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RESERVOIR CLASS FIELD DEMONSTRATION

U.S. Department of Energy
National Petroleum Technology Office

Publication & Presentation Bibliography

December 1997

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Overview

The Reservoir Class Field Demonstration Program was initiated in FY92 in response to rapidly declining domestic production and the realization that huge volumes of oil are being abandoned in reservoirs because of uneconomic production techniques. This program is just one of the critical elements of the National Oil Program necessary to move Improved Oil Recovery (IOR) technology from the conceptual stage through research, pilot scale field experiments, and full-scale field demonstrations to industry acceptance and commercialization. Both the successful results and failures of the field demonstrations will provide focus to concurrent research programs. Elements of the field demonstrations that are suitable for broad industry application are being communicated to the industry through the oil program's technology transfer effort.

As part of the technology transfer effort, this listing of publications and presentations by the project operators has been compiled by the U.S. Department of Energy's (DOE) National Petroleum Technology Office (NPTO). DOE reports can be ordered through NPTO. To receive copies of publications and presentations contact the project operator. Project operators, and the contact person are listed in the section titled "Contacts".

Also available through NPTO is a book titled "Class Project Summary Sheets". Included in this book are maps showing project locations, tables of technologies addressed, and an overview of each project along with project results. This book is updated approximately every six months.

This information can also be found on the NPTO Website at: npto.doe.gov

Reservoirs were classified by depositional environment. The classifications are as follows:

Class I	Fluvial Dominated Deltaic Reservoirs
Class II	Shallow Shelf Carbonate Reservoirs
Class III	Slope & Basin Clastic Reservoirs

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Class III

Advanced Class Work

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Acronyms

AAPG	American Association of Petroleum Geologists
BEG	Bureau of Economic Geology, University of Texas, Austin
CIPA	California Independent Producers Association
DOE	Department of Energy
DPA	Digital Petroleum Atlas
EAGE	European Association of Geoscientists and Engineers
EOR	Enhanced Oil Recovery
FDD	Fluvial Dominated Deltaic
GBRN	Global Basin Research Network
IOR	Improved Oil Recovery
LSU	Louisiana State University
MOFRC	Michigan Oil Field Research Consortium
NIPER	National Institute for Petroleum and Energy Research
NPTO	National Petroleum Technology Office
NRC	National Research Council
OTC	Offshore Technology Conference
PTTC	Petroleum Technology Transfer Council
RMAG	Rocky Mountain Association of Geologists
SEG	Society of Exploration Geophysicists
SEPM	Society for Sedimentary Geology
SIPES	Society of Independent Professional Earth Scientists
SPE	Society of Petroleum Engineers
TCB	Tijerina-Canales-Blucher
TIPRO	Texas Independent Producers and Royalty Owners
WAG	Water Alternating Gas

Class I Projects

Amoco Production

West Hackberry Tertiary Project

Contract Number: DE-FC22-93BC14963

Publications

Fassihi, R. and T. H. Gillham. 1993. The Use of Air Injection to Improve the Double Displacement Processes. SPE Paper 26374, SPE Annual Technical Conference and Exhibition, Houston, Texas, October 4–6.

1993. An Introduction to the West Hackberry Air Injection Project. SPE Gulf Coast Area Meeting and Exhibition, Houston, Texas, March 17.

Gillham, T. and R. Fassihi, et al. 1996. Air Injection Project Breathes Fire into Aging West Hackberry Oil Field. *Hart's Oil and Gas World*, February.

Fassihi, M. R., D. V. Yannimaras, E. E. Westfall, and T. H. Gillham. 1996. Economics of Light Oil Air Injection Projects, West Hackberry Project. SPE Paper 35393, SPE/DOE Tenth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 21–24.

Lepski, B., Z. Bassiourni, and J. M. Walcott. 1996. Second-Contact Water Displacement Oil Recovery Process. SPE Paper 35360, SPE/DOE Tenth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 21–24.

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Presentations

Gillham, Travis. 1992. Technology Transfer Activities West Hackberry Tertiary Project. Presentation to University of Kansas, December 1.

Gillham, Travis. 1993. Air Injection for Tertiary Oil Displacement at West Hackberry, LA: A DOE Co-Sponsored Project. SPE Improved Recovery Study Group (Gulf Coast Section), Houston, Texas, September 8.

Gillham, Travis. 1994. Technology Transfer Activities West Hackberry Tertiary Project. Presentation to LSU's Reservoir Simulation Class (LSU's Petroleum Engineering Department), New Orleans, Louisiana, February 21.

Gillham, Travis. 1994. An Introduction to the West Hackberry Air Injection Project. New Orleans SPE Production Study Group, New Orleans, Louisiana, February 22.

