



February 15, 2016

Ms. Mary McCuaig, CAO/Clerk
The Corporation of the Nation Municipality
958 Hwy # 500 West, R.R. # 3
Casselman, ON
K0A 1M0

Subject: Summary and Annual Report for the Limoges Drinking Water System.

Dear Ms. McCuaig:

The following document includes the Summary Report for the Limoges Drinking Water System, covering the period from January 1st to December 31st 2015. The Summary Report is completed in accordance with O.Reg 170/03 Schedule 22 under the Safe Drinking Water Act, which requires for it to be completed by February 28 of the following year.

The Summary Report includes a summary of the quantities and flow rates of the water supplied during the period covered including monthly average and maximum daily flow and a comparison of the summary to the rated capacity of the system.

It is to be distributed among the members of the municipal council and the board of directors of the Nation Corporation.

Sincerely,

A handwritten signature in blue ink, appearing to read "Luc Airoidi".

Luc Airoidi

Project Manager

cc: Desmond Verasammy, Team Aquatic
Marc Legault, Director of Public Works, The Nation Municipality



The Nation Municipality

Report for Limoges Drinking Water System

2015 Summary and Annual report

Date : February 2016
N/Réf. : 058-P-0001826-027-EX-R-2015-00



Summary Report for the Limoges Drinking Water System

Background

O. Reg. 170/03 Schedule 22 Summary Reports for Municipalities applies for small and large municipal residential systems. The Limoges Drinking Water System is considered to be a large municipal residential system as it is a “municipal drinking water system that serves a major residential development and serves more than 100 private residences” as defined in Section 1 of O.Reg.170/03.

The summary report must be prepared by February 28 of the following year and must be given to:

- in the case of a drinking water system owned by a municipality, the members of the municipal council;
- in the case of a drinking water system owned by a municipal service board established under section 195 of the *Municipal Act, 2001*, the members of the municipal service board; or
- in the case of a drinking water system owned by a corporation, the board of directors of the corporation.

The Summary Report must:

- list the requirements of the Act, the regulations, the system’s approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and
- for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure
- A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
- A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system’s approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement.

Content

The following table lists the requirements that the system failed to meet and the measures taken to correct the failures.

Drinking Water Legislation and	Requirements the system failed to meet	Duration of the failure	Corrective measures taken	Status
Safe Drinking Water Act, 2002	None	N/A	N/A	N/A
Ontario Regulations: O.Reg. 128/04 O.Reg. 169/03 O.Reg. 170/03	None	N/A	N/A	N/A
Systems approval: Certificate of Approval	None	N/A	N/A	N/A
Drinking Water Works Permit under O.Reg 188/03	None	N/A	N/A	N/A
Municipal Drinking Water Licence under O.Reg 188/03	None	N/A	N/A	N/A
Provincial Officer's Order	None	N/A	N/A	N/A

Comparison:

During 2015 year, the maximum daily flow of 1 466 m³/d occurred during the month of May and represented 70.5 % of the rated capacity of the Limoges Water Treatment Plant which is 2080 m³/d.

The maximum daily flow from wells of 1444 L/Min (24.1 L/sec or 2080 m³/d) as per the Permit to Take Water number 1106-968LAR dated April 12th 2013. The maximum daily flow of 1611 m³/d, which occurred in June, represented 77.5% of the rated capacity of the Limoges Water Treatment plant wells.

The average daily distribution flow during the 2015 year was 900 m³/d in which represents an increase of 5.6% consumption compared to the Year 2014 where the daily distribution average was 852 m³/d.

