

MAINTENANCE COMMITTEE MEETING MINUTES

12 April 2017

Location: IADC - Crown Center 1 & 2 Conference Rooms

Call to Order / Agenda:

The committee was called to order and the attendees were welcomed by the IADC Maintenance Committee Chairman, Frank Breland (Diamond). The Chairman provided an overview of the proposed agenda for this meeting. A building security and safety briefing was given by Mr. John Pertgen (IADC).

Introductions:

Each attendee provided an introduction of them self and their company affiliation.

IADC Antitrust Policy and Guidelines and Committee Mission Statement:

The Chairman provided a review of the Committee's Mission Statement and Mr. Pertgen covered the IADC Antitrust Policy and Guidelines and stated that the full policy is available on IADC's webpage.

Regulatory Review / Update:

The API regulatory update was covered by Mr. Pertgen, who provided some of the highlights from the IADC Federal Summary, as well as the API Regulatory Summary handout.

John Pertgen (IADC) provided the Committee with information about the two IADC-published semi-annual regulatory reports on the revised IADC website:

1. International Standards Activities affecting the Offshore Oil and Gas Industries --
This report provides a handy reference to the standards development activities of various organizations (e.g., the International Maritime Organization, International Labor Organization, the International Organization for Standardization, and various international trade associations).
2. Federal Regulatory Actions Impacting the Offshore Industry –
This report provides a reference summary that reflects the regulatory actions, announced in the Federal Register by U.S. governmental agencies, which may affect operations in the oil and gas industries.

(Note: Both reports are available at: <http://www.iadc.org/advocacy/#reports>)

A list of most of the highlighted areas that were available at this meeting is included at the end of the minutes.

Class Society Issues

DNVGL

Digitalization supporting Condition Monitoring / Condition Based Maintenance was presented by Ben Parker (DNVGL). The main of his presentation were:

- Which machinery components are CLASS relevant?
- Machinery Survey Arrangements
- Machinery Condition Monitoring
- Learning from the air transport sector
- Basic concept of condition monitoring
- High level representation of a condition based maintenance framework
- System level reliability evaluation and display
- Enabling technology: Digitalization of shipping
- Position Paper: "Beyond Condition Monitoring in the Maritime Industry"

Please contact Ben Parker (DNVGL) [Ben.Parker@dnvgl.com] if you have any questions regarding his presentation or wish to obtain a copy of it from him.

ABS

New ABS MODU Rule changes was presented by Dave Forsyth (ABS). His presentation highlights were as follows:

Mobile offshore surveys section of ABS rules. The below sections were modified via the changes.

- | | |
|---------------------|--|
| -MODU 7-1-2/23 | Hull Testing during construction |
| -MODU 7-1-3/3vi | 100% NDE for piping systems in new construction |
| -MODU 7-1-5/5.9.1 | Electrical cables & equip- need cable clips/saddles on cable trays or supports |
| -MODU 7-1-8/15.1 | H2S Detection and alarm system in MODU now |
| -MODU 7-2-1/1.1 | Surveys after construction |
| -MODU 7—2-1/7.9 | Prompt and thorough repairs |
| -MODU 7-2-3/1.1 | Plan for UWILD |
| -MODU 7-2-5/5.1.6 | Lightship displacement |
| -MODU 7-2-5/7.1.1vi | Spud cans and mats |
| -MODU 7-2-5/9.3.7 | Ventilation valves |
| -MODU 7-2-5/13.15 | Jacking Systems |
| -MODU 7-2-6/1.5i | Leg to spudcan connections |

Please contact Dave Forsyth (ABS) [jforseyth@eagle.org] if you have any questions regarding his presentation or wish to obtain a copy of it from him.

MAIN PRESENTATION

Managing Assets based on Criticality and Risks – was presented by Randall Seale (Life Cycle Engineering). His presentation highlights were as follows:

- Introduction
- Rig based asset integrity maintenance
- Asset Criticality**
- Risk bases asset management
- Performance Standards**
- Major accident events are linked to performance standards
- Methodology Overview
- PM Interface
- Line of sight: Risk analysis / Performance Standard
- Ranking Index for Maintenance Expenditures
- Risk-Based Asset Management

Critical Operating Parameters

- Conditioned based monitoring/maintenance
- CBM Conceptually
- CBM Example

Preventative Maintenance

- Site specific implementation
- PM workbook overview

Please contact Randall [resale@LCE.com] if you have any questions regarding his presentation or wish to obtain a copy of it from him.

