Industry and Regulatory Cooperation for Better Information

Trudy Curtis
CEO, PPDM Association
The PPDM Association is a not-for-profit professional society dedicated to the recognition of:

- Data as a critical industry asset
- Data management as a professional discipline
- Data standards for professionals

**Certification:**
Petroleum Data Analyst
[http://www.ppdm.org/certification](http://www.ppdm.org/certification)

**Training:**
Standards, Data Management
[http://www.ppdm.org/standards-training](http://www.ppdm.org/standards-training)

**Foundations:**
The journal for data managers
[http://www.ppdm.org/publications](http://www.ppdm.org/publications)

**Events:**
30+ Conferences, Workshops, Lunches...
[http://www.ppdm.org/events](http://www.ppdm.org/events)

**Applications & Info**
- PPDM 3.3 Documentation
- PPDM Rules App
- PPDM Lite 1.1 Data Model
- What is a Well?
- Well Status
- Well Identification
- Taxonomy Dimensions
- Wiki

**Standards and Best Practices:**
Member driven, business oriented
O&G DATA IS A COMPLEX, VALUABLE ASSET!

In many regulatory environments

Lots of kinds of data

Over a period of decades.

Through a complex life cycle

Used by many different groups of people
WHAT ABOUT INDUSTRY AND REGULATORS: DO WE HAVE ANY COMMON CHALLENGES?

- Words mean different things
- Process are different
- Many Software applications
- Rules are different Possibly out-dated
- Communication challenges
- Long Learning Curves People are less portable
- Integration challenges Workflow Barriers
- Risk of non-compliance Risk of liability

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OPEN DATA AND COOPERATIVE INITIATIVES

U.S. Geoscience Information Network

Open Government Initiative
TRANSPARENCY + PARTICIPATION + COLLABORATION

About ANZCERTA

The Australia – New Zealand Closer Economic Relations Trade Agreement (known as ANZCERTA or the CER Agreement) is one of the most comprehensive bilateral free trade agreements in existence. It covers substantially all Trans-Tasman trade in goods, including agricultural products, and was the first to include free trade in services.

The Agreement’s central ambition addresses the two-way trade in goods. The Agreement provides for a high level of liberalisation of two-way trade in goods, including in agriculture, and for continued multilateral trading system.

New West Partnership Trade Agreement
British Columbia : Alberta : Saskatchewan

Energy & Water Software | Data Solutions
AER IS CALLING FOR MORE COLLABORATION!

- Alberta Energy Regulator is interested in more industry standards that help us
  - Support play based regulation
  - Share efforts and resources
  - Reduce operational risk
- If you are interested in participating, please contact me
  - CurtisT@PPDM.org
CAPABILITY IMMATUREITY MODEL

- Negligent
- Obstructive
- Contemptuous
- Undermining

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http://en.wikipedia.org/wiki/Capability_Immaturity_Model

10/22/2014
Characteristics of the Maturity levels

- **Initial (Level 1):** Processes unpredictable, poorly controlled and reactive.
- **Managed (Level 2):** Processes characterized for projects and is often reactive.
- **Defined (Level 3):** Processes characterized for the organization and is proactive. (Projects tailor their processes from organization’s standards)
- **Quantitatively Managed (Level 4):** Processes measured and controlled.
- **Optimizing (Level 5):** Focus on process improvement.

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CAPABILITY MATURITY IS FRACTAL

Initial
Managed
Defined
Quantitatively manage
Optimize

Initial
Managed
Defined
Quantitatively manage
Optimize

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ACHIEVING INDUSTRY MATURITY IS HARD!

Levels:
- **Initial**: Processes unpredictable, poorly controlled and reactive
- **Managed**: Processes characterized for projects and is often reactive
- **Defined**: Projects tailor their processes from organization’s standards

- **Company Policies**
- **Group Procedures**
- **Individual Practices**
WHAT INDUSTRY STANDARDS BODIES DO

- Gather industry experts together in an open, vendor neutral environment to communicate and share ideas.
- Facilitate the development of best practices that benefit industry as a whole.
- Encourage the adoption of best practices for the benefit of industry.
- Best practices are recognized as standards because the development process creates trust in industry.

A standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. (ISO)
COLLABORATE? AGREE? SHARE?

- Planning
- Field Ops
- Regulatory env
- Public Rel.
- Geology
- Petro physics
- Vendors

- Land rights
- Financial
- Compl / WkOver
- Partners
- Inspect / HSE
- Production
- Reservoir

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A BIG CHALLENGE (WITH REAL WELLS)

What -- exactly -- is a well?

Does everyone identify the same component?

How does each user over the life cycle find and use his data?
HOW MANY WELLBORES ARE THERE?
HOW MANY COMPLETIONS ARE THERE?
TERMINOLOGY: WHAT IS A WELL?

1. Well Origin (WO)
   - A Well Origin is the location on the surface of the earth or sea bed where the drill bit is placed to penetrate or drill penetrate the earth to establish or re-enter a Well.

2. Wellbore (WB)
   - A Wellbore is a part of drilled footage from the Well Origin (or surface) to a terminating point (bottom or end).

3. Wellbore Segment (WS)
   - A Wellbore Segment is a unique drilled portion within the Wellbore from the Well Origin to the terminating point, or additional footage from a point in an existing Wellbore to a new terminating point.

4. Wellbore Contact Interval (CI)
   - A Wellbore Contact Interval is a measured depth range within a Wellbore that is intended to put the Wellbore into contact with one or more stratigraphic zones for the purpose of production, injection or service.

5. Wellbore Completion (C)
   - A Wellbore Completion is a set of one or more Wellbore Contact Intervals that function as a unit to produce or inject fluids.

6. Wellhead System (WHS)
   - A Wellhead System is a flow of fluids through a conduit determined by an installed wellhead configuration.

www.WhatIsAWell.org
TERMINOLOGY: WHAT IS A WELL

Used for collaboration, teaching, understanding
A set of Wellbore Contact Intervals that function as a unit
PROBLEMS WITH “COMPLETIONS”
VERY AMBIGUOUS, OFTEN UNCLEAR

Completion = Production volume reporting
Variations on this theme
• Commingle by pool
• Commingle by wellbore

Completion = Location in a Wellbore
Variations on this theme
• Base on length, time, activity, angle of deviation
• Contact interval
• Wellbore Completion interval(s)

Completion = Activity in a Wellbore
Activities part of this theme
• Plugbacks, Treatments, fracing, perforations, workovers…
• Many activities over time!

Completion = Regulatory filing event → Well Completion Report
Elements of this theme
• Documents
• Inspections
• Specific permissions granted…

Some regulators assign this a new identifier


http://www.oilinisrael.net/tag/maanit-rehoboth-2
http://www.pdpca.org/docs/51748972/Gas-Well-Back-Pressure-Test-Completion-or-Recompletion-Report

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NEXT CHALLENGE

When we identify a well, what does the identifier mean? Does it contain embedded meaning? Does it work today?

What happens if important well components are not identified? Is there a risk? To whom?

Are we tying data with the right geology?

What happens when identifiers change over time?
WELL IDENTIFICATION: A GLOBAL FRAMEWORK

GLOBAL WELL IDENTIFICATION FRAMEWORK

The Global Framework is a set of guiding principles for any Well Identification System and best practices for their application.

The Global Framework defines all of the components and protocols of a Well Identification System and specifies standards and best practices for identifying wells uniquely and unambiguously.

Well Identification System
A Well Identification System (WIS) is the structured assembly of criteria, methodology, and facility that enables an authority to administer well identifiers. "Administer" includes managing, administering, reproducing, and maintaining a listing of charges. A Well Identification System is a combination of the following:

1. Well Identification System Standard (WISS) - its specifications and best practice recommendations for creating each of the parts of any Well Identification System that follows that standard.
2. Well Identification System Implementation (WISS) - a documented process for creating well identifiers within a specific business or regulatory entity.
3. Well Identification System Repository (WISR) - the master list of identifiers and their supporting attributes and metadata created by a specific Well Identification System Implementation.

