

How to Submit Volumetric Data to the AER

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Alberta Energy Regulator

Manual 011: How to Submit Volumetric Data to the AER

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1 Introduction

1.1 About this Manual

This manual is a guide for industry to understand how data are submitted to the Alberta Energy Regulator (AER) using [Petrinex](#). It is not for training industry on production accounting or on using Petrinex. For support and training, see the website at www.petrinex.ca. Training on production accounting is available through the [Canadian Association of Petroleum Production Accounting](http://www.cappa.org). For more information, see their website www.cappa.org.

1.2 What's New

Manual 011 has been updated with information on how to report geothermal activities to the AER via Petrinex. Existing appendices have been updated to reflect geothermal-specific volumetric and infrastructure attributes. A new appendix, “Reporting Geothermal Well and Facility Activities” (appendix 11), has been added.

1.3 AER Requirements

Operators are required to follow AER requirements.

The AER encourages all duty holders to be proactive by monitoring their compliance with AER requirements. If a duty holder identifies a noncompliance, it should inform the AER of the noncompliance.

Information on compliance and enforcement can be found on the AER website. This manual provides information on the processes within Petrinex that can assist you in remaining compliant.

Operators that do not correct missing data or data discrepancies before a filing deadline may receive a volumetric deficiency invoice for fees. A complete list of reporting error numbers, error descriptions, and associated fees (the AER Error Message Identifier Description and Associated Fee table) is provided in the “Related Information” section at the bottom of the [Directive 007: Volumetric and Infrastructure Requirements](#) webpage (see the AER website at www.aer.ca).

Failure to correct the noncompliance or request a review of the invoice will result in further regulatory response by the AER.

1.3.1 Balancing Volumetric Submissions

Petrinex runs a process that calculates activities, totals individual activities, and balances a facility. This process runs automatically whenever you do a batch or online submission or query a facility so that you always see the most current balance for your facility. You will receive online notification if problems

exist. You can request that a report be run on specific facilities or on all facilities for your operator ID. See appendix 9 for details on how each facility type detailed is balanced.

Petrinex also automatically checks balancing and missing data two days before the AER filing deadline. This is the final notice of any outstanding errors or missing submissions before a notice of noncompliance (volumetric deficiency invoice) is issued. See section 1.3.4 for more information.

1.3.2 Submission Deadlines

Operators report volumetric and waste management data to the AER using Petrinex. The reporting deadline for volumetric data and waste management is specified in the Petrinex Alberta reporting calendar and is usually between the 18th and 22nd of the month. Reporting is required for

- a facility or pipeline with an “Active” status,
- a facility or pipeline with activities during the preceding month, or
- a facility or pipeline that was shut in for the entire month.

The Alberta reporting calendars can be found on the Calendars tab of the [Petrinex](#) website.

In extenuating circumstances, the AER may, at their discretion, revise the reporting due dates in Petrinex.

To encourage accurate historical volumetric data, Petrinex will allow volumetric amendments back to Petrinex inception (“2002-10” production month); however, only amendments for production months up until the Alberta Energy “statute barred date” will be considered for royalty purposes.

1.3.3 Fees

To address the costs and quality issues caused by late submissions and data discrepancies in reporting volumetric data, the AER has a schedule of fees in Part 17 of the *Oil and Gas Conservation Rules (OGCR)* and in Schedule 1, Part 6 of the *Geothermal Resource Development Rules (GRDR)*. The AER may issue a volumetric deficiency invoice to an operator for missing data or data discrepancies that are not corrected before a filing deadline. A complete list of reporting error numbers, error descriptions, and associated fees (the AER Error Message Identifier Description and Associated Fee table) is provided in the “Related Information” section at the bottom of the [Directive 007](#) webpage.

1.3.4 Noncompliance Error Reports

Petrinex automatically runs a check called a noncompliance error report two days before the AER filing deadline and again at the filing deadline. This process checks balancing and missing data on all operated facilities, including any amendments made to previous months. The check for missing data will be done for all periods and will include any data missing because of infrastructure changes. Data remaining in the Petrinex work-in-progress (WIP) area are not checked (see section 2.3).

Once the check is complete, operators receive a report of the check summarizing any balance errors and missing data. Facilities that balance are not included in the report. This is the final notice of any outstanding errors or missing submissions before a notice of noncompliance (volumetric deficiency invoice) is issued. Any errors not corrected before the filing deadline will be subject to fees for missing data or data discrepancies. To avoid fees, after the autogenerated noncompliance error report is run (two days before the AER Volumetric filing deadline), you can request an AER noncompliance error report for all facilities that you operate and use it to identify and rectify any errors included in this report before the AER Volumetric filing deadline.

Facility operators may submit a request to check balancing and for missing data at any time. Watch for email notifications advising of a volume change at a facility to which you deliver and changes to the disposition volume at your facility.

1.3.5 Review of a Notice of Noncompliance (Volumetric Deficiency Invoice)

Licensees may request that the AER Production Data Services team review a volumetric deficiency invoice (also referred to as an Enforcement Review or Enforcement Action Review). In accordance with *Directive 007*,

- requests must be submitted within fifteen calendar days of the invoice date, and
- licensees will receive the results of a review within ten calendar days from making the request.

Effective May 4, 2023, request a volumetric deficiency invoice review using the Volumetric Deficiency Invoice Review module in Petrinex.

For volumetric deficiency invoices issued before April 24, 2023, use the AER invoice review template provided in the “Related Information” section at the bottom of the [Directive 007](#) webpage. Send requests for review by email to pa.help@aer.ca, fax to 403-297-7303, or mail to the AER at the attention of the manager of AER Production Data Services, Technical Science and External Innovation Branch, at Suite 1000, 250 – 5 Street SW, Calgary, Alberta T2P 0R4.

The AER will review a volumetric deficiency invoice as requested by a licensee if you answer “yes” to at least one of the following two questions:

- Is the noncompliance event caused by another licensee’s last minute submission that you did not have time to respond to? If yes, submit details that clearly show the timing of the noncompliance event. (Last minute submissions are defined as those submitted between the time the AER autogenerated noncompliance error warning report is run and the AER filing deadline.)
- Is the noncompliance event caused by another licensee’s failure to report volumes or because another licensee reported wrong volumes?

Answering “no” to both questions will typically result in the request being denied. Problems between two business associates (BAs) usually constitute a valid reason for review. Problems within two facilities of a single BA are not grounds for review.

The AER recognizes that the above questions may not apply in every situation. The AER will review such requests on a case-by-case basis.

If you disagree with a decision of the AER Production Data Services team, you may submit a regulatory appeal under the *Responsible Energy Development Act*.

Review of Error Message VME0016 – Gas Metering Difference Is 20 Per Cent or Greater

If error message VME0016 (gas metering difference is over the acceptable tolerance) is caused by a technical problem such as ink ran out, a chart was lost, or the calibration was wrong, the AER expects that engineering estimates of the missing volume will be used to report correct volumes, with the metering difference reported within the acceptable tolerance. These types of estimates are a measurement requirement and are not grounds for appeal.

If after review of the above, the licensee still wishes that the AER review an enforcement decision for error message VME0016, the following data must be submitted with the review:

1) Process and measurement

Provide a diagram of the most recent measurement schematic for the subject facility, showing the following information:

- All process equipment, flow lines, fuel lines, flare lines, and blowdown/drain lines.
- A list of all wells. Indicate how each well ties into the facility, including producing, suspended, and injection/disposal wells.
- All meters, measurement points, sampling points, and delivery points. Provide type of meters.

2) Field records and procedures

- Field records – The facility licensee’s licence, well test, and injection well records. Include the original recordings of measurements used to determine the particulars for the record if applicable.
- Orifice meter charts – Where orifice meters configured with chart recorders are used, all charts for accounting meters, if applicable.
- Meter calibration reports – Copies of the gas meter calibration and liquid meter proving reports for all accounting meters for the applicable month, including
 - all injection/disposal meters,
 - all fuel, flare, vented gas meters, and

- the group gas meter.
- Automated measurement systems – If measurement is done by SCADA/DCS/PLC, include
 - quantity transaction record (QTR) – the data supporting the reported volumes for the stated period;
 - configuration log – identifying all constant flow parameters used in the generation of the QTR; this log must contain all information listed in American Petroleum Institute (API) chapter 21, section 1.6.4, table 1;
 - event log – the record noting all exceptions and changes to the flow parameters (contained in the configuration log) that have occurred and that affect the QTR;
 - corrected QTR – constant values, times, and dates of any changes affecting the original QTR and/or reported volumes; and
 - test records – any documentation produced in the testing or operation of metering equipment that affects measured volumes, including the record containing volume verification and calibration measurements for all secondary and tertiary devices.
- Casinghead gas – For batteries, identify all wells, compressors, line heaters, and other field equipment using casinghead gas and/or produced gas for lease fuel.
- Facility flaring and turnaround
 - Provide the facility flare log for all routine and nonroutine flaring occurrences.
 - When was the facility last shut down for routine maintenance or turnaround?

3) Accounting records and calculations

- Production summary – Summary of monthly production and injection and dispositions of all fluids.
- Gas chart reading summary – For all orifice meter charts. Include all orifice meter coefficients and factors used in the volume calculation. If gas charts are scanned, provide a copy of all digital charts' images and the applicable viewer software.
- Gas analysis – Provide the relevant gas analyses for all accounting meters.
- Engineering estimates
 - Outline the method used to estimate unmetered flare, fuel, or vented gas streams. Include a sample calculation showing all particulars.
 - Outline the method used to estimate gas in solution with oil dumped to stick tanks and with oil at test conditions. Include fluid analysis data and a sample calculation.

- Gas equivalent calculations – Provide the latest hydrocarbon liquid analyses used to calculate gas equivalent of well condensate for all accounting meters.
- Other – Include any other estimate, correction, or adjustment used to calculate volumes.

2 Submitting Using Petrinex

As of the October 2002 production month, all operators are required to submit all well, facility, and pipeline monthly volumetric information and well status changes electronically to the AER through Petrinex in accordance with Part 12 of the *OGCR* and *Directive 007*. Effective the January 2023 production month, all geothermal operators are to report geothermal activities to the AER electronically using Petrinex in accordance with Part 4 of the *GRDR*, *Directive 007*, and *Directive 089: Geothermal Resource Development*.

2.1 Security

2.1.1 Well Status Changes

Only the licensee of a well may update a change to well status information.

2.1.2 Facility Applications

Only the licensee of a facility may request a new facility identifier (ID). When a facility requires that a licence number be entered, the company requesting the new facility ID must be the licensee. The licensee will become the operator of the facility. When a facility does not require a facility licence, the company requesting the facility ID will be the operator of the facility.

2.1.3 Facility Changes

Only the operator of the facility may update changes to facility information. This includes a request for an operator change.

2.1.4 Well-to-Facility Links

The linking of a well to a facility for the first time must be done with the well status change. Only the licensee of the well may update well status changes and link a well to a facility for the first time. The well licensee does not have to be the operator of the facility that the well is to be linked to. Any additional well status that requires a well to be linked to a new facility will also follow this process.

When a well is linked to a new facility without a change in well status, only the operator of the facility that the well is currently linked to may request a change.

2.1.5 Volumetric Data

Only the operator of record for the facility and production month may submit volumetric data for the facility, whether by batch or online. It is the operator's responsibility to ensure that access to submit data for specific facilities is assigned to the appropriate production accountant. Facilities that have confidential and experimental data can be restricted to specific production accountants within the company. Note that an experimental scheme is not always confidential.

When an operator change occurs, the current operator can choose to give the new operator authority to submit amendments on its behalf. The operator of record remains the original operator and is responsible for all submissions for the periods when it was the operator of record regardless of who submits amendments.

2.1.6 Reports and Query

Any operator or person with access to Petrinex has the authority to query or to run a report on well, facility, and volumetric data. If a well is confidential or experimental, the information deemed confidential will only be displayed to the operator of record or the licensee. When experimental confidential wells are associated with a facility, only the nonconfidential well-level data will be viewable for any nonconfidential wells linked to that facility.

2.2 Methods of Submission

Two methods exist for electronically submitting data to the AER using Petrinex:

- Online updates (defined screens and processes) – Primarily for operators with only a few wells or with a unique facility not handled by its production accounting (PA) system.
- Batch loading (defined electronic formats) – For sending data electronically through the internet to Petrinex. For operators with PA systems or who manage their production accounting on spreadsheets.

Operators are not restricted to using only one method; they may submit data using a batch process and then correct or amend the data using the online, or vice versa.

Upon receipt of each submission, Petrinex runs a computerized check to ensure data quality and completeness. Data submitted are deemed valid for acceptance if

- the person submitting the data is authorized to submit the well or facility data;
- the well identifier, well status, and well-to-facility links match what the AER and Petrinex have on record; and
- activities and products are valid.

If the submitted data is missing any of the preceding information or if the submitted data is incorrect, they are not accepted, and the operator must correct and resubmit the data.

On a predefined date, once the data have been accepted, Petrinex determines that each facility is arithmetically correct within itself—that is, that total facility receipts equal total facility dispositions (after considering inventories).

2.3 Work-in-Progress Area

Submit volumetric data online using the Petrinex work-in-progress (WIP) area (not available for batch submissions). In the WIP area you can enter and edit volumetric data before submitting it to Petrinex. Within the WIP area, data is temporarily saved until you are ready to submit it. No one else can access your data when saved as WIP. Once submitted, the data becomes available for other users of Petrinex to view and use.

You must submit data you've been working on and saving in the WIP area to Petrinex in order for them to become a valid Petrinex submission. Otherwise, the AER will not recognize the submission and you may receive a facility missing notice. If you receive any unexpected facility missing notices, check that you have submitted data saved in the WIP area to Petrinex.

2.4 Amendments or Corrections

2.4.1 Full Facility Designation

All submissions are considered “full facility” submissions, regardless of whether they are a correction or an amendment. This means that each submission made for a facility completely overrides the previous submission.

2.4.2 Partial Data

Partial data for a facility may be submitted if that data is still within the current month. However, if submitting partial data, you must submit the previous data along with the new data each time you submit data for a facility and production month. For example, you may want to submit the receipt activities for oil at the beginning of the month, as these volumes are required by the delivering operator to allow it to do such things as pipeline splits or to calculate well production volumes. If you then have additional oil activities or gas volumes to report, you submit a new facility submission that includes the previously submitted oil receipt data along with the additional new oil or gas data.

2.4.3 Sequential Amendment Number

Each time you submit volumetric data for a facility, Petrinex assigns a new amendment number. Numbers are assigned in sequential order and increase by one for each new submission. When you amend volumetric data online, Petrinex displays your last version, to which you may add, change, or delete data. Then, when you submit your changes, Petrinex creates an amendment that includes any unchanged data from the previous version, along with the changes you have made. The submission with the highest amendment number is always deemed to be the most current version for the facility. In accordance with

Directive 007, all data for a facility for the current production month must be submitted by the AER filing deadline.

2.4.4 Making and Avoiding Corrections

To avoid discrepancies between Petrinex and an operator's system, it is recommended that any amendment or correction be changed within the operator's PA system, and then updated to Petrinex. This will ensure that the volumetric data the AER has on record is the same as what the operator has on record.

If you reported information that should not have been included when you submitted an amendment, you may exclude the data reported in error through an amended submission. For example:

- If an incorrect facility ID was entered for "From/To," the amendment should report only the correct facility ID and not include the incorrect facility ID. The removal of the incorrect facility ID will automatically delete any data entered at the incorrect delivering facility.
- If an incorrect well or well event was reported, the amendment should not include the incorrect well ID, but only the correct well ID. This will result in a "missing" error being triggered for the incorrect well ID. You must correct the well status or report the incorrect well at a new facility.

Petrinex will track situations in which a well with an active well status was reported at a facility and is not reported on an amendment. If the situation is not corrected by changing the well's status or by moving the well to another facility, it may be subject to AER enforcement.

2.5 Notification

If any problems are encountered with either online or batch submissions, Petrinex will notify the operator.

- Online submissions – Error messages are immediately displayed and can be corrected before you leave the edit screens.
- Batch submissions – Email notification is sent to the operator of record for a facility advising it of the results of each batch submission and of any errors detected. Each operator may decide who within its company will receive these notices and when. How an operator chooses to manage these email notifications depends upon how it sets the notification options. A copy of each notification is kept in the operator's Petrinex inbox for 90 days.

2.6 Petrinex Inbox

The Petrinex inbox ensures that an operator has access to its notifications regardless of to whom and how the notice was sent to the company. Each operator must confirm that all notices of errors or missing data are acted upon before the AER filing deadline to avoid volumetric noncompliance fees.

3 Volumetric Submissions

Each submission for a well or facility must identify the activity (see appendix 1), the product (see appendix 2 and appendix 3), and the volume.

Each operator has its own method for submitting volumetric data to Petrinex, which is controlled by the operator's user security administrator (known as the USA). See the Petrinex Learning Modules available under the Learning Centre on the [Petrinex](#) website.

3.1 Editing Volumetric Data

When you first enter the Edit Volumetric Submission screen, you must enter the facility ID and the production month. The facility ID helps determine what type of facility you are submitting data for. The production month will default to the current production month.

Appropriate screens and any inventory data from the previous month will be displayed. The possible views are

- Proration Factors
- Facility Activity
- Well Activity
- Summary

Where appropriate there is an ISC (in-stream components) screen (see Alberta Energy [AE] *Information Bulletin 02-06A: Gas Royalty Calculation*).



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Edit Volumetric Submission

Facility ID: AB BT 01012364 **Location:** 00-01-02-034-06 W6 **Production Month:** 2014-05
Name: Single Well Oil Battery #1012364
Reference Code: ABBT01012364

3.2 Pending Transactions

3.2.1 Current Month

At the beginning of each production month, Petrinex flags any transaction that has been autopopulated (DISP, PURREC, INVOP, LDINVOP) to your facility as “P” for pending. Autopopulated data are not assumed to have been accepted and filed as a volumetric submission. Petrinex therefore treats it as a pending transaction. Once you make your first submission in the current production month for a facility, Petrinex removes the pending status and will not repeat it during the production month, even when other autopopulated data appear.

Query Volumetric Submission

Facility ID:
Location: 00-01-01-001-01W4
Production Month:

Name: GP01234
Amendment #:

Reference Code: GP 1234
Submitted:
AER Extracted:

View:

Filters: Activity Product From/To

Go

Activity	Product	From/To	Volume	Energy
PINVOP	C5-SP	AB MS 0000001	151.4	
PINVOP	C2-MX		68.9	
PINVOP	C3-MX		39.8	
PINVOP	NC4-MX		0.7	
PINVOP	IC4-MX		18.3	
PINVOP	NC5-MX		0.1	
PINVOP	IC5-MX		6.3	
PINVOP	C6-MX		3.8	
PINVOP	LITEMX		3.8	

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3.2.2 Prior Month Amendment

Amendments of any autopopulated transaction (DISP, PURREC, INVOP, LDINVOP) in a month prior to the current one will also be flagged as a pending transaction at your facility. Petrinex sends a notification message entitled, “Change to a REC/DISP in volumetrics - submission required” whenever a pending transaction is created. You must either accept the pending record or communicate with the other operator to request a correction in order to avoid a noncompliance error.

A prior period amendment may seem to appear as a double entry as shown in the graphic below. Once you click submit, the pending dispositions will write over the previous entry.

No report exists that you can run to identify autopopulated values to your BA. You can, however, run an AER noncompliance report at any time. Look for “facility missing” errors; they may be related to pending records that you have not submitted, which can be investigated further.

Query Volumetric Submission

Facility ID: AB BT 0000123 **Location:** 01-01-001-01W400 **Production Month:** 2014-08
Name: Battery 01-01-001-01W4 **Amendment #:** 0
Reference Code: **Submitted:**
AER Extracted

View: Facility Activity

Filters: Activity

ALL

Product

ALL

From/To

ALL

Activity	Product	From/To	Volume	Energy
DISP	OIL	AB BT 0089568	40.1	
PDISP	OIL	AB BT 0089568	30.1	
INVOP	OIL		25.7	
INVCL	OIL		63.9	
DISP	GAS	AB BT 0089568	65.0	
DISP	WATER	AB BT 0089568	5.3	
INVOP	WATER		5.4	
INVCL	WATER		1.2	

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3.3 Proration Factors

In accordance with *Directive 007*, if the reporting facility type is a battery (BT) with a subtype of proration and well production activities are reported, or if the facility type is custom treater (CT) and receipts are reported, then proration factors for oil, gas, and/or water are required.

- Proration batteries – Enter the proration factor for each product with production reported at a well calculated to six decimal places and then rounded to five decimal places (see appendices 5 and 6). Petrinex will reject all wells production when proration factors are required but are not reported. Once you have submitted the proration factor to Petrinex, the well production volumes for that product will also be accepted.
- Custom treaters – Enter the proration (allocation) factor for each product received at the facility (see appendix 6). Petrinex will reject all receipts for a product when the proration factor for that product is not reported. Once you have submitted the proration factor to Petrinex, the receipt volumes for that product will also be accepted.

If you do not see the screen view shown below, your facility type does not allow you to report proration factors. If you are prorating production, you must apply for a facility ID of the appropriate facility type and subtype.

Menu
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Logout

BA:
Name:

[\[Monthly Reporting\]](#) > [\[Volumetric\]](#)

Edit Volumetric Submission

Facility ID:
AB BT 0045078
Location: 00-01-01-001-01W4
Production Month: 2014-05

Name: Battery 01-01-001-01W4
Reference Code: AB BT 0045078

View:
Proration Factors

Go
Query

VMS997 *** Data From Petrinex ***

	Delete	Factor
Oil	<input type="checkbox"/>	1.00000
Gas	<input type="checkbox"/>	0.99928
Water	<input type="checkbox"/>	1.92589

Save to WIP
Submit
Cancel

3.4 Facility Activity

The facility activity screen is displayed for all facility operational statuses except “Abandoned.” The screen has rows ready for you to enter the activities, products, from/to, volumes, and energy. Rows are also available for heat and power entries for geothermal facilities. Activities entered for you will also be displayed to ensure that, where possible, you do not create reconciliation or out-of-balance situations (see the screen below).

Energy must be reported for certain gas activities. You will also see a button at the end of each row for the entry of ISC. You must also enter energy and ISC when a gas volume is entered, as defined in AE *Information Bulletin 02-06A*.

BA: AB
Name:

[\[Monthly Reporting\]](#) > [\[Volumetric\]](#)

Edit Volumetric Submission

Facility ID:
Location: 00-01-01-001-01W4
Production Month: 2014-05

Name: Battery 01-01-001-01W4
Reference Code:

View:

Filters:
Activity
Product
From/To

Del	Activity	Product	From/To	Volume	Energy
	DISP	OIL	AB BT 0089568	11.6	
	INVOP	OIL		17.6	
<input type="checkbox"/>	<input type="text" value="INVCL"/>	<input type="text" value="OIL"/>	<input type="text"/>	<input type="text" value="35.5"/>	<input type="text" value="ISC"/>
	DISP	GAS	AB BT 0089568	35.7	
	DISP	WATER	AB BT 0089568	3.4	
	INVOP	WATER		26.9	
<input type="checkbox"/>	<input type="text" value="INVCL"/>	<input type="text" value="WATER"/>	<input type="text"/>	<input type="text" value="24.2"/>	<input type="text" value="ISC"/>

3.4.1 Inventory

If a facility had closing inventory from the previous month, the facility opening inventory (INVOP) product and volume for the current month will be entered for you. At the AER filing deadline, Petrinex will roll over all closing inventory volumes to the next month's opening inventory, ready for your next month's volumetric submission. You will never be able to enter the opening inventory activity or be able to change a volume that was entered for you.

When you amend a previous month and change the closing inventory volume, Petrinex will create a pending volumetric submission for the next month with the changed opening inventory volume. In accordance with *Directive 007*, you are required to submit an amendment for this month.

If a well has load fluid inventory from a previous month, the well's opening load fluid inventory (LDINVOP) volume will be autopopulated by Petrinex.

Note that if the opening load fluid volume is not correct, you must amend the prior period submission (see appendix 8).

3.4.2 Receipts and Dispositions

In accordance with *Directive 007*, for most cases deliveries to another facility must be reported as a receipt by the receiving facility operator. Petrinex will autopopulate a corresponding disposition for that receipt at the delivering facility. If the reporting facility is a pipeline (PL), meter station (MS), or terminal

(TM), the facility operator may need to report the disposition. In this case, Petrinex will autopopulate a corresponding receipt for that disposition at the receiving facility.

Disposition or receipt volumes autopopulated by Petrinex will be flagged as pending. Pending transactions are not part of your submission until you accept the pending disposition or receipt, even when you have completed your submission and are only waiting for the autopopulated volumes. In accordance with *Directive 007*, it is your responsibility to ensure that the autopopulated volume is accepted and becomes part of your facility submission.

- Volumes that have been autopopulated based on another facility operator's submission cannot be modified. Operators who disagree with a volume must contact the receiving or disposing facility operator who created the autopopulated volume and request a correction to the volume.
- Disposing facility operators who dispose of a volume to a nonreporting facility (e.g., out of province) must report the disposition.
- Operators must report a SHUTIN activity for each active well linked to a facility with no reported production, injection, or temperature (for geothermal wells) for the month. If a well has load fluid opening inventory and the well does not have any load fluid activity for the month, Petrinex will automatically create a closing load fluid transaction with the same volume as the opening inventory. A SHUTIN activity can also be submitted for the well in combination with load fluid opening and closing inventories.