Gillham, Travis. 1994. The Use of Air Injection to Improve the Double Displacement Process, NIPER/DOE Symposium: In Situ Combustion Practices, Tulsa, Oklahoma, April 22.

Gillham, Travis. 1994. An Introduction to the West Hackberry Air Injection Project. SPE Monthly Meeting, Lafayette, Louisiana, May 10.

Gillham, Travis. 1995. Tours of the air injection site in West Hackberry Field by representatives of Kerr-McGee and TOTAL Minatome Corporation. Both companies are evaluating air injection projects in the Williston Basin, April.

Gillham, Travis. 1995. Presentation on the West Hackberry air injection project given to representatives from Shell, Kerr-McGee, NIPER, Phillips and Petro-Canada. Tulsa, Oklahoma, June 20.

Gillham, Travis. 1996. Presentation at the Oil Industry Outreach Conference. Houston, Texas, February 14.

Gillham, Travis. 1996. Presentation at the Time Lapse Imaging Workshop. Houston, Texas, February 21.

Gillham, Travis. 1996. Presentation at the Fluid Imaging Workshop at BP in Houston, Texas, September 19.

Gillham, Travis. 1997. West Hackberry Air Injection Project Workshop. Baton Rouge, Louisiana, September 16.

Bureau of Economic Geology, University of Texas

Revitalizing Mature Oil Play Strategies for Finding and Producing Unrecovered Oil in Frio Fluvial-Deltaic Reservoirs of South Texas

Contract Number: DE-FC22-93BC14959

Publications

McRae, L. E. and M. H. Holtz. 1994. *Revitalizing a Mature Oil Play: Strategies for Finding and Producing Unrecovered Oil in Frio Fluvial-Deltaic Reservoirs of South Texas: Annual Report.* DOE Report No. DOE/BC/14959–5, May.

McRae, L. E. and M. H. Holtz. 1994. Integrated Reservoir Characterization of Mature Oil Reservoirs: An Example from Oligocene Frio Fluvial-Deltaic Sandstones, Rincon Field, South Texas. Gulf Coast Association of Geological Societies Transactions, Vol. 44, October.

Holtz, M. H., L. E. McRae, and N. Tyler. 1994. *Identification of Remaining Oil Resource Potential in the Frio Fluvial-Deltaic Sandstone Play, South Texas.* DOE Report No. DOE/BC/14959–8, May.

Holtz, M. H. and L. E. McRae. 1995. Identification and Assessment of Remaining Oil Resources in the Frio Fluvial-Deltaic Sandstone Play, South Texas. University of Texas, Bureau of Economic Geology Report of Investigations, No. 227.

McRae, L. E., M. H. Holtz, and P. R. Knox. 1995. *Revitalizing a Mature Oil Play: Strategies for Finding and Producing Unrecovered Oil in Frio Fluvial-Deltaic Reservoirs of South Texas.* DOE Report No. DOE/BC/14959–13, July.

McRae, L., M. Holtz, T. Hentz, C. Chang, and P. Knox. 1995. *Strategies for Reservoir Characterization and Identification of Incremental Recovery Opportunities in Mature Reservoirs in Frio Fluvial-Deltaic Sandstones, South Texas: An Example From Rincon Field, Starr County: Topical Report.* DOE Report No. DOE/BC/14959–15, November.

Knox, P. R. and L. E. McRae. 1995. Application of Sequence Stratigraphy to the Prioritization of Incremental Growth Opportunities in Mature Fields: An Example from Frio Fluvial-Deltaic Sandstones, TCB Field, South Texas. Gulf Coast Association of Geological Societies Transactions, Vol. 45, p. 341–359.

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Holtz, M. H. and D. S. Hamilton. 1996. Reservoir Characterization Methodology to Identify Reserve Growth Potential. SPE Paper 35434.

Knox, P. 1996. Integrated Characterization Yields Targeted Infill and Recompletion Opportunities. *The Class Act* (newsletter), Vol. 2, No. 3.

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Knox, P. R., W. G. White, M. H. Holtz, and J. G. Paine. 1996. Reservoir Characterization Advisor—Fluvial Deltaic: Software, Version 1. DOE/Bureau of Economic Geology, University of Texas, Austin, August.

Knox, P. M. Holtz, L. McRae, T. Hentz, J. Paine, W. G. White, and C. Y. Chang. 1996. *Revitalizing a Mature Oil Play: Strategies for Finding and Producing Unrecovered Oil in Frio Fluvial-Deltaic Sandstone Reservoirs of South Texas: Final Report*. DOE Report No. DOE/BC/14959–21, September.

