

Industry Tip

Oil Well Monitoring and Compliance of Overproduction

Date	Module/Application/Functionality	Notes
August 2, 2018	Well and Facility Infrastructure	5.15 Release

With the release of IRIS 5.15 on August 2, 2018, there will be new functionality to assist with the monitoring and compliance of oil well production allowables. This functionality includes well level information displayed within the completion of a well under the Production/Injection Tab and under the ARP Tab. Also available are reports that allow a company to review multiple wells.

Please see the following pages for more details.

Questions?

If you have any questions or concerns, contact ER Service desk at 1-855-219-9373 or

ER.Servicedesk@gov.sk.ca

Oil Well Completion Production Monitoring Functionality

Completion Screens:

Production/Injection Tab

On Production Date
On Injection Date
Latest Status Effective Date

Search Criteria

Production Year

2017

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Search

Export All Years

Production

Date	OIL (m ³)	GAS (10 ³ m ³)	WATER (m ³)	HOP (hrs)	DOP (day)	Prd-Day Avg (m ³ /day)	Cal-Day Avg (m ³ /day)	GOR (m ³ /m ³)	Oil Cut (fraction)	GOR Penalty Factor (fraction)	Adjusted ARP (m ³)	ARP OP/UP (m ³)
2017-01	101.2	2.7	555.5	744	31	3.3	3.3	26.7	0.154	1.00	93.00	8.20
2017-02	93.7	2.5	334.3	672	28	3.3	3.3	26.7	0.219	1.00	84.00	9.70
2017-03	29.5	0.8	548.7	563	24	1.2	1.0	27.1	0.055	1.00	72.00	-42.50
2017-04	38.9	1.1	315.1	720	30	1.3	1.3	28.3	0.110	1.00	90.00	-51.10
2017-05	101.5	2.7	733.5	744	31	3.3	3.3	26.6	0.122	1.00	93.00	8.50
2017-06	132.3	3.6	722.8	669	28	4.7	4.4	27.2	0.155	1.00	84.00	48.30
2017-07	145.8	3.9	697.5	744	31	4.7	4.7	26.7	0.173	1.00	93.00	52.80
2017-08	104.2	2.8	493.4	620	26	4.0	3.4	26.9	0.174	1.00	78.00	26.20
2017-09	-	-	714.0	388	17	-	-	-	-	1.00	51.00	-51.00
2017-10	71.9	1.9	3122.1	743	31	2.3	2.3	26.4	0.025	1.00	93.00	-21.10
2017-11	6.7	0.2	208.4	36	2	3.4	0.2	29.9	0.035	1.00	6.00	0.70
2017-12	-	-	13.0	744	31	-	-	-	-	1.00	93.00	-93.00

	OIL (m ³)	GAS (10 ³ m ³)	WATER (m ³)
Yearly Total	825.7	22.2	8458.3
Yearly Producing Day Average	2.7	0.1	27.5
Yearly Calendar Day Average	2.3	0.1	23.2
Cumulative	2439.2	63.0	10046.0
Cumulative ARP OP	314.20	-	-
Annual ARP OP/UP	-104.30	-	-

Injection

No Injection data found.

Env. 5.15.0.0 Environment - MAT2
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Three columns have been added to the monthly display; GOR Penalty Factor, Adjusted ARP and ARP OP/UP (overproduction/underproduction). The GOR Penalty Factor is determined in accordance with *Directive PNG012* for each production month displayed. The adjusted ARP is the monthly allowable rate of production with the GOR Penalty Factor and days on production factored in. The ARP OP/UP shows the over or under production accumulated within that production month. Underproduction will only display if there is overproduction that it can be applied against, underproduction does not accumulate if there is no existing overproduction.

Within the summary display for the year, a cumulative ARP OP representing the cumulative value of overproduction for all time has been added, as well as an annual ARP OP/UP field which shows the annual (to the most recent month) value of over/under production. Underproduction will only display if there is overproduction it is assessing against.

ARP Tab

The screenshot displays the 'ARP Tab' interface. At the top, there is a navigation bar with tabs: Main, Drainage Unit/Area, Roy/Tax Status, Payers, Roy/Tax Mineral Ownership, Links, Production/Injection, **ARP**, Attachments, and Tests. Below this is a secondary navigation bar with tabs: Authorized Changes, Work Items, Petrinx Data Integration, and Associated Entities.

The main content area is titled 'Allowable Rate Of Production Maintenance'. It is divided into two main sections: 'Change History' and 'Details'.

Change History: A table with one entry: 'Active From Date' with the value '2016-01-13'.

