SAND – Selection of Screen Slot Width for Sand Control

SAND provides a new methodology for finding proper wire wrap screen slot widths of single, non-prepacked sand control screens. Based on the sand particle size distribution input to the program, SAND calculates four critical slot width openings.

The software is based on experimental and theoretical work on sand control performed at International Research Institute of Stavanger (IRIS). The model, which has been developed for single wire wrap screens, is calibrated with and validiated on measurements with different sand types from the North Sea and Haltenbanken. The work shows that with proper design criteria single wire wrap screens can be successfully applied in most completions.

Technical Features

- Calculates critical slot width limits for sand plugging or sand production
- Helps to select the right screen slot width
- Numerical model based on laboratory measurements and statistical analysis of a large number of formation sand samples
- Two alternative calculation methods:
  - Principal component analysis
  - Least square analysis
- Optional automatic or manual curve fitting

Software Features

- Windows 9X/NT/2000/XP
- User friendly interface
- Easy interaction with other windows applications
- Numerical result table
- Graphical display of sand particle size distribution and fitted data
- Results can be saved to new file or appended to an existing file
- User Preferences for setup of units

The experimental basis for SAND is largely detailed in SPE 31087: "Selection of Screen Slot Width to Prevent Plugging and Sand Production". However, the modelling method has been simplified and made able to accept a larger range of sand grain distribution parameters. Analysis of sand spectra for sand screen selections may also be performed at IRIS -International Research Institute of Stavanger.

For further information, please contact us at IRIS:
Dr. Bjarne Aas, Phone (+47) 51 87 52 85, E-mail: bjarne.aas@iris.no
Dr. Eva-Maria Reich, Phone (+47) 51 87 53 57, E-mail: eva-maria.reich@iris.no
Web: http://www.iris.no, http://www.iris.no/sand

IRIS
International Research Institute of Stavanger

IRIS – International Research Institute of Stavanger
P.O. Box 8046, Professor Olav Hanssensvei 15, N-4068 STAVANGER, Norway.
Phone: (+47) 51 87 50 00, Telefax: (+47) 51 87 52 00, http://www.iris.no, E-mail: firmapost@iris.no. Enterpr. No: NO 950884800 MVA

