



Introduction to Solids Control

About the Course

Drilled solids can be extremely detrimental to drilling rig operations if not properly managed. Solids Control equipment is the most cost effective way to remove drilled solids. This course guides learners through an entire fluid system and the implications related to drilled solids. Emphasis is placed on optimizing equipment that removes sequentially finer drill solids. Overall, this is an introductory course to enhance an individual's knowledge of solids control operations.

Main Areas of Focus

- Overall purpose and history of solids control equipment and processes.
- Instruction on the design, operation and application for the following equipment: **Primers, Flo-Dividers, Shale Shakers, Degassers, Hydrocyclones, Centrifuges, Agitators and Pumps.**
- Guidance and theory on basic drilling fluids, mud testing, and solids control analysis.

Who Should Attend

The course is designed for new hires, rig personnel, civil and underground operators, mud engineers, service technicians, and any other rig personnel with a minimum of knowledge about solids control.

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*

	Course Name	Learning Targets	Solids Control Key Outcomes	Engagement
Monday	Derrick Equipment Company Overview	<ul style="list-style-type: none"> ✓ History ✓ Locations ✓ Services 	<ul style="list-style-type: none"> • Derrick key contacts & information 	
	History of Oilwell Drilling	<ul style="list-style-type: none"> ✓ Drilling rig history ✓ Drilling operations history 	<ul style="list-style-type: none"> • How oil well drilling has changed over the years 	<ul style="list-style-type: none"> • Visual tour through time • Virtual tour of an oil rig • Downhole production camera
	Drilled Solids	<ul style="list-style-type: none"> ✓ Formations ✓ Pressure ✓ Bits 	<ul style="list-style-type: none"> • Understanding rock & clay • Cuttings examination • Solids sizing 	<ul style="list-style-type: none"> • Identify cutting shapes/sizes – create a picture chart of micron ranges • Calculate specific gravity – dry cuttings and weigh on balance vs in beaker /scale • Corn viscosity demonstration
	Rheology	<ul style="list-style-type: none"> ✓ Drilling fluid properties 	<ul style="list-style-type: none"> • Understanding drilling fluid rheological properties 	
	Drilling Fluids	<ul style="list-style-type: none"> ✓ Brief history ✓ Functions ✓ Types of drilling fluids ✓ Understanding a mud report ✓ Mud testing 	<ul style="list-style-type: none"> • Basic mud design • Filter cake, fluid loss • Contaminants • How does it all relate to Solids Control 	<ul style="list-style-type: none"> • Mud lab: build and correct a WBM • Calculate & graph mud properties • Build a filter cake • Analyze a mud report
Tuesday	Primer & Flo-Divider	<ul style="list-style-type: none"> ✓ Use & importance 	<ul style="list-style-type: none"> • Specifications & use on rig 	<ul style="list-style-type: none"> • Visual tour, training bay hands on tour
	Shale Shaker Overview	<ul style="list-style-type: none"> ✓ Parts of a shaker ✓ Dynamics & efficiency ✓ Troubleshooting & maintenance 	<ul style="list-style-type: none"> • Shaker optimization 	<ul style="list-style-type: none"> • Labeling parts of a shaker game • Measure and calculate G force • Hands on test tank demo
	Screen Technology	<ul style="list-style-type: none"> ✓ Brief history ✓ API RP 13 C ✓ Screen comparisons ✓ Screen performance 	<ul style="list-style-type: none"> • Screen sizing • Cut points • Screen analyzing • Issues • Care 	<ul style="list-style-type: none"> • Screen change on Derrick & competitive shakers • Screen microscope • Cost per foot/well tracking program • Screen animation
	Competitive Shale Shakers	<ul style="list-style-type: none"> ✓ Design & specifications 	<ul style="list-style-type: none"> • Pros & cons of competitor shaker specifications 	
Wednesday	Pumps	<ul style="list-style-type: none"> ✓ Types of pumps ✓ Pumps overview ✓ Cavitation 	<ul style="list-style-type: none"> • Suction & operating basics 	<ul style="list-style-type: none"> • Test tank pump sizing activity • Feet/head & pressure calculations
	Degasser	<ul style="list-style-type: none"> ✓ Types of gas ✓ Degasser models ✓ Basic setup 	<ul style="list-style-type: none"> • Proper connection & operation 	<ul style="list-style-type: none"> • Degasser troubleshooting activity
	Hydrocyclones	<ul style="list-style-type: none"> ✓ Hydrocyclone design ✓ Factors affecting cones ✓ Troubleshooting 	<ul style="list-style-type: none"> • Feet/head requirements • Optimization • Maintenance 	<ul style="list-style-type: none"> • Hydrocyclone troubleshooting activity
	Mud Agitators	<ul style="list-style-type: none"> ✓ Agitator specifications 	<ul style="list-style-type: none"> • Basic operation • Tank selection 	<ul style="list-style-type: none"> • Mud tank agitator sizing • Classroom agitator model

Derrick Equipment Company

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Course Schedule				
Thursday	Centrifuge	<ul style="list-style-type: none"> ✓ Stokes law ✓ Centrifuge overview 	<ul style="list-style-type: none"> • General operating guidelines in weighted & unweighted mud 	<ul style="list-style-type: none"> • Centrifugal force video • Stokes Law demo • Centrifuge test tank demo
	Solids Removal System Design	<ul style="list-style-type: none"> ✓ Mud tank arrangement ✓ Suction & flow 	<ul style="list-style-type: none"> • Understanding weirs & suction • Setting up your optimal processing line 	<ul style="list-style-type: none"> • Installation challenge (classroom) • Animated tour
	Drilled Solids Calculations	<ul style="list-style-type: none"> ✓ Hole volume ✓ Dilution basics 	<ul style="list-style-type: none"> • Importance of basic solids removal efficiency 	<ul style="list-style-type: none"> • Calculating drilled solids & dilution from a mud report
	Retort Analysis	<ul style="list-style-type: none"> ✓ Operating a retort machine 	<ul style="list-style-type: none"> • Analyzing solids control data 	<ul style="list-style-type: none"> • Retort sampling on test tank • Running a retort (lab)
Friday	Retort Analysis	<ul style="list-style-type: none"> ✓ Utilizing a retort program 	<ul style="list-style-type: none"> • Analyzing solids control data 	<ul style="list-style-type: none"> • Analyzing retort data
	Solids Control Review	<ul style="list-style-type: none"> ✓ Quick quiz ✓ References ✓ Zip drive ✓ Course evaluation 	<ul style="list-style-type: none"> • Assessment for learning 	<ul style="list-style-type: none"> • Recap & discussion

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