



The PPDM Association is a global, not-for-profit society that collaborates with industry experts to develop data management standards for the petroleum exploration and production industry.

# Well Identification Global



R-2.0 September 2014

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on what you know  
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## The PPDM Association Offers Online Learning!

### Available Courses Include:

- US Land Survey Systems
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- What is a Well
- Business Life Cycle of the Well
- PPDM Data Model Design Principles: PPDM 3.8

For more details on education please visit our website at [www.pppdm.org](http://www.pppdm.org)

# ABOUT THE PPDM ASSOCIATION

The Professional Petroleum Data Management (PPDM) Association is a global, not-for-profit professional society that provides data management standards and best practices for the petroleum industry. Exploration and Production (E&P) companies, government agencies, software application providers, data vendors, service companies, standards bodies and individuals form the membership. Through the PPDM Association, petroleum data experts gather together in a collaborative, round table approach to engineer business-driven, pragmatic data management standards that will meet industry needs.

We are dedicated to achieving our long-term goal of global adoption of E&P data management standards. In addition, PPDM is placing increased emphasis on:

- Certification programs for E&P data management professionals
- Certification and training for data management and data standards
- Best practices for developing a data governance and master data management strategy
- Rules for managing data and measuring data quality

For more information about the PPDM Association, please visit [www.ppdm.org](http://www.ppdm.org).

## Professional Society Strategy



# INTRODUCTION

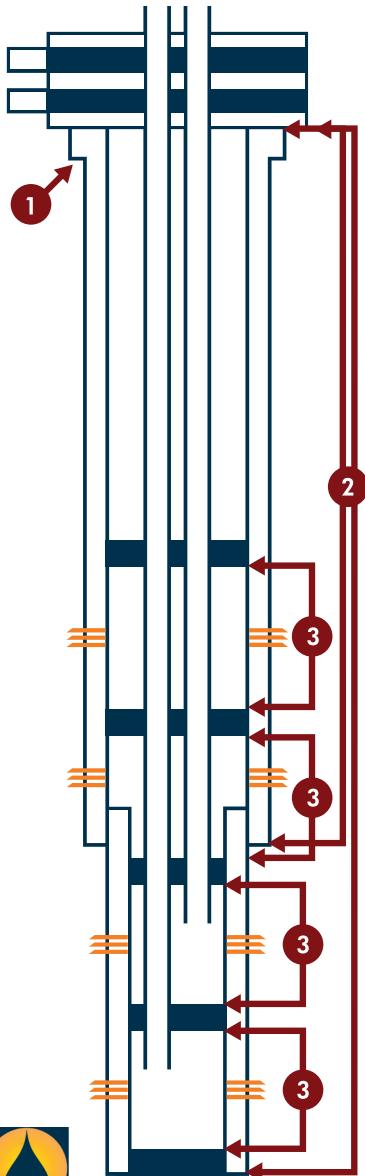
Most Oil & Gas industry participants agree that a universal system for clear, unambiguous well identification should be a cornerstone of the sector. Unfortunately, no such system exists. Most companies and agencies have developed their own internal definitions and rules that name and identify wells and their component parts. While these definitions may prove adequate within each organization, they don't resolve problems when a company needs to communicate effectively with regulatory agencies, partners, software products or the general public.

The PPDM Association has developed baseline definitions for the principal components of a well ([www.WhatIsAWell.org](http://www.WhatIsAWell.org)) and a Global Well Identification Framework that consists of a series of guiding principles that incorporate the essential business requirements for a Well Identification System (WIS): [www.wellidentification.org/globalframework](http://www.wellidentification.org/globalframework).

There are many advantages to implementing the Global Well Identification Framework:

- **Senior Management** benefits from reduced risk in decision making
- **Geoscientists** spend less time searching for and reconciling data
- **Engineers** make better drilling and workover decisions
- **Regulators** benefit from standardized reporting methodology
- **Data Managers** improve the quality of databases and data exchange

# WELL COMPONENT DEFINITIONS



## Well

A Well is a proposed or actual drilled hole in the ground designed to exchange (or facilitate the exchange of) fluids between a subsurface reservoir and the surface (or another reservoir), or to enable the detection and measurement of rock properties.

## Well Identifiers

An identifier refers to names, numeric or alphanumeric sequences, codes, tags, abbreviations and so on that are maintained or exist in industry, government, vendor, business partner or proprietary systems, datasets or documents whose purpose is to uniquely identify a single Well or Well component (i.e., Well Origin, Wellbore, Wellbore Completion).

