



Dr Sami Alnuaim

33+ Years of Global Oil, Gas & Energy Experience

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Profile

Results Driven

Contributing to make great impact on the global energy industry, supporting the global economy, enhancing human lifestyle, improving people prosperity, enriching the global social development, reducing the global energy poverty, significantly impacting and protecting the environment through leading Oil & Gas industry Technology evolution, De-Carbonization and Climate Change dialogue.

Dedicated

Inspired to leading a global Sustainability program with external and internal stakeholders' engagement towards a new definition of Energy Transition led by Cleaner and Efficient Oil & Gas uses complemented by renewables through leading an effective engagement dialogue with Governments, NGOs, IEA, OGCI, IPIECA, IOGP, Academia, SEG, APPG and others.

Goal Oriented

Committed to engaging socially through introducing, globally, a new concept called "Citizen Engineer" focusing on Young Professionals and generations to lead the dialogue towards brighter energy transition journey while addressing all pressing issues such as Climate Change.

Advanced Skills & Major Accomplishments

Technical

Won several local, regional and international awards including 2010 & 2011 SPE Distinguished Awards for the Middle East and International respectively. Selected as SPE Distinguished Member and currently serving in several SPE International Committees.

Serving in the Petroleum Engineering Departments' advisory boards at King Fahad University of Petroleum & Minerals and King Saud University in Riyadh. Served in SPE ME & International Board of Directors.

Leadership

Completed Wharton Advanced Executive Management Program (2015) at the University of Pennsylvania and the Advanced Asian Business and Culture Program at Pennsylvania State University (2014).

Key figure in the Saudi and Middle East media and energy sectors where more than 300 Oil & Gas and energy articles were published in Saudi newspapers (Alyaum, Aljazeera, Saud Gazette, Arab News & Mal electronic newspaper) addressing several strategic global issues such as Peak Oil, Environment and Technology.

Work Experience

SPE 2019 President

09.2018 – 10.2019

2019 President of the Society of Petroleum Engineers International (SPEi), the largest non-for-profit professional organization in the world with more than 158,000 active members located in 146 countries where I created a new Sustainability program with external and internal stakeholders' engagement towards a new definition of Energy Transition led by Clean and Efficient Oil & Gas complemented by renewables. With the introduction of Citizen Engineer new concept, the global oil & gas sustainability and social development snow-ball has started rolling with total engagement of IEA, OGCI, IPIECA, IOGP, Academia, SEG, APPG and others. Expanded the SPE External Engagement strategy to include Governments, NGOs, and Elite Energy Research Centers such as Chatham House in UK and Atlantic Energy Center in Washington DC. During this year I contributed significantly into launching several Sustainability research initiatives with several universities such as Corporate Social Responsibility & Carbon Management in U of Houston and Water Management, Sustainability Human Behavior and Oil & Gas Sustainability quantification with U of Texas at Austin. Furthermore, expanded the successful US PE Department Heads Collegium globally starting the Middle East.

Administrator & Manager, Aramco EXPEC Computer Center

2011-today

Manager at Saudi Aramco with full responsibility to provide technical IT support & logistics to all Saudi Aramco Upstream Operations including Exploration, Drilling, Production, Reservoir Engineering, and Reservoir Simulation including GigaPOWERS reservoir simulator, Intelligent/Digital Fields and Industry Revolution 4.0 subsurface solutions. Led the implementation of the IR 4.0 Technologies in supporting the largest Upstream Oil & Gas operations in the world with more Machine Learning and Advanced Analytics to predict drilling problems and elongate the life span.

General Supervisor & Manager, Aramco Reservoir Management

2008-2011

Managed the division and acted as Manager of Northern Area Reservoir Management that oversees the development, production and upstream activities in Qatif, Abu Safah, Abu Hadriya, Fdhali, and Kharsaniya (AFK) fields with a total production of more than 1,300,000 STBD of a mixed Arabian Medium and Arabian Light crude with its associated gas production. During this time, a new development (AFK0) was commissioned with total production of 500,000 STBD.