3.5 Well Activity

The well activity view will be displayed when the reporting facility has active wells linked to it and will show the "From/To" field with the well identifiers populated. You will need to enter the activities, hours, products, and volumes. For geothermal wells, enter the temperatures. Each well identifier will be entered on three rows to allow the entry of more than one product (e.g., OIL, GAS, WATER) or more than one activity (e.g., PROD, FUEL, FLARE, VENT, LDINJ, LDREC, WHOMIN, WHOAVG, WHOMAX). If you need more than three rows, you can add rows.

Menu
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BA:
AB
Name:

[\[Monthly Reporting\]](#) > [\[Volumetric\]](#)

Edit Volumetric Submission

Facility ID:
AB BT 0045078
Location: 00-01-01-001-01W4
Production Month: 2014-05

Name: Battery 01-01-001-01W4

Reference Code:
AB BT 0045078

View:
Well Activity

Filters:
Activity
Product
From/To

ALL
ALL
ALL

Go
Query

VMS997 *** Data From Petrinex ***

Del	From/To	Activity	Hrs	Product	Volume
<input type="checkbox"/>	AB WI 100103006224W500	PROD	744	OIL	54.8
<input type="checkbox"/>	AB WI 100103006224W500	ROYALTY		OIL	7.6
<input type="checkbox"/>	AB WI 100103006224W500	PROD		GAS	69.0
<input type="checkbox"/>	AB WI 100103006224W500	PROD		WATER	1.0

3.5.1 Shut-in Wells

Each shut-in well must have at least one activity recorded. If you do not enter at least one activity for a well, the well will not be saved and will not have a submission for that production month or year. If you do not need all the rows, they will not be used when you submit to Petrinex. Wells that have been entered but were shut in for the entire month must report the activity as SHUTIN or it will be missing. The other option is to change the well status to an “inactive” well status (see appendix 7).

Operators must continue to submit an activity for each well and facility until the well status is changed to a “non-producing/injecting” status and the well is no longer producing or injecting, or the facility status is changed to an “inactive” status.

A single well linked to a different facility ID after the first of the month must be reported on both facilities. The well may not be reported as shut-in at one facility ID and producing at another facility ID.

3.5.2 Steam-Assisted Gravity Drainage Wells

Wells with a steam-assisted gravity drainage (SAGD) well status must be linked to both a battery (BT) and an injection facility (IF).

- If the well produces and injects for the entire month, both the battery (BT) and the injection facility (IF) can report the maximum hours in the month.
- If the well does not produce or inject during the month, the activity must be reported as SHUTIN on either the battery (BT) or the injection facility (IF) to avoid a missing well error.

3.5.3 Suspended Wells

Wells with a suspended well status do not require an activity to be reported. Any shut-in activity submitted for a well with a suspended well status, either online or by batch, will be rejected.

3.6 Concurrent/Consecutive Injection

When the facility ID is for an injection facility (IF), the Well Activity screen displays an additional column for entering a concurrent/consecutive injection (CCI) code. A CCI code is only for specific injection activities. A CCI code must be a whole number between 1 through 9.

- When more than one product is injected into a well, the CCI code is used to indicate whether the products were injected concurrently (at the same time) or consecutively (one after another). The concurrent or consecutive injection method is based on the approval issued by the AER for the recovery scheme.
- When a well injects/disposes of only one product during the entire month, the well identifier and injection activity are reported only once and a CCI code is not required.
- In accordance with *Directive 007*, when a well injects more than one product during the month, you must report a CCI code. The CCI code is used to report multiple injection activities and products at a well and to identify whether the products were injected concurrently or consecutively.
- When a well injects more than one distinct product consecutively with AER approval, the volumes and hours for multiple instances of injection of the same product are to be combined and reported in Petrinex as a single line item. Each line item represents a separate product injected, with a unique CCI number, a volume, and the hours for that product.
- When a well injects more than one product concurrently with AER approval, the products are usually reported as a mix product, such as solvent. In this situation, only one product and hours are reported for the injection activity. A CCI code is not required unless another product, such as water, is injected at the well consecutively.

In accordance with *Directive 007*, products injected concurrently may be reported separately if AER approval is obtained when the scheme is approved. If approved, the CCI code entered on each row must be the same number. The hours are only reported once on one of the rows.

3.7 Summaries

The summary view shows a summary of all activities and balances done for each product group. Data cannot be entered on this screen and only one product group is shown at a time. To view a different product, select it from the product group drop-down menu. To change any values shown on this screen, you must change the well or facility details used in the calculations.

Edit Volumetric Submission																				
Facility ID:	<input type="text" value="AB BT 0045078"/>	Location: 00-01-01-001-01W4 Production Month: 2014-05																		
Name:	Battery 01-01-001-01W4																			
Reference Code:	<input type="text" value="AB BT 0045078"/>																			
View:	<input type="text" value="Summary"/>																			
Product Group:	<input type="text" value="GAS"/>																			
<input type="button" value="Go"/> <input type="button" value="Query"/>																				
<p><i>VME0016 Message: Metering difference is over the acceptable tolerance Details: [GAS] DIFF [100.0] DIFF percentage = [73.6]</i></p> <p><i>VME0018 Message: Imbalance is other than 0.0 Details: [OIL] IMBAL [-20.0] IMBAL percentage = [73.8]</i></p> <p><i>VME0024 Message: Water Metering Difference is 20 percent or greater Details: Petrinex has calculated water metering difference percentage of 20 percent or more and the volume is greater than 50m3 and less than 200m3</i></p> <table border="1"> <thead> <tr> <th>Balancing activity</th> <th>Volume</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>DIFF</td> <td>100.0</td> <td>73.6</td> </tr> <tr> <td colspan="3">Product totals: GAS</td> </tr> <tr> <th>Activity</th> <th>Volume</th> <th></th> </tr> <tr> <td>DISP</td> <td>35.7</td> <td></td> </tr> <tr> <td>PROD</td> <td>135.7</td> <td></td> </tr> </tbody> </table>			Balancing activity	Volume	%	DIFF	100.0	73.6	Product totals: GAS			Activity	Volume		DISP	35.7		PROD	135.7	
Balancing activity	Volume	%																		
DIFF	100.0	73.6																		
Product totals: GAS																				
Activity	Volume																			
DISP	35.7																			
PROD	135.7																			

3.7.1 Facility Balances

Facility balances include the facility totals by product and activity. More than one product may be included in an activity total. All activities and products will also be shown for facilities with fractionation (FRAC).

- Batteries – Oil and condensate production are summed and included under the “oil” product group.
- Facilities – Oil and condensate production are summed and included under the “oil” product group for any facility that receives one product but delivers it as a different product.

For a list of grouped products and the product grouping name, see appendix 9.

Corrections to Grouped Products

Details on any grouped products for a facility balance can be requested. The details of your request will appear on another screen and will show either the well activity view or facility activity view. Any corrections necessary can be made on this screen.

Finished Balances

Once a facility is balanced, you will see one or both of the two following activities: “Metering Difference” or “Imbalance” on the summary screen. These activities are calculated based on the products and activities reported at the facility.

A balance percentage will also be within the summary. This percentage lets you see at a glance whether a facility balances or not. If this percentage is not within an acceptable tolerance for the product group, you will get an error message.

3.8 Missing Information

3.8.1 Missing Product

When oil production is reported at a crude oil or crude bitumen battery, an operator must report the gas produced at the facility. If gas is not reported, the operator will be subject to AER volumetric noncompliance fees (see section 1.3).

3.8.2 Missing Well or Facility Data

The operator of a facility must submit the volumetric data for each active well and facility for each production month.

3.8.3 Missing Current Production Month

Petrinex reviews data for what has been reported and which wells and facilities are missing. To do this, it determines if the well status or the facility operational status indicates that the well or facility was active during the month.

For wells:

- Submit an accurate report of all activities, products, volumes, and product movements for each active well. For geothermal wells, report accurate temperature data.
- A well linked to more than one facility (e.g., cyclical, storage, SAGD, or geothermal producing incidental hydrocarbons) must be reported at one of the linked facilities. Once an activity is reported at one of the facilities, the well is not missing.
- An existing well that is moved to a different facility during the month and is active for the entire production period must be reported at both facilities. For example, a well linked to a single-well battery on the first day of the month that is then linked to a multiwell battery on the 20th day of the same month will be reported at both the single well battery and the multiwell battery. The well cannot be reported as SHUTIN at one facility and PRODUCING at the other facility.

For facilities:

- An accurate report of all activities, products, volumes, and product movements must be submitted for each operational facility.
- An active facility that has opening inventory but was shut in for the entire month must have a volumetric submission, with the activity closing inventory reported. When opening inventory is entered, it is only pending and is not a submission until an activity is entered.
- An active facility that does not have an opening inventory and is shut in for the entire month must have a volumetric submission with the activity SHUTIN reported.

- Volumetric data for an active facility that is only saved to the WIP area must be submitted to Petrinex. A facility only in WIP is not a submission (see section 2.3).
- A receipt from another facility may result in a pending disposition for the disposing facility. The disposition will remain pending and not considered as submitted until the disposing facility accepts and submits it (see section 3.2).

3.8.4 Missing Prior Production Month

The rules for current month missing submissions also apply for an active well and facility for a prior month with a missing submission. To determine if a change results in missing data for a prior month, Petrinex reviews prior month volumetric amendments, retroactive well status changes, and retroactive volumetric gas well liquid changes, as well as previously identified missing notifications.

A prior month's amendment may change the closing inventory for that month, resulting in a pending opening inventory record for the following month. When the opening inventory is automatically updated by Petrinex, it is only pending and is not considered submitted until the change is accepted by making a submission for that month (see section 3.2).

A prior month's amendment will change the receipt information at a reporting facility, resulting in a pending disposition at the facility delivering to the reporting facility. When the disposition information is updated at the disposing facility, it is only pending and is not a submission until the change is accepted by creating an amendment for the disposing facility (see section 3.2).

A facility previously reported as missing is still shown as missing if it has not been submitted or has not had a change to the facility operational status for the missing production month.

3.8.5 Missing Well

If a prior month's amendment excludes a well included in the prior month's submission, it will be a "missing well" until the submission is corrected or it is added to a new facility for the production month, or the well status is changed to an "inactive" status for the production period. The well will continue to be reported as missing until such time as the submission is corrected or the well status is changed to an "inactive" status.

If a well's status is changed to an "active" status retroactively, then in accordance with *Directive 007*, well submissions are required for each month from the date of the change.

In accordance with *Directive 007*, a retroactive change to the classification of a well's volumetric gas well liquid code will result in a requirement to submit amendments from the start date of the change in volumetric gas well liquid.

3.9 Waste Plant Reporting

Effective the March 2009 production month, the AER replaced the *S-25 Monthly Oilfield Waste Management Facility Statement* with electronic reporting through Petrinex. [Directive 047: Waste Reporting Requirements for Oilfield Waste Management Facilities](#) sets out AER requirements for reporting waste plants.

A complete list of Waste Plant reporting error numbers, error descriptions, and associated fees (the AER Error Message Identifier Description and Associated Fee table) is provided in the “Related Information” section at the bottom of the [Directive 007](#) webpage.

3.10 Mineable Oil Sands Reporting

Effective the May 2010 production month, the AER replaced the *S-23 Monthly Oil Sands Processing Plant Statement* with electronic reporting through Petrinex. Mineable oil sands facility operators must submit the data monthly on or before the 22nd of each month in accordance with sections 29(1) and (2) of the *Oil Sands Conservation Rules*.

A complete list of Mineable Oil Sands reporting error numbers, error descriptions, and associated fees (the AER Error Message Identifier Description and Associated Fee table) is provided in the “Related Information” section at the bottom of the [Directive 007](#) webpage.

3.11 Crude-by-Rail Reporting

Effective the June 2013 production month, all crude-by-rail dispositions must be reported in Petrinex to the jurisdiction furthest downstream from the rail terminal where the oil is initially loaded. Railcar (RC) miscellaneous IDs or Petrinex facility IDs (depending on the jurisdiction) can be used for all Canadian provinces and US states, as well as for jurisdictions located offshore for crude-by-rail reporting (see appendix 3). For example, to report volumes transported out of Alberta by rail with Texas as a final destination, you would report the ID as TX RC in the “From/To” field. If the final rail destination is unknown or the disposition is to a non-reporting facility, you would report the ID as AB RC in the “From/To” field.

All AER-licensed railcar oil terminals must be reported in Petrinex using facility subtype 675 (railcar/oil loading and unloading terminal). Non-reporting railcar oil terminals in Alberta will be set up in Petrinex when they decide to report.

4 Facility Information

Licensees and operators of new facilities must acquire a facility ID through Petrinex for reporting purposes.

4.1 Compressor Station Facility ID

Petrinex will assign a facility ID to each licensed compressor station at the time the AER issues a new licence for a compressor station. This facility ID is used to report fuel, flare, and vent volumes at the reporting facility. Since a compressor station is not a reporting facility, a monthly facility volumetric submission is not required for a compressor station.

4.2 Obtaining a Facility ID Online

Facility IDs can only be acquired online through Petrinex and not through a batch submission. This can be done through the Request Facility ID screen (see below). Petrinex validates the information you enter before issuing a facility ID. The information required for a facility ID depends on the type of facility (see table 1).

When you first enter the Request Facility ID screen, enter/select the facility subtype and location and, if required, the licence number. The licence type may be for a facility or well licence number. See table 2 and 3 for descriptions of facilities and facility subtypes.

Menu Inbox Help Contacts Logout BA: AB Name:

[\[Infrastructure\]](#) > [\[Facility Infrastructure\]](#) > [\[Setup/Maintenance\]](#)

Request Facility ID

Facility Sub-Type: ...

Facility Location

LE	LSD	SEC	TWP	RGE	M	Licence
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	W <input type="text"/>	<input type="text"/> ...

Go

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Depending on the facility subtype entered, you may be required to enter additional information. The next screen (see below) is an example of what fields may be required for subtype code 621. It also shows fields that AE requires for the specific facility subtype. For more information on these fields, see AE *Information Bulletin 02-06A*.

BA:
Name:

[\[Infrastructure\]](#) > [\[Facility Infrastructure\]](#) > [\[Setup/Maintenance\]](#)

Request Facility ID

Facility Sub-Type: 621 GAS GATHERING SYSTEM
Facility Location
LE **LSD** **SEC** **TWP** **RGE** **M** **Licence**
 W 6 F0014947

Licensee: ALBERTA PRODUCTS LTD. **Status:** AMENDED **Status Date:** 2007-06-01
Energy Development Category: Gas processing plant

Facility Name:
Operational Status: NEW
Experimental Confidential: No

Returned Gas Eligible For Gas Credits
Credit on Fuel: ☐ Yes ☒ No **Royalty Trigger Facility:**
Credit on Gas Lift: ☐ Yes ☒ No **Royalty Trigger Facility:**
Plant Type: 1: DRY GAS - DEHY/COMP/GS SALES
Plant Class: **Plant Class** **Start Date** **End Date**
Dry Gas 1994-01-01 9999-12-31
NGL Transportation Region: 4
Operator ID:

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A facility licence is not always required when setting up a new facility subtype. In some cases, the AER can set a facility ID up for you without requiring a licence. Table 3 lists all the facility IDs that can be set up by the AER. For more information, contact pa.help@aer.ca.

Table 1. Required information for facility identifier (ID) request

Facility type	Facility ID	Start date	End date	Operator ID	Subtype	Location	Licence number	Licencee	Licence status	Licence start date	Energy development category type	Facility name	Experimental confidential	Pipeline split deadline	Steam quality %	Tied to a gas reproducing facility	Injection facility reproducing facility	Common stream operator	Meter station-pipeline link	Autopopulate upstream facility disposition	Meter station-upstream facility link	Physically connected to a pipeline	Terminal-pipeline link	Returned gas eligible for gas credits	Royalty trigger facility	Natural gas liquid (NGL) transportation region	Plant type	Specialized status	Operational status
Battery (BT)	P	P	P	P	M	M	M	P	P	P	P	M	P	N	N	N	N	N	N	N	N	N	N	M	M	N	N	N	M
Injection facility (IF)	P	P	P	P	M	M	M	P	P	P	P	M	P	N	M	O	O	N	N	N	N	N	N	N	N	M	N	N	M
Gas plant (GP)	P	P	P	P	M	M	M	P	P	P	P	M	N	N	N	N	N	N	N	N	N	N	N	N	N	M	M	N	M
Gas gathering system (GS)	P	P	P	P	M	M	M	P	P	P	P	M	P	N	N	N	N	N	N	N	N	N	N	M	M	M	M	M	M
Custom treating facility (CT)	P	P	P	P	M	M	M	P	P	P	P	M	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M
Meter station (MS)	P	P	P	P	M	M	N	N	N	N	N	M	N	N	N	N	N	M	M	M	M	N	N	N	N	N	N	N	M
Oil sands (OS)	P	P	P	P	M	M	N	N	N	N	N	M	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M
Pipeline (PL)	P	P	P	P	M	M	N	N	N	N	N	M	N	M	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M
Refinery (RF)	P	P	P	P	M	M	N	N	N	N	N	M	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M
Terminal (TM)	P	P	P	P	M	M	M	P	P	P	P	M	N	M	N	N	N	N	N	N	N	M	M	N	N	N	N	N	M
Waste plant (WP)	P	P	P	P	M	M	N	N	N	N	N	M	N	N	N	N	N	N	N	N	N	M	M	N	N	N	N	N	M
Geothermal (GT)	P	P	P	P	M	M	M	P	P	P	P	M	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M

P – Petrinex-generated information.

M – Mandatory (must be entered.)

O – Optional.

N – Not applicable for the facility type.

Table 2. Facility and facility subtypes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
Battery (BT)		General definition	<p>A system or arrangement of tanks or other surface equipment receiving flow-lined production from one or more wells. Batteries must provide for measurement and disposition of production and may</p> <ul style="list-style-type: none"> include equipment for separating production into oil, gas, and water, include storage equipment for produced liquids before disposition, and receive product from other facilities. <p>Crude oil wells include heavy oil wells outside the AER-designated oil sands area.</p> <p>Heavy oil wells inside the AER-designated oil sands area are classified as crude bitumen and must be linked to and reported as part of a crude bitumen battery. See subtype codes 331, 341, 342, or 343.</p>	
	311	Crude oil single-well battery	A production facility for a single flow-lined crude oil well.	Yes, if sour When a facility licence is not required, use the well licence.
	321	Crude oil multiwell group battery	A production facility for two or more flow-lined crude oil wells where each well has its own dedicated separation and measurement equipment and all equipment shares a common surface lease location. See AER <i>Directive 017: Measurement Requirements for Oil and Gas Operations</i> , section 6.	Yes
	322	Crude oil multiwell proration battery	<p>A production facility for two or more flow-lined crude oil wells having common group separation, measurement, and storage equipment.</p> <p>Total battery oil, gas, and water production is prorated to each well based on individual well proration tests and proration factors. See AER <i>Directive 017</i>, section 6.</p>	Yes
	331	Crude bitumen single-well battery	<p>A production facility for a single flow-lined crude bitumen well.</p> <p>Heavy oil wells outside an AER-designated oil sands area must be linked to and reported as part of a crude oil battery. See subtype codes 311, 321, or 322.</p>	Yes, if sour When a facility licence is not required, use the well licence.
	341	Crude bitumen multiwell group battery	A production facility for two or more flow-lined crude bitumen wells where each well has dedicated separation, measurement, and storage equipment and all equipment shares a common surface lease location.	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
	342	Crude bitumen multiwell proration battery	A production facility for two or more flow-lined crude bitumen wells having common separation, measurement, and storage equipment. Total battery oil, gas, and water production is prorated to each well based on individual well proration tests and proration factors. See AER <i>Directive 017</i> , section 12.	Yes
	343	Crude bitumen administrative grouping	A production reporting entity for two or more single-well crude bitumen batteries where the batteries are grouped and reported together as a single facility. Each crude bitumen battery must meet the definition for subtype code 331 and be on separate lease locations. See AER <i>Directive 017</i> , section 12.	Yes
	344	In situ oil sands	A production facility that consists of one or more flow-lined crude bitumen wells where thermal enhanced recovery techniques are employed, such as SAGD or cyclical steam stimulation. Where two or more of the flow-lined wells share common separation, measurement, and storage equipment, total battery oil, gas, and water production is prorated to each well based on individual well proration tests and proration factors. See AER <i>Directive 017</i> , section 12.	No, but Petrinex will accept a valid licence
	345	Sulphur reporting at oil sands	Same as subtype code 344. This subtype is to also be used when sour gas is produced and processed in these schemes and sulphur volumetric activity is to be reported.	No, but Petrinex will accept a valid licence
	351	Gas single-well battery	A production facility for a single flow-lined gas well where <ul style="list-style-type: none"> gas and liquid production (including water) is continuously measured in a single phase; measurement may or may not occur at the wellhead; and production is not commingled with production from other wells before measurement or disposition. Production is delivered directly to a gas gathering system or other facility. Where applicable, the operator may choose to use the “disposition equals production” methodology for reporting condensate and water production. See <i>Directive 017</i> .	Yes, if sour When a facility licence is not required, use the well licence.
	361	Gas multiwell group battery	A production reporting entity for two or more single-well gas batteries grouped and reported together under a single reporting code where <ul style="list-style-type: none"> each gas well must meet the definition for subtype code 351, all wells must deliver to a common facility, and multiple gas groups could be delivering to a common facility. Where applicable, the operator may choose to use the “disposition equals production” methodology for reporting condensate and water production. See <i>Directive 017</i> .	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
	362	Gas multiwell effluent measurement battery	<p>A production facility for two or more flow-lined gas wells where each well is configured with continuous effluent (wet) measurement with no phase separation. Production from each well is sent to a group point with common separation, measurement, and storage.</p> <p>Well production is calculated and reported as prorated. Proration factors are based on annual proration tests and battery measurement.</p> <p>See AER <i>Directive 017</i>, section 7.4.</p>	Yes
	363	Gas multiwell proration SE Alberta battery	<p>A production facility for two or more flow-lined shallow gas wells. Production from each well is commingled and sent to a group point with common separation, measurement, and storage.</p> <p>Shallow gas wells are wells that produce from any formation including coals and shales from the top of the Edmonton Group to the base of the Colorado Group.</p> <p>Well production is calculated and reported as prorated. Proration factors are based on proration tests and group measurements. These production facilities have no condensate production.</p> <p>Water is not required to be reported at the well level.</p> <p>See AER <i>Directive 017</i>, section 7.2.</p>	Yes
	364	Gas multiwell proration outside SE Alberta battery	<p>A production facility for two or more flow-lined gas wells. This battery type is generally used for low productivity gas wells with low condensate or water production. (e.g., coalbed methane [CBM]). At these facilities, wells are tested and not continuously measured; production from each well is commingled and sent to a group point with common separation, measurement, and storage; and well production is calculated and reported as prorated. Proration factors are based on annual proration tests and battery measurement.</p> <p>See AER <i>Directive 017</i>, section 5 for application requirements.</p> <p>See AER <i>Directive 017</i>, section 7.3 for measurement, accounting, and reporting requirements.</p>	Yes
	371	Gas testing battery	<p>A reporting entity to accommodate the reporting of production from a well or wells during deliverability testing and before commencement of regular production.</p> <ul style="list-style-type: none"> Only applies to wells with a “Gas Testing” well status. Wells can only report for a maximum of three months. Battery location can be anywhere in Alberta. Multiple wells can be linked to the facility ID. 	No

