfill known as "Countywide" in Ohio in 2007.

5. In April of 2012, I was retained by the Missouri Department of Natural Resources in part, to provide data review, analysis, and expertise in regard to the subsurface fire at the Bridgeton Sanitary Landfill in Bridgeton, Missouri. An emphasis of my consulting work for the State is tracking the location of the subsurface fire, how to isolate and contain the subsurface fire, and the effect of the subsurface fire on the stability of the waste mass at the landfill.

6. In regard to the Bridgeton Sanitary Landfill, I review weekly and monthly temperature and gas data provided by the landfill to determine the location of the subsurface fire, rate of fire movement, and to determine whether any new subsurface fire(s) have occurred.

7. Data collected from an area of the landfill experiencing a subsurface fire will show a decrease in methane and an increase in carbon monoxide, temperature, leachate outbreaks, and odors. These factors can also show that a subsurface fire is about to occur. The increased presence of oxygen and nitrogen in gas data reflects the intrusion of air into the waste

mass. Increased oxygen can also cause or contribute to a subsurface landfill fire.

8. Subsurface conditions and the progression of a subsurface fire at a landfill can be tracked by obtaining core samples from the landfill and analyzing the extracted waste as well as monitoring gas, leachate, and temperature data.

9. The subsurface fire at the Bridgeton Sanitary Landfill has consumed a significant amount of the waste mass in the southern portion or "South Quarry" of the landfill.

10. The Bridgeton Sanitary Landfill contains Radiologically Impacted Material or "RIM" in the northern portion or "North Quarry" of the landfill. A significant amount of RIM is also located in the Westlake Landfill which is immediately north of the Bridgeton Sanitary Landfill. Therefore, a significant concern is whether the subsurface fire has migrated into the North Quarry, or whether an independent subsurface fire could occur in the North Quarry. In addition to the concern over fire reaching RIM, subsurface fires produce noxious odors, harmful gases, and can also cause groundwater pollution.

11. Due to the concern with the subsurface fire reaching the North Quarry, or a new fire occurring in the North Quarry, landfill gas data and temperature readings from the North Quarry should be closely monitored.

12. In December 2014, data submitted to the Department of Natural Resources by the Defendants showed changes in the gas composition and temperature data in the northeast section of the North Quarry near Operable Unit 1 Area 1. This included a decrease in methane and an increase in nitrogen, and temperature fluctuations in the following wells: Gas Extraction Wells ("GEWs") 2, 3, 4, 5, 6, 44R, 45R, 47R, and 49. In addition, the presence of carbon monoxide was detected in five GEWs in the North Quarry. Of particular concern of these five wells are: GEW-2 had no prior carbon monoxide reported since January 2014, GEW 4 had no prior carbon monoxide reported since at least June of 2013, and GEW-8 had no prior carbon monoxide reported since August of 2014. This data indicates a change in conditions, air intrusion, and the possibility of a subsurface fire, or the precursor to a subsurface fire in close proximity to the Westlake Landfill which is contaminated with nuclear waste.

13. Real-time data transmittal technology from two new TMPs requested by the Department of Natural Resources, in addition to obtaining weekly down-hole temperature readings from North Quarry gas extraction wells GEW-2, -3,-4,-5,-42R, 45R,-46R,-47R,-48,-49 and monthly CO data from GEW -2,-3,-4,-5,-8,-42R,-45R,-46R,-47R,-48,-49,-53, 54, and -55 is necessary in light of the recent data to better detect and track the progression of the

subsurface fire in the North Quarry and to monitor for the potential of a new subsurface fire.

14. The Defendants have also indicated that they will begin drilling at least 9 new TMPs in the North Quarry of the Bridgeton Sanitary Landfill in January of 2014.

15. The method of drilling proposed by the Defendants and approved by the Department involves use of a "sonic" drilling rig.

16. The sonic drilling can be easily performed in a manner that captures sample cores from the waste mass at little or no additional expense.

17. Such core samples will help confirm the subsurface conditions and the location of the subsurface fire.

18. In addition, the location of RIM in the North Quarry has not been fully investigated or determined.

19. The core samples from the TMP installation can be preserved and analyzed for the presence of RIM and characterization of the waste. This would greatly aid the State in determining the presence of RIM, and whether the fire has/will reach areas impacted by RIM.

19. The data requested by the Department will allow the State to more timely track and evaluate the status of the North Quarry, and better prepare the community and the State to respond to the possibility of the subsurface fire reaching RIM.

FURTHER AFFIANT SAYETH NOT.

TD Stark

Timothy D. Stark

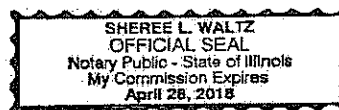
STATE OF ILLINOIS )

) ss

COUNTY OF Champaign )

Subscribe to and sworn before me, a notary public in and for said County and State this 7<sup>th</sup> day of January, 2015.

Sherie L. Waltz  
Notary Public



My commission expires: 4/28/18

# TIMOTHY D. STARK

**TITLE:** Professor of Civil and Environmental Engineering

**ADDRESS:** 2217 Newmark Civil Engineering Laboratory (MC-250)  
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(217) 333-7394  
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tstark@illinois.edu  
www.tstark.net



**REGISTRATIONS:** Professional Civil Engineer: Illinois, 1994, Colorado, 2011, Louisiana, 2011; Washington, 2013

## EDUCATION:

- Ph.D., Virginia Polytechnic Institute & State University, Geotechnical Engineering, July, 1987  
Thesis Title: "Mechanisms of Strength Loss in Stiff Clays," advisor J. Michael Duncan
- M. Engineering, University of California at Berkeley, Geotechnical Engineering, June, 1984  
Thesis Title: "Methods of Regressive Analysis of Slope Stability," advisor J. Michael Duncan
- B.S., University of Delaware (with Honors), Civil Engineering, June, 1981

## CHRONOLOGICAL AWARDS AND RECOGNITIONS:

### Research

- 2015 James M. Hoover Lecturer, "IHNC Floodwall Failures during Hurricane Katrina: Recent Ruling (April 12, 2013)", Iowa State University, Ames, IA, March, 2015.
- Journal of Legal Affairs and Dispute Resolution in Engineering and Construction Best Scholarly, Feature, Case Study Paper, "Is Construction Blasting Still Abnormally Dangerous", ASCE, 2011
- Journal of Legal Affairs and Dispute Resolution in Engineering and Construction Best Scholarly, Feature, Case Study Paper, "Is Construction Blasting Still Abnormally Dangerous", ASCE, 2011
- Thomas A. Middlebrooks Award for "best" paper in the Journal of Geotechnical and Geoenvironmental Engineering, "Shear Strength in Preexisting Landslides", ASCE, 2013 and 1998
- Journal of Legal Affairs and Dispute Resolution in Engineering and Construction Best Scholarly, Feature, Case Study Paper, "Is Construction Blasting Still Abnormally Dangerous", ASCE, 2011
- Classic Paper in Geosynthetics, (Stark and Poeppel, 1994, ASCE Journal of Geotechnical and Geoenvironmental Engineering, "Landfill Liner Interface Strengths from Torsional Ring Shear Tests"), Geo-Americas Conference, 2008
- R.M. Quigley Award, for "best" paper in the Canadian Geotechnical Journal in 2002, "Liquefied Strength Ratio from Liquefaction Flow Failure Case Histories", Canadian Geotechnical Society, September, 2003
- Walter L. Huber Civil Engineering Research Prize, "advancing the basic understanding of natural slopes, the stability of man-made slopes, and the evaluation of the strength/stability of soils subjected to earthquake loadings", ASCE, 1999
- University Scholar, University Scholars Program, University of Illinois at Urbana-Champaign, 1998-2001
- Thomas A. Middlebrooks Award for "best" paper in the Journal of Geotechnical and Geoenvironmental Engineering, "Slope Stability Analyses in Stiff Fissured Clays", ASCE, 1998
- William J. and Elaine F. Hall Scholar (First Recipient), Dept. of Civil Engrg., UIUC, 1994-1996.
- DOW Outstanding New Faculty Award, American Society for Engineering Education, 1994.

**(Chronological Awards and Recognitions - Research, continued)**

- Xerox Award for Faculty Research, College of Engineering, UIUC, 1993
- Presidential Citation for Outstanding Alumni Achievement, University of Delaware, 1993
- Arthur Casagrande Professional Development Award, "residual strength of cohesive and liquefiable soils and the seismic stability of slopes", ASCE, 1992
- Edmund Friedman Young Engineer Award for Professional Achievement, ASCE, 1991
- Meritorious Performance and Professional Promise Award by President of SDSU, 1990

**Teaching**

- List of Teachers Ranked as Excellent by Their Students, Univ. of Illinois, 1995, 1997, 1998, 2004, 2005, 2006, 2007, 2008, 2009, 2010.
- Timeos Award, Outstanding Assistant Professor at San Diego State Univ. (SDSU), Phi Eta Sigma Honor Society, 1990
- Outstanding Civil Engineering Professor Award, San Diego St. Univ.(SDSU), Chi Epsilon Honor Society, 1990
- Outstanding College of Engineering Professor, SDSU, Tau Beta Pi Honor Society, 1989
- Chi Epsilon Honor Society, SDSU, Tau Beta Pi Honor Society, 1988

**Service**

- Elected Vice Chair, Embankments, Dams, and Slopes Committee, ASCE, 2015 - 2018
- R.S. Ladd D18 Standards Development Award, Standard Designation D6467-13: Revised Standard Test Method for Torsional Ring Shear Test to Determine Drained Residual Shear Strength of Cohesive Soils, American Society for Testing and Materials, 2014
- Selected Editor, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 2012 - date
- Order of the Engineer, ASCE Geo Institute, 2012
- Associate Editor of the Year Award, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 2011 - 2012
- R.S. Ladd D18 Standards Development Award, Standard Designation D7608-11: Standard Test Method for Torsional Ring Shear Test to Determine Drained Fully Softened Shear Strength and Nonlinear Strength Envelope of Cohesive Soils, American Society for Testing and Materials, 2011
- Standards Development Award, Standard Designation D6467-02: Standard Test Method for Torsional Ring Shear Test to Determine Drained Residual Shear Strength of Cohesive Soils, American Society for Testing and Materials, 2002
- Outstanding Section Campus Representative Award, IL/IN Section, American Society for Engrg. Education, 1998.
- News Correspondent Award, ASCE, 1995

**Professional**

- Elected Diplomat, Geotechnical Engineering, Academy of Geo-Professionals, ASCE, 2010
- Elected Fellow, American Society of Civil Engineers (ASCE), 2005
- U.S. Army Corps of Engineers Summer Research Fellow, Waterways Experiment Station, 1988 & 1991

**Consulting**

- Nominee, 2009 U.S. Army Corps of Engrs. Dam Safety Award, Seismic Retrofit of Tuttle Creek Dam, Northwest Division.



**EMPLOYMENT RECORD**

*Professor of Civil and Environmental Engineering:* University of Illinois at Urbana-Champaign (UIUC), 8/99 - date.

*Technical Director,* Fabricated Geomembrane Institute-Technology Program, UIUC, 5/10 - date.

*Technical Director,* PVC Geomembrane Institute-Technology Program, UIUC, 1/98 – 5/10.

*Program Coordinator,* Transportation Networks Program, Mid-America Earthquake Center at UIUC, 10/97 – 8/00.

*Associate Professor of Civil Engineering:* UIUC, 8/94 – 8/99.

*Assistant Professor of Civil Engineering:* UIUC, 1/91 - 8/94.

*Assistant Professor of Civil Engineering:* San Diego State University, 1/87-1/91.

*Teaching and Research Assistant:* Virginia Polytechnic Institute -- Instruction in graduate geotechnical engrg. courses; research on strength loss in stiff clays and probabilistic settlement analyses with J. Michael Duncan, 9/84-1/87.

*Research Assistant:* University of California, Berkeley -- Laboratory investigation on the formation of borehole breakouts in rock with Richard E. Goodman, 11/83-6/84.

*Staff Engineer:* Woodward-Clyde Consultants, Walnut Creek, CA -- Subsurface investigations and design of remedial measures for landslides in Contra Costa County, geotechnical and structural design of retaining walls, and lateral load behavior of drilled shaft foundations, 6/83-9/83.

*Staff Engineer:* Woodward-Clyde Consultants, San Francisco, CA -- Liquefaction analyses, probabilistic seismicity evaluations, and seismic response analysis of power plants and earth dams, 6/81-9/82.

**RELEVANT CONSULTING EXPERIENCE**

- McConaughy & Sarkissian, P.C., Denver, CO: Expert for sensitive building distress near Denver, Colorado, 2014 - date.
- AMEC, Nelson, British Columbia, Canada: Expert for landfill stability in British Columbia, 2014 - date.
- Greenberg & Traurig, P.C., Houston, TX: Expert for petroleum processing facilities near Evanston, WY, 2014 - date.
- Opterra, Inc., San Diego, CA: Expert for slope failure in San Diego, CA, 2014 - date.
- Greenberg & Traurig, P.C., Houston, TX: Expert for Fox River sediment processing and landfill slope failure near Green Bay, WI, 2013 - date.
- Yates, McLamb & Weyher, LLP, Raleigh, NC: Expert for dam failure in Hope Mills, NC, 2014 - date.
- Hinshaw & Culbertson, LLP, Chicago, IL: Expert for site redevelopment in Hazelwood, Missouri, 2013 - date.
- Layerfield Group, Edmonton, Alberta, Canada: Expert for geomembrane failure in Alberta, 2013 - date.
- Dianne Saxe Law Offices, Toronto, Ontario: Expert for construction claims related to Highway 11 construction near Burk's Fall, Ontario, 2013 - date.
- de la Pena & McDonald, LLP, San Francisco, CA: Expert for building distress, Napa, CA, 2013 - date.
- Law Offices of Mark A. Wasser, P.C., Sacramento, CA: Expert for Klamath River dam removals in CA, 2013 - 2014.
- Land Air Water Legal Solutions, LLC, Berwyn, PA: Expert for landfill slope failure near Easton, PA, 2013 - date.
- Greenberg & Traurig, P.C., Houston, TX: Expert for Fox River sediment processing and landfill slope failure near Green Bay, WI, 2013 - date.
- U.S. Dept. of Justice, Washington, D.C.: Expert for Hurricane Katrina levee failures in New Orleans, LA, 2011 - date.
- Skeo Solutions, Inc., Charlottesville, VA: Expert for preparing guidance document on Tailings Dams, 2013 - date.
- Kleinfelder, Incorporated, San Diego, CA: Expert for building distress, Brentwood, CA, 2011 - date.
- Norris & Keplinger, P.C., Overland Park, KS: Expert for MSE wall and embankment failure near Omaha, NE, 2012 - date.
- McConaughy & Sarkissian, P.C., Denver, CO: Expert for housing development distress near Erie, Colorado, 2012 - date.
- CH<sub>2</sub>M-Hill Consultants, Chantilly, VA: Independent Technical Review for I-95/Route 630 Interchange, 2012 - date.
- McConaughy & Sarkissian, P.C., Denver, CO: Expert for condominium distress near Ft. Collins, Colorado, 2012 - date.
- CH<sub>2</sub>M-Hill Consultants, Seattle, WA: Measurement and use of undrained residual strength in seismic slope stability and permanent deformation analyses of Port of Alaska Expansion, 2012 - date.
- State of Washington, Olympia, WA: Expert for SR 520 Design-Build Project in Seattle, 2012 - date.
- Missouri Department of Natural Resources, Jefferson City, MO: Expert for elevated temperatures in landfill, 2012 - date.
- Los Angeles Department of Water and Power, Los Angeles, CA: Expert for landslide cause and repair in Bel Air, California, 2006 - date.
- McConaughy & Sarkissian, P.C., Denver, CO: Expert for school complex distress near Fremont, Colorado, 2011 - 2013.
- Kleinfelder, Incorporated, San Diego, CA: Expert for residential development claim near Aspen, Colorado, 2012 - 2013.
- Weitz & Luxemberg, P.C., New York, NY: Expert for aluminum waste reaction and odors in Ohio landfill, 2012 - 2013.
- Noblis Inc., Falls Church, VA: Member of Independent External Peer Review for U.S. Army Corps of Engineers Wood River Levee System Reconstruction Project, 2011 - 2013.
- County of San Diego, California: Expert for hazardous waste classification and disposal in landfills, 2011 - 2103.
- Simmons Browder Gianaris Angelides & Barnerd LLC, Tennessee: Expert for aluminum waste reaction and odors in Ohio landfill, 2011 - 2012.
- American Electric Power, Columbus, OH: Expert for liner system failure in landfill in West Virginia, 2011 - 2012.
- Law Offices of Mark A. Wasser, P.C., Sacramento, CA: Expert for landfill cover failure, Sonora, CA, 2011 - 2012.
- U.S. Army Corps of Engineers, Engineering Research and Development Center (ERDC), Vicksburg, MS: Testing, analysis, and design for Dallas Floodway System levees in Dallas, TX, 2010 - 2012.

