BRITISH COLUMBIA

**MINISTRY OF ENERGY AND MINES**

# INFORMATION LETTER F2001-6

**RESOURCE REVENUE BRANCH**

**SUBJECT: ROYALTY/TAX REDUCTION ON GAS WELLS WITH LOW PRODUCTIVITY**

Effective with production in April 2001 a reduction in royalty and freehold production tax rates will be introduced for natural gas produced from low productivity wells. This reduction is intended to improve recoveries of natural gas reserves by extending the economically viable lives of gas wells and some oil wells.

## Definition of Low Productivity Wells

Low productivity wells are well events with average raw gas production less than 5000 $m^3$ per day during a month. The royalty/tax reduction applies to all non-conservation gas, which is gas produced from gas well events or from oil well events that are part of an approved concurrent production scheme. The reduction applies to all Crown and freehold well events regardless of when they were drilled or completed. A well event means all completions in a well in the same zone.

The reduction does not apply to conservation gas, which is gas from oil wells that are not part of an approved concurrent production scheme.

## Royalty/Tax Rate Reduction Factor

The low productivity rate reduction is intended to reduce the royalty/tax rate for low productivity wells by the basic royalty/tax rate multiplied by the following reduction factor:

$$( ( 5000 - ADV ) / 5000 )^2$$

where ADV = the average daily raw gas production from the well event during the month in cubic meters.

If the average daily raw gas production is greater than or equal to 5000 $m^3$, the reduction factor is zero. The basic royalty/tax rates are the rates prescribed in section 6(1) of the Petroleum and Natural Gas Royalty and Freehold Production Tax Regulation (the "royalty regulation"). These are the rates that apply to marketable gas from wells with average daily production greater than 5000 $m^3$.

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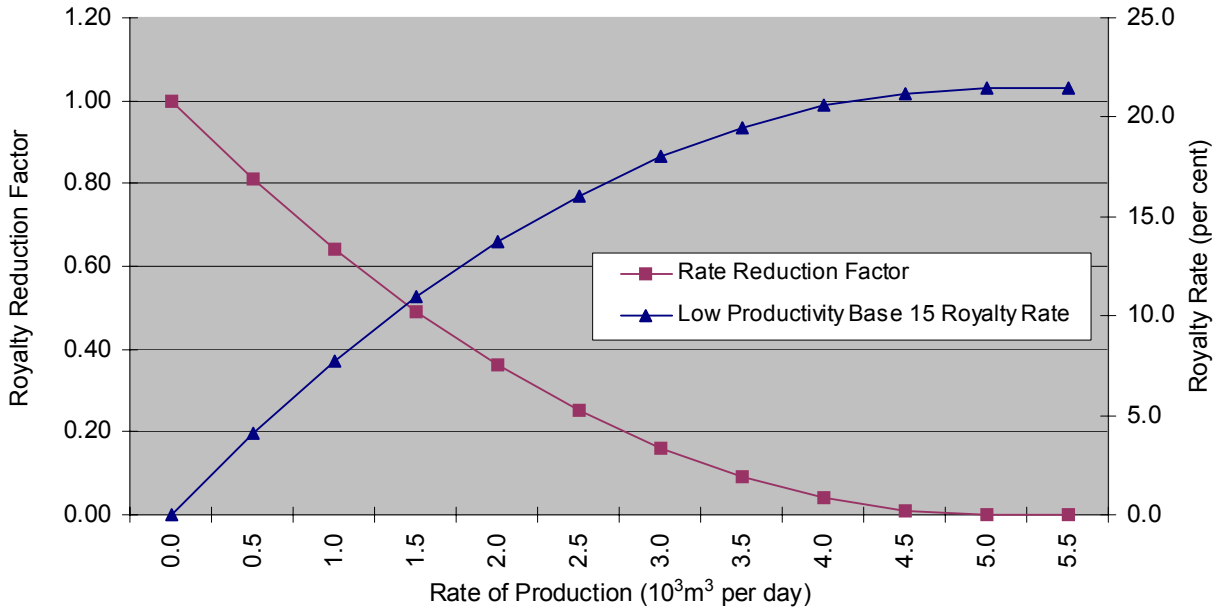
The following graph shows how the royalty rate for a low productivity well drilled before June 1998 (reference price = $140 per $10^3m^3$) would decrease as its rate of production declines below 5000 $m^3$ per day.




This results in royalty/tax rate reductions that are unique to a low productivity well. To achieve its objective, the rate reduction for each well ideally would be applied to the volume of marketable gas produced from the well event. However, the Ministry does not systematically capture volumes of marketable gas produced from individual wells. The Ministry only captures volumes of natural gas as reported on BC-S1 reports. For this reason, the Ministry will calculate a reduction factor for a reporting entity's share of marketable gas from all of the reporting entity's low productivity wells in each class of non-conservation gas (Base 9, Base 12, Base 15 and freehold).

