Condensate Definition Types

COQA/CCQTA Joint meeting
October 30-31, 2014  |  San Francisco, California

By John Powell
Office of Petroleum, Natural Gas, and Biofuels Analysis
Potential condensate definition types

• OPEC definition/State definitions
• Chemical composition/properties
• Production well characteristics
• Other suggestions
OPEC definition/State definition

• OPEC
  – API of 50 or more or
  – Liquid production from a well with a 5,000 SCF/bbl or greater gas-to-oil ratio (GOR) or
  – 3.5 mole percent or less C\textsubscript{7} (7 carbon atoms) and heavier material

• Most state definitions
  – Based on the original OPEC definition of hydrocarbons which are in the gaseous state under reservoir conditions and which become liquid when temperature or pressure is reduced.
  – Texas uses a definition that condensates are liquids from a gas well; gas wells are defined as a well that produces more than 100,000 SCF/bbl of liquid production. However, the alternate definition reverts to the original OPEC definition.
Chemical composition/properties

• API Gravity
  – Easy to verify (simple test)
  – Could blend to API gravity
  – OPEC and Oklahoma use 50+ API as the cutoff
  – Others have recommended different API cutoffs

• Chemical composition
  – Mole percent of C$_7$ and heavier material
    • Difficult (and time consuming) to test; usually determined by correlation
  – Distillation criteria (percent evaporated at a specific temperature)
    • Straight forward time consuming test
Production well characteristics

• Texas
  – Condensate is liquid production from a gas well
  – Gas wells are wells that produce 100,000 SCF or more gas per bbl of liquid

• Requires identification of the source and tracking of the condensate flows

• Relies on certification by the industry (self reporting)
Other

• Color
  – Easy to test
  – Crude has dark bodies that would show up in a nearly colorless condensate
  – Some condensates are not water white
  – Color may not correctly delineate condensates versus crudes

• Other physical properties
• Purpose of use
• Location
Other

- **EIA definitions (location dependent)**

- **Condensate (lease condensate):** Light liquid hydrocarbons recovered from lease separators or field facilities at associated and non-associated natural gas wells. Mostly pentanes and heavier hydrocarbons. Normally enters the crude oil stream after production.

- **Plant condensate:** Liquid hydrocarbons recovered at inlet separators or scrubbers in natural gas processing plants at atmospheric pressure and ambient temperatures. Mostly pentanes and heavier hydrocarbons.
## State condensate definitions

<table>
<thead>
<tr>
<th>State</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Colorado</td>
<td>Hydrocarbons which are in the gaseous state under reservoir conditions and which become liquid when temperature or pressure is reduced. A mixture of pentanes and higher hydrocarbons. <a href="https://cogcc.state.co.us/COGIS_Help/glossary.htm">https://cogcc.state.co.us/COGIS_Help/glossary.htm</a></td>
</tr>
<tr>
<td>Louisiana</td>
<td>Liquid production from non-crude wells as classified by the commissioner of conservation <a href="http://www.legis.state.la.us/lss/lss.asp?doc=102399">http://www.legis.state.la.us/lss/lss.asp?doc=102399</a></td>
</tr>
<tr>
<td>Montana</td>
<td>(15) &quot;Condensate&quot; means the liquid produced by the condensation of a vapor or gas either after it leaves the reservoir or while still in the reservoir. Condensate is often called distillate, drips, or white oil. <a href="http://www.legis.nd.gov/information/acdata/pdf/33-15-20.pdf?20140812151019">36.22.302</a></td>
</tr>
<tr>
<td>Oklahoma</td>
<td>&quot;Condensate&quot; means a liquid hydrocarbon which: (A) Was produced as a liquid at the surface, (B) Existed as gas in the reservoir, and (C) Has an API gravity greater than or equal to fifty degrees, unless otherwise proven. <a href="">ftp://204.87.70.98/occrules/Ruleshtm/forweb04newrules.htm</a></td>
</tr>
<tr>
<td>Texas</td>
<td>Condensate is liquid produced from a gas well. A gas well is a well that produces more than 100,000 SCF of gas for every barrel of liquids <a href="http://www.statutes.legis.state.tx.us/Docs/NR/htm/NR.86.htm">http://www.statutes.legis.state.tx.us/Docs/NR/htm/NR.86.htm</a></td>
</tr>
<tr>
<td>Wyoming</td>
<td>(xiii) &quot;Lease condensate&quot; means liquid hydrocarbons which are separated from other components of the natural gas production stream on the lease or before the inlet to a natural gas processing facility; Title 39, Chapter 11, ARTICLE 2 - OIL AND GAS 39-14-201. Definitions. <a href="http://legisweb.state.wy.us/statutes/titles/Title39/T39CH11AR2.htm">http://legisweb.state.wy.us/statutes/titles/Title39/T39CH11AR2.htm</a></td>
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