

**Assessment Study of
Water and Wastewater Systems and
Associated Water Management Practices
at the Cook's Ferry First Nation Community**

**for the
Indian and Northern Affairs Canada
BC Region**



August, 2002

Appendix C

Water Quality Test Results

Page(s) 004581 to\à 004582

Is(are) under consultation

**LABORATORY REQUISITION - CYST DETECTION TEST
PACIFIC REGION GIARDIA/CRYPTOSPORIDIUM PROGRAM**

220 - 177 Victoria Street
Prince George, B.C.
V2L 5R8
Phone (250) 561-5379
Fax (250) 564-3272

1. **GENERAL**

District Central District
Address Cooks Ferry Band, Spences Bridge Water System
EHO Contact Rita Manuel Phone 250-378-5764
Band Contact _____ Phone _____

2. **DRINKING WATER SAMPLE**

Name of Community Tested Spences Bridge
Name of Water Source Spences Bridge Water system
Date of Sample (M/D/Y) 10/18/99
Exact Sampling site Band Hall
Water at Site Sampled Raw Treated
Start Filtration (time) 10:35pm Stop (time) 12:30pm
Water Meter at Start Time 40.802 m³ or _____ litres
Water Meter at Stop Time 41.107 m³ or _____ litres
Total Volume of Filtered Water _____
Flow Rate Through Filter (start) _____ L/min, (stop) _____ L/m
Ambient Temperature _____ °C Water Temperature 48 °F
pH 8.1 Turbidity _____ Cl₂ _____ ppm
Flow Rate of Water Source:
 Very Noticeable Movement Little Movement
 Noticeable Movement No Noticeable Movement
Estimated Rate of Flow _____ m/Sec.
Water Treatment at Consumer Tap: None (Raw) Chlorination
 Ozone Filtration (specify type) _____
Other Type of Treatment _____
Water System Tested: Municipal Band Operated
 Small System (<3 connections)
 Private Utility
Other Type of Water System _____

2. Sample 234

DRINKING WATER SAMPLE (continued)

Type of Source Tested: Large Lake Small Lake

Large River (>6m diam.) Creek or Stream (<6m diam.)

Spring Reservoir

Further description of Water-Source Murray Creek

Sampling Site in Relationship to Water Intake (i.e. upstream. distance away, same shore, same branch of stream etc) _____

About 4km from intake, near end of mainline.

Other Comments _____

Number of Persons on System All of municipal

General Description of Site: Farmland/Ranchland Mountainous

Residential Forested Industrial Other (describe)

Wild Animals Present in Watershed: Beaver Muskrat Migratory Fowl

Other Deer, moose, mountain sheep, bear, coyote and cougar

Farm and Domestic Animals Present in Watershed Dogs Cats

Cattle Other (describe) _____

Animals Observed Actually in Water-Source: _____

Is Water Used for Recreational Purposes? Yes No

Describe Activities: Hiking Camping

Boating Swimming Fishing

Other (describe) _____

Humans in/on Water-Source: Yes No

Humans near Water-Source: Yes No

LABORATORY REPORT OF WATER FILTER ANALYSIS
PRINCE GEORGE WATER ASSAY
PO Box 2832 Station B
Prince George, BC V2N 4T6

CONFIDENTIAL

To: Environmental Services
Health Canada, Medical Services Branch
220 - 177 Victoria Street
Prince George, BC V2S 5R8

Sample Number: 234

Examination for *Giardia* cysts and *Cryptosporidium* oocysts using the procedures which are described in section 9711B of Standard Methods 19th Ed., 1995.

Date of Sample: 10/18/99

Sample Source: Spence's Bridge
Water System

Sample Site: Band Hall

Sample sent by: Rita Manuel

Volume Filtered: 305 litres

Date & Time Received: 10/20/99

Date Processed / Preserved: 10/20/99

Condition of Filter: Good. It was contained in 900 ml of residual water.

Filter Type: Filterite Cotton

Slides Analysed: 1 = 130 litres

Temperature on Receipt: < 5 °C, 5 - 10 °C, 10 - 20 °C, > 20 °C

Observations:

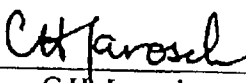
- Debris present: 1.0 ml of dark brown sediment was extracted from the filter.
- Algae present: Algae were not found on the filter membrane.
- Other: Insect larvae, nematodes, parasite eggs, conidia and fragments of plant cells were found.

Giardia Result: Positive Presumptive Negative
Cryptosporidium Result: Positive Presumptive Negative

Summary and Conclusion:

Seven presumptive *Giardia* cysts were found on a slide prepared with a volume from this sample equivalent to 130 litres and this is an abundance of 5.38 presumptive cysts/ 100 litres. Figure 1 shows one of these cysts and, for comparison, Figure 2 shows a confirmed *Giardia* cyst from the positive control. No confirmed *Giardia* cysts or presumptive or confirmed *Cryptosporidium* oocysts were found.

Results Certified by:


C.H. Jarosch
Prince George Water Assay

Date: December 5, 1999

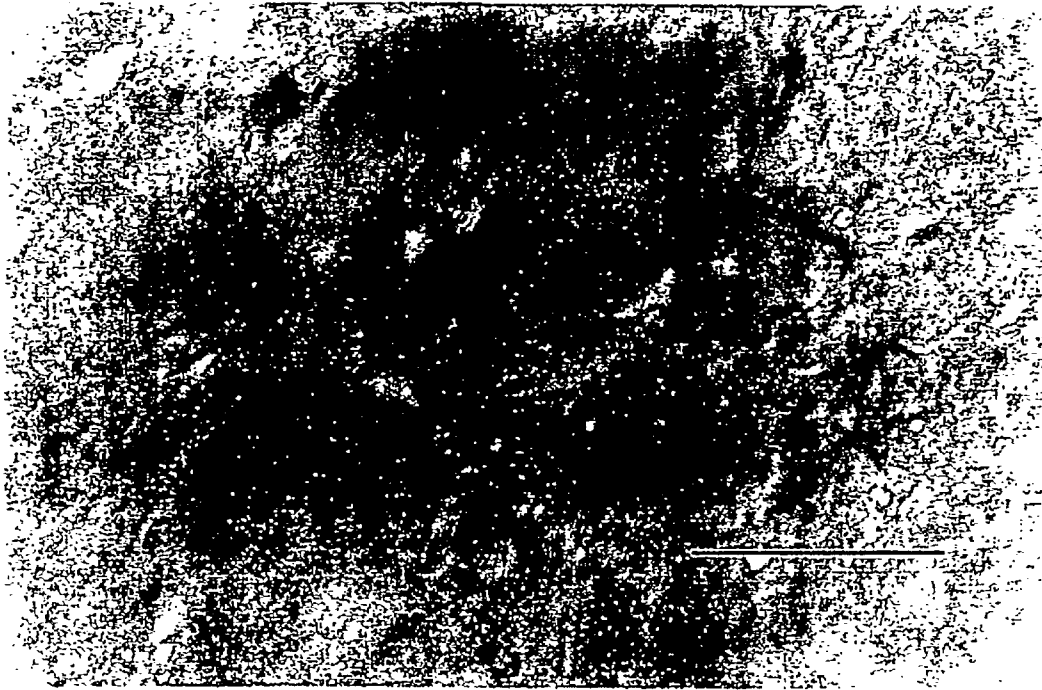


Figure 1. The upper photograph shows a cyst from sample 234 (Spence's Bridge, 10/18/99) which is identified as a presumptive *Giardia* cyst. The lower photograph shows the same cyst illuminated with transmitted white light. This cyst contains cellular matter but the nuclei, median body and/or axoneme can not be distinguished. (Bar indicates 10 μ ms.)

