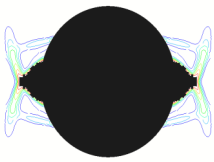
Simulator for Sand Production in Unconsolidated Sand

SAND MANAGER

What is SandManager?

A 2D/3D, Fully-Coupled Poro-Elasto-Plastic Sand Production Simulator.



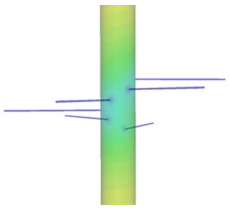
SandManager is a PC-based simulator for estimating the onset of sanding and the severity of sand production under different well completions. The software allows users to study the sanding mechanism, and helps to design and optimize sand management through improved well completions and flowback strategies.

Truly Unique Capabilities

Next generation model with ease of use.

Some major capabilities of SandManager are:

1. Model accounts for both mechanical failure (shear/tensile/compressive failure) and fluid flow erosion, helping users to investigate sanding mechanisms in the field.
2. Dynamic cell removal method is implemented, providing a moving boundary condition to accurately represent the real dynamic process of sand removal from the wellbore/perforation face. This method also provides the possibility to study the effect of arch stability on sanding.
3. Dynamic mesh refinement is implemented to capture strain localization.
4. Model allows for both single phase fluid flow (incompressible, slightly compressible, compressible fluid) and multi-phase fluid flow.
5. Explicit well geometries can be modeled, including vertical wells, horizontal wells, and deviated wells.
6. Sand production based on different well completions can be estimated. Users are able to check the onset of sanding and the severity of sand production in both open-hole and cased & perforated wells, helping them to design well completions and propose optimal flowback strategies.



Inputs Data Requirements

Simple traditional inputs

The inputs data for the model include

- Rock properties (with stress-strain benchmark)
- Fluid properties
- Well completion details
- Well production scheme

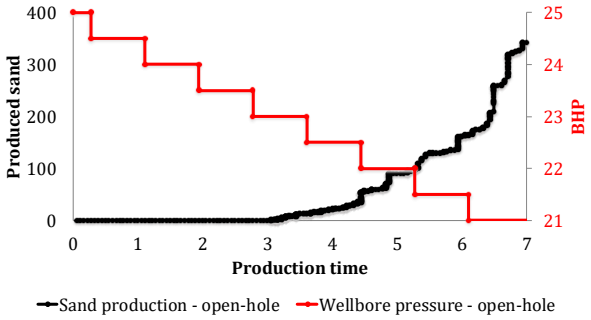
Output Results

A very intuitive yet flexible interface that lays special emphasis on the portability of results

OUTPUTS

The output results are shown in both 2D plots and 3D animation, including:

- Cumulative sand production vs. well/perforation pressure
- Distribution of stress, pore pressure and plastic strain



- Well/perforation cavity shape during sand production

Consulting Services

Customized simulations and field data analysis.

SandManager can enable us to help you with quick analysis and design of your sand production projects. Further, we can customize the output results based on the requirements of the projects hence granting you more flexibility with visualization and analysis of the project results. We can also provide independent project or subject matter reviews and consultation.

Training Services

Learn about the structure of SandManager and the underlying theory.

We offer one or two-day beginner-user to advanced-user step-by-step training and workflow/solutions. This eliminates typical (and costly) weeks-long user training times and allows new or expert users to quickly utilize the software in their projects.

About Us

The methodology underlying SandManager is being developed by Haotian Wang and Dr. Mukul Sharma. Their goal is to enable users to predict both the onset of sand production and the volumes of sand that will be produced in various well completions using the best science available and with the most ease of use.

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