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.
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Success up here depends on what you know down here.

Subsurface intelligence is everything.

Understanding the subsurface is everything when producing unconventional assets. EnergyIQ delivers E&P Data Management Solutions that enable companies to exploit unconventional plays with less risk. Learn how our Trusted Data Manager (TDM) application suite can help you value, acquire, and produce assets with greater certainty, speed, and collaboration. Visit www.energyiq.info, or call us at (303) 790-0919.

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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.
Identifying Wells and Wellbores

Wells are integral to the petroleum industry. Information about every well is an important asset for governments, owners and service providers. The USA has several million petroleum-related wells, each with abundant and complex information in a variety of forms, both physical and digital. Management of this information is a vital activity to support the full range of activities related to wells (regulations, operations, evaluations, financial and contractual transactions, public safety, protection of correlative rights, etc.).

The most common and effective tool for information management is a unique well identifier. The purpose of a unique well identifier is to enable unequivocal recognition of a single instance of a well. The term “well” has various meanings throughout the industry. The PPDM Association has developed baseline definitions for the principal components of a well (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
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.
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.
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.

![Global Framework Diagram](image)
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*t 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.
Well information is widely used and shared throughout the industry. If all players follow the same standard, identifiers are much more useful and errors are reduced. In 1966 the American Petroleum Institute (API) introduced a well identifier to fulfill this role. The API Well Number specifications were published as American Petroleum Institute Bulletin D12A (hereinafter called “Bulletin D12A”) and were widely adopted. In 2010, the API transferred custody of this Standard to the Professional Petroleum Data Management (PPDM) Association.

The US Well Number, a revision of the API Well Number, is at least a 12-digit number assigned to every wellbore and is the successor to previous versions. It is a foundation for the management and exchange of all information from or about all petroleum wells in the USA. Comprehensive data management is essential for the regulation, operation and evaluation of wells, and for mitigating safety and environmental risks. This Standard provides for the unique identification of every wellbore.

This new US Well Number Standard creates a Wellbore identification number to supersede the predecessor API Well Number. This responds to the evolving needs of the industry and the complexity of modern well configurations. Continuity with the D12A Number, as much as possible, is important for maintaining the integrity of well information. There are many advantages to implementing the US Well Number Standard, the most significant of which are below:

- The US Well Number is at least 12 digits, with an optional extension.
- All Wellbores must be identified, including bypasses and deepenings.
- Each US Well Number is created by a specific Implementation of this Standard. The Implementation accommodates local requirements (regulations, operational practices, etc.), but must adhere to this Standard’s specifications.
PurPOSE

The purpose of the US Well Number is to uniquely and permanently identify every Wellbore pertinent to the petroleum industry of the USA. The identification of the Well is implicit in the US Well Number via digits 1 – 10 (see Figure 1). Though defined for the petroleum industry, this Standard may be applied to other classes of wells (e.g., water, sulfur, coal) as deemed appropriate by the regulatory agency, state or other entity. If applied to other such classes, the uniqueness of each US Well Number must be maintained across the class boundaries.

The PPDM Association Offers Online Learning!

Available Courses Include:

• US Land Survey Systems
• US Well Spotting
• 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.ppdm.org
The US Well Identification Number, formerly known as the API number, consists of four semantic parts. An optional extension may be attached.

- State code
- County code
- Well code
- Wellbore code
- Extension for supplementary information (optional)

### US Well Identification Number

<table>
<thead>
<tr>
<th>Positions</th>
<th>1-2</th>
<th>3-5</th>
<th>6-10</th>
<th>11-12</th>
<th>13+</th>
</tr>
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<tbody>
<tr>
<td>Code Name</td>
<td>State</td>
<td>County</td>
<td>Well</td>
<td>Wellbore</td>
<td>Extension (Optional)</td>
</tr>
<tr>
<td>Example</td>
<td>31</td>
<td>101</td>
<td>22963</td>
<td>03</td>
<td>0+</td>
</tr>
</tbody>
</table>

**Note:** Only digits are allowed in positions 1 – 12.
The figures that follow are presented for the purpose of illustrating the use of the US Well Identification Standard Numbering procedures. The figures were selected to show the proper method of number assignment for different conditions under which wells are drilled. Consistent use is important for clarity, especially where well information is exchanged between parties.