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
	381	Drilling and completing	<p>A reporting entity to accommodate the reporting of production from a well during drilling and/or completion operations and before regular production begins. This subtype code</p> <ul style="list-style-type: none"> only applies to wells with a “Drilling and Completing” well status. Drilling and completing means the well is still drilling and has not completed or reached total depth or the well is still completing but has not commenced regular production or injection activities; and can only be used by wells for a maximum of three months. 	No
Compressor station (CS)	601	Compressor station	<p>A compressor and the associated equipment that is located on a gas gathering system. It does not include compressors that are reported as part of batteries, injection facilities, gas plants, and other facilities.</p> <p>Compressor station codes are created automatically by Petrinex when the AER issues a new compressor licence.</p> <p>Compressor stations are non-reporting facilities; however, fuel consumption is reported as part of the battery or gas gathering system with which they are associated. The compressor station ID is used to report fuel used by the compressor station.</p>	Yes, when >75 kW
Custom treating facility (CT)	611	Custom treating facility	<p>A system or arrangement of tanks or other surface equipment that receives and measures oil/water emulsion by truck for the purpose of separation/treating prior to disposition.</p> <p>Custom treating facilities may also receive production via flow line where they share the surface location of other facilities.</p> <p>Oil and water receipts are prorated using proration factors and facility measurements. See AER <i>Directive 017</i>, section 3.</p>	Yes
	612	Custom treating facility approved as part of an oilfield waste management facility (OWMF)	<p>A system or arrangement of tanks or other surface equipment that receives and measures oil/water emulsion through on-lease piping or by truck for the purpose of separation or treating prior to disposition.</p> <p>Oil and water receipts are prorated using proration factors.</p> <p>See AER <i>Directive 017</i>, section 3.</p>	No
Gas gathering system (GS)	621	Gas gathering system	<p>A reporting entity consisting of pipelines used to move products (primarily gas) from one facility to another. The facility may also include compressor stations, line heaters, and dehydration equipment located on the system but not associated with any battery, injection facility, gas plant, or other facility. See AER <i>Directive 017</i>, sections 4 and 15.</p> <p>Hydrocarbon liquids and water may be recovered along the gathering system. See AER <i>Directive 017</i>, section 10.</p>	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
Gas plant (GP)		General description	<p>A system or arrangement of equipment used for receiving, measuring, and processing raw gas. Processing refers to the extraction of inert components, natural gas liquids, and water from the raw inlet gas through the use of dehydration, regenerative sweetening, and hydrocarbon liquid recovery processes.</p> <p>Does not include arrangement of equipment or facilities that recover less than 2.0 cubic metres per day (m³/day) of hydrocarbon liquids without using a liquid extraction process (e.g., refrigeration, Joule–Thompson, or desiccant).</p> <p>Does not include an arrangement of equipment or facilities that remove small amounts of sulphur (<0.1 tonnes per day [t/d]) through the use of non-regenerative scavenging chemicals and desiccants.</p>	
	401	Gas plant – sweet	A gas processing/fractionation facility receiving gas that is less than 0.01 mol/kmol hydrogen sulphide (H ₂ S).	Yes
	402	Gas plant – acid gas flaring <1.0 t/d sulphur	A gas processing/fractionation facility receiving gas that is greater than 0.01 mol/kmol hydrogen sulphide (H ₂ S) and less than 1 tonne per day (t/d) sulphur and where the acid gas is flared/incinerated. See AER <i>Directive 017</i> , section 11.4.4.	Yes
	403	Gas plant –acid gas flaring ≥1.0 t/d sulphur	A gas processing/fractionation facility/acid gas flaring receiving gas that is equal to or greater than 1 t/d sulphur and where the acid gas is flared/incinerated. See AER <i>Directive 017</i> , section 11.4.4.	Yes
	404	Gas plant – acid gas injection	A gas processing/fractionation facility/acid gas injection receiving gas that is greater than or equal to 0.01 t/d sulphur and where some or all of the acid gas is injected or disposed of to an underground formation. See AER <i>Directive 017</i> , section 11.4.4.	Yes
	405	Gas plant – sulphur recovery	A gas processing facility where some or all of the acid gas is sent for sulphur recovery. See AER <i>Directive 017</i> , section 11.4.4.	Yes
	406	Gas plant – mainline straddle	A gas processing facility where rich residue gas from gas plants or pipelines is received for additional processing (a second extraction of liquids, primarily ethane) before it leaves the province.	Yes
	407	Gas plant – fractionation	A processing facility that receives hydrocarbon liquids for the purpose of processing off-spec natural gas liquids (NGL) into one or more spec in-stream components. Gas plants that receive and process raw gas should not use the subtype code 407. The fractionation gas plant code should be used when the only processing operation at the facility is the fractionation of off-spec natural gas liquids into spec in-stream components.	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
Injection/ disposal facility (IF)		General description	A system or arrangement of equipment associated with the receipt, measurement, storage, and injection/disposal of substances down one or more injection/disposal wells.	
	501	Enhanced recovery scheme	<p>A facility that receives, measures, stores, and injects substances down one or more flow-lined wells and into an underground formation for the purpose of enhanced recovery where</p> <ul style="list-style-type: none"> all linked wells must have continuous single-phase measurement for each product injected into each well; injection wells must be reported separately from disposal, acid gas disposal, and waste disposal wells; and surface equipment may share the same site as other facilities. <p>Injection activities for wells and facilities for thermal in situ oil sands are to be reported using subtype code 506.</p> <p>Enhanced recovery involves the improvement of hydrocarbon recovery through the injection of fluid into a hydrocarbon reservoir to maintain reservoir energy pressure and displace hydrocarbons to production wells and/or alter the reservoir fluids so that hydrocarbon flow and recovery are improved.</p>	Yes
	502	Concurrent production/cycling scheme	Concurrent production is the production of an oil accumulation and its associated gas cap at the same time.	Yes
	503	Disposal	<p>A facility that receives, measures, stores, and injects substances down one or more flow-lined wells and into an underground formation for disposal, and where</p> <ul style="list-style-type: none"> all wells must have continuous single-phase measurement at the well site; disposal wells must be reported separately from injection, acid gas disposal, and waste disposal wells; and surface equipment may share the same site as other facilities. 	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
	504	Acid gas disposal	<p>A facility that receives, measures, and injects acid gas down one or more flow-lined wells and into an underground formation for disposal where</p> <ul style="list-style-type: none"> all wells must have continuous single-phase measurement at the well site; acid gas disposal wells must be reported separately from injection, water disposal, and waste disposal wells; and surface equipment may share the same site as other facilities. <p>Acid gas disposal is a cost-effective means to dispose of uneconomic quantities of hydrogen sulphide (H₂S) and carbon dioxide (CO₂) into underground formations. The formation types that the AER typically considers suitable for disposal are depleted hydrocarbon-bearing zones or unusable water-bearing zones. The disposal of these waste by-products can reduce public concern about sour gas production and flaring.</p>	Yes
	505	Underground gas storage	<p>A facility that receives, measures, and injects gas down one or more flow-lined wells and into an underground formation for storage where</p> <ul style="list-style-type: none"> all wells must have continuous single-phase measurement at the well site; gas storage wells must be reported separately from injection, water disposal, acid gas disposal, and waste disposal wells; and surface equipment may share the same site as other facilities. <p>Underground storage is used where gas is stored in an underground formation or cavern until a market for the product is available. Products are received from other facilities and injected into the wells' underground storage facility.</p>	Yes
	506	In situ oil sands	<p>A facility that receives, measures, stores, and injects substances down one or more flow-lined wells and into an underground formation for the purpose of enhanced recovery. This subtype code is used for injection activities for wells and facilities within thermal in situ oil sands schemes. See subtype codes 344 and 345. For this facility subtype code,</p> <ul style="list-style-type: none"> all injection wells must have continuous single-phase measurement for each product injected; injection wells must be reported separately from disposal, acid gas disposal, and waste disposal wells; and surface equipment may share the same site as other facilities. 	No, but Petrinex will accept a valid licence
	507	Disposal (approved as part of a waste plant facility)	<p>A facility that receives, measures, stores, and injects substances down one or more flow-lined wells and into an underground formation for disposal.</p> <p>This facility subtype is approved as part of an oilfield waste management facility approval.</p>	No

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
Meter station (MS)	631	Field receipt meter station	A meter station on a pipeline that receives gas from an upstream gas gathering, gas plant, or injection facility. The upstream facility must be an Alberta facility.	No
	632	Interconnect receipt meter station	A meter station on a pipeline that delivers to upstream facilities and reports it as a receipt. The upstream facility must be an Alberta facility.	No
	633	Interconnect disposition meter station	A meter station on a pipeline that delivers gas to upstream facilities and reports it as a disposition. Both the pipeline and the upstream facility must be an Alberta facility.	No
	634	Interconnect non-reconciled meter station	A meter station on a pipeline that reports gas receipts from or delivers to non-reporting or out-of-province facilities.	No
	640	Interconnect PL to PL disposition meter station	A meter station on a pipeline that delivers gas to another pipeline and reports it as a disposition. There are no common stream operators.	No
Oil sands (OS)	801	Oil sands processing plant	A facility for extracting crude bitumen or derivatives of crude bitumen from oil sands. It includes a central processing facility and may include an upgrader.	No
Pipeline (PL)	204	Gas transporter	A facility that consists of a network of interconnected gas pipelines that moves gas within and out of Alberta.	No
	206	Gas distributor	A facility that sells gas through distribution pipelines or systems. It covers the receipt, distribution, import, and export by end-user delivery and customer sectors.	No
	207	Oil pipeline	A facility consisting of a network of interconnected pipelines that move oil and liquid products within and out of Alberta.	No
	208	NGL pipeline	A facility consisting of a network of interconnected pipelines that move natural gas liquids (NGLs) within and out of Alberta. Sometimes NGLs are referred to as liquid petroleum gases (LPGs).	No
Refinery (RF)	651	Refinery	A hydrocarbon distillation facility.	No
Terminal (TM)	671	Tank farm/oil loading and unloading terminal	A system or arrangement of tanks or other surface equipment that receives and measures clean oil, condensate, and other hydrocarbon liquids but does not include separation equipment or storage vessels at a battery approved under the <i>Oil and Gas Conservation Act</i> . Associated with the operation of a pipeline.	No
	673	Third-party tank farm/oil loading and unloading terminal	A system or arrangement of tanks or other surface equipment receiving crude oil by truck for the purpose of delivering crude oil into or removing oil from a pipeline. The facility is operated independently from the pipeline and requires an AER facility licence.	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
	675	Railcar/oil loading and unloading terminal	A system or arrangement of surface equipment that receives and measures clean oil, condensate, and other hydrocarbon liquids for the purpose of delivering into or removing from a railcar but does not include separation and other equipment at a battery approved under the <i>Oil and Gas Conservation Act</i> .	No
Waste plant (WP)	701	Waste processing facility	A system or arrangement of tanks or other surface equipment receiving, processing, and disposing of waste material.	No
	702	Cavern waste plants	A subsurface cavern developed within a salt formation for the purpose of receiving and disposing of waste materials for the eventual recovery of separated hydrocarbon.	No
Water source (WS)	901	Water source	The source of fresh (nonsaline) and brackish water can come from a shallow drilled source well (<150 metres [m]), river, lake, or other surface locations. The location or source of water is reflected by a specific geographic location and is licensed by the AER under the <i>Water Act</i> .	No
	902	Water source battery	A production facility type for AER-licensed source water wells that are drilled or to be drilled to a depth of >150 m. The linked wells may produce either fresh water (nonsaline <4000 total dissolved solids [TDS]) or brackish water (saline ≥4000 TDS).	No All freshwater wells require a diversion licence from the AER under the <i>Water Act</i> .
	903	Brine production	A production facility with brine-production source wells for non-oilfield-related purposes regulated by the Department of Energy.	No
Geothermal (GT)		General definition	A facility producing heat or power or both from geothermal resources below the base of groundwater protection. A geothermal facility may also be used to report temperature data from a geothermal observation well.	
	101	Single-well closed-loop geothermal facility	A geothermal energy production facility with one well configured as a single closed-loop geothermal well.	Yes, if licensable equipment is used
	102	Multiwell closed-loop geothermal facility	A geothermal energy production facility with two or more closed-loop geothermal wells. The wells can be configured as single closed-loop geothermal wells or multiwell closed-loop geothermal wells. If any observation wells share the same locations as the other linked closed-loop geothermal wells, they may also be reported using this facility subtype.	Yes
	105	Multiwell open-loop geothermal facility	A geothermal energy production facility with two or more open-loop geothermal injection and production wells. If any observation wells share the same locations as the other linked open-loop geothermal wells, they may also be reported using this facility subtype. If any closed-loop wells share the same surface locations and equipment as the facility's linked open-loop wells, the closed-loop wells may also be reported using this facility subtype.	Yes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required for a Petrinex reporting code
	106	Observation well geothermal facility	A geothermal facility with one or more geothermal observation wells. The geothermal observation wells are used for reporting subsurface temperatures of geothermal reservoirs.	No
	107	Geothermal power generating facility (no wells)	A geothermal facility that has no wells linked to it but receives geothermal energy from other facilities to generate heat or power for commercial purposes.	Yes

Table 3. AER-issued facility and facility subtypes

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required to obtain a Petrinex reporting code
Battery (BT)	365	Gas multiwell group battery	<p>A production reporting entity for two or more single-well gas batteries that are grouped and reported together under a single reporting code where</p> <ul style="list-style-type: none"> • each gas well must meet the definition for subtype code 351; • all wells must deliver to a common facility; and • multiple gas groups could be delivering to a common facility. <p>Where applicable, the operator may choose to use the “disposition equals production” methodology for reporting condensate and water production. See <i>Directive 017</i>.</p>	No
	366	Gas multiwell proration SE Alberta battery	<p>A production facility for two or more flow-lined shallow gas wells. Production from each well is commingled and sent to a group point with common separation, measurement, and storage. Shallow gas wells are wells that produce from any formation including coals and shales from the top of the Edmonton Group to the base of the Colorado Group.</p> <p>Well production is calculated and reported as prorated. Proration factors are based on proration tests and group measurements. Testing production facilities have no condensate production.</p> <p>Water is not required to be reported at the well level.</p> <p>See AER <i>Directive 017</i>, section 7.2.</p>	No

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required to obtain a Petrinex reporting code
	367	Gas multiwell proration outside SE Alberta battery	A production facility for two or more flow-lined gas wells. This battery type is generally used for low productivity gas wells with low condensate or water production (e.g., CBM). For this facility subtype, wells are tested and not continuously measured; production from each well is commingled and sent to a group point with common separation, measurement, and storage; and well production is calculated and reported as prorated. Proration factors are based on annual proration tests and battery measurement. See AER <i>Directive 017</i> , section 5 for application requirements. See AER <i>Directive 017</i> , section 7.3 for measurement, accounting, and reporting requirements.	No
Gathering system (GS)	622	Gas gathering system	A reporting entity consisting of pipelines that move products (primarily gas) from one facility to another. The facility may also include compressor stations, line heaters, and dehydration equipment located on the system but not associated with any battery, injection facility, gas plant, or other facility. See AER <i>Directive 017</i> , sections 4 and 15. Hydrocarbon liquids and water may be recovered along the gathering system. See AER <i>Directive 017</i> , section 10.	No
Injection/disposal facility (IF)	508	Enhanced recovery scheme	A facility that receives, measures, stores, and injects substances down one or more flow-lined wells and into an underground formation for enhanced recovery and where all linked wells must have continuous single-phase measurements for each product injected into each well; injection wells must be reported separately from disposal, acid gas disposal, and waste disposal wells; surface equipment may share the same site as other facilities; and injection activities for wells and facilities for thermal in situ oil sands are reported using subtype code 506. Enhanced recovery involves the improvement of hydrocarbon recovery through the injection of fluid into a hydrocarbon reservoir to maintain reservoir energy pressure and displace hydrocarbons to production wells and/or to alter the reservoir fluids so that hydrocarbon flow and recovery are improved.	No
	509	Disposal	A facility that receives, measures, stores, and injects substances down one or more flow-lined wells and into an underground formation for disposal. For this facility subtype, all wells must have continuous single-phase measurement at the well site; disposal wells must be reported separately from injection, acid gas disposal, and waste disposal wells; and surface equipment may share the same site as other facilities.	No

General name	Subtype code	Facility subtype	Description	Directive 056 facility licence required to obtain a Petrinex reporting code
Pipeline (PL)	209	Canada Energy Regulator (CER)* regulated pipeline	A facility regulated by the CER consisting of a network of interconnected pipelines that move oil, liquid, and gas products within and out of Alberta.	No
Meter station (MS)	637	CER-regulated field receipt meter station	A meter station on an CER-regulated pipeline that receives gas from an upstream battery, gas gathering system, gas plant, or injection facility. The upstream facility must be an Alberta facility.	No
	638	CER-regulated interconnect receipt meter station	A meter station on an CER-regulated pipeline that delivers gas to an upstream injection facility, battery, gas gathering system, gas plant, custom treater, refinery, or pipeline and reports it as a receipt. The upstream facility must be an Alberta facility.	No
	639	CER-regulated interconnect disposition meter station	A meter station on an CER-regulated pipeline that delivers gas to an upstream injection facility, battery, gas gathering system, gas plant, custom treater, refinery, or pipeline and reports it as a disposition. The upstream facility must be an Alberta facility.	No
Terminal (TM)	672	CER-regulated terminal	A facility regulated by the CER that receives liquids from trucks or pipelines for further disposition.	No

* The Canada Energy Regulator (CER) formerly known as the National Energy Board (NEB).

4.3 Facility Change Request

Changes to facility details can only be done through Petrinex online, not by batch. Changes online can be made to facility names, steam-quality percentages, and meter station to pipeline links.

Facility subtypes cannot be changed as the facility subtype is part of the facility ID. If you entered incorrect data or your facility is modified to the point where the subtype of the facility changes, you must request a new facility ID and change the operational status of the old facility ID to “Suspended.”

If the facility subtype is incorrect or additional wells are added to a single-well battery, you must request a new facility ID and change the operational status of the old facility ID to “Suspended.”

On the Edit Facility Information screen (see below), the start date will already have been entered for you. The start date entered will be, by default, the production month of the last change to the facility information. Any changes you make will be effective the default production month unless you change the start date.

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Edit Facility Information

Facility ID: AB GS 0005555
Start Date: 2012-06
End Date:
Go

Facility Sub-Type: 621 - GAS GATHERING SYSTEM

Facility Location
LE LSD SEC TWP RGE M Licence
00 01 01 001 01 W 6 F0014947

Licencee: ALBERTA PRODUCTS LTD.
Status: AMENDED
Status Date: 2007-06-01

Energy Development Category: Gas processing plant

Facility Name: GAS GATHERING

Experimental Confidential: No

Returned Gas Eligible For Gas Credits
Credit on Fuel: ☐ Yes ☒ No
Credit on Gas Lift: ☐ Yes ☒ No
NGL Transportation Region: 4

Royalty Trigger Facility:
Royalty Trigger Facility:

Submit Cancel

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4.3.1 Changes to the Start Date

You cannot change the start date to one earlier than the first start date available. An exception to this is at a meter station that allows, with approval from DOE Gas Valuation, the start date to be changed.

When you change the start date, Petrinex displays the facility information. If the actual start date for the information displayed is earlier, Petrinex will change the date to the earlier date. This will happen when the date you enter is in the middle of a record that has a broader start and end date range.

For example,

- If you enter a start date of “2001-08” but the database has a start date of “2001-01” and an end date of “2001-12” on record, then those are the dates displayed on the screen, not “2001-08.”
- If you do not want your change to apply to the entire range, you must change the start date to the correct start date (e.g., change the start date to 2001-08). This will result in the previous status ending 2001-07, but keep in mind that your change will have an end date of “2001-12.”
- If you want your changes to cover a period later than “2001-12,” then you must enter them again for the period starting “2002-01.”

You cannot change the end date. Petrinex will enter the date based on the start date you enter.

4.4 Facility Operational Status

The facility operational status is the status of the facility for a specific period of time. The most common statuses you will use are “Active” and “Suspended.” Each time the status changes, the previous status is kept on record. The operator is responsible for ensuring that the facility operational status is correct.

The facility operational status is used when checking for missing volumetric data. In accordance with *Directive 007*, volumetric data must be submitted monthly if a facility is active. Noncompliance fees will apply if volumetric data for an active facility hasn’t been submitted. Submissions for reporting facilities that are abandoned or suspended will be rejected.

Facility operational status is also checked when you send volumetric submissions. If a receipt activity is submitted and the “From/To” facility ID does not have an “Active” status, Petrinex will not accept the receipt submission. The facility operational status is not changed to “Active” until the sending operator submits a volumetric submission for the production period to Petrinex or the sending operator changes the facility operational status to “Active.” Confirm that the facility ID of the sending facility is correct. If correct, contact the operator of the sending facility and request that the facility operational status be changed to “Active.”

The facility operational status will automatically change in the following cases:

- Petrinex will set the facility operational status to “New” when a new facility ID is issued.
- Petrinex will change the facility operational status to “Active” when you submit a volumetric submission if the status is “New.” You do not have to change the status to “Active” prior to submitting volumetric data for the facility for the first time. However, if another facility is receiving product from you, the operator of the receiving facility will not be able to report the receipt until your facility is active.
- Petrinex changes the facility status to “Active” when the “New” facility is linked to a new well using the edit well status function.
- The AER will change a facility operational status to “Abandoned,” “RecCertified” (reclaimed certified), and “RecExempt” (reclaimed exempt) when it receives information related to those statuses and updates the facility licence. Abandonment information must be sent by the operator to the AER via the designated information submission system, accessible at www.aer.ca (see [Directive 020: Well Abandonment](#) and [Directive 059: Well Drilling and Completion Data Filing Requirements](#)).

Operators must change the facility operational status to “Suspended” using the Change Facility Operational Status screen if all wells linked to the facility are suspended and the facility has no opening inventory.

If the facility has closing inventory the operator must continue to submit a volumetric submission until the inventory has been disposed of.






The operator of the facility must change the status to “Suspended” if it no longer submits volumetric data to Petrinex. This is an online process only.

4.4.1 Retroactive Changes

Only the current operator can make retroactive facility operational changes. If a facility is made “Active” retroactively, volumetric submissions should be filed for each month it is “Active,” or the facility could be subject to noncompliance penalties.

4.4.2 Changing Facility Operational Status

When you first enter the Change Facility Operational Status screen, you will see the operational statuses for the facility. All statuses of the facility after Petrinex implementation will be listed, both historical and current. Any status of a facility prior to Petrinex implementation will not be listed. As a result, what you see may not be a complete picture of the facility.






BA: AB Name:

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Change Facility Operational Status

Facility ID: AB BT 1234567
Facility Name: OIL & GAS BATTERY 7-12

Go






Operational Status	Change Status To	Start Date	End Date
NEW	NEW	1994-01	2002-09
ACTIVE	ACTIVE <input type="button" value="v"/>	2002-10	
	SUSPENDED <input type="button" value="v"/>	2006-06	
	<input type="button" value="v"/>		

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4.5 Facility Operator Changes

4.5.1 Request Facility Operator Change Screen

Make facility operator changes on the Request Facility Operator Change screen in Petrinex.






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Request Facility Operator Change

New Operator: ABCD
New Operator Name: ENERGY OIL & GAS LTD.

Start Date: 2014-09

Go

Authorize new operator to make prior period amendments for volumetrics:
☐ No ☐ Yes

Selected Facilities

4.5.2 Deadline for Requesting Changes

The current operator of a facility must request a facility operator change before the filing deadline for the production month of the change. Retroactive operator changes are not allowed.

4.5.3 Concurrence

Within Petrinex, a process known as concurrence assists current operators in getting approval for a change from a new operator. The process is done online and is triggered as soon as a change request has been made. Petrinex sends an email notification to the new operator requesting that it either accept or decline the request. The current operator receives notification back as to the outcome of the request. Updates will be made as soon as the operator accepts the change. Check your notifications to see if your request has been accepted by the new operator before the volumetric filing deadline.

The operator of record of a facility at the filing deadline is responsible for the volumetric submission. The new operator will not be able to submit volumetric data to Petrinex until the change of operator has been updated in Petrinex. If the new operator declines the change or does not respond within seven days or before the volumetric filing deadline, the facility operator will not change and the current operator will continue to be responsible for any volumetric submissions.

4.5.4 Requesting the Change

Before requesting a facility operator change, you must be aware of the following:

- The current operator enters the new operator code and the production month of the operator change.
- The start date will default to the current production month. Do not change the start date if you are making facility operator changes for the current production month. If making a facility operator change for a future reporting production month, change the start date to that production month. You cannot enter a date earlier than the current production month.
- Petrinex lists all the facilities you can request a change in operator for, including any suspended and abandoned facilities. To see the list, click the add facility button. You will be directed to a new screen called an identifier list builder. Click on the box to the left of the facilities for which you need to change the operator. Once complete, click “OK.” You will then be taken back to the Request Facility Operator Change screen. All facilities selected for the operator change will be listed. If a facility is not listed, it means that you have not been given access to do operator changes, an operator request already exists for the facility, or you are not the operator of the facility.
- Before submitting the change, indicate whether you want the new operator to have the authority to make prior period amendments to volumetric data by selecting yes or no. After you submit your request, the concurrence process is triggered (see section 4.5.3). Ensure your request is accepted by the new operator before the volumetric filing deadline. Check your notifications. Changes are effective once the new operator accepts the change.

4.6 Well-to-Facility Links

Wells that are producing or injecting must be linked to the facility ID of the facility that the well is physically producing or injecting at. Three different processes are used to manage well-to-facility links:

- Well status changes
 - When a well is first placed on production or on injection or the well's status is changed to one that indicates volumetric data are to be submitted, you must link the well to a facility ID using the Edit Well Status screen (see section 5).
- Well-to-facility link changes
 - Changes to a well-to-facility link for the current production month are done using the Request Well to Facility Link Change screen.
- Retroactive well-to-facility link changes
 - Changes to well to facility links for an earlier period (retroactive changes) are done using the Request Retroactive Well to Facility Link Change screen. You will be able to retroactively link a well to a different facility or change the start date of an existing link.

To use either the Request Well to Facility Link Change screen or the Request Retroactive Well to Facility Link Change screen the well must already be linked to a facility. If your well does not have a well-to-facility link, you must update the well status to one that requires you to link it to a facility before you can make any changes.

A single well linked to a different facility ID after the first of the month must be reported on both facilities. The well may not be reported as shut-in at one facility ID and producing at another facility ID.

4.6.1 Concurrence

Within Petrinex, a process known as concurrence assists current operators in getting approval for a change from a new operator. The process is done online and is triggered as soon as a change request has been made. Petrinex sends an email notification to the new operator requesting that it either accept or decline the request. The current operator receives notification back as to the outcome of the request. Concurrence is only required for current month changes when linking a well to a facility.

