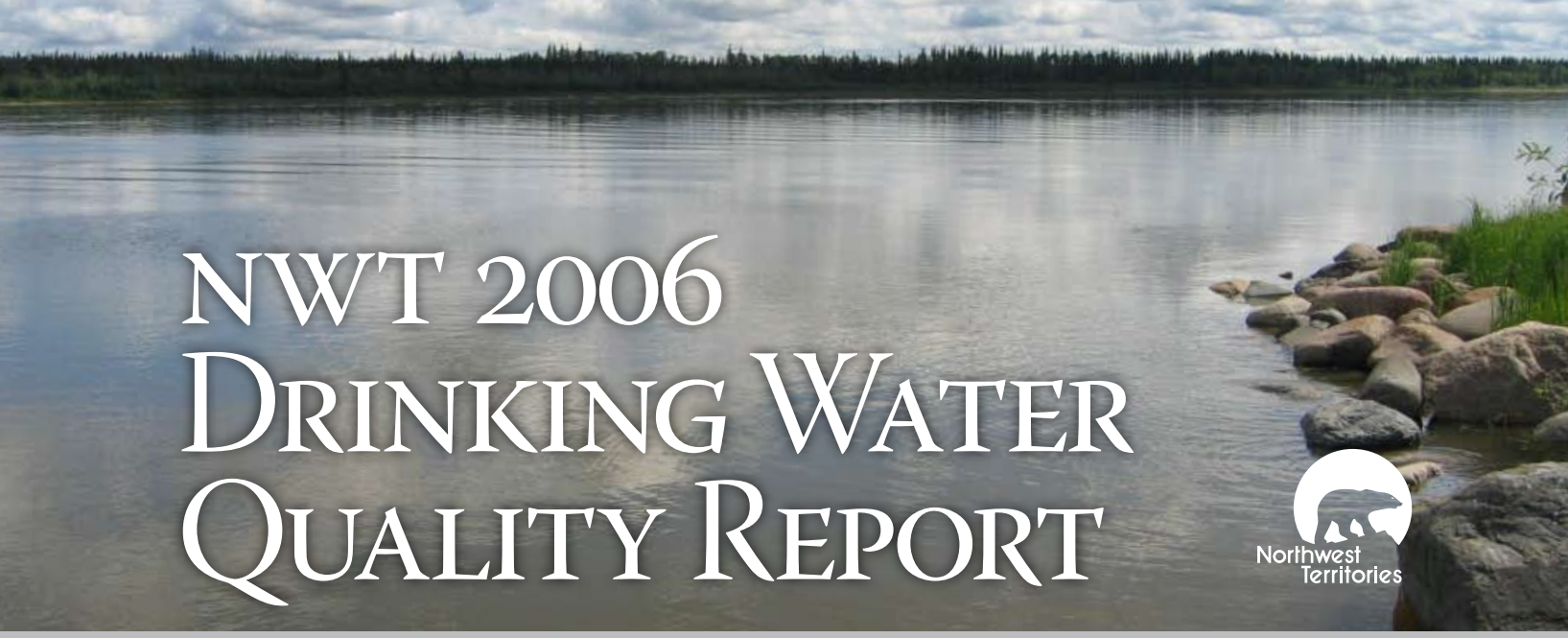


NWT 2006 Drinking Water Quality Report

Northwest Territories

The people of the Northwest Territories (NWT) have many clean lakes and rivers. Water from these lakes, rivers, and wells, is treated at 30 community water treatment plants (WTPs) to make it safe to drink. The treated water is distributed to homes by water trucks or piped systems for people to use. NWT residents use about five million cubic meters of treated water every year.

Community governments are responsible for operating and maintaining the WTPs. The Government of the Northwest Territories (GNWT) is responsible for providing training and support to community WTP Operators. The GNWT also inspects WTPs and reviews water quality data from communities to prove the treated water is safe to drink.

