# ANNUAL WATER REPORT

# VILLAGE OF NAKUSP

## 2015

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# 1.0 Introduction:

Under the terms of the Village of Nakusp Operating Permit for the Nakusp Water System, Facility #0211995, as per Section 8 of the *Drinking Water Protection Act*, the Village is required to provide an annual report to the public and users of the water system. This report is to provide a summary of the water system operation, maintenance, upgrades and testing procedures and is submitted to Interior Health.

With the new water treatment plant newly commissioned, most of this year has been spent working out the bugs to find optimum efficiencies. Once this fiscal year is complete, the Village will have an idea of how much it costs to operate and maintain the new system. This will pave the way moving forward.

# 2.0 Water Collection, Treatment & Distribution System:

The Village water system is comprised of 756 residential connections, 103 Commercial services and 27 Institutional/Industrial services. Currently, the distribution system runs approximately 26.7 kms and has both surface source water and ground well water.

# 2.1 Surface Source Water:

Surface water sources consist of Halfway Creek, Upper Brouse Creek and Lower Brouse Creek. The piping network consists of 3.5 kms of pipe to the Upper Brouse intake and an additional 3.5 kms to the Halfway intake.

Surface water undergoes course filtration in the Filter Sock Chamber, which houses six perforated PVC pipes covered with mesh filter media (socks). Each pipe is approximately 12" in diameter and 8' long.

Course filtration removes large debris, such as leaves, sticks, pine needles, frogs, etc. These filter socks become clogged, especially during the freshet and require monitoring and cleaning.

**Figure 1 Filter Sock Chamber**

**Figure 2 Micro Hydro Generation Station**

Course filtration is not technically considered a treatment process, as fine materials and micro-organisms are not removed, therefore, water from here runs through the micro-hydro generation station to the new water treatment facility.

High pressure in the water main turns the generator, which creates hydro electricity. This is sold to BC Hydro and is fed back into their power grid. The Village is licensed to produce 50 kilowatts of power.

The new treatment process consists of: membrane ultra-filtration, UV light and chlorine injection. This is a very technical operation, which is classified as a Level II Water Treatment. With the commissioning of the new plant come new "Conditions on Operating Permit", which require much more monitoring and reporting to the province. Once treated, the water is stored in the million gallon reservoir.

**Figure 3 Upper Brouse Rd Water Treatment Plant**

The Million Gallon Reservoir is covered by a polyvinyl chloride cover to keep out debris and wildlife. Towers and weights around the perimeter allow the cover to move with the water level, Rainfall and precipitation is pumped off the cover regularly to prevent contamination.
The reservoir is 14' deep.

**Figure 4 Million Gallon Reservoir**

The Village also has a 200,000 gallon reservoir, which stores treated water for the lower grid.

## 2.2 Groundwater Sources:

The Village currently has two established production wells - Well#1 and Well#2. Both wells are located adjacent to the sports complex and are drawn from the same aquifer. A small amount of chlorine is injected into the discharge line, in order to maintain a residual in the distribution system.

Well#1 (8") consistently produces 30 L/s (330 IGPM), taking the demand off the surface water system in summer, and operating up to 24 hours/day. This flow, combined with the 70 L/s from the surface system (during peak daily demand), provides 95 L/s summer flows, and is adequate for the present Village needs. A single well, however, is at risk to mechanical breakdown.

Well#2 (12"), drilled for redundancy and to provide further flows for growth, has been tested up to 30 L/s (800 IGPM). This well was commissioned with the same pump and motor as Well #1 and, therefore, has the same capacity.

## 3.0 Monitoring & Maintenance:

In addition to the daily facility checks that are conducted by Utility Operators, the Village has the benefit of a Supervisory Control and Data Acquisition (SCADA) system. This system allows the various facilities to communicate remotely through wireless modem radios, and sensing equipment, enabling the Public Works operators to log onto the system remotely to view and/or manipulate reservoir levels, well pump operations, turbidity and chlorine levels, and system flows. The system also logs this data into an archive, for reporting purposes. The system is very valuable for allowing operators to manage the water supplies, and view problems on a color graphics screen.

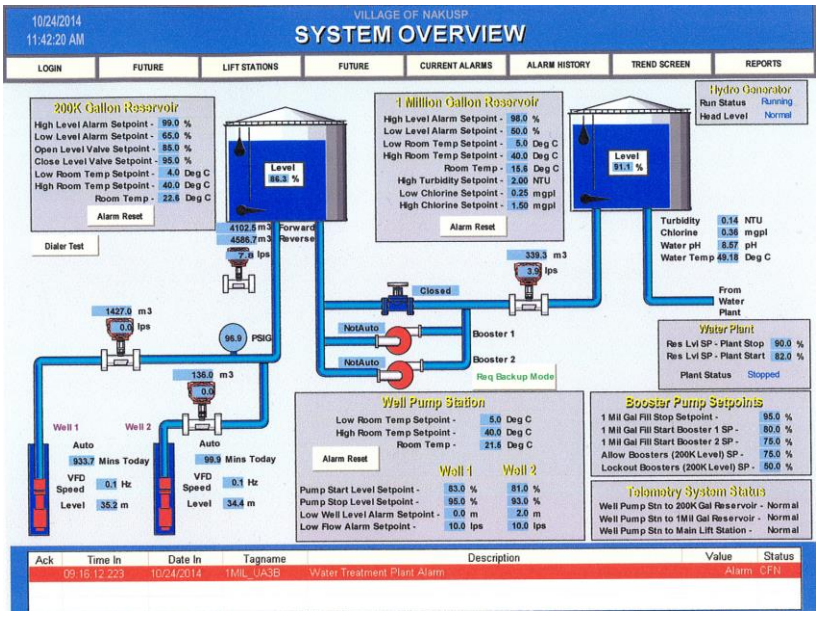



**Figure 5 Supervisory Control and Data Acquisition Monitoring System**

# 3.1 Water Sampling & Testing:

The Village Operating Permit requires that water samples be collected weekly and submitted for E. Coli and Total Coliform testing. These tests indicate if contamination of the water system may be present. Samples are collected from several different sites, on a rotational basis.

See Appendix A, pg 12, for 2015 results.

Monthly samples are also submitted for trihalomethane (THM) levels. Trihalomethanes are bi-products of the reaction between chlorine and organic materials.

See Appendix C, pg 19, for 2015 results.

Haloacetic Acid (HAA) testing is performed quarterly. They are another by-product of chlorination. Together, THMs and HAAs provide an indication of the presence of all other disinfection by-products.

See Appendix C, pg 19, for 2015 results.