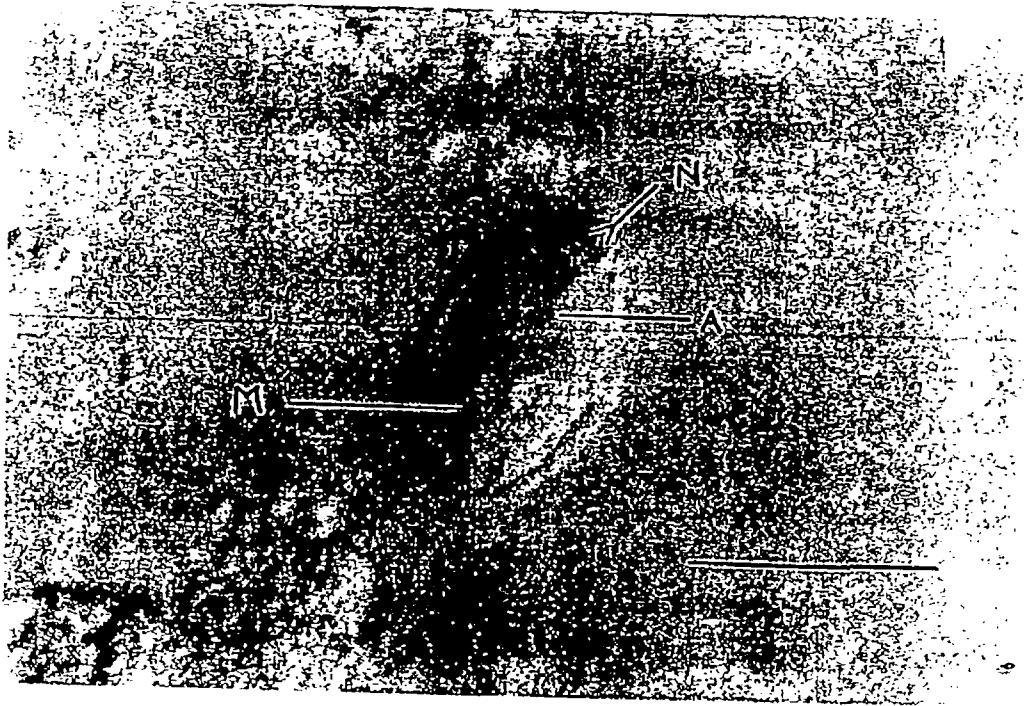
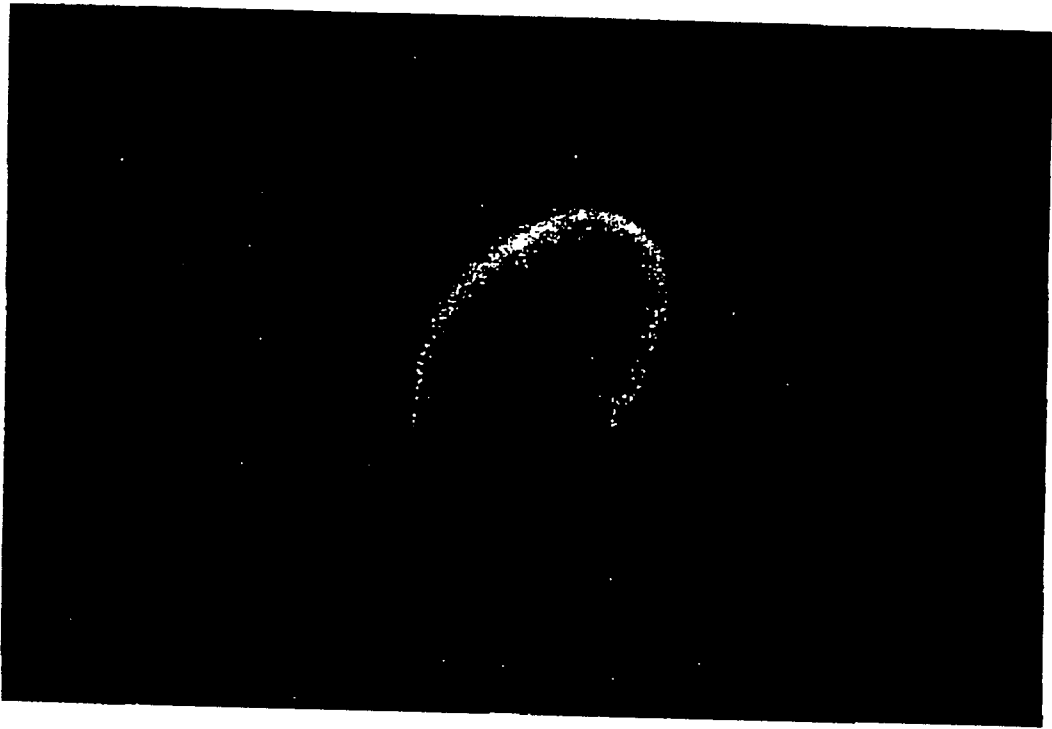


Figure 2. The upper photograph shows a *Giardia* cyst from the positive control prepared for sample 234. The lower photograph shows the same cyst illuminated with transmitted white light. In this cyst the nuclei (N), median body (M) and axoneme (A) can be seen. (Bar indicates 10 μ ms.)

**LABORATORY REQUISITION - CYST DETECTION TEST
PACIFIC REGION GIARDIA/CRYPTOSPORIDIUM PROGRAM**

220 - 177 Victoria Street

Prince George, B.C.

V2L 5R8

Phone (250) 561-5379

Fax (250) 564-3272

1. **GENERAL**

District Central District
 Address Cooks Ferry Band
Spences Bridge, B.C.
 EHO Contact Rita Manuel Phone 250-378-5764
 Band Contact Fred Drynock Phone 250-455-2196

2. **DRINKING WATER SAMPLE**

Name of Community Tested Cooks Ferry Band
 Name of Water Source Murray Creek
 Date of Sample (M/D/Y) March 14th 2000
 Exact Sampling site. Band Office
 Water at Site Sampled Raw Treated
 Start Filtration (time) 10:40am Stop (time) 1:05pm
 Water Meter at Start Time 42.200 m³ or _____ litres
 Water Meter at Stop Time 42.603 m³ or _____ litres
 Total Volume of Filtered Water 430 litres
 Flow Rate Through Filter (start) 0.20 sec/L, (stop) 0.22 sec/L L/m
 Ambient Temperature 18 °C Water Temperature 12 °C
 pH 8.0 Turbidity 0.11 NTU Cl₂ _____ ppm
 Flow Rate of Water Source:
 Very Noticeable Movement Little Movement
 Noticeable Movement No Noticeable Movement
 Estimated Rate of Flow N/A litres /Min .
 Water Treatment at Consumer Tap: None (Raw) Chlorination
 Ozone Filtration (specify type) Screen filter
 Other Type of Treatment _____
 Water System Tested: Municipal Band Operated
 Small System (<3 connections)
 Private Utility
 Other Type of Water System _____

2. Sample 244

DRINKING WATER SAMPLE (continued)

Type of Source Tested: Large Lake Small Lake

Large River (>6m diam.) Creek or Stream (<6m diam.)

