

International Association of Drilling Contractors (IADC)

The Changing Face of Well Control Training

Mark Denkowski
EVP Operational Integrity



IADC History

75 Years: 1940-2015



ODC Logo, 1940-1959
American Association of
Oilwell Drilling Contractors



AAODC Logo, 1959-1972
American Association of
Oilwell Drilling Contractors



IADC Logo, 1972-2014
International Association
of Drilling Contractors



IADC Logo, 2014-Present
International Association
of Drilling Contractors



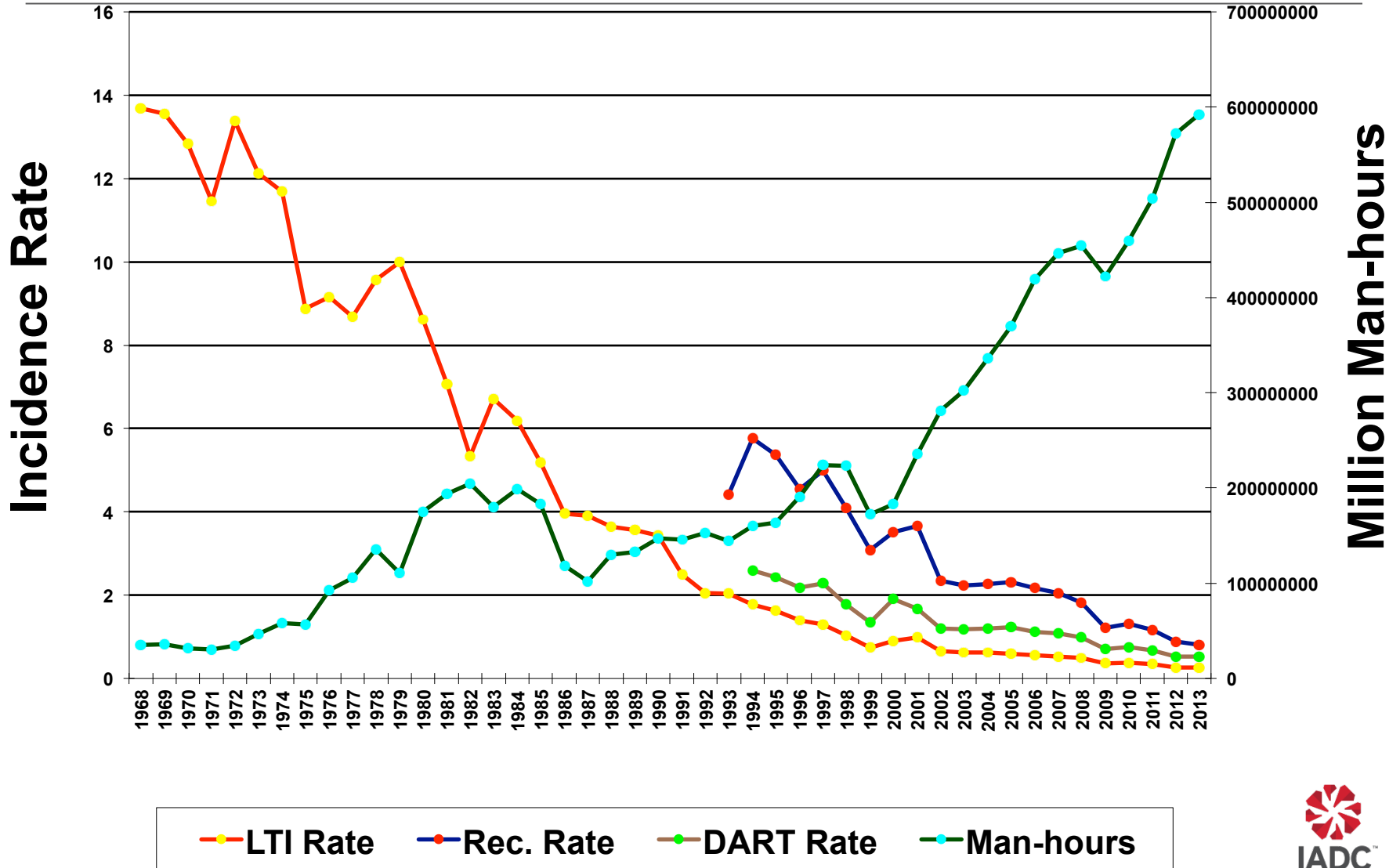
IADCTM **75**
YEARS

IADC 75th Anniversary Logo, 2015
International Association of Drilling Contractors

Nothing is more important than ensuring the safety of our people.

