



Regional Update

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**Petroleum Technology
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South Midcontinent Region**

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Practical Reservoir Characterization for the Independent Operator

Dr. Roger Slatt, Director of OU's School of Geology and Geophysics, and Dr. Sandra Mark, Director of the Rocky Mountain Region PTTC and Research Assistant Professor, Colorado School of Mines, will join forces for a South Midcontinent workshop titled *Practical Reservoir Characterization for the Independent Operator*, set for June 24 and 25 in Norman. The meeting will be held at the Moore Norman Technology Center in Norman.

The information focuses on the principles and practices of characterizing petroleum reservoirs using geologic and engineering data, including well logs, sample descriptions, routine and special core analyses and well tests. Dr. Slatt said, adding that emphasis is placed on practical analysis of such data sets from a variety of clastic depositional environments. The compartmentalized nature of reservoirs will be emphasized. There will be exercises included, and attendees will receive a book with black-and-white copies of presentation figures (powerpoint). Topics include:

- Introduction to reservoir characterization
- Tools and techniques for characterizing static and dynamic properties of oil and gas reservoirs
- Value of outcrops
- Structure and structurally compartmentalized reservoirs
- Stratigraphy and stratigraphically compartmentalized reservoirs
- Basics of sequence stratigraphy
- Incised valley fill reservoirs
- Shoreface reservoirs
- Deepwater clastic (turbidite) reservoirs
- Geologic controls on reservoir quality (porosity and permeability)
- Diagenesis and diagenetically compartmentalized reservoirs
- Petrophysical properties of reservoirs
- Fractured reservoirs
- Introduction to geological modeling

On Tuesday afternoon, Dr. Mark will present a sampling of timely issues that are important to petroleum professionals who want to make

(see *RESERVOIRS*—page 4)

Bussey Logs 4,600 Miles and Sees 1,800 Wells For PUMP Project in Arkansas!

It has been a pleasure working for the PTTC and with the operators of Arkansas to help resolve the problems associated with producing oil. My traveling has allowed me to contact 75 operators by May of this year, while driving 4,600 miles to approximately 1,800 wells. The wells produce an average of one-half a barrel to six barrels per day along with 97% water.

There are several surprising findings that I have noticed with my contacts, which are:

1. The operators have welcomed me to visit their locations.
2. They have willingly shared their data.
3. The condition of the majority of the locations has improved over what they were twenty years ago.
4. The operators are using better producing practices and more chemicals to reduce operating cost.
5. The most glaring surprise is that the last field discovered now has thirteen wells producing 18.5% of the total production for Arkansas. This is the Grayson Field, discovered in 1993, that is located near Magnolia, Arkansas. The producing horizon is the Smackover Lime, which produced 1,401,066 barrels in 2001.

The most critical constraint that the operators have conveyed to me is the unstable crude price. Many wells remain shut-in due to the fact that the operators are fearful of spending their current profits to workover a well only to have a reduction in crude price within the same month.

*Hamp Bussey
PTTC PUMP Project
Arkansas*

*Meet
Us
In
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for the
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Tulsa Expo Center, June 14

Sponsored by the Marginal Wells Commission

Take a close look at low-cost technology! Workover, remediation, stimulation, pumps, safety, environment, regulation and much more!

Free Lunch! Free Admission! Door Prizes!

If you would like to be a sponsor or a vendor, or just need more information, please call MWC!! 1-800-390-0460 or 405-366-8688

Upcoming Events

June

- 6/3-4 Conference on Naturally Fractured Reservoirs, Oklahoma City, OU's Mewbourne School of Petroleum and Geological Engineering, *OGS
6/14 Trade Fair, Tulsa, *MWC, PTTC
6/19 Red Fork Play Workshop, Oklahoma City, *OCGS, OGS, PTTC
6/20 Red Fork Play Workshop, Tulsa, *TGS, OGS, PTTC
6/24-25 Practical Reservoir Characterization for the Independent Operator, Norman, *OGS, PTTC

July

- 7/14-15 Meeting of the PTTC Board, Norman

August

- 8/5 Plunger Lift Operations, Duncan, *MWC, PTTC
8/6 Plunger Lift Operations, Oklahoma City, *MWC, PTTC
8/7 Plunger Lift Operations, Tulsa, *MWC, PTTC
8/8 Plunger Lift Operations, Woodward, *MWC, PTTC

September

- 9/5 OCC/OTC Forms for Oil and Gas Operations, Duncan, *MWC, PTTC
9/12 OCC/OTC Forms for Oil and Gas Operations, Oklahoma City, *MWC, PTTC
9/18, 19 Identification, Correlation of Methane-Producing Coal Beds, Northeast Oklahoma Shelf, Tulsa, OGS, *TGS, PTTC
9/19 OCC/OTC Forms for Oil and Gas Operations, Tulsa, *MWC, PTTC
9/24 Identification, Correlation of Methane-Producing Coal Beds, Northeast Oklahoma Shelf, Oklahoma City, OGS, *OCGS, PTTC

*OGS=Oklahoma Geological Survey, 405/325-3031 or 800/330-3996

*MWC=Marginal Wells Commission, 405/366-8688; 800/390-0460

*GIS=Geological Information Systems, 405/325-3131

*OCGS=Oklahoma City Geological Society 405/236-8086 or 405/235-3648, ext. 40

*TGS=Contact Richard Piquene, 918/582-2690

Oklahoma Oil and Gas Production Statistics Published

Oklahoma oil and gas production statistics by field and county from 1996 through 1999 are contained in a new 393-page book just published by the Oklahoma Geological Survey.