Spring Reservoir

Further description of Water-Source Intake top of waterfalls

Sampling Site in Relationship to Water Intake (i.e. upstream, distance away, same shore, same branch of stream etc) About 1500m from treatment plant

Other Comments _____

Number of Persons on System All of town.

General Description of Site: Farmland/Ranchland Mountainous

Residential Forested Industrial Other (describe)

Wild Animals Present in Watershed: Beaver Muskrat Migratory Fowl

Other Mountain sheep, black bear, cougar, moose, coyote

Farm and Domestic Animals Present in Watershed Dogs Cats
 Cattle Other (describe) _____

Animals Observed Actually in Water-Source: N/A

Is Water Used for Recreational Purposes? Yes No

Describe Activities: Hiking Camping

Boating Swimming Fishing

Other (describe) _____

Humans in/on Water-Source: Yes No

Humans near Water-Source: Yes No

LABORATORY REPORT OF WATER FILTER ANALYSIS
PRINCE GEORGE WATER ASSAY
PO Box 2832 Station B
Prince George, BC V2N 4T6

CONFIDENTIAL

To: Environmental Services
Health Canada, Medical Services Branch
220 - 177 Victoria Street
Prince George, BC V2S 5R8

Sample Number: 244

Examination for *Giardia* cysts and *Cryptosporidium* oocysts using the procedures which are described in section 9711B of Standard Methods 19th Ed., 1995.

Date of Sample: 03/14/2000

Sample Source: Murray Creek, Cooks Ferry Band

Sample Site: Band Office

Sample sent by: Fred Drynock

Volume Filtered: 403 litres

Date & Time Received: 03/16/2000

Date Processed / Preserved: 03/16/2000

Condition of Filter: Good. It was contained in 1L of residual water.

Filter Type: Filterite Cotton

Slides Analysed: 1 = 172 litres

Temperature on Receipt: < 5 °C, 5 - 10 °C, 10 - 20 °C, > 20 °C

Observations:

- Debris present: 0.5 ml of light grey residue was extracted from the filter.
- Algae present: Remains of algae were found on the filter membrane.
- Other: Recognizable remains of plant cells, pollen grains, nematodes and rotifers were found.

Giardia Result: Positive Presumptive Negative

Cryptosporidium Result: Positive Presumptive Negative

Summary and Conclusion: No confirmed *Giardia* cysts, or confirmed or presumptive *Cryptosporidium* oocysts, were found but Figure 1 shows a cyst and an oocyst from the positive control prepared for this sample. However, the immunofluorescent stain reacted strongly with three objects that resembled *Giardia* cysts in size (Figure 2). The sample contained spherical cysts which also reacted well with the immunofluorescent stain (Figure 3). Since these cysts only had diameters between 3.0 and 3.5 µm, I did not consider them to be presumptive *Cryptosporidium* oocysts.

Results Certified by: C.H. Jarosch
C.H. Jarosch
Prince George Water Assay

Date: Apr. 23, 2000

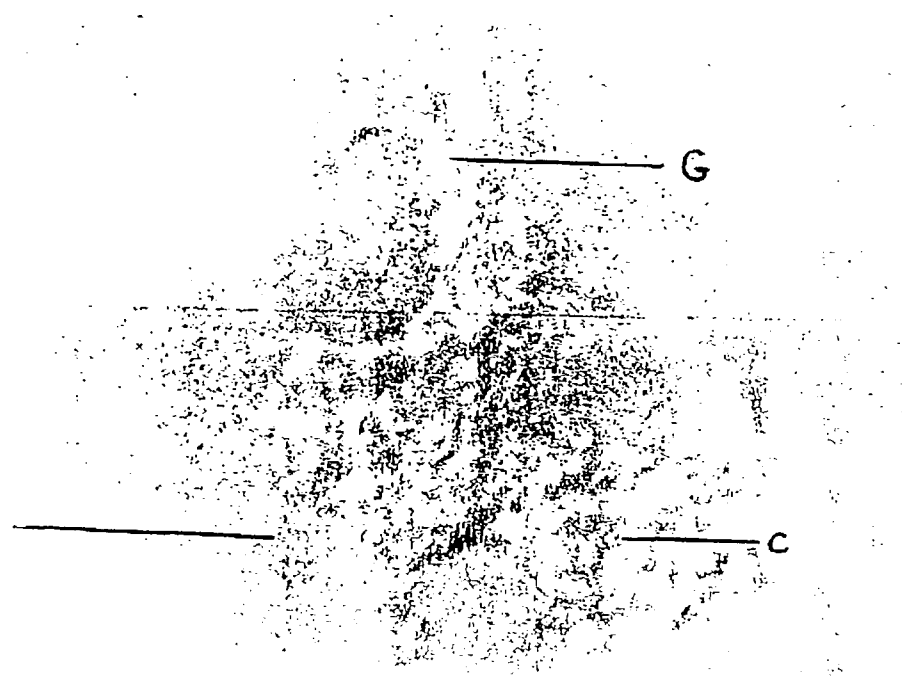
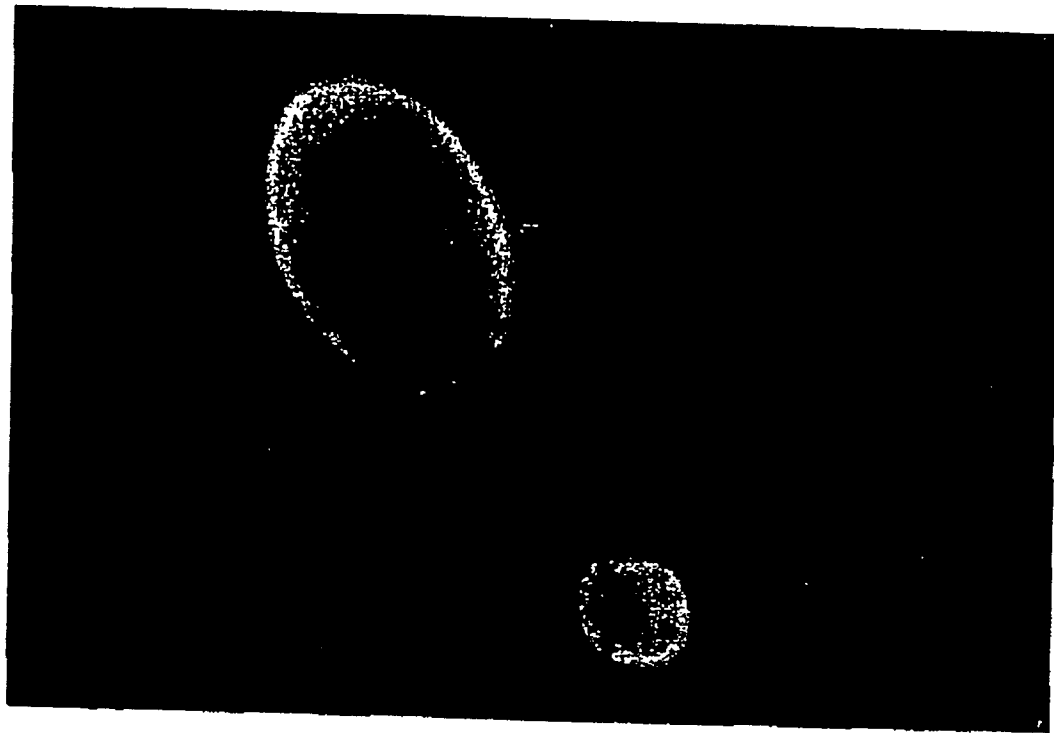


