

Osnabruck Centre Well Supply

Works No. 260001591

- 2008 Summary Report -

Prepared by:

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15005 County Road 2

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K0C 1M0

Operations Manager: _____

Chris Eamon

OSNABRUCK CENTRE WELL SUPPLY

2008 SUMMARY REPORT

Facility Location:	14978 County Rd. #18, Village of Osnabruk Centre
Facility Description:	Small communal well system consisting of five residences connected to the Osnabruk Centre Hall Communal Well. The drilled well has a submersible pump and a chlorination system. It was established when several residential wells and the local aquifer became contaminated by stored road salt. The Osnabruk Centre Township Hall serves as the water treatment system with the chlorination system in the basement. The well originally only serviced the Osnabruk Centre Hall.
Facility Description:	Not classified. No MOE Certificate of Approval.
Capacity:	Unknown
Service Area:	5 residences connected to the Osnabruk Centre Township Hall well (municipal garage is also connected)
Raw Water Source:	Groundwater
Disinfection Method:	Sodium hypochlorite (liquid chlorine)
Operations Manager:	Chris Eamon

The Osnabruk Centre Well Supply System is a small communal well system consisting of 5 residences connected to a single drilled well located on the property of the Osnabruk Centre Hall (14978 County Road 18). The well is equipped with a submersible pump (capacity estimated between 38,000 and 56,000 L/d). A disinfectant solution of 6% sodium hypochlorite is injected into the feeder main immediately downstream of the flow meter. The metering pump rate is set on a daily basis to correspond with the groundwater pumping rate and the chlorine residual in the distribution system. An alarmed online chlorine analyzer with datalogging was installed at the hall location which alleviated operators from having to collect readings every day. The analyzer is checked every 72 hours.

The Osnabruk Centre Well Supply and distribution system is operated and maintained in accordance with O. Reg. 252/05 (until December 1, 2008) and O. Reg. 318/08 (transitional).

A flow meter measures the daily quantity of water being taken from the source (intake) and conveyed to, and through, the water treatment plant. The flow rate of treated water supplied to the distribution system is recorded as total daily flow. (See Appendix I).

Operators in charge of the Osnabruk Centre Well Supply keep a daily log book recording flow meter readings and free and total chlorine residual (grab samples). The hall location is checked (at minimum) every 72 hours.

Samples are collected throughout the year from the treated water to determine whether or not the water is safe for human consumption in accordance with Regulation 252/05, Schedule 2 Microbiological Sampling and Testing (until December 1, 2008) and O. Reg. 318/08 (transitional). Bacteriological analysis is performed weekly (1 sample per week from the distribution system, representing the water stream from which it is taken). (See Appendix II for

chemical parameters.) All samples are analyzed at Caduceon Environmental Labs in Nepean, Ontario and Meyer Labs in Long Sault, Ontario. Meyer Labs and Caduceon and its subcontracted labs are accredited by the Standards Council of Canada. Written procedures have been established for the notification of the Medical Officer of Health should a sample result indicate an exceedance has occurred. (See Appendix III for Procedures for Indicators of Adverse Water Quality).

Free chlorine residual in the distribution system is monitored by an alarmed online analyzer with datalogging. The analyzer is checked, at minimum, every 72 hours. This analyzer will alarm out when the chlorine goes below 0.15 mg/L for a period greater than 15 minutes. The analyzer at the hall location will alarm out when the chlorine goes below 0.15 mg/L. The analyzers were calibrated June 17&18, 2008 by Ken Harris Instrumentation.

All records and information relating to or resulting from the monitoring, sampling and analyzing activities are retained for a minimum of 5 years.

Following all maintenance or repairs to the water treatment facility, all affected areas are disinfected in accordance with the MOE's "Procedure for Disinfection of Drinking Water in Ontario" dated March 17, 2003. All chemicals used in the treatment process (Chlorine, liquid) and all materials contacting the water meet both the American Water Works Association (AWWA) quality criteria and the American National Standards Institute (ANSI) safety criteria. All chemicals have been registered by a testing institution accredited under the Standards Council of Canada Act or by ANSI.