The field records in this volume, *Oil and Gas Production by Field, 1996-99*, contain the name of the field, field code, date the field was formally recognized by the Oklahoma Nomenclature Committee (ONC), the most recent update of the field boundary, county or counties where the field is located, estimated size of the field in acres, four years of annual production (1996-1999) by commodity, and cumulative production from 1979 through 1999 for the field.

The volume also includes oil and gas production by county, a summary by county of production not assigned to any formally recognized field, a list of all fields, a list of

discontinued field names, and a list of all fields, districts, and gas areas formally recognized by the ONC. Along with these statistics are charts depicting oil production since Statehood, from 1907 through 1999, and gas production from 1947 through 1999 for the entire state.

The source of these data is the Natural Resources Information System (NRIS), a set of interactive digital databases containing monthly oil and gas production by lease, monthly production by county, lease records, a field-boundary file, and completion reports for all recorded oil and gas wells drilled in Oklahoma.

SP2001-2 is available from the OGS at 100 E. Boyd, Rm. N-131, Norman, OK 73019-0628, for \$15 plus \$3 for postage. Stop by 1218-B West Rock Creek Road in Norman; or order by phone from 405/360-3886; or through the Internet at <http://www.ou.edu/special/ogs-pttc>.

Sedimentary Basins Publication Released

Sedimentary basins in the Southern Midcontinent are major sources of oil and gas in this region, and increasingly are targets for petroleum exploration and enhanced recovery efforts using advanced technologies. In a new book from the Oklahoma Geological Survey, research relevant to these areas is reported on and shared in order to help make the region more productive and profitable for operators.

This 198-page book is published as Circular 106, *Petroleum Systems of Sedimentary Basins in the Southern Midcontinent, 2000 Symposium*. This thirteenth annual workshop was held March 28–29, 2000, in Oklahoma City, with more than 150 people from academia, industry, and state and federal agencies participating in the sessions.

The research presented at this workshop focused on the reservoirs, geologic events, and petroleum in the many sedimentary basins of the region. These clastic and carbonate reservoirs have great potential for addi-

tional production with modern oil-field technology. Eighteen talks and posters presented at the meeting are printed as full papers or extended abstracts, with an additional eight talks and posters given in abstract form at the end of the volume.

Some of the topics include: a statistical method for correcting log-derived temperatures; compartmentalization of the overpressured interval in the Anadarko Basin; reservoir characterization; estimation of heat-flow density; the Arbuckle Group; application of borehole-temperature measurements; modeling; sequence stratigraphy; and a number of other papers and posters both specific to certain areas and more general in nature.

The softbound book is available by mail from the Survey at 100 E. Boyd, Rm. N-131, Norman, OK 73019-0628 for \$13 plus \$2.60 postage. The book is available by phone (405/360-2886), or e-mail <ogssales@ou.edu>, or can be picked up at the sales office at 1218-B West Rock Creek Road in Norman.

RESERVOIRS—continued

effective use of computers in their reservoir characterization work. Emphasis will be on cost considerations for small, independent operators. Topics include:

Low-cost software: *Purchase mapping, cross section, log analysis, 3D seismic interpretation, 3D modeling and visualization—total package about \$2000. What's the difference between a mapping program that costs \$500 and one that costs \$50,000? Why buy, when you can rent software for a fraction of the price?*

GIS mapping: *A format that finally offers significant value to the E&P industry. Free and low-cost viewing software utilizes free data from the USGS and other agencies.*

Log analysis software: *A vital tool for reservoir characterization. Neural network technology—the most important computer advance for petroleum professionals in many years.*

Data cost-benefit analysis: *What does it cost to buy data versus digitizing it yourself? When is vector log data*

necessary rather than raster data? What are the free and low-cost data sources available on the Internet?

Technical information: *Sophisticated search engines and document delivery systems on the Internet make it easy to do geological or engineering literature research. A growing number of reference materials are freely available on-line.*

Electronic reports: *Eliminate the paper, start delivering information in an interactive, dynamic format using common desktop software.*

This meeting presents a rare opportunity for you to hear these two excellent speakers and ask questions you might have.

Workshop registration will be \$45. For more information, contact Michelle Summers at 405/325-3031 or 800/330-3996, or check the PTTC web page at <http://www.ou.edu/special/ogs-pttc/pitchome.htm>.

You also may write the OGS for further information about this meeting at: 100 E. Boyd, Rm. N-131, Norman, OK 73019-0628.

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