


United States Nuclear Regulatory Commission Official Hearing Exhibit

	Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2)
	ASLBP #: 09-879-04-COL-BD01 Docket #: 05200029 05200030 Exhibit #: INT102-00-BD01 Admitted: 10/31/2012 Rejected: Other:



Curriculum Vitae

Name	Timothy J. Hazlett, Ph.D.		
Position	President – North America		
Education	Ph.D.	1998	Johns Hopkins University, Baltimore, MD
			Hydrogeology – Interdisciplinary Program in Hydrogeology, Sedimentology, and Geochemistry
	M.A.	1995	Johns Hopkins University, Baltimore, MD
			Hydrogeology – Interdisciplinary Program in Hydrogeology, Sedimentology, and Geochemistry
	M.S.	1992	University of Missouri, Rolla, Rolla, MO
			Geological Engineering with focus on Numerical Methods
	B.S.	1990	Rensselaer Polytechnic Institute, Troy, NY
			Geology with focus on Hydrogeology

Employment History

Year	Firm	Position	Duties and Responsibilities
2010 – present	DHI Water & Environment, Inc.	President – North America	Responsible for the Eastern US and Caribbean operations including business development, Director of Projects, QA, and risk management.
2008 – 2010	DHI Water & Environment, Inc.	Vice President – Solutions East	Responsible for the Eastern US and Caribbean operations including business development, Director of Projects, QA, and risk management.
2007 – 2008	Ardaman and Associates	Senior Project Manager	Headed groundwater modeling group within Water Resources. Initiated Food and Beverage market services.
1999 – 2007	Hazlett-Kincaid, Inc.	President, CEO, Lead Modeler	Founded specialized geological modeling services firm and led company to grow offices in FL, NV, and PA with clients throughout the US. Developed niche capabilities in karst modeling and characterization. Sold interests in 2007.
1998 – 1999	Hazlett Consulting, Ltd.	President	Provided computer consulting and Y2K services to Fortune 500 Companies and groundwater and fate and transport modeling as a subconsultant to environmental and engineering consulting firms
1993	USGS	Field Scientist	Assisted in field-scale experiments in Mirror Lake, NH fractured bedrock experimental hydrology site during the summer
1992 – 1998	Johns Hopkins University	Research Scientist	Conducted Ph.D. research and ran the Hydrogeology Graphics and Simulation Lab.
1989 – 1991	Environmental Resources Management	Hydrogeology and Engineering Intern	Performed basic field work related to contaminated site characterization and remediation. Wrote proposals, managed projects and subcontractors, and performed engineering and scientific calculations.

Summary

Dr. Hazlett is the VP responsible for DHI's operations in the eastern states of the US. He oversees DHI staff in five States. He was formerly Senior Project Manager and Head of Groundwater Modeling at



Ardaman and Associates, based in Orlando, Florida. Prior to then while based out of Tallahassee, Dr. Hazlett served as President, CEO, and Lead Modeler for Hazlett-Kincaid, Inc. – a small, specialized, geological and hydrogeological modeling and visualization firm with offices in Florida, Nevada, and Pennsylvania. Dr. Hazlett has been writing and using groundwater models since 1988 and has a particular focus in finite element analysis. Over the years, he has modeled a variety of problems including: fractured rock, variable density and thermohaline (hydrothermal) flows, reactive transport, and engineering problems including slope stability, sudden expansion channels, and heat conduction. He has also developed niche expertise in karst systems and modeling. Altogether, he has 18 years of experience in consulting and academia, both writing and using software for hydrogeology, heat flow, variable density flow, fracture flow, reactive flow and transport, unsaturated flow, and various engineering model applications using primarily Finite Element (FEM) and Finite Difference (FDM) techniques and coding in the FORTRAN language.