Knox, P., W. G. White, M. H. Holtz, and J. G. Paine. 1997. A Software Guide to Integrated Reservoir Characterization and Prioritization. *The Class Act* (newsletter), Vol. 3, No. 1.

Knox, Paul and Mark Barton. 1997. Predicting Interwell Heterogeneity in Fluvial-Deltaic Reservoirs: Outcrop Observation and Applications of Progressive Facies Variation Through a Depositional Cycle. Proceedings of the Fourth International Reservoir Characterization Technical Conference, p. 411–442, Houston, Texas, March 2–4.

Presentations

McRae, L. E. and M. H. Holtz. 1994. Targeting the Unrecovered Oil Resource in Mature Field Areas: An Example from Oligocene Frio Fluvial-Deltaic Reservoirs of South Texas, Ricon Field, South Texas. Poster session, AAPG Annual Convention, Denver, Colorado, May.

McRae, L. E. and M. H. Holtz. 1995. Revitalizing Mature Oil Plays in Frio Reservoirs of South Texas. Half-day Workshop, TIPRO and Texas BEG, Houston, Texas, July 13.

McRae, L. E. and M. H. Holtz. 1995. Revitalizing Mature Oil Plays in Frio Reservoirs of South Texas. Two-Day Workshop, TIPRO and Texas BEG, Corpus Christi, Texas, July 14 and July 28.

Presentations, Continued

Holtz, M. H. and L. E. McRae. 1995. Modeling Reservoir Attributes and Estimating Additional Hydrocarbon Potential for Redevelopment in Fluvial-Deltaic Reservoirs: An Example from the Frio Fluvial-Sandstone Play in South Texas. Poster session, AAPG Annual Convention, Houston, Texas, March 5–8.

Knox, P. R. and L. E. McRae. 1995. High-Resolution Sequence Stratigraphy: The Key to Identifying Compartment Styles in Frio Formation Fluvial-Deltaic Reservoirs, T-C-B Field, South Texas. AAPG Annual Convention, Houston, Texas, March 5–8.

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Knox, P. R. and L. E. McRae. 1995. Strategies for Optimizing Incremental Recovery from Mature Reservoirs in Oligocene Frio Fluvial-Deltaic Reservoirs, Ricon Field, South Texas. Gulf Coast Association of Geological Societies, Baton Rouge, Louisiana, October 26.

Knox, P. R. 1995. Progress Report: T-C-B Field Reservoir Characterization. Presented to Mobil Exploration and Production, USA. Inc., Houston, Texas.

Willis, B. 1995. Architecture of Fluvial-Dominated Valley-Fill Deposits in the Cretaceous Fall River Formation. Geological Society of America, New Orleans, Louisiana, November 8.

Levey, Ray. 1996. Identifying Opportunities for Reserve Growth in Mature Fields of the Frio Fluvial-Deltaic Play, Vicksburg Fault Zone, South Texas. South Texas Geological Society Short Course, San Antonio, Texas, April 8.

Knox, P. R. 1996. Accommodation-Based Controls on Fluvial-Deltaic Reservoir Compartmentalization: Examples from the Oligocene Frio Formation, South Texas. AAPG Annual Convention, San Diego, California, May 19–22.

Knox, P. and R. Levey. 1996. New Oil from Old Fields: Identifying Opportunities for Reserve-Growth Potential in Mature Fields of the Frio Fluvial-Deltaic Sandstone Play, Vicksburg Fault Zone. Houston Geological Society Continuing Education Short Course, Houston, Texas, June 6.

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Dynamic Enhanced Recovery Technologies

Contract Number: DE-FC22-93BC14961

Publications

Anderson, R. N., H. Wei, M. A. Hobart, C. R. Wilsinson, and N. H. Roice, Jr. 1991. Active Fluid Flow in the Eugene Island Area, Offshore Louisiana. *The Leading Edge*, Vol. 10, No. 4, p. 12–17.

Anderson, R. N., L. M. Cathles, and N. H. Roice, Jr. 1991. Data Cube Depicting Fluid Flow History in Gulf Coast Sediments. *Oil and Gas Journal*, p. 60, November 1991.

Anderson, R. N. 1993. Recovering Dynamic Gulf of Mexico Reserves and the U.S. Energy Future. *Oil and Gas Journal*, p. 85–92, April 26.

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Peska and Zoback. 1995. Compressive and Tensile Failure of Inclined Wellbores and Direct Determination of In Situ Stress and Rock Strength. *Publication Data Not Provided by Columbia.*

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Presentations

Anderson, Roger. 1996. Global Basin and Research Network: Eugene Island 330. *Tulsa* Geological Society, Bartlesville, Oklahoma, March.

Anderson, Roger. 1996. Global Basin and Research Network: Eugene Island 330. Topical Luncheon, Offshore Technology Conference, Houston, Texas, May 6–9.