Details: A form with the following fields and values:

- Active From Date: 2016-01-13
- Active To Date: 9999-12-31
- Source Type: System Assigned
- Off-Target: No
- Subject To Off Target Penalty:
- Waiver Authorization Id: N/A
- Well Product Type: Oil
- Classification Type: Minimum Allowable
- Authorization Id: N/A
- Daily Allowable Amount: 3.0 m³

Below the details section, there are two summary fields:

- Cumulative ARP OP: 368.50 m³
- GORpf for 2018-05: 1.00

At the bottom, there is a section titled 'Allowable Rate of Production Exemption History' with the text 'No ARP Exemption History found'. A note below reads: '*Note: All Production Periods prior to 2015-12 are exempt from Overproduction'.

The ARP tab has added the fields of cumulative ARP OP, which shows the current overproduced volume associated to the well completion. It also shows the GORpf (GOR penalty factor) for the current producing month. A user would be able to assess from this information what GORpf may be applied to the production to be reported.

The bottom portion of the tab displays Exemptions. ER has the ability to assess forgiveness of previous over production and remove it from contributing to cumulative over production values. This will show any month(s) where an exemption was granted to a completion, and that for that time no over/under production was assessed on that well completion. As indicated on the screen, no over/under production is being assessed prior to December 2015.

Reports

The screenshot shows the 'Reports' section of the Ministry of Energy and Resources Integrated Resource Information System. The 'Reports' menu item is highlighted in the top navigation bar. In the left sidebar, the 'Infrastructure' menu item is highlighted. The main content area lists several report categories: 'Inspections', 'Well', and 'Wellbore Completion'. Under 'Wellbore Completion', the report 'Allowable Rate of Production - Cumulative Overproduction Report' is highlighted with a red box.

The Infrastructure Wellbore Completion ARP report previously existed. That report can be run to determine the ARP currently assigned to a company's well completions.

A new report has been generated to run related to cumulative overproduction.

The screenshot shows the 'Allowable Rate of Production - Cumulative Overproduction Report' form. The form has a yellow header bar with the title. Below the header, there is a 'Production Month' field with a red error message: 'The Production Month field is required.' Below this, there are three search fields for 'Pool', 'Project', and 'Unit', each with a 'Search...' button. At the bottom, there is a 'Minimum Cumulative Overproduction %' field and a 'View Report' button.

This report will run for the production month that is entered and can be filtered using various/multiple criteria as shown above. The report will provide a result of completions with allowable information, cumulative overproduction amount, cumulative overproduction percentage and current number of OP>25% notifications active against a completion. See the notification section below for additional information as to why the number of this type of notifications has value. This report can be used to be proactive in the management of overproduction.

Cumulative Overproduction (OP) Report - Date Range

**Production Month: 201708
Cumulative Overproduction %: 50**

**Run
date:
2018-
Jul-10**

Well Licence	Well Completion	Pool Code	Pool Name	Unit Code	Unit Name	Project Code	Project Name	Concurrent Production Ind	Well Completion Geo Area	Surface LSD	SEC	TWP	RGE	MD	M	Allowable Classification	Allowable Penalty Type	Cumulative Overproduction Amount	Cumulative Overproduction %	Currently Active OP > 25% Notification
64324	SK WI 101092500202W200	433042	Midale Beds (Misc)					FALSE	Estevan	2	25	2	2	W	2	Maximum Permissible		3183.3	64	
85B234	SK WI 101022701619W300	314547	Verlo Roseray Sand Pool	SK UN U3033	THE VERLO	SK PJ 00365	Verlo Roseray	FALSE	Swift Current	2	27	16	19	W	3	Maximum Permissible		2078.71	63.4	
73698	SK WI 101092702925W300	227326	Whiteside Viking Sand					FALSE	Kindersley	1	34	29	25	W	3	Economic Allowance		312	111.1	
76080	SK WI 101120503024W300	227326	Whiteside Viking Sand					FALSE	Kindersley	12	4	30	24	W	3	Economic Allowance		359.9	57.7	
73691	SK WI 101160803023W300	227337	Viking Sand (Misc Area 2)					FALSE	Kindersley	8	8	30	23	W	3	Economic Allowance		188.42	51.3	
02K196	SK WI 131040801419W300	314549	Suffield Roseray Sand	SK UN U3037	THE SUFFIELD	SK PJ 00415	The Suffield	FALSE	Swift Current	4	8	14	19	W	3	Economic Allowance		2391.45	64.2	
99G179	SK WI 131022503328W300	441431	Court Bakken Sand Pool			SK PJ 01247	Court Bakken	FALSE	Kindersley	2	25	33	28	W	3	Minimum Allowable	Off Target Penalty	215	62.3	
67034	SK WI 102063100130W100	435197	Frobisher Beds (Misc)					FALSE	Estevan	3	6	2	30	W	1	Economic Allowance		5970.2	126.8	
64351	SK WI 101152600934W100	437576	Parkman Tilston-Souris					FALSE	Estevan	15	26	9	34	W	1	Maximum Permissible		809.2	56.3	
66286	SK WI 101080400304W200	433004	Steelman Midale Beds					FALSE	Estevan	8	5	3	4	W	2	Economic Allowance		1690.2	64	1