Figure 1 These photographs show a *Giardia* cyst (G) and a *Cryptosporidium* oocyst (C) from the positive control prepared for sample 244. The upper photograph shows the parasites with UV epifluorescent illumination. In the lower photograph, where they are illuminated with transmitted white light, the median body can be seen in the *Giardia* cyst, and a trophozoite is visible in the *Cryptosporidium* oocyst. (Bar indicates 10 μ ms.)

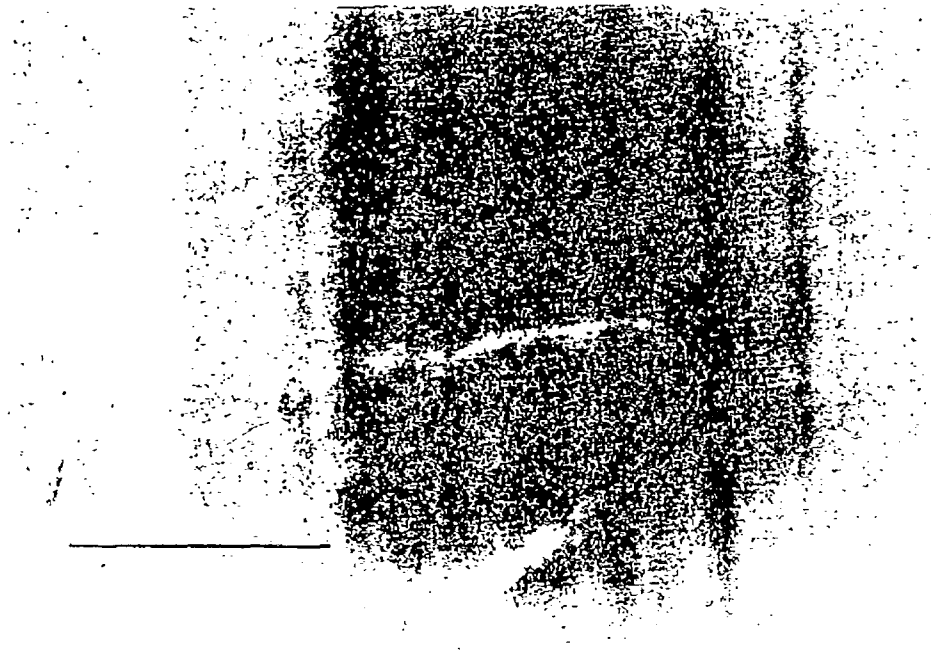


Figure 2. The upper photograph shows a fluorescent, oval cyst, 7.6 μm by 12.0 μm , from sample 244, which is identified as a presumptive *Giardia* cyst. The lower photograph shows same cyst illuminated with transmitted white light. This cyst appears to contain organized cellular matter but the features which would identify it as a confirmed *Giardia* cyst are not evident. (Bar indicates 10 μm .)

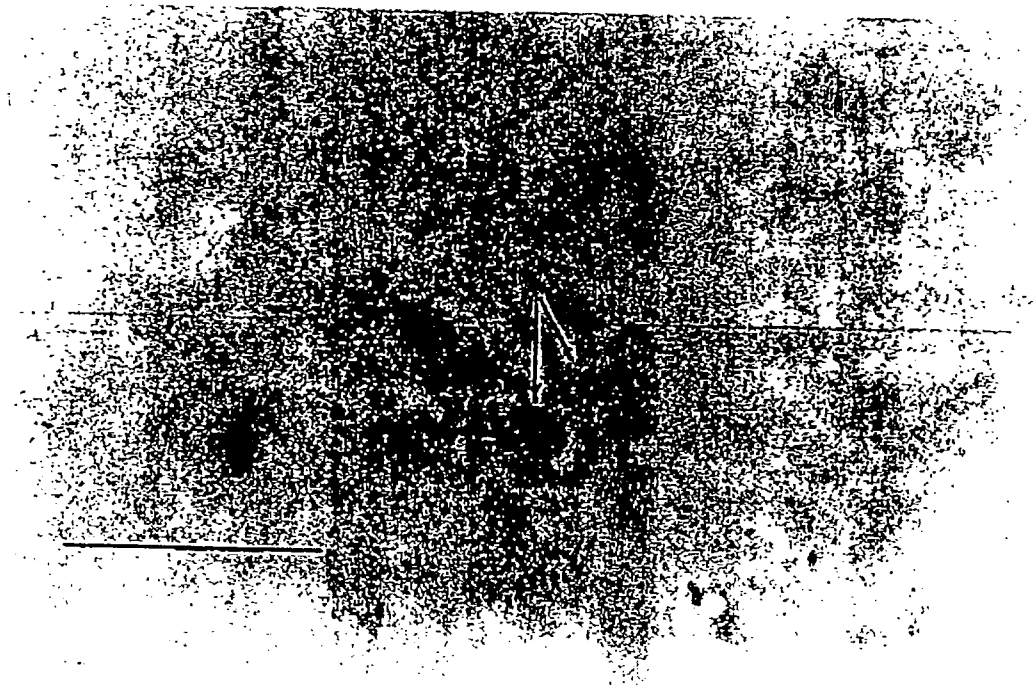


Figure 3. The upper photograph shows two fluorescent, spherical cysts, 3.5 μm in diameter, from sample 244. The lower photograph shows the same cysts illuminated with transmitted white light. Although they reacted strongly with the immunofluorescent stain, these cysts are not considered to be presumptive *Cryptosporidium* oocysts because of their small size (see Figure 1 for a confirmed *Cryptosporidium* oocyst). (Bar indicates 10 μm .)

*from
the*

Health files

Ministry of Health and
Ministry Responsible for Seniors

Number 10
September 1990

GIARDIASIS AND OTHER WATER-BORNE DISEASES

What Is Giardiasis?

Giardiasis, often called "beaver fever", is an intestinal infection that may be contracted from drinking contaminated water or from close personal contact with infected persons. Symptoms can include diarrhea, abdominal cramps, nausea and/or vomiting, weight loss, and fatigue, which can last from one to three weeks.

How Is It Spread?

This disease, which occurs worldwide, is particularly common in the rural and wilderness areas of Western Canada where local wildlife are plentiful. It is spread primarily through water that has been contaminated by fecal material from infected animals, including beavers and muskrats.

