



United States Department of the Interior

OFFICE OF NATURAL RESOURCES REVENUE

P.O. Box 25165
Denver, Colorado 80225-0165

AUG 21 2018

Subject: Rescinding and Replacing the November 21, 2012, Reporter Letter on Keepwhole Gas Processing Contracts

Dear Reporter:

This Reporter Letter replaces the Reporter Letter dated November 21, 2012, regarding gas processed under keepwhole contracts. This letter restates the previous guidance for Federal and Indian gas, where applicable, and clarifies how a lessee should account for pipeline fuel, gas plant fuel, and unbundling when reporting and valuing gas processed under a keepwhole contract. Specifically, this letter:

1. Explains how to identify a keepwhole processing contract;
2. Explains why you should report gas processed under keepwhole contracts as processed gas;
3. Provides guidance for calculating natural gas liquid (NGL) and residue gas volumes;
4. Provides guidance for calculating NGL and residue gas values;
5. Provides guidance for calculating a processing allowance; and
6. Explains how to account for pipeline fuel, gas plant fuel, and unbundling¹ in the calculations.

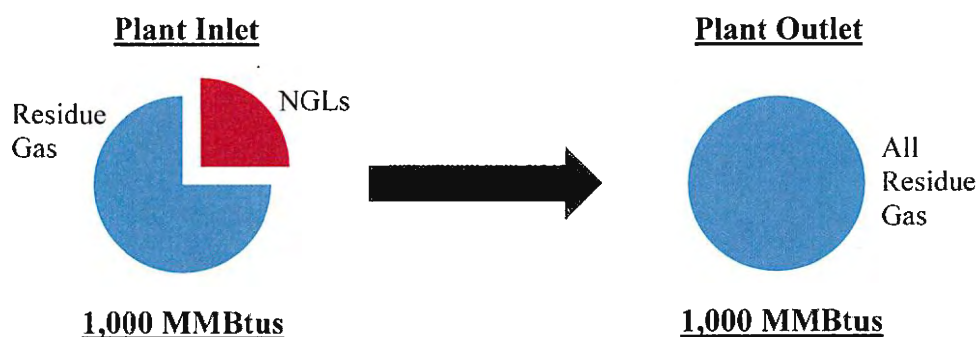
Identifying A Keepwhole Contract

A keepwhole contract is a processing agreement under which the processor delivers to the lessee a quantity of gas after processing equivalent to the quantity of gas the processor received from the lessee prior to processing, normally based on heat content, less gas used as plant fuel and gas unaccounted for and/or lost in the plant. This includes, but is not limited to, agreements under which the processor retains all NGLs it recovers from the lessee's gas.

The graphic below is a basic illustration of the simplest form of a keepwhole contract. The lessee receives the same amount of MMBtus at the outlet of the gas plant as it delivered at the inlet of the gas plant, but the processor retains the NGLs and replaces them with an equivalent number of MMBtus of residue gas. We call the MMBtu-equivalent of the NGLs the "shrink replacement."²

¹ ONRR uses the term "unbundling" to refer to the process of separating allowed and disallowed costs for the purpose of deducting only allowable costs for transportation or processing under ONRR's regulations. The burden lies on the lessee to determine what portion of their total cost is allowable under ONRR's regulations. See *Burlington Res. Oil & Gas Co. LP v. U.S. Dep't of the Interior*, No. 13-CV-0678-CVE-TLW, 2014 WL 3721210, at *12 (N.D. Okla. July 24, 2014).

² In the November 21, 2012, Reporter Letter on keepwhole contracts, we referred to the MMBtu-equivalent of the NGLs as the "shrinkage." In this letter, gas referred to as "shrinkage" in the previous letter will be referred to as "shrink replacement."



A keepwhole contract is not always titled a “keepwhole contract” and in some cases, you may not recognize a keepwhole provision in a contract. For example, some gas transportation agreements stipulate the transporter reserves the right to process the gas for the extraction of NGLs, and redeliver to the lessee the same volume or heat content of gas that the lessee delivered to the transporter. In this situation, when the transporter exercises the right to process a lessee’s gas, that transportation agreement may also be a keepwhole processing contract.

