William Ampomah
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EDUCATION

PhD. Petroleum Engineering
New Mexico Institute of Mining and Technology, Socorro, NM, USA
Graduation Date: January 2013 - May, 2016
GPA: 4.0/4.0
Dissertation: Reservoir Characterization and Optimization of CO_2-EOR Processes in Partially Depleted Oil Reservoirs

M.S. Petroleum Engineering
New Mexico Institute of Mining and Technology, Socorro, NM, USA
Graduation Date: August 2011 - December, 2012
GPA: 4.0/4.0
Master's Thesis: Uncertainty Analysis of Reservoir Fluid Effects on Seismic Properties

B.S. Petroleum Engineering
Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
Graduation Date: October 2005 - June, 2009
First Class Honors
Project: Optimization of Oil Separation from Gas Condensate Reservoirs

PROFESSIONAL EXPERIENCE

Research Engineer/Section Head
Reservoir Evaluation and Advanced Computational Technologies (REACT)
Petroleum Recovery Research Center, New
Mexico Tech July, 2018 – Present

- Directs research as head of the Reservoir Evaluation and Advanced Computational Technologies (REACT) Group. Administers research projects and supervises staff and student members of the research group. Conducts research in areas of reservoir uncertainty quantification and Optimization, reservoir characterization, CO_2 Sequestration, numerical modeling, fluid flow in porous media, reservoir geomechanics, unconventional resources, enhanced oil recovery, residual oil zone, water flooding and petroleum production.

Adjunct Faculty
Petroleum Engineering Department, New Mexico Tech
August, 2017 – Present
- Responsible for offering courses in addition to supervising graduate and undergraduates students from Petroleum Engineering Department at New Mexico Tech.

LUCID
Exhibit 5

Lecturer
Kwame Nkrumah University of Science and Technology, Kumasi, Ghana Petroleum Engineering Department
October, 2018 – Present
- Offering undergraduate courses in Petroleum Engineering and supervising student's projects.

Research Engineer
 Reservoir Evaluation and Advanced Computational Technologies (REACT)
 Petroleum Recovery Research Center, New Mexico Tech
 April, 2018 – July, 2018
- Conducting research in areas of CO_2 Sequestration reservoir characterization, reservoir uncertainty quantification and Optimization; numerical modeling; fluid flow in porous media; reservoir geomechanics; unconventional resources; enhanced oil recovery; residual oil zone; water flooding; petroleum production as part of the Reservoir Evaluation and Advanced Computational Technologies (REACT-PRRC).

Lecturer
Department of Petroleum Engineering, New Mexico Tech
January 2017 - May 2017
- Offering Reservoir Geomechanics course to graduate students. This course incorporated interdisciplinary aspects from field of rock mechanics, structural geology, and petroleum engineering principles to address geomechanical problems which arises during exploitation of oil and gas reservoirs.

Research Associate
Petroleum Recovery Research Center, New Mexico Tech
May, 2016- April 2018
Conduct research as part of Reservoir Evaluation and Advanced Computational Technologies (REACT- PRRC). Work entails reservoir simulation, history matching, optimization of WAG injection schedules and other aspects of enhanced oil recovery for the Southwest Partnership project (SWP). Conduct research in CO_2 storage optimization in active CO_2 capture and storage projects. Conducting research on performance of using radial jet drilling technology to improve oil recovery in support of Viper Drill Technology development.

Graduate Research Assistant
Petroleum Recovery Research Center, New Mexico Tech
January, 2013- May, 2016
- Work in the Reservoir Evaluation and Advanced Computational Technologies (REACT) Group. Work involved construction of static and upscaled models for the Southwest Regional Partnership for CO_2 Sequestration (SWP) project. Work in a team to build reservoir fluid models for compositional CO_2- EOR simulation for SWP simulation working group. Responsible for constructing history match and numerical optimization models for FWU project.