Giardiasis can also be found in the feces of humans and some domestic animals. As a result, it can be spread by humans during food preparation, and hand-to-mouth transfer of the parasite. Some infected individuals may be unaware they are transmitting the infection because they do not have any symptoms.

Giardiasis is one of several water-borne diseases which can be contracted in British Columbia. If fecal contamination of the water occurs, then lakes, streams, springs and ponds may be the source of other infectious diseases such as Hepatitis A, Salmonella, and typhoid fever.

How Can You Avoid Catching These Diseases?

Untreated water may carry disease-causing parasites, bacteria, and viruses. Even backpackers in the "pristine" wilderness areas of B.C. are at risk.

The following water treatment procedures are recommended for all outdoors-people and also for residents of any community that has been issued a "boil water" advisory by the local Medical Health Officer:

The simplest treatment method is boiling; simply bring the water to a boil for two minutes and then allow it to cool.

Water can also be disinfected with household bleach. Add nine drops of bleach for every Imperial gallon of untreated water (two drops of bleach per litre). The treated water should be stirred and allowed to stand for 30 minutes prior to use.

Note: The above procedures are not appropriate for water that is heavily polluted or subject to chemical contamination.

What If You Think You Have A Water-borne Disease?

See your personal physician for advice and treatment. Make sure that your family, friends, and others with whom you have had close, personal contact are notified and advised to see their physicians. Remember, someone can be carrying the disease and not show any symptoms. Make sure to follow the treatment course prescribed by your physician.

*For additional information,
please contact your
local Health Unit*



from
the

Health files

Ministry of Health and
Ministry Responsible for Seniors

Number 48
September 1995

Cryptosporidiosis

What is Cryptosporidiosis?

Cryptosporidiosis is an infection of the intestines caused by a very small parasite.

The disease is usually contracted by drinking contaminated water. In B.C., drinking water systems supplied from surface water sources (rain, creeks, rivers, lakes, etc.) are vulnerable to contamination by the feces of infected animals.

What are the symptoms of Cryptosporidiosis?

Symptoms usually start anywhere from two to ten days after exposure to the parasite, although not everyone who is infected with it will feel sick. If symptoms do occur, they may include watery diarrhea, stomach cramps, nausea, vomiting, and mild fever.

Symptoms may come and go, and usually last fewer than 30 days in people who are otherwise healthy.

However, the infection may last longer and be more serious in people whose immune system is not working properly. Persons with AIDS, those who have had an organ or bone marrow transplant, and those who have had cancer treatment are examples of people who may get serious infections.

How is it spread?

The parasite that causes Cryptosporidiosis is often found in the bowel movements (feces) of infected animals, including pets, livestock, poultry, or wild animals. These animals may have a bowel movement in or near rivers, creeks or lakes that are used as a source of drinking water.

Current methods used to treat drinking water do not always remove this very hardy parasite.

The infection can also be spread from hand to mouth (for example, by touching an infected animal with your hands and not washing your hands prior to eating). A person can also become infected by hand to mouth transfer of the parasite from contaminated surfaces or items. This is possible because the parasite can live outside of the body for several months under moist conditions.

Outbreaks of Cryptosporidiosis have occurred in daycare centres and in locations where drinking water (or beverages made from drinking water) or swimming pools have been contaminated. In many cases however, the source of infection is difficult to determine.

Some people are more likely than others to become infected. They include health care workers, child care providers, children in daycare, those exposed to feces through sexual contact, and those caring for a person infected with the parasite.

How can I prevent Cryptosporidiosis?

Wash your hands well after going to the toilet or changing diapers, and after touching farm animals, pets, or wild animals. This is especially important before eating or preparing food.

You should also avoid drinking water directly from rivers, creeks or lakes, or when you are uncertain whether the water has been properly treated (such as during foreign travel).



BC Ministry of Health and
Ministry Responsible for Seniors

You should also avoid uncooked food or drinks which have been prepared with untreated water. Unpasteurized milk or milk products should also be avoided.

If you have a weakened immune system, you should discuss your risk of Cryptosporidiosis with your doctor. This includes people with HIV/AIDS, cancer and transplant patients taking immunosuppressive drugs. People who wish to take extra precautions can boil their drinking water, as outlined below.

Water treatment against Cryptosporidiosis

When travelling, camping or hiking, or when a "boil water" advisory has been issued by the local Medical Health Officer, bring the tap water to a boil for two minutes. (Note: this is not effective in purifying water that is chemically contaminated). This boiled water should be used for drinking, brushing teeth, rinsing dentures or contact lenses, making ice cubes, washing uncooked fruit and vegetables, and in recipes which require water. Dishes, glasses and cutlery should be washed with water which has been boiled.

Bottled water can also be bought for these purposes. Make sure you break the seal on the bottled water yourself to ensure that the empty bottle was not simply re-filled with local untreated water. It is best to drink it straight from the bottle with a straw, or to pour it into a disposable cup. Bottled water must meet certain federal health and safety standards, although as with other consumer products the quality of bottled water may vary from one distributor to the next. Persons who use bottled water as an alternative to boiled tap water should choose their supplier carefully to ensure that their product meets the level of purity they want. The most common and effective methods of purifying bottled water are ozonation, reverse osmosis, and distillation.

Iodine, chlorine and portable water filters are not effective against this parasite, and should not be used to prevent Cryptosporidiosis.

In spite of doing all the right things, you may still become ill. Get medical attention if the illness doesn't go away within 48 hours.

**If you have any questions,
contact your local health unit or
department or your doctor.**

November 3rd, 2000.

Chief David Walkem,
Cooks Ferry First Nation,
PO Box 130,
Spences Bridge, BC
V0K 2L0

Re: Circuit Rider Visit of October 3 & 4, 2000.

Project: Clean Reservoirs on Main Village System.

Crew: Richard Yanelst
Autumn Yanelst
Edith
Bernie

We experienced a problem draining the 10,000 gallon reservoir. There is a "hand wheel" gate valve on the drain line which is inoperative and in need of replacement. We were able to draw through the adjoining reservoir with the exception of the bottom 2 feet depth which was removed via pump rented from Bundus in Ashcroft. The valve should be replaced with a curb stop which would allow us to isolate the reservoirs and maintain service to the community during the cleaning operation. The valve is 10,- 12 feet deep and, due to the terrain will require a track excavator. The reservoirs should be fenced for security reasons and the machine could be utilized for landscaping at the same time. These projects could be under taken in conjunction with the Circuit Rider Program.

There was an iron residue on the interior of the small reservoir which was removed by scrubbing. The ladder also required brushing, but is in good condition. 44 litres of sodium hypochlorite was added during refilling for chlorinating, which gave a concentration of 75 ppm.

The larger reservoir was cleaned at the same time with a minimal silt film on walls and floor. 66 litres of sodium hypochlorite was added to the 30,000 gallon tank and gave a residual of 50 ppm. Refilling both tanks took 12 hours and was completed by 5:00am. Due to the length of time the reservoirs were removed from service we only held the solution for 12 hours then drained through sodium thiosulphate to neutralize the chlorine. Draining was completed by 10:30pm on the 4th and returned to service.

