Marcia McMillan

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EDUCATION

PhD. Petroleum in Petroleum Engineering Aug 2016 - May 2021
New Mexico Institute of Mining and Technology, Socorro, NM, USA Current GPA: 3.96/4.00
Dissertation: Development of Time Lapse VSP Integration Workflow: A Case Study at Farnsworth CO_2-EOR Project

M.Sc. in Petroleum Engineering 2011
Texas A&M University, College Station, Texas, USA GPA 3.90/4.00
Thesis: Determining Reserves in Low Permeability and Layered Reservoirs: Is Minimum Terminal Decline Rate Method Applicable?

BSc. Petroleum & Natural Gas Engineering 2003
BSc. Chemical Engineering 2003
Pennsylvania State University, State College, Pennsylvania, USA GPA: 3.36/4.00

PROFESSIONAL EXPERIENCE

Graduate Research Associate
Reservoir Evaluation and Advanced Computational Technologies ***Aug 2018 - Present***
New Mexico Institute of Mining and Technology/ Petroleum Recovery Research Center, Socorro, NM

- Coupled hydromechanical modeling for Farnsworth Field Unit FWU active CO_2-WAG. The goal is to enhance the understanding of operation induced stress changes in the FWU. Evaluations include the impacts of cycles of production and injection on induced effective stresses changes, permeability alteration, and storage security (caprock integrity and fault reactivation potential). Thesis focus is on the development of a machine learning assisted workflow which achieves Time Lapse VSP Integration for the prediction of subsurface stress changes.

Graduate Teaching Associate
Petroleum Engineering Department Aug 2016 - May 2018
New Mexico Institute of Mining and Technology, Socorro, NM

- Worked as teaching assistant and/or laboratory instructor for Formation Evaluation (PETR 360L), Production Engineering (PETR 424) and Petroleum Fluids Lab (PETR 245L). Work included class instruction, office hours and grading.

Senior Reservoir Engineer, Barnett Development, ConocoPhillips, Houston, TX 2013 - 2015
Worked with a multidisciplinary team to maintain a slate of economic wells for Barnett drilling.
Maintained team in a state of readiness in the event of capital availability.

- Collaborated with multidisciplinary GGRE team to construct an integrated approach to reviewing horizontal well performance. Petrophysical, geosteering and geophysical reviews allowed correlations between performance and reservoir properties. Also, identified communication, frac impact, loading and early tubing failures as key issues.
- Led the FEL-2 review for future Barnett wells. This included assessment of previous drills: production performance, well design and well costs.

- Maintained and high-graded the Barnett inventory. Provided rig lines based on obligation dates and economics through collaboration with multidisciplinary technical team and land. Led the planning for 1.5 years of drilling inventory ahead of intended rig ramp-up in Feb 2015. Provided economic evaluation of (held and prospective) acreage holdings with key obligation dates in light of falling commodity prices. (2015).
- Provided simulation support for the justification of a Barnett seismic merge. Variations in reservoir anisotropy impact fracture half-length and well to well spacing.
- Generated AFE rates and forecasts for new wells. Generated PAO and PAR cases for annual Economic Post Audit Review (2013, 2014).

Reservoir Engineer, Barnett Development Team, ConocoPhillips, Midland Texas 2011-2013

Work with multi-disciplinary team to maintain active drilling rig with no standby time.

- Performed reservoir simulation and history matching of Barnett wells to help understand effective fracture half lengths and well spacing. Worked with company PVT expert to develop fluid model for North Barnett well. Utilized EOS to history match production data and track sharply declining yield.
- Driving force behind the Barnett Rig program. Led multi-disciplinary team through the well selection, planning and execution of 21 wells.
- Monitored well performance and updated management on a monthly basis regarding costs and performance of newly drilled wells.
- Refined Barnett Asset Type curves for implementation in annual budgeting process. Revised boundaries based in part on the initial producing yield. Generated probabilistic rate profiles and associated economics for each region.

COMPUTER APPLICATIONS

Petrel (Geomechanics, Reservoir Engineering, Geology), Mathlab, PEEP, Digital Formation (LESA), OFM, ArcGIS, PVTi, PVTsim, SNAP and VBA programing.

HONORS AND VOLUNTEER WORK (RECENT)

- Chevron Scholarship Fall 2019, New Mexico Tech
- TAME (Texas Alliance for Minorities in Engineering) mentor, Fall 2018 and 2019

SELECTED PUBLICATIONS

1. **McMillan, Marcia**, Robert Will, William Ampomah, Robert Balch, and Paige Czoski. "Coupled Geomechanical Modeling to Assess Cap Rock Integrity and Mechanical Fault Stability: Application to Farnsworth Field Unit Project." In *SPE Western Regional Meeting*. Society of Petroleum Engineers, 2019.

2. **McMillan, Marcia**, Robert Will, William Ampomah, Robert Balch, and Paige Czoski. "Coupled Hydrodynamic-Geomechanical Modelling of CO_2-WAG Field Development at Farnsworth Unit: A Case Study." In SPE Europec featured at 81st EAGE Conference and Exhibition. Society of Petroleum Engineers, 2019.