CITY OF DELTA

DRINKING WATER QUALITY REPORT 2022

A Message from the Director: June 2023

At the City of Delta, we are committed to providing sustainable and high-quality drinking water to our residents and businesses. We recognize a safe, clean, and reliable drinking water supply is essential for the health and prosperity of our community. In 2022, the City successfully supplied over 23 million cubic meters of high-quality drinking water to our community.

This Annual Water Quality Report demonstrates the commitment by Metro Vancouver and Delta staff to meet the goals of ensuring high quality and sustainable water supply. We take a multi-barrier approach to ensure the drinking water is safe, clean, and reliable from source to tap. Although this annual report focuses on water quality monitoring and reporting, it also discusses the operations and maintenance, as well as the renewal of our existing water distribution system. Every year, we proactively replace mains that are reaching the end of their service life to prevent breaks, service interruptions, and water quality problems.

Delta Staff work diligently to construct, operate, and maintain our water system. This annual report demonstrates our commitment to providing Delta with a safe, clean, and reliable water supply, today and for years to come.

Suman Shergill, P.Eng.
Director of Engineering

ACKNOWLEDGEMENTS

Field testing was conducted by Scott Bradshaw, Water Quality Technician, Engineering Operations Division.

Lab testing was conducted by Metro Vancouver, Quality Control Division – Microbiology.

Delta source water tests were conducted by Element Labs.

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EXECUTIVE SUMMARY

Delta has been producing an annual report regarding the health of the water distribution and supply system since 2000. The 2022 Drinking Water Quality Report fulfills the requirements of the British Columbia Drinking Water Protection Act by providing an overview of the water system, discussing individual component maintenance, describing the unique features of our system, and summarizing the results of the water quality testing program. Specifically, this report is produced to satisfy a requirement of the Drinking Water Protection Regulation, May 2003, Section 11.

In summary, Delta undertook the following works in 2022:

- exercised over 6,000 flow control valves;
- maintained approximately 3,290 fire hydrants;
- flushed the entire water distribution system;
- maintained 45 pressure reducing stations;
- maintained three pump stations;
- maintained 416 air valves;
- conducted 153 water quality investigations, initiated by residents, for water-related questions/concerns;
- replaced approximately 4.3 kilometers of watermain with new mains of superior quality material and upgraded pipe diameters, if required, to provide required fire flows;
- collected and processed approximately 1,324 water quality samples from 34 test locations throughout Delta's water distribution system;
- conducted quarterly detailed physical and chemical analysis on Delta's well water;
- repaired 12 watermain breaks without compromising our water system; and,
- saved approximately $500,000 by introducing water from the wells located near Watershed Park into our distribution system.

We take our responsibility as a water purveyor seriously and proudly. We maintain a system that consistently meets the provincial drinking water quality requirements set out in the Drinking Water Protection Regulation. This provides Delta residents and businesses with a consistent supply of high-quality drinking water.

We trust you will find the information provided in this report to be of interest, and that it demonstrates our commitment to delivering this precious resource.

1.0 SYSTEM OVERVIEW

Based on current consumption rates the average household would spend approximately $500,000 on water annually if purchased from a superstore.

Approximately 98% of the water distributed in Delta is purchased from Metro Vancouver (MV). MV sources the water from the Capilano, Seymour, and Coquitlam Reservoirs. The water from these surface water sources can be directed to different areas within the municipality by a series of valves, pressure reducing stations, and pump stations.

In 2022, Delta received most of its drinking water from the Seymour and Capilano watersheds, but can also receive water from the Coquitlam watershed under certain conditions. **Figure 1** shows the breakdown of water sources for the City of Delta.

The MV supplied water enters Delta from four submarine crossings:

1) the Lulu Island/Delta Main entering Ladner;
2) the Tilbury Main entering Tilbury;
3) the Annacis No. 2 Main entering Annacis Island and continuing on to Surrey;
4) the Annacis No. 4 Main entering Annacis Island.

Appendix 1 shows MV's distribution network while **Appendix 2** lists the tie-in locations where the MV supplied water enters Delta's system. **Appendix 3** lists Delta's sampling stations and maps their location in Delta's water distribution network.

The other 2% of the water we distribute comes from Delta's 3 artesian wells near the Watershed Park. This water is pumped from deep wells in Sunshine Hills into the 64 Avenue Reservoir and then distributed to the lowland area south of 64 Avenue. This system is relatively inexpensive to operate as it relies on gravity to supply the area south of 64 Avenue from the reservoir.

Since 2011, Metro Vancouver has updated their water use restrictions on several occasions with the goal of reducing water consumption during the summer months when water use can increase up to 50%. Delta's water usage gradually decreased since 2011 and has remained relatively consistent in recent years, even though the population has increased by approximately 13,000.

97% of the world's water is saline. Another 2% is ice (glaciers). That leaves 1% of the water available for drinking, community needs, agriculture, and industry.

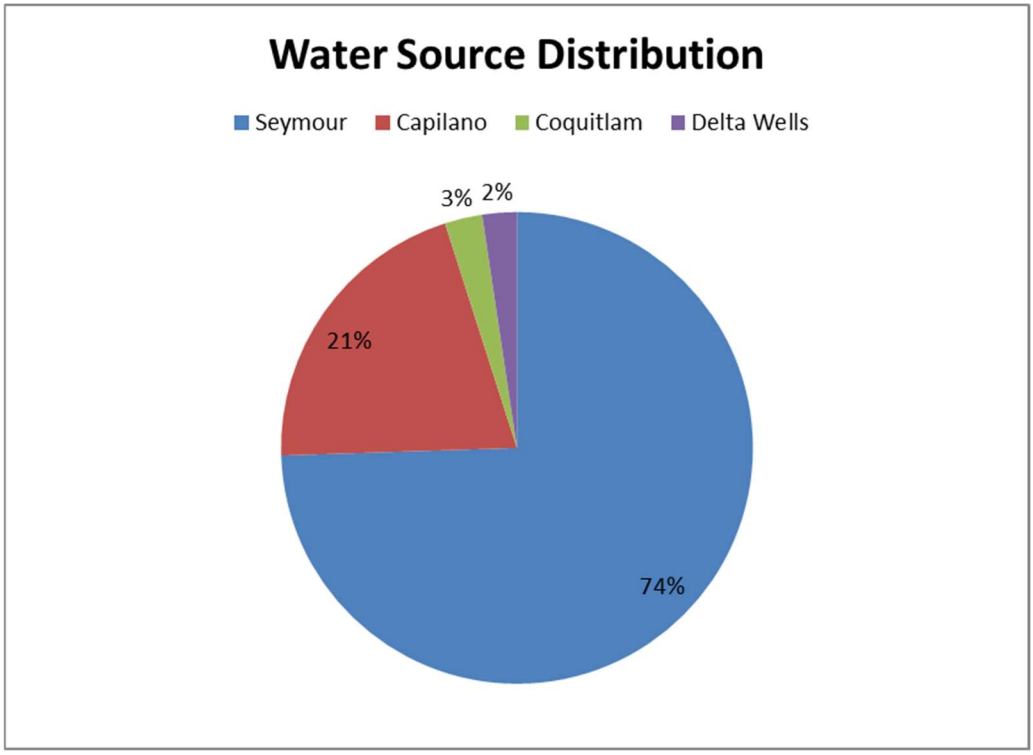


Figure 1: Water Source Distribution

2.0 MONITORING PROGRAM

Drinking water quality is a function of source water quality, water treatment, and water quality changes after treatment. As a result, monitoring of drinking water quality consists of three components: source water monitoring, monitoring after treatment, and monitoring in the distribution system. As previously stated, approximately 98% of the water used within Delta is purchased directly from MV, which carries out source water testing and testing after treatment. The parameters and frequency for testing MV water is shown in **Appendix 4**. The City of Delta then tests the MV water at various locations within the local distribution system. In addition, Delta is in a unique position in that we supplement water into the distribution system from 3 artesian wells. The test parameters for this water, which originates from a confined aquifer at a depth of approximately 70 metres, are much more detailed. The well water testing parameters are attached in **Appendix 6**.

Less than 1% of water treated for potable use is consumed. The rest is put down the drains and into the sewerage system for treatment.

3.0 TESTING PROGRAM

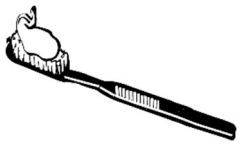
Water from 34 sampling sites in Delta is sampled and tested weekly by our Water Quality Technician. Samples are tested on-site for temperature, pH, turbidity, and chlorine residual. An additional sample is taken, in accordance with the 20th Edition of Standard Methods for the Examination of Water and Wastewater, placed in a sterile bottle, sealed, identified by location with time of day noted, and placed in a cooler. At the end of each day the samples are sent to the MV laboratory where the water is tested for turbidity, chlorine residual, total coliform, E. coli, and heterotrophic plate counts. The MV laboratory is a member of the Standards Council of Canada and is an accredited laboratory within the Canadian Association of Environmental Analytical Laboratories.

Results are reported to Delta's Water Quality Technician within seven days of submitting the samples. However, preliminary E. coli tests are reviewed within 24 hours and are reported immediately should a positive result occur. **Appendix 10** details the reporting procedure should a positive E. coli test be indicated.

Supplementary to our weekly testing of the MV water within our distribution system, there is a quarterly testing program on the water from the three wells that contribute to Delta's water supply. The test parameters are shown in **Appendix 6**, and Element Labs, a laboratory accredited by the Canadian Association of Environmental Analytical Laboratories and by the Standards Council of Canada, conducts the tests, for which the results are shown in **Appendix 7**.

Figure 2: Delta Water Quality Technician sampling water at the Clarence Taylor Crescent Water Sampling Station

Turning off the tap while brushing teeth for two minutes twice a day can save up to 700 litres of water per month.



The measures taken to ensure the health of our water system are taken very seriously. The City of Delta's staff has worked closely with Fraser Health to ensure we have a program in place that meets and exceeds the conditions set out in the Water Monitoring Protocol. As such, we sample and test more sites than required, conduct more thorough and more frequent tests of our well water source than required, and have installed sampling stations to provide an accurate overview of the health of our drinking water system. When our water sampling van is in the neighbourhood, it is confirmation that we are doing whatever we can to provide our residents with safe and healthy drinking water

4.0 TESTING PARAMETERS & RESULTS

Based on 2022 BC Stats data, the City of Delta as a purveyor of drinking water to a population of approximately 113,000, is required to test a minimum of 93 samples per month, as outlined in the Drinking Water Protection Regulation. Delta's water distribution network is comprised of approximately 608 kilometres of watermain, and supplies water to five distinct geographical areas; North Delta, Ladner, Tsawwassen, Tilbury and Annacis Island. To adequately represent all areas within our network, an average of 110 bacterial samples are tested per month - 17 more than the guideline suggests. The 34 sites shown in **Appendix 3** are sampled on a weekly basis and tested for microbiological characteristics; specifically, total coliforms, E.coli, heterotrophic plate counts, and turbidity. Samples are also tested for aesthetic objectives, temperature, and pH level. As it is not feasible to test directly for all pathogens in the drinking water, microbiological guidelines are based on indicator organisms outlined in the test parameters.

A Maximum Acceptable Concentration (MAC) level for each specific test parameter has been established by Health Canada's Guidelines for Canadian Drinking Water Quality (GCDWQ). Each MAC has been designed to safeguard health, assuming a lifelong consumption of drinking water containing the substances at the maximum concentration level.

Aesthetic Objectives (AO's) apply to characteristics of drinking water that can affect its acceptance by consumers. These include items such as taste, odour, and appearance. Some AO's, such as turbidity, could pose a health risk to some at risk consumers if the MAC levels are exceeded.

Delta conducts its own well-water analysis to ensure the quality of the source water being introduced into our distribution system. Sampling sites DmDel 305 (Watershed Park Well #1), DmDel 306 (Watershed Park Well #5), and DmDel 307 (Watershed Park Well #3) were sampled by Delta Water Technicians and tested by Element Labs. The extensive test parameters for this well-water analysis are outlined in **Appendix 6**. Sampling stations DmDel 220, 225, 308, and 329 (Watershed Park Reservoir), which are

Reducing a shower by two minutes can save up to 460 litres of water per month.

directly downstream of the wells were also scrutinized against the same parameters. Complete records of all four quarterly tests can be found in **Appendix 7**. All well-water samples were found to be in compliance with the Guidelines for Canadian Drinking Water Quality.

Approximately 1,324 samples, collected weekly from 34 sites, were used to test for microbiological presence in Delta's local distribution system. The microbiological parameters that were tested are discussed below and complete test results are provided in **Appendix 8**.

Quarterly and bi-annual testing of disinfection by-products, trace metals, and vinyl chloride from select sampling sites is also discussed in the subsequent section. Full test results are attached in **Appendices 12, 13, and 14** respectively.

Total Coliforms

The presence of total coliforms in the water system is an indicator that the system is experiencing microbial re-growth, that infiltration has occurred, or that water has not been properly treated at the source. The Drinking Water Protection Regulation states that at least 90% of samples should have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml.

