Alberta Energy Regulator

Upstream Petroleum Industry Flaring and Venting Report

Industry Performance for Year Ending December 31, 2019

December 2020



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Executive Summary

The Alberta Energy Regulator (AER) annually publishes *ST60B: Upstream Petroleum Industry Flaring and Venting Report* to fulfil the commitment it made in *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting* to make flaring and venting data accessible.

The report's primary focus is on solution gas flaring and venting from crude oil and crude bitumen production operations. The report includes flared and vented volumes that have to be reported to the AER from in situ bitumen facilities, gas batteries, well testing, gas plants, gas gathering systems, and natural gas transmission lines. Also included are emissions from glycol dehydrators, surface casing vent flows (SCVFs), and gas migration (GM). The report does not include flared and vented volumes from bitumen upgraders and oil sands mine operations.

The data used to compile the report are obtained from Canada's Petroleum Information Network (Petrinex) and the AER.

Key statistics from 2019:

- Crude bitumen production decreased by 1.6 per cent to 90 million cubic metres (10^6 m^3).
- Crude oil production remained constant at 28 10^6 m^3.
- Solution gas produced from crude bitumen batteries increased by 4.5 per cent to 3.4 billion cubic metres (10^9 m^3).
- Solution gas produced from crude oil batteries increased by 8.2 per cent to 19.9 10^9 m^3.
- Solution gas conservation increased to 97.7 per cent from 97.4 per cent in 2018.
- Solution gas flared from crude bitumen and crude oil batteries was 382 10^6 m^3, down from 399 10^6 m^3 in 2018, a 4.3 per cent decrease.
  - Total solution gas flared represented 1.1 million tonnes of carbon dioxide equivalent (10^6 tCO_2e) of greenhouse gas (GHG) emissions.
  - Flaring from crude bitumen batteries was 71 10^6 m^3, down from 107 10^6 m^3 in 2018, a 33.5 per cent decrease.
  - Flaring from crude oil batteries was 311 10^6 m^3, up from 292 10^6 m^3 in 2018, a 6.4 per cent increase.
- Solution gas vented from crude bitumen and crude oil batteries was 144 10^6 m^3, down from 169 10^6 m^3 in 2018, a 15.0 per cent decrease.
  - Total solution gas vented represented 2.0 10^6 tCO_2e of GHG emissions.
  - Venting from crude bitumen batteries was 60 10^6 m^3, down from 74 10^6 m^3 in 2018, a 19.9 per cent decrease.
  - Venting from crude oil batteries was 84 10^6 m^3, down from 95 10^6 m^3 in 2018, an 11.1 per cent decrease.

- For sources other than crude bitumen and crude oil batteries:
  - Gas production was 122 10^9 m^3, up from 113 10^9 m^3 in 2018, an 8.0 per cent increase.
  - Flaring was 351 10^6 m^3, up from 348 10^6 m^3 in 2018, a 0.9 per cent increase.
  - Venting was 34 10^6 m^3, up from 24 10^6 m^3 in 2018, a 42.2 per cent increase.

  The increase in vented volumes in 2019 correlates with the *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting* definition change for vent gas effective January 1, 2020. In 2018, gas used for pneumatics, for example, was reported as fuel. However, since this gas is ultimately vented to the atmosphere, we determined that emissions were better represented if that gas was reported as vent within Petrinex. As a result, the increase in venting can be partially attributed to a paper increase rather than entirely due to an actual increase.
- Emissions from glycol dehydrators
  - 1328 glycol dehydrators were operating in 2019, down from 1400 in 2018, a 5.1 per cent decrease.
  - Total benzene emissions were 258 tonnes in 2019, down from 285 tonnes in 2018, a 9.4 per cent decrease.
- Emissions from SCVFs and GM
  - There were 10 324 wells with either SCVFs or GM in 2019, up from 10 128 wells in 2018, a 1.9 per cent increase.
  - Total natural gas emissions from SCVF and GM wells were 66 10^6 m^3 in 2019, up from 65 10^6 m^3 in 2018, a 1.7 per cent increase.

If you have questions about this report, email us at EmissionsCompliance@aer.ca or call the Customer Contact Centre at 403-297-8311 or toll free at 1-855-297-8311.

1 Introduction

The Alberta Energy Regulator (AER), as the province's single energy regulator, ensures the safe, efficient, orderly, and environmentally responsible development of hydrocarbon resources over their entire life cycle. Under this mandate, we are responsible for disseminating energy-related information, including on flaring and venting.

We worked with the consensus-based, multistakeholder Flaring and Venting Project Team of the Clean Air Strategic Alliance (CASA) to develop flaring and venting management recommendations for the Government of Alberta. The recommendations included determining flaring and venting baselines, flaring reduction targets, and operational requirements for the upstream oil and gas industry. We adopted the recommendations put forward by CASA and incorporated them into the 1999 edition of *Guide 60: Upstream Petroleum Industry Flaring Guide* (subsequently known as *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*).

Directive 060 was amended in 2018 and again in 2020, under the direction of the Government of Alberta, to include requirements to reduce methane emissions. These requirements address the primary sources of methane emissions from Alberta's upstream oil and gas industry: fugitive emissions and venting, which includes emissions from compressors, pneumatic devices, and glycol dehydrators. The requirements also include improved measurement, monitoring, and reporting of methane emissions.

In 2018, significant changes were also made to the fuel, flare, and vent gas definitions in *Directive 060*. The definition changes were made so that gas that was used in equipment, but ultimately flared or vented, was captured as such and not reported as fuel. For example, gas used for pneumatics was previously reported as fuel. However, since this gas is ultimately vented to atmosphere, we determined that emissions were better represented if that gas was reported as vent.

ST60B: Upstream Petroleum Industry Flaring and Venting Report, published annually, fulfils our commitment to report flaring and venting volumes, as set out in *Directive 060*.

The report's primary focus is on solution gas flaring and venting from crude oil and crude bitumen production operations. The report includes flared and vented volumes that have to be reported to the AER from in situ bitumen facilities, gas batteries, well testing, gas plants, gas gathering systems, and natural gas transmission lines. Also included are emissions from glycol dehydrators and from surface casing vent flows (SCVFs) and gas migration (GM). The report does not include flared and vented volumes from bitumen upgraders and oil sands mine operations.

The data used to compile the report are from Canada's Petroleum Information Network (Petrinex) and the AER.

Below are definitions of important terms used throughout this report:

- Crude bitumen is oil that is produced within the AER-designated oil sands areas[1] and that has a density of 920 kilograms per cubic metre (kg/m^3) or more.
- Crude oil is all other crude oil production in the province, including oil with a density of 920 kg/m^3 or more produced outside the designated oil sands areas.
- All reported flared volumes include gas that was incinerated, unless otherwise stated.
- Venting is the noncombusted release of gas to the atmosphere. Vent gas does not include fugitive emissions.
- Gas conservation is the recovery of solution gas to use as fuel for production facilities, to sell, to inject for enhanced recovery from oil or condensate pools, or to generate power, among other uses. It is calculated as follows:

$$\text{Conservation} = \frac{[\text{Volume of gas produced} - (\text{Volume of gas flared} + \text{Volume of gas vented})]}{\text{Volume of gas produced}}$$

- Greenhouse gas (GHG) emissions are expressed in tonnes of carbon dioxide equivalent (tCO_2e).[2] The GHG emission factors used to quantify emissions from flaring and venting vary depending on the type of production, as set out below:[3]
  - Crude oil[4]
    - Vented gas GHG emission factor = 12.5 tCO_2e per thousand cubic metres (10^3 m^3) of gas
    - Flared gas GHG emission factor = 2.9 tCO_2e per 10^3 m^3 of gas
  - Crude bitumen within the Peace River area[5]
    - Vented gas GHG emission factor = 15.9 tCO_2e per 10^3 m^3 of gas
    - Flared gas GHG emission factor = 2.5 tCO_2e per 10^3 m^3 of gas

[1] See *ST98: Alberta Energy Outlook*, figure R3.1.

[2] tCO_2e is a way of expressing the global warming potential of a greenhouse gas relative to carbon dioxide. Since every greenhouse gas has a different capacity to absorb and trap heat in the atmosphere, carbon dioxide is used as a frame of reference for easy comparison. The global warming potential of other gases can be calculated and converted into the equivalent amount of carbon dioxide. For example, one tonne of methane, which is a major component in venting, has 25 times more global warming potential than carbon dioxide over 100 years (Government of Alberta, *Carbon Offset Emission Factors Handbook* [2015], https://open.alberta.ca/publications/2368-9528, table 1).

[3] Flaring is assumed to have a 95 per cent conversion efficiency.

[4] Flared and vented solution gas from crude oil production is assumed to have a methane content of 53 per cent by mass.

[5] For a map of the Peace River area, see *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*, figure 10. Flared and vented solution gas from crude bitumen production within the Peace River area is assumed to have a methane content of 89 per cent by mass.

- Crude bitumen outside the Peace River area[6]
  - Vented gas GHG emission factor = 16.2 tCO_2e per 10^3 m^3 of gas
  - Flared gas GHG emission factor = 2.5 tCO_2e per 10^3 m^3 of gas

Unless otherwise specified, gas volumes in this report have been rounded to the nearest 10^6 m^3.

For information on flaring, incinerating, and venting requirements, see *Directive 060*. If you have questions about this report, email the AER Emissions Compliance Team at EmissionsCompliance@aer.ca or call the Customer Contact Centre at 403-297-8311 or toll free at 1-855-297-8311.

[6] Flared and vented solution gas from crude bitumen production outside the Peace River area is assumed to have a methane content of 94 per cent by mass.

2 Solution Gas Conserved, Flared, and Vented, 1996–2019

Industry conserved 97.7 per cent of solution gas in 2019, compared with 97.4 per cent in 2018 (figure 1). Data from all crude oil and crude bitumen batteries were used in calculating the percentage of solution gas conserved.

The combined volume of flared and vented solution gas decreased 7.5 per cent to 526 million cubic metres (10^6 m^3) in 2019 from 568 10^6 m^3 in 2018. The total volume of gas flared and vented at crude oil and crude bitumen batteries represented 3.1 10^6 tCO_2e.

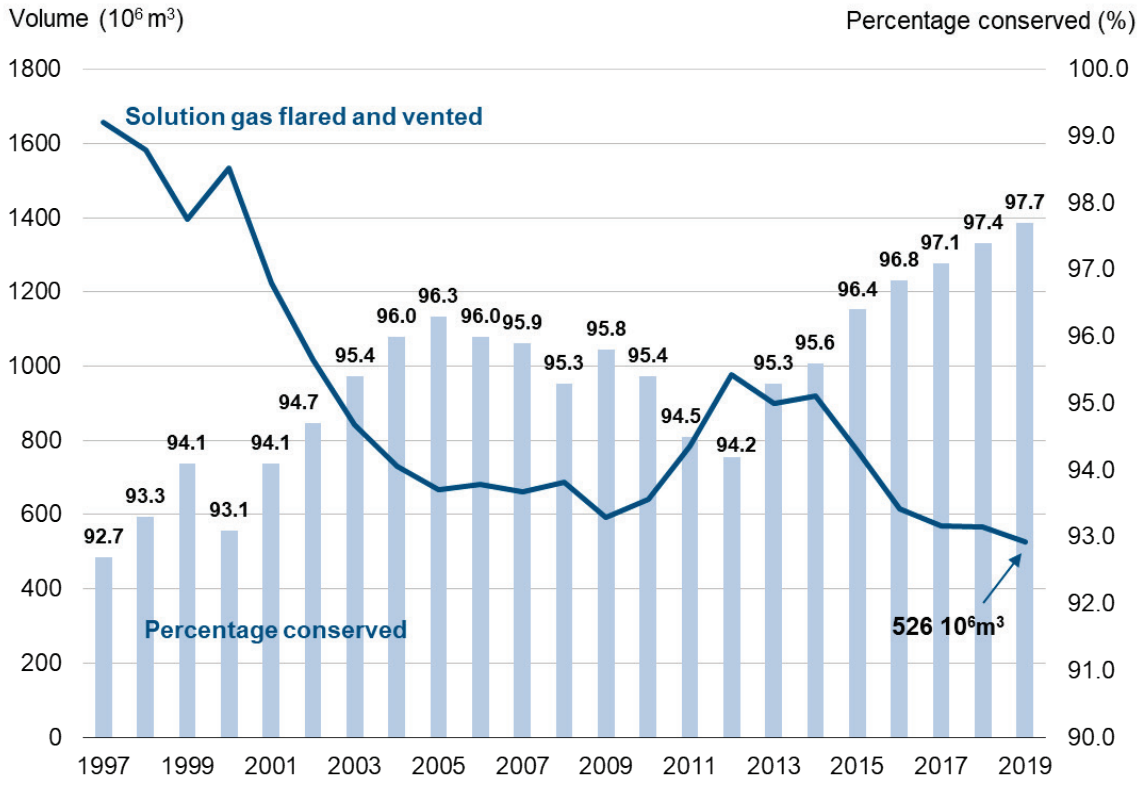


Figure 1. Solution gas flared and vented and percentage conserved

3 Solution Gas Flaring and Venting Performance

In 2019, 382 10^6 m^3, or 1.1 10^6 tCO_2e, of gas, was flared and 144 10^6 m^3, or 2.1 10^6 tCO_2e, was vented. The flared volumes were 71.5 per cent less than the 1996 flaring baseline of 1340 10^6 m^3 and 4.3 per cent lower than 2018 volumes (figure 2). Flaring was also below the provincial annual flaring limit of 670 10^6 m^3 set out in *Directive 060*. The vented volumes were 79.6 per cent less than the 2000 venting baseline of 704 10^6 m^3 and 15.0 per cent less than the 2018 volumes (see figure 3).

The years 1996 and 2000 were selected as the baseline years for solution gas flaring and venting, respectively, since data from these years were the most recent available to the CASA Flaring and Venting Project Team.

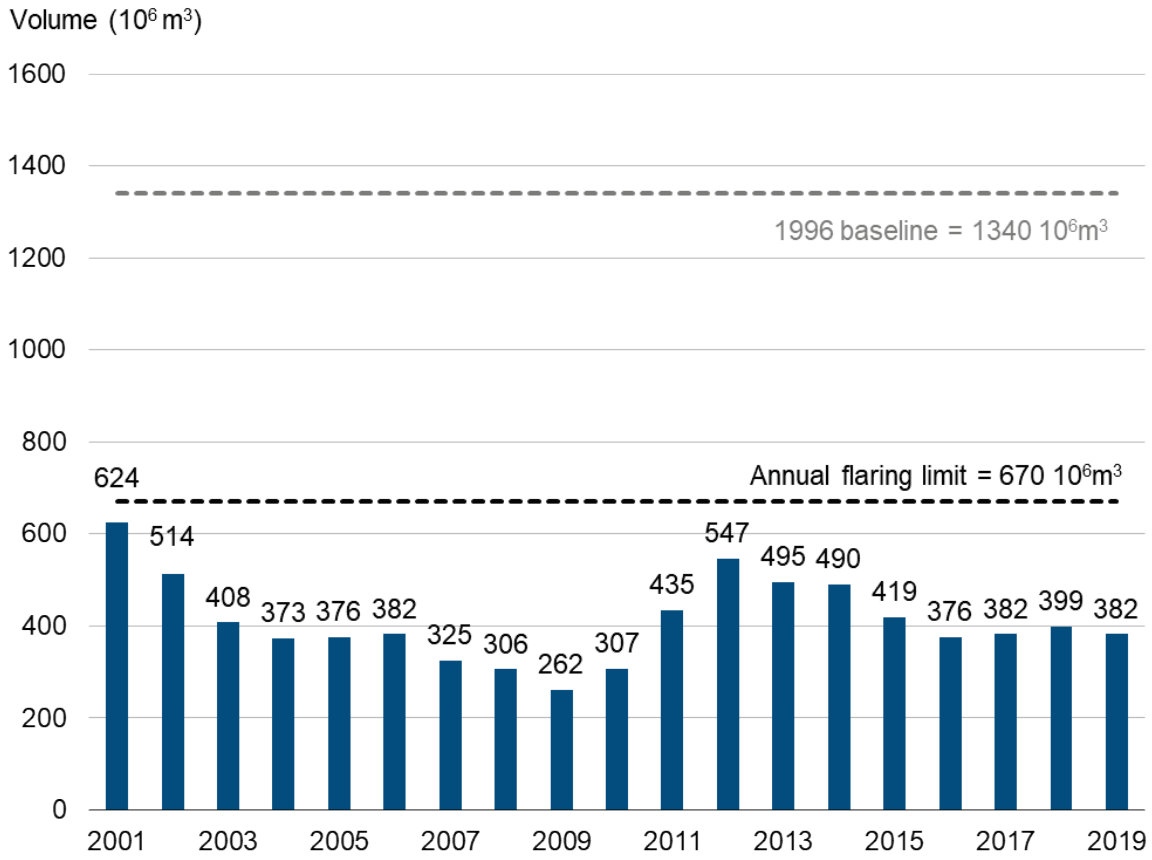


Figure 2. Solution gas flared from crude oil and crude bitumen batteries

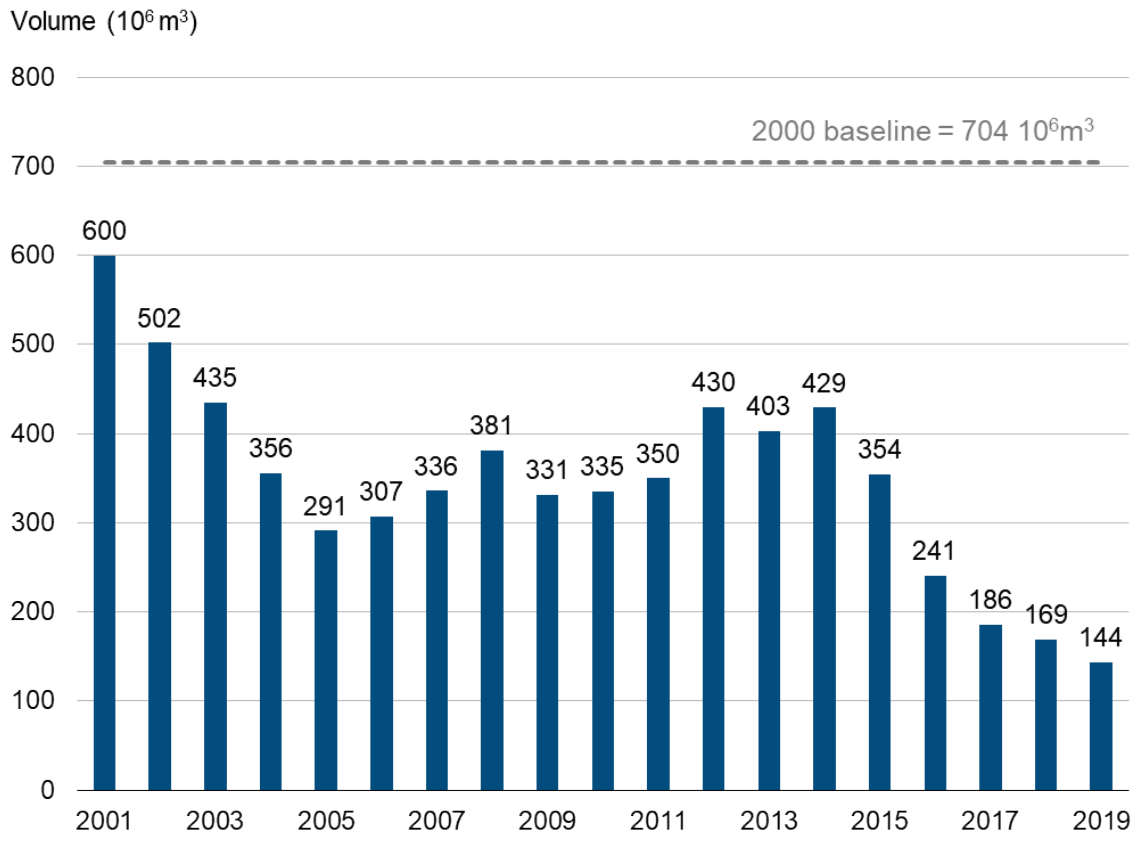


Figure 3. Solution gas vented from crude oil and crude bitumen batteries

Table 1 shows oil and bitumen production and solution gas flaring, venting, production, and conservation for crude oil and crude bitumen batteries. Comparing the 2018 and 2019 data, it can be seen that in 2019

- crude oil production and crude bitumen production decreased;
- total gas production increased from crude oil and crude bitumen batteries;
- total solution gas flared and total solution gas vented decreased;
- solution gas conservation increased for both crude oil and crude bitumen production; and
- for crude oil batteries, venting decreased while flaring increased, which is more desirable since flaring contributes less to GHG emissions than venting.

Table 1. Flaring and venting from crude oil and crude bitumen batteries, 2018–2019

	Crude bitumen batteries (10^6 m^3)			Crude oil batteries (10^6 m^3)			Crude oil & crude bitumen batteries (10^6 m^3)		
	2018	2019	% change	2018	2019	% change	2018	2019	% change
Crude oil or bitumen produced	92	90	−1.6	28	28	−0.8	120	118	−1.4
Solution gas produced	3252	3399	4.5	18 398	19 897	8.2	21 650	23 297	7.6

	Crude bitumen batteries (10^6 m^3)			Crude oil batteries (10^6 m^3)			Crude oil & crude bitumen batteries (10^6 m^3)		
	2018	2019	% change	2018	2019	% change	2018	2019	% change
Solution gas flared	107	71	−33.5	292	311	6.4	399	382	−4.3
Solution gas vented	74	60	−19.9	95	84	−11.1	169	144	−15.0
Solution gas conserved	94.4%	96.1%	1.7	97.9%	98.0%	0.1	97.4%	97.7%	0.4

Table 2 shows the total number of batteries operating in 2019 and the number of batteries flaring, venting, or conserving gas. A battery can flare, vent, or conserve or do a combination of these activities; therefore, the sum of the number of batteries flaring, venting, and conserving gas do not add up to the total number of batteries. Batteries conserving gas are defined as batteries with annual gas conservation of at least 90.0 per cent. The total number of batteries operating in 2019 decreased compared with 2018.

Table 2. Number of crude oil and crude bitumen batteries flaring or venting, 2018–2019

	Crude bitumen batteries (10^6 m^3)			Crude oil batteries (10^6 m^3)			Crude oil & crude bitumen batteries (10^6 m^3)		
	2018	2019	% change	2018	2019	% change	2018	2019	% change
Number of batteries flaring gas	150	171	14.0	1703	1597	−6.2	1853	1768	−4.6
Number of batteries venting gas	2205	1966	−10.8	4554	4502	−1.1	6759	6468	−4.3
Number of batteries conserving gas	1443	1452	0.6	4706	4553	−3.3	6149	6005	−2.3
Total number of batteries	3200	3136	−2.0	9286	8821	−5.0	12486	11957	−4.2

Discussion

Directive 060, starting with the edition that went into effect on January 31, 2007, requires that all solution gas flares or vents releasing more than 900 m^3/day must be economically evaluated to see if gas conservation is viable. If the net present value of gas conservation at a crude oil battery is found to be greater than negative $55 000, the well or battery must not be produced until the gas is conserved. At crude bitumen batteries, as soon as gas flow rates exceed an average of 900 m^3/day for any consecutive three-month period within a rolling six-month window, operators have up to six months to conserve the solution gas if the net present value of gas conservation is greater than negative $55 000.

Low natural gas prices and high pipeline and compressor costs in 2019 continued to challenge the economic viability of conservation.

Regardless of conservation economics, all routine and nonroutine vent gas must meet the site or equipment limits outlined in the most recent release of *Directive 060*.

On September 27, 2018, *Directive 084: Requirements for Hydrocarbon Emission Controls and Gas Conservation in the Peace River Area* went into effect. Licensees of crude oil and crude bitumen wells and facilities in the Peace River area were required to meet more stringent requirements for gas conservation and flaring than required by *Directive 060*. The operational changes as a result of the *Directive 084* requirements increased gas conservation and decreased flaring in the Peace River area.

Crude bitumen batteries accounted for 131 10^6 m^3, or 24.9 per cent, of the total solution gas flared and vented in 2019, with 45.6 per cent of this volume being vented. Crude bitumen generally has lower gas-to-oil ratios and solution gas production volumes than crude oil, which means that solution gas is less likely to be combusted. The decrease in flaring and venting from crude bitumen batteries in Alberta in 2019 compared with 2018 can be attributed to a decrease in the number of crude bitumen batteries operating and an increase in gas conservation. Our continued work with operators to enhance compliance with venting requirements also contributed to the reduction in vented gas volumes in 2019 compared to 2018.

This report covers two types of crude bitumen operations: nonthermal operations (e.g., cold heavy oil production) and thermal operations (e.g., steam-assisted gravity drainage or cyclical steam stimulation). Thermal operations generally have less flaring and venting than nonthermal operations because the produced gas is more economical to conserve. Table 3 shows the volume of flaring and venting for nonthermal operations (3095 batteries) and thermal operations (41 batteries) in 2019.

