OPERATORS WELLBORE
SURVEY GROUP
SUB-COMMITTEE

Wellbore Positioning Technical Section

ISCWSA

The Industry Steering Committee on
Wellbore Survey Accuracy (ISCWSA)

OWSG GENERAL MEETING

Jonathan Lightfoot

Sub-Committee Chair

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SPE International

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AGENDA

- OWSG Mission & Anti-Trust

- 2015 Member Poll Review

- ISCWSA Revision 5 Model Implementation Barriers

- Separation Rule Implementation Status / Barriers

- Model Revision 5-1 & Reference Code Naming

- API RP-78 – 2022 Plan

- Focus Areas and Future Goals

Attendance

Operators

- **Jonathan Lightfoot**   **Oxy (OWSG Incoming Chair)**
- **Pete Clark**   **Chevron (OWSG Outgoing Chair)**
- **Will Tank**   **Oxy (RP-78 Workgroup Chair)**
- **Fauzia Waluyo**   **Aramco**
- **Ryan Carlson**   **XTO**
- **Knut Johannes Ness**   **ADNOC**
- **Bert Kampes**   **Shell**
- **Dalis Deliu**   **ConocoPhillips**
- **Marianne Houbiers**   **Equinor**
- **Nick Robertson**   **BP**
- **Todd Mckenzie**   **Shell**
- **Hans Christian Dreisig** **Total Energies**

Guests (Non-Operators)

- **Ross Lowdon – Schlumberger**
- **Phil Harbidge – Path Control**
- **Adrian Ledroz – Gyrodata**
- **Marc Willerth -**
- **Gary Skinner – Baker Hughes**

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OWSG Mission

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

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OWSG Anti-Trust

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. 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.

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2015 Member Poll – Top 5 Ranked Items

OWSG MEMBER POLL - GROUP DELIVERABLES	Total Score	Ranking
Industry Surveying Quality Assurance Guidelines and Good Practice Recommendations; Common Industry Requirements and Guidelines for Magnetic and Gyroscopic Surveying	129	1
OWSG Tool Error Models - Guidelines & Recommended Practices	112	2
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)	77	3
Probability of Collision Calculation Guidelines and Recommended Practice for Parallel Wells and Crossing Wells	67	4
Standardized Data and Attribute Transfer Format for Raw Sensor Data, Survey Data and Header Reference Information	60	5

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2015 Member Poll

OWSG MEMBER POLL - GROUP DELIVERABLES	Total Score	Ranking
Standard Wellbore Directional Survey Report Format including Quality Control Plots for FAC based on the OWSG Error Models and Wellbore Trajectory	56	6
Recommended practice for Non-Mag Spacing and Guidelines for Measuring Residual Magnetism and Degaussing BHA Components	53	7
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.	50	8
End of Well Reporting Recommended Practice for Directional Records of Vertical, Directional and Horizontal Wells	50	9
Wellbore Planning, Anti-Collision Reporting and Wall Ploting Check Lists	47	10
TVD Accuracy and Benchmark Survey Practices	46	11
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	43	12
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.)	43	13
Recommended Practice for the Communication of Declination and Grid Convergence	34	14
Recommended Practice for Well and Wellbore Names and Global Well Identification Framework for Unique Well Identification Numbers	21	15

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Implementation Status / Barriers

Operator Open Discussion
- ISCWSA Revision 5
    - Model Evaluations
    - Set A & B Reference Code Revision
    - Geomagnetic Model Reference Update
        - (LRGM, SRGM, HRGM, IFR1 & IFR2)
- Separation Rule Implementation

Naming – Revision Status & Geomagnetic Reference

Five Primary Geomagnetic Reference Model Categories

Summary

Details of the requirements in terms of power spectrum degree and update rate are given below for the five defined geomagnetic reference categories covered by ISCWSA generic set of tool-codes.

As a summary:

Category	Abbreviation	Example Geomagnetic Models
Low Resolution	LRGM	CGRF IGRF WMM
Standard Resolution	SRGM	BGGM prior to 2019 MVSD
High Resolution	HRGM	BGGM after 2019 HDGM HDGM-RT MVHD
In-Field Referencing	IFR1	
In-Field Referencing with Real-time Disturbance Field Correction	IFR2	

Abbreviations for Geomagnetic Models

BGGM	British Geological Survey Global Geomagnetic Model
CGRF	Canadian Geomagnetic Reference Field
HDGM	National Oceanic and Atmospheric Administration High Definition Geomagnetic Model
HDGM-RT	HDGM with Realtime Updates
IGRF	International Geomagnetic Reference Field
MVSD	MagVar Standard Definition Model
MVHD	MagVar High Definition Model
WMM	World Magnetic Model

ISCWSA Generic Set of Toolcodes Rev5-1

These are a default set of conservative tool-codes for use when tool specific models are not available. They are also referred to as the OWSG models.

