

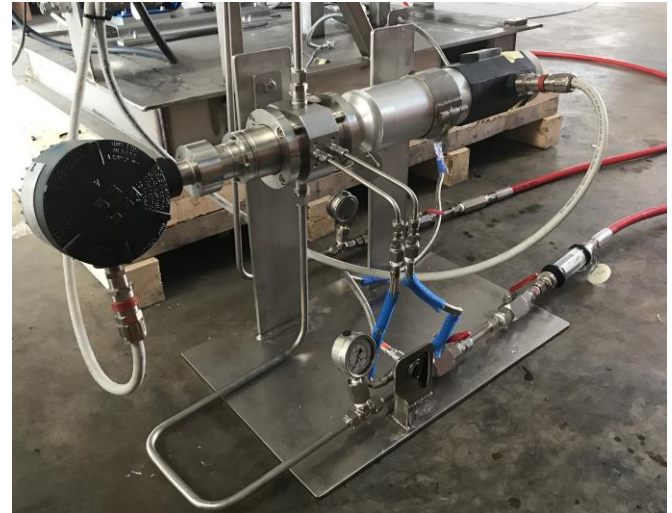


Real-Time Particle Size & Liquid Analyser



Key Facts:

Many offshore oil and gas fields producing high sand or solids are not currently measuring Particle Size Distribution (PSD) due to high levels of contamination in the process medium. The Real-Time PSD Analyser works on the principle of presenting solids entrained in fluid (hydrocarbon and/or water) between a high intensity light source and a microscopic camera to measure particle size and concentration without breaking containment.



Location: Offshore Malaysia
Industry: Oil & Gas

Challenges:

- **HSE** – To negate the requirement for manual extraction and handling of samples that pose a risk to personnel due to the presence of TENORM, Mercury and H₂S.
- **Data Availability** – To provide accurate PSD datasets in real-time as opposed to shipping samples onshore for lab analysis.

Solution:

- SMS mobilised and installed their **Real-Time Particle Size & Liquid Analyser** in an online, closed loop configuration to flow sample fluid from existing sample points through the analyser to closed drains.
- The package design specification incorporated a 3-phase side stream mini separator suitable for use under hazardous process conditions. The mini separator ensured samples were suspended in a stable base fluid (90% water), enabling accurate particle analysis and providing necessary pressure regulation.
- A batch sampling approach was utilised whereby a known volume of liquid flowed through the analyser flowcell and the sand particles were analysed on a per well basis.
- **Particles of size range 0.7 - 300 microns** were analysed and the respective imaging and distribution data output to a service PC in real-time.

Results:

- SMS successfully conducted real-time PSD analysis for 27 wells across the field.
- Throughout all phases of the operation, PSD analysis was conducted with a minimum of 6 litres of fluid, three times per well, to verify datasets and optimize data accuracy.
- All sample imaging was recorded in the acquisition software, thus optimizing results post-job through refinement particle filter thresholding.
- D_n and D_v (%) data outputs provided the client with invaluable data to support wellhead desander design specification.