Table 3. Flaring and venting at nonthermal and thermal operations (10^6 m^3), 2019

	Nonthermal operations	Thermal operations	Total
Crude bitumen produced	10	80	90
Solution gas produced	1207	2192	3399
Solution gas flared	42	29	71
Solution gas vented	58	2	60
% of solution gas conserved	**91.7**	**98.6**	**96.1**

Although conserving gas is more challenging for nonthermal operations than for thermal operations, the oil and gas industry is constructively using a large portion of produced solution gas from nonthermal operations as fuel to run pump motors and tank heaters. Unfortunately, conserving the remaining small volume of gas is more economically challenging.

4 Flaring from All Upstream Oil and Gas Sources, 2000–2019

The total flared volume from all upstream oil and gas sources in 2019 was 733 10^6 m^3, a decrease of 1.9 per cent from 2018 (see figure 4). The data in table 4 were used to prepare figure 4.

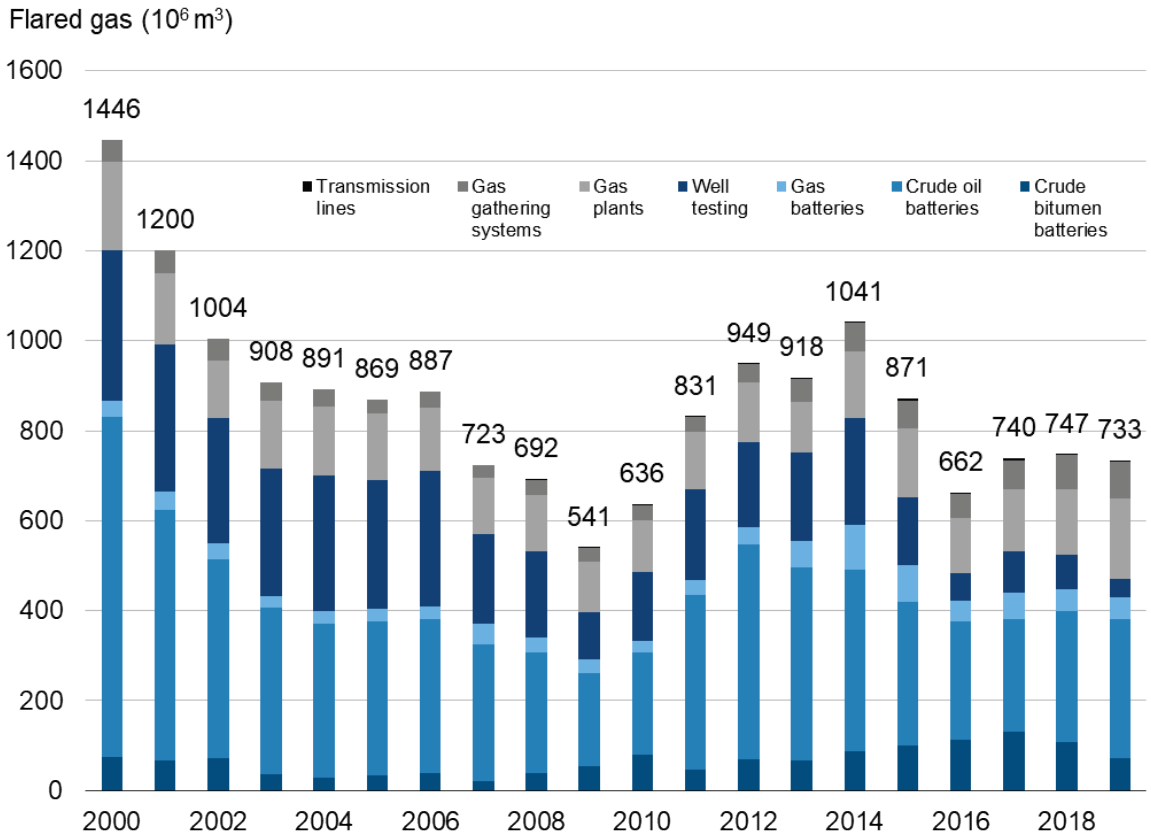


Figure 4. Flaring from all upstream oil and gas sources

Table 4. Flaring from all upstream oil and gas sources (10^6 m^3)

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants[a]	Gas gathering systems[a]	Transmission lines[b]	Total flared
2000	76	755	36	335	196	48	-	1446
2001	66	558	41	326	159	50	-	1200
2002	73	441	35	280	127	48	-	1004
2003	36	372	25	284	149	42	-	908
2004	29	343	28	300	153	38	-	891
2005	33	344	27	287	147	31	-	869
2006	39	343	28	301	140	36	-	887
2007	20	305	45	201	124	28	-	723
2008	38	268	34	192	126	32	2	692
2009	54	208	29	106	111	31	2	541
2010	81	226	26	154	114	33	2	636
2011	47	388	33	203	127	32	1	831
2012	70.8	476.7	37.9	189.0	133.6	40.1	1.1	949

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants[a]	Gas gathering systems[a]	Transmission lines[b]	Total flared
2013	66.6	428.6	58.5	198.4	111.1	52.9	2.0	918
2014	87.4	403.0	100.5	237.7	147.8	63.5	0.6	1041
2015	99.3	320.0	82.0	151.7	151.4	62.1	4.2	871
2016	112.2	264.0	46.6	61.2	122.2	53.6	2.4	662
2017	130.4	252.0	57.3	92.7	137.3	64.3	5.7	740
2018	107.2	292.0	49.1	75.7	145.4	76.1	1.8	747
2019	71.3	310.7	48.8	38.6	180.7	81.3	1.8	733
2019 vs. 2018 change	−33.5%	6.4%	−0.7%	−49.0%	24.3%	6.8%	0.2%	−1.9%

Note: Due to rounding, some totals may not exactly match the sum of the source categories. An additional decimal place has been added to the volumes for 2012 onwards to more accurately reflect the changes.

[a] The figures for gas plants and gas gathering systems include both flared *and* vented volumes for the years 2000 to 2006.

[b] Transmission line data are voluntarily reported to the AER. We do not regulate these lines. We did not track flaring from transmission lines until 2008.

Table 4 shows that flaring from crude oil batteries, gas plants, gas gathering systems, and transmission lines increased in 2019 compared with 2018, while flaring from crude bitumen batteries, gas batteries, and well testing decreased in 2019.

Discussion

Gas Batteries

In 2019, flared gas volumes from gas batteries was 49 10^6 m^3, the same as in 2018. Higher flaring volumes are associated with horizontal multistage hydraulically fractured gas wells. These types of wells take longer to clean out to meet pipeline specifications for transporting the gas, so flare volumes are higher and flaring duration is longer than for vertical wells that are not hydraulically fractured. The flared volume during this cleanup period is reported as gas battery flaring, not as well test flaring.

The flared gas volumes in 2019 would be expected to decrease due to a decrease in the number of horizontal multistage hydraulically fractured gas wells drilled in 2019 compared with 2018. However, the flared gas volumes were unchanged from 2018 to 2019. The offsetting flaring increase is expected to be the result of some operators reporting flaring volumes at gas batteries to proactively meet the expanded definitions of fuel, flare, and vent gas in *Directive 060* that went into effect on January 1, 2020.

Well Testing

In 2019, 664 well tests were conducted, compared with 907 tests in 2018. Flaring or venting occurred for 77 per cent of the well tests in 2019 compared with 79 per cent of the tests in 2018. The decrease in flaring from well tests can be attributed mainly to the decrease in the number of well tests conducted and a decrease in the volume flared per well test.

An AER review of 58 well tests conducted in 2019 showed that 10 per cent of the flared gas was reported incorrectly. In some situations, the reported flare volumes during well testing included some nonhydrocarbon gas, such as carbon dioxide and nitrogen from fracturing operations. In other situations,

gas that was pipelined (i.e., conserved) by testing in line was incorrectly included in the flared gas volumes. We adjusted the reported flared volumes to get the actual hydrocarbon gas that was flared during these well tests. This adjustment was only made for the 58 well tests reviewed, and the volumes were not prorated for the entire well test dataset.

The average volume of gas flared per test in 2019 was 58.1 10^3 m^3, compared with 83.4 10^3 m^3 per test in 2018, a decrease of 30.4 per cent (see table 5). There were also 601 fewer horizontal multistage fractured oil and gas wells drilled in 2019 compared with 2018.

Table 5. Average volume of gas flared per well test and number of wells drilled by type

Year	Volume flared per well test (10^3 m^3)	Number of horizontal multistage fractured gas wells	Number of horizontal multistage fractured oil wells	Total number of wells drilled
2005	34.6	-	-	20 189
2006	40.8	-	-	18 878
2007	40.1	-	-	14 723
2008	45.6	93	53	12 914
2009	39.3	160	120	6392
2010	63.5	350	778	8946
2011	83.2	645	1645	9303
2012	102.3	530	1839	8143
2013	109.8	626	1612	7812
2014	140.6	846	1506	7543
2015	125.2	662	573	3411
2016	99.9	512	419	2638
2017	88.6	858	910	4895
2018	83.4	599	1004	5095
2019	58.1	406	596	3951

Directive 060 requires that operators seek alternatives to well test flaring. Operators are required to test in line when it is both economically viable and safe to do so. Testing in line can mean either connecting to an existing gas gathering system directly or laying a temporary surface pipeline to connect a well to a remote gas gathering system. By either method, the gas from the well test is conserved.

Table 6 shows the gas flared from well tests for the 25 companies with the most well tests in 2019 and the average volume of gas flared per test.

Table 6. Well test flaring, 2019; sorted by number of well tests conducted

Company	Number of well tests	Gas flared (10^6 m^3)	Average gas flared per test (10^3 m^3)
Tourmaline Oil Corp.	101	4.0	39.3
Seven Generations Energy Ltd.	96	1.7	17.7
Birchcliff Energy Ltd.	34	0.2	5.2
NuVista Energy Ltd.	29	0.2	5.5
Torxen Resources Ltd.	28	0.8	27.5
Shell Canada Limited	28	2.2	79.6
XTO Energy Canada ULC	26	1.9	71.5
Torxen Energy Ltd.	23	0.7	31.0
Paramount Resources Ltd.	22	0.9	43.1
Vermilion Energy Inc.	18	2.5	136.4
Advantage Oil & Gas Ltd.	18	1.1	60.7
Canadian Natural Resources Limited	17	1.5	91.0
ORLEN Upstream Canada Ltd.	15	1.6	108.8
TAQA North Ltd.	12	2.9	243.3
Murphy Oil Company Ltd.	11	0.5	45.0
Husky Oil Operations Limited	11	3.0	275.0
Modern Resources Inc.	10	1.7	168.1
Bonavista Energy Corporation	9	0.9	95.1
Kelt Exploration Ltd.	8	0.4	49.1
Pipestone Energy Corp.	8	1.4	170.7
Bellatrix Exploration Ltd.	7	0.8	113.3
Strath Resources Ltd.	7	0.8	117.3
Petrus Resources Corp.	6	0.1	10.2
Kicking Horse Oil & Gas Ltd.	5	1.6	321.9
Sinopec Daylight Energy Ltd.	5	0.2	38.3
Total	**554**	**33.5**	
% of Total Well Tests	**83.4**	**86.7**	

Gas Plants

All gas plant subtypes contribute to this report, including sweet gas, acid gas flare, acid gas injection, sulphur recovery, straddle, and fractionation.

Of the 1158 gas plants operating in 2019, 797 reported flared gas volumes. The total volume of gas flared was 180 10^6 m^3, which is a 24.3 per cent increase from 2018. The flaring increase is expected to be the result of some operators reporting flaring volumes at gas plants to proactively meet the expanded definitions of fuel, flare, and vent gas in *Directive 060* that went into effect on January 1, 2020.

Table 7 shows the top 30 gas plants that flared in 2019 by volume and the percentage of the total gas received at each plant that is flared.

Table 7. Top 30 flaring gas plants in 2019

Gas plant	Location[a]	Operator name	Gas flared (10^6 m^3)	Gas flared as a percentage of plant gas receipts (%)
ABGP0150355	03-19-067-07W6	Keyera Energy Ltd.	12.9	4.30
ABGP0001901	10-11-020-01W4	Plains Midstream Canada ULC	8.8	0.09
ABGP0001129	13-26-067-05W6	Canadian Natural Resources Limited	7.0	0.78
ABGP0001855	09-15-084-14W5	Tidewater Midstream and Infrastructure Ltd.	5.9	7.31
ABGP0152315	12-35-070-09W6	Tidewater Midstream and Infrastructure Ltd.	5.3	4.14
ABGP0001060	09-27-031-04W5	AltaGas Ltd.	5.0	0.14
ABGP0001147	11-18-074-12W6	Veresen Midstream General Partner Inc.	4.8	0.13
ABGP0001623	06-08-062-03W6	Strath Resources Ltd.	4.7	0.90
ABGP0001113	09-06-063-25W5	Keyera Energy Ltd.	4.7	0.20
ABGP0094954	08-11-060-03W6	Pembina Gas Services Ltd.	4.4	0.17
ABGP0001004	02-05-044-01W5	Keyera Energy Ltd.	4.3	0.19
ABGP0118855	08-13-063-05W6	Pembina Gas Services Ltd.	4.2	0.30
ABGP0001107	01-12-062-20W5	Semcams Midstream Ulc	4.1	0.23
ABGP0130964	15-07-060-18W5	XTO Energy Canada	4.0	0.40
ABGP0001506	01-01-078-10W6	Canadian Natural Resources Limited	4.0	0.29
ABGP0150704	07-35-067-07W6	Semcams Midstream Ulc	3.8	0.54
ABGP0149088	03-18-084-17W5	Baytex Energy Ltd.	3.0	1.90
ABGP0001056	02-20-004-30W4	Pieridae Alberta Production Ltd.	2.8	0.29
ABGP0145129	14-28-062-20W5	Pembina Gas Services Ltd.	2.7	0.28
ABGP0001902	04-12-020-01W4	Plains Midstream Canada ULC	2.7	0.01
ABGP0001350	01-08-070-11W6	Cenovus Energy Inc.	2.3	0.15
ABGP0001482	04-31-048-12W5	Tidewater Midstream and Infrastructure Ltd.	2.3	0.24
ABGP0001740	04-25-062-06W6	Pembina Gas Services Ltd.	2.3	0.12
ABGP0133259	15-31-062-21W5	Ovintiv Canada ULC	2.2	0.31
ABGP0140439	10-29-063-23W5	Ovintiv Canada ULC	2.1	0.38
ABGP0001892	04-08-075-07W6	Ovintiv Canada ULC	1.8	0.09
ABGP0001058	08-09-064-19W5	Paramount Resources Ltd.	1.8	0.26
ABGP0148152	03-16-060-02W6	Jupiter Resources Inc.	1.8	0.31
ABGP0001520	06-19-073-08W6	NuVista Energy Ltd.	1.6	0.17
ABGP0001423	10-28-069-10W5	Acquisition Oil Corp.	1.6	79.43
Total			**119.1**	
% of Total Gas Plant Flaring			**65.9**	

[a] Legal Subdivision, Section, Township, Range, West of the *n*th Meridian.

Gas Gathering Systems

In 2019, 50 per cent of the total volume flared from gas gathering systems came from 12 of the 6133 systems. The flaring increase is expected to be the result of some operators reporting flaring volumes at gas gathering systems to proactively meet the expanded definitions of fuel, flare, and vent gas in *Directive 060* that went into effect on January 1, 2020.

Sour Gas or Sour Oil Well Testing

In cases of sour gas or sour oil well testing, if the gas to be flared contains more than five per cent hydrogen sulphide (H_2S), an approval for temporary sour gas flaring is required. The approval process involves a detailed review of the applicant's air quality dispersion modelling to ensure that the Alberta ambient air quality objectives set by Alberta Environment and Parks will not be exceeded. The application for a sour gas flaring approval may also include plans on how any predicted exceedances of the objectives will be mitigated. When we are satisfied that the objectives will be met, and that levels of all other parameters (such as flared volumes and sulphur emissions) are justified and minimized, a temporary sour gas flaring approval may be issued.

In 2019, we issued 62 temporary sour gas flaring approvals, a decrease from the 88 issued in 2018 (figure 5).

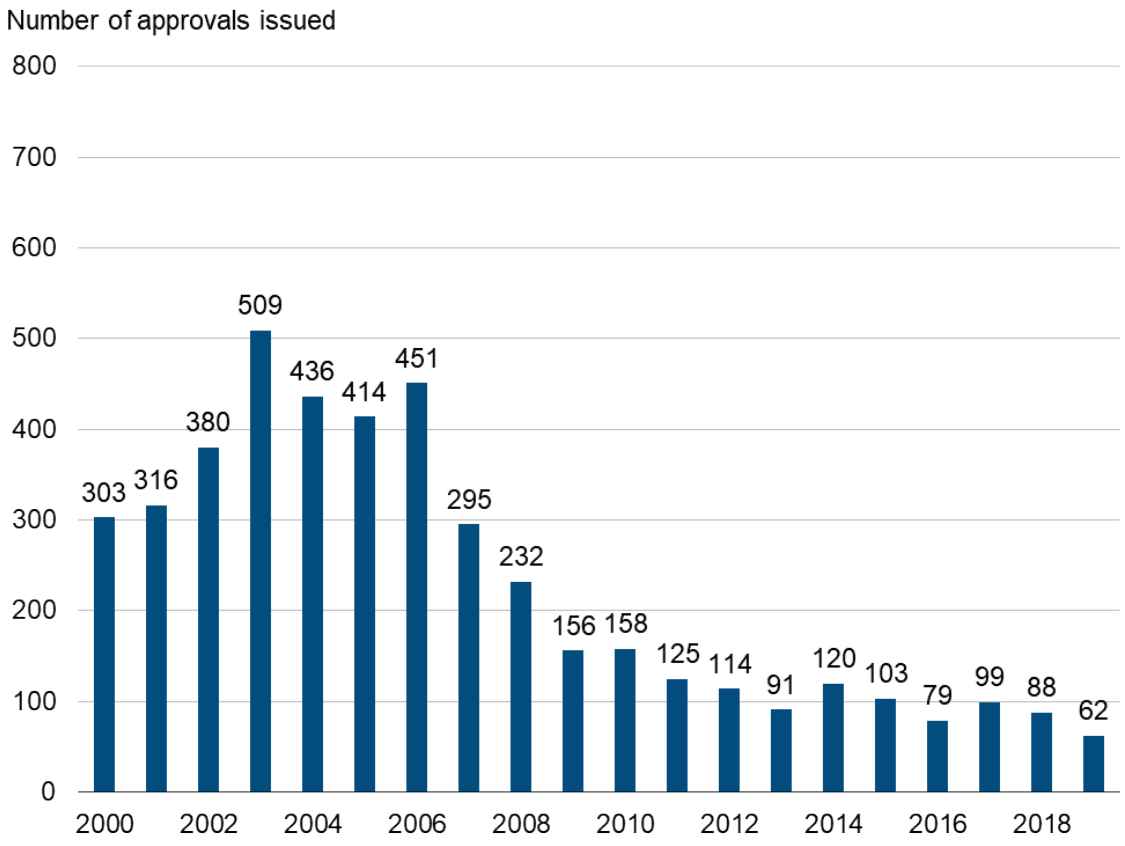


Figure 5. Temporary sour gas flaring approvals issued

The reason for the decreasing trend in sour gas flaring approvals since 2006 may be twofold. First, market conditions for natural gas have not been as favourable in recent years, which may have resulted in upstream oil and gas licensees allocating less capital to sour natural gas developments. Second, with the release of a revised edition of *Directive 060* at the end of January 2007, a new allowance to flare small volumes of gas containing H_2S volumes in excess of five per cent without a sour gas flaring approval was introduced. Under this allowance, companies are still required to notify us and the public at least 24 hours before flaring operations and to conduct dispersion modelling if the H_2S concentration of the gas to be flared is in excess of 1 per cent.

5 Venting from All Upstream Oil and Gas Sources, 2000–2019

Figure 6 shows vented volumes broken down by source for 2000 to 2019. The data in table 8 were used to prepare figure 6. As indicated in the table, the total volume vented from all upstream oil and gas sources in 2019 was 177 10^6 m^3, a decrease of 8.0 per cent from 2018.

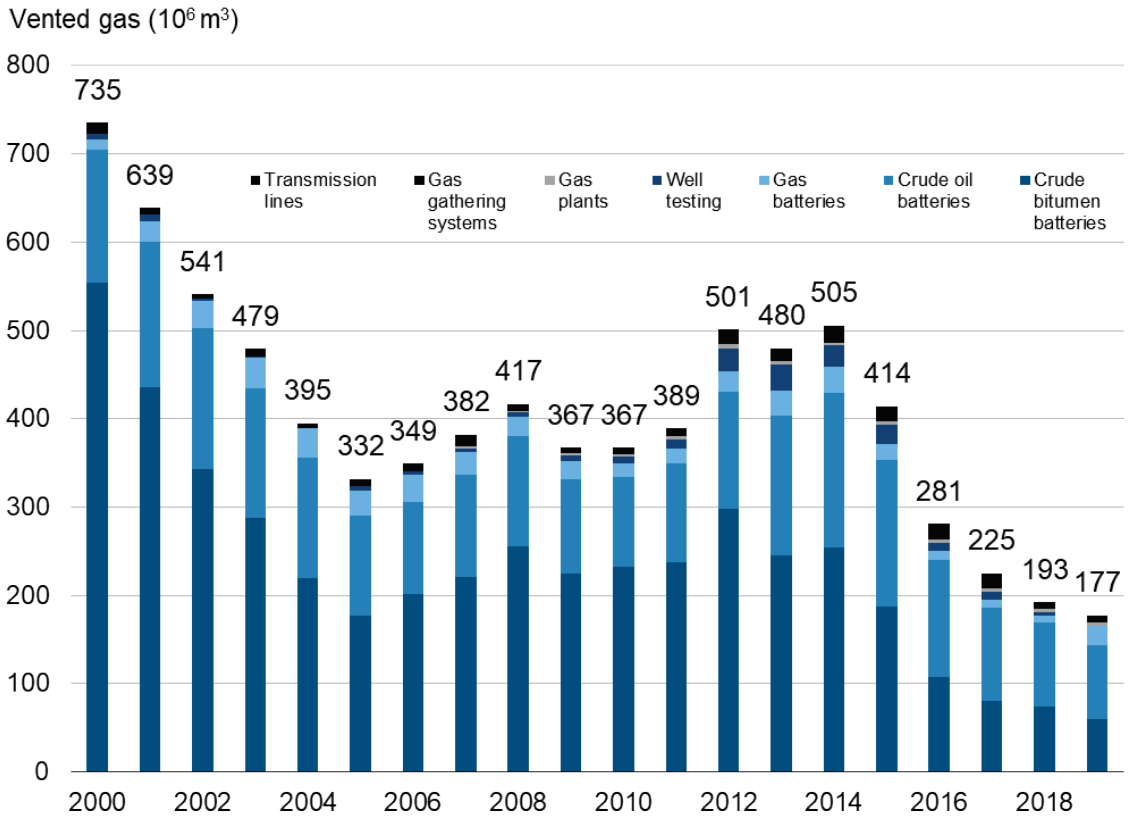


Figure 6. Venting from all upstream oil and gas sources

Table 8 shows that venting from gas batteries, gas plants, and gas gathering systems increased in 2019 compared with 2018, while venting from crude oil batteries, crude bitumen batteries, well testing, and transmission lines decreased in 2019.

Table 8. Venting from upstream oil and gas sources (10^6 m^3)

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants	Gas gathering systems	Transmission lines[a]	Total vented
2000	554	150	12	7	0	0	12	735
2001	436	164	24	7	0	0	8	639
2002	343	159	31	3	0	0	5	541
2003	288	147	34	2	0	0	8	479
2004	219	137	33	1	0	0	5	395
2005	177	113	28	6	0	0	8	332
2006	201	105	30	5	0	0	8	349
2007	221	115	26	4	3	5	8	382
2008	256	125	21	5	2	5	3	417

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants	Gas gathering systems	Transmission lines[a]	Total vented
2009	225	106	21	6	3	3	3	367
2010	233	101	16	7	3	4	3	367
2011	238	112	16	10	4	5	4	389
2012	298.0	132.4	23.7	26.0	5.1	6.8	9.0	501
2013	245.5	157.9	29.0	28.8	3.7	8.0	7.0	480
2014	254.2	174.8	29.7	24.1	3.1	6.8	12.7	505
2015	187.3	166.2	17.6	22.2	3.4	9.4	8.4	414
2016	107.7	133.1	9.8	8.9	3.7	7.2	10.6	281
2017	80.5	105.5	9.3	9.3	3.2	6.0	11.3	225
2018	74.5	94.6	8.1	4.4	3.3	5.7	2.1	193
2019	59.6	84.1	21.3	1.0	3.3	6.0	2.0	177
2019 vs. 2018 change	−19.9%	−11.1%	162.5%	−76.4%	1.3%	4.2%	−6.3%	−8.0%

Note: Due to rounding, some totals may not exactly match the sum of the source categories. An additional decimal place has been added to the volumes for 2012 onwards to more accurately reflect the percentage changes.

