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Simulation of injectivity decline in fractured near-well regions

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Accumulation of large particles on well faces decreases the injectivity. This issue is particularly acute in the case of produced water reinjection (PWRI) and polymer flooding. To maintain operational rates, the injection pressure is increased, which causes fracturing or reopening of existing fractures. Then, the injectivity may be recovered or even increased, but only temporarily, as filter cakes start building up on the freshly opened fracture walls. In this talk, we will show simulation results of injectivity decline. We will present the models and the simulation methods we have chosen for the main relevant processes: Transport in discrete fracture networks for the large particles, external filter cake build-up on the fracture faces, poroelasticity to determine the fracture apertures.

References

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