Sense



Understand



Perform

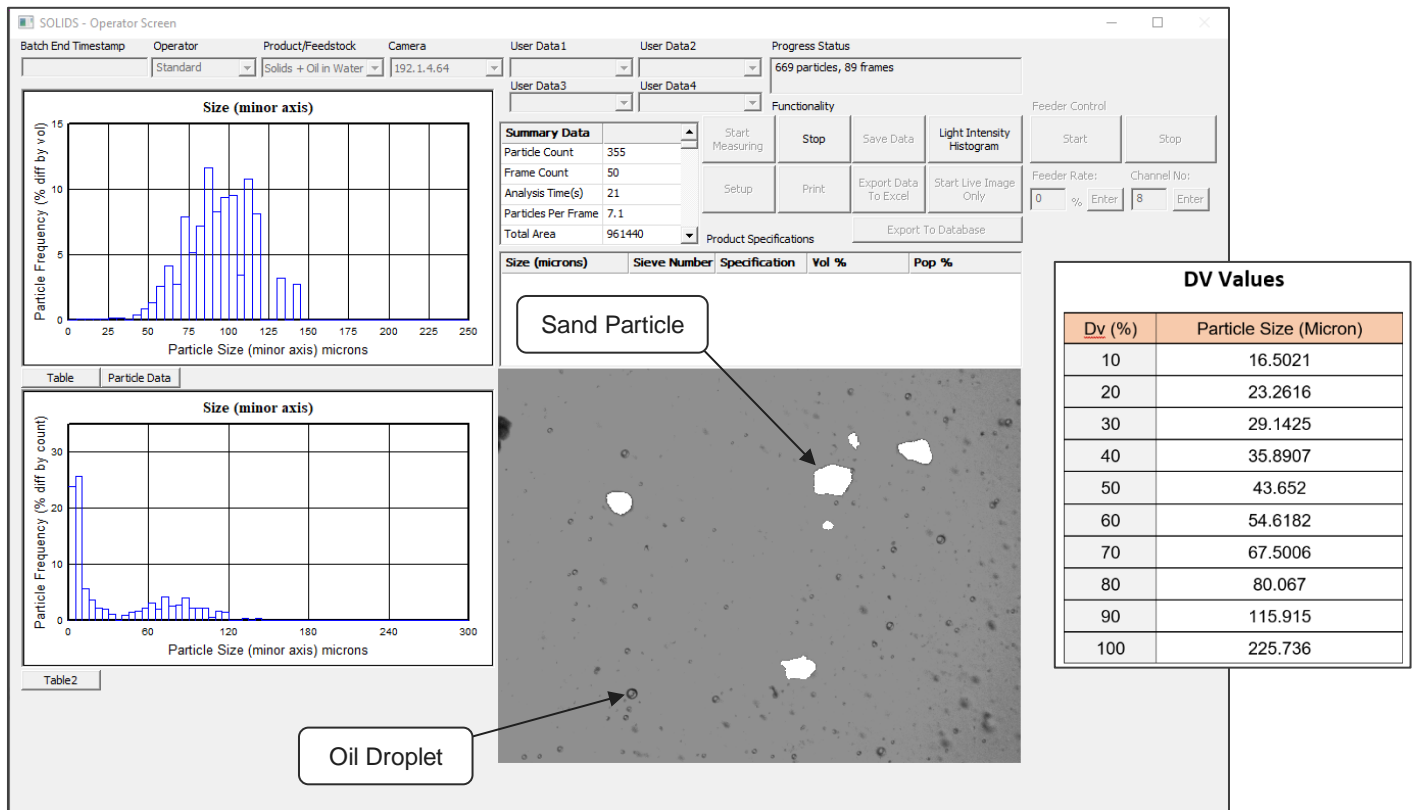


Figure 1: Example Analyser Operator Screen During Real-Time PSD Measurement

Value Creation:

Reduced HSE Risk to Personnel

Closed loop system reducing the risk of potential exposure to harmful contaminants

Reliable Real-time Data

Immediate data analysis and availability, enabling dynamic decision making

Reduced OPEX Cost

Minimal personnel and equipment required on-site

Repeatable and Reliable

- Batch sampling process is quickly repeatable, with multiple runs per well for data averaging and obtaining representative results
- PSD data obtained directly from well flowline upstream of any process / separation
- Sufficient solids samples captured for representative sample data

Contact us at info@smsintegrity.com or click [here](#) for more details on our services.

UK Head Office

Energy Development Centre
Aberdeen Science & Energy Park
Claymore Drive, Bridge of Don
Aberdeen, Scotland AB23 8GD

Tel: +44 (0) 1224 853 525
Fax: +44 (0) 1224 707 999
Email: info@smsintegrity.com

Malaysia Office

SMS Sand Management SDN BHD
26th Floor, Menara Maxis
Kuala Lumpur City Centre
50088 Kuala Lumpur, Malaysia

Tel: +60 (0) 3 2615 2606
Fax: +60 (0) 3 2615 2699
Email: info@smsintegrity.com