The GNWT's responsibilities are shared among four departments – Health and Social Services (HSS), Municipal and Community Affairs (MACA), Public Works and Services (PWS) and Environment and Natural Resources (ENR). Work is coordinated through an Interdepartmental Drinking Water Management Committee made up of four Deputy Ministers, one from each department.

The Committee's work is guided by the GNWT's **Drinking Water Quality Strategy**, approved in May 2005. The strategy has three goals:

- Keeping NWT water clean;
- Making water safe to drink; and
- Proving drinking water is safe.

The full strategy can be found on the Internet at: *http://www.pws.gov.nt.ca/pdf/WaterAndSanitation/WaterFramework.pdf*

This report provides an overview of the current state of community drinking water supply systems and a summary of what the GNWT did in 2006 to make sure NWT drinking water is safe.

Information on your community drinking water system can be found in the table on pages 4 and 5 of this report. Detailed drinking water quality information for your community can be found on the Internet at: *http://www.pws.gov.nt.ca/Water/Homepage.asp*

KEEPING NWT WATER CLEAN

Mapping and Protecting Drinking Water Sources

In making decisions that will protect drinking water sources, residents and officials need to know which lakes and rivers supply water to NWT treatment plants. Then decisions can be made about which areas of those lakes and rivers are most critical and require protective measures.

In 2006 ENR added information on community surface water intakes and watersheds to its electronic mapping system. This information can now be combined with maps of roads and buildings and other land uses to help in the decision-making process. The map information can be found at: *http://maps.gnwtgeomatics.nt.ca/portal/index.jsp*

In 2007, ENR will identify those areas of the watershed that supply raw water to each treatment plant and those areas that are most critical to protect. ENR will make this information available through their website. This, and other work to protect drinking water sources, will be done in cooperation with communities and other government departments.

The table on pages 4 and 5 lists the water source for each community.

Picture on the left: *Paulatuk Water Treatment Plant on New Water Lake* ***Picture on the right:*** *Tuktoyaktuk Foreman, Peter Nogasak, taking samples from the raw water reservoir.*

Community Water Licences

Water licences help protect community drinking water sources. They define how much raw water the community can take from the source and how to dispose of waste so it doesn't harm water bodies.

Water licences are issued by regional water boards. There are five water boards in the NWT: the NWT Water Board, the Sahtu, Gwich'in and Wek'èezhìi Water Boards and the Mackenzie Valley Land and Water Board. Indian and Northern Affairs Canada (INAC) Resource Management Officers inspect to make sure water licence requirements are followed.

MACA provided funds to community governments for water licensing through a new program introduced in 2006. Wekweètì used this funding to apply for a licence. Whatì used the funds to renew their licence. This funding will also be available in 2007.

The federal government requires all communities have a water licence. The only exceptions are Dettah, the Hay River Reserve and Kakisa. They are either too small to need a water licence, or they use facilities in other communities to get their drinking water and dispose of their waste. The table on pages 4 and 5 shows which communities have water licences. Communities that don't need a water licence are listed as N/A (not applicable).

Testing Raw Water Quality

Untreated water from a water intake or a well is called raw water. In 2006, HSS updated the NWT drinking water testing requirements. They now require daily turbidity testing, monthly bacteria testing and annual chemical testing for raw water. Comparing the raw and treated water quality data tells how well the water treatment process is working. Raw water quality data can also be used to evaluate the long-term impacts of development.

The GNWT is working with communities to make sure they know about the new water quality testing requirements and know how to take the samples correctly.

The table on pages 4 and 5 shows the number of raw water bacteria and chemical samples each community collected in 2006. Communities that get their water from other communities do not need to take raw water bacteria samples. Communities that only add chlorine to the water and do not have any other treatment, do not need to take raw water chemical samples. Raw water quality testing is not applicable (N/A) in these communities.