**A simple vertical Well, one Wellbore**

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>051</td>
<td>05279</td>
<td>00</td>
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</tbody>
</table>

**A Simple Directional or Deviated Well, One Wellbore**

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>051</td>
<td>08025</td>
<td>00</td>
</tr>
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</table>
Multiple Wellbores
Each Wellbore is assigned a different wellbore code, but they all have the same first 10 digits because they all begin at the same Well Origin.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
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</thead>
<tbody>
<tr>
<td>30</td>
<td>051</td>
<td>55662</td>
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<td>30</td>
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<td>01</td>
</tr>
<tr>
<td>30</td>
<td>051</td>
<td>55662</td>
<td>02</td>
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</tbody>
</table>

Bypass
A second Wellbore is drilled to bypass a problem and continues to the original target. The first Wellbore retains the US Well Identification Number already assigned because a number, once assigned to a Wellbore, must never be changed or moved; even if the bypass re-enters the original, both Wellbores should be identified.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
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<td>29001</td>
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<td>051</td>
<td>29001</td>
<td>01</td>
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</table>

<table>
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<th>State Code</th>
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<th>Well Code</th>
<th>Wellbore Code</th>
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<tr>
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<tr>
<td>30</td>
<td>051</td>
<td>28645</td>
<td>01</td>
</tr>
</tbody>
</table>
Skidded Well
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.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
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<td>30</td>
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</tr>
<tr>
<td>30</td>
<td>051</td>
<td>11363</td>
<td>00</td>
</tr>
</tbody>
</table>

Pad Wells
Wells from an onshore multi-well pad. Each is a separate penetration of the earth’s surface. Therefore, each has a different well code (digits 6 – 10). There are three Wells, each with one Wellbore. The drilling order is not implied in the number.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
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</tr>
<tr>
<td>30</td>
<td>051</td>
<td>25152</td>
<td>00</td>
</tr>
</tbody>
</table>
**Platform Wells**

Wells from an offshore platform. Each is a separate penetration of the earth’s seabed. Therefore, each has a different well code (digits 6 – 10). There are three Wells, each with one Wellbore. The drilling order is not implied in the number.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
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<tr>
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</tr>
<tr>
<td>42</td>
<td>604</td>
<td>30179</td>
<td>00</td>
</tr>
</tbody>
</table>

**Deepening**

Deepening an existing Wellbore creates a new Wellbore, thus requiring a new US Well Identification Number, subject to the definition of deepening set by the Authority. Note that the first 10 digits remain the same.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
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</thead>
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<table>
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<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
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</tr>
<tr>
<td>30</td>
<td>051</td>
<td>34156</td>
<td>02</td>
</tr>
</tbody>
</table>
Extending a Horizontal (Lengthening)
Lengthening an existing Wellbore creates a new Wellbore, thus requiring a new US Well Identification Number, subject to the definition of deepening/lengthening set by the Authority. Note that the first 10 digits remain the same. If the vertical hole is a pilot hole ("strat hole") in preparation for kicking off a horizontal leg, it is nevertheless a Wellbore with its own US Well Identification Number.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
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<td>30</td>
<td>051</td>
<td>28932</td>
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</tr>
<tr>
<td>30</td>
<td>051</td>
<td>28932</td>
<td>02</td>
</tr>
</tbody>
</table>

Wellbore Crosses County Line
Surface location in one county, Wellbore bottom and/or completion in adjacent county. The US Well Identification Number has the county code for the surface location.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>003</td>
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</tr>
<tr>
<td>02</td>
<td>003</td>
<td>34156</td>
<td>02</td>
</tr>
</tbody>
</table>
**Wellbore Crosses State Line**
Surface location in one state, Wellbore bottom hole and/or completion in adjacent state. The US Well Identification Number has the state and county codes for the surface location.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>027</td>
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</tr>
<tr>
<td>02</td>
<td>027</td>
<td>26945</td>
<td>01</td>
</tr>
</tbody>
</table>

**Wellbore from Onshore to Offshore**
Surface location onshore, Wellbore bottom hole and/or completion offshore. The US Well Identification Number has the state and county codes for the surface location.

<table>
<thead>
<tr>
<th>State Code</th>
<th>County Code</th>
<th>Well Code</th>
<th>Wellbore Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>321</td>
<td>30177</td>
<td>00</td>
</tr>
</tbody>
</table>
Permitted Three Wellbores, One Drilled

The one drilled was originally permitted as wellbore code 01 by the assigning Authority and no change to numbering is required. Undrilled Wellbores retain the US Well Identification Number as assigned.
Warning: Our data has gone mobile
(You may never return to the office)

Now, get geoLOGIC’s value added data almost any place, any time, any way you want it. Available through gDCweb on your tablet, smartphone, or computer.

With 30 years of data experience behind it, the gDC is the source for high quality, value-added well and land data from across Western Canada. Another plus - our data is accessible through an expanding range of industry software utilizing our own easy-to-use gDC GIS and our geoSCOUT software.

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