If a sample tests positive for total coliform bacteria, it is re-sampled to confirm the original result. If the second test result is positive, the affected main is flushed, monitored, and tested again. The response to another unacceptable test result is to take the main out of service, chlorinate, flush, retest, and keep it out of service until acceptable results are obtained.

Parameter Guideline: At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

In 2022, one sample had a detectable total coliform bacteria count of 1 per 100ml at DmDel 317. The station was retested that resulted in no detectable total coliforms.

E. Coli

Escherichia coli is one species in the fecal coliform group, and best known because of its link to the death of seven people and illness of over 2,000 others in Walkerton, Ontario. This bacterial species is a definite indicator of the presence of feces in the distribution system. The MAC for E. coli is 0 per 100 ml. A confirmed unacceptable MAC test for E. coli can trigger an immediate boil water order by the Water Operator (City of Delta) in consultation with Fraser Health's Environmental Health Officer which remains in effect

When you go to a restaurant and they give you that complimentary glass of water, remember, it takes another 2 glasses to wash it. Decline it if you do not plan on drinking it.

until the problem is isolated, identified, resolved, and acceptable test results are obtained.

The Drinking Water Protection Regulation of British Columbia *Schedule A*, shown below in Figure 3, has established the following microbiological criteria:

Parameter:	Standard:
Fecal coliform bacteria	No detectable fecal coliform bacteria per 100 ml
Escherichia coli (E.coli)	No detectable Escherichia coli per 100 ml
Total coliform bacteria: (a) 1 sample in a 30 day period (b) More than 1 sample in a 30 day period	No detectable total coliform bacteria per 100 ml At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml

Figure 3: Water Quality Standards for Potable Water

Parameter MAC: 0 MF/100 ml

Of the approximately 1,324 samples tested in 2022, there were no incidences of E.coli bacteria.

Heterotrophic Plate Count

The general bacterial population is estimated by means of a background colony count referred to as a heterotrophic plate count (HPC). Although not a significant health concern on its own, the presence of a background bacterial growth indicates that pathogenic bacteria could thrive in the system should they be able to enter it. Also, excessively high HPCs can hinder the detection of coliforms.

No MAC is specified for HPC bacteria in water supplied by public drinking water systems. Instead, increases in HPC concentrations above baseline levels are considered undesirable. Delta's baseline level for HPCs is 500 colonies per millilitre (mL). If a test result indicates more than 500, the water is resampled and tested. Further test results indicating HPCs above 500 require the watermains to be flushed and monitored until a decreasing trend is observed to below the baseline.

Parameter Guideline: < Delta's baseline level of 500 colonies/mL

Don't leave the water running when you shave. A tap can run at approximately 10 litres per minute. If it takes 10 minutes to shave, that's about 100 litres of water used.

The test results for HPC are shown in **Appendix 8**. **Figure 4** shows the average and maximum HPC at each sampling station in 2022. There were three events of HPC exceeding the baseline level of 500 colonies/mL this year. Sample site DmDel 223 had a count of 680 on June 15. Sample site DmDel 305 (Watershed Well #1) had a count of 2,300 colonies/mL on June 13. Sample site DmDel 306 (Watershed Well #2) had a count of 1,800 colonies/mL on April 26. Each time a sample exceeded the threshold, subsequent sample results show HPC levels below the baseline.

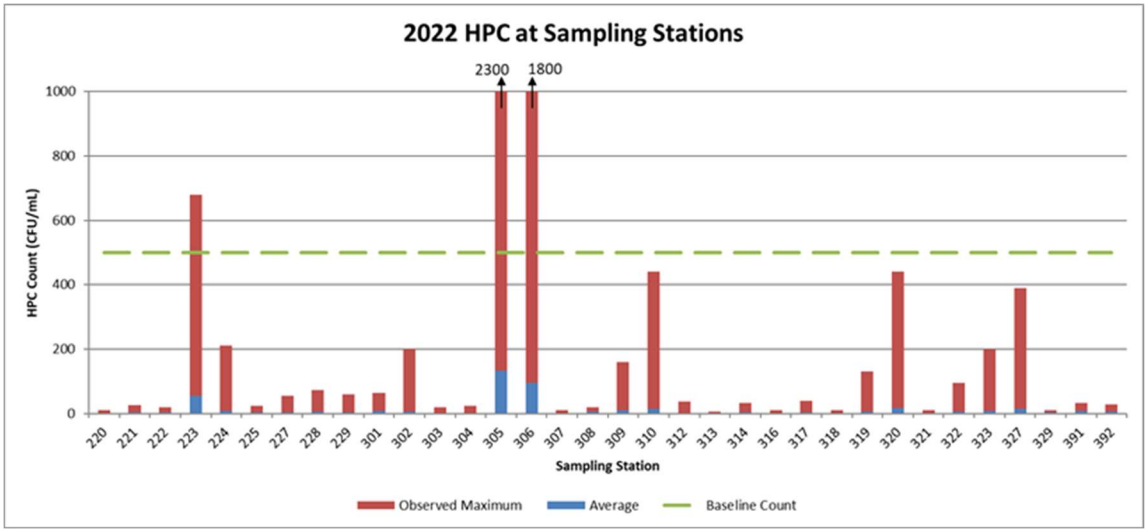


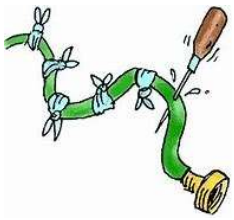
Figure 4: Observed HPC at Sampling Stations

Turbidity

Turbidity measurements relate to the optical properties of water. Suspended matter such as clay, silt, finely divided organic and inorganic matter, soluble coloured organic compounds, plankton, and other microscopic organisms all contribute to poor turbidity levels. Excessive turbidity not only detracts from the appearance and taste of water, it can also serve as a source of nutrients for waterborne bacteria and a surrogate for pathogens. As Delta's MV supply source is surficial, and therefore subject to changes in quality due to weather changes, the water is sometimes discoloured and may taste different following a period of heavy rain after a long dry spell. Excessively high turbidity can also have a negative effect on disinfection techniques.

Turbidity tests measure the scattering and absorbing effect of suspended particles on light which is measured in nephelometric turbidity units (NTU). The GCDWQ states that for filtration systems the turbidity levels should be as low as reasonably possible with a target of less than 0.1 NTU. However, Delta tests only within the local distribution system and the Aesthetic Objective (AO) has been set at <1 NTU at the point of

Check for leaks in your garden hose. Hoses can outflow water up to 2,700 litres per hour. If there is a leak, that can add up to a lot of wasted water.



consumption. The system is monitored and flushed, if necessary, when unacceptably high turbidity test results are recorded.

Parameter Guideline: < 1 NTU

Test results for turbidity and temperature are shown in **Appendix 8**. There were 8 instances of high turbidity reported at various sampling stations. **Figure 5** below summarizes the high turbidity events observed throughout the year. All events are minor exceedance in turbidity.

Sampling Station ID	Sampled Date	Turbidity (NTU)
DEL-228	March 21, 2022	1.3
DEL-229	January 13, 2022	1.7
DEL-302	January 13, 2022	1.2
DEL-303	January 13, 2022	1.7
DEL-312	March 1, 2022	1.1
DEL-312	December 15, 2022	2.6
DEL-313	January 11, 2022	1.4
DEL-320	August 3, 2022	1.2

Figure 5: Summary of High Turbidity Events

The turbidity observed in January may be a result of the high turbidity observed from the MV source water supply (see **Figure 7**). The cause of the spike is the heavy rainfall events. The high turbidity observed at DmDel 228 and DmDel 312 in the first quarter of 2022 may have been due to a sudden increase in velocity in the watermain during annual flushing resulting in suspension of settled particles.

The average turbidity of all sampling stations remained under the guideline value of 1 NTU, as seen in **Figure 6**.

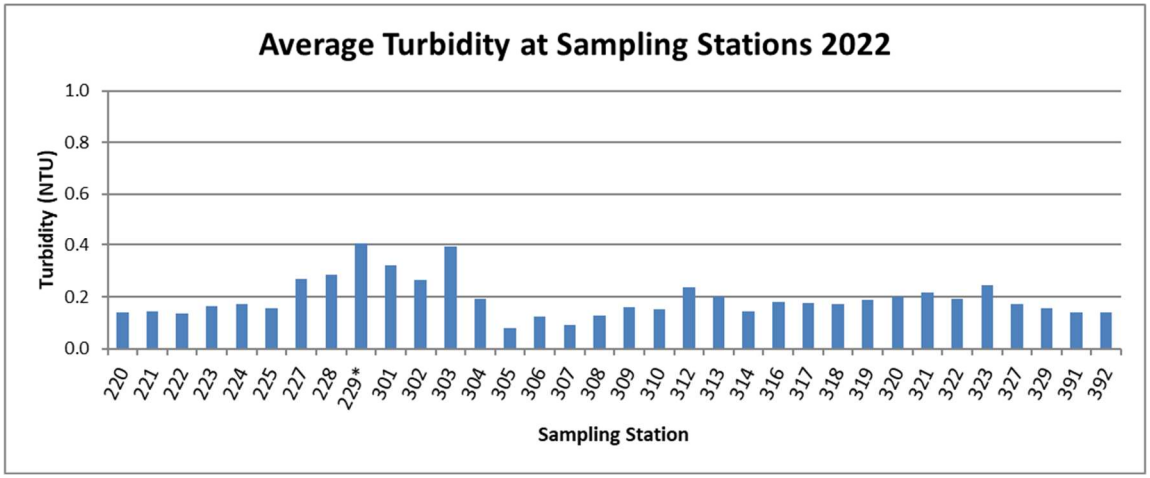


Figure 6: Average Turbidity at Sampling Stations

To see if your toilet is leaking, put a few drops of food colouring in the tank. Wait a few minutes, if the water in the bowl colours, you know you have a leak. Remember to fix it after you find it.

Average Turbidity of MV Source Water

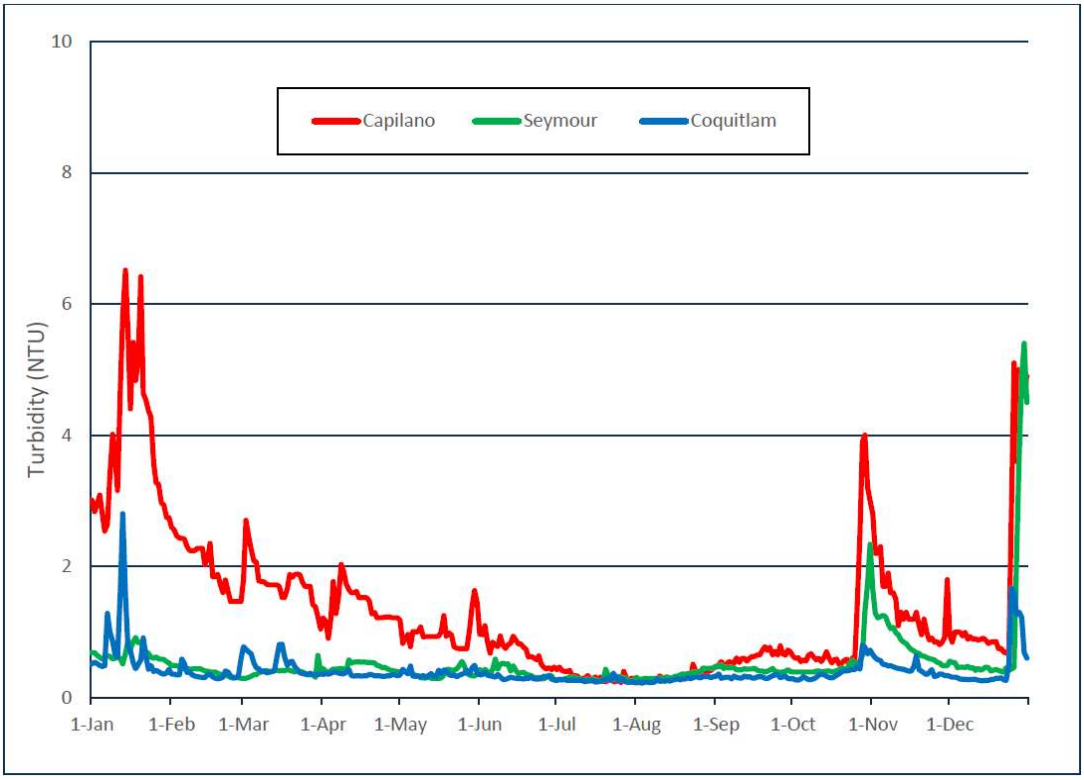


Figure 7: Turbidity of Metro Vancouver Source Water

pH

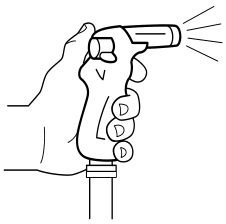
The pH of water can influence the formation of disinfection by-products and the effectiveness of treatment. An acceptable pH range for drinking water is 7 to 10.5.

To protect copper pipes and hot water tanks, MV has increased the pH and alkalinity of the region's drinking water through the use of natural minerals. The new target range for pH adopted in Spring 2021 is 8.3 – 8.5 and 20.0 mg/L of calcium carbonate ($CaCO_3$) for alkalinity. The changes have no impact on the water's taste or smell and are in compliance with the GCDWQ.

