International Association of Drilling Contractors

Workforce Development Committee Meeting
30 October 2019
IADC Office
3657 Briarpark Drive, Suite 200
Houston, TX. 77042

Minutes

8:11 – 8:13	**Welcome, Introductions, IADC Antitrust Policy** *Eliot Doyle, Workforce Development Co-Chair, Valaris* Eliot Doyle called the meeting to order and reviewed IADC's Antitrust Policy. All attendees introduced themselves.
8:13 – 8:15	**Safety Moment** Nolan Habegger: Stop Work Authority is not just for those out in the field. Need to empower and stress the importance to office and support staff to say something if they see an unsafe situation, such as trip hazards, blocked fire escapes, or exposed wiring.

8:15 – 8:43	**Modernizing Skill Development**
	Danvers Fleury, Talented
	
	Danvers Fleury began his discussion with the following topics:
	
	• Identifying talent.
	• Evaluating and overcoming learning disabilities.
	• How the struggle to overcome the disability can lead to success in unexpected ways.
	• How technology helped him (Mr. Fleury) to realize his own potential.
	
	He asserted and/or explained the following in regard to the issues facing modern learning in the workplace:
	
	• Context: Struggle = Growth
	• The Problem: 0% ROI
	• If you're not a behavioral-change platform, you are not a learning platform.
	• Don't separate learning from advancement.
	• It's ok to make mistakes and learn from them.
	• 2015-2016 The Problem: 0% ROI from Training:
	  • 98% of resources is spent on introducing new skills
	  • 2% is spent on practicing the new skills.
	  • There is little or no accountability.
	  • 93% of employees say they will stay longer with an employer that invests in them through training opportunities.
	• Dr. Kellie Green-Hall (Cal Poly): 45 Pitches Test
	  • Split the baseball team into two groups
	  • 1 group received 15 Fast Balls/ 15 Curve Balls/ 15 Change Ups
	  • 1 group received 45 random pitches
	  • Practice Winners: 15 pitches
	  • Game Winners: 45 pitches
	
	  While in practice the group that received random pitches would get frustrated but learned to adapt to not knowing the pitch. Yet the group that received the

	standardized pitches were unable to perform as well during a game, as they had not learned how to adapt and adjust to random pitching. • 2016-2017 Solution, Take 1: Nobody wanted to log onto the system for the training, until the boss turned it into a competition; whoever was the first to complete the training, would receive a bonus Fleury says rather than identifying talent and then investing in them, we should be investing in them and THEN identifying the talent in different areas. We should give people an opportunity to discover what they are good at and passionate about. Fleury now thinks his company mostly facilitates in a win-win-win negotiation—by refusing to put anything on the board that doesn't benefit everyone.

8:43-9:40	**Machine Learning for Engineers: Case Studies from the Oil and Gas Industry**
	Ishita Chakraborty, Associate II, Stress Engineering Services Inc.
	
	Ms. Chakraborty works with ocean current and offshore platform data.
	
	She explained that the first 95% of data analysis is easy. The last 5% (refining the data) is very difficult. Her presentation covered the following topics:
	
	• Hype Cycle for Emerging Technologies
	• Overview
	  • More and more companies are using machine learning for regular operations
	  • Solve previously unsolvable problems
	  • Reduce cost and time
	  • Engineers need to interface with data scientists
	  • Creating "Citizen Data Scientists"
	  • Basics of Machine Learning
	    ▪ Collapse Pressure
	    ▪ CBM of Pumps
	    ▪ Mooring line fault detection
	• Understanding the value of a data driven analysis
	• Resources for Learning Data Science
	  • Masters in Data Science
	  • MOOC – Massive Open Online Courses
	  • Boot Camps
	  • ASME Big Data Task Force
	• Artificial Intelligence (AI): non-human program to solve sophisticated tasks
	• Machine Learning (ML): Trains a predictive model from input data
	  • Subset of AI
	• Neural Networks (NN): Specific group of algorithms
	  • Subset of ML
	• Deep Learning (DL): Algorithms trained to run on deep neural networks
	  • Subset of NN
	• Supervised
	  • Regression
	  • Classification – You tell it
	• Unsupervised
	  • Clustering – You do not tell it
	• Cross Validation Data does not work with Unsupervised
	• Linear Regression
	• Learning Curves – Bias vs Variance
	• Machine Learning to find a model that works for both learning and training
	• Case Study: Centralizer Sub (Regression)
	  • Find what psi will cause it to buckle/collapse