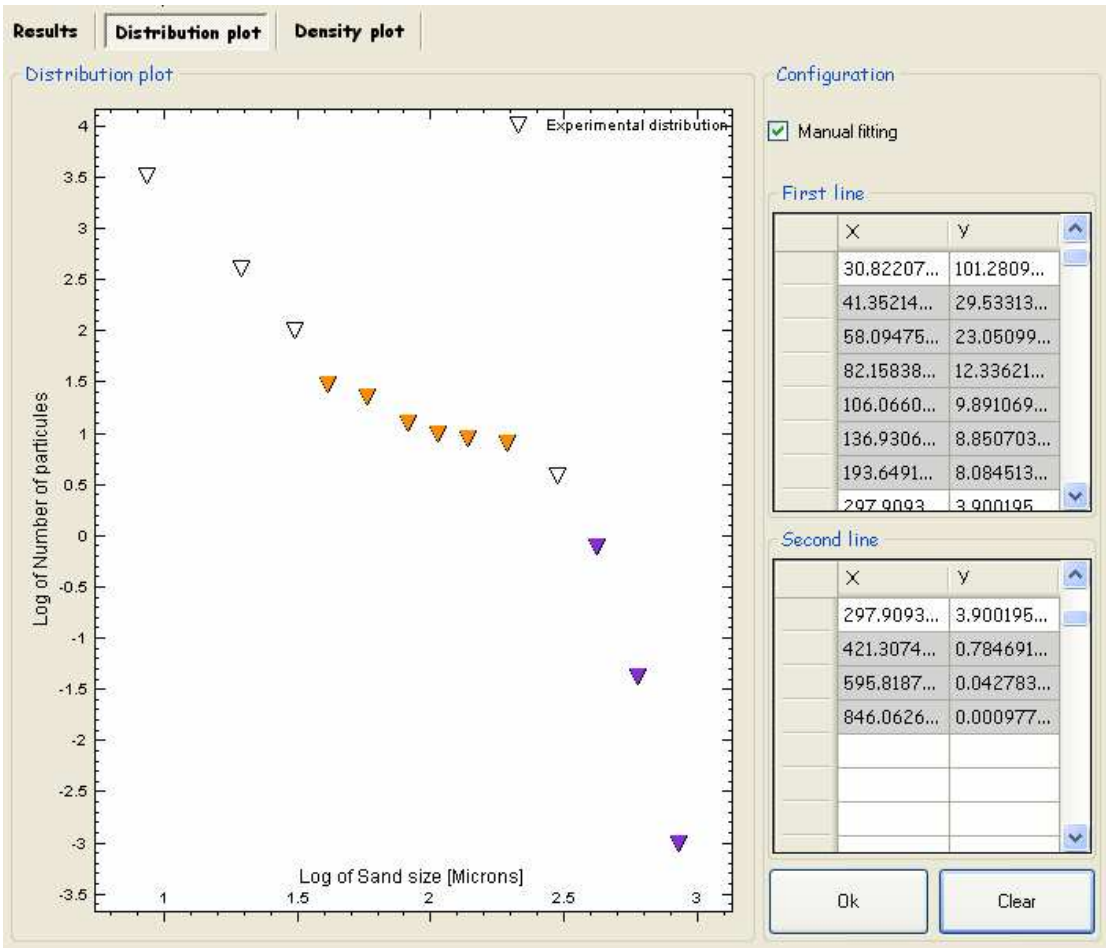

Fig. 1: SAND graphics allow for a manual control curve fitting of the grain size distribution.

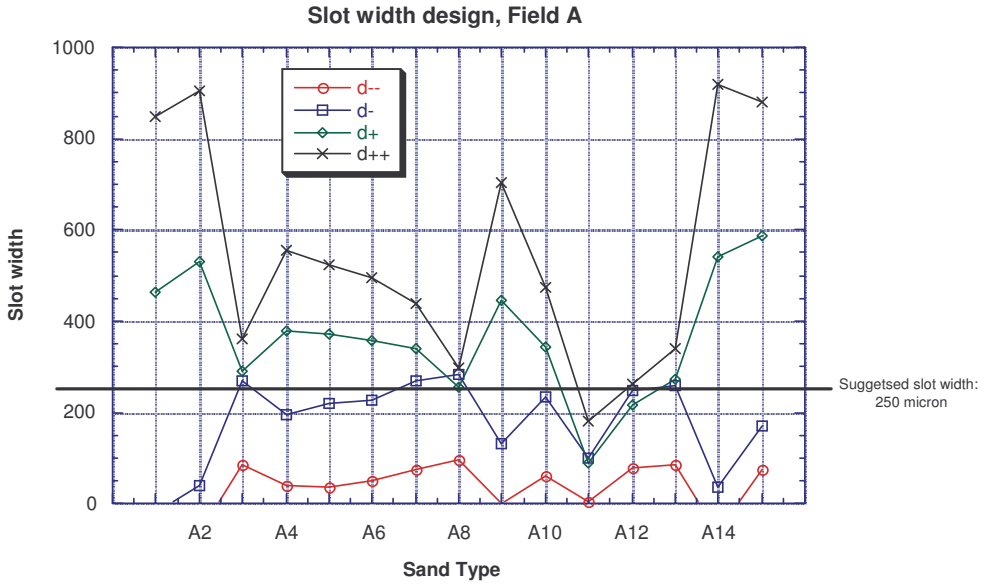

Fig. 2: Example of SAND predictions for critical slot sizes from a whole field. The analysis gives the result that a slot size of 250 µm would be suitable.

IRIS – International Research Institute of Stavanger
P.O. Box 8046, Professor Olav Hanssensvei 15, N-4068 STAVANGER, Norway.
Phone: (+47) 51 87 50 00, Telefax: (+47) 51 87 52 00, http://www.iris.no, E-mail: firmapost@iris.no. Enterpr. No: NO 950884800 MVA