



# Survey QAQC Activity Report

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Phil Harbidge – Sperry Sun, Halliburton @ Stavanger Norway  
23 years Wellbore Positioning  
Well Placement, Collision Avoidance, Risk Assessment,  
Survey QAQC & Optimization  
SPE WPTS, ISCWSA Board, Webmaster and Survey QAQC Sub-com. Chair,  
Drilling Data Quality and Uncertainty Description Sub-Committee  
SPE CCUS Webmaster

Work : **Sperry Sun :**            **Wellplacement, Survey Management, Advanced Survey Corrections,  
Software Setup, database Audits, Training and more**

Worked :  
**PathControl, Baker Hughes INTEQ and SLB Global, Middle East and Asia Regions  
Marine Surveyor and Civil Engineer and the Planetary Space Science Research Institute UK**





# Meeting Attendance 45 attendees 30% Operators

- QAQC SC In Person and Online Meeting 25 Sep 2024

- Remote: 3/5

1. [hans.dreisig@totalenergies.com](mailto:hans.dreisig@totalenergies.com)
2. [mhou@equinor.com](mailto:mhou@equinor.com)
3. [kness@adnoc.ae](mailto:kness@adnoc.ae)
4. [harald@depth.solutions](mailto:harald@depth.solutions) NEW Well Depth REPORT HEADERS
5. [morten.gjertsen@bakerhughes.com](mailto:morten.gjertsen@bakerhughes.com) QC mag MWD REPORT HEADERS

- In person: 10/35

1. [AdrianI@GYRODATA.com](mailto:AdrianI@GYRODATA.com)
2. [bruce.ripley@innova\\_drilling.com](mailto:bruce.ripley@innova_drilling.com) ??
3. [Daniel.wessel@innova.com](mailto:Daniel.wessel@innova.com) ??
4. [Batyr.amanov@noc.qa](mailto:Batyr.amanov@noc.qa)

15. [leif@icefieldtools.com](mailto:leif@icefieldtools.com)
16. [erik@icefieldtools.com](mailto:erik@icefieldtools.com) Gyro QC & RIP + ChiSQ test report headers
17. [austin.pile@scientificdrilling.com](mailto:austin.pile@scientificdrilling.com)
18. [chad@superiorqc.com](mailto:chad@superiorqc.com) Gyro QC & RIP + ChiSQ test report headers
19. [kyle@dgi.com](mailto:kyle@dgi.com)
20. [phil@dgi.com](mailto:phil@dgi.com)
21. [mlong@roundlabvinc.com](mailto:mlong@roundlabvinc.com) MWD QAQC headers & ChiSQ test report headers
22. [ojegbefume@slb.com](mailto:ojegbefume@slb.com) Gyro QC & RIP + ChiSQ test report headers
23. [aklestad@slb.com](mailto:aklestad@slb.com)
24. [iwalker@phxtech.com](mailto:iwalker@phxtech.com)
25. [wiltanigan@halliburton.com](mailto:wiltanigan@halliburton.com)



# Agenda I - Review of work to date

QAQC Subcommittee Activity :

Compile the 4x word documents into a single document for publishing on the ISCWSA.net website

- THREE draft QAQC e-book chapter documents :
- MWD - Chad 22 pages long **ISC 58 October meeting completed**
- Gyro – Ben 19 pages long **ISC58 October meeting in progress**
- DSR – **use a sanitised version** of the API document or use the minimum data requirements document **Draft in progress**
- Depth – Harald 39 pages long **ISC59 Completed**

**Request from 5 service companies and USA + International QAQC example documents for MWD, Gyro and Drilling Survey Records for inclusion into the public access QAQC E-book**



# Agenda I a.

- Work on terms which are inconsistent with the rest of the API terminology. Basically we are correct and API other chapters are inconsistent with our documentation
  
- 1hr MWD Chapter review –
  - a. Recap on SHALL / SHOULD / MUST / MAY comments for including in our E-Book
  - b. MWD (& Gyro) pre run setup data examples (4 different company documents) Compile a list of example diagrams and forms for the major service companies to share
  - c. QC data template examples
  - d. Survey sensor Calibration data content examples
  - e. Survey tool calibration report example
  
- 1hr Gyro chapter review – Ben, Adrian, Erik
  - a. QC data template examples
  - b. Survey sensor Calibration data content examples
  - c. Survey tool calibration report example
  - d. More.. What's missing?