Monitoring Schedule:

| | |
|---|---|
| **WEEKLY** | • **Microbiological testing at various test sites throughout the distribution system** |
| **MONTHLY** | • **THM testing on a rotational basis throughout the distribution system;**<br>• **Microbiological results reporting;**<br>• **Daily water consumption data;**<br>• **Turbidity monitoring data;**<br>• **UV data**<br>• **Chlorine monitoring data**<br>• **UV sensor reference checks**<br>• **Reporting of source, treatment & distribution system events;**<br>• **Reporting of customer complaints & responses;**<br>• **Outlining major operational activities;**<br>• **Recording of calibration of the chlorine residual analyzer** |
| **QUARTERLY** | • **Holoacetic acids testing and reporting** |
| **SEMI-ANNUALLY**<br><br>**(until baseline has been established – then annually)** | • **Baseline analysis for potential contaminants of groundwater, including: hydrocarbons (benzene, toluene, ethylbenzene & xylene, light and heavy extractable petroleum hydrocarbons -including polyaromatic hydrocarbons, volatile organic compounds; herbicides and pesticides; metals, nitrates; nitrites and phosphorus; and/or microbiological parameters (coliforms, E. coli);**<br>• **Testing of any specific contaminants of concern** |
| **ANNUALLY** | • **Full comprehensive raw water analysis of each water source**<br>• **Comprehensive Annual Report**<br>***See Appendix B, pg 14 for 2015 Results*** |

## 3.2 Operator Certification:

Utilities and Utility Operators are certified through the Environmental Operators Certification Program (EOCP). The new Village WTP is classified as a Water Treatment Level II and Water Distribution Level II Facility, which requires Level II Operators to run it.

At this time, our staff is certified to the following levels:

| Employee | Water Treatment | Water Distribution |
|---|---|---|
| **Warren Leigh** | WT-I | WD - II |
| **Gilbert Battersby** | - | WD - II |
| **Wesley Coleman** | - | WD - I |
| **Terry Flamond** | - | WD - I |
| **Bobby Gresiuk** | - | WD - III |
| **Rachel George** | Operator in Training | Operator in Training |

As a Condition on Operator Permit, IHA is requiring that the Village provide Operators that are certified to the level of the plant. Until that time, the Village has retained Nathan Ward (Certified WT II Operator) of Aquadiversities Inc. to oversee operations of the water treatment plant.

## 3.3 Routine Maintenance:

**Daily:** Visual checks are conducted of the various facilities to ensure that the equipment is functioning properly and no problems are evident. Filter Sock cleaning is done, as required. The system is also monitored 24/7 by the SCADA system, which can be accessed remotely by Operators. The system is monitored for: Flow Rate; Total Flow; Free chlorine; chlorine pump settings, pH, temperature; well levels & turbidity.

**Weekly**: Every Tuesday the Village conducts facility inspections and bacteriological water sample testing at various end-line locations throughout the municipality.

**Monthly**: Flow rate information is compiled for the Million Gallon Reservoir and the wells. Monthly samples are taken to monitor Trihalomethane levels. Sample results are reported to Interior Health (IHA).

**Quarterly:** A water sample is collected to monitor for Haloacetic Acids. Sample results are reported to IHA.

**Annually**: Waterlines are flushed in the Spring and Fall. This removes debris and stale water that may have accumulated in the piping network.

Fire hydrants are also flushed and inspected. Any repairs necessary are made and two new hydrants have been installed each year. All obsolete hydrants have now been replaced.

A valve exercising program is conducted each year to ensure that valves remain in good working order.

Halfway water intake is back-flushed each year or two to remove settled debris and improve flow.

As part of the Village's Cross Connection Control Program, Backflow prevention devices are inspected and tested to prevent any cross contamination of the potable water system.

An annual report is submitted to the Interior Health Authority summarizing the conditions of the Operating Permit.

**On-going**: Data is constantly monitored to assist with identifying leaks in the system. Repairs are made immediately.

The Million Gallon Reservoir cover is pumped off regularly, to remove any precipitation and debris.

# 4.0 Projects & Improvements – 2015:

**Pressure Reducing Valve (PRV) Station**

The Village of Nakusp has been awarded a *New Building Canada Fund Grant* for 2/3 of the cost to install a Pressure Reducing Valve (PRV) Station in the Sleepy Hollow area of town. This station is required to address the long-standing issue of extremely high water pressures, which contribute to the premature degradation of water lines and the high incident of breaks and leaks. The project consists of the replacement of six hundred feet of four inch asbestos/concrete pipe with new six inch plastic waterline; and, the construction of an above-ground PRV station, which is easy to access and eliminates the need for confined space entry. This

construction is currently underway and will decrease the water pressure in the main lines along Shakespeare, Glenbank & Wells Road. The anticipated project completion date is February 2016.

**Generator Installation**

A back-up generator has been installed at the 200,000 gallon reservoir to address issues with power failures and eliminate the need to hook up a portable genset during outages.

**Fire Hydrants**

Two new hydrant were installed as part of our Annual Fire Hydrant installation program. This program is now complete, as all Terminal City hydrants have been replaced.

**Columbia Basin Trust (CBT) WaterSmart Program:**

In 2011 the Village of Nakusp was one of 22 municipalities to sign the Columbia Basin Water Smart Charter. Collectively, the Water Smart communities desired to achieve an overall water usage consumption reduction of 20% by 2015. Nakusp set its own target of 15% reduction, and established their Water Smart Action Plan to outline the path to attaining this goal.

Four objectives were established in the Plan, namely:

1) Investigate and address Unaccounted-for Water/Leakage;
2) Amend the existing OCP Policy regarding underground irrigation systems;
3) Implement proven strategies for reducing outdoor residential water demands, and lead by example through wise water use in public spaces, and
4) Investigate an incremental approach to a more comprehensive water metering program.[1]

Through funding contribution agreements with CBT, the following projects have been completed or are underway:

- **Water Meter Assessment** - the Village hired Urban Systems to complete a Water Meter Assessment. This report will be used as a tool for Council to make an informed decision regarding the possible implementation of a universal water meter program;

[1] Village of Nakusp Water Smart Action Plan May 2011

- **Water Loss Management Plan** - drafted by Kerr Wood Leidal Consulting Engineers, this plan identifies strategies and recommendations for funding and plan implementation. One of the recommendations was to install a meter at the outlet to the 200,000 gallon reservoir to monitor flows.

- **200,000 Gallon Reservoir Meter** - the Village installed an insertion meter at the outlet to the 200,000 gallon reservoir. Flows can now be monitored from this reservoir to the distribution system;

- **Utility Revenue Requirements Cost of Service & Rates Studies Analysis** FCS Group from Seattle is currently working on this analysis. Results should be forthcoming in early 2016. This data will be used to establish water rates and revenue streams to fund the operation and maintenance of the water system, as well as plan and allocate for infrastructure replacement and Capital Asset Management in the future.

The Village will continue to focus on water consumption reduction. The 15% target may be achieved through: the prevention of leakage at the Million Gallon Reservoir and the implementation of the reclaimed water system, which will recover water from the wastewater treatment plant for irrigation of public green-spaces.

# 5.0 Challenges & Difficulties – 2015:

**Staffing Changes**

The Village has experienced a large turn-over in staff (ie. Director of Operations, Chief Financial Officer, Administrative Assistant – Finance Dept., Chief Administrative Officer). The loss of one employee can be difficult, however, the cumulative effect of losing many key members all at the same time causes unique challenges. The Village is positively moving forward through the recruitment of new employees, promotion of eligible staff from within, and the development of a strong management team.

**New Plants On-Line**

2015 marks the inaugural year for the operation of the new Micro-hydro Generation Station, Water Treatment Plant, and Wastewater Treatment Plant. Staff are busy working the bugs out of each system and determine what the operational and maintenance requirements are.

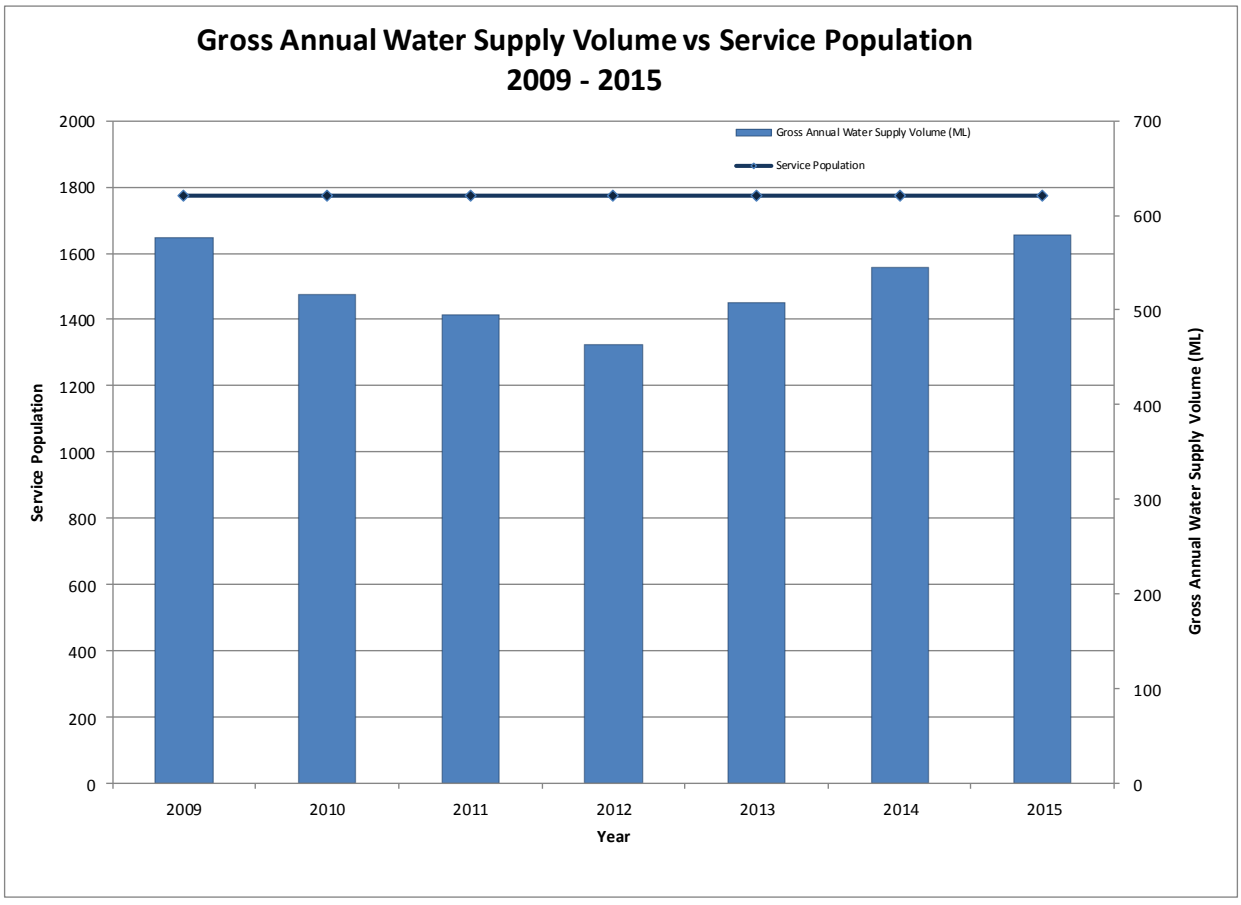
## System Changes

With the dramatic changes in the water collection, treatment and distribution system overall, the Village will need to: complete a new water system assessment; update its Master Water Plan; incorporate emergency procedures from the Groundwater Protection Plan; and, include emergency procedures resulting from the proposed Surface/Source Water Protection Plan, scheduled for 2016.

# 6.0 Water Consumption:

This year was a very difficult one to manage consumption wise. Despite concerted efforts to decrease consumption, demand actually increased. This can be attributed to hot weather conditions, increased out-door water usage (lawn watering) and continued/increased leakage.

See Appendix D, pg 20, for 2015 results.



# 7.0 Cross Connection Control Program:

The Village of Nakusp has developed a Cross Connection Control Program, as required by the Drinking Water Protection Act. The purpose of this program is to protect public health, by preventing potential non-potable water sources from cross-contaminating the domestic water supply. This is achieved through the installation, maintenance and inspection of back-flow prevention devices.

Warren Leigh is currently our certified Cross Connection Control Administrator /Inspector and Wes Coleman is our certified Backflow Assembly Tester. Testing of backflow prevention devices is done annually.

# 8.0 Emergency Response Plan:

The Village has an Emergency Response Plan for the domestic water system. The plan identifies a number of potential emergency situations and sets out guidelines and procedures on how to deal with each issue. The plan will need to be updated to incorporate recommendations from the Groundwater Protection Plan, as well as, any procedures resulting from the proposed Surface/Source Water Protection Plan, 2016.

The contact information is updated annually – see Appendix E, pg 22.

