Technical Data Standards – Development & Implementation

Noor Fadhilah Bt Mohd Raes
Technical Data, Technical Global
Upstream Business

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Overview

Flashback to 2013
- Moving the organization towards standards – the triple A Approach
- Technical data standards – high level roadmap

What happened after...
- Reaching the goal - Chronological Events of Technical Data Standards
- Challenges encountered & key success factor
- What we have accomplished
- Construction of the Technical Data Standards

Technical Data Standards – The Journey Continues
- Summary of the TDS activities
- Conclusion
Flashback to 2013

Tuesday, October 8, 2013
Kuala Lumpur
Impiana KLCC Hotel, Kuala Lumpur

Noor Fadhilah Bt M Raes - Regulatory Compliance,
Technical Data
Petroleum Management Unit (PMU), PETRONAS
PETRONAS E&P Technical Data Standards
10:15
Triple-A Approach – Value through Collaboration
show+

View PDF
Moving the organisation towards standards – The Triple A Approach

START

Agree the need

Check pulse of the industry

Develop the project scope

Adopt if possible

Develop if necessary

Implement the standard

Monitor usage and value

Update as required

END

Opportunities
-Constraints encountered
-Restrictions to business improvement

Competitive intelligence
-Benchmarking
-Conferences
-Standards bodies

Clarity of issues
-Impact of non-standards
-Mapping
-Workflow connectivity

Standards bodies
-Vendor applications
-Sharing with IOCs and NOCs

In-house experts
-Standards body
-Vendors
-Consultants

Applications/Databases
-Project management
-Phased plan
-Legacy issues

Monitoring tool
-Breakdown in workflows
-Business improvements
-Time saved etc

Identified deficiencies
-Changes to existing
-Redundant items

Adapt for use
-Assimilate
# Technical data standards - high level roadmap

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What we have</strong></td>
<td>Working groups set up</td>
<td>Top 4 data standards</td>
<td>Implement &amp; test identified standard</td>
</tr>
<tr>
<td><strong>What we need</strong></td>
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<td>Develop industry collaboration proposal</td>
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<td><strong>What are the gaps?</strong></td>
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<td>Identify next priority items</td>
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<tr>
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<td></td>
<td>Implementation plan for 1 standard</td>
<td>Next 4 standards</td>
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## Deliverables:

### 2013:
1. Inventory  
2. Standards workshop  
3. Priority list  
4. Agreed process

### 2014:
1. 4 standards agreed  
2. Standards workshop  
3. Priority list  
4. Implementation plan  
5. JIP proposal  
6. 1st quantified value

### 2015:
1. 1 standard implemented  
2. Learnings report  
3. Value tracking ongoing  
4. JIP kick off meeting  
5. Priority list  
6. Longer term plan

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What happened after...
Reaching the goal: Chronological Events of Technical Data Standards

Development Journey of Technical Data Standards

TD Data Standards Workshop #1 (October 2013)
- Inventory of existing standards
- Requirement gathering
- Prioritization

- Technical Data Domains
- PETRONAS Carigali Sdn. Bhd. (PCSB) Subject Matter Experts (SMEs)

TD Data Standards Workshop #2 (February 2014)
- Validation of Priority List,
- Approval Workflow for Standards Development

- Technical Data Domains
- Malaysia Petroleum Management (MPM) SMEs

TD Data Standards Project Initiation (August 2014 to December 2014)
- Commencement of 4 Data Standards:
  - Well Header
  - Well Symbols
  - Well Naming for Production & Development Wells
  - Log Curves Naming

- Project Team
- SMEs

Launch of Technical Data Standards (February 2015)

Extensive Engagement of TD with Business: A total of 73 SMEs and Technical Professionals (TPs) engaged across various Upstream Divisions
Challenges encountered & key success factor

Challenges encountered

- Minimum resources of project team
- Awareness on importance of Technical Data Standards
- Strategizing in the engagement session to gather the TPs & SMEs
- Documentation of Technical Data Standards

Key success factor

- Higher management support
- Close collaboration and synergy amongst all parties
- Positive energy and enthusiastic participation from TPs & SMEs
- Dedicated technical resource to develop the TDS
## What we have accomplished

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**Deliverables:**
1. Inventory ✓
2. Standards workshop ✓
3. Priority list ✓
4. Agreed process ✓

**Deliverables:**
1. 4 standards agreed ✓
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**Deliverables:**
1. 1 standard implemented ✓
2. Learnings report ✓
3. Value tracking ongoing ✓
4. JIP kick off meeting ✓
5. Priority list ✓
6. Longer term plan ✓
Construction of the Technical Data Standards - PETRONAS Upstream Well Header Standards

