Advanced Well Integrity Management

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Introduction:

This course is designed to provide the participants with knowledge to deeply investigate the faultier and risk of well integrity. The participants have an excellent chance to share ideas and to correct the concept of well integrity management. This advanced training course will discuss the proper approach to decision-making to provide certainty within the organization.

The knowledge and skills to make critical decision throughout well life cycle is vital, not only for WIM purpose but as well as for economic value. This course will focus on the Well Integrity management systems and interfaces with other teams in the organization. Integrity barriers are defined, Well Failure model and how to establish one is discussed, as well how to create an efficient well integrity organization. The course will deepen your knowledge of well integrity management, and develop the skills for designing, operating, and maintaining well equipment with the ultimate objective of ensuring a permanent, safe containment of all wellbore fluids.

This training course will feature:

- The concept of Well Integrity
- Awareness of regional Standards and Regulations
- Different stages of well operations from Design and Construction, to Production Impact Well Integrity
- Risks associated with different types of well integrity issues
- Different techniques to reduce / mitigate risks

- Procedures, roles and responsibilities of personnel involved in the well lifecycle towards Well Integrity
- The focus on key areas of well integrity assurance
- The Production supervisor's duties with regard to well integrity
- Improve the delegates' appreciation of the well design and annulus construction; i.e. the well as a "pressure vessel"

- Provide knowledge & understanding of the guidelines and standards that when observed and implemented effectively will ensure well integrity
- Establish an increased awareness of well integrity issues and how they are controlled, managed and by whom
- Provide knowledge of how to maintain equipment for safe and effective operation

Objectives:

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

- Identify well problems from available well data
- Understand guidelines, procedures and standards
- Appreciate design intent of completion equipment and their impact on well integrity
- Be conversant in the care and operation of surface intervention equipment

Who should attend?

Drilling Engineers, Senior Drilling Engineers, Drilling Supervisors, Drilling Superintendents, Petroleum Engineers, Completion Engineers, Tool Pushers, Reservoir and Senior Reservoir Engineers, Geologists, Production and Completion Engineers, Foremen, Work over Engineers, Petroleum Engineers,

Completion Engineers, Tool Pushers, Reservoir and Senior Industry Personnel, Lifting Personnel, Maintenance Engineers, Technologists, Mud Engineers, Well Site Supervisors, Drilling Contractors, Drilling Supervisors, Completion Engineers, Completion Supervisors, Drilling Managers, Drilling Technical Support Personnel, Trainee Drillers, Rig Engineers, Affiliate Technical Directors, Asset Managers, Petroleum Engineers, Production Technologists, Production Personnel, Production Operators, Maintenance Supervisors, Drilling and Well Servicing Personnel, Drilling Managers, Drilling/Well Engineers, Completion and Well Service Engineers, Drilling Supervisors, Rig Managers, Drillers, Industry Personnel.

Course Outline:

Fundamentals of Well Integrity and Detection of Problems

- Definition of the various components of the well and showing the integrity barriers
- Designing Integrity in Wells-Completion Design-Life expectancy
- Influences on Well Integrity and why it needs managing
- Preventive maintenance reduces operating cost and optimizes production
- Maintenance Processes and Differences

- External well integrity maintenance
- Internal well integrity maintenance
- Ways of losing well integrity.

Technology & Tools for Internal Well Integrity Diagnostic & Monitoring

- PLT Logging Techniques
- Securing internal integrity, reservoir reconciliation, leak detection etc.
- Establishes tubing base line wall thickness and corrosion over life cycle of the well
- Non-intervention less investigations like Pressure testing
- Detects leaks
- Production profile

How to Prevent Catastrophic Failure of a Well caused by External and Internal Corrosion

- Risk to the completion string from internal sources
- Barrier understanding
- Show different types of wells
- Monitor for and understand mechanical integrity problems preventing potential production rates
- Sand removal
- Impact of Paraffin's and Asphltien on well integrity

- How to treat these problems in a proper ways?
- How to execute scale removal
- Cement squeeze for water and gas shut off.

Consequences of Loss of Integrity of One Well to its Surrounding

- Increasing amount of Underground blowouts
- Abandonment: Temporary and permanent

Well Integrity & Barrier Philosophy and How Testing is Done

- Well Failure Model - How to arrive at the document
- Group Exercise
- Referring to the barriers discussed above, make a plan to test and verify the barriers
- Leak rate determination calculations
- Risk Based Well Integrity Management and Testing
- The management of Barrier testing
- Discuss testing methods of the barriers in the well
- Failure Mode and Effects Analyses Diagram (real case document)
- Show barriers, function and its severity in case of failure
- Discuss testing and managing the data

- Provide systems and procedures, which ensure that the integrity of the well is assured
- Ensure that the well is maintained with reference to appropriate procedures and specifications
- Ensure that the risks of operating the well are as low as reasonably practicable
- Basis for the development of asset-specific well maintenance and integrity standards, policies, procedures and performance targets

Optimize Well Completion to Optimize Well Integrity during the Lifespan of the Wells

- How to build an organization with sufficient Well Integrity competence and capability
- Understanding of lowest unit cost, as opposed to cheapest
- Competent staff

Example of Well Head Maintenance Manual

- Well Failure Model
- Failure Modes and Effect Analyses
- Risk Based Well Maintenance
- Well Hand Over Form
- Well Head Check Sheet