Chief Technologist, Aramco Advanced Research Center

2006-2008

Managing both the Production and Reservoir Technology divisions where several Production and Reservoir Research & Technologies were undertaken. Significant collaborative model was developed with International Service Companies to collaborate with Aramco and accelerate the development of high value technologies where both parties contribute in the development cost of such technologies. New technologies were successfully developed such as the Manara with Schlumberger, Passive Inflow Control Devices (ICD), Reservoir Remote sensing, and Special logging tools. Also initiated the Reservoir Nano Technology project,

Research Director, Aramco Research & Development Center

2002-2006

Managed the Upstream research and laboratories center as part of the Saudi Aramco Research & Development Center (R&DC) supporting the largest upstream operations including drilling fluids, reservoir properties, fluid properties, geology and geochemistry. This included overseeing the Saudi Aramco Technology Upstream program and the advanced laboratory research studies including NMR, Relative Permeability, EOR, Asphaltine, Emulsion, oil field scales and advanced geochemistry isotopes. This also supported the largest gas upstream development projects including formation evaluation, fracturing, stimulation, drilling string cementing and advanced fluid & rock mechanics studies.

Supervisor & General Supervisor, Aramco –Southern Area O&G Producing

1999-2002 Supervised the fields production and integrity of both Oil (Abqaiq and Hawiyah) and Gas (all Southern Area Gas Fields). During this time, the Hawiyah and Haradh Gas Plants were put on stream after successfully fracing all gas wells including addressing the sand production through a collaborative model with Schlumberger to develop a new technology to help Aramco produce gas wells at relatively high rate with zero sand production.

YT2 Upstream Team Leader, Aramco – Expec Computer Center

1998-1999 Managed the Saudi Aramco Upstream Year 2000 Readiness team with more than \$18 million project cost to ensure the Saudi Aramco Upstream Wells, Plants and Computer center readiness for the year 2000 millennium. This included all Oil Gas Separation Plants, Stabilization Plants, Abqaiq Plants, Gas Plants, Pipelines, Pump Stations, Rigs and Expec Computer Center.

Simulation Systems Administrator, Aramco – Expec Computer Center

1995-1998 Managed Saudi Aramco Simulation Systems Division as part of the Expec Computer Center supporting all Saudi Aramco simulation programs including Reservoir Simulators, Pipeline Simulators and other upstream simulation systems. Developed several advanced technologies such as the surface subsurface simulation capabilities.

PhD Student, University of Texas at Austin

1992-1995 Spent 3 years in the University of Texas at Austin to pursue my PhD degree in Petroleum Engineering. My Thesis was about Dry Gas Modeling Formulation.

Petroleum Engineering System Analyst, Aramco Expec Computer Center

1986-1992 Working on writing programs and applications supporting all Saudi Aramco Petroleum Engineering departments and operations including major reservoir and pipelines simulators such as Exxon MARC, Chevron CRS3D and CHEARS and PIPEFLOW. I also spent one year (Jan 98-Jan 90) working in Houston with Chevron as part of Saudi Aramco/Chevron exchange program working on the development of CHEARS reservoir simulator, Aramco Simulation projects in Chevron and the migration of CRS3D/CHEARS from Cray 1 to Cray 2 (COS to UNICOS operating system). During this time, I also managed to complete my part time Master program in Petroleum Engineering from King Fahad University of Petroleum & Mineral (KFUPM) in Dhahran majoring in Multiphase Flow Correlation for Saudi Arabian Pipeline.

Education

PhD in Petroleum Engineering from University of Texas at Austin

1992-1995 Thesis was related to modeling of dry gas reservoirs.

Master degree in Petroleum Engineering from King Fahad University of Petroleum & Minerals

1987-1989 Thesis was related to selecting the best multiphase flow correlations for Saudi Arabia crude.

BS degree in Petroleum Engineering from King Fahad University of Petroleum & Minerals

1981-1986 Degree was part of Saudi Aramco college sponsored program.

Patents & Technical Papers

Granted Patents:

- 1- Inflow Performance Relationship for Horizontal Wells Producing from Multi-Layered Heterogeneous Solution Gas-Drive Reservoirs Muhammad Ali Khalid, KFUPM, Dr Sami Alnuaim, **US9470086, Granted October 2016**
- 2- A Generalized Inflow Performance Model for Oil Wells of Any Inclined Angle, ADEWALE WASIU ADENIJI, Dr Sami Alnuaim, KFUPM. US Patent# **US9,471,730, Granted August 2015**

3- Permeability & Inflow Performance Determination for Horizontal Wells. Muhammed Ali Khalid, Dr Sami Alnuaim, and Muzammal Ramay, KFUPM, **US9568642, Granted Feb 2017.**

4- Quantification of skin in hydraulic fracturing of low and tight reservoirs - **US 9689245 Granted on June 27, 2017, KFUPM,** Rizwan Ahmed Khan, Sami Abdulaziz ALNUAIM, Muzammil Hussain RAMMAY

5- Methods and systems for estimating size and effect of Wellbore Obstruction in water injection wells, Mohammed Al-Ajmi, Dr Sami Alnuaim, **US9784885, Granted on October 2017,** Saudi Aramco.

