Well Numbering and Naming Around the World

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Summary

Well identification is an essential part of stewarding E&P information by professional petroleum data managers and end-users. The identification usually includes a name or a number (or both), and sufficient descriptive information (such as a location and spud date) to allow a user to distinguish one well from another. This information is used, in turn, to connect data about a well that exists in many places within an E&P company; these places may include the well proposal, the well history report, well log headers, test reports, production volumes, financial systems, data from vendors and others.

Well numbering and naming conventions vary among regulatory agencies around the world. Some use a name, others a formal numbering scheme. Some enforce a standard; others accept the name used by the operator. Where the identifier includes reference to the location, some regulators use the surface and others the bottom of the hole. There are many rules about which parts of a well are identified and tracked over time. It is all too common for identifiers to change as the well evolves through changes in downhole configuration, role, or ownership. This creates difficulties for everyone, and valuable information is misplaced or even lost.

Developing procedures to integrate data from many regions and many source systems properly can be challenging and time consuming. This paper examines well identification practices from several regions to illustrate some of these pitfalls. Regulators and standards bodies have opportunities to help our industry today, and to develop an improved future in well identification.

Introduction

Most operating companies, software vendors and data vendors rely heavily on well identifiers that are assigned by the regulatory agency responsible for the governance of that well. Unfortunately, there are huge variations in the methods used to identify wells. Sometimes the method used by one agency has changed over time or has been applied inconsistently. The impact on E&P operations can be profound, resulting in data that is lost, assigned to an incorrect wellbore or misinterpreted.

Theory and/or Method

Technology advances, such as improved databases and networks, allow users of E&P data to access complex information in ways never before envisioned. Companies of all sizes are leveraging technology to integrate well related data from many sources into a single, integrated master view which can then be accessed through GIS, Business Intelligence or Dashboard technologies that put process critical information in front of decision makers.

Bringing together data from operational, financial, interpretation and planning systems is usually difficult and time consuming. Many of the problems that teams encounter are directly related to the difficulty in matching well information from one system with well information from other systems. As operating companies worked through these problems independently, they soon realized that their internal solutions were, at best, only interim measures.

Ultimately, key representatives understood that a consortium of key industry players needed to understand and document these practices and develop some standard, widely acceptable benchmark terms, definitions and illustrations that would provide the foundation for addressing their integration challenges. In 2008, the PPDM Membership struck a committee to develop this information.

The PPDM Association is a neutral, not for profit society that works with industry to promote and develop data management standards directed towards vendor neutrality and interoperability. Industry representatives gather together to create international, collaborative, consensus-driven working groups; these groups work on standards that will benefit all of industry.

The working group started by creating a series of illustrations to represent well configurations that are common today. Use cases were created to describe a typical chain of events or business needs that could result in each configuration. Next, these diagrams were analyzed to determine which components (or elements) of the well configuration were of highest value to users at various stages of the well life cycle. Finally, each well component was assigned a name and given a definition that clarified the role and identity of that component.

This information is now available to anyone who wishes to see it at www.WhatIsAWell.org. *(note, the reader is advised that this information is not intended to replace a full and proper review of regulatory documents, but is intended to provide an initial overview only).*