MAKING NWT WATER SAFE

Community Water Treatment Plant (WTP) Upgrades

To make water safe for drinking, communities need a WTP designed for local conditions. How water is treated depends on the quality of the raw water source and the quality of the treated water needed.

In the NWT, we use the treated water quality standards set in the NWT *Public Water Supply Regulations* and the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*. All NWT WTPs can meet the NWT regulations, but not all can meet the Canadian guideline for turbidity, which was updated in 2004. The new turbidity guideline requires filtration for all surface water sources, but some WTPs in the NWT do not have the required filters.

Since 2004, MACA and PWS have worked with communities to upgrade their WTPs to meet the Canadian guideline. In 2006, planning studies were started in Déljne, Gamètì, Wekweètì, Ulukhaktok, Paulatuk, Aklavik, Jean Marie River, Trout Lake, Tuktoyaktuk and Behchokǫ̀ (Edzo). Design work continued for upgrades in Fort Good Hope and Colville Lake, and construction work continued in Behchokǫ̀ (Rae).

TURBIDITY

Turbidity describes the cloudiness that results from small particles in the water. The more turbid the water, the greater the possible health risk because the particles can hide bacteria, viruses or protozoa and make disinfectants less effective.

Picture on the left: *Small System WTP in Gamètì.*
Picture on the right: *PWS Operating Engineer, Francis LePrieur, checking chlorine readings at the Behchokǫ̀ (Rae) WTP.*

MACA's *New Deal for NWT Community Governments* starts in 2007. Under the *New Deal*, each community will get annual capital funding. Communities will then be able to plan for, and build, their own infrastructure – including WTPs.

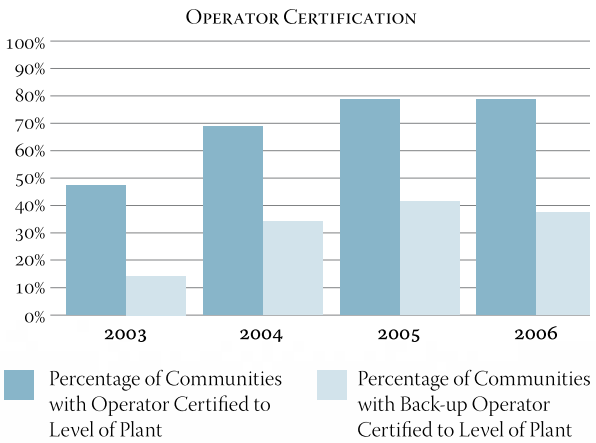
The table on pages 4 and 5 lists the class and type of WTP in each community and whether that WTP meets the *NWT Public Water Supply Regulations* and the *Guidelines for Canadian Drinking Water Quality (GCDWQ).*