.....Closely followed by our commitment to environmental stewardship

Industry LTI Rates: 1968-2013



IADC WellSharp Program Update

Why the Change

- Industry stakeholders saw a clear need for:
 - Improved technical knowledge and skill
 - Improved and consistent human behaviors
 - Improved process integrity

What's changed

- **Focus on training all personnel involved with Well Control and ensuring that that training is commensurate with their role and responsibilities.**
- Expanded course levels to tailor training to the requirements of specific roles and responsibilities.
- Implement independent proctoring / invigilators. Increased focus on auditing.
- Improved instructor qualifications.
- Centralized electronic testing and grading to ensure integrity and international uniformity.
- Immediate test results with missed question learning objective guidance provided to Instructors for each student.

The new program has been developed by the industry, of the industry, and for the industry.

New Focus

- Training designed for specific job and well control responsibilities
 - Drillers attend Driller course
 - Can take Supervisor course after Driller course is passed
 - Supervisors attend Supervisor course
- **Driller and Supervisor courses taught separately**

What's changed

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Expanded Courses

New Training Courses

WellCAP	Becomes	WellSharp
X		Awareness
Introductory		Introductory
Fundamental		Driller
Supervisor		Supervisor
X		Engineer

What's changed

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Proctoring and Auditing

- **Independently** proctored assessments
 - Lloyds Register
 - Global
- Increased frequency and the quality of audits worldwide.
 - Lloyds Register

What's changed

- Focus on training all personnel involved with Well Control and ensuring that that training is commensurate with their role and responsibilities.
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Enhanced Instructor Requirements

- Strengthened Instructor qualification requirements
 - Knowledge test
 - Minimum teaching hours requirements
 - Train the trainer course
 - Facilitation training

What's changed

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The new program has been developed by the industry, of the industry, and for the industry.

Centralized testing

- Electronic knowledge testing system
 - Online testing
 - Offline e-testing
 - Centralized and controlled question database
 - Questions randomized and answers shuffled
 - Student feedback for gap closure
 - Surveys
 - Metrics

WellSharp Test Database Administrator Access and Features



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Remaining IADC Test Codes

150 Awareness Codes
0 Scheduled Tests

149 Introductory Codes
2 Scheduled Tests

191 Drilling/Supervisor Codes
34 Scheduled Tests

[View/Purchase Test Codes](#)

[+ Schedule a Class](#)



Ongoing Classes

Show 10 entries

Class Title	Class Location	Dates	Instructor	Language
Aug 6 Retake	test location - American Samoa	August 3 - 7	Brooke Polk	English
Drilling-UMW	Houston, Texas - United States	August 3 - 7	Gerardo Barrera	English

Search:



WellSharp Test Database Administrator Access and Features

Class Management

Class Details

Manage Roster

Class ID: 4D20404D
Class Title or ID: Aug 6 Retake
Class Status: Scheduled - Not Started [Class Preview](#)
Class Dates: August 3 - 7
Exam Date/ Time: August 7, 2015 1:00 PM
Course Level: Drilling Operations Supervisor
Available Stack Types: Both Stacks, Surface Stack, Subsea Stack
Supplement Offered: Workover Offered
Instructor: Brooke Polk
Language: English
Simulators: 2

Class Location

*Location Name: Test location
*Street Address: 123 west street
*Country: American Samoa
*City & State: test location

[Modify Class Details](#)

[Delete Class](#)

Class Management

Class Details

Manage Roster

Registered for Class:

[Add Trainee](#)

[Add Retake](#)

[Import](#)

[Export Roster](#)

[Course Options](#)

Search:

Name	Email	City	Country
Ann Smith	test@aol.com	-	-
John Smith <small>Retake</small>	john.smith@iadc.org	-	-



