

Operator's Wellbore Survey Group

a sub-committee of the ISCWSA

Activity Report for ISCWSA #42

Houston

1 October 2015

Chair: Neil Bergstrom (Devon)

Secretary: Son Pham (ConocoPhillips)

Operator's Wellbore Survey Group (OWSG)

Purpose

- The OWSG provides a forum for wellbore survey specialists (Wellbore Survey Focal Points) from Oil & Gas Companies to discuss technical and safety aspects of wellbore positioning.
- It is not a decision-making body. Recommendations that come out of the OWSG may or may not be adopted by individual companies or by other organizations. It does not imply endorsement by the ISCWSA.
- The OWSG provides a way to explore the issues and reach a consensus on good practices. It benefits the operator community and service providers to have consistent practices within the petroleum industry.

Operator's Wellbore Survey Group OWSG Mission Statement

To promote practices that provide confidence that reported wellbore positions are within their stated uncertainty.

Anti-Trust Statement

(read at each meeting for legal compliance)

We are meeting to help develop and promote good 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 matters for each company or individual to independently evaluate and determine.

OWSG Membership

- About 70 individual members on e-mailing list
- email the OWSG secretary (Son Pham) to be added to the list
- Companies represented include: Anadarko, Apache, BHP Billiton, BOPCO, BP, Brion Energy, Cenovus, Chesapeake, Chevron, Concho, ConocoPhillips, Devon, ExxonMobil, Fram Exploration, Hess, Jones, Laredo, Lewis, Maersk, New Horizons, Noble, Oxy, Petrobras, Repsol, Shell, Southwestern, Statoil, Talisman, Total, Tullow, XTO

OWSG Meetings

- The OWSG is an ISCWSA working group. These are not closed meetings
- Attendance is at the invitation of the group chairperson
- In the interests of forward progress and manageable size, attendance is primarily of operator representatives.
- Others may be invited at the discretion of the chairperson
- Meetings have been in person in Houston. To make it easier for non-Houston based people future meetings may at least partly be conducted by teleconference.

OWSG - Meetings

- Initial meeting April, 2012
- Affiliated with ISCWSA October, 2012
- Meetings in Houston every few months
 - plus updates at ISCWSA
- Hosted to date by Devon, Chevron, ConocoPhillips, BP, Shell, SWN, Talisman, Oxy, Anadarko
- Typically 12-20 members present at each meeting
- Final product to www.ISCWSA.net
 - minutes, presentations, & deliverables

Membership Survey Results (SurveyMonkey)

OWSG Focus Area	Total Ranking Score (1-10)	Total Points	Highest Priority (10-Points)	Medium Priority (6-Points)	Low Priority (3-Points)	Not a Priority (0-Points)	Completed - Updates Only (1-Points)	Not Applicable within Group Scope
Industry Surveying Quality Assurance Guidelines and Good Practice Recommendations; Common Industry Requirements and Guidelines for Magnetic and Gyroscopic Surveying	10.0	232.0	19	7	0	0	0	0
OWSG Tool Error Models - Guidelines & Recommended Practices	9.4	219.0	18	6	1	1	0	0
Standardization of Magnetic MWD Field Acceptance Criteria and Reference Values. Guidance on the use of advanced Geomagnetic Models to improve wellbore survey accuracy (BGGM, HDGM, IFR1, IFR2 & Multi-Station Analysis)	7.8	182.0	11	10	4	0	0	1
Probability of Collision Calculation Guidelines and Recommended Practice for Parallel Wells and Crossing Wells	7.8	180.0	11	10	3	1	1	0
Standard Wellbore Directional Survey Report Format including Quality Control Plots for FAC based on the OWSG Error Models and Wellbore Trajectory	6.2	144.0	3	17	4	1	0	1
Standardized Data and Attribute Transfer Format for Raw Sensor Data, Survey Data and Header Reference Information	6.0	140.0	4	14	5	2	1	0
Regulatory Requirements and Recommended Industry Survey Rules for Survey Frequency for various section types (Tangent and Directional Steered Sections), Survey Reporting, Tie-In Points, North Reference, Reference Datum, Certification, etc.)	5.4	125.0	2	15	5	3	0	1
Recommended practice for Non-Mag Spacing and Guidelines for Measuring Residual Magnetism and Degaussing BHA Components	5.3	123.0	2	13	8	2	1	0
TVD Accuracy and Benchmark Survey Practices	5.3	123.0	2	13	8	2	1	0
Wellbore Planning, Anti-Collision Reporting and Wall Plotting Check Lists	5.1	118.0	3	10	9	2	1	1
Common practice and Guidelines for Facility and Well Surface Location Measurements and related Uncertainty using certified well location Plats, differential GPS devices and Aerial Imagery Tools such as GIS (Geographic Information Systems) Maps.	5.1	118.0	4	8	10	3	0	1
End of Well Reporting Recommended Practice for Directional Records of Vertical, Directional and Horizontal Wells	5.0	115.0	4	9	7	5	0	1
Streaming raw magnetic sensor measurements via WITSML and live real-time FAC verification. Including B-Total while rotating for proximity detection, etc. Develop real-time charts and Recommended Practices	4.8	112.0	1	12	10	2	0	0
Recommended Practice for the Communication of Declination and Grid Convergence	3.7	85.0	2	5	10	3	5	1
Recommended Practice for Well and Wellbore Names and Global Well Identification Framework for Unique Well Identification Numbers	3.5	82.0	1	9	5	5	3	3

