



# 3 Day Stuck Pipe Prevention

**Dr. Qamar J. Sharif**

B.Sc Mining Engineering

M.Sc Petroleum Engineering

PhD. Petroleum Engineering



**O&G Knowledge Sharing Platform**

Enhancing Return on Investment in Oil & Gas Training

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This 3-Day course is designed with the simple phrase in mind: “Prevention is Better than Cure”. The course provides a comprehensive understanding of three stuck pipe mechanisms, causes leading to each mechanism, and recognition of warning signs. Participants will learn how to perform the trend analysis and learn to “listen to the well” by understanding the “language of the well.”

The course includes a stuck pipe mechanism identification table and recommends the first actions for each mechanism. Stuck pipe case histories are included to enhance the learning. The course also covers knowledge of the formations and borehole instability problems and recommends guidelines to empower the driller on best tripping practices. We recommended that the course is taken by the rig team together, as a team building exercise as well as an opportunity to improve communication skills.

This operations-oriented training emphasizes a proactive approach to stuck pipe prevention. It teaches how to “listen to the well” and perform trend analysis. The course also focuses on how to detect the causes leading to stuck pipe at an early stage and what preventive actions to take before full sticking occurs.

### **What will this course cover?**

The course emphasizes the importance of recognizing the signs at an early stage and taking PREVENTIVE actions before the sticking takes place. It is designed to increase the knowledge and competency of the drilling crews. It empowers the drilling crew to perform correct diagnosis, improve communication, and take the correct “First Actions” to prevent stuck pipe incidents. Studies have shown that about 90% of stuck pipe incidents can be freed with appropriate “First Actions” within the first 4 hours of sticking. The course also includes the effective use of drilling jars and understanding of pump open force.

<b>What will you learn?</b>	<b>Who will benefit?</b>
<p>On completion of this course you will be able to fully understand how to:</p> <ul style="list-style-type: none"><li>• Identify the three sticking mechanisms and their causes</li><li>• Recognize the sticking causes at an early stage and what preventive actions to take before full sticking develops</li><li>• Understand the fundamentals of hole cleaning</li><li>• Discover techniques of stuck pipe prevention</li><li>• Learn to “listen to the well”</li><li>• Perform trend analysis of drilling parameters</li><li>• Read a stratigraphic column with identification of potential problem formations</li><li>• Review case histories with in-depth analysis.</li><li>• Understand the workings of drilling jars, pump open force, and jarring load calculations</li><li>• Appreciate the team approach and the need for good communication</li><li>• Identify the sticking mechanism and what “First Actions” to take to free a stuck pipe</li></ul>	<p>The following oil and gas company personnel will benefit from the knowledge shared in this course:</p> <ul style="list-style-type: none"><li>• Drilling crews</li><li>• Rig Managers</li><li>• Drilling Foreman</li><li>• Drilling engineers</li><li>• Mud engineers</li><li>• Wellsite geologists</li><li>• Directional drillers</li><li>• Drilling contractors staff</li></ul>

808 W. Boxborough Dr., Wilmington, DE 19810, USA

Tel: +1 (303) 872 0533, Mob.: +966 50 857 3255

e-mail: [mianma@OGKnowledgeShare.com](mailto:mianma@OGKnowledgeShare.com)

**WE STRIVE TO CREATE END-TO-END SOLUTIONS THAT MEET OUR CLIENTS' NEEDS AND EXCEED THEIR EXPECTATIONS**

#### **INTRODUCTION TO OIL & GAS DRILLING**

- Oil and gas development
- Formations, rock pressure, fluid traps
- Fundamentals of petroleum
- Basic geology

#### **MAJOR CAUSES OF LOST TIME**

- Definitions
- Global statistics
- Stuck pipe causes and mechanisms

#### **ROCK MECHANICS**

- Stratigraphic column
- Deviated and horizontal wells
- Wellbore stresses and instability
- Drilling window
- Drilling fluid properties and mud weight
- Video

#### **IDENTIFICATION OF STICKING MECHANISMS**

- Use of identification table
- Hole pack-off / bridging
- Wellbore geometry
- Differential sticking
- "First Actions"
- Exercise

#### **DRILLING JARS**

- Types of drilling jars
- How jars work
- Pump-open force
- Calculation of jarring loads
- Why jars don't work
- Jars placement
- Exercise

#### **HOLE PACK-OFF / BRIDGING**

- First mechanism
- Causes
- Drilled cuttings - bit
- Caving - not from bit
- Causes of insufficient hole cleaning
- Annular velocity
- Hole angle
- Boycott effect
- Pipe rotation
- Video
- Hole cleaning guidelines
- "First Actions"
- Exercise
- Causes of bore hole instability
- Tripping guidelines

#### **WELL IS TALKING**

- Drilling parameters recording
- "Learning to Listen" – trend analysis
- Geograph exercise

#### **WELLBORE GEOMETRY**

- Second mechanism
- Causes
- Key seating
- Ledges and doglegs
- Under-gauge hole
- Collapsed casing
- Junk
- Shoe joint back-off
- "First Actions" FIRST ACTIONS
- Exercise

#### **DIFFERENTIAL STICKING**

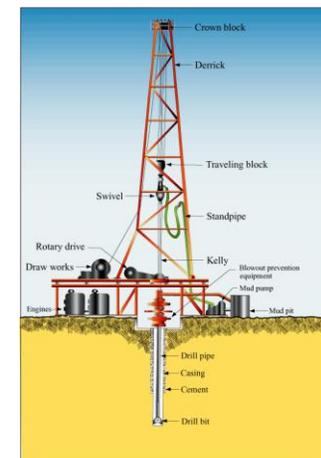
- Third mechanism
- Fire prevention triangle and differential sticking prevention square
- Calculation of differential sticking force
- Causes
- Preventive measures
- "First Actions"
- Exercise