1995. Computer Model of Oil Migration Along Faults in Gulf Coast Reservoirs. Exhibit, Houston Natural History Museum's Wiess Energy Hall, Houston, Texas.

Anderson, Roger. 1996. Keynote Address. Offshore Technology Conference, Houston, Texas, May 6–9.

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Diversified Operating Corporation

Improved Secondary Recovery Demonstration for the Sooner Unit

Contract Number: DE-FC22-93BC14954

Publications

Sippel, M., J. Sunkin, R. Pritchett, and B. Hardage. 1993. *Advanced Secondary Recovery Demonstration for the Sooner Unit: End of Phase 1 Report.* DOE Report No. DOE/BC/14954–5, July.

Grabhorn, M. and M. Sippel. 1995. 3D Seismic in the Class Program. *The Class Act* (newsletter), Vol. 1, No 2.

Sippel, M. A. and T. Cammon. 1996. *Advanced Secondary Recovery Project for the Sooner "D" Sand Unit, Weld County, Colorado: Final Report.* DOE Report No. DOE/BC/14954–14, November.

Presentations

Sippel, M. 1995. Economic Benefit of 3D Seismic Imaging and Waterflood in the "D" Sand, Sooner Unit. Diversified Operating Company Workshop, Denver, Colorado, November 15.

Sippel, Mark. 1996. Sooner Field Class I Project. DOE-Industry Sponsored Projects, Traveling Technology Workshops. Oklahoma City, Oklahoma; Tulsa, Oklahoma; Denver, Colorado; Billings, Montana; Wichita, Kansas; Grayville, Illinois. Spring 1996.

Sippel, Mark. 1996. Integration of 3D Seismic to Define Functional Reservoir Compartments and Improve Waterflood Recovery in a Cretaceous Reservoir, Denver Basin. AAPG/EAGE Research Symposium, The Woodlands, Texas, October 23.

Hughes Eastern

Utilization of the Microflora Indigenous to and Present in Oil-Bearing Formations to Selectively Plug the More Porous Zones Thereby Increasing Oil Recovery During Waterflooding

Contract Number: DE-FC22-93BC14962

Publications

Stephens, J., L. Brown, and A. Vadie. 1995. *The Utilization of the Microflora Indigenous to and Present in Oil-Bearing Formations to Selectively Plug the More Porous Zones Thereby Increasing Oil Recovery During Waterflooding; Annual Report.* DOE Report No. DOE/BC/14962–7, August.

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Vadie, A. A., J. O. Stephens, and L. R. Brown. 1996. Utilization of Indigenous Microflora in Permeability Profile Modification of Oil Bearing Formations. SPE/DOE Tenth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 21–24.

Stephens, J., L. Brown, and A. Vadie. 1996. *The Utilization of the Microflora Indigenous to and Present in Oil-Bearing Formations to Selectively Plug the More Porous Zones Thereby Increasing Oil Recovery During Waterflooding; Annual Report.* DOE Report No. DOE/BC/14962–10, June.

Stephens, J., L. Brown, and A. Vadie. 1997. *The Utilization of the Microflora Indigenous to and Present in Oil-Bearing Formations to Selectively Plug the More Porous Zones Thereby Increasing Oil Recovery During Waterflooding; Annual Report January 1, 1996—December 31, 1996.* DOE Report No. DOE/BC/14962–16, September.

Presentations

Brown, L. R., A. A. Vadie, and J. O. Stephens. 1997. Field Demonstration of the Ability of In-Situ Microorganisms in the Oil-Bearing Formations to Modify Waterflooding Profiles. AAPG Eastern Section Meeting, Lexington, Kentucky, September 28–30.

Inland Resources/Lomax Exploration

Green River Formation Water Flood Demonstration Project

Contract Number: DE-FC22-93BC14958

Publications

Deo, M. D., A. Sarkar, D. L. Nielson, J. D. Lomax, and B. I. Pennington. 1994. Monument Butte Case Study, Demonstration of a Successful Waterflood in a Fluvial Deltaic Reservoir. SPE Paper 27749, SPE/DOE Ninth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 17–20.

Lomax, J. D., D. L. Nielson, and M. D. Deo. 1994. *Green River Water Flood Demonstration Project, Uinta Basin, Utah: Annual Report*. DOE Report No. DOE/BC/14958–11, September.

Lomax, J., and Howard. 1994. New Logging Tool Identifies Permeability in Shaley Sands. *Oil and Gas Journal*, p. 104, December 1994.

Deo, M., Whitney Neer, D. Nielson, J. Lomax, and B. Pennington. 1994. Description and Performance of a Lacustrine Fractured Reservoir. SPE Paper 28938, SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, September 25–28.

