The burden of documentation in the Oil & Gas industry

PSA Theme day, 12.11.2015, Stavanger

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Content

• Standardization: Introduction and Background

• Presentation of Joint Industry Project ‘Standardized Subsea documentation’ - project delivery

• Implementation - how to contribute?
The burden of documentation in the Oil & Gas industry

Introduction and Background
2013: Subsea Standardization Workgroup

• This joint industry initiative is sponsored by KonKraft and the Norwegian Oil and Gas Association
• The objective is to reduce costs and delivery times by increasing standardization
• It is intended to be a further step in the ‘industrialization of the subsea sector’

Focus Areas Selected
1. Unified Specifications and QA/QC for subsea forgings
2. Subsea component catalogue with configurable solutions
3. Universal Workover systems
4. Brownfield subsea re-engineering
5. Standardized subsea documentation
6. Compliance with established equipment standards
5. Standardized Subsea Documentation – JIP

Documentation can be a major source of (unnecessary) work for suppliers, responding to marginally different client requirements for the same equipment – a JIP is proposed to:

- **Generate Minimum Dataset**
  - Agree Standard MRB contents
  - GE Vetco Grey
  - AK Solutions
  - FMC etc
  - Statoil etc
  - ExxonMobil
  - Shell
  - Minimum data provision by suppliers
  - Minimum data requirement for users

- **Product List**
  - Tree
  - Wellhead
  - Tubing Hanger system
  - Choke Module
  - Integrated Template structure
  - Manifold
  - Controls
  - Umbilical
  - Tie back/ installation systems
  - Work over systems

- **System Documentation**
  - Scope and interfaces
  - System description and deliverables

- **Establish Data Definitions**
  - Review industry standards
  - Survey of existing user definitions
  - Gain consensus on common data packages

- **Minimum Subsea Data Standard**
Highest levels have noted the problem

Minister of Petroleum and Energy, Tord Lien:
- Too much documentation in the oil- and gas industry
- Industry can work smarter

Typical subsea project:
- > 10,000 documents
- > 80,000 doc (big project)
- Lifecycle of 30 years
- Engineering hours have increased with 70%
- .....
A broader view on standardization

Streamlining standards

From corporate to global standards

Project replications / repeat-execution

Collaboration
The burden of documentation in the Oil & Gas industry

JIP Std Subsea Documentation
## JIP Std Subsea Doc participants pr. date

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JIP Organisation

- DNV GL Project Sponsor
  - Chairman and Steering Committee
  - DNV GL Project Manager
  - Trade Organizations Subsea Valley, NCE
  - Working Groups Admin Requirements System Engineering
  - Executive Group & Public Relations
  - Advisors Executives Contacts (326 names) Press & Media Other JIP Groups
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Appendix A DOCUMENT DESCRIPTIONS - M#1: SPS & SURF, SE-DOCUMENTS
Appendix B M#1 Sub-system & Assembly Level - STANDARD LIST OF REQUIRED SUBSEA
   DOCUMENTATION
Appendix C M#2 Equipment, Component and Part Level - STANDARD LIST OF REQUIRED SUBSEA
   DOCUMENTATION
Appendix D MANUFACTURING RECORD BOOK (MRB)
Appendix E DOCUMENT DESCRIPTIONS - M#2: EQUIPMENT, COMPONENTS, PARTS
Objective

- Establish a minimum set of required documentation for subsea development projects (from the project phase and during the life cycle phases of a subsea production system) to
  - Allow early understanding of required documentation for all parties (ranging from component deliveries up to full system deliveries).
  - Reduce variations and versions of the same information, and as a result increase documentation consistency, quality and thereby reduce costs.

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Scope of the RP

The RP will cover equipment that is delivered as part of a subsea contract but only:

- Permanently installed, not temporary, subsea equipment
- Owned, not rented, equipment
- Up to mechanical complete (not installation and commissioning)

- Wellhead System
- Christmas Tree System
- Template Manifold System
- Subsea Control System
- Umbilical’s
- Tie-in System
- Intervention and Tooling
- Flexible risers
- Pipelines (single and pipe in pipe)
- Lifting and Transport Equipment

Referring to ISO 13628-1
Required documentation between Operators, Contractors and Manufacturers
Breakdown of the overall system and description of the elements included in the various matrix

Overall system

- Wellhead system
- Structures & manifolds
- Intervention tools
- Pipeline
- Umbilical
- Flexible Riser

System - SE matrix

Sub-system - the sub-systems cover main systems within SPS and SURF - Matrix 1

Assembly - Each sub-systems are divided into main assemblies and equipment based on function - Matrix 1

Equipment - This includes generic equipment based on standard design. This equipment is linked to the function based equipment in Matrix 1 - Matrix 2

