IADC Well Control Committee Meeting Minutes



Wednesday, 24 August 2011 Westin Riverwalk, San Antonio, TX

## Introductions and IADC Antitrust Policies & Guidelines

Brian Maness, Diamond Offshore, Committee Chairman, welcomed members to the meeting and reviewed IADC Anti-Trust Policy and Guidelines. Hotel staff provided facility safety orientation. Meeting attendees introduced themselves.

# WellCAP Review Panel Discussion

Mr. Maness reported on the activities of the WellCAP Review Panel, including the status of WellCAP instructor "maintaining" applications. IADC was expecting more than 700 instructors to submit their certificates and supporting documents for maintaining approval. As of mid-August, more than half of the original number had been received. Several reminders have been sent; maintenance applications continued to be received. Original deadline was 30 June 2011, but, because of volume of applications, IADC has extended the deadline for receiving applications until the end of August. Instructors not requesting renewal by 31 August will have their approval status terminated.

Mr. Maness indicated that new WellCAP Panel members are needed because two members have resigned from the Panel. Petar Radulovic, Diamond Offshore Drilling Inc., has been an active WellCAP panel member for two years, but his new job requires his focus to be in other areas. Additionally, Victor Fleming, Rowan Companies, is stepping down after serving several years as a panel member.

# Vote on New WellCAP Review Panel Members

Mr. Maness nominated Karl Shearer (Diamond Offshore Drilling Inc.) to fill the unexpired term of Mr. Radulovic. Malcolm Lodge, Transocean, was nominated to take Mr. Fleming's place. A vote was held and both nominees were unanimously approved.

Mr. Maness also led a discussion on the need to have alternate panel members available to serve in temporary capacity on the Panel whenever a current panel member is traveling or unavailable because of overriding job responsibilities. Members agreed with the idea of selecting alternate Panel members. Two alternate members were nominated: Charles Tatum (Transocean - nominated by Malcolm Lodge (Transocean)), and Cesar Fuenmayor (Chevron – nominated by Goran Andersson also of Chevron).

New Panel members and alternate members will undergo WellCAP Review Panel training as soon as possible. The current membership of the WellCAP panel is 2 contractor representatives, 2 producer representatives, and 1 university representative. A question was raised about the possible inclusion of a well service member for the panel.

Other discussions followed about how to make the Panel and the WellCAP approval process more efficient. The following suggestions were offered:

- Establish a three-person panel to handle instructor applications.
- Send electronic materials whenever available rather than handwritten, paper copy.
- Go to an on-line, electronic application process.
- Provide back-up for the WellCAP Accreditation Coordinator.
- In e-mail correspondence to Panel, provide more clear indication of type of application and urgency of application. (For example, state, "New Instructor Application".)

- Separate panels could be established for drilling and for well services course applications.
- Provide more Technical Reviewers.
- Shift renewal dates, especially on instructor renewals, to spread the workload.
- Provide guidance to instructor applications so that resumes submitted are more complete.
- Provide more thorough review of applications for completeness before sending them to Panel or Technical Reviewer. (For example, make sure the instructor applicant has the appropriate level well control certificate for the course type and level for which he/she seeks approval.
- Provide guidelines to Technical Reviewers in report preparation so that a more consistent quality report is achieved.

Questions were asked about how new panel members are trained and what guidelines or instructions are given to them before they begin the review process. Current Panel members pointed to.

### Break

#### Well Intervention Model

Garry Davis, ModuSpec USA, Inc.

Mr. Davis presented work ModuSpec and Scandpower Risk Management have led in developing a risk model for evaluating Blow Out Preventers (BOP) and risk. Mr. Davis discussed the challenges for the industry, risk spectrum, and the proposed solution.

He explained that deepwater and ultra deepwater BOPs operate in harsh environments (i.e., water depths from 3,000 ft to 10,000 ft). BOPs can fail, necessitating redundancy in control and operating systems to avoid catastrophic consequences. The challenge is in knowing when a BOP failure will affect the reliability or functionality to levels that continued operations cannot be maintained.

The BOP Risk Model proposed would monitor incoming data to assess current risk level, and provide instant display of revised risk levels. The model is based on four levels of risk: low, medium, high, and unacceptable, and is BOP specific. The model incorporates Failure Mode and Effect Analyses, Fault Tree and Event Tree Analysis, and On-line Dashboard Risk Monitoring. For more details of the model, see Mr. Davis' presentation attached.