Some keepwhole contracts provide for the producer to be “kept whole” with a monetary payment for the shrink replacement, usually based on a per-MMBtu price, instead of delivering the shrink replacement in physical MMBtus. ONRR still considers this a keepwhole contract. In some cases, a lessee’s processing agreement may have a keepwhole provision for some of the volume of gas and a different arrangement for other volumes of gas being processed in the same gas plant. If any of the terms in your agreement include a keepwhole provision, you should report and pay your royalties for those volumes under the processed gas regulations (30 CFR §1206.153 (Federal gas))³, and the guidance in this letter.

Processed Gas Reporting Requirements

The regulations require that, when gas is processed without being sold or disposed of at arm’s-length prior to processing, a lessee must report and pay royalties on the full volume and value of the residue gas, all gas plant products, and any condensate recovered downstream of the BLM-approved or BSEE-approved point of royalty settlement without resorting to processing (30 CFR §§1206.153 and 1206.154(d)(2) (Federal gas)). Gas processed under a keepwhole contract is processed prior to being sold and is, therefore, subject to the processed gas valuation and reporting regulations.

Calculating Royalties under a Keepwhole Contract

As stated above, when gas is processed prior to the first arm’s-length sale or disposition, under ONRR’s regulations, a lessee must report and pay royalties on the full volume and value of the residue gas and NGLs recovered from processing, less any allowable transportation or

³ The regulations for Indian gas are in 30 CFR §1206 Subpart E. Because of the numerous possibilities for valuing Indian gas (index zone vs. non-index zone, arm’s-length dedicated contracts, dual accounting elections, etc.) we will not cite the Indian gas valuation regulations throughout this letter. If you have specific questions about the Indian gas valuation regulations, please contact RoyaltyValuation@onrr.gov.

processing costs. When a service provider does not provide a lessee with a breakout of residue gas and NGLs recovered from the lessee's gas, correctly reporting royalties for gas processed under a keepwhole contract is more complex than many other processed gas situations. For example, a service provider's processing or transportation statement commonly shows only delivered and redelivered MMBtus, with a deduction for any plant fuel and gas lost and/or unaccounted for in the plant.

Please note any gas used or lost along the pipeline prior to entering the gas plant should be reported using product code (PC) 15 per the Reporter Letter dated December 18, 2014. Reporter Letters are available at <https://www.onrr.gov/DearRep.htm>. Pipeline gains are not reported using PC 15. Please contact RoyaltyValuation@onrr.gov if you have questions about pipeline gains.

If a gas plant does not provide the volume of NGLs and residue gas attributable to a lessee's delivered gas, a lessee may calculate the volumes according to the method explained in the following sections. These instructions are laid out step-by-step with an example in the Enclosure.

NGL Volume

When the plant does not provide the NGL volumes attributable to a lessee's gas, a lessee can calculate the NGL volumes using the gallons-per-Mcf (GPM) factors from the gas analysis at the approved point of royalty settlement. First, multiply the gas plant inlet⁴ Mcf volume by the GPM factor for each NGL component (ethane, propane, iso- and normal butanes, etc.) to obtain the NGL volume in gallons for each component. Then, multiply the resulting component volumes by the corresponding gas plant product recovery factors, which provide a more reasonable volume of the NGLs that the processor recovered. A lessee may be able to obtain the recovery factors from the gas plant. If the gas plant does not provide them, use a reasonable method to approximate them.⁵ After determining the volume of each NGL component, sum the volumes to determine the total NGL volume. Report that NGL volume on the Form ONRR-2014 using PC 07.

NGL Value – Federal Production

The NGLs the processor retains under a keepwhole contract are sold or otherwise disposed of by the lessee under either an arm's-length or non-arm's-length contract. Therefore, the lessee must calculate a value under either 30 CFR §1206.153(b)(1)(i) or the first applicable non-arm's-length benchmark for Federal gas production (30 CFR §1206.153(c)). In either case, the lessee usually can determine the value of the NGLs using an arm's-length NGL sales price from a nearby plant or publicly available prices.