[a] Transmission line data are voluntarily reported to the AER. We do not regulate these lines.

Discussion

As of 2019, we do not collect data on greenhouse gas emissions, however we are concerned about the impact that these gases can have on the environment. Accordingly, *Directive 060* requires that routine and nonroutine vent gas (defined as overall vent gas) cannot exceed 15 10^3 m^3 per month or 9.0 10^3 kg of methane per month. If vent gas rates exceed those limits the gas must be controlled or combusted.

The most significant source of venting in terms of highest volume per well is crude bitumen batteries, where solution gas is vented from the production casing annulus at a large number of individual wells. However, from 2016 to 2019, crude oil batteries exceeded crude bitumen batteries for the highest total venting volumes from all upstream oil and gas sources. Small volumes of solution gas are also vented from treaters and stock tanks at crude oil and crude bitumen batteries. Venting during well testing is primarily from shallow, sweet, low-deliverability gas wells, including coalbed methane wells.

In *ST60B-2004: Upstream Petroleum Industry Flaring and Venting Report, 2003*, we made commitments to identify and set out conservation measures aimed at reducing the volumes of solution gas vented from crude bitumen operations. In 2019, venting from crude bitumen batteries was 71 10^6 m^3, 72.8 per cent lower than the venting baseline from 2004 and 19.9 per cent lower than in 2018.

Crude bitumen production decreased by 1.6 per cent to 90 10^6 m^3 in 2019 compared with 2018 along with a decrease of 64 crude bitumen batteries operating. Gas conservation from crude bitumen batteries increased to 96.1 per cent in 2019 from 94.4 per cent in 2018. Since 2014, there has been a substantial decrease in venting from crude bitumen operations mainly due to increased gas conservation. Greater compliance with venting requirements from 2016 to 2019 also contributed to decreased venting.

In 2019, venting from crude oil batteries decreased by 11.1 per cent to 84 10^6 m^3 compared with 2018. Crude oil production remained constant at 28 10^6 m^3 despite 465 fewer crude oil batteries operating. Gas conservation from crude oil batteries increased to 98.0 per cent in 2019 from 97.9 per cent in 2018.

In 2019, there was a significant increase in venting volumes from gas batteries. This increase can be attributed to the fuel, flare and vent gas definition changes in *Directive 060* that were mentioned previously in this report. A significant count of pneumatic devices exist at gas batteries and these vented volumes were reported as fuel in 2018 and are now starting to be reported as vent.

6 Emissions from Glycol Dehydrators

Companies are required to meet the benzene emission requirements for glycol dehydrators (dehydration and refrigeration) set out in *Directive 039: Revised Program to Reduce Benzene Emissions from Glycol Dehydrators*. Under *Directive 039*, licensees must complete and submit to the AER an annual dehydrator inventory list that details the emissions from all their glycol dehydrators.

In 2019, 1328 glycol dehydrators processed 165.7 billion cubic metres of gas. Table 9 shows that 258 tonnes of benzene were emitted after engineering controls in 2019 compared with 1248 tonnes in 2008—a 79.3 per cent reduction.[7] This can mainly be attributed to a decrease in the number of glycol dehydrators operating and to licensees complying with the emissions reduction requirements in *Directive 039*. The overall effectiveness of controls in reducing emissions has also increased since 2008, indicating that controls were used more often or were more efficient at reducing emissions.

Table 9. Benzene emissions from operating glycol dehydrators

Year	Number of dehydrators[a]	Volume of gas processed (10^6 m^3)	Benzene emissions before controls (tonnes)	Benzene emissions after controls (tonnes)	Overall control efficiency (%)[b]
2008	2 396	159 417	3 011	1 248	58.6
2009	2 236	153 323	2 750	1 093	60.3
2010	2 107	134 681	2 365	989	58.2
2011	2 006	137 790	2 286	849	62.9
2012	1 985	148 334	2 228	794	64.4
2013	1 905	142 110	2 757	777	71.8
2014	1 886	146 036	2 640	746	71.7
2015	1 778	153 486	2 376	609	74.4
2016	1 646	151 825	2 307	501	78.3
2017	1 528	152 397	2 008	399	80.1
2018	1 400	170 768	1 996	285	85.7
2019	1 328	165 667	1 959	258	86.8

Note: Benzene amounts have been rounded to the nearest tonne.

[a] Benzene occurs in varying concentrations in natural gas streams throughout the province, and some locations may not have any benzene. All operating dehydrators are included, regardless of the concentration of benzene in the gas stream.

[b] The control efficiency is the total benzene emissions before controls minus the total benzene emissions after controls divided by the total benzene emissions before controls.

Table 10 lists the top 30 companies by the number of glycol dehydrators in 2019.

Table 10. Top 30 companies in terms of the number of operating glycol dehydrators in 2019

Company	Number of dehydrators	Benzene emissions before controls (tonnes)	Benzene emissions after controls (tonnes)
Canadian Natural Resources Limited	240	206	38
Ember Resources Inc.	54	4	4
Tourmaline Oil Corp.	46	126	7
TAQA North Ltd.	43	67	11
Bonavista Energy Corporation	40	137	14

[7] Controls are methods for reducing benzene emissions. Condenser systems, incinerators, flare stacks, and burners are examples of engineering controls.

Company	Number of dehydrators	Benzene emissions before controls (tonnes)	Benzene emissions after controls (tonnes)
Husky Oil Operations Limited	38	54	5
Torxen Energy Ltd.	38	6	6
Cenovus Energy Inc.	35	71	12
Seven Generations Energy Ltd.	31	159	16
Keyera Energy Ltd.	30	84	5
Long Run Exploration Ltd.	29	39	6
Lynx Energy ULC	29	3	2
Tidewater Midstream and Infrastructure Ltd.	27	8	3
Repsol Oil & Gas Canada Inc.	25	71	3
Paramount Resources Ltd.	24	92	8
Ipc Canada Ltd.	20	1	0
Canlin Energy Corporation	19	7	1
NAL Resources Limited	19	25	8
Bellatrix Exploration Ltd.	18	59	6
Pine Cliff Energy Ltd.	18	4	2
Obsidian Energy Ltd.	17	4	3
Peyto Exploration & Development Corp.	17	13	2
AlphaBow Energy Ltd.	16	3	3
Rockpoint Gas Storage Canada Ltd.	16	15	1
Harvest Operations Corp.	15	2	0
ATCO Energy Solutions Ltd.	14	39	4
Semcams Midstream Ulc	14	59	1
Tamarack Acquisition Corp.	14	10	10
Vermilion Energy Inc.	11	12	3
Hammerhead Resources Inc.	11	18	1
Total	**968**		**187**
% of total glycol dehydrators	**72.9**		**72.6**

Glycol is the most commonly used desiccant for the dehydration process, but it has a high affinity for water and benzene. Benzene emissions mainly result from the glycol regeneration process, where the water is separated from the glycol through boiling. We require that benzene emissions be managed to ensure that the Alberta ambient air quality objectives are not exceeded.

7 Emissions from Surface Casing Vent Flows and Gas Migration

A surface casing vent flow (SCVF) is the flow of gas, liquid, or both out of the surface casing or casing annulus of a well. Gas migration (GM) is the flow of detectable gas at the surface outside of the outermost casing string.

In 2003, we issued *Interim Directive 2003-01: 1) Isolation Packer Testing, Reporting, and Repair Requirements; 2) Surface Casing Venting Flow/Gas Migration Testing, Reporting, and Repair Requirements; 3) Casing Failure Reporting and Repair Requirements*, which requires companies to electronically report emissions from SCVFs and GM. Over the years, we have worked with licensees to ensure proper reporting of SCVFs and GM.

Table 11 shows that in 2019, there were 10 324 unrepaired wells with SCVFs or GM that emitted a total of 66 10^6 m^3 of natural gas.

Table 11. Emissions from SCVFs and GM at unrepaired wells

Year	Number of wells with SCVFs, GM, or both[a]	Annual natural gas emission (10^6 m^3)[b,c,d]
2000	4 404	53
2001	4 557	55
2002	5 197	70
2003	5 663	84
2004	6 052	86
2005	6 479	94
2006	7 337	95
2007	7 880	100
2008	8 495	104
2009	8 762	98
2010	8 926	95
2011	9 318	92
2012	9 563	88
2013	9 624	89
2014	9 982	84
2015	10 247	86
2016	9 972	81
2017	10 291	83
2018	10 128	65
2019	10 324	66

[a] For wells that have SCVF flow rates that are too small to measure and wells where a GM flow rate cannot be determined, a flow rate of 1 m^3/day was used.

[b] The flow rates reported are from a single point in time and are extrapolated to determine annual emissions. Flow rates for SCVFs and GM can fluctuate significantly over a period of time.

[c] Typically, the methane content of natural gas in SCVFs and GM is between 95 and 99 per cent.

[d] If no emissions type (e.g. natural gas, saline water, or nonsaline water) is provided, an SCVF or GM is assumed to be natural gas and have a flow rate equal to the average of all other reported natural gas SCVFs or GM.

The age, construction, and operation of a well affect the rates of SCVFs or GM. As a result, these SCVF or GM rates differ throughout the well's life cycle. Table 12 shows the percentage of wells with an SCVF or GM in 2019, both repaired and unrepaired, based on the status of the well.

Table 12. Percentage of wells with an SCVF, GM, or both by well status in 2019

Well status	Number of wells	Number of wells that reported SCVFs or GM	Percentage of wells with SCVFs, GM, or both (%)
New drills[a]	1203	22	1.8
Active[b]	166 692	8752	5.3
Inactive[c]	94 330	10 557	11.2
Total	**262 225**	**19 331**	**7.4**

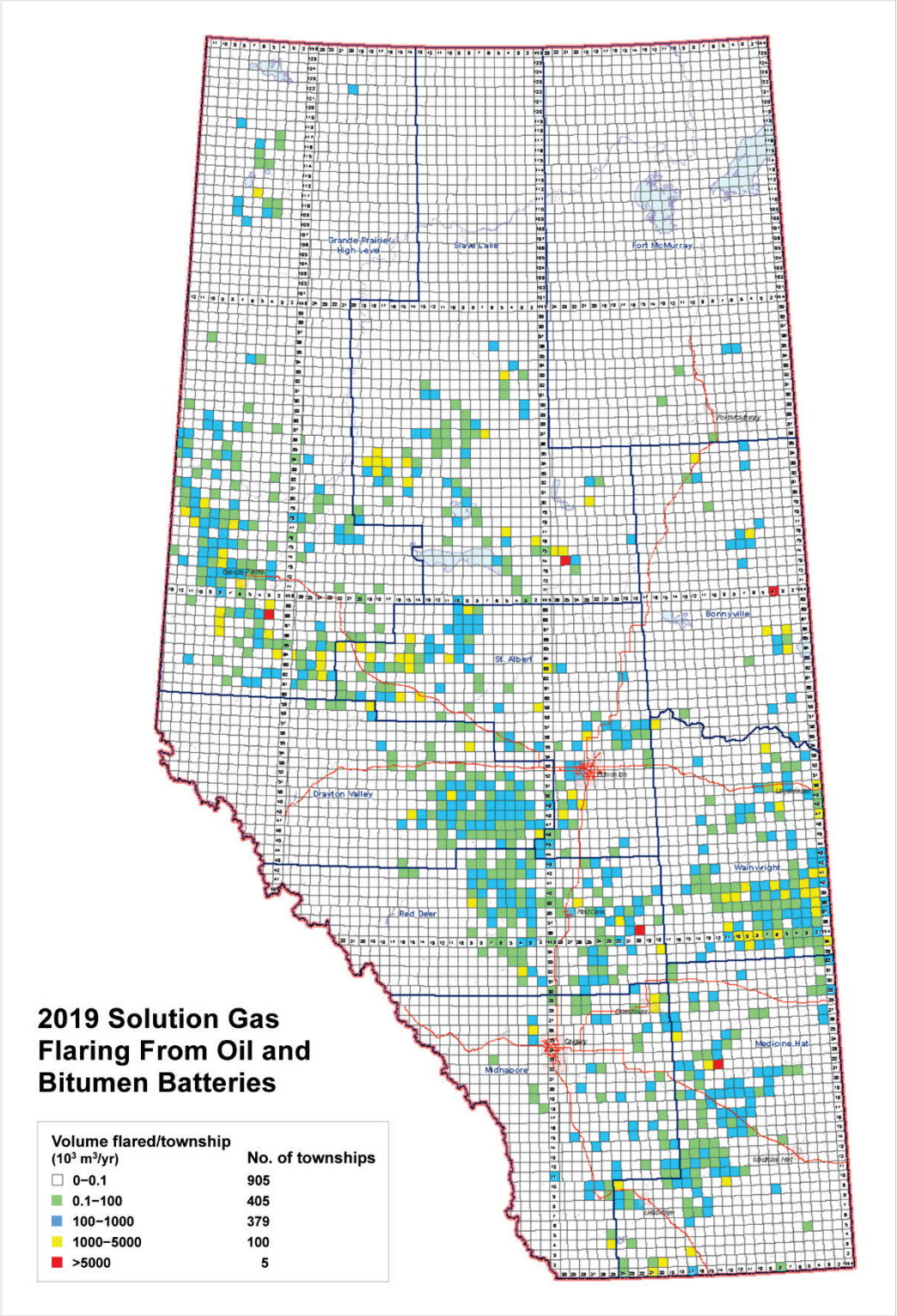
[a] New drills are wells that have been recently drilled and for which licensees are required to test and report any SCVF or GM.

[b] Active wells are those that are currently producing or injecting and reporting volumetric activity on Petrinex.

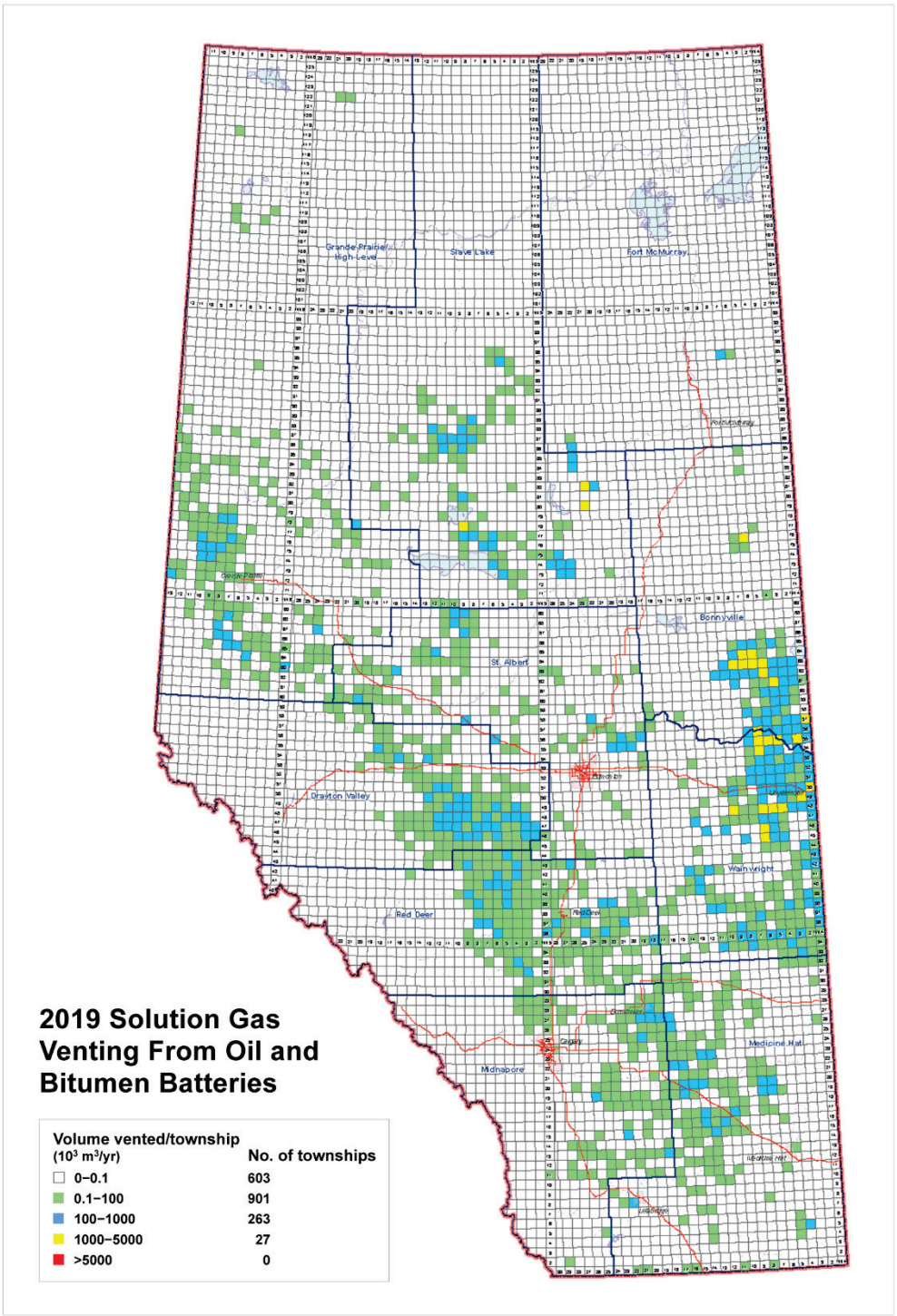
[c] Under *Directive 013: Suspension Requirements for Wells*, inactive wells are those that have not reported any volumetric activity for either 6 or 12 months, depending on the well's risk classification. However, the number of inactive wells shown in this table also includes wells that are not covered by *Directive 013*, such as observation wells and training wells.

8 Provincial Solution Gas Flaring and Venting Maps

The following maps of the province depict solution gas flaring and venting by township.



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9 Solution Gas Emissions Ranking of Operators for 2019

We have ranked companies based on volumes from operated crude oil and crude bitumen batteries of (1) solution gas production, (2) vented solution gas, and (3) flared plus vented solution gas. The tables that follow provide information on individual companies. The second column in the tables shows the percentage of solution gas conserved by an operator. The operator's performance can be compared with the provincial average solution gas conservation.

In this section, all crude oil and crude bitumen batteries have been included except for batteries that had an experimental well reporting fluid production in a month. The information on experimental wells remains confidential. This exclusion of data from experimental wells is the reason for variances between the values in the preceding sections of this report and the values contained in the ranking tables in this section.

Note that it is possible for an operator to flare or vent a significant volume of solution gas due to the magnitude of the company's operations and still have a high percentage of gas conserved.

Companies are ranked province-wide and within each AER field centre area based on the solution gas flared plus vented from their operating facilities in 2019.[8] The following describes the fields that appear in the ranking tables:

Company: Name of company operating crude oil and crude bitumen batteries.

Gas cons: Percentage of solution gas conserved.

Gas cons change: Percentage change in gas conservation from the previous year. Blanks represent companies that did not report in 2018 due to mergers, name changes, acquisitions, etc.

Gas flared + vented (1000 m^3): Solution gas flared plus vented from operated crude oil and crude bitumen batteries.

Gas flared + vented rank: The company's ranking compared with other companies based on the volume of solution gas flared plus vented.

Gas flared (1000 m^3): Solution gas flared from operated crude oil and crude bitumen batteries.

Flare rank: The company's ranking compared with other companies based on the volume of solution gas flared.

Gas vented (1000 m^3): Solution gas vented from operated crude oil and crude bitumen batteries.

Vent rank: The company's ranking compared with other companies based on the volume of solution gas vented.

[8] In 2018, the areas covered by the AER field centres changed. The new boundaries can be found online at www.aer.ca > Providing Information > About the AER > Contact Us > Regional Maps and Contacts.

Oil prod (m^3): Volume of crude oil and crude bitumen produced from operated crude oil and crude bitumen batteries.

Sol'n gas prod (1000 m^3): Volume of solution gas produced from operated crude oil and crude bitumen batteries.

Sol'n gas rank: The company's ranking compared with other companies based on the volume of solution gas produced.

GHG emissions (tCO_2e): The total GHG emissions based on flared and vented gas volumes.

GHG emissions rank: The company's ranking compared with other companies based on the GHG emissions.

Operators with the Largest Solution Gas Produced Volumes in 2019
Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)	Sol'n gas rank
Canadian Natural Resources Limited	97.0%	0.3%	86,311	1	30,951	1	55,359	1	21,227,575	2,887,801	**1**
Husky Oil Operations Limited	98.8%	0.2%	17,382	5	4,242	20	13,140	2	5,330,379	1,475,760	**2**
Hammerhead Resources Inc.	99.7%	0.2%	3,792	30	3,744	25	49	125	468,922	1,175,698	**3**
Cenovus Energy Inc.	97.6%	-1.3%	23,211	2	20,927	2	2,284	12	20,868,037	959,929	**4**
Tourmaline Oil Corp.	99.9%	-0.1%	1,289	78	1,289	70	0	256	536,631	861,389	**5**
Birchcliff Energy Ltd.	99.9%	0.0%	1,028	89	1,028	80	0	256	247,943	778,907	**6**
Velvet Energy Ltd.	98.2%	-1.1%	12,648	8	12,534	6	114	88	389,685	689,285	**7**
Torxen Energy Ltd.	99.2%	0.0%	5,473	20	1,947	50	3,526	4	1,214,351	668,630	**8**
ARC Resources Ltd.	99.7%	0.4%	2,085	58	1,146	75	939	24	784,620	618,645	**9**
Whitecap Resources Inc.	98.8%	0.9%	7,247	17	6,014	14	1,232	21	819,871	593,289	**10**
NAL Resources Limited	99.7%	0.0%	1,549	70	927	86	623	37	394,511	592,350	**11**
Yangarra Resources Corp.	99.6%	0.5%	1,985	61	456	112	1,529	17	241,034	498,067	**12**
Obsidian Energy Ltd.	98.6%	12.5%	6,471	18	3,875	23	2,596	8	1,118,488	472,345	**13**
Imperial Oil Resources Limited	99.2%	-0.1%	3,431	39	3,169	33	262	59	8,197,745	441,177	**14**
MEG Energy Corp.	99.8%	-0.2%	871	98	870	90	2	233	4,955,274	411,451	**15**
Tamarack Acquisition Corp.	97.9%	0.2%	8,538	15	5,503	15	3,034	7	739,711	410,402	**16**
Baytex Energy Ltd.	96.9%	6.0%	12,481	9	11,720	7	761	31	1,081,924	396,674	**17**
Paramount Resources Ltd.	98.9%	0.6%	4,118	26	3,956	22	162	69	296,872	375,997	**18**
Kelt Exploration Ltd.	99.6%	0.1%	1,361	74	1,324	68	37	134	254,993	366,781	**19**
TAQA North Ltd.	98.7%	1.3%	3,899	29	2,058	47	1,841	14	298,309	302,860	**20**
Ridgeback Resources Inc.	98.8%	0.7%	3,479	37	2,643	40	837	29	421,776	293,847	**21**
Surge Energy Inc.	95.0%	-1.3%	13,954	7	10,898	8	3,055	6	845,575	277,019	**22**
AlphaBow Energy Ltd.	99.6%	-0.2%	1,172	86	524	105	649	36	127,571	276,976	**23**
Bonterra Energy Corp.	99.1%	0.3%	2,453	50	2,201	45	252	60	404,967	259,063	**24**
ORLEN Upstream Canada Ltd.	98.5%	0.1%	3,573	35	3,452	27	121	83	118,714	239,048	**25**
Subtotal			**229,800**		**137,398**		**92,402**		**71,385,477**	**16,323,389**	
% of Provincial Total			**43.7%**		**36.0%**		**64.3%**		**61.4%**	**70.2%**	