Parameter Guideline: 7 -10.5

The average pH of selected sampling sites in Delta serviced primarily by Metro Vancouver source water was 7.6. The average pH of station DmDel 305 (Well #1) was 7.13, Dmdel 306 (Well #5) was 7.19, and DmDel 307 (Well #3) was 7.20, before mixing with MV water at the reservoir. Delta also completed quarterly testing of selected sampling sites serviced primarily by well water and the pH was within the acceptable

Garden hoses can deliver water at 45 litres per minute. Having a shut-off nozzle can save a lot of water as water runs only when you use it.



range. **Figure 8** shows the average along with the maximum and minimum accepted pH values of all sampling sites.

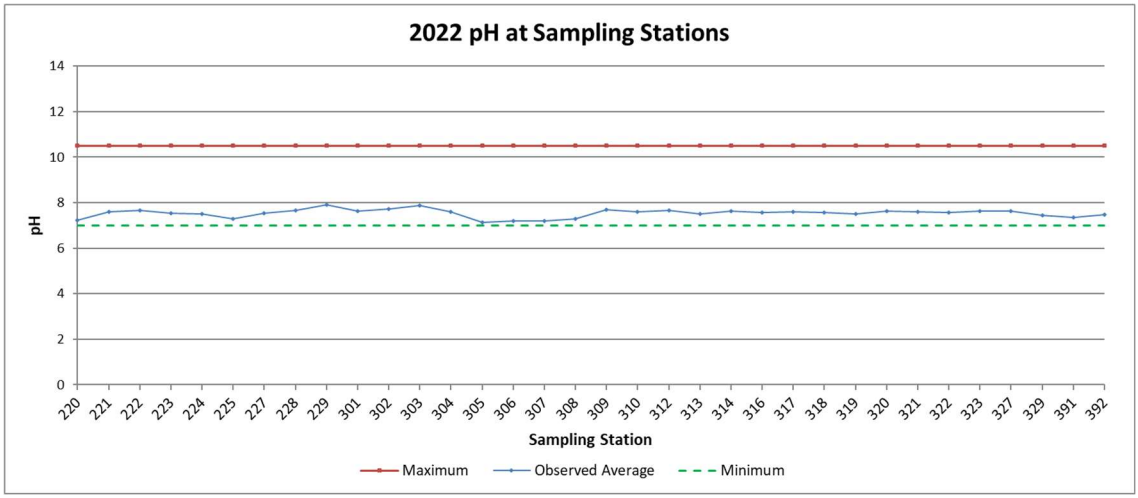


Figure 8: Average pH of Sampling Sites

Chlorine Residual

Chlorine is used as a disinfectant by MV. The purpose of maintaining a disinfectant residual in both MV's and Delta's distribution system, also known as free chlorine, is to control the re-growth of bacteria. Observing a chlorine residual of approximately 0.4 to 0.7 milligrams per litre (mg/L) in Delta's system is normal. However, the target minimum concentration is 0.2 mg/L, with the exception of Delta's well water service area which is a non-chlorinated supply that ties into MV's chlorinated supply. Delta's well water supply is monitored closely, and if required a backup chlorination injection system is available.

Parameter Guideline: >0.2 mg/L

Test results for free chlorine residual are shown in **Appendix 8**, while **Appendix 9** provides average free chlorine residual results, including a map indicating sites where samples consistently tested less than 0.2 mg/L. This typically includes stations that are downstream of the well water sources where there is dilution caused by some mixing with Metro Vancouver water or at dead end mains. As such, low chlorine residual results are expected.

Stations DmDel 305, 306, 307 generally have zero chlorine residual as this water originates from Delta's artesian wells, and is not chlorinated.

Water consumption can increase up to 50% in summer, largely due to lawn sprinkling and other outdoor uses.

Disinfection By-products

Reactions between chlorine used for disinfection, temperature, water pH and dissolved natural organic matter in the water can form two major families of potentially carcinogenic by-products: Total Trihalomethanes (TTHMs) and Total Haloacetic Acids (THAAs). The Guideline for Canadian Drinking Water Quality states that the MAC for TTHMs and THAAs in drinking water is 0.100 mg/L (100 parts per billion) and 0.080 mg/L (80 parts per billion), respectively, based on a running annual average of a minimum of quarterly samples.

Parameter MAC: 100 ppb for Total Trihalomethanes; 80 ppb for Total Haloacetic Acid

Results of tests performed for disinfection by-products are summarized in **Appendix 12**. The levels of TTHMs and THAAs have reduced since the construction of the Seymour-Capilano Filtration Plant and subsequent reduction of chlorine required for disinfection. All results were below the maximum allowable limit.

Metals

The guideline limits for tested metals are listed in **Appendix 5** (Physical and Chemical Analysis of Source Supply). Lead testing is completed semi-annually for MV's source water prior to and after treatment. Lead is also a tested at select Delta sampling stations.

Parameter MAC: see Appendix 13

A total of eight samples were collected from four locations and tested biannually by Metro Vancouver for the presence of metals. The results of these samples are summarized in **Appendix 13**; all metal concentrations were below the relevant guidelines for 2022.

Vinyl Chloride

Vinyl chloride, a synthetic chemical, can enter drinking water through leaching from polyvinyl chloride (PVC) pipes due to the biodegradation of synthetic solvents. The MAC for vinyl chloride is 0.002 mg/L.

Parameter MAC: 0.002 mg/L

Since over 50% of Delta's watermain inventory consists of PVC pipe, six sampling locations with predominantly PVC pipe were selected to test for vinyl chloride. Each location was tested twice: once in June and again in November. Out of the 12 samples taken, all vinyl chloride results were less than 0.0004 mg/L, well below the GCDWQ

A tap that drips 2 tablespoons per minute equates to 2,600 litres of wasted water in one year. All water that goes down the drain ends up at the Annacis Island Waste Water Treatment Plant.

maximum acceptable concentration of 0.002 mg/L. The test results are summarized in **Appendix 14**.

5.0 WATER DISTRIBUTION SYSTEM DETAILS

Delta's water system services an area of approximately 18,100 hectares including North Delta, Tsawwassen, Ladner, Tilbury, Annacis Island, Delta Port, Boundary Bay Airport, and the BC Ferries Terminal. The City of Delta distributes water in pipes made of a variety of materials. The very first watermains were installed in 1909 and were made of wood. These wooden mains have since been replaced and new mains constructed with other material such as cast iron, ductile iron, polyvinyl chloride (PVC), steel and asbestos cement. The majority of watermains have now been replaced with PVC pipe.

Figure 9 shows the breakdown of pipe materials that comprise Delta's distribution system.

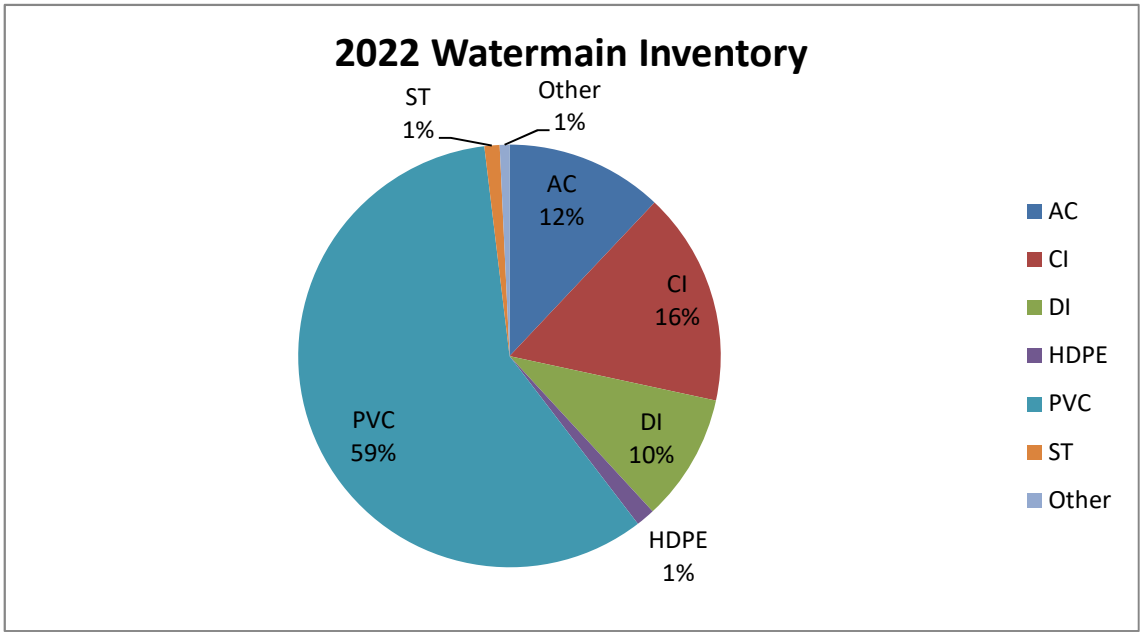


Figure 9: Watermain Inventory

5.1 Watermain Materials

Cast Iron Watermains

Approximately 16%, or 101 kilometres, of Delta's watermain inventory consists of cast iron pipe which was majorly installed prior to 1978. The life expectancy of cast iron pipe is between 50 and 70 years, depending on the corrosiveness of the soil. Watermain

Even energy efficient washing machines use up to 50 litres of water per load. To save water, you can wait until a full laundry load.

break records indicate that in 2022 there were 6 cast iron watermain breaks, 5 of which were due to circumferential splitting of the pipe, and one due to corrosion.

Ductile Iron Watermains

Approximately 10% or 60 kilometres, of Delta's watermain inventory consists of ductile iron pipe. While most ductile iron pipe was installed between 1969 and 1988, it is still used for some applications where additional strength is required. Delta's design guidelines require cathodic protection on new ductile iron pipe installations in the lowlands, increasing the service life expectancy to 100 years. No breaks occurred for ductile iron pipes in 2022.

PVC Watermains

Approximately 59% or 362 kilometres, of Delta's watermain inventory consists of PVC pipe. The majority of this pipe has been installed since 1979. Although the service life of PVC pipe has not yet been demonstrated, 75 years is estimated. There were no watermain breaks in the PVC pipe inventory in 2022.

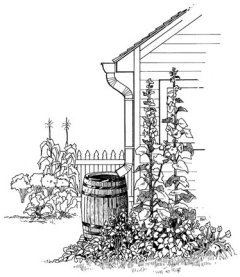
Steel Watermains

Approximately 1% or 7 kilometres, of Delta's watermain inventory consist of steel. These mains have a large diameter and are primarily used as transmission mains. However, the life expectancy of steel watermains can be greatly affected by corrosive soils. A break to one of these mains could have serious results as the volume of water released prior to isolation could be enormous. Additionally, some of these mains serve large areas of Delta and disruption to them could leave entire areas without water. As such, cathodic protection is utilized in an effort to protect the pipe. There were no watermain breaks in the steel pipe inventory in 2022. Yet most of these mains were constructed in the 1970's and are beginning to reach the end of their service life.

Asbestos Cement Watermains

Approximately 12% or 75 kilometres, of Delta's watermain inventory consists of asbestos cement pipe which was installed prior to 1978. The life expectancy of asbestos cement pipe is between 50 and 60 years, depending on soil type and ground conditions. Workers repairing or replacing asbestos pipe are required to take special safety precautions. Watermain break records indicate that 6 watermain breaks occurred in the asbestos cement inventory in 2022, two were caused by the negligence of a contractor during construction, while four were caused by circumferential splitting of the pipe.

Roughly 60% of a typical family household water footprint is from lawn and garden maintenance. Rain barrels, sustainable gardens, and lawn watering restrictions can greatly reduce this consumption.



High Density Polyethylene Watermains

Approximately 1% or 9 kilometres, of Delta's watermain inventory consists of high density polyethylene pipe (HDPE). This pipe material has only been in use in Delta since 2000 and is mainly used for transmission mains or in specific applications. The construction method for polyethylene pipe is unique in that the pipe sections are joined together by fusion welding. This method of pipe joining provides for leak tight joints and greater seismic resistance. Although the service life of polyethylene pipe is not yet confirmed, 75 years is estimated. There were no HDPE watermain breaks in 2022.

5.2 Other Components

Water Pumping Stations

The Delta water system includes three water storage and pump station facilities: Pebble Hill, Hellings and the 64 Avenue. If a pumping station or storage facility were to fail, water service to a large area of the community could be discontinued or adversely affected until repaired. Delta's water pumping stations are all equipped with backup generators. Each pump station has a service life of approximately 40 to 50 years.

Figure 10: Pump Station on 4 Avenue at Pebble Hill Reservoir

Water Services

Delta has approximately 31,800 water service connections supplying water from our distribution network to individual property lines. As with Delta watermains, these pipes age and require replacement. Whenever possible, service connections older than 25

Another water saving tip is to cool a jug or pitcher of water in the fridge instead of running the tap awaiting cooler water.

years are replaced by the developers as part of their Building Permit, as required in Delta's Subdivision & Development Standards Bylaw. Service connections are also replaced when old watermains are upgraded or replaced as a part of Delta's Capital Program.