Mr. Davis invited industry input so that the model will represent more than the developers' perspective only. Reports of the development work have been provided to Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), with BOEMRE requesting final review prior to publication of the model. One of the goals of the model is to aid subsea engineers in performing their jobs.

#### **Committee Reporting**

Goran Andersson, Chevron

Mr. Anderson reported on the 23 August Curriculum Subcommittee meeting held at the Menger Hotel in San Antonio. He provided a brief report on the main points of the meeting.

 The Drilling Supervisory level Curriculum revision has been completed and the draft curriculum handed over to the Well Control Committee. The main changes in the curriculum include formatting, which included introduction of learning objectives, and inclusion of additional topics. IADC staff will prepare the curriculum document for distribution. Members will be asked to provide comments on the proposed changes.

- 2. The subcommittee recommends:
  - No changes to course time (hours);
  - Changing the current simulator requirement from the "maximum of 30%" as currently stated in the Handbook of Accreditation to "minimum simulation time to be not less than 30% of the course time, not including testing time"; and
  - That a standard glossary of well control terms be added by IADC.
- 3. Proposed curriculum revision priority going forward:
  - 1. Fundamental Drilling course
  - 2. Workover Supervisor course (to include Fracturing)
  - 3. Workover Fundamental course
  - 4. Wireline course
  - 5. Coiled Tubing course to add Simulation standards

Other issues discussed by the subcommittee:

- Urgency of curriculum reviews recognized
  - Volunteer effort (current model) cannot satisfy urgency
  - Propose that IADC funds contracted personnel to perform curriculum reviews and report to subcommittee. This would speed up revision time.
- IADC asked to bring clarity to committee's and sub-committee's roles with respect to well control curriculums. (Currently various committees have input into the curriculums with no clear delineation of authority or ownership of each curriculum to a committee.)
- Look at opportunity to engage IADC chapters on a global basis by appointing regional representatives that convey input to the central well control committee.

Steve Kropla, IADC, indicated that Research & Development funds are available that could be applied to the curriculum review. He asked that the Curriculum Subcommittee send their request to IADC in the form of a proposal.

The possibility of utilizing teleconferencing techniques for achieving global review of curriculums was also discussed.

## WellCAP Issues/IADC News

Brenda Kelly, IADC, reported on several areas of IADC staff activities that are of interest to the Well Control Committee members.

- 1. <u>WCT-01</u> has undergone an extensive re-write. All program changes as of 31 July 2011 have been incorporated into the revised version. The new WCT-01 is currently undergoing final review and is due for public release by September 2011. The document has been reformatted to be more user friendly, with an introduction page, requirements for accreditation numerically listed, and pre- and post-accreditation processes more fully defined. It also will have a numbering scheme for accreditation criteria that coincides with the program application and site visit report forms.
- 2. <u>Instructors' Recertification</u>: Approximately 400 instructor applications have been received for recertification. As many as 700 instructors are on file with IADC, thus a much larger number of applications were expected. Because of the volume of application to be processed by ACD staff, the deadline for submission has been extended to the end of August. In addition, applications will be processed in the order received, with current approval status not being adversely impacted as long as ACD has an application in hand by 31 August 2011. New instructor certificates will be issued as applications are processed, with the new 2-year approval period beginning on the date the application is processed.
- 3. When a request for accreditation includes the use of a well control manual that has already gone through the review process as part of another successful accreditation

application, the applicant may speed the current accreditation process by supplying evidence of the manual's previous approval. If the manual is the property of another accredited training provider, please provider evidence that the owner of the manual has authorized the applicant to use the manual in the course(s) for which accreditation is being requested.

