FOUNDATIONS

Technical Training Outlines

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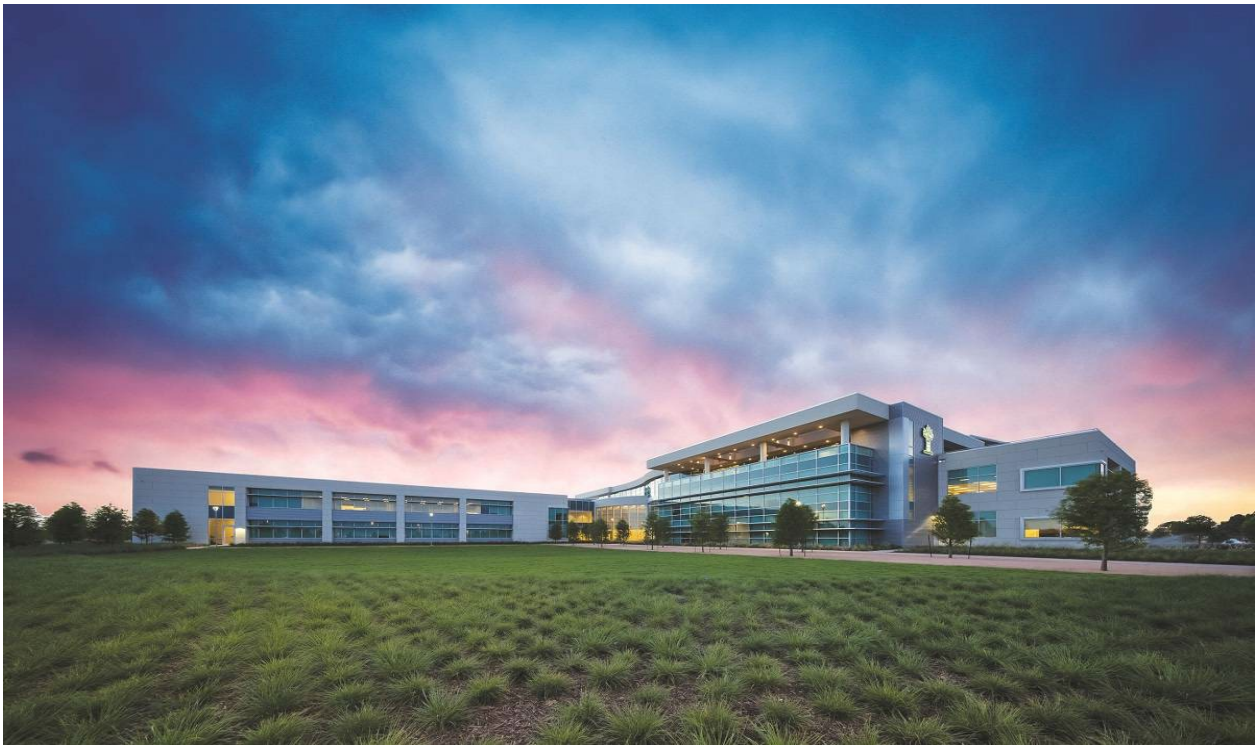
NEWPARK DRILLING FLUIDS



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Newpark – Foundations Course

Overview of the Course

This course provides the participant with a basic knowledge of water-based and invert emulsion drilling fluids, testing procedures, and products as well as relevant details to the challenges that these fluids must overcome. Theory is combined with laboratory exercises covering the testing of the physical and chemical properties of drilling fluids.

Course Activity

This customer orientated Foundations class will present Newpark customers the ability to explore what it is That Newpark does in the world of drilling fluids. This course is designed to further educate individuals who are regularly exposed to drilling fluids and have a basic knowledge of fluid systems but may not have a full understanding of their properties and importance to their particular operation. During the course students will have the opportunity to explore all aspects of drilling fluids through theory and lectures as well as physical laboratory exercises. With both Water Based and Inverted Emulsion fluid technology addressed students will be able to return to their particular job role with a much more advanced and practical knowledge of the importance of drilling fluids and their properties as well as their essential functions. Additionally, local Newpark experts will engage students in aspects of Newpark's proprietary products, systems and technologies.

Course Objectives

After completing this lesson, the student should be able to

- Identify the multiple functions of drilling fluids
- Explain the fundamental concepts of drilling fluids
- Perform both physical and chemical analysis on drilling fluid properties
- Explain the methods of drilling fluids remediation (sweeps, spots, pills, slugs, etc.)
- Describe the drilling fluids reporting process and analyze properties represented
- Discuss the basics of clay chemistry and how it impacts drilling fluid performance
- Tell how fluid loss control is achieved in drilling fluids and its impact on drilling operations
- Define the science of rheology and describe its significance in drilling fluids
- Explain the basic factors impacting hole cleaning and their importance
- Summarize the different challenges posed by shale with respect to drilling fluids
- List several chemical products utilized in drilling fluids

- Discuss the application of polymers in drilling fluids
- List the different water based and invert emulsion fluid types
- Define advantages and disadvantages of water based and invert emulsion drilling fluids
- Discuss the drilling fluids selection process

Outcome

- Students will be able to define the functions of drilling fluids and their respective properties.
- Students will be able to perform a complete drilling fluids analysis and explain why the analysis is performed and what the physical properties as well as chemical titrations represent.
- Students will be able to demonstrate familiarity with the drilling fluid report and be able to explain and describe properties represented.
- Students will be able to explain the difference between, sweeps, spots, pills, and slugs, and describe how they perform and their functions.
- Students will be able to summarize the science of rheology and will be able to recognize the effects of rheological properties on the cleaning of the well-bore.
- Students will be able to recognize how polymers utilized in drilling fluids.
- Students will have observed how clay platelets react under differing conditions.
- Students will be able to explain the fundamental differences between water based and invert emulsion drilling fluids.
- Students will be able to summarize the process of selecting the appropriate drilling fluid based on wellbore location, configuration, lithology, and function.

Technical Content Detail

Development	Technical Content
Day 1	Oilfield 101 Lecture (if required)
	Drilling Fluids Functions Lecture
	Drilling Fluids Properties and Reporting Lecture
	Drilling Fluids Types and Components Lecture
	Basic Chemistry Lecture (if required)
	Clay Chemistry Lecture
Day 2	Sweeps, Spotting Fluids, Pills Lecture
	Lab Safety
	Laboratory Exercise: Perform API Tests on a Water Based Drilling Fluid
	Clay States Laboratory Exercise
Day 3	(Proprietary System) Evolution Lecture
	Rheology and Hole Cleaning Lecture
	Invert Emulsion Fluids Lecture
	Laboratory Exercise: Perform API Tests on an Invert Emulsion Drilling Fluid
Day 4	Polymer Chemistry Lecture
	Fluid Loss Lecture
	Shale Stability Lecture
Day 5	Drilling Fluids Contaminants Lecture
	Drilling Fluid Selection. Lecture
	Presentations by Technology Center Staff
	Tour of Laboratory Facilities
	Release
	Travel

Note: Flexibility has been incorporated into this timetable such that its pace and content can be tailored to the attendees.