Revising the API Numbering Standard for Today’s Drilling

IOGCC
October 2011
TODAY’S TALK

- Describe the Project
  - Bismark Introduction
- Why is this important to Regulatory Agencies?
- Examples
- Call to Action
  - Requesting Interviews with Regulatory Agencies
Revising the API Number Standard

- API Number standard last updated 1979
- API has agreed that PPDM is steward of Well Numbering Standard
- Project team includes operators, regulators, information vendors
- Issue: Many wellbores are not being identified in regulatory filings or in regulatory databases
- Lack of information on these wellbores presents issues for regulators and operators
CASE 4: MULTIPLE DIRECTIONAL SIDETRACK NUMBERING

<table>
<thead>
<tr>
<th>STATE</th>
<th>COUNTY</th>
<th>WELL</th>
<th>S/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIGINAL HOLE:</td>
<td>42</td>
<td>201</td>
<td>12345 (Blank)</td>
</tr>
<tr>
<td>FIRST SIDETRACK:</td>
<td>42</td>
<td>201</td>
<td>12345 01</td>
</tr>
<tr>
<td>SECOND SIDETRACK:</td>
<td>42</td>
<td>201</td>
<td>12345 02</td>
</tr>
</tbody>
</table>

(Note: In 2nd sidetrack, the code number, "02", identifies the section of the hole from the whipstock in S/T #1 to TD S/T #2.)
Definition: Well vs. Wellbore

Example: One Well with Two Wellbores

Well: Single surface location and everything connected to it

Wellbore: Unique path from surface to bottom hole
Example Horizontal Well: Permit to Drill

Horizontal Well is Proposed.

Exact Depth of Target Zone will be determined by vertical “Pilot Hole”
Example Horizontal Well: **Vertical Pilot Hole**

Vertical Pilot Hole is Drilled.

The information from this wellbore is used to decide the depth of the Lateral.

This wellbore is logged and may have cores and deviation surveys.
Example Horizontal Well: Identify Target Zone

Target Zone for Horizontal is identified from well logs.

Cement Pilot Hole to kickoff Lateral into Target Zone

Note: Pilot Hole drills **below** Target Zone
Example Horizontal Well: Drill Lateral

Lateral 1 mis-steered below Target Zone.
Operator decides to sidetrack to position horizontal Lateral in the Target Zone.
Example Horizontal Well: Prepare to Sidetrack

- Set Cement Plug in Lateral 1 in preparation to Sidetrack
- Target Zone for Horizontal
- Pilot Hole
- Lateral 1
- Cement Plug
Example Horizontal Well: Drill Lateral 2

Lateral 2 in Target Zone

Lateral 2 is successfully drilled in Target Zone

Pilot Hole

Lateral 1: Mis-steer
Example Horizontal Well: Complete Lateral 2

Lateral 2 in Target Zone

Lateral 1: Mis-steer

Pilot Hole
Example Horizontal Well: “Missing” Wellbores

Wellbores in Red are not reported by Operators in many states.

Lateral 2 in Target Zone

Pilot Hole

Lateral 1: Mis-steer
5 Reasons that Missing Wellbores Matter
1. All wellbores have plugging obligations— not just the producing wellbore
2. Fluid movement—injected fluids can follow pathway of any wellbore
3. Operators may be required to file information such as well logs for all wellbores, not just producing wellbores.
4. All wellbores must stay within the permitted lease boundaries and the permitted depths.

Map view shows bottom hole locations of each wellbore.

Pilot Hole is deeper than the Lateral.
5. Anti-collision measures require all wellbores to be identified and have known paths.

3-D Diagram of 9 wells drilled from a single pad.
“BE IT FURTHER RESOLVED that GWPC work with PPDM Association’s Well Identification Workgroup in its effort to develop methods for consistently identifying all wellbores in the US.”
Asking Regulatory Agencies to Participate

- Our team is interviewing Regulatory Agencies about current practice and any plans for change
- We will be contacting your agency in next 2 weeks to set up a 20-minute interview
- PPDM Workgroup will work with IOGCC, GWPC and Regulatory Agencies to develop practical solutions
  - Development of best practices
  - Support of PPDM process (revised D12 a)
  - Potential model process

Today: Please see Don Drazan NY DEC or Bruce Smith with PPDM to set up a time for an interview.

Or we will call you in the next 2 weeks to set up a time with your staff.
Bruce Smith, PPDM
303 549 0772
Bruce.Smith@ppdm.org

Don Drazan, NY DEC
518 402 8056
djdrazan@gw.dec.state.ny.us
5 Reasons why “Missing” Wellbores matter

1. All wellbores have plugging obligations—not just producing wellbores.

2. Fluid movement—Injected fluids can follow pathway of these wellbores.

3. Operators may be required to file information such as well logs for all wellbores, not just producing wellbores.

4. All wellbores must stay within the permitted lease boundaries and the permitted depths.

5. Anti-collision measures require all wellbores to be identified and have known paths.