7 GUIDING PRINCIPLES FOR DESIGNING THE FRAMEWORK

The Global Framework is based on the following seven guiding principles, which incorporate the essential business requirement for a well identification system.

Guiding Principle 1
A Well Identification System must be capable of assigning an identifier to every Well Origin, Wellbore, or Wellbore Completion in its scope.

Guiding Principle 2
All identifiers assigned by a Well Identification System must be permanent.

Guiding Principle 3
All identifiers assigned by a Well Identification System must be unique within its system.

Guiding Principle 4
A Well Identification System must relate every identified Wellbore to the Well Origin where it begins.

Guiding Principle 5
A Well Identification System must relate every identified Wellbore Completion to the Well Origin and/or Wellbore(s) from which it was created.

Guiding Principle 6
The Global Framework must define the information required for each part of the Well Identification System. The information must be detailed enough to allow users of the Well Identification System to link and exchange well information unambiguously.

Guiding Principle 7
Each part of the Well Identification System must have an identified owner (Authority) and documented processes for the management of change.
**WELL IDENTIFICATION: UPDATE THE US API SPECIFICATION**

### US Well Identification Number

<table>
<thead>
<tr>
<th>Unique County</th>
<th>Unique Well (Well Origin)</th>
<th>Non-Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>11</td>
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<tr>
<td>3</td>
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<td>10</td>
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<td>9</td>
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<td>11</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Code Name:** State County

**Example:** 31 101

**Note:** Only digits are allowed in positions 1 – 12.

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**WELL IDENTIFIERS USA**

![Diagram of Well Identifiers USA](image)

**PPDM Industry States GWPC**
WELL IDENTIFICATION: UPDATE THE CANADA UWI SPECIFICATION

The Canadian Well Identification System Standard:
Each identifier is constructed in a similar way and is designed to be permanent and unique. The Wellbore ID and Well Reporting ID contain explicit reference to the parent Well.

The Well Identifier consists of two semantic parts
- Province / Territory code
- Well number

The Wellbore Identifier consists of three semantic parts
- Well ID
- Component type
- Component value

The Well Reporting Identifier consists of three semantic parts
- Well ID
- Component type
- Component value

Structure of the Well Identifier

<table>
<thead>
<tr>
<th>Positions</th>
<th>Name</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Province / Territory</td>
<td>AB</td>
</tr>
<tr>
<td>3:9</td>
<td>Well Number</td>
<td>0123456</td>
</tr>
</tbody>
</table>

Structure of the Wellbore Identifier

<table>
<thead>
<tr>
<th>Positions</th>
<th>Name</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:0</td>
<td>Well ID</td>
<td>AB123456</td>
</tr>
<tr>
<td>10</td>
<td>Component type</td>
<td>B</td>
</tr>
<tr>
<td>11:13</td>
<td>Component Value</td>
<td>001</td>
</tr>
</tbody>
</table>

Structure of the Well Reporting Identifier

<table>
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<tr>
<th>Positions</th>
<th>Name</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:9</td>
<td>Well ID</td>
<td>AB123456</td>
</tr>
<tr>
<td>10</td>
<td>Component type</td>
<td>V</td>
</tr>
<tr>
<td>11:13</td>
<td>Component Value</td>
<td>001</td>
</tr>
</tbody>
</table>
Well Status helps us to find wells

(*It’s a useful shortcut*)

They are used by nearly everyone to find wells that meet common criteria.

(*Find all the wells that are producing oil*)

And help us to create meaningful maps and reports.