#### **ECONOMICS OF FISHING**

- Time value of money
- Probability model
- Time limit for fishing operations
- Stuck point determination, pipe stretch method

#### **CONSOLIDATION**

- Team work
- Implementation of learning
- Recommendations





## Dr. QAMAR J. SHARIF

Dr. Sharif is a petroleum engineering specialist with Saudi Aramco. He has over 35 years of practical experience in the oil and gas industry, including academia. He has diversified background in drilling, workover and completion operations, research, technology development and implementation, field development planning, well cost estimation, contracts and contracting strategy for oil and gas operations. He started his career on a steam-powered rig as a trainee drilling engineer in 1980. He worked as Assistant driller, driller and tour pusher on offshore drilling rigs in Abu-Dhabi, U.A.E.

After working 11 years in operations he joined graduate school and earned his MS and PhD in Petroleum Engineering from Texas A&M University, College Station, Texas. He has a unique blend of hands-on field operations and academic knowledge. He worked with Shell International Exploration and Production (SIEP) in Houston and was a recipient of the Shell President Award for premier performance for design and implementation of multi-string steam injection well design at Bakersfield, California.

Dr. Sharif has been involved in new joint ventures startup, product line development, commercialization strategy for Enventure GT, an Expandable Tubular Company (a JV between Shell and Halliburton). He deployed the first expandable casing, downhole.

He worked with Shell Nigeria, Farcodus Yokri Project, Warri and reduced well completion time by more than 50% for dual completions. He has expertise in developing novel ideas and transforming them into robust and practical solutions. He has been teaching stuck pipe prevention and lost time reduction course and conducted an awareness campaign for offshore drilling department. He has been involved in teaching undergraduate and graduate courses at King Fahd University of Petroleum and Minerals (KFUPM), Petroleum Engineering Department, Dhahran, Saudi Arabia. He brings out the best in his students.

He served as Curriculum Advisor - Well Construction discipline, representing Saudi Aramco with PetroSkills.

### EDUCATION

- B.Sc Mining Engineering, M. Sc Petroleum Engineering, Texas A&M University, USA & PhD Petroleum Engineering, Texas A&M University, USA

### PORTFOLIO OF COURSES

- Offshore and Deep-Water Drilling
- Drilling Operations
- Stuck Pipe Prevention
- Drilling Operations Optimization
- Advanced Drilling Engineering
- Drilling Hydraulics Design

### PUBLICATIONS

- Fiber Glass Lined Tubular as completion string for corrosion protection
- Application of Drilling-with-Casing (DwC) Technology
- Meeting Economic Challenges of Deepwater Drilling With Expandable Tubular Technology
- Strategic Cost Leadership - reduction of completion time by more than fifty percent
- Probability of getting stuck while drilling and probability of freeing the pipe, if stuck
- Unconventional Methods for Shallow Water Flow Conductor Installation
- Carbonated Water Imbibition Flooding for fractured reservoirs

### COURSES DELIVERED IN

Cambodia, Australia, Singapore, Kuala Lumpur, Dubai, London, Houston, Mexico, Pakistan and Saudi Arabia

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Course Name	<input type="text"/>		
Course Venue	<input type="text"/>	Course Date	<input type="text"/>
Company	<input type="text"/>		
First Name	<input type="text"/>	Last Name	<input type="text"/>
Title	<input type="text"/>		
Email	<input type="text"/>	Phone	<input type="text"/>
Address	<input type="text"/>		
City	<input type="text"/>	State	<input type="text"/>
Postal Code	<input type="text"/>	Country	<input type="text"/>

Full payment is due within 14 days from date of invoice and before the course commences. Delegates will not be allowed entry to the course if any payments are outstanding. A confirmation letter and invoice will be sent to you on receipt of your booking.

You may substitute delegates at any time as long as reasonable advance notice is given to O&G Knowledge Sharing Platform. For any cancellation received in writing not less than twenty (20) working days prior to the date of the training course, you will receive a full refund less US\$ 150 administration fee and any related bank or credit card charges.

Delegates who cancel the registration less than twenty (20) working days of the date of training course, or who do not attend the course, are liable to pay the full course fee and no refunds will be granted.

In the event that KSP cancels or postpones the course for any reason, the delegates will be given choice to (a) request full refund less applicable credit card or bank charges, (b) attend the same course at the rescheduled date at the same or other venue or (c) receive credit note to be used by any employee of the same company for any other course offered by KSP, which must occur within one year from the date of postponement.

#### COMPANY GAURANTEEE

If Company Payment is selected as the Billing Method, an official letter from the company, signed by HR or responsible Management, stating names of the delegates who will attend the course and the total course fee payment guaranteed by the company to be paid within 30 days upon receipt of invoice from KSP shall be submitted ten (10) working days before the start date of the course.

#### CHARGES AND FEES

1. For Payment by Direct Telegraphic Transfer, client has to bear both local and oversea bank charges.
2. For credit card payment, there is additional 4% credit card processing fee, which shall be added to the course fee.

## COURSE FEES & VENUE

**Middle East – US\$ 2,500**

**All Other Locations – US\$ 2,950**

The fees is per participant. Hotel accommodation and travel costs are not included in the fees. The Fees includes refreshments, lunch and course material. Course is held preferably in a 5-star hotel. The final venue selection will depend upon the number of delegates attending the course and availability of the venue. All delegates will be informed about the venue two weeks before the course start date.