LEGEND	KEEPING NWT WATER CLEAN				MAKING WATER CLEAN	
✓ (YES) • (NO) N/A means Not Applicable. See text for more information			Number of Raw Water Quality Tests This Year		Water Treatment Plant	
Community	Raw Water Source	Community has a Water Licence	Bacteria Tests (12 Required)	Chemical Test (1 Required)	Classification/ Type of Treatment	Meets NWT Regulations
Aklavik	Mackenzie River (Peel Channel)	✓	5	0	Class 2	✓
Colville Lake	Colville Lake	•	0	N/A	None	N/A
Délı̨ne	Great Bear Lake	✓	23	2	Small System	✓
Dettah	City of Yellowknife	N/A	N/A	N/A	None	N/A
Behchokǫ̀ (Edzo)	Frank Channel	✓	1	2	Class 2	✓
Behchokǫ̀ (Rae)	Marian Lake	✓	1	1	Class 2	✓
Enterprise	Town of Hay River	•	N/A	N/A	None	N/A
Fort Good Hope	Mackenzie River	✓	0	N/A	Small System	✓
Fort Liard	Groundwater Well	✓	1	1	Class 1	✓
Fort McPherson	Deep Water Lake	✓	2	0	Class 2	✓
Fort Providence	Mackenzie River	✓	3	1	Class 2	✓
Fort Resolution	Great Slave Lake	✓	15	1	Class 2	✓
Fort Simpson	Mackenzie River	✓	11	1	Class 2	✓
Fort Smith	Slave River	✓	0	0	Class 2	✓
Gamètì	Rae Lake	•	23	3	Small System	✓
Hay River	Great Slave Lake	✓	52	0	Class 2	✓
Hay River Reserve	Town of Hay River	N/A	N/A	N/A	Small System	✓
Inuvik	Mackenzie River and 3 Mile Lake (summer) / Hidden Lake (winter)	✓	0	1	Class 2	✓
Jean Marie River	Jean Marie River	•	0	N/A	Small System	✓
Kakisa	Town of Hay River	N/A	N/A	N/A	None	N/A
Łutselk'e	Great Slave Lake	•	3	N/A	Small System	✓
Nahanni Butte	Groundwater Well	•	0	1	Class 1	✓
Norman Wells	Mackenzie River	✓	0	0	Class 2	✓
Paulatuk	New Water Lake	✓	5	3	Small System	
Sachs Harbour	DOT Lake	✓	1	0	Cartridge	✓
Trout Lake	Trout Lake	•	0	N/A	Small System	✓
Tsiigehtchic	Tso Lake	✓	0	0	Small System with Membrane Filtration	✓
Tuktoyaktuk	Kudlak Lake	✓	4	N/A	Small System	✓
Tulita	Great Bear River	✓	0	0	Small System with Membrane Filtration	✓
Ulukhaktok	RCAF Lake	✓	18	2	Small System	✓
Wekweètì	Snare Lake	•	20	3	Small System	✓
Whatì	Groundwater Well	✓	0	1	Class 1 with Softener	✓
Wrigley	Groundwater Well	•	0	N/A	Small System	✓
Yellowknife	Yellowknife River	✓	81	N/A	Class 1	✓

	Operator				Number Treated Water Tests This Year		
Meets Canadian Guidelines	Certified to Level of Plant	Back-up Certified to Level of Plant	Boil Water Advisory this Year	Date of Last Water System Review	Bacteria (Min. 52 required; 216 for Yellowknife)	Chemical (1 Required)	THM Tests (4 Required)
✓	✓	•	•	2005	67	0	0
N/A	N/A	N/A	✓	N/A	–	0	0
No Filtration	•	•	•	2006	28	0	0
N/A	N/A	N/A	•	N/A	0	N/A	0
✓	✓	•	•	N/A	4	2	2
✓	✓	•	•	N/A	19	1	1
N/A	N/A	N/A	•	N/A	N/A	N/A	N/A
No Filtration	✓	•	•	2005	43	0	0
✓	✓	•	•	2006	110	1	1
✓	✓	✓	•	2006	14	0	0
✓	✓	•	•	2005	30	1	2
✓	✓	✓	•	2005	75	2	2
✓	✓	✓	•	N/A	58	1	1
✓	✓	•	•	N/A	65	1	2
No Filtration	•	•	•	2006	5	1	1
✓	✓	•	•	N/A	90	0	0
✓	•	•	•	2004	26	N/A	0
✓	✓	✓	•	N/A	69	3	3
No Filtration	✓	✓	•	2006	27	1	1
N/A	N/A	N/A	•	N/A	N/A	N/A	N/A
No Filtration	✓	•	•	2002	20	1	1
✓	✓	•	•	2002	41	1	1
✓	✓	•	•	N/A	44	1	1
No Filtration	•	•	•	2005	22	0	0
✓	✓	✓	•	2003	27	0	0
No Filtration	✓	•	•	2004	28	1	1
✓	✓	•	•	N/A	28	0	0
No Filtration	✓	•	•	2006	57	0	0
✓	✓	✓	✓	N/A	45	2	2
No Filtration	✓	✓	•	2005	15	0	0
No Filtration	✓	•	•	2006	15	1	1
✓	•	•	•	2005	169	1	1
No Filtration	•	•	•	2006	23	0	0
No Filtration	✓	✓	•	N/A	531	0	0

WTP Operator Training and Certification

To make drinking water safe, WTPs must be operated and maintained properly. Having a trained and certified WTP Operator gives NWT residents confidence that their water supply system is running the way it should and their water is safe to drink.



