

## ISCWSA - Operator Wellbore Survey Group (OWSG) Meeting

### MINUTES OF MEETING

#### Venue:

5<sup>th</sup> December 2012; held at BP Helios Plaza; Houston, TX; 13:00 – 17:00

#### Present:

Ken Armagost (Anadarko), Shelly Grabb (Anadarko), Alan Vasicek (Apache), Mark Michell (BHP Billiton), William Allen (BP), Roger Goobie (BP), Pete Clark (Chevron), Son Pham (ConocoPhillips), Nestor Sanchez (ConocoPhillips), Neil Bergstrom (Devon), David Chen (Hess), Jonathan Lightfoot (Oxy), Lisa Grant (Shell), Bert Kampes (Shell), Steven Stith (Shell)

#### Planned Agenda:

- Safety Moment
- Reading Anti-Trust Statement
- Recap of ISCWSA San Antonio meeting (#36)
- HDGM Model (Jonathon Lightfoot)
- OGP P7 / Raw Data Format Specifications (Pete Clark / Mark Michell)
- Position Uncertainty IPM Models (Son Pham) [*note: did not complete in this meeting*]

#### Discussions:

##### Safety Moment:

- Location Orientation and BP Helios Plaza emergency evacuation procedure
- Ladder safety when putting up holiday lights

##### Welcoming Statement:

- William Allen welcomed the group to the BP Helios Facility
- BP supports the ISCWSA efforts
- Talked about “ethical decision making – need to care about what we were established for
- Lisa Grant stresses the groups ability and desire to set unified goals and standards for survey management

##### Reading of the Anti-Trust Statement:

###### **These are the ground rules to be repeated at the beginning of each meeting:**

- *We are meeting to help develop and promote best practices in wellbore surveying necessary to support oil and gas operations which enhance safety and competition.*
- *The meeting will be conducted in compliance with all laws including the antitrust laws, both state and federal.*
- *We will not discuss prices paid to suppliers or charged to customers nor will we endorse or disparage vendors or goods or services, divide markets, or discuss with whom we will or will not do business, nor other specific commercial terms, because these are matter for each company or individual to independently evaluate and determine*

##### Recap of ISCWSA Meeting (#36) in San Antonio

- Pete Clark reviewed the highlights
- Recap Wellbore Intercept subcommittee
  - Subcommittee in the forming stage
  - Provide industry accessible resources
  - Lexicon
  - Bibliography
- Recap Collision Avoidance subcommittee
  - Andy Sentence due to release Test Ste of well paths
    - Separation Factor (SF) test
    - Software application test
  - Best Practice Collision Avoidance rules
  - Expanding ellipse
  - Dynamic Graphics (DG) 3D visualization - Pete and other suggested to invite DG to demonstrate 3D visualization capabilities for collision avoidance
- Error Model Subcommittee
  - Problems with current inclination only models
- Education subcommittee
  - ATW in Inverness, Scotland
- CoPilot used for directional navigation
- Ranging case history

## HDGM Model

- Presented by Jonathan Lightfoot
- Copy of Presentation attached
- Highlights:
  - Compared the various model output for Oxy operating locations and showed the higher resolution with HDGM models
  - Oxy approved for adoption internally
  - Chevron used HDGM for 47 wells in Brazil
  - Brazil shows a 1.5 deg difference between HDGM and BGGM
  - Still waiting for integration in directional software
  - Need to update error models to incorporate error terms for HDGM *[Note: terms provided by Benny Poedjono as a follow-up to the October 10 2012 ISCWSA Error Model Sub-Committee Meeting]*
  - Discussed Spherical Harmonics

## OGP P7 / Raw Data Standard Format

- Raw data format – Pete Clark discussed the latest format file
  - Big service providers already have standard formats but smaller vendors do not – goal is to provide a standard
  - Proposed Raw data format file based on Baker's DDP file
  - Units not important as long as it is consistent
  - Discussed Real-time or flat files
  - Discussed importance of tool calibration and QA/QC of tools
  - Once OWSG members reviews and approved then invite companies such as Benchtree, Baker Weatherford, Schlumberger, Halliburton, and others to provide inputs and comments.
- OGP P7 discussion by Mark Michell
  - Under the OGP Geomatics committee

- Updating of the 200 release – which is greatly underutilized
- Purpose is to provide standards for machine readable format
- Discussed compatibility with WITS/ML formats

**Additional Discussions:**

- BP working on Effort to form General JORPS for MWD and Gyro (for all service companies). BP willing to share resulting documents once completed
- Pete asked for presentation suggestions for next general ISCWSA meeting
- Discussed the need to run multiple survey instruments in single run to QA/QC surveys