Of the approximate 31,800 service connections, approximately 80% are copper with some installed as early as 1940. Based on a study by the Seattle Water Department, the average service life for copper service pipes installed in Seattle is 40 to 50 years.

The remaining roughly 20% of service connections are comprised of cast iron, asbestos cement, ductile iron, PVC, or polyethylene pipe. The older industrial service pipes are made of asbestos cement and cast iron, while the newer industrial service pipes are made of ductile iron, PVC or polyethylene.

Water Storage Facilities

Two of the three water storage facilities in Delta are owned and operated by MV; namely Pebble Hill Reservoir in Tsawwassen and Hellings Reservoir in North Delta. The 64 Avenue Reservoir, with a capacity of 7,500,000 litres, is owned and operated by Delta and is primarily filled with water from Delta's artesian wells. The current reservoir structure was built in 1959 and is nearing the end of its service life. The reservoir is a key facility for water supply to East Ladner, and also plays a vital role in providing an emergency water supply.

Figure 11: Water reservoir and pump station on 64 Avenue

Water used to rinse fruits or vegetables can be captured and re-used to water house or garden plants.

Fire Hydrants

Delta has approximately 3,291 fire hydrants, some installed as early as the 1950's. The older style slide-gate hydrants, which are less efficient at providing water for fire protection, are being replaced with new compression-style hydrants that provide more flow at a higher pressure. When a slide-gate hydrant has reached the end of its service life or a watermain is being upgraded as part of the Capital Program, slide-gate hydrants are replaced with compression hydrants.

Pressure Reducing Valve Stations

Pressure reducing valves are used to step-down pressure in Delta's water distribution system to an acceptable supply pressure. Delta has 45 pressure reducing valve stations containing approximately 83 pressure regulating valves (PRVs). There are 25 stations connected to the MV water supply system. The remaining 20 are internal to Delta's water system. **Figure 7** shows the recently upgraded Norum Road PRV Station.

Figure 12: Norum Road PRV Station

Fluctuating pressures can place excessive stress on plumbing systems and watermains. Delta currently overhauls the PRV stations every five years in an effort to extend their service life to 50 years, and replaces others that are near the end of their service life.

Flow Control Valves

Delta has approximately 6,000 flow control valves in the water distribution system. The valves are primarily used to isolate areas of the network for inspection or repair. If a valve were to fail, water flow to the affected main would be disrupted until repaired. The expected service life of a flow control valve is 40 to 50 years without cathodic protection, and 100 years with cathodic protection.

Dishwashers use much less water than handwashing. If you have a dishwasher, consider using it as your primary choice.

Air Valves

Delta has 416 air valves, installed in below-ground chambers, which "bleed" air from the pressurized system through piping that discharges above grade. Entrapped air in the distribution system could impact pipe flow capacity. Air valves receive maintenance as required and are replaced at the end of their service life, which is approximately 20 years.

Backflow Prevention Assemblies

Delta has taken a proactive approach in protecting the water distribution system from harmful cross connections. The Engineering and Plumbing Departments have had a municipal wide Backflow Prevention Program in place for several years.

Section 15 of the British Columbia Drinking Water Protection Regulation outlines that "an assessment response plan must include provisions to identify, eliminate, and prevent cross connections with non-potable water sources". In addition, Part 5 of the Delta Water Service Bylaw no. 7441, 2016 (January 25, 2021) also contains regulations that prevent contamination.

For instance, the Bylaw states that:

40) No person shall, except as authorized by the Director under section 39, connect or cause or allow to be connected to the water supply facilities on any premises any piping, fixture, fitting, or other appurtenance that would in any circumstances permit water, wastewater, or any other liquid substances to enter any part of the Waterworks System, including that Person's Water Service.

Within the municipality, there are 5,967 backflow prevention assemblies currently in service. All testable backflow assemblies must be tested annually. Inventory can be broken down as follows:

- Double Check Valve Assemblies (DCVA's) - 3,743
- Reduced Pressure Backflow Assemblies (RPBA's) – 2,010
- Pressure Vacuum Breaker Assemblies (PVBA's) – 81
- Double Check Detector Assemblies (DCDA's) – 125
- Reduced Pressure Detector Assemblies (RPDA's) – 7
- Other - 1

Most of these assemblies are privately owned and all assemblies are required to be tested annually. They can be installed at the point of hazard, or in premise isolation. In either case, a properly maintained backflow assembly prevents non-potable water, or "spent" water, from entering the potable water system by means of back-siphonage or back pressure.

If you are looking to replace your toilet, consider a dual-flush toilet as it provides the options of a water saving dual-flush.

Delta has recently partnered with BSI Online for tracking and recording backflow assembly tests. Testing companies and external owners can easily access and upload data through the BSI Online platform, while Delta can monitor compliance.

Water Meters

All new construction, including residential, secondary suites, and agricultural properties require a water meter. All properties that contain a secondary suite are required to have a water meter. In 2022, Delta installed 187 secondary suite and voluntary water meters. The meters were installed at no charge to the homeowner. Delta currently meters over 9,100 water services, or approximately 32% of all water connections to home or businesses. The service life of a water meter is approximately 15 years.

Auto Watermain Flushers

Delta has installed auto flushing units at nine locations that have experienced higher than normal heterotrophic plate counts (HPC's) in the past. These units automatically flush the watermains at regular intervals to ensure water quality is maintained.

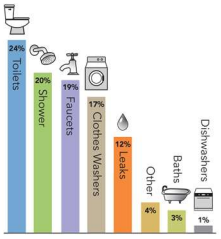
5.3 Water System Value

The total value of our water distribution system, as detailed in **Figure 13**, is approximately $800 million. The City of Delta spends approximately $6.3 million per year on water infrastructure replacement. The replacement program is designed to address some of these previously discussed deficiencies within the system on a priority basis. However, a thorough and comprehensive maintenance program helps to extend the life expectancy of some of these water infrastructure components.

System Components	Quantity in use in Delta	Estimated Cost to Replace ($ millions)
Watermains	608 km	$ 608 ($1000/m)
Service Connections	31,800	$ 95
Control Valves	6,000	$ 15
Hydrants	3,291	$ 16
Back-Flow Assemblies	5,967	$ 3
Water Meters	9,100	$ 16
Pumping Stations	3	$ 10
Pressure Reducing Stations	45	$ 22
Reservoirs/Tanks	1 Delta/2 GVRD	$ 15
TOTAL		**$ 800 million**

Figure 13: Infrastructure replacement value, 2022 dollars

In Metro Vancouver about 270 liters of water per person are used each day. The major use of indoor residential water consumption is flushing the toilet.



6.0 SYSTEM MAINTENANCE

Delta is a Class III Water Distribution System operator under the Environmental Operators Certification Program (EOCP). To operate the water system, Delta must have EOCP certified staff at or above the corresponding class level. Currently, Delta has one Level 3 Water System Operator, two Level 2 Water System Operators, and three Level 1 Water System Operators in Delta's Water Utility Operations team within Engineering Operations.

Maintenance of the Delta water system involves five key programs: valve exercising, watermain flushing, hydrant maintenance, well maintenance, and reservoir maintenance. The general maintenance schedule for most programs is outlined in **Figure 14**. Well maintenance is conducted when the well yield is reduced, on an as-needed basis, and the wellheads are cleaned annually. Since replacing the entire distribution network is not feasible, system maintenance is critical to maintaining and extending the life of existing water infrastructure. Delta expends approximately $4.6 million annually on water system maintenance.

6.1 Annual Maintenance Program

Program	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Valve Exercising												
Watermain Flushing												
Hydrant Maintenance												
Reservoir Maintenance*											*	

*as required

Figure 14: Delta Water Maintenance Program

Valve Maintenance

Valves are interspersed along watermains and can be closed or opened to alter the flow of water. These valves can be buried or left closed causing maintenance challenges by restricting water flow through the main. In response to this issue, Delta staff commenced a valve exercising program in 1985. Each valve is inspected annually, exposing buried valves, making repairs, and exercising every valve by turning it first to a closed position and then back to open. This process begins in January and lasts for approximately six weeks.

Watermain Maintenance

Watermain maintenance involves repairing damaged or leaking watermains, and ensuring that watermains are operating effectively.

Each day, residents of the Metro Vancouver region use on average 1 billion litres of water per day – enough to fill BC Place.

Watermain Upgrading

In addition to repairing watermains, Delta replaces aging watermains as a preventive measure. An ongoing annual replacement program is in place which targets areas with older piping materials in susceptible conditions, areas of inadequate fire flow, and neighbourhood rehabilitation sites.

Watermain Flushing

Delta is at the southern extreme of long transmission mains coming from the Seymour, Capilano, and Coquitlam Reservoirs. As water travels from the watershed, it transports sediment into Delta's water distribution system. In addition to accumulated sediment, some areas of the water system are susceptible to water stagnation where water usage is low or watermains terminate at street ends. Sediment and stagnation can create an undesirable level of turbidity in the water. As discussed, turbidity impacts aesthetic quality and promotes bacterial growth. In response to these concerns, Delta initiated a watermain flushing program in 1985. Each main is flushed annually, during daytime hours. Note that the watermain flushing schedule is impacted by seasonal water sprinkling restrictions. When flushing, a hydrant is opened causing the increase in water velocity within the main which initiates the removal of sediment. Large distribution mains, such as those found on Ladner Trunk Road, 56 Street, Scott Road, and River Road, are not flushed because velocities through these mains are routinely high enough to move sediment and prevent water stagnation. There are a number of locations throughout Delta referred to as "trouble spots" where water demand is low or where watermains terminate in a dead end. These areas are flushed as required, sometimes as often as every two months. When opportunities arise, either through new development or capital upgrades, the water system is looped. Delta also flushes mains within 24 hours of receiving test results from the MV Laboratory that indicate bacteria levels outside the acceptable provincial water quality guidelines.

Hydrant Maintenance

Historically, fire hydrants were only serviced when requested by the Fire Department. To ensure proper fire protection, Delta implemented a fire hydrant maintenance program in 1985. The program checks the pressure on each hydrant before it is serviced and dismantled, renewing worn parts as necessary. The hydrant is then lubricated and reassembled. This program takes approximately four months to complete.

Instead of washing your driveway, deck, or patio, consider sweeping to conserve water.

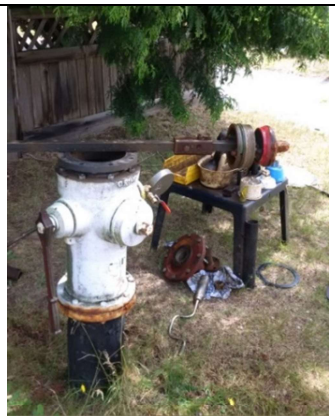


Figure 15: Fire Hydrant Undergoing Regular Annual Maintenance

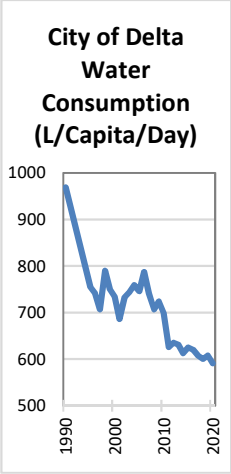
Reservoir Maintenance

Debris can accumulate in reservoirs requiring occasional cleaning. Fortunately the water fed into the 64 Avenue Reservoir from the three wells contains almost no sediment, and therefore cleaning is scheduled only when required. Cleaning is performed with a team of divers "vacuuming" silt from the bottom of the reservoir, which eliminates the need for draining the reservoir and reduces maintenance costs.

The Pebble Hill and Hellings reservoirs are owned and maintained by MV.

Figure 16: Hellings Reservoir in North Delta

Per capita water consumption in Delta has been decreasing steadily since 1990.



Water Well Maintenance

Well maintenance is a critical component of our water infrastructure maintenance program. As the water from the wells is introduced into our distribution network untreated, we conduct daily maintenance and monitoring. The water levels are measured and recorded daily to ensure the aquifer is not over utilized and the system checked for malfunctions.

Figure 17: Well #1, Watershed Park Wells

The three wells are redeveloped every three to five years which involves surging, jetting, and treating the wells with biodegradable product applications. This helps maintain production rates, and avoids the costly alternative of replacing a well. All activities in the well compound area are closely monitored and regulated. Staff who maintain this facility are certified by the Environmental Operators Certification Program of B.C.

7.0 WATERMAIN BREAKS

Most water utilities frequently experience minor disruptions. Pipes break, valves stick, hydrant leaks and power outages occur. Although these are not anticipated, they can usually be corrected with minimal disruption, and regular service can be quickly restored.

In 2022, our staff responded to and repaired 12 watermain breaks or leaks (**Figure 18**). 9 watermains split around the pipe, one broke due to corrosion holes, and two were caused by contractor mistakes.

Position sprinklers to water plants and lawns, not pavement.

