

Oil & Gas (4): Drilling & EOR

ADVANCED MODELLING & SIMULATION – AMS

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Oil & Gas (4): Drilling & EOR

Offer of Services

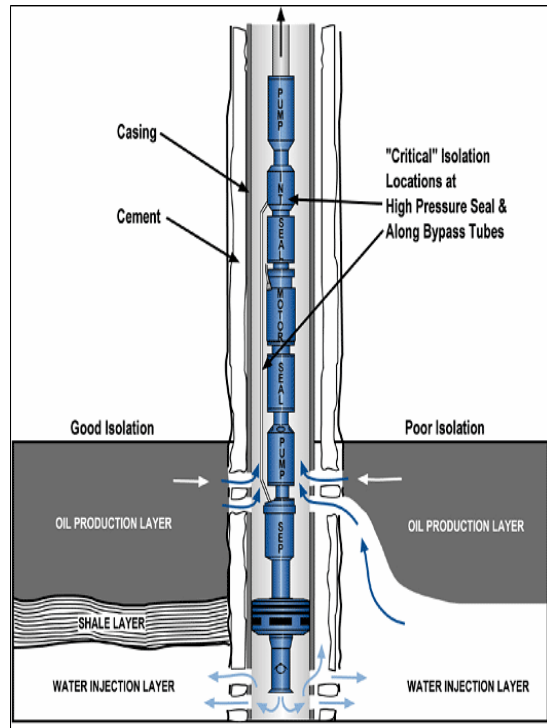
AFRY AMS group:

- AFRY's reputation in engineering services is worldwide acknowledged
- AFRY's AMS has expertise in the 3D simulation (CFD & CMFD) of oil & gas flows using their own simulation platform TransAT
- The AMS group adapts and implements models required by the clients to meet their interests and solve their pressing problems
- New projects are ongoing with potential customers.

Our Offering:

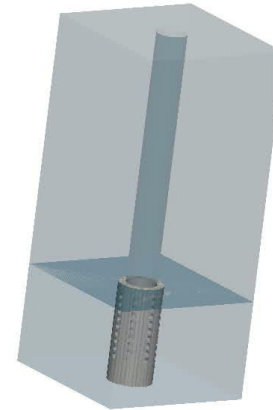
- If there is an interest in consulting then AFRY AMS can prepare a project work and financial plan
- Alternatively, AFRY can license its TransAT CFD/CMFD tool under competitive conditions to the clients.

New Wellbore: Fluid Dynamics

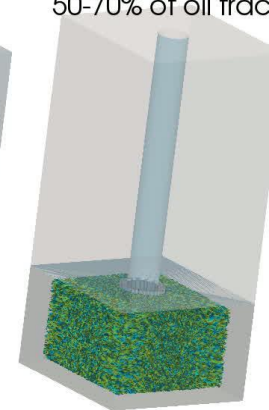


Trans**AT**

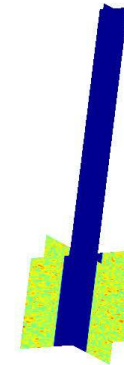
Geometry



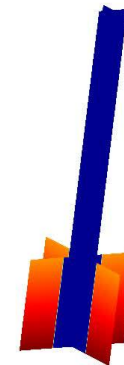
Oil isosurface for 50-70% of oil fraction



Viscosity contours



Pressure contours

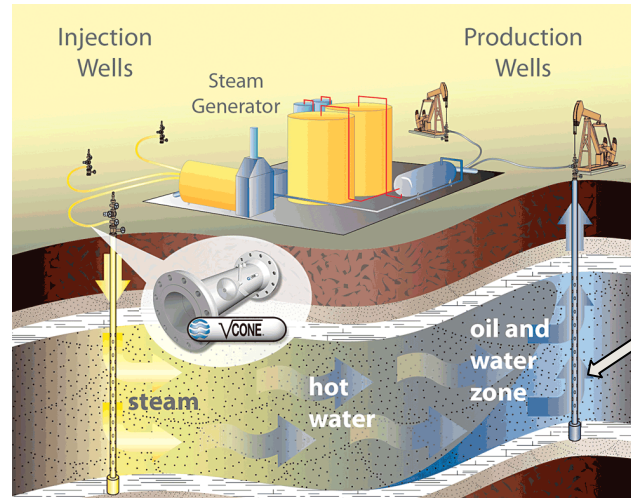


ASCOMP
MULTIPHASE FLOW SCIENCE AND TECHNOLOGY

Time: 0.0 s

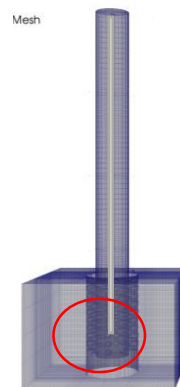
Steam-based Enhanced Oil Recovery

According various studies, Steam EOR (SAGD) can recover up to ~20% of production in depleted wells.