# 9.0 Proposed Capital Works/Improvements for 2016:

**Council is currently considering the following Capital Expenditures for 2016:**

- **Water Main Replacement, annual** **$ 100,000**

**Total:** **$ 100,000**

# Appendix A – Bacteriological Testing Results

| SITE | DATE | Residual Cl2 | TC Count | EC Count /100 ML |
|---|---|---|---|---|
| **Carson's Corner** | Feb. 10/15 | 0.76 | L1 | L1 |
| | Mar. 24/15 | 0.53 | L1 | L1 |
| | May 5/15 | 0.6 | L1 | L1 |
| | June 16/15 | 0.78 | L1 | L1 |
| | July 23/15 | 0.54 | L1 | L1 |
| | September 8/15 | 0.71 | L1 | L1 |
| | October 20/15 | 0.78 | L1 | L1 |
| | December 8/15 | 1.03 | too long in transit | |
| | December 15/15 | repeat | L1 | L1 |
| | | | | |
| **Sports Complex** | Jan. 13/15 | 0 | L1 | L1 |
| | Feb. 24/15 | 0.04 | L1 | L1 |
| | April 7/15 | 0.44 | L1 | L1 |
| | May 19/15 | 0.05 | no p/u | no p/u |
| | June 30/15 | STAT | no p/u | no p/u |
| | Aug 11/15 | 0.21 | L1 | L1 |
| | Sept. 22/15 | 0.5 | L1 | L1 |
| | Nov. 3/15 | 0.36 | L1 | L1 |
| | Dec. 22/15 | 0.23 | lab closed | |
| | Dec. 29/15 | 0.25 | lab closed | |
| | | | | |
| **Crescent Bay Const.** | Jan. 20/15 | 0.3 | L1 | L1 |
| | Mar. 3/15 | 0.42 | L1 | L1 |
| | April 14/15 | 0.47 | L1 | L1 |
| | May 26/15 | 0.25 | L1 | L1 |
| | July 7/15 | 0.6 | L1 | L1 |
| | Aug 18/15 | 0.43 | L1 | L1 |
| | Sept. 29/15 | 0.53 | L1 | L1 |
| | Nov. 17/15 | 0.23 | L1 | L1 |
| | | | | |
| **852 Alexander Rd.** | Jan. 13/15 | 0.49 | L1 | L1 |
| | Feb. 17/15 | 0.04 | L1 | L1 |
| | Mar. 31/15 | 0.44 | L1 | L1 |
| | May 12/15 | 0.55 | L1 | L1 |
| | June 23/15 | 0.45 | L1 | L1 |
| | August 4/15 | 0.7 | L1 | L1 |
| | September 15/15 | 0.35 | L1 | L1 |
| | October 27/15 | 0.62 | L1 | L1 |

| | | | | |
|---|---|---|---|---|
| | December 15/15 | 0.55 | L1 | L1 |
| | | | | |
| **Overwaitea** | Jan. 27/15 | 0.04 | L1 | L1 |
| | Mar. 10/15 | 0.51 | L1 | L1 |
| | April 21/15 | 0.38 | L1 | L1 |
| | June 2/15 | 0.66 | L1 | L1 |
| | July 14/15 | 0.36 | L1 | L1 |
| | August 25/15 | 0.6 | L1 | L1 |
| | October 6/15 | 0.55 | L1 | L1 |
| | November 24/15 | 0.26 | L1 | L1 |
| | | | | |
| **Esso Station** | Feb. 3/15 | 0.25 | L1 | L1 |
| | Mar. 17/15 | 0.45 | L1 | L1 |
| | April 28/15 | 0.23 | L1 | L1 |
| | June 9/15 | 0.1 | L1 | L1 |
| | July 21/15 | 0.13 | L1 | L1 |
| | Sept. 1/15 | 0.41 | L1 | L1 |
| | Oct. 13/15 | 0.51 | L1 | L1 |
| | Dec. 1/15 | 0.38 | L1 | L1 |
| | | | | |
| **Marina End Line** | Nov. 9/15 | | L1 | L1 |

# Appendix B – Annual Comprehensive Source Water Analysis

CARO ANALYTICAL SERVICES

## SAMPLE ANALYTICAL DATA

| | | | |
|---|---|---|---|
| **REPORTED TO** | Nakusp, Village of | **WORK ORDER** | 5120175 |
| **PROJECT** | Comprehensive | **REPORTED** | Dec-18-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: WTP - Raw (5120175-01) [Water] Sampled: Dec-01-15 09:05** | | | | | | | |
| ***Anions*** | | | | | | | |
| Chloride | **0.12** | AO ≤ 250 | 0.10 | mg/L | N/A | Dec-07-15 | |
| Fluoride | **0.34** | MAC = 1.5 | 0.10 | mg/L | N/A | Dec-07-15 | |
| Nitrate as N | < 0.010 | MAC = 10 | 0.010 | mg/L | N/A | Dec-07-15 | HT1 |
| Nitrite as N | < 0.010 | MAC = 1 | 0.010 | mg/L | N/A | Dec-07-15 | HT1 |
| Sulfate | **15.1** | AO ≤ 500 | 1.0 | mg/L | N/A | Dec-07-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **51** | N/A | 1 | mg/L | N/A | Dec-05-15 | |
| Carbon, Total Organic | **0.6** | N/A | 0.5 | mg/L | N/A | Dec-02-15 | |
| Colour, True | < 5 | AO ≤ 15 | 5 | CU | N/A | Dec-03-15 | |
| Conductivity (EC) | **134** | N/A | 2 | µS/cm | N/A | Dec-05-15 | |
| Cyanide, Total | < 0.010 | MAC = 0.2 | 0.010 | mg/L | Dec-07-15 | Dec-07-15 | |
| pH | **7.90** | 6.5-8.5 | 0.01 | pH units | N/A | Dec-05-15 | HT2 |
| Sulfide, Total | **0.10** | AO ≤ 0.05 | 0.05 | mg/L | N/A | Dec-07-15 | |
| Temperature | **21** | N/A | | °C | N/A | Dec-05-15 | HT2 |
| Turbidity | **0.1** | OG < 0.1 | 0.1 | NTU | N/A | Dec-02-15 | |
| UV Transmittance @ 254nm | **94.3** | N/A | 0.1 | % T | N/A | Dec-02-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Aggresiveness Index | **11.4** | N/A | | - | N/A | Dec-10-15 | CT6 |
| Hardness, Total (Total as CaCO3) | **60.3** | N/A | 5.0 | mg/L | N/A | N/A | |
| Langelier Index | **-0.4** | N/A | -5.0 | - | N/A | Dec-10-15 | CT6 |
| Solids, Total Dissolved | **72.1** | AO ≤ 500 | 2.0 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | < 0.05 | OG < 0.1 | 0.05 | mg/L | Dec-04-15 | Dec-04-15 | |
| Antimony, total | < 0.001 | MAC = 0.006 | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Arsenic, total | < 0.005 | MAC = 0.01 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Barium, total | < 0.05 | MAC = 1 | 0.05 | mg/L | Dec-04-15 | Dec-04-15 | |
| Beryllium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Boron, total | < 0.04 | MAC = 5 | 0.04 | mg/L | Dec-04-15 | Dec-04-15 | |
| Cadmium, total | < 0.0001 | MAC = 0.005 | 0.0001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Calcium, total | **21.0** | N/A | 2.0 | mg/L | Dec-04-15 | Dec-04-15 | |
| Chromium, total | < 0.005 | MAC = 0.05 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Cobalt, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Copper, total | < 0.002 | AO ≤ 1 | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Iron, total | < 0.10 | AO ≤ 0.3 | 0.10 | mg/L | Dec-04-15 | Dec-04-15 | |
| Lead, total | < 0.001 | MAC = 0.01 | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Magnesium, total | **1.9** | N/A | 0.1 | mg/L | Dec-04-15 | Dec-04-15 | |
| Manganese, total | < 0.002 | AO ≤ 0.05 | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Mercury, total | < 0.00002 | MAC = 0.001 | 0.00002 | mg/L | Dec-06-15 | Dec-07-15 | |
| Molybdenum, total | **0.001** | N/A | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Nickel, total | < 0.002 | N/A | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Phosphorus, total | < 0.2 | N/A | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Potassium, total | **1.0** | N/A | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Selenium, total | < 0.005 | MAC = 0.05 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Silicon, total | **7** | N/A | 5 | mg/L | Dec-04-15 | Dec-04-15 | |