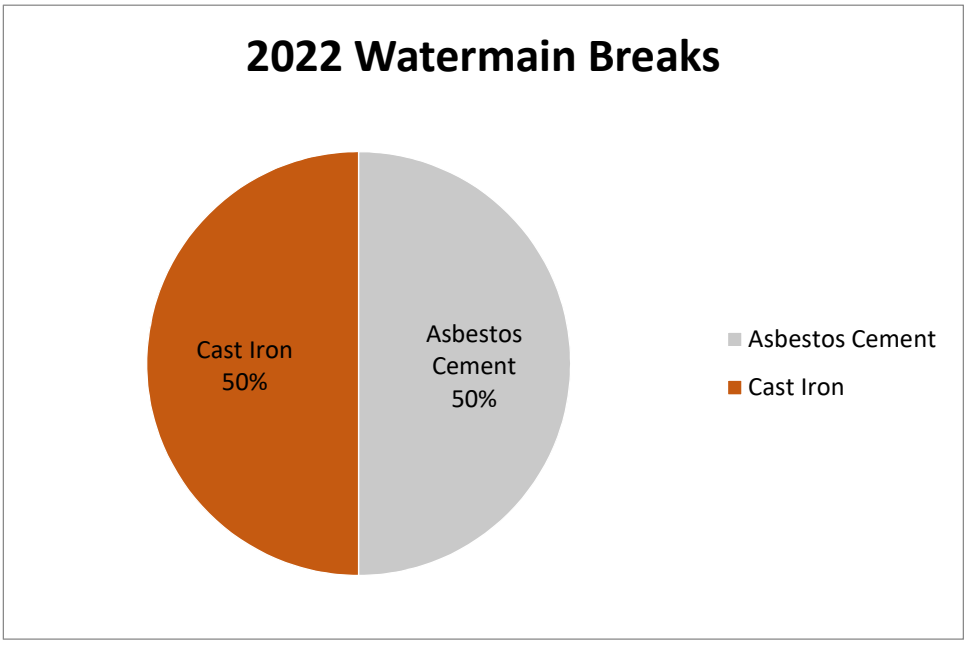


Figure 18: Watermain Breaks By Pipe Material

Procedures for Watermain Repairs or Tie-ins

Watermains are disinfected whenever they are exposed to the atmosphere. To prevent a possible introduction of contamination, our crews try to maintain positive pressure in the system. This practice makes the repair more difficult, but it is a necessary safeguard to protect the integrity of our system.

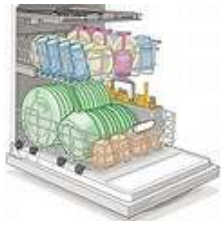
Repairs or Tie-ins with No Groundwater Entry

These repairs are typically the result of electrolysis holes, cracks, splits, and are repaired using repair clamps. Provided the watermain maintains positive pressure until our crews have excavated below the invert of the pipe, it is assumed that no contaminant can enter the system. The repair clamps and other materials required to complete the repairs are cleaned with a 6% chlorine solution. Upon completion of the repairs the main is flushed and put back into service.

Repairs or Tie-ins with Groundwater Entry

On occasion, breaks have occurred where it is not possible to maintain positive pressure or to pump the groundwater below the invert of the watermain before throttling the main down or shutting it off. In this case, disinfection, flushing, and residual testing procedures are followed prior to re-commissioning the watermain.

Current dishwasher models use as little as 23 litres of water, even for partial loads. Full loads will save a lot more water.



Our staff adhere to the procedures set out in the American Water Works Association Standard C651-14 regarding watermain chlorination, that in summary requires: that the main is completely isolated, disinfected with a chlorine concentration of 25 to 300mg/L for a retention time between 15 minutes and 24 hours. A minimum chlorine residual must be maintained at all times or after the disinfection. If the residual requirement is not met, the main must be re-chlorinated using the same standard. After a successful result, the watermain is flushed continuously until the chlorine residual is less than one milligram per liter. When the desired residual level is achieved, the main is put back into service.

E. coli Detection

If E. coli is detected, that section of main is shut down until disinfection and proper re-testing is completed. The Fraser Health Authority is notified of any positive E. coli test.

Waste Water Contamination

Where a watermain break is accompanied by a sanitary sewer break, the watermain is throttled to maintain positive system pressure while the sanitary main is repaired. Once the sanitary main is repaired, the watermain is taken out of service, disinfected, flushed, and tested. The Environmental Health Officer is notified and the main is not put back into service until acceptable test results are achieved.

8.0 NOTIFICATION PROTOCOL

Normally, breaks or disruption to water service are caused by conditions that can be repaired and reinstated directly by Delta crews without risk to the public health. However, sometimes situations arise that require extra care to guarantee the infrastructure integrity.

To confirm we have acted in an appropriate manner when addressing these abnormal occurrences, the notification protocol, as shown in Appendix 10, is followed. It describes the proper procedure to activate emergency water supply, repair watermain and water service breaks, and provide backup power to pumping stations during a power outage. It also includes a list of personnel to be notified, and flow charts of response procedures in case of emergency events. Fraser Health is also notified of watermain breaks via email. This procedure has been implemented for mains larger than 100mm in diameter.

Using a refillable water bottle or re-using a single glass to drink water for the day will reduce the number of glasses to wash per day, conserving water.

9.0 UNIQUE CHARACTERISTICS OF SYSTEM

Delta Water Source

The redevelopment of two wells and construction of a third well near Watershed Park has provided Delta with an emergency drinking water source. By introducing this water into the distribution system Delta offsets the rising cost of purchasing water from MV. This year, pumping from these wells resulted in savings of approximately $500,000. The replacement of Well#1 pump in 2018 has resulted a significant increase in Well #1 production. Well #5 was redeveloped in early 2022 which increased the production of well water.

Delta has been receiving filtered Seymour source water from MV's Seymour-Capilano Filtration Plant since 2010. This has significantly reduced the turbidity results in our water system, and improved our chlorine residual results. In addition, the Capilano source water has been treated at the filtration plant since 2015, further improving Delta's drinking water quality. Delta also receives a small portion of Coquitlam source water.

Delta Water Source History

In the spring of 1997 MV's transmission main broke beneath the Port Mann Bridge leaving only two alternate supply sources to Surrey and Delta. This event left Delta with greatly reduced system redundancy. To compensate for the reduced supply, a ban on sprinkling was mandated and other conservation measures implemented.

Figure 19: Original Well Pump House at Watershed Park, Constructed 1906

Recognizing Delta's vulnerability, Council directed the Engineering Department to come up with an alternative water source to be available in the event of a natural catastrophe. Four water wells in Watershed Park, which supplied the lower Sunshine

Only 1 hour a week of sprinkling is needed during dry weather for a healthy lawn.

Hills area, had been abandoned some 25 years prior, but the buildings and infrastructure, although overgrown and in need of repair, were intact. After a thorough evaluation had been conducted, it was recommended that only two of the original wells (#1 & #3) should be refurbished and that a new well (#5) should be constructed.

As work to refurbish the wells was underway, it became apparent that the water from the aquifer was of very high quality. Tests showed that it surpassed all conditions set out in the Guidelines for Canadian Drinking Water Quality, Sixth Edition. As a result, it was decided to introduce this water into our distribution system via the 64 Avenue Reservoir. A water tanker load out facility was also constructed to facilitate the distribution of well water to various locations in the case of a major emergency which would restrict water from MV sources to Delta. In 2012, a drinking water station utilizing well water was constructed for use of park patrons.

Figure 20: Watershed Park Drinking Water Station, constructed 2012

Water Consumption

Delta is the third highest per capita water user of all the MV member municipalities according to Metro Vancouver's 2021 Water Consumption Statistics. Delta consumes an average of 638 litres per capita per day (including ICI) which is higher than the regional average of 405. The main causes of this higher per capita consumption include large water-intensive industrial and agricultural operations.

In 2000 Delta implemented a leak detection program to determine the extent to which our distribution network could be contributing to the high consumption. Initial results

Adding mulch, organic matter to soil, thicker topsoil layers, or even leaving lawn mowing clippings can improve the soil's ability to retain water from rainfall or watering, needing less drinking water.

indicate that although some leakage is occurring in areas where the service pipes are older, it does not appear to contribute in a significant way to the high average.

In an effort to better understand water use in the agricultural areas and the equity of water usage, Delta metered all agricultural properties in 2009. In addition, water meters are currently being installed on all legalized secondary suite properties, and water meters are required on all new construction. Overall, approximately 58% of Delta's total water consumption is currently metered.

Water demands increase as much as 50% in late summer while the MV reservoirs are also depleting of the accumulated water supply, especially during drought years. To reduce water consumption during the summer when there is a much larger water demand, Metro Vancouver has updated the Drinking Water Conservation Plan and reduced the allowable frequency of lawn watering in the region to one day per week, for both residential and non-residential properties.

10.0 PUBLIC INQUIRIES

The City of Delta staff responded to approximately 153 requests in 2022 to investigate water related issues. More than half the calls received were regarding low pressure, and in most instances the problems were determined to be related to private residential or commercial plumbing systems. When calls regarding the potability of the water are received, the City of Delta's Water Quality Technician takes a sample of the water in question and submits it to the MV Lab for testing. For all instances in 2022, the test results confirmed the water met the appropriate guidelines for potable water in British Columbia.

Issues:	Number:
Water Quality – Smell	5
Water Quality – Taste	9
Water Quality – Other	53
Low Pressure / No Water	86
TOTAL	153

Figure 21: 2022 Public Inquiries

Check out www.welovewater.ca for more water saving tips!

11.0 CONCLUSION

The majority of all water consumed in Delta is purchased from Metro Vancouver. As with all surface water sources, the water quality can be inconsistent. Following significant rain events, turbidity levels can be higher than normal and, as a result, the treatment process can be inconsistent. For several years, Delta has been benefiting from improved water quality from the Seymour-Capilano Filtration Plant. This has been observed from previous troublesome areas in Delta's system that are showing lower turbidity and HPC values, and higher, more stable, chlorine residuals.

Furthermore, maintenance and monitoring programs are designed to meet the challenges of distributing this water in a way that does not compromise the health of our residents. In 2022, approximately 1,324 water samples were collected in order to confirm a safe drinking water supply.

For any questions related to this report or requests for more specific information about the City of Delta's drinking water, please contact the Engineering Department at 604-946-3260.

12.0 REFERENCES

1) Drinking Water Protection Act [SBC 2001] Chapter 9. Queen's Printer, Victoria, British Columbia

2) Drinking Water Protection Regulation, BC Reg. 200/2003 [includes amendments up to B.C. Reg. 237/2018, November 15, 2018]. Drinking Water Protection Act. Queen's Printer, Victoria, British Columbia

3) Health Canada: Guidelines for Canadian Drinking Water Quality, June 2019

4) Delta Water Service Bylaw No. 7441, 2021

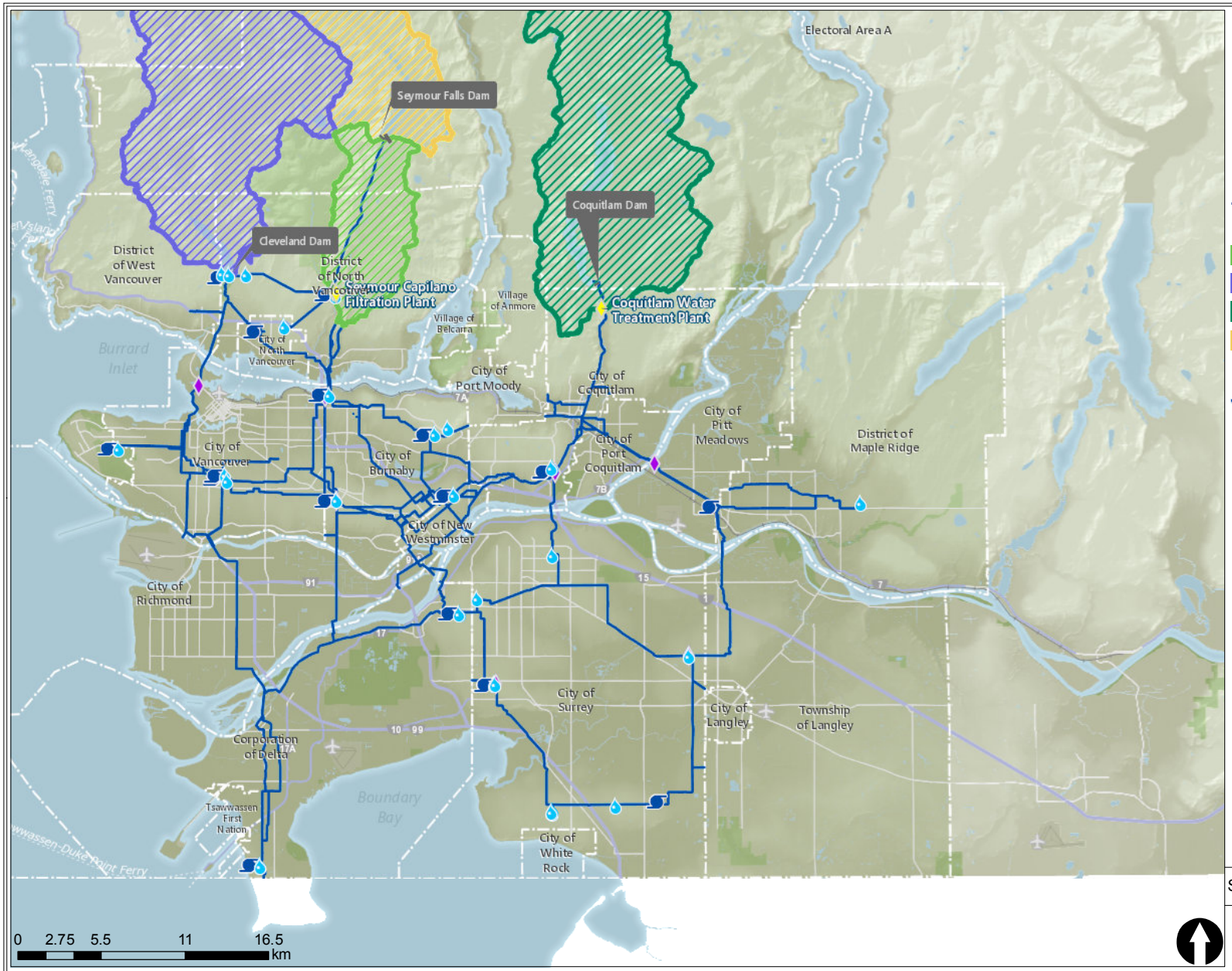
5) Metro Vancouver 2022 Water Quality Control Annual Report