Respectfully submitted,

Mike Skulsky,
M.L.S. Services.

CC: Mr Sid Smith,
Asset Management Officer,
Public Works and Government Services Canada,
450 - 1550 Alberni Street,
Vancouver, BC V6G 3C5

Rita Manuel, CPH(C),
Environmental Health Officer,
Environmental Health Services,
First Nations and Inuit Health Branch,
Central District,
Box 188,
Merritt, BC V1K 1B8

6508 Swanson St.
Sardis, B.C.
V2R 1R2

M.L.S. SERVICES

Sewer and Water
Trouble Shooting and Repair

Tel/Fax: (604) 858-1717
Toll Free 1-800-981-8011
Cell: (604) 240-7978

YAN E-4 303 9 - 694 JNC

June 30, 2000,

Chief David Walkem,,
Cooks Ferry First Nation,
P.O. Box C30,
Spences Bridge, BC V0K 2L0

Re: Circuit Rider Visit of June 29, 2000

Projects: Re-sample and check water system at [redacted] Firstly, [redacted]
Check water system at Kumsheen I R # 1.

s.19(1)

Recent Background

In my capacity as Circuit Rider for Area 2, Kamloops, I had dropped in on my initial pass through the area on June 26 to "touch base" with Richard Yanelst, Councillor, responsible for Band municipal services (we have worked together on previous contracts). He was not available so I left my card to advise him I would be the Circuit Rider for this year. On June 28 I called into the Environmental Health Services, First Nations and Inuit Health, Central District, Merritt to see Rita Manuel, CPHI, E.H.O. in regards to possible concerns on the various systems with-in her jurisdiction, two of which were the above systems, and their test results of June 20. Chief Walkem was working in the office next to Rita and we were introduced and discussed the problem. It was agreed that the system should be re-sampled. Rita contacted Fred Drynock, Water Technician of the Heskengcutxe Health Services for re-sampling.

We met Thursday, June 29, am at the Band Office with Chief Walkem, Pearl Hewitt, Assistant Band Manager, Richard Yanelst, Councillor, Fred Drynock, Water Technician, Heskengcutxe Health Services, Mike Skulsky, Circuit Rider. Our proposal was to check the systems and do more in-depth sampling.

We checked [redacted] Firstly, [redacted] a system reported as a dug well, however, currently being supplied from the irrigation system to allow sufficient water to also irrigate the garden around the house. The initial sample taken June 6 was from the kitchen tap. Our investigation this date found a pressure pump and pneumatic tank in the basement, disconnected, but in apparent good shape (probably not required with the irrigation pressure). An in-line Aqua Ultra Violet (UV) Water Stylizer UV 6DS last serviced April 99, an Omni Regular Water Filter and a water softener - Bruner Softy 150 - TS, an additional point of use filtration system through a separate bib at the kitchen sink an Aqua Flow System consisting of:

Five Micron Filter Element

Pre-carbon Filter Chlorine Removal

Granulated Activated Carbon Post Filter, last serviced and maintained - unknown.

June 29, 2000 three samples were taken:

- First sample: From the kitchen faucet
- Second sample: From the point of use filter - beside the kitchen sink
- Third sample: From the outside hose bib - pre water softener and UV sterilizer.

Kumsheen I R # 1 System. Comprised of a drilled well, municipal piping and two reservoirs, serving approximately 15 homes and a small campsite of limited use. In the writers opinion it is a relatively simple, straightforward system requiring minimal maintenance and yet it occasionally registers questionable water quality readings. These have been dealt with by cleaning the reservoirs, minimal silt or rodent intrusion noted and chlorinating, then putting the system back into service.

The tests from June 20 from [redacted] indicate a fecal coliform count of 4 PPM - unacceptable. Questionable results from [redacted], June 20 and [redacted] and [redacted], June 6 samples.

Water samples for this system were taken as follows:

June 29, Fourth sample: From the standpipe adjacent to the hockey rink. This line was isolated from the system and was our closest opportunity to source (the well).

Fifth sample: [redacted] 1 - 15 from the kitchen tap. No additional filter or softener systems were located with-in the house.

Sixth sample: From the basement faucet

Seventh sample: From outside hose bib in front of the house.

Eighth sample: [redacted] 1 - 16 kitchen tap.

Ninth sample: [redacted] 1 - 2 backside hose bib

Tenth sample: From the kitchen tap.

Eleventh sample: From the stand pipe at the camp site.

The line to the campsite forms a dead end and is in close proximity to the [redacted] residence. Regular flushing or turning off the line valve at the Cul de Sac may be advisable while it is not required.

When we checked the reservoirs prior to our sampling the water levels were in the low range. This could be due to the number of gardens the residents have, and the necessity of watering. However for fire protection and domestic use some form of restriction may be required. This system is currently served by one well, with a second drilled in close proximity and a third drilled within the past month, and currently, as of the 28th, under going pump testing by Lingo Pump Services. I understand a water sample was submitted from this new well for analysing and suggest that a copy of the report be forwarded to Chief Walkem for his perusal, in particular, to the arsenic level and the current allowable

s.19(1)

levels.

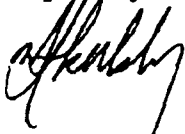
Current requirements:

Kumsheen I R # 1 Boil order water dated June 27 from Rita Manuel pending results from these current tests. If they still remain unacceptable the reservoirs should be cleaned and chlorinated. Pending acceptable results - flush the line to the campsite on a regular basis.

Boil water order dated June 13. Have U V serviced and the light bulb replaced as per instructions on the unit - replace element in filter. Clean out and service water softener and additional point of use system. It could be questionable as to why there would be a requirement for both purifying systems!!!

Consideration should be given to utilizing the irrigation system for the garden and running a separate line from the well to the house, although I understand a problem has been experienced with apparent shifting of the well causing separation of the line. Unfortunately I will be up the coast on a similar contract and will not be available until September. Hopefully we will have better results from these samples.

Respectfully submitted,



Mike Skulsky,
M.L.S. Services

CC: Mr. Sid Smith,
Asset Management Officer,
Public Works and Government Services Canada,
450 - 1550 Alberni Street,
Vancouver, BC V6G 3C5

Page(s) 004602 to\à 004602

Is(are) under consultation

BC Centre for
Disease Control
Society

BCCDC LABORATORY SERVICES
655 12th Avenue West
Vancouver, B.C. V6Z 4R4

Fax: (604) 660-6073

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed : 2000 JUN 22

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Requisition : A0WW009963
Submitter Ref :

Specimen Submitter

: 323-HEALTH CANADA (MERRITT)

s.19(1)

Site Information

Code/Name : 02J9552 - 02J9552

Site Desc : IR #1 (COOKS FERRY BAND)

City/Area : Type : COM.W.S.

Source : Well

Specimen

Treatment : UNTREATED

Ph Level : Free

Chlorine Level : ppm

Nature : WATER

Exams Req : Total Coliform

EHO : FD

: Fecal Coliform

Collected : 2000 JUN 20

Received : 2000 JUN 21

RESULTS

Reported on 2000 JUN 22

Test	Result	Units
1. Total Coliform (Membrane Filtration)	21	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	4	FC Count/100ml

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Specimen was 24 hours in transit

BCCDC LABORATORY SERVICES

The Province's centre of expertise in communicable disease control and provider of specialty health support services.