# Agenda II

- 1a. eBook introduction
- Suggestion
- *“The intention is for this document to form an operationally focused guidance document to help users achieve minimum industry recommended practice requirements. This is a non commercial document, which has been written in response to industry needs and has been authored by members of the Industry Steering Committee on Wellbore Survey Accuracy – Quality Control and Quality Assurance Sub-Committee and is a public access document. Please contact ISCWSA QAQC Chair [philharbidge@gmail.com](mailto:philharbidge@gmail.com) and [Melqizawy@kmtechnology.com](mailto:Melqizawy@kmtechnology.com) Education Committee Chair suggested changes, errors or additions to this document.”*



# Agenda III

- **State the intended audience :**
  - a. *Survey sensor and calibration facility manufacturers*
  - b. *Survey data service providers and data users*
  - c. *Oil, gas and water operating companies*
  - d. *Government authority employees*
  - e. *Education bodies*
- “
- **1b. Assess the “shall and must” statements in the documentation Gyro QAQC Doc**
  - "Must" statements not conducive for educational material for general audience, so change out the “Must” and “Shall” statements to “should” and “may”
- **1c. Turn DSR document into e-Book manula document, flipchart or plain old PDF file. We need help on making it searchable outside the website and within**



## Agenda IV

- **1d. Peer-review documents for eBook audience/intent (currently written for API)**
- The objective of in-person meetings is to review/edit these documents for an e-Book audience. Once these documents are edited/peer-reviewed, they will be passed along to the Education subcommittee to be converted into a “Manula” e-Book. After they are on Manula, further editing would take place (trimming of content, addition of graphics, etc.) before public release.
- **Phil Harbidge will run the in person QAQC Subcommittee meetings 9<sup>th</sup> Oct 24 and bi-monthly meetings online, contact details : +4790256502 / phil.harbidge@halliburton.com**





# Agenda V

- Chad to suggest / share similar for the Software / API Survey QC project he is working on
- Update on software QC project findings



## Additional Projects in the pipeline

- QAQC Parameters Survey Related to New WPTS Error Model (s)
  - FAC related to positional uncertainty model - guidance
  - Some of the gross errors captured, not capturing all
  - Validation methods for different levels Accuracy of Corrections as per claimed accuracy for PUM used, IFR1+MSA, IFR2+MSA, new generation of MEMS sensor packages, high definition survey micro dogleg correction, (Dual Inc), Well Depth
  - QAQC Software testing project UPDATE Darren A & Mahmoud E SLB, Chad H SQC, Morten G BHGE, Patrick K HAL, Mike L ROUNDLAB, Mike C 3SIG WDESIGN, Marc W MAGVAR, WFD?



+  
◦ · An Improved  $\chi^2$  QC Test:  
Unified Measure of Statistical  
Distance for Survey QC & AC

Mike Calkins - Three Sigma Well Design, LLC



# Azimuth error missed by QAQC

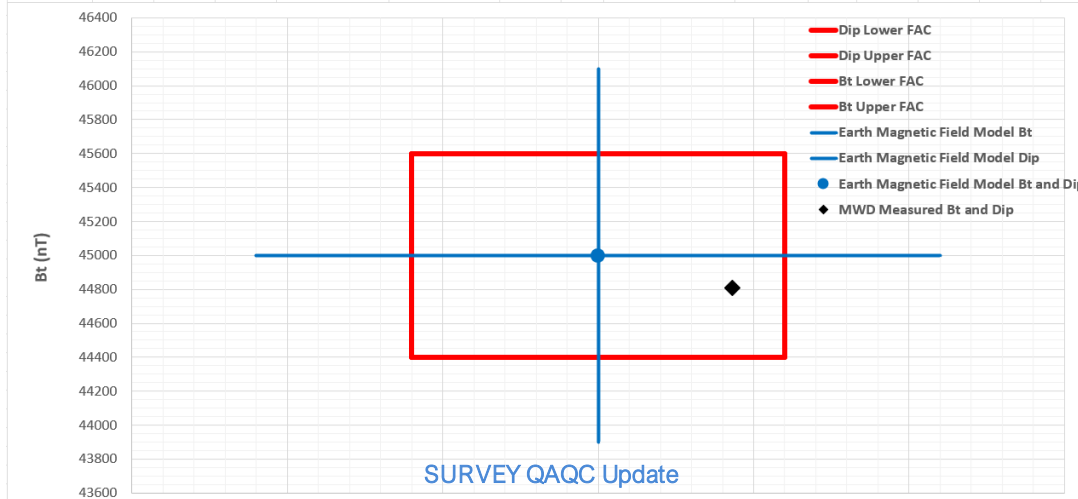
Target Bearing		Reference Magnetics		FAC Limits	
Inclination:	90.00 deg.	Magnetic Field	45000 nT	Magnetic Field	600 nT
Azimuth:	120.00 deg.	Dip Angle	60.00 deg.	Dip Angle	0.6 deg.
		Gt	9.7946 m/s <sup>2</sup>		

