

HOW TO USE THE CONVENTIONAL OIL FORECAST REPORT

Jurisdiction	Release/Revision Date	Location of Change in this Document	Comment
AB	January 29, 2016	D. Anomalous Result Display on the Forecast Report	New Section
AB	January 26, 2016		Initial Release

The Conventional Oil Forecast Report will be available to users once a month starting on about January 28, 2016. This report will be accessible from 2 different menu locations:

1. Ministry Invoices and Statements
2. Forecast Tool Reporting (available February 4, 2016).

See the Conventional Oil Forecasting Project Industry Readiness Guide for background information on the Conventional Oil Forecasting Project. The Readiness Guide is located on the Petrinex Website – Initiatives – Industry/APMC Conventional Oil Forecasting Project.

The new **Oil Forecast Report** is an existing internal APMC report. This report is being made available now as a “temporary risk mitigation measure” by the APMC and will not be available once the Oil Forecast Tool is released.

- The Oil Forecast Report:
 1. Is created in DOE/APMC systems at the well and battery level with both versions delivered monthly, prior to the forecast reporting deadline, through Petrinex in csv format.
 2. Is based on the last reported production month.
 3. Assumes the gross production volume rate has not changed, but adjusts for any variance in the number of days in the production month compared to the forecast month.
 4. Calculates the Crown Royalty share using the correct Par Price for the forecast month.
 5. Forecasts royalty using ARF formulae (max 40%), even if the well event was calculated with NWRR (5%) in the last reported production month.
 6. For EORP/DOEP relief programs, assumes that the well event is going to get the same relief volume in the forecast month and the relief volume will be subtracted

from the Gross Royalty forecast (calculated with ARF by applying forecast month Par Price) to get the net royalty forecast.

- The new Oil Forecast Report can be used to improve the Crown portion of the forecast as follows:
 1. It can be compared to gross/Crown forecasts generated by existing processes. Final forecasts can be modified using this information as appropriate.
 2. It can be uploaded into Marketing Systems for “template forward” volumes (when/if this functionality is made available by your system vendor).
- The new Oil Forecast Report provides an appropriate estimate of the Crown share if your gross production has not changed. If there has been a significant production rate change then you should use the report to calculate the Net Royalty % and multiply that by the new forecasted production volume.

How to use the Reports:

A. COLUMN NAMES AND DESCRIPTIONS:

Before using the data on these reports it is important to understand the definitions for the column headings as some are similar.

Battery Forecast Report

Column	Column Name	Description
A	Production Month used for Forecast	The last reported production month available in Petrinex
B	Battery Operator	The ID of the operator who reported the volumetric data.
C	Producing Battery	The Facility ID that pertains to the well production volumetric data.
D	Receiving Battery	The Facility ID that pertains to the battery that receives the volume from the well or facility
E	Terminal	The Facility ID that pertains to the terminal that receives the volume from the receiving battery
F	Pipeline	The Facility ID that pertains to the pipeline that receives the volume from the terminal.
G	Total Production	The reported oil production volume at the Battery

Column	Column Name	Description
		for the production month.
H	Crown Production	The Alberta Crown mineral ownership portion of the oil production volume reported (m ³) for the battery for the production month. This will be the sum for the battery of the Crown production reported on the Well Forecast Report.
I	Freehold Production	The Freehold mineral ownership portion of the oil production volume reported (m ³) for the battery for the production month. This will be the sum for the battery of the Freehold production reported on the Well Forecast Report.
J	Gross Royalty	The sum at the battery of the gross calculated Alberta Crown royalty volume resulting from the Gross Well Production multiplied by the applicable Crown royalty formula as per the Well Forecast Report, for the production month. (Actual royalty)
K	Royalty Volume Adjustment Relief	The sum at the battery of the calculated deducted Alberta Crown royalty volume for any royalty program of benefit the well is entitled to, as per the Well Forecast Report, for the production month. (Actual royalty)
L	Net Royalty	The Net Alberta Crown Royalty Volume (Gross – Adjustment) for the production month. (Actual royalty)
M	Forecast Month	The month to which the forecast applies
N	Forecast Gross Royalty	The sum at the battery of the gross calculated Alberta crown royalty volume resulting from the Gross Well Production multiplied by the applicable Crown royalty formula as per the Well Forecast Report for the forecast month.
O	Forecast Royalty Volume Adjustment Relief	The sum at the battery of the calculated deducted Alberta crown royalty volume for any royalty program or benefit the well is entitled to, as per the Well Forecast Report, for the forecast month.
P	Forecast Net Royalty	The Net Alberta Crown Royalty Volume (Gross – Adjustment) for the forecast month.