Instructor
Department of Petroleum Engineering, New Mexico
Tech Spring, 2015 [January 2015 - May 2015]
- Instructor for Formation Evaluation (PET 370) course. Instructed students on the basics of well logging interpretations and its applications.

Teaching Lab Assistant,
Department of Chemistry, New Mexico Tech Fall 2012
[August 2012- December 2012]
- Instructor for General Chemistry I lab

Instructor - Effiduase Senior High School
Department of General Science
August 2010- August 2011
- Instructor for Chemistry

Teaching Assistant (National Service)
Department of Petroleum Engineering
Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
July, 2009- August, 2010
- Instructed students on various Petroleum Engineering courses including Formation Evaluation and Well Logging. Assisted undergraduates in final year senior projects. Instructed undergraduate Petroleum and Chemical Engineering Students Aspen Hysis software. Teaching assistance for course such as Reservoir Methods, Geostatistics, Well Performance, Production Engineering, Reservoir Simulation, Petroleum Project Evaluation, Petroleum Engineering Calculations, Gas Engineering.

Research Fellow
Duquesne University, Pittsburgh, PA,
USA June, 2010 – July, 2010
- Worked with team of experts to analyze environmental impacts from coal production and Marcellus shale gas using Modules. The team recommended several ways to minimize environmental impact and how lessons learned can be applied to Ghana Oil and gas industry.

Trainee Engineer (*Internship*)
Ghana National Petroleum Corporation, Accra,
Ghana June 1, 2007 - July 31, 2007
- Worked under team of experts as an intern at the National Oil Company. Was introduced to the various operations within the oil and gas industry. Worked on a team project on how to improve oil recovery from mature oil field in Ghana.

COMPUTER APPLICATIONS
- Schlumberger packages (Petrel Reservoir engineering, Petrel geology, PVTi, Eclipse, Production Interpretation, geomechanics, shale resources) Computer Modeling Group (CMG) packages (GEM, IMEX, WINPROP and CMOST), Roxar Software packages (Tempest and RMS), STOMP-EOR, PFLOTRAN, Petroleum Expert IPM packages, Matlab, FORTRAN, Digital Formation (LESA), PVTsim, Fracpro, Aspen (Hysis), Ecrin, Microsoft office.

HONORS AND OFFICES HELD
- SPE Roswell Section Program Chair (August 2016- Present)

Chapter Financial Officer, Golden Key Honors Society (2013-2015), New Mexico Tech
- SPE Regional Student Paper Contest at U of Tulsa (April, 2014) – 3rd Place- PhD Category
- SPE Student Paper Contest, Roswell Section (2013) – 1st Place- PhD Category
- SPE Dallas Award Winner (2013)
- Electoral Committee Member, Petroleum Students Association, KNUST, Ghana (2008)

TRAINING

- Research Experience in Carbon Sequestration by Department of Energy -July 22-29, Birmingham, AL
- Tempest simulation tool and RMS Training by Roxar, Houston, TX 20-21 July, 2017
- SPE Continuing Education course "Dynamic Paraffin Deposition Cell: A novel test method to screen paraffin chemistries under multiphase conditions" (May 25, 2017)
- NSC Defensive Driving Course 9th Edition (May 4, 2017)
- SPE Continuing Education course "Shale selection, Completions, Fracturing and Production " (30-31 March, 2017) by George E. King, PE
- SPE Continuing Education course "The Grand Challenges of Carbon Capture and Sequestration (March 2, 2017)
- SPE Continuing Education course "Drilling Optimization, Risk and Uncertainty Reduction, and Future Workforce Education Using Big Data Analysis" (Feb. 22, 2017)
- Fracture studies LLC short course on interpreting fractures in core (Jun 2016) by Scott Cooper
- Petroleum Geology for Engineers by AAPG (May, 2016) Instructed by Dr. David Lazor
- Reservoir Geomechanics course (Spring 2016) Instructed by Prof. Mark D. Zoback, Stanford University
- SPE Continuing Education course "The Data Journey in the E&P Industry" (Feb. 23, 2016)
- SPE Continuing Education course "Data-Driven (Fact-Based) Reservoir Modeling of Mature Assets" (Feb. 23, 2016)
- SPE Continuing Education course "Smart Proxy Modeling for Numerical Reservoir Simulations – Big Data Analytics in E&P" (Feb. 23, 2016)
- Petrel Reservoir Engineering Schlumberger NEXT Training, April 2014
- STOMP EOR Short course (June, 2013) organized by Dr. Mark White, PNNL

