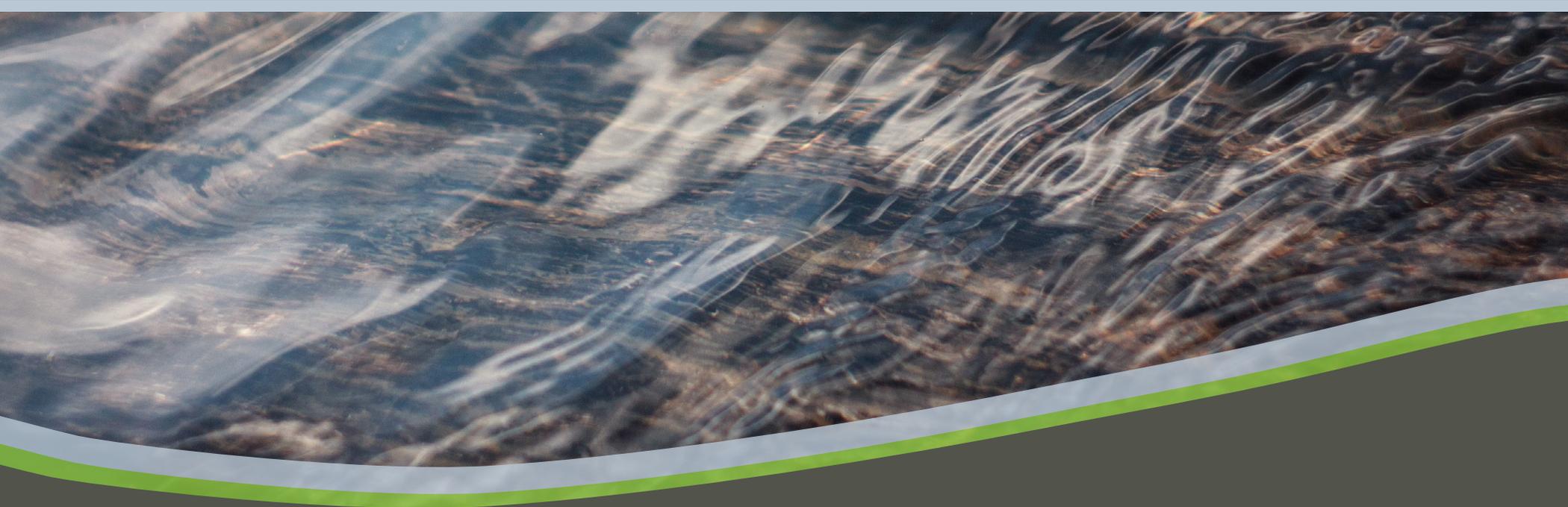


Quarterly Oil and Gas Water Use Summary



Third Quarter 2014 (Jul - Sep)



PURPOSE

This *Quarterly Oil and Gas Water Use Summary* presents short-term water use and water licence data from the Q3 July to September 2014 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.

TABLE OF CONTENTS

ROLE OF THE BC OIL AND GAS COMMISSION.....	4
How Water is Used	5
How Water is Accessed	5
SHORT-TERM WATER APPROVALS AND USE.....	6
TABLE 1 - WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN Q3 2014	
TABLE 2 - QUARTERLY WATER WITHDRAWALS FROM SECTION 8 APPROVALS, 2011 Q1 - 2014 Q3	
LONG-TERM WATER LICENCES AND USE.....	7
TABLE 3 - WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN Q3 2014	
TABLE 4: SUMMARY OF WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN 2014, ORGANIZED BY OGC WATER MANAGEMENT BASIN.....	8