6) Metro Vancouver 2021 Water Consumption Statistics

Appendix 1

Metro Vancouver

Water Distribution Map



GVWD Distribution Map

- Municipal Labels
- Water Treatment Plants
- Chlorination Buildings
- Reservoirs
- Water Pump Stations
- Dams
- Lower Seymour Conservation Reserve
- Capilano Watershed
- Coquitlam Watershed
- Seymour Watershed
- Re-Chlorination Stations
- Water Mains

Scale 1:250,000

Coordinate System:
NAD 1983 UTM Zone 10N

Prepared By: arcgis
Date: 6/27/2016
Time: 9:27:48 AM

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Appendix 2

Tie-in Points To Metro Vancouver Water Transmission Mains

Appendix 2: Supply Points from Metro Vancouver to City of Delta

Location	Metro Van Main	Area Supplied	Type of Connection
500 Derwent Way	Annacis No.2	Annacis Island	PRV
near Cliveden Place	Annacis Main No. 4	Annacis Island	Direct
5870 Vasey Road	River Road West	Ladner	PRV
5236 Commodore Drive	South Delta No.1	Ladner & South Delta	PRV
4930 Elliott Street	South Delta No.1	Ladner	PRV
4775 - 54A Street	South Delta No.2	Ladner	PRV
5103 River Road	South Delta No.1	Ladner	PRV
7100 - 62B Street	River Road West	Ladner	PRV
8589 - 112 Street	Annacis Main No.2	North Delta	PRV
120 St & 64 Ave	64 Ave	North Delta	Direct Connection
9550 Alaska Way	Annacis No.2	North Delta	PRV
9088 Norum Road	Annacis Main No.2	North Delta	PRV
116 St & 86 Ave	Annacis No. 2	North Delta	Hellings PS
120 St & 96 Ave*	Whalley-Kennedy Link	North Delta	Direct Connection
10459 Dunlop Road	River road East	North Delta	PRV
28 Avenue & 57B Street	South Delta No.2	Rural South Delta	PRV
Arthur Drive & 44 Avenue	South Delta No.1	Rural Ladner	PRV
52 St at Springs Boulevard	South Delta No.1	South Delta	PRV
5200 - 4 Avenue	South Delta No.1	South Delta	PRV / PS
5400 - 18 Avenue	South Delta No.2	South Delta	PRV
5300 - 12 Avenue	South Delta No.2	South Delta	PRV
52 Street & Imperial Gate	South Delta No.1	South Delta	PRV
52 Street & Hwy 17	South Delta No.1	South Delta	PRV
7880 - 80 Street	River Road East	Tilbury & North Delta	PRV
7515 Hopcott Road	River Road West	Tilbury	PRV
Nordel Way & Swenson Way	River Road East	Tilbury	PRV
52 Street at 12 Avenue	South Delta No.1	South Delta	Check Valve
7205 McDonald Road	River Road West	Tilbury	PRV
6 Avenue at 52 Street*	South Delta No.2	South Delta	Valve Closed
11060 86 Avenue	Annacis No.2	North Delta	PRV

(*) This connection is not currently in use.

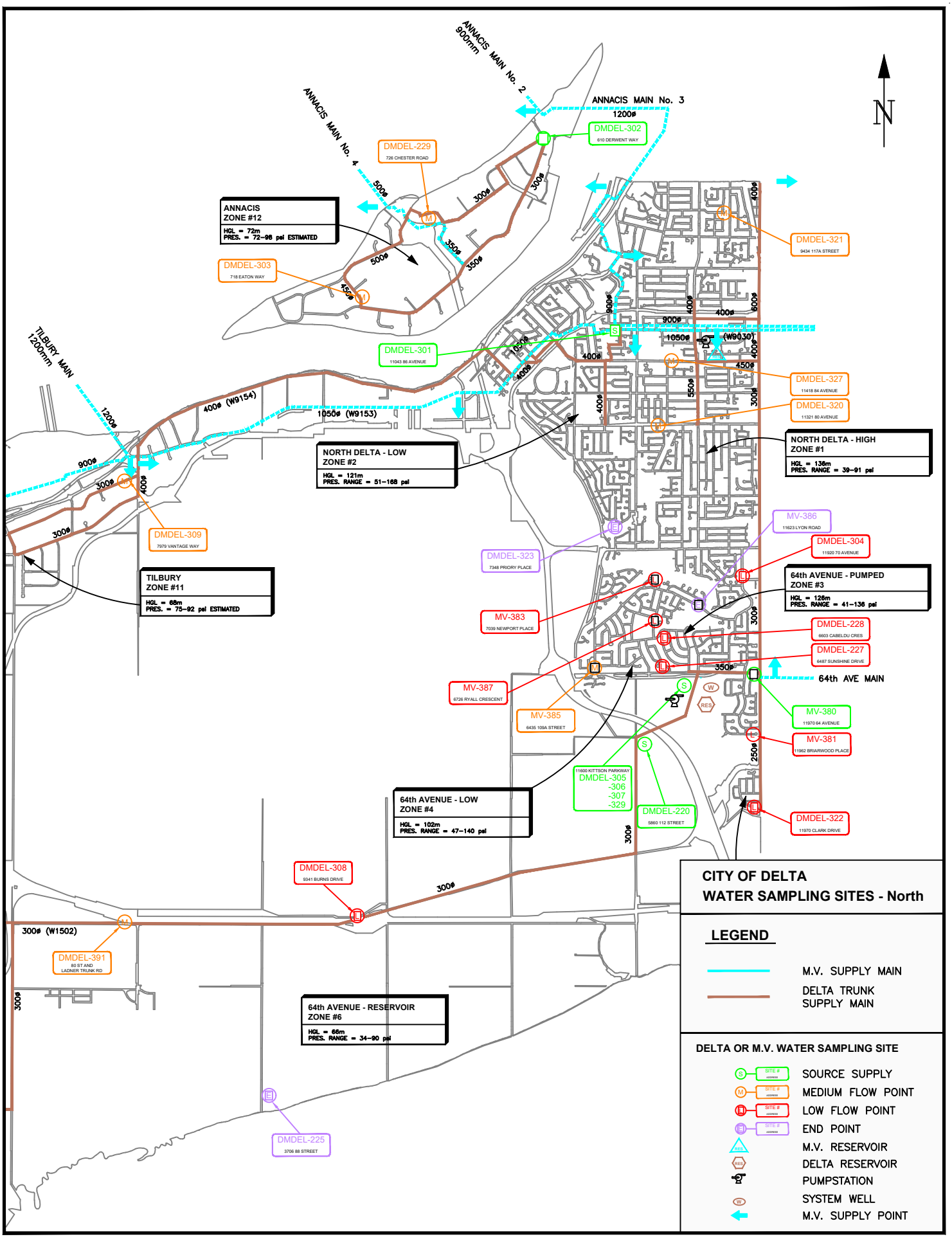
Appendix 3

Sampling Site Index and Location Maps

CITY OF DELTA DRINKING WATER SAMPLING SITES

SAMPLE NUMBER	CIVIC ADDRESS	LOCATION	PIPE SIZE	MATERIAL	AGE	C.I. MAIN UPSTREAM	FLOW CATEGORY	FREQUENCY
DmDel **220**	5860 112th Street	East Ladner	350mm	PE	1989	No	Source	* Weekly/Annually
DmDel **221**	4802 42A Avenue	Ladner	100mm	PVC	2005	Yes	Dead End	Weekly
DmDel **222**	4734 51Street	Ladner	250mm	PVC	1995	Yes	Medium	Weekly
DmDel **223**	# 10 Centennial Parkway	Tsawwassen	150mm	PVC	2004	No	Dead End	Weekly
DmDel **224**	5575 9th Avenue	Tsawwassen	150mm	PVC	1998	Yes	Low	Weekly
DmDel **225**	3706 88th Street	Rural	150mm	PVC	1986	Yes	Dead End	* Weekly/Annually
DmDel **227**	6487 Sunshine Drive	North Delta	150mm	Cast Iron	1968	Yes	Low	Weekly
DmDel **228**	6603 Cabeldu Crescent	North Delta	200mm	PVC	1985	Yes	Low	Weekly
DmDel **229**	726 Chester Road	Annacis Island	300mm	A/C	1988	No	High	Weekly
DmDel **301**	11043 86th Avenue	North Delta	150mm	A/C	1961	Yes	Source	Weekly
DmDel **302**	610 Derwent Way	Annacis Island	300mm	A/C	1959	No	Source	Weekly
DmDel **303**	718 Eaton Way	Annacis Island	450mm	PVC	1985	No	Medium	Weekly
DmDel **304**	11920 70th Avenue	North Delta	300mm	PVC	2002	Yes	Low	Weekly
DmDel **305**	11600 64th Avenue	North Delta	Well # 1	Well Head	1999	N/A	Source	* Weekly/Annually
DmDel **306**	11600 64th Avenue	North Delta	Well # 5	Well Head	1999	N/A	Source	* Weekly/Annually
DmDel **307**	11600 64th Avenue	North Delta	Well # 3	Well Head	1999	N/A	Source	* Weekly/Annually
DmDel **308**	9341 Burns Drive	Rural	300mm	Cast Iron	1930	Yes	Low	Weekly
DmDel **309**	7979 Vantage Way	Tilbury	300mm	A/C	1978	No	Medium	Weekly
DmDel **310**	4905 Galbraith Street	Ladner	150mm	PVC	1983	Yes	Low	Weekly
DmDel **312**	5289 Commodore Drive	Ladner	200mm	PVC	1991	No	Source	Weekly
DmDel **313**	5191 Robertson Road	Westham Island	150mm	PVC	1984	Yes	Dead End	Weekly
DmDel **314**	4455 Clarence Taylor Crescent	Ladner	300mm	PVC	1992	No	Medium	Weekly
DmDel **316**	5408 Candlewyck Wynd	Tsawwassen	150mm	A/C	1976	No	Source	Weekly
DmDel **317**	1720 56th Street	Tsawwassen	200mm	PVC	1983	No	Medium	Weekly
DmDel **318**	4933 Cliff Drive	Tsawwassen	150mm	PVC	2010	Yes	Low	Weekly
DmDel **319**	5169 Kilkenny Drive	Tsawwassen	300mm	Ductile Iron	1977	No	Medium	Weekly
DmDel **320**	11321 80th Avenue	North Delta	200mm	Cast Iron	1966	Yes	Medium	Weekly
DmDel **321**	9434 117A Street	North Delta	150mm	PVC	2005	Yes	Medium	Weekly
DmDel **322**	11970 Clark Drive	North Delta	150mm	PVC	2007	No	Low	Weekly
DmDel **323**	7348 Priory Place	North Delta	100mm	Cast Iron	1971	Yes	Dead End	Weekly
DmDel **327**	11418 84th Avenue	North Delta	300mm	PVC	2002	Yes	Medium	Weekly
DmDel **329**	11600 64th Avenue	North Delta	Reservoir	Outlet	1975	N/A	Source	* Weekly/Annually
DmDel **391**	Ladner Trunk Rd - east of 80 St	Rural	350mm	PVC	2002	Yes	High	Weekly
DmDel **392**	3044 41B Street	Rural	300 mm	PVC	2011	No	Source	Weekly

Water samples are tested for the following: Coliforms, Turbidity, Chlorine Residual and Temperature.
Sample sites 220, 225, 305, 306, 307 & 329 are also tested annually for Metals, Chemicals and Methyl tert-butyl ethers.



