

Cementing Operations Best Practices



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Introduction:

Cementing is a very important phase of the well construction plan. Operating company personnel must have a good working knowledge of cements, cementing additives and placement procedures.

The use of temperature modeling, computer programs used for job design, and placement of the cement has caused some operating companies to retain a cement service company representative on a full time basis to assist in the overall cementing operations. The desire of the operator is 100% of the job success.

This course will cover the importance being placed on the cement sheath integrity during the life of the well. This has required that additional mechanical properties of the set cement be obtained other than the compressive strength. The parameters that the cement sheath will be subjected to must be considered. There are a number of joint industry projects addressing this area of work. The course will cover the use of cement formulations; cement additives, casing hardware, cement blending, on-site mixing equipment and a well-planned job procedure. Cementing guidelines will be covered that aid in overall job performance.

This course presents the basic concepts of primary cementing and illustrates the adverse effects upon well performance of a poor quality primary cement job. Remediation using squeeze cementing techniques are discussed. The physical and chemical properties of cement slurries are reviewed. Cement evaluation techniques are discussed and finally a class project is performed in which the participants actually design a cement job and perform a cement evaluation.

Objectives:

By the end of this course delegates will be able to:

- Use cementing additives properly to improve and reduce job costs
- Interpret laboratory test results
- Perform primary cementing operations to include: casing cementing, liner cementing, multi-stage cementing
- Conduct squeeze jobs and selection of squeeze tools
- Perform cement plug operations to improve overall job success
- Interpret cement sheath evaluation logs

Who should attend?

Drilling Engineers, Senior Drilling Engineers, Drilling Supervisors, Work over Engineers, Petroleum Engineers, Completion Engineers, Tool Pushers, Reservoir and Senior Reservoir Engineers, Geologists, Production Engineers, Well site Engineers, Foremen, and Industry Personnel.

Course Outline:

- The Overall Cementing Operation
- Primary Cementing Overview
- The Objectives of Primary Cementing
- Remedial Cementing
- Plug Cementing
- The Basics of Cementing Design
- Problems of Zonal Isolation
- Cement Chemistry
- Cementing Materials & Additives
- Implication of Well Integrity on Well Performance

- Implications of Cement Quality on Well Performance
- Sources of Water Influx
- Solutions and Technologies
- Squeeze Cementing
- Overview of Squeeze Cementing

- Methodology, Equipment and Tools
- Example Calculation
- Performance Characteristics of Cement Slurries
- New Technologies in Cementing
- Introduction to Cement Evaluation
- CBL / VDL / USIT
- The use of Cement Additives
- Laboratory Testing
- Casing Hardware
- Cement Sheath Integrity
- Cement Sheath Evaluation

- Mixing Equipment
- Special Cement Systems
- Cement Guidelines
- Current Documents