- 4. Other WellCAP News:
  - WellCAP certificates have been reprinted to remove verbiage including reference to the "grace period". Providers currently holding certificates with the "grace period" verbiage may continue to use those certificates until 31 December 2011. After 31 December the new certificates must be issued.
  - When reporting WellCAP training records to IADC, providers must include the student's final grade on the certificates card log. It is essential information for instructors seeking recertification as well as for potential instructor who would seek approval in the future. Pass/fail not an option at Fundamental or Supervisory levels. A numerical score must be recorded.
  - WellCAP Facilitator Courses are scheduled for 26-29 September 2011 at IADC Offices and 5-8 December 2011 at Transocean. The December course is nearly full. Space remains available for the September course.
- 5. IADC News
  - IADC has a new web page that is in the final stages of development. The new Committee webpage was review. Ms. Kelly pointed at that IADC is aware certain document links or pages are missing, and asked for members' patience as corrections are being made.
  - CEU credits are available for today's Committee meeting and Roundtable. See Marlene Diaz for a copy of the form.
  - SEMS Rollout Conferences are schedules: The Woodlands, 30 August; New Orleans, 31 August; and Lafayette, 1 September. Members with interest in regulatory activities impacting the U. S. Gulf of Mexico should plan to attend.
  - IADC Conferences 9-11 November, IADC Annual Meeting at Barton Creek Resort, Austin, TX; 23-24 November, IADC Critical Issues Asia Pacific Conference and Exhibition, Shangri-La Hotel, Kuala Lumpur.

## **Open Discussions**

Steve Cromar (Conoco Phillips) asked for opportunity to report on well control activities in the United Kingdom (UK). Mr. Cromar indicated that, in the UK, focus is now on competence of employees, rather than training of employees. He defined competence as a combination of knowledge, skills, and abilities (or behavior). He reported that workers in the UK who are proven to be incompetent during an incident investigation are being prosecuted. He references recommendations on training and competency that the European Union delivered to Oil and Gas Producers (OGP).

Mr. Cromar also indicated that, following the creation of the HSE case, it became mandatory to comply with the HSE case.

On another topic, Mr. Cromar stated that 80% of blowouts occur when cement is setting and barriers are removed from the well. He questioned the current training model, and in particular, whether or not cementing activities are addressed in well control training. He stated that well control during cement jobs needs to be added to the WellCAP curriculum (if not currently included). He recommended that IADC also consider developing a special WellCAP course that

would be administered in alternate years. The course, in his view, should address topics as unconventional issues, barriers, and cementing, and should include more simulation time during training.

In other discussions, "Stop Work" authority was discussed. It was suggested that criteria for initiating a "Stop Work" action should be defined, and that a company's "Stop Work" policy should clearly give employees permission to execute "Stop Work", and should set the expectation that employees must speak out.

One member suggested IADC consider listing approved WellCAP instructors on the website.

A question was asked if operators are asking training providers for reports of student grades or are they going to IADC for the information. IADC indicated that verification of specific individual certificate issued will be provided to operators. IWCF, likewise, will report individual certificate information to operators requesting this information.

Adjournment – Meeting adjourned at 1:00 p.m.

### Today's Meeting Sponsors:

- Lunch Shell Oil Company
- Refreshments Falck Alford and WCS-Well Control School

### Attendance:

Name		Company Name
H. Gene	Wilson	Aberdeen Drilling School, Ltd.
David	Egbert	Baker Hughes, Inc.
Gareth	Williams	BG Group
Ron	Bohuslavicky	Boots & Coots Services
Mark	Mazella	BP
Troy	Kehoe	Check 6 Training Systems
Michael	Schulenberg	Check 6 Training Systems
Matthew	Mato	Check 6 Training Systems
Goran	Andersson	Chevron
Gary	Nance	Chevron
Steve	Cromar	ConocoPhillips
Brian	Maness	Diamond Offshore Drilling, Inc.
Karl	Shearer	Diamond Offshore Drilling, Inc.
Adriano	Lima	Diamond Offshore Drilling, Inc.
Michael	Williams	Diamond Offshore Drilling, Inc.
Clive	Battisby	Drilling Systems (UK) Ltd.
Ed	Ramsay	Drilling Systems (UK) Ltd.
Shawn	Geissler	Drilling Systems (UK) Ltd.