2015 Summary Report Limoges Water Taking

Municipality: Village of Limoges and Forest Park in the Nation Township

Facility: Limoges Water Treatment Plant and Distribution System

Works: 260006841 - Limoges Water Treatment Plant and Water Distribution System

Classification: Class 1 Water Distribution

Water Source: Ground Water

Permit Number: 03-P-4045

Total Designed Capacity (m3/day): 2080

Period: 2015-01-01 to 2015-12-31

Rated Capacity (L/s) & (L/min) : 24,0 1440,0

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sum
Well # 1													
Total Hours of Taking	308,15	302,50	286,09	218,79	350,68	338,83	258,38	187,45	202,19	228,91	19,00	43,47	2 744,44
Total Amount of Taking (m ³)	22 248	23 091	22 397	16 542	26 747	25 862	20 915	16 190	16 194	17 667	1 432	4 453	213 738
Average Daily Taking (m3)	718	825	722	591	892	892	951	952	852	736	477	636	770
% Rated Capacity (ave daily taking)	34,50	39,65	34,73	28,40	42,86	42,87	45,71	45,79	40,98	35,39	22,94	30,59	37,03
Max Daily Flow (m3)	1 059	1 097	1 057	1 171	1 525	1 389	1 466	1 444	1 523	1 165	1 023	891	1 525
% Rated Capacity (max daily flow)	50,93	52,76	50,82	56,31	73,30	66,76	70,50	69,41	73,24	56,00	49,19	42,82	73,30
Min Daily Flow (m3)	108	351	131	31	162	190	298	165	176	133	0	359	0
% Rated Capacity (max daily flow)	5,18	16,90	6,30	1,51	7,81	9,15	14,32	7,92	8,45	6,40	0,00	17,25	17,25
Average Daily Rate of Taking (L/s)	20,09	20,54	20,31	20,46	20,56	20,37	20,45	20,49	20,34	20,28	20,60	20,59	20,42
Peak Daily Rate of Taking (L/s)	34,50	43,79	25,43	36,94	22,38	22,58	24,00	22,20	24,00	35,19	21,77	23,11	43,79
% Peak Daily Rate of Taking (L/s)	143,75	182,46	105,96	153,92	93,25	94,08	100,00	92,50	100,00	146,63	90,71	96,29	182,46
Well level (static & Dynamic)	7,24	6,98	6,81	7,31	7,40	7,21	6,97	6,67	6,59	6,58	6,90	7,06	6,98
Min Well level (Dynamic)	6,77	6,62	6,47	6,49	7,04	6,91	6,51	6,39	6,24	6,20	6,35	6,50	6,20
Max Well level (static)	7,61	7,30	7,17	7,76	7,78	7,50	7,30	6,86	7,91	6,84	7,19	7,40	7,91
Well # 2													
Total Hours of Taking	101,29	57,34	107,82	165,98	134,10	91,37	219,97	264,86	188,13	137,95	279,94	278,33	2 027,08
Total Amount of Taking (m ³)	5 998	3 009	6 129	12 335	10 981	7 494	19 178	21 676	16 185	12 690	26 805	24 223	166 701
Average Daily Taking (m3)	333	334	361	587	523	441	833,81	1 032	852	668	924	835	644
% Rated Capacity (ave daily taking)	16,02	16,07	17,33	28,24	25,14	21,19	40,09	49,62	40,95	32,11	44,44	40,16	30,95
Max Daily Flow (m3)	772,85	499,61	780,55	1 152,34	1 102,09	992,00	1 490,11	1 611,36	1 155,33	1 087,84	1 137,52	1 147,82	1 611,36
% Rated Capacity (max daily flow)	37,16	24,02	37,53	55,40	52,99	47,69	71,64	77,47	55,54	52,30	54,69	55,18	77,47
Min Daily Flow (m3)	117	224	190	194	213	158	236	240	201	133	515	155	117,08
% Rated Capacity (max daily flow)	5,63	10,76	9,12	9,32	10,22	7,61	11,33	11,56	9,66	6,42	24,78	7,43	24,78
Average Daily Rate of Taking (L/s)	16,65	18,00	17,39	18,36	18,04	17,28	18,62	19,13	19,17	18,76	22,95	22,84	18,93
Peak Daily Rate of Taking (L/s)	21,19	21,60	22,01	23,08	22,67	21,16	21,21	21,07	20,72	24,00	24,27	26,69	26,69
% Peak Daily Rate of Taking (L/s)	88,29	90,00	91,71	96,17	94,46	88,17	88,38	87,79	86,33	100,00	101,13	111,21	111,21
Well level Average (Static & Dynamic)	7,45	7,22	7,02	7,44	7,61	7,40	7,05	6,71	6,65	6,68	6,83	7,01	7,09
Min Well level (Dynamic)	7,06	6,81	6,56	6,64	7,14	6,97	6,56	6,39	6,33	6,20	6,34	6,62	6,20
Max Well level (static)	7,78	7,46	7,34	7,90	7,94	7,63	7,44	6,94	6,94	6,95	7,26	7,46	7,94
Total Amount of Taking (m3)													
Total Amount of Taking (m ³)	28 245	26 100	28 526	28 877	37 728	33 355	40 093	37 866	32 379	30 357	28 236	28 676	380 438
Average Daily Taking (m3)	911	932	920	963	1 217	1 112	1 293	1 221	1 079	979	941	925	1 041