**Well Header**
A set of data unique to a “single spot on the ground” for a drilled well

- Identified mandatory & optional Well Header Attributes from Well Master Database (WMDB)
- Researched and incorporated industry definitions of Well Header Attributes
- Identified SMEs using Well Header Information (Drilling, Geomatics, Project)

Engaged and reviewed content with SMEs

Final PETRONAS Upstream Well Header Standards:
- 54 Well Header Attributes
- 45 Mandatory/Tier 1 attributes,
- 9 Optional/Tier 2 attributes
Log Curves
Description of depth attributes pairs of data that are produced from various sensing system measured up and down a well

Creation of Petrophysical Standards Landscape across Petrophysical Information Lifecycle

Defined scope of PETRONAS Upstream Log Curves Naming Standards

Inventorised PETRONAS existing Standards & perform Industry Standards comparison

Engaged and reviewed content with SMEs & obtained endorsement from Petrophysics Peer Review Committee (PPRC)

Final PETRONAS Upstream Log Curves Naming Standards:

14 Composite Log Curves Standards
20 Petrophysical Interpreted Log Curves Standards
Construction of the Technical Data Standards - PETRONAS Upstream Well Symbols Standards

**Well Symbols**
Graphic symbols composed to provide information of a well’s status (technical status, hydrocarbon type & status, injection status)

- Collation of existing well symbols in place
- Basic Construction of Well Symbols
- Engaged and reviewed content with SMEs

**How to generate a well symbol?**
Example:
- Drilling, oil and condensate prognosed, gas show
  - Drilling (Circle)
  - Oil (solid black)
  - Prognosed (Bottom left quadrant)
  - Condensate (square pegs)
  - Prognosed (Bottom left quadrant)
  - Gas (sun rays)
  - Show (Bottom right quadrant)

**Final PETRONAS Upstream Well Symbols Standards:**
- 518 Well Symbols across PETRONAS Upstream usage
- 32 most commonly used symbols across PETRONAS Upstream data
Well Naming Guidelines for Development & Production Wells

A unique and permanent name assigned to each well drilled during development & production phase

- Extracted well name from Corporate data store
- Analyzed well name patterns and trends in the database
- Incorporated and expanded well naming convention from the Prospect & Well Naming Guidelines for Domestic Exploration

Engaged and reviewed content with SMEs

Final PETRONAS Upstream Well Naming Convention for Development and Production Wells
Summary of the TDS activities

2015

- Data Standards Launch Event
  4 Standards, 1 Implementation Guide

- Approval, Printing & Distribution of 4 Standards

- Closing of 2014 Data Standards:
  4 Standards, 3 Implementation Guides

- Phase 2: Implementation of 4 Standards

- Identification of 8 Standards prioritized for 2016

- Development of 8 Data Standards
Conclusion

❖ Technical data standards is a huge area
  • Therefore prioritization and a phased plan are essential elements
  • There are plans to develop/enhance more new technical data standards. Sedimentology Legends and Plant Information (PI) Blueprint are in progress.

❖ Standards Implementation is also our focus
  • Implementation of the TDS will be carried out in the relevant systems and databases
  • For 2015, we focused on implementation of Well Header and Well Naming Guidelines for Production & Development Wells

❖ Standards Governance is high on our priority list
  • Awareness of TDS to PETRONAS Upstream is an ongoing process
  • TDS compliance tracking will be a core part of our approach
Thank you
Data standards are an essential component of the data management challenge in any organization. This is especially true in an upstream organization where the cost of data acquisition is significant and the data entropy effect is high. Much of the value of data is derived in workflows, reusability and sustainability. However, the creation of good data standards is not easy. It is not exciting, with no quick short term gains, tedious, requires meticulous checking of dependencies within the organization as well as knowledge of the availability of similar work outside the organization. Very often, this work is also not well recognized.

This paper describes the countless effort it takes to develop and implement the technical data standards for PETRONAS Upstream business. The journey still continues to ensure sustainability of the implementation.
The Triple A approach

ADOPT

For any data standards required, look outside PETRONAS first

1) Standards Bodies (Energistics, PPDM, SLC)
2) Oil & Gas companies
3) Service providers

ADAPT

Identify all the areas where the standard is applicable and develop plan for implementation

Get internal stakeholder’s buy-in and go through the approval process. Endorsement to use

“Adapt” may require collaboration to make it usable

ASSIMILATE

Agree on priority. Proceed with implementing key applications and databases

Develop plan to address legacy issues

Implement compliance metrics for the implemented standard(s)

Improve over time