PROFESSIONAL MEMBERSHIPS

- Society of Petroleum Engineers
- American Institute of Chemical Engineers
- American Chemical Society
- Golden Key Honors Society
- American Geophysical Union

PEER REVIEW AND JUDGING ASSIGNMENTS

1. Scientific Reports – **9** reviews conducted
2. Geomechanics and Geophysics for Geo-Energy and Geo-Resources – **4** reviews conducted

3. Fuels – **20** reviews conducted
4. Greenhouse gas: science and technology – **2** reviews conducted
5. Journal of CO_2 Utilization- **18** reviews conducted
6. Journal of Petroleum Science & Engineering – **20** reviews conducted
7. Journal of Cleaner Production – **4** review conducted
8. Energy & Fuels **– 3** review conducted
9. International Journal of Greenhouse Gas Control **– 6** review conducted
10. International Journal of Multiphase flow - **1** review conducted
11. Journal of Industrial and Engineering Chemistry – **1** review conducted
12. Journal of Petroleum and Gas Engineering – **2** review conducted
13. Croatian Science Foundation (Proposal review panel)
14. 2016 International Conference on Energy Engineering and Environmental Protection – **1** review conducted
15. New Mexico State Science Fair – Judged **3** years in a row
16. SPE Roswell Section Student Paper Contest 2018 – Judged BS, MS and PhD divisions
17. SPE International Student paper contest 2017 – Judged PhD division
18. SPE Regional Student paper contest 2017 – Judged MS and PhD division
19. SPE Regional PetroBowl competition 2017 – Judge
20. SPE Roswell Section Student Paper Contest 2016 – Judged BS, MS and PhD divisions

CURRENT PROJECTS

1. **CarbonSAFE Phase III Project:**

"San Juan Basin CarbonSAFE Phase III: Ensuring Safe Subsurface Storage of CO2 in Saline Reservoirs" is a new member of the CarbonSAFE Department of Energy program. This project seeks to perform a comprehensive site characterization of a storage complex within the San Juan Basin, New Mexico. The major participants of the project include: New Mexico Tech, University of Utah, University of New Mexico, University of Wyoming, Los Alamos National Laboratory, Sandia National Laboratories and Enchant Energy LLC. I am the Principal Investigator of the project. My primary duty is the administration of the project and a lead in numerical modeling. The project has a total of 17.4 Million DOE funds and 4.4 Million in cost share. This project performance period is October 2020 to September 2023.

2. **Southwest Regional Partnership for CO2 Sequestration:**

The SWP was developed as a part of the U.S. Department of Energy's effort to respond to global climate change. The SWP has been challenged to evaluate available technologies that capture and store CO_2 in the southwest region. The SWP includes portions of: Arizona, Colorado, Kansas, Nevada, New Mexico, Oklahoma, Texas, Utah and Wyoming. The SWP's Phase III Project is focused on a commercial scale demonstration of CO_2 injection at Farnsworth field in North Texas. The project has $67 million in DOE funds and Phase III began in 2013 and will last for ten years. Co-Principal Investigators include Dr. Robert Balch and Dr. Brian McPherson. Co- Lead in Simulation working group. Primary duties are to report project progress on simulation to PI's. Other responsibilities include conducting reservoir simulation models such as history matching and numerical optimization processes of active CO_2 –EOR field.

