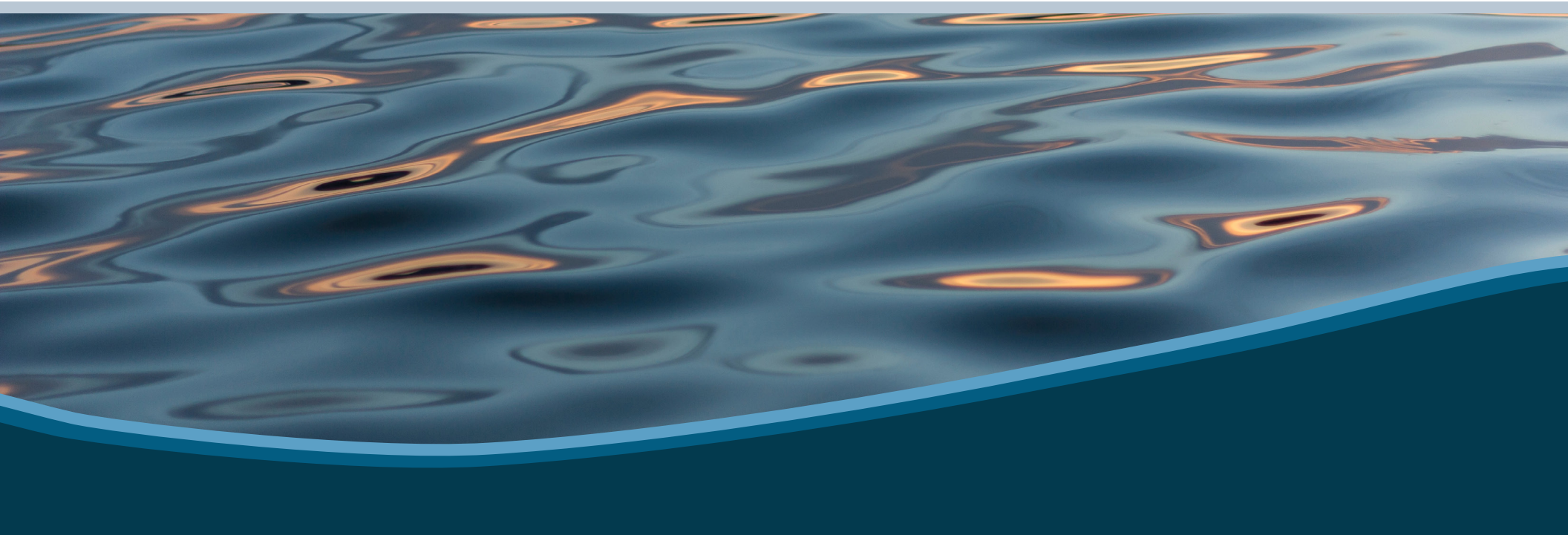


Quarterly Oil and Gas Water Management Summary

Second Quarter 2018 (Apr - Jun)



PURPOSE

This *Quarterly Oil and Gas Water Use Summary* presents short-term water use and water licence data from the Q2 April to June 2018 period.

Previous annual water use reports and quarterly water use summaries are available on the BC Oil and Gas Commission website at www.bcogc.ca.