MEDINET

BC Centre for
Disease Control
Society

BCCDC LABORATORY SERVICES
655 12th Avenue West
Vancouver, B.C. V5Z 4R4

Fax: (604)660-6073

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed :2000 JUN 26

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Requisition :A0WW009966
Submitter Ref :

Specimen Submitter

:323-HEALTH CANADA (MERRITT)

Site Information

Code/Name :02J9555 - 02J9555

Site Desc :KUMSHEEN IR #1 (COOKS FERRY BAND), s.19(1)

City/Area : Type :COM.W.S.

Source :Well

Specimen

Treatment :UNTREATED

Nature :WATER

Ph Level :Free Chlorine Level :ppm
Exams Req :Total Coliform

EHO :FD :Fecal Coliform

Collected :2000 JUN 20

Received :2000 JUN 21

RESULTS

Reported on 2000 JUN 26

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration) L:LESS THAN	L1	FC Count/100ml
3. MORE THAN 200 BACKGROUND COLONIES NOTED ON TOTAL COLIFORM MEMBRANE FILTER PER 100 ML		

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Specimen was 24 hours in transit

BCCDC LABORATORY SERVICES

The Province's centre of expertise in communicable disease control and provider of specialty health support services.

MEDINET

BC Centre for
Disease Control
Society

BCCDC LABORATORY SERVICES
665 12th Avenue West
Vancouver, B.C. V6Z 4R4

Fax: (604) 660-6073

**ENVIRONMENTAL
BACTERIOLOGY**
Phone Number :

Printed : 2000 JUN 22

Requisition : A0WW009965
Submitter Ref :

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Specimen Submitter

: 323-HEALTH CANADA (MERRITT)

Site Information

Code/Name : 02J9554 - 02J9554
Site Desc : KUMSHEEN IR #1 (COOKS FERRY BAND), s.19(1)
City/Area : Type : COM. W.S.
Source : Well

Specimen

Treatment : UNTREATED Ph Level : Free Chlorine Level : ppm
Nature : WATER Exams Req : Total Coliform
EHO : FD : Fecal Coliform

Collected :
Received : 2000 JUN 21

RESULTS

Reported on 2000 JUN 22

Test	Result	Units
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L: LESS THAN		
3. NO DATE COLLECTED GIVEN		

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Page(s) 004606 to\à 004606

Is(are) under consultation

BC Centre for
Disease Control
Society

BCCDC LABORATORY SERVICES
665 12th Avenue West
Vancouver, B.C. V6E 4R4

Fax: (604) 660-6073

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed : 2000 JUN 12

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Requisition : A0NW007468
Submitter Ref :

Specimen Submitter

: 323-HEALTH CANADA (MERRITT)

Site Information

Code/Name : 02J7632 - 02J7632
Site Desc : COOKS FERRY IR #19 FIRSTLY, [REDACTED] s.19(1)
City/Area : Type : COM.W.S.
Source : Well

Specimen

Treatment : UNTREATED Ph Level : Free Chlorine Level : ppm
Nature : WATER Exams Req : Total Coliform

EHO : F.D. : Fecal Coliform

Collected : 2000 JUN 6

Received : 2000 JUN 7

RESULTS

Reported on 2000 JUN 8

Test	Result	Units
1. Total Coliform (Membrane Filtration)	4-6	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	1	FC Count/100ml
3. ** PRELIMINARY REPORT **		

Reported on 2000 JUN 12

Test	Result	Units
4. Total Coliform (Membrane Filtration)	4	TC Count/100ml
5. Fecal Coliform (Membrane Filtration)	1	FC Count/100ml
6. ** FINAL REPORT **		

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Specimen was 24 hours in transit

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Society

BCCDC LABORATORY SERVICES
555 12th Avenue West
Vancouver, B.C. V5Z 4R4

Fax: (604)660-6073

**ENVIRONMENTAL
BACTERIOLOGY**
Phone Number :

Printed :2000 JUN 8

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Requisition :A0WW007468
Submitter Ref :

Specimen Submitter

:323-HEALTH CANADA (MERRITT)

Site Information

Code/Name :02J7632 - 02J7632
Site Desc :COOKS FERRY IR #19 FIRSTLY, s.19(1)
City/Area : Type :COM.W.S.
Source :Well

Specimen

Treatment :UNTREATED Ph Level :Free Chlorine Level :ppm
Nature :WATER Exams Req :Total Coliform
EHO :F.D. :Fecal Coliform

Collected :2000 JUN 6
Received :2000 JUN 7

RESULTS

Reported on 2000 JUN 8

Test	Result	Units
1. Total Coliform (Membrane Filtration)	4-6	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	1	FC Count/100ml
3. ** PRELIMINARY REPORT **		

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Specimen was 24 hours in transit

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BCCDC LABORATORY SERVICES
655 12th Avenue West
Vancouver, B.C. V5Z 4R4

Fax: (604)660-6073

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed :2000 JUN 8

Requisition :A0WW007469
Submitter Ref :

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Specimen Submitter

:323-HEALTH CANADA (MERRITT)

Site Information

Code/Name :02J7634 - 02J7634
Site Desc :KUMSHEEN IR #1, COOKS FERRY BAND, s.19(1)
City/Area : Type :COM.W.S.
Source :Well

Specimen

Treatment :UNTREATED Ph Level :Free Chlorine Level :ppm
Nature :WATER Exams Req :Total Coliform

EHO :F.D. :Fecal Coliform

Collected :2000 JUN 6
Received :2000 JUN 7

RESULTS

Reported on 2000 JUN 8

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L:LESS THAN		
3. MORE THAN 200 BACKGROUND COLONIES NOTED ON TOTAL COLIFORM MEMBRANE FILTER PER 100 ML		

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Specimen was 24 hours in transit

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MEDINET

BC Centre for
Disease Control
Society

BCDC LABORATORY SERVICES
655 12th Avenue West
Vancouver, B.C. V6Z 4R4

FAX: (604)660-6973

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed :2000 JUN 12

Requisition :A0WW007459
Submitter Ref :

HEALTH CANADA (MERRITT) - 323
PO BOX 188
MERRITT BC V0K 2B0

Specimen Submitter

:323-HEALTH CANADA (MERRITT)

Site Information

Code/Name :02J7613 - 02J7613

Site Desc :KUMSHEE IR #1, COOKS FERRY BAND, s.19(1)

City/Area : Type :COM.W.S.

Source :Well

Specimen

Treatment :UNTREATED Ph Level :Free Chlorine Level :ppm

Nature :WATER Exams Req :Total Coliform

EHO :F.D. :Fecal Coliform

Collected :2000 JUN 6

Received :2000 JUN 7

RESULTS

Reported on 2000 JUN 12

Test	Result	Units
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L:LESS THAN		
3. MORE THAN 200 BACKGROUND COLONIES NOTED ON TOTAL COLIFORM MEMBRANE FILTER PER 100 ML		

For inquiries from medical personnel regarding laboratory results,
please contact the Central Inquiry Line at 604-660-5100.

Specimen was 24 hours in transit.