Operators with the Largest Solution Gas Vented Volumes in 2019
Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Canadian Natural Resources Limited	97.0%	0.3%	86,311	1	30,951	1	55,359	**1**	21,227,575	2,887,801
Husky Oil Operations Limited	98.8%	0.2%	17,382	5	4,242	20	13,140	**2**	5,330,379	1,475,760
Cardinal Energy Ltd.	94.7%	-0.3%	10,069	11	4,472	19	5,598	**3**	834,423	191,006
Torxen Energy Ltd.	99.2%	0.0%	5,473	20	1,947	50	3,526	**4**	1,214,351	668,630
Gear Energy Ltd.	91.9%	-0.3%	4,524	21	1,303	69	3,220	**5**	172,681	55,535
Surge Energy Inc.	95.0%	-1.3%	13,954	7	10,898	8	3,055	**6**	845,575	277,019
Tamarack Acquisition Corp.	97.9%	0.2%	8,538	15	5,503	15	3,034	**7**	739,711	410,402
Obsidian Energy Ltd.	98.6%	12.5%	6,471	18	3,875	23	2,596	**8**	1,118,488	472,345
Crew Energy Inc.	62.7%	-20.2%	3,269	42	770	97	2,500	**9**	50,099	8,761
West Lake Energy Corp.	76.4%	-0.8%	17,583	4	15,110	4	2,473	**10**	529,426	74,403
Spur Petroleum Ltd.	63.9%	-7.7%	8,589	14	6,262	13	2,327	**11**	552,170	23,761
Cenovus Energy Inc.	97.6%	-1.3%	23,211	2	20,927	2	2,284	**12**	20,868,037	959,929
Prairie Provident Resources Canada Ltd.	96.3%	1.0%	3,463	38	1,544	62	1,919	**13**	254,567	92,810
TAQA North Ltd.	98.7%	1.3%	3,899	29	2,058	47	1,841	**14**	298,309	302,860
Karve Energy Inc.	95.0%	11.5%	9,407	12	7,632	11	1,775	**15**	360,213	186,613
Ipc Canada Ltd.	91.6%	N/A	3,220	44	1,556	61	1,664	**16**	468,589	38,166
Yangarra Resources Corp.	99.6%	0.5%	1,985	61	456	112	1,529	**17**	241,034	498,067
Harvest Operations Corp.	95.7%	-0.3%	4,145	25	2,650	39	1,495	**18**	748,703	97,529
InPlay Oil Corp.	95.5%	3.1%	4,332	24	2,934	38	1,398	**19**	135,474	96,533
Repsol Oil & Gas Canada Inc.	93.7%	4.4%	2,191	56	880	88	1,311	**20**	507,753	34,541
Whitecap Resources Inc.	98.8%	0.9%	7,247	17	6,014	14	1,232	**21**	819,871	593,289
Grizzly Resources Ltd.	0.0%	0.0%	1,223	83	-	251	1,223	**22**	51,113	1,223
Journey Energy Inc.	98.4%	0.4%	3,720	32	2,556	41	1,164	**23**	231,174	236,172
ARC Resources Ltd.	99.7%	0.4%	2,085	58	1,146	75	939	**24**	784,620	618,645
Rife Resources Ltd.	72.2%	1.9%	919	95	-	251	919	**25**	40,433	3,305
Subtotal			**253,208**		**135,687**		**117,521**		**58,424,766**	**10,305,106**
% of Provincial Total			**48.2%**		**35.5%**		**81.8%**		**50.3%**	**44.3%**

Provincial Ranking of Operators – 2019 Flared + Vented Volume
Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas cons change	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)	GHG emissions (tCO_2e)	GHG emissions rank
Canadian Natural Resources Limited	97.0%	0.3%	86,311	**1**	30,951	1	55,359	1	21,227,575	2,887,801	954,989	1
Cenovus Energy Inc.	97.6%	-1.3%	23,211	**2**	20,927	2	2,284	12	20,868,037	959,929	86,647	3
Deltastream Energy Corporation	36.9%	-44.7%	20,691	**3**	20,450	3	241	62	392,172	32,780	56,564	7
West Lake Energy Corp.	76.4%	-0.8%	17,583	**4**	15,110	4	2,473	10	529,426	74,403	78,616	5
Husky Oil Operations Limited	98.8%	0.2%	17,382	**5**	4,242	20	13,140	2	5,330,379	1,475,760	189,093	2
North 40 Resources Ltd.	84.7%	-5.3%	14,817	**6**	13,922	5	894	26	133,932	96,624	51,406	10
Surge Energy Inc.	95.0%	-1.3%	13,954	**7**	10,898	8	3,055	6	845,575	277,019	69,717	6
Velvet Energy Ltd.	98.2%	-1.1%	12,648	**8**	12,534	6	114	88	389,685	689,285	37,623	17
Baytex Energy Ltd.	96.9%	6.0%	12,481	**9**	11,720	7	761	31	1,081,924	396,674	42,088	15
Murphy Oil Company Ltd.	73.3%	-22.1%	10,624	**10**	10,622	9	2	227	129,224	39,742	30,707	19
Cardinal Energy Ltd.	94.7%	-0.3%	10,069	**11**	4,472	19	5,598	3	834,423	191,006	82,976	4
Karve Energy Inc.	95.0%	11.5%	9,407	**12**	7,632	11	1,775	15	360,213	186,613	44,353	13
Crescent Point Energy Corp.	91.2%	1.6%	9,192	**13**	8,826	10	366	47	367,854	104,688	30,074	20
Spur Petroleum Ltd.	63.9%	-7.7%	8,589	**14**	6,262	13	2,327	11	552,170	23,761	52,503	9
Tamarack Acquisition Corp.	97.9%	0.2%	8,538	**15**	5,503	15	3,034	7	739,711	410,402	53,873	8
Modern Resources Inc.	92.2%	-2.9%	7,506	**16**	6,636	12	870	27	138,147	95,976	30,056	21
Whitecap Resources Inc.	98.8%	0.9%	7,247	**17**	6,014	14	1,232	21	819,871	593,289	32,798	18
Obsidian Energy Ltd.	98.6%	12.5%	6,471	**18**	3,875	23	2,596	8	1,118,488	472,345	42,598	14
TORC Oil & Gas Ltd.	95.0%	-0.3%	5,578	**19**	4,907	16	671	34	183,628	111,968	22,571	27
Torxen Energy Ltd.	99.2%	0.0%	5,473	**20**	1,947	50	3,526	4	1,214,351	668,630	49,757	11
Gear Energy Ltd.	91.9%	-0.3%	4,524	**21**	1,303	69	3,220	5	172,681	55,535	45,937	12
Bearspaw Petroleum Ltd.	29.4%	-4.3%	4,507	**22**	4,503	17	5	207	38,977	6,389	13,065	40
Enhance Energy Inc.	69.5%	-23.9%	4,495	**23**	4,495	18	-	256	62,476	14,755	12,983	41
InPlay Oil Corp.	95.5%	3.1%	4,332	**24**	2,934	38	1,398	19	135,474	96,533	25,971	26
Harvest Operations Corp.	95.7%	-0.3%	4,145	**25**	2,650	39	1,495	18	748,703	97,529	26,226	25
Paramount Resources Ltd.	98.9%	0.6%	4,118	**26**	3,956	22	162	69	296,872	375,997	13,448	38
Rockeast Energy Corp.	4.4%	-3.7%	3,997	**27**	3,995	21	3	223	67,678	4,181	11,569	47
Rifle Shot Oil Corp.	60.8%	-2.1%	3,988	**28**	3,820	24	168	67	220,923	10,178	13,133	39
TAQA North Ltd.	98.7%	1.3%	3,899	**29**	2,058	47	1,841	14	298,309	302,860	28,987	22
Hammerhead Resources Inc.	99.7%	0.2%	3,792	**30**	3,744	25	49	125	468,922	1,175,698	11,420	49
SanLing Energy Ltd.	83.4%	1.0%	3,755	**31**	3,441	28	313	50	60,172	22,622	13,899	36
Journey Energy Inc.	98.4%	0.4%	3,720	**32**	2,556	41	1,164	23	231,174	236,172	21,954	28
Halo Exploration Ltd.	14.8%	14.8%	3,623	**33**	3,623	26	-	256	8,888	4,253	10,465	54
Steelhead Petroleum Ltd.	64.4%	-0.7%	3,581	**34**	3,423	29	158	71	29,369	10,061	11,864	46
ORLEN Upstream Canada Ltd.	98.5%	0.1%	3,573	**35**	3,452	27	121	83	118,714	239,048	11,485	48
Razor Energy Corp.	93.3%	-2.4%	3,549	**36**	3,006	35	543	39	149,806	52,982	15,478	32
Ridgeback Resources Inc.	98.8%	0.7%	3,479	**37**	2,643	40	837	29	421,776	293,847	18,103	31
Prairie Provident Resources Canada Ltd.	96.3%	1.0%	3,463	**38**	1,544	62	1,919	13	254,567	92,810	28,548	23
Imperial Oil Resources Limited	99.2%	-0.1%	3,431	**39**	3,169	33	262	59	8,197,745	441,177	12,304	45
Rising Star Resources Ltd.	96.0%	-2.6%	3,406	**40**	3,400	30	6	202	104,322	84,759	9,897	58

Company	Gas cons	Gas cons change	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)	GHG emissions (tCO_2e)	GHG emissions rank
Mancal Energy Inc.	95.3%	2.5%	3,298	**41**	3,005	36	294	55	136,575	70,492	12,354	44
Crew Energy Inc.	62.7%	-20.2%	3,269	**42**	770	97	2,500	9	50,099	8,761	38,796	16
Granite Oil Corp.	97.6%	0.1%	3,269	**43**	3,269	31	-	256	89,288	138,647	9,441	61
Ipc Canada Ltd.	91.6%	N/A	3,220	**44**	1,556	61	1,664	16	468,589	38,166	27,375	24
Cabot Energy Inc.	0.3%	-3.0%	3,196	**45**	3,196	32	-	256	26,555	3,206	9,230	63
NEP Canada ULC	98.3%	-0.3%	3,040	**46**	3,040	34	-	256	452,967	178,394	8,780	64
Cleo Energy Corp.	68.4%	10.2%	2,974	**47**	2,974	37	-	256	55,654	9,418	8,590	65
Enercapita Energy Ltd.	97.5%	-0.7%	2,844	**48**	2,517	42	328	49	209,017	114,024	11,368	50
Highwood Oil Company Ltd.	28.2%	-0.8%	2,719	**49**	2,250	43	468	40	101,505	3,786	12,362	43
Bonterra Energy Corp.	99.1%	0.3%	2,453	**50**	2,201	45	252	60	404,967	259,063	9,515	60
Anegada Oil Corp.	98.2%	-0.6%	2,451	**51**	2,014	48	437	43	270,708	137,237	11,284	51
Long Run Exploration Ltd.	98.7%	0.3%	2,443	**52**	1,732	54	711	32	218,682	193,847	13,902	35
Rolling Hills Energy Ltd.	96.1%	-0.5%	2,323	**53**	1,941	51	382	44	105,493	60,113	10,383	55
Acquisition Oil Corp.	86.1%	31.9%	2,299	**54**	1,590	58	710	33	97,966	16,531	13,472	37
N7 Energy Ltd.	0.0%	0.0%	2,254	**55**	2,232	44	21	159	21,828	2,254	6,714	70
Repsol Oil & Gas Canada Inc.	93.7%	4.4%	2,191	**56**	880	88	1,311	20	507,753	34,541	18,953	30
Greenfire Hangingstone Operating Corporation	-232.1%	644.6%	2,113	**57**	2,113	46	-	256	159,240	636	5,381	79
ARC Resources Ltd.	99.7%	0.4%	2,085	**58**	1,146	75	939	24	784,620	618,645	15,066	34
Axiom Oil and Gas Inc.	87.0%	-10.3%	2,030	**59**	1,996	49	34	139	23,875	15,590	6,194	72
Insignia Energy Ltd.	98.1%	2.9%	1,988	**60**	1,703	55	285	56	109,411	103,720	8,490	66
Yangarra Resources Corp.	99.6%	0.5%	1,985	**61**	456	112	1,529	17	241,034	498,067	20,454	29
Gryphon Petroleum Corp.	0.0%	0.0%	1,932	**62**	1,932	52	-	256	18,743	1,932	5,579	76
Ovintiv Canada ULC	97.2%	N/A	1,830	**63**	1,804	53	25	153	55,697	65,183	5,528	77
Summerland Energy Inc.	84.3%	0.5%	1,715	**64**	1,506	63	209	65	110,314	10,921	7,040	68
Canuck North Resources Ltd.	0.0%	0.0%	1,713	**65**	1,443	64	270	58	4,670	1,713	7,548	67
Battle River Energy Ltd.	89.1%	0.2%	1,711	**66**	1,639	57	72	110	68,446	15,739	5,638	75
Executive Adventures 2008 Inc.	15.4%	10.1%	1,668	**67**	1,641	56	27	149	6,635	1,972	5,080	83
Cor4 Oil Corp.	95.9%	-0.9%	1,624	**68**	1,557	60	67	112	192,843	39,998	5,331	81
Teine Energy Ltd.	34.3%	5.7%	1,577	**69**	1,577	59	-	256	15,131	2,401	4,554	86
NAL Resources Limited	99.7%	0.0%	1,549	**70**	927	86	623	37	394,511	592,350	10,468	53
Point Loma Resources Ltd.	89.0%	-9.9%	1,511	**71**	1,360	66	151	72	11,150	13,791	5,685	74
Changhua Energy Canada Ltd.	0.0%	0.0%	1,436	**72**	1,436	65	-	256	2,444	1,436	4,147	92
Gain Energy Ltd.	98.8%	0.8%	1,388	**73**	1,139	76	249	61	78,760	116,344	6,407	71
Kelt Exploration Ltd.	99.6%	0.1%	1,361	**74**	1,324	68	37	134	254,993	366,781	4,290	88
Chronos Resources Ltd.	14.9%	14.9%	1,358	**75**	1,345	67	14	177	11,360	1,595	4,055	94
Aspenleaf Energy Limited	95.3%	10.9%	1,324	**76**	1,289	71	36	137	243,385	27,960	4,167	91
DEL Canada GP Ltd.	90.2%	-8.8%	1,314	**77**	1,194	73	120	84	29,584	13,381	4,945	84
Tourmaline Oil Corp.	99.9%	-0.1%	1,289	**78**	1,289	70	-	256	536,631	861,389	3,723	97
Baccalieu Energy Inc.	99.0%	-0.3%	1,273	**79**	677	100	596	38	149,765	127,217	9,415	62
Caltex Resources Ltd.	91.3%	-1.8%	1,256	**80**	592	101	664	35	331,778	14,433	10,016	56
Blackspur Oil Corp.	98.5%	-0.6%	1,251	**81**	1,242	72	8	189	134,952	82,442	3,692	99
Outlier Resources Ltd.	94.4%	-5.1%	1,241	**82**	1,151	74	90	98	15,060	22,253	4,453	87
Grizzly Resources Ltd.	0.0%	0.0%	1,223	**83**	-	251	1,223	22	51,113	1,223	15,305	33

Company	Gas cons	Gas cons change	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)	GHG emissions (tCO_2e)	GHG emissions rank
Artis Exploration Ltd.	97.6%	2.6%	1,203	**84**	1,120	77	83	103	314,969	49,626	4,272	89
Barrel Oil Corp.	33.2%	N/A	1,191	**85**	1,117	78	74	108	12,959	1,782	4,146	93
AlphaBow Energy Ltd.	99.6%	-0.2%	1,172	**86**	524	105	649	36	127,571	276,976	9,631	59
Longshore Resources Ltd.	98.9%	0.2%	1,123	**87**	1,026	81	97	95	137,071	106,365	4,171	90
Flow-Back Oil & Gas Ltd.	18.0%	0.7%	1,115	**88**	1,115	79	-	256	526	1,359	3,221	102
Birchcliff Energy Ltd.	99.9%	0.0%	1,028	**89**	1,028	80	-	256	247,943	778,907	2,968	106
Vantage Point Resources Inc.	91.2%	0.5%	1,010	**90**	984	83	27	150	25,549	11,542	3,173	104
Canlin Resources Partnership	96.6%	-3.2%	1,003	**91**	998	82	6	203	84,882	29,125	2,951	107
Sinopec Daylight Energy Ltd.	98.9%	0.0%	968	**92**	529	104	440	41	191,946	85,811	7,028	69
Osum Production Corp.	95.9%	3.1%	961	**93**	961	84	-	256	1,088,056	23,288	2,446	118
Briko Energy Corp.	90.7%	N/A	935	**94**	935	85	-	256	12,940	10,103	2,700	110
Rife Resources Ltd.	72.2%	1.9%	919	**95**	-	251	919	25	40,433	3,305	12,895	42
Huron Resources Corp.	93.5%	7.8%	912	**96**	912	87	-	256	36,478	13,930	2,635	111
Hemisphere Energy Corporation	86.9%	5.5%	879	**97**	879	89	-	256	92,890	6,689	2,537	113
MEG Energy Corp.	99.8%	-0.2%	871	**98**	870	90	2	233	4,955,274	411,451	2,242	123
Apogee Petroleum Inc.	91.5%	N/A	871	**99**	835	92	35	138	10,446	10,216	2,856	109
Ascensun Oil and Gas Ltd.	13.4%	2.2%	869	**100**	869	91	-	256	11,439	1,004	2,510	115
Dark Warrior Resources Ltd.	51.7%	20.7%	867	**101**	823	93	44	128	12,967	1,796	2,931	108
Tangle Creek Energy Ltd.	99.3%	-0.1%	861	**102**	554	102	306	51	155,665	129,414	5,436	78
Entrada Resources Inc.	98.8%	-0.5%	841	**103**	1	242	840	28	78,188	71,124	10,511	52
NuVista Energy Ltd.	78.5%	-21.5%	823	**104**	823	94	-	256	5,555	3,826	2,376	119
Perpetual Operating Corp.	93.9%	-4.3%	816	**105**	32	204	785	30	71,345	13,354	9,912	57
Cuda Energy Inc.	0.0%	0.0%	809	**106**	809	95	-	256	713	809	2,336	120
Drakkar Energy Ltd.	67.8%	26.8%	790	**107**	790	96	-	256	3,328	2,452	2,281	122
Bow River Energy Ltd.	81.9%	2.0%	694	**108**	686	98	8	191	70,084	3,844	2,082	126
Tempus Energy Ltd.	65.5%	N/A	684	**109**	684	99	-	256	2,506	1,982	1,976	130
Tyrannex Energy Ltd.	76.8%	76.8%	649	**110**	212	144	437	42	25,652	2,795	6,087	73
Signalta Resources Limited	83.6%	-2.1%	645	**111**	280	133	365	48	9,386	3,941	5,376	80
Response Energy Corporation	85.3%	-3.5%	614	**112**	469	110	145	73	11,181	4,188	3,171	105
Canamax Energy Ltd.	98.2%	0.5%	598	**113**	508	107	90	99	115,236	33,546	2,589	112
Coastal Resources Limited	73.3%	6.1%	569	**114**	547	103	22	157	8,750	2,134	1,852	133
Vermilion Energy Inc.	99.5%	0.2%	540	**115**	174	152	366	46	207,404	111,471	5,087	82
Bering Exploration Company ULC	91.7%	-3.7%	522	**116**	438	113	84	101	20,533	6,303	2,318	121
Point Bar Resources Inc.	82.9%	0.4%	516	**117**	516	106	-	256	21,178	3,016	1,489	146
Boulder Energy Ltd.	99.7%	0.0%	489	**118**	375	119	115	87	156,847	184,856	2,520	114
Relentless Resources Ltd.	78.4%	-8.6%	486	**119**	486	108	-	256	3,550	2,255	1,404	150
Novus Energy Inc.	82.7%	-7.0%	476	**120**	475	109	1	237	2,520	2,749	1,386	151
Grandview Exploration Inc.	45.0%	-8.5%	472	**121**	464	111	8	188	7,434	858	1,445	149
Strath Resources Ltd.	99.1%	1.0%	437	**122**	220	141	217	64	27,217	50,995	3,352	101
Prospera Energy Inc.	30.7%	2.3%	429	**123**	429	114	-	256	2,990	619	1,240	163
Strategic Oil & Gas Ltd.	98.3%	1.9%	429	**124**	386	117	43	130	55,326	25,958	1,654	139
ConocoPhillips Canada Resources Corp.	99.4%	0.2%	419	**125**	373	121	46	126	7,264,704	66,680	1,695	136
Goldenkey Oil Inc.	82.3%	6.6%	410	**126**	410	115	-	256	9,571	2,319	1,184	165

Company	Gas cons	Gas cons change	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)	GHG emissions (tCO_2e)	GHG emissions rank
HESC Energy Corporation	91.3%	4.2%	408	**127**	39	195	370	45	5,890	4,704	4,737	85
Zargon Oil & Gas Ltd.	95.7%	-0.6%	405	**128**	396	116	9	187	64,626	9,391	1,252	162
Enerplus Corporation	99.3%	0.3%	394	**129**	311	127	83	102	390,991	53,954	1,967	131
Certus Oil And Gas Inc.	96.3%	-2.5%	393	**130**	374	120	19	165	20,166	10,521	1,322	155
High Point Oil Inc.	0.0%	0.0%	386	**131**	385	118	1	237	3,539	386	1,126	167
Bernum Petroleum Ltd.	94.5%	2.0%	378	**132**	360	123	18	170	19,215	6,899	1,265	160
Vital Energy Inc.	25.6%	-31.0%	368	**133**	368	122	-	256	3,029	495	1,064	173
Traverse Energy Ltd.	96.4%	1.0%	365	**134**	307	128	58	118	10,736	10,024	1,609	140
Nine Ring Energy Development Inc.	2.1%	-0.4%	356	**135**	356	124	-	256	134	364	1,028	176
ACCEL Canada Holdings Limited	99.3%	0.0%	354	**136**	231	135	124	81	210,641	48,692	2,216	124
Bonavista Energy Corporation	99.6%	0.6%	349	**137**	121	170	228	63	45,554	89,512	3,201	103
Glenogle Energy Inc.	99.7%	-0.2%	344	**138**	344	125	-	256	37,512	98,817	994	177
Prairie Storm Energy Corp.	99.6%	-0.2%	337	**139**	40	193	297	53	52,641	74,936	3,829	95
Bellatrix Exploration Ltd.	99.8%	0.0%	330	**140**	171	154	158	70	21,240	154,027	2,475	117
Tykewest Limited	67.2%	10.5%	326	**141**	230	136	96	96	4,430	993	1,860	132
Salt Bush Energy Ltd.	45.7%	N/A	318	**142**	318	126	-	256	870	586	918	181
City Of Medicine Hat	51.0%	20.1%	317	**143**	16	221	300	52	7,450	646	3,806	96
New North Resources Ltd.	74.3%	-7.0%	308	**144**	286	130	22	158	4,844	1,198	1,097	169
Pengrowth Energy Corporation	97.1%	39.3%	305	**145**	303	129	2	229	1,033,550	10,346	804	189
Ember Resources Inc.	90.2%	3.9%	296	**146**	-	251	296	54	11,182	3,026	3,707	98
Shield Energy Ltd.	98.4%	0.9%	296	**147**	197	147	99	94	26,357	18,006	1,804	135
Jupiter Resources Inc.	99.6%	0.3%	291	**148**	284	131	6	200	33,428	80,891	899	183
Blackch Canada Ulc	0.0%	0.0%	284	**149**	280	132	3	214	1,268	284	851	186
Crestwynd Exploration Ltd.	72.3%	11.1%	271	**150**	145	163	127	79	22,037	979	2,005	128
Keyera Energy Ltd.	99.7%	-0.1%	271	**151**	219	142	53	119	34,204	103,040	1,288	158
Westdrum Energy Ltd.	57.3%	-15.0%	271	**152**	-	251	271	57	1,363	633	3,386	100
Cequence Energy Ltd.	99.6%	-0.2%	262	**153**	227	139	36	136	49,815	61,546	1,100	168
CNOOC Petroleum North America ULC	99.3%	1.1%	262	**154**	210	145	51	122	2,686,944	38,067	1,365	153
New Star Energy Ltd.	99.7%	0.2%	253	**155**	170	155	83	105	26,825	75,644	1,525	144
Ohana Resources Inc.	73.4%	-5.9%	252	**156**	228	137	24	154	11,049	947	963	179
Venturion Oil Limited	96.9%	0.3%	251	**157**	120	171	131	77	137,470	8,033	1,989	129
Barnwell of Canada Limited	98.4%	-0.1%	239	**158**	157	159	83	104	18,802	15,423	1,487	147
SILVERLEAF RESOURCES INC.	80.9%	-7.1%	238	**159**	217	143	21	159	5,838	1,249	893	184
Altura Energy Inc.	99.4%	-0.4%	233	**160**	233	134	-	256	69,484	37,998	593	200
Shanpet Resources Ltd.	75.8%	2.2%	228	**161**	228	137	-	256	1,039	941	658	196
Red Angus Energy Inc.	41.3%	-17.5%	221	**162**	180	150	41	133	1,553	376	1,033	175
Rally Canada Resources Ltd.	92.1%	8.2%	220	**163**	220	140	-	256	19,410	2,797	636	198
Danzig Resources Ltd.	29.2%	N/A	220	**164**	176	151	44	129	938	311	1,062	174
ExxonMobil Canada Energy	99.7%	0.2%	212	**165**	161	157	50	123	51,278	65,248	1,097	170
Kiwetinohk Resources Corp.	98.8%	N/A	212	**166**	205	146	7	197	34,458	18,107	675	195
Vesta Energy Ltd.	99.8%	0.3%	200	**167**	134	167	66	113	538,818	117,255	1,215	164
Thoroughbred Energy Ltd.	45.8%	4.4%	200	**168**	0	245	199	66	5,116	368	2,497	116
Avalon Energy Ltd.	49.0%	-1.1%	198	**169**	146	161	53	120	5,163	389	1,078	171