WellSharp Test Database Instructor Access and Features

Class Dashboard



Class Details

Scores & Reports

Name	Skills Score	Knowledge Exam	Workover Exam	Certificate
Smith, Ann	80	Not Started	n/a	-
Smith, John	84	Score Report	Not Started	-

Export Class Results

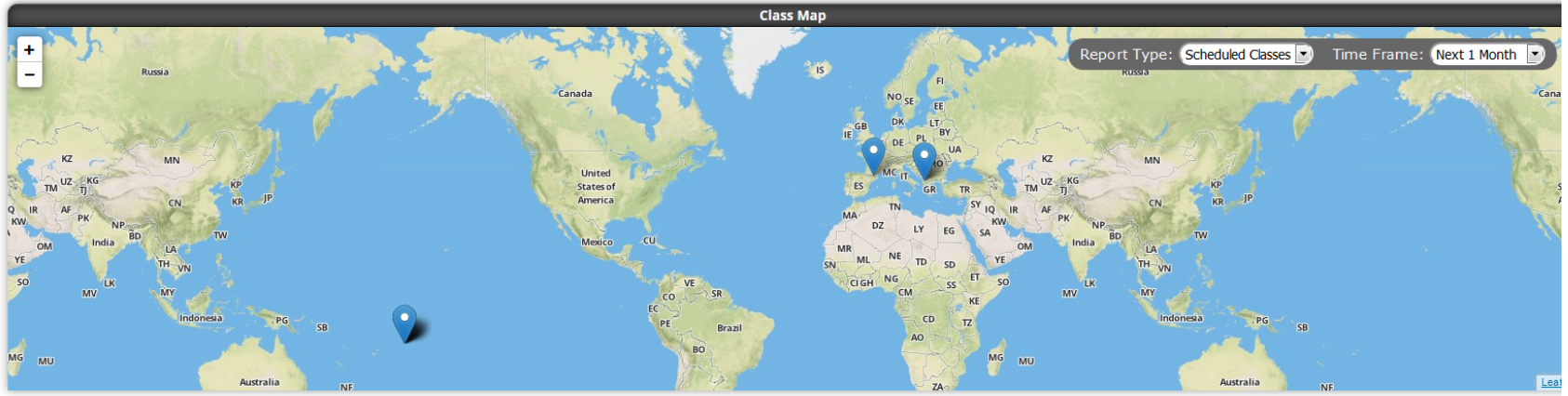


WellSharp Test Database Instructor Access and Features



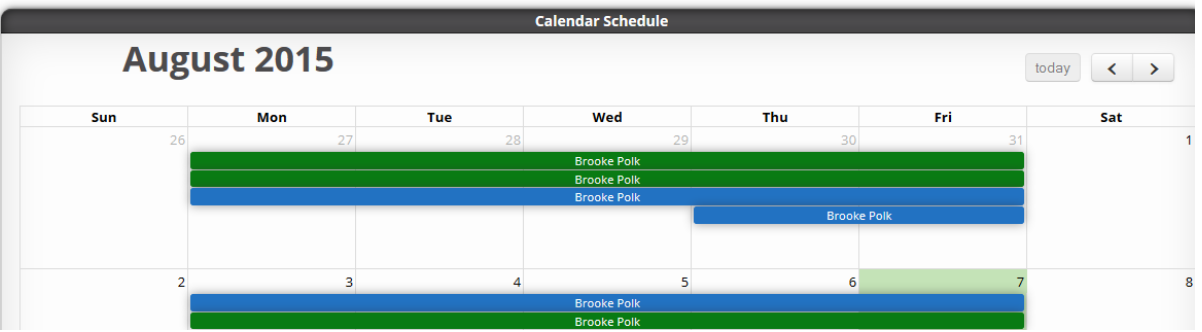
Brooke Polk Sign

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
Ongoing/ Upcoming Classes

Test Status	Course Dates	Location
● Test Open and Active	June 21 - 25	test, AS
● Test Not Started	June 21 - 25	sdfsdf, AL
● Test Open and Active	June 21 - 25	test, AD
● Test Open and Active	July 26 - 30	test city, AS
● Test Open and Active	July 26 - 30	test location, AS
● Test Not Started	July 26 - 30	dfgdfg, AL
● Test Not Started	July 29 - 30	test, AS