Recent Experience Record

Year	Project Name	Owner	Description
2009-present	Collier County Watershed Management Plan and Model Update	Collier County, FL	Integrated groundwater and surface water modeling plus water quality for evaluation of impacts to embayments and select inland water bodies.
2008-2011	Broward County Integrated Water Resource Management Master Plan	Broward County, FL	Large-scale integrated groundwater and surface water modeling (MIKE SHE) for master planning of water resources in Broward County.
2008-2009	Lee County DR/GR	Lee County, FL	Integrated groundwater/surface water modeling (MIKE SHE) for large-scale planning project involving land use and water preservation.
1999 – 2007	Defense Supply Center Philadelphia	U.S Department of Defense	Project Manager/Lead Modeler. A DoD site with the largest Light Non-Aqueous Phase Liquid (LNAPL) plume in the State of Pennsylvania. The DoD is under Consent Order by the State to clean up the plume and characterize and model the site.
2007 – 2008	Lake Lotela Augmentation Feasibility Modeling, Carter Creek Watershed,	Southwest Florida Water Management District	Project Manager/Lead Modeler. An integrated modeling project, where MODFLOW, along with the LAK3 and SFR1 packages were implemented to model Lake Lotela augmentation from groundwater, reuse, and surface water sources. The model was optimized using PEST.
1999 – 2007	Woodville Karst Plain (WKP) Aquifer Protection Modeling for the Florida DEP and FGS	Florida DEP and FGS	Lead Modeler. As part of a multidisciplinary effort since 2000, including dye tracing, cave diving, and geophysics, Dr. Hazlett led the modeling, using FEFLOW, of a karst groundwater basin with some of the largest and longest underwater cave systems and largest springs in the world, including Wakulla Spring.



Year	Project Name	Owner	Description
2005	Saltwater Intrusion Modeling, Florida Panhandle	Northwest Florida Water Management District	Project Manager/Lead Modeler. For the District, from the upper Floridan Aquifer 100 year pumping scenarios were evaluated in a region near Ft. Walton Beach. The groundwater flow was simulated in MODFLOW and the density-dependent saltwater problem was modeled using DSTRAM.
2004-2007	Source Water Protection Modeling, High Springs, FL	Private Water Bottling Client	Lead Modeler. Modeled using FEFLOW a complex karst system feeding multiple springs along the Santa Fe River, including spring water source springs.
2004	High Springs, FL	Private Water Bottling Client	Modeled using MODFLOW and MT3D the infiltration and transport of RO reject water in a 14 acre RIB. Model used for design, permit, and risk management purposes.
2000-2001	Hercules Quarry, Stockertown, PA	Lansing-Hisert Associates	Dr. Hazlett performed a FEFLOW groundwater flow model study of the effects of drawdown to the water table due to pumping at a limestone and cement rock quarrying operation located in a karst area in northeastern PA. The model was optimized using PEST.
1999	Redner's Markets, West Lawn, PA	Spotts Stevens & McCoy	Lead Modeler and Project Manager. Groundwater flow and BTEX fate and transport modeling.
2001-2005	East Side Access Project, NY, NY	PB-STV	Lead Modeler and project manager. Modeled using FEFLOW cut-and-cover dewatering operations and fate and transport for multiple plumes in Sunnyside Yard in support of the largest transportation project in NYC history. Also modeled moving face of TBMs for well permitting in support of tunneling.
1999	Precision Fabricating Corporation (PFC), Cocoa, FL	FL DEP	Lead Modeler, project manager. Groundwater flow and dissolved-phase PCE, TCE, and 1,2-DCE fate and transport modeling. 3-D Plume visualization modeling to determine PRPs and sources.
2008	Cypress Lake Wellfield, Osceola Co., FL	TOHO Water Authority	Lead Modeler. Preliminary water resource modeling for 34 mgd AWS for Orlando.
2008	Chuluota Wellfield, Chuluota, FL	Aqua America	Technical Oversight. Modeling for siting considerations for small public water supply well near St. Johns River. Saltwater upconing issues.



Year	Project Name	Owner	Description
2007-2008	Brevard County Landfill	Brevard County, FL	Lead Modeler. Design support groundwater modeling for landfill. Risk analysis modeling for leachate transport.
2007	Upper Peace River Flow Restoration	SWFWMD	Technical Reviewer. Spreadsheet modeling of river structure operations and flow.
2007	U.S. Steel	U.S. Steel	Lead Modeler. Groundwater flow and fate and transport.
2007	Titan Mine, Levy County, FL	Private	Model Reviewer. MODFLOW model for permitting mine expansion.
2005	Washington Crossing State Park, Ewing, NJ	State of New Jersey	Lead Modeler. MODFLOW model of BTEX plume transport from site to Delaware River.
2000	Exide Battery Site	FLDEP	Review on behalf of the FDEP. MODFLOW groundwater flow and fate and transport model.