	▪ Could run test or
	        ▪ Fine Element Data Analysis
	    • Binary Classification
	        ▪ 1 (cat) vs 0 (non-cat)
	        ▪ Feed inputs into the system and it will distinguish between cat and non-cat
	    • Multi Class Classification
	        ▪ Assign specific parameters to multiple pictures
	• Case Study: Triplex Pumps
	    • Performance of the Model on Cross Validations Data
	    • Multi Class Classifier: K=Nearest Neighbors
	• Case Study: Broken Mooring Line Detection
	    • Physics – Guided Approach
	    • Shift in vessel position
	• General Data Issues
	    • Anscombe's Quartet: All 4 data sets have identical descriptive analysis
	    • Curve Fitting
	        ▪ Low Resolution data
	        ▪ Spurious Data
	        ▪ Survivorship Bias
	        ▪ Missing Data
	• Conclusion
	    • Machine Learning is a Tool, not a Panacea
	
	Question about aligning the human characteristics with things like drilling efficiency. Ms. Chakraborty does not know if this has yet been done. Meeting attendees were interested in seeing such a study using machine learning.
	
	Question about what is needed to be able to gather the right information for analyzing drilling data.

9:40 – 10:00	**BREAK**

10:00 – 10:30	Introduction to IADC's Knowledge Retention and Education for our Workforce (KREW) Project
	Gerardo Barrera, IADC
	
	Gerardo Barrera provided an overview of the new KREW (Knowledge Retention and Education for our Workforce), which will include a bridge to the WellSharp exam database. WellSharp courses now include the following:
	
	• 4 Drilling Operations Courses
	• 6 Well Servicing Courses
	• 1 WellSharp Plus Course
	
	The exams are now available in English, Spanish, Portuguese, Arabic, and Mandarin.
	
	Analytics show that trainees are failing to grasp 20-30% of concepts needed. This is a result of the Ebbinghause Forgetting Curve. Mr. Barrera provided data regarding the most-often-missed topics. He then described a knowledge retention study IADC recently performed:
	
	• Research and Findings
	    • Average Years of Experience: 16.1 years
	    • Average Well Control Courses Taken: 4.5 courses
	    • Average Score: 59%
	
	Combatting the Forgetting Curve with Micro-Spaced Learning – small amounts of information over time
	
	• KREW addressing trends

	• Database houses library of information to increase understanding of missed Learning Objectives • Will have regional information • Modules and Online Simulations • Developing Database by end of November • Beta testing for 3-4 months • Tentative Launch date of Quarter 2 of 2020 Questions asked following the presentation: • How will Ebbinghause change – After time and based on the analytics, it is possible that the curve can change • Is feedback from user recorded – YES • Module Rating and/or Provider Rating available – YES • Send missed items to Managers – YES • Cost – Standardized pricing for Training Providers with 3 tiers of pricing levels • Possible to link Competence with KREW – It is possible – KREW is still evolving

10:30-11:25	Strategic Solutions for Mitigating Harassment and Retaliation
	Natalie Ivey, Results Performance Consulting, Inc.
	