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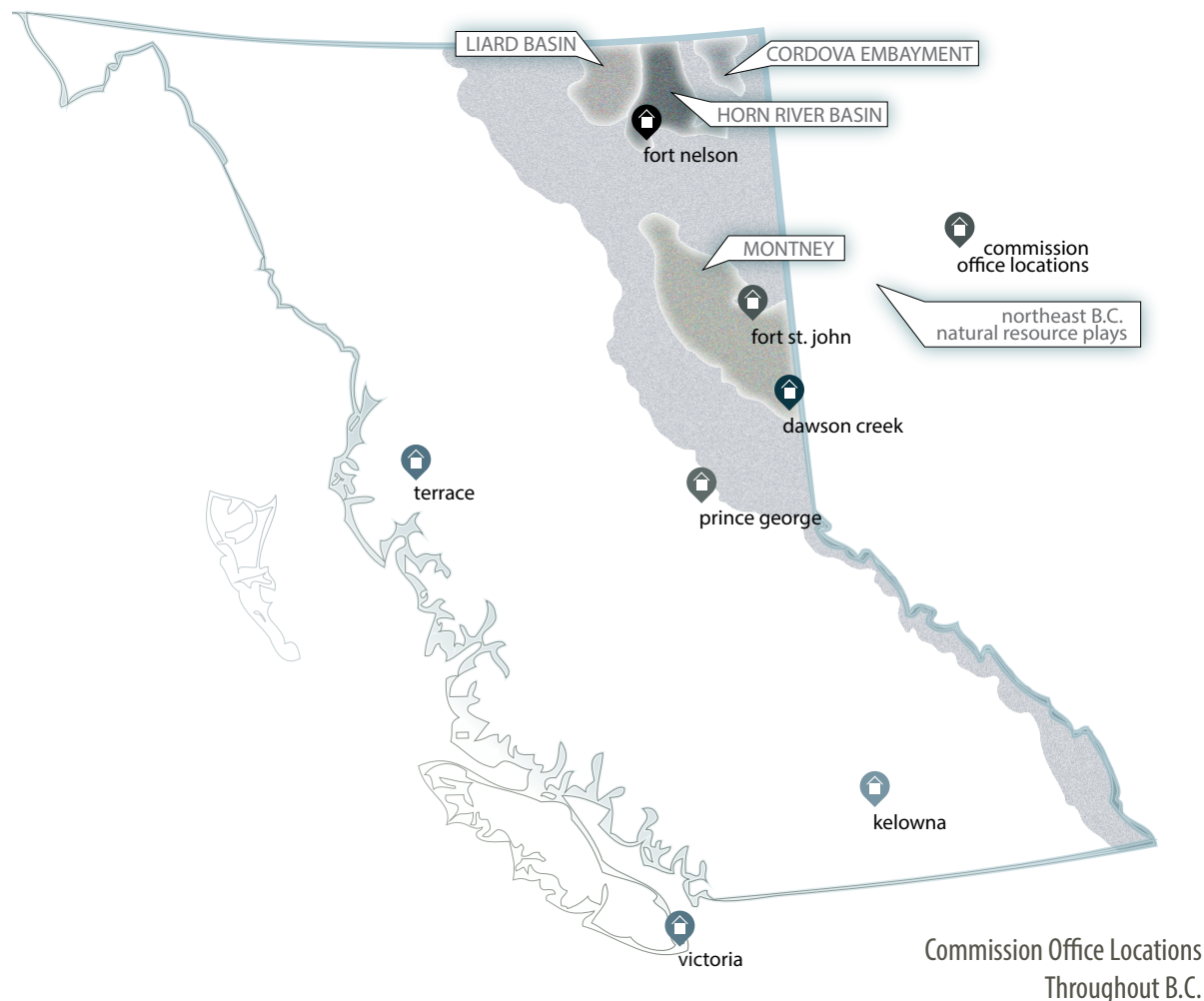
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BC OIL AND GAS COMMISSION

The [BC Oil and Gas Commission](#) (Commission) is the provincial regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.

The Commission's core services include reviewing and assessing applications for industry activity, consulting with First Nations, cooperating with partner agencies, and ensuring industry complies with provincial legislation and all regulatory requirements. The public interest is protected by ensuring public safety, respecting those affected by oil and gas activities, conserving the environment, and ensuring equitable participation in production.

The Commission is responsible for reviewing, assessing, and making decisions on water authorizations from both surface and subsurface water sources. The Commission has the expertise and tools to make informed water allocation decisions, and protecting and maintaining environmental and community water needs are its first priorities.



HOW WATER IS USED

Water is used for various purposes in the oil and gas industry.



The largest use of water for oil and gas activities is for hydraulic fracturing.

However, water is used for other purposes, such as:



Seismic or geophysical exploration



Drilling



Machine washing



Dust control



Water floods (to enhance oil recovery)



Ice road freezing



Hydrostatic testing of pipelines

HOW WATER IS ACCESSED

There are different ways the oil and gas industry may access water in British Columbia. Some methods are managed through provincial legislation, including:

- **Water licences** issued under the Water Sustainability Act (WSA) for surface and groundwater. The Commission has staff designated as Regional Water Managers with authority for issuing and administering long-term water licences.
- **Short-term surface water use or diversion approvals** issued under Section 10 of the WSA. Short-term water use is administered by the Commission.
- **Water source wells** authorized by the Commission under the Oil and Gas Activities Act (OGAA). Water source wells are a specific type of well where the water withdrawn is intended for injection into an underground formation to enhance oil or natural gas recovery.
- **Flowback water** that returns to the surface after being injected for hydraulic fracturing.
- **Produced water** that flows to the surface as a by-product of oil and gas production.