WellSharp Test Database Student Feedback



 Print/ Save

Knowledge Assessment Report

Assessment:	Drilling Operations, Supervisor, Surface/Subsea
Stack:	Both Stacks
Assessment Date:	May 17, 2015 2:27 PM
Score:	83%

Instructions

Thank you for completing the IADC Well Control Knowledge Assessment for the course. You scored 83 percent on this knowledge assessment and, therefore, passed the course. You will be given your Certificate of Completion by your instructor, who will also review your missed questions with you.

After your instructor reviews your exam results with you, you may choose to return to your computer to review each test question you missed on today's exam. To launch the review feature, log in using the same code you used at the beginning of the exam.

Once you complete your review and you have received your Certificate, you are to log out of the testing system and may leave the testing center.

Your company will be notified of your test results and be sent a copy of your Certificate of Completion

Topics for Review

Kick Prevention during Drilling, Casing, & Cementing Operations: Ballooning, Riser Margin

Pre-Recorded Data: Slow Circulating Rates

Well Control Methods: Stripping

Missed Questions

- **What information from the well can help you to decide if the well is ballooning?**

wc3ezf



WellSharp Test Database Training Provider Analytics

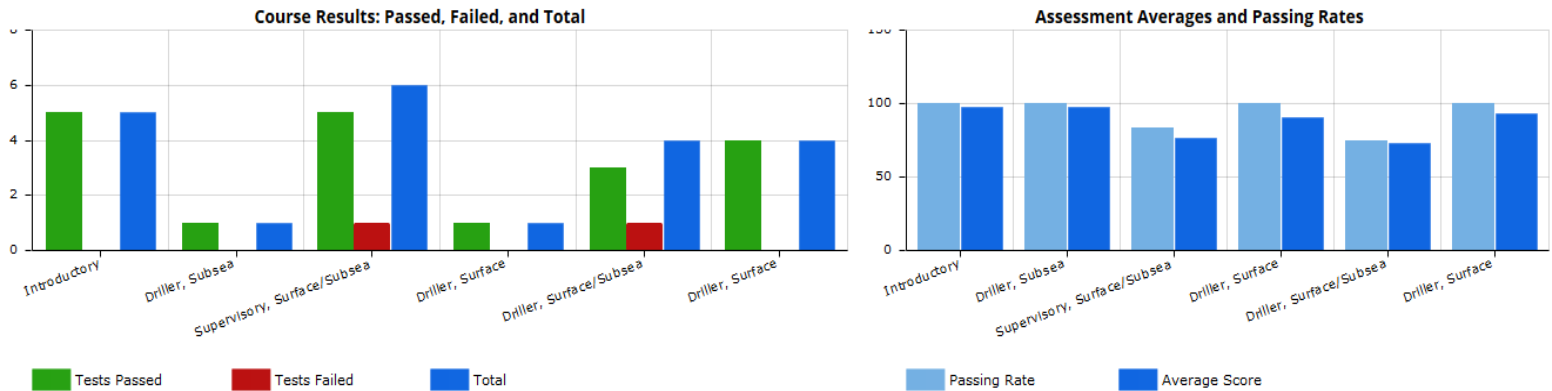


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Assessments **Classes**

Assessment Comparison



Assessment	Trainees Assessed	# Passed	# Failed	Passing Rate	Average Score
Drilling Operations, Introductory	5	5	0	100%	97%
Drilling Operations, Driller, Subsea	1	1	0	100%	97%
Drilling Operations, Supervisory, Surface/Subsea	6	5	1	83.3%	76%
Drilling Operations, Driller, Surface	1	1	0	100%	90%
Drilling Operations, Driller, Surface/Subsea	4	3	1	75%	73%