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MEDINET

Transwater Services

3308 - 3A Street South, Cranbrook, B.C. V1C 5W8
Tel: (250) 489-2379 - Fax: (250) 489-5332

COPY

VAN E 4300-9-694 UNK

May 4, 2000

Richard Yamelst
Cooks Ferry Indian Band
PO Box 130
Spences Bridge, BC V0K 2L0

Attention: Richard Yamelst

RE: 1999/2000 Circuit Rider Program Report

Enclosed find one copy of the Circuit Rider Program report for training and work completed in the 1999/2000 program year. The report addresses the areas we covered during my visit to the Cooks Ferry Indian Band.

I recommend that all maintenance personnel and trainees attend the BC Water and Waste Association meetings at least once a year; which are held three or four times a year and are very informative meetings for water and sewer systems repairs and maintenance updates.

Please contact me for any water and/or sewer related information and advice. I look forward to the opportunity to work with the Cooks Ferry Indian Band for next year's Circuit Rider Program.

Sincerely,


Anthony Deo
Transwater Services

cc: Attention: Mr. Sid Smith
Asset Management Officer
PWGSC-RPS for Indian and Northern Affairs Canada
450- 1550 Alberni Street
Vancouver, BC V6G 3C5

WATER AND WASTEWATER SYSTEMS: CONSTRUCTION, MAINTENANCE AND TESTING • FIRE HYDRANTS • VALVES • PUMPHOUSES
BACK FLOW PREVENTERS • METERS • PRESSURE REDUCERS • MAINS AND SERVICE LOCATIONS • FLOW TESTS • LIFT STATIONS
CHLORINATION • CHLORINATORS • LEAK DETECTION • PUMPS • RESERVOIRS • PNEUMATIC SYSTEMS

**Cooks Ferry Indian Band
1999/2000 Circuit Rider Program Report**

Transwater Services

3308-3A Street South
Cranbrook, BC
V1C 5W8

Phone: (250) 489-2379

Fax: (250) 489-5332

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1. GENERAL CONDITIONS ENCOUNTERED

1.1. Water System Deficiencies

1. Water main and services are not all accessible.
2. Insufficient water during summer months due to exhausted source.
3. Part of reserve has Municipal water so some of the hydrants and stand pipes are serviced by the Municipality.

1.2. Sanitary Sewage System Deficiencies

1. Sewer on septic system is properly maintained.
2. Determine cause of sewer blockage and methods of unplugging and cleaning.

2. NAMES OF PERSONNEL TRAINED AND TYPE OF TRAINING PROVIDED

2.1. Personnel Trained

1. Annette Yamelst

2.2. The 4 Day Training Period Included:

1. Orientation of the site accompanied by the band's maintenance personnel and trainees to identify any immediate problem areas and to highlight training priorities.
2. Service fire hydrants; breakdown, rebuild and flush. See attached fire hydrant service procedure in Appendix A.
3. Assist the band in obtaining parts and materials.
4. Assist in the repairs of noted problem areas.
 1. Work on ^{ACRS} ARCS reports.
 2. Disinfect and clean reservoir.
 3. Servicing and winterizing of fire hydrants.

2.3. The Following Items Were Reviewed Over The 4 Day Training Period:

1. Available engineering drawings, studies, asset reports and maintenance plans.
2. The operation of the water and sewer system components including: well pump, chlorinator and reservoir controls; operator safety including proper safety of pump controls, preventive maintenance; core maintenance skills; system repairs; record keeping; and testing procedures for quality control and monitoring of water quality.
3. WCB regulation and guidelines: standard practice for confined space entry for manholes and reservoirs; the safe handling and storage of hazardous chemicals the use of safety equipment and protective clothing; electrical safety; and work in and around excavations.
4. Identify confined space hazards.
5. The maintenance procedures of the water and sewer system components including: well pump, chlorinator and reservoir controls; flushing of the water and sewer mains; inspection and cleaning of water storage reservoirs and sewage lift stations; and the inspection and maintenance of water wells, intakes, treatment plants, and sewage lagoons when applicable to each Band.

3. RECOMMENDATIONS FOR THE IMPROVEMENT OF THE BAND'S MAINTENANCE PROCEDURES

1. Flush all sanitary sewer mains. Based on the conditions encountered during flushing, a schedule should be compiled indicating sewer mains which require flushing annually and which sewer mains can be flushed less often.
2. Develop a program for annual disinfection and cleaning of the reservoir, wells and water mains.
3. Develop a program for the annual flushing of water mains.
4. Develop a program for the annual service of fire hydrants.
5. Develop a program to check the water intake monthly and to clean as required.
6. Develop a program to check sanitary sewer manholes monthly for blockages.
7. Develop a program to check sewage lift station weekly. Clean and flush as required.
8. Develop a program to clean septic tanks every one to three years.
9. Develop a program to annually cut grass and clean around the lagoons.
10. Maintain dates and records of:
 1. Fire hydrant servicing;
 2. Disinfection and flushing of water mains, wells and reservoir;
 3. Sanitary sewer main flushing;
 4. Any repairs or maintenance of water and sewer systems; include the location of the repair or maintenance.
 5. Water consumption from flow meter readings;
 6. Hours pump operation from hour meters.

4. SUGGESTED GENERAL REPAIRS OR MAINTENANCE

1. Locate buried mainline water valves and curb stops; raise to grade as required.
2. Locate larger water source.
3. Install flow meters to monitor water consumption.

5. SUGGESTED LIST OF MATERIALS AND TOOLS TO BE PURCHASED BY THE BAND

5.1. Materials

1. Hydrant main seats, O-rings, gaskets and spindle bearings for Terminal City TC71 and Canada valve hydrants.
2. Robar couplings for C900 PVC pipe - 150mm and 200mm diameter.
3. 150mm x 19mm and 200mm x 19mm diameter stainless steel double strap service saddles for water services.
4. 19mm corporation curb stop and service boxes.

5.2. Tools

1. Hydrant servicing tools for Mueller hydrants and for Terminal City hydrants.
2. Power auger for cleaning sanitary sewer services.
3. Steel sewer snake for locating sewer blockages.

The Band has its own suppliers with competitive pricing.

Appendix A: Transwater Fire Hydrant Service Procedure

1. Hydrants are tested for smooth operation.
2. Pressure tested and checked for:
 - a. Leaks on caps.
 - b. Pumper caps.
 - c. Head gaskets.
 - d. Packings and O-rings.
 - e. Draining
3. Main hydrant valves are accessible and in operating condition.
4. Rubbers and gaskets are checked and replaced on caps and pumper caps where required.
5. Heads are taken apart and checked for wear on packings, O-rings and bearings.
6. Parts are cleaned and replaced where required.
7. Hydrant interiors are pulled out of the barrel and checked for wear and broken parts on couplings, pins, main rubbers and drain mechanism. Interior parts are replaced where necessary and greased.
8. Hydrants are completely flushed out before reassembling.
9. Hydrants are reassembled and re-tested for leaks and operation.
10. Hydrants are painted.
11. Test reports are recorded, filed and submitted to proper authorities.

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Is(are) under consultation

Appendix D

Wastewater Quality Test Results

No wastewater information was seen