Publications and Presentations

MODELING KARSTIC CONTROLS ON WATERSHED-SCALE GROUNDWATER FLOW IN THE WOODVILLE KARST PLAIN, NORTH FLORIDA, Brent A. Meyer, Todd R. Kincaid, and Timothy J. Hazlett, ASCE 11th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst: Integrating Science and Engineering to Solve Karst Problems. Tallahassee, FL., 2008

FROM RESEARCH TO RESULTS: MITIGATING THE IMPACT OF SEWAGE EFFLUENT ON WAKULLA SPRING IN NORTH FLORIDA, KINCAID, Todd R., DAVIES, Gareth J., HAZLETT, Timothy J., and MEYER, Brent A., Geological Society of America Abstracts with Programs, Vol. 39, No. 6, p. 602, 2007.

KARSTIC CONTROLS ON WATERSHED-SCALE GROUNDWATER FLOW IN THE WOODVILLE KARST PLAIN, NORTH FLORIDA, MEYER, Brent A., KINCAID, Todd R., and HAZLETT, Timothy J., Geological Society of America Abstracts with Programs, Vol. 39, No. 6, 2007.

(Poster) KARST AQUIFER RESPONSE TO VARIATIONS IN DISTRIBUTION AND MAGNITUDE OF RECHARGE AND IMPLICATIONS TO LAND USE PLANNING IN THE WOODVILLE KARST PLAIN OF NORTH FLORIDA, KINCAID, Todd R., DAVIES, Gareth J., MEYER, Brent A., and HAZLETT, Timothy J., Geologic Controls on Chemical Migration in Fractured and Carbonate Aquifers, Geological Society of America Abstracts with Programs, Vol. 39, No. 6, p. 478, 2007.

A Groundwater Resource Protection Model in Bucks County, PA. Presented at the Association of Engineering Geologists Annual Meeting, Boston, MA 2006.

Engineering Benefits of a Geological Framework Model. Presented at the Association of Engineering Geologists Annual Meeting, Boston, MA 2006.

The Woodville Karst Plain of North Florida. Presented at a meeting of the Florida Association of Professional Geologists (FAPG), Gainesville, FL 2006.

Quantitative Groundwater Tracing and Effective Numerical Modeling in Karst: An Example from the Woodville Karst Plain of North Florida, Todd R. Kincaid, Timothy J. Hazlett, and Gareth J. Davies, Sinkholes and the Engineering and Environmental Impacts of Karst, pp. 114-121 in ASCE Proceedings of the Tenth Multidisciplinary Conference, Geotechnical Special Publication No. 144, 2005.



Realistic Numerical Modeling of Groundwater Flow Based on Quantitative Site Characterization in the Woodville Karst Plain of North Florida, AWRA Florida Section Meeting, 2005.

May 12, 2005: "Groundwater Modeling of the Woodville Karst Plain: A Planning Tool", Presentation to the 4th Annual Hydrogeology Consortium Workshop: Solving Water Pollution Problems in the Wakulla Springshed of North Florida.

(Poster) CHARACTERIZING RAPID POINT-RECHARGE TO THE FLORIDAN AQUIFER IN THE WOODVILLE KARST PLAIN OF NORTH FLORIDA: IMPLICATIONS FOR PROTECTING WAKULLA SPRING, KINCAID, Todd R., DAVIES, Gareth, DEHAN, Rodney, HAZLETT, Timothy, Hydrogeologic Investigations in Carbonate Rock Aquifer/Landscape Systems, Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 85, 2004.

(Poster) THE FLORIDA CAVE DATABASE: A GIS OF UNDERWATER CAVES FOR HYDROGEOLOGICAL CHARACTERIZATIONS, KINCAID, Todd R., DENIZMAN, Can, ARTHUR, Jonathan, HAZLETT, Timothy, Hydrogeologic Investigations in Carbonate Rock Aquifer/Landscape Systems, Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 85, 2004.

REALISTIC NUMERICAL MODELING OF GROUND-WATER FLOW BASED ON QUANTITATIVE SITE CHARACTERIZATION IN THE WOODVILLE KARST PLAIN OF NORTH FLORIDA, HAZLETT, Timothy J., KINCAID, Todd, LOPER, David E., DAVIES, Gareth J., DEHAN, Rodney, MCKINLAY, Casey, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 31, 2004.

(Poster) UNDERSTANDING WAKULLA SPRING, LOPER, David E., DEHAN, R., HAZLETT, Timothy J., Hydrogeologic Investigations in Carbonate Rock Aquifer/Landscape Systems, Geological Society of America Abstracts with Programs, Vol. 36, No. 2, p. 85, 2004.