WellSharp Test Database

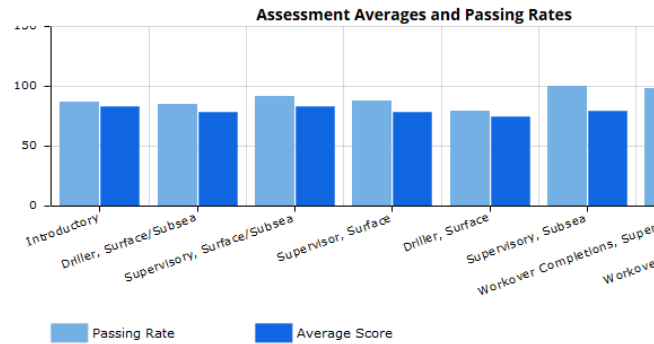
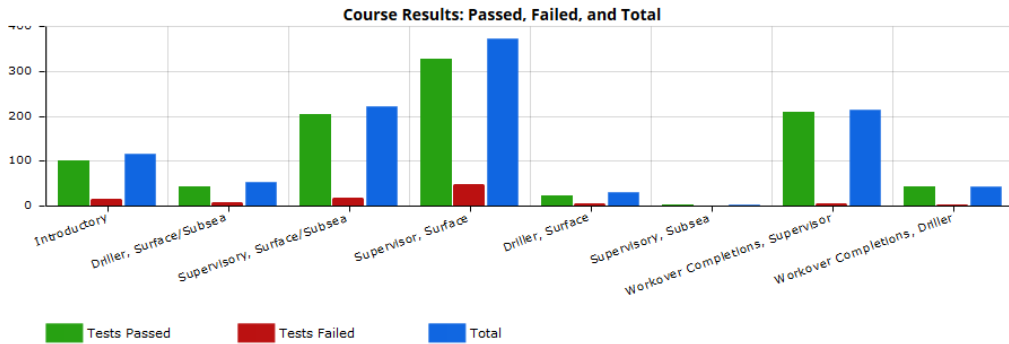
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- Assessments**
- Training Providers
- Questions
- Curriculum
- Classes

Assessment Comparison



Assessment	Trainees Assessed	# Passed	# Failed	Passing Rate	Average Score
Drilling Operations, Introductory	116	101	15	87.1%	83%
Drilling Operations, Driller, Surface/Subsea	52	44	8	84.6%	78%
Drilling Operations, Supervisory, Surface/Subsea	221	203	18	91.9%	83%
Drilling Operations, Supervisor, Surface	373	326	47	87.4%	78%
Drilling Operations, Driller, Surface	29	23	6	79.3%	75%
Drilling Operations, Supervisory, Subsea	2	2	0	100%	79%
Drilling Operations, Workover Completions, Supervisor	215	210	5	97.7%	88%
Drilling Operations, Workover Completions, Driller	44	42	2	95.5%	85%

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IADC Analytics



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Search Options

Assessment: Curriculum:

Question Bucket: Module:

Competency Category: Submodule:

Blooms Level:

Difficulty Percentile:

- Question Listing
- Question Metrics

Show entries Search:

ID	Question	Correct Answer	Times Asked	% Correct	Most Answ				
QEeBI	Your well has overbalanced fluid (approximately 200 psi) in the work string and annulus side. The next step is to unseat a packer and pull out of the hole. After unseating the packer, why would you want to wait up to 30 minutes before pulling out of the hole?	To give the packer time to relax and increase your clearance in the annulus, reducing the swab effect on the bottom of the hole	57	96%	To give the packer relax and increase clearance in the ar reducing the swab the bottom of the				
aDahE	Your rig has just successfully completed a kill operation on a floating rig. Before sweeping the stack the following information was gathered. <table border="1" style="width: 100%; margin: 5px 0;"> <tr> <td style="width: 50%;">Shut In Casing Pressure - 0 psi</td> <td>BOP depth - 2565 TVD</td> </tr> <tr> <td>Mud Weight in Choke line - 12 ppg</td> <td>Mud Weight in Kill line - 11.3</td> </tr> </table>	Shut In Casing Pressure - 0 psi	BOP depth - 2565 TVD	Mud Weight in Choke line - 12 ppg	Mud Weight in Kill line - 11.3	93psi	69	94%	93psi(94%)
Shut In Casing Pressure - 0 psi	BOP depth - 2565 TVD								
Mud Weight in Choke line - 12 ppg	Mud Weight in Kill line - 11.3								
Yfwa8	What is the U-tube differential pressure?								
Yfwa8	Your current Mud Weight is 11.5 ppg. You were instructed to pump a 35 bbl slug weighing 13.5 ppg. Your Drill Pipe capacity is 0.0178 bbls/foot. What is the total volume returned to surface?	41 bbl	53	77%	41 bbl(77%)				
2pQGE	Your current Mud Weight (MW) is 11.5 ppg. You were instructed to pump a 35 bbl slug weighing 13.5 ppg. Your Drill Pipe capacity is 0.0178 bbls/ft. How many feet of dry pipe will you have after pumping?	342 feet	62	77%	342 feet(77%)				
S1TU7	Your crew is pulling a 64 foot long non-shearable assembly out of the hole on a floating rig. The well starts flowing. The tool is currently across the BOP and the Driller has shut the well in on the Annular. Will this affect your risk assessment on how you proceed after shut-in?	Yes, the tool won't allow use of the shear/blind ram, so you may need to strip-in to position a shearable tubular	72	96%	Yes, the tool won't of the shear/blind you may need to s position a shearab				