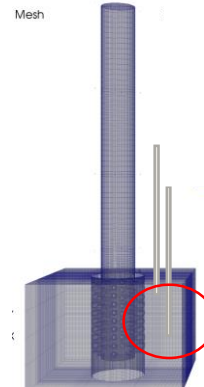


Advanced Multiphase CFD can reveal the critical details of the flow that dictate plant efficiency and feasibility.

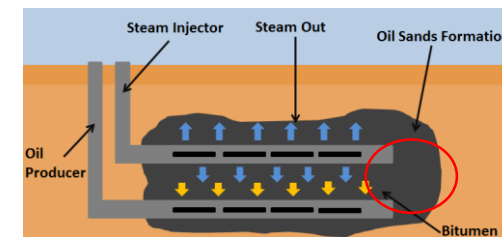
CMFD (TransAT) is employed to evaluate three injection scenarios: (i) in the production well, (ii) around it, and (iii) in the injection well located in the porous reservoir



Scenario (i)



Scenario (ii)

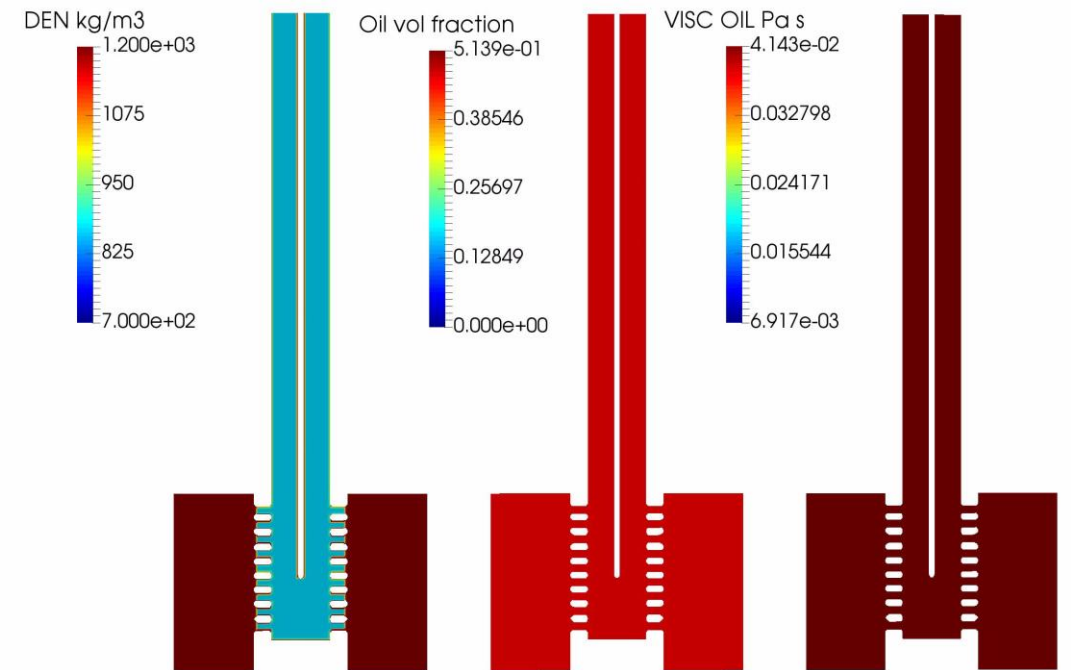
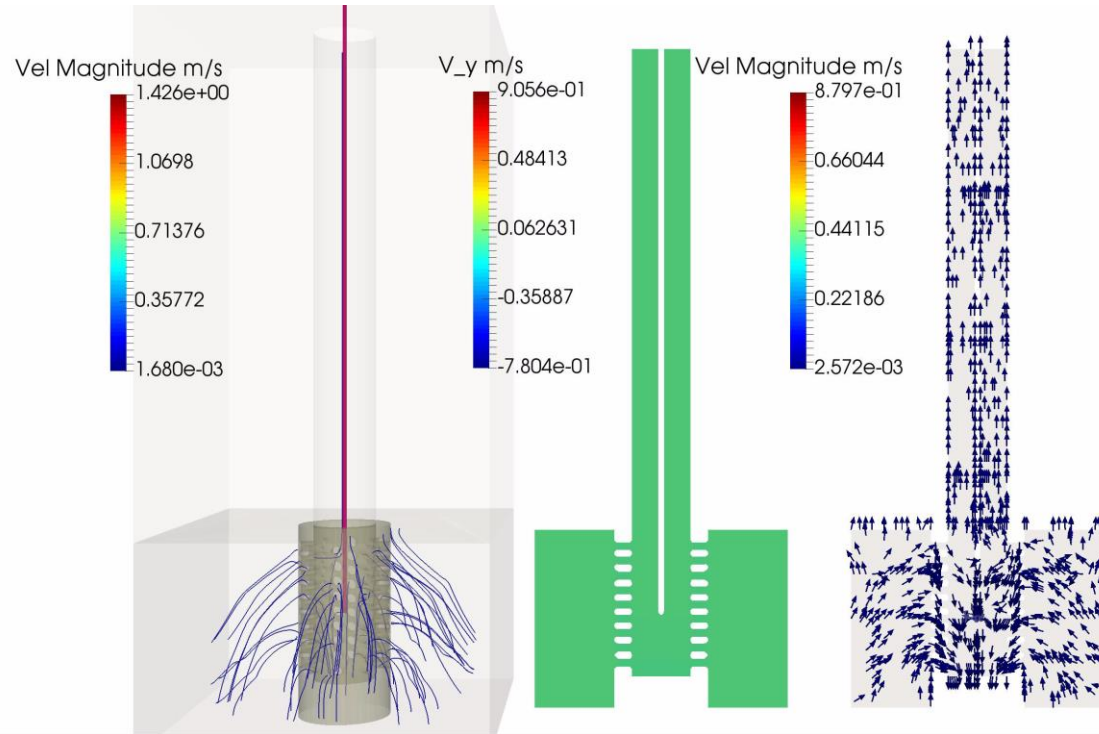


