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Energy - Oil and Gas Research; New Oil and Gas Research Findings Has Been Reported by Investigators at University of Texas Austin (Low Pressure Buildup With Large Disposal Volumes of Oil Field Water: a Flow Model of the Ellenburger Group, Fort Worth Northcentral Texas)

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2021 DEC 31 (VerticalNews) -- By a News Reporter-Staff News Editor at Energy Weekly News -- Current study results on Energy - Oil and Gas Research have been published. According to news reporting from Austin, Texas, by VerticalNews journalists, research stated, "Produced water generated by hydrocarbon production from the Mississippian Barnett Shale in the Fort Worth Basin has been injected into geologically complex carbonates of the Ordovician Ellenburger Group (EBG) for 20 yr. The basin experienced anomalous seismicity in the crystalline basement induced by the associated pore pressure increase."

Financial supporters for this research include state of Texas through The University of Texas **Bureau of Economic Geology** TexNet Seismic Monitoring and Research Project, Center for Integrated Seismicity.

The news correspondents obtained a quote from the research from the University of Texas Austin, "A comprehensive hydrogeologic flow model of the EBG covering similar to 30 counties provides estimates of pore pressure evolution through space and time that can be used for understanding the seismic events and for management of the disposal resource. A salient aspect of the model is the thorough treatment of faults and fractures. They form important features of these structurally complex formations, and their permeability was estimated through a discrete fracture network modeling approach. A total of 127 salt-water disposal wells injected a cumulative volume of 2.23 billion bbl (354 x 10(6) m(3)) from similar to 2003 to 2018. Overall, the EBG is very resilient to large injection volumes with small pore pressure increases upto 1.4 MPa (200 psi). Several high-permeability faults act as pressure distribution and attenuation features, distributing pressure increases vertically and preventing it from extending to the next fault compartment. However, pressure diffusion away from injection centers is controlled by the fractured rock matrix. In addition, the overlying Barnett modulates pressure increases when in direct contact with the EBG because it acts as a compressible cushion, but the impact of gas production does not seem to be as significant."

According to the news reporters, the research concluded: "Water withdrawal from the EBG through gas production wells, which has been observed, also contributes to limiting the pressure increases."

This research has been peer-reviewed.

For more information on this research see: Low Pressure Buildup With Large Disposal Volumes of Oil Field Water: a Flow Model of the Ellenburger Group, Fort Worth Northcentral Texas. AAPG Bulletin, 2021;105(12):2575-2593. AAPG Bulletin can be contacted at: Amer Assoc Petroleum Geologist, 1444 S Boulder Ave, PO Box 979, Tulsa, OK 74119-3604, USA.

Our news journalists report that additional information may be obtained by contacting Shuang Gao, University of Texas Austin Ut Austin, Jackson School of Geosciences, Bur Econ Geol, Austin, TX 78712, United States. Additional authors for this research include Jean-Philippe Nicot, Peter H. Hennings, Katie M. Smye, Elizabeth A. Horne, Robin Dommisse and Paul La Pointe.

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