### 1. Well Origin (WO)

A Well Origin is the location on the surface of the earth or seabed where the drill bit is planned to penetrate or does penetrate the earth to establish or rework a Well.

### 2. Wellbore (WB)

A Wellbore is a path of drilled footage from the Well Origin (top/start) to a terminating point (bottom/end).

### 3. 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.





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# PPDM Data Model Classes

### Implementation Head Start

This course helps you understand the architectural principles behind the PPDM Data Model. We review a practical approach to understanding and implementing the model. Understanding the key concepts for the foundation of the data model's design and structure helps working teams effectively and appropriately use the model.

### Organic Geochemistry

This course is a preview of the PPDM Data Model subject areas for organic geochemistry and sample management. We discuss how the model supports storing information about sample collection, sample management, preparing sample materials for analysis, actual analysis and the results of the analysis.

### PPDM Overview

This course introduces the robust nature of the PPDM Data Model. Using a workshop approach, the class learns how to apply the many subject areas in the PPDM Data Model in a sample integration exercise.

### Well Logs

In this course, you learn how the PPDM Data Model can be used to manage information about well logs and curves, operational logging details, and how to catalogue what log data is available. You will discover how the PPDM Data Model can be used for mnemonic dictionaries to index digital and raster logs, paper and curves, describe formats, physical storage locations and much more.

### Meta Model Management and Reference Tables

This course helps you understand the Meta Model contained within the PPDM Data Model. We will review the value of the Meta Model and how to effectively use the model, as well as provide an overview of both standard and dynamic reference tables. Understanding the Meta Model and how to work with it accelerates a working team's ability to effectively and appropriately use the Data Model.

**Private courses are available for PPDM members and can be customized to your company's specific needs. For more information contact [training@PPDM.org](mailto:training@PPDM.org).**

# GLOBAL WELL IDENTIFICATION FRAMEWORK

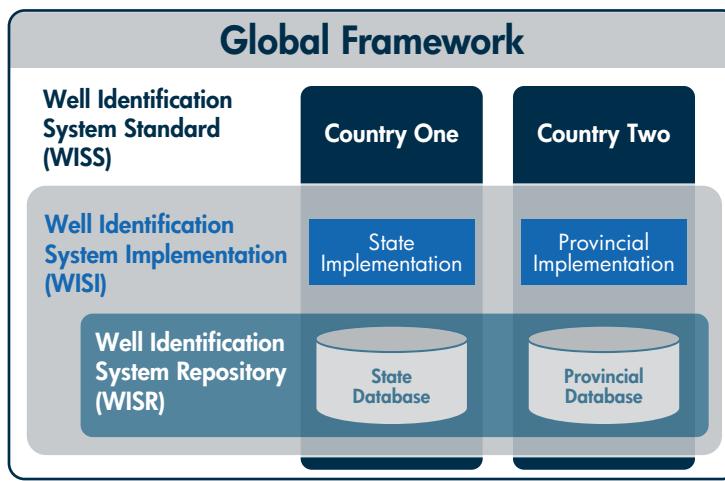
The Global Framework is a set of guiding principles for any Well Identification System and best practices for their application.

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 enable an authority to administer well identifiers. "Administer" includes assignment, dispensation, cross-referencing and maintaining a history of changes. A Well Identification System is a combination of the following.

- 1. Well Identification System Standard (WISS)** – the 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 (WISI)** – 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.



Examples of Well Identification Systems



# **7 GUIDING PRINCIPLES FOR DESIGNING THE FRAMEWORK**

The Global Framework is based on the following seven guiding principles, which incorporate the essential business requirements for a Well Identification System.

## **Guiding Principle 1: Comprehensive**

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: Permanent**

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

## **Guiding Principle 3: Unique**

All identifiers assigned by a Well Identification System must be unique within that system.

## **Guiding Principle 4: Connected Wellbore**

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

## **Guiding Principle 5: Connected Wellbore Completion**

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: Unambiguous**

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 find and exchange well information unambiguously.

## **Guiding Principle 7: Authority**

Each part of the Well Identification System must have an identified owner (*Authority*) and documented processes for the management of change.

\* Wellbore Completion is sometimes a proxy for the source of produced fluids, especially for financial and regulatory reporting.