If the operator of the facility that you are linking your well to declines the change or does not respond within seven days or before the volumetric filing deadline, the well will remain linked to your facility, and you will be responsible for any volumetric submissions (see section 4.6.2).

Concurrence is not required

- when linking a well using the Well Status Change screen. For certain types of well status changes, the well must be linked to a facility. The well status change is accepted immediately, including the well-to-facility link (see section 5).
- when making retroactive well-to-facility links. It is expected that this process will primarily be required for situations where production or injection volumes were reported to the wrong well or well event. The well may historically have been linked to more than one facility with different operators. All operators would have to agree to the change prior to any portion of the change being accepted.
- if the operator is the same for both facilities. These kinds of well-to-facility link changes are effective immediately upon the request being submitted. No notifications are sent.

4.6.2 Current Production Month Well-to-Facility Link Changes

Before submitting a request for a well-to-facility link change in the current month, you should be aware of the following:

- The operator of the facility that a well is currently linked to enters the current facility ID and the new facility ID that the well or wells are to be linked to.
- The start date will default to the first day of the current production month. If the well change did not occur on the first day, you must change the day.
- If you want to move more than one well but each well has a different start date, you must do each well individually. The bottom portion of the Request Well to Facility Link Change screen (see below) shows all wells currently linked to the facility that are available to be moved.
- The wells you move from the available column to the selected column are those to be moved to the new facility.

After submitting the request, if the operator of the new facility is different from the current operator, the concurrence process will be triggered. The current operator must ensure that the request is accepted by the operator of the new facility prior to the volumetric filing deadline by checking Petrinex email notifications. The change is effective as soon as the new operator accepts the change. Concurrence is not required if the operator is the same for both facilities and the change is accepted immediately. No change notifications are involved.






		BA: AB Name:
[Infrastructure] > [Facility Infrastructure] > [Well to Facility Links]		
<h2>Request Well to Facility Link Change</h2>		
Current Facility ID: AB BT 0001234 New Facility ID: AB BT 0005678 New Operator: ABCD ENERGY OIL & GAS LTD.	Current Facility Name: INVERNESS VALHALLA 7-16 New Facility Name: SIGNALTA MITSUE 13-20	Start Date: 2014-08-01 <input type="button" value="OK"/>
Available Wells AB WI 102071607508W600 CNRL VALHALLA 7-16-	<input type="button" value="Left Arrow"/> <input type="button" value="Right Arrow"/>	Selected Wells AB WI 102061607508W600 CNRL VALHALLA 6-16-
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>		

Midmonth well-to-facility links: When you enter a start date that is not the beginning of the current production month, you continue to be responsible for any volumetric submissions at your facility for the period up to the day the well is changed. If the well is an active well for the entire month, it must be reported at both facilities.

4.6.3 Retroactive Well-to-Facility Link Changes

Before submitting a request for a well-to-facility link change in a prior month, you should be aware of the following:

- The operator of the facility that the well is currently linked to enters the well ID. This will show the facilities the well has been linked to with the start and end dates. This history only goes back as far as Petrinex implementation (October 2002 production month). You will not see, nor be able to enter, retroactive changes for production periods before Petrinex implementation.
- You can link a well to a different facility or change the start date of an existing link. Petrinex will change the end dates based on any new start dates that are updated. Prior to a change to a facility link being accepted, Petrinex will perform edits.
- You cannot change the current production month well to facility link using the Request Retroactive Well to Facility Link Change screen (see below).






BA: AB
Name:

Menu Inbox Help Contacts Logout

Request Retroactive Well to Facility Link Change

Well ID: AB WI 100132000111W400
Name: VISION ET AL KNAPPEN 13-20-1-11

Go

Well to Facility Links

Facility	Name	Start Date	End Date
AB BT 0000022	KNAPPEN 14-6-1-11w4	2004-03-17	
AB BT 0000023		2004-04-17	

Add Submit Cancel

[Menu-Inbox-Help-Contacts-Logout](#)
[Top-AB](#)

- You cannot change the date of the earliest well facility link to an earlier date. This can only be done by a well status change. (If the earliest date is that of Petrinex implementation, you cannot change the date in Petrinex.)
- Volumetric data cannot exist for the facility that the well is being changed from.
- You cannot link another well to a single-well battery.
- You cannot link a gas well to an oil battery (see appendix 10).
- You cannot link an oil well to a gas battery (see appendix 10).

Plan these types of changes early to ensure that you do not perform the change too close to the AER filing deadline. Such changes may generate error messages. Errors not corrected before the AER filing deadline will result in volumetric noncompliance fees (see section 1.3).

Once a change has been accepted, you must ensure that the required volumetric amendments are submitted. If you link a well to another operator's facility, be sure that you have communicated with the operator of the facility and have come to agreement about any necessary amendments required. The operator of record for the period will receive all error notices that result from such changes. Concurrence is not required if you retroactively link a well to a facility that was operated by a different operator. A notice will be sent to the operator of the new facility informing them of the wells being linked to their facility retroactively.

4.6.4 Corporate Amalgamations

BA operators that are amalgamated have 90 days to handle any remaining submissions and amendments in Petrinex after being amalgamated. This is the amalgamation established date. During the 90-day period, the amalgamatee must submit a facility operator change request to move all its operated facilities (regardless of status) to the new active BA operator; if access to prior period volumetrics is desired, it can select “Yes” to prior period amendments for the subject facilities.

The amalgamatee will no longer have access to make current month submissions to Petrinex once the amalgamation established date has passed. Changes to this date can be made by contacting Alberta Crown Land Data at 780-644-2300, extension 4, before the deadline.

4.7 Water Source ID Requests

Water source IDs are for reporting the receipt of water from the water source at the injection facility. All operators of injection facilities with a new, shallow, unlicensed well or surface water source (river/lake) must have a water source ID. Water source IDs are issued by Petrinex and is an online process.

4.7.1 Request Water Source ID Screen

Requests for a water source ID are done through the Request Water Source ID screen (see below). Once operators access this screen, they must enter the required data.

Petrinex issues a water source ID only after it validates the data entered. New water source IDs are assigned an “Active” status.

Menu Inbox Help Contacts Logout AB BA: Name:

[Infrastructure] > [Facility Infrastructure] > [Setup/Maintenance]

Request Water Source ID

Water Source ID: Start Date: 2014-08 End Date:

Location: LE LSD SEC TWP RGE M W

Name: Code: Description:

Status: Active

Submit

Menu-Inbox-Hel

4.7.2 Location

Enter the surface location of the shallow unlicensed well or the location of the pump for a river, lake, or other body of water. Petrinex will assign a location exception (LE). The first water source ID is assigned “00” as its LE. If more than one water source exists on the same location, the next water source ID is assigned “02” as its LE.

4.7.3 Water Source Codes

Enter the water source code. This code helps identify where water is being taken from. A complete list of water codes is provided in the Water Source Code Table in the “Attachments” section of the [Directive 007](#) webpage.

- For shallow water source wells, use the “Fresh Water” code, 0980553.
- For rivers and lakes, search the list for a code for the specific river or lake.

Once you select a code, Petrinex fills out the description for you. If a code does not exist for your water source, contact the Petrinex service desk.

4.7.4 Suspending a Water Source ID

Water source IDs no longer in use may have their status changed to suspended. There is no missing volumetric noncompliance fee associated with not reporting a water source ID.

4.8 Linking and Reporting Licensed Water Source Wells

Water volumes from water source wells must be reported as the activity PROD, along with the product, hours, and volume. Water source wells can only be linked to

- an injection facility (AB IF)
- a battery (AB BT) with facility subtype 902

These wells can only be linked to a single facility of either type, but not to two facilities at the same time.

- If linked to a battery (BT) and the PROD activity was reported there, then you need to report a receipt at the injection facility (IF) from the battery in order to have the injection facility balance.
- If linked to an injection facility (IF) and the PROD activity was reported there, the summary screen and facility balancing reports will reflect the PROD activity.

5 Well Status Changes

The status of a well identifies the activity and initial classification and fluid of the well event. Licensees that need to change the status of a well must submit the change through Petrinex. Well status changes may be submitted to Petrinex by batch or online. Well statuses are listed in appendix 7.

5.1 Well Statuses Derived from Designated Information Submission Systems

A few well statuses (see table 4) are derived from the drilling and completions data and abandonment data sent to the AER using designated information submission systems and cannot be changed by the licensee through Petrinex. These derived statuses are part of a well's status and may need to be set up in Petrinex before a well status change can be accepted. The AER sends these derived well statuses to Petrinex as they are processed and changed at the AER.

Table 4. Well statuses derived from designated information submission system submissions

Well type	Well status descriptions
Abandoned	A well that has been drilled, the downhole abandonment work completed, and/or surface abandonment detail submitted.
Abandoned – re-entered	A well that has been abandoned (downhole and surface) and subsequently re-entered on a re-entry licence or a resumption application.
Abandoned and whipstock	A portion of a well that has been drilled and then abandoned and that requires an event sequence to be created. A whipstocked leg is then drilled from the original wellbore.
Drilled and cased (DRL&C)	A well that has been drilled and cased but not immediately put on production. For uncased oil sands evaluation wells, use the DRL&C initial status code.
Drain (DRAIN)	More than one event (leg) in a multileg well is open to the same formation and is capable of production. The event that you consider to be the main contributor of production carries the producing status. The other contributing events carry a drain status. In a resumption or re-entry situation, if one of the events has previously produced and has been assigned a defined pool, it remains as the producing event and the other events carry a drain status.
Closed (authorized by AER order)	A well that has been shut in by AER closure order resulting in the company not being able to operate the well. The "Closed" status is applied with a status date of the enforcement of the order. When the discrepancy is cleared and the closure order rescinded, the AER updates the well status prior to the closure order.
Preset	A well that has had surface casing set and in which drilling has not continued to the licensed total depth.

5.2 Notification

The AER must be notified of a change to the status of a well within 14 days of the change or before volumetric data is submitted (if required), whichever comes first. This allows the AER to maintain current records on unique well information, including

- well status
- pool code or oil sands deposit code
- well status dates

If a well status change is not submitted in a timely manner, it may prevent the submission of associated volumetric data, which if not received before the volumetric deadline, could result in AER volumetric noncompliance fees.

5.3 Required Information for a Well Status Change

For most well status changes, only the well status and well status date will require updating. However, some changes will require additional information. This additional information is described in the sections that follow (see sections 5.3.1 to 5.3.3).

5.3.1 Wells Placed on Production or Injection for the First Time

When placing a well on production or on injection for the first time, enter the

- well status date (defaults to the on-production or on-injection date and the well-to-facility link)
- gross completion intervals
- pool or deposit codes
- facility ID of the facility the well is linked to

5.3.2 Commingling Zones Within a Well

When commingling zones within a well,

- select the event that will be the reporting event
- click the “Add” button to add new status (same status as previous status)
- enter the well status date (indicates when commingled production began)
- update gross completion interval (GCI), pool, or deposit codes
- select the appropriate commingling process (production strategy) in the wellbore
- click the commingle events button
- enter the commingling approval or MU order number when required (see [Directive 065: Resources Applications for Oil and Gas Reservoirs](#))
- select the well events involved in the commingling

5.3.3 Changes to a Well Type

When changing a well type (e.g., flowing to injection), enter the

- well status date (defaults as the start date for the well-to-facility link)
- facility ID of the facility the well is linked to

5.4 Modifying or Deleting a Well Status Updated by the AER

While you can add a new well status, delete a well status entered in error, modify a status previously entered, or any combination thereof, you cannot modify or delete a well status updated by the AER. If one of the well statuses updated by the AER needs to be changed, you must submit corrected information to the AER via the designated information submission system.

5.5 Suspending and Reactivating Inactive Wells

In accordance with *Directive 013*, all inactive wells must be suspended in two places: Petrinex and the designated information submission system.

- In accordance with *Directive 007*, the well status must be suspended through Petrinex.
- In accordance with *Directive 013*, well licence suspensions must be reported to the AER via the designated information submission system. In accordance with *Directive 013*, the reactivation of a well from suspension must be reported to the AER via the designated information submission system within 30 days following the resumption of production or injection of the well. For more information, see [Directive 013: Suspension Requirements for Wells](#).

5.6 Validating a Well Status Change

Petrinex validates each well status change to ensure data entered follows a logical sequence of events. Petrinex may also validate a change in well status by checking the previous status of the well. The following are examples of how some well statuses are validated:

- Wells placed on production for the first time – The status of a well placed on production for the first time must be “drilled and cased.” Perforation and packer data must also be available. This information will only be updated to the well event when the AER has received and processed the drilling and completion data for the well event. Only after the updates are complete can a well be placed on production.
- Wells being suspended – Wells being suspended must have a previous active well status such as “flowing” or “pumping.”
- Wells statuses changed from oil to gas – When a well status is being changed from “oil” to “gas” or vice versa, an application for approval of the fluid change must be submitted to the AER’s Reserves Group. If that group approves the change in well status, it will update the well status change and link the well to the new facility through Petrinex. The operator must include the following information with the application:
 - well ID
 - current status
 - new facility ID

- proposed effective date of the change
- reason or explanation for requesting the change

5.7 Editing a Well Status

Changes to the status of a well are done online through the Edit Well Status screen (see below). Enter the unique well ID and the well licence number. Petrinex will validate what you enter to confirm that you are the licensee of the well. You should be able to see the well name, licence issue date, licensee, licence status, licence status date, and well status history already on the screen.

Edit Well Status

Well ID: AB WI 100010100101W400 **Licence No:** 0044085 **Licence Issue Date:** 1972-11-08
Name: OIL & GAS BATTERY 1-01 **Licensee:** ABCD ENERGY OIL & GAS LTD.

Licence Status: Issued **Licence Status Date:** 1972-11-08

Well Status	Well Status Start Date	Facility Link Start Date	Facility Link(s)
GAS FLOW N/A N/A	2000-05-03		ABBT2470002
N/A DRL & C N/A N/A	1972-11-29		
N/A N/A N/A N/A	1972-11-08		

INSERT will place a new well status prior to the selected status.

Gross Completion Interval Top: 862.60 **Base:** 865.50 **GCI Confirmation Status:** CONFIRMED
Field: 0247 FIELD ABC

Pool: 0110101 POOL ABC
Pool Confirmation Status: CONFIRMED

5.7.1 Adding a Well Status

To add a new well status, click the add button. Select the well status you want to add from the drop-down list (see appendix 7). Do not forget to enter a status date. Click OK. You will be required to add additional information on the next screen. Click submit once complete. Petrinex will then validate the information entered. If the validation is successful, the change will be made immediately. If there is a problem, Petrinex will inform you of what is wrong. Some sort of corrective action will be needed before trying to submit the status change a second time.

[\[Infrastructure\]](#) > [\[Well Infrastructure\]](#)

ADD Well Status Details

	Well Status	Status Date
New Status:	GAS SUSP N/A N/A	2009-09-15
Before Status:	GAS FLOW N/A N/A	2008-08-15

OK Cancel

5.7.2 Deleting a Well Status

To delete a well status, select the current status from the well status history and click the delete button.

To delete an active status associated with volumetric data submissions, you must first remove all the associated volumetric records before it can be deleted. To confirm the Delete Well Status request, simply click the Submit button at the bottom of the screen.

DELETE Well Status Details

Well ID: AB WI 100010100101W400 Licence No: 0001234 Licence Issue Date: 1972-11-08
 Name: Licensee: ABCD ENERGY OIL & GAS LTD.

Licence Status: Issued Licence Status Date: 1972-11-08

Well Status: GAS FLOW N/A N/A Status Date: 2000-05-03

Gross Completion Interval Top: 862.60 Base: 865.50
 Field: 0247 COMREY Pool: 0110101 POOL ABC Commingling Process: None
 Deposit: Commingling Eff Date: 1972-11-08 00:00:00
 Undefined Pool:

Facility ID Facility Name
 Facility Link: AB BT 0001234
 Facility Link:

Submit Cancel

5.7.3 Modifying a Well Status

To correct a previously entered status, select the status from the history box and click the modify button. Change the well status by selecting a new well status from the drop-down list. Change the well status date if necessary. Click OK. You may be required to add additional information on the next screen. Click submit once complete. Petrinex will then validate the information entered. If the validation is successful, the change will be made immediately. If there is a problem, Petrinex will inform you of what is wrong. Some sort of corrective action will be needed before trying to submit the status change a second time.

When you have a need to modify or insert a status that is not the “current well status,” Petrinex checks the status to the previous and next history status.

[\[Infrastructure\]](#) > [\[Well Infrastructure\]](#)

Modify Well Status Details

	Well Status	Status Date
New Status:	<input type="text" value="GAS SUSP N/A N/A"/>	<input type="text" value="2013-09-30"/>
Before Status:	GAS FLOW N/A N/A	2004-05-06

5.8 Add Well Status Detail Screen Requirements

The Add Well Status Detail screen (see below) shows the current information for the well. It is on this screen that you enter the missing GCI, pool, and facility information or modify the existing information. In the example below, all the GCI, pool, and facility information is blank because this is the first active status being added for this well. Each of the fields for which you can enter data is described in the sections that follow (see sections 5.8.1 to 5.8.6).

ADD Well Status Details

Well ID: . AB WI 100010100101W400

Licence No: 0001234 Licence Issue Date: 1972-11-08

Name: AB BT 0001234

Licensee: ABCD ENERGY OIL & GAS LTD. TED

Licence
Status: IssuedLicence Status
Date: 1972-11-08

Well Status: CR-OIL FLOW N/A N/A

Status Date: 2013-01-01

Gross Completion Interval Top: <input type="text"/>		Base: <input type="text"/>	Perforation/Packer
Field: 0534	FIELD ABC	Pool: <input type="text"/>	Commingling Process: <input type="text" value="None"/>
			Commingling Eff Date: 1980-05-01 00:00:00
		Undefined Pool: <input type="text"/>	
Facility ID		Facility Name	
Facility Link: <input type="text"/>			

Commingling Events**Submit** **Cancel****5.8.1 Gross Completion Interval**

The gross completion interval (GCI) represents the completed interval for perforations, open-hole completions, slotted liners, or multistage fractures open to pools or deposits that contribute to production or are being injected or tested.

- Any GCI with a status other than CONFIRMED is not considered a valid submission.
- The measured depth must be in metres below kelly bushing (mKB). Report depth to a maximum of five digits, including two decimal places. Petrinex can accept a GCI depth of up to 99 999.99 mKB.
- Report only the completed interval that is contributing, not the pay, permeable, or porous interval.
- Report the top and base of the GCI. Both values should align with the appropriate perforation, slotted liner, open hole, or multistage fracture intervals.
- Completion (e.g., perforation) data are updated in Petrinex from data submitted via designated information submission systems. Completion data must be in Petrinex, or you will be unable to update the well's status or GCI. View the completion and packer data for the well by selecting the perforation/packer button.
- You can only change the GCI when adding a new well status or by clicking the GCI button.
- When submitting completion data indicating open intervals (perforations, slotted liner, open hole, and multistage fracture), the GCI within Petrinex must reflect the current open and contributing intervals. For closing an open and contributing interval, you must update the GCI within Petrinex to reflect the

GCI of the remaining open and contributing intervals. If you are unsure which completion belongs to which well event sequence, contact your operations group or refer to *Directive 059: Well Drilling and Completion Data Filing Requirements*.

5.8.2 Field Code

This is the field code that the AER has assigned to the well.

5.8.3 Oil Sands Area Code

If the well is in an oil sands area, this will also be displayed. The AER will assign the area code.

5.8.4 Pool, Deposit, and Undefined Pool Codes

You must enter a pool, a deposit, or an undefined pool code. The status of the code will be set to “Tentative” until the AER confirms that it is correct. If necessary, the AER Reserves Group will change the code to the correct pool, deposit, or undefined pool. Once its review is complete, the AER will change the status of the code to “Confirmed.” Once confirmed, only the AER can change a pool code. The exception is for southeastern Alberta pools.

- You must enter a pool, a deposit, or an undefined pool code.
- If the well has an area code and is a crude bitumen well or an injection well in the oil sands area, enter a deposit code.
- Enter a pool code for a gas well or a disposal well, even if they have an area code.
- Wells that are only assigned to a field will have a pool code entered.
- You can select a pool or deposit code from the appropriate list. This list will only display the designated pools for the field as defined in the AER F and G orders. If your pool code is not listed, it has not been designated by the AER. In that case, you must enter the formation in the undefined pool. Select a deposit code from the list, as undefined deposits are not allowed.

5.8.5 Facility Link

Wells must be linked to the appropriate facility ID. The start date of the well-to-facility link will default to the well status date. However, if the well status date is prior to implementation, the well-to-facility link will be October 1, 2002.

Some well statuses allow you to link a well to two facilities. Cyclical, SAGD, and storage wells may be reported at a battery and an injection facility at the same time. Geothermal wells may be linked to a geothermal facility and a battery at the same time (if incidental hydrocarbons are produced). If the well is to be reported at more than one facility, enter both of the facility IDs.

If you are doing a retroactive well status change and the well has been linked to different facilities during the retroactive period, enter the facility that the well was linked to for the well status date. Then use the well-to-facility processes (current or retroactive) to change the well links.

A producing well can only be linked to one battery at a time. An injection well can only be linked to one injection facility at a time.

When a well delivers to more than one gathering system or gas plant during the month, you will report two deliveries from the battery. The well can only be linked to one battery at any one time.

5.8.6 Making Commingling Changes Online

Six options exist for identifying the commingling process (production strategy) in the wellbore as detailed in section 3.1 of *Directive 065*.

- **None:** For single pool completions. It is also the default selection.
- **Development Entity (DE) No. 1:** For wells producing commingled gas from DE No. 1 in accordance with the self-declared decisional criteria.
- **Development Entity (DE) No. 2:** For wells producing commingled gas from DE No. 2 in accordance with the self-declared decisional criteria.
- **MU Commingling Order:** This must be chosen when an application was approved from commingling resulting in an MU Order.
- **Self-declared (SD) gas:** For wells producing commingled gas in accordance with the self-declared decisional criteria.
- **Self-declared (SD) oil:** For wells producing commingled oil in accordance with the self-declared decisional criteria.

Choose the temp commingled code 0999660 (TEMP COMMINGLED CODE) when reporting commingled production for the first time regardless of the commingling process used. The DE and SD commingling codes will remain in the drop-down pool code listing for AER use. However, effective February 3, 2011, these codes should not be chosen to report commingled production.

All the well events involved in the commingling will have a common GCI, a (commingled) pool code, and well status start date. Usually, the commingled production from all pools is reported as a total volume to one well event.

A commingling well status change is made for the reporting well event by clicking modify or add on the Edit Well Status screen. On the Well Status Detail screen, the commingle events button is used to display possible commingled well events, and the user selects the check box beside the well event to be

commingled. Petrinex will apply the commingled status, GCI, and pool updates based on the details of the reporting well event. The reporting well event status details will be updated as entered by the user.

The MU order may require that production be allocated to each pool based on a percentage. If required, the MU order will identify the percentages to be used. If percentages are required, do not change the well status to commingled but continue to report production from each well event (pool) separately.

Commingled well events will be linked to the reporting event. Any subsequent change to the reporting event well status date, pool, or GCI will be applied to the commingled well events linked to the reporting well event for that effective period.

ADD Well Status Details

Well ID: . AB WI 100010100101W400

Licence No: 0001234

Licence Issue Date: 1972-11-08

Name: AB BT 0001234

Licensee: ABCD ENERGY OIL & GAS LTD.

TED

Licence Status:

Issued

Licence Status Date:

1972-11-08

Well Status: CR-OIL FLOW N/A N/A

Status Date: 2013-01-01

Gross Completion Interval Top:

Base:

Perforation/Packer

Field: 0534

FIELD ABC

Pool:

...

Commingling Process:

None

Commingling Eff Date:

1980-05-01 00:00:00

Undefined Pool:

...

Facility ID

Facility Name

Facility Link:

...

Commingling Events

Please ensure that all commingling is in accordance with Directive 65.

Approval Number:

CommingledWell

CurrentStart

EventStatus

Date

Submit

Cancel

The approval and other events are not shown on the Add Well Status Details screen. To view them, you must click the commingle events button. Enter the approval number if required. The AER needs this number to ensure that approval to commingle the pools is in place. See *Directive 065* for further details on approval requirements.

To commingle a well ID (event) with the reporting event, select the commingled check box on the Add Well Status Details screen. A “Commingled” well status will be assigned to all selected well events.

The well ID (event) that was selected at the beginning (when the add or modify button was clicked) will report the total commingled production volume for all well events involved in the commingling. The well selected to report production must be a producing well status (see appendix 7).

You may find that only one event has been created for the commingled pools. This is most common in southeastern Alberta, where many pools and combinations of those pools are approved. A well may be completed in multiple pools immediately; as long as each pool is not produced separately, a well event is not created for each pool. When a well is completed in more than one pool and only one event exists, you do not use this process. Instead, use the well status change.

When selecting the reporting well event, as opposed to the commingled well event, select the deeper of the commingled pools as the reporting well event:

- If a 0 event and 2 event are commingled, select the 0 event as the reporting event and commingle the 2 event.
- If a 0 event, 2 event, and 3 event are commingled, select the 0 event as the reporting event and commingle the 2 and 3 events.
- If a 2 event and 3 event are to be commingled, select the 2 event as the reporting event and commingle the 3 event.

In accordance with *Directive 059*, when multiple pools are commingled, provide the GCI from the top of the upper commingled zone to the bottom of the lower commingled zone.