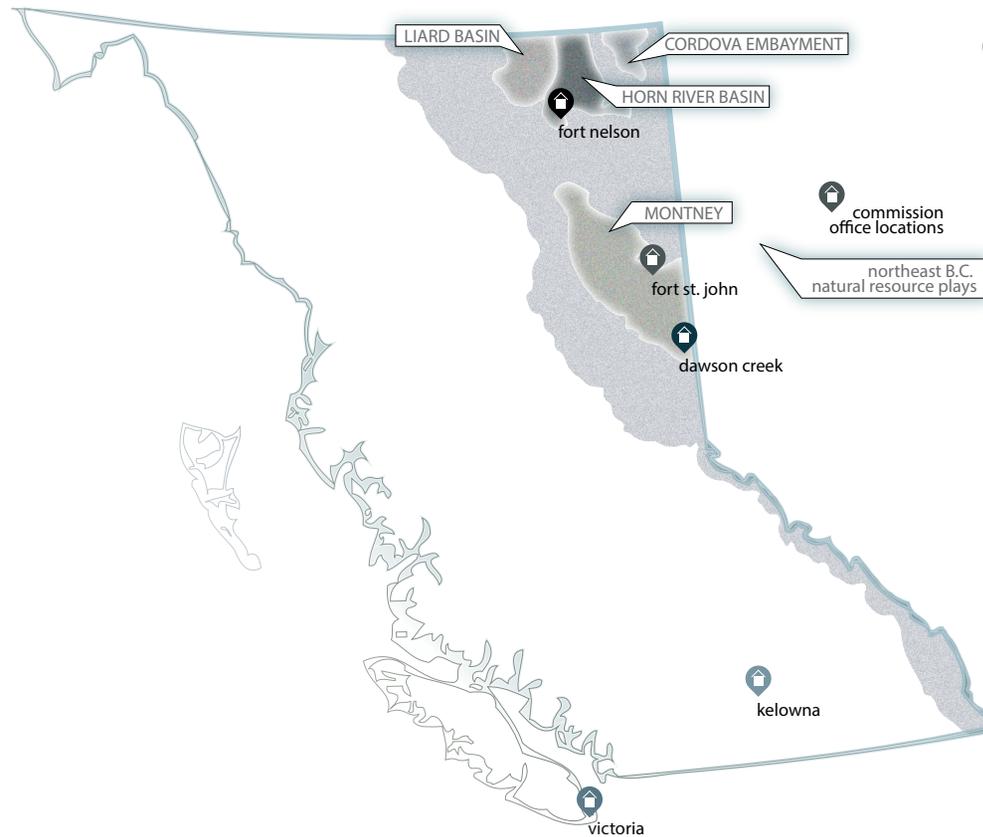
BC OIL AND GAS COMMISSION

The [BC Oil and Gas Commission](#) (Commission) is a single-window Crown corporation that regulates oil and gas activity in the Province of British Columbia.

The Commission regulates industry using the [Oil and Gas Activities Act \(OGAA\)](#), the [Petroleum and Natural Gas \(PNG\) Act](#), and associated regulations. Specified enactments provide the Commission additional authorities to permit oil and gas activities related to forestry, heritage conservation, roads, land and water use, and other natural resources. This consolidated authority allows the Commission to monitor activity in a comprehensive and effective manner where oil and gas activities occur, including Crown land, privately held land, and the Agricultural Land Reserve.

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; protecting and maintaining environmental and community water needs are its first priorities.

Where water authorization is granted, the Commission becomes responsible for regulating the permissions by which oil and gas companies operate.



Commission Office Locations Throughout B.C.

The Commission manages water use with a specific focus on environmental values at every opportunity, monitoring the water withdrawal and enforcing compliance with applicable legislation where required.

The Commission's workforce operates out of Fort Nelson, Fort St. John, Dawson Creek, Kelowna and Victoria, with the largest number of employees concentrated in Fort St. John, the heart of oil and gas activity in the province. The offices in Fort Nelson and Dawson Creek ensure the Commission's presence in communities of the Horn River Basin and Montney gas plays respectively.

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 in British Columbia may access water. Some methods are managed through provincial legislation, including:

- **Water licences** issued under the Water Act. 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 8 of the Water Act. Short-term water use is administered by the Commission.
- **Water source wells** authorized by the Commission under 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 also access water by other means:



- **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.
- **Groundwater wells** for oil and gas use where the activity does not involve water injection (hydraulic fracturing) into the subsurface. These include road maintenance, geophysical exploration, and other possible uses.

SHORT-TERM WATER APPROVALS AND USE

During July to September of 2014, there were a total of 294 short-term water use approvals in place, representing 927 withdrawal locations, held by 50 companies (Table 1).

The total water volume associated with short-term approvals that were active on the last day of the quarter was 11,337,080 m³.

A total of 2,321,631 m³ was reported as used by oil and gas operators for the first nine months of the year (Table 1, 2).

A break-down of short-term water approval and use by OGC Water Management Basin is listed in Table 4 on page 8.