3. **Stress State Project**

"Improving Subsurface Stress Characterization for Carbon Dioxide Storage Projects by Incorporating Machine Learning Techniques" is part of Department of Energy sponsored projects on Geomechanics. This project seeks to develop a framework to boost the reliability of characterization and prediction of the state of stress in the overburden and underburden in CO2 storage reservoirs using novel machine learning and integrated geomechanics and geophysical methods. The project partners with SWP to utilize data from the Farnsworth Field Unit, Ochitree County, Texas. The major participants of the project include: New Mexico Tech, Los Alamos National Laboratory and Sandia National Laboratories. The project has a total of 1.85 Million funds. I am the Principal Investigator of the project and responsible for the overall administration of project. I am also the lead of numerical simulation and optimization aspect of the project. This project performance period is October 2018 to September 2021.

COMPLETED PROJECTS

4. **Subter Project:**

"Advancing the integration of Geophysical and Reservoir Simulation tools to Monitor CO_2 movement and storage permanence" is a Subter project sponsored by Department of Energy. It is collaboration between New Mexico Tech, University of Utah and Colorado School of Mines. This project has a total of $1 million in DOE funds began in 2016 and ends in 2019. Dr. Yaoguo Li is the Principal Investigator from CSM. Primary duties include revisiting history matching efforts on the subject field with electrical conductivity constraints. Traditional reservoir field data together with geophysical models would be utilized in history matching efforts.

5. **Viper Drill Project:**

This project entails the use of advanced simulation tools to conduct performance analysis on radial jet drilling tools developed by Viper Drill. This project has a minimum of $20,000 funds from Viper Drill and began in 2016. Primary duties include construction of numerical reservoir models to optimize radial jet drilling technology to improve oil and gas recovery process.

PAPERS AND PUBLICATIONS

1. Sun, Q., **Ampomah, W**., Kutsienyo, E. J., Appold, M., Adu-Gyamfi, B., Dai, Z., & Soltanian, M. R. (2020). Assessment of CO_2 trapping mechanisms in partially depleted oil-bearing sands. *Fuel*, *278*, 118356.
2. Balch, R., Will, R., **Ampomah, W.** and Hobbs, N., 2020, December. Improvements in Geologic Modeling Workflows Based on Six Years of Incremental Models at Farnsworth CCUS/EOR Site. In *82nd EAGE Annual Conference & Exhibition* (Vol. 2020, No. 1, pp. 1-5). European Association of Geoscientists & Engineers.
3. Dai, Z., Xu, L., Xiao, T., McPherson, B., Zhang, X., Zheng, L., ... & **Ampomah, W.** (2020). Reactive chemical transport simulations of geologic carbon sequestration: Methods and applications. *Earth-Science Reviews*, 103265.
4. You, J., **Ampomah, W**., Sun, Q., Kutsienyo, E.J., Balch, R.S., Dai, Z., Cather, M. and Zhang, X., 2020. Machine learning based co-optimization of carbon dioxide sequestration and oil recovery in CO2-EOR project. *Journal of Cleaner Production*, p.120866.
5. You, J., **Ampomah, W**., & Sun, Q. (2020). Development and application of a machine learning based multi-objective optimization workflow for CO2-EOR projects. *Fuel*, 264, 116758.
6. You, J., **Ampomah, W.,** Sun, Q., Kutsienyo, E.J., Balch, R.S. and Cather, M., 2019, September. Multi-Objective Optimization of CO 2 Enhanced Oil Recovery Projects Using a Hybrid Artificial Intelligence Approach. In *SPE Annual Technical Conference and Exhibition*. Society of Petroleum Engineers.
7. Kumar, A., Bear, A., Hu, H., Hammack, R., Harbert, W., **Ampomah, W**., Balch, R., Garcia, L., Nolte, A. and Tsoflias, G., 2019, August. Seismic monitoring of CO2-EOR operations in the Texas Panhandle and southern Kansas using surface seismometers. In *SEG International Exposition and Annual Meeting*. Society of Exploration Geophysicists.
8. Kutsienyo, E.J., **Ampomah, W**., Sun, Q., Balch, R.S., You, J., Aggrey, W.N. and Cather, M., 2019, June. Evaluation of CO-EOR Performance and Storage Mechanisms in an Active Partially Depleted Oil Reservoir. In SPE Europec featured at 81st EAGE Conference and Exhibition. Society of Petroleum Engineers.
9. You, J., **Ampomah, W**., Kutsienyo, E.J., Sun, Q., Balch, R.S., Aggrey, W.N. and Cather, M., 2019, June. Assessment of Enhanced Oil Recovery and CO Storage Capacity Using Machine Learning and Optimization Framework. In SPE Europec featured at 81st EAGE Conference and Exhibition. Society of Petroleum Engineers.
10. McMillan, M., Will, R., **Ampomah, W**., Balch, R. and Czoski, P., 2019, June. Coupled Hydrodynamic-Geomechanical Modelling of CO2-WAG Field Development at Farnsworth Unit: A Case Study. In SPE Europec featured at 81st EAGE Conference and Exhibition. Society of Petroleum Engineers.
11. Soltanian, M.R., Hajirezaie, S., Hosseini, S.A., Dashtian, H., Amooie, M.A., Meyal, A., Ershadnia, R., **Ampomah, W**., Islam, A. and Zhang, X., 2019. Multicomponent reactive transport of carbon dioxide in fluvial heterogeneous aquifers. Journal of Natural Gas Science and Engineering, 65, pp.212-223.
12. McMillan, M., Will, R., **Ampomah, W**., Balch, R. and Czoski, P., 2019, April. 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.