Error Magnitude		Measured Magnetics		Measured Bearing	
AMI:	800 nT	Magnetic Field	44806.70 nT	Inclination:	90.00 deg.
Twist:	0 deg.	Dip Angle	60.43 deg.	Azimuth:	118.20 deg.
		Gt	9.7946 m/s <sup>2</sup>		

<b>Azimuth Error</b>	<b>-1.80</b>	<b>deg.</b>
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# QAQC Subcommittee Mission

Define practices that promote the task of defining the required data which may be used to validate and potentially enhance a wellbore's position and uncertainty.



- Write Survey QAQC EBook for public distribution - In progress
- "Define and Communicate the Essential Data Required to Verify and Potentially Enhance a Wellbore."
- ISCWSA QA/QC Sub-Committee published two SPE Papers on survey quality control procedures that are required to ensure a valid error model is applied to the survey data.
- SPE 103734 is on 'Internal' survey quality checks and was presented at the IADC/SPE Asia Pacific Drilling Technology Conference, Bangkok in November 2006.
- SPE 105558 is on 'External' survey quality checks and was presented at the SPE/IADC Drilling Conference and Exhibition, Amsterdam in February 2007.



## Ongoing Meetings

- 2 monthly Online – TEAMS meetings
- Next in person meeting at ISCWSA61 Norway



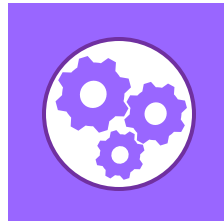
## Thanks to

Manufacturer & Calibration SMEs: BenchTree, Scientific Drilling, Halliburton, Gyrodata, SLB, Baker Hughes, Weatherford and JAE, Ice Field Tools

Operator SMEs: Chevron, Oxy, ConocoPhillips, BP, Devon Energy, ExxonMobil, Shell, TotalEnergies, Aramco, AkerBP, Equinor, Var Energy, ADNOC, NOC QatarEnergies

Service Company SMEs: Halliburton, Baker Hughes, Depth Solutions, SLB, Weatherford, Gyrodata, MagVar, DGI, Scientific Drilling, Mostar Drilling, SuperiorQC, Independent Consultants, EOG Resources, Ice Field Tools, PathControl, Pacesetter Directional, Innova Drilling, XcaliburMP, PHXtech, Independent ....





# Questions?



# Webmaster Update

Phil Harbidge

[phil.harbidge@halliburton.com](mailto:phil.harbidge@halliburton.com)



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# Website Hits

Highlights:

“Events pages” hit rate is 200% higher than March 2024 ”

“Top 5 pages” hit rate is 100% higher than March 2024”

“Course Registration increased to record high”

TOP 5 FORMS	
Name	30-Day Submissions
<a href="#">Application for Course Registration - Prepaid Registrants</a>	14
<a href="#">Application for Course Registration</a>	10
<a href="#">Register for "Intro to Wellbore Positioning"</a>	8
<a href="#">Get Updates</a>	5
<a href="#">Contact Us</a>	5

