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EDUCATION

Ph.D. Geoscience. Texas Tech University. Lubbock, Texas 79409. August 2002
Dissertation-*Applications of Conodonts in Resolving Pennsylvanian-Permian Stratigraphic Problems in North Central Texas, New Mexico, Colorado, and Kansas.*

M.S. Geology. Oklahoma State University. Stillwater, Oklahoma 74078. August 1995
Thesis-*Sequence and Biostratigraphy of Pennsylvanian Permian boundary strata.*

B.A. Geology. Earlham College. Richmond, Indiana 47374. May 1993
Undergraduate research project-*Geophysical interpretation and mapping of underlying bedrock, Wayne County, Indiana.*

INDUSTRY EXPERIENCE

Geologist (Stratigrapher): Lewis Energy Group, San Antonio, TX

January 2011 – Present

Shallow team stratigrapher in south Texas development projects, with exploration for additional pay horizons in our regional area of interest (some 400,000+ acres). Extensive database of existing production, logs, etc. used to develop horizontal drilling and achieve optimal development resources. Shallow team works all formations above the Eagle Ford; Wilcox, Escondido, Olmos (primary focus), San Miguel, Anacacho, and Austin Chalk.

Geologist: Activa Resources, San Antonio, TX

July 2008 – January 2011

Work exploration and development projects. Development focused on East Texas Woodbine horizontal drilling. Extensive field & regional study involving remapping, volumetrics (OOIP, ROIP), water injection, revised pay, prepared and presented sales package. Have successfully switched field development from waterflooding to horizontal drilling with waterflood and CO₂ follow-up. Drilled first horizontal in field in July 2010. Exploration prospects developed through integration of mapping, log analysis, 2D seismic data. Principle areas include: East Texas, Austin Chalk Trend, south Texas Wilcox sands.

Chief Petroleum Geologist: CSV Holdings Inc., San Antonio TX

July 2006 – July 2008

Head geologist for exploration and development. Core area: Texas and Louisiana Gulf Coast with an emphasis on salt domes. Supervisor of geotechnical department, head of engineering intern program, permitting with state for drilling, disposal well construction, and workover operations. Develop 16 well drilling program for core property in Calcasieu Parish, Louisiana: basic reservoir analysis, log analysis, well locations, drilling program, budget development and presentation, presentation of prospects to investor groups. 11 wells drilled and logged, 10 ran pipe.

Consulting Geologist: All American Oil and Gas, Inc.

November 2006 – July 2008

Development of 16,000 acre Eastern Shelf Shale gas play (McClure Shale) California. Land & lease management (delayed rentals, management, relations, etc.), assessment of prospect, development of drilling and coring program. Well location permitted, vendors in place.

Consulting Geologist: Kern River Holdings, Inc

May 2007 – July 2008

Development of 55ac. Nukern lease in Kern River Field, Bakersfield. Geologic mapping, field study of old well logs (1912 – 1983), production histories, development of steamflood program and model, development of financial model, new well locations and permitting. Combining new well data (cores, logs) with historic data, and offset production for comprehensive view of field. Additionally presented field status, drilling progress, and newsletters to investors, presented entire program for capital raises. 5 new wells drilled and cased, waiting on completion decisions.

Consulting Geologist: Cottonwood Oil & Gas, Inc.

August 2007 – Present

Seismically generated exploration target in the Leo Sands. Well site predetermined, Remaining tasks included permitting with BLM, State, Federal Lands, location building, well site geology, and presentation of prospect for raise of capital.

Consulting Geologist: Black Lake Oil & Gas

August 2006 - Present

Exploration project (13,000+ acres) in northern Michigan, geochemical (microbial) study developed to pinpoint drilling location of first well, permitting with state, all completed to date.

Geologist: The Great Southern Mining Company, Sierra Leone Africa

January 2007 - Present

Head geologist for new mining ventures in Sierra Leone, Africa. On development team that traveled to Sierra Leone to head the development of the two companies, assessment and determination of acreage to be purchased for alluvial, and primary exploration for diamonds, gold, and other precious metals and rare earth elements. Field work developing & completing sampling programs in conjunction with the minister of Geology and minister of mineral resources, Sierra Leone.

Environmental Field Geologist: Compliance Service Group, Lubbock TX

January-August 2000

Field geologist for environmental company. Supervised drilling, logging, site remediation, air sampling, soil sampling, water sampling. Compiled data, made assessments/evaluations. PSH removal and well monitoring.