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Knowledge Energy Inc.	39.0%	-61.0%	197	**170**	194	148	3	217	1,379	323	598	199
Persist Oil And Gas Inc.	99.7%	N/A	181	**171**	140	166	41	132	51,344	71,644	920	180
Energy Express Canada Corp.	57.5%	-42.4%	181	**172**	174	153	7	197	4,817	425	585	201
Connacher Oil And Gas Limited	99.0%	0.8%	180	**173**	180	149	-	256	634,257	17,247	458	207
Hard Rock Resources Ltd.	94.9%	-0.5%	176	**174**	146	161	31	143	1,607	3,457	804	188
TransGlobe Energy Corporation	99.3%	0.1%	168	**175**	27	207	141	74	51,011	24,802	1,842	134
Suncor Energy Inc.	99.5%	-0.2%	165	**176**	146	160	19	167	12,544,862	35,006	679	194
Tidewater Midstream and Infrastructure Ltd.	99.8%	0.1%	165	**177**	84	176	81	106	42,031	86,978	1,259	161
OAN Resources Ltd.	79.0%	-1.3%	165	**178**	-	251	165	68	3,047	784	2,061	127
Supreme Energy Inc.	96.6%	-0.5%	162	**179**	162	156	0	251	6,134	4,807	470	205
C Group Energy Inc.	14.8%	-71.6%	160	**180**	160	158	-	256	5,489	188	463	206
Sitka Exploration Ltd.	99.6%	0.3%	152	**181**	23	213	129	78	34,304	41,945	1,675	138
2214896 Alberta Ltd.	98.8%	N/A	145	**182**	27	207	118	85	8,404	12,490	1,552	143
Clampett Energy Ltd.	32.4%	7.2%	144	**183**	66	185	79	107	1,850	214	1,177	166
Sifton Petroleum Inc.	98.6%	0.6%	142	**184**	32	203	110	89	34,490	10,168	1,471	148
Fort Calgary Resources Ltd.	68.0%	9.2%	142	**185**	51	187	91	97	2,929	444	1,281	159
Sphere Energy Corp.	93.7%	-1.2%	141	**186**	18	219	123	82	3,400	2,241	1,594	141
MAGA Energy Operations Ltd.	99.1%	N/A	140	**187**	140	164	-	256	30,200	16,476	406	213
Direct Oil & Gas Inc.	97.4%	-1.2%	140	**188**	140	165	-	256	9,713	5,359	404	215
Clearview Resources Ltd.	99.5%	-0.2%	139	**189**	37	198	102	93	36,148	26,415	1,386	152
Insch Commodity Ltd.	45.0%	21.6%	137	**190**	133	169	3	215	2,129	249	425	210
Devon Canada Corporation	81.5%	-11.6%	136	**191**	-	251	136	75	4,886	735	2,206	125
Taku Gas Limited	32.3%	9.0%	135	**192**	0	245	135	76	8,538	200	1,689	137
Lance Exploration Corp.	23.0%	18.1%	134	**193**	134	167	-	256	1,092	174	386	219
Westbrick Energy Ltd.	99.8%	0.1%	134	**194**	16	225	118	86	37,804	78,145	1,518	145
Firenze Energy Ltd.	95.3%	1.3%	134	**194**	73	181	61	116	30,868	2,828	971	178
Just Freehold Energy Corp.	84.4%	-15.3%	124	**196**	-	251	124	80	1,009	799	1,557	142
Convega Energy Ltd.	75.0%	-0.1%	118	**197**	111	174	7	194	2,326	473	408	212
Alexander Oilfield Services Ltd.	71.2%	4.0%	113	**198**	113	172	-	256	1,200	392	326	225
Pulse Oil Operating Corp.	77.2%	-18.9%	113	**199**	113	173	-	256	3,604	496	326	226
Forge Oil & Gas Limited	94.7%	10.9%	107	**200**	-	251	107	90	5,744	1,999	1,333	154
Iberdrola Canada Energy Services Ltd.	99.9%	0.0%	106	**201**	-	251	106	91	3,666	86,852	1,320	156
Ridal Resource Ltd.	35.0%	3.0%	103	**202**	-	251	103	92	1,062	159	1,292	157
Petrus Resources Corp.	99.9%	0.2%	101	**203**	101	175	-	256	62,046	164,904	293	232
Turnstone Energy Inc.	23.6%	-76.4%	97	**204**	79	179	18	169	709	127	458	208
Pine Cliff Energy Ltd.	99.7%	1.0%	89	**205**	44	191	45	127	20,419	29,551	687	193
Topanga Resources Ltd.	81.3%	72.6%	88	**206**	80	178	8	192	2,722	473	330	224
Edalis Energy Inc.	87.3%	-10.0%	86	**207**	-	251	86	100	1,841	679	1,075	172
Joli Fou Petroleums Ltd	26.0%	-9.5%	86	**208**	68	184	18	171	1,432	116	419	211
Notine Holdings Inc.	87.0%	-11.8%	85	**209**	68	183	17	173	570	651	404	214
Houston Oil & Gas Ltd.	96.0%	-2.2%	84	**210**	22	214	62	114	2,205	2,079	841	187
Corval Energy Ltd.	96.9%	2.3%	84	**211**	34	200	50	124	4,600	2,695	722	192
Hitic Energy Ltd.	99.6%	-0.2%	82	**212**	82	177	-	256	58,973	19,438	238	237

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Ghost River Resources Inc.	95.4%	-1.5%	77	**213**	77	180	-	256	9,586	1,656	222	239
Croverro Energy Ltd.	8.6%	8.6%	72	**214**	-	251	72	109	3,083	79	906	182
Ribbon Creek Resources Inc.	97.2%	1.0%	70	**215**	50	188	20	163	2,658	2,481	395	217
Dark Energy Ltd.	47.7%	10.2%	70	**216**	-	251	70	111	2,620	133	871	185
Shanghai Energy Corporation	99.8%	0.0%	69	**217**	69	182	-	256	4,478	28,671	200	242
Mojek Resources Inc.	91.6%	-1.4%	66	**218**	38	197	28	148	2,343	786	456	209
Sun Century Petroleum Corporation	95.9%	24.0%	61	**219**	-	251	61	115	5,665	1,471	762	190
DCP Oil Corp.	97.7%	-2.3%	60	**220**	-	251	60	117	1,670	2,624	750	191
Beaver Lake Resources Corporation	0.0%	0.0%	57	**221**	57	186	-	256	505	57	165	247
Silver Blaze Energy Ltd.	71.0%	24.3%	52	**222**	-	251	52	121	271	180	651	197
NVP Exploration Inc.	97.5%	0.6%	50	**223**	48	189	2	229	2,968	2,036	165	246
Taber Water Disposal Inc.	56.0%	27.9%	49	**224**	42	192	7	195	3,438	110	205	241
Inception Exploration Ltd.	99.9%	1.2%	47	**225**	47	190	1	245	37,082	52,712	141	252
Trident Exploration (Alberta) Corp.	98.3%	-0.1%	45	**226**	26	210	19	166	3,674	2,652	315	229
XTO Energy Canada	99.4%	0.3%	43	**227**	-	251	43	131	8,385	7,448	538	202
Wilcox Energy Corp.	57.8%	13.4%	42	**228**	5	237	37	135	1,072	99	475	204
Long Term Asset Management Inc.	98.4%	0.0%	40	**229**	33	201	6	200	1,937	2,505	174	244
Procyon Energy Corp.	93.9%	31.3%	39	**230**	39	194	-	256	1,008	633	111	261
Aeraden Energy Corp.	94.9%	11.5%	39	**230**	38	196	0	248	3,374	764	113	260
Bounty Developments Ltd.	0.0%	N/A	37	**232**	37	198	-	256	1,254	37	106	263
Barcomp Petroleum Ltd.	0.0%	0.0%	33	**233**	-	251	33	140	5,600	33	528	203
Imola Holdings Inc.	6.4%	N/A	32	**234**	32	202	-	256	765	34	93	265
Shackleton Exploration Ltd.	99.9%	0.0%	32	**235**	-	251	32	141	31,888	41,968	396	216
Black Crane Energy Corp.	99.1%	-0.2%	31	**236**	-	251	31	142	3,752	3,480	393	218
KinMerc Oil & Gas Inc.	88.2%	-3.0%	31	**237**	2	240	29	145	14,039	265	371	221
Kaiser Exploration Ltd.	58.2%	-41.8%	30	**238**	30	205	-	256	37	72	87	269
Pismo Energy Ltd.	97.8%	11.8%	30	**239**	-	251	30	144	5,111	1,377	373	220
Aeneid Exploration Inc.	97.3%	-1.6%	30	**240**	14	226	16	174	15,973	1,104	240	236
ACCEL Energy Canada Limited	99.9%	0.0%	29	**241**	6	235	23	156	120,682	49,645	306	230
Top Oil Production Ltd.	98.6%	0.3%	29	**242**	-	251	29	146	4,957	2,010	362	222
Unit 18 Corp.	91.7%	-6.9%	28	**243**	-	251	28	147	12,163	344	355	223
Goose Creek Resources Ltd.	51.7%	N/A	28	**244**	28	206	-	256	75	58	81	272
Wolf Coulee Resources Inc.	99.2%	0.4%	28	**245**	26	209	2	234	3,155	3,309	95	264
Revival Energy Inc.	92.3%	N/A	27	**246**	7	234	20	162	6,696	349	274	233
Golden Spike Energy Inc.	48.2%	8.3%	26	**247**	0	245	26	151	330	50	324	227
Broadview Energy Ltd.	98.9%	0.1%	26	**248**	-	251	26	152	13,063	2,295	320	228
RON Resources Ltd.	96.9%	-2.1%	25	**249**	21	215	4	208	2,058	812	110	262
Japan Canada Oil Sands Limited	99.8%	0.1%	24	**250**	24	211	-	256	1,506,893	12,421	60	275
Derrick Petroleum Ltd.	91.9%	9.5%	24	**251**	-	251	24	155	535	293	295	231
Kaisen Energy Corp.	98.6%	2.4%	23	**252**	16	223	7	193	6,348	1,674	137	253
Gmt Exploration Zama Inc.	0.0%	N/A	23	**253**	23	212	-	256	138	23	67	274
Sogar Resources Ltd.	98.4%	-0.4%	21	**254**	-	251	21	161	660	1,316	265	234
Indra Oil & Gas Ltd.	0.0%	0.0%	21	**254**	19	217	2	227	1,062	21	82	270

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Brahma Resources Ltd.	91.4%	-8.6%	20	**256**	-	251	20	164	2,957	232	249	235
Elcano Exploration Inc.	0.0%	-28.4%	20	**257**	20	216	-	256	187	20	57	277
Surat Energy Inc.	0.0%	0.0%	19	**258**	16	220	3	219	432	19	81	271
Primrose Drilling Ventures Ltd.	0.0%	0.0%	19	**259**	-	251	19	168	330	19	233	238
McLand Resources Ltd.	49.9%	N/A	19	**260**	19	218	-	256	243	37	53	279
Sandpoint Resources Inc.	0.0%	0.0%	17	**261**	-	251	17	172	1,407	17	209	240
97837 Resources Ltd.	6.9%	2.8%	16	**262**	16	221	-	256	44	18	47	283
Eagle Energy Inc.	99.3%	-0.5%	16	**263**	8	230	8	190	89,513	2,287	125	255
Panam Energy Services Ltd.	22.0%	-3.5%	16	**264**	16	224	-	256	17	21	46	284
935821 Alberta Ltd.	0.0%	0.0%	16	**265**	-	251	16	175	1,193	16	197	243
611890 Alberta Inc.	0.0%	0.0%	14	**266**	-	251	14	176	1,535	14	174	245
Kairos Resources (2011) Ltd.	81.4%	18.5%	12	**267**	-	251	12	178	744	67	157	248
Delphi Energy Corp.	91.7%	0.4%	12	**268**	12	227	-	256	482	148	35	289
Kicking Horse Oil & Gas Ltd.	99.9%	0.1%	12	**269**	-	251	12	179	1,542	11,742	150	249
Tallahassee Resources Inc.	0.0%	0.0%	12	**270**	-	251	12	180	336	12	146	250
BDJ Energy Inc.	99.7%	-0.3%	12	**271**	-	251	12	181	9,060	4,280	144	251
Persta Resources Inc.	90.7%	1.0%	11	**272**	11	228	-	256	4,586	113	30	292
Shell Canada Energy	99.9%	0.2%	10	**273**	1	243	10	184	8,214	16,976	122	256
Lynx Energy ULC	99.8%	0.9%	10	**274**	-	251	10	182	8,183	4,854	130	254
Jast Energy Ltd.	83.1%	0.8%	10	**275**	8	232	3	219	1,534	61	56	278
Range 3 Inc.	24.8%	-15.5%	10	**276**	-	251	10	183	16	13	121	257
Eclipse Resources Ltd.	99.6%	-0.1%	10	**277**	3	239	6	199	7,720	2,444	89	266
HBC Energy Ltd.	0.0%	0.0%	9	**278**	-	251	9	185	320	9	118	258
Rustum Petroleums Limited	0.0%	0.0%	9	**279**	-	251	9	186	1,484	9	115	259
G. Herman Group Inc.	99.8%	0.0%	9	**280**	9	229	-	256	1,572	3,973	25	296
Marlboro Energy Ltd.	99.7%	0.0%	8	**281**	1	241	7	195	9,929	2,914	88	268
Kam's Sand Coating Ltd.	0.0%	0.0%	8	**282**	8	231	-	256	127	8	23	298
Sutton Energy Ltd.	90.0%	31.3%	7	**283**	7	233	-	256	399	72	21	300
Athabasca Oil Corporation	100.0%	1.1%	6	**284**	6	236	-	256	1,512,145	14,009	15	307
Kasten Energy Inc.	99.2%	0.3%	6	**285**	-	251	6	203	8,514	707	89	267
Incipient Exploration Ltd.	99.7%	0.2%	5	**286**	-	251	5	205	1,635	1,790	74	273
IPC Alberta Ltd.	0.0%	-93.4%	5	**287**	-	251	5	206	171	5	60	276
Castlegate Energy Ltd.	2.2%	N/A	5	**288**	4	238	0	248	38	5	15	306
Outpost Energy Ltd.	0.0%	N/A	4	**289**	-	251	4	209	129	4	49	280
Pennine Petroleum Corporation	98.3%	0.0%	4	**290**	-	251	4	210	573	229	48	281
Norwegian Petroleum Inc.	93.0%	11.9%	4	**291**	-	251	4	211	254	55	48	282
Petrocapita GP I Ltd.	91.1%	-0.7%	4	**292**	-	251	4	212	4,345	39	44	285
Tri-Ment Corporation Ltd.	24.4%	-5.6%	3	**293**	-	251	3	213	18	5	43	286
545279 Alberta Limited	0.0%	0.0%	3	**294**	-	251	3	216	152	3	39	287
Loyal Energy (canada) Operating Ltd.	100.0%	N/A	3	**295**	-	251	3	218	3,251	9,780	36	288
Vanrena Resources Ltd.	44.9%	N/A	3	**296**	-	251	3	219	228	5	34	290
Triple 555 Oil Company Ltd.	99.7%	N/A	3	**297**	-	251	3	222	1,005	1,015	33	291
ZNX Energy Ltd.	99.9%	-0.1%	2	**298**	-	251	2	224	1,422	1,630	30	293

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Perisson Petroleum Corporation	0.0%	-81.1%	2	**299**	-	251	2	225	1,113	2	29	294
Dire Resources Ltd.	92.4%	-0.3%	2	**299**	-	251	2	225	705	30	29	294
Roswell Petroleum Corporation	0.0%	0.0%	2	**301**	-	251	2	231	508	2	23	297
The Locke Stock & Barrel Company Ltd.	0.0%	0.0%	2	**302**	-	251	2	232	467	2	21	299
Sahara Energy Ltd.	0.0%	0.0%	2	**303**	-	251	2	234	274	2	20	301
Band Energy Resources Ltd.	72.3%	42.3%	1	**304**	-	251	1	236	230	5	16	302
Scavenger Energy GP Inc.	65.7%	-25.9%	1	**305**	-	251	1	237	357	4	15	303
Tower Ridge Enterprises Corp.	94.6%	-1.7%	1	**305**	-	251	1	237	465	22	15	303
Questerre Energy Corporation	0.0%	0.0%	1	**305**	-	251	1	237	228	1	15	303
Vulture Energy Ltd.	91.8%	-3.7%	1	**308**	1	243	-	256	317	10	2	314
Eastnell Resources Ltd.	0.0%	0.0%	1	**308**	-	251	1	242	31	1	10	308
Birchill Canada Corp.	0.0%	N/A	1	**310**	-	251	1	243	67	1	9	309
Success Resources Ltd.	100.0%	0.0%	1	**311**	-	251	1	244	1,929	2,901	8	310
Hillsdale Drilling Ltd.	0.0%	0.0%	1	**312**	-	251	1	245	193	1	6	311
White Owl Energy Services Ltd.	99.1%	12.2%	0	**313**	0	245	-	256	262	33	1	319
PetroChina Canada Ltd.	100.0%	0.3%	0	**313**	0	245	-	256	485,448	4,539	1	320
Gunnarr Resources Inc.	98.8%	0.3%	0	**313**	-	251	0	247	842	24	4	312
Manitok Energy Inc.	0.0%	-99.8%	0	**316**	0	250	0	251	63	0	2	315
2155192 Alberta Ltd.	0.0%	N/A	0	**316**	-	251	0	248	56	0	3	313
Corinthian Oil Corp.	99.9%	0.0%	0	**318**	-	251	0	251	474	165	1	316
TWP50 Resources Ltd.	0.0%	0.0%	0	**318**	-	251	0	251	29	0	1	316
Morning Star Petroleum Incorporated	90.9%	N/A	0	**318**	-	251	0	251	865	1	1	316
Sojourn Energy Inc.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Sino-Western Petroleum Inc.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Koch Oil Sands Operating ULC	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Muddy Petroleum Company Ltd.	100.0%	23.1%	-	**321**	-	251	-	256	58	5	0	321
Cote Resources Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Harvard International Resources Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	881	2,367	0	321
Corse Energy Corp.	100.0%	0.0%	-	**321**	-	251	-	256	98	122	0	321
Andora Energy Corporation	0.0%	N/A	-	**321**	-	251	-	256	-	-	0	321
Long Lake Energy Ltd.	100.0%	7.6%	-	**321**	-	251	-	256	332	87	0	321
Ish Energy Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	35	294	0	321
Tri-Energy Resources Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	11	18	0	321
Hutton Energy Ltd.	0.0%	-100.0%	-	**321**	-	251	-	256	-	-	0	321
Wildcat Rentals Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	778	4	0	321
Canyon Oil & Gas Corporation	100.0%	0.0%	-	**321**	-	251	-	256	41	374	0	321
Rocky Layman Energy Inc.	0.0%	N/A	-	**321**	-	251	-	256	-	-	0	321
Sunshine Oilsands Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	98,723	313	0	321
Raimount Energy Corp.	0.0%	-95.1%	-	**321**	-	251	-	256	-	-	0	321
Crimson Oil & Gas Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	3,287	141	0	321
Logic Energy Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	8,423	5,972	0	321
Tallahassee Exploration Inc.	100.0%	7.9%	-	**321**	-	251	-	256	343	915	0	321
Alberta Petroleum Energy Limited	100.0%	58.9%	-	**321**	-	251	-	256	1,421	21	0	321

Company	Gas cons	Gas cons change	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)	GHG emissions (tCO_2e)	GHG emissions rank
Frontier Energy Inc.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Malak Energy Inc.	100.0%	0.0%	-	**321**	-	251	-	256	399	94	0	321
RKSmith Energy Corp.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Tayson Resources Inc.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Advantage Oil & Gas Ltd.	0.0%	-100.0%	-	**321**	-	251	-	256	-	-	0	321
Innes Oilfield Services Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	0	-	0	321
Border Petroleum Limited	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Northern Utilities (Sask.) Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	203	1	0	321
Ferrybank Resources Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	404	57	0	321
Canadian Oil & Gas International Inc.	0.0%	-97.8%	-	**321**	-	251	-	256	-	-	0	321
PetroFrontier Corp.	100.0%	0.0%	-	**321**	-	251	-	256	3,344	57	0	321
Seven Generations Energy Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	857	1,053	0	321
Petro Buyers Inc.	0.0%	-100.0%	-	**321**	-	251	-	256	-	-	0	321
Xenotime Energy Inc.	0.0%	N/A	-	**321**	-	251	-	256	10	-	0	321
Anterra Energy Inc.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Rampart Oil Inc.	100.0%	0.0%	-	**321**	-	251	-	256	144,370	11,833	0	321
Gibson Energy ULC	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Big Lake Energy Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
1852797 Alberta ULC	100.0%	0.3%	-	**321**	-	251	-	256	2,389	24	0	321
Komstar Resources Ltd.	100.0%	100.0%	-	**321**	-	251	-	256	127	2	0	321
Peyto Exploration & Development Corp.	100.0%	0.0%	-	**321**	-	251	-	256	250	390	0	321
Canstone Energy Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	-	490	0	321
Glencoe Resources Ltd.	0.0%	-100.0%	-	**321**	-	251	-	256	-	-	0	321
CNPC International (Canada) Ltd.	0.0%	N/A	-	**321**	-	251	-	256	17	-	0	321
Centennial Petroleum Company Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	233	1,129	0	321
Wescan Energy Corp.	100.0%	0.0%	-	**321**	-	251	-	256	4,038	1,516	0	321
Blue Star Energy Inc.	100.0%	0.5%	-	**321**	-	251	-	256	1,343	386	0	321
Rimfire Energy Inc.	100.0%	0.0%	-	**321**	-	251	-	256	921	1,290	0	321
Pocahontas Petroleum Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Crazy Hill Resources Ltd.	100.0%	30.6%	-	**321**	-	251	-	256	241	20	0	321
Kanati Energy Incorporated	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Westhill Resources Limited	0.0%	-81.7%	-	**321**	-	251	-	256	-	-	0	321
Mooncor Energy Inc.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Whitehall Energy Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	2,074	319	0	321
Zeal Energy Inc.	0.0%	-100.0%	-	**321**	-	251	-	256	-	-	0	321
Forden Energy Inc.	100.0%	N/A	-	**321**	-	251	-	256	4,454	680	0	321
Winslow Resources Inc.	100.0%	0.1%	-	**321**	-	251	-	256	1,341	4,281	0	321
Windtalker Energy Corp.	100.0%	0.0%	-	**321**	-	251	-	256	14,591	261	0	321
Mato Inc.	100.0%	0.0%	-	**321**	-	251	-	256	328	1,521	0	321
BlackPearl Resources Inc.	0.0%	-76.3%	-	**321**	-	251	-	256	-	-	0	321
Writers Oil & Gas Limited	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Silver Bay Resources Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Accurate Energy Solutions Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321

Company	Gas cons	Gas cons change	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)	GHG emissions (tCO_2e)	GHG emissions rank
Rush Energy Services Inc.	0.0%	N/A	-	**321**	-	251	-	256	-	-	0	321
Amherst Energy Inc.	100.0%	N/A	-	**321**	-	251	-	256	2,231	27	0	321
Enerstar Petroleum Corp.	100.0%	0.0%	-	**321**	-	251	-	256	1,374	18	0	321
ConocoPhillips Canada (BRC) Partnership	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
1506928 Alberta Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	406	13	0	321
(blank)	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Deckland Inc.	100.0%	0.6%	-	**321**	-	251	-	256	2,171	1,556	0	321
Regnum Energy Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	1,197	88	0	321
TimberRock Energy Corp.	100.0%	7.6%	-	**321**	-	251	-	256	60,496	52,398	0	321
Sarg Oils Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Grand Rapids Petroleum Ltd.	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Pieridae Alberta Production Ltd.	0.0%	N/A	-	**321**	-	251	-	256	6	-	0	321
Arrow Point Oil & Gas Ltd.	0.0%	-89.7%	-	**321**	-	251	-	256	-	-	0	321
Sequoia Resources Corp.	0.0%	-99.2%	-	**321**	-	251	-	256	-	-	0	321
Check Energy Ltd.	100.0%	10.3%	-	**321**	-	251	-	256	6,568	4	0	321
True North Oil & Gas Limited	0.0%	N/A	-	**321**	-	251	-	256	8	-	0	321
Prosper Petroleum Ltd.	100.0%	75.9%	-	**321**	-	251	-	256	3,082	121	0	321
Ener T Corporation	100.0%	0.0%	-	**321**	-	251	-	256	6,035	47	0	321
1288131 Alberta Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	665	307	0	321
Shale Petroleum Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	199	2,140	0	321
Questfire Energy Corp.	0.0%	-99.9%	-	**321**	-	251	-	256	-	-	0	321
Adanac Oil & Gas Limited	100.0%	0.0%	-	**321**	-	251	-	256	1,367	717	0	321
Pembina NGL Corporation	0.0%	0.0%	-	**321**	-	251	-	256	-	-	0	321
Corex Resources Ltd.	0.0%	N/A	-	**321**	-	251	-	256	-	-	0	321
979968 Alberta Ltd.	100.0%	0.0%	-	**321**	-	251	-	256	761	1,526	0	321
Provincial Totals	**97.7%**		**525,478**		**381,799**		**143,679**		**116,255,955**	**23,244,600**	**3,094,936**	