Procedures have been established and are followed for receiving, responding to, and recording complaints about any aspect of the works, including recording the steps that were taken to determine the cause of complaint and the corrective measures taken to alleviate the cause and prevent its reoccurrence. (See Appendix IV for complaint form.)

Non-Compliance with Terms and Conditions of the Certificate of Approval

Ministry of the Environment's Compliance Inspection for 2008/2009 was completed on August 20, 2008. A copy of the report and the Township's response is available at the Township Office.

Maintenance

Mar. 17/09 – checked pH probe – changed to manual read (Ken Harris Instrumentation)

June 5/09 – checked alarm settings (Ranguard)

June 17&18/09 – annual calibration of chlorine analyzers and flow meter (Ken Harris Instrumentation)

Osnabruck Centre Well Supply- Inorganic Parameters (Schedule 23 - O. Reg. 170/03) Treatment Location

	MAC (mg/L)	Number of Samples	Result (mg/L)	Adverse Water Incidences	Typical Source of Contamination
Nitrite	1.0	24-Jan-05 6-Jun-05 Average	< 0.1 < 0.1 < 0.1	0	Natural component of water at this level.
Nitrate	10	24-Jan-05 6-Jun-05 Average	0.10 0.20 0.15	0	Decay from plant or animal material, fertilizers, sewage, natural formation.
Antimony	0.006 (IMAC)	1	< 0.001	0	Rarely detected in Ontario drinking water.
Arsenic	0.025(IMAC)	1	< 0.001	0	Naturally occurring in minerals, minning operations.
Barium	1.0	1	0.051	0	Naturally occurring in formations such as limestone and dolomite.
Boron	5.0 (IMAC)	1	0.19	0	Antiseptic agent.
Cadmium	0.005	1	< 0.0001	0	A rare element in th environment, it is found in cigarettes, food, electroplated material and electroplating wastes.
Chromium	0.05	1	< 0.001	0	Older yellow paints, residues from plating operations, and old recirculating water cooling systems.
Fluoride	1.5	1	0.2	0	Added to prevent tooth decay.
Mercury	0.001	1	< 0.0001	0	Air pollution from coal combustion, incineration, metal refining, and natural mineral deposits.
Selenium	0.01	1	0.001	0	Food, naturally occurring with the weathering of rocks.
Sodium	20	1	93.5	1*	The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.
Uranium	0.02	1	< 0.0001	0	Naturally occurring in the environment.

MAC - Maximum Acceptable Concentration

IMAC - Interim Maximum Acceptable Concentration

mg/L - milligrams per litre

The most recent results are reported (December 1, 2003).

Osnabruck Centre Well Supply - Organic Parameters (Schedule 24 - O. Reg. 170/03) Treated Water