GROUNDBREAKING CHARACTERIZATION OF THE KARSTIFIED FLORIDAN AQUIFER IN THE WOODVILLE KARST PLAIN OF NORTH FLORIDA, KINCAID, Todd R., DAVIES, Gareth J., HAZLETT, Timothy J., LOPER, David, DEHAN, Rodney, MCKINLAY, Casey, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 31, 2004.

THE COMPREHENSIVE GEOLOGICAL FRAMEWORK MODEL - BASIS FOR ADVANCED FLOW & TRANSPORT MODELING, KINCAID, Todd, HAZLETT, Timothy J., DAY, Kevin, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 395, 2004.

WHY DO QUANTITATIVE GROUNDWATER TRACING? LESSONS AND EXAMPLES FROM THE WOODVILLE KARST PLAIN OF NORTH FLORIDA, DAVIES, Gareth J., KINCAID, Todd R., HAZLETT, Timothy J., LOPER, David, DEHAN, Rodney, MCKINLAY, Casey, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 134, 2004.

A KARST HYDROLOGIC OBSERVATORY IN THE WOODVILLE KARST PLAIN OF NORTH FLORIDA, LOPER, David E., HAZLETT, Timothy J., KINCAID, Todd R., DEHAN, Rodney, DAVIES, Gareth, 2004, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, p. 537, 2004.

Florida Geological Survey Special Publication No. 52, 2003. Served on Advisory Committee.

Florida Geological Survey Poster 13, Karst Educational Posters – Set of 8, 2003.

(Poster) A HYBRID MODELING APPROACH TO FLOW IN CONDUIT-DOMINATED KARST AQUIFERS: HAZLETT, Timothy J., LOPER, David E., and KINCAID, Todd R., Advances in Karst Modeling, GSA Convention, 2002.

(Poster) GROUNDWATER TRACING AS A MEANS TO COLLECT DATA FOR GROUNDWATER MODEL DESIGN AND CALIBRATION, DAVIES, Gareth J., KINCAID, Todd R., HAZLETT, Timothy J.,



CONNOLLY, Kristie A., and JABLONSKI, Jarrod M., Rivers in Karst: Processes and Applications, GSA Annual Meeting, 2002.

Design-Phase Geologic Framework Modeling for Large Construction Projects - May, 2002 - Monterey, CA. Poster presentation at the Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds

Hydrogeologic Analysis of the Irish Carbonate-Hosted Zn-Pb Ore Deposits – American Chemical Society NJ Chapter Meeting – February 2001, Somerset, NJ.

Karst Meeting and Fieldtrip with NCKRI - February, 2001 - Tallahassee, FL. Organized, coordinated, and implemented to Tallahassee by the National Cave and Karst Research Institute (NCKRI) a field trip and numerous presentations on Floridan karst, particularly focused on the Woodville Karst Plain. The group, consisting of members from USEPA, NPS, BLM, USGS, and many other Federal agencies met for four days at Wakulla Springs Lodge.

Karst Conference in Orlando, 2001 - November, 2001 - Orlando, FL. As part of the Hydrogeology Consortium, Dr. Hazlett planned, organized, and co-sponsored (through HKI) a two-day conference and workshop entitled "New Approaches to Modeling Flow and Fate and Transport in Karst Settings." Dr. Hazlett also served as an expert panel discussion leader for the topic "Problems in Applying Groundwater Flow Models in Karst Settings: Issues, Shortcomings, and New Approaches." November 19, 2001: "Hybrid Modeling Approaches to Flow in Conduit-Dominated Karst Aquifers" – Presentation to the Geophysical Fluid Dynamics Institute and the Hydrogeology Consortium, GFDI, FSU.

"Hydrogeologic modeling of the genesis of carbonate-hosted lead-zinc ores", Grant Garven, Martin S. Appold, Vera I. Toptygina, Timothy J. Hazlett, Hydrogeology Journal, Volume 7, Number 1 / February, 1999.

Hazlett, T.J., 1997. A Hydrogeologic Analysis of the Irish Carbonate-Hosted Zn-Pb Deposits, Midlands Basin, Ireland, Ph.D. Dissertation, Johns Hopkins University, 385 p.

Hazlett, T.J. and Garven, G., 1995. A Hydrogeologic Analysis of the Role of Faults in the Genesis of Carbonate-Hosted Pb-Zn Deposits, Midlands Basin, Ireland. International Field Conference on Carbonate-Hosted Lead-Zinc Deposits, St. Louis, 127-130.