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WellSharp
https://iadc.wellsharp.org/iadcAnalyticsProvider

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Assessments Questions

Show 10 entries

Which of the following would not increase the risk of sur...
55 bbls of mud was lost while drilling the last stand down...
formation fluids being bled back into the well. It is decid...
A 5 bbl gas bubble at 800 psi is allowed to expand to 8 bbl...
A 500-foot long cement plug is set up inside the casing sh...
New mud weight = 12.8 ppg
Top of cement plug = 8200feet
If the plug failed and allowed pressure to pass between t...
A 500-foot long cement plug is set up inside the casing sh...
Brine weight = 9.5 ppg
Top of cement plug = 8200 feet
If the plug failed and allowed pressure to pass betw...
A 500-foot long cement plug is set up inside the casing sh...
Sea Water = 8.6 ppg
Top of cement plug = 8200feet
What is the pressure differential across the cement plug...
A 500-foot long cement plug is set up inside the casing sh...
Old mud weight = 12.2 ppg
Sea Water = 8.6 ppg
Top of cement plug = 8200feet

**A 500-foot long cement plug is set up inside the casing shoe. The mud in the hole is to be displaced to seawater. Formation pressure below the cement plug = 11.8 ppg equivalent mud weight
Sea Water = 8.6 ppg
Top of cement plug = 8200feet
What is the pressure differential across the cement plug?**

Times Asked: 6
Times Correct: 2(33.3%)
AIM Level: Mastery
Blooms Level: Analysis
Module: 2.1 Well Control Concepts
Submodule: Well Control Terminology and Formation Characteristics
Learning: Identify common oilfield sedimentary rocks and describe potential flow characteristics (for example, sandstone, carbonates, shale/claystone, and salt; porosity, permeability, formation strength).
Objective:

0% 1364 psi
33.3% 1671 psi
66.7% 1447 psi
0% 1407 psi

Correct
Incorrect

1671 psi: 33%
1447 psi: 67%

● 1364 psi ● 1671 psi ● 1447 psi ● 1407 psi

Correct Answer Times Asked % Correct Most Answered
Lower Casing grade 8 100% Lower Casing grade (100%)
As you bleed more mud back there may be some formation fluid bled back into the well 7 43% As you bleed more mud back there may be some formation fluid bled back into the well(43%)
500 psi 3 100% 500 psi(100%)
BHP would increase 3 67% BHP would increase(67%)
BHP would decrease 8 25% BHP would increase(38%)
1671 psi 6 33% 1447 psi(67%)
1535 psi 8 88% 1535 psi(88%)

