

January 15, 2010

INFORMATION LETTER 2010-03

**Subject: Natural Gas Royalty Prices and Allowances
November 2009 Production Month**

This Information Letter provides the various prices and allowances necessary to calculate the royalty quantity and value for gas, ethane, and gas products for year 2009 in accordance with Natural Gas Royalty Regulation, 2009 A.R. 221/2008. The Minister of Energy has prescribed the values for the November 2009 production month, as set out in Attachments 1, 1A, 2, 2A & 3. There are no new changes to the meter station factors prescribed in previous Information Letters. Meter station factors are used to determine facility specific transportation adjustments to the Facility Reference Price.

For further information please contact:

Director, Gas Royalty Calculation
Royalty Operations - Edmonton
Resource Revenue and Operations Division
8th Floor
Petroleum Plaza - North Tower
9945 – 108 Street
Edmonton, Alberta T5K 2G6
Phone: (780) 422-9247

Authorized by: Salim Merali
Branch Head
Royalty Operations - Edmonton
Resource Revenue and Operations Division

Attachments: Attachments 1, 1A, 2, 2A & 3

2009 GAS AND ISC PRICES

| MONTH | Gas Reference Price (\$/GJ) | Methane ISC Reference Price (\$/GJ) | Methane ISC Par Price (\$/GJ) | Ethane ISC Reference Price (\$/GJ) | Propane ISC Reference Price (\$/GJ) | Butane ISC Reference Price (\$/GJ) | Pentanes plus ISC Reference Price (\$/GJ) |
|--------------|------------------------------------|--|--------------------------------------|---|--|---|--|
| JAN | 5.77 | 5.74 | 5.74 | 6.15 | 6.27 | 6.29 | 6.31 |
| FEB | 4.66 | 4.61 | 4.61 | 5.12 | 5.30 | 5.33 | 5.35 |
| MAR | 4.01 | 3.97 | 3.97 | 4.53 | 4.71 | 4.72 | 4.75 |
| APR | 3.41 | 3.35 | 3.35 | 3.88 | 4.09 | 4.12 | 4.14 |
| MAY | 3.13 | 3.10 | 3.10 | 3.42 | 3.53 | 3.56 | 3.58 |
| JUN | 2.97 | 2.94 | 2.94 | 3.30 | 3.42 | 3.44 | 3.46 |
| JUL | 2.94 | 2.92 | 2.92 | 3.18 | 3.24 | 3.27 | 3.30 |
| AUG | 2.72 | 2.70 | 2.70 | 2.83 | 2.85 | 2.88 | 2.91 |
| SEPT | 2.48 | 2.45 | 2.45 | 2.73 | 2.86 | 2.88 | 2.91 |
| OCT | 3.40 | 3.36 | 3.36 | 3.63 | 3.74 | 3.77 | 3.78 |
| NOV | 3.77 | 3.76 | 3.76 | 3.91 | 3.92 | 3.95 | 3.99 |
| DEC | | | | | | | |

| DETAIL OF THE NOVEMBER 2009 GAS AND ISC REFERENCE PRICES | | | | | | |
|---|--------------|----------------|--------------|--------------|--------------|--------------|
| | Gas | Methane | C2-IC | C3-IC | C4-IC | C5-IC |
| Weighted Average Price of Alberta | 4.105 | 4.104 | 4.124 | 4.086 | 4.095 | 4.105 |
| Deductions: Intra – Alberta Transportation | 0.276 | 0.294 | 0.168 | 0.118 | 0.091 | 0.069 |
| Marketing Allowance | <u>0.011</u> | <u>0.011</u> | <u>0.011</u> | <u>0.011</u> | <u>0.011</u> | <u>0.011</u> |
| Price Before Pipeline Factor | 3.818 | 3.799 | 3.945 | 3.957 | 3.993 | 4.025 |
| Pipeline Fuel/Loss Factor | 0.990 | 0.990 | 0.990 | 0.990 | 0.990 | 0.990 |
| Price before Special Adjustment | 3.781 | 3.763 | 3.908 | 3.919 | 3.955 | 3.987 |
| Special Adjustment | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Price before 2% amendment limitation or rounding | 3.781 | 3.763 | 3.908 | 3.919 | 3.955 | 3.987 |
| Amendments: Carry forward (from previous RP month) | -0.003 | 0.005 | 0.001 | -0.003 | -0.004 | 0.002 |
| Prior Period Amendment Adjustment (current RP month) | -0.003 | -0.005 | -0.001 | 0.001 | 0.004 | 0.004 |
| Calculated RP after Amendments | 3.775 | 3.763 | 3.908 | 3.917 | 3.954 | 3.993 |
| NOVEMBER 2009 Reference Price | 3.77 | 3.76 | 3.91 | 3.92 | 3.95 | 3.99 |
| Difference = value carried forward to next RP month | 0.005 | 0.003 | -0.002 | -0.003 | 0.004 | 0.003 |
| Adjusted IATD (before Prior Period Amendments) | | 0.315 | 0.180 | 0.127 | 0.098 | 0.074 |
| Prior period Amendments (IATD and Pipeline Fuel Loss) | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Adjusted IATD (after Prior Period Amendments) | | 0.315 | 0.180 | 0.127 | 0.098 | 0.074 |