A reporting entity's low productivity wells means, in relation to a producer's reporting entity, the low productivity wells for which the producer's interest has been assigned to the reporting entity. A reporting entity's share of marketable gas from low productivity wells means the volume of marketable gas produced from the reporting entity's low productivity wells and attributable to the producer in accordance with a producer's interest in the wells.

**Weighted Average Reduction Factor**

The reduction factor for a class of gas will be a weighted average of the reduction factors for all of the low productivity wells in that class. The weighting of the reduction factor for a well will be based on S1 production volumes, as follows:

$$[ ( 5000 - ADV_i ) / 5000 ]^2 \quad x \quad V_i / Sum\ V_i$$

where,

**$ADV_i$** is the average daily raw gas production in $m^3$ from low productivity well i in the month,

**$V_i$** is the volume of raw gas produced from low productivity well i in the month as required to be reported on S1 reports, and

**Sum $V_i$** is the total raw gas produced from all of the reporting entity's low productivity wells in the class.

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The average daily natural gas production from a well (ADV) is the measured and prorated gas production from the well in the month, as required on the S1 report, divided by the sum of measured and prorated hours of production for the well in the month and multiplied by 24.

**Rate Reductions**

The reduction in the royalty or tax rate applicable to a reporting entity's share of a class of marketable gas from low productivity wells is the sum of the weighted reduction factors for all of the reporting entity's low productivity wells in the class times the basic royalty or tax rate for the class. The rate applicable to a reporting entity's share of a class of marketable gas from low productivity wells is the basic rate for the class minus the low productivity reduction.

An example of the calculation of the low productivity royalty and tax rate reduction is attached. A Microsoft Excel file that may be used to calculate the low productivity rate reductions for the purpose of estimating a reporting entity's royalty payable is available by contacting,

Barbara Lyon,
Manager, Petroleum Operations
Phone (250)952-0203 or email Barbara.Lyon @gems2.gov.bc.ca.

**Reporting Changes**

The low productivity rate reductions will require producers to report each reporting entity's share of each class of marketable gas produced from low productivity wells on the Monthly Gas and By-Products Volumes and Values (BC-14) report. These data fields have been added to the BC-14 report effective June 30, 2001 for reporting April 2001 marketable gas production. The BC-14 will also be revised as a result of other gas royalty reporting changes that will be effective with April 2001 production. See Information Letter F2001-5 for a description of the other changes.

*Original signed by*

Ross Curtis
Royalty Administrator

03/19/2001 Preceded by: F2001-5

Enclosure

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**British Columbia Ministry of Energy and Mines**

**Calculation of the Low Productivity Gas Royalty/Tax Rate Reduction**

**Example**

The attached worksheet provides sample data at various steps in calculating the low productivity gas royalty/tax rate reduction that appears on gas royalty invoices for any reporting entities with well events with average natural gas production less than 5000 $m^3$ per day during a month (low productivity wells). A similar worksheet with actual data will be provided as a schedule to the gas royalty/tax invoice. Following is an explanation of how each item of data on the schedule is derived.

| Column Heading | Description |
|---|---|
| UWI | The UWI column lists the Unique Well Identifier for each low productivity well. For royalty purposes, a well event includes all completions in a well in the same zone. If there is more than one completion in the same zone, the UWI with the lowest event sequence will be listed. The low productivity wells are grouped by royalty rate classifications. |
| Prod Type | The Product Type column lists a code for the royalty classification of each low productivity well. Possible codes are:<br>• Base15 for well events drilled before June 1998,<br>• Base12 for well events drilled after May 1998 and for which rights were issued before June 1998 or after 2001,<br>• Base09 for well events drilled after May 1998 on land for which rights were issued after May 1998 and before 2002, and completed within 60 months after the rights were issued,<br>• FrHold for well events that produce from freehold land. |
| Month Volume = $V_m$ | The Month Volume column lists the total measured and prorated raw gas production during the month as reported on the BC-S1 Monthly Production Statement for each low productivity well and the total for all low productivity wells in each royalty class. |
| Fract of Vol $V_m/sum(V_m)$ = $F_v$ | The Fraction of Volume column lists for each low productivity well the fraction during the month that raw gas production from the well is of total raw gas production from all low productivity wells of the same class. This is the production from each well divided by the total production from all wells in the same class in the Month Volume column. The Fraction of Volume column also shows the sum of the fractions for all of the low productivity wells in each class, which is always 1.0. |