ISCWSA_Generic_Toolcodes SetA Rev5-1

ISCWSA_Generic_Toolcodes SetB Rev5-1

MASTER LIST OF EDM COMPASS ISCWSA REVISION 5-1 INSTRUMENT PERFORMANCE MODELS (ISCWSA / SPE WPTS) IADC/SPE 178843-MS

OWSG Prefix	Short Name	Long Name	Application	Replaces	Source	Technology Type
A001Mc	A001Mc_MWD+SRGM	ISCWSA MWD - Standard	Standard MWD using SRGM and with no additional corrections	A001Mb_MWD+BGGM	ISCWSA Standard Generic	Generic Magnetic Tool
A002Mc	A002Mc_MWD+SRGM+SAG	ISCWSA MWD + Sag Correction	MWD using SRGM and Sag correction	A002Mb_MWD+BGGM+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A003Mc	A003Mc_MWD+SRGM+AX	ISCWSA MWD + Axial Correction	MWD with Axial Correction using SRGM	A003Mb_MWD+BGGM+AX	ISCWSA Standard Generic	Generic Magnetic Tool
A004Mc	A004Mc_MWD+SRGM+AX+SAG	ISCWSA MWD + Axial Corr + Sag Correction	MWD with Axial Correction using SRGM and Sag Correction	A004Mb_MWD+BGGM+AX+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A005Mc	A005Mc_MWD+IFR1	ISCWSA MWD + IFR1	MWD with IFR1 (IFR or Crustal Anomaly Correction). NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL WILL BE AVAILABLE AND USED DURING THE DRILLING	A005Mb_MWD+IFR1	ISCWSA Standard Generic	Generic Magnetic Tool
A006Mc	A006Mc_MWD+IFR1+AX	ISCWSA MWD + IFR1 + Axial Correction	MWD with IFR1 (IFR or Crustal Anomaly Correction) and Axial Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL WILL BE AVAILABLE AND USED	A006Mb_MWD+IFR1+AX	ISCWSA Standard Generic	Generic Magnetic Tool
A007Mc	A007Mc_MWD+IFR1+AX+SAG	ISCWSA MWD + IFR1 + Axial Corr + Sag Correction	MWD with IFR1 (IFR or Crustal Anomaly Correction) and Axial Correction and Sag Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL WILL BE	A007Mb_MWD+IFR1+AX+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A008Mc	A008Mc_MWD+IFR1+MS	ISCWSA MWD + IFR1 + Multi-Station Correction	MWD with IFR1 (IFR or Crustal Anomaly Correction) and Multi-Station Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL WILL BE AVAILABLE AND	A008Mb_MWD+IFR1+MS	ISCWSA Standard Generic	Generic Magnetic Tool
A009Mc	A009Mc_MWD+IFR1+SAG	ISCWSA MWD + IFR1 + Sag Correction	MWD with IFR1 (IFR or Crustal Anomaly Correction) and Sag Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL WILL BE AVAILABLE AND USED	A009Mb_MWD+IFR1+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A010Mc	A010Mc_MWD+IFR1+SAG+MS	ISCWSA MWD + IFR1 + Sag + Multi-Station Correction	MWD with IFR1 (IFR or Crustal Anomaly Correction) and Multi-Station Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL WILL BE AVAILABLE AND	A010Mb_MWD+IFR1+SAG+MS	ISCWSA Standard Generic	Generic Magnetic Tool
A011Mc	A011Mc_MWD+IFR2+AX+SAG	ISCWSA MWD + IFR2 + Axial Corr + Sag Correction	MWD with IFR2 (IIFR or Crustal Anomaly with Time Varying Corrections) and Axial Correction and Sag Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE	A011Mb_MWD+IFR2+AX+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A012Mc	A012Mc_MWD+IFR2+SAG	ISCWSA MWD + IFR2 + Sag Correction	MWD with IFR2 (IIFR or Crustal Anomaly with Time Varying Corrections) and Sag Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR MODEL AND	A012Mb_MWD+IFR2+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A013Mc	A013Mc_MWD+IFR2+SAG+MS	ISCWSA MWD + IFR2 + Sag + Multi-Station Correction	MWD with IFR2 (IIFR or Crustal Anomaly with Time Varying Corrections) with Sag and Multi-Station Correction. NOT TO BE USED WHILE PLANNING A WELL UNLESS THE IFR	A013Mb_MWD+IFR2+SAG+MS	ISCWSA Standard Generic	Generic Magnetic Tool
A014Mc	A014Mc_EMS+SRGM	ISCWSA EMS - Standard	Standard EMS using SRGM and with no additional corrections	A014Mb_EMS+BGGM	ISCWSA Standard Generic	Generic Magnetic Tool
A015Mc	A015Mc_EMS+SRGM+AX	ISCWSA EMS + Axial Correction	EMS with Axial Correction using SRGM	A015Mb_EMS+BGGM+AX	ISCWSA Standard Generic	Generic Magnetic Tool
A016Mc	A016Mc_EMS+SRGM+AX+SAG	ISCWSA EMS + Axial Corr + Sag Correction	EMS with Axial Correction using SRGM and Sag Correction	A016Mb_EMS+BGGM+AX+SAG	ISCWSA Standard Generic	Generic Magnetic Tool
A017Mc	A017Mc_EMS+SAG+SRGM	ISCWSA EMS + Sag Correction	EMS using SRGM and Sag correction	A017Mb_EMS+SAG+BGGM	ISCWSA Standard Generic	Generic Magnetic Tool