⁴ Using the gas plant inlet Mcf (which may not equal the Mcf measured at the BLM-approved or BSEE-approved point of royalty settlement), will provide a more representative NGL volume.

⁵ There may be several reasonable methods to approximate the plant recovery factors. Often, there is publicly-available data that describes the NGL extraction technology used in the plant – such as cryogenic, lean oil, refrigeration, etc. If you can determine the type of technology you can use other information within your company or publicly available (online or in textbooks) to find standard plant recovery factors based on the NGL-extraction technology.

NGL Value – Indian Production

The NGLs the processor retains under a keepwhole contract are sold or otherwise disposed of by the lessee under either an arm's-length or non-arm's-length contract. Therefore, the lessee must calculate a value under either 30 CFR §1206.174(b)(1) or the first applicable non-arm's-length benchmark for Indian gas production (30 CFR §1206.174(c)). In either case, a lessee usually can determine the value of the NGLs using an arm's-length NGL sales price from a nearby plant or publicly available prices. Please note that NGLs from Indian gas production are subject to the minimum value provision that varies based on location (30 CFR §1206.174(g)(2)).

Residue Gas Volume and Heat Content

A lessee should calculate its reported residue gas volume (Mcf) and heat content (MMBtu) by subtracting the shrink replacement and any gas used as fuel and/or lost and unaccounted⁶ for in the plant from the plant inlet gas Mcf and MMBtu. To calculate the shrink replacement MMBtu:

- Identify the "Btu/gal, fuel as ideal gas" factors under the "Gross Heating Value" section in the Gas Processors Association table⁷ titled "Physical Properties of Selected Hydrocarbons (GPA Table);"
- Divide the factor by 1,000,000 to arrive at an MMBtu/gal factor;
- Multiply the factor by its corresponding NGL component gallons; and
- Sum the resulting MMBtus of each component to arrive at the total shrink replacement MMBtu.

To calculate the shrink replacement Mcf:

- Identify the "Btu/ft³, fuel as ideal gas" factor for each NGL component under the "Gross Heating Value" section of the GPA Table.
- Divide the conversion factors by 1,000 to arrive at MMBtu/Mcf factors.
- Divide the shrink replacement MMBtu for each component (determined above) by that component's MMBtu/Mcf conversion factor.
- Sum the Mcf volumes of all the NGL components to calculate the total shrink replacement Mcf.

To calculate the residue gas MMBtu and Mcf, subtract (on both an MMBtu and Mcf-basis) the shrink replacement and allowable plant fuel⁸ and any gas lost and unaccounted-for in the plant

⁶ Sometimes a gas plant may show an apparent "gain" in volume instead of a loss. If you have questions about how to handle volume gains in a gas plant, please contact RoyaltyValuation@onrr.gov.

⁷ This table is published in many gas processing textbooks and Engineering Data Books. If you are unfamiliar with this table, please speak with your company engineer, visit your local library, or purchase the table online at the Gas Processors Association website.

⁸ In non-keepwhole processed gas situations, a processor commonly allocates a lessee a residue gas volume that is net of all plant fuel (some of which is allowed royalty free and some of which is disallowed and is royalty bearing). In this situation, because the processor removes all of the plant fuel from the residue allocation, you should add the disallowed (royalty-bearing) plant fuel to your PC 03 (residue gas) volume and value when paying royalties, as explained in the Reporter Letter dated December 18, 2014. In a keepwhole situation, however, in order to simplify the computation, we calculate the residue gas volume starting with the plant inlet volume, which is different from

from the plant inlet gas. Only fuel allowed for processing under the regulations may reduce the residue gas volume.⁹ Fuel associated with boosting compression or placing the gas into marketable condition is royalty-bearing and should not be deducted. The burden lies on the lessee to calculate what portion of the plant fuel is allowable. Report the residue gas Mcf and MMBtu on the Form ONRR-2014 using PC 03.