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Lomax, John. 1995. *Green River Formation Water Flood Demonstration Project: Annual Report April 1, 1994 to March 31, 1995*. DOE Report No. DOE/BC/14958–11, September.

Pawar, R. J., M. D. Deo, and J. Dyer. 1996. Effect of Reservoir Connectivity on Primary and Secondary Recovery. SPE Paper 35414, SPE/DOE Tenth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 21–24.

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Presentations

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Oklahoma Geological Survey

Identification and Evaluation of Fluvial-Dominated Deltaic Reservoirs

Contract Number: DE-FC22-93BC14956

Publications

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Sierra Energy Company

Enhanced Oil Recovery Utilizing High-Angle Wells in the Frontier Formation, Badger Basin Field, Park County, Wyoming

Contract Number: DE-FC22-93BC14950

Publications

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Texaco E & P

Post Waterflood CO_2 Miscible Flood in Light Oil Fluvial-Dominated Deltaic Reservoirs

Contract Number: DE-FC22-93BC14960

Publications

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University of Kansas

Improvement of Oil Recovery in Fluvial-Dominated Deltaic Reservoirs in Kansas

Contract Number: DE-FC22-93BC14957

Publications

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University of Tulsa

Integrated Approach Towards the Application of Horizontal Wells to Improve Waterflooding Performance (Glenn Pool Field, OK)

Contract Number: DE-FC22-93BC14951

Publications

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Utah Geological Survey

Increased Oil Production and Reserves from Improved Completion Techniques in the Bluebell Field

Contract Number: DE-FC22-93BC14953

Publications

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Class II Projects

FINA

Application of Integrated Reservoir Management and Reservoir Characterization to Optimize Infill Drilling

Contract Number: DE-FC22-93BC14989

Publications

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Presentations

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Laguna Petroleum

An Integrated Study of the Grayburg/San Andres Reservoir, Foster and South Cowden Fields, Ector County, Texas

Contract Number: DE-FC22-93BC14982

Publications

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Presentations

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Luff Exploration

Improved Recovery Demonstration for Williston Basin Carbonates

Contract Number: DE-FC22-93BC14984

Publications

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Michigan Tech. University

Recovery of Bypassed Oil in the Dundee Formation Using Horizontal Drains

Contract Number: DE-FC22-93BC14983

Publications

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OXY, USA

Application of Reservoir Characterization and Advanced Technology Improves Recovery and Economics in Lower Quality Shallow Shelf San Andres Reservoirs

Contract Number: DE-FC22-93BC14990

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Phillips Petroleum

Design and Implementation of a CO_2 Flood Utilizing Advanced Reservoir Characterization and Horizontal Injection Wells in a Shallow Shelf Carbonated Approaching Waterflood Depletion

Contract Number: DE-FC22-93BC14991

Publications

Dollens, K., B. W. Wylie, J. C. Shoumaker, O. Johannessen, and P. Rice. 1997. The Evaluation of Two Different Methods of Obtaining Injection Profiles in CO_2 WAG Horizontal Injection Wells. SPE Production Operations Symposium, Oklahoma City, Oklahoma, March 9–10.

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Texaco E & P

CO_2 Huff-n-Puff Process in Light Oil Shallow Shelf Carbonate Reservoir (Central Vacuum Unit), Vacuum Field, Lea County, New Mexico

Contract Number: DE-FC22-93BC14986

Publications

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University of Kansas

Improved Oil Recovery in Lower Meramecian (Mississippian) Carbonate Reservoirs of Kansas

Contract Number: DE-FC22-93BC14987

Publications

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Utah Geological Survey

Increased Oil Production and Reserves Utilizing Secondary/Tertiary Recovery Techniques on Small Reservoirs in the Paradox Basin, Utah

Contract Number: DE-FC22-93BC14988

Publications

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ARCO Western Energy

Economic Recovery of Oil Trapped at Fan Margins Using High Angle Wells and Multiple Hydraulic Fractures

Contract Number: DE-FC22-95BC14940

Publications

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Application of Advanced Reservoir Characterization, Simulation and Production Optimization Strategies to Maximize Recovery in Slope and Basin Clastic Reservoirs, West Texas (Delaware Basin)

Contract Number: DE-FC22-95BC14936

Publications

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Chevron USA, Inc.