13. Moodie, N., **Ampomah, W**., Jia, W., Heath, J. and McPherson, B., 2019. Assignment and calibration of relative permeability by hydrostratigraphic units for multiphase flow analysis, case study: CO2-EOR operations at the Farnsworth Unit, Texas. International Journal of Greenhouse Gas Control, 81, pp.103-114.

14. Rasmussen, L., Fan, T., Rinehart, A., Luhmann, A., **Ampomah, W**., Dewers, T., Heath, J., Cather, M. and Grigg, R., 2019. Carbon Storage and Enhanced Oil Recovery in Pennsylvanian Morrow Formation Clastic Reservoirs: Controls on Oil–Brine and Oil–CO2 Relative Permeability from Diagenetic Heterogeneity and Evolving Wettability. Energies, 12(19), p.3663.

15. Dai, Z., Zhang, Y., Bielicki, J., Amooie, M.A., Zhang, M., Yang, C., Zou, Y., **Ampomah, W.,** Xiao, T., Jia, W. and Middleton, R., 2018. Heterogeneity-assisted carbon dioxide storage in marine sediments. Applied Energy, 225, pp.876-883.

16. Kumar, A., Chao, K., Hammack, R., Harbert, W., **Ampomah, W**., Balch, R., & Garcia, L. (2018). Surface-seismic monitoring of an active CO2-EOR operation in the Texas Panhandle using broadband seismometers. In SEG Technical Program Expanded Abstracts 2018 (pp. 3027-3031). Society of Exploration Geophysicists.

17. El-kaseeh, G., Czoski, P., Will, R., Balch, R., **Ampomah, W**., & Li, X. (2018). Time-lapse vertical seismic profile for CO2 monitoring in carbon capture, utilization, and sequestration/EOR, Farnsworth project. In SEG Technical Program Expanded Abstracts 2018 (pp. 5377-5381). Society of Exploration Geophysicists.

18. **Ampomah, W**., Balch, R. S., Cather, M., Will, R., Gunda, D., Dai, Z., & Soltanian, M. R. (2017). Optimum design of CO_2 storage and oil recovery under geological uncertainty. *Applied Energy*, *195*, 80-92.