Notifications:

IRIS will auto-generate notifications when overproduction occurs for three specific scenarios.

- 1) A well completion overproduces more than 100% above its assigned allowable within a single production month.

Notification # 171704 Details

Notification

Notification # **171704** Created **2018-07-03 13:47:38**

Type **Non Compliance Overproduction - Monthly 100%** Reference ID

Category **Well Completion Overproduction**

Classification **Action Required**

Recipient

Subject

Non-Compliance 100% Overproduction from 2 Completion(s) for 2018-04

Message

In accordance with Directive PNG012: Allowable Rate of Production: Oil Wells, the Ministry of the Economy (ECON) has identified well completions that have produced a volume of oil equal to or greater than 100% of the monthly allowable for 2018-04. You must immediately lower the production rate on this well to be below the assigned allowable. No production above the assigned allowable should occur after this notice is received without written notification from ECON. Any subsequent unauthorized overproduction from the listed completions will result in having the well shut in.

Below is a list of well completion that produced more than 100% over the assigned allowable this month:

Overproducing Well Completions:

CWI
SK0126572V000
SK0070750V001

Follow this link to run your overproduction report [Allowable Rate of Production – Cumulative Overproduction Report](#).

If there are any questions regarding these results, please follow the link [Contact Us](#) to contact appropriate Service Desk at the Ministry of the Economy.

Recipients

▸ Recipients: 0

- 2) A well completion is subject to an off-target penalty and overproduces by any amount within a single production month.

Notification # 171730 Details

Notification

Notification # **171730** Created **2018-07-03 13:47:49**

Type **Non Compliance Overproduction - Off Target** Reference ID

Category **Well Completion Overproduction**

Classification **Action Required**

Recipient

Subject

Non-Compliance on Overproduction from penalized off-target wells from 2 Completion(s) for 2018-04

Message

In accordance with Directive PNG012: Allowable Rate of Production: Oil Wells, the Ministry of the Economy (ECON) has identified well completions subject to an off-target penalty that have produced over their allowable rate of production for 2018-04. You must immediately lower the production rate of these well completions to be below the assigned allowable. No production above the assigned allowable should occur after this notice is received without written notification from ECON. Any subsequent unauthorized overproduction from the listed completions will result in having the well shut in.

Below is a list of penalized Off-Target wells that produced over the assigned allowable this month:

Overproducing Off-Target Well Completions:

CWI
SK0123285V002
SK0036598V003

Follow this link to run your overproduction report [Allowable Rate of Production – Cumulative Overproduction Report](#).

If there are any questions regarding these results, please follow the link [Contact Us](#) to contact appropriate Service Desk at the Ministry of the Economy.

Recipients

▸ Recipients: 0

- 3) A well completion overproduces more than 25% of its assigned allowable within a single production month.

Notification # 171713 Details ? x

Notification

Notification # **171713** Created **2018-07-03 13:47:46**

Type **Non Compliance Overproduction - Monthly 25%** Reference ID

Category **Well Completion Overproduction**

Classification **Action Required**

Recipient

Subject

Non-Compliance 25% Overproduction from 5 Completion(s) - 2018-04

Message

In accordance with Directive PNG012: Allowable Rate of Production: Oil Wells, the Ministry of the Economy (ECON) has identified well completions that have overproduced by more than 25% within 2018-04. **These completions must be addressed immediately by being reduced below the current allowable rate of production (adjusted with any applicable penalties).**

Options to address overproduction that has accumulated:

1. An application may be submitted to ECON to have a Maximum Production Rate (MPR) or Good Production Practice (GPP) assigned to the completion. Address how accumulated overproduction will be handled within the application submission.
2. A plan detailing what steps will be taken to mitigate or retire the overproduction volume must be submitted to ECON. This proposed mitigation plan should be titled Overproduction Mitigation Application and be submitted to the PNG Support Desk at pngsupport@gov.sk.ca.
3. The well completion may underproduce in order to make up the overproduction that has accumulated with no submission to ECON, this option is more appropriate for lower volumes of cumulative over production where underproduction will eliminate overproduction within 3 months or less.