Geologist Intern: Ocean Energy, Houston TX

June 1999 -August 1999

Geologist on the Ark-La-Tex Team (exploitation). Identify wells for recompletions, frac-jobs, infill locations in East Texas Gas fields (Rusk County, TX)

Mudlogger; MidContinent Consultants. Midland, Texas

1997Fall

Two-man mudlogging. Wells in West Texas Reef Trend, average TD ~10000'. Catch samples, identify lithology, porosity, cut, transcribe to computerized logging program, also hand drafted (Ieroy set) mud log.

CONTINUING EDUCATION

- Guide to Carbonate Well Log Analysis, George Asquith. AAPG 1 day course (March 2007)
- Introduction to DST's for Geologists, Hugh Reid. AAPG 2 day course. (February 2007)
- Advancements on Petrophysics, Dave Marschall, AAPG 1 day course. (February 2007)
- Basic Open Hole Logging, Dan Krygowski, AAPG 2 day course. (February 2007)
- Drilling Info 1 day User Introduction Course. (November 2006)
- HDS Computerized Log Analysis, Bill Manley, Larry Wells Instructors. (October 2006)
- Salt Tectonics, Mark Rowan Instructor, GCAGS Lafayette. 3 day course. (September 2006)
- Introduction to Offshore Drilling. Ocean Star Offshore Museum, Galveston. 1 day course. (August 1999)
- Lithology Logging, George Asquith, AAPG SW Section 1 day course (May 1999)
- Pennsylvanian and Permian Geology and Petroleum in the Southern Midcontinent. Oklahoma Geological Survey Workshop. (April 1998)
- The Geologic Use of Well Log Curves, D.S. Swanson, AAPG SW Section, (May 1998)
- Reservoir Characterization of Permian Deep-Water Sandstones, Bell Canyon Formation, Geraldine Ford Area, West Texas (Delaware Basin). WTGS (March 1997)
- Sequence and Seismic Facies Analysis - Current Concepts. AAPG SW Section, 1 day course (January 1997)
- Sequence Stratigraphy of Pennsylvanian Rocks in the Midland Basin of Texas: Facies Tracts, Reservoirs, and Mapping Strategies. AAPG SW Section. (October 1995)

SOFTWARE/COMPUTER PROGRAMS

Microsoft Office Suite, Microsoft Project, Petra log analysis and 3-D modeling, ARC GIS 9, SMT earth-pak, 2D pak, HDS Log analysis, Drilling Info, Geographics, Prizm log analysis, IHS enerdeq, HPDI.

REGIONS & PROJECTS WORKED

Gulf Coast Salt Domes (Onshore) Louisiana and Texas. California Heavy Oil (Kern River) Shale Gas (San Joaquin Basin), Michigan Basin: Geomicrobial Exploration of Reef Trends. South Dakota (Leo Sands). Central Texas (Ouachita Thrust), East Texas (Glen Rose, Woodbine, Navarro), South Texas (Wilcox, Escondido, Olmos).

PROFESSIONAL AFFILIATIONS

- American Association of Petroleum Geologists (AAPG)
Student Chapter President, Texas Tech (1998-1999)
- Prospectors and Developers Association of Canada (PDAC)
- Houston Geologic Society (HGS)
- San Antonio Geologic Society

INTERNATIONAL TRAVEL

Canada, China, England, France, Ireland, Italy, Japan, Mexico, Scotland, West Africa

UNIVERSITY EXPERIENCE

Graduate Teaching:UTSA

Advanced Stratigraphy. (UTSA)

Spring 2011

Team taught with Lee Billingsley (VP Abraxas) first half lectures and labs dealt with introduction to Eustacy, measured sections and descriptions, Facies mapping, lithologic correlation of measured sections, bistratigraphic correlation (development of composite sections, create and define zones, correlation of defined zones and assessment), introduction to open hole logs, extensive log correlation, picking faults, long stratigraphic structural and stratigraphic sections, structure and isopach maps.

Petroleum Exploration with PETRA & Petrophysical Logs. (UTSA)

Spring 2010

Full semester course utilizing PETRA software to set up exploration projects from scratch; acquire and download well data (location, production), county land data, cultural data, pipeline data, and well logs. Construct structural and isopach maps, identify and define prospects, run basic economics. Extensive use of Drilling Info. Developing a D.I. certification (collaboration with D.I.) for students to prepare them for industry positions. Hands on software with some petrophysical lectures.