TOP 5 PAGES	
Pages	30-Day Traffic
	2070
<a href="#">Error Model Documentation</a>	363
<a href="#">eBOOKs</a>	353
<a href="#">The ISCWSA Wellbore Positioning Course</a>	284
<a href="#">About The Industry Steering Committee on Wellbore Survey Accuracy</a>	277
<a href="#">Video Library</a>	142

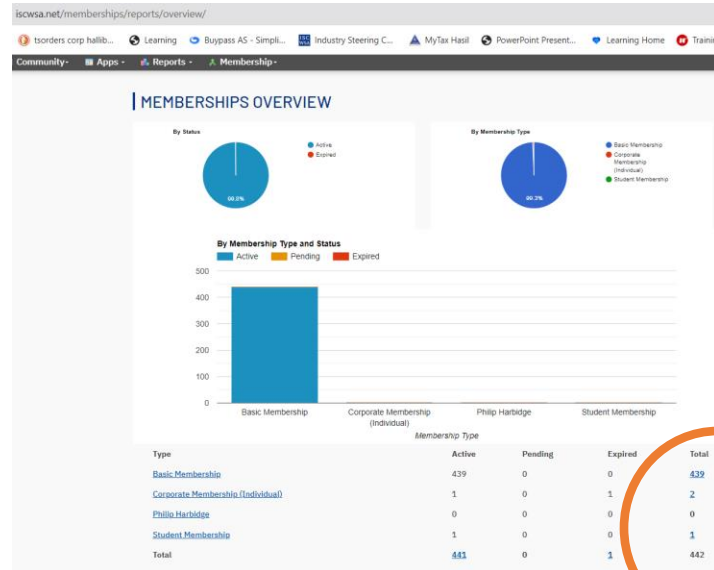
  

TOP 5 EVENTS	
Events	30-Day Traffic
	4323
<a href="#">ISCWSA #60 - New Orleans, Louisiana, USA</a>	1547
<a href="#">ISCWSA #59 - Glasgow, Scotland</a>	116
<a href="#">ISCWSA #58 - San Antonio, Texas</a>	100
<a href="#">ISCWSA #56 - Houston, 5/6 October 2022</a>	70
<a href="#">ISCWSA #57 - Stavanger, Norway</a>	57

# ISCWSA.net Members

Active ISCWSA.net registered  
members 441

2 expired memberships.





## iscwsa.net page

- Highlights :

- **Subcommittee Chair Persons are continuing to edit as Super Users ! :**

- Subcommittee content
      - DDUP Subcommittee requested we store content and ref DSABOK repository page
    - Add / Remove positions and officers
    - Add files
    - Continue to publish SCs meeting minutes on the webpage!
    - Link for submitting a Tendenci Support Ticket: <https://www.tendenci.com/tickets/>
    - [USE HELP for Troubleshooting](#) and editing your Subcommittee Webpage

- Lowlights

- **SEO not working – needs work**



# SPE Website

- - You must be an [SPE member](#) to join technical sections and Vote in our meetings
- - Click this link to join the SPE.org and WPTS Technical Section
- <https://www.spe.org/member/access/OnlineCommunityPreferences/EditOnlineCommunityPreferences>
- Our SPE.org page directly links to our iscwsa.net page content



# WPTS <https://connect.spe.org/wellborepositioning/home>

The screenshot shows the homepage of the Wellbore Positioning Technical Section (WPTS) website. The browser address bar displays the URL: [connect.spe.org/wellborepositioning/home?gl=1%2Fugl6sk%2Fgd%2Fau%2FMTQwNDMzMTAzNjY4NzI1ODg2MTg1%2Fga%2FMTY2MzgzNTkyMC4%2Fh1M1g2ODgw%2Fgs%2F231RWK74W%2FMTcyNzEyODU%2Fg1](https://connect.spe.org/wellborepositioning/home?gl=1%2Fugl6sk%2Fgd%2Fau%2FMTQwNDMzMTAzNjY4NzI1ODg2MTg1%2Fga%2FMTY2MzgzNTkyMC4%2Fh1M1g2ODgw%2Fgs%2F231RWK74W%2FMTcyNzEyODU%2Fg1). The navigation menu includes: Home, SPE Connect, About Us, Directory, Events, and Resources. The main heading is "Wellbore Positioning Technical Section". Below this, the text reads: "Wellbore Positioning Technical Section", "ISCWSA Meeting 60 Agenda Guest Speaker Info and New Board Nomination form Added". The announcement text states: "Our Next Meeting is the 60th General Meeting of the WPTS / ISCWSA and will be held on Wednesday 25th and Thursday 26th September 2024 in NOLA, USA -Venue: Ernest N. Morial Convention Center 900 Convention Center Blvd. New Orleans, LA 70130 United States of America Best Regards The ISCWSA Committee www. ISCWSA.net Click the registration button for guest speaker and meeting agenda information". At the bottom, there are two buttons: "Meeting Registration" and "ISCWSA webpage".