2015 Summary Report Limoges Water Distribution System

Municipality: Village of Limoges and Forest Park in the Nation Township

Facility: Limoges Water Treatment Plant and Distribution System

Works: 260006841 - Limoges Water Treatment Plant and Water Distribution System

Classification: Class 1 Water Distribution

Water Source: Ground Water

Period: 2015-01-01 to 2015-12-31

Served Population: 1300

Total Designed Capacity (m3/day): 2080

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sum
Distribution System \ Flows													
POE - Flows (m3/day)													
Avg.	798	813	808	839	1067	963	1119	1054	918	833	800	789	900
Max	921	970	934	971	1466	1228	1406	1368	1224	974	940	966	1466
Min	722	732	710	747	798	689	932	805	757	757	687	698	687
Total	24732	22765	25041	25163	33080	28900	34704	32688	27535	25827	24013	24465	328913
Forest-Park booster - Flows (m3/day)													
Avg.	172	237	350	300	84	114	133	62	63	52	57	52	140
Max	193	380	431	480	112	224	326	110	247	130	153	112	480
Min	137	168	196	80	68	39	37	32	22	22	19	24	19
Total	5 345	6 631	10 861	8 688	338	2 961	3 585	927	1 819	1 545	1 702	1 498	45 900
Distribution System \ Health - Chlorine Residuals POE													
Minimum Total Cl ₂ (mg/L)													
Avg.	1,73	1,56	1,56	1,69	1,81	1,95	1,90	1,91	1,97	1,87	1,93	1,91	1,56
Min	1,35	1,27	1,13	1,22	1,24	1,47	1,20	1,37	1,35	1,37	1,45	1,33	1,13
Maximum Total Cl ₂ (mg/L)													
Avg.	2,08	1,90	1,98	2,15	2,15	2,22	2,23	2,31	2,33	2,19	2,24	2,21	2,33
Max	2,71	2,56	2,62	2,60	2,67	2,66	2,94	2,83	2,85	2,90	2,86	2,62	2,94
Minimum Free Cl ₂ (mg/L)													
Avg.	0,01	0,02	0,05	0,05	0,07	0,07	0,08	0,10	0,11	0,10	0,08	0,07	0,01
Min	0,00	0,01	0,01	0,03	0,05	0,05	0,06	0,06	0,08	0,06	0,06	0,06	0,00
Maximum Free Cl ₂ (mg/L)													
Avg.	0,08	0,10	0,07	0,08	0,09	0,11	0,14	0,17	0,17	0,16	0,16	0,16	0,17
Max	0,44	0,53	0,12	0,11	0,13	0,15	0,19	0,21	0,22	0,26	0,19	0,20	0,53
Minimum Combined Cl ₂ (mg/L)													
Avg.	1,67	1,48	1,49	1,62	1,72	1,86	1,78	1,78	1,82	1,73	1,80	1,79	1,48
Min	1,33	1,02	1,07	1,16	1,16	1,38	1,11	1,25	1,22	1,24	1,33	1,17	1,02
Maximum Combined Cl ₂ (mg/L)													
Avg.	2,04	1,87	1,92	2,09	2,07	2,13	2,13	2,17	2,19	2,07	2,12	2,11	2,19
Max	2,64	2,53	2,56	2,52	2,67	2,56	2,83	2,72	2,71	2,77	2,75	2,51	2,83
Mean Combined Cl ₂ (mg/L)													
Avg.	1,84	1,66	1,75	1,87	1,90	1,93	1,87	1,89	1,91	1,83	1,91	1,95	1,86



OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	260006841
Drinking-Water System Name:	Limoges Water Treatment Plant
Drinking-Water System Owner:	The Corporation of the Nation Municipality
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 st to December 31 st 2015

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Municipal Office The Corporation of the Nation Municipality 958 Hwy 500 W, RR # 3 Cassleman, ON, K0A1M0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Le Baron Estate	N/A

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?
Yes [X] No []



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method _____

Describe your Drinking-Water System

The Limoges water treatment plant is a ground water facility, service the Village of Limoges, the Community of Forest Park, Le Baron Estate and the Ben Tardiff Trailer Park. The facility is rated at 2,080 m3/day and includes; two raw water production wells, two low lift pumps, two detention tanks, two clarifier/green sand filters, one clearwell (160 m3 capacity), one elevated water reservoir (1734 m3 capacity) and chemical feed systems.

The Chemical feed systems consist of chemical pumps, storage tanks, piping and associated appurtenances to dose potassium permanganate (primary and secondary doses), Alum, Polyelectrolyte, Sodium Hypochlorite and Ammonium Sulphate.

This facility operates under the Certificate of Approval number 7364 – 6SYKG8 and Permit to Take Water number 03-P-4045.

List all water treatment chemicals used over this reporting period
List all water treatment chemicals used over this reporting period

Potassium Permanganate, PAX-XL6, Polyelectrolyte, Sodium Hypochlorite, Ammonium Sulphate

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

- Replacement of valve	30 000\$
- Manuel operation WTP	5 000\$
- Inspect and Repair of fire hydrants	2 000\$
- Replacement flow chlorine analyser at Forest Park	3 500\$
- Calibration of flow meter	2 000\$
- Replacement pump well # 2	4 700\$



Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
None					

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw Well # 1	52	0 - 0	0 - 1	N/A	N/A
Raw Well # 2	52	0 - 3	0 - 3	N/A	N/A
Treated	52	0 - 0	0 - 0	52	<2-58
Distribution	156	0 - 0	0 - 0	52	<2 - 4

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity (Raw W1)	24	1.29 – 7.73
Turbidity (Raw W2)	24	1.80 – 4.94
Chlorine Combined Dist. Syst.	8760	1.02 – 2.83 *

NOTE: For continuous monitors use 8760 as the number of samples.

*NOTE: Record the unit of measure if it is not milligrams per liter.
Average per day of combine chlorine in distribution syst. : min. 1.59 – max. 2.16 mg/l

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	08/04/2015	<0.0001	mg/l	No
Arsenic	08/04/2015	0.0005	mg/l	No
Barium	26/10/2015	0.588	mg/l	Half Mac
Boron	08/04/2015	0.058	mg/l	No
Cadmium	08/04/2015	<0.00002	mg/l	No
Chromium	08/04/2015	<0.002	mg/l	No
Fluoride	03/04/2014	0.2	mg/l	No
Iron	08/04/2015	0.005	mg/l	No
Manganese	08/04/2015	0.004	mg/l	No
Mercury	08/04/2015	0.00002	mg/l	No
Selenium	08/04/2015	<0.001	mg/l	No
Sodium	11/11/2014	33.2	mg/l	Yes
Uranium	08/04/2015	<0.00005	mg/l	No
Nitrite	26/10/2015	<0.1	mg/l	No
Nitrate	26/10/2015	0.3	mg/l	No

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing			N/A
Distribution	3	0.00004-0.00065	No
Alcalinity	3	217-239 mg/l	N/A
pH	3	7.91- 8.05	No