Note the increase in Drill



Curriculum Review

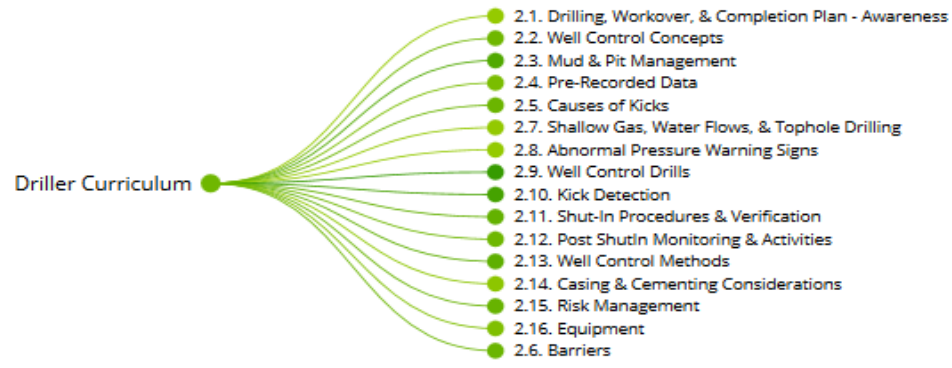


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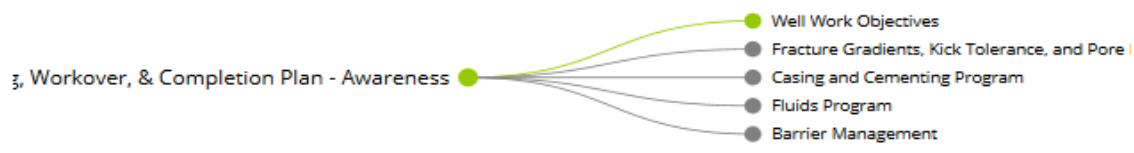
Select Curriculum for Analysis: Driller Curriculum

Driller Curriculum Modules:



Select Module for Analysis: 2.1: Drilling, Workover, & Completion Plan - Awareness

Drilling, Workover, & Completion Plan - Awareness Submodules:



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Calendar Filters

All Providers [Filter](#)

All Instructors [Filter](#)

All Courses [Filter](#)

Scheduled Classes						
April 2015						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	29	30	31	1	2	3
				Calvin Pedigo PetroEd Instructor3		
5	6	7	8	9	10	11
		Calvin Pedigo PetroEd Instructor3				
	PetroEd Instructor3			Gerardo Barrera		
ELearning Instr			George Edwards			
ELearning Instr			Calvin Pedigo			
PetroEd Instructor1			Calvin Pedigo			
			Gerardo Barrera			
			Joshua Loveland			
			Bruce Barnes			Tom Elliott
			Terry Triche			
		Chad Lyon				Gerardo Barrera
	Brian David Maness				Gerardo Barrera	
	Joshua Loveland				Gerardo Barrera	
	Joshua Loveland				Gerardo Barrera	
	PetroEd Instructor3				Johnny Mack Burrell	
	PetroEd Instructor3				Kariton Land	
	Terry Triche				Tom Elliott	
ELearning Instr			Fernando A Borgert			
			Fernando A Borgert			
			Frank Klepper			
			George Edwards			
			James Vertner			
			Kariton Land			
			ELearning Instr			
			Eric David Wright			
			Donald Blackwell Sr.			Gerardo Barrera
			ELearning Instr			Gerardo Barrera
				Michael Williams		
				Michael Williams		
				PetroEd Instructor3		
				Phillip Friedemann Holmes		
			Brian David Maness			
			Brian David Maness			
			ELearning Instr			
			Joshua Loveland			
						Gerardo Barrera
						Gerardo Barrera



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Training Provider Activity

Provider	Instructors	Classes	Total Trained	Total # Passed
Diamond Offshore Drilling, Inc.	8	26	20	15
ExxonMobil	6	3	1	0
IADC	0	0	0	0
IADC Inc	2	20	21	19
PetroEd Inc	4	13	16	9
Petroleum College International	7	16	20	14
Rig QA International Inc	4	6	4	2
Seventy Seven Energy	6	4	16	13
Wild Well	45	16	5	1