When drilling and completion data submitted result in two or more well events to be created, you must select the well events relating to the commingling of specific pools.

Appendix 1 Activity Transactions

Activity code	Activity name	Description	Reporting facility types allowed to enter the activity	Products
BHMIN	Monthly bottomhole minimum temperature	An operator will enter the minimum (lowest) bottomhole temperature measured during the production month for geothermal observation wells only.	• geothermal	N/A
BHAvg	Monthly bottomhole average temperature	An operator will enter the average (mean) bottomhole temperature measured during the production month for geothermal observation wells only.	• geothermal	N/A
BHMAX	Monthly bottomhole maximum temperature	An operator will enter the maximum (highest) bottomhole temperature measured during the production month for geothermal observation wells only.	• geothermal	N/A
WHIMIN	Monthly wellhead in minimum temperature	An operator will enter the minimum (lowest) temperature of the fluid going downhole during the production month for geothermal wells (excluding geothermal observation wells).	• geothermal	N/A
WHIAvg	Monthly wellhead in average temperature	An operator will enter the average (mean) temperature of the fluid going downhole during the production month for geothermal wells (excluding geothermal observation wells).	• geothermal	N/A
WHIMAX	Monthly wellhead in maximum temperature	An operator will enter the maximum (highest) temperature of the fluid going downhole during the production month for geothermal wells (excluding geothermal observation wells).	• geothermal	N/A
WHOMIN	Monthly wellhead out minimum temperature	An operator will enter the minimum (lowest) temperature of the fluid coming out of the well during the production month for geothermal wells (excluding geothermal observation wells).	• geothermal	N/A
WHOAVG	Monthly wellhead out average temperature	An operator will enter the average (mean) temperature of the fluid coming out of the well during the production month for geothermal wells (excluding geothermal observation wells).	• geothermal	N/A

WHOMAX	Monthly Wellhead Out Maximum Temperature	An operator will enter the maximum (highest) temperature of the fluid coming out of the well during the production month for geothermal wells (excluding geothermal observation wells).	<ul style="list-style-type: none"> • geothermal 	N/A
DIFF	Metering difference	Petrinex will enter DIFF and the metering difference volume to report the difference in measurement between facility inlets (production, receipts) and outlets (dispositions, injection) after accounting for all other activities (e.g., fuel, flare). Petrinex will calculate the metering difference volume for each product group using the information reported at a facility.	<ul style="list-style-type: none"> • battery • gas plant • gas gathering • injection • meter station • pipeline • refinery 	GAS, SOLV, WASTE, WATER
DISP	Disposition	Petrinex will enter DISP using the corresponding receipt from the receiving facility. When Petrinex enters the DISP code, it will not allow the from/to facility ID, product, or volume to be changed. When there is no corresponding downstream facility, the facility operator enters the activity DISP, the from/to ID that may be a miscellaneous ID, and volume.	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • meter station • pipeline • refinery • terminal 	All products
EMIS	Emissions	An operator will enter EMIS to report the calculated sulphur tonnes of emissions that may originate from flaring, low-pressure-produced water flash gas, and flaring of glycol dehydrator vent gas.	<ul style="list-style-type: none"> • battery • gas plant • gas gathering • injection 	SUL

FLARE	Flare	An operator will enter FLARE to report the volume of gas flared during well or facility operations. The operator of the facility must identify where the flare occurred by entering the well identifier or facility ID as the from/to. This includes any flare that occurs at compressor stations not located on the same location as the reporting facility.	<ul style="list-style-type: none"> • battery • custom treater • gas gathering • injection • pipeline • refinery • terminal • waste plant 	GAS, C2-MX, C2-SP, C3-MX, C3-SP, C4-MX, C4-SP, C5-MX, C5-SP, C6-MX, C6-SP, ENTGAS, IC4-MX, IC4-SP, IC5-MX, IC5-SP, LITEMX, NC4-MX, NC4-SP, NC5-MX, NC5-SP
		An operator will enter FLARE to report the volume of gas flared during facility operations. The operator of the facility must identify where the flare occurred by entering the facility ID as the from/to. This includes any flare that occurs at compressor stations not located on the same location as the reporting facility.	<ul style="list-style-type: none"> • gas plant 	GAS, ACGAS, C2-MX, C2-SP, C3-MX, C3-SP, C4-MX, C4-SP, C5-MX, C5-SP, C6-MX, C6-SP, ENTGAS, IC4-MX, IC4-SP, IC5-MX, IC5-SP, LITEMX, NC4-MX, NC4-SP, NC5-MX, NC5-SP
FRAC	Fractionation yield	An operator will enter FRAC when a facility receives natural gas liquids as a mixed product and then fractionates (splits) the mix product into component products (e.g., spec propane, butanes) for delivery to market.	<ul style="list-style-type: none"> • gas plant 	C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, LITEMX, CO2-MX
FUEL	Fuel	An operator will enter FUEL to report the volume of gas used for fuel at well or facility operations. The operator of the facility must identify where the fuel was used by entering the well identifier or facility ID as the from/to. This includes any fuel used at compressor stations not located at the same location as the reporting facility.	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • pipeline • refinery 	C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, LITEMX, GAS, CO2-MX, ENTGAS
IMBAL	Imbalance	Petrinex will enter IMBAL and the imbalance volume to report the difference in measurement between facility inlets (production, receipts) and outlets (dispositions, injection) after accounting for all other activities (e.g., inventories). Petrinex will calculate the imbalance volume for each product group using the information reported at a facility.	<ul style="list-style-type: none"> • battery • custom treater • gas gathering • injection • pipeline • refinery • terminal 	C2-MX, C2-SP, C3-MX, C3-SP, C4-MX, C4-SP, C5-MX, C5-SP, HELIUM, DIESEL, LITEMX, OIL, SUL, WASTE
INJ	Well injection	An operator will enter INJ to report the volume of product sent to a well for injection or disposal of products into a reservoir. The operator of the facility must enter the well identifier that the product was injected into as the from/to. The well must be linked to the facility.	<ul style="list-style-type: none"> • injection 	ACGAS, AIR, CO2, BRKWTR, DIESEL, ENTGAS, FSHWTR, GAS, N2, OIL, O2, SOLV, STEAM, WASTE, WATER, COND, C5-SP, C3-SP, C4-SP

INVADJ	Inventory adjustment	<p>An operator will enter INVADJ to report gains and losses that cannot be identified by a specific activity and/or production month. If the operator knows the cause of the gain or loss, an amendment must be filed.</p> <p>An operator may also use inventory adjustment when an adjustment to closing inventory is required due to water tank cleanout, loss of sulphur from sulphur pad, or spills.</p>	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • pipeline • refinery • terminal 	GAS, BRKWTR, FSHWTR, C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, CO2-MX, NC5-SP, IC5-SP, C6-SP, HELIUM, COND, LITEMX, OIL, SBASE, SBLOC, SFORM, SLATE, SMOLT, SPRILL, SUL, SYNCRD, WATER, WASTE
INVCL	Closing inventory	<p>An operator will enter INVCL to report the volume held in inventory at the end of the production month. Closing inventory is the total closing inventory by product for the reporting facility. It includes only the volumes held in tanks and freshwater storage ponds at the facility at the end of the production month. Petrinex will deem the reported closing inventory as the next month's opening inventory.</p> <p>Note: A freshwater storage pond is an enclosure used to store fresh water to be used at a facility that is not a tank.</p>	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • pipeline • refinery • terminal 	GAS, BRKWTR, FSHWTR, C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, CO2-MX, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, HELIUM, COND, LITEMX, OIL, SBASE, SBLOC, SFORM, SLATE, SMOLT, SPRILL, SUL, SYNCRD, WATER, WASTE
INVOP	Opening inventory	Petrinex will enter INVOP volume for each product using the previous month's closing inventory volume. To correct an opening inventory volume, you must submit an amendment for the previous month's closing inventory.	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • pipeline • refinery • terminal 	GAS, BRKWTR, FSHWTR, C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, CO2-MX, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, HELIUM, LITEMX, OIL, SBASE, SBLOC, SFORM, SLATE, SMOLT, SPRILL, SUL, SYNCRD, WATER, WASTE
LDINJ	Load fluid injected	An operator will enter LDINJ to report the volume of product injected to a well for the purpose of completing or servicing the well. The from/to must identify the well identifier. The well must be linked to the facility.	<ul style="list-style-type: none"> • battery • gas gathering 	COND, OIL, WATER
LDINVADJ	Load fluid inventory adjustment	An operator will enter LDINVADJ to report the volume of product that was injected at a drilling well, was not recovered, and was not reported to Petrinex at the time the operation occurred. The well must be linked to the facility for the month that the load inventory adjustment is reported.	<ul style="list-style-type: none"> • battery • gas gathering 	COND, OIL, WATER
LDINVOP	Load fluid opening inventory	Petrinex will enter the LDINVOP volume at the well using the previous month's load fluid closing inventory. To correct a well's load fluid opening inventory volume, submit an amendment for the well's previous month's load fluid activities.	<ul style="list-style-type: none"> • battery • gas gathering 	COND, OIL, WATER

LDINVCL	Load fluid closing inventory	Petrinex will enter the well's LDINVCL volume for each product using the information reported at a well. Petrinex will calculate the well's load fluid closing inventory using the load activities reported at the well. To correct the load fluid closing inventory volume, submit an amendment for the well's previous months load fluid activities.	<ul style="list-style-type: none"> • battery • gas gathering 	COND, OIL, WATER
LDREC	Load fluid recovered	An operator will enter LDREC to report the recovery of product used for completing or servicing a well. The from/to must identify the well identifier. The well must be linked to the facility.	<ul style="list-style-type: none"> • battery • gas gathering 	COND, OIL, WATER
PLTUSE	Plant use	An operator will enter PLTUSE to report water used for purposes other than utilities or injection, such as drilling, potable use, and sludge pond losses.	<ul style="list-style-type: none"> • injection 	BRKWTR, FSHWTR, WATER
PROC	Plant process	Petrinex will enter PROC and processed volume when a gas gathering facility or gas plant reports a disposition of gas by-products. Petrinex will enter the volume for each product group using the information reported at a facility.	<ul style="list-style-type: none"> • gas plant • gas gathering 	Refer to volumetric balance for products included.
PROD	Well production	An operator will enter PROD to report the volume of product produced from a well. The from/to must identify the well identifier the products were produced from. The well must be linked to the facility.	<ul style="list-style-type: none"> • battery • gas gathering 	COND, GAS, HELIUM, OIL, WATER, BRKWTR, FSHWTR
PURREC	Purchase receipt	Petrinex will enter the PURREC using the corresponding disposition from the receiving facility. When Petrinex enters the PURREC, it will not allow the from/to facility ID, product code, or volume to be changed.	<ul style="list-style-type: none"> • battery • gas plant • gas gathering 	GAS
PURDISP	Purchase disposition	An operator will enter PURDISP to show the disposition of a marketable product purchased from a downstream facility. The downstream facility operator that sold the product is responsible for the Crown royalty liability.	<ul style="list-style-type: none"> • battery • gas plant • gas gathering 	GAS
REC	Receipt	An operator will enter REC to report a receipt of product received from other facilities. When an operator enters a REC code, it must also enter the facility ID of the delivering facility. Petrinex will deem this REC as the DISP of the corresponding facility.	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • meter station • pipeline • refinery • terminal 	All products

RECYC	Recycle	An operator will enter RECYC to report the volume of utility steam/water that entered the produced waste stream downstream of the wellhead and is not recovered (used for utility). This activity is used to report water recycling and water use at in situ oil sands facilities only (e.g., wash water).	<ul style="list-style-type: none"> • injection 	WATER
SHR	Shrinkage	An operator will enter SHR when reporting the acid gas shrinkage volume. This includes the acid gas converted to elemental sulphur.	<ul style="list-style-type: none"> • gas plant 	ACGAS
		An operator will enter SHR to report the diluent shrinkage volume when a product is blended with the heavy oil at producing facilities to meet the crude oil pipeline delivery specifications.	<ul style="list-style-type: none"> • battery • custom treater • pipeline • terminal 	COND, OIL
		Petrinex will enter SHR and the shrinkage volume for each gas by-product processed (except for sulphur) at the gathering facility or gas plant. Petrinex will use a standard gas equivalent factor to calculate the gas equivalent volume for each product.	<ul style="list-style-type: none"> • gas plant • gas gathering 	Refer to volumetric balance for products included
SHUTIN	Shut-in	<p>An operator will enter SHUTIN when a well that is capable of producing or injecting has had the valves at the wellhead turned off and the well has no activities to report for the production month.</p> <p>An operator also enters SHUTIN when a facility is inactive for the entire month. The facility must not have any activities or opening inventory for the production month.</p> <p>The operator must report shut-in activity until the well or facility no longer has an active status.</p>	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • meter station • pipeline • refinery • terminal 	Not applicable
UTIL	Utility	An operator will enter UTIL to report water used at the injection facility for utility, waste stream, and emissions control and not recovered due to evaporation or venting.	<ul style="list-style-type: none"> • injection 	BRKWTR, FSHWTR, WATER
VENT	Vent	An operator will enter VENT to report the volume of gas vented during well or facility operations. The operator of the facility must identify where the vent occurred by entering the well or facility ID in the from/to. This includes any venting that occurs at compressor stations that are not located on the same location as the reporting facility.	<ul style="list-style-type: none"> • battery • custom treater • gas plant • gas gathering • injection • pipeline • refinery • terminal • waste plant 	GAS, C2-MX, C2-SP, C3-MX, C3-SP, C4-MX, C4-SP, C5-MX, C5-SP, C6-MX, C6-SP, CO2, ENTGAS, IC4-MX, IC4-SP, IC5-MX, IC5-SP, LITEMX, N2, NC4-MX, NC4-SP, NC5-MX, NC5-SP, HELIUM

Appendix 2 Products and Gas Equivalent Factors

Product code	Product name	Units*	Gas equivalent factor		
			October 2002	January 2008	January 2017
OIL	Crude Oil, Crude Bitumen	m ³	n/a	n/a	n/a
COND	Condensate	m ³	n/a	n/a	n/a
GAS	Gas	10 ³ m ³	1.00000	1.00000	1.00000
WATER	Water	m ³	n/a	n/a	n/a
FSHWTR	Fresh Water	m ³	n/a	n/a	n/a
C2-SP	Ethane Spec	m ³	0.28148	0.28151	0.2814
C3-SP	Propane Spec	m ³	0.27221	0.27222	0.27213
C4-SP	Butane Spec	m ³	0.23335	0.23335	0.23768
NC4-SP	Normal Butane Spec	m ³	0.23335	0.23335	0.23768
IC4-SP	Iso-Butane Spec	m ³	0.23335	0.23335	0.22902
C5-SP	Pentane Spec	m ³	0.20575	0.20575	0.20667
NC5-SP	Normal Pentane Spec	m ³	0.20575	0.20575	0.20667
IC5-SP	Iso-Pentane Spec	m ³	0.20575	0.20575	0.20485
C6-SP	Hexane Spec	m ³	0.20575	0.18216	0.18217
C1-MX	Methane Mix	m ³	0.28148	0.440295	0.44217
C2-MX	Ethane Mix	m ³	0.28148	0.28151	0.2814
C3-MX	Propane Mix	m ³	0.27221	0.27222	0.27213
C4-MX	Butane Mix	m ³	0.23335	0.23335	0.23768
NC4-MX	Normal Butane Mix	m ³	0.23335	0.23335	0.23768
IC4-MX	Iso-Butane Mix	m ³	0.23335	0.23335	0.22902
C5-MX	Pentane Mix	m ³	0.20575	0.20575	0.20667
NC5-MX	Normal Pentane Mix	m ³	0.20575	0.20575	0.20667
IC5-MX	Iso-Pentane Mix	m ³	0.20575	0.20575	0.20485
C6-MX	Hexane Mix	m ³	0.20575	0.18216	0.18217
LITEMX	Lite Mix	m ³	0.28148	0.440295	0.44217
SUL	Sulphur	Tonnes	n/a	n/a	0.5546
SPRILL	Sulphur – Prilled	Tonnes	n/a	n/a	n/a
SMOLT	Sulphur – Molten	Tonnes	n/a	n/a	n/a
SBASE	Sulphur – Basepad	Tonnes	n/a	n/a	n/a
SBLOC	Sulphur – Block	Tonnes	n/a	n/a	n/a
SFORM	Sulphur – Formed	Tonnes	n/a	n/a	n/a
SLATE	Sulphur – Slate	Tonnes	n/a	n/a	n/a
SYNCRD	Synthetic – Crude Oil	m ³	n/a	n/a	n/a
AIR	Air	10 ³ m ³	1.00000	1.00000	1.00000
DIESEL	Diesel Oil	m ³	n/a	n/a	n/a
O2	Oxygen	10 ³ m ³	1.00000	1.00000	1.00000
HELIUM	Helium	m ³	n/a	n/a	n/a
CO2	Carbon Dioxide	10 ³ m ³	1.00000	1.00000	0.4412
CO2-MX	Carbon Dioxide Mix	m ³	0.28148	0.440295	0.4412
N2	Nitrogen	10 ³ m ³	1.00000	1.00000	0.6804
ACGAS	Acid Gas	10 ³ m ³	1.00000	1.00000	1.00000
SOLV	Solvent	10 ³ m ³	n/a	n/a	n/a
ENTGAS	Entrained Gas	10 ³ m ³	1.00000	1.00000	1.00000
SAND	Sand	m ³	n/a	n/a	n/a
STEAM	Steam	m ³	n/a	n/a	n/a
BRKWTR	Brackish Water	m ³	n/a	n/a	n/a
WASTE	Waste	m ³	n/a	n/a	n/a
HEAT	Heat	kJ	n/a	n/a	n/a
POWER	Power	kWh	n/a	n/a	n/a
TEMP	Temperature	Degrees Celsius	n/a	n/a	n/a

* Gas = 10³ m³ (thousands of cubic metres) at 15°C and 101.325 kPa (kilopascals) rounded to one decimal place. Liquids = m³ at 15°C and 101.325 kPa rounded to one decimal place. Sulphur = tonnes rounded to one decimal place

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Appendix 3 Province, State, and Miscellaneous Codes

Province and State Codes

When product is delivered out of province, you must report the activity using the province or state code (or Mexico) for “From/To” (see Table 5). You may also enter the facility type and facility identifier of the out of province facility. Only the following reporting facilities are allowed to enter the activity: batteries, gas plants, gas gathering facilities, pipelines, refineries, oil sands facilities, and terminals. All products are acceptable.

Table 5. Province and state codes

Province or state code	Description	Province or state code	Description
AK	Alaska	NE	Nebraska
AL	Alabama	NL	Newfoundland
AR	Arkansas	NH	New Hampshire
AZ	Arizona	NJ	New Jersey
BC	British Columbia	NM	New Mexico
CA	California	NS	Nova Scotia
CO	Colorado	NT	Northwest Territories
CT	Connecticut	NU	Nunavut
DC	District of Columbia	NV	Nevada
DE	Delaware	NY	New York
FL	Florida	OH	Ohio
GA	Georgia	OK	Oklahoma
HI	Hawaii	ON	Ontario
IA	Iowa	OR	Oregon
ID	Idaho	PA	Pennsylvania
IL	Illinois	PE	Prince Edward Island
IN	Indiana	QC	Quebec
KS	Kansas	RI	Rhode Island

Province or state code	Description	Province or state code	Description
KY	Kentucky	SC	South Carolina
LA	Louisiana	SD	South Dakota
MA	Massachusetts	TN	Tennessee
MB	Manitoba	TX	Texas
MD	Maryland	UT	Utah
ME	Maine	VA	Virginia
MI	Michigan	VT	Vermont
MN	Minnesota	WA	Washington
MO	Missouri	WI	Wisconsin
MS	Mississippi	WV	West Virginia
MT	Montana	WY	Wyoming
NB	New Brunswick	YT	Yukon
NC	North Carolina	OS	Offshore
ND	North Dakota	MX	Mexico

Miscellaneous Codes

When a product is not received from or delivered to an Alberta, Saskatchewan, British Columbia, or Manitoba facility, you must report the activity using a miscellaneous code (see table 6) for “From/To.” When product is delivered to Saskatchewan, British Columbia, or Manitoba, the Saskatchewan, British Columbia, or Manitoba facility will enter the receipt and Petrinex will autopopulate the disposition at the sending facility.

Table 6. Miscellaneous codes

Province type code	Name	Description	Reporting facilities allowed to enter the activity	Products allowed
AB CO	Commercial	<p>The operator of the facility will enter AB CO when gas or helium is delivered to customers that are engaged in selling, warehousing, or distributing a commodity in some business, profession, social or economic activity (e.g., offices, stores) or in servicing something that does not fall directly under a certain classification of service, such as residential and industrial.</p> <p>An operator may also use this code when gas is delivered for farm gas purposes.</p>	<ul style="list-style-type: none"> • battery • gas gathering • gas plant • pipeline 	GAS, HELIUM
AB EG	Electrical generation	<p>The operator of the facility will enter AB EG when gas is used to generate electricity for delivery to the power pool (grid).</p> <p>The operator of the facility will also use this code to report the gas used to generate electricity for cogeneration at an in situ oil sands injection facility (subtype 506).</p>	<ul style="list-style-type: none"> • battery • gas gathering • gas plant • injection facility, subtype 506 • pipeline 	GAS
AB GE	Gas equivalent	The operator of the facility will enter AB GE whenever liquids are removed from a gas stream.	<ul style="list-style-type: none"> • battery • gas gathering • gas plant 	GAS, C1-MX, C2-MX, C2-SP, C3-MX, C3-SP, C4-MX, C4-SP, C5-MX, C5-SP, C6-MX, C6-SP, CO2-MX, IC4-MX, IC4-SP, IC5-MX, IC5-SP, LITEMX, NC4-MX, NC4-SP, NC5-MX, NC5-SP
AB IN	Industrial	The operator of the facility will enter AB IN when gas or helium is delivered to customers engaged in creating a product or changing raw or unfinished materials into another form or product (e.g., factories, mills, machine shops).	<ul style="list-style-type: none"> • battery • gas gathering • gas plant • pipeline 	GAS, HELIUM, C5-SP
AB LF	Line fill	<p>The operator of a facility will enter a receipt (REC) or a disposition (DISP) From/To AB LF when products have been produced or processed and used as line fill for any production month.</p> <p>This should only be reported at the beginning and decommissioning of a facility.</p>	<ul style="list-style-type: none"> • battery • gas gathering • custom treater • gas plant • pipeline • terminal 	OIL, COND, GAS, WATER, FSHWTR, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, LITEMX, SYNCRD, AIR, DIESEL, O2, CO2, CO2-MX, N2, ACGAS, SOLV, ENTGAS, STEAM, BRKWTR, WASTE

Province type code	Name	Description	Reporting facilities allowed to enter the activity	Products allowed
AB MC	Miscellaneous	<p>The operator of a facility will enter AB MC for the receipt of a product from a source other than a facility and that product is blended with heavy oil at a producing facility to meet pipeline delivery specifications.</p> <p>An operator may use this code to report the disposition of gas due to fire. An operator may also use this code when the product is received from or delivered to a source not identified by any other code.</p>	<ul style="list-style-type: none"> • battery • gas gathering • custom treater • gas plant • injection • pipeline • terminal • refinery 	OIL, COND, WATER, GAS, HELIUM, BRKWTR, FSHWTR, WASTE, C5-MX
AB RC	Railcar miscellaneous	The operator of a facility will enter AB RC to report a disposition of a product travelling by rail out of Alberta, where the final rail destination is unknown, or the disposition is to a non-reporting facility.	<ul style="list-style-type: none"> • battery • custom treater • gas plant • injection • terminal • refinery 	OIL, COND, CRUDEBIT, DILUENT, INTERHYD, WATER, FSHWTR, C1, C2, C3, C4, C5, C6, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, C1-MX, C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, LITEMX, SYNCRD, DIESEL, CO2-MX, STEAM, BRKWTR, WASTE, SAND
AB ML	Mainline	The operator of the facility will enter AB ML when showing gas movement between the facility and the mainline.	<ul style="list-style-type: none"> • mainline straddle • gas plant 	GAS
AB OT	Other	An operator may also use this code when the product is received from or delivered to a source not identified by any other code.	<ul style="list-style-type: none"> • gas gathering • gas plant • pipeline • terminal • injection • refinery 	C1-MX, C2-MX, C3-MX, C4-MX, CO2-MX -, NC4-MX, IC4-MX, C5-MX, N2, CO2, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, GAS, LITEMX, O2, SBASE, SBLOC, SFORM, SLATE, SMOLT, SPRILL, SUL, SYNCRD
AB R1	Residential	The operator of the facility will enter AB R1 when gas is delivered to customers who supply gas for residential purposes under individual contracts on a single-family dwelling or building or an individual apartment in a multiunit dwelling with ≤4 units that are occupied as a home, residence, or sleeping place of one or more persons.	<ul style="list-style-type: none"> • pipeline 	GAS

Province type code	Name	Description	Reporting facilities allowed to enter the activity	Products allowed
AB R2	Residential	The operator of the facility will enter AB R2 when gas is delivered to customers who supply gas for residential purposes under individual contracts on a single-family dwelling or building or an individual apartment in a multiunit dwelling with ≥ 4 units that are occupied as a home, residence, or sleeping place of one or more persons.	<ul style="list-style-type: none"> • pipeline 	GAS
AB RE	Residential	The operator of the facility will enter AB RE when gas is delivered to customers who supply gas for residential purposes under individual contracts on a single-family dwelling or building or an individual apartment in a multiunit dwelling or portion thereof that is occupied as a home, residence, or sleeping place of one or more persons.	<ul style="list-style-type: none"> • battery • gas gathering • gas plant • pipeline 	GAS
AB RM	Road maintenance	The operator of the facility will enter AB RM when products have been sold or delivered locally for use on road maintenance.	<ul style="list-style-type: none"> • battery • custom treater • pipeline • terminal 	Oil, BRKWTR, FSHWTR
AB RO	Runoff	The operator of a facility will enter AB RO for the receipt of fresh water from rain or melted snow from a pond, puddle, grated surface, or a dug out location.	<ul style="list-style-type: none"> • battery • gas gathering • custom treater • gas plant • injection • pipeline • terminal • refinery 	FSHWTR
AB SS	Service station	The operator of the facility will enter AB SS when products have been sold or delivered locally to a retail petroleum product outlet.	<ul style="list-style-type: none"> • battery • refinery 	OIL
AB WC	Water of condensation	The operator of the facility will enter AB WC when water is recovered from the gas stream at an inlet or compressor and the water volume cannot be allocated back to the source facility.	<ul style="list-style-type: none"> • gas gathering • gas plant 	WATER

Province type code	Name	Description	Reporting facilities allowed to enter the activity	Products allowed
AB WM	Waste materials	<p>The operator of a facility will enter a receipt (REC) from AB WM for receipts of waste materials associated with sources other than the normal production of hydrocarbons (e.g., contaminated soil scraped off the ground).</p> <p>AB WM is also used when nonproduced solids have been included in water dispositions to waste plants. It will be included in the balancing of water to prevent over-allocating water production to wells.</p>	<ul style="list-style-type: none"> • battery • gas gathering • custom treater • gas plant • injection • pipeline • terminal • refinery 	WATER
OS	Offshore	The operator of the facility will enter OS as the province code (type is left blank) when products are delivered to an offshore market.	<ul style="list-style-type: none"> • gas gathering • gas plant • pipeline • refinery 	C2-MX, C3-MX, C4-MX, NC4-MX, IC4-MX, C5-MX, NC5-MX, IC5-MX, C6-MX, C2-SP, C3-SP, C4-SP, NC4-SP, IC4-SP, C5-SP, NC5-SP, IC5-SP, C6-SP, LITEMX, SBASE, SBLOC, SFORM, SLATE, SMOLT, SPRILL, SUL

Appendix 4 Prorated Production for Crude Oil and Crude Bitumen Batteries

Prorated production is where total battery production is allocated to wells based on individual well tests.