Top 6 Desired Initiatives from Member Survey

Industry Surveying Quality Assurance Guidelines and Good Practice Recommendations; Common Industry Requirements and Guidelines for Magnetic and Gyroscopic Surveying	10.0	232.0
OWSG Tool Error Models - Guidelines & Recommended Practices	9.4	219.0
Standardization of Magnetic MWD Field Acceptance Criteria and Reference Values. Guidance on the use of advanced Geomagnetic Models to improve wellbore survey accuracy (BGGM, HDGM, IFR1, IFR2 & Multi-Station Analysis)	7.8	182.0
Probability of Collision Calculation Guidelines and Recommended Practice for Parallel Wells and Crossing Wells	7.8	180.0
Standard Wellbore Directional Survey Report Format including Quality Control Plots for FAC based on the OWSG Error Models and Wellbore Trajectory	6.2	144.0
Standardized Data and Attribute Transfer Format for Raw Sensor Data, Survey Data and Header Reference Information	6.0	140.0

All these top 6 initiatives relate to standardized practices and procedures.

Recent OWSG Discussions

- API Recommended Practice for Wellbore Positioning
 - More on this later in this presentation
- OWSG PU (Positional Uncertainty) error models – Rev 2
 - Implementation in commercial software
- Probability of collision calculations
- Magnetic Exclusion zone for MWD
 - Minimum distance to casing
- Allowable Deviation from Plan (ADP)
- TVD Errors and Sag correction methods
- Pedal curve vs. expansion method for separation factors
 - Agreement that expansion method is preferable

Current OWSG Initiatives

- API RP (Recommended Practice) document for Wellbore positioning
 - Lisa Grant will discuss the next slide
- OWSG Standard set of tool error (PU) models
 - Now at Rev 2 to match with ISCWSA Rev 4
- Recommendations for standardized display and application of declination and convergence - Done
- Wellplanning and wallplot checklists
- Standardized data transfer and reporting format moved to OGP – P7 Task force under Mark Michell

API RP (Recommended Practice) initiative

To be developed in cooperation with service companies



LinkedIn Group “Petroleum Industry Steering Committee for Wellbore Survey Accuracy”

- Over 1500 members: Membership requires manager approval
 - Managers: Neil Bergstrom, Pete Clark, Son Pham, Carol Mann
- Discussions on operations, equipment, software
 - Example Discussions: Degaussing, testing non-mag collars, smartphone magnetometer apps, survey calculation methods, surface & subsea positioning, links & materials of interest, meeting announcements, QC limits, Tool Codes, Pass/Fail criteria for shop tests, geomagnetic storms
- Membership is encouraged for anyone involved in wellbore positioning or related business.
- Opinions expressed are those of the members doing the posting and not of the ISCWSA as a group
- Please participate for the improvement of the community.

Questions and Comments

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