The oil and gas industry can access water by means outside of regulatory oversight:



- **Private agreements** can be made with landowners or others who have a source of surface water supply such as a dugout or a groundwater well. In some cases, private agreements may require a Waterworks water licence under the WSA.

LONG-TERM WATER LICENCES AND USE

In the second quarter of 2018, there were 34 active oil and gas related water licences, representing 36 withdrawal locations, held by 12 companies (Table 1).

The total annual licenced water volume was 24,032,221 m³.

A total of 1,296,585 m³ of licenced water was reported as withdrawn in the first half of the year (Table 1).

A break-down of water licence allocation and use by OGC Water Management Basin is listed in Table 4.

TABLE 1 - SUMMARY OF WATER LICENCE AND USE FOR OIL AND GAS ACTIVITIES FROM JANUARY TO JUNE 2018

		Q1	Q2
WATER LICENCE	Companies with Active Water Licences	11	12
	Active Water Licences	25	34
	Licensed Withdrawal Locations	27	36
	Annual Volume Available for Use for Water Licences (m ³)	19,686,289	24,032,221
	Cumulative Volume Reported Withdrawn (m ³)	716,304	1,296,585

TABLE 2: OIL AND GAS RELATED WATER LICENCES THAT WITHDREW WATER FROM APRIL TO JUNE 2018

LICENCE #	LICENCEE	SOURCE	OGC WATER MANAGEMENT BASIN	ANNUAL APPROVAL (m ³ /YR)	Q2 WATER USE (m ³ /YR)
C112155	Whitecap Resources Inc.	Peace River	Lower Peace River	1,825,000	159,077
C126568	Progress Energy Canada Ltd.	Williston Lake	Peace Arm	3,650,000	821
C132688	Canadian Natural Resources Limited	Charlie Lake	Lower Beatton River	394,000	6,863
C133150	Black Swan Energy Ltd.	Beatton River	Upper Beatton River	390,000	110,587
C133155	Canbriam Energy Inc.	Williston Lake	Peace Arm	3,650,000	18,414
C133853	Progress Energy Canada Ltd.	Barker Creek	Middle Sikanni Chief River	7,264	604
C134025	ARC Resources Ltd.	Kiskatinaw River	Lower Kiskatinaw River	550,000	194,469
C134093	Progress Energy Canada Ltd.	Grewatsch Creek	Upper Beatton River	54,368	170
C134283	Encana Corporation	Kiskatinaw River	Lower Kiskatinaw River	1,000,000	26,534
C500022	Encana Corporation	Dam near Bisette Creek	Pouce Coupe River	32,000	31,956
C500355	Encana Corporation	Dugout near Eight Mile Creek	Lower Peace River	90,000	30,786

SHORT-TERM WATER APPROVAL AND USE

During April to June of 2018, there were a total of 209 short-term water use approvals in place, representing 608 withdrawal locations, held by 39 companies (Table 3).

The total water volume associated with short-term approvals that were active on the last day of the quarter was 10,790,642 m³.

A total of 710,766 m³ was reported as withdrawn by oil and gas operators during the first six months of 2018 (Table 3).

A break-down of short-term water approval and use by OGC Water Management Basin is listed in Table 4.

TABLE 3 - SUMMARY OF SHORT-TERM APPROVAL AND USE FOR OIL AND GAS ACTIVITIES FROM JANUARY TO JUNE 2018

GAS ACTIVITIES FROM JANUARY TO JUNE 2018		Q1	Q2
SHORT-TERM	Companies with Active Approvals	41	39
	Active Approvals	185	209
	Approved Withdrawal locations	643	608
	Volume Available for Use (m³)	10,605,996	10,790,642
	Cumulative Volume Reported Withdrawn (m³)	99,270	710,766



TABLE 4 - SUMMARY OF WATER ALLOCATION
AND USE FOR OIL AND GAS ACTIVITIES IN 2018,
ORGANIZED BY OGC WATER MANAGEMENT BASIN
(Page 1 of 4)