Scenario (iii)

Steam Injection in the production well

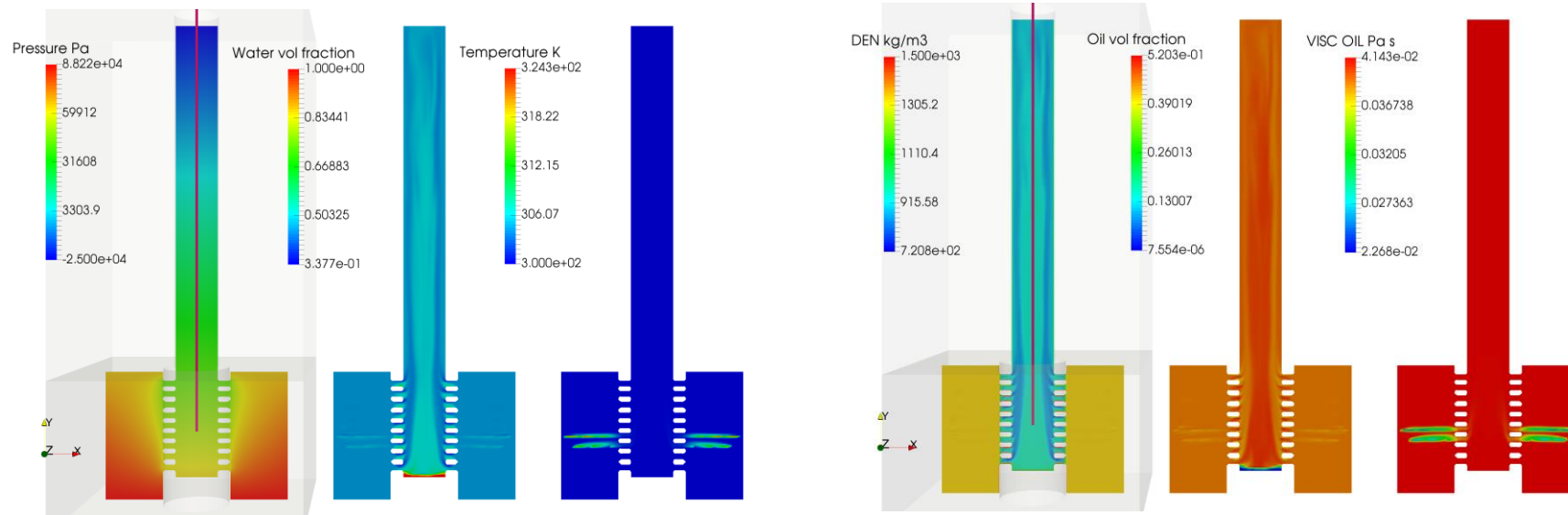
SCENARIO 1 RESULTS

[Click to play the movies](#)



Viscosity changes due to steam injection

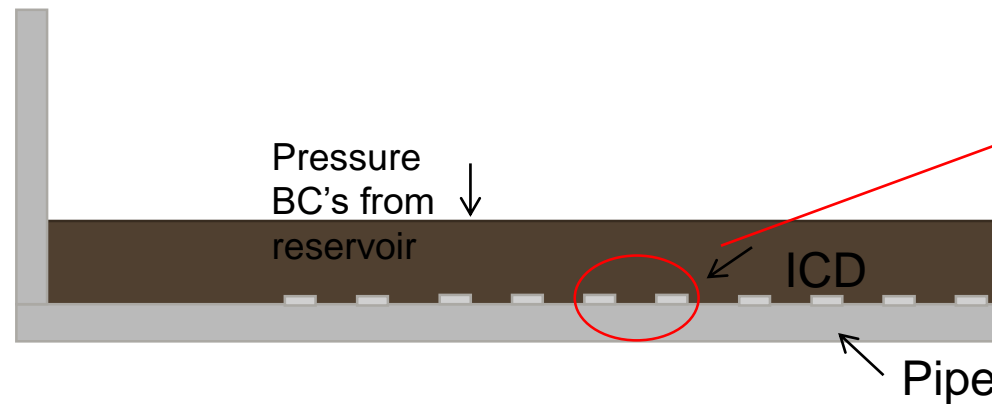
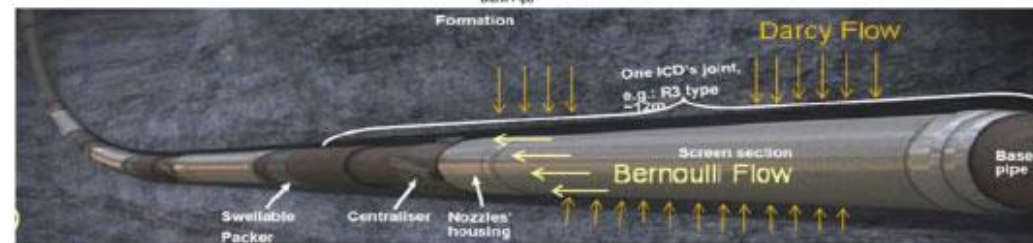
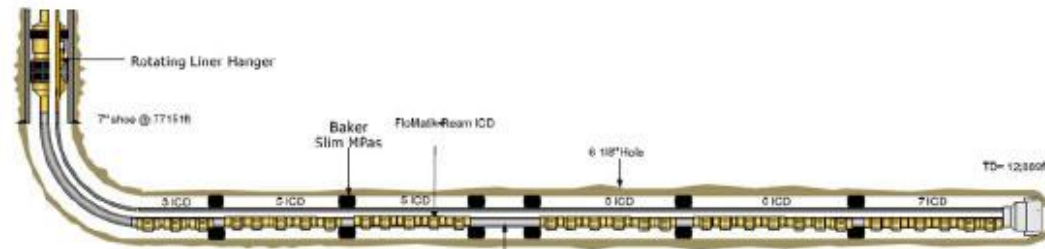
Steam Injection in the reservoir porous media