Advanced Reservoir Characterization in the Antelope Shale to Establish the Viability of CO_2-Enhanced Oil Recovery in California's Monterey Formation Siliceous Shales

Contract Number: DE-FC22-95BC14938

Publications

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City of Long Beach—Steamflood

Increasing Heavy Oil Reserves in the Wilmington Oil Field through Advanced Reservoir Characterization and Thermal Production Technologies

Contract Number: DE-FC22-95BC14939

Publications

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City of Long Beach—Waterflood

Increasing Waterflood Reserves in the Wilmington Field through Improved Reservoir Characterization and Reservoir Management

Contract Number: DE-FC22-95BC14934

Publications

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Pacific Offshore Operators

The Feasibility of Optimizing Recovery and Reserves from a Mature and Geologically Complex Multiple Turbidite Offshore California Reservoir through the Drilling and Completion of a Tri-Lateral Horizontal Well

Contract Number: DE-FC22-95BC14935

Publications

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Presentations

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Parker & Parsley Petroleum/Pioneer Natural Resources

Advanced Reservoir Characterization and Evaluation of CO2-Gravity Drainage in the Naturally Fractured Spraberry Reservoir

Contract Number: DE-FC22-95BC14942

Publications

Schecter, D. S. and B. Guo. 1996. Mathematical Modeling of Gravity Drainage after Gas Injection into Fractured Reservoirs. SPE Paper 35170, SPE/DOE Tenth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 21–24.

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Presentations

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Strata Production

Advanced Oil Recovery Technologies for Improved Recovery from Slope Basin Clastic Reservoirs, Nash Draw Brushy Canyon Pool, Eddy County, New Mexico

Contract Number: DE-FC22-95BC14941

Publications

Murphy, M., B. A. Hardage, F. D. Martin, R. P. Kendall, E. M. Whitney, B. A. Stubbs, B. Uszyski, and W. W. Weiss. 1996. *Advanced Oil Recovery Technologies for Improved Recovery from Slope Basin Clastic Reservoirs, Nash Draw Brushy Canyon Pool, Eddy County, NM; Annual Report, September 25, 1995–September 24, 1996.* DOE Report No. DOE/BC/14941–6, September.

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Martin, F. D., M. B. Murphy, B. Stubbs, R. P. Kendall, E. M. Whitney, J. M. Kindel, B. Uszynski, and W. W. Weiss. 1997. Implementation of a Virtual Enterprise for Reservoir-Management Applications. SPE Paper 38868, SPE Annual Technical Conference and Exhibition San Antonio, Texas, October 6–8.

Presentations

Basham, Bill. 1996. Brushy Canyon Reservoir Field Trip, AAPG Southwest Section Annual Meeting, El Paso, Texas, March 8–10.

Stubbs, Bruce. 1996. Advanced Oil Recovery Technologies for Improved Recovery from Slope Basin Clastic Reservoirs, Nash Draw Brushy County Canyon Field, Eddy County, New Mexico. Poster session, DOE/BDM Class II Workshop; Improving Production from Shallow Shelf Carbonate Reservoirs, Midland, Texas, May 15–16.

Stubbs, Bruce. 1996. Integration of Advanced Reservoir Characterization Technologies. PTTC Workshop, Roswell, New Mexico, August 23–24.

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Uszynski, Bruce. 1997. Advanced Reservoir Characterization for Improved Recovery in New Mexico's Delaware Basin. Poster session, AAPG Annual Convention, Dallas, Texas, April 7–9.

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Stubbs, Bruce. 1997. Advanced Log Analysis for Delaware Reservoirs. Advanced Application of Wireline Logging for Improved Oil Recovery Workshop, Midland, Texas, November 13.

University of Utah

Reactivation of an Idle Lease to Increase Heavy Oil Recovery through Application of Conventional Steam Drive Technology

Contract Number: DE-FC22-95BC14937

Publications

Schamel, Stephen. 1996. Midway-Sunset—Full Steam Ahead! *Petroleum News*, Utah Geological Survey, May.

1996. ARCO Steaming, Drilling Ahead in California's Kern County. *Improved Recovery Week*, June 24.

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Schamel, S. 1996. Integrated, Multidisciplinary Reservoir Characterization, Modeling and Engineering Leading to Enhanced Oil Recovery from the Midway-Sunset Field, California. Poster Session, AAPG Annual Convention, San Diego, California, May 19–22.

Steven Schamel, Creties Jenkins, Doug Sprinkel, Craig Foster, Milind Deo, and Bob Swain. 1996. Technical Results of the Design Phase of the Midway-Sunset Oil Technology Demonstration Project. University of Utah Public Workshop. Bakersfield, California, December 5.

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Schamel, S., C. Foster, M. Deo, R. Swain, M. Simmons, D. Sprinkel, C. Jenkins, and R. Wydrinski. 1997. Enhanced Oil Recovery in the Midway-Sunset Field, San Joaquin Basin, California: A DOE Class III Oil Technology Demonstration Project. Poster session, AAPG Annual Convention, Dallas, Texas, April 6–9.