## (Relevant Consulting Experience, continued)

- U.S. Army Corps of Engineers, Engineering Research and Development Center (ERDC), Vicksburg, MS: Enhancing consolidation, secondary compression, and desiccation of dredged fill microcomputer program PSDDF, 2010 - 2012.
- HNTB, Baton Rouge, LA: Expert for stability analyses for Dallas Floodway System levees in Dallas, TX, 2010 - 2012.
- Dan Brown and Assoc., Kansas City, MO, Design review for pile supported embankment in Hasting, MN, 2010 - 2011.
- E<sup>2</sup>, Inc., Charlottesville, VA: Expert for re-development of Superfund Site in Utah, 2010 - 2011.
- Stantec Consultants, Nashville, TN: Expert for stability evaluation of upstream slope of Wolf Creek Dam, 2010 - 2011.
- Fehseke & Eschman Law Offices, Fort Madison, IA: Expert for slope movement cause, Fort Madison, IA, 2010 - 2011.
- John Deere Company, Moline, IL: Evaluate pressures applied by new high speed dozer, 2010 - 2011.
- Terracon, San Antonio, TX: Expert for cause and repair of retaining wall failure, 2010 - 2011.
- Terracon, Des Moines, IA: Expert for MSE wall failure near Kansas City, Missouri, 2010 - 2011.
- Law Offices of Alan M. Mayer, Inc., San Francisco, CA: Expert for slope movement cause, Clayton, CA, 2010 - 2011.
- Applied Earth Sciences, Los Angeles, CA: Expert for landslide complex at Frank Bowerman Landfill, Los Angeles, California, 2008 - 2010.
- de la Pena & McDonald, LLP, San Francisco, CA: Expert for slope movement cause, San Rafael, CA, 2009 - 2010.
- McConaughy & Sarkissian, P.C., Denver, CO: Expert for retail development settlement claim near Glenwood Springs, Colorado, 2008 - 2012.
- Terracon, Des Moines, IA: Expert for landslide cause and repair near Boone, Iowa, 2008 - 2010.
- Montgomery-Watson-Harza, Chicago, IL: Expert for streambank protection and along Chicago River, 2007 - 2010.
- Montgomery-Watson-Harza, Chicago, IL: Expert for geomembrane lined reservoir slope failures and repair at O'Hare Airport, 2007 - 2010.
- de la Pena & McDonald, LLP, San Francisco, CA: Expert for mudslide cause and repair, San Rafael, CA, 2007 - 2008.
- U.S. Army Corps of Engineers, Kansas City District, Kansas City, MO: Advisory Panel seismic retrofit of Tuttle Creek Dam near Manhattan, Kansas, 2005 - 2011.
- Ohio Environmental Protection Agency, Columbus, OH: Expert for aluminum waste reaction and fire in MSW landfill in Ohio, 2007 - 2010.
- National Cooperative Highway Research Program, 24-11(02): Guidelines for Geofoam in Slope Stabilization Applications, Transportation Research Board, Washington, D.C., 2006 - 2011.
- Geo-Logic Associates, Inc., Los Angeles, CA: Expert for liquefaction and slope stability for proposed landfill expansion on San Francisco Bay, 2006 - 2009.
- Aquaterra, Jefferson City, MO: Expert for slope stability of expansion of Lemons Landfill in Dexter, MO, 2005 - 2010.
- ENVIRON Environmental Consulting, Newark, NJ: Expert for developing guidance document for physical groundwater barriers at contaminated sites in Italy, 2007 - 2009.
- Blazosky Associates, Valley Forge, PA: Expert for landfill with elevated temperatures, 2009 - 2011.
- American Electric Power, Columbus, OH: Expert for landslide cause and repair in Ohio, 2007 - 2008.
- American Electric Power, Columbus, OH: Expert for slope stability problem in landfill in West Virginia, 2007 - 2008.
- Ohio Department of Transportation, Columbus, OH: Dispute Resolution Board Member for large Interstate expansion and reconstruction project near Cleveland, 2006 - 2011.
- Bell, Rosenberg & Hughes, Oakland, CA: Expert for construction claims related to Privatized Toll Road project near San Diego, California, 2005 - 2010.
- Blazosky Associates, Valley Forge, PA: Expert for PVC geomembrane liner system in MSW landfill, 2006 - 2011.
- Waste Management, Oak Brook, IL: Stability expert for new landfill near Chicago, IL, 2006 - 2008.
- Levin, Fishbein, Sedran, and Berman, Philadelphia, PA: Expert for Flooding in Fairfax County, Virginia, 2006 - 2007.

## (Relevant Consulting Experience, continued)

- Federal Highway Administration, Washington, D.C.: Expert for Synthesis on Use of Geosynthetics in Pavements and Development of a Roadmap to Geosynthetically-Modified Pavements, 2006 - 2009.
- Morgan, Miller Blair, LLP, San Francisco, CA: Expert for landslide cause and repair near Livermore, CA, 2003 - 2008.
- Waste Management, East St. Louis, IL: Expert for expansion of Milam Landfill in East St. Louis, IL, 2005 - 2007.
- Geomatrix, Los Angeles, CA: Slope stability expert for design of large landfill in California, 2006 - 2008.
- Oxford Mining, Oxford, OH: Expert for new MSW Landfill in Oxford, OH, 2004 - 2006.
- Cal Engineering & Geology, Walnut Creek, CA: Expert for static and seismic stability of Cull Creek Dam in Castro Valley, CA, 2004 - 2006.
- Cal Engineering & Geology, Walnut Creek, CA: Expert for static and seismic stability of Don Castro Dam in Castro Valley, CA, 2004 - 2006.
- U.S. Bureau of Reclamation, Denver, CO: Columbia River Stability Assessment at Grand Coulee Dam, 2004 - 2006.
- American Electric Power, Columbus, OH: Expert for vertical expansion of landfill over a fly ash tailings reservoir in Steubenville, Ohio, 2003 - 2006.
- American Electric Power, Columbus, OH: Expert for vertical expansion of landfill in Conesville, Ohio, 2003 - 2005.
- Camp, Dresser, and McKee, Chicago, IL: Expert for converting waste filled quarry to a large recreation complex in Chicago, 2005 - 2006.
- Altshuler, Berzon, Nussbaum, Rubin, and Demain, LLC, San Francisco, CA: Expert for static and seismic stability of large landfill expansion near Los Angeles, 2005 - 2006.
- Jackson Kelly, PLLC, Denver, CO: Expert for slope failure in water retention pond, 2005 - 2006.
- Thompson, Hine, LLP, Cincinnati, OH: Expert for landslide cause and repair near Cincinnati, Ohio, 2005 - 2006.
- U.S. Silica, LaSalle, IL: Stability expert for sand and gravel quarry mine expansion in La Salle, IL, 2004 - 2005.
- Dakota County Environmental Management Department, Hastings, Minnesota: Expert review of geotechnical evaluation for leachate recirculation project at Burnsville Solid Waste Landfill in Burnsville, Minnesota, 2004.
- Clorox Company, Oakland, CA: Expert for expansive soil issues in Fairfield, California, 2004 - 2005.
- Ohio Environmental Protection Agency, Cleveland, OH: Expert for Slope Failure during Redevelopment of Closed Landfill, 2004 - 2005.
- STS Consultants, Green Bay, WI: Expert for vertical and lateral expansion of bioreactor landfill in Illinois, 2003 - 2004.
- Camp, Dresser, and McKee, Raleigh, NC: Expert review of geotechnical stability evaluation for Buncombe Project XL bioreactor at Buncombe County Solid Waste Landfill in Alexander, North Carolina, 2002 - 2003.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS: Revising and enhancing microcomputer program PSDDF (Primary consolidation, Secondary compression, and Desiccation of Dredged Fill), 2001 - 2003.
- Rich and Henderson, P.C., Annapolis, MD: Expert for slope failure in a landfill final cover system, 2002 - 2004.
- Lanahan & Reilly, LLP, San Francisco, CA: Expert for landslide near San Francisco, California, 2001 - 2004.
- Transportation Technology Center, Inc. (subsidiary of Association of American Railroads), Pueblo, CO: Review of technologies for real-time detection of landslides and other wayside hazards, 2000 - 2002.
- Godfrey and Kahn, Milwaukee, WI: Expert geotechnical engineering analyses for proposed mining project, 2001 - 2003.
- Ohio Environmental Protection Agency, Columbus, OH: Expert for Geotechnical Engineering Issues, 1996 - 2003.
- Bell, Rosenberg & Hughes, Oakland, CA: Expert for landslide near San Francisco, California, 1999 - 2001.
- U.S. Geological Survey, Reston, VA: Interpretation of Paleoliquefaction Features using Cone Penetration Test Results, 2001 - 2004.
- Chemical Waste Management, Model City, NY: Expert stability analyses for Hazardous Waste Landfill in Model City, New York, 1999 - 2000.

## (Relevant Consulting Experience, continued)

- Golder Associates, Inc., Los Angeles, California: Measurement and use of drained residual shear strengths in stability analyses for Otay Mesa Landfill slope failure, San Diego, CA, 1999.
- Andrews Engineering, Pontiac, IL: Stability Analyses for Design of Landfill Cover Systems, 1999 - 2000.
- Ohio Environmental Protection Agency, Columbus, OH: Review of settlement analyses and permit application for Countywide and Cuyahoga Landfills, 1999 - 2001.
- Pillori and Associates, Red Bank, NJ: Expert opinion for Heap Leach Pad slope failure involving a geomembrane in Santiago, Chile, 1998 - 1999.
- Advanced GeoServices Corporation, Chadds Ford, PA: Static and seismic slope stability analyses for proposed Superfund landfill in Portland, OR, 1998 - 1999.
- Ohio Environmental Protection Agency, Columbus, OH: Stability analyses for landfill slope failure involving leachate recirculation at Geneva Landfill, 1998 - 2000.
- Monroe County Landfill, Bloomington, IN: Static and seismic slope stability analyses for permit application for conversion of MSW landfill to a balefill, 1998 - 2001.
- Jay Janssen Law Group, Peoria, IL: Expert for fatal landslide at East Side Park in East Peoria, 1998-1999.
- Ohio Environmental Protection Agency, Columbus, OH: Review of permit application and conduct slope stability analyses for Suburban South RDF, Inc., Brownsville, Ohio, 1998 - 1999.
- STS Consultants, Chicago, IL: Measurement and use of residual shear strengths for slope failure at industrial landfill near Chicago, 1998-2001.
- Clausen-Miller, P.C., Chicago, IL: Expert for landslide at Rumpke Sanitary Landfill near Cincinnati, 1997-1999.
- Ohio Environmental Protection Agency, Columbus, OH: Permit application review for Waste Control Services and 3M-Copley Landfills in Ohio, 1998-1999.
- Arkansas Environmental Protection Agency, Little Rock, AR: Development of technical presentations on static and seismic slope stability for solid waste containment facilities, 1998-2000.
- Ohio Environmental Protection Agency, Columbus, OH: Development of technical presentations and short courses on static and seismic slope stability for solid waste containment facilities, 1997-2000.
- Missouri Department of Natural Resources, Jefferson City, MO: Development of technical guidance document on static and seismic slope stability for solid waste containment facilities, 1997-1999.
- Cotton, Shires & Associates, San Francisco, CA: Measurement and use of drained residual shear strengths in slope stability analyses for Anaheim Hills and Partridge Hills Landslides, San Francisco and Los Angeles, CA, 1998.
- Woodward-Clyde Consultants, San Francisco, CA: Measurement and use of drained residual shear strengths in slope stability analyses for Keller Canyon Landfill, San Francisco, CA, 1998.
- American Geotechnical, Inc., San Diego, CA: Measurement and use of cohesive soil residual strength in slope stability analyses for Niguel Summit Landslide, Los Angeles, 1998.
- Ohio Environmental Protection Agency, Columbus, OH: Review of stability analyses and measurement of cohesive soil residual strength for landslide at Vandale Superfund Landfill near Marietta, Ohio, 1998-2000.
- EBA Waste Technologies, Santa Rosa, CA: Three-dimensional slope stability analysis for permit application for Phase IIa of Toland Road Landfill, Los Angeles, CA, 1997 - 1998.
- Korean Architects Collaborative International, Seoul, KOREA: Evaluation of geosynthetic clogging potential of geosynthetics in permanent dewatering system of Passenger Terminal Building No. 1 at the new Incheon International Airport, Incheon, Korea, 1997 - 1998.
- Soil Testing Engineers, Inc., Baton Rouge, LA: Measurement and use of drained and undrained residual shear strengths in analysis of Port Allen retaining wall failure, New Orleans, LA, 1997.
- Woodward-Clyde Consultants, Denver, CO: Measurement and use of undrained residual shear strengths in slope stability analyses for tailings dams at Kennecott Mining Company, Salt Lake City, Utah, 1997.