Lunch

AFTERNOON SESSION***[Meeting was closed to drilling contractors only at this point]**

Caterpillar

Robert Froebel (CAT) provided an update for all the issues that CAT is working on for our industry. He discussed various components dealing with the following:

- C175 Engines
- 3500 series Engines
- C280 Engines

Please contact the CAT representative via his email address if you want a copy of his presentation, have any questions or want to get clarification on any issues regarding your CATERPILLAR equipment. [Froebel_Robert@cat.com]

National Oilwell Varco

Ian McWilliam provided an update for all the issues that NOV is working on for our industry. He discussed components regarding the following equipment:

- Hydraracker

Please contact the NOV representative via email address if you want a copy of his presentation, have any questions or want to get clarification on any issues regarding your equipment. [Ian.McWilliam@nov.com]

ACTION ITEM: None at this time

Open Forum:

A member shared a lesson learned from a top-drive encoder problem on one of his rigs. Another member shared an issue with a riser train driver misalignment. One other member indicated a lube pump issue on the topdrive unit due to non-lubrication and scaling on pressure switch was not set correctly.

One member raised the issue about TDX1250 pinion hub failures at his company. Another member stated that a key OEM had a lack of installation QA/QC verification reports for their equipment, which was echoed by other attendees.

Adjourned: 1427 hrs

Lunch sponsors for 2017 committee meetings held at IADC will be:

- 11 January - NOV
- 12 April - CAT
- 12 July - Add Energy
- 11 October - Diamond

REGULATORY UPDATE

API ACTIVITIES

API S53 Blowout Prevention Equipment Systems for Drilling Wells

- The addendum to the 4th edition was published on July 8, 2016. The last meeting has held April 4, 2017. The task group is now: reviewing all design requirements in API 53 for retention or move into relevant API Specification Documents; completed Section 6 & 7 comparison for consistency; reviewing all informative statements throughout the document for retention; and beginning revision work for 5th Edition including revising proposed Assessment Tool. The testing work group continues clarifying testing requirements. A land subgroup was developed to discuss land-only requirements in S53 for possible language revision for 5th edition. The next meeting will be April 25th, 2017 and will be meeting during the API Summer Conference in Calgary. Ricky Cummings, Chevron is the chair RCummings@chevron.com

API RP 4G Operation, Inspection, Maintenance, and Repair of Drilling and Well Servicing Structures

- There is an active task group within API that is working on modifications to API RP 4G, "Operation, Inspection, Maintenance, and Repair of Drilling and Well Servicing Structures". This group is working on changes mainly to Level III and IV inspections. Plans are for Level IV inspections to be added for all offshore drilling structures. The task group is looking for more offshore contractors to participate in their meetings, the chair is Anthony Mannering, TM Engineering, PLLC, please contact Anthony if you are interested in participating anthony.mannering@tmengineeringpllc.com or (713) 202-3288. The next meeting will be June 26, 2017 at the summer standards conference.

API RP 75 Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities

- Sandi Fury, Chevron, SFury@chevron.com and Charlie Duhon, Arena CDuhon@arenaoffshore.com are the co-chairs of the RP 75 revision workgroup. The last meeting was held yesterday, April 11, 2017.

API Specification 16AR Drill Through Equipment Repair and Remanufacturing

- A task group has been formed to create a new document on the repair and remanufacture of BOPs, similar to Annex B of 16A. Annex B is being removed from 16A. (Contact Jan van Wijk jan.vanwijk@shell.com or Chris Johnson chris.johnson@nov.com) The 1st edition is expected to publish in conjunction with the next edition of 16A.
- The API Monogram-APIQR Program is gauging industry interest and planning development of an APIQR certification and audit program for API Spec 16AR. The program would certify, through an audit process, organizations that perform repair and remanufacture of drill-through equipment

and have implemented quality systems and processes that meet the requirements of API Spec 16AR.

API Spec Q2 Specification for Quality Management System Requirements for Service Supply Organizations for the Petroleum and Natural Gas Industries (1st Edition)

- API-APIQR has 86 active, certified facilities for API Spec Q2 in 20 different countries (29 out of the 86 certificates have been issued to E&P service companies in the US).
- There are 44 current applications in 15 different countries
- APIQR continues to work with API SC18, TG5 members and drilling contractors to define the APIQR certification and auditing program requirements for Q2 certification of drilling contractor quality management systems/operations. This includes planning and executing beta testing of the API Spec Q2 requirements and audit process. The beta testing involves performing a mock API Spec Q2 audit of the drilling contractors quality management system at applicable facilities.
- The SC18, TG5 (the SC18 quality committee's task group on API Spec Q2) work groups continue to work revisions to API Spec Q2; a 2-year extension has been granted to allow the revision process to be completed over the next year. The initial ballot for API 18TR2, Guidance to API Spec Q2 (the user's guide on the intent of the API Spec Q2) closed February 21, 2017 and the comment resolution process has been initiated. Publication is expected by end of 2017. For more information on the work of SC18, TG5, contact the chair of the TG, Stacey Hagen of ExxonMobil at stacey.w.hagen@exxonmobil.com.
- For information about the Q2 certification program, program requirements, auditing requirements, etc. visit the API website at <http://www.api.org/products-and-services/api-monogram-and-apiqr> or contact certification@api.org. For more information on API-U Q2 training courses please visit the API-U training calendar on the API website at <http://www.api.org/products-and-services/training/api-u/calendar>.