Parameter	MAC (mg/L)	IMAC (mg/L)	Number of Samples	Annual Average (mg/L)	Adverse Water Incidences	Typical Source of Contamination
Alchlor		0.005	1	< 0.0005	0	Herbicide used mainly on soybeans, and corn to control weeds.
Aldicarb	0.009		1	< 0.006	0	Insecticide used on potatoes, sugar beets, greenhouse ornamentals.
Aldrin +Dieldrin	0.0007		1	< 0.00005	0	Pesticides used to control soil insects.
Atrazine		0.005	1	< 0.001	0	Pesticide used on corn for grass control.
Azinphos-methyl	0.02		1	<0.002	0	Broad-spectrum insecticide used to combat foliage-feeding insects.
Bendiocarb	0.04		1	< 0.005	0	Insecticide used to control insects in buildings and greenhouses.
Benzene	0.005		1	< 0.0005	0	Gasoline and other petroleum products
Benzo(a)pyrene	0.00001		1	< 0.00001	0	Formed during the incomplete burning of organic matter and found in poorly adjusted diesel exhaust and in coal/coking tar.
Bromoxynil		0.005	1	< 0.0005	0	Herbicide used for specific control of weed seedlings in grain crops.
Carbaryl	0.09		1	< 0.005	0	Broad spectrum insecticide used in the agricultural and forestry industry. Garden use and pest control on animals.
Carbofuran	0.09		1	< 0.002	0	Broad insecticide to control pests.
Carbon Tetrachloride	0.005		1	< 0.0003	0	Associated with chlorinated solvents.
Total Chlorodane	0.007		1	< 0.0006	0	Banned in 1994-It was used to control cockroaches, ants, and termites.
Chloropyrifos	0.09		1	< 0.001	0	Commonly used to control insects, fleas, and ticks.
Cyanazine		0.01	1	< 0.001	0	Herbicide to control weeds.
Diazinon	0.02		1	< 0.002	0	Insecticide used to control flies, ants, cockroaches, and pests.
Dicamba	0.12		1	< 0.010	0	Herbicide to control weeds in grains, corn, flax, sorghum, pastures. Used as a weed control for lawns as well.
1,2-Dichlorobenzene	0.2		1	< 0.0004	0	Used in a variety of specialty chemical blends (degreasing agents, imported dye carriers).
1,4-Dichlorobenzene	0.005		1	< 0.0004	0	Widely used in toilet pucks and mothballs.
DDT	0.03		1	< 0.001	0	Restricted in the 1960's and banned in ON. in 1988.
1,2-Dichloroethane		0.005	1	< 0.0002	0	Starting material in the production of vinyl chloride, as a solvent and a fumigant.
1,1-Dichloroethylene	0.014		1	< 0.0003	0	Used in the food packaging industry and the textile industry for furniture and automotive upholstery, drapery fabric and outdoor furniture.
Dichloromethane	0.05		1	< 0.0003	0	Used as an industrial solvent for paint-stripping and as a degreasing agent.
2, 4-Dichlorophenol	0.9		1	< 0.0002	0	Synthetic material, Industrial contamination
2, 4-D		0.1	1	< 0.010	0	Herbicide used on cereal crops and lawns
Diclofop-methyl	0.009		1	< 0.0009	0	Controls annual grasses in grain and vegetable crops.
Dimethoate		0.02	1	< 0.002	0	Insecticide used to control mites, and fly control.
Dinoseb	0.01		1	< 0.001	0	Herbicide that is no longer used in ON.
Diquat	0.07		1	< 0.005	0	Herbicide used primarily on seed crops and as an aquatic herbicide.
Diuron	0.15		1	< 0.010	0	Herbicide used to control vegetation in crop and non-crop areas including industrial sites.
Glyphosate		0.28	1	< 0.025	0	Herbicide used by the forestry industry and as a domestic control.
Heptachlor + heptachlor epoxide	0.003		1	< 0.0001	0	Insecticide used in agriculture for control of soil insects. Heptachlor has been banned in Canada since 1969.
Total Lindane	0.004		1	< 0.0001	0	Insecticide used by the pharmaceutical industry to control head lice, and used in mite shampoos.
Malathion	0.19		1	< 0.010	0	Insecticide to control mosquitoes, flies, fleas, and ticks.
Methoxychlor	0.9		1	< 0.010	0	Insecticide on products nearing harvest, larvicide, fly control adulticide against black flies and mosquitoes.
Metolachlor		0.05	1	< 0.010	0	Selective herbicide for weed control in corn, sunflowers soybeans, peanuts, grain sorghum, pod crops.
Metribuzin	0.08		1	< 0.005	0	Herbicide used on soybeans, tomatoes, potatoes, and other crops which are highly sensitive to other herbicides.
Monochlorobenzene	0.08		1	< 0.0001	0	Used as a solvent in adhesives, paints, waxes, polishes and inert solvents. Also used in metal cleaning.
Paraquat		0.01	1	< 0.001	0	Highly toxic herbicide used for non-crop and industrial weed control. It is also used to control aquatic vegetation.
Parathion	0.05		1	< 0.005	0	Extremely toxic insecticide used in agriculture to control foliar pests and root maggots.
Pentachlorophenol	0.06		1	< 0.0002	0	Rarely found in commercial use today but was used mainly as a pesticide and wood preservative.
Phorate		0.002	1	< 0.0005	0	Insecticide effective against sucking insects, larvae of the rootworm, and leaf-eating beetles.
Picloram		0.19	1	< 0.010	0	Herbicide used on right-of-ways and roadsides and it can persist in the soil for up to a year after application.
PCB		0.003	1	< 0.00005	0	Polychlorinated Biphenyls are no longer in use today although they once had a variety of uses.
Prometryne		0.001	1	< 0.0002	0	Herbicide for the control of selective grasses and weeds in crops and non-crops.