Residue Gas Value – Federal Production

Determine the value of the residue gas under the arm's-length (30 CFR §1206.153(b)) or non-arm's-length (30 CFR §1206.153(c)) regulations for processed gas, whichever is applicable.

Residue Gas Value – Indian Production

There are numerous possibilities for how the residue gas should be valued on Indian lands (for example: index-zone, major portion initial reporting, major portion adjusted reporting, arm's-length dedicated contracts, safety net calculations, etc.). Please contact ONRR's Royalty Valuation group at RoyaltyValuation@onrr.gov for case-specific guidance.

Processing Allowance

A lessee's processing cost under a keepwhole contract (or at least a portion of it) is the difference between the value of the NGLs at a price per gallon and the value of the shrink replacement at a price per MMBtu. This differential (*i.e.* the value that you gave up to process the gas) is generally the cost for all services provided by the gas processor, which may or may not be allowed under our regulations. A lessee may only include costs integral to processing in its processing allowances.¹⁰ If a lessee incurs additional fees that are directly allocable and attributable to processing, it may claim the allowable portion of those fees in its processing allowance. Costs associated with boosting residue gas or costs associated with placing the gas into marketable condition may not be included in the processing allowance. Services in a gas plant often associated with placing the gas into marketable condition include compression, dehydration, and acid gas removal. The burden lies on the lessee to calculate what portion of their total cost is allowable under ONRR's regulations.

If a lessee processes Federal gas under an arm's-length contract, and ONRR published an unbundling cost allocation (UCA), which is an estimated allowable percentage of costs incurred at the processing facility, then a lessee may be permitted to use that UCA to determine its allowable processing costs. If ONRR has not published a UCA for the processing facility, a lessee should unbundle its total processing cost if it wishes to take a processing allowance or

the guidance in the December 18, 2014, Reporter Letter. Here, we subtract the allowed (royalty-free) plant fuel (and the shrink replacement) from the plant inlet volume to get the total volume of residue gas on which royalty is due.

⁹ Allowable plant fuel may be omitted from the residue gas volume and value and should not be included in the processing allowance calculation.

¹⁰ ONRR regulations define processing as, "any process designed to remove elements or compounds (hydrocarbon and nonhydrocarbon) from gas, including absorption, adsorption, or refrigeration. Field processes which normally take place on or near the lease, such as natural pressure reduction, mechanical separation, heating, cooling, dehydration, and compression, are not considered processing..." (30 CFR §1206.151).

simply take no processing allowance. If the lessee is processing Indian gas, the lessee must receive approval before using an ONRR-published UCA.

A lessee may not take a processing allowance that exceeds sixty-six and two-thirds percent (66 ⅔ %) of the value of the NGLs without ONRR approval (30 CFR §§1206.158(c)(2) or 1206.179(c)).

Failure to Properly Report

It is important to correctly report and value gas processed under a keepwhole contract under the processed gas regulations (30 CFR §1206.153). If you knowingly or willfully misreport royalties, ONRR may assess civil penalties. (30 U.S.C. §1719 and 30 CFR Part 1241).

Audit Information

ONRR will initiate and conduct audits of Federal and Indian leases to ensure accurate reporting of production and timely and accurate payment of revenues due (30 CFR §1217.50).

Guidance Information

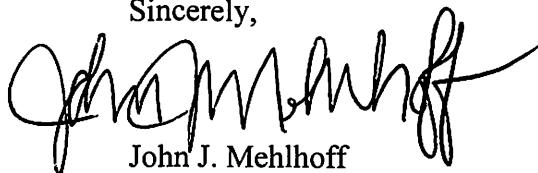
This letter does not require you to perform any type of restructured accounting or require you to recalculate and pay royalties. It is valuation guidance and general information for reporting and paying royalties on gas processed under a keepwhole contract.

This letter is not an appealable decision, order, notice of noncompliance, or civil penalty notice under 30 CFR Part 1290 Subpart B or 30 CFR Part 1241. If ONRR issues you an order, notice of noncompliance, or civil penalty notice at a later date in accordance with the matters addressed in this letter, we will provide your appeal rights at that time.