(*We hope*)
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1O&amp;3G</td>
<td>1 OIL &amp; 3 GAS WELL</td>
</tr>
<tr>
<td>1O&amp;3GW</td>
<td>1 OIL &amp; 3 GAS WELL WORKOVER</td>
</tr>
<tr>
<td>1O&amp;3WI</td>
<td>1 OIL &amp; 3 WATER INJECTION WELL</td>
</tr>
<tr>
<td>1O&amp;4G</td>
<td>1 OIL &amp; 4 GAS WELL</td>
</tr>
<tr>
<td>1O&amp;4GW</td>
<td>1 OIL &amp; 4 GAS WELL WORKOVER</td>
</tr>
<tr>
<td>1O&amp;5G</td>
<td>1 OIL &amp; 5 GAS WELL</td>
</tr>
<tr>
<td>1O&amp;5GW</td>
<td>1 OIL &amp; 5 GAS WELL WORKOVER</td>
</tr>
<tr>
<td>1O&amp;6G</td>
<td>1 OIL &amp; 6 GAS WELL</td>
</tr>
<tr>
<td>1O&amp;7G</td>
<td>1 OIL &amp; 7 GAS WELL</td>
</tr>
<tr>
<td>1O&amp;8G</td>
<td>1 OIL &amp; 8 GAS WELL</td>
</tr>
<tr>
<td>1W&amp;1S</td>
<td>1 UNDESERIGNATED INJECTION &amp; 1 SERVICE WELL</td>
</tr>
<tr>
<td>1W&amp;1S</td>
<td>1 WATER INJECTION &amp; 1 SERVICE WELL</td>
</tr>
<tr>
<td>1W&amp;1SW</td>
<td>1 WATER INJECTION &amp; 1 SERVICE WELL WORKOVER</td>
</tr>
<tr>
<td>1W&amp;1SW</td>
<td>1 WATER INJECTION &amp; 1 SERVICE WELL WORKOVER WITH OIL SHOWS</td>
</tr>
<tr>
<td>1W&amp;1SO</td>
<td>1 WATER INJECTION &amp; 1 SERVICE WELL-OIL SHOWS</td>
</tr>
<tr>
<td>2G&amp;1S</td>
<td>2 GAS &amp; 1 SERVICE WELL</td>
</tr>
<tr>
<td>2G&amp;1WI</td>
<td>2 GAS &amp; 1 WATER INJECTION WELL</td>
</tr>
<tr>
<td>2G&amp;2WI</td>
<td>2 GAS &amp; 2 WATER INJECTION WELL</td>
</tr>
<tr>
<td>2G&amp;3WI</td>
<td>2 GAS &amp; 3 WATER INJECTION WELL</td>
</tr>
<tr>
<td>2G&amp;3SA</td>
<td>2 GAS &amp;多 GAS WELL</td>
</tr>
<tr>
<td>2G&amp;1GW</td>
<td>2 OIL &amp; 1 GAS INJECTION WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;1G</td>
<td>2 OIL &amp; 1 GAS WELL</td>
</tr>
<tr>
<td>2G&amp;1GW</td>
<td>2 OIL &amp; 1 GAS WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;1I</td>
<td>2 OIL &amp; 1 INJECTION WELL</td>
</tr>
<tr>
<td>2G&amp;1IW</td>
<td>2 OIL &amp; 1 INJECTION WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;1SW</td>
<td>2 OIL &amp; 1 SERVICE WELL</td>
</tr>
<tr>
<td>2G&amp;1SW</td>
<td>2 OIL &amp; 1 SERVICE WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;1IW</td>
<td>2 OIL &amp; 1 WATER INJECTION WELL</td>
</tr>
<tr>
<td>2G&amp;1IW</td>
<td>2 OIL &amp; 1 WATER INJECTION WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;2GW</td>
<td>2 OIL &amp; 2 GAS INJECTION WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;3GW</td>
<td>2 OIL &amp; 3 GAS WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;3GW</td>
<td>2 OIL &amp; 3 GAS WELL WORKOVER</td>
</tr>
<tr>
<td>2G&amp;3IW</td>
<td>2 OIL &amp; 3 WATER INJECTION WELL</td>
</tr>
<tr>
<td>2G&amp;4G</td>
<td>2 OIL &amp; 4 GAS WELL</td>
</tr>
</tbody>
</table>
Just the first 20 values reveal at least 9 kinds of information.
15 KINDS OF INFORMATION HAVE BEEN IDENTIFIED AND DEFINED

