Summary

DI Analytics and Rigs products have four classifications for wellbore trajectories: directional, horizontal, unknown and vertical. These are based on multiple source documents, including permit filings, completion reports and drilling rig reports. Differences across the source documents often result in conflicting wellbore trajectories, and the reporting requirements on the source documents vary by state. For example, Kansas permit filings only allow Vertical or Directional/Horizontal as classifications for wellbore trajectories, whereas Texas permit filings allow Vertical, Directional and Horizontal. To resolve the contradictions, Drillinginfo follows a step-by-step process to classify wellbore trajectory and ensure consistency across DI Analytics and DI Rigs products. The process utilizes state-specific filters, play analyses, and pattern recognition in lease/well names, as well as other algorithms.

Methodology

The process to identify wellbore trajectory includes the following five steps:

1. Internal tests demonstrated that completion reports contain the most complete and accurate

---

1 The Kansas permit form combines directional, deviated and horizontal into one category on the form.
wellbore classifications. Accordingly, these are used as the default data source for wellbore classification.

2. If the well is in Louisiana or Mississippi, state-specific filters are applied to double-check the trajectory against the lease or well name, respectively. If the lease name (Louisiana) or the well name (Mississippi) has an ‘H’ in the beginning, this typically indicates a horizontal well. For the remaining states, the process checks well numbers, as research demonstrates that an ‘H’ in the well number indicates horizontal; the well name ‘Howard’ would not trigger a horizontal designation.

3. If the well is in the Bakken and III Forks reservoirs, the wellbore trajectory is designated as horizontal.

4. Step four cross-checks the trajectory with the difference between True Vertical Depth and Total Depth. If the True Vertical Depth and the Total Depth for a well differ by more than 1,500 feet, it was considered to be a horizontal wellbore.²

5. Finally, if no wellbore trajectory is identified after completing steps one through four above, permit filings are the next source for wellbore classification. If the permit filing does not identify the trajectory, the wellbore trajectory is classified as Unknown.

As of April 2015, there are approximately 1.65 million wells in the Analytics and Rigs products. Upon implementing the new process, effective April 29, 2015, approximately 60% of the wellbore trajectories are identified using completion reports, 4% using wellbore logic (steps 2 through 4 above), and 19% using permit filings. The remaining 17% of wellbores have Unknown trajectories.

An example of the effect of the new process is shown in Figure 1 below. The map on the left illustrates how reporting discrepancies previously created an artificial border on the New Mexico/Texas border, with the majority of New Mexico wellbore trajectories classified as Directional (pink circles), and similar wells in Texas classified as Horizontal (blue circles). Using the new methodology, the map on the right shows consistent classification across state lines, and has fewer Unknown wells (green circles).

Learn more at www.drillinginfo.com

² Wells with True Vertical Depth of less than 1,500 feet, and/or Total Depth of more than 30,000 feet, were assumed to be reporting errors and were rejected.