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| Column Heading | Description |
|---|---|
| Month Hours = H | The Month Hours column lists the total measured and prorated number of hours each low productivity well is on production during the month, as reported on the BC-S1 Monthly Production Statement. |
| Ave Daily Vol $V_m/(H/24)$ $=V_d$ | The Average Daily Volume column lists the average daily production during the month in $10^3m^3$ for each low productivity well, which is the Month Volume divided by 1/24 of the hours in the Month Hours column. |
| Low Prod Rdn Factor $[(5 - Vd) / 5]^2$ $= R_f$ | The Low Productivity Reduction Factor column lists a royalty rate reduction factor for each low productivity well, which is calculated as follows: $$\left[ ( 5 - \text{Average Daily Volume} ) / 5 \right]^2$$ where Average Daily Volume in measured in $10^3m^3$. |
| Low Prod Weighted Rdn Factor $R_f \times F_v$ $= W_{rf}$ | The Low Productivity Weighted Reduction Factor column lists for each low productivity well the Low Productivity Reduction Factor weighted by the proportion that production from the well is of total production during the month from all low productivity wells in the same class. This is calculated by multiplying the factor in the Low Productivity Reduction Factor column by the fraction in the Fraction of Volume column.<br>Also listed in this column is the sum of the Weighted Reduction Factors for all low productivity wells in each royalty class. |
| Base Rate $= R_t$ | The Base Rate column lists the basic royalty or tax rates determined in accordance with section 6(1) of the royalty regulation. These are the rates that apply to gas produced from the reporting entity's wells with average production greater than 5000 $m^3$ per day during the month and to gas from low productivity wells if the Low Productivity Rate Reduction were not deducted. |
| Rate Rdn $R_t \times W_{rf}$ $=R_d$ | The Rate Reduction column lists the Low Productivity Rate Reduction that applies to gas produced from low productivity wells in each class. This is the basic royalty or tax rate in the Base Rate column multiplied by the sum of the Low Productivity Weighted Reduction Factors for all low productivity wells in the royalty class.<br>The amounts in the Rate Reduction column for each class of gas appear on the Gas Royalty Invoice. On the Invoice the royalty or tax share for each class of gas is reduced by the volume of marketable gas from low productivity wells in that class multiplied by the amount in the Rate Reduction column for the royalty class. |

MINISTRY OF ENERGY AND MINES
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# Royalty Reduction Calculation by REN for Low Productivity Gas Wells

| | | |
|---|---|---|
| Royalty Payor: | 0999 | ABC Limited |
| Reporting Entity | 05595 | ABC N DAHL D-83-E/94-H-9 |
| Production Period: | 2001/04 | |
| Crown Interest | 100.0000000 | |
| Reporting Facility | 00004069 | ABC N DAHL D-83-E/94-H-9 |
| Plant: | 00000439 | WESTCOAST MCMAHON 15-25-82-18 |

| UWI | Prod Type | Month Volume = Vm | Fract of Vol Vm/sum(Vm) = Fv | Month Hours = H | Ave Daily Vol Vm/(H/24) =Vd | Low Prod Rdn Factor $[(5 - Vd) / 5]^2$ = Rf | Low Prod Weighted Rdn Factor Rf × Fv = Wrf | Base Rate = Rt | Rate Rdn Rt × Wrf =Rd |
|---|---|---|---|---|---|---|---|---|---|
| 200A015H094H07-00 | Base15 | 52.0 | 0.4234528 | 400 | 3.12000 | 0.1413760 | 0.05987 | | |
| 200A063D094H08-00 | Base15 | 30.0 | 0.2442997 | 300 | 2.40000 | 0.2704000 | 0.06606 | | |
| 200D095D094H08-00 | Base15 | 40.8 | 0.3322476 | 500 | 1.95840 | 0.3700532 | 0.12295 | | |
| Total Production: | Base15 | 122.8 | 1.000000 | | Total Weighted Reduction Factor: | | 0.24888 | 23.11321 | 5.75242 |
| 200B016A094A14-00 | Base12 | 53.0 | 0.2294372 | 360 | 0.0353333 | 0.0860448 | 0.01974 | | |
| 200D037I094H07-00 | Base12 | 58.0 | 0.2510823 | 400 | 0.0348000 | 0.0924160 | 0.02320 | | |
| 200D071J094H07-00 | Base12 | 120.0 | 0.5194805 | 720 | 0.0400000 | 0.0400000 | 0.02078 | | |
| Total Production: | Base12 | 231.0 | 1.000000 | | Total Weighted Reduction Factor: | | 0.06372 | 27.00000 | 1.72044 |
| 200D002L094H09-00 | Base09 | 49.0 | 0.3141026 | 600 | 0.0196000 | 0.3696640 | 0.11611 | | |
| 200D004L094H09-02 | Base09 | 53.0 | 0.3397436 | 560 | 0.0227143 | 0.2978038 | 0.10118 | | |
| 200D006L094H09-00 | Base09 | 54.0 | 0.3461538 | 550 | 0.0235636 | 0.2795533 | 0.09677 | | |
| Total Production: | Base09 | 156.0 | 1.000000 | | Total Weighted Reduction Factor: | | 0.31406 | 27.00000 | 8.47962 |