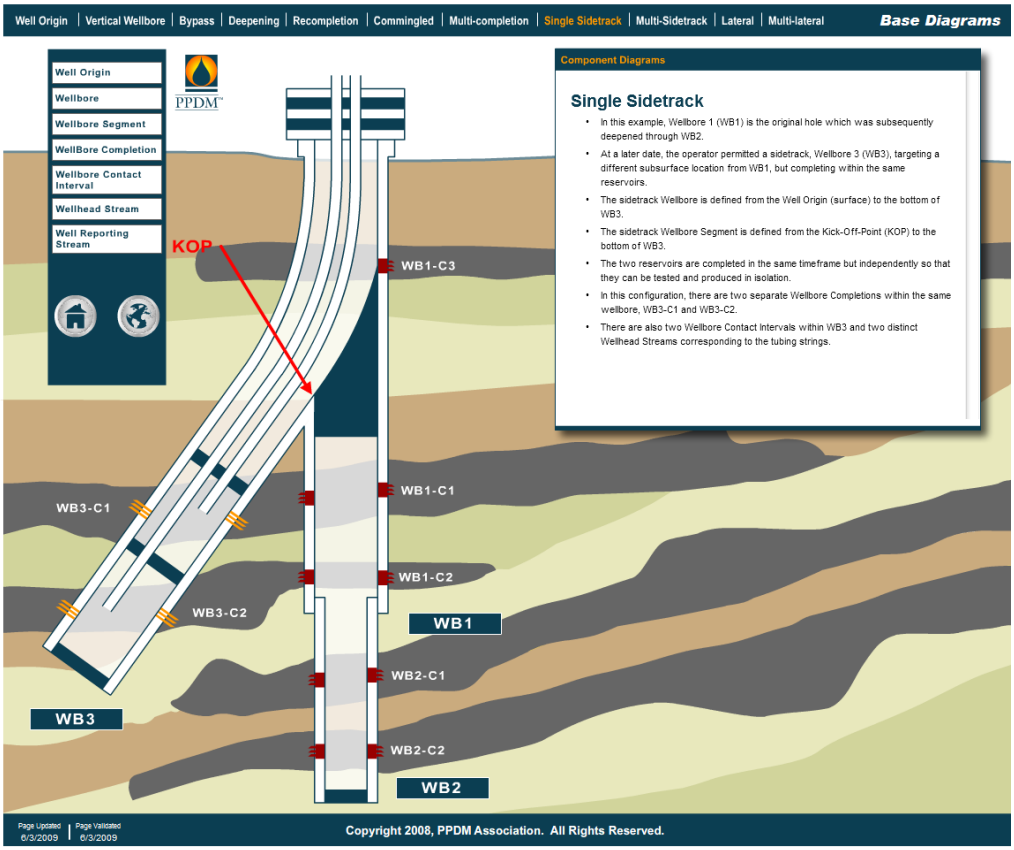

Figure 1: This illustration shows a typical single side track well. Note the narrative use case description at the right, and the list of well components on the left. As the user clicks on each component, the relevant section of the well is highlighted. Across the top of the illustration, the user can select which of 11 well configurations is desired. This information is publicly available at www.WhatIsAWell.org.

From this point, experienced researchers approached regulatory agencies to review their legislation and regulations to determine whether that agency had processes in place to recognize the existence of each component, and if so, how that component was recognized and identified. Regulators are invited to review this information and provide additional clarification as needed; in many cases this review has turned up exceptions to the documented processes that provide important insight into the kinds of pitfalls that unwary users may fall into. Specific examples were also found to illustrate typical processes, or to show specific pitfalls that may come up.

This information has been captured in summary form on www.WhatIsAWell.org.

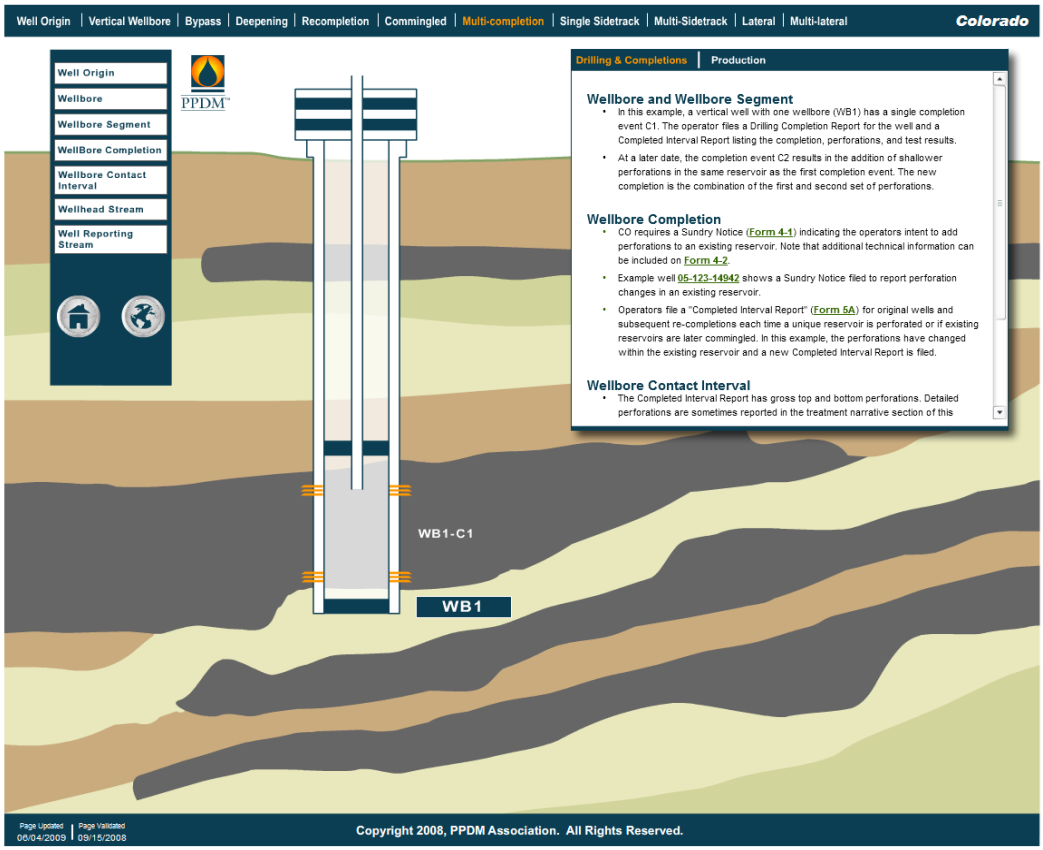

Figure 2: The illustration above contains a small portion of the documentation for the state of Colorado in the US.

Examples

Pilot Holes: Pilot holes are identified and numbered in Alaska and Colorado, but not in Alabama, Arkansas, California.

Hole Direction: Is indicated in the API numbers assigned by Kansas and Mississippi; this process represents a significant variation from the standard API process.

Conclusions

The experienced workforce in our industry is moving towards retirement, and a new generation of workers has entered the environment. The work done by members of the PPDM Association provides a mechanism that captures and disseminates knowledge in a practical, easy to understand format.

Acknowledgements

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IHS Energy contributed sample data and expert resources to aid in the completion of the project.

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The web interface was created by Patrick Moran and Steve Cooper, with input from the workgroup.

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References

www.WhatIsAWell.org