Well Integrity Management Across the Full Lifecycle Training Course



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4100 € (Per Person)

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Course Introduction / Overview:

This comprehensive training course provides a holistic and in-depth exploration of well integrity management across the entire asset lifecycle, from initial design to final abandonment. In an industry where operational safety, environmental stewardship, and economic performance are paramount, maintaining well integrity is not just a technical requirement but a strategic imperative. This program moves beyond siloed approaches, integrating the principles of engineering, risk management, and regulatory compliance into a unified framework. Participants will delve into the critical elements that ensure a well remains a secure and reliable asset. Drawing on the foundational work of industry experts like George E. King, whose extensive publications, including "Well Integrity for Workovers and Recompletions," have shaped modern practices, the course emphasizes a proactive rather than reactive stance. BIG BEN Training Center has designed this curriculum to equip professionals with the skills to develop, implement, and audit robust well integrity management systems, ensuring long-term asset value and mitigating catastrophic failures. The course covers everything from well barrier philosophy and cementing best practices to advanced diagnostics, annular pressure management, and sustainable abandonment strategies, making it an essential program for today's energy professionals.

Target Audience / This training course is suitable for:

- Well Integrity Engineers.
- Production and Operations Engineers.
- Drilling and Completions Engineers.
- Reservoir Engineers and Geoscientists.
- Asset Managers and Team Leaders.
- HSE and Regulatory Compliance Professionals.
- Field Supervisors and Superintendents.
- Maintenance and Inspection Personnel.
- Technical and Engineering Managers.

Target Sectors and Industries:

- Oil and Gas Exploration and Production (Upstream).
- Geothermal Energy Development.
- Carbon Capture, Utilization, and Storage (CCUS).
- Underground Gas Storage Facilities.
- Energy Service and Technology Companies.
- Governmental Bodies and Regulatory Agencies.

Target Organizations Departments:

- Engineering and Technical Services.
- Operations and Production.
- Drilling and Completions.
- Health, Safety, and Environment (HSE).
- Asset Integrity Management.
- Subsurface and Reservoir Management.
- Regulatory Affairs and Compliance.
- Maintenance and Reliability.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop and implement a comprehensive well integrity management system.
- Apply the principles of the well barrier philosophy to various operational scenarios.
- Analyze well integrity risks at each stage of the asset lifecycle.
- Evaluate material selection and design considerations for long-term integrity.
- Master techniques for effective cement evaluation and remediation.
- Diagnose and manage annular pressure buildup and other integrity threats.
- Implement robust monitoring, surveillance, and data management programs.
- Assess and apply relevant industry standards such as API, ISO, and NORSOK.
- Plan and execute safe well interventions, workovers, and abandonments.
- Conduct effective well integrity audits and reviews to ensure compliance.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to foster a dynamic and engaging learning environment that bridges theory with practical application. This course utilizes a blended approach, combining expert-led instruction with highly interactive sessions. Participants will not just listen to lectures; they will actively engage with the material through real-world case studies of well integrity failures and successes, allowing for deep analysis of root causes and preventive measures. Collaborative group workshops will challenge teams to develop risk assessment matrices, design well barrier schematics, and create integrity management plans for hypothetical scenarios. Interactive discussions and Q&A sessions are integrated throughout the program to encourage knowledge sharing and address specific challenges faced by participants in their own operations. The curriculum is reinforced with practical exercises and problem-solving activities that simulate on-the-job decision-making. This hands-on approach ensures that participants leave with not only a thorough understanding of well integrity principles but also the confidence and competence to apply these critical skills directly to their roles, driving safety and efficiency within their organizations.

Course Agenda (Course Units):

Unit One Foundations of Well Integrity Management

- Introduction to well integrity and its importance.
- The well lifecycle from a strategic integrity perspective.
- Understanding well barrier philosophy and elements.
- Key industry standards and regulations (API, ISO, NORSOK D-010).
- Roles and responsibilities in a well integrity management system.
- The economic and environmental impact of integrity failures.
- Establishing a corporate well integrity policy and culture.

Unit Two Well Integrity in Design, Drilling, and Completion

- Designing for lifecycle integrity and well longevity.
- Material selection for casing, tubing, and completion equipment.
- Fundamentals of primary cementing for zonal isolation.
- Cement placement techniques and quality evaluation logs (CBL/VDL).
- Completion design and its impact on future integrity.
- Wellhead and christmas tree integrity requirements.
- Factory acceptance testing and site integration testing protocols.

Unit Three Operational Well Integrity and Surveillance

- Routine monitoring and testing of well barriers.
- Techniques for well integrity data acquisition and management.
- Annular pressure management, diagnostics, and bleed-off procedures.
- Corrosion and erosion mechanisms and mitigation strategies.
- Sustained casing pressure (SCP) analysis and resolution.
- Well integrity logging and diagnostic tools.
- Developing effective inspection and maintenance programs.

Unit Four Advanced Integrity Assessment and Risk Management

- Well integrity failure modes and effects analysis (FMEA).
- Root cause analysis of well integrity incidents.
- Quantitative and qualitative risk assessment methodologies.
- Developing and using a well integrity risk matrix.
- Managing the integrity of aging and mature wells.
- The role of digital technology and predictive analytics in well integrity.
- Conducting well integrity audits and performance reviews.

Unit Five Well Intervention, Workover, and Abandonment

- Maintaining integrity during well intervention and workover operations.
- Integrity considerations for stimulation and hydraulic fracturing.
- Temporary suspension and mothballing of wells.
- Regulatory requirements for permanent plug and abandonment (P&A).
- P&A design, barrier verification, and long-term monitoring.
- Challenges and technologies in rigless P&A.
- Documenting and handing over the end-of-life well file.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As the industry moves towards digital twins and predictive analytics, how might the traditional 'well barrier' philosophy evolve to incorporate probabilistic risk models and real-time data streams?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself through its holistic, lifecycle-centric framework, which treats well integrity not as a series of isolated technical tasks but as a continuous strategic function spanning from a well's conception to its final decommissioning. Unlike narrowly focused programs that may concentrate solely on production-phase issues or drilling practices, this curriculum integrates every stage, demonstrating how decisions made during design directly impact options available during abandonment decades later. The academic rigor of the program is grounded in practical reality, moving beyond mere recitation of standards to explore the complex interplay between engineering design, operational pressures, and risk management. It emphasizes a deep understanding of failure mechanisms through the forensic analysis of real-world case studies, enabling participants to develop a proactive and predictive mindset. Furthermore, the course content is uniquely structured to bridge the gap between technical specialists and asset managers, equipping participants with the language and tools to articulate integrity risks and justify investments in terms of both safety and long-term asset value. The focus is on cultivating expert judgment rather than just procedural knowledge, empowering professionals to make sound decisions in complex and often ambiguous operational environments.