## (Relevant Consulting Experience, continued)

- Ohio Environmental Protection Agency, Columbus, OH: Review of permit alteration, conduct liquefaction and slope stability analyses, and provide expert opinion for Attorney General's enforcement case for General Motors Powertrain Plant landfill, Defiance, Ohio, 1997 - 2001.
- Golder Associates, Inc., Seattle, Washington: Geomembrane/soil interface and soil strengths for slope stability of leach pads at Kinross/Goldbanks Mine, Reno, Nevada, 1996 - 1998.
- Ohio Environmental Protection Agency, Columbus, OH: Stability analyses for Mahoning Landfill slope failure involving a GCL near Youngstown, 1996 - 1997.
- National Seal Company, Galesburg, IL: Textured geomembrane interface strengths for slope stability of Kirby Canyon Landfill, 1995-1996.
- Ohio Environmental Protection Agency, Columbus, OH: Reviewed and recommended static and seismic slope stability analyses for Permit-To-Install Application for Bond Road Landfill near Cincinnati, 1996 - 1997.
- Ohio Environmental Protection Agency, Columbus, OH: Review of stability analyses, measurement of cohesive soil residual strength, and slope stability analyses for slope failure at Rumpke Sanitary Landfill near Cincinnati, 1996-2000.
- Woodward-Clyde Consultants, Santa Ana, CA: Measurement and use of cohesive soil fully softened and residual shear strengths in slope stability analyses for 944 landslide, Los Angeles, CA, 1996.
- Barton & Loguidice, Syracuse, NY: Review slope stability and measure interface strengths for Oneida-Herimer Landfill, Oneida, NY, 1996.
- Soil Testing Engineers, Inc., Baton Rouge, LA: Measurement and use of drained and undrained residual shear strengths in slope stability analyses for Boise-Cascade Landslide along Tombigbee Waterway, Jackson, AL, 1996.
- Sierra Testing Laboratories, Inc., El Dorado Hills, CA: Measurement and use of cohesive soil residual strength in slope stability analyses for Toledo Court Landslide, 1996.
- American Geotechnical, Inc., San Diego, CA: Measurement and use of cohesive soil residual strength in slope stability analyses for Mira La Paz Landslide, San Diego, 1996.
- Nicolon Corporation, Norcross, Georgia: Use of geocontainers for flyash disposal at Dallman Powerplant, Springfield, Illinois, 1996-1997.
- AGRA Earth & Environmental, Inc., Portland, Oregon: Measurement and use of cohesive soil residual strength in slope stability analyses for Tongue Point Job Corps Center Landslide, Portland, 1996.
- Illinois Environmental Protection Agency, Springfield, IL: Design, implementation, and construction of final cover to stabilize Logan County municipal waste containment facility, 1995.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS: Seismic stability and deformations of earth structures and foundations; evaluate applicability of Newmark deformation method and develop recommendations for site-specific parameters based on field performance, 1996-1997.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS: Design, implementation, and construction of interim/final cover to stabilize dye burial ground at the U.S. Naval Surface Warfare Center in Crane, Indiana, 1995-1996.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS: Evaluation of seismic stability of Enid Dam in Northern Mississippi, including constant volume ring shear tests, estimation of seismic shear strengths, and prediction of earthquake induced-permanent deformations, 1995-1996.
- Woodward-Clyde Consultants, Santa Ana, CA: Measurement and use of cohesive soil fully softened and residual shear strengths in slope stability analyses for Morning Sun Avenue Landslide, Los Angeles, 1995.
- Golder Associates, Inc., Seattle, Washington: Geomembrane/soil interface strengths for leach pad slope failures at Beartrack Mine, Leesburg, Idaho, 1995.
- Shannon and Wilson, Inc., Seattle, WA: Measurement and use of cohesive soil residual strength in slope stability analyses for Fidalgo Island landslide, Seattle, 1994-1995.

**(Relevant Consulting Experience, continued)**

- Golder Associates, Inc., Calgary, Canada: Measurement and use of cohesive soil residual strength in slope stability analyses for Golden Sunlight Mines, Montana, 1994.
- Poly-Flex, Inc., Grand Prairie, TX: Textured geomembrane interface strengths, 1994.
- Burlington Environmental, Inc., Columbia, IL: Liquefaction and post-liquefaction assessments for Caruthersville Riverboat Casino, Caruthersville, Missouri, 1994.
- Woodward-Clyde Consultants, San Diego, CA: Consolidation analysis using microcomputer program PCDDF to recommend landfilling operations for creation of PIER 400 at Port of Los Angeles, 1993-1994.
- RUST Environment & Infrastructure, Naperville, IL: Interface strengths for Altamont Landfill slope stability, 1993.
- Woodward-Clyde Consultants, Oakland, CA: Measurement and use of cohesive soil residual strength in slope stability analyses for Sky Valley Ranch Development, San Francisco, 1993.
- Woodward-Clyde Consultants, Oakland, CA: Measurement and use of residual strength in slope stability analyses for J. Paul Getty Museums, Los Angeles, 1993.
- National Seal Company, Galesburg, IL: Textured geomembrane interface strengths, 1993-1996.
- Golder Associates, Inc., Oakland, CA: Liner interface strengths for Kirby Canyon Landfill slope stability, Morgan Hill, California, 1993-1996.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS and Norfolk District, Norfolk, VA: Undrained strength stability analysis of and recommendations for raising perimeter dikes at Craney Island Dredged Material Management Area (CIDMMA) before and after vertical strip drain installation (1992-1996); Design, specification, and monitoring of vertical prefabricated strip drains in CIDMMA to increase storage capacity (1991-1995); Slope Stability (1988-1994) and instrumentation (1989-1995) of perimeter dikes at CIDMMA.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS: Consolidation, secondary compression, and desiccation analyses using microcomputer programs PCDDF and PSDDF to evaluate service life of the Craney Island Dredged Material Management Area (CIDMMA) under current and proposed restricted use operations (1992), developed an operational plan for CIDMMA to maximize service life (1993), and recommended dredged material placement plan for wetlands creation along Petaluma River near San Francisco (1994).
- CH<sub>2</sub>M-Hill Consultants, Emeryville, CA: Measurement and use of undrained residual strength in seismic slope stability analysis of Acme Landfill, 1990.
- Woodward-Clyde Consultants, Santa Ana, CA: Measurement & use of residual strength in stability analyses, 1990.
- U.S. Army Corps of Engineers, New York District, New York, NY: Feasibility of dredge containment islands in New York Harbor, 1989.
- Geocon, Inc. Consulting Civil Engineers, San Diego, CA: Design, specification, and insitu testing for stone column foundation at Lopez Ridge Development, 1987-1988.

**SHORT COURSE INSTRUCTION**

- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Analysis of Landslides: Shear Strengths, Testing, and Stability Analyses*," in Denver, CO, February, 2015.
- Layfield Group, Edmonton, Alberta: Participated in one-day short course titled "*High Performance Geomembranes and Geosynthetics for Oil and Gas*," at Saskatoon Convention Centre, Saskatoon, Canada, October 16, 2014..
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a four-day short course titled "*Design, Construction, and Performance of Earth and Tailings Dams*," in Ecuador and Bolivia, January, 2015.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Static and Seismic Slope Stability for Heap Leach Pads*," in Vancouver, Canada, September, 2014.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a four-day short course titled "*Design, Construction, and Performance of Earth and Tailings Dams*," at Universidad Nacional Agraria La Molina, Lima Peru, June, 2014.
- Fabricated Geomembrane Institute: Organized and participated in one day short course titled "Best Practices for Water Storage and Conveyance," Greeley, CO, September, 2014.
- Layfield Group, Edmonton, Alberta: Participated in one-day short course titled "*High Performance Geomembranes and Geosynthetics for Oil and Gas*," at Calgary Telus Convention Centre, Calgary, Canada, March 6, 2014..
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a four-day short course titled "*Design, Construction, and Performance of Earth and Tailings Dams*," at Universidad Nacional Agraria La Molina, Lima Peru, January, 2014.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Static and Seismic Slope Stability for Heap Leach Pads*," in Vancouver, Canada, September, 2013.
- Fabricated Geomembrane Institute: Organized and participated in one day short course titled " Environmental Protection in Shale Oil and Gas Development," Corsicana, TX, 2013.
- Fabricated Geomembrane Institute: Organized and participated in one day short course titled " Environmental Protection in Shale Oil and Gas Development," Dallas, TX, 2013.
- Fabricated Geomembrane Institute: Organized and participated in one day short course titled " Environmental Protection in Shale Oil and Gas Development," Williamsport, PA, 2013.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "Static and Seismic Slope Stability of Waste Containment Facilities," Jefferson City, MO, June, 2012.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Waste Fires: Detection, Evaluation, and Suppression*," in Jefferson City, MO, May, 2011.
- Fabricated Geomembrane Institute: Organized and participated in one day short course titled "Constructing with Fabricated Geomembranes," two to three times per year, 2009-present.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Waste Fires: Detection, Evaluation, and Suppression*," in Indianapolis, IN, November, 2009.
- Ohio Environmental Protection Agency, Columbus, OH: Organizer of and presenter in one day short course titled "Landfills with Elevated Temperatures," June, 2009.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Waste Fires: Detection, Evaluation, and Suppression*," in Chicago, IL, January, 2009.
- Missouri Department of Natural Resources, Jefferson City, MO: Organized and conducted in two-day short course titled "Design, Construction, Protection, and Performance of Compacted Soil Liners," January, 2009.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Waste Fires: Detection, Evaluation, and Suppression*," in Harrisburg, PA, October, 2008.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Advanced Interface Strengths and Slope Stability Analyses*," in Atlanta, GA, June, 2008.
- Industrial Fabrics Association International: Organized and conducted a one-day short course titled "*Advanced Interface Strengths and Slope Stability Analyses*," in Cancun, Mexico, March, 2008.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Landslides: Shear Strengths and Stability Analyses*," in San Diego, CA, March, 2006.



## (Short Course Instruction, continued)

- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Landslides: Shear Strengths and Stability Analyses*," in Cincinnati, March, 2005.
- Illinois Environmental Protection Agency, Springfield, IL: Organized and conducted in one day short course titled "Landfill Leachate Recirculation and Vertical Expansions," May, 2005.
- Illinois Environmental Protection Agency, Springfield, IL: Organized and conducted three one-day short courses titled "Introduction to Geotechnical Engineering," January, 2005 - December, 2005.
- Ohio Environmental Protection Agency, Columbus, OH: Organizer and sole presenter of two-day short course on Landfill Slope Failures, Site Characterization, and Laboratory Testing for Geotechnical Design, September, 2004.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Landslides: Shear Strengths and Stability Analyses*," in Seattle, March 25, 2004.
- Stark Consultants, Inc., Urbana, IL: Organized and conducted a one-day short course titled "*Landslides: Shear Strengths and Stability Analyses*," in Los Angeles and San Francisco, CA, March 25 and 27, 2003.
- University of Wisconsin at Madison, WI: Organized annual three day short course titled "Static and Seismic Slope Stability of Waste Containment Facilities," Los Angeles, CA, 1993 - August, 2003.
- University of Wisconsin at Madison, WI: Participated in one day short course titled "Designing and Operating Bioreactor Landfills," 2002-2006.
- PVC Geomembrane Institute-Technology Program: Video-taped web-based short course module titled "Geomembrane Interface Strengths and Slope Stability" for Constructing with PVC Geomembranes" short course, 2002.
- Illinois Environmental Protection Agency, Springfield, IL: Organized and conducted six one-day short courses titled "Geotechnics for Landfill Design," January - July, 2002.
- Illinois Environmental Protection Agency, Springfield, IL: Organized and participated in two day short course titled "Geosynthetic Clay Liners for Waste Containment Facilities," August, 2001.
- California Water Control Board, Sacramento, CA: Participated in three day short course for University of Wisconsin at Madison titled "Static and Seismic Slope Stability of Waste Containment Facilities," June, 2001.
- PVC Geomembrane Institute-Technology Program: Participated in one day short course titled "Constructing with PVC Geomembranes," three to four times per year, 1998-2009.
- University of Illinois at Urbana-Champaign, IL: Participated in two day short course titled "Geosynthetic Clay Liners for Waste Containment," St. Louis, MO, June, 2000.
- GSE Lining Technology, Houston, TX: Invited seminar titled "Geosynthetics for Advanced Solutions," March, 2000.
- GSE Lining Technology, Houston, TX: Invited workshop titled "Designing with Geosynthetic Clay Liners," May, 1999.
- University of Texas, Austin, TX: Participated in two day short course titled "Geosynthetic Clay Liners for Waste Containment," Austin, Texas, 1999.
- University of Wisconsin at Madison, WI: Participated in annual to annual three day short course titled "Sanitary Landfill Design," 1998-date.
- Ohio Environmental Protection Agency, Columbus, OH: Organizer and sole presenter of two day short course titled "Module IV: Special Topics in Stability of Waste Containment Systems," 1999.
- Ohio Environmental Protection Agency, Columbus, OH: Organizer and sole presenter of two day short course titled "Module III: Advanced Material Behavior and Laboratory Testing," 1999.
- Ohio Environmental Protection Agency, Columbus, OH: Organizer and sole presenter of two day short course titled "Module I: Geotechnical Basics," 1998.
- Arkansas Environmental Protection Agency, Little Rock, AR: Organizer and sole presenter of one day short course titled "Seismic Slope Stability of Waste Containment Facilities," 1998.
- Pennsylvania Environmental Protection Agency, Harrisburg, PA: Participated in two day short course titled "Geosynthetic Clay Liners for Waste Containment," 1997.
- Ohio Environmental Protection Agency, Columbus, OH: Organizer and sole presenter of one day short course titled "Seismic Slope Stability of Waste Containment Facilities," 1998.

## (Short Course Instruction, continued)

- Ohio Environmental Protection Agency, Columbus, OH: Organizer and sole presenter of two day short course titled "Static Slope Stability of Waste Containment Facilities," 1995.
- National Seal Company, Galesburg, IL: Invited workshop "Designing Landfill Lining Systems on Slopes," March, 1994.
- Hanson Engineers, Inc., Springfield, IL: Organizer and sole presenter one day short course "Soil Liquefaction," 1993.
- Assoc. of American Railroads: Invited three-day short course titled "Soil Mechanics & Foundation Engrg.," 1993.
- U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS: Organizer and sole presenter of annual one-day short course on microcomputer program Primary Consolidation and Desiccation in Dredged Fill (PCDDF), 1988 - date.

**PROFESSIONAL AFFILIATIONS**

- Vice Chair, Embankments, Dams, and Slopes Committee, ASCE – 2015 - date
- Chair, Fully Softened Strength Subcommittee, Embankments, Dams, and Slopes Committee, ASCE – 2014 - date
- Member, Embankments, Dams, and Slopes Committee, ASCE – 2012 - date
- Member, Publications Committee, Journal of Geotechnical and Geoenvironmental Engineering, ASCE – 2009 - date
- Member, Geoenvironmental Engineering Committee, ASCE – 2009 - date
- Member, GeoEngineering Earthquake Reconnaissance (GEER) Association – 2007 - date
- Faculty Member, American Society of Foundation Engineers (ASFE) – 2003 - 2010
- Member, American Society for Testing and Materials (ASTM) Committees : – 1989 - date
- D-18 - Soil and Rock
- D-35 - Geotextiles, Geomembranes, and Related Products
- Fellow, American Society of Civil Engineers, Geotechnical Engineering Division – 2006 – date
- Member, American Society of Civil Engineers, Geotechnical Engineering Division – 1985 – 2005
- Member, American Society of Mechanical Engineers, Central Illinois Section – 2013 – Present
- Member, International Society of Soil Mechanics and Foundation Engineering – 1989 - date
- Member, International Society of Explosives Engineers – 2001 - 2007

**PROFESSIONAL SERVICE**

Elected Vice Chair, Embankments, Dams, and Slopes Committee, ASCE, 2015 - 2018

Co-Editor, Special Issue on Geosynthetic Clay Liners, Geosynthetics International Journal, 2013 - date.

