Operator Wellbore Survey Group (OWSG) - API RP 78 Overview

Recommended practices for Wellbore Positioning

Speaker Information

- Pete Clark
- Wellbore Positioning SME
- Chevron

Why are we doing this?

The Operator Wellbore Survey Group (OWSG) committee recognized a need for a comprehensive body of work that defined a minimum standard and formed a subcommittee address.

As this evolved it was realized that this was a significant not only for the operators but all that worked in the field of surveying.

The OWSG subcommittee decided this would be best managed under a standards organization – API was chosen.

Statements Telling the Reader What to Do

- The majority of the statements should contain either a Shall, Should, May or Can.
- There will need to be a balance of this requirement with education.
- Each section lead should ask the question “What value is this statement?” – If it is to teach it should be removed and placed elsewhere

Performance Examples

17D –

4.2 Concept Development

During front-end engineering, possible impact on control system functionality and infrastructure related to the following items shall be considered:

- flexibility with respect to production scenarios;
- optimization with respect to operation;
- optimization with respect to cost-effective installation;
- optimization with respect to phased production development;
- flow assurance;

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- **7.4.13 Emergency Disconnect System/Sequence**
- **7.4.13.1** An EDS shall be available on all subsea BOP stacks that are run from a dynamically position
- vessel. A EDS is optional for moored vessels.
- **7.4.13.2** *The EDS is a programmed sequence of events that operates the functions to leave the stack and controls in a desired state and disconnect the LMRP from the lower stack.*
- **7.4.13.3** *The number of sequences, timing, and functions of the EDS are specific to the rig, equipment, and location. (Educational Notes)*
- **7.4.13.4** There shall be a minimum of two separate locations from which the EDS can be activated (e.g. located in the primary and remote control stations).
- **7.4.13.5** Response times shall be in accordance with Table 6 and Table 7.

Prescriptive Example

TABLE 4.5.6.7
ACCEPTANCE CRITERIA CHARPY V-NOTCH IMPACT REQUIREMENTS

Temperature Rating	Test Temperature °F (°C)	Minimum Average Impact Value For 3 Specimens ft-lb. (J)	Minimum Impact Value For 1 Specimen ft-lb. (J)
A	- 4 (-20)	15 (20,3)	10 (13,5)
B	- 4 (-20)	15 (20,3)	10 (13,5)
K	-75 (-60)	15 (20,3)	10 (13,5)
P	-20 (-29)	15 (20,3)	10 (13,5)
U	0 (-18)	15 (20,3)	10 (13,5)

4.6 RIGID PIPING. Rigid piping shall meet the material requirements of Section 4.5.1, Table 4.5.2, Table 4.5.3 and and Section 4.5.5.

4.7 QUALIFICATION TEST COUPONS. The properties exhibited by the qualification test coupon (QTC) represent the properties of the material comprising the equipment it qualifies. A single QTC may be used to represent the impact and/or tensile properties of components produced from the same heat provided it satisfies the requirements of this specification.

When the QTC is a trepanned outlet or a prolongation removed from a part, the QTC will only qualify parts that are identical in size and shape to the part from which it was removed. When the QTC is a sacrificial part, it qualifies only parts having identical size and shape.

A QTC will only qualify material and parts produced from the same heat. Remelt heat may be qualified on a master heat basis.

4.7.1 EQUIVALENT ROUND METHODS. The size of a QTC for a part shall be determined using the following Equivalent Round (ER) method:

Figure 4.7.1.2 and Figure 4.7.1.3 illustrate the basic models for determining the ER of simple solid and hollowed parts and more complicated equipment. The ER of a part shall be determined using the actual dimensions of the part in the "as heat treated" conditions.

The ER of a studded type part shall be determined by using T equal to the thickness of the thickest flange of that part. ER determination for these parts shall be in accordance with the methods for complex shaped parts.

4.7.1.1 SIZE REQUIREMENTS. The ER of the QTC shall be equal to or greater than the dimensions of the part it qualifies, except the size is not required to exceed 5 inches (125 mm) ER.