<https://www.spe.org/en/industry/technical-sections/>

The screenshot shows the SPE website's 'Current Technical Sections' page. The 'Wellbore Positioning' section is highlighted in yellow and circled in orange. Below the list, a paragraph describes the primary aim of the Wellbore Positioning Technical Section.

**Current Technical Sections**

- Artificial Lift and Gas Well Deliquification
- Carbon Dioxide Capture, Utilization and Storage
- Data Science and Engineering
- Drilling Systems Automation
- Drilling Uncertainty Prediction
- Flow Assurance
- Flow Measurement
- Geomechanics
- Geothermal
- Human Factors
- Hydraulic Fracturing
- Hydrogen
- Integrated Reservoir Management
- Management
- Methane Emissions Management
- Offshore Completions
- Plug and Abandonment
- Research and Development
- Robotics and Autonomous Systems
- Separations Technology
- Sustainable Development
- Water Life Cycle and Strategy
- Wellbore Positioning**

The primary aim of the **Wellbore Positioning Technical Section** is to produce and maintain standards for the industry relating to wellbore survey accuracy. To set standards for terminology and accuracy specifications. Establish a standard framework for modeling and validation of tool performance. Raise awareness and understanding of wellbore survey accuracy issues across the industry.

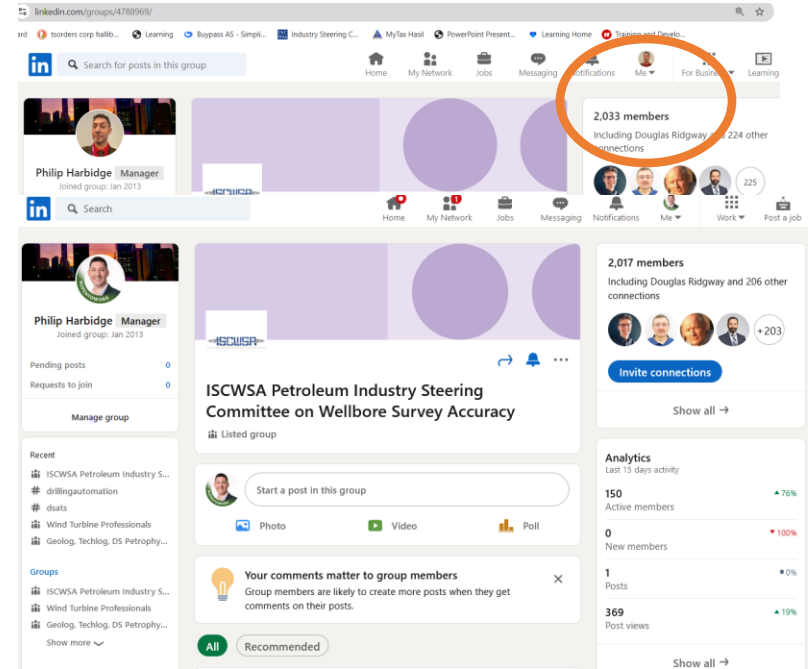
# How to Join the WPTS



# Other ISCWSA Social Media

[Click here for the ISCWSA LinkedIn page](#)

2033 Members with a small 1 year increase in membership

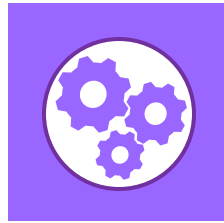




# Thanks to

- ISCWSA Committee
- Sub-Committee Chairs
- All Members feedback and support on the website
- Tendenci

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# Questions ?