Chair, Fully Softened Shear Strength Subcommittee, Embankments, Dams, & Slopes Committee, ASCE – 2014 - date

Technical Organizing Committee, **Geo-Structures Joint Congress 2016**, Chicago, IL, 2014 - 2016.

Session Organizer, Geosynthetics for Shale Oil and Gas Development, Geosynthetics 2015, Portland, Oregon.

Session Organizer, Geosynthetics for Potable Water, Geosynthetics 2015, Portland, Oregon.

Editor, ASCE Journal of Geotechnical and Geoenvironmental Engineering, 2012 - date.

Editorial Board Member, ASCE Journal of Legal Affairs and Dispute Resolution in Engrg and Construction, 2013 - date.

Editorial Board Member, Geosynthetics International Journal, International Geosynthetics Society – 2013 - date

International Advisory Committee, **12<sup>th</sup> Intl. Symposium on Geo-Disaster Reduction**, Fullerton, CA, 2014 - 2015.

Associate Editor, Journal of Geotechnical and Geoenvironmental Engineering, ASCE – 2009 - 2012

Session Organizer, Geomembranes for Oil and Gas Applications, **Geo-Congress 2012 Conf.**, Oakland, 2011 - 2012.

Session Organizer, Geomembrane Floating Covers Systems, **Geo-Frontiers 2011** Conference, Dallas, 2010 - 2011.

Session Organizer, Elevated Temperatures in Landfills, **Geo-Frontiers 2011** Conference, Dallas, 2010 - 2011.

Technical Program Committee, **Geosynthetics Conference 2007**, North American Geosynthetics Society and Industrial Fabrics Association International, 2005 - 2007.

Session Organizer, Slope Stability Research, **Geosynthetics 2007**, 2006 - 2007.

Session Organizer, Legal and Liability Issues in Geotechnical Engrg., ASCE **Geo-Frontiers 2005** Conference, 2004 - 2005.

Member, Embankment Dams and Slopes Committee, ASCE Geotechnical Engineering Division, 1995 - 2005.

Chair (1996) and Vice Chair (1994 & 1995), Illinois/Indiana Section, American Soc. for Engrg. Education.

News-Correspondent, ASCE Geotechnical Engineering Division, 1992 - 1995.

Associate Editor, ASCE Journal of Geotechnical and Geoenvironmental Engineering, 1991 - 1997.

Member, Environmental Geotechnics Committee, ASCE Geotechnical Engineering Division, 1992 - date.

Member, News-Correspondent Subcommittee, ASCE Geotechnical Engineering Division, 1991 - 1992.

Chair, (1989), Vice Chair, (1988), and Secretary, (1987), San Diego ASCE Geotechnical Division.

Member, Soil and Rock Properties Committee, A2LO2, Transportation Research Board, 1989 - 1996.

Paper Reviewer: ASCE, ASTM, TRB, Earthquake Engineering Research Institute, 1988 - date.

Proposal Reviewer: National Science Foundation, U.S. Geological Survey, 1989 - date.

**RESEARCH GRANTS AND CONTRACTS**

- Estimating the Variability of Settlements on Clay*, First SDSU Engineering Faculty Summer Research Fellowship, 6/87-9/87; \$3,000 (0% overhead).
- Use of Cone Penetration Tests for Evaluating the Strength and Compressibility of Canyon Alluvium*, Geocon, Inc., San Diego, CA; 12/87-12/88; \$15,000 (0% overhead).
- Stability of Perimeter Dikes at Craney Island, Norfolk, Virginia*, Intergovernmental Personnel Agreement (IPA), U.S. Army Corps of Engineers Waterways Experiment Station, (WES), Vicksburg, MS; 50% time, 10/88-6/89; \$19,000.
- Microcomputer Model of Primary Consolidation and Desiccation Processes in Dredged Fill (PCDDF)*, WES, Vicksburg, MS; Phase I: 1/89-11/89, \$30,000; Phase II: 11/89-8/91; \$35,000.
- Finite Element Analysis of Transient Seepage through Compacted Fills*, Geocon, Inc., San Diego, CA; 1/89-6/90; \$10,000 (0% overhead).
- Feasibility of an Expert System for Dredging*, IPA, WES, Vicksburg, MS; 50% time, 6/89-12/89; \$12,000.
- Soil-Structure Interaction Parameters for Silts*, WES, Vicksburg, MS; 10/89-6/90; \$25,000.
- Database of Dredged Material Compressibility and Desiccation Properties for PCDDF*, WES, Vicksburg, MS; 10/89-4/90; \$25,000.
- Drained Residual Shear Strength of Cohesive Soils for Landslides*, CH<sub>2</sub>M-Hill; Woodward-Clyde Consultants; Petra Geotechnical; Univ. of Calif. at Los Angeles; Dragados, Manta, Ecuador; Shannon and Wilson; Golder Associates; 10/89 - date, \$25,000 (5% overhead).
- Long-Term Stability of Natural Slopes*, National Science Foundation (NSF), 3/90-9/93, \$100,000.
- Undrained Residual Strength of Cohesive Soils and Landslides During Earthquakes*, U.S. Geological Survey, Reston, VA, 3/91-9/93; \$50,000.
- Startup Equipment*, University of Illinois Research Board, 12/90-10/91: \$48,000.
- Static Soil-Geosynthetic Interface Strengths Using a Torsional Ring Shear Apparatus*, NSF, 9/91-8/93, \$30,000.
- Dynamic Soil-Geosynthetic Interface Strengths of Soil-Geosynthetic Liner Systems for Solid Waste Landfills*, Illinois Office of Solid Waste Research, 1/92-1/94, \$49,000.
- Physical Modeling of Landslides During Earthquakes in Cohesive Soils*, U.S. Geological Survey, Reston, VA, 9/92-12/95; \$81,000.
- Microcomputer Model of Primary Consolidation, Secondary Compression, and Desiccation Processes in Dredged Fill (PSDDF)*, WES, Vicksburg, MS; Phase III: 4/92-4/94; \$60,000.
- Microcomputer Model of Vertical Strip Drains in Dredged Fill*, WES, Vicksburg, MS; 5/93-7/94; \$40,000.
- Microcomputer Model of Vertical Strip Drains in Dredged Fill*, U.S. Army Research Office, Student Supplement Program, Research Triangle Park, North Carolina; 5/94-7/96; \$43,000.
- Chemical Immersion Effects on Interface Strengths of Solid Waste Landfill Liner Systems*, Illinois Office of Solid Waste Research, 8/93-8/95, \$48,000.
- Effect of Chemical Immersion on Interface Strengths of Hazardous Waste Landfill Liner Systems*, Illinois Hazardous Waste Research and Information Center, 6/93-7/95, \$20,000 (Matching Funds).
- Differential Movement at Bridge/Embankment Interface*, with Dr. J.H. Long of U. of Illinois, Illinois Dept. of Transportation; 6/94-8/95; \$87,000.
- Geosynthetic Interface Strengths of Soil-Geosynthetic Liner Systems for Solid Waste Landfills*, Golder Associates, San Francisco, 4/93-9/93, \$5,000 (5% overhead).
- Geosynthetic Interface Strengths of Soil-Geosynthetic Liner Systems for Solid Waste Landfills*, National Seal Corporation, Galesburg, IL, 6/93-6/95, \$10,000 (5% overhead).
- Stress-Strain Behavior of Undisturbed Silts*, WES, Vicksburg, MS; 8/93-2/95; \$25,000.
- Performance of Three-Dimensional Slope Stability Analyses*, National Science Foundation, 11/93-11/96, \$140,000.

## (Research Grants and Contracts, continued)

- Excavation and Evaluation of the Engineering Properties of ISGS Soil Liner*, Illinois Office of Solid Waste Research, 4/96-4/98, \$63,000.
- Post-Liquefaction Behavior of Soils*, National Science Foundation, 10/96-10/98, \$58,000.
- PVC Geomembrane Institute – Technology Program*, with Drs. David E. Daniel and Krishna R. Reddy, PVC Geomembrane Institute, Traverse City, MI, 12/97 – 5/10, \$50,000-100,000/year for ten years (5% overhead).
- Guidelines for Geofoam Applications in Embankment Projects*, National Cooperative Highway Research Program, 24-11(01), Transportation Research Board, Washington, D.C., 3/98 - 3/00, \$200,000.
- Liquefaction Response of Soils in Mid-America*, Mid-America Earthquake Center, National Science Foundation, 1/98-1/01, \$120,000.
- Paleoseismology & Paleoliquefaction*, Mid-America Earthquake Center, National Science Found., 1/98-1/01, \$160,000.
- Seismic Performance of Waterfront Structures*, with G. Mesri and W.J. Hall of U. of Illinois and R.M. Ebeling of WES, Vicksburg, MS; Mid-America Earthquake Center, National Science Foundation, 1/98-1/01, \$140,000.
- Liquefaction Induced Permanent Deformations*, Mid-America Earthquake Center, National Science Foundation, 1/99-1/02, \$240,000.
- Beneficial Uses of Shredded Tires in Covering Abandoned Landfills*, with Drs. David E. Daniel and Krishna R. Reddy, Illinois Department of Commerce and Community Affairs, 9/99 - 9/02, \$169,000.
- Coordination of Transportation Networks Research Program*, Mid-America Earthquake Center, National Science Foundation, 1/98-1/01, \$200,000.
- Contaminant Transport Through a Field-Scale Earthen Liner*, with Drs. David E. Daniel, Albert J. Valocchi, and Charles J. Werth of Univ. of Illinois and Mr. Ivan G. Krapac of the Illinois State Geological Survey, National Science Foundation, 10/98 - 10/01, \$252,000.
- Stability of Colluvial Slopes*, National Science Foundation, 6/99 - 6/02, \$215,000.
- Interpretation of Ground Shaking from Paleoliquefaction Features*, U.S. Geological Survey, Reston, VA, 1/00-1/02; \$143,000.
- Post-Liquefaction Behavior of Soils*, National Science Foundation, 10/96-10/98, \$58,000.
- Guidelines for Geofoam Applications in Slope Stability Projects*, National Cooperative Highway Research Program, 24-11(02), Transportation Research Board, Washington, D.C., 10/06 – 10/10, \$300,000.
- Fabricated Geomembrane Institute – Technology Program*, Fabricated Geomembrane Institute, Urbana, IL, MI, 5/10 - present, \$25,000/year for ten years (5% overhead).
- Development of Procedures for Determining the Axial Capacity of Drilled Shafts Founded in Illinois Shales*, with Dr. J.H. Long of U. of Illinois, Illinois Center for Transportation; Phase 1, 11/11-5/13; \$172,500.
- Geosynthetic Materials for Applications at ORD*, O'Hare Modernization Project, Chicago, IL, 2/11 - 12/11, \$15,000 (10% overhead).
- Mitigation of Differential Movement at US High Speed Passenger Rail and Joint Passenger/Freight Railway Transitions*, with Dr. E. Tutumluer of U. of Illinois, Federal Railroad Administration; 9/11-9/14; \$1,630,000.
- Seismic Testing for Track Substructure (Ballast and Subgrade) Assessment*, with E. Tutumluer of U. of Illinois, S. Nazarian of U. of Texas at El-Paso, and C. Ho of U. of Mass. at Amherst, Federal Railroad Administration; 9/12-9/14; \$480,000.
- Identification of High Speed Rail Ballast Flight Risk Factors and Risk Mitigation*, with R. Saat, T.C. Kao, and E. Tutumluer of U. of Illinois, Federal Railroad Administration; 2/13-2/15; \$299,000.
- Use of Geocells for Railways*, Coral Group, Minneapolis, MN, 12/12 - 6/13, \$12,000 (5% overhead).
- Modified Standard Penetration Test-based Drilled Shafts Design Methods for Weak Rocks*, with Dr. J.H. Long of U. of Illinois, Illinois Center for Transportation; 11/13-11/16; \$669,000.

## (Research Grants and Contracts, continued)

*Effective Post-Construction Best Management Practices (BMPs) to Infiltrate and Retain Storm Water Run-Off*, with Dr. A. Osouli of Southern Illinois University at Edwardsville, Illinois Center for Transportation; 1/14-1/16; \$299,000..

*Allowable Bearing Pressure of Wet Fouled Ballast*, with S. Nazarian of U. of Texas at El-Paso, C. Ho of U. of Mass. at Amherst, and G. Fischer of Shannon and Wilson, Federal Railroad Administration; 6/14-6/16; \$940,000,  
**PROPOSED.**

*Laser Based Detection System for U.S. High Speed Rail*, with Dr. R. Benekohal and L. Goddard of U. of Illinois, Federal Railroad Administration; **PROPOSED.**

*Use of Geothermal Resources at ORD, O'Hare Modernization Project*, Chicago, IL, 12/14 - 12/15, \$30,000 **PROPOSED.**

**TEXT OR REFERENCE BOOK:** (underlined names are current or former students)

**Stark, T.D., N. Liggitt, and P. Assem**, "Geotechnical Foundation Design: Importance and Methodologies", First Draft Complete for use in CEE480-Foundation Engineering at University of Illinois at Urbana-Champaign, December, 2012  
- date.