Example List of Set A Models

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OWSG Prefix	Short Name	Long Name	Application	Replaces	Source	Technology Type
B001Mc	B001Mc_MWD+HRGM	ISCWSA MWD + HRGM	MWD Using HRGM (HDGM or MVHD). This is the default standard EDM Compass MWD error model for Oxy unless the BU is using an advanced In-Field-Reference (IFR)	B001Mb_MWD+HRGM	ISCWSA Extended Generic	Generic Magnetic Tool
B002Mc	B002Mc_MWD+HRGM+AX	ISCWSA MWD + HRGM + Axial Correction	MWD with Axial Correction using HRGM (HDGM or MVHD)	B002Mb_MWD+HRGM+AX	ISCWSA Extended Generic	Generic Magnetic Tool
B003Mc	B003Mc_MWD+HRGM+AX+SAG	ISCWSA MWD + HRGM + Axial Corr + Sag Correction	MWD with Axial Correction using HRGM (HDGM or MVHD) with Sag Correction	B003Mb_MWD+HRGM+AX+SAG	ISCWSA Extended Generic	Generic Magnetic Tool
B004Mc	B004Mc_MWD+HRGM+SAG	ISCWSA MWD + HRGM + Sag Correction	MWD Using HRGM (HDGM or MVHD) with Sag Correction	B004Mb_MWD+HRGM+SAG	ISCWSA Extended Generic	Generic Magnetic Tool
B005Mc	B005Mc_MWD+HRGM+SAG+MS	ISCWSA MWD + HRGM + Sag + Multi-Station Correction	NOT TO BE USED WHILE PLANNING A WELL. MWD Using HRGM (HDGM or MVHD) with Sag Correction and Multi-Station Correction	B005Mb_MWD+HRGM+SAG+MS	ISCWSA Extended Generic	Generic Magnetic Tool
B006Mc	B006Mc_MWD+LRGM	ISCWSA MWD + LRGM or WMM	MWD Using IGRF or WMM	B006Mb_MWD+IGRF	ISCWSA Extended Generic	Generic Magnetic Tool
B007Mc	B007Mc_MWD+LRGM+AX	ISCWSA MWD + LRGM or WMM + Axial Correction	MWD with Axial Correction using IGRF or WMM	B007Mb_MWD+IGRF+AX	ISCWSA Extended Generic	Generic Magnetic Tool
B008Mc	B008Mc_MWD+LRGM+AX+SAG	ISCWSA MWD + LRGM or WMM + Axial Correction + Sag Correction	MWD with Axial Correction using IGRF or WMM with Sag Correction	B008Mb_MWD+IGRF+AX+SAG	ISCWSA Extended Generic	Generic Magnetic Tool
B009Mc	B009Mc_MWD+LRGM+SAG	ISCWSA MWD + LRGM or WMM + Sag Correction	MWD Using IGRF or WMM with Sag Correction	B009Mb_MWD+IGRF+SAG	ISCWSA Extended Generic	Generic Magnetic Tool
B010Mc	B010Mc_EMS+IFR1+SAG+MS	ISCWSA EMS + IFR1 + Axial Corr + Sag Correction	EMS with IFR1 (IFR or Crustal Anomaly Correction) and Axial Correction and Sag Correction	B010Mb_EMS+IFR1+SAG+MS	ISCWSA Extended Generic	Generic Magnetic Tool
B011Mc	B011Mc_EMS+IFR1+SAG	ISCWSA EMS + IFR1 + Sag Correction	EMS with IFR1 (IFR or Crustal Anomaly Correction) and Sag Correction	B011Mb_EMS+IFR1+SAG	ISCWSA Extended Generic	Generic Magnetic Tool
B012Mc	B012Mc_EMS+IFR1+SAG+MS	ISCWSA EMS + IFR1 + Sag + Multi-Station Correction	NOT TO BE USED WHILE PLANNING A WELL. EMS with IFR1 (IFR or Crustal Anomaly Correction) with Sag and Multi-Station Correction	B012Mb_EMS+IFR1+SAG+MS	ISCWSA Extended Generic	Generic Magnetic Tool
B013Mc	B013Mc_EMS+HRGM	ISCWSA EMS + HRGM	EMS Using HRGM (HDGM or MVHD)	B013Mb_EMS+HRGM	ISCWSA Extended Generic	Generic Magnetic Tool
B014Mc	B014Mc_EMS+HRGM+AX	ISCWSA EMS + HRGM + Axial Correction	EMS with Axial Correction using HRGM (HDGM or MVHD)	B014Mb_EMS+HRGM+AX	ISCWSA Extended Generic	Generic Magnetic Tool
B015Mc	B015Mc_EMS+HRGM+AX+SAG	ISCWSA EMS + HRGM + Axial Correction	EMS with Axial Correction using HRGM (HDGM or MVHD) with Sag Correction	B015Mb_EMS+HRGM+AX+SAG	ISCWSA Extended Generic	Generic Magnetic Tool
B016Mc	B016Mc_EMS+HRGM+SAG	ISCWSA EMS + HRGM + Sag Correction	EMS Using HRGM (HDGM or MVHD) with Sag Correction	B016Mb_EMS+HRGM+SAG	ISCWSA Extended Generic	Generic Magnetic Tool