In 2006, the GNWT approved *Water and Wastewater Operator Certification Guidelines* based on international standards. The guidelines set standards for classifying WTPs and certifying WTP Operators. WTPs are classified by the type of treatment system, the quality of the water source, the number of people that count on the system for safe drinking water, and the chemicals used in the treatment process. There are three different classifications used in the NWT: Small System, Class 1 and Class 2.

WTP Operators should be certified to the same level as their WTP. For example, an Operator working at a Class 2 WTP should have Class 2 certification. The goal is to increase the total number of certified operators working in the NWT and to make sure every community has a primary and back-up operator certified to the level of their local WTP.

In 2006, MACA's School of Community Government offered 11 water and waste system operator training courses. Sixty operators from 24 communities attended the courses.

The table on pages 4 and 5 shows which communities have primary and back-up WTP Operators certified to the level of their WTP.

Circuit Rider Training Program

In 2006, MACA introduced a new Circuit Rider training program. A Circuit Rider is an experienced WTP Operator who travels to different communities to train local WTP Operators. The Circuit Rider assesses the water treatment operations, identifies training needs, and works with the local WTP Operator to create an improvement plan that meets their specific needs. In 2006, Circuit Riders worked

SMALL SYSTEMS - Most small systems in the NWT add chlorine to unfiltered surface water. Some small systems also use a cartridge or membrane (micro or nano) filter.

CLASS 1 - Most Class 1 WTPs in the NWT use filtration and chlorination. The typical NWT Class 1 plant gets its raw water from a groundwater well.

CLASS 2 - The typical Class 2 water treatment system starts with screening out coarse particles in the water. Chemicals are added to the water to make the remaining small particles clump together into larger particles that settle out in the sedimentation tank. The water then flows through a filter to remove any particles that are left. Finally, chlorine is added to the water to disinfect it.

with Whatì, Gamètì, Wekweètì, Wrigley, Trout Lake, Łutselk'e, Déljne and Paulatuk to plan improvements.

Support Materials for WTP Operators

To give WTP operators easier access to operations and maintenance information, PWS and MACA worked together to develop a WTP Operators' Corner website. Information includes:

- Water quality sampling instructions
- Lab reporting forms
- Standard operating procedures for common tasks
- Log sheets for regular operations and maintenance tasks
- Training and certification information
- Material safety data sheets (MSDS) for WTP chemicals
- Safety and emergency response checklists

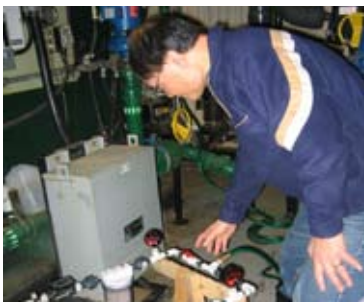
More information will be added in 2007. To visit the Operators' Corner go to: *http://www.pws.gov.nt.ca/Water/OpCorner.htm*

PROVING WATER IS SAFE

Boil Water Advisories

Boil Water Advisories are issued by Environmental Health or the Medical Health Officer and are usually based on positive bacteriological test results or high turbidity levels. Tulita had a precautionary boil water advisory in the spring of 2006 because of problems with the filters at the WTP. No bacteria was found in the treated water. The advisory was lifted when the filters were fixed. Colville Lake has an on-going boil water advisory because they do not have a WTP. The boil water advisory will be lifted when the new plant is built.

The table on pages 4 and 5 shows which communities had a boil water advisory in 2006.