6- 3-D Reservoir Pressure Determination Using Real-Time Pressure Data Measured By Permanent Down-hole Gauges, Omar Al-Nahdi, Sami Al-Nuaim, Alan Siu, Ahmad Shammery, Saudi Aramco, **US9,896,930**

7- Inflow performance relationship for multilateral wells, Ahmed Abdulazeem HAMZA, Dr Sami Alnuaim, KFUPM. **US9,984,180 Granted on May 2018.**

8- Method and system for Hydraulic Fracturing based on skin factor analysis, Rizwan Khan, Muzammil Hussain and Dr Sami Alnuaim, KFUPM, US Patent # **US10294759 Granted on May 2019.**

9- Method for estimating inflow performance relationship (IPR) of snaky oil horizontal wells. Bramasto Cinde Adam, Dr Sami Alnuaim, KFUPM. **US10,030,484, July 2017.**

10- Method for managing multi-lateral snaky well. Bramastoa Cinde Adam, Dr Sami Alnuaim, KFUPM. **US10,161,228, Dec 25, 2018.**

11- Method for estimating inflow performance in a solution gas drive reservoir, Ahmed Abdulazeem & Sami Alnuaim, KFUPM. **US10402516, Sep, 2019.**

12- Guided drill system for oil reservoir drilling, Mohamed Hassan Awadh, Dr Sami Alnuaim, KFUPM **US10,253,613**

13- Method and device using productivity index in drill guidance for drilling slanted water injection wells, Mohamed Hassan Awadh, Dr Sami Alnuaim, KFUPM **US10,018,029, July 10, 2018.**

14- Methods and systems for estimating sizes and effects of wellbore obstructions in water injection wells, Mohammed Ajmi, Sami Alnuaim, Saudi Aramco (patent#2 **US10,459,118, October 29, 2019.** Patent #1 on the same subject is **US9,784,885 Oct 10, 2017.**

Pending Patents:

1- Graphical Method for Assisting Multi-Zone Comingling', Assad Barri, Dr Sami Alnuaim, KFUPM, **US20150218939A1, Published August 2015.**

2- Two dimensional reservoir pressure estimation with integrated static bottom-hole pressure Survey data and simulation modeling. Umar A. Al-Nahdi, Ali A. Al-Turki, Badr M. Al-Harbi, Dr Sami A. Al-Nuaim. Saudi Aramco. **Published August 2016.**

Technical Papers

1- Al-Ajmi Mohammed, Alhajri Nasser, and Al-Nuaim Sami, etc. Saudi Aramco. Predicting the Flow ID of Water Injectors Identified with Obstruction in the Horizontal Section, SPE Annual Technical Conference & Exhibition 2017, Dhahran Saudi Arabia.

2- Aneeq Nasir Janjua and Sami Alnuaim, King Fahad University of Petroleum & Minerals (KFUPM). Novel Algorithm to Quantify Productivity of Multi-layered Gas Condensate Heterogeneous Reservoirs, SPE Annual Technical Conference & Exhibition 2017, Dhahran Saudi Arabia.

3- Ahmed Sadeed and Sami Alnuaim, King Fahad University of Petroleum & Minerals (KFUPM). New Algorithm to Quantify Well Productivity of Wells in Solution Gas Drive Reservoirs with more than One Permeability Circular Regions, SPE Annual Technical Conference & Exhibition 2017, Dhahran Saudi Arabia.

4- AbdAllah A. Youssef and Sami Alnuaim, King Fahad University of Petroleum & Minerals (KFUPM). IPR of Triple Continuum Reservoirs, Analytical Approach, SPE Annual Technical Conference & Exhibition 2017, Dhahran Saudi Arabia.

5- Zeeshan Tariq, Dr Sami Alnuaim. New Methodology to Quantify Productivity of Vertical Well in Naturally Fractured Solution Gas Drive Reservoir with Dual Porosity and Dual Permeability. SPE/PAPG Annual Technical Conference, Islamabad 22-23 November 2016.