Proration Testing

When the production of wells is commingled before measurement, the operator of the battery must test each well in accordance with Part 7 of the *OGCR*, and any applicable AER directives and informational letters.

Proration of Battery Production

When the production of wells producing to a battery is commingled before measurement, the production must be prorated among the individual wells in the battery based on the proration factor.

Sample Worksheets

Under Part 12 of the *OGCR*, you must retain the required data for one year. You may keep the information in a worksheet format that works best for you. **Do not send the worksheets to the AER.** The AER will request the data if necessary. Tables 7 to 9 show some sample worksheet formats.

Table 7. Sample well test calculation worksheet

Test date		Test production			Test duration ^c	Test rate per hour			Hours of production	Estimated production		
Day	Month	Oil	Gas	Water		Oil	Gas	Water		Oil	Gas	Water
00/06-01-001-01W4/0												
25	06	9.05	1.35	3.53	24.00	0.3771	0.0563	0.1471	96	36.2	5.4	14.1
05	07	8.85	1.28	3.26	24.00	0.3688	0.0533	0.1358	168	62.0	9.0	22.8
12	07	9.40	1.51	2.98	24.00	0.3917	0.0629	0.1242	216	84.5	13.6	26.8
21	07	9.15	1.67	3.65	24.00	0.3819	0.0696	0.1521	264	100.7	18.4	40.2
								Total	744	283.4	46.4	103.9
00/08-01-001-01W4/0												
28	06	5.05	0.95	4.15	24.00	0.2104	0.0396	0.1729	48	10.1	1.9	8.3
03 ^a	07	5.85	1.25	4.50	48.00	0.2406	0.0490	0.1792	336	80.8	16.5	60.2
04 ^a	07	5.70	1.10	4.10								
17	07	6.01	1.15	5.00	25.50	0.2357	0.0451	0.1961	168	39.6	7.6	32.9
24	07	5.40	0.99	4.10	22.75	0.2374	0.0435	0.1802	192	45.6	8.4	34.6
								Total	744	176.1	34.4	136.0

Test date		Test production			Test duration ^c	Test rate per hour			Hours of production	Estimated production		
Day	Month	Oil	Gas	Water		Oil	Gas	Water		Oil	Gas	Water
00/16-01-001-01W4/0												
01 ^b	07	1.80	1.10	2.20	24.00	0.0750	0.0458	0.0917	24	1.8	1.1	2.2
02 ^b	07	4.00	2.00	5.00	24.00	0.1667	0.0833	0.2083	120	20.0	10.0	25.0
07	07	3.95	1.95	4.95	23.00	0.1717	0.0848	0.2152	288	49.4	24.4	62.0
19	07	4.25	2.05	5.05	26.00	0.1635	0.0788	0.1942	216	35.3	17.0	41.9
28	07	4.65	2.00	5.50	27.75	0.1676	0.0721	0.1982	96	16.1	6.9	19.0
Total								744	122.6	59.4	150.1	

^a Tests on July 3 and 4 were comparable (i.e., no operation changes). Therefore, the results are totalled and used as one 48-hour test.

^b Tests on July 1 and 2 were not comparable due to operation changes (e.g., choke/pump speed). Therefore, they are used as separate 24-hour tests.

^c Test duration is reported to the nearest quarter hour (e.g., 2 hrs, 40 min, will be entered as 2.75 hrs).

To determine estimated production of each well from the test data:

1) Enter the following test data on the worksheet:

- test date
- test production of crude oil/bitumen, gas, and water volumes (round values entered to a minimum of two decimal places)
- the last test production from the previous month as the first test for the reporting month (you will then enter the test production for the reporting month)
- test duration (round the duration to the nearest quarter hour; e.g., 2 hours and 40 min will be entered as 2.75 hours)

2) Calculate the test rate per hour for oil, gas, and water using the calculation below. Once calculated, round the test rate per hour to a minimum of four decimal places and enter it on the worksheet.

$$\text{Rate per hour} = \text{test production} \div \text{test duration}$$

3) Calculate the hours of production for each test rate during the reporting month as noted below. Include only the hours of prorated production. Once calculated, round the hours to the nearest hour and enter them on the worksheet.

- add hours of production from the first of the month to the start of the next test
- add hours of production from the start of one test to the start of the next test

4) Calculate the estimated production of oil, gas, and water for each test rate using the calculation below. Once calculated, round the values to one decimal place and enter them on the worksheet.

$$\text{Estimated production} = \text{test rate per hour} \times \text{hours produced}$$

5) Calculate the totals for each well as noted below. Once calculated, enter the totals on the worksheet.

- add the hours produced for each test rate
- add the estimated production of oil, gas, and water

Table 8. Sample monthly production worksheet

			Estimated production ^a			Hours	Production		
Well identifier			Oil	Gas	Water		Oil	Gas	Water
ABWI100060100101W400			283.4	46.4	103.9	744	274.3	48.1	103.8
ABWI100080100101W400			176.1	34.4	136.0	744	170.5	35.6	135.9
ABWI100160100101W400			122.6	59.4	150.1	744	118.7	61.5	149.9
Proration factors			Total estimated				Total battery production ^b		
Oil	Gas	Water	Oil	Gas	Water		Oil	Gas	Water
0.96805	1.03566	0.99897	582.1	140.2	390.0		563.5	145.2	389.6

^a The total estimated production for the well from the previous worksheet.

^b The total prorated battery production from production reports.

To determine the monthly production volumes for each well:

- 1) Enter the total battery production from the production reports.
- 2) Calculate the total estimated battery production for oil, gas, and water using the calculation below. Once calculated enter the totals for oil, gas, and water on the worksheet.

Total estimated production = sum of the wells' total estimated production

- 3) Calculate the proration factor for oil, gas, and water. Once calculated, round each of the proration factors to five decimal places and enter them on the worksheet.

Proration factor = total prorated production ÷ total estimated production

- 4) Calculate monthly production volumes for oil, gas, and water as shown below. Enter each volume on the worksheet.
 - Monthly oil volume = well estimated oil volume × oil proration factor
 - Monthly gas volume = well estimated gas volume × gas proration factor
 - Monthly water volume = well estimated water volume × water proration factor
- 5) Check that the total well production equals the total battery production for oil, gas, and water. Round the well production to one decimal place.

Table 9. Monthly reporting

From/To	Activity	Hours	Product	Volume
ABWI100060100101W400	PROD	744	Oil	274.3
ABWI100060100101W400	PROD		Gas	48.1
ABWI100060100101W400	PROD		Water	103.8
ABWI100080100101W400	PROD	744	Oil	170.5
ABWI100080100101W400	PROD		Gas	35.6
ABWI100080100101W400	PROD		Water	135.9
ABWI100160100101W400	PROD	744	Oil	118.7
From/To	Activity	Hours	Product	Volume
ABWI100160100101W400	PROD		Gas	61.5
ABWI100160100101W400	PROD		Water	149.9
Proration factors				
Oil	Gas	Water		
0.96805	1.03566	0.99897		

- 1) Report for each well the activity, hours, product, and volume. Report the total hours only once for each well.
- 2) Report the proration factor for each product.

Do not send the total battery production volumes to Petrinex. It will calculate those volumes for each product using the well production volumes.

Gas Lift

For wells using gas lift operations to report for the test date, determine test gas volumes by subtracting the volume of gas injected during the test period from the total volume of gas recorded during the test period. Determine appropriate corrections for gas in solution with the oil and add that to the test gas volume.

Appendix 5 Gas Measurement Exemptions for Crude Oil and Crude Bitumen Batteries

Gas at a crude oil or crude bitumen battery can be measured and reported in a number of ways. Two methods are shown in the worksheets below. You may use your own worksheet format. Tables 10 to 14 show some sample formats you can use.

Under Part 12 of the *OGCR* you must retain the required data for one year and make it available to the AER upon request. For further details on when gas measurement exemption is allowed, see section 4.3.5 of *Directive 017: Measurement Requirements for Oil and Gas Operations*. Failure to report gas volumes correctly is subject to escalating consequences.

Table 10. Sample monthly production worksheet – oil and water

Test date		Test production			Test duration ^a	Test rate per hour			Hours of production	Estimated production		
Day	Month	Oil	Gas	Water		Oil	Gas	Water		Oil	Gas	Water
00/06–01–001–01W4/0												
25	06	9.05		3.53	24.00	0.3771		0.1471	96	36.2		14.1
05	07	8.85		3.26	24.00	0.3688		0.1358	168	62.0		22.8
12	07	9.40		2.98	24.00	0.3917		0.1242	216	84.5		26.8
21	07	9.15		3.65	24.00	0.3819		0.1521	264	100.7		40.2
								Total	744	283.4		10.9
00/08–01–001–01W4/0												
28	06	5.05		4.15	24.00	0.2104		0.1729	48	10.1		8.3
03	07	5.85		4.50	48.00	0.2406		0.1792	336	80.8		60.2
04	07	5.70		4.10								
17	07	6.01		5.00	25.50	0.2357		0.1961	168	39.6		32.9
24	07	5.40		4.10	22.75	0.2374		0.1802	192	45.6		34.6
								Total	744	176.1		136.0
00/16–01–001–01W4/0												
01	07	1.80		2.20	24.00	0.0750		0.0917	24	1.8		2.2
02	07	4.00		5.00	24.00	0.1667		0.2083	120	20.0		25.0
07	07	3.95		4.95	23.00	0.1717		0.2152	288	49.4		62.0
19	07	4.25		5.05	26.00	0.1635		0.1942	216	35.3		41.9
28	07	4.65		5.50	27.75	0.1676		0.1982	96	16.1		19.0
								Total	744	122.6		150.1

^a Test duration is reported to the nearest quarter hour (e.g., 2 hrs, 40 min, will be entered as 2.75 hrs).

Method 1: Exemption from Total Gas Measurement at a Battery

When the gas production is exempt from measurement at the battery, calculate the individual well's actual gas production using the well's gas-oil ratio (GOR).

Table 11. Sample monthly production worksheet

Estimated production						Hours	Production			
Well identifier			Oil	Gas	Water		Oil	Gas	Water	
ABWI100060100101W400 ^a			283.4		103.9		744	274.3	48.1	103.8
ABWI100080100101W400 ^b			176.1		136.0		744	170.5	35.6	135.9
ABWI100160100101W400 ^c			122.6		150.1		744	118.7	61.5	149.9
Proration factors			Total estimated				Total battery production			
Oil	Gas	Water	Oil	Gas	Water		Oil	Gas	Water	
0.96805	1.00000	0.99897	582.1	145.2	390.0		563.5	145.2	389.6	

^a Well 6-1 GOR = 0.17535.^b Well 8-1 GOR = 0.20879.^c Well 16-1 GOR = 0.51811.

- 1) Calculate the well gas production using the calculation below. Enter the gas volume. If the well gas production is less than $0.1 \times 10^3 \text{ m}^3$, enter 0.0.

$$\text{Well gas production (10}^3 \text{ m}^3\text{)} = \text{well prorated oil production volume (m}^3\text{)} \times \text{GOR}$$

- 2) Calculate the total prorated battery gas. Enter the value on the worksheet.
 - a) Total prorated gas = sum of wells' gas production. Enter the total prorated battery gas.
 - b) Total gas estimate = total prorated gas. Enter the total gas estimate.
 - c) Gas proration factor = 1.00000. Enter the gas proration factor.

Table 12. Sample monthly production

From/To	Activity	Hours	Product	Volume
ABWI100060100101W400	PROD	744	Oil	274.3
ABWI100060100101W400	PROD		Gas	48.1
ABWI100060100101W400	PROD		Water	103.8
ABWI100080100101W400	PROD	744	Oil	170.5
ABWI100080100101W400	PROD		Gas	35.6
ABWI100080100101W400	PROD		Water	135.9
ABWI100160100101W400	PROD	744	Oil	118.7
ABWI100160100101W400	PROD		Gas	61.5
ABWI100160100101W400	PROD		Water	149.9
Proration factors				
Oil	Gas	Water		
0.96805	1.00000	0.99897		

- Report for each well the activity, hours, product, and volume. Report the total hours only once for each well.
- Report the proration factor for each product.

Do not send the total battery production volumes to Petrinex. It will calculate those volumes for each product using the well production volumes.

Method 2: Exemption from Test Gas Measurement at a Well

When the gas production from the wells is exempt from measurement, calculate the individual well's estimated production using the well's GOR.

Calculate the estimated production of crude oil/bitumen and water as described in method 1 above.

- 1) Calculate the estimated well production for gas. Once calculated, enter the value on the worksheet.

$$\text{Well estimated gas production (10}^3 \text{ m}^3\text{)} = \text{well estimated oil production volume (m}^3\text{)} \times \text{GOR (10}^3 \text{ m}^3\text{/m}^3\text{)}$$

To determine the monthly production volumes for each well enter the total battery production from the production reports.

- 2) Calculate the total estimated battery production for oil, gas, and water. Once calculated, enter each of the values on the worksheet.

$$\text{Total estimated production} = \text{sum of the wells' total estimated production.}$$

- 3) Calculate the proration factor for oil, gas, and water. Round each of the proration factors to five decimal places and enter them on the worksheet.

$$\text{Proration factor} = \text{total prorated production} \div \text{total estimated production}$$

- 4) Calculate monthly production volumes for oil, gas, and water. Once calculated, enter each of the values on the worksheet.

- Monthly oil volume = well estimated oil volume \times oil proration factor
- Monthly gas volume = well estimated gas volume \times gas proration factor
- Monthly water volume = well estimated water volume \times water proration factor

- 5) Check that total well production equals total battery production for oil, gas, and water. Adjust well production for rounding.

- Sum of prorated well production for each column = total battery production

Table 13. Sample monthly production worksheet

			Estimated production			Hours	Production		
Well identifier			Oil	Gas	Water		Oil	Gas	Water
ABWI100060100101W400 ^a			283.4	49.7	103.9	744	274.3	48.1	103.8
ABWI100080100101W400 ^b			176.1	36.8	136.0	744	170.5	35.6	135.9
ABWI100160100101W400 ^c			122.6	63.5	150.1	744	118.7	61.5	149.9
Proration Factors			Total estimated				Total battery production ^d		
Oil	Gas	Water	Oil	Gas	Water		Oil	Gas	Water
0.96805	0.96811	0.99897	582.1	150.0	390.0		563.5	145.2	389.6

^a Well 6-1 GOR = 0.17535.

^b Well 8-1 GOR = 0.20879.

^c Well 16-1 GOR = 0.51811.

^d The total battery production from production reports.

Table 14. Sample monthly production

From/to	Activity	Hours	Product	Volume
ABWI100060100101W400	PROD	744	Oil	274.3
ABWI100060100101W400	PROD		Gas	48.1
ABWI100060100101W400	PROD		Water	103.8
ABWI100080100101W400	PROD	744	Oil	170.5
ABWI100080100101W400	PROD		Gas	35.6
ABWI100080100101W400	PROD		Water	135.9
ABWI100160100101W400	PROD	744	Oil	118.7
ABWI100160100101W400	PROD		Gas	61.5
ABWI100160100101W400	PROD		Water	149.9
Proration factors				
Oil	Gas	Water		
0.96805	0.96811	0.99897		

- Report for each well the activity, hours, product, and volume. Report the total hours only once for each well.
- Report the proration factor for each product.

Do not send the total battery production volumes to Petrinex. It will calculate those volumes for each product using the well production volumes.

Appendix 6 Custom Treater Facility

A custom treater produces no product, but rather accepts oil/water emulsion from producers in the surrounding area. The facility separates the oil and water and allocates actual volumes back to each producer's facility based on estimated volumes delivered. The oil is either delivered to a pipeline, usually via a terminal, or returned to the producer. Water is delivered to an injection facility for disposal.

No receipts of clean oil or free water are to be reported at the custom treater.

Allocation Calculations

Determining Inventories

To allocate product volumes to producers equitably and to account for unprocessed product on hand at the beginning of each month, it is necessary that a determination be made to provide an accurate estimate of the volume of oil and water held in unprocessed emulsion. This matter can be simplified by minimizing inventory as part of production practices.

The preferred method of making this determination is to take samples (top, middle, and bottom) from the emulsion tanks using a thief sampler. A second method, which is also acceptable, is the use of a ratio of oil to water as estimated during receipt of the last trucked-in volumes relating to the emulsion volume held in inlet tanks.

Example – Ratio of Oil to Water from Trucked-in Volumes

An inlet tank contains 38 m³ of emulsion. The last truckloads of emulsion received at the facility are as follows:

- Last truck – 15 m³ emulsion, 7.1% water cut
- Last truck 1 – 12 m³ emulsion, 12.6% water cut
- Last truck 2 – 14 m³ emulsion, 11.5% water cut

Total emulsion received from the last three truckloads is 41 m³. The total from the last three loads is greater than the volume of emulsion remaining in the inlet tank. It is assumed that emulsion in the inlet tank came from these three truckloads.

1) Calculate the actual oil and water, for inventory purposes, in the inlet tank as follows:

- Determine the water volume held in each truck:
 - Last truck $15 \text{ m}^3 \times 7.1\% = 1.1 \text{ m}^3$
 - Last truck 1 $12 \text{ m}^3 \times 12.6\% = 1.5 \text{ m}^3$
 - Last truck 2 $14 \text{ m}^3 \times 11.5\% = 1.6 \text{ m}^3$
 - Total water volume in inlet tank = 4.2

- Determine the water cut percentage:

– Total emulsion received from the last three loads is 41 m³

– Total water in the last three loads is 4.2 m³

$$\text{Water cut percentage} = \frac{4.2 \text{ m}^3}{41 \text{ m}^3} \times 100$$

$$= 10.2\%$$

- Determine the water volume in inlet tank:

$$\text{Water volume in inlet tank} = (\text{total emulsion in inlet tank}) \times (\text{water cut percentage})$$

$$= 38 \text{ m}^3 \times 10.2\%$$

$$= 3.9 \text{ m}^3$$

- Determine oil volume in inlet tank:

$$\text{Oil volume in inlet tank} = (\text{total emulsion in inlet tank}) - (\text{total water volume in inlet tank})$$

$$= 38 \text{ m}^3 - 3.9 \text{ m}^3$$

$$= 34.1 \text{ m}^3$$

2) Calculate inventory

- Closing oil inventory = (treated oil in sales tank) + (oil in emulsion in inlet tank)
- Closing water inventory = (treated water in outlet tank) + (water in emulsion in inlet tank)

Calculating Actual Receipts

These steps are for calculating actual receipts. Data for the example calculations that follow are from table 15.

Table 15. Sample effluent receipts worksheet

Operator	Facility ID	Estimated receipts		Actual receipts	
		Oil (m ³)	Water (m ³)	Oil (m ³)	Water (m ³)
0123	ABBT1234567	22.5	7.5	18.9	8.9
0ABC	ABBT1234568	88.5	95.1	74.4	113.4
0XYZ	ABBT1234569	63.2	11.0	53.1	13.1
0456	ABBT1234560	88.8	3.4	74.7	4.1
0MNO	ABBT1234570	37.2	11.9	31.3	14.2
0789	ABBT1234571	185.4	421.2	155.8	502.2
0123	ABBT1234572	48.8	8.5	41.0	10.1
0456	ABBT1234573	96.3	43.2	80.9	51.5
0KLM	ABBT1234574	62.4	10.1	52.5	12.1

	Estimated receipts	Actual receipts	Opening inventory	Closing inventory	Total disposition	Allocation factor
Oil	693.1	582.6	134.3	106.5	610.4	0.84057
Water	611.9	729.6	49.6	64.0	715.2	0.19235

Actual Oil Receipts Calculation

$$\begin{aligned}\text{Actual oil receipts} &= \text{oil dispositions} + \text{oil closing inventory} - \text{oil opening inventory} \\ &= 610.4 \text{ m}^3 + 106.5 \text{ m}^3 - 134.3 \text{ m}^3 \\ &= 582.6 \text{ m}^3\end{aligned}$$

Actual Water Receipts Calculation

$$\begin{aligned}\text{Actual water receipts} &= \text{water dispositions} + \text{water closing inventory} - \text{water opening inventory} \\ &= 715.2 \text{ m}^3 + 64.0 \text{ m}^3 - 49.6 \text{ m}^3 \\ &= 729.6 \text{ m}^3\end{aligned}$$

Calculating Proration (Allocation) Factors

Oil Proration Factor Calculation

$$\begin{aligned}\text{Oil proration factor} &= \text{actual oil receipts} \div \text{estimated oil receipts} \\ &= 582.6 \text{ m}^3 \div 693.1 \text{ m}^3 \\ &= 0.84057\end{aligned}$$

Water Proration Factor Calculation

$$\begin{aligned}\text{Water proration factor} &= \text{actual water receipts} \div \text{estimated water receipts} \\ &= 729.6 \text{ m}^3 \div 611.9 \text{ m}^3 \\ &= 1.19235\end{aligned}$$

Calculating Actual Receipts by Facility

Actual Oil Receipt Calculation

$$\begin{aligned}\text{Actual oil receipt} &= \text{estimated oil receipt} \times \text{oil proration factor} \\ &= 22.5 \text{ m}^3 \times 0.84057 \\ &= 18.9 \text{ m}^3\end{aligned}$$

The actual oil receipt is calculated for each receipt line. Round the result to one decimal place.

Actual Water Receipt Calculation

$$\begin{aligned}\text{Actual water receipt} &= \text{estimated water receipt} \times \text{water proration factor} \\ &= 7.5 \text{ m}^3 \times 1.19235 \\ &= 8.9 \text{ m}^3\end{aligned}$$

The actual water receipt is calculated for each receipt line. Round the result to one decimal place.

Calculating the Actual Receipt Total

The sum of facility actual receipts must equal the total actual receipt volume.

Appendix 7 Well Statuses

If your well does not fall under any of the well statuses in table 16 due to new operations, contact the AER PA Help Desk at 403-297-8952 (ext. 3) to discuss the possible need for a new well status.