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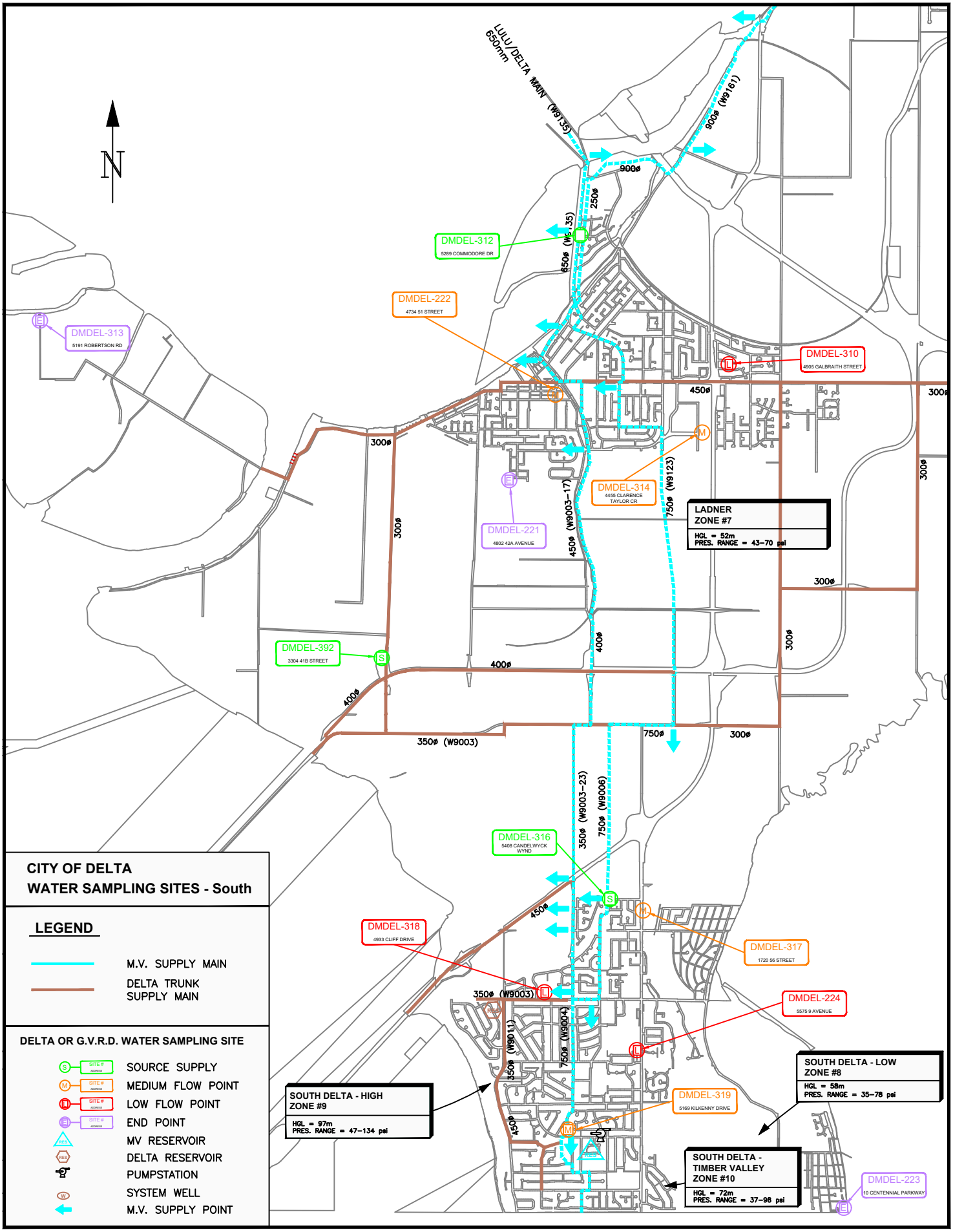

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Appendix 4

Metro Vancouver

Source Water and Distribution System

Test Parameters

Metro Vancouver Source Water & Distribution Test Parameters		
Water Type	**Parameter**	**Frequency**
Untreated, source	Total coliform and E. coli	Daily
	Heterotrophic plate count (HPC)	Daily
	Turbidity	Daily
	Giardia and *Cryptosporidium*	Monthly at Capilano and Coquitlam. Seymore began in July 2022.
	Ammonia, colour, iron, organic carbon, pH	Weekly
	Alkalinity, chloride, calcium, hardness, magnesium, manganese, nitrate, potassium, phosphate, sulphate	Monthly
	Aluminum, copper, sodium, total and suspended solids	Bi-monthly
	Trihalomethanes, haloacetic acids	Quarterly
	Antimony, arsenic, barium, boron, cadmium, cyanide, chromium, lead, mercury, nickel, phenols, selenium, silver, zinc	Semi-annually
	Pesticides and herbicides	Annually
	PAHs, BTEXs	Annually
	VOC	Annually
	Radioisotopes	Annually
Treated Water	Total coliform and E. coli	Daily
	Turbidity	Daily
	Temperature	Daily
	pH	Daily
	Ammonia, colour, iron, organic carbon, aluminum at SCFP	Weekly
	Aluminum, copper, sodium, total and suspended solids	Bi-monthly
	Trihalomethanes, haloacetic acids	Quarterly at selected sites
	Antimony, arsenic, barium, boron, cadmium, cyanide, chromium, lead, mercury, nickel, phenols, selenium, silver, zinc	Semi-annually
MV Water Mains	Total coliform and E. coli	Weekly per site
	Heterotrophic plate count	Weekly per site
	Free chlorine	Weekly per site
	Trihalomethanes, haloacetic acids, pH	Quarterly at selected sites
	PAHs, BTEXs	Semi-annually at selected sites
MV Reservoirs	Total coliform and E.coli	Weekly per site
	HPC	Weekly per site
	Free chlorine	Weekly per site
	Turbidity	Weekly per site
Municipal Distribution System Sites	Total coliform and E.coli	Weekly per site
	HPC	Weekly per site
	Free chlorine	Weekly per site
	Turbidity	Weekly per site
	Trihalomethanes, haloacetic acids, pH	Quarterly at selected sites

Appendix 5

Metro Vancouver

Physical and Chemical Analysis

Of Source Water

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Physical and Chemical Analysis of Water Supply

2022 – Capilano Water System

	Untreated[1]	Treated[1]		Canadian Guideline		
Parameter	**Average**	**Average**	**Range**	**Days Exceeded**	**Limit[2]**	**Reason Established**
Alkalinity as $CaCO_3$ (mg/L)	3.0	22	18-25	N/A	None	N/A
Aluminum Dissolved (µg/L)	59	26	20-35	N/A	None	N/A
Aluminum Total (µg/L)	126	29	18-51	0	2,900	Health
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10 (ALARA)	Health
Barium Total (µg/L)	2.4	2.8	2.5-3.5	0	2,000	Health
Boron Total (µg/L)	<10	<10	<10	0	5,000	Health
Bromate (µg/L)	<10	<10	<10	0	10	Health
Bromide (µg/L)	<10	<10	<10	N/A	None	N/A
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	7	Health
Calcium Total (µg/L)	1,200	8,430	7,560-9,280	N/A	None	N/A
Carbon Organic - Dissolved (mg/L)	1.5	0.6	0.4-0.9	N/A	None	N/A
Carbon Organic - Total (mg/L)	1.5	0.6	0.4-0.9	N/A	None	N/A
Chlorate (µg/L)	<10	25	16-41	0	1000	Health
Chloride (mg/L)	<0.5	2.3	2.1-2.9	0	≤ 250	Aesthetic
Chromium Total (µg/L)	<0.08	<0.05	<0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Colour - Apparent (ACU)	15	<3	<2-14	N/A	None	N/A
Colour - True (TCU)	10	<1	<1-1	0	≤ 15	Aesthetic
Conductivity (µmhos/cm)	10	49	43-54	N/A	None	N/A
Copper Total (µg/L)	1.4	<0.5	<0.5	0/0	2,000/1,000	Health/Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Cyanobacterial Toxins - Microcystin - LR (µg/L)	<0.20	N/A	N/A	0	1.5	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Haloacetic Acids Total (µg/L)	<1.1	10.4	9.5-12	0	80 (ALARA)	Health
Hardness as $CaCO_3$ (mg/L)	3.7	22.0	20.3-24.0	N/A	None	N/A
Iron Dissolved (µg/L)	51	<5	<5-9	N/A	None	N/A
Iron Total (µg/L)	154	<9	<5-64	0	≤ 300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	5 (ALARA)	Health
Magnesium Total (µg/L)	176	208	181-256	N/A	None	N/A
Manganese Dissolved (µg/L)	7.4	2.8	0.9-5.0	N/A	None	N/A
Manganese Total (µg/L)	8.9	6.0	2.4-10.6	0/0	120/20	Health/Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Nickel Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02	N/A	None	N/A
Nitrogen - Nitrate as N (mg/L)	0.08	0.07	0.02-0.17	0	10	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health
pH (pH units)	6.5	8.0	7.8-8.4	0	7.0-10.5	None
Phenol (mg/L)	<0.005	<0.005	<0.005	N/A	None	N/A
Potassium Total (µg/L)	148	172	135-228	N/A	None	N/A
Residue Total (mg/L)	15	34	31-36	N/A	None	N/A
Residue Total Dissolved (TDS) (mg/L)	10	30	30-40	0	≤ 500	Aesthetic
Residue Total Fixed (mg/L)	9	27	25-30	N/A	None	N/A
Residue Total Volatile (mg/L)	6	7	5-9	N/A	None	N/A
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO_2 (mg/L)	3.2	3.3	2.8-3.6	N/A	None	N/A
Silver Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Sodium Total (µg/L)	591	1,570	1,380-1,820	0	≤ 200,000	Aesthetic
Trihalomethanes Total (µg/L)	<4	18	16-20	0	100	Health
Turbidity (NTU)	1.3	0.15	0.07-1.2	N/A	None[3]	N/A
Uranium Total (µg/L)	0.0302	N/A	N/A	0	50	Health
UV Absorbance 254 nm (Abs/cm)	0.062	0.010	0.008-0.013	N/A	None	N/A
Zinc Total (µg/L)	<3	<3	<3-5	0	≤ 5,000	Aesthetic

[1]Untreated water is sampled from the source intake. Treated water is sampled prior to entering the Capilano transmission system.

[2]Limits are taken from the Guidelines for Canadian Drinking Water Quality summary table (September 2022).

[3]GCDWQ recommends that water entering the distribution system have turbidity levels of 1.0 NTU or less.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Physical and Chemical Analysis of Water Supply

2022 – Seymour Water System

	Untreated[1]	Treated[1]		Canadian Guideline		
Parameter	**Average**	**Average**	**Range**	**Days Exceeded**	**Limit[2]**	**Reason Established**
Alkalinity as $CaCO_3$ (mg/L)	3.6	22	18-24	N/A	None	N/A
Aluminum Dissolved (µg/L)	48	25	19-34	N/A	None	N/A
Aluminum Total (µg/L)	87	30	18-55	0	2,900	Health
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10 (ALARA)	Health
Barium Total (µg/L)	2.9	2.8	2.5-3.5	0	1,000	Health
Boron Total (µg/L)	<10	<10	<10	0	5,000	Health
Bromate (µg/L)	<10	<10	<10	0	10	Health
Bromide (µg/L)	<10	<10	<10	N/A	None	N/A
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	1,620	8,450	7,520-9,240	N/A	None	N/A
Carbon Organic - Dissolved (mg/L)	1.3	0.6	0.5-1.0	N/A	None	N/A
Carbon Organic - Total (mg/L)	1.4	0.6	0.4-1.0	N/A	None	N/A
Chlorate (µg/L)	<10	23	13-40	0	1000	Health
Chloride (mg/L)	<0.5	2.3	2.1-2.9	0	≤250	Aesthetic
Chromium Total (µg/L)	<0.06	<0.06	<0.05-0.07	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Colour - Apparent (ACU)	14	<2	<2-6	N/A	None	N/A
Colour - True (TCU)	9	<1	<1-1	0	≤15	Aesthetic
Conductivity (µmhos/cm)	12	49	43-53	N/A	None	N/A
Copper Total (µg/L)	22.3	<2	<0.5-5.5	0/0	2,000/1,000	Health/Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Cyanobacterial Toxins - Microcystin - LR (µg/L)	<0.20	N/A	N/A	0	1.5	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Haloacetic Acids Total (µg/L)	<1.1	11.7	7.8-19	0	80 (ALARA)	Health
Hardness as $CaCO_3$ (mg/L)	4.7	21.9	19.5-23.9	N/A	None	N/A
Iron Dissolved (µg/L)	74	<5	<5-7	N/A	None	N/A
Iron Total (µg/L)	168	<9	<5-22	0	≤300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	5 (ALARA)	Health
Magnesium Total (µg/L)	153	210	180-266	N/A	None	N/A
Manganese Dissolved (µg/L)	5.6	3.5	1.1-6.1	N/A	None	N/A
Manganese Total (µg/L)	8.8	6.5	2.7-12.8	0	≤50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Nickel Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02	N/A	None	N/A
Nitrogen - Nitrate as N (mg/L)	0.06	0.07	0.02-0.17	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health
pH (pH units)	6.5	8.0	7.7-8.3	0	7.0-10.5	None
Phenol (mg/L)	<0.005	<0.005	<0.005	N/A	None	N/A
Potassium Total (µg/L)	156	170	137-226	N/A	None	N/A
Residue Total (mg/L)	16	34	31-36	N/A	None	N/A
Residue Total Dissolved (TDS) (mg/L)	10	30	30-40	0	≤500	Aesthetic
Residue Total Fixed (mg/L)	9	27	25-30	N/A	None	N/A
Residue Total Volatile (mg/L)	6	7	5-8	N/A	None	N/A
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO_2 (mg/L)	3.2	3.3	2.8-3.6	N/A	None	N/A
Silver Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Sodium Total (µg/L)	558	1,550	1,390-1,810	0	≤200,000	Aesthetic
Trihalomethanes Total (µg/L)	<4	16	16-17	0	100	Health
Turbidity (NTU)	0.58	0.15	0.07-0.28	N/A	None[3]	N/A
Uranium Total (µg/L)	0.0198	N/A	N/A	0	50	Health
UV Absorbance 254 nm (Abs/cm)	0.058	0.010	0.008-0.015	N/A	None	N/A
Zinc Total (µg/L)	<5	<3	<3-3	0	≤5,000	Aesthetic

[1]Untreated water is sampled prior to the SCFP. Treated water is sampled prior to entering the Seymour transmission system.