Antonio     Moreira     GME - Solutions       Oleg     Markov     Gubkin Russian State University of Oil & Gas       Tighe     Cottle     Halliburton       Brenda     Kelly     IADC       Mark     Denkowski     IADC       Mark     Denkowski     IADC       Julia     Swindle     IADC       Julia     Swindle     IADC       Julia     Swindle     IADC       Dave     Price     International Well Control Forum       Jim     Borthwick     KCA Deutag       Daryl     Bourgoyne     Louisiana State University       Gary     Davis     ModuSpec USA Inc.       Chris     Nelson     Newfield Exploration       Abiodun     Akala     Oando Energy Services Limited       Steve     Mudge     Oil Well Service Co.       Lance     Ewing     Oil Well Service Co.       Lance     Ewing     Oil Well Service Solutions LLC       Luis     Sepulveda     San Antonio Internacional - Venezuela       Randy     Pacheco     San Juan College	Andy	Erwin	Falck Alford
Oleg     Markov     Gubkin Russian State University of Oil & Gas       Tighe     Cottle     Halliburton       Brenda     Kelly     IADC       Mark     Denkowski     IADC       Mark     Denkowski     IADC       Mark     Denkowski     IADC       Julia     Swindle     IADC       Julia     Swindle     IADC       Julia     Swindle     IADC       Dave     Price     International Well Control Forum       Jim     Borthwick     KCA Deutag       Daryl     Bourgoyne     Louisiana State University       Gary     Davis     ModuSpec USA Inc.       Chris     Nelson     Newfield Exploration       Abiodun     Akala     Oando Energy Services Limited       Steve     Mudge     Oil Well Service Co.       Torm     Elliott     Petroleum College International       Mike     Miller     Pioneer Well Services       Scott     Randall     San Antonio Internacional - Venezuela       Randy     Pachecco     San Juan College		Moreira	GME - Solutions
TigheCottleHalliburtonBrendaKellyIADCMarkDenkowskiIADCMarkeneDiazIADCJuliaSwindleIADCSteveKroplaIADCDavePriceInternational Well Control ForumJimBorthwickKCA DeutagDarylBourgoyneLouisiana State UniversityGaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.LanceEwingOil Well Service SoScottRandallSan Antonio Internacional - VenezuelaLuisSepulvedaSan Juan CollegeAliceTrujilloSan Juan CollegeAliceTrujilloSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford			
Brenda     Kelly     IADC       Mark     Denkowski     IADC       Marlene     Diaz     IADC       Julia     Swindle     IADC       Steve     Kropla     IADC       Dave     Price     International Well Control Forum       Jim     Borthwick     KCA Deutag       Darryl     Bourgoyne     Louisiana State University       Gary     Davis     ModuSpec USA Inc.       Chris     Nelson     Newfield Exploration       Abiodun     Akala     Oando Energy Services Limited       Steve     Mudge     Oil Well Service Co.       Lance     Ewing     Oil Well Service Co.       Lance     Ewing     Oil Well Service Co.       Steve     Mulge     Oil Well Service Co.       Lance     Ewing     Oil Well Service So.       Scott     Randall     Petroleum College International       Mike     Miller     Pioneer Well Services       Scott     Randall     San Antonio Internacional - Venezuela       Randy     Pacheco     San Juan College	Oleg	Markov	University of Oil & Gas
MarkDenkowskiIADCMarleneDiazIADCJuliaSwindleIADCSteveKroplaIADCDavePriceInternational Well Control ForumJimBorthwickKCA DeutagDarrylBourgoyneLouisiana State UniversityGaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSan Antonio Internacional - VenezuelaLuisSepulvedaSan Juan CollegeAliceTrujilloSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanKoachWeatherford	Tighe	Cottle	Halliburton
MarleneDiazIADCJuliaSwindleIADCSteveKroplaIADCDavePriceInternational Well Control ForumJimBorthwickKCA DeutagDarrylBourgoyneLouisiana State UniversityGaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSan Antonio Internacional - VenezuelaLuisSepulvedaSan Juan CollegeAliceTrujilloSan Juan CollegeAliceTrujilloSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Brenda	Kelly	IADC
Julia   Swindle   IADC     Steve   Kropla   IADC     Dave   Price   International Well Control Forum     Jim   Borthwick   KCA Deutag     Darryl   Bourgoyne   Louisiana State University     Gary   Davis   ModuSpec USA Inc.     Chris   Nelson   Newfield Exploration     Abiodun   Akala   Oando Energy Services Limited     Steve   Mudge   Oil Well Service Co.     Lance   Ewing   Oil Well Service Co.     Tom   Elliott   Petroleum College International     Mike   Miller   Pioneer Well Services     Scott   Randall   San Antonio Internacional - Venezuela     Scott   Randall   San Juan College     Alice   Trujillo   San Juan College     Alice   Trujillo   San Juan College     Monty   Gilleland   Saudi Aramco     Keith   Mouton   Saudi Aramco     Gabe   Gibson   Shell E&P Company     Bernd   van den Brekel   Shell E&P Company     Eric   Moellendick   Tesco Corporatio	Mark	Denkowski	IADC