Table 16. Well status

Well status	Description
Crude oil flowing	A well that produces a mixture mainly of pentanes and heavier hydrocarbons that is recovered from an underground reservoir in which the hydrocarbon system is liquid or exhibits a bubble point on reduction of pressure. The fluids are produced to surface through natural reservoir drive mechanisms, usually formation pressure.
Crude oil pumping	A well that produces a mixture mainly of pentanes and heavier hydrocarbons that is recovered from an underground reservoir in which the hydrocarbon system is liquid or exhibits a bubble point on reduction of pressure. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, or plunger lift) to lift fluids to the surface.
Crude oil gas lift	A well that produces a mixture mainly of pentanes and heavier hydrocarbons that is recovered from an underground reservoir in which the hydrocarbon system is liquid or exhibits a bubble point on reduction of pressure. The fluids are produced into the tubing/annulus with the assistance of injected gas alone or in conjunction with mechanical equipment.
Crude oil cyclical	A well that produces a mixture mainly of pentanes and heavier hydrocarbons that is recovered from an underground reservoir in which the hydrocarbon system is liquid or exhibits a bubble point on reduction of pressure. The fluids are produced with the assistance of steam injection. The steaming and producing are performed in alternating cycles. This status is also used to report temporary gas injection and for "huff 'n puff" schemes.
Crude oil drilling and completing	A well expected to produce a mixture mainly of pentanes and heavier hydrocarbons that is recovered from an underground reservoir in which the hydrocarbon system is liquid or exhibits a bubble point on reduction of pressure. The fluids are produced during drilling and/or completion operations such as swabbing or drillstem testing. This status can only be used prior to commencement of regular production or injection and only to report volumetric data for three consecutive months. Hours cannot be reported.
Crude oil potential	A well expected to produce a mixture mainly of pentanes and heavier hydrocarbons that is recovered from an underground reservoir in which the hydrocarbon system is liquid or exhibits a bubble point on reduction of pressure. The fluids are produced after drilling operations have been completed but prior to the well being placed on production. This status is used when a well has load fluid activities to be reported. Gas and/or water production can be reported, and hours must be reported if gas or water production activity is reported.
Crude bitumen flowing	A well that produces a naturally occurring viscous mixture consisting of hydrocarbons heavier than pentane with other contaminants (e.g., sulphur compounds), which in its natural state will not flow. The fluids are produced to surface through natural reservoir drive mechanisms.
Crude bitumen pumping	A well that produces a naturally occurring viscous mixture consisting of hydrocarbons heavier than pentane with other contaminants (e.g., sulphur compounds), which in its natural state will not flow. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, or plunger lift) to lift fluids to the surface.
Crude bitumen drilling and completing	A well expected to produce a naturally occurring viscous mixture consisting of hydrocarbons heavier than pentane with other contaminants (e.g., sulphur compounds), which in its natural state will not flow. The fluids are recovered during drilling operations such as swabbing or drillstem testing. This status can only be used prior to a drilled and cased well status and only to report volumetric data for three months. Hours cannot be reported.

Well status	Description
Crude bitumen potential	A well expected to produce a naturally occurring viscous mixture consisting of hydrocarbons heavier than pentane with other contaminants (e.g., sulphur compounds), which in its natural state will not flow. The fluids are produced after drilling operations have been completed but prior to the well being placed on production. This status is used when a well has load fluid activities to be reported. Gas and/or water production can be reported. Hours must be reported if gas or water production activity is reported.
Crude bitumen cyclical	A well that produces a naturally occurring viscous mixture consisting of hydrocarbons heavier than pentane with other contaminants (e.g., sulphur compounds), which in its natural state will not flow and require steam to be injected to produce the hydrocarbons. The steaming and producing are performed in alternating cycles.
Gas cyclical	A well that produces a mixture of primarily raw or marketable gas or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The products are produced with the assistance of gas injection. The injecting and producing are performed in alternating cycles.
Gas flowing	A well that produces a mixture primarily of raw or marketable gas or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are produced to surface through natural reservoir drive mechanisms, usually formation pressure.
Gas pumping	A well that produces a mixture primarily of raw or marketable gas or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface.
Gas storage	A well that both injects and produces a mixture primarily of raw or marketable gas into a storage reservoir or cavern.
Gas injection	A well that injects a mixture primarily of raw or marketable gas into a reservoir in accordance with an AER-approved enhanced recovery, experimental, or pilot scheme.
Gas testing	A well expected to produce a mixture primarily of raw or marketable gas or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are produced after the drilling operations have been completed but prior to the well being placed on production. For each gas testing well status, oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported.
Gas test completed	A well that has tested for a three-month period. If you require a volumetric submission beyond the three months, you must change the well's status to "Gas Test Completed" for one day and then change the well's status back to testing for another three months.
Gas drilling and completing	A well expected to produce a mixture primarily of raw or marketable gas or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are recovered during drilling operations such as swabbing or drillstem testing. This status can only be used prior to a drilled and cased well status and only to report volumetric data for three months. Hours cannot be reported.
Water injection	A well that injects water, either water from a freshwater source or from produced water, into a reservoir in accordance with an AER-approved enhanced recovery, experimental, or pilot scheme.
Water disposal	A well used for the disposal of produced water into a reservoir or aquifer in accordance with an AER approval.
Water source	A well used to produce water that is used in an enhanced recovery, experimental, or pilot project scheme but is not used for domestic water use.

Well status	Description
Water drilling and completing	A well expected to be used for injection or disposal as part of an AER approval. The fluids are injected during drilling operations such as swabbing or drillstem testing. This status can only be used prior to a drilled and cased well status and only to report volumetric data for three months. Hours cannot be reported.
Water potential	A well expected to be used for injection or disposal as part of an AER approval. The fluids are injected after drilling operations have been completed but prior to the well being placed on injection. Hours must be reported if injection activity is reported. This status can also be used when a well has load fluid activities to be reported.
Steam injection	A well that injects water in the vapour phase or a combination of liquid and vapour phases into a reservoir in accordance with an AER-approved enhanced recovery, experimental, or pilot scheme.
Air injection	A well that injects a mixture of colourless, tasteless, invisible gases that surround the earth and are composed of mainly nitrogen and oxygen molecules into a reservoir in accordance with an AER-approved enhanced recovery, experimental, or pilot scheme.
Carbon dioxide (CO ₂) injection	A well that injects a pure gaseous or liquid compound chemically composed of one carbon atom and two oxygen atoms (CO ₂) into a reservoir in accordance with an AER-approved enhanced recovery, experimental, or pilot scheme.
Nitrogen injection	A well that injects a pure gaseous or liquid component chemically composed of two nitrogen atoms (N ₂) into a reservoir in accordance with an AER-approved enhanced recovery, experimental, or pilot scheme.
Acid gas disposal	A well used for the disposal of a poisonous and corrosive gas mixture consisting of hydrogen sulphide (H ₂ S) and carbon dioxide (CO ₂) in varying concentrations into a reservoir or aquifer in accordance with an AER approval. An acid gas may also contain small amounts of other components in the mixture.
Steam-assisted gravity drainage (SAGD)	A well that produces a naturally occurring viscous mixture consisting of hydrocarbons heavier than pentane with other contaminants (e.g., sulphur compounds), which in its natural state will not flow and requires the assistance of thermal heating by steam.
Solvent injection	A well used for the disposal of a mixture of natural gas liquids and/or gases used for miscible enhanced recovery purposes.
Waste disposal	A well that disposes an unwanted fluid or mixture of fluids that results from the construction, operation, or reclamation of a well site, oil or gas battery, gas plant, compressor station, crude oil terminal, pipeline, gas gathering system, heavy oil site, oil sands site, or related facility into a reservoir or aquifer in accordance with an AER approval.
Waste industrial	A well used for the disposal of processing wastes from a refinery or chemical plant or brine from preparation or operation of a storage cavern in accordance with an AER approval.
Suspended (all combinations)	<p>A well in which production or injection operations have ceased for an indefinite period of time. A well licensee is required to suspend a well within 12 months after the last production or injection has occurred. The exception is if the well is produced only to supply a seasonal market, is shut in to make up overproduction, or the well type's code is "observation."</p> <ul style="list-style-type: none"> • A well that has been suspended is not required to report. The only valid activity is SHUTIN. • A well approved for "deliveries equal production" should not be suspended until all production has been allocated to the well. • Do not change a well status to "suspended" if it is required to be shut in while working off overproduction.

Well status	Description
Commingled	A well completed in two or more pools that has had an AER MU order issued permitting production from the pools without segregation or permitting prorated production from the pools in the wellbore. A well event that is commingled cannot be used to report production volumes.
Observation	A well used to monitor performance in an oil or gas reservoir, oil sands deposit, or aquifer.
Training	A well used for training purposes only.
Farm	A well used to supply hydrocarbons or water to a farm for utility purposes.
Brine	A well used to produce or inject water containing a high concentration of salts and associated with a cavern storage facility.
Brine flowing	A well that produces saline or brackish water (more than 4000 milligrams per litre [mg/L] of total dissolved solids). Brine source wells are licensed and drilled for the purpose of producing brine for non-oilfield related purposes. The fluids are produced to surface through natural reservoir mechanisms or formation pressure.
Brine pumping	A well that produces saline/brackish water (more than 4000 milligrams per litre [mg/L] of total dissolved solids). Brine source wells are licensed and drilled for the purpose of producing brine for non-oilfield related purposes. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface.
Liquid petroleum gas (LPG) storage	A well used to inject LPG to a cavern for storage. Natural gas mixture is composed of mainly ethane, propane, and butanes, with small amounts of pentanes plus in any combination. The fluid is usually gaseous under atmospheric conditions but becomes a liquid under pressure.
Shale gas only flowing	A well completed in shales only. Wells producing from the following formations are considered potential shale gas only wells: Muskwa, Duvernay, Ireton, Fort Simpson, Exshaw, Fernie, Rierdon, Moosebar, Wilrich, Joli Fou, Harmon, Shaftesbury, Blackstone, Wapiabi, Kaskapau, Muskiki, Lea Park, Pakowki, Battle, Fish Scale, Second White Speckled Shale, Colorado Shale, and First White Speckled Shale.
Shale gas only pumping	A well completed in shale(s) only. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface. Wells that are producing from the following formations are considered to be potential shale gas only wells: Muskwa, Duvernay, Ireton, Fort Simpson, Exshaw, Fernie, Rierdon, Moosebar, Wilrich, Joli Fou, Harmon, Shaftesbury, Blackstone, Wapiabi, Kaskapau, Muskiki, Lea Park, Pakowki, Battle, Fish Scale, Second White Speckled Shale, Colorado Shale, and First White Speckled Shale.
Shale gas only testing	A well completed in shales only. The fluids are produced after the drilling operations have been completed but before the well is placed on production. For each testing status, oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported. Wells producing from the following formations are considered potential shale gas only wells: Muskwa, Duvernay, Ireton, Fort Simpson, Exshaw, Fernie, Rierdon, Moosebar, Wilrich, Joli Fou, Harmon, Shaftesbury, Blackstone, Wapiabi, Kaskapau, Muskiki, Lea Park, Pakowki, Battle, Fish Scale, Second White Speckled Shale, Colorado Shale, and First White Speckled Shale.
Shale gas only test completed	A well that has tested for a three-month period. If you require a volumetric submission beyond the three months, you must change the well's status to "Test Completed" for one day and then change the well's status back to testing for another three months.

Well status	Description
Shale gas only drilling and completing	A well completed in shales only. The fluids are recovered during drilling operations such as swabbing or drillstem testing. This status can only be used before a drilled and cased status and only to report volumetric data for three months. Hours cannot be reported. Wells producing from the following formations are considered potential shale gas only wells: Muskwa, Duvernay, Ireton, Fort Simpson, Exshaw, Fernie, Rierdon, Moosebar, Wilrich, Joli Fou, Harmon, Shaftesbury, Blackstone, Wapiabi, Kaskapau, Muskiki, Lea Park, Pakowki, Battle, Fish Scale, Second White Speckled Shale, Colorado Shale, and First White Speckled Shale.
Shale gas and other sources testing	A well completed in both shales and other lithology; not including coals. For each testing status, oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported. Perforations in the following formations/members are mainly nonmarine and/or have low organic contents and are not considered to contain shale gas but are other lithology: Whyte, Snake Indian, Stephen, Earlie, Deadwood, Sullivan, Bison Creek, and Whitemud.
Shale gas and other sources test completed	A well that has tested for a three-month period. If you require a volumetric submission beyond the three months, you must change the well's status to "Test Completed" for one day and then change the well's status back to testing for another three months.
Shale gas and other sources drilling and completing	A well completed in both shales and other lithology, not including coals. The fluids are recovered during drilling operations such as swabbing or drillstem testing. This status can only be used prior to a drilled and cased status and only to report volumetric data for three months. Hours cannot be reported. Perforations in the following formations and members are mainly nonmarine and/or have low organic contents and are not considered to contain shale gas but are other lithology: Whyte, Snake Indian, Stephen, Earlie, Deadwood, Sullivan, Bison Creek, and Whitemud.
Shale gas and other sources flowing	A well completed in both shales and other lithology, not including coals. Perforations in the following formations and members are mainly nonmarine and/or have low organic contents and are not considered to contain shale gas but are other lithology: Whyte, Snake Indian, Stephen, Earlie, Deadwood, Sullivan, Bison Creek, and Whitemud.
Shale gas and other sources pumping	A well completed in both shales and other lithology, not including coals. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface. Perforations in the following formations and members are mainly nonmarine and/or have low organic contents and are not considered to contain shale gas but are other lithology: Whyte, Snake Indian, Stephen, Earlie, Deadwood, Sullivan, Bison Creek, and Whitemud.
CBM & shale & other sources (CBMSOT) flowing	A well completed in coals, shales, and other lithology (e.g., sandstone). The AER defines coal in section 1.020(2)(3.1) of the OGCR as "a lithostratigraphic unit having 50% or greater by weight organic matter and being thicker than 0.30 metres." Perforations in the following organic horizons are not considered to contain shale gas: Glauconitic, Upper Manville (and Provost equivalents), Foremost, Oldman, Dinosaur Park, Horseshoe Canyon, Scollard, and Paskapoo.
CBM & shale & other sources (CBMSOT) pumping	A well completed in coals, shales, and other lithology (e.g., sandstone). The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface. The AER defines coal in section 1.020(2)(3.1) of the OGCR as "a lithostratigraphic unit having 50% or greater by weight organic matter and being thicker than 0.30 metres." Perforations in the following organic horizons are not considered to contain shale gas: Glauconitic, Upper Manville (and Provost equivalents), Foremost, Oldman, Dinosaur Park, Horseshoe Canyon, Scollard, and Paskapoo.
CBM & shale & other sources (CBMSOT) testing	A well completed in coals, shales, and other lithology (e.g., sandstone). For each testing status oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported. The AER defines coal in section 1.020(2)(3.1) of the OGCR as "a lithostratigraphic unit having 50% or greater by weight organic matter and being thicker than 0.30 metres." Perforations in the following organic horizons are not considered to contain shale gas: Glauconitic, Upper Manville (and Provost equivalents), Foremost, Oldman, Dinosaur Park, Horseshoe Canyon, Scollard, and Paskapoo.

Well status	Description
CBM & shale & other sources (CBMSOT) test completed	A well that has tested for a three-month period. If you require a volumetric submission beyond the three months, you must change the well's status to "Test Completed" for one day and then change the well's status back to testing for another three months.
CBM & shale & other sources (CBMSOT) drilling and completing	A well completed in coals, shales, and other lithology (e.g., sandstone). The fluids are recovered during such drilling operations as swabbing or drillstem testing. This status can only be used prior to a drilled and cased status and only to report volumetric data for three months. Hours cannot be reported. The AER defines coal in section 1.020(2)(3.1) of the <i>OGCR</i> as "a lithostratigraphic unit having 50% or greater by weight organic matter and being thicker than 0.30 metres." Perforations in the following organic horizons are not considered to contain shale gas: Glauconitic, Upper Manville (and Provost equivalents), Foremost, Oldman, Dinosaur Park, Horseshoe Canyon, Scollard, and Paskapoo.
Coalbed Methane-Coals Only (CBMCLS) flowing	A well completed in coals only.
Coalbed Methane-Coals Only (CBMCLS) pumping	A well completed in coals only. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface.
Coalbed Methane-Coals Only (CBMCLS) testing	A well completed in coals only. For each testing status, oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported.
Coalbed Methane-Coals Only (CBMCLS) drilling and completing	A well completed in coals only. The fluids are recovered during such drilling operations as swabbing or drillstem testing. This status can only be used prior to a drilled and cased status and only to report volumetric data for three months. Hours cannot be reported.
Coalbed Methane-Coals & Other Lithology (CBMOT) flowing	A well completed in both coals and other lithology (e.g., sandstone).
Coalbed Methane-Coals & Other Lithology (CBMOT) pumping	A well completed in both coals and other lithology (e.g., sandstone). The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface.
Coalbed Methane-Coals & Other Lithology (CBMOT) testing	A well completed in both coals and other lithology (e.g., sandstone). For each testing status, oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported.
Coalbed Methane-Coals & Other Lithology (CBMOT) test completed	A well that has tested for a three-month period. If you require a volumetric submission beyond the three months, you must change the well's status to "Test Completed" for one day and then change the well's status back to testing for another three months.
Coalbed Methane-Coals & Other Lithology (CBMOT) drilling and completing	A well completed in both coals and other lithology (e.g., sandstone). The fluids are recovered during such drilling operations as swabbing or drillstem testing. This status can only be used prior to a drilled and cased status and only to report volumetric data for three months. Hours cannot be reported.

Well status	Description
Helium flowing	A well that produces a mixture primarily of raw or marketable helium or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are produced to surface through natural reservoir drive mechanisms, usually formation pressure.
Helium pumping	A well that produces a mixture primarily of raw or marketable helium or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, plunger lift etc.) to lift fluids to the surface.
Helium testing	A well expected to produce a mixture primarily of raw or marketable helium or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are produced after the drilling operations have been completed but before the well is placed on production. For each gas testing well status, oil/condensate, gas, and water can be reported for three consecutive months and hours must be reported.
Helium test completed	A well that has tested for a three-month period. If you require a volumetric submission beyond the three months, you must change the well's status to "Helium Test Completed" for one day and then change the well's status back to testing for another three months.
Helium drilling and completing	A well expected to produce a mixture primarily of raw or marketable helium or any constituent of raw gas, condensate, crude bitumen, or crude oil that is recovered in processing but is gaseous when its volume is measured or estimated. The fluids are recovered during drilling operations such as swabbing or drillstem testing. This status can only be used prior to a drilled and cased well status and only to report volumetric data for three months. Hours cannot be reported.
Geothermal closed-loop circulation	A geothermal well used in a single well closed-loop configuration. This well status is used for a well that circulates fluid through a single wellhead surface location. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal closed-loop circulation in	A geothermal well used in a multiwell closed-loop configuration. This well status is used for a well that receives cold-side circulation fluids. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal closed-loop circulation out	A geothermal well used in a multiwell closed-loop configuration. This well status is used for a well that produces hot-side circulation fluids. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop injection	A geothermal well used in an open-loop configuration. This well status is used for a well that injects cool or cold fluids from the wellbore into a subsurface reservoir or formation for reheating. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop production	A geothermal well used in an open-loop configuration. This well status is used for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop production oil flow	A geothermal well used in an open-loop configuration. This well status is for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface and also produces incidental hydrocarbons consisting of mainly oil. The fluids are produced to surface through natural reservoir drive mechanisms, typically formation pressure. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.

Well status	Description
Geothermal open-loop production oil pump	A geothermal well used in an open-loop configuration. This well status is for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface and also produces incidental hydrocarbons consisting of mainly oil. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, or plunger lift) to lift fluids to the surface. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop production gas flow	A geothermal well used in an open-loop configuration. This well status is for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface and also produces incidental hydrocarbons consisting of mainly gas. The fluids are produced to surface through natural reservoir drive mechanisms, typically formation pressure. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop production gas pump	A geothermal well used in an open-loop configuration. This well status is for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface and also produces incidental hydrocarbons consisting of mainly gas. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, or plunger lift) to lift fluids to the surface. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop production cr-bit flow	A geothermal well used in an open-loop configuration. This well status is for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface and also produces incidental hydrocarbons consisting of mainly crude bitumen. The fluids are produced to surface through natural reservoir drive mechanisms, typically formation pressure. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal open-loop production cr-bit pump	A geothermal well used in an open-loop configuration. This well status is for a well that allows warm or hot fluids from a subsurface reservoir or formation to flow into the wellbore for production to the surface and also produces incidental hydrocarbons consisting of mainly crude bitumen. The fluids are produced with the assistance of mechanical equipment (e.g., pump jack, downhole pump, or plunger lift) to lift fluids to the surface. Monthly wellhead minimum, average, and maximum temperatures must be reported for this well status.
Geothermal observation	A geothermal well used to monitor downhole temperature or pressure. A well with this status must be linked to an appropriate geothermal reporting facility subtype. If collected, the monthly bottomhole minimum, average, and maximum temperatures must be reported for this well status.
Geothermal drain	A geothermal well where more than one event (leg) in a multileg well penetrates the same formation and is capable of production. The event that is considered to be the main contributor of production carries the producing status. The other contributing events carry a drain status. No temperatures are reported at well events with the geothermal drain status.
Geothermal other	A geothermal well not used in an open- or closed-loop configuration or does not use any fluids.

Appendix 8 Load Fluid

Definitions

- Load Fluid – any hydrocarbon and/or water-based fluid used at any stage in the life of a well (completion, servicing, regular operation, or abandonment). It includes fluids injected into a flow line between a well and the battery to which it produces (e.g., hot oil, dewaxing chemicals).
- Load Oil – hydrocarbon-type fluids used as load fluid, including crude oil, condensate, refined oils, and oil-based or oil-soluble chemicals.
- Load Water – water-type fluids used as load fluid, including produced/fresh water and water-based or water-soluble chemicals.

Measurement

Load fluids are subject to the same measurement requirements applicable to produced or injected fluids as stipulated in Part 14 of the *OGCR* and applicable interim directives and informational letters. Visit the AER website www.aer.ca or contact the AER for a copy of any of these publications.

Proration Testing

If the well is included in a proration battery, you must test it as soon as possible upon completion of any operation using load fluid injections to determine recovery rates of all fluids. You must then retest the well after recovery of load fluids to establish new fluid rates for calculating estimated production. The reported hours must reflect the total hours during which formation gas or liquids were produced. This includes hours when a well is recovering load fluid while also producing formation fluids (e.g., recovering load oil, producing formation gas and/or water). If no formation gas or liquids are produced while the well is recovering load fluid, the production and hours for that period will be zero.

For example, a well produced from August 1 to 15, 2020. It went down on August 16 and 60 cubic metres (m³) of load oil was used for servicing. The well was brought back on August 19 and tested to determine the recovery rate of oil and the production rate (if any) of gas and water. The well was retested on August 23, having allowed sufficient time for the load oil to be recovered at a rate of 15 m³/day.

Example: Oil Proration Battery – Estimated Production Adjusted for Load Oil Recovery

Table 17. Test information from field operation's data

Date	Production			Hours	Comments
	Oil	Gas	Water		
2020-07-28	7.95	1.15	12.25	24	
2020-08-11	7.21	1.25	11.50	24	
2020-08-19	15.00	0.80	2.30	24	Recovering load oil
2020-08-23	9.50	1.25	13.55	24	

Estimated Production of Test-to-Test Method

There are two methods of calculating well production in a month in which load oil was used for servicing operations and was recovered. In method 1 (table 18), a nil test oil volume is reported for the period recovering load fluid (August 19–22). However, recorded volumes of test gas and water are reported to accurately reflect formation fluid produced during load recovery. In method 2 (table 19), the test oil, gas, and water volumes recorded on August 19 are reported for the period during load fluid recovery (August 19–22). Upon calculation of the monthly estimated oil production, the 60 m³ of load oil injected must be subtracted from the total to determine accurate estimated oil production for the well.

Table 18. Method 1

Test date		Hours	Test production			Hours	Estimated production		
DD	MM		Oil	Gas	Water		Oil	Gas	Water
28	07	24	7.95	1.15	12.25	240	79.5	11.5	122.5
11	08	24	7.21	1.25	11.50	120	36.1	6.3	57.5
19	08	24	0.00	0.80	2.30	96	0.0	3.2	9.2
23	08	24	9.50	1.25	13.55	216	85.5	11.3	122.0
Total						672	201.1	32.3	311.2

Table 19. Method 2

Test date		Hours	Test production			Hours	Estimated production		
DD	MM		Oil	Gas	Water		Oil	Gas	Water
28	07	24	7.95	1.15	12.25	240	79.5	11.5	122.5
11	08	24	7.21	1.25	11.50	120	36.1	6.3	57.5
19	08	24	15.00	0.80	2.30	96	60.0	3.2	9.2
23	08	24	9.50	1.25	13.55	216	85.5	11.3	122.0
Subtotal						672	261.1	32.3	311.2
Deduct recovered load oil							60.0	0.00	0.00
Total						672	201.1	32.3	311.2

Reporting

When load fluid is used from the facility inventory, injected to a well linked to the facility, and recovered within the same month, you may choose not to report the well activities or report the well, volume, and product with the activities load injected and load recovered.

You must record the volume of load fluid received from another source and injected into a well linked to the facility as a receipt and identify where the fluid was received from. For a receipt from another battery or facility, you must use the facility ID of the sending facility. For a receipt from a commercial source, record it as receipt from a miscellaneous source (AB MC).

Three situations might occur when injecting load fluids:

- injection and full recovery within the same month
- injection and partial recovery within the same month

- injection and no recovery within the same month

Each of the above situations is reported through Petrinex for each well and each fluid that load fluid injection or recovery occurs using the following activities:

- Load injection (LDINJ) – To identify the volume of fluid injected to the well.
- Load recovered (LDREC) – To identify the volume of fluid recovered from the well.
- Load inventory (LDINV) – To identify the volume of fluid that was injected and not recovered by the end of the month.
- Load inventory adjustment (LDINVADJ) – To report the load volume that was downhole at the end of August 2002 and recovered during a later production month, or to correct previously reported load inventory.