Petroleum Geology. University of Texas San Antonio (UTSA)

Fall 2009

Team-teaching the first offering of a petroleum course at the University. Presenting petrophysics and PETRA mapping project (based on well-logs).

Undergraduate Teaching:UTSA

Senior Instructor: The 3rd Planet (Physical Geology)

August 2007 – Fall 2010

Develop course lectures for introductory earth science course. Approximately 250 to 450 students per course, with the goal of introducing the predominantly freshmen students to geology, illustrating the relationship and influence of geology on their daily existence (be it political, energy, global warming, nuclear waste disposal, extinction events, geologic time, earthquakes, etc.).

University Involvement: University of Texas San Antonio

Graduate Committee (Masters) for three students with petroleum based projects

Faculty Advisor: UTSA Ice Hockey

Undergraduate Teaching:Texas State University (SWT)

Program Head: Geology Program (offering a minor in geology)

August 2002- July 2006

Instructor Texas State Geology Program

August 2000 – August 2002

Hired to develop and expand the geology program at Texas State University. Full-time lecturer, supervision of undergraduate lab TA's for courses and provide all academic advising for students in the geology minor. Student participation in geology has grown over 40%. A computer lab for students was

established. Acquired all geologic and fossil specimens to support courses and research projects at no cost to the university. Experience teaching physical geology, historical geology (paleontology focus), mineralogy, sedimentology & stratigraphy and hydrogeology.

University Involvement: Texas State University

Academic Advisor for all geology minors; maintained and further developed the minor program ('00-'06)

Faculty Advisor: Geology Club (2000 – 2006)

Faculty Advisor: In-Line Hockey Team; awarded faculty advisor of the year ('00 – '06)

Faculty Advisor: Men's Lacrosse Team (2001 – 2006)

Faculty Advisor: ZTA Sorority (2000 – 2006), ATO Fraternity (2003 – 2006)

Head Coach: Women's Lacrosse Team – Texas State University (2000 – 2006)

Undergraduate Teaching: Texas Tech

Instructor of Historical and Physical Geology

Summer 1996-Spring 1999

Historical topics include early earth history, origin of the moon, dating methods, evolution, evolutionary processes, origins of life, extinctions, sedimentary rocks & environments, fossilization, and sections on Paleozoic, Mesozoic, Cenozoic life. Class size ranges from 25 to 90 students.

Physical topics include: composition of the earth, igneous, metamorphic, sedimentary rocks, depositional environments, plate tectonics, mountain building, structural geology, petroleum geology, running water, mass wasting. Class size approximately 150-210 students.

University Involvement: Texas Tech University

Head Coach: Women's Lacrosse Team – Texas Tech University (1998 – 2000)

Undergraduate Teaching: South Plains College

Instructor Physical Geology

August 1998 – May 1999

Develop course lectures and lab exercises for introductory geology course. Class size roughly 40 students

PRESENTATIONS/PUBLICATIONS/ABSTRACTS

Industry Presentations (Investors, Capital Raises)

- May 2010 Presentation of OSR-Halliday Horizontal Development to potential funding groups during roadshow. Houston Groups; CH4, Forreest Energy, Riley Exploration, Quintana, ESS-Funds, Wayzata, Limerock, White Deer, Denham Capital, Avista, DE Shaw, Greystone, Guggenheim. Dallas Groups; En-Cap, Hicks Equity, 5 States Energy, Texas Capital, Energia Tejas. New York Groups; Iriquois, Barclays Capital, Morgan Stanley, LeFrak, Fortress, Asym. Denver Groups; SB Energy Partners
- October 2009 Presentation to Cobb & Associates (Dallas) regarding possibility of horizontal drilling at OSR-Halliday Field. Previously planning a waterflood project, that Cobb had modeled, but with the success of the horizontal wells at Madisonville and Kurten it appears as though that would be a viable option
- December 2008 Presentation of a South Texas Deep Gas Wildcat Well to *LOIN Energy, Bluegrass Energy*, geologic development of the prospect, seismic (2D) delineation of plays, land, locations.
- May 2008 Presentation to *Bank of the West*, Denver, CO. To raise capital for Kern River Expanded drilling and development.
- March 2008 Presentation to *Goldman Sachs*, Houston. Kern River redevelopment and Eastern Shelf shale gas play. Interest in redevelopment, called back for further discussions
- November 2007 Presentation to *Morgan Stanley*, All American Oil & Gas corporate overview and drilling program for 2008 (Kern River, Cottonwood Prong, Eastern Shelf). Favorable response, follow-up meeting in Houston scheduled for early 2008. New York, NY.