19. **Ampomah, W**., Balch, R., Grigg, R. B., Cather, M., Gragg, E., Will, R. A., ... & Dai, Z. (2017). Performance assessment of CO_2-enhanced oil recovery and storage in the Morrow reservoir. *Geomechanics and Geophysics for Geo-Energy and Geo-Resources,* 1-19.

20. Kumar, A., Zorn, E., Hammack, R., Harbert, W., **Ampomah, W**., Balch, R., & Garcia, L. (2017). Passive seismic monitoring of an active CO_2-EOR operation in Farnsworth, Texas. In *SEG Technical Program Expanded Abstracts 2017* (pp. 2851-2855). Society of Exploration Geophysicists.

21. Ampomah, W., Balch, R. S., Cather, M., Rose-Coss, D., & Gragg, E. (2017). Numerical Simulation of CO_2-EOR and Storage Potential in the Morrow Formation, Ochiltree County, Texas. **SPE- 185086** presented in SPE Oklahoma City Oil and Gas Symposium. 27–31 March, Oklahoma City, Oklahoma, USA.

22. **Ampomah W**., R.S. Balch, R. Will, M. Cather, D. Gunda, Z. Dai (2017). "Co-optimization of CO_2-EOR and Storage Processes under Geological Uncertainty" *Energy Procedia*, 114, 6928-6941. https://doi.org/10.1016/j.egypro.2017.03.1835

23. M.D. White, R.P. Esser, B.P. McPherson, R.S. Balch, N. Liu, P.E. Rose, L. Garcia, and **W. Ampomah** (2016). "Interpretation of Tracer Experiments on Inverted Five-Spot Well- Patterns within the Western Half of the Farnsworth Unit Oil Field" *Energy Procedia*, 114, 7070-7095. https://doi.org/10.1016/j.egypro.2017.03.1849

24. Zhenxue Dai, Hari Viswanathan, Ting Xiao, Richard Middleton, Feng Pan, **William Ampomah**, et.al. (2016). "CO_2 Sequestration and Enhanced Oil Recovery at Depleted

Oil/Gas Reservoirs. *Energy Procedia*, 114, 6957-6967. https://doi.org/10.1016/j.egypro.2017.08.034

25. Zhenxue Dai, Ye Zhang, Philip Staffer, Ting Xiao, Minkan Zhang, **William Ampomah**, et al. (2016). "Injectivity Evaluation for Offshore CO_2 Sequestration in Marine Sediments" *Energy Procedia*, 114, 2921-2932. https://doi.org/10.1016/j.egypro.2017.03.1420

26. **Ampomah, W**., Balch, R., Cather, M., Rose-Coss, D., Dai, Z., Heath, J., Dewers, T. and Mozley, P., 2016. Evaluation of CO2 storage mechanisms in CO_2 enhanced oil recovery sites: application to morrow sandstone reservoir. *Energy & Fuels*, 30(10), pp.8545-8555.

27. **Ampomah, W.,** Balch, R. S., Grigg, R. B., McPherson, B., Will, R. A., Lee, S.-Y., Dai, Z. and Pan, F. (2016), Co-optimization of CO2-EOR and storage processes in mature oil reservoirs. *Greenhouse Gas Sci Technol.* doi: http://dx.doi.org/10.1002/ghg.1618

28. **Ampomah, W**., Balch, R. S., Grigg, R. B., Will, R., Gunda D. (2016): "Performance of CO2-EOR and Storage Processes under Uncertainty: Case Study" paper **SPE-180084-MS** presented at SPE EUROPEC at 78th EAGE Conference held in Vienna, Austria, May 30-June 2 2016. DOI: http://dx.doi.org/10.2118/180084-MS

29. **Ampomah, W**., Balch, R. S., Grigg, R. B., Will, R., Lee, S.Y. (2016): "Optimization of CO2-EOR Process in Partially Depleted Oil Reservoirs" paper **SPE-180376-MS** presented at SPE Western Regional Meeting held in Anchorage, Alaska, May 23-26. DOI: http://dx.doi.org/10.2118/180376-MS