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	13/04/15	<0.03	µg/L	No
Aldicarb	14/04/15	<0.3	µg/L	No
Aldrin + Dieldrin	13/04/15	<0.02	µg/L	No
Atrazine + N-dealkylated metabolites	13/04/15	<0.5	µg/L	No
Azinphos-methyl	13/04/15	<1	µg/L	No
Bendiocarb	13/04/15	<3	µg/L	No
Benzene	08/04/15	<0.5	µg/L	No
Benzo(a)pyrene	13/04/15	<0.005	µg/L	No



Bromoxynil	13/04/15	<0.3	µg/L	No
Carbaryl	13/04/15	<3	µg/L	No
Carbofuran	13/04/15	<1	µg/L	No
Carbon Tetrachloride	08/04/15	<0.2	µg/L	No
Chlordane (Total)	14/04/15	<0.04	µg/L	No
Chlorpyrifos	13/04/15	<0.5	µg/L	No
Cyanazine	13/04/15	<0.5	µg/L	No
Diazinon	13/04/15	<1	µg/L	No
Dicamba	13/04/15	<5	µg/L	No
1,2-Dichlorobenzene	08/04/15	<0.1	µg/L	No
1,4-Dichlorobenzene	08/04/15	<0.2	µg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	13/04/15	<0.01	µg/L	No
1,2-Dichloroethane	08/04/15	<0.1	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	08/04/15	<0.1	µg/L	No
Dichloromethane	08/04/15	<0.3	µg/L	No
2,4 Dichlorophenol	13/04/15	<0.1	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	13/04/15	<5	µg/L	No
Diclofop-methyl	13/04/15	<0.5	µg/L	No
Dimethoate	13/04/15	<1	µg/L	No
Dinoseb	13/04/15	<0.5	µg/L	No
Diquat	10/04/15	<5	µg/L	No
Diuron	13/04/15	<5	µg/L	No
Glyphosate	10/04/15	<25	µg/L	No
Heptachlor + Heptachlor Epoxide	14/04/15	<0.1	µg/L	No
Lindane (Total)	14/04/15	<0.1	µg/L	No
Malathion	13/04/15	<5	µg/L	No
Methoxychlor	14/04/15	<0.1	µg/L	No
Metolachlor	13/04/15	<3	µg/L	No
Metribuzin	13/04/15	<3	µg/L	No
Monochlorobenzene	08/04/15	<0.2	µg/L	No
Paraquat	10/04/15	<1	µg/L	No
Parathion	13/04/15	<3	µg/L	No
Pentachlorophenol	13/04/15	<0.1	µg/L	No
Phorate	13/04/15	<0.3	µg/L	No
Picloram	13/04/15	<5	µg/L	No
Polychlorinated Biphenyls(PCB)	14/04/15	<0.05	µg/L	No
Prometryne	13/04/15	<0.1	µg/L	No
Simazine	13/04/15	<0.0005	µg/L	No
THM (NOTE: show latest annual average)	quarterly 2015	33.13	µg/L	No
Temephos	13/04/15	<10	µg/L	No
Terbufos	13/04/15	<0.3	µg/L	No
Tetrachloroethylene	08/04/15	<0.2	µg/L	No



2,3,4,6-Tetrachlorophenol	13/04/15	<0.1	µg/L	No
Triallate	13/04/15	<10	µg/L	No
Trichloroethylene	08/04/15	<0.1	µg/L	No
2,4,6-Trichlorophenol	13/04/15	<0.1	µg/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	13/04/15	<10	µg/L	No
Trifluralin	13/04/15	<0.5	µg/L	No
Vinyl Chloride	08/04/15	<0.2	µg/L	No
Total Organic Carbon	08/04/15	4.8	Mg/l	No
Dissolved Organic Carbon	08/04/15	4.7	Mg/l	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
Barium	0.588	mg/l	26/10/2015
Sodium	33.2	mg/l	11/11/2014