



IWCF and IADC/Well Control Professional Training Course, 24 – 29 April 2021

A Memorandum of Understanding MOU was previously signed between Tishk International University TIU and Entrac Petroleum Ltd EPL, based in London, which is a well-known consultancy and training provider for the oil industry.

According to this MOU, the first training session entitled “IWCF and IADC/Well Control” has taken place at the premises of Tishk International University (TIU) during the week starting on 24.4.2021 until 29.4.2021, and was completed successfully.

Seven Participants from Tishk International University Staff members and Eleven participants from different oil companies which are working in different oil fields in Kurdistan Region have joined this training course. The training session was provided by EPL instructors, headed by Engineer Ayad Abduazeez Kadhim and included detailed lectures covering the basic background of oil well drilling and well control, followed by a practical session on the drilling simulator which was installed at the petroleum fluid properties laboratory of the Petroleum & Mining Engineering Department-TIU. The final activity was a comprehensive online test which took place at the programming laboratory of the Computer Engineering Department under invigilation of two third party invigilators from both IWCF (International Well Control Forum) and IADC (International Association of Drilling Contractors) accrediting institutions.

One of the distinguished outcomes of this test was that all participants have passed the test with high grades, which gives indication of the high quality of the training course.

Professor, Dr. Hamed M. Jassim from the department of Petroleum & Mining Engineering at TIU provided full help and logistic support to this training course.

In addition to the benefit of collaboration between TIU and a prestigious international training **and consultation company, the running of such training courses brought financial benefits to Tishk International University.**



Objectives

The Well Control course addresses the principles and the theory of well control along with the most commonly used well control techniques. This is a theoretical and practical course for surface installation. The course is designed to enhance the understanding of the fundamentals of well control that can be applied at most well control operations, and to prepare candidates for IWCF testing. The course is designed for drillers, Assistant Drillers and Drilling Engineers and personnel involved in the drilling process, both onshore/ offshore and who are preparing to attend the certified IWCF course-Level 2,3 and 4/ or those who want a thorough knowledge of well control techniques.

Topics

1- Surface Principles & Procedures

1. Overview
2. Introduction to Well Control
3. Barrier Concept
4. Risk Management
5. Causes of kicks
6. Kill Warning Signs and Kick Indicators
7. Top Hole Drilling
8. Circulating Systems
9. Fracture Pressure and Maximum Surface pressure
10. Influx Characteristics and Behavior
11. Shut In Procedures
12. Well Control Methods
13. Kill Sheets
14. Well Control during Casing and Cementing Operations



2- Surface Equipment

1. Blowout Preventers
2. Associated Well Control Equipment
3. Choke Manifold and Chokes
4. Auxiliary Equipment
5. Barriers
6. Testing
7. BOP Control Systems

The training course took place during the **period 24.4.2021 till 29.4.2021.**

The following table shows the schedule of the training course:

Session title	Session outline	Presenter	Day / Date	Time
1- Welcome. 2- General Information, Pressure Concepts and Calculations 3- Introduction to Barriers	Speech/Introduction, IWCF course introduction aims & objectives Well control event Well control training and assessment Need for well control training Hydrostatic Pressure; calculations	Eng. Ayad Abdulazeez Kadhim	Saturday 24.4.2021	9:00 – 12:00
			Saturday 24.4.2021	13:00 – 16:00



	<p>Formation Pressure: cause of formation pressure Fracture Pressure Primary & Secondary Well control Well Influx and Uncertainties in PP and FG Barrier Envelope</p> <p>Primary & secondary barriers Barrier envelope Risk Assessment Requirements for MOC BOP testing & Well Control emergency drills</p>	<p>Eng. Ayad Abdulazeez Kadhim</p>		
<p>Kicks(Causes ,Detection & Warning signs)</p>	<p>Causes of hydrostatic pressure reduction</p> <ul style="list-style-type: none"> ➤ Abnormal formation pressure ➤ Tripping ➤ Loss circulation ➤ Reduction of mud density 	<p>Eng. Ayad Abdulazeez Kadhim</p>	<p>Sunday 25.4.2021</p>	<p>9:00 – 12:00</p>



	<ul style="list-style-type: none"> ➤ Temperature and pressure effects ➤ Gas cutting ➤ Swabbing & surging <ul style="list-style-type: none"> ▪ Trip margin ▪ Pipe Slugging Trip sheet Swabbing in horizontal wells Running non-shearable items through BOPs Kick Detection Kick warning signs and indicators Kicks while drilling Kick indicators and first signs Top hole drilling Circulating system 	<p>Eng. Ayad Abdulazeez Kadhim</p>	<p>Sunday 25.4.2021</p>	<p>13:00 – 16:00</p>
<p>1- LOT, FIT , MAASP 2- Influx Characteristics and Behavior</p>	<p>Formation Integrity Test MAASP Kick Tolerance Gas Migration Gas Expansion Compressibility and phase behavior Gas solubility in mud Gas breakout Gas behavior in horizontal wells Flow check</p>	<p>Eng. Ayad Abdulazeez Kadhim</p>	<p>Monday 26.4.2021</p>	<p>9:00 – 12:00</p>



<p>Shut in procedures & Shut-in data</p>	<p>Drilling on bottom</p> <ul style="list-style-type: none"> ▪ Tripping in/out of the hole ▪ Running casing. ▪ Cementing ▪ Wireline operations ▪ Running completion <p>Shut in data Non-kick incidents & trapped pressure Accuracy of gauges Gas migration in a shut in well Shut in period and pressure stabilization Controlling pressure when gas is migrating</p>	<p>Eng. Ayad Abdulazeez Kadhim</p>	<p>Monday 26.4.2021</p>	<p>13:00 – 16:00</p>
<p>Well Control Methods and Procedures</p>	<p>U-Tube Interpretation of shut-in data Maximum kill rate Startup procedure Kill sheet: detailed example Wait & Weight method Drillers Method Advantages & disadvantages of Drillers & W & methods Volumetric method</p>	<p>Eng. Ayad Abdulazeez Kadhim</p>	<p>Tuesday 27.4.2021</p>	<p>9:00 – 12:00</p>



	Stripping operations Well control while running casing Common well control problems Well control management			
Well Control Equipment	BOP Equipment: Annular, Ram, Blind and Shear Rams Ram seals Annular closing pressure adjustment Closing pressures and volumes Closing ratio Stack arrangements Choke manifold and piping Remote auto choke, manual chokes Safety valves, IBOPs, float valves, drop in valves Auxiliary well control equipment: MGS, vacuum degasser, casing head Side outlet valves Surface equipment testing	Eng. Ayad Abdulazeez Kadhim	Tuesday 27.4.2021	13:00 – 16:00



	Cup tester & test plugs BOP closing times Pressure test frequency Inflow testing Inflow testing procedure and interpretation BOP Hydraulic control system Volume requirements Accumulator tests Remote Panels Indicator light problems			
Simulator Training Practical Assessment		Eng. Soran Mohammed	Wednesday 28.4.2021	9:00 – 12:00
Practical Assessment		Eng. Soran Mohammed	Wednesday 28.4.2021	13:00 – 16:00
Exam of P. & P. (Principles & Procedures)		IWCF Invigilator	Thursday 29.4.2021	9:00 – 12:00
Exam of Equipment		IADC Invigilator	Thursday 29.4.2021	13:00 – 18:00

The following photos give illustrative documentation of this training course:



