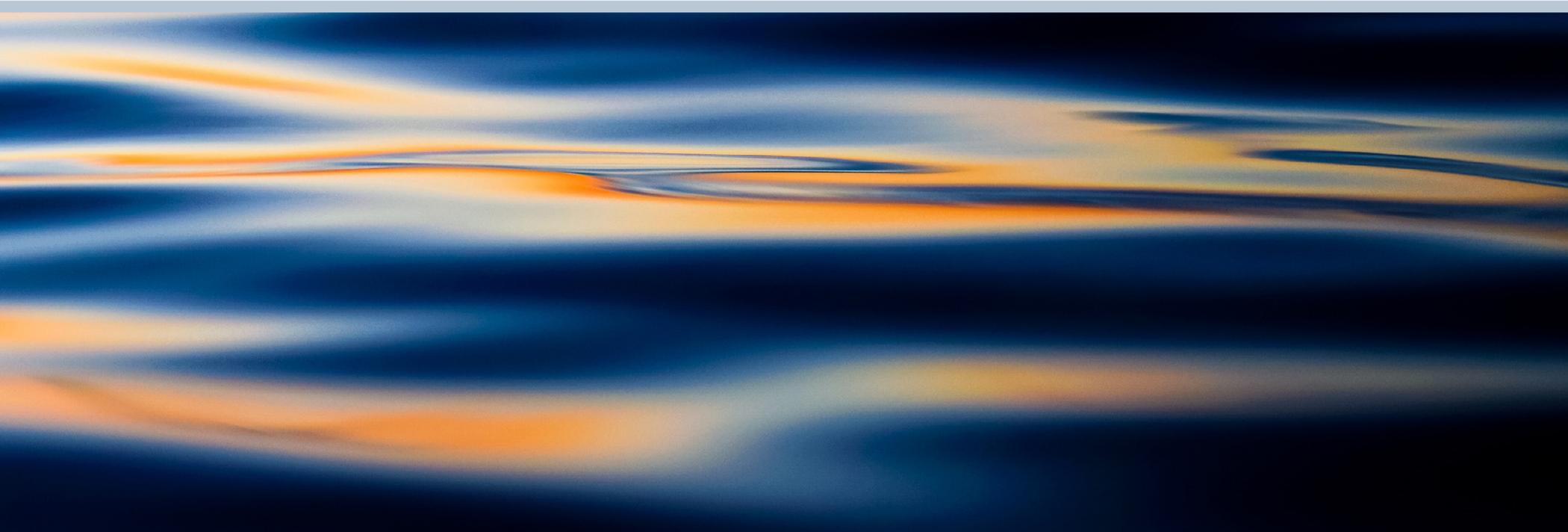


Quarterly Oil and Gas Water Management Summary



Second Quarter 2019 (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 2019 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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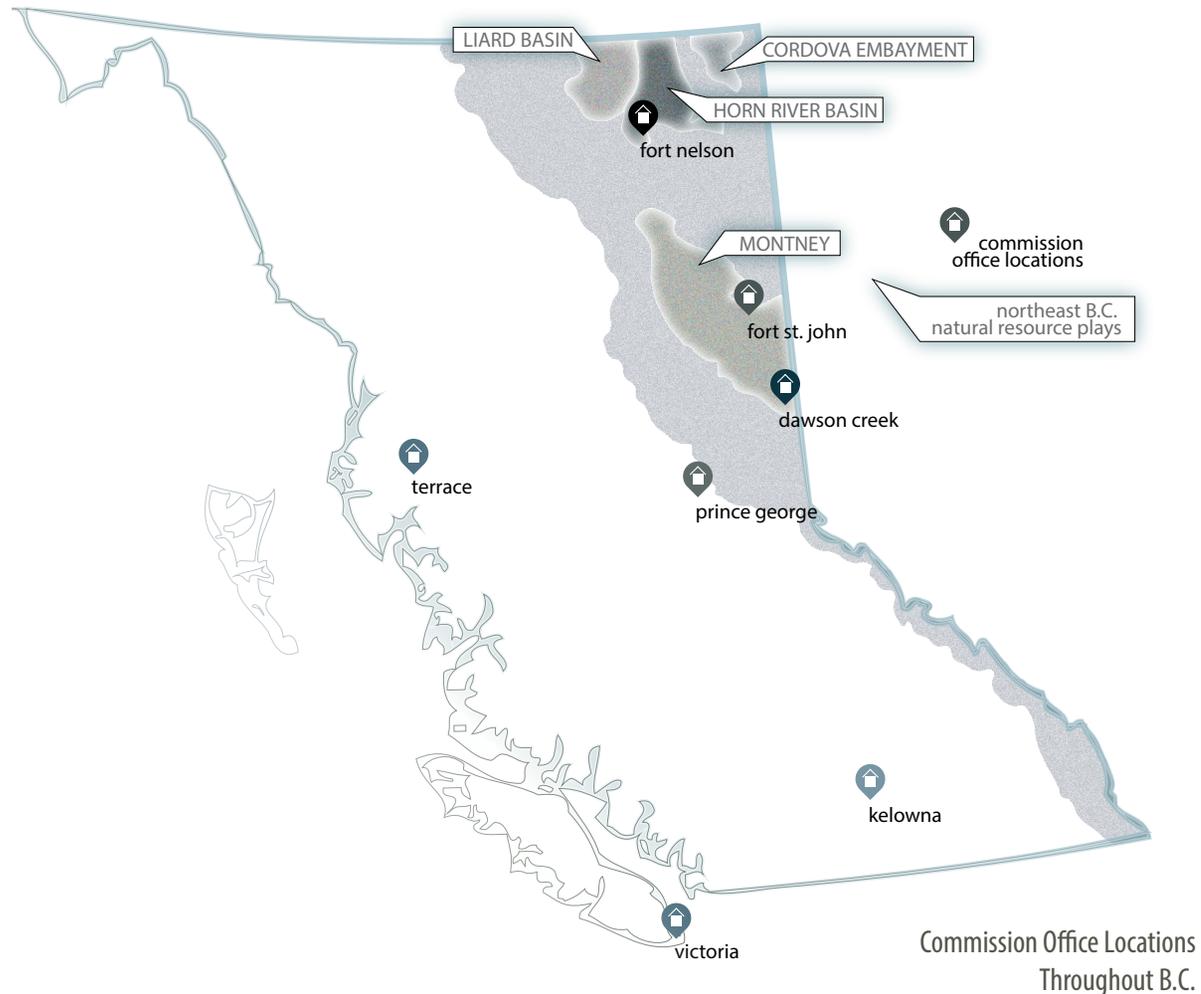
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BC OIL AND GAS COMMISSION

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 land owners 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 2019, there were 72 active oil and gas related water licences, representing 77 withdrawal locations, held by 18 companies (Table 1).

The total annual licenced water volume was 29,326,444 m³.

A total of 1,759,139 m³ of licenced water was reported as withdrawn in the first half of the year by 10 companies (Table 1 - page 6, Table 2 - page 7).

TABLE 1 - SUMMARY OF WATER LICENCE AND USE FOR OIL AND GAS ACTIVITIES FROM JANUARY TO JUNE 2019

		Q1	Q2
WATER LICENCE	Companies with Active Water Licences	15	18
	Active Water Licences	57	72
	Licensed Withdrawal Locations	60	77
	Annual Volume Available for Use for Water Licences (m ³)	*26,822,997	29,326,444
	Cumulative Volume Reported Withdrawn (m ³)	464,272	1,759,139

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

SHORT-TERM WATER APPROVAL AND USE

During April to June of 2019, there were a total of 239 short-term water use approvals in place, representing 574 withdrawal locations, held by 43 companies (Table 3).

The total water volume associated with short-term approvals active on the last day of the quarter was 12,255,357 m³.

A total of 647,292 m³ was reported as withdrawn by oil and gas operators during the first six months of 2019 (Table 3).

TABLE 3 - SUMMARY OF SHORT-TERM APPROVAL AND USE FOR OIL AND GAS ACTIVITIES FROM JANUARY TO JUNE 2019

		Q1	Q2
SHORT-TERM	Companies with Active Approvals	46	43
	Active Approvals	201	239
	Approved Withdrawal locations	*623	574
	Volume Available for Use (m ³)	*12,781,913	12,255,357
	Cumulative Volume Reported Withdrawn (m ³)	313,178	647,292

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

*Updated (retroactive data entry).

TABLE 2: OIL AND GAS RELATED WATER LICENCES THAT WITHDREW WATER FROM APRIL TO JUNE 2019

LICENCE #	LICENCEE	SOURCE	OGC WATER MGMT BASIN	ANNUAL APPROVAL (m ³ /YR)	2019 WATER USE (m ³ /YR)
C112155	Whitecap Resources Inc.	Peace River	Lower Peace River	1,825,000	82,739
C126568	Petronas Energy Canada	Williston Lake	Peace Arm	3,650,000	1,410
C132688	Canadian Natural Resources Limited (CNRL)	Charlie Lake	Lower Beatton River	394,000	5,446
C133847	Petronas Energy Canada	Unnamed Stream	Cameron River	7,374	995
C133853	Petronas Energy Canada	Unnamed Tributary	Middle Sikanni Chief	7,264	90
C134025	ARC Resources Ltd.	Kiskatinaw River	Lower Kiskatinaw	1,100,000	217,933
C134093	Petronas Energy Canada	Grewatsch Tributary	Upper Beatton River	54,368	1,058
C134111	Petronas Energy Canada	Unnamed Stream	Upper Beatton River	49,588	23
C134447	Murphy Oil Company	Kiskatinaw River	Middle Kiskatinaw	600,000	105,612
C134469	ConocoPhillips Canada	Halfway River	Lower Halfway River	3,650,000	744,864
C500022	Encana Corporation	Dam nr Bisette Creek	Pouce Coupe River	32,000	322
C500185	Kelt Exploration (LNG)	Aquifer 451	Cache Creek	146,000	10,516
C500226	Veresen Energy Pipeline	Aquifer 621	Smoky River	5,500	928
C500246	Kelt Exploration (LNG)	Aquifer 451	Cache Creek	160,235	45,049
C500342	Petronas Energy Canada	FSJ Aquifer	Cameron River	8,988	40
C500345	Encana Corporation	Unnamed Stream	Lower Kiskatinaw	102,100	70,234
C500794	Petronas Energy Canada	FSJ Aquifer	Upper Beatton River	6,924	1,365
C501120	Canlin Energy Corp.	FSJ Aquifer	Upper Beatton River	1,825	3
C501135	CNRL	Aquifer 451	Blueberry River	1,825	335
C501206	CNRL	Dawson Creek Bedrock	Murray River	730	163
C501207	CNRL	FSJ Aquifer	Kahntah River	2,555	546
C501210	CNRL	FSJ Aquifer	Kahntah River	365	54
C501211	CNRL	FSJ Aquifer	Upper Beatton River	730	163
C501212	CNRL	Dawson Creek Aquifer	Smoky River	1,095	182
C500324	Petronas Energy Canada	FSJ Aquifer	Middle Sikanni Chief	4,578	40
C500355	Encana Corporation	Dugout nr Eight Mile Creek	Lower Peace River	90,000	4,751

TABLE 4 - SUMMARY OF WATER ALLOCATION AND USE FOR OIL AND GAS ACTIVITIES IN 2019, ORGANIZED BY OGC WATER MANAGEMENT BASIN (Page 1 of 4)

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 (m ³) FOR LOCATIONS ACTIVE ON 6/30/2019	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m ³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m ³)
BEATTON RIVER (sub-basin of Peace River)											
Upper Beatton River	11	204,530	0.041%	16,037	0.003%	17	2,839,459	0.569%	2,613	0.000%	499,408,440
Middle Beatton River	2	26,900	0.011%	0	0.000%	0					249,152,995
Middle Beatton Total (incl. Upper Beatton)	13	231,430	0.031%	16,037	0.002%	17	2,839,459	0.379%	2,613	0.000%	748,561,435
Milligan Creek	6	62,000	0.032%	375	0.000%	0					191,536,686
Blueberry River	46	1,492,186	0.509%	17,976	0.006%	3	175,200		336		293,278,540
Doig River	6	46,000	0.014%	0	0.000%	0					323,069,523
Lower Beatton River	23	332,137	0.240%	25,814	0.019%	1	394,000	0.285%	12,382	0.009%	138,262,629
BEATTON TOTAL	94	2,163,753	0.128%	60,202	0.004%	21	3,408,659	0.201%	15,331	0.001%	1,694,708,813
HALFWAY RIVER (sub-basin of Peace River)											
Chowade River	0	0	0.000%			0					327,027,527
Upper Halfway River	0	0	0.000%	0	0.000%	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	2	3,450	0.000%	0	0.000%	0					860,627,172
Cameron River	30	867,080	0.388%	67,182	0.030%	11	517,894	0.232%	2,271	0.001%	223,679,567
Lower Halfway River	17	1,041,399	0.687%	479	0.000%	7	3,838,688	2.533%	876,745	0.579%	151,526,991
HALFWAY TOTAL	49	1,911,929	0.081%	67,661	0.003%	18	4,356,582	0.185%	879,016	0.037%	2,358,823,666
MOBERLY RIVER (sub-basin of Peace River)											
Moberly River	8	75,631	0.019%	11,404	0.003%	0					391,714,995
MOBERLY TOTAL	8	75,631	0.000%	11,404	0.003%	0	0	0.000%	0	0.000%	391,714,995
PINE RIVER (sub-basin of Peace River)											
Burnt River						0					737,930,022
Sukunka River	3	20,000	0.002%	0	0.000%	0					1,047,282,572
Sukunka River Total (includes Burnt)	3	20,000	0.001%	0	0.000%	0	0	0.000%	0	0.000%	1,785,212,594
Upper Pine River	3	50,500	0.003%	0	0.000%	0					1,466,884,035
Murray River	3	20,850	0.001%	0	0.000%	1	730	0.000%	164	0.000%	2,698,285,017
Lower Pine River	29	626,308	0.455%	39,316	0.029%	2	1,300,000	0.945%	0	0.000%	137,619,889
PINE TOTAL	38	717,658	0.019%	39,316	0.001%	3	1,300,730	0.021%	164	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 (m ³) FOR LOCATIONS ACTIVE ON 6/30/2019	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m ³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m ³)
KISKATINAW RIVER (sub-basin of Peace River)											
West Kiskatinaw River	0					0					117,515,115
East Kiskatinaw River	0		0.000%	0	0.000%	0					105,452,962
Middle Kiskatinaw River	6	98,296	0.174%	404	0.001%	1	600,000		105,612		56,347,972
Middle Kiskatinaw Total (incl. West & East)	6	98,296	0.035%	404	0.000%	1	600,000	0.215%	105,612	0.038%	279,316,049
Lower Kiskatinaw River	21	941,538	1.050%	64,976	0.072%	6	2,239,069	2.497%	308,014	0.344%	89,659,847
KISKATINAW TOTAL	27	1,039,834	0.282%	65,380	0.018%	7	2,839,069	0.769%	413,626	0.112%	368,975,896
PEACE RIVER											
Peace Arm	0					3	9,125,000		3,112		N/A
Upper Peace River	5	859,313	0.002%	42,446	0.000%	0					36,423,413,429
Lynx Creek	3	43,996	0.145%	0		0					30,436,635
Farrell Creek	11	416,244	0.457%	686	0.001%	0					91,018,843
Cache Creek	5	92,000	0.123%	43,260	0.058%	3	491,235	0.658%	126,807	0.170%	74,603,546
Pouce Coupe River	23	1,161,866	0.454%	89,709	0.035%	5	1,452,200	0.568%	1,482	0.001%	255,686,202
Lower Peace River	17	1,458,112	1.274%	112,809	0.099%	4	3,157,469	2.758%	316,709	0.277%	114,470,012
PEACE TOTAL (incl. Kisk/Pine/Moberly/Half/Beaton)	280	9,940,336	0.021%	532,873	0.001%	64	26,130,944	0.055%	1,756,083	0.004%	47,891,853,572
SMOKY RIVER											
Smoky River	3	9,000	0.000%	0	0.000%	3	9,095	0.000%	2,162	0.000%	2,669,506,123
SMOKY TOTAL	3	9,000	0.000%	0	0.000%	3	9,095	0.000%	2,162	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	0.000%	490		0					646,841,560
MUSKWA TOTAL	0	0	0.000%	490	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%	60	0.000%	1	36,593	0.002%			1,470,271,289
Middle Prophet River	5	30,700	0.005%	63		0					621,428,680
Middle Prophet Total (incl. Upper Prophet)	6	32,200	0.002%	123	0.000%	1	36,593	0.002%	0	0.000%	2,091,699,969
Lower Prophet River	1	3,900	0.001%	4,080	0.001%	0					272,262,427
PROPHET TOTAL	7	36,100	0.002%	4,203	0.000%	1	36,593	0.002%	0	0.000%	2,363,962,396

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 (m ³) FOR LOCATIONS ACTIVE ON 6/30/2019	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m ³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m ³)
SIKANNI CHIEF RIVER (sub-basin of Fort Nelson River)											
Upper Sikanni Chief River	0					3	3,117,689	0.386%	0	0.000%	807,771,692
Middle Sikanni Chief River	29	260,483	0.027%	66,304	0.007%	4	29,203	0.003%	130		949,755,794
Middle Sikanni Chief Total (incl. Upper Sikanni)	29	260,483	0.015%	66,304	0.004%	7	3,146,892	0.179%	130	0.000%	1,757,527,486
Lower Sikanni Chief	10	54,136	0.006%	7,685	0.001%	0					875,678,142
SIKANNI CHIEF TOTAL	39	314,619	0.012%	73,989	0.003%	7	3,146,892	0.120%	130	0.000%	2,633,205,628
FORT NELSON RIVER											
Kahntah River	30	168,248	0.000%	0	0.000%	2	2,920		601		400,582,903
Fontas River	5	41,700	0.007%	0	0.000%	0					591,531,903
Fontas Total (includes Kahntah)	35	209,948	0.021%	0	0.000%	2	2,920	0.000%	601	0.000%	992,114,806
Klua Creek	0	0	0.000%	0		0					402,135,448
Upper Fort Nelson River	0	0	0.000%	0	0.000%	0					276,181,026
Upper Fort Nelson Total (incl. Sikanni Chief Total, Kahntah, Fontas, Klua)	74	524,567	0.012%	73,989	0.002%	9	3,149,812	0.073%	731	0.000%	4,303,636,908
Snake River	1	4,200	0.001%	195	0.000%	0					310,763,522
Sahtaneh River	12	56,156	0.012%	595	0.000%	0					474,904,729
Middle Fort Nelson River	6	15,000	0.003%	4,207	0.001%	0					515,348,901
Middle Ft Nelson Total (incl. Upper Ft. Nelson total, Muskwa Total, Prophet Total, Snake, Sahtaneh)	100	636,023	0.005%	83,679	0.001%	10	3,186,405	0.026%	731	0.000%	12,314,371,343
Kiwigana River	7	35,000	0.008%	0	0.000%	0					441,657,543
Lower Fort Nelson River			0.000%	0	0.000%	0					312,768,938
FORT NELSON TOTAL	107	671,023	0.005%	83,679	0.001%	10	3,186,405	0.024%	731	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

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 (m ³) FOR LOCATIONS ACTIVE ON 6/30/2019	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENCED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENCED (m ³)	TOTAL VOLUME LICENCED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2019 (m ³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m ³)
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	0	0	0.000%	0	0.000%	0					183,879,851
Dunedin River	0					0					820,464,167
Lower Liard River	0	0	0.000%	0	0.000%	0					1,236,634,664
LIARD TOTAL (incl. Fort Nelson)	107	671,023	0.001%	83,679	0.000%	10	3,186,405	0.005%	731	0.000%	64,373,155,962
PETITOT RIVER											
Sahdoanah River	11	39,800	0.016%	2,144	0.001%	0					252,625,362
Upper Petitot River	38	108,200	0.007%	0	0.000%	0					1,476,579,488
Tsea River	29	187,734	0.043%	13,457	0.003%	0	0	0.000%	0	0.000%	434,062,484
Middle Petitot River	16	61,300	0.009%	0	0.000%	0					698,562,753
Middle Petitot Total (incl. Sahdoanah, Upper Petitot, Tsea)	94	397,034	0.014%	15,601	0.001%	0	0	0.000%	0	0.000%	2,861,830,087
Lower Petitot River	11	140,000	0.015%	0	0.000%	0					904,314,069
PETITOT TOTAL	105	537,034	0.014%	15,601	0.000%	0	0	0.000%	0	0.000%	3,766,144,156
HAY RIVER											
Upper Kotcho River	1	20,000	0.006%	162	0.000%	0					311,519,217
Kyklo River	4	20,600	0.014%	0	0.000%	0					145,897,691
Shekilie River	27	158,940	0.035%	0	0.000%	0					450,747,494
Lower Kotcho River	1	3,000	0.001%	2,378	0.001%	0					311,519,217
Lower Kotcho Total (includes Upper Kotcho, Kyklo, Shekilie)	33	202,540	0.017%	2,540	0.000%	0	0	0.000%	0	0.000%	1,219,683,619
Hay River	26	180,000	0.033%	1,837	0.000%	0					538,672,352
HAY TOTAL	59	382,540	0.022%	4,377	0.000%	0	0	0.000%	0	0.000%	1,758,355,971
CHINCHAGA RIVER											
Chinchaga River	2	1,000	0.001%	0	0.000%	0					109,492,680
CHINCHAGA TOTAL	2	1,000	0.001%	0	0.000%	0	0	0.000%	0	0.000%	109,492,680
OTHER (outside Northeast B.C.)	18	714,424	0.000%	10,762	0.000%	0	0		0		N/A
GRAND TOTAL	574	12,255,357	0.010%	647,292	0.001%	77	29,326,444	0.024%	1,759,139	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
