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Solids Control for Engineers

About the Course

There are many variables to operating an efficient solids removal system on a well. Solids Control for Engineers is designed to engage the learner in activities that will support the decision making process when sizing, operating, and forecasting the best economic solutions using solids control equipment. This course is intended to build upon previously gained knowledge of solids control equipment, testing, and application.

Main Areas of Focus

- Oilfield solids control equipment design and application from an operational, processing sequence, and economic application perspective.
- Analytical practice for achieving maximum efficiency and application of each type of solids control equipment.
- Advanced instruction in solids analysis, operation and evaluation for the following equipment: shale shakers, hydrocyclones, centrifuges, degassers, and pumps.

Course Specifics

Instructor: Matt Wiggins

Course Length: 5 days*

**Includes test tank and lab sessions*

Time: 8:30 AM – 4:00 PM*

**Breakfast and lunch are provided*

Price: $1,500.00

Class Limit: 14

Attire:

Jeans or pants

Shirt

Closed-toed shoes

Safety equipment/tools provided

Schedule subject to change based on enrollment

Who Should Attend

The course is designed for drilling supervisors, drilling engineers, rig managers, technical support personnel, service company personnel who provide solids control solutions, and senior service personnel associated with drilling operations.

Derrick Equipment Company
15630 Export Plaza Drive, Houston, Texas 77032 U.S.A.
Office: (281) 590-3003 Toll Free: (866) DERRICK Fax: (281) 590-6187 Email: info@derrick.com

	Course Name	Learning Targets	Solids Control Key Outcomes	Hands-On
Monday	**Derrick Equipment Company Overview**	✓ History ✓ Locations ✓ Services	• Derrick key contacts & information	
	Rock Mechanics and Drilled Solids	✓ Formation analysis ✓ Effects of drilled solids	• Solids sizing • Cuttings examination • Particle analysis	• Rock failure & wellbore stability activity • Density of solids, ECD • Particle size & surface area activity
	Lost Circulation Material	✓ Purpose of material ✓ Types of loss ✓ Treatment of losses	• Effects of LCM on mud system and solids removal	• LCM economics overview
	Cuttings Transport	✓ Hydraulic flow patterns ✓ N & K factors ✓ Adjusting yield point	• Importance of cleaning the wellbore	• API Cuttings Carrying Index program group activity
	Drilled Solids Calculations	✓ Hole volume ✓ Washout/porosity ✓ Low gravity solids evaluation	• Solids removal efficiency	• Well plan example & problems
Tuesday	**Dilution**	✓ What is dilution ✓ Dilution calculations & cost ✓ Effect on pit volumes	• Dilution economics	• Dilution cost saving examples • Converting bags to barrels
	Solids Removal System Design	✓ Equipment arrangement ✓ Sizing specifications	• Proper sizing, installation, and arrangement	• Rig layout troubleshooting activity • Rig survey (opportunity permitting)
	Shale Shaker Dynamics	✓ Shaker motion & dynamics review ✓ Motion study	• Shale shaker performance recommendations	• G force math • Calculating conveyance • Weir flow and capacity calculations • Shaker optimization -Test tank hands on
	Screen Technology	✓ Screen weave & wire diameter ✓ Flow rates ✓ Sieve testing ✓ Near size plugging	• Improving screen performance	• API 13E vs API 13C • RoTap activity in lab • Wet sieve testing on test tank • Comparative screen animation
	Cuttings Drying	✓ Drying options ✓ Flocculation	• Routing and proper piping for cuttings drying	• Viscosity & flocculation demo
	Waste Management	✓ Closed Loop Systems ✓ Waste options	• Waste economics	
Wednesday	**Troubleshooting Drilling Fluid**	✓ Rheology review ✓ Contaminants	• How drilling fluid affects screen performance	• OBM – water wet solids lab • Screen cloth microscope – dry & wet
	Degasser Efficiency	✓ Degasser overview ✓ Installation review	• Proper connection & optimization	• Degasser efficiency calculations • Troubleshooting scenarios
	Hydrocyclones & Mud cleaners	✓ Purpose & optimization	• Feet/head review • Cut point accuracy	• Hydrocyclone cut point activity • Hydrocyclone efficiency activity
	Pump Cavitation	✓ Causes of Cavitation	• Pump troubleshooting & maintenance	• Video & visual tour • Test tank cavitation troubleshooting activity
Thursday	**Centrifuge**	✓ Centrifuge applications	• Optimal settings and recommendations	• Variable frequency drive computer demo • Test tank centrifuge demo, sampling & analysis
	Retort Analysis	✓ Side by side retort ✓ Multiple retorts – system performance	• Analyzing solids control data	• Comparative retort lab
Friday	**Solids Removal Analysis**	✓ API RP 13C Removal Efficiency	• Mud Report/Well analysis	• Sample well removal / dilution activity
	Process Trends	✓ Research & Development	• Unique things going on in the field	
	Solids Control Review	✓ Quick quiz ✓ References ✓ Zip drive ✓ Course evaluation	• Assessment for learning	• Recap & discussion

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