Well Forecast Report

Column	Column Name	Description
A	Production Month used for Forecast	The last reported production month available in Petrinex
B	Battery Operator	The ID of the battery operator who reported the well volumetric data.
C	Producing Battery	The battery Facility ID where the well production was reported during the production month.
D	Well License	The Well license number.
E	Well Event	The Well Event (UWI) that is linked to the battery and where the Alberta Crown royalty is calculated.
F	Total Production	The reported production volume for the Well event for the production month.
G	Crown Production	The Alberta Crown mineral ownership portion of the oil production volume reported (m ³) for the well for the production month.
H	Freehold Production	The Freehold mineral ownership portion of the oil production volume reported (m ³) for the well for the production month.
I	Crown Interest	The Alberta Crown Mineral ownership for this well event
J	Gross Royalty	The gross calculated Alberta Crown royalty volume resulting from the Gross Well Production multiplied by the applicable Crown royalty formula for the production month. (Actual royalty)
K	Royalty Volume Adjustment Relief	The calculated deducted Alberta Crown royalty volume for any royalty program of benefit the well is entitled to for the production month. (Actual royalty)
L	Net Royalty	The Net Alberta Crown Royalty Volume (Gross – Adjustment) for the production month. (Actual royalty)
M	Forecast Month	The month to which the forecast applies
N	Forecast Gross Royalty	The calculated (by well) Alberta Crown royalty volume resulting from the Gross Well Production

Column	Column Name	Description
		forecast multiplied by the applicable Crown royalty formula for the forecast month.
O	Forecast Royalty Volume Adjustment Relief	The calculated (by well) deducted Alberta Crown royalty volume for any royalty program of benefit the well is entitled to, for the forecast month.
P	Forecast Net Royalty	The Net Alberta Crown Royalty Volume for the well. (Gross – Adjustment) for the forecast month.
Q	Forecast Comment	This field will contain an * if the well was on the NWRR (5%) for the production month.

B. Suggestions on how to use the Oil Forecast reports:

Either report can be used to compare to the forecast generated by your existing process. Depending on your company's forecasting process you may choose to use the battery or the well report.

This report only deals with the Gross and Crown share of the forecasted volumes. In order to complete the forecasting process you will need to include the other non-crown shippers.

1. Confirm if the gross production volume is reasonable. The oil forecast report assumes your production rate has not changed from the last reported volume. However you should confirm with your internal sources if there has been a significant change in the production rate for the battery(s).
 - a. If there has not been a significant rate change then you should be able to use the Net Royalty forecast volume (Column P) as your Crown forecast volume.
 - b. If there has been a significant production rate change then you should use the report to calculate the Net Royalty % and multiply that by the new forecasted production volume you have identified. (See the section "**C. Manipulating the data on the Forecast Report**" below).

2. Incorporate the Net Royalty into your forecast.
 - a. If there is no significant change in the production volume between the production month and the forecast month then this report can be used as is to compare to your forecasts created via your existing processes.

- b. Even if the production is similar you should be using this report to ensure the crown share on your forecast is reasonable. You may want to replace the Crown share generated by your existing process with the Net Crown Royalty (for the forecast month) on the forecast report.

C. Manipulating the data on the Forecast Report

Note: When using the forecast reports you can filter and sort the data as you choose. It can be sliced up to be given to different people or groups if your forecasts are done by multiple people in your company.

Adding additional columns to the report will make it more useful.

The most accurate forecasts are done when using the crown data at the well level. The following is one suggested way to use the **Well Forecast Report** to improve your oil forecast.