SUMMARY OF WATER ALLOCATION AND USE FOR OIL AND GAS ACTIVITIES IN 2018, ORGANIZED BY OGC WATER MANAGEMENT BASIN (Page 1 of 4)											
MAJOR and Sub-Basin Name	SHORT-TERM WATER USE APPROVALS - BC OIL AND GAS COMMISSION					OIL AND GAS RELATED WATER LICENCES					
	NUMBER OF APPROVED WITHDRAWAL LOCATIONS	TOTAL VOLUME APPROVED (m³) FOR LOCATIONS ACTIVE ON 6/30/2018	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m³)
BEATTON RIVER (sub-basin of Peace River)											
Upper Beatton River	4	550,800	0.110%	23,716	0.005%	6	974,895	0.195%	110,757	0.022%	499,408,440
Middle Beatton River	22	278,750	0.112%	0	0.000%	0					249,152,995
Middle Beatton Total (incl. Upper Beatton)	26	829,550	0.111%	23,716	0.003%	6	974,895	0.130%	110,757	0.015%	748,561,435
Milligan Creek	17	200,085	0.104%	0	0.000%	0					191,536,686
Blueberry River	24	445,930	0.152%	0	0.000%	0					293,278,540
Doig River	1	1,200	0.000%	0	0.000%	0					323,069,523
Lower Beatton River	25	283,187	0.205%	5,099	0.004%	1	394,000	0.285%	16,334	0.012%	138,262,629
BEATTON TOTAL	93	1,759,952	0.104%	28,815	0.002%	7	1,368,895	0.081%	127,091	0.008%	1,694,708,813
HALFWAY RIVER (sub-basin of Peace River)											
Chowade River	0					0					327,027,527
Upper Halfway River	0					0					795,962,409
Upper Halfway Total (includes Chowade)	0	0	0.000%	0	0.000%	0	0	0.000%	0	0.000%	1,122,989,936
Graham River	1	2,400	0.000%	0	0.000%	0					860,627,172
Cameron River	16	226,307	0.101%	3,294	0.001%	4	156,037	0.070%	0	0.000%	223,679,567
Lower Halfway River	4	120,331	0.079%	277	0.000%	1	3,650,000	2.409%	0	0.000%	151,526,991
HALFWAY TOTAL	21	349,038	0.015%	3,571	0.000%	5	3,806,037	0.161%	0	0.000%	2,358,823,666
MOBERLY RIVER (sub-basin of Peace River)											
Moberly River	4	43,102	0.011%	24,140	0.006%	0					391,714,995
MOBERLY TOTAL	4	43,102	0.000%	24,140	0.006%	0	0	0.000%	0	0.000%	391,714,995
PINE RIVER (sub-basin of Peace River)											
Burnt River	0					0					737,930,022
Sukunka River	3	20,000	0.002%	940	0.000%	0					1,047,282,572
Sukunka River Total (includes Burnt)	3	20,000	0.001%	940	0.000%	0	0	0.000%	0	0.000%	1,785,212,594
Upper Pine River	3	53,300	0.004%	23,063	0.002%	0					1,466,884,035
Murray River	3	20,850	0.001%	0	0.000%	0					2,698,285,017
Lower Pine River	28	584,511	0.425%	95,260	0.069%	1	1,300,000	0.945%	0	0.000%	137,619,889
PINE TOTAL	37	678,661	0.019%	119,263	0.002%	1	1,300,000	0.021%	0	0.000%	6,088,001,535