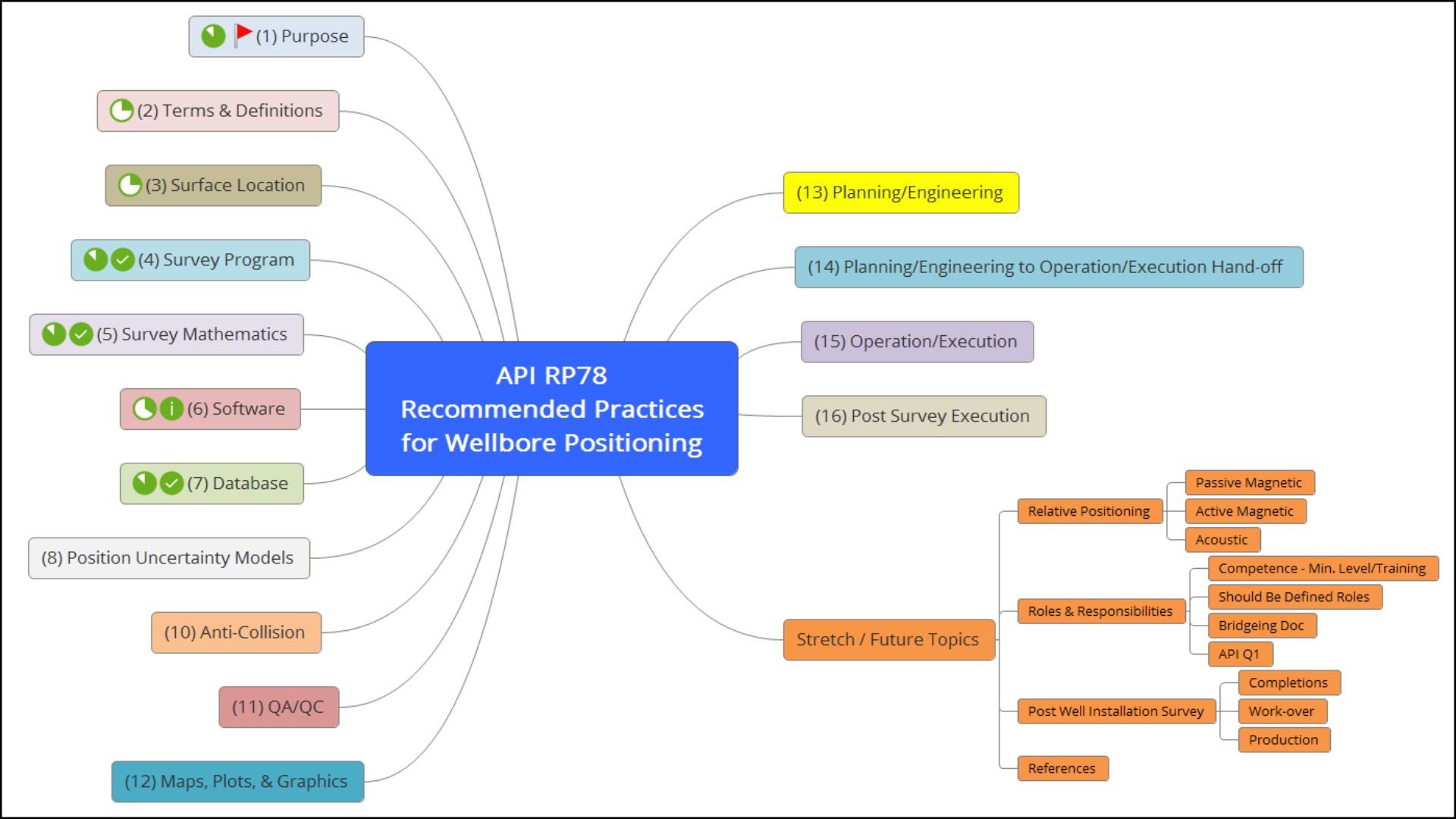
Core Team

- **Lisa Grant (Noble Energy)**
- Bill Allen (BP)
- Neil Bergstrom (Consultant)
- Pete Clark (Chevron)
- Ed Dew (Pioneer)
- Paul Gupta (ExxonMobil)
- Jonathan Lightfoot (Oxy)
- Jordan Meyer (Noble Energy)
- Son Pham (ConocoPhillips)
- Will Tank (Anadarko)
- Roger Goobie (BP)
- Bert Kampes (Shell)
- Steve Sawaryn (Consultant)

Purpose

- The purpose of this Recommend Practice is to provide a framework and minimum guidance for the planning, acquisition, quality assurance, storage, and use of wellbore position data for the well lifecycle. This includes the assessment of well objectives as they pertain to collision assessment and reserves targeting.

The Outline / Strawman


API RP78
Recommended Practices
for Wellbore Positioning
(1) Purpose
(2) Terms & Definitions
(3) Surface Location
(4) Survey Program
(5) Survey Mathematics
(6) Software
(7) Database
(8) Position Uncertainty Models
(10) Anti-Collision
(11) QA/QC
(12) Maps, Plots, & Graphics
(13) Planning/Engineering
(14) Planning/Engineering to Operation/Execution Hand-off
(15) Operation/Execution
(16) Post Survey Execution
Stretch / Future Topics
Relative Positioning
Passive Magnetic
Active Magnetic
Acoustic
Roles & Responsibilities
Competence - Min. Level/Training
Should Be Defined Roles
Bridgeing Doc
API Q1
Post Well Installation Survey
Completions
Work-over
Production
References

Section makeup

Members:

- A member of the steering committee
- SMEs
- Others that have an interest or passions

Function:

- Add content to the strawman section assigned to that section/group
- Ensure the content is technically correct
- Return the content to the steering committee for integration into larger document

Section Team Leads

- **Lisa Grant (Survey Program)**
- Bill Allen (Software / Outputs)
- Neil Bergstrom
- Pete Clark (Survey Mathematics / Planning & Engineering)
- Ed Dew (Operations & Execution)
- Paul Gupta
- Jonathon Lightfoot (Surface Location / Post Survey Execution)
- Jordan Meyer (Database)
- Son Pham (Terms & Definitions)
- Will Tank (Positional Uncertainty / Handoff to Operations)

Roger Goobie (QA/QC)

Bert Kampes (Surface Location)

Steve Sawaryn (Collision Avoidance)

Comment Review Steering Committee

Members:

- Members of the steering committee
- Members of Industry that have been actively involved, ideally a minimum of one from each subcommittee

Function:

- To reconcile comments

NOTE: Only one ballot per company and voting is allowed if there is active participation in the standard creation process. Comments are allowed from all interested parties.

References

- The RP 78 is not meant to replace the work already completed
- Reference include but are not limited to:
  - The Introduction to Wellbore Positioning E-Book
  - Collision Avoidance Workgroup practices and guidance documents
  - Error Model Workgroup practices and guidance documents
  - Other ISCSWA work products and guidance documents
  - Collection of SPE Papers

Questions