- September 2007 Presentation to *Golden Gate Capital*, Kern River Holdings EOR Program in Kern Co. California. Favorable response to the engineering and geology, overall program is sound. Disagreement on total valuation of the field and negotiations ended.
- July 2007 Presentation & Due diligence report to *Empire Capital*, Kern River Holdings EOR Program in Kern Co. California. Favorable response to the engineering and geology, Empire accepted terms and wanted to move forward, KRH decided to hold onto 100% of the lease and seek better terms.
- April 2007 Presentation to investors (*Trec Investments*) of the Starks Dome Program offered by Cadwell Energy Development. Las Vegas, NV.
- January 2007 Presentation with company President and Head of Board of Directors in London, England of company summary/overview for 2007-2008 highlighting drilling objectives to investors.
- December 2006 Presentation to Board of Directors of 'final' Company overview 2007 (management team, exploration team, objectives, past offerings) megacepts of operations, past and current projects (geology, economics, drilling program, reserve/resource estimates, timetable, percentage involvements) proposed budget, outlook for program
- November 2006 Drilling budget presentation at *Starlight Capital Investors Forum*, New York City. Short summary of company overview, selected representative drilling projects, current budget, reserve/resource status, drilling fund participation terms. Several hundred potential investors present.
- October 2006 Drilling Budget presentation (Womack) develop presentation of company overview including current projects, current budget, reserve/resource status, drilling fund participation terms.
- August 2006 Due diligence geologic report for Starks Field 16 well drilling program. Meeting with Cadwell Energy CEO, CFO, independent auditor, to review the geology, engineering, and drilling locations. Approved by all parties.

Academic Presentations

- Spring 2008 *Cretaceous Texas FieldTrip – Canyon Lake Spillway, TX.* Field leader for AAPG Teacher Education Conference, 3 hour trip through the Glen Rose with 50 teachers/instructors
- Spring 2008 *Fractured Carbonate Reservoir FieldTrip – Canyon Lake Spillway, TX.* Field leader for Exxon-Mobil 'ONLAP' new hire development program. 3 hour trip through a faulted and highly fractured carbonate section of the upper Glen Rose and lower Glen Rose limestone. Attention to reservoir characteristics, structure, carbonate facies changes.
- Spring 1999 *Conodont Biostratigraphy of the Missourian-Virgilian Boundary Strata, Proposed Correlations from North Central Texas and New Mexico.* - Geological Society of America, South Central Meeting.
- Spring 1998 *Conodont Biostratigraphy and Sequence Stratigraphy of the Pennsylvanian-Permian Boundary Strata.* - Oklahoma Petroleum Workshop Poster Session.
- Fall 1995 *Sequence Stratigraphy of the Pennsylvanian-Permian boundary, North American Mid-continent.* - Department of Geosciences Colloquium, Texas Tech University
- Spring 1995 *Designation and Description of the Principal Reference Section of the Foraker Limestone, Council Grove Group, Osage County, Oklahoma.* - Oral Presentation, Geological Society of America, North and South Central combined Regional Meeting

- Spring 1995 *Microfaunal and Lithologic Analysis of the Red Eagle Transgressive-Regressive Sequence, Burbank, Oklahoma.*- Poster Presentation, Oklahoma State University, Graduate Student Symposium
- Fall 1994 *Cyclic Stratigraphy of the Foraker and Red Eagle Formations (Carboniferous-Permian) Boundary Strata of the Mid-continent*-Oral Presentation, Oklahoma Academy of Science
- Fall 1994 *Sequence Stratigraphy of Carboniferous-Permian Boundary Strata from the North American Mid-continent.* - Oral Presentation Geological Society of America Annual Meeting

Publications

Keairns, C. E., and Boardman, D. R., II, 2001 *Pennsylvanian-Permian Boundary Strata, Principle Reference Section, Burbank Quarry Oklahoma.* Oklahoma Geological Survey, Pennsylvanian-Permian Workshop Special Publication.