- 6- Musa Eltayeb Musa Ahmed, Dr Sami Alnuaim, KFUPM. New Algorithm to Quantify Fishbone Type Multilateral Gas Well, SPE ATCE Dubai, 26-28 Sep 2016.
- 7- M A Abo El Seoud, Dr Sami Alnuaim, KFUPM. Infinite Conductivity Horizontal Borehole Assumption: Applicability & Quantification of Error, Offshore Technology Conference, Kuala Lumpur 22-25, March 2016.
- 8- Tural Jafarov, Dr Sami Alnuaim, KFUPM. Critical Review of the Existing Liquid Loading Prediction Models for Vertical Gas Wells, Offshore Technology Conference, Kuala Lumpur 22-25, March 2016.
- 9- Mohammed Abdul Qader Siddiqui, Dr Sami Alnuaim, KFUPM. Well Placement and Rate Optimization for Gas Cycling in Gas Condensate Reservoirs. SPE MEOS, Bahrain 8-11 March 2015.
- 10- Muzammil Hussain Rammay, Dr Sami Alnuaim, KFUPM. Flow Regime Using Fuzzay Logic in Beggs & Brill Multiphase Correlation, IPTC, Duha Qatar 8-9, 2015.
- 11- Shams Kalam, Dr Sami Alnuaim and Muzammil H Rammay, KFUPM, A New Algorithm to Quantify Water Coning in Hydraulically Fractured Tight Oil Reservoirs, 2015 IFEDC Conference China, Sep. 2015. Published in El Compendex Engineering Database.
- 12- Mirza Baig, Dr Sami Alnuaim, KFUPM, **SPE-SAS-348**, Productivity Increase in multi stage fracturing in Hz Wells for Tight Reservoirs, E-Poster, Annual SPE Technical Symposium and Exhibition, April 20-22, 2015, Dhahran Saudi Arabia - **Won the Best e-Poster Award**.
- 13- Rizwan Ahmed Khan, Dr Sami Alnuaim, **SPE-172641 –MS**, Well Placement and Rate Optimization for Gas Cycling in Gas Condensate Reservoir, MEOS 2015, Bahrain.
- 14- Sulaiman Alaraifi, Dr Sami Alnuaim, Dr Abdulraheem, KFUPM, SPE-172729-MS, Productivity Index Prediction for Oil Horizontal Wells Using different Artificial Intelligence Techniques, MEOS 2015, Bahrain.
- 15- Zaid Zaffar Jangda, Dr Sami Alnuaim, KFUPM, SPE-172047, Application of 'Unified Fracture Design' to High Permeability Reservoirs, ADIPEC held on 10-13 November, 2014 in Abu Dhabi, UAE.
- 16- Mohammed A.Q. Siddiqui, Dr Sami Anuaim, KFUPM, SPE-172107, Stochastic Optimization of Gas Cycling in Gas Condensate Reservoirs, Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC-2014) to be held 10-13 November, 2014 in Abu Dhabi, UAE
- 17- Rizwan Khan, Dr Sami Alnuaim, KFUPM, Quantification of Skin in Relationship with Fracture Length, Width, Permeability and Matrix Properties for Pre-Analysis Study of Hydraulic Fracturing in Low & Tight Reservoirs, the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) held 10-13 November, 2014 in Abu Dhabi, UAE
- 18- Rizwan Khan, Dr Sami Alnuaim, KFUPM, Quantification of Skin in Relationship with Fracture Length, Width, Permeability and Matrix Properties for Pre-Analysis Study of Hydraulic Fracturing in Low & Tight Reservoirs, IPTC-17731, 8th International Petroleum Technology Conference held 10 – 12 December, 2014 in Kuala Lumpur, Malaysia.
- 19- Assad Barri & Dr Sami Alnuaim; KFUPM, 'A Graphical Method to Evaluate Multi-Reservoirs Commingling', SPE Annual Technical Symposium & Exhibition, Khobar, SA, April 21-24, 2014.
- 20- Azad, M.S., Sultan, A.S., Sami Alnuaim, Mahmoud, M.A, KFUPM, 'Could VES be a part of a hybrid option to recover heavy oil in complex heavy oil reservoirs?', SPE Heavy oil conference, Canada, 10-12, 2014.
- 21- Muhammad Ali Khalid, KFUPM, Dr Sami Alnuaim, KFUPM, 'Inflow Performance Relationship for Horizontal Wells Producing from Multi-Layered Heterogeneous Solution Gas-Drive Reservoirs', Offshore Technology Conference (OTC), March 2014, Malaysia,
- 22- Muhammad Ali Khalid, KFUPM, Dr Sami Alnuaim, KFUPM, 'Modeling Inflow Performance Relationship for Horizontal Wells Producing From Solution Gas Drive', e-poster , IPTC January 2014, Qatar.
- 23- Mobeen Murtaza, Sami Alnuaim, KFUPM, 'Design and Evaluation of Hydraulic Fracturing in Tight Gas Reservoirs', SPE-AS-714, SPE, Saudi Arabian Annual Technical Symposium and Exhibition, Dhahran 2013.