2009

NGL TRANSPORTATION ALLOWANCE AND DEDUCTIONS

| MONTH | PENTANES PLUS (a) | | | | PROPANE AND BUTANE (b) | | | | PENTANES PLUS, PROPANE & BUTANE (c) | | | | FRAC. ALLOW. (per m ³) |
|-------|-------------------|-------|-------|-------|------------------------|-------|-------|--------|-------------------------------------|-------|-------|-------|--|
| | REGION | | | | REGION | | | | REGION | | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| JAN | 27.97 | 10.55 | 36.88 | 18.00 | 39.25 | 25.79 | 33.99 | -3.31 | 40.23 | 45.50 | 43.56 | 29.53 | 17.25 |
| FEB | 25.80 | 30.88 | 42.93 | 25.11 | 27.25 | 12.51 | 21.86 | -11.81 | 46.71 | 47.25 | 67.48 | 33.91 | 17.25 |
| MAR | 26.82 | 21.32 | 38.98 | 22.16 | 37.54 | 27.84 | 31.17 | -40.67 | 58.25 | 52.01 | 64.22 | 45.99 | 17.25 |
| APR | 28.19 | 26.90 | 45.36 | 29.98 | 42.87 | 25.56 | 35.55 | 8.19 | 55.88 | 50.16 | 60.38 | 42.39 | 17.25 |
| MAY | 29.40 | 28.03 | 63.30 | 29.70 | 33.17 | 20.09 | 88.53 | 46.06 | 46.67 | 43.29 | 56.38 | 34.81 | 17.25 |
| JUN | 14.94 | 23.55 | 36.40 | 25.25 | 40.56 | 35.36 | 38.57 | 60.65 | 61.31 | 51.83 | 60.30 | 49.21 | 17.25 |
| JUL | 19.35 | 27.85 | 33.44 | 30.23 | 34.85 | 30.12 | 61.31 | 37.87 | 53.14 | 45.30 | 50.11 | 40.98 | 17.25 |
| AUG | 12.81 | 17.64 | 23.69 | 25.77 | 32.48 | 31.94 | 7.94 | 18.41 | 68.26 | 64.12 | 68.87 | 55.76 | 17.25 |
| SEPT | 11.64 | 18.05 | 24.65 | 22.70 | 18.56 | 27.61 | 4.88 | 13.82 | 55.78 | 47.76 | 64.83 | 42.47 | 17.25 |
| OCT | 15.05 | 23.75 | 26.95 | 28.87 | 69.06 | 46.76 | 59.54 | 11.18 | 70.77 | 60.63 | 74.26 | 65.54 | 17.25 |
| NOV | 15.33 | 23.51 | 25.29 | 26.60 | 58.99 | 38.82 | 22.41 | 1.93 | 61.81 | 50.53 | 58.95 | 49.89 | 17.25 |
| DEC | | | | | | | | | | | | | |

(a) Pentanes Plus obtained as a specification gas product,

(b) Propane and Butane obtained as specification products, and

(c) Pentanes Plus, Propane and Butane contained in a natural gas liquids mix.

Note: For details on "Prior Period Amendment Effects", see Attachment 2A.

| PRIOR PERIOD AMENDMENT EFFECTS | | | | | | | | | | | | | |
|--|--|----------------|----------------|-----------------|--------------|--------------------|--------------|--------------|-------------|---------------------------------|--------------|--------------|--------------|
| NGL REFERENCE PRICES | | NOVEMBER 2009 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | <i>Propane</i> | <i>Butanes</i> | <i>Pentanes</i> | | | | | | | | | |
| Price before amendments | | 289.316185 | 441.996151 | 505.263279 | | | | | | | | | |
| Opening Rollover (from prior business mth) | | 0.000818 | 0.002040 | -0.001164 | | | | | | | | | |
| Prior Period Amendment Adj. (NGL-100) | | 0.000000 | -2.146174 | 0.000000 | | | | | | | | | |
| Published Reference Price | | 289.32 | 439.85 | 505.26 | | | | | | | | | |
| TRANSPORTATION ALLOWANCES | | NOVEMBER 2009 | | | | | | | | | | | |
| | | Pentanes Plus | | | | Propane and Butane | | | | Pentanes Plus, Propane & Butane | | | |
| AMENDMENTS | | Region 1 | Region 2 | Region 3 | Region 4 | Region 1 | Region 2 | Region 3 | Region 4 | Region 1 | Region 2 | Region 3 | Region 4 |
| Opening Rollover (from prior business mth) | | 0.004587 | -0.001914 | 0.002728 | -0.003286 | -0.004424 | 0.004831 | -0.001231 | 0.000382 | 0.001574 | -0.003455 | -0.000399 | 0.003993 |
| Prior Period Amendment Adj. (NGL-100) | | 0.000000 | 0.000000 | 0.000000 | -0.000750 | -1.230772 | -0.937239 | -0.869931 | 0.000000 | -0.733320 | -0.651319 | -0.814136 | -0.606212 |
| Total Amendment Effect | | 0.004587 | -0.001914 | 0.002728 | -0.004036 | -1.235196 | -0.932408 | -0.871162 | 0.000382 | -0.731746 | -0.654774 | -0.814535 | -0.602219 |
| Calculated Transp. Differential | | 15.329242 | 23.507968 | 25.284939 | 26.604637 | 60.225781 | 39.756457 | 23.284618 | 1.924806 | 62.545956 | 51.184161 | 59.764870 | 50.495438 |
| Calculated Transp. Differential after Total Amendments | | 15.333829 | 23.506054 | 25.287667 | 26.600601 | 58.990585 | 38.824049 | 22.413456 | 1.925188 | 61.814210 | 50.529387 | 58.950335 | 49.893219 |
| Published Transportation Allowance | | 15.33 | 23.51 | 25.29 | 26.60 | 58.99 | 38.82 | 22.41 | 1.93 | 61.81 | 50.53 | 58.95 | 49.89 |