Following load water injection, the water produced from the well must be reported in Petrinex until the entire volume is recovered. In cases where load water is lost to the formation and can no longer be recovered, operators may choose to discontinue reporting load water recovery after a well has been on production for twelve months. For this scenario the operator would “zero out” the load water inventory using the load fluid inventory adjustment LDINVADJ activity in Petrinex. See *Directive 017*.

Drilling Well

- 1) When a well that is being completed (not on production or injection) receives load fluid for injection, the operator of the well may choose to submit the transaction to Petrinex as load injection.
 - To submit load transactions only, the operator must obtain a reporting facility ID and change the well status (see table 20).
- 2) When a well that has been completed (not on production or injection) recovers previously injected load fluid, if any other product is produced with the fluid recovery or more fluid is recovered than was injected, the operator must submit the transaction to Petrinex.
 - The operator must obtain a reporting facility ID and change the well status (see table 20).
- 3) If only the load fluid is recovered, the well operator may choose to submit the transaction to Petrinex. Load injection volumes must have been reported previously, as Petrinex will perform a balance on load injected into the well versus load recovered from the well.
 - For situations where load fluid was injected prior to Petrinex implementation, the operator may use the load inventory adjustment to identify downhole fluid.
 - Load inventory adjustment may also be used when an operator recovers downhole inventory not previously reported as injected but recovered and delivered when the well is “on production.”

Table 20. Well status and facility subtype

Well status	Facility subtype
Crude oil potential	<ul style="list-style-type: none"> • Crude oil single-well battery • Crude oil multiwell group battery • Crude oil multiwell proration battery
Crude bitumen potential	<ul style="list-style-type: none"> • Crude bitumen single-well battery • Crude bitumen multiwell group battery • Crude bitumen multiwell proration battery
Water potential injection	<ul style="list-style-type: none"> • Enhanced recovery scheme • Concurrent production/cycling scheme • Disposal • In situ oil sands
Water potential disposal	<ul style="list-style-type: none"> • Enhanced recovery scheme • Concurrent production/cycling scheme • Disposal • In situ oil sands
Gas testing	<ul style="list-style-type: none"> • Gas testing

Downhole Load Fluid Inventory – Well Moved to New Facility

When a well has reported a load fluid injection transaction and the load fluid is not recovered until the well has been moved to a different reporting facility ID, the operator must submit a transaction for each facility.

- At the reporting facility where the load fluid was reported as injected, the operator will show a load fluid inventory adjustment negative volume, resulting in a zero-load-fluid closing inventory for the well.
- At the new facility the operator will show a load fluid inventory adjustment positive volume for the amount that is still downhole.

Products Sent to/Received from a Drilling Well

If the operator of the well that product is sent to or received from does not have a reporting facility ID for the well, enter the transaction using the well ID of the drilling well in “received from/delivered to” code. The well ID must be complete and exist in Petrinex with a well status of “initial status” or “drilled and cased” to be accepted.

Operators must maintain records of load fluid transactions on an individual well basis for at least one year, as required under Part 12 of the *OGCR*, and make these records available to the AER upon request.

Situations of Products Received

Case 1: Oil Injected into a Well Within the Battery

If oil from the facility inventory is injected into a well within the facility and not completely recovered during the same month, report the total volume of oil injected and the volume of oil that is recovered.

Petrinex will use this information to calculate a load closing inventory (LDINVCL). The load closing inventory volume is used in the balance of the facility (see model 1.1 in table 21).

Table 21. Model 1.1

Activity	Product	From/To	Volume	Energy
LDINJ	OIL	AB WI 100010100101W400	15.0	
LDREC	OIL	AB WI 100010100101W400	10.0	
LDINVCL	OIL	AB WI 100010100101W400	5.0	
INVOP	OIL		25.0	
INVCL	OIL		20.0	

Alternatively, you may choose to only report the portion that is not recovered as load injection (LDINJ). Petrinex will use this injected volume to calculate the load closing inventory (see model 1.2 in table 22). The load closing inventory volume is used in the balance of the facility.

Table 22. Model 1.2

Activity	Product	From/To	Volume	Energy
LDINJ	OIL	AB WI 100010100101W400	5.0	
LDINVCL	OIL	AB WI 100010100101W400	5.0	
INVOP	OIL		25.0	
INVCL	OIL		20.0	

Case 2: Pentanes Plus or Condensate Injected to an Oil Well

When pentanes plus or condensate is transferred from a gas plant or gathering system as a liquid for injection to an oil well, the receiving facility enters the volume as receipt of C5 or condensate with the facility ID of the sending gas plant or gathering system (see model 2 in table 23).

Table 23. Model 2

Activity	Product	From/to	Volume	Energy
REC	C5-SP	AB GP 0001234	15.0	
LDINJ	C5-SP	AB WI 100010100101W400	15.0	
LDREC	C5-SP	AB WI 100010100101W400	10.0	
LDINVCL	C5-SP	AB WI 100010100101W400	5.0	
INVCL	OIL		20.0	

Case 3: Pentanes Plus or Condensate Injected to a Gas Well

When pentanes plus or condensate is transferred from a gas plant or gathering system as a liquid for injection to a gas well, the receiving facility enters the volume as a receipt of C5 or condensate with the facility ID of the sending gas plant or gathering system (see model 3 in table 24).

Table 24. Model 3

Activity	Product	From/To	Hours	Volume	Energy
REC	C5-SP	AB GP 0001234		15.0	
LDINJ	C5-SP	AB WI 100010100101W400		15.0	
LDREC	C5-SP	AB WI 100010100101W400		15.0	

PROD	GAS	AB WI 100010100101W400	744	150.0	
DISP	GAS	AB GS 0100211		155.0	
DISP	C5-SP			15.0	
PROD	WATER	AB WI 100010100101W400		5.0	
INVCL	WATER			5.0	
MDIFF	GAS				

If recovery takes place during the same month, enter the recovered volume as a delivery of oil to the gas plant or gathering system from which it will be disposed.

Under certain circumstances pentanes plus or condensate production may be converted to a gas equivalent and included in the gas production volumes (refer to *Directive 017* for details on when this is permitted). However, when pentanes plus or condensate is used as load fluid it must be reported as a liquid.

Case 4: Oil-Based Commercial Fluids Used for Injection

Local purchase of oil-based commercial fluids obtained from facilities with no AER facility code and used as load fluid is reported as a receipt and identified using the miscellaneous code AB MC.

Case 5: Water Injected to a Well Within the Battery

If water from the facility is used for well-servicing operations in a well within the facility and is not completely recovered during the same month, report the total volume of water injected and the volume of water recovered at the well. Petrinex will use this information to calculate a load closing inventory (see model 5.1 in table 25). The load closing inventory volume is used in the balance of the facility.

Table 25. Model 5.1

Activity	Product	From/to	Volume	Energy
LDINJ	WATER	AB WI 100010100101W400	15.0	
LDREC	WATER	AB WI 100010100101W400	10.0	
LDINVCL	WATER	AB WI 100010100101W400	5.0	
INVOP	WATER		25.0	
INVCL	WATER		20.0	

Alternatively, you may choose to only report the portion that is not recovered as LDINJ. Petrinex will use this injected volume to calculate the load closing inventory (see model 5.2 in table 26). The load closing inventory volume is used in the balance of the facility.

Table 26. Model 5.2

Activity	Product	From/To	Volume	Energy
LDINJ	WATER	AB WI 100010100101W400	5.0	
LDINVCL	WATER	AB WI 100010100101W400	5.0	
INVOP	WATER		25.0	
INVCL	WATER		20.0	

Appendix 9 Volumetric Balancing

Petrinex balances volumetric data differently depending on the type of facility reporting the products, volumes, and activities. Petrinex will add some products together so that the sum will reconcile at the product group level. This is necessary when the product reported as received at the facility is not the same product reported as disposed, which is what occurs when a well produces condensate but the facility receiving it refers to it as oil. Any difference resulting from the “ins” minus the “outs” for the product group is referred to as a metering difference or imbalance. If any one of the product groups is out of balance, then the whole facility will be considered out of balance.

Table 27 lists the product groups and products that if reported at a facility will be included in the facility balance for the product group. Not all products reported at a facility are balanced. An example is entrained gas extracted from the water at a water disposal facility.

Table 27. Product group for facility balance

Product group	Products included	Facility balance activity
Oil	OIL, COND, SYNCRD	IMBAL
Gas	GAS, ACGAS, CO2, N2 (Exception – see “Solvent” product group.)	DIFF
Butane-SP	IC4-SP, NC4-SP, C4-SP	IMBAL
Butane-MX	IC4-MX, NC4-MX, C4-MX	IMBAL
Pentane-SP	IC5-SP, NC5-SP, C5-SP, C6-SP (Exception – include Oil, Condensate if facility type is GP, GS)	IMBAL
Pentane-MX	IC5-MX, NC5-MX, C5-MX, C6-MX	IMBAL
LITE-MX	LITEMX, C1-MX, CO2-MX	IMBAL
Sulphur	SUL, SPRILL, SMOLT, SBASE, SBLOC, SFORM, SLATE	IMBAL
Water	WATER, FSHWTR, STEAM, BRKWTR (Exception – include OIL [skim oil] if facility is water disposal facility.)	DIFF
Ethane-SP	C2-SP	IMBAL
Ethane-MX	C2-MX	IMBAL
Propane-SP	C3-SP	IMBAL
Propane-MX	C3-MX	IMBAL
Air	AIR	Not balanced
Diesel	DIESEL	IMBAL
Oxygen	O2	Not balanced
Helium	HELIUM	IMBAL
Solvent	SOLV, GAS, CO2, N2, ACGAS, gas equivalent of spec and mix by-product receipt volumes (Exception – This product grouping is used at injection facility if solvent is reported.)	DIFF
Sand	SAND	Not balanced
Waste	WASTE	DIFF
Entrained gas	ENTGAS	Not balanced

Facility Totals

The facility operator does not submit facility totals to Petrinex. Instead, Petrinex calculates the total for each activity and product reported at the facility. These calculated totals are used in the algorithm to balance the facility.

Petrinex calculates totals for the following activities:

- Disposition (DISP)
- Flare (FLARE)
- Fuel (FUEL)
- Injection (INJ)
- Load injection (LDINJ)
- Load recovered (LDREC)
- Production (PROD)
- Purchase receipt (PURREC)
- Purchase disposition (PURDISP)
- Receipts (REC)
- Vent (VENT)

Process and Shrinkage at Gas Plants or Gas Gathering Facilities

The facility operator does not submit process or shrinkage volumes at a gas plant or gas gathering facility. Instead, Petrinex calculates the process volume for each by-product processed at the gas plant or gas gathering facility. The process volume is calculated at the product group level rather than at the individual product. Petrinex also calculates the gas equivalent of any hydrocarbon liquids processed from the gas stream. A standard gas equivalent factor for each processed product group is used to calculate the shrinkage volume. The exception to this is the acid gas shrinkage volume that the operator must report.

Tables 28 and 29 identify the product group and the products that if reported at a facility will be included in the calculation of the process and shrinkage volume.

Table 28. Product group for process activity

Product group	Products included	Formula (for all product groups)
Butane-MX	IC4-MX, NC4-MX, C4-MX	Process = (closing inventory) + (total disposition) – (opening inventory) – (total receipts) – (total production) – (inventory adjustment) – (fractionation yield)
Butane-SP	IC4-SP, NC4-SP, C4-SP	
Ethane-MX	C2-MX	
Ethane-SP	C2-SP	
LITE-MX	LITEMX, C1-MX, CO2-MX	
Pentane-MX	IC5-MX, NC5-MX, C5-MX, C6-MX	
Pentane-SP	IC5-SP, NC5-SP, C5-SP, C6-SP (Exception – include OIL and COND if facility type is GP, GS)	
Propane-MX	C3-MX	
Propane-SP	C3-SP	
Sulphur	SUL, SPRILL, SMOLT, SBASE, SBLOC, SFORM, SLATE	

Table 29. Product group for shrinkage activity

Product group	Gas equivalent factor			Formula for all product groups
	October 2002	January 2008	January 2017	
Butane-MX	0.23335	0.23335	0.23768	Shrinkage = process volume × gas equivalent factor
Butane-SP	0.23335	0.23335	0.23768	
Ethane-MX	0.28148	0.28151	0.28140	
Ethane-SP	0.28148	0.28151	0.28140	
LITE-MX	0.28148	0.440295	0.44217	
Pentane-MX	0.20575	0.20575	0.20667	
Pentane-SP	0.20575	0.20575	0.20667	
Propane-MX	0.27221	0.27222	0.27213	
Propane-SP	0.27221	0.27222	0.27213	

Acid Gas at a Gas Plant

Facility operators must report acid gas as SHR (shrinkage) at a sulphur recovery plant and as DISP (disposition) at an acid gas injection plant. You must report the gas equivalent of the acid gas transferred to a sulphur plant (or flared if there is no sulphur plant) and the gas normally flared from the plant through processing of liquids (see *Directive 017*, section 11.4.4).

When your gas plant approval contains the clause, “In no event shall the operator flare gaseous hydrocarbons and other gases other than gas flared as part of process shrinkage,” you must report the acid gas flared as FLARE with product type ACGAS. Use the shrinkage activity to report the hydrogen sulphide (H₂S), carbon dioxide (CO₂), and other acid gases removed from the inlet gas stream (except continuous acid gas flaring at sour gas plants and tail gas flaring at sour gas plants) and processed through an acid gas handling facility as activity shrinkage. This includes acid gas that is converted to elemental

sulphur. When sour or acid gas is reported, you must file an *S-30 Monthly Gas Processing Plant Sulphur Balance* statement.

Acid gas flared during plant upset conditions is reported as gas flared. Continuous acid gas flaring at sour gas plants and tail gas flaring at sour gas plants are reported as acid gas flared.

Solvent Injection Facility – Gas Equivalent Volume

To balance an injection facility that receives liquid products in cubic metres (m³) and injects a solvent in thousands of cubic metres (10³ m³), the liquid receipt volumes must be converted to their gas equivalent. The facility operator does not enter the gas equivalent volume. Instead, Petrinex calculates the gas equivalent volume using a standard gas equivalent factor for each product.

Table 30 identifies the products that if received at an injection facility are converted from m³ to 10³ m³. The resulting gas equivalent volume is the volume used in balancing the facility. These factors are also used when products are not injected but are in inventory or are delivered to another facility.

Table 30. Product and gas equivalent factor

Product	Gas equivalent factor			Formula for receipt product
	Oct 2002	Jan 2008	Jan 2017	
Butane Mix (C4-MX)	0.23335	0.23335	0.23768	Receipts: Gas equivalent volume for each by-product = total receipts for each product × gas equivalent factor for that product
Butane Spec (C4-SP)	0.23335	0.23335	0.23768	
Ethane Mix (C2-MX)	0.28148	0.28151	0.28140	
Ethane Spec (C2-SP)	0.28148	0.28151	0.28140	Opening inventory: Gas equivalent volume for each by-product = opening inventory for each product × gas equivalent factor for that product
Pentane Mix (C5-MX)	0.20575	0.20575	0.20667	
Pentane Spec (C5-SP)	0.20575	0.20575	0.20667	
Propane Mix (C3-MX)	0.27221	0.27222	0.27213	Closing inventory: Gas equivalent volume for each by-product = closing inventory for each product × gas equivalent factor for that product
Propane Spec (C3-SP)	0.27221	0.27222	0.27213	
Hexane Mix (C6-MX)	0.20575	0.18216	0.18217	
Hexane Spec (C6-SP)	0.20575	0.18216	0.18217	Dispositions: Gas equivalent volume for each by-product = total disposition for each product × gas equivalent factor for that product
Iso-Butane Mix (IC4-MX)	0.23335	0.23335	0.22902	
Iso-Butane Spec (IC4-SP)	0.23335	0.23335	0.22902	
Iso-Pentane Mix (IC5-MX)	0.20575	0.20575	0.20485	
Iso-Pentane Spec (IC5-SP)	0.20575	0.20575	0.20667	
Normal Butane Mix (NC4-MX)	0.23335	0.23335	0.23768	
Normal Butane Spec (NC4-SP)	0.23335	0.23335	0.23768	
Normal Pentane Mix (NC5-MX)	0.20575	0.20575	0.20667	
Normal Pentane Spec (NC5-SP)	0.20575	0.20575	0.20667	
Lite Mix (LITEMX)	0.28148	0.440295	0.44217	
Carbon Dioxide Mix (CO2-MX)	0.28148	0.440295	0.44120	
Methane Mix (C1-MX)	0.28148	0.440295	0.44217	

Facility Volumetric Balance

The facility will be balanced at each product group using the formulas below to calculate the metering difference (DIFF) or the imbalance (IMBAL) activity. Petrinex will calculate metering difference and imbalance percentages for each product group. If the percentage is not within the acceptable tolerance, an error message will be issued (see section 1.3).

- Imbalance:

$$(\text{opening inventory}) + (\text{total production}) + (\text{total load recovery}) + (\text{total receipts}) + (\text{process for each product group}) + (\text{inventory adjustment}) + (\text{fractionation yield}) - (\text{total dispositions}) - (\text{total injection}) - (\text{shrinkage}) - (\text{total load injection}) - (\text{closing inventory})$$

- Imbalance %

$$(\text{imbalance}) / ([\text{opening inventory}] + [\text{total production}] + [\text{process}] + [\text{total receipts}] + [\text{fractionation yield}] + [\text{inventory adjustment}] + [\text{total load recovery}]) \times 100$$

- Metering difference

$$(\text{opening inventory}) + (\text{total production}) + (\text{total load recovery}) + (\text{total receipts}) + (\text{total purchase receipts}) + (\text{inventory adjustment}) - (\text{total fuel}) - (\text{total flare}) - (\text{total vent}) - (\text{total disposition}) - (\text{total purchase disposition}) - (\text{shrinkage}) - (\text{total load injected}) - (\text{closing inventory}) - (\text{total injection}) - (\text{total plant use}) - (\text{total recycle}) - (\text{total utility})$$

- Metering difference %:

$$(\text{metering difference}) / ([\text{inventory opening}] + [\text{total production}] + [\text{total receipts}] + [\text{total purchase receipts}] + [\text{total load recovered}] + [\text{inventory adjustment}]) \times 100$$

Appendix 10 Linking Gas Wells to Oil Batteries and Oil Wells to Gas Batteries

The linking of gas wells to an oil battery or linking of oil wells to a gas battery is not allowed. Operators must meet the requirements in section 5.5 of [*Directive 017: Measurement Requirements for Upstream Oil and Gas Operations*](#) or apply to the AER's Operations Division and obtain approval to physically tie a gas well into an oil battery system, or vice versa. These applications are reviewed and dealt with on an individual basis.

If approval is granted or an application is not required under section 5.5 of *Directive 017*, the operator is required to obtain a facility ID and submit separate volumetric information for the gas wells showing delivery of its products and volume to the oil battery. The same situation is required for an oil well linked to a gas battery. This change will allow for the clear differentiation between solution gas and gas well gas.

All requests for a facility ID require that the facility or well licence number originally issued by the AER be provided. Exceptions to this are for meter stations and CER-regulated pipelines and associated terminals.

Appendix 11 Reporting Geothermal Well and Facility Activities

Effective the January 2023 production month, all geothermal operators are to report geothermal activities to the AER electronically using Petrinex in accordance with Part 4 of the *Geothermal Resource Development Rules, Directive 007: Volumetric and Infrastructure Requirements*, and *Directive 089: Geothermal Resource Development*.

Petrinex has been updated with geothermal well statuses and facility types as shown in tables 31 (facility) and 32 (well).

Table 31. Geothermal facility subtypes

Subtype	Name	Geothermal licence required
101	Single-well closed-loop geothermal facility	Facility or well licence required
102	Multiwell closed-loop geothermal facility	Facility licence required
105	Multiwell open-loop geothermal facility	Facility licence required
106	Observation well geothermal facility	Well licence required
107	Geothermal power generating facility (no wells)	Facility licence required

Table 32. Active geothermal well statuses

Name	Fluid	Mode	Status	Structure	Geothermal well licence required
Closed-loop geothermal circulation	n/a	PUMP	n/a	GEO THERMAL	Yes
Closed-loop geothermal circulation in	n/a	n/a	INJ	GEO THERMAL	Yes
Closed-loop geothermal circulation out	n/a	FLOW	n/a	GEO THERMAL	Yes
Open-loop geothermal injection	WATER	n/a	INJ	GEO THERMAL	Yes
Open-loop geothermal production	WATER	FLOW	n/a	GEO THERMAL	Yes
Open-loop geothermal production Oil Flow	OIL	FLOW	n/a	GEO THERMAL	Yes
Open-loop geothermal production Oil Pump	OIL	PUMP	n/a	GEO THERMAL	Yes
Open-loop geothermal production Gas Flow	GAS	FLOW	n/a	GEO THERMAL	Yes

Open-loop geothermal production Gas Pump	GAS	PUMP	n/a	GEOHERMAL	Yes
Open-loop geothermal production Cr-Bit Flow	CR-BIT	FLOW	n/a	GEOHERMAL	Yes
Open-loop geothermal production Cr-Bit Pump	CR-BIT	PUMP	n/a	GEOHERMAL	Yes
Geothermal observation	n/a	n/a	OBSERV	GEOHERMAL	Yes
Geothermal other	n/a	n/a	n/a	GEOHERMAL	Yes
Geothermal drain	n/a	n/a	n/a	GEODRAIN	Yes

As per *Directive 089*, the following information must be submitted to the AER monthly using Petrinex:

- For all geothermal wells (excluding geothermal observation wells), wellhead minimum, average, and maximum temperatures (°C);
- For all geothermal wells, if collected the minimum, average, and maximum bottomhole temperatures (°C);
- For geothermal commercial heating activities, the total monthly heat sold (kilojoules [kJ]);
- For geothermal commercial power activities, the total monthly power generated, exported, and imported (kilowatt-hours [kWh]).

A well volumetric submission is not considered complete unless it contains all three required temperatures: minimum, average, and maximum. A volumetric noncompliance error will be generated if any of the required temperatures are missing from the well's volumetric submission. A complete list of error numbers, error descriptions, and associated fees (the AER Error Message Identifier Description and Associated Fee table) is provided in the “Related Information” section at the bottom of the [Directive 007](#) webpage.

Incidental Hydrocarbon Production at Geothermal Facilities

It is possible for geothermal activities to produce small amounts of hydrocarbons (i.e., gas, condensate, oil, or bitumen), particularly in open-loop facility configurations. If incidental hydrocarbons are produced, the open-loop production well must also be linked to the appropriate battery subtype, and the well status changed accordingly. Report any incidental hydrocarbon production at the linked battery and geothermal water production and temperature at the linked geothermal facility. Refer to *Directive 089* for more information and requirements on incidental hydrocarbon production at geothermal facilities.

Load Fluid at Geothermal Wells

If an open-loop geothermal well has been drilled and there is unrecovered load fluid after the well goes on production, any unrecovered load fluid inventory must be established, similar to conventional wells. When a geothermal well is reporting to both a geothermal facility and a battery at the same time because

of incidental hydrocarbon production, report the load fluid at the well linked to the geothermal facility. Refer to appendix 8 for more information on load fluid activities.

Geothermal Observation Wells

Unlike conventional observation wells, geothermal observation wells must be linked to a reporting facility ID. If a geothermal observation well shares the same location as open- or closed-loop geothermal wells, it may be linked to the open- or closed-loop facility subtype that the other wells sharing the same location are linked to. If there are no other geothermal open- or closed-loop wells sharing the same location as the geothermal observation well, it must be linked to an observation well geothermal facility subtype (106).

Report in Petrinex any bottomhole temperatures collected during the month for a geothermal observation well. If bottomhole temperatures are not collected at an active geothermal observation well during the month, report a SHUTIN activity for the well. A geothermal observation well reporting a SHUTIN activity for 12 consecutive months will be added to the inactive well list (see *Directive 013: Suspension Requirements for Wells* for more details).

Geothermal observation wells may have more than one bottomhole temperature measurement point in the wellbore. Petrinex allows for reporting multiple bottomhole temperature sets (minimum, average, maximum) for geothermal observation wells. In the well activity screen for a geothermal observation well, there is a column labelled “Seq” (short for Sequence). If only one set of bottom hole temperatures is taken, the “Seq” code will be left blank. If there is more than one set of bottom hole temperatures taken, enter a “Seq” code of 1 through 9 (whole numbers only), along with the minimum, average, and maximum temperatures associated with that bottomhole temperature measurement point. A sample well activity screen for a geothermal observation well is shown below.

Edit Volumetric Submission
Facility: AB GT 0001234
Name: HAWK Winterden 03-05-044
Reference Code:
View:

Location: 03-05-044-22-W4
Production Month: 2022-08

Well Activity

Filters: Activity

Product

From/To

Del	From/To	Activity	Hrs	Product	Vol/Temp	Seq
<input type="checkbox"/>	AB WI 100123108703W400	BHMAX			253.5	1
<input type="checkbox"/>	AB WI 100123108703W400	BHMIN			205.1	1
<input type="checkbox"/>	AB WI 100123108703W400	BHAVG			235.4	1