The citations in this letter refer to ONRR's current published regulations. If ONRR regulations change, use the most recent applicable version. For detailed regulatory language, please visit <http://ecfr.gpoaccess.gov> and select Title 30 - Mineral Resources, Chapter XII (1200).

If you have questions or need valuation assistance, please contact ONRR's Royalty Valuation Office via electronic mail at RoyaltyValuation@onrr.gov.

Sincerely,



John J. Mehlhoff
Program Director
Coordination, Enforcement Valuation, and Appeals

Enclosure

Enclosure: Written Instructions for Calculating Royalties on Residue Gas and NGLs under a Keepwhole Contract

Calculate the volume and value of the NGLs

- 1) For each NGL component, calculate the gallons by multiplying a) the plant inlet gas volume (Mcf) by b) the gallon per Mcf (GPM) factor for that gas by c) the gas plant recovery factor.
- 2) Calculate the value of each NGL component by multiplying the component gallons from step 1 by a price per gallon determined under the regulations.
- 3) Sum the volumes and values of all the NGL components to determine the total NGL volume and value. Report this information using PC 07 on the Form ONRR-2014.

Calculate the volume and value of the residue gas

- 4) Calculate the shrink replacement¹ MMBtu for each component by multiplying the component gallons from step 1 by the conversion factors in the GPA table² titled "Physical Properties of Selected Hydrocarbons." Use the factors for "Btu/gal, fuel as ideal gas" under the "Gross Heating Value" section. Divide the conversion factors by 1,000,000 to arrive at an MMBtu/gal factor. Sum the MMBtus of each component to determine the total shrink replacement MMBtu.
- 5) Calculate the shrink replacement¹ Mcf for each component by dividing the shrink replacement MMBtu by the conversion factors in the GPA table for "Btu/ft³, fuel as ideal gas" under the "Gross Heating Value" section. Divide the conversion factors by 1,000 to arrive at an MMBtu/Mcf factor. Sum the Mcf volume of each component to determine the total shrink replacement Mcf.
- 6) Calculate the residue gas MMBtu by subtracting the shrink replacement MMBtu, any allowable plant fuel MMBtu, and any MMBtus of gas lost and unaccounted for in the plant from the plant inlet MMBtu.³ The burden lies on the lessee to determine what portion of the plant fuel is allowable.
- 7) Calculate the residue gas Mcf by subtracting the shrink replacement Mcf, any allowable plant fuel Mcf, and any Mcfs of gas lost and unaccounted for in the plant from the plant inlet Mcf.³ The burden lies on the lessee to determine what portion of the plant fuel is allowable.
- 8) Calculate the value of the residue gas by multiplying the MMBtus of residue gas by the price per MMBtu established under the regulations. Report this information using PC 03 on the Form ONRR-2014.