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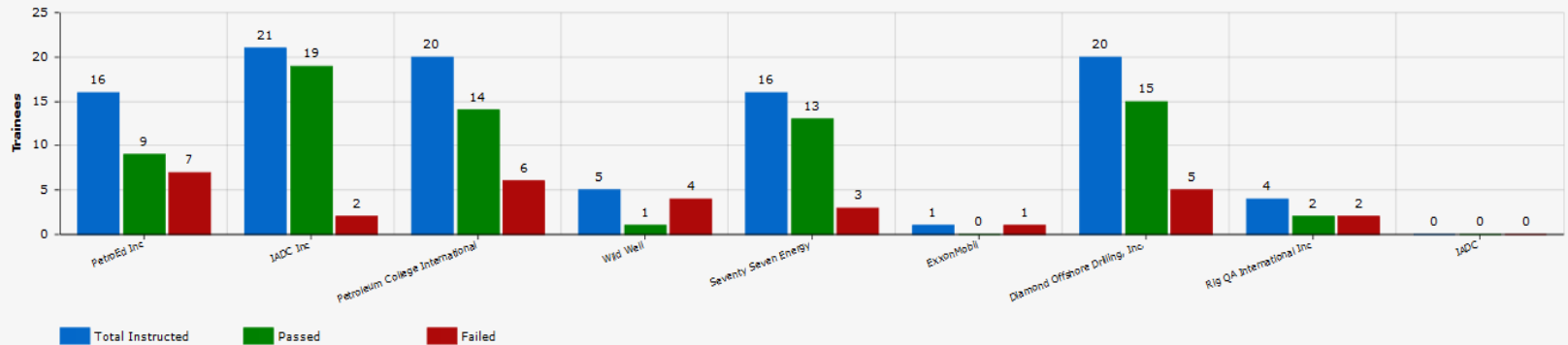
Training Provider Performance

Provider	Passing Rate	Average Score
Diamond Offshore Drilling, Inc.	75	75.5
ExxonMobil	0	25.6
IADC	0	0
IADC Inc	90.5	85.5
PetroEd Inc	56.3	66
Petroleum College International	70	76.3
Rig QA International Inc	50	67.6
Seventy Seven Energy	81.3	76.1
Wild Well	20	23.6

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Training Provider Comparison

Report: Trainee Activity



From Testing to Learning

- IADC has ability to monitor every test around the world
- Provides barometer of success to providers, instructors, and students
- Easy identification of areas of improvement
- Real-time feedback from student surveys
- Student feedback for gap closure

WellSharp Summary

- WellSharp has been developed by the industry for the industry.
- Focus on training for all personnel involved with Well Control and ensuring that that training is commensurate with their role and responsibilities.
- Expanded course levels to tailor training to the requirements of specific roles and responsibilities.
- Centralized electronic testing and grading to ensure integrity and uniformity.
- Immediate test results with missed question learning objective guidance provided to Instructors for each student.
- Improved instructor qualifications.
- Continuous training to maintain currency and reduce skill fade.

What's Next

- Driller Plus course
- Develop WellSharp curricula for:
 - Engineering course
 - Workover and Completion
 - Coiled tubing
 - Snubbing
 - Wireline, etc.
- Human Factors 'In progress'
- Continuous learning

Gateway- The New WADI Accreditation

Gateway Accreditation Program



-
- Part of IADC's WADI Project that was developed by the IADC Workforce Development Committee
 - Preparing individuals for a successful career in the oil and gas industry
 - The first course within the Gateway Accreditation is the Introductory to Oil and Gas Program

Gateway: Introduction to Oil and Gas Program

Purpose:

To define the body of knowledge and set of job skills needed to train and prepare personnel for entry-level technical skilled positions in the oil and gas industry.

The course is designed to better prepare new employees for working on a rig, thereby helping companies to improve safety culture in the field while reducing turnover rate.

Gateway: Introduction to Oil and Gas Program

Curriculum: (minimum 76 classroom hours plus assessment)

The program offers a baseline curriculum comprising

- IADC's HSE RigPass
- IADC's WellSharp Awareness level well control
- A general introduction to the industry
- Behavioral training (Human Factors)
- Training modules on rig life, technical math, rigging basics, electrical and fluid safety, and industrial practices

Major focus on hands-on training throughout the program.

Summary

- The ability of the industry to argue its case globally and effectively in the twenty first century will depend on its reputational strength which, in turn, depends on operational excellence.

Thank you