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Bonnyville Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Canadian Natural Resources Limited	94.0%	38,093	1	4,716	2	33,376	1	13,360,389	636,710
Cenovus Energy Inc.	97.7%	15,457	2	14,430	1	1,027	2	20,575,263	659,877
Imperial Oil Resources Limited	99.2%	3,431	3	3,169	3	262	7	8,197,745	441,177
Greenfire Hangingstone Operating Corporation	N/A	2,113	4	2,113	4	-	19	159,240	636
Harvest Operations Corp.	61.1%	1,035	5	989	5	46	10	444,140	2,661
West Lake Energy Corp.	75.9%	971	6	-	16	971	3	32,163	4,021
Osum Production Corp.	95.9%	961	7	961	6	-	19	1,088,056	23,288
MEG Energy Corp.	99.8%	871	8	870	7	2	18	4,955,274	411,451
Ipc Canada Ltd.	53.9%	578	9	-	16	578	4	29,503	1,254
Husky Oil Operations Limited	98.7%	569	10	555	8	14	13	1,376,989	43,648
Baytex Energy Ltd.	80.7%	480	11	-	16	480	5	63,808	2,481
ConocoPhillips Canada Resources Corp.	99.4%	419	12	373	9	46	10	7,264,704	66,680
Gear Energy Ltd.	80.2%	406	13	-	16	406	6	4,285	2,051
Pengrowth Energy Corporation	97.1%	305	14	303	10	2	17	1,033,550	10,346
CNOOC Petroleum North America ULC	99.3%	262	15	210	11	51	9	2,686,944	38,067
Connacher Oil And Gas Limited	99.0%	180	16	180	12	-	19	634,257	17,247
Spur Petroleum Ltd.	93.9%	81	17	0	15	81	8	20,658	1,339
Japan Canada Oil Sands Limited	99.8%	24	18	24	13	-	19	1,506,893	12,421
Bernum Petroleum Ltd.	99.7%	18	19	-	16	18	12	12,202	6,491
Devon Canada Corporation	56.4%	8	20	-	16	8	14	175	18
Kasten Energy Inc.	99.1%	6	21	-	16	6	15	7,849	579
Athabasca Oil Corporation	100.0%	5	22	5	14	-	19	1,019,282	13,024
Deltastream Energy Corporation	83.6%	2	23	-	16	2	16	4,470	15
Windtalker Energy Corp.	100.0%	-	24	-	16	-	19	14,591	261
PetroFrontier Corp.	100.0%	-	24	-	16	-	19	3,344	57
BlackPearl Resources Inc.	0.0%	-	24	-	16	-	19	-	-
Rife Resources Ltd.	0.0%	-	24	-	16	-	19	-	-
Check Energy Ltd.	100.0%	-	24	-	16	-	19	6,568	4
Caltex Resources Ltd.	0.0%	-	24	-	16	-	19	-	-
Totals for Bonnyville	**97.2%**	**66,272**		**28,897**		**37,375**		**64,502,340**	**2,395,803**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Drayton Valley Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Obsidian Energy Ltd.	98.1%	2,808	1	517	11	2,291	1	350,955	144,767
Whitecap Resources Inc.	98.1%	2,784	2	1,636	3	1,148	2	262,889	146,201
TORC Oil & Gas Ltd.	96.7%	2,725	3	2,121	1	604	5	89,035	81,354
Bonterra Energy Corp.	99.0%	2,292	4	2,048	2	244	13	387,802	237,074
Teine Energy Ltd.	34.3%	1,577	5	1,577	4	-	53	15,131	2,401
ARC Resources Ltd.	98.8%	1,525	6	820	8	706	4	441,546	129,026
Changhua Energy Canada Ltd.	0.0%	1,436	7	1,436	5	-	53	2,444	1,436
InPlay Oil Corp.	93.3%	1,314	8	583	9	731	3	52,211	19,728
Journey Energy Inc.	99.1%	1,123	9	575	10	548	7	52,754	130,415
Crescent Point Energy Corp.	83.6%	1,106	10	1,106	6	-	53	9,245	6,739
Baytex Energy Ltd.	96.1%	997	11	983	7	14	32	44,186	25,579
Ridgeback Resources Inc.	99.6%	942	12	352	16	591	6	281,433	213,440
Baccalieu Energy Inc.	98.7%	850	13	401	13	449	9	115,262	65,661
Sinopec Daylight Energy Ltd.	98.8%	825	14	390	14	435	10	183,313	69,192
Cenovus Energy Inc.	99.2%	715	15	263	18	452	8	41,668	85,883
Tamarack Acquisition Corp.	99.6%	623	16	312	17	311	12	85,292	175,451
TAQA North Ltd.	98.3%	598	17	442	12	156	14	14,612	36,007
Boulder Energy Ltd.	99.7%	489	18	375	15	115	17	156,847	184,856
Vermilion Energy Inc.	99.6%	452	19	107	27	345	11	164,553	105,538
AlphaBow Energy Ltd.	97.4%	366	20	246	19	120	15	3,144	13,901
New Star Energy Ltd.	99.7%	253	21	170	22	83	19	26,825	75,644
Shanpet Resources Ltd.	4.9%	228	22	228	20	-	53	135	240
Keyera Energy Ltd.	99.8%	220	23	219	21	2	46	29,830	94,799
Blackspur Oil Corp.	99.6%	139	24	139	23	-	53	35,161	33,244
SanLing Energy Ltd.	6.5%	138	25	137	24	1	51	981	147
Insch Commodity Ltd.	45.0%	137	26	133	25	3	40	2,129	249
Westbrick Energy Ltd.	99.8%	133	27	16	38	118	16	36,038	77,897
Bellatrix Exploration Ltd.	99.8%	120	28	93	28	28	24	10,104	61,368
Pulse Oil Operating Corp.	77.2%	113	29	113	26	-	53	3,586	496
Iberdrola Canada Energy Services Ltd.	99.9%	106	30	-	46	106	18	3,666	86,852
Sifton Petroleum Inc.	98.4%	101	31	21	36	79	20	26,908	6,426
Joli Fou Petroleums Ltd	26.0%	86	32	68	30	18	30	1,432	116

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Notine Holdings Inc.	87.0%	85	33	68	29	17	31	570	651
Tangle Creek Energy Ltd.	99.7%	78	34	-	46	78	21	9,258	23,333
Bonavista Energy Corporation	99.5%	68	35	-	46	68	22	7,475	14,751
Repsol Oil & Gas Canada Inc.	98.6%	60	36	57	31	3	42	3,216	4,217
Point Loma Resources Ltd.	99.0%	54	37	54	32	-	53	4,611	5,555
Briko Energy Corp.	99.2%	47	38	47	33	-	53	3,714	5,764
Clearview Resources Ltd.	99.4%	44	39	37	34	7	38	4,954	6,807
Gear Energy Ltd.	99.5%	33	40	-	46	33	23	6,410	6,812
Kaiser Exploration Ltd.	0.0%	30	41	30	35	-	53	18	30
Response Energy Corporation	91.5%	29	42	15	39	14	33	1,137	342
Long Run Exploration Ltd.	100.0%	26	43	0	45	26	25	6,485	76,654
Derrick Petroleum Ltd.	91.9%	24	44	-	46	24	26	535	293
Velvet Energy Ltd.	99.8%	24	45	-	46	24	27	3,988	15,268
Harvest Operations Corp.	99.5%	23	46	-	46	23	28	2,330	4,480
ORLEN Upstream Canada Ltd.	99.7%	22	47	-	46	22	29	2,648	8,542
97837 Resources Ltd.	6.9%	16	48	16	37	-	53	44	18
Wilcox Energy Corp.	67.0%	15	49	2	42	12	34	336	44
Canadian Natural Resources Limited	99.5%	12	50	-	46	12	35	10,177	2,435
Mancal Energy Inc.	99.9%	12	51	9	40	3	43	5,528	10,932
Eclipse Resources Ltd.	99.6%	10	52	3	41	6	39	7,720	2,444
HBC Energy Ltd.	0.0%	9	53	-	46	9	36	320	9
Paramount Resources Ltd.	99.4%	7	54	-	46	7	37	261	1,248
Perpetual Operating Corp.	99.9%	3	55	1	44	3	44	493	2,301
Gain Energy Ltd.	99.7%	3	56	-	46	3	41	1,774	886
XTO Energy Canada	98.4%	2	57	-	46	2	45	47	117
Tidewater Midstream and Infrastructure Ltd.	100.0%	1	58	1	43	-	53	4,711	79,773
Zargon Oil & Gas Ltd.	99.7%	1	59	-	46	1	47	1,250	279
Birchill Canada Corp.	0.0%	1	60	-	46	1	48	67	1
Signalta Resources Limited	100.0%	1	61	-	46	1	49	1,327	1,315
Pismo Energy Ltd.	100.0%	1	61	-	46	1	49	2,984	1,344
Tykewest Limited	95.0%	0	63	-	46	0	52	151	8
Incipient Exploration Ltd.	100.0%	-	64	-	46	-	53	600	1,785
Longshore Resources Ltd.	0.0%	-	64	-	46	-	53	-	-
DEL Canada GP Ltd.	100.0%	-	64	-	46	-	53	176	67
Arrow Point Oil & Gas Ltd.	0.0%	-	64	-	46	-	53	-	-

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
New North Resources Ltd.	0.0%	-	64	-	46	-	53	-	-
Husky Oil Operations Limited	100.0%	-	64	-	46	-	53	524	601
Crazy Hill Resources Ltd.	100.0%	-	64	-	46	-	53	241	20
Centennial Petroleum Company Ltd.	100.0%	-	64	-	46	-	53	233	1,129
Sino-Western Petroleum Inc.	0.0%	-	64	-	46	-	53	-	-
Tourmaline Oil Corp.	100.0%	-	64	-	46	-	53	2,953	10,688
Surge Energy Inc.	100.0%	-	64	-	46	-	53	4,121	879
ConocoPhillips Canada (BRC) Partnership	0.0%	-	64	-	46	-	53	-	-
Canlin Resources Partnership	100.0%	-	64	-	46	-	53	1,737	129
Procyon Energy Corp.	100.0%	-	64	-	46	-	53	670	488
Muddy Petroleum Company Ltd.	100.0%	-	64	-	46	-	53	58	5
Adanac Oil & Gas Limited	100.0%	-	64	-	46	-	53	1,367	717
Ish Energy Ltd.	100.0%	-	64	-	46	-	53	-	51
Tallahassee Exploration Inc.	100.0%	-	64	-	46	-	53	343	915
2214896 Alberta Ltd.	100.0%	-	64	-	46	-	53	1,788	1,090
Hitic Energy Ltd.	100.0%	-	64	-	46	-	53	12,472	7,745
Forden Energy Inc.	100.0%	-	64	-	46	-	53	59	0
Rife Resources Ltd.	100.0%	-	64	-	46	-	53	87	279
KinMerc Oil & Gas Inc.	100.0%	-	64	-	46	-	53	150	1
Pine Cliff Energy Ltd.	0.0%	-	64	-	46	-	53	-	-
Rimfire Energy Inc.	100.0%	-	64	-	46	-	53	340	997
Anterra Energy Inc.	0.0%	-	64	-	46	-	53	-	-
Petrus Resources Corp.	100.0%	-	64	-	46	-	53	21,552	38,770
Petro Buyers Inc.	0.0%	-	64	-	46	-	53	-	-
Totals for Drayton Valley	**98.9%**	**28,055**		**17,964**		**10,092**		**3,075,122**	**2,655,131**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Edmonton Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Murphy Oil Company Ltd.	73.0%	10,622	1	10,622	1	-	68	127,758	39,280
Crescent Point Energy Corp.	92.2%	5,101	2	4,927	2	174	9	241,684	65,135
Spur Petroleum Ltd.	21.9%	3,787	3	3,637	3	150	11	37,362	4,852
Halo Exploration Ltd.	14.8%	3,623	4	3,623	4	-	68	8,798	4,253
NEP Canada ULC	98.3%	3,040	5	3,040	5	-	68	452,967	178,394
Ridgeback Resources Inc.	96.6%	2,236	6	2,061	6	175	8	137,280	66,467
Axiom Oil and Gas Inc.	71.6%	1,875	7	1,848	7	27	33	6,852	6,612
Razor Energy Corp.	96.1%	1,834	8	1,310	12	524	4	127,143	47,181
N7 Energy Ltd.	0.0%	1,799	9	1,787	8	12	46	17,581	1,799
Journey Energy Inc.	89.5%	1,712	10	1,627	9	85	20	52,186	16,260
Acquisition Oil Corp.	59.5%	1,711	11	1,035	18	677	2	43,260	4,229
Baytex Energy Ltd.	86.7%	1,619	12	1,572	10	47	27	37,523	12,149
Canadian Natural Resources Limited	97.2%	1,536	13	1,447	11	89	19	204,840	54,718
Point Loma Resources Ltd.	5.0%	1,437	14	1,306	13	130	12	3,297	1,512
Aspenleaf Energy Limited	95.3%	1,324	15	1,289	14	36	30	243,385	27,960
InPlay Oil Corp.	0.0%	1,229	16	1,229	15	-	68	4,312	1,229
Tamarack Acquisition Corp.	86.5%	1,205	17	119	41	1,086	1	51,088	8,924
Outlier Resources Ltd.	93.3%	1,158	18	1,128	17	30	32	9,972	17,232
Enercapita Energy Ltd.	80.7%	1,151	19	1,151	16	-	68	8,297	5,953
Mancal Energy Inc.	82.7%	1,092	20	903	20	189	7	33,499	6,326
Paramount Resources Ltd.	99.5%	1,087	21	1,016	19	71	22	216,007	227,484
ORLEN Upstream Canada Ltd.	95.3%	763	22	758	21	6	52	16,688	16,298
Perpetual Operating Corp.	15.1%	610	23	31	52	579	3	2,569	719
Tangle Creek Energy Ltd.	99.0%	581	24	352	26	229	6	92,227	59,901
Coastal Resources Limited	7.1%	554	25	547	22	7	51	5,463	597
TORC Oil & Gas Ltd.	98.1%	536	26	475	24	61	24	80,047	28,245
Point Bar Resources Inc.	82.9%	516	27	516	23	-	68	21,178	3,016
Long Run Exploration Ltd.	98.9%	476	28	174	37	302	5	92,898	43,356
Canuck North Resources Ltd.	0.0%	470	29	470	25	-	68	789	470
Cenovus Energy Inc.	94.8%	411	30	289	30	122	14	46,488	7,874
Response Energy Corporation	82.2%	361	31	307	29	54	25	5,382	2,034
Novus Energy Inc.	12.5%	330	32	330	27	-	68	1,102	377

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
ACCEL Canada Holdings Limited	99.3%	320	33	228	32	92	18	207,041	47,938
Salt Bush Energy Ltd.	45.7%	318	34	318	28	-	68	870	586
Crestwynd Exploration Ltd.	72.3%	271	35	145	39	127	13	22,037	979
Ohana Resources Inc.	73.4%	252	36	228	33	24	37	11,049	947
Altura Energy Inc.	99.4%	233	37	233	31	-	68	69,484	37,998
Zargon Oil & Gas Ltd.	5.4%	219	38	212	34	7	50	1,387	231
Surge Energy Inc.	88.9%	202	39	202	35	-	68	8,651	1,818
Rifle Shot Oil Corp.	97.1%	184	40	28	54	155	10	54,342	6,371
Energy Express Canada Corp.	45.6%	176	41	174	36	3	55	4,586	324
C Group Energy Inc.	14.8%	160	42	160	38	-	68	5,489	188
2214896 Alberta Ltd.	98.7%	145	43	27	55	118	15	6,617	11,401
MAGA Energy Operations Ltd.	99.1%	140	44	140	40	-	68	30,200	16,476
Repsol Oil & Gas Canada Inc.	63.2%	113	45	103	42	10	48	1,247	307
Cardinal Energy Ltd.	0.0%	103	46	-	66	103	16	823	103
Petrus Resources Corp.	0.0%	101	47	101	43	-	68	2,041	101
Clearview Resources Ltd.	99.3%	95	48	-	66	95	17	18,276	12,890
Tykewest Limited	50.5%	77	49	-	66	77	21	446	154
Dark Energy Ltd.	47.8%	69	50	-	66	69	23	2,544	133
Highwood Oil Company Ltd.	40.1%	67	51	31	53	36	29	4,470	112
Beaver Lake Resources Corporation	0.0%	57	52	57	44	-	68	505	57
Bonterra Energy Corp.	87.8%	52	53	52	45	-	68	1,731	429
NVP Exploration Inc.	97.4%	50	54	48	46	2	58	2,968	1,973
AlphaBow Energy Ltd.	14.0%	47	55	-	66	47	26	378	55
West Lake Energy Corp.	85.0%	41	56	-	66	41	28	1,220	274
Enhance Energy Inc.	92.0%	41	57	41	47	-	68	6,228	510
Hitic Energy Ltd.	99.3%	41	58	41	48	-	68	19,746	6,079
HESC Energy Corporation	99.1%	39	59	39	49	-	68	5,086	4,226
Procyon Energy Corp.	73.5%	38	60	38	50	-	68	329	145
Harvest Operations Corp.	99.3%	37	61	37	51	-	68	7,302	5,289
Shackleton Exploration Ltd.	99.9%	32	62	-	66	32	31	31,641	41,588
ACCEL Energy Canada Limited	99.9%	29	63	6	63	23	39	120,682	49,645
Rolling Hills Energy Ltd.	53.9%	28	64	3	64	26	35	2,273	62
Enerplus Corporation	99.5%	26	65	-	66	26	34	9,684	5,055
NAL Resources Limited	98.9%	25	66	-	66	25	36	2,075	2,287
TAQA North Ltd.	99.6%	23	67	-	66	23	38	1,936	6,003

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Red Angus Energy Inc.	64.4%	23	68	-	66	23	40	365	64
Vesta Energy Ltd.	86.3%	22	69	22	56	0	64	265	158
New North Resources Ltd.	0.0%	21	70	-	66	21	41	516	21
Vermilion Energy Inc.	99.3%	19	71	-	66	19	42	9,283	2,814
Surat Energy Inc.	0.0%	19	72	16	58	3	54	432	19
Canlin Resources Partnership	99.4%	19	73	17	57	2	60	2,495	3,421
Primrose Drilling Ventures Ltd.	0.0%	19	74	-	66	19	43	330	19
Trident Exploration (Alberta) Corp.	97.2%	16	75	15	59	1	61	1,238	577
Sun Century Petroleum Corporation	65.3%	16	76	-	66	16	44	286	46
Ember Resources Inc.	92.2%	13	77	-	66	13	45	147	162
Delphi Energy Corp.	87.4%	12	78	12	60	-	68	482	97
XTO Energy Canada	99.7%	10	79	-	66	10	47	852	2,946
Shell Canada Energy	96.2%	10	80	-	66	10	48	1,107	253
Rally Canada Resources Ltd.	98.8%	8	81	8	61	-	68	9,513	644
Indra Oil & Gas Ltd.	0.0%	8	82	8	62	0	64	198	8
Norwegian Petroleum Inc.	93.0%	4	83	-	66	4	53	254	55
Dire Resources Ltd.	92.4%	2	84	-	66	2	56	705	30
Whitecap Resources Inc.	0.0%	2	85	-	66	2	57	821	2
Bonavista Energy Corporation	99.8%	2	86	-	66	2	58	238	970
Vulture Energy Ltd.	91.8%	1	87	1	65	-	68	317	10
Eastnell Resources Ltd.	0.0%	1	87	-	66	1	62	31	1
Hillsdale Drilling Ltd.	0.0%	1	89	-	66	1	63	193	1
Morning Star Petroleum Incorporated	90.9%	0	90	-	66	0	64	865	1
TWP50 Resources Ltd.	0.0%	0	90	-	66	0	64	29	0
Forden Energy Inc.	100.0%	-	92	-	66	-	68	48	475
Forge Oil & Gas Limited	100.0%	-	92	-	66	-	68	800	1,195
Inception Exploration Ltd.	100.0%	-	92	-	66	-	68	321	1,168
Malak Energy Inc.	100.0%	-	92	-	66	-	68	399	94
Tidewater Midstream and Infrastructure Ltd.	0.0%	-	92	-	66	-	68	-	-
SanLing Energy Ltd.	0.0%	-	92	-	66	-	68	-	-
Obsidian Energy Ltd.	0.0%	-	92	-	66	-	68	-	-
Sino-Western Petroleum Inc.	0.0%	-	92	-	66	-	68	-	-
Ish Energy Ltd.	100.0%	-	92	-	66	-	68	35	243
Sinopec Daylight Energy Ltd.	0.0%	-	92	-	66	-	68	-	-
Kelt Exploration Ltd.	0.0%	-	92	-	66	-	68	-	-

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Dark Warrior Resources Ltd.	0.0%	-	92	-	66	-	68	-	-
Longshore Resources Ltd.	0.0%	-	92	-	66	-	68	-	-
Tyrannex Energy Ltd.	0.0%	-	92	-	66	-	68	-	-
Border Petroleum Limited	0.0%	-	92	-	66	-	68	-	-
Husky Oil Operations Limited	100.0%	-	92	-	66	-	68	722	3,416
Gear Energy Ltd.	0.0%	-	92	-	66	-	68	-	-
KinMerc Oil & Gas Inc.	100.0%	-	92	-	66	-	68	1,972	7
Corex Resources Ltd.	0.0%	-	92	-	66	-	68	-	-
G. Herman Group Inc.	100.0%	-	92	-	66	-	68	10	78
Westhill Resources Limited	0.0%	-	92	-	66	-	68	-	-
Velvet Energy Ltd.	0.0%	-	92	-	66	-	68	-	-
Totals for Edmonton	**95.2%**	**59,881**		**53,716**		**6,166**		**3,130,564**	**1,242,552**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Fort McMurray Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Husky Oil Operations Limited	94.6%	608	1	411	1	196	2	2,863,451	11,151
Canadian Natural Resources Limited	96.9%	344	2	-	5	344	1	152,933	11,215
Suncor Energy Inc.	99.5%	165	3	146	2	19	3	12,544,862	35,006
Athabasca Oil Corporation	100.0%	0	4	0	3	-	4	492,863	986
PetroChina Canada Ltd.	100.0%	0	4	0	3	-	4	485,448	4,539
Sunshine Oilsands Ltd.	100.0%	-	6	-	5	-	4	98,723	313
Totals for Fort McMurray	**98.2%**	**1,117**		**558**		**559**		**16,638,280**	**63,210**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Grande Prairie Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Velvet Energy Ltd.	98.1%	12,546	1	12,477	1	69	23	382,223	669,413
Modern Resources Inc.	92.2%	7,506	2	6,636	2	870	3	138,147	95,976
Canadian Natural Resources Limited	99.5%	6,993	3	6,242	3	751	4	1,243,282	1,381,485
Hammerhead Resources Inc.	99.7%	3,792	4	3,744	4	49	25	468,922	1,175,698
Rising Star Resources Ltd.	96.0%	3,406	5	3,400	5	6	51	104,322	84,759
Cabot Energy Inc.	0.3%	3,196	6	3,196	6	-	65	26,555	3,206
Whitecap Resources Inc.	98.6%	2,844	7	2,820	7	24	35	327,369	204,674
Anegada Oil Corp.	98.2%	2,451	8	2,014	9	437	6	270,708	137,237
Surge Energy Inc.	98.8%	2,194	9	2,157	8	38	27	145,528	179,153
TAQA North Ltd.	98.2%	2,176	10	1,174	18	1,002	2	133,951	122,801
Insignia Energy Ltd.	98.1%	1,988	11	1,703	11	285	8	109,411	103,720
Ovintiv Canada ULC	97.2%	1,821	12	1,804	10	17	38	55,422	64,198
Executive Adventures 2008 Inc.	15.4%	1,668	13	1,641	12	27	33	6,635	1,972
Paramount Resources Ltd.	97.7%	1,499	14	1,482	13	17	37	49,093	65,283
Enercapita Energy Ltd.	98.7%	1,434	15	1,198	17	237	9	197,470	107,803
Kelt Exploration Ltd.	99.6%	1,361	16	1,324	14	37	28	254,993	366,781
Mancal Energy Inc.	97.5%	1,309	17	1,236	16	73	22	79,768	51,709
Tourmaline Oil Corp.	99.8%	1,289	18	1,289	15	-	65	533,678	850,700
Grizzly Resources Ltd.	0.0%	1,223	19	-	76	1,223	1	51,113	1,223
Gain Energy Ltd.	98.8%	1,217	20	1,012	23	205	11	66,367	105,246
Longshore Resources Ltd.	98.9%	1,123	21	1,026	22	97	16	137,071	106,365
Flow-Back Oil & Gas Ltd.	18.0%	1,115	22	1,115	19	-	65	526	1,359
Long Run Exploration Ltd.	98.4%	1,092	23	1,068	20	25	34	107,516	69,628
Birchcliff Energy Ltd.	99.9%	1,028	24	1,028	21	-	65	247,943	778,907
Cenovus Energy Inc.	98.6%	1,001	25	574	29	427	7	56,052	70,060
SanLing Energy Ltd.	19.6%	870	26	724	27	147	13	4,837	1,082
Briko Energy Corp.	2.7%	867	27	867	24	-	65	843	891
NuVista Energy Ltd.	78.5%	823	28	823	25	-	65	5,555	3,826
Drakkar Energy Ltd.	67.8%	790	29	790	26	-	65	3,328	2,452
Husky Oil Operations Limited	99.9%	773	30	649	28	124	14	332,094	1,246,341
Tyrannex Energy Ltd.	76.8%	649	31	212	43	437	5	25,652	2,795
Canamax Energy Ltd.	98.2%	598	32	508	31	90	18	115,236	33,546