CARO ANALYTICAL SERVICES

## SAMPLE ANALYTICAL DATA

| | | | |
|---|---|---|---|
| **REPORTED TO** | Nakusp, Village of | **WORK ORDER** | 5120175 |
| **PROJECT** | Comprehensive | **REPORTED** | Dec-18-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: WTP - Raw (5120175-01) [Water] Sampled: Dec-01-15 09:05, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Silver, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Sodium, total | **1.8** | AO ≤ 200 | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Uranium, total | **0.0011** | MAC = 0.02 | 0.0002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Vanadium, total | < 0.01 | N/A | 0.01 | mg/L | Dec-04-15 | Dec-04-15 | |
| Zinc, total | < 0.04 | AO ≤ 5 | 0.04 | mg/L | Dec-04-15 | Dec-04-15 | |
| ***Microbiological Parameters*** | | | | | | | |
| Coliforms, Total | 3 | MAC = None Detected | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | MD-2 |
| Background Colonies | **11** | N/A | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| E. coli | 1 | MAC = None Detected | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| **Sample ID: Well #1 - Raw (5120175-02) [Water] Sampled: Dec-01-15 08:33** | | | | | | | |
| ***Anions*** | | | | | | | |
| Chloride | **6.85** | AO ≤ 250 | 0.10 | mg/L | N/A | Dec-07-15 | |
| Fluoride | **0.14** | MAC = 1.5 | 0.10 | mg/L | N/A | Dec-07-15 | |
| Nitrate as N | **1.17** | MAC = 10 | 0.010 | mg/L | N/A | Dec-07-15 | HT1 |
| Nitrite as N | < 0.010 | MAC = 1 | 0.010 | mg/L | N/A | Dec-07-15 | HT1 |
| Sulfate | **5.9** | AO ≤ 500 | 1.0 | mg/L | N/A | Dec-07-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **148** | N/A | 1 | mg/L | N/A | Dec-05-15 | |
| Carbon, Total Organic | < 0.5 | N/A | 0.5 | mg/L | N/A | Dec-02-15 | |
| Colour, True | < 5 | AO ≤ 15 | 5 | CU | N/A | Dec-03-15 | |
| Conductivity (EC) | **321** | N/A | 2 | µS/cm | N/A | Dec-05-15 | |
| Cyanide, Total | < 0.010 | MAC = 0.2 | 0.010 | mg/L | Dec-07-15 | Dec-07-15 | |
| pH | **8.00** | 6.5-8.5 | 0.01 | pH units | N/A | Dec-05-15 | HT2 |
| Sulfide, Total | < 0.05 | AO ≤ 0.05 | 0.05 | mg/L | N/A | Dec-07-15 | |
| Temperature | **21** | N/A | | °C | N/A | Dec-05-15 | HT2 |
| Turbidity | < 0.1 | OG < 0.1 | 0.1 | NTU | N/A | Dec-02-15 | |
| UV Transmittance @ 254nm | **98.9** | N/A | 0.1 | % T | N/A | Dec-02-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Aggresiveness Index | **12.4** | N/A | | - | N/A | Dec-10-15 | CT6 |
| Hardness, Total (Total as CaCO3) | **157** | N/A | 5.0 | mg/L | N/A | N/A | |
| Langelier Index | **0.5** | N/A | -5.0 | - | N/A | Dec-10-15 | CT6 |
| Solids, Total Dissolved | **172** | AO ≤ 500 | 2.0 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | < 0.05 | OG < 0.1 | 0.05 | mg/L | Dec-04-15 | Dec-04-15 | |
| Antimony, total | < 0.001 | MAC = 0.006 | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Arsenic, total | < 0.005 | MAC = 0.01 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Barium, total | **0.39** | MAC = 1 | 0.05 | mg/L | Dec-04-15 | Dec-04-15 | |
| Beryllium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Boron, total | < 0.04 | MAC = 5 | 0.04 | mg/L | Dec-04-15 | Dec-04-15 | |
| Cadmium, total | < 0.0001 | MAC = 0.005 | 0.0001 | mg/L | Dec-04-15 | Dec-04-15 | |

CARO ANALYTICAL SERVICES

## SAMPLE ANALYTICAL DATA

| | | | |
|---|---|---|---|
| **REPORTED TO** | Nakusp, Village of | **WORK ORDER** | 5120175 |
| **PROJECT** | Comprehensive | **REPORTED** | Dec-18-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Well #1 - Raw (5120175-02) [Water] Sampled: Dec-01-15 08:33, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Calcium, total | **50.6** | N/A | 2.0 | mg/L | Dec-04-15 | Dec-04-15 | |
| Chromium, total | < 0.005 | MAC = 0.05 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Cobalt, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Copper, total | < 0.002 | AO ≤ 1 | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Iron, total | < 0.10 | AO ≤ 0.3 | 0.10 | mg/L | Dec-04-15 | Dec-04-15 | |
| Lead, total | < 0.001 | MAC = 0.01 | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Magnesium, total | **7.4** | N/A | 0.1 | mg/L | Dec-04-15 | Dec-04-15 | |
| Manganese, total | < 0.002 | AO ≤ 0.05 | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Mercury, total | < 0.00002 | MAC = 0.001 | 0.00002 | mg/L | Dec-06-15 | Dec-07-15 | |
| Molybdenum, total | < 0.001 | N/A | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Nickel, total | < 0.002 | N/A | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Phosphorus, total | < 0.2 | N/A | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Potassium, total | **1.3** | N/A | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Selenium, total | < 0.005 | MAC = 0.05 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Silicon, total | **11** | N/A | 5 | mg/L | Dec-04-15 | Dec-04-15 | |
| Silver, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Sodium, total | **4.3** | AO ≤ 200 | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Uranium, total | **0.0016** | MAC = 0.02 | 0.0002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Vanadium, total | < 0.01 | N/A | 0.01 | mg/L | Dec-04-15 | Dec-04-15 | |
| Zinc, total | < 0.04 | AO ≤ 5 | 0.04 | mg/L | Dec-04-15 | Dec-04-15 | |
| ***Microbiological Parameters*** | | | | | | | |
| Coliforms, Total | < 1 | MAC = None Detected | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| Background Colonies | < 1 | N/A | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| E. coli | < 1 | MAC = None Detected | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| **Sample ID: Well #2 - Raw (5120175-03) [Water] Sampled: Dec-01-15 08:30 To Dec-15-15 08:30** | | | | | | | |
| ***Anions*** | | | | | | | |
| Chloride | **6.59** | AO ≤ 250 | 0.10 | mg/L | N/A | Dec-16-15 | |
| Fluoride | **0.17** | MAC = 1.5 | 0.10 | mg/L | N/A | Dec-16-15 | |
| Nitrate as N | **0.909** | MAC = 10 | 0.010 | mg/L | N/A | Dec-16-15 | |
| Nitrite as N | < 0.010 | MAC = 1 | 0.010 | mg/L | N/A | Dec-16-15 | |
| Sulfate | **6.3** | AO ≤ 500 | 1.0 | mg/L | N/A | Dec-16-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **123** | N/A | 1 | mg/L | N/A | Dec-17-15 | |
| Carbon, Total Organic | < 0.5 | N/A | 0.5 | mg/L | N/A | Dec-02-15 | |
| Colour, True | < 5 | AO ≤ 15 | 5 | CU | N/A | Dec-17-15 | |
| Conductivity (EC) | **260** | N/A | 2 | µS/cm | N/A | Dec-17-15 | |
| Cyanide, Total | < 0.010 | MAC = 0.2 | 0.010 | mg/L | Dec-17-15 | Dec-18-15 | |
| Ammonia as N, Total | < 0.020 | N/A | 0.020 | mg/L | N/A | Dec-06-15 | |
| Nitrogen, Total Kjeldahl | < 0.05 | N/A | 0.05 | mg/L | Dec-03-15 | Dec-04-15 | |
| pH | **7.83** | 6.5-8.5 | 0.01 | pH units | N/A | Dec-17-15 | HT2 |
| Sulfide, Total | < 0.05 | AO ≤ 0.05 | 0.05 | mg/L | Dec-18-15 | Dec-18-15 | |

