

Title:

Navigating Produced Water Sustainability in the Oil and Gas Sector: Key Challenges, Treatment Innovations, and Future Prospects

Invited Speaker:

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Abstract

The petroleum industry generates significant amounts of produced water (PW) during oil production, containing hazardous organic and inorganic components that pose environmental risks. Conventional treatment methods often fail to meet environmental regulations, particularly for water reuse, necessitating further research on effective management technologies.

This study provides an overview of PW production scenarios globally and in the U.S., including chemical compositions and challenges in treatment. It explores various treatment technologies, best practices, and future research opportunities for sustainable PW management. Due to severe contaminants, single methods are insufficient, but integrated technologies offer a promising solution to meet regulatory standards and enable PW as a non-conventional water source. A defined, risk-based approach is essential for efficient PW management.