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Acquisition Oil Corp.	95.4%	562	33	555	30	7	49	54,408	12,244
N7 Energy Ltd.	0.0%	455	34	445	32	10	45	4,247	455
Strath Resources Ltd.	99.1%	437	35	220	42	217	10	27,217	50,995
Prospera Energy Inc.	15.5%	429	36	429	33	-	65	355	508
Strategic Oil & Gas Ltd.	98.4%	415	37	372	34	43	26	55,101	25,903
ARC Resources Ltd.	99.9%	377	38	189	47	188	12	335,363	489,437
Nine Ring Energy Development Inc.	2.1%	356	39	356	35	-	65	134	364
Glenogle Energy Inc.	99.7%	344	40	344	36	-	65	37,512	98,817
Shield Energy Ltd.	98.4%	296	41	197	45	99	15	26,357	18,006
Jupiter Resources Inc.	99.6%	291	42	284	37	6	50	33,428	80,891
Blackch Canada Ulc	0.0%	284	43	280	38	3	56	1,268	284
Goldenkey Oil Inc.	0.0%	267	44	267	39	-	65	2,529	267
Cequence Energy Ltd.	99.6%	262	45	227	41	36	29	49,815	61,546
Tykewest Limited	66.9%	238	46	230	40	8	46	3,289	720
Harvest Operations Corp.	99.3%	206	47	132	50	74	21	67,966	28,447
Tangle Creek Energy Ltd.	99.6%	202	48	202	44	-	65	54,179	46,179
Knowledge Energy Inc.	34.7%	194	49	194	46	-	65	521	297
Tidewater Midstream and Infrastructure Ltd.	97.7%	164	50	83	52	81	19	37,320	7,205
Cardinal Energy Ltd.	99.7%	156	51	66	53	90	17	52,831	53,519
Clampett Energy Ltd.	32.4%	144	52	66	54	79	20	1,850	214
Sinopec Daylight Energy Ltd.	99.1%	143	53	139	49	4	54	8,343	16,446
Direct Oil & Gas Inc.	97.4%	140	54	140	48	-	65	9,713	5,359
ORLEN Upstream Canada Ltd.	83.4%	102	55	94	51	8	48	4,781	614
Ribbon Creek Resources Inc.	97.2%	70	56	50	55	20	36	2,658	2,481
NAL Resources Limited	99.9%	68	57	-	76	68	24	50,321	101,031
Mojek Resources Inc.	91.6%	66	58	38	59	28	32	2,343	786
Inception Exploration Ltd.	99.9%	47	59	47	56	1	64	36,762	51,544
Enerplus Corporation	99.9%	45	60	45	57	-	65	54,895	39,888
Hitic Energy Ltd.	99.3%	42	61	42	58	-	65	26,756	5,614
ACCEL Canada Holdings Limited	95.4%	35	62	2	70	32	30	3,600	754
XTO Energy Canada	99.3%	31	63	-	76	31	31	7,486	4,385
Goose Creek Resources Ltd.	51.7%	28	64	28	60	-	65	75	58
Gmt Exploration Zama Inc.	0.0%	23	65	23	61	-	65	138	23
Venturion Oil Limited	98.2%	23	66	23	62	-	65	22,551	1,225
Eagle Energy Inc.	99.3%	16	67	8	65	8	47	89,513	2,287

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Panam Energy Services Ltd.	22.0%	16	68	16	63	-	65	17	21
Barnwell of Canada Limited	92.6%	16	69	4	69	12	42	681	213
Red Angus Energy Inc.	69.9%	15	70	-	76	15	39	389	50
Bering Exploration Company ULC	90.7%	15	71	-	76	15	40	2,768	159
Kicking Horse Oil & Gas Ltd.	99.9%	12	72	-	76	12	41	1,542	11,742
Tallahassee Resources Inc.	0.0%	12	73	-	76	12	43	336	12
BDJ Energy Inc.	99.7%	12	74	-	76	12	44	9,060	4,280
Firenze Energy Ltd.	95.8%	11	75	10	64	1	63	2,991	267
Summerland Energy Inc.	99.7%	10	76	5	68	5	53	3,158	2,773
Kam's Sand Coating Ltd.	0.0%	8	77	8	66	-	65	127	8
Sutton Energy Ltd.	90.0%	7	78	7	67	-	65	399	72
Vantage Point Resources Inc.	95.9%	6	79	-	76	6	52	3,549	145
Outpost Energy Ltd.	0.0%	4	80	-	76	4	55	129	4
Murphy Oil Company Ltd.	99.5%	2	81	-	76	2	57	1,467	462
Huron Resources Corp.	0.0%	1	82	1	71	-	65	3	1
DEL Canada GP Ltd.	100.0%	1	82	-	76	1	58	4,302	4,435
Taku Gas Limited	0.0%	1	84	-	76	1	59	799	1
Scavenger Energy GP Inc.	65.7%	1	84	-	76	1	59	357	4
Point Loma Resources Ltd.	99.7%	1	86	-	76	1	61	485	362
Clearview Resources Ltd.	0.0%	1	87	-	76	1	62	159	1
Shell Canada Energy	100.0%	1	88	1	72	-	65	7,107	16,723
White Owl Energy Services Ltd.	99.1%	0	89	0	73	-	65	262	33
Procyon Energy Corp.	0.0%	0	90	0	74	-	65	9	0
Halo Exploration Ltd.	0.0%	0	91	0	75	-	65	91	0
Delphi Energy Corp.	100.0%	-	92	-	76	-	65	-	51
Baytex Energy Ltd.	100.0%	-	92	-	76	-	65	4,183	1,418
Ridgeback Resources Inc.	0.0%	-	92	-	76	-	65	-	-
Manitok Energy Inc.	0.0%	-	92	-	76	-	65	-	-
Advantage Oil & Gas Ltd.	0.0%	-	92	-	76	-	65	-	-
Seven Generations Energy Ltd.	100.0%	-	92	-	76	-	65	857	1,053
Rimfire Energy Inc.	100.0%	-	92	-	76	-	65	581	293
Peyto Exploration & Development Corp.	100.0%	-	92	-	76	-	65	250	390
Hutton Energy Ltd.	0.0%	-	92	-	76	-	65	-	-
Winslow Resources Inc.	100.0%	-	92	-	76	-	65	1,341	4,281
Topanga Resources Ltd.	0.0%	-	92	-	76	-	65	-	-

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Raimount Energy Corp.	0.0%	-	92	-	76	-	65	-	-
Sequoia Resources Corp.	0.0%	-	92	-	76	-	65	-	-
Novus Energy Inc.	0.0%	-	92	-	76	-	65	-	-
Rocky Layman Energy Inc.	0.0%	-	92	-	76	-	65	-	-
Response Energy Corporation	100.0%	-	92	-	76	-	65	453	760
AlphaBow Energy Ltd.	100.0%	-	92	-	76	-	65	664	183
Obsidian Energy Ltd.	0.0%	-	92	-	76	-	65	-	-
Totals for Grande Prairie	**99.1%**	**79,753**		**71,800**		**7,954**		**6,895,742**	**9,349,277**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Medicine Hat Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
North 40 Resources Ltd.	88.1%	10,750	1	10,042	1	709	5	105,765	90,149
Canadian Natural Resources Limited	97.5%	4,184	2	3,306	2	878	4	842,923	164,829
Torxen Energy Ltd.	99.2%	3,700	3	1,122	12	2,578	1	941,688	442,709
Granite Oil Corp.	97.6%	3,269	4	3,269	3	-	53	89,288	138,647
Cardinal Energy Ltd.	95.3%	3,032	5	2,051	4	981	3	241,855	64,601
Ipc Canada Ltd.	92.7%	2,461	6	1,375	10	1,086	2	376,384	33,868
Rockeast Energy Corp.	0.0%	2,044	7	2,044	5	-	53	4,949	2,044
Gryphon Petroleum Corp.	0.0%	1,932	8	1,932	6	-	53	18,743	1,932
SanLing Energy Ltd.	86.9%	1,716	9	1,664	7	52	14	37,349	13,129
Cor4 Oil Corp.	95.9%	1,624	10	1,557	9	67	13	192,843	39,998
TORC Oil & Gas Ltd.	0.0%	1,577	11	1,577	8	-	53	11,412	1,577
Tamarack Acquisition Corp.	90.0%	1,543	12	1,205	11	338	7	72,957	15,474
Barrel Oil Corp.	33.2%	1,191	13	1,117	13	74	12	12,959	1,782
Blackspur Oil Corp.	97.6%	1,112	14	1,103	14	8	30	98,588	47,226
Vantage Point Resources Inc.	21.7%	973	15	973	15	-	53	13,500	1,242
Hemisphere Energy Corporation	86.9%	879	16	879	16	-	53	92,890	6,689
Razor Energy Corp.	79.9%	874	17	856	18	19	21	12,882	4,340
Ascensun Oil and Gas Ltd.	13.4%	869	18	869	17	-	53	11,439	1,004
Apogee Petroleum Inc.	73.6%	848	19	835	19	13	27	4,635	3,213
Journey Energy Inc.	99.0%	627	20	262	25	365	6	105,695	60,210
Baytex Energy Ltd.	98.6%	507	21	385	20	122	10	41,948	35,974
Prairie Provident Resources Canada Ltd.	99.0%	507	22	355	22	152	9	88,766	51,947
Crescent Point Energy Corp.	10.0%	385	23	384	21	2	42	3,973	428
City Of Medicine Hat	51.0%	317	24	16	39	300	8	7,450	646
TAQA North Ltd.	94.0%	311	25	307	23	4	35	40,525	5,194
New North Resources Ltd.	15.3%	286	26	286	24	-	53	3,345	337
Obsidian Energy Ltd.	98.0%	225	27	113	32	112	11	18,851	11,357
Traverse Energy Ltd.	95.9%	194	28	161	26	33	17	6,441	4,702
ARC Resources Ltd.	0.0%	183	29	138	28	45	15	7,710	183
Avalon Energy Ltd.	52.8%	147	30	146	27	2	42	5,052	313
Lance Exploration Corp.	23.0%	134	31	134	29	-	53	1,092	174
Zargon Oil & Gas Ltd.	78.7%	132	32	132	30	-	53	17,501	622

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Persist Oil And Gas Inc.	6.7%	119	33	118	31	1	49	1,456	127
Convega Energy Ltd.	75.0%	118	34	111	33	7	31	2,326	473
SILVERLEAF RESOURCES INC.	41.6%	99	35	89	34	10	29	2,633	169
Relentless Resources Ltd.	93.4%	76	36	76	35	-	53	2,373	1,150
Taber Water Disposal Inc.	56.0%	49	37	42	36	7	32	3,438	110
Houston Oil & Gas Ltd.	32.7%	43	38	22	38	21	19	450	64
Enerplus Corporation	99.4%	37	39	0	44	37	16	201,356	5,790
Venturion Oil Limited	90.7%	36	40	36	37	-	53	600	391
Broadview Energy Ltd.	94.7%	26	41	-	46	26	18	1,638	483
Point Loma Resources Ltd.	0.0%	20	42	-	46	20	20	763	20
Corval Energy Ltd.	99.2%	18	43	-	46	18	22	2,221	2,214
Novus Energy Inc.	63.8%	17	44	16	40	1	46	499	48
Sandpoint Resources Inc.	0.0%	17	45	-	46	17	23	1,407	17
935821 Alberta Ltd.	0.0%	16	46	-	46	16	24	1,193	16
Edalis Energy Inc.	34.7%	14	47	-	46	14	25	549	21
Strategic Oil & Gas Ltd.	75.0%	14	48	14	41	-	53	226	55
Thoroughbred Energy Ltd.	91.7%	13	49	0	43	13	26	1,981	161
Signalta Resources Limited	97.7%	12	50	-	46	12	28	784	516
Indra Oil & Gas Ltd.	0.0%	8	51	6	42	2	41	368	8
Ridal Resource Ltd.	0.0%	7	52	-	46	7	33	62	7
IPC Alberta Ltd.	0.0%	5	53	-	46	5	34	171	5
Aeneid Exploration Inc.	0.0%	3	54	-	46	3	36	274	3
Vanrena Resources Ltd.	44.9%	3	55	-	46	3	37	228	5
Triple 555 Oil Company Ltd.	99.7%	3	56	-	46	3	38	1,005	1,015
Enercapita Energy Ltd.	0.0%	2	57	-	46	2	39	495	2
Harvest Operations Corp.	100.0%	2	58	-	46	2	40	56,595	5,163
AlphaBow Energy Ltd.	99.0%	2	59	-	46	2	44	1,372	152
Band Energy Resources Ltd.	72.3%	1	60	-	46	1	45	230	5
Questerre Energy Corporation	0.0%	1	61	-	46	1	46	228	1
Tower Ridge Enterprises Corp.	94.6%	1	61	-	46	1	46	465	22
Success Resources Ltd.	100.0%	1	63	-	46	1	50	1,929	2,901
2155192 Alberta Ltd.	0.0%	0	64	-	46	0	51	56	0
Manitok Energy Inc.	0.0%	0	65	0	44	-	53	52	0
Corinthian Oil Corp.	99.9%	0	65	-	46	0	52	474	165
Deckland Inc.	100.0%	-	67	-	46	-	53	2,171	1,556

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Tykewest Limited	0.0%	-	67	-	46	-	53	0	-
Sarg Oils Ltd.	0.0%	-	67	-	46	-	53	-	-
Regnum Energy Ltd.	100.0%	-	67	-	46	-	53	1,197	88
Komstar Resources Ltd.	100.0%	-	67	-	46	-	53	127	2
Canlin Resources Partnership	0.0%	-	67	-	46	-	53	-	-
1288131 Alberta Ltd.	100.0%	-	67	-	46	-	53	665	307
Frontier Energy Inc.	0.0%	-	67	-	46	-	53	-	-
Enerstar Petroleum Corp.	100.0%	-	67	-	46	-	53	1,374	18
Canadian Oil & Gas International Inc.	0.0%	-	67	-	46	-	53	-	-
Silver Bay Resources Ltd.	0.0%	-	67	-	46	-	53	-	-
1506928 Alberta Ltd.	100.0%	-	67	-	46	-	53	406	13
Sun Century Petroleum Corporation	0.0%	-	67	-	46	-	53	-	-
Alberta Petroleum Energy Limited	100.0%	-	67	-	46	-	53	1,421	21
Tayson Resources Inc.	0.0%	-	67	-	46	-	53	-	-
Anterra Energy Inc.	0.0%	-	67	-	46	-	53	-	-
Incipient Exploration Ltd.	0.0%	-	67	-	46	-	53	-	-
Bonavista Energy Corporation	100.0%	-	67	-	46	-	53	276	128
Tallahassee Exploration Inc.	0.0%	-	67	-	46	-	53	-	-
G. Herman Group Inc.	0.0%	-	67	-	46	-	53	-	-
Ridgeback Resources Inc.	0.0%	-	67	-	46	-	53	-	-
Writers Oil & Gas Limited	0.0%	-	67	-	46	-	53	-	-
Petrocapita GP I Ltd.	0.0%	-	67	-	46	-	53	-	-
XTO Energy Canada	0.0%	-	67	-	46	-	53	-	-
Totals for Medicine Hat	**96.1%**	**49,311**		**41,123**		**8,188**		**3,828,929**	**1,269,946**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Midnapore Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
North 40 Resources Ltd.	37.2%	4,067	1	3,881	1	186	4	28,168	6,475
Torxen Energy Ltd.	99.2%	1,773	2	825	7	948	1	272,663	225,921
Tamarack Acquisition Corp.	65.6%	1,665	3	1,586	3	79	11	7,178	4,843
Bearspaw Petroleum Ltd.	14.4%	1,619	4	1,618	2	1	48	7,428	1,892
ORLEN Upstream Canada Ltd.	84.3%	1,238	5	1,233	4	5	37	2,959	7,908
SanLing Energy Ltd.	80.9%	953	6	915	5	38	20	12,077	4,992
Razor Energy Corp.	42.5%	840	7	840	6	-	52	9,782	1,462
Cuda Energy Inc.	0.0%	809	8	809	8	-	52	713	809
TORC Oil & Gas Ltd.	6.4%	741	9	735	9	6	36	3,135	792
Canadian Natural Resources Limited	98.7%	713	10	277	14	435	2	68,721	54,491
Crescent Point Energy Corp.	97.4%	698	11	645	11	53	14	94,900	26,843
Tempus Energy Ltd.	65.5%	684	12	684	10	-	52	2,506	1,982
Whitecap Resources Inc.	0.0%	414	13	414	12	-	52	2,118	414
Surge Energy Inc.	0.3%	310	14	310	13	-	52	1,081	311
NAL Resources Limited	99.8%	278	15	243	15	35	22	109,363	111,447
Signalta Resources Limited	49.3%	254	16	109	20	144	6	4,269	500
Ridgeback Resources Inc.	2.7%	239	17	230	16	9	30	565	245
Danzig Resources Ltd.	29.2%	220	18	176	18	44	17	938	311
Prairie Provident Resources Canada Ltd.	99.3%	209	19	55	24	153	5	31,134	30,063
Journey Energy Inc.	99.0%	199	20	92	22	107	9	10,912	20,850
Thoroughbred Energy Ltd.	10.3%	186	21	-	41	186	3	3,136	208
Red Angus Energy Inc.	30.2%	183	22	180	17	3	38	798	262
Sphere Energy Corp.	93.7%	141	23	18	31	123	7	3,400	2,241
SILVERLEAF RESOURCES INC.	35.9%	136	24	128	19	8	32	1,365	212
Husky Oil Operations Limited	99.8%	121	25	86	23	35	21	67,346	66,951
TAQA North Ltd.	99.6%	111	26	3	36	108	8	37,059	27,270
Ridal Resource Ltd.	36.5%	97	27	-	41	97	10	1,000	152
Huron Resources Corp.	0.0%	93	28	93	21	-	52	31	93
Edalis Energy Inc.	89.0%	72	29	-	41	72	12	1,293	657
Traverse Energy Ltd.	98.6%	69	30	46	25	22	25	3,726	4,727
Corval Energy Ltd.	86.4%	65	31	34	28	32	23	2,379	480
Westdrum Energy Ltd.	53.2%	58	32	-	41	58	13	223	125

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Silver Blaze Energy Ltd.	71.3%	51	33	-	41	51	15	270	179
Avalon Energy Ltd.	33.6%	51	34	-	41	51	16	111	77
Houston Oil & Gas Ltd.	98.0%	41	35	-	41	41	18	1,755	2,015
Bonavista Energy Corporation	99.8%	40	36	-	41	40	19	19,107	26,106
Long Term Asset Management Inc.	98.4%	40	37	33	29	6	34	1,937	2,505
Zargon Oil & Gas Ltd.	99.4%	39	38	39	26	-	52	28,216	6,138
Bernum Petroleum Ltd.	51.0%	35	39	35	27	-	52	98	72
Wolf Coulee Resources Inc.	99.2%	28	40	26	30	2	46	3,155	3,309
Wilcox Energy Corp.	50.3%	27	41	2	37	25	24	736	54
Hard Rock Resources Ltd.	55.2%	22	42	-	41	22	26	552	49
Black Crane Energy Corp.	95.7%	19	43	-	41	19	27	2,347	444
Persist Oil And Gas Inc.	99.9%	17	44	16	32	1	49	22,637	31,330
Cardinal Energy Ltd.	99.5%	14	45	1	39	13	28	3,087	2,728
Spur Petroleum Ltd.	99.3%	11	46	8	33	3	41	3,311	1,534
Lynx Energy ULC	99.8%	10	47	-	41	10	29	8,183	4,854
Ovintiv Canada ULC	99.1%	8	48	-	41	8	31	275	985
Baytex Energy Ltd.	99.6%	8	49	8	34	-	52	5,996	1,904
Firenze Energy Ltd.	99.4%	7	50	1	38	6	35	26,606	1,257
Harvest Operations Corp.	99.7%	7	51	-	41	7	33	1,859	2,312
Indra Oil & Gas Ltd.	0.0%	6	52	6	35	0	50	496	6
545279 Alberta Limited	0.0%	3	53	-	41	3	39	152	3
Loyal Energy (canada) Operating Ltd.	98.9%	3	54	-	41	3	40	76	265
Jast Energy Ltd.	88.4%	3	55	-	41	3	41	247	23
AlphaBow Energy Ltd.	100.0%	3	55	1	40	2	43	1,363	22,136
Coastal Resources Limited	99.8%	2	57	-	41	2	44	666	1,285
The Locke Stock & Barrel Company Ltd.	0.0%	2	58	-	41	2	45	467	2
Ember Resources Inc.	99.2%	2	59	-	41	2	46	264	210
Gunnarr Resources Inc.	0.0%	0	60	-	41	0	51	204	0
Pine Cliff Energy Ltd.	100.0%	-	61	-	41	-	52	113	526
New North Resources Ltd.	100.0%	-	61	-	41	-	52	605	374
Tri-Energy Resources Ltd.	100.0%	-	61	-	41	-	52	11	18
Anterra Energy Inc.	0.0%	-	61	-	41	-	52	-	-
Shanpet Resources Ltd.	0.0%	-	61	-	41	-	52	676	-
Rampart Oil Inc.	100.0%	-	61	-	41	-	52	144,370	11,833
Trident Exploration (Alberta) Corp.	100.0%	-	61	-	41	-	52	57	143

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
XTO Energy Canada	0.0%	-	61	-	41	-	52	-	-
Blackspur Oil Corp.	100.0%	-	61	-	41	-	52	1,203	1,972
Response Energy Corporation	0.0%	-	61	-	41	-	52	1	-
Pulse Oil Operating Corp.	0.0%	-	61	-	41	-	52	18	-
TimberRock Energy Corp.	100.0%	-	61	-	41	-	52	237	4
Kaiser Exploration Ltd.	0.0%	-	61	-	41	-	52	-	-
Goldenkey Oil Inc.	0.0%	-	61	-	41	-	52	-	-
Pembina NGL Corporation	0.0%	-	61	-	41	-	52	-	-
979968 Alberta Ltd.	100.0%	-	61	-	41	-	52	761	1,526
ConocoPhillips Canada (BRC) Partnership	0.0%	-	61	-	41	-	52	-	-
Harvard International Resources Ltd.	100.0%	-	61	-	41	-	52	881	2,367
Manitok Energy Inc.	0.0%	-	61	-	41	-	52	-	-
Rockeast Energy Corp.	100.0%	-	61	-	41	-	52	104	13
Pocahontas Petroleum Ltd.	0.0%	-	61	-	41	-	52	-	-
TransGlobe Energy Corporation	100.0%	-	61	-	41	-	52	2,003	1,202
Enerplus Corporation	0.0%	-	61	-	41	-	52	-	-
Logic Energy Ltd.	100.0%	-	61	-	41	-	52	5,034	5,612
Topanga Resources Ltd.	0.0%	-	61	-	41	-	52	-	-
Totals for Midnapore	**97.3%**	**19,750**		**16,440**		**3,309**		**1,082,607**	**743,296**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Red Deer Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Enhance Energy Inc.	68.7%	4,454	1	4,454	1	-	84	56,248	14,245
Surge Energy Inc.	75.8%	3,103	2	2,905	2	198	13	12,158	12,845
Bearspaw Petroleum Ltd.	35.8%	2,888	3	2,885	3	3	68	31,549	4,497
Yangarra Resources Corp.	99.6%	1,985	4	456	18	1,529	1	241,034	498,067
InPlay Oil Corp.	97.6%	1,784	5	1,122	10	661	3	77,342	74,024
Crescent Point Energy Corp.	68.0%	1,693	6	1,569	4	124	23	15,562	5,291
Paramount Resources Ltd.	98.1%	1,525	7	1,459	5	66	32	31,511	81,981
ORLEN Upstream Canada Ltd.	99.3%	1,447	8	1,367	6	80	28	91,639	205,687
Chronos Resources Ltd.	14.9%	1,358	9	1,345	7	14	52	11,360	1,595
DEL Canada GP Ltd.	81.7%	1,284	10	1,170	8	114	25	22,911	7,014
Artis Exploration Ltd.	97.6%	1,203	11	1,120	11	83	27	314,969	49,626
Whitecap Resources Inc.	99.5%	1,203	12	1,144	9	58	36	226,675	241,998
NAL Resources Limited	99.7%	1,178	13	683	16	495	6	232,751	377,586
Canadian Natural Resources Limited	99.3%	1,173	14	1,046	12	127	21	128,005	163,763
Cenovus Energy Inc.	99.2%	1,034	15	865	14	170	15	118,411	131,250
Canlin Resources Partnership	96.2%	985	16	981	13	4	67	80,650	25,575
Entrada Resources Inc.	98.8%	841	17	1	64	840	2	78,188	71,124
Huron Resources Corp.	94.1%	818	18	818	15	-	84	36,443	13,835
TAQA North Ltd.	99.4%	673	19	131	34	542	4	66,106	105,311
Tamarack Acquisition Corp.	99.1%	673	20	159	29	514	5	105,503	72,206
Grandview Exploration Inc.	45.0%	472	21	464	17	8	57	7,434	858
Baccalieu Energy Inc.	99.3%	423	22	276	22	147	16	34,504	61,556
Relentless Resources Ltd.	62.9%	410	23	410	19	-	84	1,176	1,105
Certus Oil And Gas Inc.	96.3%	393	24	374	21	19	50	20,166	10,521
High Point Oil Inc.	0.0%	386	25	385	20	1	76	3,539	386
AlphaBow Energy Ltd.	99.8%	383	26	50	48	333	8	39,384	234,748
Signalta Resources Limited	76.5%	379	27	170	26	208	12	3,006	1,611
HESC Energy Corporation	22.8%	370	28	-	67	370	7	804	479
Prairie Storm Energy Corp.	99.6%	337	29	40	50	297	9	52,641	74,936
Ember Resources Inc.	89.4%	282	30	-	67	282	10	10,771	2,653
Bonavista Energy Corporation	99.5%	238	31	121	36	117	24	18,458	47,558
Mancal Energy Inc.	15.8%	234	32	205	24	30	44	4,131	278