30. **Ampomah, W**., Balch, R. S., Chen, H.Y., Gunda, D. and Cather, M. (2016): "Probabilistic Reserve Assessment and Evaluation of Sandstone Reservoir in the Anadarko Basin" paper SPE**-179953-MS** presented at SPE/IAEE Hydrocarbon Economics and Evaluation Symposium held in Houston-Texas USA, May 17-18, 2016. DOI: http://dx.doi.org/10.2118/179953-MS

31. **Ampomah, W**., Balch, R. S., and Ross-Coss, D., Hutton, A., and Will, R., (2016): "An Integrated Approach for Characterizing a Sandstone Reservoir in the Anadarko Basin" paper **OTC-26952-MS** presented at Offshore Technology Conference held in Houston-Texas USA, May 2-5 2016. DOI: http://dx.doi.org/10.2118/180375-MS

32. **Ampomah, W**., Balch, R. S., Grigg, R. B. Will, R., and M.D. White (2016): "Farnsworth Field CO2-EOR Project: Performance Case History" paper **SPE-179528-MS** at SPE Improved Oil Recovery Conference held in Tulsa, OK, USA. April 11-13 2016. http://dx.doi.org/doi:10.2118/179528-MS.

33. Zhenxue Dai, Hari Viswanathan, Richard Middleton, Feng Pan, **William Ampomah**, Changbing Yang, Wei Jia, Ting Xiao, Si-Yong Lee, Brian McPherson, Robert Balch, Reid Grigg, and Mark White (2016). "CO_2 Accounting and Risk Analysis for CO2 Sequestration at Enhanced Oil Recovery Sites" *Environmental Science & Technology*. http://dx.doi.org/10.1021/acs.est.6b01744

34. Pan, F., B. J. McPherson, Z. Dai, W. Jia, S. Lee, **W. Ampomah**, H. Viswanathan, R. Esser (2016). Uncertainty Analysis of Carbon Sequestration in an Active CO_2-EOR Field, *Int. J. of Greenh. Gas Control.* http://dx.doi.org/10.1016/j.ijggc.2016.04.010.

35. Ross-Coss, D., **Ampomah, W**., Cather M., Balch, R. S., Mozley P (2016): "An Improved Approach for Sandstone Reservoir Characterization" paper **SPE-180375-MS** presented at SPE Western Regional Meeting held in Anchorage, Alaska, May 23-26. DOI: http://dx.doi.org/10.2118/180375-MS

36. **Ampomah, W**., Balch, R. S., and Grigg, R. B., Dai Z., and Pan F. (2015): "Compositional Simulation of CO_2 Storage Capacity in Depleted Oil Reservoirs". Paper **CMTC-439476-MS** presented at Carbon Management Technology Conference held in Sugarland, Houston-Texas USA, November 16-19 2015. Doi: http://dx.doi.org/10.7122/439476-MS.

37. **Ampomah, W**., Balch, R., and Grigg, R. (2015):" Analysis of Upscaling Algorithms in Heterogeneous Reservoirs with Different Recovery Processes," paper **SPE-173588-MS** presented at the SPE Production Operations Symposium held in Oklahoma City, Oklahoma, USA, March 1–5. Doi: http://dx.doi.org/10.2118/173588-MS

38. Gunda D., **Ampomah, W**., Grigg, R. B. and Balch, R. S. (2015): "Reservoir Fluid Characterization for Miscible Enhanced Oil Recovery" paper **CMTC-440176-MS** presented at Carbon Management Technology Conference held in Sugarland, Houston-Texas USA , November 16-19 2015. Doi: http://dx.doi.org/10.7122/440176-MS

39. Dai, Z., Viswanathan, H., Fessenden-Rahn, J., Middleton, R., Pan, F., Jia, W., **Ampomah, W**., Grigg, R. (2014). Uncertainty Quantification for CO_2 Sequestration and Enhanced Oil Recovery. *Energy Procedia*, *63*, 7685–7693. http://doi:10.1016/j.egypro.2014.11.802