# PRINCIPLE 1

## Framework Guiding Principle 1:

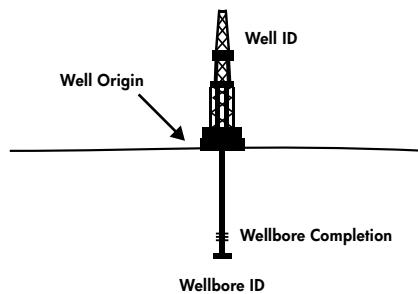
A Well Identification System must be capable of assigning an identifier to every Well Origin, Wellbore or Wellbore Completion in its scope.

### Clarification:

- The Well Origin is the unique and permanent component on which to base the identification of a Well because it is objectively determined and is the single common reference for all information throughout the life cycle and beyond.
- The Wellbore is the component with which to associate downhole information for a specific Well Origin.
- The Wellbore Completion is the component with which to associate isolated flows for continuous measurement.

### Response to the business requirements:

- Reliable identifiers allow information to be correctly associated with a well component for the lifetime of the well.



# PRINCIPLE 2

## Framework Guiding Principle 2:

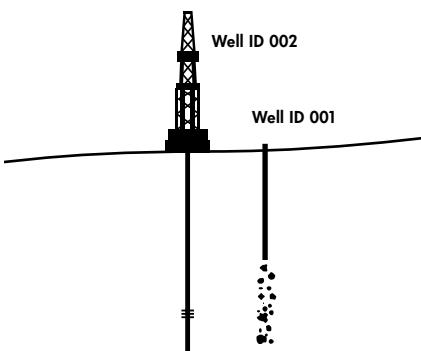
All identifiers assigned by a Well Identification System must be permanent.

### Clarification:

- An identifier must remain with the well component forever, even beyond the end of the life of the Well.
- A Well at the end of its life cycle is permanently closed, but may be recovered and re-entered. There would then be two or more Wells, but only one Well Origin. The re-entry is deemed to be a new Well because a new life cycle has started.
- The best assurance of compliance to this principle is to use opaque identifiers; that is, the identifiers have no embedded meaning.
- If the WIS uses lucent identifiers to support a business requirement, changes may be necessary to repair the embedded meaning. This need may override the principle of permanence. Any provision for changing an identifier must be addressed by rules and best practices within the WISS and WISI.

### Response to the business requirements:

- Any change in an identifier creates risks of data inconsistency and miscommunication, especially in the exchange of information.
- Any change in an identifier damages the integrity of the data associated with the well component.
- The business need for unambiguous identity may require a change to an identifier having embedded meaning.



The initial Wellbore was junked before reaching the target. The rig was skidded and a new Well spudded. The new Well is assigned a new well code because a new Well Origin has been created.

# PRINCIPLE 3

## Framework Guiding Principle 3:

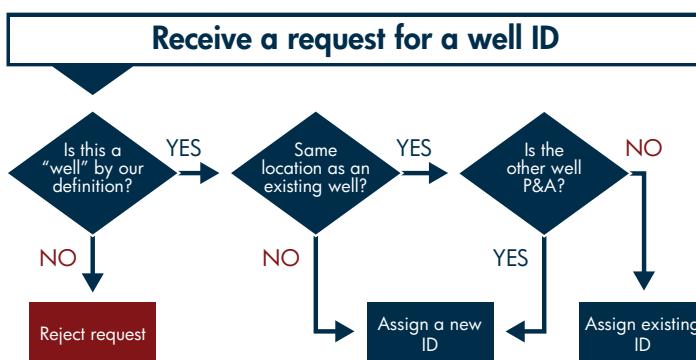
All identifiers assigned by a Well Identification System must be unique within that system.

### Clarification:

- The WIS must define uniqueness criteria that determine when a new well component is assigned an identifier.
- An identifier must never be duplicated (i.e., assigned to more than one instance).
- An assigned identifier must not be reused.

### Response to the business requirements:

- Data integrity is compromised when there are duplicate identifiers.



Simplified flow chart showing the process to assign a well ID according to the uniqueness criteria. This is only a hypothetical example. Not every business or regulator has the same process or criteria.