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Harvest Operations Corp.	99.2%	227	33	-	67	227	11	16,547	29,480
Gear Energy Ltd.	98.5%	225	34	81	41	145	17	38,390	14,599
Barnwell of Canada Limited	98.5%	224	35	153	30	71	29	18,120	15,210
ExxonMobil Canada Energy	99.7%	212	36	161	28	50	39	51,278	65,248
Kiwetinohk Resources Corp.	98.8%	212	37	205	23	7	61	34,458	18,107
Bellatrix Exploration Ltd.	99.8%	209	38	79	42	131	19	11,136	92,658
Rally Canada Resources Ltd.	90.1%	204	39	204	25	-	84	9,417	2,067
Husky Oil Operations Limited	98.8%	181	40	3	63	178	14	5,481	15,234
Vesta Energy Ltd.	99.8%	178	41	112	38	66	31	538,553	117,097
TransGlobe Energy Corporation	99.3%	168	42	27	51	141	18	49,007	23,600
Gain Energy Ltd.	98.4%	168	43	127	35	41	41	10,620	10,212
Supreme Energy Inc.	96.6%	162	44	162	27	0	81	6,134	4,807
Axiom Oil and Gas Inc.	98.3%	155	45	148	31	7	60	17,023	8,979
Hard Rock Resources Ltd.	95.5%	155	46	146	33	9	56	1,055	3,408
Sitka Exploration Ltd.	99.6%	152	47	23	52	129	20	34,304	41,945
Response Energy Corporation	84.1%	152	48	147	32	5	64	2,290	957
Just Freehold Energy Corp.	84.4%	124	49	-	67	124	22	1,009	799
Obsidian Energy Ltd.	99.9%	121	50	51	47	69	30	340,787	178,991
Firenze Energy Ltd.	91.2%	115	51	61	44	54	37	1,271	1,304
Alexander Oilfield Services Ltd.	71.2%	113	52	113	37	-	84	1,200	392
Bonterra Energy Corp.	99.5%	109	53	101	39	8	57	15,435	21,559
Forge Oil & Gas Limited	86.8%	107	54	-	67	107	26	4,944	805
Traverse Energy Ltd.	82.7%	103	55	100	40	3	71	569	595
Pine Cliff Energy Ltd.	99.7%	89	56	44	49	45	40	20,306	29,025
Velvet Energy Ltd.	98.3%	78	57	57	45	21	47	3,475	4,604
Shanghai Energy Corporation	99.8%	69	58	69	43	-	84	4,478	28,671
Ridgeback Resources Inc.	99.5%	63	59	0	66	62	33	2,498	13,695
Westdrum Energy Ltd.	74.4%	62	60	-	67	62	34	283	241
Journey Energy Inc.	99.3%	59	61	-	67	59	35	9,627	8,437
Repsol Oil & Gas Canada Inc.	99.2%	57	62	54	46	3	70	32,448	7,135
Keyera Energy Ltd.	99.4%	51	63	-	67	51	38	4,374	8,241
Persist Oil And Gas Inc.	99.9%	46	64	5	61	40	42	27,252	40,187
Sifton Petroleum Inc.	98.9%	41	65	10	59	31	43	7,583	3,742
Vantage Point Resources Inc.	99.7%	32	66	11	57	21	49	8,500	10,155
Trident Exploration (Alberta) Corp.	98.3%	29	67	11	58	18	51	2,376	1,750

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Golden Spike Energy Inc.	48.2%	26	68	0	65	26	45	330	50
Baytex Energy Ltd.	99.3%	24	69	16	55	8	59	3,128	3,513
Apogee Petroleum Inc.	99.7%	23	70	-	67	23	46	5,811	7,003
Briko Energy Corp.	99.4%	21	71	21	53	-	84	8,383	3,448
Sogar Resources Ltd.	98.4%	21	72	-	67	21	48	660	1,316
McLand Resources Ltd.	49.9%	19	73	19	54	-	84	243	37
Black Crane Energy Corp.	99.6%	12	74	-	67	12	53	1,405	3,036
Outlier Resources Ltd.	96.9%	12	75	12	56	-	84	486	372
Tykewest Limited	90.8%	10	76	-	67	10	54	544	111
Range 3 Inc.	24.8%	10	77	-	67	10	55	16	13
G. Herman Group Inc.	99.8%	9	78	9	60	-	84	1,563	3,895
Long Run Exploration Ltd.	99.6%	6	79	-	67	6	62	1,236	1,603
Caltex Resources Ltd.	99.5%	5	80	-	67	5	63	1,913	1,052
Castlegate Energy Ltd.	2.2%	5	81	4	62	0	80	38	5
Energy Express Canada Corp.	95.9%	4	82	-	67	4	65	232	101
SILVERLEAF RESOURCES INC.	99.6%	4	83	-	67	4	66	1,841	868
Tri-Ment Corporation Ltd.	24.4%	3	84	-	67	3	69	18	5
ZNX Energy Ltd.	99.9%	2	85	-	67	2	72	1,422	1,630
Vermilion Energy Inc.	99.8%	2	86	-	67	2	73	387	983
Rife Resources Ltd.	99.7%	2	87	-	67	2	74	3,799	471
Sun Century Petroleum Corporation	79.7%	1	88	-	67	1	75	79	6
New North Resources Ltd.	99.7%	1	89	-	67	1	76	378	466
Silver Blaze Energy Ltd.	12.5%	1	90	-	67	1	78	1	1
Coastal Resources Limited	96.9%	1	90	-	67	1	78	296	22
Manitok Energy Inc.	0.0%	0	92	-	67	0	81	11	0
Westbrick Energy Ltd.	100.0%	0	92	-	67	0	81	1,766	248
Shanpet Resources Ltd.	100.0%	-	94	-	67	-	84	229	701
Incipient Exploration Ltd.	0.0%	-	94	-	67	-	84	-	-
Enerplus Corporation	0.0%	-	94	-	67	-	84	-	-
Canstone Energy Ltd.	100.0%	-	94	-	67	-	84	-	490
Kaiser Exploration Ltd.	100.0%	-	94	-	67	-	84	19	42
Glencoe Resources Ltd.	0.0%	-	94	-	67	-	84	-	-
Corse Energy Corp.	100.0%	-	94	-	67	-	84	98	122
Goldenkey Oil Inc.	100.0%	-	94	-	67	-	84	2,412	1,791
Mato Inc.	100.0%	-	94	-	67	-	84	328	1,521

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Petrus Resources Corp.	100.0%	-	94	-	67	-	84	38,453	126,032
Canadian Oil & Gas International Inc.	0.0%	-	94	-	67	-	84	-	-
Ferrybank Resources Ltd.	100.0%	-	94	-	67	-	84	404	57
Shackleton Exploration Ltd.	100.0%	-	94	-	67	-	84	247	380
Point Loma Resources Ltd.	100.0%	-	94	-	67	-	84	1,995	6,342
Questfire Energy Corp.	0.0%	-	94	-	67	-	84	-	-
Clearview Resources Ltd.	100.0%	-	94	-	67	-	84	12,759	6,718
Highwood Oil Company Ltd.	0.0%	-	94	-	67	-	84	-	-
Prairie Provident Resources Canada Ltd.	100.0%	-	94	-	67	-	84	86	20
TimberRock Energy Corp.	100.0%	-	94	-	67	-	84	60,259	52,394
Summerland Energy Inc.	100.0%	-	94	-	67	-	84	4,611	2,626
ARC Resources Ltd.	0.0%	-	94	-	67	-	84	-	-
RKSmith Energy Corp.	0.0%	-	94	-	67	-	84	-	-
Forden Energy Inc.	100.0%	-	94	-	67	-	84	4,347	205
Advantage Oil & Gas Ltd.	0.0%	-	94	-	67	-	84	-	-
Loyal Energy (canada) Operating Ltd.	100.0%	-	94	-	67	-	84	3,175	9,515
Gibson Energy ULC	0.0%	-	94	-	67	-	84	-	-
Sequoia Resources Corp.	0.0%	-	94	-	67	-	84	-	-
Blue Star Energy Inc.	100.0%	-	94	-	67	-	84	1,343	386
Rush Energy Services Inc.	0.0%	-	94	-	67	-	84	-	-
Pieridae Alberta Production Ltd.	0.0%	-	94	-	67	-	84	6	-
Shale Petroleum Ltd.	100.0%	-	94	-	67	-	84	199	2,140
Canyon Oil & Gas Corporation	100.0%	-	94	-	67	-	84	41	374
Kanati Energy Incorporated	0.0%	-	94	-	67	-	84	-	-
Sinopec Daylight Energy Ltd.	100.0%	-	94	-	67	-	84	290	173
Totals for Red Deer	**98.9%**	**40,281**		**30,722**		**9,559**		**3,674,538**	**3,660,432**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Slave Lake Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Deltastream Energy Corporation	35.9%	20,561	1	20,339	1	221	8	379,626	32,099
Canadian Natural Resources Limited	94.4%	13,037	2	6,009	3	7,028	1	4,174,297	232,228
Baytex Energy Ltd.	97.2%	8,498	3	8,495	2	3	20	825,081	303,157
Cenovus Energy Inc.	7.9%	4,593	4	4,507	4	86	12	30,155	4,985
Surge Energy Inc.	83.7%	3,547	5	939	8	2,609	2	273,498	21,784
Obsidian Energy Ltd.	97.6%	3,193	6	3,193	5	0	21	400,557	131,125
Highwood Oil Company Ltd.	27.8%	2,652	7	2,219	6	432	6	97,036	3,675
Spur Petroleum Ltd.	83.3%	2,093	8	44	18	2,049	3	471,179	12,555
Harvest Operations Corp.	70.9%	1,731	9	938	9	792	5	78,957	5,943
Summerland Energy Inc.	69.1%	1,705	10	1,501	7	204	9	102,545	5,521
Prairie Provident Resources Canada Ltd.	81.1%	1,412	11	266	13	1,146	4	109,651	7,460
Cardinal Energy Ltd.	98.4%	885	12	564	11	321	7	266,468	55,109
Mancal Energy Inc.	47.7%	652	13	652	10	-	24	13,649	1,246
Bernum Petroleum Ltd.	3.4%	325	14	325	12	-	24	6,915	337
Long Run Exploration Ltd.	17.0%	288	15	164	15	124	11	5,156	347
Ipc Canada Ltd.	94.0%	182	16	182	14	-	24	62,702	3,045
OAN Resources Ltd.	79.0%	165	17	-	23	165	10	3,047	784
Goldenkey Oil Inc.	45.0%	144	18	144	16	-	24	4,630	261
Vermilion Energy Inc.	96.9%	67	19	67	17	-	24	33,182	2,136
Enercapita Energy Ltd.	0.0%	62	20	-	23	62	13	2,244	62
Husky Oil Operations Limited	99.8%	50	21	-	23	50	14	66,005	20,398
Bounty Developments Ltd.	0.0%	37	22	37	19	-	24	1,254	37
KinMerc Oil & Gas Inc.	87.8%	31	23	2	22	29	15	11,917	257
Aeneid Exploration Inc.	97.6%	27	24	14	20	13	17	15,699	1,101
Acquisition Oil Corp.	55.0%	26	25	-	23	26	16	298	59
Coastal Resources Limited	94.6%	12	26	-	23	12	18	2,325	231
Persta Resources Inc.	90.7%	11	27	11	21	-	24	4,586	113
Rustum Petroleums Limited	0.0%	9	28	-	23	9	19	1,484	9
Turnstone Energy Inc.	0.0%	0	29	-	23	0	22	18	0
Dark Energy Ltd.	0.0%	0	30	-	23	0	23	77	0
Cote Resources Ltd.	0.0%	-	31	-	23	-	24	-	-
Bering Exploration Company ULC	100.0%	-	31	-	23	-	24	476	11

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Border Petroleum Limited	0.0%	-	31	-	23	-	24	-	-
Koch Oil Sands Operating ULC	0.0%	-	31	-	23	-	24	-	-
1852797 Alberta ULC	100.0%	-	31	-	23	-	24	2,389	24
Crescent Point Energy Corp.	0.0%	-	31	-	23	-	24	-	-
Paramount Resources Ltd.	0.0%	-	31	-	23	-	24	-	-
Prosper Petroleum Ltd.	100.0%	-	31	-	23	-	24	3,082	121
Ener T Corporation	0.0%	-	31	-	23	-	24	-	-
Long Lake Energy Ltd.	100.0%	-	31	-	23	-	24	332	87
Tallahassee Exploration Inc.	0.0%	-	31	-	23	-	24	-	-
Crimson Oil & Gas Ltd.	100.0%	-	31	-	23	-	24	3,287	141
G. Herman Group Inc.	0.0%	-	31	-	23	-	24	-	-
CNPC International (Canada) Ltd.	0.0%	-	31	-	23	-	24	17	-
Prospera Energy Inc.	100.0%	-	31	-	23	-	24	2,635	111
Accurate Energy Solutions Ltd.	0.0%	-	31	-	23	-	24	-	-
Andora Energy Corporation	0.0%	-	31	-	23	-	24	-	-
Whitehall Energy Ltd.	100.0%	-	31	-	23	-	24	2,074	319
Perpetual Operating Corp.	100.0%	-	31	-	23	-	24	15	1
XTO Energy Canada	0.0%	-	31	-	23	-	24	-	-
Totals for Slave Lake	**92.2%**	**65,993**		**50,611**		**15,383**		**7,458,544**	**846,875**

Field Centre Ranking of Operators – 2019 Flared + Vented Volume
Wainwright Crude Oil and Crude Bitumen Batteries for Alberta
Run Date: Apr 4, 2020

Company	Gas cons	Gas flared + vented ($1000\ m^3$)	Gas flared + vented rank	Gas flared ($1000\ m^3$)	Flare rank	Gas vented ($1000\ m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000\ m^3$)
Canadian Natural Resources Limited	89.1%	20,227	1	7,908	2	12,319	2	1,042,008	185,928
West Lake Energy Corp.	76.4%	16,572	2	15,110	1	1,461	7	496,043	70,108
Husky Oil Operations Limited	77.8%	15,079	3	2,538	9	12,541	1	617,768	68,021
Karve Energy Inc.	95.0%	9,407	4	7,632	3	1,775	6	360,213	186,613
Cardinal Energy Ltd.	60.7%	5,880	5	1,791	13	4,090	3	269,360	14,946
Surge Energy Inc.	92.4%	4,597	6	4,386	4	211	17	400,538	60,229
Gear Energy Ltd.	88.0%	3,860	7	1,223	15	2,637	4	123,596	32,073
Rifle Shot Oil Corp.	0.1%	3,804	8	3,792	5	13	50	166,581	3,808
Steelhead Petroleum Ltd.	64.4%	3,581	9	3,423	6	158	19	29,369	10,061
Crew Energy Inc.	62.7%	3,269	10	770	19	2,500	5	50,099	8,761
Cleo Energy Corp.	68.4%	2,974	11	2,974	7	-	70	55,654	9,418
Tamarack Acquisition Corp.	97.9%	2,830	12	2,122	10	707	10	417,694	133,504
Spur Petroleum Ltd.	24.8%	2,617	13	2,573	8	45	35	19,659	3,483
Rolling Hills Energy Ltd.	96.2%	2,294	14	1,938	12	356	13	103,221	60,051
Repsol Oil & Gas Canada Inc.	91.4%	1,961	15	665	21	1,296	8	470,842	22,882
Rockeast Energy Corp.	8.1%	1,953	16	1,951	11	3	64	62,625	2,125
Battle River Energy Ltd.	89.1%	1,711	17	1,639	14	72	30	68,446	15,739
Prairie Provident Resources Canada Ltd.	59.8%	1,336	18	868	17	468	12	24,930	3,320
Caltex Resources Ltd.	90.7%	1,250	19	592	22	658	11	329,865	13,382
Canuck North Resources Ltd.	0.0%	1,243	20	973	16	270	15	3,881	1,243
Rife Resources Ltd.	64.1%	917	21	-	54	917	9	36,548	2,555
Harvest Operations Corp.	93.6%	879	22	554	23	325	14	73,006	13,755
Dark Warrior Resources Ltd.	51.7%	867	23	823	18	44	36	12,967	1,796
Bow River Energy Ltd.	81.9%	694	24	686	20	8	52	70,084	3,844
Long Run Exploration Ltd.	75.4%	555	25	327	26	228	16	5,391	2,259
Bering Exploration Company ULC	91.7%	508	26	438	24	69	32	17,288	6,133
AlphaBow Energy Ltd.	93.6%	372	27	228	29	145	21	81,266	5,801
Vital Energy Inc.	25.6%	368	28	368	25	-	70	3,029	495
Baytex Energy Ltd.	96.7%	350	29	262	28	88	27	56,072	10,498
Enerplus Corporation	91.1%	286	30	266	27	20	44	125,056	3,221
Crescent Point Energy Corp.	17.2%	209	31	195	30	14	48	2,491	252
Perpetual Operating Corp.	98.0%	203	32	-	54	203	18	68,268	10,333

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Enercapita Energy Ltd.	4.5%	195	33	168	31	27	42	512	204
Venturion Oil Limited	97.0%	192	34	61	37	131	23	114,319	6,418
Westdrum Energy Ltd.	43.7%	151	35	-	54	151	20	856	267
Fort Calgary Resources Ltd.	68.0%	142	36	51	38	91	26	2,929	444
Taku Gas Limited	32.5%	134	37	0	52	134	22	7,739	199
Novus Energy Inc.	94.4%	129	38	129	32	-	70	919	2,325
Devon Canada Corporation	82.1%	128	39	-	54	128	24	4,711	717
Deltastream Energy Corporation	80.7%	128	40	111	33	18	47	8,076	666
Obsidian Energy Ltd.	98.0%	124	41	-	54	124	25	7,337	6,105
Turnstone Energy Inc.	23.7%	97	42	79	35	18	46	691	127
Topanga Resources Ltd.	81.3%	88	43	80	34	8	53	2,722	473
SanLing Energy Ltd.	97.6%	78	44	2	50	76	28	4,928	3,272
Ghost River Resources Inc.	95.4%	77	45	77	36	-	70	9,586	1,656
Croverro Energy Ltd.	8.6%	72	46	-	54	72	29	3,083	79
Response Energy Corporation	24.0%	72	47	-	54	72	30	1,920	95
Outlier Resources Ltd.	98.5%	72	48	11	46	61	33	4,603	4,649
DCP Oil Corp.	97.7%	60	49	-	54	60	34	1,670	2,624
Sun Century Petroleum Corporation	96.9%	44	50	-	54	44	37	5,300	1,419
Aeraden Energy Corp.	94.9%	39	51	38	39	0	69	3,374	764
Barcomp Petroleum Ltd.	0.0%	33	52	-	54	33	38	5,600	33
Imola Holdings Inc.	6.4%	32	53	32	40	-	70	765	34
Pismo Energy Ltd.	12.6%	29	54	-	54	29	39	2,127	33
Top Oil Production Ltd.	98.6%	29	55	-	54	29	40	4,957	2,010
Unit 18 Corp.	91.7%	28	56	-	54	28	41	12,163	344
DEL Canada GP Ltd.	98.5%	28	57	24	41	4	59	2,195	1,865
Revival Energy Inc.	92.3%	27	58	7	49	20	43	6,696	349
RON Resources Ltd.	96.9%	25	59	21	42	4	60	2,058	812
Kaisen Energy Corp.	98.6%	23	60	16	44	7	54	6,348	1,674
Brahma Resources Ltd.	91.4%	20	61	-	54	20	45	2,957	232
Elcano Exploration Inc.	0.0%	20	62	20	43	-	70	187	20
611890 Alberta Inc.	0.0%	14	63	-	54	14	49	1,535	14
Zargon Oil & Gas Ltd.	99.4%	14	64	13	45	1	68	16,272	2,120
Kairos Resources (2011) Ltd.	81.4%	12	65	-	54	12	51	744	67
Marlboro Energy Ltd.	99.7%	8	66	1	51	7	55	9,929	2,914
Rally Canada Resources Ltd.	91.0%	8	67	8	47	-	70	480	87

Company	Gas cons	Gas flared + vented ($1000 m^3$)	Gas flared + vented rank	Gas flared ($1000 m^3$)	Flare rank	Gas vented ($1000 m^3$)	Vent rank	Oil prod (m^3)	Sol'n gas prod ($1000 m^3$)
Jast Energy Ltd.	79.8%	8	68	8	48	-	70	1,287	38
TAQA North Ltd.	97.6%	7	69	0	53	6	56	4,120	274
InPlay Oil Corp.	99.6%	6	70	-	54	6	57	1,609	1,552
Incipient Exploration Ltd.	0.0%	5	71	-	54	5	58	1,035	5
Pennine Petroleum Corporation	98.3%	4	72	-	54	4	61	573	229
Petrocapita GP I Ltd.	91.1%	4	73	-	54	4	62	4,345	39
Knowledge Energy Inc.	88.4%	3	74	-	54	3	63	858	26
Perisson Petroleum Corporation	0.0%	2	75	-	54	2	65	1,113	2
Roswell Petroleum Corporation	0.0%	2	76	-	54	2	66	508	2
Sahara Energy Ltd.	0.0%	2	77	-	54	2	67	274	2
Innes Oilfield Services Ltd.	0.0%	-	78	-	54	-	70	0	-
Kasten Energy Inc.	100.0%	-	78	-	54	-	70	665	127
Sojourn Energy Inc.	0.0%	-	78	-	54	-	70	-	-
Highwood Oil Company Ltd.	0.0%	-	78	-	54	-	70	-	-
Mooncor Energy Inc.	0.0%	-	78	-	54	-	70	-	-
Logic Energy Ltd.	100.0%	-	78	-	54	-	70	3,390	360
Northern Utilities (Sask.) Ltd.	100.0%	-	78	-	54	-	70	203	1
Amherst Energy Inc.	100.0%	-	78	-	54	-	70	2,231	27
Ridgeback Resources Inc.	0.0%	-	78	-	54	-	70	-	-
Zeal Energy Inc.	0.0%	-	78	-	54	-	70	-	-
Gunnarr Resources Inc.	100.0%	-	78	-	54	-	70	638	24
Cenovus Energy Inc.	0.0%	-	78	-	54	-	70	-	-
Canadian Oil & Gas International Inc.	0.0%	-	78	-	54	-	70	-	-
Pembina NGL Corporation	0.0%	-	78	-	54	-	70	-	-
Ener T Corporation	100.0%	-	78	-	54	-	70	6,035	47
Wescan Energy Corp.	100.0%	-	78	-	54	-	70	4,038	1,516
Broadview Energy Ltd.	100.0%	-	78	-	54	-	70	11,425	1,813
Wildcat Rentals Ltd.	100.0%	-	78	-	54	-	70	778	4
Big Lake Energy Ltd.	0.0%	-	78	-	54	-	70	-	-
True North Oil & Gas Limited	0.0%	-	78	-	54	-	70	8	-
NVP Exploration Inc.	100.0%	-	78	-	54	-	70	-	64
Xenotime Energy Inc.	0.0%	-	78	-	54	-	70	10	-
Trident Exploration (Alberta) Corp.	100.0%	-	78	-	54	-	70	3	182
Grand Rapids Petroleum Ltd.	0.0%	-	78	-	54	-	70	-	-

Company	Gas cons	Gas flared + vented (1000 m^3)	Gas flared + vented rank	Gas flared (1000 m^3)	Flare rank	Gas vented (1000 m^3)	Vent rank	Oil prod (m^3)	Sol'n gas prod (1000 m^3)
Totals for Wainwright	**88.7%**	**115,065**		**69,969**		**45,096**		**5,969,290**	**1,018,078**