Business Life Cycle Phase is a collection of activities and conditions, that are grouped according to business significance, describing where an E&P asset (in this case a well) is at within its progressive history. Phases are related to business significance and are not related to time. Business Life Cycle Phase is relevant for wells that the E&P company has a Business Interest in. The value of the Business Life Cycle Phase is expected to change in a predictable manner as the well progresses through out its history and may reoccur as various operations are executed.
For each of the 15 kinds of information, a starter set of values has been created.
**WELL STATUS: COMPLEX VALUES CAN BE DECOMPOSED**

**ABANDONED COMBINATION OIL & GAS PRODUCER**

WellStatus.PPDM.org

<table>
<thead>
<tr>
<th>Status Type</th>
<th>Status Value</th>
<th>Qualifier Type</th>
<th>Qualifier Value</th>
<th>Active?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellbore Status</td>
<td>Abandoned</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Fluid Type</td>
<td>Oil &amp; Gas</td>
<td>Abundance</td>
<td>Primary</td>
<td>N</td>
</tr>
<tr>
<td>Role</td>
<td>Produce</td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Well Status</td>
<td>In-Active</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Fluid Direction</td>
<td>Static</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Current Status Code</td>
<td>Current Status Name</td>
<td>Primary Fluid</td>
<td>Primary Role</td>
<td>Primary Fluid Abundance</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1G1WIW</td>
<td>1 GAS &amp; 1 WATER INJECTION WELL WORKOVER</td>
<td>Gas</td>
<td>Produce</td>
<td>Commercial</td>
</tr>
<tr>
<td>1O&amp;1GI</td>
<td>1 OIL &amp; 1 GAS INJECTION WELL</td>
<td>Oil</td>
<td>Produce</td>
<td>Commercial</td>
</tr>
<tr>
<td>2O&amp;5G</td>
<td>2 OIL &amp; 5 GAS</td>
<td>Oil &amp; Gas</td>
<td>Produce</td>
<td>Commercial</td>
</tr>
<tr>
<td>2O1GIW</td>
<td>2 OIL &amp; 1 GAS INJECTION WELL WORKOVER</td>
<td>Oil</td>
<td>Produce</td>
<td>Commercial</td>
</tr>
<tr>
<td>GAS</td>
<td>GAS PRODUCER</td>
<td>Gas</td>
<td>Produce</td>
<td>Commercial</td>
</tr>
<tr>
<td>GI-OG</td>
<td>GAS INJECTION WELL-OIL &amp; GAS SHOWS</td>
<td>Gas</td>
<td>Inject</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>OIL</td>
<td>OIL PRODUCER</td>
<td>Oil</td>
<td>Produce</td>
<td>Commercial</td>
</tr>
<tr>
<td>OSTWOG</td>
<td>OIL STORAGE WELL-OLD WELL WORKED OVER-OIL &amp; GAS SHOWS</td>
<td>Oil</td>
<td>Storage</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>SUS-OG</td>
<td>SUSPENDED WELL-OIL &amp; GAS SHOWS</td>
<td>No Current Role</td>
<td>Oil &amp; Gas</td>
<td>Shows</td>
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<tr>
<td>WIWO</td>
<td>WATER INJECTION WELL-OLD WELL WORKED OVER-OIL SHOWS</td>
<td>Water</td>
<td>Inject</td>
<td>Oil</td>
</tr>
</tbody>
</table>
ON TO THE NEXT CHALLENGE

How do you represent on a map?

What does the symbol represent?

How do you aggregate status at the well origin?