Steve     Kropla     IADC       Steve     Kropla     International Well Control Forum       Jim     Borthwick     KCA Deutag       Darryl     Bourgoyne     Louisiana State University       Gary     Davis     ModuSpec USA Inc.       Chris     Nelson     Newfield Exploration       Abiodun     Akala     Oando Energy Services Limited       Steve     Mudge     Oil Well Service Co.       Lance     Ewing     Oil Well Service Co.       Tom     Elliott     Petroleum College International       Mike     Miller     Pioneer Well Services       Scott     Randall     San Antonio Internacional - Venezuela       Luis     Sepulveda     San Juan College       Alice     Trujillo     San Juan College       Alice     Trujillo     San Juan College       Phil     Armenta     San Juan College       Monty     Gilleland     Saudi Aramco       Keith     Mouton     Saudi Aramco       Gabe     Gibson     Shell E&P Company       Eric     Moellendick	Marlene	Diaz	IADC
DavePriceInternational Well Control ForumJimBorthwickKCA DeutagDarrylBourgoyneLouisiana State UniversityGaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSan Antonio Internacional - VenezuelaLuisSepulvedaSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Julia	Swindle	IADC
JimBorthwickKCA DeutagDarrylBourgoyneLouisiana State UniversityGaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSolutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Steve	Kropla	IADC
DarrylBourgoyneLouisiana State UniversityGaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSolutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Dave	Price	International Well Control Forum
GaryDavisModuSpec USA Inc.ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSan Antonio Internacional - VenezuelaLuisSepulvedaSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTexco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Jim	Borthwick	KCA Deutag
ChrisNelsonNewfield ExplorationAbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallSan Antonio Internacional - VenezuelaLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Darryl	Bourgoyne	Louisiana State University
AbiodunAkalaOando Energy Services LimitedSteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallPius Alpha Risk Management Solutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Gary	Davis	ModuSpec USA Inc.
SteveMudgeOil Well Service Co.LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallPlus Alpha Risk Management Solutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyErricMoellendickTexco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Chris	Nelson	Newfield Exploration
LanceEwingOil Well Service Co.TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallPlus Alpha Risk Management Solutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTexco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Abiodun	Akala	Oando Energy Services Limited
TomElliottPetroleum College InternationalMikeMillerPioneer Well ServicesScottRandallPlus Alpha Risk Management Solutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Steve	Mudge	Oil Well Service Co.
MikeMillerPioneer Well ServicesScottRandallPlus Alpha Risk Management Solutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Lance	Ewing	Oil Well Service Co.
ScottRandallPlus Alpha Risk Management Solutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Tom	Elliott	Petroleum College International
ScottRandallSolutions LLCLuisSepulvedaSan Antonio Internacional - VenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Mike	Miller	Pioneer Well Services
LuisSepulvedaVenezuelaRandyPachecoSan Juan CollegeAliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyLricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Scott	Randall	
AliceTrujilloSan Juan CollegeStevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Luis	Sepulveda	
StevenGerencserSan Juan CollegePhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Randy	Pacheco	San Juan College
PhilArmentaSan Juan CollegeMontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Alice	Trujillo	San Juan College
MontyGillelandSaudi AramcoKeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Steven	Gerencser	San Juan College
KeithMoutonSaudi AramcoGabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Phil	Armenta	San Juan College
GabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	Monty	Gilleland	Saudi Aramco
GabeGibsonShell E&P CompanyBerndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford	· · ·		
Berndvan den BrekelShell E&P CompanyEricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford			
EricMoellendickTesco CorporationJeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford			
JeromeSchubertTexas A&M UniversityMalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford			
MalcolmLodgeTransoceanCharlesTatumTransoceanKenGrayUniversity of Texas at AustinSeanRoachWeatherford			•
Charles Tatum Transocean   Ken Gray University of Texas at Austin   Sean Roach Weatherford			
KenGrayUniversity of Texas at AustinSeanRoachWeatherford			
Sean Roach Weatherford			
	Ed	Geissler	Well Control School

Barry J.	Cooper	Well Control School
Kenneth	Raymond	Well Services Petroleum Co. Ltd.
Larry	Andrews	Wild Well Control
Glenn	Shurtz	Wild Well Control
Steve	Vorenkamp	Wild Well Control
Matthew	Vorenkamp	Wild Well Control Inc.