CARO ANALYTICAL SERVICES

## SAMPLE ANALYTICAL DATA

| | | | |
|---|---|---|---|
| **REPORTED TO** | Nakusp, Village of | **WORK ORDER** | 5120175 |
| **PROJECT** | Comprehensive | **REPORTED** | Dec-18-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Well #2 - Raw (5120175-03) [Water] Sampled: Dec-01-15 08:30 To Dec-15-15 08:30, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Temperature | **19** | N/A | | °C | N/A | Dec-17-15 | HT2 |
| Turbidity | **1.2** | OG < 0.1 | 0.1 | NTU | N/A | Dec-16-15 | |
| UV Transmittance @ 254nm | **99.0** | N/A | 0.1 | % T | N/A | Dec-17-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Aggresiveness Index | **12.0** | N/A | | - | N/A | Dec-18-15 | |
| Hardness, Total (Total as CaCO3) | **128** | N/A | 5.0 | mg/L | N/A | N/A | |
| Langelier Index | **0.2** | N/A | -5.0 | - | N/A | Dec-18-15 | |
| Nitrogen, Organic | < 0.05 | N/A | 0.05 | mg/L | N/A | N/A | |
| Solids, Total Dissolved | **145** | AO ≤ 500 | 2.0 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | < 0.05 | OG < 0.1 | 0.05 | mg/L | Dec-04-15 | Dec-04-15 | |
| Antimony, total | < 0.001 | MAC = 0.006 | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Arsenic, total | < 0.005 | MAC = 0.01 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Barium, total | **0.27** | MAC = 1 | 0.05 | mg/L | Dec-04-15 | Dec-04-15 | |
| Beryllium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Boron, total | < 0.04 | MAC = 5 | 0.04 | mg/L | Dec-04-15 | Dec-04-15 | |
| Cadmium, total | < 0.0001 | MAC = 0.005 | 0.0001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Calcium, total | **41.7** | N/A | 2.0 | mg/L | Dec-04-15 | Dec-04-15 | |
| Chromium, total | < 0.005 | MAC = 0.05 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Cobalt, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Copper, total | < 0.002 | AO ≤ 1 | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Iron, total | < 0.10 | AO ≤ 0.3 | 0.10 | mg/L | Dec-04-15 | Dec-04-15 | |
| Lead, total | < 0.001 | MAC = 0.01 | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Magnesium, total | **5.9** | N/A | 0.1 | mg/L | Dec-04-15 | Dec-04-15 | |
| Manganese, total | < 0.002 | AO ≤ 0.05 | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Mercury, total | < 0.00002 | MAC = 0.001 | 0.00002 | mg/L | Dec-06-15 | Dec-07-15 | |
| Molybdenum, total | < 0.001 | N/A | 0.001 | mg/L | Dec-04-15 | Dec-04-15 | |
| Nickel, total | < 0.002 | N/A | 0.002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Phosphorus, total | < 0.2 | N/A | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Potassium, total | **1.2** | N/A | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Selenium, total | < 0.005 | MAC = 0.05 | 0.005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Silicon, total | **11** | N/A | 5 | mg/L | Dec-04-15 | Dec-04-15 | |
| Silver, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-04-15 | Dec-04-15 | |
| Sodium, total | **4.1** | AO ≤ 200 | 0.2 | mg/L | Dec-04-15 | Dec-04-15 | |
| Uranium, total | **0.0011** | MAC = 0.02 | 0.0002 | mg/L | Dec-04-15 | Dec-04-15 | |
| Vanadium, total | < 0.01 | N/A | 0.01 | mg/L | Dec-04-15 | Dec-04-15 | |
| Zinc, total | < 0.04 | AO ≤ 5 | 0.04 | mg/L | Dec-04-15 | Dec-04-15 | |
| ***Microbiological Parameters*** | | | | | | | |
| Coliforms, Total | < 1 | MAC = None Detected | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| Background Colonies | < 1 | N/A | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |
| E. coli | < 1 | MAC = None Detected | 1 | CFU/100 mL | Dec-02-15 | Dec-03-15 | |

CARO ANALYTICAL SERVICES

## SAMPLE ANALYTICAL DATA

| | | | |
|---|---|---|---|
| **REPORTED TO** | Nakusp, Village of | **WORK ORDER** | 5120175 |
| **PROJECT** | Comprehensive | **REPORTED** | Dec-18-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|

**Sample / Analysis Qualifiers:**

| | |
|---|---|
| CT6 | Results were based on lab temperature & lab pH. |
| HT1 | The sample was prepared / analyzed past the recommended holding time. |
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |
| MD-2 | Test method deviation - Total Coliform and E.coli analysis were run using Chromocult Coliform Agar, results are estimates. |