Example List of Set B Models

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API RECOMMENDED PRACTICE 78

- Status Update from Will Tank (RP78 Workgroup Chair)

- Overview of the Process

- Working Draft (15-Oct-2021 from Ben Coco)

- Final Edits Pending

- Timing of Final Edits & Balloting

- Goal for Release

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Will Tank Update

API RP 78 Wellbore Positioning

Current Status

- A draft of the document is complete.

- Ben Coco has moved the text into an API style document.

- The ISCWSA QA/QC sub-committee has reviewed the QA/QC and Directional Survey Records sections of the document to summarize a significant amount of important knowledge to fit into the document.

Action Items

- Incorporate the new QA/QC and Directional Survey Records sections into the document.

- Secure a technical advisor who could commit to reviewing the entire document for a cohesive voicing of the document.

- Get a work group review of the technical cleanup prior to balloting.

API RP 78 – Status and Future Work

CONTENTS

WELLBORE SURVEYING AND POSITIONING

15 October 2021
Current Draft

API RECOMMENDED PRACTICE 78
FIRST EDITION, [MONTH] 202X

Utility Error Models for Vertical Cone of Error (COE) Inclination for Vertical Wells
Max Departure Calculation

OWSG Prefix	Short Name	Long Name	Application	Replaces	Source	Technology Type
COE_IO05Ub	COE_IO05Ub_INC-ONLY	COE Inc-Only_FieldData_5ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 5ft/1,000' of Displacement. 50ft EOU at 10K ft Vertical. Rev - WWDC-DDS	COE_IO05Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO10Ub	COE_IO10Ub_INC-ONLY	COE Inc-Only_FieldData_10ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 10ft/1,000' of Displacement. 100ft EOU at 10K ft Vertical. Rev - WWDC-DDS	COE_IO10Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO15Ub	COE_IO15Ub_INC-ONLY	COE Inc-Only_FieldData_15ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 15ft/1,000' of Displacement. 150ft EOU at 10K ft Vertical. Rev - WWDC-DS	COE_IO15Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO20Ub	COE_IO20Ub_INC-ONLY	COE Inc-Only_FieldData_20ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 20ft/1,000' of Displacement. 200ft EOU at 10K ft Vertical. Rev - WWDC-DDS	COE_IO20Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO25Ub	COE_IO25Ub_INC-ONLY	COE Inc-Only_FieldData_25ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 25ft/1,000' of Displacement. 250ft EOU at 10K ft Vertical. Rev - WWDC-DS	COE_IO25Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO30Ub	COE_IO30Ub_INC-ONLY	COE Inc-Only_FieldData_30ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 30ft/1,000' of Displacement. 300ft EOU at 10K ft Vertical. Rev - WWDC-DDS	COE_IO30Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO35Ub	COE_IO35Ub_INC-ONLY	COE Inc-Only_FieldData_35ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 35ft/1,000' of Displacement. 350ft EOU at 10K ft Vertical. Rev - WWDC-DS	COE_IO35Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO40Ub	COE_IO40Ub_INC-ONLY	COE Inc-Only_FieldData_40ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 40ft/1,000' of Displacement. 