MBEYA UNIVERSITY OF SCIENCE AND TECHNOLOGY

WEEKLY RESEARCH SEMINAR SERIES

MUST Community and General Public are cordially invited to attend the 50th Research Seminar Presentation

COLLEGE OF ENGINEERING AND TECHNOLOGY (CET) **DEPARTMENT OF GEOSCIENCES AND MINING TECHNOLOGY**

RESEARCH TITLE: **Management of Sustained Casing Pressure in Offshore Gas Wells by a Novel Casing-Surface Design that Suppress Gas Migration at the Casing-Cement Interface**

SPEAKER: **Dr. Alex W. Mwang'ande (Ph.D in Oil & Gas Wells Engineering)**

BIOGRAPHY OF THE SPEAKER: Dr. Alex W. Mwang'ande, is a Lecturer from the Department of Geosciences and Mining Technology under College of Engineering and Technology (CET) at the Mbeya University of Science and Technology (MUST). He holds a Ph.D in Oil and Gas wells Engineering (2020) from China University of Petroleum – East China, Master of Science in Petroleum Engineering (2016) from Norwegian University of Science and Technology (NTNU) and Bachelor of Science in Mechanical Engineering (2010) from the University of Dar es Salaam (UDSM). Dr. Alex is has more than ten (10) years of teaching experience. He has conducted various training/facilitations (short courses) to practicing technical staffs and other employees from both private and public institutions/companies organized by MUST. He also possesses eight months working experience as a Mechanical Technical Service Engineer at Mantrac (T) Ltd. Dr. Alex W. Mwang'ande has published three papers (and two more are under review), his research direction is Integrity Management of Oil and Natural Gas Wells from both Offshore and Onshore Fields.

R-ID NO: 0108

DATE: Wednesday 05th May, 2021 **TIME: 04:00PM** **VENUE: MUST CONFERENCE AT OLD LIBRARY**

SUMMARY OF THE PRESENTATION: This article is intended to bring a novel and unique method of controlling sustained casing pressure (SCP) in offshore gas wells caused by micro-annulus failure, by designing a unique outer casing surface (engineered wrinkled profiles) that will increase the length of Casing-Cement Interface (CCI) for the same planned cement column length thereby increasing the gas percolation length and hence suppress fluid migration through the CCI. This, in turns, allows more gas production time. Field data from offshore gas well and an existing SCP prediction model from published literature were used to test this unique design by varying three important preset parameters; cement permeability (k), mud compressibility (C_m) and mud density. Results show that, the new casings have a great potential of controlling SCP and improve the production time of the offshore gas wells by suppressing gas migration through micro-annulus.

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