# Appendix C – 2015 Trihalomethane (THM) Results

Each water sample is tested for: Bromodichloromethane; Bromoform; Chloroform; and Dibromochloromethane. Results are reported in mg/L. The method reporting limit for each compound is less than 0.001 mg/L. Only results exceeding 0.001 mg/L are shown below:

| DATE | SITE | BROMODICHLORO METHANE | BROMOFORM | CHLOROFORM | DIBROMO-CHLOROMETHANE | TOTAL THM |
|---|---|---|---|---|---|---|
| **Jan.6** | Alexander Rd | <0.001 | <0.001 | **0.038** | <0.001 | **0.038** |
| **Feb. 3** | Esso Station | <0.001 | <0.001 | **0.043** | <0.001 | **0.043** |
| **Mar. 3** | Crescent Bay Construction | 0.001 | <0.001 | **0.011** | <0.001 | **0.012** |
| **Apr. 7** | Sports Complex | <0.001 | <0.001 | **0.01** | <0.001 | **0.01** |
| **May-05** | Carson's Corner | **sample destroyed in transit** | | | | |
| **Jun. 2** | Overwaitea Foods | <0.001 | <0.001 | <0.001 | <0.001 | <0.004 |
| **Jul-07** | Crescent Bay Construction | **0.001** | <0.001 | **0.002** | <0.001 | **0.003** |
| **Aug-04** | Alexander Rd | <0.001 | <0.001 | **0.035** | <0.001 | **0.035** |
| **Sep-01** | Esso Station | 0.001 | <0.001 | **0.002** | <0.001 | <0.004 |
| **Oct-06** | Overwaitea Foods | <0.001 | <0.001 | <0.001 | <0.001 | <0.004 |
| **Nov-03** | Sports Complex | <0.001 | <0.001 | <0.001 | <0.001 | <0.004 |
| **Dec-01** | Esso Station | 0.001 | <0.001 | 0.025 | <0.001 | **0.026** |

# Appendix C - 2015 Haloacetic Acid (HAA) Results

Another major group of chlorinated disinfection by-products found in drinking water, besides Trihalomethanes, are Haloacetic Acids. Together they can be used as indicators for the presence of all chlorinated disinfection by-products. The Maximum Allowable Concentration of HAAs is 80 micrograms/Litre.

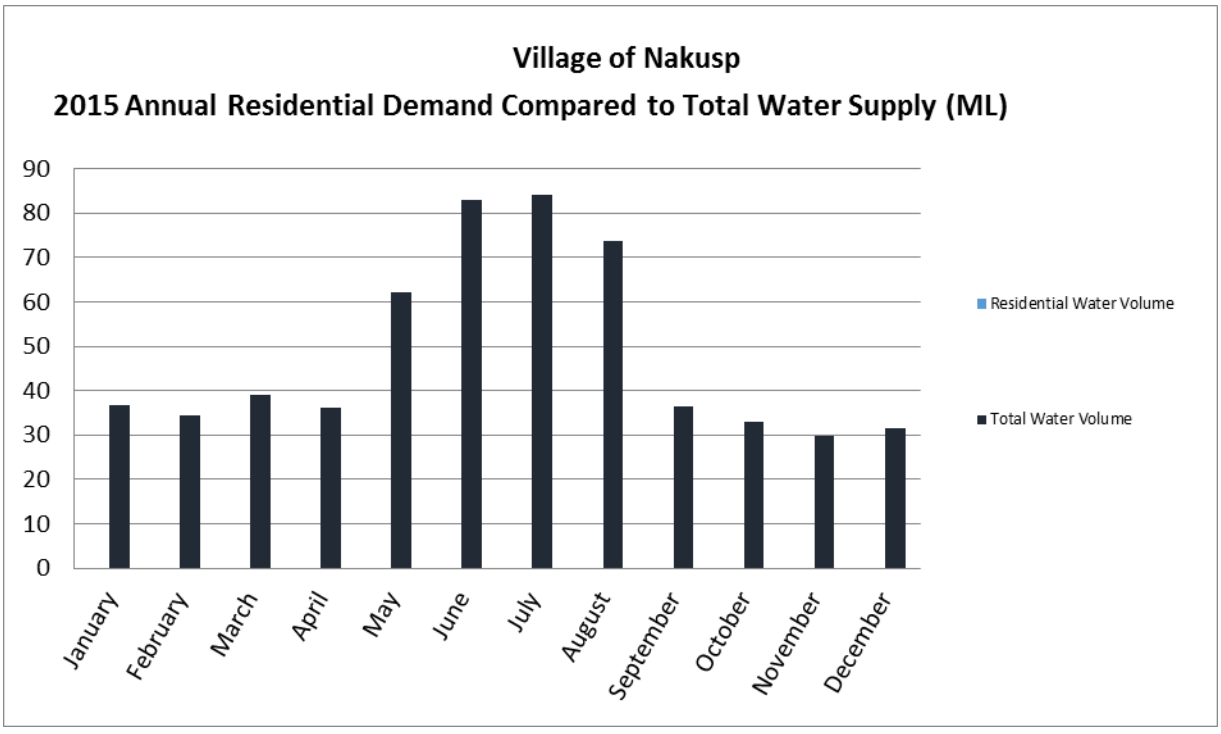
| DATE | SITE | Monochloroacetic acid (MCA) | Dichloroacetic acid (DCA) | Trichloroacetic acid (TCA) | Monobromoacetic Acid (MBA) | Dibromoacetic Acid (DBA) | Total HAA5 |
|---|---|---|---|---|---|---|---|
| **Jan. 6** | Alexander Rd** | <0.002 | 0.018 | 0.028 | <0.002 | <0.002 | 0.046 |
| **Apr. 7** | Sports Complex | <0.002 | 0.006 | **0.007** | <0.002 | <0.002 | 0.013 |
| **Jul-07** | Crescent Bay | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| **Oct. 6** | Overwaitea | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |

# Appendix D – Water Consumption Data

| 2015 | | GRAVITY SYSTEM | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MO/YR | DAYS/ MO | MAX DAY cu. m | DAY OF MO | MIN DAY cu. m | DAY OF MO | READING @ START OF MO | READING @ END OF MO | READING FOR MONTH cu. m | DAILY AVG cu. m |
| JAN/15 | 31 | 1,387 | 16 | 378 | 8 | 692,789 | 715,328 | 22,539 | 727 |
| FEB/15 | 28 | 1,434 | 6 | 17 | 13 | 715,328 | 734,318 | 18,990 | 678 |
| MAR/15 | 31 | 968 | 13 | 3 | 10 | 734,318 | 743,527 | 9,209 | 297 |
| APR/15 | 30 | 1,121 | 11 | 10 | 2 | 743,527 | 767,997 | 24,470 | 816 |
| MAY/15 | 31 | 1,436 | 24 | 464 | 31 | 767,997 | 796,730 | 28,733 | 927 |
| JUN/15 | 30 | 1,472 | 18 | 444 | 4 | 796,730 | 827,456 | 30,726 | 1024 |
| JUL/15 | 31 | 1,448 | 3 | 455 | 27 | 827,456 | 852,540 | 25,084 | 809 |
| AUG/15 | 31 | 1,006 | 10 | 141 | 30 | 852,540 | 872,896 | 20,356 | 657 |
| SEP/15 | 30 | 1,279 | 13 | 246 | 2 | 872,896 | 887,696 | 14,800 | 493 |
| OCT/15 | 31 | 622 | 18 | 242 | 14 | 887,696 | 898,988 | 11,292 | 364 |
| NOV/15 | 30 | 527 | 24 | 302 | 19 | 898,988 | 912,174 | 13,186 | 440 |
| DEC/15 | 31 | 571 | 28 | 306 | 3 | 912,174 | 926,412 | 14,238 | 459 |
| Totals | 365 | | | | | | | 233,623 | 641 |

