



Numerical RTA

in Tight Unconventionals

whitson

The logo consists of the word "whitson" in a bold, dark blue, sans-serif font. The text is centered horizontally and vertically on a white background. Two light gray triangular shapes are positioned in the top-left and bottom-left corners of the page, pointing towards the center.

whitson

Numerical RTA

Joint Industry Project (JIP)



BACKGROUND

This JIP is related to the numerical RTA workflow proposed by Bowie & Ewert (2020)^[1]. In short, the workflow leverages a full-physics reservoir simulator to estimate key RTA outputs (e.g., LFP and OOIPs), while rigorously accounting for superposition and multi-phase flow effects.

GOALS

1. Develop best practices and guidelines related to the methodology.
2. Use field (“real”) data to perform several proof-of-concept studies, in different unconventional basins^[2].
3. Investigate how the workflow is impacted by:
 - i. well interference
 - ii. non-ideal well geometries
 - iii. differential depletion
 - iv. relative permeability assumptions.
4. If possible, generalize the workflow to consistently account for completion water.
5. Compare the method to other workflows^[3].

This JIP provides a technical arena for discussion, sparring and knowledge sharing related to unconventional well performance analysis, also beyond the numerical RTA workflow. This is manifested through several knowledge sharing sessions where experiences and challenges are discussed among the participating companies.

TIMELINE & COST

The JIP is planned to operate from Q4 2021 – Q4 2022. Rolling admissions are open until 31 Dec. 2021. The participation fee is 30,000 USD. Additional company-specific services can be provided upon request.

WHAT'S IN IT FOR THE PARTICIPANTS?

- Full **whitson+** access during project period^[4].
- Proof of Concept (PoC) of the numerical RTA workflow on 10 wells, including rigorous fluid (PVT) initializations.
- JIP Report & Presentations.
- Participation in technical knowledge sharing sessions with the other JIP members.
- On-demand work sessions with **whitson** team for sparring, support and training.
- Preferential pricing on future software subscription.
- 1-day course at project end in Houston, or virtual (3 people per company).

CONFIDENTIALITY & OTHER REMARKS

- The data provided by one company will not be shared with other companies in the JIP.
- The only information shared with all participating companies is general conclusions and experiences from the work performed during the JIP.
- No data or results from this study will be published without the written consent of the JIP participants.

^[1] "Numerically Enhanced RTA Workflow - Improving Estimation of Both Linear Flow Parameter And Hydrocarbons In Place." <https://doi.org/10.15530/urtec-2020-2967>. Webinar with more info can be found here: <https://youtu.be/TvgB0sbToMc>

^[2] Permian, Eagle Ford, Austin Chalk, Bakken, Anadarko Basin, DJ Basin, Powder River Basin, Duvernay, Montney and Vaca Muerta.

^[3] Analytical RTA and Multi-phase flowing material balance techniques.

^[4] Two seats per company with full support and all features. No API connection.

ABOUT US

We support energy companies, oil services companies, investors and government organizations with expertise and expansive analysis within PVT, well performance, gas condensate reservoirs and gas-based EOR. Our coverage ranges from R&D based industry studies to detailed due diligence, transaction or court case projects.

We help our clients find best possible answers to complex questions and assist them in the successful decision-making on technical challenges. We do this through a continuous, transparent dialog with our clients - before, during and after our engagement.

The company was founded by Dr. Curtis Hays Whitson in 1988 and is a Norwegian corporation located in Trondheim, Norway, with local presence in USA, Middle East, India and Indonesia.

Whitson AS

Skonnertveien 7
Trondheim, Norway
curtishays@whitson.com

Whitson USA LLC

3410 W Dallas St.
Houston, TX 77019, US
carlsen@whitson.com

www.whitson.com