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Advanced Class Work

Diversified Operating Company

Polymer Treatments for "D" Sand Water Injection Wells

Contact Number: G4S60323

Publications

Sippel, Mark. 1996. *Polymer Treatments for "D" Sand Water Injection Wells; Quarterly Report.* March.

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Kansas Geological Survey

Development and Demonstration of an Enhanced, Integrated Spreadsheet-Based Well Log Analysis Software

Contract Number: G4S60821

Publications

Bohling, G. C., J. H. Doveton, and W. L. Watney. 1996. Systematic Identification of Sequence Stratigraphic Units from Wireline Logs. Pacht, J. A., R. E. Sheriff, and B. F. Perkins (eds.) *Stratigraphic Analysis—Utilizing Advanced Geophysical, Wireline and Borehole Technology for Petroleum Exploration and Production.* Gulf Coast Section Society of Economic Paleontologists and Mineralogist Foundation, 17th Annual Research Conference, Houston, Texas, p. 29–37.

Young, D., J. Grauer, and D. Whittemore, 1997. Upper Arkansas River Corridor Study: Progress on Lithologic Characterization of Unconsolidated Deposits in the Study Area with Emphasis on Kearny and Finney Counties. Kansas Geological Survey Open-File Report 97–43 (application of PfEFFER), p. 20

Watney, W. L., J. Kruger, J. C. Davis, J. Harff, R. A. Olea, and G. C. Bohling. In Review. Validation and Testing of Regional Sediment Accumulation Regions for Pennsylvanian Genetic Stratigraphic Units in Kansas, U.S.A. Computer Basin Analysis (Exploration application of PfEFFER), Springer-Verlag.

Bohling, G., J. Doveton, B. Guy, and L. Watney. 1997. PfEFFER 1.1 Manual.

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Doveton, John H., W. J. Guy, and W. L. Watney. 1997. The Integration of Pore Measurements into Log Analysis Pattern Recognition Procedures: Methods and Examples. AAPG Annual Convention, Dallas, Texas, April 6–9.

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Doveton, J. 1997. PfEFFER Demonstration. Phillips Petroleum Company Workshop, April.

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Doveton, J. 1997. Technical Presentation. Wyoming Geological Society, December.

Russell Petroleum

Optimizing the Air Flotation Water Treatment Process

Contract Number: G4S50904

Publications

Michnick, M. J. 1995. Air Bubbles Clean Produced Water for Reinjection. Proceedings of the Eleventh Oil Recovery Conference, Contribution No. 13, Wichita, Kansas, March 14–15.

Barnett, G. B. 1995. Engineering Aspects of the Savonburg Class I Project. Proceedings of the Eleventh Oil Recovery Conference, Contribution No. 13, Wichita, Kansas, March 14–15.

1996. Savonburg Project. *PTTC-North MidContinent News*, 1st Quarter, 1996.

Schoeling, L. G., G. B. Barnett, M. J. Michnick, A. W. Walton, D. W. Green, and G. P. Willhite. 1996. Development of an Improved Waterflood Optimization Program in the Northeast Savonburg Waterflood. SPE/DOE Tenth Symposium on Improved Oil Recovery, Tulsa, Oklahoma, April 21–24.

Grabhorn, Merle. 1996. Innovation Saves Money for Russell Petroleum. *The Class Act* (newletter), Spring 1996.

1996. Purifying System Works to Keep State's Oil Industry Alive. *Chanute Tribune*, May 4.

Michnick, M. J. 1997. Problems in the Use of Air Flotation for Cleaning Produced Water. Proceedings of the Twelfth Oil Recovery Conference, Wichita, Kansas, March 19–20.

Barnett, G. B. 1997. Savonburg Project Progress Report. Proceedings of the Twelfth Oil Recovery Conference, Wichita, Kansas, March 19–20.

DOE Publications from the Class Program

The following DOE publications on the Class Projects are available from the U.S. Department of Energy's National Petroleum Technology Office free of charge. Contact Viola Rawn-Schatzinger (see Contact List, page iv)