## REFEREED AND ARCHIVAL JOURNAL PUBLICATIONS: (underlined names are current or former students)

1. Stark, T.D. and J.E. Delashaw, "Correlations Between Unconsolidated-Undrained Triaxial Tests and Cone Penetrometer Tests," 1990 *Trans. Research Record 1278*, National Res. Council, Washington, D.C., 96-102.
2. Stark, T.D. and J.M. Duncan, "Mechanisms of Strength Loss in Stiff Clays," *Journal of Geotechnical Engineering*, ASCE, Vol. 117, No. 1, January, 1991, pp. 139-154.
3. Stark, T.D. and J.J. Vettel, "Effective Stress Hyperbolic Stress-Strain Parameters for Clays," *Geotechnical Testing Journal*, ASTM, Vol. 14, No. 2, June, 1991, pp. 146-156.
4. Stark, T.D. and W.G. Bixby, "Finite Element Analysis of Partially Saturated Seepage through Compacted Fills," 1991 *Transportation Research Record 1309*, National Research Council, Washington, D.C., pp. 25-34.
5. Duncan J.M., D.F. Javete, and T.D. Stark, "Importance of a Desiccated Crust on Clay Settlement," *Journal of Soils and Foundations*, Japanese Society of SMFE, Vol. 31, No.3, September, 1991, pp. 31-44.
6. Stark, T.D. and J.J. Vettel, "Bromhead Ring Shear Test Procedure," *Geotechnical Testing Journal*, ASTM, Vol. 15, No. 1, March, 1992, pp. 24-32.
7. Stark, T.D. and J.M. Duncan, Closure to "Mechanisms of Strength Loss in Stiff Clays," *Journal of Geotechnical Engineering*, ASCE, Vol. 118, No. 6, June, 1992, pp. 54-55.
8. Stark, T.D. and J.J. Vettel, "Effective Stress Hyperbolic Stress-Strain Parameters for Clays," *Geotechnical Testing Journal*, ASTM, Vol. 14, No. 2, June, 1991, pp. 146-156.
9. Stark, T.D. and G. Mesri, "Undrained Shear Strength of Liquefied Sands for Stability Analyses," *Journal of Geotechnical Engineering*, ASCE, Vol. 118, No. 11, November, 1992, pp. 1727-1747.
10. Stark, T.D. and H.T. Eid, "Modified Bromhead Ring Shear Apparatus," *Geotechnical Testing Journal*, ASTM, Vol. 16, No. 1, March, 1993, pp. 100-107.
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24. **Stark, T.D.**, "Long-Term Behavior of Vertical Strip Drains at Craney Island Dredged Material Management Area," Contract Report, Dredging Research Program, COE WES, Vicksburg, MS, 1993, 56 pp.
25. **Myers, T.E., T.D. Stark, A.C. Gibson, E.A. Dardeau, Jr., P.R. Schroeder**, "Management Plan for the Disposal of Contaminated Material in the Craney Island Dredged Material Management Area Under Proposed Restricted Use Program," Technical Report Environmental Lab. (EL)-93-20, COE WES, Vicksburg, MS, 1993, 129 pp.
26. **Stark, T.D. and T.A. Williamson**, "Strip Drain Test Section at Craney Island Dredged Material Management Area," Contract Report, COE WES, Vicksburg, MS, 1994, 105 pp.
27. **Stark, T.D. and A.R. Poepfel**, "Landfill Liner Interface Strengths from Torsional Ring Shear Tests," Geotechnical Engineering Research Report, University of Illinois, prepared for Office of Solid Waste Research, University of Illinois Center for Solid Waste Management and Research, Institute for Environmental Studies, Jan., 1994, 42 pp.
28. **Stark, T.D. and T.A. Williamson**, "Undrained Strength Stability Analysis for West Perimeter Dike at the Craney Island Dredged Material Management Area," Contract Report, COE WES, Vicksburg, MS, 1994, 56 pp.
29. **Stark, T.D. and R.M. Ebeling**, "Soil-Structure Interaction Parameters for Structured/Cemented Silts," Technical Report ITL-95-5, COE WES, Vicksburg, MS, 1995, 109 pp.
30. **Stark, T.D., S.M. Olson, and J.H. Long**, "Differential Movement at Embankment/Structure Interface," Research Report for Illinois Department of Transportation, Springfield, 1995, 297 pp.
31. **Stark, T.D., J. Fowler, and D.C. Banks**, "Vertical Strip Drains to Increase Storage Capacity of Confined Dredged Material Disposal Facilities," Contract Report, Dredge Operations Technical Support, COE WES, Geotechnical Laboratory, Vicksburg, MS, October, 1995, 12 pp.
32. **Stark, T.D. and S.G. Wright**, "Program Documentation and User's Guide: UTEXUIED, Educational Limit Equilibrium Slope-Stability Software Package," Univ. of Illinois, March, 1995, 30 pp.
33. **Stark, T.D.**, "Program Documentation and User's Guide: PSDDF, Primary Consolidation and Desiccation of Dredged Fill," Instruction Report, COE WES, Vicksburg, MS, 1996, 96 pp.
34. **Stark, T.D. and DiBari, P.**, "Undrained Strength Stability Analysis for East Perimeter Dike at the Craney Island Dredged Material Management Area," Contract Rpt., U.S. Army Engr. Norfolk District, Norfolk, VA, 1996, 48 pp.
35. **Stark, T.D., R.M. Ebeling, and K.R. Daly**, "Hyperbolic Stress-Strain Parameters for Structured/Cemented Silts," Technical Report ITL-96-8, COE WES, Vicksburg, MS, 1996, 136 pp.
36. **Stark, T.D. and J.P. Koester**, "Seismic Stability and Deformations of Earth Structures and Foundations," Contract Report, COE WES, Vicksburg, MS, 1996, 76 pp.
37. **Stark, T.D.**, "Shear Behavior of Landfill Liner and Cover Systems," Geotechnical Engineering Research Report, University of Illinois, prepared for the Office of Solid Waste Research, University of Illinois Center for Solid Waste Management and Research, Institute for Environmental Studies, January, 1997, 60 pp.
38. **Stark, T.D., S.M. Olson, S.L. Kramer, and T.L. Youd**, "Shear Strength of Liquefied Soil," proceedings International Workshop on Post-Liquefaction Behavior of Granular Soils at the University of Illinois at Urbana-Champaign, prepared for the National Science Foundation, Washington, D.C., February, 1998, 360 pp.
39. **Stark, T.D.**, "Performance of Three-Dimensional Slope Stability Methods in Practice," Geotechnical Engineering Research Report, University of Illinois, prepared for the National Science Foundation, March, 1998, 22 pp.

## (Research Reports, continued)

40. **Stark, T.D., R.D. Bennett, and E. Glynn**, "Recommended Remedial Measures at Naval Surface Warfare Center Crane (NSWCC), Dye Burial Ground (DBG) Solid Waste Management Unit (SWMU) 02/11," Technical Report GL-98-19, COE WES, Vicksburg, MS, September, 1998, 46 pp.
41. **Stark, T.D., D.P. Abrams, and N.M. Hawkins**, "Seismic Bridge Research in Transportation Networks Program of Mid-America Earthquake Center," report presented during A2C52 Committee Meeting during annual *Transportation Research Board Meeting*, National Research Council, Washington, D.C., January, 2000, 10 pp.
42. **Stark, T.D., J. Horvath, D. Leshchinsky, and D. Arellano**, "Guidelines for Geofoam Applications in Embankment Projects," final report prepared for National Cooperative Highway Research Program, *Transportation Research Board*, National Research Council, Washington, D.C., January, 2002, 525 pp.
43. **Stark, T.D. and E. Newman**, "Interpretation of Ground Shaking from Paleoliquefaction Features," interim report prepared for Mid-America Earthquake Center and U.S. Geological Survey, Reston, VA, March, 2003, 62 pp.
44. **Stark, T.D.**, "Causation Report Westover Landfill Closure Cap Instabilities," contract report prepared for Rich and Henderson, Annapolis, Maryland, April, 2002, 78 p.
45. **Stark, T.D. and K. Reddy**, "Beneficial Uses of Shredded Tires in Covering Abandoned Landfills," final report prepared for Illinois Department of Commerce and Community Affairs, Springfield, IL, January, 2004, 162 pp.
46. **Stark, T.D. and E. Newman**, "Interpretation of Ground Shaking from Paleoliquefaction Features," final report prepared for Mid-America Earthquake Center and U.S. Geological Survey, Reston, VA, March, 2004, 232 pp.
47. **Stark, T.D. and H. Choi**, "PSDDF-Computer Model to Evaluate the Primary Consolidation, Secondary Compression, and Desiccation of Dredged Fill and in Non-Homogeneous Cohesive Soils," Instruction Report, COE WES, Vicksburg, MS, 2004, 146 pp.
48. **Al-Qadi, I.L., Morian, D.A., Stoffels, S.M., Elseifi, M., Chehab, G., and Stark, T.D.** "Synthesis on Use of Geosynthetics in Pavements and Development of a Roadmap to Geosynthetically-Modified Pavements," final report prepared for Federal Highway Administration, Reston, VA, Contract or Grant No. DTFH61-06-P-00182, September, 2008, 195 pp.
49. **Stark, T.D.** "PSDDF-Computer Model to Evaluate Primary Consolidation, Secondary Compression, and Desiccation of Dredged Fill and Non-Homogeneous Cohesive Soils," Instruction Report, COE ERDC, Vicksburg, MS, 2012, 146 pp.
50. **Stark, T.D., Long, J.H. and Assem, P.**, "Drilled Shaft Design in Weak Illinois Shales," Research Report for Illinois Department of Transportation, Springfield, May, 2013, 310 pp.
51. **Stark, T.D. and Wilk, S.T.**, "Synthesis Report on Factors Causing Differential Movement at Railway Transitions based on Field Monitoring, Field Inspections, and Literature Review," Research Report for Federal Rail Administration, Washington, D.C., September, 2013, 49 pp.
52. **Stark, T.D. and Wilk, S.T.**, "Summary Report on Numerical Modeling of Monitored Railway Transitions Including Calibration using Field Measurements," Research Report for Federal Rail Administration, Washington, D.C., September, 2013, 49 pp.
53. **Stark, T.D. and Wilk, S.T.**, "Synthesis Report on Differential Movement at and Numerical Modeling of Railway Transitions using Field Measurements," Research Report for Federal Rail Administration, Washington, D.C., March, 2014, 221 pp.

## RECENT CONSULTING REPORTS

1. Stark, T.D., "Geotechnical Evaluation of Distress in 2458 Reserve Street, Erie, Colorado," prepared for McConaughy and Sarkissian, Denver, CO, September, 2014, 26 p.
2. Stark, T.D., "Geotechnical Evaluation of Distress in 2464 Reserve Street, Erie, Colorado," prepared for McConaughy and Sarkissian, Denver, CO, September, 2014, 24 p.
3. Stark, T.D., "Expert Report: Geotechnical Evaluation of Ground Subsidence at Oil and Gas Processing Facilities: Evanston, Wyoming," prepared for GreenbergTraurig, LLP, Houston, TX, August, 2014, 24 p.
4. Stark, T.D., "Expert Report: Geotechnical Evaluation of Lower Fox River Sediment Testing and Disposal," prepared for GreenbergTraurig, LLP, Houston, TX, June, 2014, 47 p.
5. Stark, T.D., "Causation Report: West Slope and MSE Wall Failure, US Highway 75/34 Connector Platteview Intersection, Sarpy County, Nebraska," prepared for Hall & Evans, LLC, Denver, CO, April, 2014, 164 p.
6. Stark, T.D., "Expert Causation Report: Slope Failure in Chrin Brothers Solid Waste Landfill, Easton, PA," prepared for Land Air Water Legal Solutions, LLC, Berwyn, PA, July, 2013, 52 p.
7. Stark, T.D., "Expert Report: Repair Recommendations for Highway 11, Burk's Falls to Sunridge, Ontario, Township of Strong, Ontario," prepared for Saxe Law Office, Toronto, Ontario, November, 2013, 24 p.
8. Stark, T.D., "Expert Report: Geotechnical Evaluation of Exfiltration Beds for Village at Aspen Park Retail Center, Aspen Park, CO," prepared for Wood, Smith, Henning & Berman, LLP, Highlands Ranch, CO, May, 2013, 37 p.
9. Stark, T.D., "Expert Report: Geotechnical Evaluation of Quaternary Pre-Vashon/Glaciolacustrine (QPGL) Clay – SR-520 Bridge Replacement, Bellevue, Washington," prepared for Washington DOT, Olympia, WA, January, 2013, 104 p.
10. Stark, T.D., "Expert Report: Geotechnical Evaluation for Florence High School, Florence, Colorado, Fremont County, Colorado," prepared for McConaughy and Sarkissian, Denver, CO, August, 2012, 98 p.
11. Stark, T.D., "Effect of WGI Excavations on Floodwall Breaches in USACE IHNC East Bank Industrial Area and Inundation of Lower 9th Ward During Hurricane Katrina in 2005," prepared for U.S. Department of Justice, Washington, D.C., March, 2012, 337 p.
12. Stark, T.D., "Geotechnical Evaluation of Flatwork Distress in Public Rights of Way Repair Areas, Glenwood Meadows Retail Development," prepared for McConaughy and Sarkissian, Denver, CO, August, 2012, 76 p.
13. Stark, T.D., "Investigation of Slope Movement in Landfill Cell 1-B," prepared for American Electric Power, Columbus, Ohio, December, 2011, 36 p.
14. Stark, T.D., "Geotechnical Evaluation of Flatwork Distress and pavement Distress, Glenwood Meadows Retail Development," prepared for McConaughy and Sarkissian, Denver, CO, February, 2011, 58 p.
15. Stark, T.D., "Dallas Floodway System – Fully Softened Strength Testing and Analysis," prepared for HNTB, Baton Rouge, Louisiana, December, 2011, 22 p.
16. Stark, T.D., Arellano, D., and S. Bartlett, S. "Expanded Polystyrene (EPS) Geofoam Application and Technical Data," EPS Industry Alliance, August, 2011, 46 pp., Available at <http://www.epsmolders.org>.

## STUDENT SUPERVISION

*Undergraduate Research Advisees:*

John E. Juhrend	SDSU	1987
William G. Bixby	SDSU	1987
John E. Delashaw	SDSU	1987
Joseph J. Vettel	SDSU	1988
George R. Briest	SDSU	1988
Roger Berger	SDSU	1989
Garin Tentschert	SDSU	1989
Gregory R. Richards	SDSU	1989
Raun Connely	SDSU	1989
Thomas J. O'Meara	SDSU	1990
Chris Jepsen	SDSU	1990
Steven M. Fitzwilliam	SDSU	1990
Thomas A. Williamson	UIUC	1992
Joseph M. Lukas	UIUC	1993
Scott M. Olson	UIUC	1994
Jesse A. Wallace	UIUC	1994
William R. Monson	UIUC	1994
Kenneth R. Daly	UIUC	1995
Andres Guhl	UIUC	1995
Sylvia B. Warnick	UIUC	1996
Matthew J. Niermann	UIUC	1996
Brent A. Kunz	UIUC	1996
Morgan B. Finch	UIUC	1998
Elizabeth J. Murphy	UIUC	1998
Jason FitzSimmons	UIUC	1998
Dan Randolph	UIUC	1998
Erik Newman	UIUC	1999
Andy Garza	UIUC	2000 - 2004
Ben Parli	UIUC	2003 - 2004
Justin Lewis	UIUC	2006 - 2007
Tom Boersma	UIUC	2006 - 2007
Chase Connor	UIUC	2006 - 2007
Luis Pazmino	UIUC	2009
Austin Dodson	UIUC	2009
Jordan Christenson	UIUC	2010
Ali Shahabi Sirjani	UIUC	2010
Ziyue Yang	UIUC	2011-2012
Eric Aguilar	UIUC	2011
Aaron L. Leopold	UIUC	2011-2012
David Nauheimer	UIUC	2011-2012
Anek Kanittanon	UIUC	2011-2012
Julie Fry	UIUC	2012
Nathan Liggitt	UIUC	2012
Ryan Wong	UIUC	2012-2013
Aaron Leopold	UIUC	2012-2013
Cesar Rojas	UIUC	2013
Andony Landivar-Macias	UIUC	2013-2016
Cassandra Dumoulin	UIUC	2013-2014
Kelly Samara	UIUC	2013-2014
Mario Hernandez	UIUC	2014-2016
Rodrigo Fernandez-Santiago	UIUC	2014-2016