Determine your processing costs

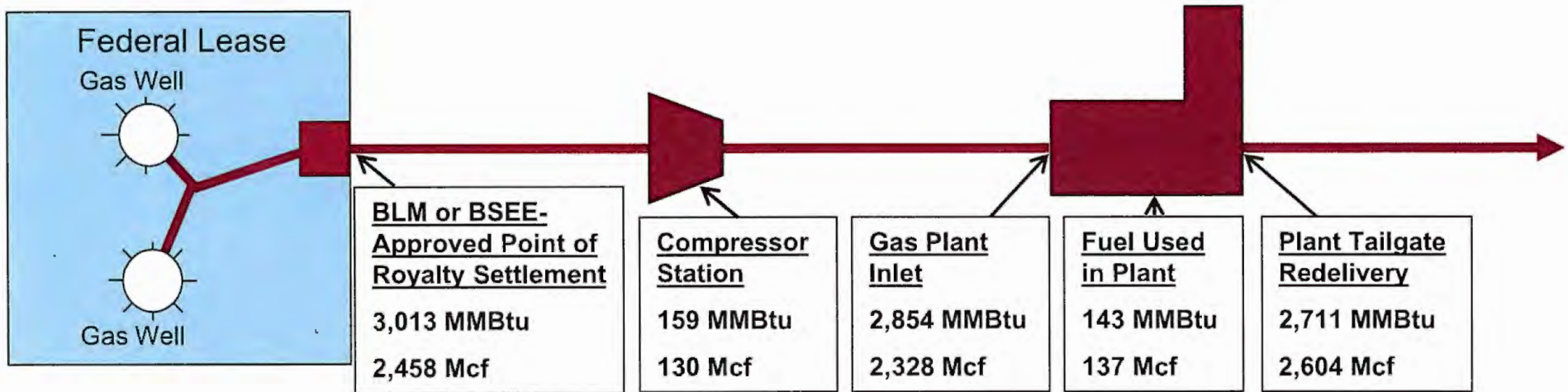
- 9) Calculate the value of the shrink replacement by multiplying the shrink replacement MMBtu by the price per MMBtu you used to value the residue gas for royalty purposes.
- 10) The total cost (or at least a portion of it⁴) is the difference between the value of the NGL gallons and the value of the shrink replacement MMBtus. However, a lessee may only include allowable processing costs in its processing allowance. The burden lies on the lessee to determine what portion of the total cost is allowable for processing. A lessee may deduct its reasonable actual costs of processing from the value of the NGLs as part of its processing allowance⁵ on the Form ONRR-2014.

Footnotes:

- 1) The shrink replacement is the volume (Mcf) or heat content (MMBtu) of gas extracted as NGLs during processing and is sometimes referred to as NGL "shrinkage."
- 2) This table is published in many gas processing textbooks and Engineering Data Books. If you are unfamiliar with this table, please speak with your company engineer, visit your local library, or purchase the table online at the Gas Processors Association website.
- 3) In non-keepwhole processed gas situations, processors commonly allocate lessees a residue gas volume that is net of all plant fuel (some of which is allowed royalty free and some of which is disallowed and is royalty bearing). In this situation, because all of the plant fuel has been removed from the residue allocation, the lessee should add the disallowed (royalty-bearing) plant fuel to its PC 03 volume and value when paying royalty, as explained in the Reporter Letter dated December 18, 2014. In a keepwhole situation, however, in order to simplify the computation, we calculate the residue gas volume starting with the plant inlet volume, which is different from the guidance in the December 18, 2014, Reporter Letter. Here, we subtract the allowed (royalty-free) plant fuel (and the shrink replacement) from the plant inlet volume to get the total volume of residue gas on which royalty is due.
- 4) If the lessee is charged additional fees for processing (as defined in 30 CFR § 1206.151) under its keepwhole agreement, the lessee may potentially include the allowable portion of the additional costs in its processing allowance.
- 5) Your processing allowance may not exceed 66 ²/₃% of the value of the NGLs without ONRR approval.

The regulations at 30 CFR part 1206 provide instructions for reporting and paying royalties on processed gas. ONRR provides the guidelines in the Reporter Letter and this Enclosure as additional assistance to the reporter. These guidelines are not a binding or appealable decision.

Enclosure: Information for the Example Calculations



Other information needed for the example

NGL Component	Gallons per Mcf (GPM) Factor	Plant Recovery Factors (%)	NGL Price (\$/Gal)	Conversion Factor (MMBtu/Gal)	Other Information	Where can you find this information?
Ethane	2.4650	75.0%	\$ 0.136	0.06634	Residue Gas Price	\$ 3.395 Determined under 30 CFR 1206.153. Often the lessee's arm's-length sales price.
Propane	1.0938	85.0%	\$ 0.729	0.09156	Transportation UCA	0% / 100%
I-butane	0.1851	95.0%	\$ 0.995	0.09963	Processing UCA (allowed/disallowed)	60% / 40%
N-butane	0.3352	95.0%	\$ 0.975	0.10374	Processing Fuel (allowed/disallowed)	60% / 40%
I-pentane	0.1346	95.0%	\$ 1.468	0.10968	Royalty Rate	12.5% The royalty rate is in the lease document.
N-pentane	0.1218	95.0%	\$ 1.468	0.11087		
Hexanes	0.3541	95.0%	\$ 1.468	0.11595		
Where can you find this information?	On the wellhead gas analysis	From the gas plant or estimated using online or textbook information	Determined under 30 CFR 1206.153(c)(2). Often from other arm's-length sales or posted prices.	In the GPA table titled, "Physical Properties of Selected Hydrocarbons"		