TABLE 1 - WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN 2014

	Q1	Q2	Q3	
SHORT-TERM	Companies with Active Section 8 Approvals	40	43	50
	Active Section 8s	281	259	294
	Approved Withdrawal locations for Section 8s	1,197	1,026	927
	Volume Available for Use for Section 8s (m ³)	13,096,294	12,101,997	11,337,080
	Cumulative Volume Reported Withdrawn for Section 8s (m ³)	1,135,656	1,705,414	2,321,631

TABLE 2 - QUARTERLY WATER WITHDRAWALS (m³) FROM SECTION 8 APPROVALS, 2011 Q1 - 2014 Q3

	Q1	Q2	Q3	Q4	SUM
2011	782,388	662,767	1,266,317	1,100,613	3,812,085
2012	1,345,289	982,376	1,088,192	340,607	3,756,464
2013	1,061,417	482,054	605,408	747,986	2,896,865
2014	1,135,656	569,758	616,073		2,321,631

On July 28, 2014, the Commission issued [Directive 2014-01](#) suspending short-term water withdrawal from several basins in the Peace River Watershed due to significant drought conditions. The suspension was expanded [August 8, 2014](#) and [August 21, 2014](#) to include most of northeast B.C and remained in place for the rest of August and September. Several larger rivers and lakes were exempted from the suspension because they were less affected by the drought. Withdrawals from water source dugouts were not suspended.

LONG-TERM WATER LICENCES AND USE

In the third quarter of 2014, there were 18 active oil and gas related water licences, representing 33 withdrawal locations, held by eight companies. The total annual licensed water volume was 20,048,135 m³ (Table 3).

A total of 1,844,778 m³ of licensed water was reported as used in the first nine months of the year.

In 2014, the Commission amended water licences to require water use reporting.

TABLE 3 - WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN 2014

	Q1	Q2	Q3	
WATER LICENCE	Companies with Active Water Licences	9	9	8
	Active Water Licences	22	22	18
	Licensed Withdrawal Locations	36	36	33
	Annual Volume Available for Use for Water Licences (m ³)	22,035,035	22,035,035	20,048,135
	Cumulative Volume Reported Used in 2014 (m ³)	129,808	1,156,354	1,844,778

Additionally, there were a few changes to active water licences issued to oil and gas companies in the third quarter of 2014.

- Water Licence #C131594 was issued by the Commission to Shell Canada Energy on July 9, 2014 for the Peace River. It has a total annual approval of 350,000 m³.
- Water Licences #C030560, C032839, C033691 & C033692 were abandoned by Canadian Natural Resources Limited. The four water licences had a combined annual volume of 2,321,800 m³ for the Doig River.
- Water Licence #C113545 was abandoned by Tervita Corporation. The water licence had a combined annual withdrawal volume of 15,100 m³ from Rudiger One Lake and Rudiger Two Lake.



TABLE 4 - SUMMARY OF WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN 2014, ORGANIZED BY OGC WATER MANAGEMENT BASIN (Page 1 of 4)

SECTION 8 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 9/30/2014	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN IN 2014 (m ³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENSED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENSED (m ³)	TOTAL VOLUME LICENSED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN (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	39	1,080,820	0.216%	120,005	0.024%	0					499,408,440
Middle Beatton River	14	44,750		270		0					249,152,995
Middle Beatton Total (incl. Upper Beatton)	53	1,125,570	0.150%	120,275	0.016%	0	0	0.000%			748,561,435
Milligan Creek	12	78,414	0.041%	1,155	0.001%	0					191,536,686
Blueberry River	51	914,246	0.312%	48,747	0.017%	0		0.005%			293,278,540
Doig River	8	48,549	0.015%	40	0.000%	0					323,069,523
Lower Beatton River	0	0		0		1	394,000				138,262,629
BEATTON TOTAL	124	2,166,779	0.128%	170,217	0.010%	1	394,000	0.024%			1,694,708,813
HALFWAY RIVER (sub-basin of Peace River)											
Chowade River	0					0					327,027,527
Upper Halfway River	2	150,000		0		0					795,962,409
Upper Halfway Total (includes Chowade)	2	150,000	0.013%	0	0.000%	0	0	0.000%			1,122,989,936
Graham River	3	2,400	0.000%	0	0.000%	0					860,627,172
Cameron River	35	878,709	0.393%	256,422	0.115%	0					223,679,567
Lower Halfway River	24	1,988,217		21,897		0					151,526,991
HALFWAY TOTAL	64	3,019,326	0.128%	278,319	0.012%	0	0	0.000%			2,358,823,666
MOBERLY RIVER (sub-basin of Peace River)											
Moberly River	1	40,000		0		0					391,714,995
MOBERLY TOTAL	1	40,000	0.000%	0	0.000%	0	0	0.000%			391,714,995
PINE RIVER (sub-basin of Peace River)											
Burnt River	3	13,080	0.002%	8	0.000%	0					737,930,022
Sukunka River	3	10,000		20		0					1,047,282,572
Sukunka River Total (includes Burnt)	6	23,080	0.001%	28	0.000%	0	0	0.000%			1,785,212,594
Upper Pine River	4	9,875	0.001%	0	0.000%	0					1,466,884,035
Murray River	23	48,898	0.002%	30	0.000%	7	25,000	0.001%			2,698,285,017
Lower Pine River	37	1,481,621		257,159		0					137,619,889
PINE TOTAL	70	1,563,474	0.019%	257,217	0.004%	7	25,000	0.000%			6,088,001,535

SECTION 8 WATER USE APPROVALS - BC OIL AND GAS COMMISSION

OIL AND GAS RELATED WATER LICENCES

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KISKATINAW RIVER (sub-basin of Peace River)											
West Kiskatinaw River	4	7,000	0.006%	0	0.000%	0					117,515,115
East Kiskatinaw River	12	39,000	0.037%	16,928	0.016%	0					105,452,962
Middle Kiskatinaw River	12	49,536		8,145		0					56,347,972
Middle Kiskatinaw Total (incl. West & East)	28	95,536	0.034%	25,073	0.009%	0	0	0.000%			279,316,049
Lower Kiskatinaw River	7	34,726		5,745	0.006%	1	400,000		4,244		89,659,847
KISKATINAW TOTAL	35	130,262	0.035%	30,818	0.008%	1	400,000	0.108%	4,244	0.001%	368,975,896
PEACE RIVER											
Peace Arm	1					2	7,300,000	N/A	178,978	N/A	N/A
Upper Peace River	0					0					36,423,413,429
Lynx Creek	0					0					30,436,635
Farrell Creek	5	40,706		0	0.000%	0					91,018,843
Cache Creek	4	21,500	0.029%	0	0.000%	1	185,000	0.248%			74,603,546
Pouce Coupe River	1	0	0.000%	0	0.000%	1	2,000	0.001%			255,686,202
Lower Peace River	5	300,000		0		3	3,067,469				114,470,012
PEACE TOTAL (incl. Kisk/Pine/Moberly/Half/Beaton)	310	7,282,047	0.015%	736,571	0.002%	16	11,373,469	0.024%	183,222	0.000%	47,891,853,572
SMOKY RIVER											
Smoky River	29	152,000		1,485	0.000%	1	2,500	0.000%			2,669,506,123
SMOKY TOTAL	29	152,000	0.006%	1,485	0.000%	1	2,500	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%			3,698,913,327
Lower Muskwa River	0	0				0					646,841,560
MUSKWA TOTAL	0	0	0.000%	0	0.000%	0	0	0.000%			4,345,754,887
PROPHET RIVER (sub-basin of Fort Nelson River)											
Upper Prophet River	6	101,190	0.007%	14,059	0.001%	0					1,470,271,289
Middle Prophet River	6	23,400		0		0					621,428,680
Middle Prophet Total (incl. Upper Prophet)	12	124,590	0.006%	14,059	0.001%	0	0	0.000%			2,091,699,969
Lower Prophet River	5	22,900		0		0					272,262,427
PROPHET TOTAL	17	147,490	0.006%	14,059	0.001%	0	0	0.000%			2,363,962,396

SUMMARY OF WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN 2014, ORGANIZED BY OGC WATER MANAGEMENT BASIN (Page 3 of 4)

SECTION 8 WATER USE APPROVALS - BC OIL AND GAS COMMISSION

OIL AND GAS RELATED WATER LICENCES

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SIKANNI CHIEF RIVER (sub-basin of Fort Nelson River)											
Upper Sikanni Chief River	6	75,720	0.009%	314,928	0.039%	1	2,993,000	0.371%	635,407	0.079%	807,771,692
Middle Sikanni Chief River	35	449,017		55,823		0					949,755,794
Middle Sikanni Chief Total (incl. Upper Sikanni)	41	524,737	0.030%	370,751	0.021%	1	2,993,000	0.170%	635,407	0.036%	1,757,527,486
Lower Sikanni Chief	9	0		9,992		0					875,678,142
SIKANNI CHIEF TOTAL	50	524,737	0.020%	380,743	0.014%	1	2,993,000	0.114%	635,407	0.024%	2,633,205,628
FORT NELSON RIVER											
Kahntah River	3	3,875	0.001%	10,975	0.003%	0					400,582,903
Fontas River	1	0		8,912		0					591,531,903
Fontas Total (includes Kahntah)	4	3,875	0.000%	19,887	0.002%	0	0	0.000%	0	0.000%	992,114,806
Klua River	6	21,000	0.005%	11,773	0.003%	0					402,135,448
Upper Fort Nelson River	12	42,000		12,718		0					276,181,026
Upper Fort Nelson Total (incl. Sikanni Chief Total, Kahntah, Fontas, Klua)	72	591,612	0.014%	425,121	0.010%	1	2,993,000	0.070%	635,407	0.015%	4,303,636,908
Snake River	12	45,000	0.014%	5,627	0.002%	0					310,763,522
Sahtaneh River	39	167,000	0.035%	16,327	0.003%	2	40,000	0.008%			474,904,729
Middle Fort Nelson River	28	288,400		670,513		1	3,000,000				515,348,901
Middle Ft Nelson Total (incl. Upper Ft. Nelson total, Muskwa Total, Prophet Total, Snake, Sahtaneh)	168	1,239,502	0.010%	1,131,647	0.009%	4	6,033,000	0.049%	635,407	0.005%	12,314,371,343
Kiwigana River	16	54,150	0.012%	14,610	0.003%	5	42,500	0.010%			441,657,543
Lower Fort Nelson River	23	134,600		6,295		0					312,768,938
FORT NELSON TOTAL	207	1,428,252	0.011%	1,152,552	0.009%	9	6,075,500	0.046%	635,407	0.005%	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%			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

SECTION 8 WATER USE APPROVALS - BC OIL AND GAS COMMISSION

OIL AND GAS RELATED WATER LICENCES

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LIARD RIVER con't											
Middle Liard (incl. Upper Liard Total, Grayling, Upper Toad, Racing, Lower Toad, Beaver)	0	0	0.000%	0	0.000%	0	0	0.000%			49,063,379,456
Capot-Blanc Creek	28	346,896	0.189%	20,730	0.011%	0					183,879,851
Dunedin River	47	274,075	0.033%	20,017	0.002%	0					820,464,167
Lower Liard River	25	491,203		82,848		0					1,236,634,664
LIARD TOTAL (incl. Fort Nelson)	307	2,540,426	0.004%	1,276,147	0.002%	9	6,075,500	0.009%	635,407	0.001%	64,373,155,962
PETITOT RIVER											
Sahdoanah River	23	57,300	0.023%	2,916	0.001%	0					252,625,362
Upper Petitot River	44	365,490	0.025%	175,180	0.012%	0					1,476,579,488
Tsea River	28	31,500	0.007%	29,834	0.007%	4	2,540,000	0.585%	1,026,149	0.236%	434,062,484
Middle Petitot River	16	23,300		1,235		2	26,666				698,562,753
Middle Petitot Total (incl. Sahdoanah, Upper Petitot, Tsea)	111	477,590	0.017%	209,165	0.007%	6	2,566,666	0.090%	1,026,149	0.036%	2,861,830,087
Lower Petitot River	27	405,757		38,109		1	30,000				904,314,069
PETITOT TOTAL	138	883,347	0.023%	247,274	0.007%	7	2,596,666	0.069%	1,026,149	0.027%	3,766,144,156
HAY RIVER											
Upper Kotcho River	4	16,800	0.005%	3,510	0.001%	0					311,519,217
Kyklo River	22	125,500	0.086%	7,689	0.005%	0					145,897,691
Shekilie River	8	9,150	0.002%	5	0.000%	0					450,747,494
Lower Kotcho River	3	6,000		0		0					311,519,217
Lower Kotcho Total (includes Upper Kotcho, Kyklo, Shekilie)	37	157,450	0.013%	11,204	0.001%	0	0	0.000%			1,219,683,619
Hay River	34	148,970		43,721		0					538,672,352
HAY TOTAL	71	306,420	0.017%	54,925	0.003%	0	0	0.000%			1,758,355,971
CHINCHAGA RIVER											
Chinchaga River	28	150,869	0.138%	5,026	0.005%	0					109,492,680
CHINCHAGA TOTAL	28	150,869	0.138%	5,026	0.005%	0	0	0.000%			109,492,680
OTHER (outside Northeast B.C.)	44	21,971		203		0	0				N/A
GRAND TOTAL	927	11,337,080	0.009%	2,321,631	0.002%	33	20,048,135	0.017%	1,844,778	0.002%	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>

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