| WELL #1 SYSTEM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DAYS RUNNING | MAX DAY | DAY OF MO | MIN DAY | DAY OF MO | READING @ START OF MO | READING @ START OF NEXT MO | READING FOR MONTH M3 | DAILY AVG |
| 25 | 851 | 13 | 49 | 29 | 692,168 | 706,341 | 14,173 | 567 |
| 21 | 1981 | 13 | 111 | 2 | 706,341 | 720,178 | 13,837 | 659 |
| 3 | 333 | 27 | 2 | 23 | 720,178 | 720,519 | 341 | 114 |
| 27 | 1266 | 1 | 28 | 11 | 720,519 | 731,069 | 10,550 | 391 |
| 14 | 938 | 26 | 9 | 12 | 731,069 | 735,966 | 4,897 | 350 |
| 16 | 422 | 29 | 1 | 3 | 735,966 | 739,488 | 3,522 | 220 |
| 21 | 648 | 9 | 125 | 23 | 739,488 | 745,679 | 6,191 | 295 |
| 14 | 263 | 12 | 90 | 17 | 745,679 | 748,126 | 2,447 | 175 |
| 18 | 938 | 15 | 11 | 13 | 748,126 | 760,917 | 12,791 | 711 |
| 31 | 918 | 8 | 456 | 28 | 760,917 | 782,453 | 21,536 | 695 |
| 30 | 686 | 3 | 385 | 4 | 782,453 | 799,105 | 16,652 | 555 |
| 31 | 704 | 1 | 428 | 20 | 799105 | 816,369 | 17,264 | 557 |
| 251 | | | | | | | 124201 | 441 |

| WELL #2 SYSTEM | | | | | | | | | SYSTEMS COMBINED | SYSTEMS COMBINED |
|---|---|---|---|---|---|---|---|---|---|---|
| DAYS RUNNING | MAX DAY cu. m | DAY OF MO | MIN DAY cu. m | DAY OF MO | READING @ START OF MO | READING @ START OF NEXT MO | READING FOR MONTH M3 | DAILY AVG cu. m | GRAVITY PLUS WELLS (DAILY AVG) cubic meters | COMBINED FLOWS 2015 cubic meters |
| 3 | 106 | 8 | 3 | 9 | 99,241 | 99,358 | 117 | 39 | 1333 | 36829 |
| 6 | 676 | 27 | 6 | 13 | 99,358 | 100,970 | 1,612 | 269 | 1606 | 34439 |
| 31 | 1797 | 10 | 319 | 4 | 100,970 | 130,447 | 29,477 | 951 | 1362 | 39027 |
| 9 | 486 | 30 | 2 | 15 | 130,447 | 131,474 | 1,027 | 114 | 1321 | 36047 |
| 28 | 1695 | 21 | 21 | 5 | 131,474 | 159,935 | 28,461 | 1016 | 2293 | 62091 |
| 30 | 2080 | 9 | 951 | 3 | 159,935 | 208,820 | 48,885 | 1630 | 2874 | 83133 |
| 31 | 2387 | 4 | 1231 | 3 | 208,820 | 261,611 | 52,791 | 1703 | 2807 | 84066 |
| 31 | 2419 | 14 | 862 | 31 | 261,611 | 312,495 | 50,884 | 1641 | 2473 | 73687 |
| 10 | 1073 | 4 | 292 | 10 | 312,495 | 321,382 | 8,887 | 889 | 2093 | 36478 |
| 2 | 102 | 25 | 1 | 10 | 321,382 | 321,485 | 103 | 52 | 1110 | 32931 |
| 1 | 100 | 24 | 100 | 24 | 321,485 | 321,585 | 100 | 100 | 1095 | 29938 |
| 2 | 23 | 1 | 17 | 16 | 321585 | 321,625 | 40 | 20 | 1036 | 31542 |
| 184 | | | | | | | 222384 | 702 | 1,783 | 580208 |



# Appendix E – ERP Contact Information

# Up-dated December 2015

| Emergency Agency | Contact Person | Phone # (250) | Cell No. (250) | Emerg. # (250) | Fax # (250) |
|---|---|---|---|---|---|
| Fire Dept/Police/Ambulance | Emergencies Only | | | 9-1-1 | |
| Village of Nakusp: Main Office | Laurie Taylor, CAO | 265-3689 | 265-1727 | | 265-3788 |
| Public Works Yard | Warren Leigh, Ops Director | 265-3556 | 265-1725 | 265-3861 | 265-3262 |
| Fire Chief | Terry Warren | 265-3563 | 265-1756 | 9-1-1 | 265-3571 |
| ** Emergency Coordinator | Terry Warren | 265-0230 | 265-1920 | | 265-3571 |
| Drinking Water Officer | Dan Byron | 420-2240 | 421-3471 | 866-457-5648 | 426-3022 |
| Well Pump Installation & Repair | Mearls – Greg Anderson | 763-0109 | 212-4806 | | 763-5466 |
| BC Hydro | Power Outage: 1-888-769-3766 | Emergency: 1-877-520-1355 | | | |
| Bottled Water Supplier | Crystal Clear Water | 265-1874 | | | |
| Bulk Water Hauler - Kamloops | Diamond C Ventures Ltd. | 374-1314 | | | |
| Environmental Protection Service | | 354-6333 | 1-800-663-3456 | | |
| Excavation Services | Arrow Lakes Ready Mix | 265-4615 | 265-1146 | | |
| Extended Care Facility (Halcyon) | Robin Hicks, Site Mgr. | 265-3692 | 265-8546 | 265-1187 | 265-4141 |
| Health Clinic | Linda Nero | 265-3608 ext 2 | | | 265-3104 |
| Nelson Health Unit Office | 1-877-221-3388 | 505-7200 | | | 505-7211 |
| Medical Health Officer, office hrs | 250-420-2240 | Drinking Water Specialist – Dan Byron | | | |
| Medical Health Officer, After Hrs | 1-866-457-5648 | | | | |
| Municipal Project Manager | | | | | |
| Newspaper | Arrow Lakes News | 265-3841 | | | |
| Plumbing Services | Dave's Plumbing | 265-2113 | 265-1760 | | |
| Public Health Engineer | Marianne Crowe | 505-7200 | | 866-457-5648 | 505-7211 |
| Radio Station | Easy Rock | 352-5510 | | | 352-9189 |
| RCMP – Nakusp Detachment | Debra McCoy | 265-3677 or 265-3678 | | 9-1-1 | 265-4292 |
| School District No. 10 | Art Olson, Ops. Manager | 265-3638 ext.3331 | 265-1075 | | 265-3701 |
| Arrowtarian Rotary Villa | Trish Cannon | 265-2020 | 265-4652 Earl | 265-1886 | 265-4355 |
| Spill Reporting for BC | 1-800-663-3456 | Environmental Protection: Veron Novosad | | | |
| TV Station | Local Channel 13 | 265-3733 | | | 837-2900 |
| Water Stewardship Office | 354-6333 Thomas Cummings | | | | |