Abstracts

Keairns, C. E. , Department of Biology, Southwest Texas State University, San Marcos, Texas , 78666., Musgrave, B. E., and Barrick, J. E., Department of Geosciences, Texas Tech University, Lubbock, TX, 79409. EARLY PENNSYLVANIAN (LATE MORROWAN-EARLY ATOKAN?) CONODONTS FROM THE UPPER KERBER AND LOWER SHARPSDALE FORMATIONS, ARKANSAS VALLEY REGION, CENTRAL COLORADO. Geological Society of America Meeting March 2002.

Keairns, C. E., and Boardman, D. R., II, 1995. Designation and Description of the Principle Reference Section of the Foraker Limestone, Council Grove Group, Osage County, Oklahoma. Geological Society of America, North and South Central Meeting Abstracts with Programs.

Keairns, C. E., and Boardman, D. R., II, 1994. Sequence Stratigraphy of Carboniferous-Permian Boundary Strata from the North American Mid-continent. Geological Society of America. Abstracts with programs.

EDUCATIONAL OUTREACH/COMMUNITY INVOLVEMENT

Texas Master Naturalist Geology Program (Spring 2001-Present)

Geology lecturer and field guide for the State Master Naturalist Programs in Texas (Comal County, Hays County, and Capitol Area (Austin) and Alamo). Typically 2-4 hour presentation of local geology, often associated with half day field trip to points of interest

Canyon Lake Gorge (TX) Geology (2004-Present)

Developed naturalist guide for the geology of the Canyon Lake Gorge; worked with county leadership and local organizations to develop the area as a public geology park. Serve as consulting geologist for development of area with GBRA, WORD, and the Corps of Engineers. Have guided trips for SIPES, STGS, GCAGS, Exxon-Mobil, & Master Naturalist programs.

Hill Country Heritage Museum (2003-2006)

Worked with and supported the Hill Country Heritage Museum, providing educational talks and presentations to groups.

Field Crew Supervisor; National Geographic Society Scientific Grant, Texas Tech (1996)

Headed up field team for Dr. Sankar Chatterjee, a semester long research grant from the National Geographic Society investigating early Triassic vertebrates. Determination, investigation and collection of selected localities, Supervision of field work, collecting, preparing, driving, excavation and preparation of articulated skeletons. Assist with mounting and preparation of Triassic display at Texas Tech Museum's new Dinosaur Hall

Consultant; Museum of Texas Tech University, Dinosaur Hall (1999)

Worked with museum group developing displays and overall format for new dinosaur hall. Responsibilities of the committee included; determination of specimens to be included, budgets, actual poses, interactive displays, writing of text, and development of associated educational programs.

Academic Tutor; Athletic Department, Texas Tech University (1997)

Assisted athletes at Tech with their studies in physical geology, historical geology, and geography.

K-12 Outreach

Austin Science Fun Day (Spring 2002, 200, 2004)

Geologist partner for Hernandez Middle School in San Marcos for ASFD (a yearlong science project created by Austin-area students and partner science organizations. They work together to choose a topic, devise an experiment, and then present their findings at the Texas Memorial Museum in March)

Teaching Assistant; Summer Paleontology Academy, Oklahoma State University (Summer 1995, 1996, and 1997)

A month long summer paleontology program for twenty high school students. Seven field trips were included that allowed the students to collect fossils from the major eras and develop both a collection, and a better understanding of paleontology.

Teaching Assistant; Summer Paleontology Academy for Teachers, Oklahoma State University (Summer 1995, 96)

A two-week course focused on giving teachers a solid base of geology and paleontology for their classroom. A one week trip visited sites of all eras including collection of specimens for building a teaching collection.

Instructor; Super Saturdays; Introduction to Geology course, Texas Tech University (Spring 1997)

Developed and presented six week program for 20 elementary school children

Junior High and High School Presentations on Geology and Paleontology (1996 to present: about 2-3 per year)

Presentations at Evans Junior High, Lubbock Junior High, Dunbar Junior High, Kerrille High School

Coach – Lubbock Youth Hockey Program (1996-2000)

Coached several teams ranging in age from 5-7 yr. to high school teams

K-12 Community Programs

Science Day '97 @ Texas Tech University, introduces high school students to possible courses and future options when they get to college – geosciences; Lubbock Science Spectrum spring and fall 1996 - day long presentations of fossils and how paleontologists and geologists use them to reconstruct Earth's past; museum day dinosaur stamp release program presentations at the Museum of Texas Tech University.

Weebelo Cub Scout Troop. Discussion of geology/mineralogy for their Geology merit badge (Fall 1998)