- 24- A.Madhar Sahib, Dr Sami Alnuaim, KFUPM, 'Optimization of Cyclic Steam Stimulation for Heavy Oil Reservoirs, SPE 167378, , Kuwait 2013 SPE Conference, Oct 2013.
- 25- Muhammad Yousuf Jabbar, KFUPM, Dr Sami Alnuaim, KFUPM, 'Analytical Comparison of Empirical Two phase IPR correlations for Horizontal Oil wells', SPE 164143-MS, , 2013 SPE Middle East Oil Show (MEOS).
- 26- Mohammed Attia, Dr. Sami AlNuaim, KFUPM, 'Predicting Multiphase Flow Pressure Using Fuzzy Logic', SPE-164278, 2013 SPE Middle East Oil Show (MEOS).
- 27- Subai Khalid, Fossail Khalid, and Alnuaim Sami, KFUPM, 'Compositional Gradient Calculation for SA Gas Gradient Condensate Res', Master Thesis KFUPM 2001.
- 28- Al-Neaim Sami A, 'Short Radius Re-entry Boosts Oil Production in Saudi Giant Field', ADAPIC SPE conference, Abu Dhabi, 1996.
- 29- Al-Naim Sami, Caudle Benjamin, 'Primary Depletion Reservoir Simulator for Real and Dry Gas', PhD Dissertation, University of Texas @ Austin, Austin TX, Dec 1994.
- 30- Al-Neaim Sami A, Aqqour Mohammed, Al-Yousef, 'Evaluation of horizontal multiphase flow correlation for Saudi Arabia oil', SPE Middle East Oil Show (MEOS), February 1991.
- 31- Al-Neaim Sami A, Aqqour Mohammed, Al-Yousef, 'Evaluation of horizontal multiphase flow correlation for Saudi Arabia oil', Master Thesis, KFUPM, Dhahran, January 1989.

- Students' Contests**
- 1- Quantification of Skin in Relationship with Fracture Length, Width, Permeability and Matrix Properties for Pre-Analysis Study of Hydraulic Fracturing in Low & Tight Reservoirs, Rizwan Khan, KFUPM, 2014 SPE Student Paper Contest, May 2014, Dubai.
 - 2- Gas Life Optimization Using Differential Evolution Algorithm, Muzzammil Shakeel, 2014 SPE Student Paper Contest, May 2014, Dubai.
 - 3- Generalized Inflow Performance Model for Oil Wells of any Inclined Angle, ADEWALE WASIU ADENIJI, 5th Saudi Scientific Conference for Student of Higher Education, April 2014.
 - 4- New Method for IPR Calculation of Multilateral Wells and Effect of ICV's on Production Control, Hassaan Ahmed, 3rd Saudi Scientific Conference for Student of Higher Education, April 2012.
 - 5- Improving Well Performance through a Hydraulic Fracturing Job that is Efficient and Economical, Zaid Zaffar Jangda, Mecca Student Conference, 2013.
 - 6- Design and Economic Evaluation of Hydraulic fracture in Low Permeability Gas Reservoirs, Mobeen Murtaza, Mecca Student Conference, 2013.
 - 7- Optimization of ICV Configuration Using Particle SWARM Optimization Technique in Multilateral Well, Zaeem Khan, Mecca Student Conference, 2013.
 - 8- Optimization of Well Placement and Flow Rate Using Particle Swarm Optimization Method, Saad Mehmood, Abeebe A. Awotunde, Poster, Mecca Student Conference, 2013

Teaching Experience

- Multiphase Flow in Pipes (PIPEFLOW), Saudi Aramco.
- Leadership Skills, Research & Development Center, Saudi Aramco.
- Advanced Well Performance, a Master Level graduate course @ KFUPM (2006/2008/2009/2010/2011/2013/2014/2015/2016/2017/2018)
- Advanced Gas Natural Engineering, a Master Level graduate course @ KFUPM (2007)

Professional Affiliations:

- Member of the Society of Petroleum Engineers (SPE)
- Member of the International Association for Energy Economics (IAEE)