Does everyone want the same symbol set?
# MAP SYMBOLS

<table>
<thead>
<tr>
<th>Map Symbols</th>
<th>Src 1</th>
<th>Src 2</th>
<th>Src 3</th>
<th>Src 4</th>
<th>Src 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil (Active)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>⋆</td>
<td>A</td>
</tr>
<tr>
<td>Gas (Active)</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>⋆</td>
<td>B</td>
</tr>
<tr>
<td>Rig (Active)</td>
<td>🏞</td>
<td>🏞</td>
<td>🏞</td>
<td>🏞</td>
<td>R</td>
</tr>
<tr>
<td>Oil and Gas (Active)</td>
<td>●</td>
<td>⋆</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coalbed Methane (Active)</td>
<td></td>
<td></td>
<td>⋆</td>
<td></td>
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</tr>
</tbody>
</table>
## Can We Agree on a Common Set of Symbols?

### PPDM Wellbore Status Symbols

<table>
<thead>
<tr>
<th></th>
<th>Producing</th>
<th>Injecting</th>
<th>Suspended</th>
<th>Shut-In</th>
<th>Abandoned</th>
<th>Fluid Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oil</strong></td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
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<tr>
<td><strong>Oil Show</strong></td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
</tr>
<tr>
<td><strong>Oil w/ Gas Show</strong></td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
</tr>
<tr>
<td><strong>Gas w/ Oil Show</strong></td>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>![Symbol]</td>
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<td>![Symbol]</td>
<td>![Symbol]</td>
</tr>
<tr>
<td><strong>Oil &amp; Gas</strong></td>
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Today’s competitor is tomorrow’s partner.

The benefits of sharing exceed the risk of hoarding.

We need each other if we are to succeed!
WHY BOTHER WITH STANDARDS??

THE VALUE OF COLLABORATION

- Identify Opportunity
- Acquire Land Rights
- Form Partnerships
- Well Planning
- Drilling and Completion
- Decommission / Relinquish
- Production Tracking
- Reserves Calculation
- Incident Management
- Facility Management
- Well Management
- Seismic Exploration
- Interpretation
- Tech studies (geochem, paleo)
Thanks for your attention

www.ppdm.org

curtist@ppdm.org
DIFFERENCES BETWEEN OPERATOR AND REGULATOR OBJECTIVES

Find the presentation on well identification around the world

It is in everyone’s best interests to cooperate and identify opportunities that are good for everyone.

Often the question is less to identify the opportunity than to work out how to make change that improves our world in a way that is manageable.

Regulatory legislation and regulation processes
Funding and time to change
Needs a strong value proposition and great industry support.
Can we make changes that are incremental and provide small improvements?
Can we provide rosetta stones that help us integrate at a different level?
OPERATOR OBJECTIVES

• Understand the assets they operate or have an interest in
• Strategic planning
• Reserves analysis
• Track operating costs, revenues, risks …
• Support interpretation and analysis
• Correlate land rights with well objects
• Support business relationships

Operating companies have much more information about their own wells than regulators and data vendors do.

Operators often rely on identifiers assigned by regulators or vendors.

However, this information is often scattered across systems, departments, regions.
REGULATORY OBJECTIVES

• Ensure regulatory compliance
• Collect royalties
• Resource management and conservation
• Distinguish one well from another
  • Spot wells on a map or know where they are located
  • Put a unique code on every sample and submission received
• Archive all submitted information
• Make information public as required by law

Regulators rarely identify every object in a Well Set, and rules are often inconsistently applied.

So what happens when a system doesn’t follow the rules, or when we simply don’t understand what the rules are?
DATA VENDORS OBJECTIVES

- Create a uniform data set across many states/regions
- Ensure that all information is assigned to the right well object
  - Associate production volumes with the “correct” object
  - Relate well header information to wellbore information
  - Distinguish one well / wellbore from another
- Know what regulatory agency is responsible for each “WELL”
- Spot wells on a map / know where they are located

A vendor may create new well objects so that data can be correctly and consistently referenced.

Vendors may use different methods to create “look-alike” identifiers.