Project Operator	Project Number	Code	Location	Report Type
Class I				
Amoco	BC14963–10	96001225	W. Hackberry F. LA	1994/5 Annual
Amoco	BC14963–16	96001287	W. Hackberry F. LA	1995/6 Annual
Diversified Operating	BC14954–5	95000170	Sooner U. CO	1993 Annual
Diversified Operating	BC14954–14	96001265	Sooner U. CO	Final
Hughes Eastern	BC14962–7	95000177	N. Blowhorn F. AL	1994 Annual
Hughes Eastern	BC14962–10	96001218	N. Blowhorn F. AL	1995 Annual
Hughes Eastern	BC14962–16	97008691	N. Blowhorn F. AL	1996 Annual
Lomax Exploration	BC14958–8	95000113	Green River Fm. UT	1994 Annual
Lomax Exploration	BC14958–11	95000182	Green River Fm. UT	1995 Annual
Lomax Exploration	BC14958–15	96001264	Green River Fm. UT	Final
Texaco E & P	BC14960–8	95000173	Port Nueces F. TX	1994 Annual
University of Kansas	BC14957–7	95000161	Stewart/Savonburg KS	1993/4 Annual
University of Kansas	BC14957–14	96001242	Stewart/Savonburg KS	1994/5 Annual
University of Kansas	BC14957–16	96001261	Stewart/Savonburg KS	1995/6 Annual
University of Texas BEG	BC14959–13	95000160	Vicksburg Fault Z. TX	1994 Annual
University of Texas BEG	BC14959–15	95000190	Vicksburg Fault Z. TX	Topical
University of Texas BEG	BC14959–17	96001211	Vicksburg Fault Z. TX	19945 Annual
University of Texas BEG	BC14959–21	96001255	Vicksburg Fault Z. TX	Final
University of Tulsa	BC14951–5	94000137	Glenn Pool F. OK	1993/4 Annual
University of Tulsa	BC14951–10	95000146	Glenn Pool F. OK	1994/5 Annual
University of Tulsa	BC14951–16	96001236	Glenn Pool F. OK	1995/6 Annual
University of Tulsa	BC14951–19	97007190	Glenn Pool F. OK	1996/7 Annual
Utah Geological Survey	BC14953–10	95000171	Bluebell F. UT	1994 Annual
Utah Geological Survey	BC14953–14	96001227	Bluebell F. UT	1995 Annual
Utah Geological Survey	BC14953–19	96001297	Bluebell F. UT	1996 Annual

Project Operator	Project Number	Code	Location	Report Type
Class II				
Fina Oil & Chemical	BC14989–10	96001262	North Robinson F. TX	1994/5 Annual
Fina Oil & Chemical	BC14989–11	96001263	North Robinson F. TX	1995/6 Annual
Fina Oil & Chemical	BC14989–14	96001271	North Robinson F. TX	Topical
Laguna Petroleum	BC14982–12	98000462		1996/97 Annual
Luff Exploration	BC14984–5	95000186	Williston Basin MT, ND	1994 Annual
Luff Exploration	BC14984–10	96001254	Williston Basin MT, ND	1995 Annual
Luff Exploration	BC14984– on hold		Williston Basin MT, ND	Topical
Michigan Tech. Univ.	BC14983–5	95000181	Crystal F. MI	1994/5 Annual
Michigan Tech. Univ.	BC14983–9	96001240	Crystal F. MI	1995/6 Annual
Michigan Tech. Univ.	BC14983– in press		Crystal F. MI	1996/7 Annual
Oxy, USA	BC14990– in press		W. Welch F. TX	Budget Period 1
Phillips	BC14991–7	96001234	S. Cowden F. TX	1994/5 Annual
Phillips	BC14991–11	96001283	S. Cowden F. TX	1995/6 Annual
Phillips	BC14991–13	96000461	S. Cowden F. TX	1996/97 Annual
Texaco E & P	BC14986–3	95000142	Central Vacuum F. NM	1994 Annual
Texaco E & P	BC14986–11	96001252	Central Vacuum F. NM	1995 Annual
University of Kansas	BC14987–5	96001245	Schaben F. KS	1995 Annual
University of Kansas	BC14987–10	97008689	Schaben F. KS	1996 Annual
Utah Geological Survey	BC14988–8	96001268	Paradox Basin UT	1995/6 Annual
Utah Geological Survey	BC14988–9	9601301	Paradox Basin UT	1996/7 Annual

Project Operator	Project Number	Code	Location	Report Type
Class III				
ARCO	BC14940–5	96001285	Yowlumne F. CA	1995/6 Annual
Chevron	BC14938–in press		Buena Vista Hills F. CA	1996 Annual
City of Long Beach-Water	BC14934–7	96001299	Wilmington F. CA	1995/6 Annual
City of Long Beach-Steam	BC14939–8	97008690	Wilmington F. CA	1995 Annual
Pacific Operators Offshore	BC14935–in press		Carpinteria F. CA	1996 Annual
Parker & Parsley	BC14942–4		Spraberry Trend TX	1996 Annual
Strata	BC14941–6	97008428	Nash Draw F. NM	1996 Annual
University of Texas BEG	BC14936–5	96001244	Delaware Basin TX	1995 Annual
University of Texas BEG	BC14936–9	98000456	Delaware Basin TX	1996 Annual