Effective the January 2009 production period, the royalty rates for **methane** and **ethane** will be calculated based on a new royalty formula. The new royalty formula consists of the sum of a price component and a quantity component. The new royalty rates will range from 5% to 50%. **Propane** and **butanes** will have fixed royalty rates of 30%, whereas **pentanes plus** will have a fixed royalty rate of 40%.

The price component of the new royalty formula royalty rate for methane and ethane is determined by the monthly methane or ethane par price (PP)

| Price (\$/GJ) | r_p |
|------------------------|-----------------------------------|
| $PP \leq 7.00$ | $(PP - 4.50) * 0.0450$ |
| $7.00 < PP \leq 11.00$ | $(PP - 7.00) * 0.0300 + 0.1125$ |
| $PP > 11.00$ | $(PP - 11.00) * 0.0100 + 0.2325$ |
| Maximum | 30% |
| Minimum | Can be negative (-20.25% if PP=0) |

The par price is a provincial weighted price determined by the department and published in the Information Letter for each production month. Determination of the par price has not changed under the Alberta Royalty Framework.

The quantity component of the new royalty formula royalty rate for methane and ethane is based on the average daily production (ADP) of the well event. The quantity component is adjusted for either the depth of the well event and/or the acid gas content of the well event.

| Quantity ($10^3 \text{ m}^3/\text{d}$) | r_q |
|--|--|
| $ADP \leq (6 * DF)$ | $[ADP - (4 * DF)] * (0.0500/DF)$ |
| $(6 * DF) < ADP \leq (11 * DF)$ | $[ADP - (6 * DF)] * (0.0300/DF) + 0.1000$ |
| $ADP > (11 * DF)$ | $[ADP - (11 * DF)] * (0.0100/DF) + 0.2500$ |
| Maximum | 30% |
| Minimum | Can be negative |

The ADP for a well event is the total raw gas production in thousand cubic metres (10^3 m^3) for the month divided by the total hours of production in that month multiplied by 24. The ADP formula is as follows:

$$ADP = \frac{\text{Total raw gas production}}{\text{Total hours of production}} \times 24$$

Acid Gas Factor (AGF) is a factor that adjusts the ADP of a well event if that well event is producing high amounts of acid gas, that is, if the combined concentration of hydrogen sulphide (H₂S) and carbon dioxide (CO₂) is greater than 3% and less than or equal to 25%. If a well event has an acid gas content of less than or equal to 3%, then the AGF of the well event will default to 1.00. If a well event has acid gas content greater than 25% then the AGF has a minimum value of 0.78.

The AGF is determined based on the following formula:

$$AGF = [1.03 - (H_2S\% + CO_2\%)]$$

The ADP is adjusted by multiplying the ADP by the AGF, that is

$$\text{Adjusted ADP} = ADP * AGF$$

The acid gas content of a well event, used by the department for the determination of the AGF, will be according to the records of the ERCB.

A depth factor (DF) is required for all well events, and is calculated based on the measured depth (MD) according to the records of the ERCB for that well event. Information on the MD, of a well event, can be found on the Petroleum Registry of Alberta (PRA) in the 'Infrastructure' section.

The DF is used in the determination of the quantity component (r_q) of the royalty rate; it adjusts the quantity component royalty formula for measured depths that exceed 2000 metres. The DF for a well event is determined based on the following formula:

$$DF = \left(\frac{MD}{2000} \right)^2$$

A well event with a MD greater than 2,000 metres will receive a royalty adjustment based on production from the well event. A well event without a reported MD or with MD less than or equal to 2,000 metres will have a DF of 1.00. The DF is capped at 4.00 for well events with MD greater than or equal to 4,000 metres.

$$\text{If the MD is } \left\{ \begin{array}{l} \leq 2,000 \text{ metres, then the DF} = 1.00 \\ > 2,000 \text{ metres and } < 4,000 \text{ metres, then DF} = \left(\frac{\text{MD}}{2000} \right)^2 \\ \geq 4,000 \text{ metres, then the DF} = 4.00 \end{array} \right.$$