1. Open the well forecast report using excel
2. Create columns to identify the % of the Net Crown royalty volume.
 - a. Label the 2 columns after Column Q
 - i. Net Crown Royalty % for production month (Column R)
 - ii. Net Crown Royalty % for forecast month (Column S)
3. In the each row of the new columns create the formula to calculate the Net Crown Royalty %.
 - a. For the production month: Column L (Net Royalty %) divided by Column F (Total Production)
 - b. For the forecast month: Column P (Net Royalty %) divided by Column F (Total Production)
4. Create a column to identify the modified forecasted production volume.

If you know the modified total production volume for the forecast month

 - a. Label Column T as Updated Forecast Production Volume
 - b. Copy the Total Production Volumes from Column G into Column T
 - c. In Column T modify any wells that have an increase or decrease in Total Production (this should be based on information received from field or operational sources)

5. Create column to calculate the new forecasted net Crown royalty.
 - a. Label Column U or V as Updated Forecast net Crown royalty

6. In Column T calculate the updated Forecast Net Crown royalty.
 - a. Each row should have the formula Column R (Royalty % for forecast month) multiplied by Column S (Updated Forecast Production Volume)

7. Label Column U as Net Non-Crown Forecasted Volume

8. In Column U calculate the remaining Forecasted Production that does not belong to the Crown
 - a. Column S (Updated Forecast Production Volume) minus column T (Updated Forecast Net Crown Royalty)

9. Incorporate these new values (updated forecast production volume, updated new Crown royalty and the Net Non-Crown forecasted volume) into your current forecasting processes.

10. As alternative to the above Step 4 you could increase or decrease your production forecast volume by a % to calculate the modified forecast gross production volume.

Note: The basic steps above can be incorporated when using the Battery Forecast Report (columns will be different since Well report has one additional column than the BT report). Due to the fact that the well information has been rolled up to the BT the updated Forecast Royalty % and updated Forecast Net Royalty at the battery level will not be as accurate as when these adjustments are done at the well level.

D. Anomalous Result Display on the Forecast Report

Some forecast reports may display results that look incorrect...but in fact are correct. The issue is that both the well and battery level reports show Gross Royalty, Royalty Adjustments and Net Royalty. Since Net Royalties cannot be negative there are circumstances where, at the well level, Net Royalties are displayed as zero notwithstanding that Gross Royalties less Royalty Adjustments are less than zero. Because of this, when Gross Royalties, Royalty Adjustments and Net Royalties are summed for all wells at the battery level the "math" will not look correct. This is not an

error. This is the result of the royalty credits exceeding the royalty obligation on some wells. This is shown in the example below...but the important thing to know is that the Net Royalty displayed on these reports is the correct number. As such, dividing the Net Royalty Volume by the Gross Production will give the correct average forecast royalty rate for the well and the battery.

Example:

1. On the **Well** report the forecast Gross Royalty plus the negative Forecast Royalty Volume Adjustment Relief = the Net Royalty...unless the Volume Adjustment Relief is higher than the Goss Royalty. In this case the Net Royalty will equal zero. The display: 8.0 (Gross) – 8.9 (Adjustment) = 0.0 (Net) is correct since the Net Royalty cannot be negative.

When all the well rows for a battery are summed the total may appear incorrect as in the following example:

$$120.5 \text{ (Total Gross)} - 103.3 \text{ (Total Royalty Adjustments)} = 25.4 \text{ (Total Net Royalty)}$$

This math seems to be incorrect since 120.5 -103.3 actually is 17.2. The reason for the difference in math is that at the well level not all of the royalty adjustment volumes have been allowed (due to the rule that the royalty obligation can never be negative).

2. These totals will be what appear on the **Battery** report:

$$120.5 \text{ (Total Gross)} - 103.3 \text{ (Total Royalty Adjustment)} = 25.4 \text{ (Total Net Royalty)}$$

As explained above, the 25.4 is the correct Net Royalty...and the correct volume to be used for this battery. The correct forecast Net Royalty percent is $25.4/120.5 = 21.1\%$.

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