API 18LCM Product Life Cycle Management System Requirements for the Petroleum and Natural Gas Industries

- A task group has been formed to create a life-cycle management system document for use in conjunction with products and/or standards used in the oil and gas industry. The document should provide the means of identifying the continued compliance of a product to its original and/or current manufacturing and design requirements and the ability to demonstrate product compliance to original and/or current product standards and industry/product-specific technical and regulatory requirements throughout the product lifecycle. The document is currently under review and should be published any day. (Contact Mike Briggs, Cameron Michael.Briggs@c-a-m.com)
- The API Monogram-APIQR Program is gauging industry interest and planning development of an APIQR certification and audit program for API 18LCM. The program would certify, through an audit process, organizations that perform equipment life cycle management activities and have implemented quality systems and processes that meet the requirements of API 18LCM. In order to fully conform with API 18LCM, organizations providing life cycle management services must implement quality systems that meet the requirements of API Spec Q2.

USCG ACTIVITIES

USCG Industry Day

- The next Industry Day is scheduled for April 20, 2017, USCG Sector Houston/Galveston

National Offshore Safety Advisory Committee meeting (NOSAC)

- The next meeting is May 17, 2017 in New Orleans. A new task statement and subcommittee on Recommendations on Safety Management Systems (SMS) for Vessels engaging in Well Intervention Activities has been issued/established.

USCG & BSEE MOAs

- In January 2017, BSEE and USCG signed four revised memorandums of agreement (MOAs). The revised agreements address best practices for managing civil penalties, incident investigations, management systems and oil discharge preparedness. They can be found at this website: <https://www.bsee.gov/newsroom/partnerships/interagency>

USCG Pending Rules

- Interim Final Rule Revision to TWIC Requirements for Mariners (03/17)
- Final Rule Marine Casualty Reporting on the OCS (12/06)

BSEE ACTIVITIES

BSEE Offshore Well Control Rule

- The final rule was announced on April 14 and published on April 29, 2016. Most of the rule became effective on July 28, 2016. API, IADC, OOC, NOIA, IPAA, PESA and USOGA sent BSEE a letter on May 27, 2016 asking for clarification and/or interpretation from BSEE. BSEE has been providing that information on their website at: <https://www.bsee.gov/site-page/well-control-rule-by-date> The joint-industry trades continue to work to resolve issues associated with the rule and its implementation, including developing information for the Trump Administration.

BSEE Bolt Report, Safety Alert & API Response

- August 11, 2014 BSEE released a technical Review of Connector and Bolt Failures following the failure of connectors and bolts used in critical equipment. The technical review, entitled Evaluation of Connector and Bolt Failures, was completed by the bureau's Quality Control-Failure Incident Team (QC-FIT) and submitted to BSEE Director Brian Salerno. API held a Technical Session during the API Exploration and Production Winter Standards Meeting in New Orleans on January 27, 2015. After the Technical Session, a multi-segment task group was formed to review the detailed recommendations in the report and determine next steps. The final report was shared with BSEE and is now being implemented.

BSEE held a public forum on offshore connector equipment failures, including connector bolt failures that have occurred on the OCS on August 29, 2016, in Washington, DC. API presented at the Forum.

In addition to the work of the multi-segment task group, API met with BSEE on March 31, June 22, September 20, and October 7, 2016, to discuss the Safety Alert. And provided BSEE

quarterly updates to track the voluntary industry actions we have committed to to improve subsea BOP bolting. Work continues with BSEE on subsea BOP bolting.

Additionally, the National Academies of Sciences, Engineering, and Medicine (the Academies) through the National Academy of Engineering (NAE) and the National Materials and Manufacturing Board (NMMB) has been contracted by BSEE to hold an Academies' workshop and follow-on study to address issues associated with the reliability of connectors used in critical safety components and equipment for offshore oil and natural gas operations. The workshop was held April 10-11, 2017 in Washington, DC. The final report will be delivered sometime early 2018 to the public via the NAP website. The website for the Committee:
http://sites.nationalacademies.org/DEPS/NMMB/DEPS_174523

NASA 5 Year Agreement with BSEE to Examine Risk Offshore

- On February 6, 2017, BSEE posted the Draft PRA Guide for the Oil and Gas Industry that NASA prepared. NASA is also working on an ~ 40 page PRA White Paper. They expect to be completed within about a month. When it is finished, they will make it available. More information is available on the BSEE website <https://www.bsee.gov/what-we-do/offshore-regulatory-programs/probabilistic-risk-assessment-analysis>