Component is a unit that goes into the equipment assembly - Matrix 2

Part is raw material, which will be further processed to components or equipment - Matrix 2

EXAMPLE

- XT assembly
- Subsea valves
- Large bore production valve
- Pressure containing forgings
The JIP Std Subsea Doc Recommended Practise (RP) will contain

(1) Standard list of subsea equipment

(2) Standard list of subsea documentation

(3) Minimum list of equipment documentation

(4) Standard definitions and admin requirements

Image from Ibruk/Subsea1. Subsea Production System (SPS), Subsea Umbilical's Risers and Flow-lines (SURF)
### Operator-Contractor Systems & Functions, and Document Types

| Document Type | P | Q | R | S | T | U | V | W | X | Y | Z | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR |
|---------------|---|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Template Handoff System** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Part of TPS System | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Template Manifold System** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Part of TPS System | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Template Manifold System** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Part of TPS System | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Template Manifold System** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Part of TPS System | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Template Manifold System** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Part of TPS System | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Template Manifold System** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Part of TPS System | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
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### Agreed minimal (required) list of documentation (by Operators, Contractors and Suppliers)

- Operator-Contractor Systems
- Document Types
- Agreed List of Systems & Functions
- Less Doc Types
- Less Req. Docs

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**NOTES**

1. Design: Specification shall include thermal insulation systems where applicable.
2. Project Data Sheets shall be prepared with the instructions included.
3. The selected material shall be used as specified in the drawings.
4. Design basis for each draft of deliverables.
5. Installation and design are based on the Design Basis.
6. Installation and design are based on the Design Basis.
8. Preservation and transport instructions are based on the OPR, but separate from it.
9. Transportation data are applicable to the system.
10. Design and engineering changes should be transferred to the supplier.
11. Interface drawings are included and include installation requirements. Information may be included in attachments.
## Timeline: Delivery of Project Report and DNV GL RP

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**JIP Project Phase 1 & 2**

**DNV GL Rule Secretariat**

- **31.12.2015**
- **Q2 2016**
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RP Implementation 2016
Directive. Our intention for 2016 is:

- The work continues, we are holding the JIP group together, initially for one year (2016), as an “RP 0071 Expert Group”, with the purpose to support changes to the RP, assist in the release of (market) the RP and learn from experiences (measure the effect) of the RP.
Proposed Activities:

- Expert Group Management, facilitation

- Assist in responding to the hearing/comments of the RP. Workshop to discuss changes, updates, comments for the RP. Tentative March/April 2016

- Assist in the release of the RP. Workshop to discuss common release, and how to create interest in the Oil & Gas industry.

- Summarize the year into a workshop, where we learn from gained experiences, implementations and usages of the RP, and to discuss further improvements of the RP.

- Marketing activities. Goal: increase number of companies that uses the RP.
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Implementation approaches...
Into the heart of implementation – need for collaboration

- OPERATOR
- CONTRACTOR
- SUPPLIER

Establish Sharing

RP  |  RP  |  RP
Operation and maintenance (OM)
Technical and professional requirement, TR2381, valid from 2015-05-13

RP Input
Supplier MRB Process today vs Potential future process

**Today**

- **Supplier**
  - Receive requirements
  - Create document
  - Correct document
  - Submit document
  - Revise document
  - Receive feedback
  - 5 working days
  - 2 working days
  - 1 working day
  - 2 working days
  - 2 working days

- **Contractor**
  - Create PO
  - Administrative check
  - Return document
  - 2 working days
  - Yes
  - No
  - Create transmission
  - 14 working days
  - Yes
  - No
  - Final review
  - Final review

- **Client**
  - Initiate project
  - Define materials
  - 10 working days

**Benefits:**
- Reduce review workflows
- Remove cost for compiling books
- Manufacturing records available through life of field

**Future**

- Contractor
  - Accessible through life of field via SAP traceability data
- Client
  - Secure read-only Traceable Database (Cloud)
- Supplier
  - Manufacturing Records
  - Hosted by 3rd party IT Partner
  - Upload files and data per required IT and metadata requirements

**43 days (incl. CPY) / 29 days (ex. CPY) per revision, 5 hours review and handling, approx. 50-60 000 supplier verifying doc’s per year.**
No implementation – no benefits

Part of the learning process is to collect facts from today's situation, estimations and actual implementation.
The burden of documentation in the Oil & Gas industry

Summary
Building trust in the value chain

- Collaboration
- Standardization
- Innovation
- Commitment

Sound oil & gas activities at lower oil prices
Welcome to join the JIP Subsea Doc. Implementation 2016

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For more information: Standardised subsea documentation JIP - DNV GL

www.dnvgl.com

SAFER, SMARTER, GREENER