Enclosure: Example Calculations

NGL Component	Step 1			Step 2		Step 4		Step 5		
	Gallons per Mcf (GPM) Factor	Plant Recovery Factors (%)	NGL Volume (Gal)	NGL Price (\$/Gal)	NGL Sales Value (\$)	Conversion Factor from GPA (MMBtu/Gal)	Shrink Replacement (MMBtu)	Conversion Factor from GPA (MMBtu/Mcf)	Shrink Replacement (Mcf)	
	A	B	C	D	E	F	G	H	I	J
			Inlet Mcf x B x C		D x E		D x G		H / I	J
Ethane	2,465	75.00%	4,304	\$0.136	\$585.33	0.06634	286	1.7697	161	
Propane	1,094	85.00%	2,164	\$0.729	\$1,577.86	0.09156	198	2.5161	79	
I-butane	0.185	95.00%	409	\$0.995	\$407.32	0.09963	41	3.2519	13	
N-butane	0.335	95.00%	741	\$0.975	\$722.80	0.10374	77	3.2623	24	
I-pentane	0.135	95.00%	298	\$1.468	\$437.00	0.10968	33	4.0009	8	
N-pentane	0.122	95.00%	269	\$1.468	\$395.44	0.11087	30	4.0087	7	
Hexanes	0.354	95.00%	783	\$1.468	\$1,149.63	0.11595	91	4.7559	19	
			8,969	<-Step 3 ->	\$ 5,275.37		755		311	

Step 6	Step 7	Step 8		Step 9	Step 10			
Residue Gas MMBtu	Residue Gas Mcf	Residue Gas Price (\$)	Residue Gas Value (\$)	Shrink Replacement (\$)	Processing Cost (NGL value - shrink replacement value)	Allowed Processing Cost (processing cost x allowed %)	Processing Allowance Limit	Allowed Processing Cost
K	L	M	N	O	P	Q	R	S
Inlet MMBtu - H _{sum} - (Plant Fuel x 60% UCA)	Inlet Mcf - J _{sum} - (Plant Fuel x 60% UCA)		K x M	H _{sum} x M	F _{sum} - O	P x 60%	F _{sum} x 66 2/3 %	lesser of Q and R
2,013	1,935	\$ 3,395	\$ 6,835.82	\$ 2,562.22	\$ 2,713.15	\$ 1,627.89	\$ 3,516.91	\$ 1,627.89

Royalty Reporting							
Product Code	Sales Volume	Sales MMBtu	Sales Value	Royalty Value Before Allowances	Transportation Allowance	Processing Allowance	Royalty Value After Allowances
T	U	V	W	X	Y	Z	AA
	see above	see above	see above	W x Roy Rate (12.5%)		S x Roy Rate (12.5%)	X + Y + Z
03	1,934.88	2,013.50	\$ 6,835.82	\$ 854.48	\$ -	\$ -	\$ 854.48
07	8,969.18		\$ 5,275.37	\$ 659.42	\$ -	\$ (203.49)	\$ 455.93
15	130.00	159.00	\$ 539.81	\$ 67.48	\$ -	\$ -	\$ 67.48

Additional Notes:

- 6) Lessees should report and value pipeline fuel under the guidance issued in the December 18, 2014, Reporter Letter.
- 7) To avoid additional complexity, we assume that no transportation costs may be deducted.
- 8) The numbers in the calculations are not rounded until the final reporting. While a number in columns B through S may show only two decimal places, for example, the number has not been rounded to two decimal places. This reflects ONRR's policy to not round numbers in royalty calculations until the lessee reports the final number to ONRR. The lessee should then round the final number to two decimal places.