Submission of an application as per option 1 or 2 does not allow a well to continue overproduction.

Failure to address the overproduction will result in compliance enforcement including, but not limited to, having the well shut in for a period of time in order to adequately remove the incurred overproduction.

Below is the list of well completions that have overproduction of at least 25% for the listed production month:

CWI	Notifications
SK0084902V001	1
SK0132927V000	1
SK0133004V000	1
SK0133005V000	1
SK0008478V001	1

Follow this link to run your overproduction report [Allowable Rate of Production – Cumulative Overproduction Report](#).

If there are any questions regarding these results, please follow the link [Contact Us](#) to contact appropriate Service Desk at the Ministry of the Economy.

Recipients

Recipients: 0

Expected Action on Notifications:

For the first two notifications (>100% OP, OP on an OTW subject to penalty), as shown in the examples above, immediate action and mitigation is expected. This may include contacting ER to discuss options to address the issue, or submission of an application, but in both cases the well should immediately be brought below its assigned allowable while the issue is addressed/mitigated. If a notification of the same type is received the following month with no mitigation action having been taken, ER will require the well to be shut in until a plan to address the overproduction has been approved by ER allowing the well to go back on production.

For the third type of notification, additional time/leeway is provided to allow the company to address the overproduction, though the well should be brought below its assigned allowable and managed by the company. If a notification of this type is received for three consecutive months, ER will require the well be shut in for a period of time to address the overproduction.

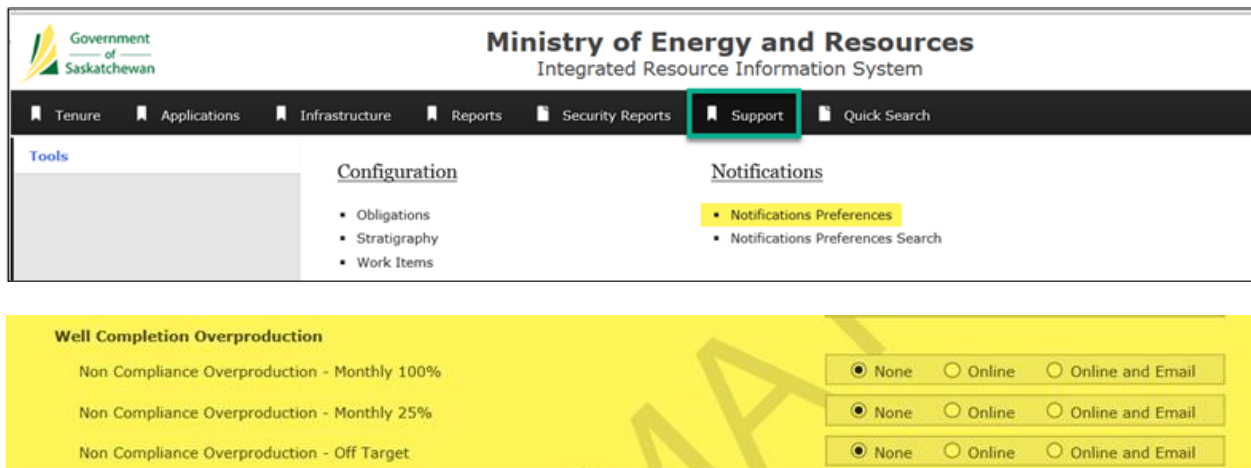
ER will continue to monitor and address wells with overproduction outside of the criteria that initiates overproduction notification via IRIS if deemed appropriate.

Securities and Notifications:

In order to receive notifications, ensure that the proper permissions have been set up for users.



Once users have these permissions, they will simply need to log in and navigate to Notification Preferences under the Support menu, and then select the proper notifications.



Useful References:

Web Page - <https://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/oil-and-gas/oil-and-gas-licensing-operations-and-requirements/oil-and-gas-drilling-and-operations/oil-and-gas-production/apply-for-an-allowable-rate-of-production-for-oil-wells>

Directive - <http://publications.gov.sk.ca/documents/310/85300-Directive%20PNG012-Allowable%20Rate%20of%20Production-Oil%20Wells.pdf>

Service Desk – ER Service Desk, 1-855-219-9373, ER.ServiceDesk@gov.sk.ca