Osnabruck Centre Well Supply - Organic Parameters (Schedule 24 - O. Reg. 170/03) Treated Water

Parameter	MAC (mg/L)	IMAC (mg/L)	Number of Samples	Annual Average (mg/L)	Adverse Water Incidences	Typical Source of Contamination
Simazine		0.01	1	< 0.001	0	Herbicide which is easily leached to ground water where it may persist for years.
Temephos		0.28	1	< 0.025	0	Used to Control blackfly larvae and mosquitoes.
Terbufos		0.001	1	< 0.0007	0	Insecticide used for insect control in corn.
Tetrachloroethylene	0.03		1	< 0.0001	0	Used as a solvent for dry cleaning and metal cleaning.
2, 3, 4, 6,-Tetrachlorophenol	0.1		1	< 0.0001	0	Organic and used to preserve wood, it can cause an unpleasant taste in water.
Triallate	0.23		1	< 0.020	0	Herbicide used to control wild oats in grain crops, mustard and sugar beets.
Trichloroethylene	0.05		1	< 0.0003	0	Used in dry cleaning and metal degreasing.
2, 4, 6,-Trichlorophenol	0.005		1	< 0.0002	0	Used in the manufacture of pesticides. It is an animal carcinogen.
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	0.28		1	< 0.022	0	Herbicide used for stem/foilage treatment for deciduous brush control on roadsides and power lines. No longer used in Ontario.
Trifluralin		0.045	1	< 0.001	0	Controls annual grasses in wheat, barley, and canola.
Vinyl Chloride	0.002		1	< 0.0003	0	Used to PVC plastic items such as water main pipe, siding and many other common plastic items. No longer used to make these items.

MAC - Maximum Acceptable Concentration

IMAC - Interim Maximum Acceptable Concentration

mg/L - milligrams per litre

The most recent results are reported (June 25, 2003).

Osnabruck Centre Well Supply (raw water) - water entering the plant before treatment

Microbiological parameters	MAC	Number of Samples	Range CFU/100 mL	No. of samples with counts	Typical Source of Contamination
Total Coliform (CFU/100 mL)	0	12	<1-1	1	Indicates possible presence of fecal matter
<i>E. Coli</i> (CFU/100 mL)	0	12	<1	0	Definite indicator of fecal matter

Osnabruck Centre Well Supply and Distribution System (treated water)

Microbiological parameters	MAC	Number of Samples	Range CFU/100 mL	Adverse Water Incidences	Typical Source of Contamination
Total Coliform (CFU/100 mL)	0	52	0-<1	0	Indicates possible presence of fecal matter
<i>E. Coli</i> (CFU/100 mL)	0	52	0-<1	0	Definite indicator of fecal matter

Treated Water Location (Hall)

Physical Parameters	MAC	Number of Samples	Annual Average (range)	Adverse Water Incidences	Typical Source of Contamination
Free Chlorine (mg/L)	--	8760	0.96 (0.01-4.58)	0	Based on MOE Procedure B13-3, a minimum free residual of 0.2 mg/L and a maximum free residual of 3 mg/L should be maintained at all times in order to control microbiological quality in the system

Distribution System

Physical Parameters	MAC	Number of Samples	Average (range)	Adverse Water Incidences	Typical Source of Contamination
Free Chlorine (mg/L)	--	8760	1.01 (0.05-4.39)	0	Based on MOE Procedure B13-3, a minimum free residual of 0.2 mg/L and a maximum free residual of 3 mg/L should be maintained at all times in order to control microbiological quality in the system
Lead (mg/L)	0.01	1	0.0006*	0	Only present as a result of corrosion of lead solder, brass fittings containing lead or lead pipes. Lead ingestion should be avoided.

MAC - Maximum Acceptable Concentration

mg/L - milligrams per litre

NA = Not Applicable

*The most recent results are reported (June 25, 2003).