Background

The American Petroleum Institute (API) Subcommittee on Well Data Retrieval Systems was formed in 1962 to develop a standard method for nationwide well identification for use in computerized well data systems. They created the API well number, a unique, permanent, numeric identifier assigned for identification of a well (i.e. hole in the ground) which is drilled for the purpose of finding or producing oil and/or gas or providing related services.

The subcommittee's recommendations were first published in 1966 as Appendix A, API Bulletin D12, Well Data Glossary. In 1968 it became the API Bulletin D12A, The API Well Number and Standard State and County Codes. Several revisions have been made, the latest being published in 1985.

Although the API number standard was clearly stated, most regulatory agencies in the U.S. follow only a portion of the API numbering standard identifying the surface location, but they do not identify separate sidetracks to new bottom-hole locations. The API numbering standard allowed for use of an extension of the 12-digit API number identifying each sidetrack. IHS created the 13-14th digits to identify well events including recompletions, well deepenings, and re-entries of plugged wells. (Regulatory agencies usually do not identify these well events and very rarely include any API numbering to reflect the events.)

In 2013, the Professional Petroleum Data Management association (PPDM), the new “owner” of the API numbering standard, published a revised API numbering standard for the U.S. clarifying several aspects of the standard. In particular, the new standard states that all wellbores should be identified, even pilot holes and junked and mis-steered wellbores that do not reach the intended bottom-hole location. PPDM is now working to increase adoption of the new standard, given the importance that the oil and gas industry identify every wellbore for safety and conservation purposes.

The IHS API Numbering Structure:

Example: 42-301-20130-03-00

State Code:

The first two digits of the API number represent the surface location of the state the well is located in. In this example, the surface location of this well is located in state code 42 or Texas. Please refer to a State Code List for a complete listing of state and “pseudo-state” codes for portions of the offshore.

County Code:

The third through fifth digits of the API number represent the surface location of the county where the well is located. In this example the well is located in county code 301 or Zapata County. Note: Occasionally, wells will have a surface location in a different county from the bottom-hole location. Most state regulatory agencies will assign the county code using the
surface location, per the API numbering standard. However, North Dakota, Ohio, and Kansas use the bottom-hole location to assign county code. IHS does not follow this approach due to several problems, and will assign its own API number using the surface county location. IHS will then put the state’s API number as the Regulatory API number in the IHS database.

Please note that all county codes are odd numbers except for Kern County, California. This was designed for expansion. Kern County’s well population has exceeded 99,999 so we use 029 for the older wells and county code 030 for the wells drilled after that.

County codes are also used to designate offshore areas for both state and federal waters. Please refer to a County Code Listing for a complete listing of county and pseudo-county codes.

**Unique Well Identifier:**

In most states, the sixth through tenth digit of the API number is assigned as a unique number within the county the well is drilled. In a few states, the unique well identifier is based on the permit number and may only be unique within the state.

**Directional Sidetrack Codes:**

The sidetrack code is the eleventh and twelfth digits of the API number. It is used to identify each sidetrack uniquely for the well. A good rule of thumb is to increment the sidetrack code for each unique bottom-hole location of the well. In the example above, this is the third sidetrack off the original wellbore.

The original API numbering standard only incremented the 11-12th digits when a new wellbore was drilled to a new bottom-hole target. Pilot holes and sidetracks that did not reach the bottom-hole target did not have the sidetrack code incremented.

Starting in 2009, IHS changed its procedures to increment the 11-12th digits for all wellbores, regardless of whether the wellbore reached the targeted bottom-hole location. So, IHS is now incrementing the API number for all sidetracks provided IHS has information about all sidetracks. Some regulatory agencies do not require every wellbore to be reported. In these cases, IHS seeks to determine all wellbores using directional survey and other data. (Please read a companion document about the API numbering of Pilot Holes and Junked/Mis-steered Laterals.)

**Event Sequence Code:**

IHS uses the 13-14th digits of the API number as a “well event sequence code”. (The API numbering standard is for 12-digit API numbers but allows for a suffix in different implementations.)

IHS defines a well event as a well deepening, a recompletion, or re-entry of a plugged wellbore. Note: if more than a single reservoir is completed in one “event”, IHS only has a single well event sequence code. For example, a well that is dually completed when first drilled will have both completions with a single API number ending -00-00. If the 2 completions occur at different
times, then the sidetrack/well event sequence code is -00-00 for the first completion, and -00-01 for the 2nd completion.

In the example, 42-301-20130-03-00, it is the original drill and completion of sidetrack #3, even though the original and either or both of the previous sidetracks may have been recompleted. (The 13-14th digits are tied to the specific wellbore. For example, the first recompletion of the original wellbore is -00-01, the 2nd recompletion is -00-02, etc.