SHORT-TERM WATER USE APPROVALS - BC OIL AND GAS COMMISSION						OIL AND GAS RELATED WATER LICENCES					
MAJOR and Sub-Basin Name	NUMBER OF APPROVED WITHDRAWAL LOCATIONS	TOTAL VOLUME APPROVED (m³) FOR LOCATIONS ACTIVE ON 6/30/2018	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m³)
KISKATINAW RIVER (sub-basin of Peace River)											
West Kiskatinaw River	0					0					117,515,115
East Kiskatinaw River	1	5,000	0.005%	0	0.000%	0					105,452,962
Middle Kiskatinaw River	5	1,224,996	2.174%	247,581	0.439%	0					56,347,972
Middle Kiskatinaw Total (incl. West & East)	6	1,229,996	0.440%	247,581	0.089%	0	0	0.000%	0	0.000%	279,316,049
Lower Kiskatinaw River	11	389,233	0.434%	39,201	0.044%	5	2,223,069	2.479%	221,003	0.246%	89,659,847
KISKATINAW TOTAL	17	1,619,229	0.439%	286,782	0.078%	5	2,223,069	0.602%	221,003	0.060%	368,975,896
PEACE RIVER											
Peace Arm	0					3	9,125,000		37,649		N/A
Upper Peace River	1	780,000	0.002%	0	0.000%	0					36,423,413,429
Lynx Creek	0					0					30,436,635
Farrell Creek	4	22,300	0.025%	0	0.000%	0					91,018,843
Cache Creek	2	16,500	0.022%	0	0.000%	1	185,022	0.248%	0	0.000%	74,603,546
Pouce Coupe River	36	2,933,246	1.147%	85,169	0.033%	3	582,754	0.228%	31,956	0.012%	255,686,202
Lower Peace River	12	222,635	0.194%	131,100	0.115%	5	2,388,348	2.086%	878,282	0.767%	114,470,012
PEACE TOTAL (incl. Kisk/Pine/Moberly/Half/Beaton)	227	8,424,663	0.018%	678,840	0.001%	32	20,995,550	0.044%	1,296,585	0.003%	47,891,853,572
SMOKY RIVER											
Smoky River	4	18,500	0.001%	0	0.000%	1	2,500	0.000%	0	0.000%	2,669,506,123
SMOKY TOTAL	4	18,500	0.001%	0	0.000%	1	2,500	0.000%	0	0.000%	2,669,506,123
MUSKWA RIVER (sub-basin of Fort Nelson River)											
Upper Muskwa River	0					0					1,725,201,511
Middle Muskwa River	0					0					1,973,711,816
Middle Muskwa Total (incl. Upper Muskwa)	0	0	0.000%	0	0.000%	0	0	0.000%	0	0.000%	3,698,913,327
Lower Muskwa River	0					0					646,841,560
MUSKWA TOTAL	0	0	0.000%	0	0.000%	0	0	0.000%	0	0.000%	4,345,754,887
PROPHET RIVER (sub-basin of Fort Nelson River)											
Upper Prophet River	1	1,500	0.000%	0	0.000%	1	36,593	0.002%	0	0.000%	1,470,271,289
Middle Prophet River	5	30,700	0.005%	0	0.000%	0					621,428,680
Middle Prophet Total (incl. Upper Prophet)	6	32,200	0.002%	0	0.000%	1	36,593	0.002%	0	0.000%	2,091,699,969
Lower Prophet River	6	411,510	0.151%	0	0.000%	0					272,262,427
PROPHET TOTAL	12	443,710	0.019%	0	0.000%	1	36,593	0.002%	0	0.000%	2,363,962,396

MAJOR and Sub-Basin Name	SHORT-TERM WATER USE APPROVALS - BC OIL AND GAS COMMISSION					OIL AND GAS RELATED WATER LICENCES					
	NUMBER OF APPROVED WITHDRAWAL LOCATIONS	TOTAL VOLUME APPROVED (m³) FOR LOCATIONS ACTIVE ON 6/30/2018	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m³)
SIKANNI CHIEF RIVER (sub-basin of Fort Nelson River)											
Upper Sikanni Chief River	0					1	2,993,000	0.371%	0	0.000%	807,771,692
Middle Sikanni Chief River	29	505,558	0.053%	65	0.000%	3	21,003	0.002%	604	0.000%	949,755,794
Middle Sikanni Chief Total (incl. Upper Sikanni)	29	505,558	0.029%	65	0.000%	4	3,014,003	0.171%	604	0.000%	1,757,527,486
Lower Sikanni Chief	4	9,200	0.001%	1,371	0.000%	0					875,678,142
SIKANNI CHIEF TOTAL	33	514,758	0.020%	1,436	0.000%	4	3,014,003	0.114%	604	0.000%	2,633,205,628
FORT NELSON RIVER											
Kahntah River	14	87,400	0.022%	0	0.000%	0					400,582,903
Fontas River	2	24,500	0.004%	5,579	0.001%	0					591,531,903
Fontas Total (includes Kahntah)	16	111,900	0.011%	5,579	0.001%	0	0	0.000%	0	0.000%	992,114,806
Klua Creek	0					0					402,135,448
Upper Fort Nelson River	0			301	0.000%	0					276,181,026
Upper Fort Nelson Total (incl. Sikanni Chief Total, Kahntah, Fontas, Klua)	49	626,658	0.015%	7,316	0.000%	4	3,014,003	0.070%	604	0.000%	4,303,636,908
Snake River	0			853		0					310,763,522
Sahtaneh River	3	22,500	0.005%	2,201	0.000%	0					474,904,729
Middle Fort Nelson River	1	10,000	0.002%	0	0.000%	0					515,348,901
Middle Ft Nelson Total (incl. Upper Ft. Nelson total, Muskwa Total, Prophet Total, Snake, Sahtaneh)	65	1,102,868	0.009%	10,370	0.000%	5	3,050,596	0.025%	604	0.000%	12,314,371,343
Kiwigana River	10	39,200	0.009%	1,276	0.000%	0					441,657,543
Lower Fort Nelson River	0					0					312,768,938
FORT NELSON TOTAL	75	1,142,068	0.009%	11,646	0.000%	5	3,050,596	0.023%	604	0.000%	13,068,797,824
LIARD RIVER											
Muncho River	0					0					551,551,360
Upper Liard River	0					0					33,125,817,465
Upper Liard Total (incl. Muncho)	0	0	0.000%	0	0.000%	0	0	0.000%	0	0.000%	33,677,368,825
Grayling River	0					0					630,833,914
Upper Toad River	0					0					1,521,055,576
Racing River	0					0					1,488,336,681
Lower Toad River	0					0					419,472,722
Beaver River	0					0					10,862,659,426
Middle Liard River	0					0					463,652,312