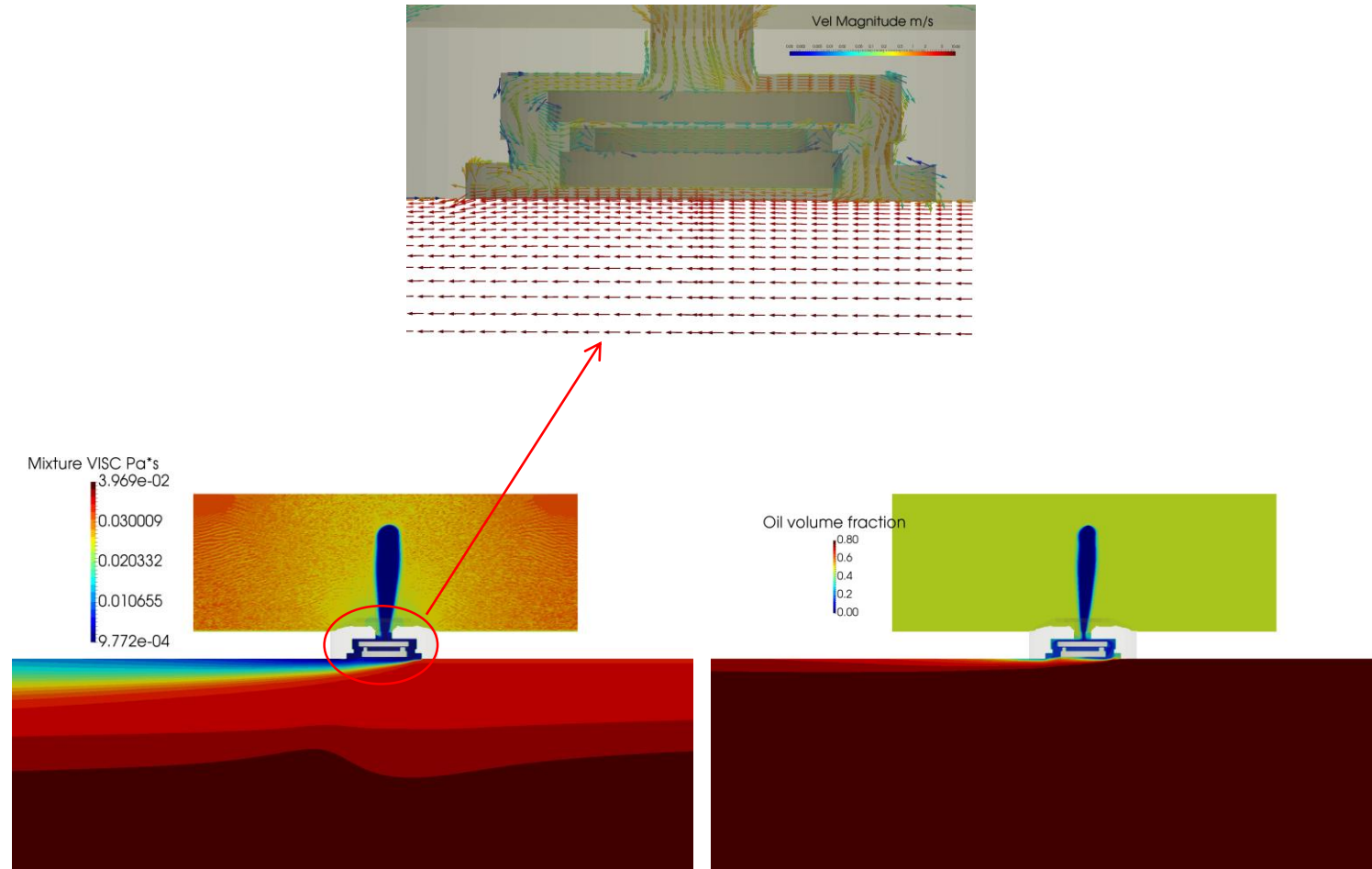
Viscosity changes due to steam injection