*Masters Research Advisees:*

John E. Juhrend	SDSU	M.S. Special Study	1988
Joseph J. Vettel	SDSU	M.S. Special Study	1988
William G. Bixby	SDSU	M.S. Special Study	1988
George R. Briest	SDSU	M.S. Special Study	1989
Daniel Diehr	SDSU	M.S. Research Assistant	1990
Doug R. Schwarm	SDSU	Visiting Scholar	1990
Alan R. Poeppel	UIUC	M.S. Research Assistant	1993
Steven M. Fitzwilliam	UIUC	M.S. Research Assistant	1993
Kimberly M. Deason	UIUC	M.S. Special Study	1993
Thomas A. Williamson	UIUC	M.S. Research Assistant	1994
Joseph M. Lukas	UIUC	M.S. Research Assistant	1994
Chenan-Sin Chen	UIUC	M.S. Research Assistant	1994
Melissa Dorado	UIUC	M.S. Special Study	1994
Jesse Wallace	UIUC	M.S. Research Assistant	1994
William R. Monson	UIUC	M.S. Research Assistant	1995
Edgar Black	UIUC	M.S. Research Assistant	1995
Scott M. Olson	UIUC	M.S. Research Assistant	1995
Pasquale Dibari, Jr.	UIUC	M.S. Special Study	1996
Kenneth R. Daly	UIUC	M.S. Research Assistant	1996
Juan Imery	UIUC	M.S. Research Assistant	1996
Jose Sananes-Sangros	UIUC	M.S. Thesis	1996
Sylvia B. Warnick	UIUC	M.S. Research Assistant	1996
Massimo Maniaca	UIUC	M.S. Research Assistant	1997
Paul T. Eickenberg	UIUC	M.S. Research Assistant	1997
Cameron C. Oskvig	UIUC	M.S. Research Assistant	1997
Yazen Khasawneh	UIUC	M.S. Research Assistant	1997
Matthew J. Niermann	UIUC	M.S. Research Assistant	1997
Brent A. Kunz	UIUC	M.S. Research Assistant	1997
Carl Doerfler	UIUC	M.S. Research Assistant	1998
Morgan B. Finch	UIUC	M.S. Research Assistant	1998
Jason FitzSimmons	UIUC	M.S. Research Assistant	1998
Ryan Hillman	UIUC	M.S. Research Assistant	1998
Greg Lamb	UIUC	M.S. Research Assistant	2000
Erik Newman	UIUC	M.S. Research Assistant	2000
Geoffrey Strack	UIUC	M.S. Research Assistant	2001-2003
Perry Stover	UIUC	M.S. Research Assistant	2001
Carlos Jimenez-Rodriguez	UIUC	M.S. Research Assistant	2003
Fernando Sarabia	UIUC	M.S. Research Assistant	2003
Diana Sitze	UIUC	M.S. Research Assistant	2004
Justin Lewis	UIUC	M.S. Research Assistant	2006-2008
John Hynes	UIUC	M.S. Research Assistant	2006-2008
Mike Dreyer	UIUC	M.S. Research Assistant	2008
Melissa Berena	UIUC	M.S. Research Assistant	2009-2010
Luis Pazmino	UIUC	M.S. Research Assistant	2010-2011
Jordan Christensen	UIUC	M.S. Research Assistant	2010-2011
Kyle Bochte	UIUC	M.S. Research Assistant	2010-2011
Aditya Zutshi	UIUC	M.S. Research Assistant	2010-2011
Adolfo Caieda	UIUC	M.S. Research Assistant	2010-2012
David Paiko	UIUC	M.S. Research Assistant	2011-2012
Joseph A. Gamez	UIUC	M.S. Research Assistant	2011-2012
Pouyan Assem	UIUC	M.S. Research Assistant	2011-2012
Steve Wilk	UIUC	M.S. Research Assistant	2012-2013
Thomas Dehlin	UIUC	M.S. Research Assistant	2012-2013
Ryan Wong	UIUC	M.S. Research Assistant	2013

*Masters Research Advisees: (continued)*

Ziyue Yang	UIUC	M.S. Research Assistant	2012-2013
Jonathan Herra	UIUC	M.S. Research Assistant	2012-2014
Gokul Pathikonda	UIUC	M.S. Research Assistant	2012-2014
Dylan Brancato	UIUC	M.S. Research Assistant	2013-2014
Rafael Villarreal Barrios	UIUC	M.S. Research Assistant	2012-2014
Rod Betanzo	UIUC	M.S. Research Assistant	2013-2015
Cassandra Dumoulin	UIUC	M.S. Research Assistant	2013-2015
Jorge Avalos	UIUC	M.S. Research Assistant	2014-2015
Ahmed Baghdaddy	UIUC	M.S. Research Assistant	2014-2015

*Doctoral Research Advisees:*

Hisham T. Eid	UIUC	Ph.D. Dissertation (completed)	1996
Ivan Contreras	UIUC	Ph.D. Dissertation (completed)	1996
David Arellano	UIUC	Ph.D. Dissertation (completed)	1998-2002
Mohammed Aljouni	UIUC	Ph.D. Dissertation (co-advised w/G. Mesri)	2000
Scott M. Olson	UIUC	Ph.D. Dissertation (completed)	2001
Erik Newman	UIUC	Ph.D. Dissertation (completed)	2002-
Manzoor Hussain	UIUC	Ph.D. Dissertation (completed)	2006-2010
Kamran Akhtar	UIUC	Ph.D. Dissertation (completed)	2007-2011
Navid Jafari	UIUC	Ph.D. Dissertation	2010-date
Joseph A. Gamez	UIUC	Ph.D. Dissertation	2011-date
Steven T. Wilk	UIUC	Ph.D. Dissertation	2012-date

*Post-Doctoral Research Advisees:*

Arsalan G. Ghahramani	SDSU	Post-Doctoral Visiting Scholar	1989
Hisham T. Eid	UIUC	Post-Doctoral Candidate	1996-1999
Marwan Shahein	UIUC	Post-Doctoral Candidate	1998-1999
Hangseok Choi	UIUC	Post-Doctoral Candidate	2002-2003
Guocheng Li	UIUC	Post-Doctoral Visiting Scholar	2006-2007
Hangseok Choi	UIUC	Post-Doctoral Candidate	2011-2012
Deb Mishra	UIUC	Post-Doctoral Candidate	2011-2014

*Recent Doctoral Committee Service:*

Marwan Shahein	UIUC	Ph.D. Dissertation (G. Mesri advisor)	1999
David Bennett	UIUC	Ph.D. Dissertation (E.J. Cording advisor)	1999
Michael J Wysockey	UIUC	Ph.D. Dissertation (J. H. Long advisor)	1999
Gordon W. McMahon	UIUC	Ph.D. Dissertation (W.J. Hall advisor)	2000
Malek M. Smadi	UIUC	Ph.D. Dissertation (G. Mesri advisor)	1999
Gordon W. McMahon	UIUC	Ph.D. Dissertation (W.J. Hall advisor)	1999
Vito Schifano	UIUC	Ph.D. Dissertation (G. Mesri advisor)	2001
Jayhyun Kwon	UIUC	Ph.D. Dissertation (E. Tututumler advisor)	2006
Nejan Huvaj	UIUC	Ph.D. Dissertation (G. Mesri advisor)	2009
Kashif Mohammed	UIUC	Ph.D. Dissertation (S. Olson advisor)	2010
Jeb Tingle	UIUC	Ph.D. Dissertation (S. Carpenter advisor)	2012
Rosa L. Santoni	UIUC	Ph.D. Dissertation (S. Carpenter advisor)	2013
Mohammad Moridzadeh	UIUC	Ph.D. Dissertation (G. Mesri advisor)	2014

**FORMER STUDENTS IN FACULTY POSITIONS**

Scott M. Olson  
David M. Arellano  
Manzoor Hussain  
Kamran Akhtar  
Abdolreza Osouli  
Navid Jafari

UIUC      NSF CAREER Awardee, ASCE Casagrande Awardee  
University of Memphis  
National University of Sciences and Technology, Lahore, Pakistan  
National University of Sciences and Technology, Islamabad, Pakistan  
Southern Illinois University at Edwardsville  
University of Missouri at Columbia

## INVITED LECTURE PRESENTATIONS

1. "The 1981 Slide and Repair of San Luis Dam," U.S. Army Corps of Engineers, Waterways Experiment Station (WES), Vicksburg, MS, 3/29/88.
2. "The Benefits of Graduate School," Chi Epsilon Student Chapter, SDSU, 5/3/88.
3. "Teton Dam Failure," ASCE Student Chapter, SDSU, 5/5/88.
4. "Correlations Between Cone Penetration Tests and Undrained Shear Strength for Soft Clays," Geocon, Inc., San Diego, CA, 5/20/88.
5. "Transient Seepage and Stress-Deformation Finite Element Analyses," Naval Ocean Research and Development Activity Laboratory, NSTL, MS, 7/15/88.
6. "The 1981 Slide and Repair of San Luis Dam," Third Lecture in Distinguished Lecturer Program, GeoServices, Inc., Norcross, GA, 8/5/88.
7. "The 1981 Slide and Repair of San Luis Dam," Purdue Univ., West Lafayette, IN, 3/3/89.
8. "Computer Model of Consolidation Processes in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 4/27/89.
9. "Causes of 1981 Slide in San Luis Dam," ASCE Geotechnical Division, San Diego, CA, 5/24/89.
10. "Finite Element Analysis of Transient Seepage Through Compacted Fills," Geocon, Inc., San Diego, CA, 6/20/89.
11. "Undrained Shear Strength from Cone Penetration Tests," Woodward-Clyde Consultants, San Diego, CA, 8/2/89.
12. "Workshop on PCDDF89: Computer model of Primary Consolidation and Desiccation in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/15/89.
13. "Correlations Between Unconsolidated-Undrained Triaxial Tests and Cone Penetrometer Tests," 1990 Transportation Research Board, Washington, D.C., 1/8/89.
14. "Specifications for Construction and Load Testing of Stone Columns in Clays," ASTM Symposium on Deep Foundation Improvement: Stone Columns and Other Related Techniques, Las Vegas, NV, 1/25/89.
15. "Interpretation of Cone Penetration Tests," LeRoy Crandall & Assoc., San Diego, 2/14/90.
16. "Measurement of Residual Strength Using Torsional Ring Shear Devices," Woodward-Clyde Consultants, Santa Ana, CA, 4/4/90.
17. "Construction of Civil Engineering Microcomputer Laboratory," Associated General Contractors' Student Chapter, SDSU, 4/26/90.
18. "The 1981 Slide and Repair of San Luis Dam," Univ. of Illinois at Urbana-Champaign, Urbana, IL, 6/18/90.
19. "Residual Strength of Cohesive Soils: New Developments," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/12/90.
20. "Workshop on PCDDF90: Computer model of Primary Consolidation and Desiccation in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/13/90.
21. "Soil-Structure Interaction Parameters for Silts," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/13/90.
22. "Fabric Reinforced Embankments," Associated General Contractors' Student Chapter, SDSU, 11/8/90.
23. "Residual Strength and Slope Stability Analyses," ASCE Geotechnical Division, San Diego, CA, 12/11/90.
24. "Vertical Strip Drain Test Section at Capacity of Craney Island Dredged Material Management Area," Chi Epsilon Meeting, University of Illinois, Urbana, IL, 3/16/91.
25. "Installation of Vertical Strip Drains to Increase Storage Capacity of Dredge Disposal Areas," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 6/14/91.
26. "Workshop on PCDDF91: Computer model of Primary Consolidation and Desiccation in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/24/91.
27. "Workshop on PCDDF92: Computer model of Primary Consolidation and Desiccation in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 3/6/92.



(Invited Lecture Presentations, continued)

28. "Using Vertical Strip Drains to Increase the Storage Capacity of Craney Island Dredged Material Management Area," WEDA XIII (Annual Meeting of Western Dredging Association), Mobile, AL, 5/28/92.
29. "Update on Measurement of Residual Shear Strength and Slope Stability Analyses," ASCE Geotechnical Division, San Diego, CA, 6/25/92.
30. "Comparison of Field and Laboratory Residual Shear Strengths," ASCE Specialty Conference PERFORMANCE OF SLOPES AND EMBANKMENTS-II, Berkeley, CA, 6/30/92.
31. "Service Life of Craney Island Dredged Material Management Area Under Proposed Restricted Use Program," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 8/20/92.
32. "Soil-Geosynthetic Interface Strengths Using a Torsional Ring Shear Apparatus," ASCE National Convention, New York, NY, 9/17/92.
33. "Soil-Geosynthetic Interface Strengths and Stability Analyses," Virginia Tech, Blacksburg, VA, 11/10/92.
34. "Interface Strengths of Soil-Geosynthetic Liner Systems for Solid Waste Landfills," Illinois Office of Solid Waste Research Workshop, Urbana, IL, 12/9/92.
35. "Vertical Strip Drain Test Section at Craney Island Dredged Material Management Area," Chi Epsilon Honor Society Meeting, University of Illinois, 3/16/93.
36. "Soil-Geosynthetic Interface Strengths and Stability Analyses," ASCE Geotechnical Division, Chicago, IL, 4/13/93.
37. "The 1981 Slide and Repair of San Luis Dam," Illinois Institute of Technology, West Chicago, IL, 4/13/93.
38. "Using Vertical Strip Drains to Increase Storage Capacity of Confined Dredged Material Disposal Areas," WEDA XIV (Annual Meeting of Western Dredging Association), Atlantic City, NJ, 5/27/93.
39. "Stability Analyses for Landfills," NSF Workshop on Seismic Design of Landfills, Los Angeles, CA, 8/26/93.
40. "Workshop on PCDDF93: Computer model of Primary Consolidation and Desiccation in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/12/93.
41. "Role of News Correspondent," 1993 ASCE National Convention, Dallas, TX, 10/24/93.
42. "Landfill Liner Interface Strengths and Slope Stability Analyses," ASCE Geotechnical Division, Sacramento, CA, 1/11/94.
43. "Landfill Liner Interface Strengths and Slope Stability Analyses," ASCE Geotechnical Division, San Diego, CA, 1/13/94.
44. "Vertical Strip Drain Test Sections at Craney Island Dredged Material Management Area," WEDA XV (Annual Meeting of Western Dredging Association), San Diego, CA, 5/18/94.
45. "Management of Dredged Material Placement Operations," ASCE Specialty Conference SETTLEMENT '94, College Station, TX, 6/18/94.
46. "Role of News Correspondent," ASCE Specialty Conference SETTLEMENT '94, College Station, TX, 6/18/94.
47. "Seismic Stability of Natural Slopes," 4th U.S./TAIWAN Multiple Hazard Mitigation Symposium/Workshop, National Science Foundation, Chicago, IL, 7/15/94.
48. "Strip Drains in Dredged Material Placement Areas," ASCE Specialty Conference DREDGING '94, Orlando, FL, 11/14/94.
49. "Measurement of Drained Residual Strength of Overconsolidated Clays," 1995 Transportation Research Board, Washington, D.C., 1/23/95.
50. "Three-Dimensional Slope Stability," NSF Grantees Meeting, National Science Foundation (NSF), Reno, Nevada, 4/27/95.
51. "Static and Seismic Stability of Solid Waste Landfills," Illinois Office of Solid Waste Research Workshop, Urbana, IL, 4/28/95.
52. "Workshop on PSDDF: Computer model of Primary Consolidation, Secondary Compression, and Desiccation in Confined Dredged Material," U.S. Army Corps of Engineers, WES, Vicksburg, MS, 9/14/95.