Picture on the left: *Fort Resolution WTP Operator, Linda Carpenter, testing water quality samples.*
Picture on the right: *PWS Sr. Engineer, Vincent Tam, testing a cartridge filter in Fort McPherson.*

Water Supply System Reviews

Over the past five years, PWS has led technical reviews of non-tax-based community water supply systems. The review team checks the water supply system equipment, operation and maintenance. Most communities have had two reviews. Eight communities were reviewed in 2006.

The reviews find changes that are needed and suggest ways to upgrade or better maintain the community's water supply system. The review team may also train operators, test new WTP processes, or do small WTP upgrades. These visits also give GNWT staff a chance to meet with local people to discuss any concerns they may have with their water treatment system.

Regional Environmental Health Officers (EHOs) and INAC Resource Management Officers also do regular WTP inspections. EHOs do public health inspections once every six months, and INAC Officers do yearly water licence inspections.

The table on pages 4 and 5 shows the date of the last water supply system review for each community. Reviews were not done for cities, towns or villages or when a WTP upgrade was being designed or built. In these communities, the review is not applicable (N/A).

Testing Treated Water Quality

New HSS testing requirements for treated water include continuous turbidity testing, chlorine testing at least three times per day, bacteria testing at least once per week, trihalomethane (THM) testing four times per year, and annual chemical testing. The *Summary Table – Northwest Territories Drinking Water Sampling and Testing Requirements* is available on the Internet through the Operators' Corner.

In 2006, Regional EHOs worked with communities to make sure they knew about the new sampling requirements and to help collect chemical and THM samples. In 2007, EHOs will continue to work with communities to set up regular bacteria sampling programs and to improve reporting.

The table on pages 4 and 5 shows the number of treated water bacteria, chemical and THM samples each community collected in 2006. Kakisa and Enterprise get treated water trucked in from Hay River and do not need to take treated water quality samples. Treated water quality testing is not applicable (N/A) in these communities.Dettah and Hay River Reserve get water from other communities but add chlorine to it - they do not need to take treated water chemical samples but do need to take treated water bacteria and THM samples.

Water Quality Database

Community drinking water quality test results are available on the website listed on the front page of this report. PWS updated the drinking water quality database in 2006 and added more information to it. The updated site shows current boil water advisories. It also links to the *Guidelines for Canadian Drinking Water Quality, the Summary Table – NWT Drinking Water Quality Sampling and Testing Requirements,* and information on community WTPs. HSS keeps the website up to date, adding new data as it becomes available.

Outlook for 2007

In 2007, the GNWT will continue working with communities to:

- complete on-going WTP upgrades and plan for future projects;
- map and protect drinking water sources;
- strengthen support to WTP Operators; and
- improve water quality reporting.

These steps will help ensure the continued safety of NWT drinking water in years to come.

If you would like this information in another official language, call us.

Si vous voulez ces informations en français, contactez-nous.

Kīspin ki nitawihtīn ē nīhīyawihk ōma ācimōwin, tipwāsinān.

TŁĮCHǪ YATI K'ĘĘ DI WEGODI NEWǪ DE, GOTS'O GONEDE.

ʔERIHTŁ'ÍS DËNE SÚŁINÉ YATI T'A HUTS'ELKËR XA BEYÁYATI THEʔĄ ʔAT E, NUWE TS ËN YÓŁTI.

EDI GONDI DEHGÁH GOT'ĮE ZHATIÉ K'ÉÉ EDATŁ ÉH ENAHDDHĘ NIDE.

K'ÁHSHÓ GOT'ĮNE XƏDǾ K'É HEDERI ʔEDĮHTL É YERINIWĘ NÍDÉ DÚLE.

Jii gwandak izhii ginjìk vat atr ijąhch uu zhit yinohthan jì', diits'àt ginohkhìi.

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Hapkua titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarlutit.

ISBN 978-0-7708-0165-6
9 780770 801656

May 2007

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