40. White, M. D., McPherson, B. J., Grigg, R. B., **Ampomah, W**., & Appold, M. S. (2014). Numerical Simulation of Carbon Dioxide Injection in the Western Section of the Farnsworth Unit. *Energy Procedia*, *63*, 7891–7912. http://doi.org/10.1016/j.egypro.2014.11.825

41. **Ampomah, W.,** Chen, H. Y., & Assad, J. (2014): "Comparison of Probabilistic Techniques in the Study of Fluid Effects on Seismic Properties" paper **IPTC-17452-MS** presented at International Petroleum Technology Conference held in Doha, Qatar. January 19-21 2014, Doi: http://dx.doi.org/10.2523/17452-MS

ABSTRACTS, REPORTS AND PRESENTATIONS

1. van Wijk, J., Malikmammadov, E., **Ampomah, W.** and Will, R.A., 2018, December. Thin-reservoir CO2-plume detection in Farnsworth Field, Texas, using fluid-substitution models. In AGU Fall Meeting Abstracts.

2. Dewers, T. A., Rasmussen, L., **Ampomah, W**., Heath, J. E., Bower, E., Luhmann, A. J., ... & Mozley, P. (2018, December). Diagenetic Capillary Heterogeneity Influences Multiphase Flow, Enhanced Oil Recovery, and CO2 Storage in a Depleted Brownfield Reservoir. In AGU Fall Meeting Abstracts.

3. Kutsienyo, E. J., **Ampomah, W**., Balch, R. S., Cather, M., & Luhmann, A. J. (2018, December). Three-Phase Compositional Simulation Modeling Coupled with Reactive Transport: Application to Farnsworth Field CO2-EOR and Storage Project. In AGU Fall Meeting Abstracts.

4. **William Ampomah** (2018) "Assessment of CO2-EOR and storage in the Morrow Reservoir" presented at the 2018 AAPG Southwest Section Annual Convention – El Paso, Texas – April 7-10, 2018.

5. **William Ampomah** (2018) "Co-Optimization of CO2-EOR and Storage Processes under Geological Uncertainty" presented at the 2018 AAPG Southwest Section Annual Convention – El Paso, Texas – April 7-10, 2018.

6. **William Ampomah** and Robert Balch (2017). "Performance assessment of CO_2-EOR and storage in the Morrow Reservoir" presented at the 3rd Biennial CO_2 for EOR as CCUS conference at Rice U., Houston, TX, Oct. 4-5th, 2017.

7. **Ampomah, W.**, Balch, R. S., and M. Cather, Grigg, R. B., (2017): "Study of CO_2-EOR Performance in the Morrow Formation, Ochiltree County, Texas". **CMTC- 502863** presented at Carbon Management Technology Conference held in Houston-Texas USA, July 19 2017.

8. **William Ampomah** (2017). Performance assessment and Co-optimization of CO_2-EOR and storage in Mature Oil Reservoir. Schlumberger CO_2 Sequestration SIG Webinar, July 27, 2017.

9. **William Ampomah**, R.S. Balch, M. Cather (2017). Co-Optimization of CO_2-EOR and Storage Process under Geological Uncertainty. Carbon Storage RD Project Review Meeting, Pittsburgh, PA, August 2, 2017.

10. **William Ampomah**, R.S. Balch, M. Cather (2016). Numerical Optimization of CO_2-EOR Process in Partially Depleted Oil Reservoirs. Carbon Storage RD Project Review Meeting, Pittsburgh, PA, August 16-18, 2016.

11. D. Ross-Coss, **William Ampomah**, R.S. Balch, Cather, M, Mozley, P. L. Rasmussen. (2016): "An Improved Approach for Sandstone Reservoir Characterization" Poster presented at 2016 NETL Carbon Storage review meeting, Pittsburgh, PA. August 16-18, 2016.

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