(Invited Lecture Presentations, continued).

53. "The 1981 Slide and Repair of San Luis Dam," University of Illinois at Chicago, Chicago, IL, 9/27/95.
54. "Stability of GCL Covers," ASTM Symposium titled "Testing and Acceptance Criteria for Geosynthetic Clay Liners, Atlanta, GA, 1/29/96.
55. "Geotechnical Earthquake Engineering," Earthquake Engineering Research Institute Student Chapter, University of Illinois, Urbana, IL 4/26/96.
56. "Landfill Slope Stability Case Histories in Southern Ohio," Engineering Society of Michigan, Emerging Issues in Landfill Design, Construction, and Operations, Ypsilanti, MI 3/5/97.
57. "Landfill Slope Stability," Woodward-Clyde Consultants, Santa Ana, CA, 3/12/97.
58. "Seismic Design of a Failed Landfill Slope," Keynote Speaker, Ohio River Valley Society Seminar (ORVSS) XXVII, Annual Conference of ASCE Kentucky Geotechnical Engineering Group, Lexington, KY, 10/10/97.
59. "Stability of Waste Containment Facilities," ASCE Geotechnical Division and AEG Meeting, Chicago, IL, 1/13/98.
60. "Bentonite Migration in Geosynthetic Clay Liners," invited presentation, Sixth International Conference on Geosynthetics, Atlanta, GA, 3/27/98.
61. "Stability of Waste Containment Facilities," Arkansas Environmental Protection Agency, Nashville, TN, 4/13/98.
62. "Stability of Waste Containment Facilities," Arkansas Environmental Protection Agency, Little Rock, AR, 4/17/98 and 6/4/98.
63. "Shear Strength of Liquefied Soil," ASCE Specialty Conference SOIL DYNAMICS AND EARTHQUAKE ENGINEERING, Seattle, WA, 8/3/98.
64. "CPT Based Liquefaction Resistance of Sandy Soils," ASCE Specialty Conference SOIL DYNAMICS AND EARTHQUAKE ENGINEERING, Seattle, WA, 8/3/98.
65. "Instability of Waste Containment Facilities," Keynote Speaker, ASCE Geotechnical Engineering Division, Portland, OR, 9/3/98.
66. "PVC Geomembrane Interface Strengths," PVC Geomembrane Institute Workshop, Chicago, IL, 9/18/98.
67. "Slope Stability Issues," ASCE Geotechnical Division, Dayton, OH, 11/4/98.
68. "Stability of Waste Containment Facilities," Keynote Speaker, WASTE TECH'99, New Orleans, LA, 2/1/99.
69. "New Developments for Geosynthetic Clay Liners in Waste Containment Systems," Keynote Speaker, Slope Stability in Waste Systems, Fall Seminar, ASCE of Central Ohio, Toledo, and Cincinnati Sections, Columbus, OH 11/6/98.
70. "The Hughes Road Wasteslide: An Analysis," Keynote Speaker, Slope Stability in Waste Systems, Fall Seminar, ASCE of Central Ohio, Toledo, and Cincinnati Sections, Columbus, OH, 11/6/98.
71. "Estimating Liquefaction Potential in Mid-America," Mid-America Highway Seismic Conference, St. Louis, MO, February 28, 1999.
72. "Transportation Networks Program of the Mid-America Earthquake Center," Mid-America Highway Seismic Conference, St. Louis, MO, February 28, 1999..
73. "Stability of Waste Containment Systems," Illinois EPA, Springfield, IL, 3/8/99.
74. "Mid-America Earthquake Center," Invited Civil Engineering Lecture Program, University of Dayton, Dayton, OH, 3/11/99.
75. "Three-Dimensional Slope Stability Analyses," Distinguished Practitioners in the Field of Geotechnical Engineering Lecture, Distinguished Lecture, Kentucky Geotechnical Engineering Group, Louisville, KY, April 8, 1999.
76. "Slope Stability and Seismic Concerns for Waste Containment Facilities," Invited Lecture for University of Wisconsin at Madison, Arlington, TX, 6/16/99.
77. "Legal Issues Associated with Landfill Slopes," Seminar on Legal Aspects of Geotechnical Engineering, ASCE National Capitol Section, Washington, D.C., 1/26/00.
78. "Slope Stability and Seismic Concerns for Waste Containment Facilities," Invited Lecture, University of Wisconsin at Madison, Madison, WI, 2/25/00.

## (Invited Lecture Presentations, continued)

79. "Stability of Waste Containment Systems," GSE Lining Technology, Inc. Seminar titled "Geosynthetics for Advanced Solutions, Chicago, IL, March, 9, 2000.
80. "Interim Slope Failure Involving Leachate Recirculation," WASTE TECH '00, Orlando, FL, March, 2000, 20 p.
81. "Slope Stability and Seismic Concerns for Waste Containment Facilities," Invited Lecture, University of Wisconsin at Madison, Madison, WI, 2/16/01.
82. "Blasting: Strict Liability or Negligence," 28<sup>th</sup> Annual Conference Invited Lecture, Intl. Society of Explosives Engineering, Las Vegas, NV, 2/11/02.
83. "Slope Stability and Seismic Concerns for Waste Containment Facilities," Invited Lecture, University of Wisconsin at Madison, Madison, WI, 2/15/02.
84. "Standard of Care for Negligence in Blasting," Proceedings of 29<sup>th</sup> Annual Conference on Explosives and Blasting Technique, International Society of Explosives Engineers, Vol. 1, Nashville, TN, February, 2003, pp. 124 – 142.
85. "Overview of NCHRP Project 24-11: guidelines for Geofoam Application in Embankment Projects," Past President's Seminar, North American Geosynthetics Society, Geosynthetics 2003, Atlanta, GA, February 11, 2003.
86. "Three-Dimensional Slope Stability Analyses in Practice," University of Minnesota 51<sup>st</sup> Annual Geotechnical engineering Conference, Minnesota Geotechnical Engineering Group, Minneapolis, MN, February 21, 2003.
87. "Three-Dimensional Slope Stability Analyses in Geotechnical Practice," ASCE Geotechnical Engineering Group, San Francisco, CA, March 27, 2003.
88. "Use of Geofoam in Embankment Projects," Keynote Speaker, Ohio River Valley Society Seminar (ORVSS) XXVII, Annual Conference of ASCE Kentucky Geotechnical Engineering Group, Lexington, KY, September 19, 2003.
89. "Application of Strict Liability and Negligence to Blasting Claims," 30<sup>th</sup> Annual Conference Invited Lecture, Intl. Society of Explosives Engineering, New Orleans, LA, February 2, 2004.
90. "Landslides: Shear Strengths and Stability Analyses," ASCE Geotechnical Engineering Group, San Diego, CA, March 23, 2004.
91. "Use of Geofoam in Roadway Embankment Projects," ASCE Geotechnical Engineering Group, Seattle, WA, March 25, 2004.
92. "Buck Center Landslide," Bell, Rosenburg, & Hughes, Oakland, CA, 8/9/04.
93. "Buck Center Landslide," XL Corporation, San Francisco, CA, 8/11/04.
94. "Three-Dimensional Slope Stability Analyses in Geotechnical Practice," U.S. Bureau of Reclamation, Denver, CO, October 12, 2004.
95. "Effect of Bentonite Migration in Geosynthetic Clay Liners," ASCE Proceedings of Specialty Conf. GEO-FRONTIERS, Austin, TX, January, 24, 2005.
96. "Effect of Fill Placement in Hillside Development," ASCE Geotechnical Engineering Group, Cincinnati, OH, March 17, 2005.
97. "Impact of Cut and Fill Operation on Hillside Development," Keynote Lecture, ASCE Geotechnical Engineering Group, 28<sup>th</sup> Spring Seminar & Eighth Geo-Expo, Queen Mary, Los Angeles, CA, April 27, 2005.
98. "Three-Dimensional Slope Stability Analyses in Geotechnical Practice," University of California at Los Angeles, Westwood, CA, April 28, 2005.
99. "Landslide Mechanisms and Investigation," Los Angeles Department of Water and Power, Los Angeles CA, June 21, 2005.
100. "Designing and Specifying with PVC Geomembranes," Annual Wisconsin SWANA Conference, Stevens Point, WI, March 2, 2006.
101. "Impact of Cut and Fill Operation on Hillside Development," Keynote Lecture, ASCE Geotechnical Engineering Group, San Diego, CA, March 21, 2006.
102. "MSW Landfill Stability Issues," Keynote Speaker and Panelist, American Public Works Association, National Annual Conference, Kansas City, MO 9/13/06.

## (Invited Lecture Presentations, continued)

103. "Landfill Stability: Leachate Recirculation and Other Emerging Issues," Keynote Speaker, SWANA-Wisconsin Chapter, Annual Conference, Milwaukee, WI, November 1, 2006.
104. "Failure Modes and Analysis Techniques for Waste Containment Facilities," ASCE Geotechnical Division and AEG Meeting, Chicago, IL, 1/10/07.
105. "Constructing Landfill Covers with GCLs and PVC Geomembranes," Geosynthetics 2007, Washington, D.C., January 17, 2007.
106. "Seismic Deformation Analysis of Dams," U.S. Army Corps of Engineers Infrastructure Systems Conference, Detroit, Michigan, June 25-27, 2007.
107. "Increase in Shear Modulus Using Jet Grout and Deep Mix Method Ground Improvement Techniques," U.S. Army Corps of Engineers Infrastructure Systems Conference, Detroit, Michigan, June 25-27, 2007.
108. "Seismic Deformation Analysis of Dams," U.S. Army Corps of Engineers Infrastructure Systems Conference, Detroit, Michigan, June 25-27, 2007.
109. "Landfill Liner Interface Strengths from Torsional-Ring-Shear Tests," Keynote Speaker, Geo-Americas Conference, Cancun, Mexico, March 2008.
110. "Landslides in an Urban Environment," Keynote Speaker, Ohio River Valley Society Seminar (ORVSS) XXXII, Annual Conference of ASCE Kentucky Geotechnical Engineering Group, Lexington, KY, October 17, 2008.
111. "Lateral and Subjacent Support and Subsidence," Speaker and Panel Member, Annual California Bar Meeting, Monterey, California, September 2008.
112. "Landfill Slope Stability and Elevated Temperatures," Annual Illinois Recycling and Waste Management Conference, Bloomington, Illinois, June 2009.
113. "Current Research on Drained Residual Strength for Landslides," ASCE Geotechnical Engineering Group, Los Angeles, CA, June 17, 2009.
114. "Landslides," Speaker and Panel Member, Contra Costa County Bar Association, Real Estate Section, Walnut Creek, California, June 18, 2009.
115. "Intelligent Compaction Research and Activities," Illinois DOT Annual Geotechnical Engineers Meeting, Springfield, Illinois, January 19, 2010.
116. "Current Research on Drained Residual Strength in Landslides," Keynote Speaker, Geo-San Antonio 2010, ASCE Geo Institute, February 5, 2010.
117. "Stability Analysis for Landfill with Elevated Temperatures," ASCE Proceedings of Specialty Conf. GEO-FLORIDA-2010, West Palm Beach, FL, February, 2010.
118. "Drained Residual Strength for Landslides," ASCE Proceedings of Specialty Conf. GEO-FLORIDA-2010, West Palm Beach, FL, February, 2010.
119. "Evaluating Ground Settlement Above a Mined Area," ASCE Proceedings of Specialty Conf. GEO-FLORIDA-2010, West Palm Beach, FL, February, 2010.
120. "Current Geofoam Research and Activities," EPS Expo, Nashville, TN, March 8, 2010.
121. "Constructing with Fabricated Geomembranes," 39<sup>th</sup> Tennessee Solid Waste Conference, Gatlinburg, TN, 4/28/10.
122. "Aluminum Waste Reactions in MSW Landfills," Invited Lecture for 2010 Chicago Lecture Series, 4/30/10.
123. "Effect of Elevated Temperatures in MSW Landfills," Invited Lecture for 2010 American Engineering Geologists Meeting, Chicago, IL, 9/15/10.
124. "Aluminum Waste Reactions in MSW Landfills," Invited Lecture for 2011 Illinois State Geological Survey Spring Seminar Series, Champaign, Illinois, 2/7/11.
125. "Current Research on Drained Residual Strength in Landslides," Keynote Speaker, Geo-Omaha 2011, ASCE Geo Institute, Omaha, Nebraska, February 18, 2011.
126. "Reaction and Combustion Indicators in MSW Landfills," ASCE Proceedings of Specialty Conf. GEO-FRONTIERS-2011, Dallas, TX, March, 2011.