	Natalie Ivey discussed the following topics:
	
	• Classroom, Virtual, and Online
	• Compliance Training Company – Harassment, Discrimination, and Retaliation Prevention Training
	• Hollywood to Capitol Hill to New York City
	• Employee Relations, Culture, and Harassment now really "on the radar"
	• 2011 ADA – reasonable accommodation for disability, time off consideration, work from home accommodation
	• Retaliation is 50% of EOC cases – 2002: "Retaliation" better defined
	• Board and Executive Level Conversations
	   • Do we have strong corporate values?
	   • Do our organizational policies align with our values?
	   • Are we creating a culture of inclusiveness and diversity?
	• How do employees feel about our culture?
	• Leaders must be focused on accomplishing company goals and objectives.
	   • Decrease costs
	   • Increase revenue
	• Managing Risk
	   • Working Safe = Good Risk Management
	     ▪ Follow safety procedures – wear PPE
	     ▪ Supervisors and Managers who take "short-cuts" with safety understand the consequences
	• Why is this happening in Oil and Gas?
	   • Lack of Senior Leadership focus
	   • Lack of accountability
	   • Lack of supervisor awareness – what is/is not
	   • Supervisor often promoted based on technical skills and not leadership skills
	   • Telling jokes and having "nicknames" that are derogatory
	• Sources of Complaints:
	   • Internal complaint by employee
	   • Personal observation of inappropriate conduct
	   • Anonymous tip of inappropriate conduct
	• Strategies:
	   • Commitment to Culture Change
	   • Implement Effective Training

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	• Implement Effective Leadership Selection and Development • Implement Effective Procedures for Investigation Employee Complaints • Implement an Employee Relations Case Management Solutions
11:25 – 11:35	IADC Updates and Future Topics *Brooke Polk, Director-Program Development & Technology* Patty Tydings and Kristin Ward (IADC) provided the IADC/ACD updates. The Spanish Well Servicing version of the WellSharp exam and the accompanying learning objectives will be available in Q1 of 2020. A new version of IADC's Facilitator Certification course has been developed, piloted, and is now offered for all WellSharp and WellSharp Plus instructors. The new course comprises 3 days of instruction on facilitated learning and 2 days on human factors (how to facilitate the learning, observe, assess, and provided feedback on human factors). The Well Servicing track of WellSharp now includes the Introductory level. Content changes are being developed for RigPass. The workgroup has developed learning objectives related to the current topics for RigPass. This will help standardize the training that trainees are receiving. With the revamp, we are also updating the RigPass-to-Go electronic version. The new content will be digitized and updated to enhance the experience for the trainee. SafeLandUSA and SafeGulf are both updating their syllabi; RigPass will have the updated content implemented into RigPass curriculum. RigPass 2.0 is set to launch by the end of the 1st quarter of 2020.
11:35	ADJOURNMENT Eliot Doyle adjourned the meeting. LUNCH WAS SERVED

Attendance:

First Name	Last Name	Company Name
Nolan	Habegger	**BAKER HUGHES**
Euan Angus	Kennedy	**DRILLING SYSTEMS (UK) LTD**
Brooke	Polk	**IADC**
Gerardo	Barrera	**IADC**
Kristin	Ward	**IADC**
Patty	Tydings	**IADC**
Jane	Murphy	**INTERTEK CONSULTING & TRAINING**
Juan	Valdivieso	**LETOURNEAU TECHNOLOGIES DRILLING SYSTEMS**
John	Lund	**NEWTECH GLOBAL**
Fritz	Golding	**NOBLE DRILLING**
Andrew	Warren	**OTC SOLUTIONS, LLC**
Shelby	Bybee	**PACIFIC DRILLING**

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Natalie	Ivey	**RESULTS PERFORMANCE CONSULTING**
Ken	Ivey	**RESULTS PERFORMANCE CONSULTING**
Jay	Clancy	**STRATEGIC ASCENT**
Ishita	Chakraborty	**STRESS**
Janelle	Daniel	**TRANSOCEAN**
James H	Penny	**TRANSOCEAN**
Janelle	Daniel	**TRANSOCEAN**
Eliot	Doyle	**VALARIS PLC**
Dana	Varisco	**WELL CONTROL SCHOOL**