400ft EOU at 10K ft Vertical. Rev - WWDC-DDS	COE_IO40Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO45Ub	COE_IO45Ub_INC-ONLY	COE Inc-Only_FieldData_45ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 45ft/1,000' of Displacement. 450ft EOU at 10K ft Vertical. Rev - WWDC-DS	COE_IO45Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO50Ub	COE_IO50Ub_INC-ONLY	COE Inc-Only_FieldData_50ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 50ft/1,000' of Displacement. 500ft EOU at 10K ft Vertical. Rev - WWDC-DDS	COE_IO50Ua_INC-ONLY	Operator Specified	Operator Utility Tool
COE_IO55Ub	COE_IO55Ub_INC-ONLY	COE Inc-Only_FieldData_55ft_per_1Kft	Error Model for vertical wells with inclination data analysis that supports an anticipated maxiumum 55ft/1,000' of Displacement. 550ft EOU at 10K ft Vertical. Rev - WWDC-DS	COE_IO55Ua_INC-ONLY	Operator Specified	Operator Utility Tool

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Focus Areas and Future Goals

- Ideas for OWSG Focus Areas and Future Goals

- Brainstorm Ideas for Future Meetings
  - Recent Well Intercepts
  - Survey RIP Comparisons
  - Operator Standards, Guidelines Procedures & Workflows
  - Close Approaches & Collisions

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Questions, Comments & Open Discussion

- Virtual Roundtable

- Challenges / Opportunities / Vision

- Meetings (Virtual & Face to Face)

Schedule: The Fourth Tuesday of Every 2 Months

2022 Meetings

January 25th	March 22nd
May 24th	July 26th
September 27th	November 22nd

Published Master's Thesis

- UiS Brage: Twisted Elliptic Cylinder of Uncertainty: An Alternative Method to Calculate the Anti-Collision Safety Factor (unit.no)

- https://uis.brage.unit.no/uis-xmlui/handle/11250/2759673

- *Reading Assignment Opportunity – Being shared with OWSG members to learn about this academic research thesis paper and how the ISCWSA Industry Work was interpreted by this graduate student)*

University of Stavanger

FACULTY OF SCIENCE AND TECHNOLOGY

MASTER'S THESIS

Study programme/specialisation: **Petroleum Technology, Drilling**	Autumn semester, 2020 Open
Author: **Rafael Alves Madeira**	(signature of author)

Programme coordinator: **Anita Malde**

Supervisor(s): **Dan Sui**

Title of master's thesis:

Twisted Elliptic Cylinder of Uncertainty: An Alternative Method to Calculate the Anti-Collision Safety Factor

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ISCWSA

Action Items

- Share Meeting Slides & Minutes with Nov. Attendee Group

- Post slides & minutes on the OWSG Sub-Committee section of ISCWSA

- Share Naming Spreadsheet & request feedback

- Seek Presentations / Case Study Topics for the January Meeting

- Update RP-78 Roster and Invite Operators to the 2022 OWSG Meetings

- Develop a 2022 Operator Poll to prioritize topics and focus areas

- Organize the Agenda for the 2022 January Meeting – Request Presentation Abstracts

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Thank you

Questions?