Conversion of Condensate Liquid to Gas Equivalent in Texas

September 2009

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Introduction
The Texas Railroad Commission (RRC) was created by the Legislature in 1891 and was given the authority to regulate the oil and gas industry in the State of Texas. One of the RRC’s primary objectives was to develop rules and regulations for oil and gas operators. The purpose of this paper is to document and describe a specific regulation where the RRC converts Condensate Production to a Gas Equivalent volume. This is referred to by the RRC as

“Well Separation Extraction Loss” – a positive number reflecting shrinkage of gas volumes when condensate is extracted from gas well gas by lease separation methods.

Objective
One of our objectives of this paper is to make all Texas Production data users aware of the method currently used by RRC in converting Condensate Liquid to a Gas Equivalent and how this regulation has changed since January 2005. It is important for all users to understand this method of conversion since it appears that by adding the converted gas volume to the produced formation gas volume, the RRC is overstating the total gas production for these properties. We believe this is extremely important when using data supplied by either the RRC or IHS in the evaluation of any Oil or Gas property where Condensate Production is substantial.

Production Reporting Prior 2005
Prior to January 2005, all operators in the State of Texas reported Oil on form P-1 (Producers Monthly Report of Oil Wells) and Gas Production on form P-2 (Producers Monthly Report on Gas Wells). Operators were required to report all Gas and Condensate Production on Form P-2 and during this time period, the RRC required that all operators convert total condensate production to a Gas Equivalent (Condensate x factor of 1.1) and include the amount in the formation gas production volume. The exact wording as describe in the Texas Oil and Gas Handbook states as follows.

“If condensate is separated from gas before metering or if skimmed liquid hydrocarbons are charged back to the well, convert this liquid volume to a gas equivalent volume and include in formation production. If actual gas equivalent has not been determined by a laboratory, use a value of 1.1 MCF per barrel”.

See example below

<table>
<thead>
<tr>
<th>Condensate Production =</th>
<th>100 bbls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Equivalent (1.1) =</td>
<td>110 mcf</td>
</tr>
<tr>
<td>Gas Production =</td>
<td>1,000 mcf</td>
</tr>
<tr>
<td>Total Gas =</td>
<td>1,110 mcf</td>
</tr>
</tbody>
</table>
Production Reporting Post 2005

Effective in February 2005, RRC Form PR replaced Form P-1 & P-2 and changed the rules for converting the condensate production. The RRC statement from the Oil and Gas Handbook now reads as follows:

“For Gas well Gas, you (Operators) no longer need to convert the condensate production to a gas equivalent volume; the RRC will automatically convert the volume”.

For clarification purposes, the RRC is stating that from this period forward, they will be responsible for converting the Condensate production to Gas Equivalent by using the 1.1 factor and include in the formation gas production volume.

Below are actual examples taken from the RRC website. These examples show the differences in the volumes between what’s reported by the Operator and the RRC Website.

Production Volumes Reported by Operator
In this example, we are displaying the new method of reporting Production on Form PR which went into effect 2005. The Operator is reporting the Formation Gas Production Volume as 968 MCF and Condensate Production as 540 BBLS.

![Figure 1 - RRC Production Report Query (Form PR)]
Gas Production with Factor applied by RRC

These are the volumes that now appear on the RRC website after the RRC applies the 1.1 factor to the Condensate Volume. The Operator files 968 MCF of gas and 540 BBLS of Condensate. The RRC converts the Condensate (1.1 Factor) to 594 MCF of Gas Equivalent and adds it to the Operator reported volume of 968 for total Gas Production of 1562.

Figure 2 - RRC Production Data Query System (PDQ)

It is important to point out that the RRC makes two versions of production data available on their website:

**Production Report Query (Form PR):** This is data collected from the From PR and it is the true operator reported production volumes **without** the condensate conversion. Data is available from February 11, 2005 to present.

**Production Data Query System (PDQ):** This is the original data system and it reports production volumes **with** the condensate conversion.

However, only data from the PDQ system is made available to data vendors in large batch updates.

**Summary & Conclusions**

The following are some major points in this paper that need to be re-emphasized:

1. Prior to 2005, Operators **were** instructed to convert Condensate Production to a Gas Equivalent. We cannot substantiate if Operators followed these rules and to validate, we would need access to a company’s internal accounting system. Information filed at that time by the Operators will closely match information found in our Historical Production Files and the RRC.

2. After January 2005, Operators **are not** required to convert Condensate Production to a Gas Equivalent. The RRC performs this function. Volumes on Gas Wells producing Condensate
sent into the RRC will not match with RRC records or IHS data since our data is extracted from the RRC files.

3. Gas volumes on wells producing condensate appear to be overstated since the gas equivalent is being included in the formation gas production volume without the removal of the condensate production volume.

**Recommendations and Adjustments**

Since we do not have access to Operated Production Volumes, IHS cannot adjust any of the production amounts displayed in our system based on the factors that have been applied to these production values. Also, prior to 2005, we do not know if all Operators followed the RRC regulation of converting Condensate Liquid to a gas equivalent. Attempting to back out the gas equivalent, would be pure speculation on our part and could do more harm than good. We feel confident that after January 2005, the RRC converted all condensate to gas equivalent production and for those properties, some feel production is being overstated. If you as users feel that this production is overstated, please get with a company engineer or an operational manager to determine if you want to back out this additional gas production volume.

The conversion process to remove the overstated productions is fairly simple:

\[
(Total \ Gas \ Production - (Condensate \ Production \times 1.1))
\]

**Data Support**

Please contact production.data@ihs.com for questions about this paper, or for any questions about specific production data.