Flow with polymer through an ICD

CFD SETUP FOR REDUCED MODEL



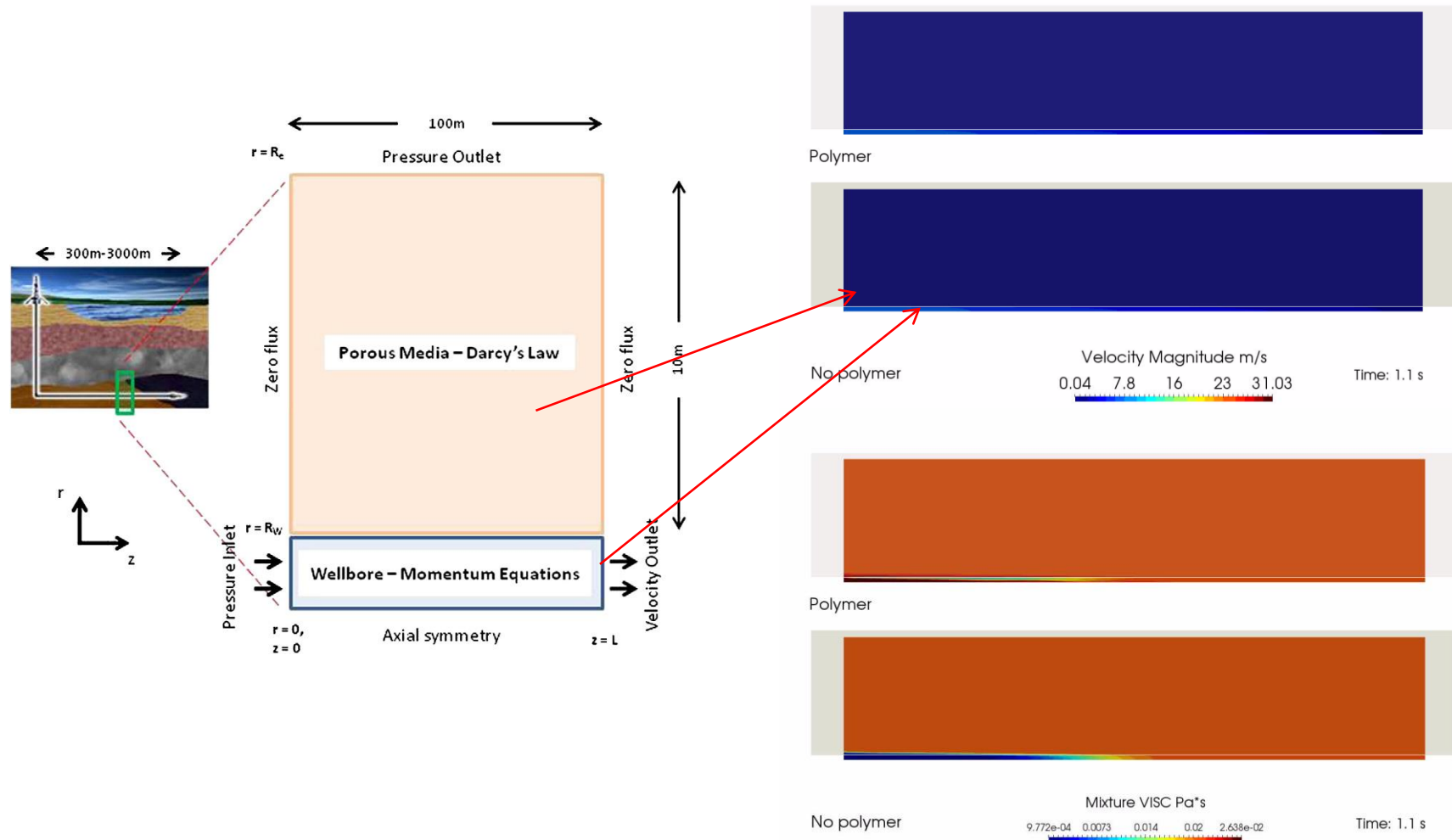
Flow with polymer through an ICD



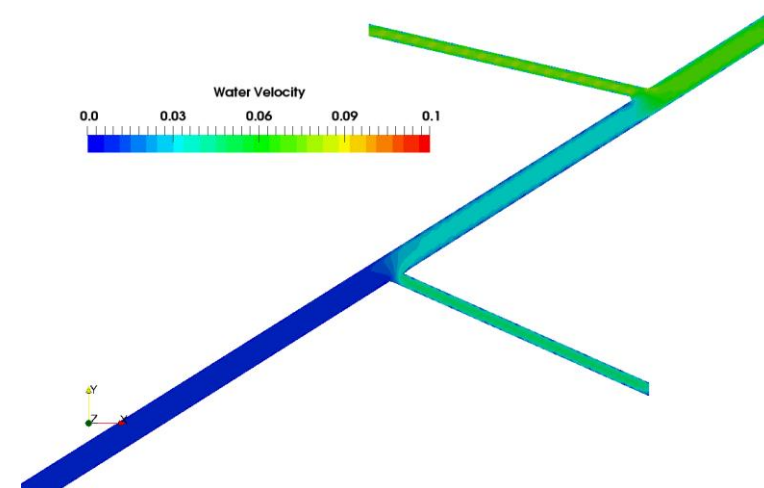
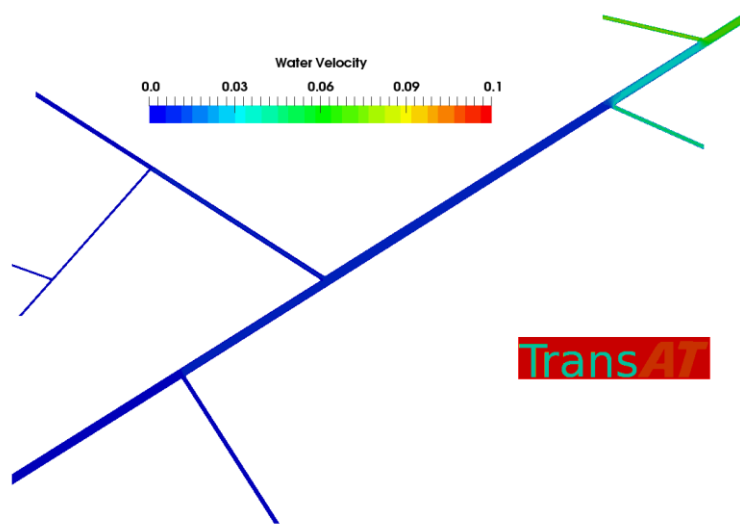