MAJOR and Sub-Basin Name	SHORT-TERM WATER USE APPROVALS - BC OIL AND GAS COMMISSION					OIL AND GAS RELATED WATER LICENCES					
	NUMBER OF APPROVED WITHDRAWAL LOCATIONS	TOTAL VOLUME APPROVED (m³) FOR LOCATIONS ACTIVE ON 6/30/2018	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2018 (m³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m³)
LIARD RIVER con't											
Middle Liard Total (incl. Upper Liard Total, Grayling, Upper Toad, Racing, Lower Toad, Beaver)	0	0	0.000%	0	0.000%	0	0	0.000%	0	0.000%	49,063,379,456
Capot-Blanc Creek	4	40,000	0.022%	0	0.000%	0					183,879,851
Dunedin River	0					0					820,464,167
Lower Liard River	7	62,610	0.005%	0	0.000%	0					1,236,634,664
LIARD TOTAL (incl. Fort Nelson)	86	1,244,678	0.002%	11,646	0.000%	5	3,050,596	0.005%	604	0.000%	64,373,155,962
PETITOT RIVER											
Sahdoanah River	34	43,680	0.017%	2,328	0.001%	0					252,625,362
Upper Petitot River	54	116,085	0.008%	1,400	0.000%	0					1,476,579,488
Tsea River	62	214,439	0.049%	3,022	0.001%	0	0	0.000%	0	0.000%	434,062,484
Middle Petitot River	30	162,925	0.023%	530	0.000%	0					698,562,753
Middle Petitot Total (incl. Sahdoanah, Upper Petitot, Tsea)	180	537,129	0.019%	7,280	0.000%	0	0	0.000%	0	0.000%	2,861,830,087
Lower Petitot River	19	36,600	0.004%	0	0.000%	0					904,314,069
PETITOT TOTAL	199	573,729	0.015%	7,280	0.000%	0	0	0.000%	0	0.000%	3,766,144,156
HAY RIVER											
Upper Kotcho River	1	20,000	0.006%	165	0.000%	0					311,519,217
Kyklo River	2	13,000	0.009%	2,639	0.002%	0					145,897,691
Shekilie River	27	175,600	0.039%	0	0.000%	0					450,747,494
Lower Kotcho River	2	7,500	0.002%	1,023	0.000%	0					311,519,217
Lower Kotcho Total (includes Upper Kotcho, Kyklo, Shekilie)	32	216,100	0.018%	3,827	0.000%	0	0	0.000%	0	0.000%	1,219,683,619
Hay River	26	184,000	0.034%	5,684	0.001%	0					538,672,352
HAY TOTAL	58	400,100	0.023%	9,511	0.001%	0	0	0.000%	0	0.000%	1,758,355,971
CHINCHAGA RIVER											
Chinchaga River	31	95,097	0.087%	3,489	0.003%	0					109,492,680
CHINCHAGA TOTAL	31	95,097	0.087%	3,489	0.003%	0	0	0.000%	0	0.000%	109,492,680
OTHER (outside Northeast B.C.)	3	33,875		0		0					N/A
GRAND TOTAL	608	10,790,642	0.009%	710,766	0.001%	36	24,032,221	0.020%	1,296,585	0.001%	120,568,508,464



Previous annual water reports and quarterly updates
are available on the Commission's website at:
<http://www.bcogc.ca/public-zone/water-information>

For specific questions or enquiries
regarding this data, please contact:
OGC.Communications@bcogc.ca