# PRINCIPLE 4

## Framework Guiding Principle 4:

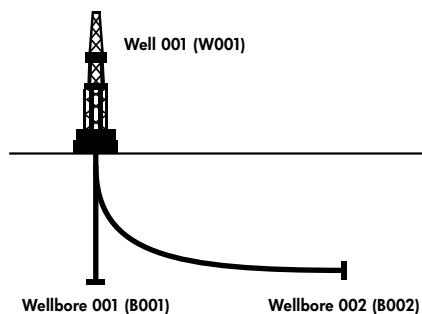
A Well Identification System must relate every identified Wellbore to the Well Origin where it begins.

### Clarification:

- All Wellbores in a Well share the same Well Origin.

### Response to the business requirements:

- Relating each Wellbore to its Well Origin ensures that all Wellbores that commence at a specific surface location are associated with the correct Well.
- Without this association, Wellbore data may be missed or attached to the wrong Well, causing errors in operations, analysis and regulatory reporting.



Well	Wellbore
W001	B001
W001	B002

# PRINCIPLE 5

## Framework Guiding Principle 5:

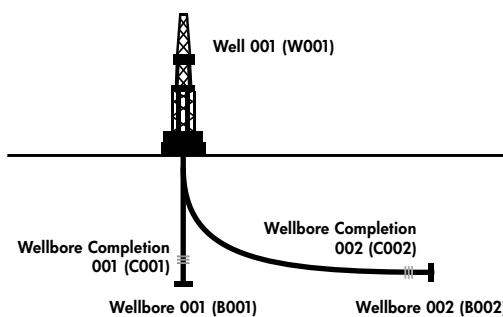
A Well Identification System must relate every identified Wellbore Completion to the Well Origin and/or Wellbore(s) from which it was created.

### Clarification:

- A Wellbore Completion is created and accessed through a single Well Origin.
- A Wellbore Completion exists within one or more Wellbores.
- A multilateral Wellbore Completion must be identified in relation to at least one relevant Wellbore; additional means may be required to correlate the Wellbore Completion to the other Wellbores.

### Response to the business requirements:

- Relating each Wellbore Completion to its Well Origin ensures that it is associated with the correct Well.
- Relating each Wellbore Completion to its Wellbore(s) ensures that other directly relevant information (e.g., perforation interval and properties) is accurately associated with the Wellbore Completion.



Well	Wellbore	Wellbore Completion
W001	B001	C001
W001	B002	C002



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## JOIN THE CONVERSATION!

The PPDM Association hosts a number of global events on an annual basis. These Conferences, Luncheons and Training Classes are designed to facilitate a collaborative, open industry forum to discuss current issues in data management and standards and to showcase industry success stories. We invite you to participate in the next PPDM Association event and join the conversation.

**For more details on an event near you visit [www.pppdm.org/events/upcoming](http://www.pppdm.org/events/upcoming)**

# PRINCIPLE 6

## **Framework 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 find and exchange well information unambiguously.

### **Clarification:**

- Each part of the WIS includes data attributes, text and metadata, which combine to document the system.
- Documentation should be designed to support practical use by all relevant parties.

### **Response to the business requirements:**

- A reliable identifier is essential for accurate and consistent retrieval and exchange of information.
- The essential business purpose of an identifier is to facilitate accurate retrieval and exchange of information.
- Where a WISS has more than one WISI, effective documentation is essential to ensure consistency across all implementations.
- Confidence in the reliability of an identifier is based, in part, on the user's understanding of how the identifier was created.
- A lucid identifier has embedded meaning. Effective supporting information facilitates accurate understanding of the meaning.



# PRINCIPLE 6 CONTINUED

**The Well Identification System Standard (WISS) must document the following:**

<b>Authority</b>	The entity or governing body responsible for defining the WISS. The entity decides what is in the WISS initially and approves revisions after it has been published. The entity could be an individual, a company, a standards organization or any other formally constituted group.
<b>Versioning</b>	The WISS may be revised and must therefore have a version identifier, including an effective date (i.e., a publish change point such as Canada CPA 1978 and CAPP 2001).
<b>Scope</b>	The constraints around what is identified. Examples of scope may be regional (all wells in North America), jurisdictional (only wells within Alberta), functional (wells drilled for the intent of, or in aid of, the production of hydrocarbons), structural (only wells below a specified depth), or any combination of these.
<b>What is Identified</b>	The well components for which this WISS provides the identifier. The WISS must be capable of identifying the following components: Well Origin, Wellbore and Wellbore Completion. The WISS may also identify additional components.
<b>Uniqueness Criteria</b>	The description of the rules and attributes that will be used to determine uniqueness for generating an identifier.
<b>Defining Attributes</b>	A list of the minimum set of attributes for the well component(s) to support the uniqueness criteria and rules for generating the identifier.
<b>Structure</b>	The composition of the well identifier: length, format, semantic parts, etc.
<b>Well Identification Change Rules</b>	If the identifier can change after it is assigned, there must be mechanisms for publishing this information.