Only IHS uses this particular implementation of the 13-14th digits of the API number. Some regulatory agencies assign the 13-14 digits of the API number, but most of these have nothing to do with either wellbore code or well event sequence.

It is strongly recommended that the reader review the PPDM state-by-state review of API numbering practices by states. This document lists the many variations (It is important to remember that this code may vary between data vendors based on their database recompletion criteria.)

**IHS does not follow the new, 2013 API numbering standard for well deepenings**

The new 2013 API numbering standard written by PPDM’s Well Identification project states that the 11-12th digits of the API number should be incremented for a well deepening. IHS is waiting for adoption of the 2013 API numbering standard by regulatory agencies before IHS adopts this practice. If IHS adopts this practice in 2014, we would make API number integration using different data sources even worse than the current situation.
Examples

ORIGINAL WELLBORES (first 10 digits of API number)

Figure 1 (Vertical Hole)  Figure 2 (Directional Hole)

Original Straight Hole  Original Directional Hole

API #23-001-20130-00-00  API #42-201-20245-00-00

Please note that the sidetrack code (11th and 12th digits) in each instance is 00, whether it is a straight, directional or horizontal hole. It is the original wellbore for this well. The subsequent operation code (13th and 14th digits) is 00, as this is the first operation for each well.

(Note: the Kansas regulatory agency increments the 12th digit to indicate hole direction, not the wellbore sequence, so IHS does not follow this practice.)

State Code =23  State Code =42
County Code =001  County Code=201
Unique Well ID =20130  Unique Well ID =20245
Sidetrack Code =00  Sidetrack Code = 00
Event Sequence =00  Event Sequence = 00
**SIDETRACKS (11-12\textsuperscript{th} digits of API number)**

**Figure 3** (Sidetrack/s off Vertical)  
**Figure 4** (Sidetrack/s off Directional)

First Sidetrack off Vertical  
API #23-001-20130-01-00  
API #23-001-20130-02-00

First Sidetrack off Directional  
API #42-201-20245-01-00  
API #42-201-20245-02-00

Please note; the sidetrack code is incremented by 01 for the first sidetrack in each hole, by 02 for the second sidetrack, and so on. However, the subsequent operation code (13-14\textsuperscript{th} digits) remains at 00 since none of the boreholes have been reworked. A good rule of thumb is any unique bottom hole location will have a new sidetrack code.

State Code = 23  
State Code = 42

County Code = 001  
County Code = 201

Unique Well ID = 20130  
Unique Well ID = 20245

Sidetrack Code = 01 (for 1\textsuperscript{st} ST)  
Sidetrack Code = 01 (for 1\textsuperscript{st} ST)

Sidetrack Code = 02 (for 2\textsuperscript{nd} ST)  
Sidetrack Code = 02 (for 2\textsuperscript{nd} ST)

Event Sequence = 00  
Event Sequence = 00
**WELL EVENT SEQUENCE CODE (13-14\textsuperscript{th} digits)**

**Figure 5** (Recompletion in vertical wellbore)

- PBTD (00-01)
- TD (00-00)
- 2\textsuperscript{nd} PBTD (00-02)

**Figure 6** (Recompletion in sidetracked wellbore)

- PBTD (01-01)
- TD (01-00) (ST #1)
- PBTD (00-01)
- TD (00-00)

**Figure 5** shows a vertical wellbore that has been plugged back twice. Therefore, the API numbers associated with this well are as follows:

- 23-001-20130-00-00 (original wellbore)
- 23-001-20130-00-01 (1\textsuperscript{st} plug back)
- 23-001-20130-00-02 (2\textsuperscript{nd} plug back)

**Figure 6** shows a vertical wellbore that has been plugged back once, sidetracked once, and the sidetrack plugged back to recomplete once. Therefore, the API numbers associated with this well are as follows:

- 05-001-20333-00-00 (original wellbore)
- 05-001-20333-00-01 (plug back recompletion of original wellbore)
- 05-001-20333-01-00 (1\textsuperscript{st} sidetrack of original wellbore)
- 05-001-20333-01-01 (1\textsuperscript{st} recompletion of 1\textsuperscript{st} sidetrack)

Please note that even if the plug back to the sidetrack had occurred prior to the plug back of the vertical hole, the numbering would be as above.
Questions?

For questions about IHS API numbering practices or a copy of the PPDM document describing the API numbering practices of most state regulatory agencies, please contact IHS well data research team at well.data@ihs.com.

Questions about specific wells and API numbers should also be directed to well.data@ihs.com