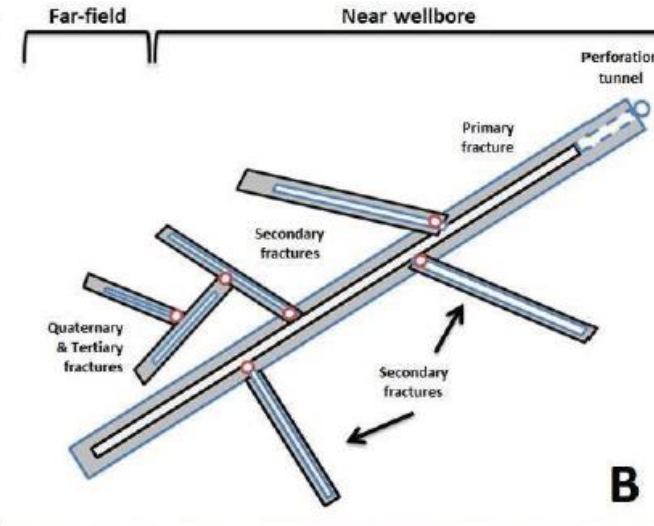
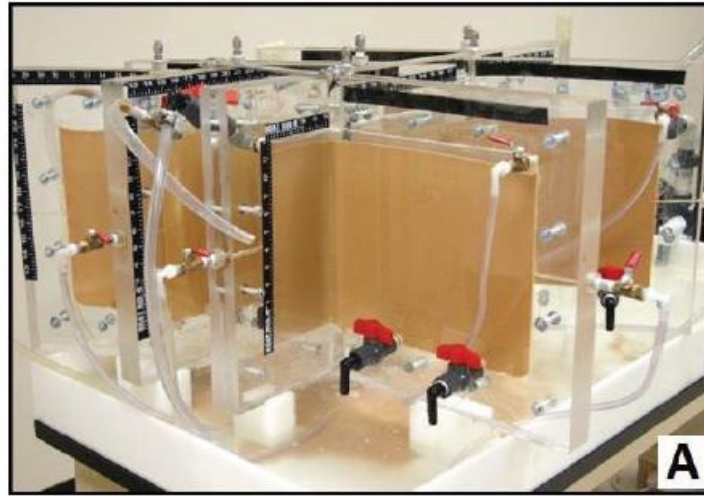
With polymer injection

Injection of polymer in a horizontal well

COUPLED FORMATION-WELLBORE HYDRAULICS



Hydro-fracking





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