BSEE Pending Rulemaking

- Final Incorporation of Updates of Crane Standards (12/16)
- Final Rule Pipeline Decommissioning Cost Reporting (12/16)
- Proposed Rule Aviation Regulations (03/17)
- Proposed Rule Oil-Spill Response Requirements (07/17)
- Proposed Rule Pipelines and Pipeline Right-of-Way Safety (09/17)

OTHER ACTIVITIES

CBP Rulings Notice on Proposed Modification and Revocation of Ruling Letters Related to Customs Application of the Jones Act to the Transportation of Certain Merchandise and Equipment Between Coastwise Points

- On January 18, 2017, CBP published a notice entitled "Proposed Modification and Revocation of Ruling Letters Related to Customs Application of the Jones Act to the Transportation of Certain Merchandise and Equipment Between Coastwise Points" in volume 51 of the Customs Bulletin and Decisions. According to CBP they are proposing to modify a 1976 Ruling HQ 101925 to make it more consistent with federal statutes and regulations that were amended or promulgated after HQ 101925 was issued, and to clarify the proper reasoning underlying the conclusions reached regarding the subjects covered in the ruling. In addition, CBP proposes to revise its rulings which have determined that articles transported between coastwise points are vessel equipment pursuant to Treasury Decision ("T.D.") 49815(4). CBP intends to revoke or modify all prior rulings inconsistent with the proposed modifications. To respond to this notice, API is coordinating a Joint Trade comment letter to include API, the Association of Diving Contractors International (ADC I), the Independent Petroleum Association of America (IPAA), IADC, the International Association of Geophysical Contractors (IAGC), the International Marine Contractors Association (IMCA), the Louisiana Mid-Continent Oil and Gas Association (LMOGA), the Offshore Operators Committee (OOC) and the U.S. Oil and Gas Association. Comments are due April 18, 2017.

OESI (Ocean Energy Safety Institute)

- OESI will support BSEE, as they announce their assessment and early findings for technology solutions related to 'Early Kick Detection (EKD)' and 'Methane Gas Detection (MGD)' to help safeguard against Outer Continental Shelf (OCS) safety issues on April 17, 2017 at the Doubletree at IAH, 15747 John F Kennedy Blvd, Houston, TX 77032.
- OESI will host a discussion on an OESI-developed Best Practice Document for Real Time Monitoring (RTM) of Offshore Well Construction on April 17, 2017 at the Doubletree at IAH, 15747 John F Kennedy Blvd, Houston, TX 77032.
- BSEE's 2017 International Standards Workshop will be hosted by OESI at the Lloyd's Register Training Center on May 5, 2017. The theme of the workshop is Integrity Management.

Attendance:

Name		Company Name
Dave	Forsyth	ABS CONSULTING
Robert	Conachey	ABS CONSULTING
Denis	Adams	ADD ENERGY
Roger	Pool	ADD ENERGY
Jim	Ness	BP
Sean	Komatinsky	CASTROL ENERGY LUBRICANTS
Robert	Froebel	CATERPILLAR OIL & GAS
Dhaval	Mehta	DIAMOND OFFSHORE DRILLING, INC.
Frank	Breland	DIAMOND OFFSHORE DRILLING, INC.
Mike	Polakow	DIAMOND OFFSHORE DRILLING, INC.
Ben	Parker	DNV GL
David	McKay	DNV GL
Leonard	Hale	GULF COPPER ENERGY SERVICES
Jefferson	Craft	HELMERICH & PAYNE
John	Pertgen	IADC
William	Waldroop	INTERTEK CONSULTING & TRAINING
Warren	Moore	LIFE CYCLE ENGINEERING
Troy	Schwartz	LIFE CYCLE ENGINEERING
Randall	Seale	LIFE CYCLE ENGINEERING
Ian	McWilliam	NATIONAL OILWELL VARCO
Heath	Davis	OCTCET INC
Josh	Westling	PACIFIC DRILLING

Joseph	Effinger	PACIFIC DRILLING
Richard	Sporn	PARAGON OFFSHORE
Mike	Anatra	PARKER DRILLING
Ralph	Christman	PARKER DRILLING
Karl	Hay	PARKER HANNIFIN
Wayne	Workman	PATTERSON-UTI DRILLING COMPANY
Robert	Urbanowski	PRECISION DRILLING COMPANY
Kevin	Warren	SEADRILL AMERICAS INC.
Jeff	Marshall	TRANSOCEAN
Duane	Ahlquist	WORLDWIDE OILFIELD MACHINE, INC.