## (Invited Lecture Presentations, continued)

127. "Back-Analysis of Preexisting Landslides," ASCE Proceedings of Specialty Conf. GEO-FRONTIERS-2011, Dallas, TX, March, 2011.
128. "Safe Disposal of Secondary Aluminum Wastes," 2011 EREF Regional Summit on Solid Waste Practice and Research, Indianapolis, Indiana, 4/28/11.
129. "Equipment Pressure Applied to Geomembrane in Composite Liner System," Invited Lecture for 2011 New York Solid Waste Conference, Lake George, New York 5/3/11.
130. "Overview of Detection, Evaluation, and Suppression of Waste Fires," Invited Lecture for 2011 New York Solid Waste Conference, Lake George, New York, 5/3/11.
131. "Current Trends in Elevated Temperatures in Landfills," Invited Lecture for 2011 Midwest Environmental Enforcement Association, Springfield, Illinois, 5/12/11.
132. "Use of Geosynthetics in Airport Applications," Invited Lecture for Center of Excellence for Airport Technology Brown Bag Lunch Seminars, O'Hare Airport, Chicago, Illinois, 6/2/11.
133. "Current Trends in Elevated Temperatures in Landfills," Invited Lecture, Queens University, Kingston, Ontario, Canada, 7/13/11.
134. "Use of Fully Softened Shear Strengths in Levee Stability Analyses," Invited Lecture for Two-Day Workshop on Evaluating Shear Strengths for Levee Stability Analyses, Blacksburg, VA, 8/18/11.
135. "Jet Grouting Dams and Levees - Critical Considerations," Invited Lecture for Dam Safety 2011, Assoc. of State Dam Safety Officials (ASDSO), Washington, D.C., 9/27/11.
136. "Mitigation of Differential Movement at Railway Transitions," 2012 Transportation Research Board, Washington, D.C., 1/25/12.
137. "Investigation and Mitigation of Differential Movement at Railway Transitions for US High Speed Passenger Rail and Joint Passenger/Freight Corridors," 2012 Joint Rail Conference, Philadelphia, PA, 4/18/12.
138. "Fabricated Geomembranes—Design and Applications," Intertape Polymer Group Corporate Meeting, Dallas, TX, 6/20/12.
139. "Geothermal Applications at O'Hare Airport," Invited Lecture for Center of Excellence for Airport Technology Brown Bag Lunch Seminars, O'Hare Airport, Chicago, Illinois, 8/8/12.
140. "Reliability of Landfill Liner Systems," 20<sup>th</sup> annual Illinois Counties Solid Waste Management Association Conference, Champaign, IL, 10/4/12.
141. "Current Research on Drained Residual Strength in Landslides," Invited Lecture, University of Washington, Seattle, WA, 11/30/12.
142. "Current Research on Drained Residual Strength in Landslides," Invited Lecture, University of Michigan, Ann Arbor, MI, 11/7/12.
143. "Seismic Testing for Track Substructure (Ballast and Subgrade) Assessment for Passenger/Freight Corridors," ASME 2013 Joint Rail Conference (JRC2013), Knoxville, TN, 4/18/13.
144. "Current Trends in Elevated Temperatures in Landfills," Invited Lecture, University of Washington, Seattle, WA, 5/20/13.
145. "Seismic Retrofit of Tuttle Creek Dam," ASCE Specialty Conf. GEO-Congress-2013, San Diego, CA, March, 2013.
146. "Landslide in Complex Geology," Invited Lecture, Drexel University, Philadelphia, PA, 8/7/13.
147. "Detection and Movement of Landfill Fires," Invited Lecture, Queens University, Kingston, Ontario, Canada, 10/18/13.
148. "I-71/I-76 Interchange Slope Failure and Dispute Resolution," Invited Lecture, Ohio Transportation Engineering Conference, Columbus (OTEC), OH, 10/22/13.
149. "Drilled Shaft Design in Weak Rocks," ASCE Geoconfluence 2013 Conference, St. Louis, MO, 11/7/13.
150. "Detection and Movement of Landfill Fires," ASCE Geoconfluence 2013 Conference, St. Louis, MO, 11/7/13.

## (Invited Lecture Presentations, continued)

151. "Landslide in an Urban Environment," ASCE Oklahoma Geo Institute, Oklahoma City, OK, November 13, 2013.
152. "Landslide Inverse Analyses," Invited Lecture, University of Delaware, Newark, DE, 11/25/13.
153. "Fabricated Geomembranes for Oil Field Applications," Ohio Oil and Gas Expo, Cleveland, OH, 12/4/13.
154. "IHNC Floodwall Breaches during Hurricane Katrina and Recent Ruling (April 12, 2013)," at Universidad Nacional de Ingenieria, Lima Peru, 1/8/14.
155. "Drilled Shaft Design in Weak Shales," Illinois DOT Annual Geotechnical Engineers Meeting, Springfield, Illinois, 1/24/14.
156. "Housing Development Challenge," Invited Lecture, Northwestern University, Evanston, IL, 1/27/14.
157. "IHNC Floodwall Breaches during Hurricane Katrina and Recent Ruling (April 12, 2013)," Dinner Keynote Speaker, Geo-Omaha 2014, ASCE Geo Institute, Omaha, Nebraska, 2/6/14.
158. "Seismic Retrofit of Tuttle Creek Dam in Manhattan, Kansas," Keynote Speaker, Geo-Omaha 2014, ASCE Geo Institute, Omaha, Nebraska, 2/7/14.
159. "Use of Jet Grouting for Seepage Control," DFI Workshop – Levee and Coastal Rehabilitation, Miami, FL, 2/13/14.
160. "Aluminum Waste Reactivity Test," ASCE Specialty Conf. GEO-Congress-2014, Atlanta, GA, February, 2014.
161. "Seismic Testing and Tie-Ballast Interaction," ASME 2014 Joint Rail Conf. (JRC2014), Colorado Springs, CO, 4/3/14.
162. "Ballast Direct Shear Testing," ASME 2014 Joint Rail Conference (JRC2014), Colorado Springs, CO, 4/3/14.
163. "Seismic Wave Modeling for Track Substructure Assessments," ASME 2014 Joint Rail Conference (JRC2014), Colorado Springs, CO, 4/3/14.
164. "Seismic Testing for Track Substructure Modulus Values," ASME 2014 Joint Rail Conference (JRC2014), Colorado Springs, CO, 4/2/14.
165. "Recent Research on Drained and Undrained Strengths for Slope Stability Analyses," Keynote Speaker, ASCE 27<sup>th</sup> Central Pennsylvania Regional Conf. Hershey, PA, April 24, 2014.
166. "IHNC Floodwall Failures During Hurricane Katrina," *Proceedings of 12<sup>th</sup> International Conference on Geo-Disaster Reduction-ICGdR*, Fullerton, CA, September 5, 2014.
167. "Primary Consolidation, Secondary Compression, and Desiccation Model for Dredged Fill, Coastal Restoration, and Marsh Creation Projects," Keynote Speaker, 2014 ASCE/ACI Louisiana Civil Engineering Conference, New Orleans, LA, September, 2014.
168. "Development and Detection of Elevated Temperatures in Landfills," Illinois Water Conference, Urbana, IL, October 15, 2014.
169. "Embankment on Soft Clay Case History: Prefabricated Vertical Drains and Stability Analyses," Invited Lecture, Ohio Transportation Engineering Conference (OTEC), Columbus, OH, 10/28/14.
170. "Development and Detection of Elevated Temperatures in Landfills," Illinois EPA, Springfield, IL, November 5, 2014.
171. "Fully Softened Shear Strength for Levee and Clay Embankment Design," Slope Stability Analysis & Slope Stabilization in Engineering Practice, ASCE Geo Institute, Oklahoma City, Oklahoma, November 12, 2014.
172. "Design and Monitoring of Well-Performing Bridge Transitions," ASME 2015 Joint Rail Conf. (JRC2015), San Jose, CA, 3/30/15.
173. "Monitoring and Repair of Bridge Transitions," ASME 2015 Joint Rail Conference (JRC2015), Colorado Springs, CO, 3/30/15.
174. "Oso Landslide Analysis," Invited Lecture, Colorado School of Mines, Golden, CO, 2/5/15.

**KEYNOTE AND DISTINGUISHED LECTURE PRESENTATIONS**

1. "Instability of Waste Containment Facilities," Keynote Lecture, ASCE Geotechnical Engineering Division, Portland, OR, September 3, 1998.
2. "Stability of Waste Containment Facilities," Keynote Speaker, WASTE TECH '99, New Orleans, LA, February 1, 1999.
3. "Estimating Liquefaction Potential in Mid-America," Mid-America Highway Seismic Conference, St. Louis, MO, February 28, 1999.
4. "Transportation Networks Program of the Mid-America Earthquake Center," Mid-America Highway Seismic Conference, St. Louis, MO, February 28, 1999.
5. "Three-Dimensional Slope Stability Analyses," Distinguished Practitioners in the Field of Geotechnical Engineering Lecture, Distinguished Lecture, Kentucky Geotechnical Engineering Group, Louisville, KY, April 8, 1999.
6. "Landslides: Shear Strengths and Stability Analyses," Keynote Lecture, ASCE Geotechnical Engineering Group, Los Angeles, CA, January 16, 2001.
7. "Interim Slope Failure Involving Leachate Recirculation," Invited Lecture, Mid-Atlantic States/ EPA Solid Waste Summit, Sheperdstown, West Virginia, December, 13-14, 2001.
8. "Three-Dimensional Slope Stability Analyses in Practice," University of Minnesota 51<sup>st</sup> Annual Geotechnical engineering Conference, Minnesota Geotechnical Engineering Group, Minneapolis, MN, February 21, 2003.
9. "Use of Geofoam in Embankment Projects," Keynote Speaker, Ohio River Valley Society Seminar (ORVSS) XXVII, Annual Conference of ASCE Kentucky Geotechnical Engineering Group, Lexington, KY, September 19, 2003.
10. "Impact of Cut and Fill Operation on Hillside Development," Keynote Lecture, ASCE Geotechnical Engineering Group, 28<sup>th</sup> Spring Seminar & Eighth Geo-Expo, Queen Mary, Los Angeles, CA, April 27, 2005.
11. "Impact of Cut and Fill Operation on Hillside Development," Keynote Lecture, ASCE Geotechnical Engineering Group, San Diego, CA, March 21, 2006.
12. "Stability of Waste Containment Facilities: Emerging Issues," Keynote Speaker, American Public Works Association, Annual Conference, Kansas City, MO, September 13, 2006.
13. "Landfill Stability: Leachate Recirculation and Other Emerging Issues," Keynote Speaker, SWANA-Wisconsin Chapter, Annual Conference, Milwaukee, WI, November 1, 2006.
14. "Seismic Deformation Analysis of Dams," U.S. Army Corps of Engineers Infrastructure Systems Conference, Detroit, Michigan, June 25-27, 2007.
15. "Landfill Liner Interface Strengths from Torsional-Ring-Shear Tests," Keynote Speaker, Geo-Americas Conference, Cancun, Mexico, March 2008.
16. "Landslides in an Urban Environment," Keynote Speaker, Ohio River Valley Society Seminar (ORVSS) XXXII, Annual Conference of ASCE Kentucky Geotechnical Engineering Group, Lexington, KY, October 17, 2008.
17. "Current Research on Drained Residual Strength in Landslides," Keynote Speaker, Geo-San Antonio 2010, ASCE Geo Institute, February 5, 2010.
18. "Elevated Temperatures in Landfills," Keynote Speaker, Chicago ASCE Lecture Series, April 30, 2010.
19. "Drained Residual and Fully Softened Strengths for Slope Stability Analyses," Keynote Speaker, Geo-Omaha 2011, ASCE Geo Institute, February 18, 2011.
20. "Shear Strengths for Stability of Levee Slopes," Keynote Speaker, Workshop on Shear Strengths for Stability of Slopes in Highly Plastic Clays, Virginia Tech, Blacksburg, VA, July, 2011.
21. "Detection and Movement of Landfill Fires," Keynote Speaker, GeoConfluence 2013, ASCE Geo Institute, St. Louis, Missouri, November 7, 2013.
22. "Drilled Shaft Design in Weak Rocks," Keynote Speaker, GeoConfluence 2013, ASCE Geo Institute, St. Louis, Missouri, November 7, 2013.
23. "Seismic Retrofit of Tuttle Creek Dam," Keynote Speaker, Geo-Omaha 2014, ASCE Geo Institute, Omaha, Nebraska, February 14, 2014.
24. "Three-Dimensional Slope Stability Analyses," Keynote Speaker 12<sup>th</sup> International Conference on Geo-Disaster Reduction-ICGdR, Fullerton, CA, September 6, 2014.

25. "IHNC Floodwall Failures During Hurricane Katrina," Keynote Speaker, 2014 Midwest Levees and Rivers Technical Exchange, St. Louis, MO, October 28, 2014.
26. "*Current Research on Drained Residual Strength in Landslides*," 2015 James M Hoover Lecturer, Iowa State University, March, 2015.



**UNIVERSITY COURSES TAUGHT**

- Undergraduate:
  - UIUC C.E. 284 - "Geotechnical Engineering," 1992 - date
  - UIUC C.E. 280 - "Soil Mechanics & Foundation Engrg.," 1991 - date
  - UIUC C.E. 195 - "Introduction to Civil Engineering," 1992 - date
  - SDSU C.E. 462 - "Soil Mechanics," 1987-1991
  - SDSU C.E. 463 - "Soil Mechanics Laboratory," 1987-1991
  - SDSU E. 120 - "Engineering Problem Analysis-FORTRAN," 1990 (new course)
- Graduate Courses Developed:
  - UIUC C.E. 598 - "Geoenvironmental Engineering/Landfill Design," Spring, 1994 – 1999 (new course)
  - UIUC C.E. 581 - "Earth Dams and Related Problems," Fall, 2001 – date
  - UIUC C.E. 524 - "Construction and Engineering Law," Fall, 2005 – 2011 (new course)
  - UIUC C.E. 498 - "Introduction to Geosynthetics," Fall, 1996 – 2000 (new course)
  - SDSU C.E. 642 - "Seepage and Earth Dams," 1988 - 1991 (new course)
  - SDSU C.E. 643 - "Soil and Site Improvement," 1989 - 1991 (new course)

**UNIVERSITY SERVICE**

- \* Member, Civil Engineering Curriculum Committee, UIUC, 2014 - date
- \* Member, CEE Modernization Committee, UIUC, Civil Engineering, 2013-date
- \* Member, Graduate Student Affairs Committee, UIUC, Civil Engineering, 2010-date
- \* Member, Advisory Committee, UIUC, Civil Engineering, 2010-date
- \* Member, Civil Engineering Curriculum Committee, UIUC, 2009 - date
- \* Member, Advisory Committee, UIUC, Civil Engineering, 2002-2004
- \* Chair, Advisory Committee, UIUC, Civil Engineering, 2003-2004
- \* Member, Awards Committee, UIUC, Civil Engineering, 2002-2003
- \* Member, Geotechnical Faculty Search Committee, UIUC, Civil Engineering, 2002-2003
- \* Member, Transportation Faculty Search Committee, UIUC, Civil Engineering, 1998-1999
- \* Member, Teaching Evaluation and Improvement Committee, UIUC, College of Engineering, 1998-2000
- \* Member, Administrative Committee, UIUC, Civil Engineering, 1997-2000
- \* Member, Advisory Committee, UIUC, Civil Engineering, 1997-2000
- \* Member, Earthquake Engineering Research Center Proposal Committee, UIUC, Civil Engineering, 1997
- \* Chair, Geotechnical Faculty Search Committee, UIUC, Civil Engineering, 1996-1998
- \* Member, Department Head Search Committee, UIUC, Civil Engineering, 1996
- \* Member, Geotechnical Faculty Search Committee, UIUC, Civil Engineering, 1995-1996
- \* Member, Design Council, UIUC, College of Engineering, 1993
- \* Member, Chester P. Seiss Award for Graduate Research Committee, UIUC, 1993 - 1996
- \* Poster Session Presenter, Advisory Board Meeting, UIUC, College of Engineering, 1993
- \* Member, ASCE Practitioner in Residence Program Committee, UIUC, 1993
- \* Chair, Civil Engineering Curriculum Committee, UIUC, 1994 - 1995
- \* Member, Civil Engineering Curriculum Committee, UIUC, 1991 - 1996

**GEOTECHNICAL ENGINEERING RESEARCH AREAS**

1. Static and Seismic Stability of Natural and Man-Made Slopes
2. Forensic Geotechnical and Foundation Engineering
3. Design of Earth Dams, Levees, Floodwalls, Landfills, and other Earth Structures
4. Behavior and Design of Waste Containment Facilities
5. Behavior of Railroad Track Systems and Transitions
6. Performance of Compacted Structural Fills and Slopes
7. Earthquake- Induced Liquefaction and Post-Liquefaction Strength of Cohesionless Soils
8. Behavior and Improvement of Confined Dredged Material
9. Drained and Undrained Residual Strength of Cohesive Soils for Landslides