# PRINCIPLE 7

## Framework Guiding Principle 7:

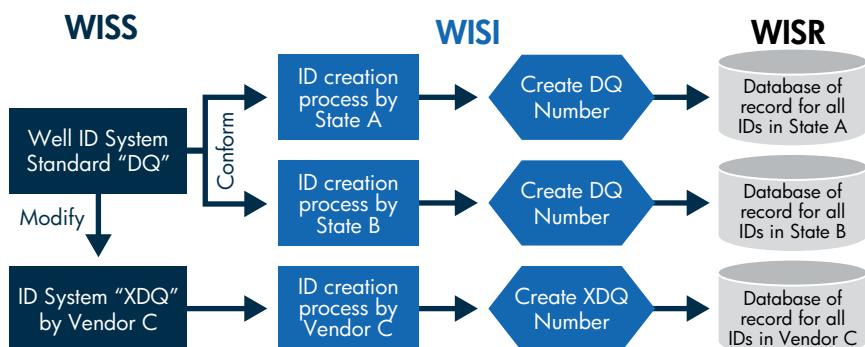
Each part of the Well Identification System must have an identified owner (Authority) and documented processes for the management of change.

### Clarification:

- The Authority is the entity having the right of ownership and control of the name, content, distribution, use and management of change.
- The Authority for a WISS may be a national or regional organization, a business enterprise, or an industry organization.
- The Authority for a specific WISI and its associated WISR may be a national or regional organization, a business enterprise, or an industry organization.

### Response to the business requirements:

- Identifying the Authority for each part of the WIS allows the user to determine which standard is being used and creates confidence in the WIS.
- Since a WISS and a WISI are each owned and controlled by an Authority, it is clear that changes to either that have not been authorized by that Authority cannot be part of that WIS. They create a non-standard system that must be clearly distinguished by name from the system on which it is based.



Fictional examples: States A and B each have their own implementation conforming to the DQ standard to create the "DQ Number." Vendor C modified the standard and therefore must not use the ID name "DQ."



# Visit The PPDM Association Website

## www.pppdm.org

The screenshot shows the PPDM Association website. At the top right is a navigation bar with links for 'Join PPDM', 'Contact Us', 'Job Board', 'Legal', 'Search' (with a magnifying glass icon), and 'Login'. The main header features the PPDM logo (a stylized blue and yellow flame) and the text 'Welcome to the PPDM Association' over a background image of a city skyline at night. Below the header is a sidebar with links for 'About PPDM', 'Membership', 'PPDM Standards', 'Work Groups', 'Sponsors and Partners', 'Education & Training', 'Community News', 'Events', 'Forums', and 'Wiki'. The main content area has a section titled 'Latest News' with an article about 'Data Standards Enhance the Digital Oil Field'. It includes a summary, a 'Read More...' link, a date ('February 13, 2012'), and two tags: 'digitaloilfields' and 'petroleumreview'. Below this is another news item about the 'Well Identification Project - Seeking Companies to be Interviewed'. The sidebar on the right contains links to various PPDM documentation and resources, such as 'PPDM 3.8 Documentation', 'PPDM Lite 1.1 Data Model', 'What is a Well?', 'Well Status', 'Well Identification', 'Taxonomy Dimensions', and 'Wiki'. There are also icons for LinkedIn, Facebook, and Twitter. At the bottom of the page, there's a section for 'Upcoming Events' with two entries: 'March 5, 2012 PPDM Implementation Head Start (Training)' and 'March 5, 2012 Introduction to Master Data Management (Training)'. The footer features a background image of industrial pipes.

Did you know you can become a member, find an event near you, register for training and explore the forums JUST by logging onto the PPDM Association website? If you are not a member yet, create a Guest or Student account to find out more! All the information you need is one click away:

- Front Page News section
- Policies Section
- Upcoming Events
- Education and Training
- Work Group Initiatives
- Member Information
- Forums

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