[2]Limits are taken from the Guidelines for Canadian Drinking Water Quality summary table (September 2022).

[3]GCDWQ recommends that water entering the distribution system have turbidity levels of 1.0 NTU or less.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Physical and Chemical Analysis of Water Supply

2022 – Coquitlam Water System

	Untreated[1]	Treated[1]		Canadian Guideline		
Parameter	**Average**	**Average**	**Range**	**Days Exceeded**	**Limit[2]**	**Reason Established**
Alkalinity as $CaCO_3$ (mg/L)	1.9	21	20-26	N/A	**None**	N/A
Aluminum Dissolved (µg/L)	59	68	51-85	N/A	None	N/A
Aluminum Total (µg/L)	81	83	61-106	0	2,900	Health
Antimony Total (µg/L)	<0.5	<0.5	<0.5	0	6	Health
Arsenic Total (µg/L)	<0.5	<0.5	<0.5	0	10[1]	Health
Barium Total (µg/L)	2.6	2.4	1.7-3.6	0	1,000	Health
Boron Total (µg/L)	<10	<10	<10	0	5,000	Health
Bromate (µg/L)	<10	<10	<10	0	10	Health
Bromide (µg/L)	<10	<10	<10		None	N/A
Cadmium Total (µg/L)	<0.2	<0.2	<0.2	0	5	Health
Calcium Total (µg/L)	807	911	706-2,300	N/A	None	N/A
Carbon Organic - Dissolved (mg/L)	1.5	1.4	1.1-2.0	N/A	None	N/A
Carbon Organic - Total (mg/L)	1.6	1.4	1.2-2.1	N/A	None	N/A
Chlorate (µg/L)	<10	52	32-85	0	1,000	Health
Chloride (mg/L)	<0.5	2.1	1.9-2.3	0	≤250	Aesthetic
Chromium Total (µg/L)	<0.06	<0.05	<0.05-0.05	0	50	Health
Cobalt Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Colour - Apparent (ACU)	12	<3	<2-8	N/A	None	N/A
Colour - True (TCU)	9	<1	<1-6	0	≤15	Aesthetic
Conductivity (µmhos/cm)	8	45	40-53	N/A	None	N/A
Copper Total (µg/L)	4.4	<0.5	<0.5	0/0	2,000/1,000	Health/Aesthetic
Cyanide Total (mg/L)	<0.02	<0.02	<0.02	0	0.2	Health
Cyanobacterial Toxins - Microcystin - LR (µg/L)	<0.20	N/A	N/A	0	1.5	Health
Fluoride (mg/L)	<0.05	<0.05	<0.05	0	1.5	Health
Haloacetic Acids Total (µg/L)	<1.1	7.4	4.2-12	0	80[1]	Health
Hardness as $CaCO_3$ (mg/L)	2.4	2.7	2.1-6.2	N/A	None	N/A
Iron Dissolved (µg/L)	18	19	12-35	N/A	None	N/A
Iron Total (µg/L)	48	49	25-76	0	≤300	Aesthetic
Lead Total (µg/L)	<0.5	<0.5	<0.5	0	5[1]	Health
Magnesium Total (µg/L)	93	94	77-110	N/A	None	N/A
Manganese Dissolved (µg/L)	3.9	2.7	1.6-3.7	N/A	None	N/A
Manganese Total (µg/L)	4.4	3.6	2.0-4.8	0	≤50	Aesthetic
Mercury Total (µg/L)	<0.05	<0.05	<0.05	0	1	Health
Molybdenum Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Nickel Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Nitrogen - Ammonia as N (mg/L)	<0.02	<0.02	<0.02	N/A	None	N/A
Nitrogen - Nitrate as N (mg/L)	0.07	0.08	0.04-0.11	0	45	Health
Nitrogen - Nitrite as N (mg/L)	<0.01	<0.01	<0.01	0	1	Health
pH (pH units)	6.3	8.2	7.6-8.9	0		None
Phenol (mg/L)	<0.005	<0.005	<0.005	N/A	None	N/A
Potassium Total (µg/L)	147	144	102-234	N/A	None	N/A
Residue Total (mg/L)	12	35	33-37	N/A	None	N/A
Residue Total Dissolved (TDS) (mg/L)	9	30	30	0	≤500	Aesthetic
Residue Total Fixed (mg/L)	6	23	20-24	N/A	None	N/A
Residue Total Volatile (mg/L)	6	12	9-14	N/A	None	N/A
Selenium Total (µg/L)	<0.5	<0.5	<0.5	0	50	Health
Silica as SiO_2 (mg/L)	2.4	2.4	2.2-2.5	N/A	None	N/A
Silver Total (µg/L)	<0.5	<0.5	<0.5	N/A	None	N/A
Sodium Total (µg/L)	448	10,300	9,000-11,100	0	≤200,000	Aesthetic
Trihalomethanes Total (µg/L)	<4	8	6-12	0	100	Health
Turbidity (NTU)	<0.4	0.36	0.13-4.5	N/A	None[3]	N/A
Uranium Total (µg/L)	0.0491	N/A	N/A	0	50	Health
UV 254 - Apparent (Abs/cm)	0.065	0.023	0.016-0.057	N/A	None	N/A
UV Absorbance 254 nm (Abs/cm)	0.059	0.020	0.013-0.050	N/A	None	N/A
Zinc Total (µg/L)	<3	<3	<3-5	0	≤5,000	Aesthetic

[1]Untreated water is sampled from the source intake. Treated water is sampled prior to entering the Coquitlam transmission system.

[2]Limits are taken from the Guidelines for Canadian Drinking Water Quality summary table (September 2022).

[3]GCDWQ recommends that water entering the distribution system have turbidity levels of 1.0 NTU or less.

Appendix 6

Delta Source Water

Test Parameters

Untreated Source Water	Parameter	Test Frequency	Tester
Wells #1, #3 and #5	Temperature, pH, Chlorine Residual, Turbidity, Total Coliform, E.Coli	Weekly	Metro Vancouver Labs
	Health Canada (Drinking Water Quality) Metals: As, Ba, B, Cd, Cr, Cu, Fe, Pb, Mn, Hg, K, Se, Na, U, Zn	Quarterly	Element Labs
	BTEXSM in water by GC/MS, B.C. Criteria: BTEX, Styrene and MTBE, Health Canada (Drinking Water Quality) Metals: As, Ba, B, Cd, Cr, Cu, Fe, Pb, Mn, Hg, K, Se, Na, U, Zn, Multiresidue MRMW Pesticides in Water Including:3-Hydroxycarbofuran, Acephate, Alachlor, Aldicarb,Aldicarb sulfone, Aldicarb sulfoxide, Aldrin, Aspon, Atrazine,Azinphos-ethyl, Azinphos-methyl, Bendiocarb, Benfluralin,BHC (alpha isomer), BHC (beta isomer), BHC (delta isomer),Bifenox, BPMC, Bromacil, Bromophos, Bromophos-ethyl,Bromopropylate, Butralin, Butylate, Captan, Carbaryl,Carbofuran, Carbophenothion, Carboxin, Chinomethionate,Chlorbenside, Chlorbromuron, Chlordane-cis, Chlordane-trans,Chlordimeform, Chlorfenson, Chlorfenvinphos, Chlormephos,Chlorobenzilate, Chlorothalonil, Chlorpropham,Chlorpyrifos, Chlorpyrifos-methyl, Chlorthal-dimethyl, Chlorthiophos,Clomazone, Coumaphos, Crotoxyphos, Crufomate, Cyanazine,Cyanophos, Cypermethrin, Cyprazine, DDD-o,p', DDD-p,p',DDE-o,p', DDE-p,p', DDT-o,p', DDT-p,p', Deethylatrazine,Deltamethrin, Demeton, Demeton-s-methyl, Desmetryn,Dialifos, Diallate, Diazinon, Dichlobenil, Dichlofenthion,Dichlofluanid, Dichloran, Dichlorvos, Diclofop-methyl,Dicofol, Dicrotophos, Dieldrin, Dimethachlor, Dimethoate,Dinitramine, Diphenamid, Diphenylamine, Disulfoton,Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, EPN,Eptam (EPTC), Ethalfluralin, Ethion, Ethofumesate, Etrimfos,Fenamiphos, Fenchlorphos, Fenitrothion, Fenoxaprop-ethyl,Fenson, Fensulfothion, Fenthion, Fenvalerate,Fluazifop-p-butyl, Fluchloralin, Folpet, Fonofos, Glyphosate, Heptachlor, Heptachlor Epoxide, Heptenophos, Hexachlorobenzene, Hexazinone, Imidacloprid, Iprodione, Isofenphos, Leptophos, Lindane, Linuron, Malaoxon, Malathion, Metalaxyl, Metazachlor, Methamidophos, Methiocarb, Methomyl,Methoprene, Methoxychlor, Methyl Parathion, Metobromuron,Metolachlor, Metribuzin, Mevinphos, Mirex, Monocrotophos, Monolinuron, Myclobutanil, Nitrofen, Norflurazon, Omethoate, Oxamyl, Paraoxon, Parathion, Pebulate, Permethrin-cis,Permethrin-trans, Phorate, Phosalone, Phosmet, Phosphamidon, Pirimicarb, Pirimiphos-ethyl, Pirimiphos-methyl, Procymidone, Profenofos, Profluralin, Promecarb, Prometon, Prometryn, Propachlor, Propanil, Propargite, Propazine, Propiconazole,Propoxur, Propyzamide, Prothiofos, Pyrazophos, Pyridaben,Quinalophos, Quintozene, Quizalofop-ethyl, Simazine, Simetryn, Sulfotep, Tebuconazole, Tecnazene, Terbacil,Terbufos, Terbuthylazine, Terbutryn, Tetrachlorvinphos,Tetradifon, Tetramethrin, Tolyfluanid, Triadimefon,Triadimenol, Triallate, Triazophos, Trifluralin, Vernolate,Vinclozolin,OPO4 Phosphorus - orthophosphate, TSS Solids,Total Non-Filterable Residue,W12 Potable Water Chemistry: pH, EC, Ca, Mg, Na, K, Fe, SO4, Cl, Mn, carbonate,bicarbonate, NO3, NO2, NO3+NO2-N, alkalinity, hardness,calculated total dissolved solids (TDS), F, colour, turbidity.	Annually	Element Labs

Appendix 7

Delta Source Water

Test Results

First Quarter Reporting

March 25, 2022

Element
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

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Report Transmission Cover Page

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Contact	Company	Address
Accounts Payable	**City of Delta**	4500 Clarence Taylor Crescent Delta, BC V4K 3E2 Phone: (604) 946-4141 Fax: (604) 946-3962 Email: accountspayable@delta.ca

Delivery	Format	Deliverables
Email - Single Report	PDF	Invoice

Contact	Company	Address
Mark MacDonald	**City of Delta**	5404 - 64 Street Delta, BC V4K 3M6 Phone: (604) 952-3406 Fax: (604) 946-4855 Email: mmacdonald@delta.ca

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	Invoice

Notes To Clients:

- Mar 23, 2022 - Sample 1: Surrogate BDMC assigned to Carbamates - Water analysis does not meet acceptance criteria (50-140 %) due to possible matrix interference. The analytes in this method should be qualified.

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Reference Number	1560191-1
Sample Date	March 18, 2022
Sample Time	08:30
Sample Location	
Sample Description	220 / 112 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	<0.05	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0016	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.005	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.004	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0008	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	<0.001	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	0.0003	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.054	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0012	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	<0.001	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.2	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.60	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.6			
Electrical Conductivity	at 25 °C	µS/cm	145	1		
Calcium	Dissolved	mg/L	16.8	0.2		
Calcium	Extractable	mg/L	17.3	0.2		
Magnesium	Dissolved	mg/L	4.8	0.2		
Magnesium	Extractable	mg/L	4.7	0.2		
Sodium	Dissolved	mg/L	4.7	0.4	200	Below AO
Sodium	Extractable	mg/L	4.7	0.4	200	Below AO
Potassium	Dissolved	mg/L	1.0	0.4		
Potassium	Extractable	mg/L	1.0	0.4		

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Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	5.5	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	0.53	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	0.53	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	5.6	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	76			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	62	5		
Total Dissolved Solids		mg/L	76	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	62			
Hardness	as CaCO3	mg/L	63			
Ionic Balance		%	96			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	99.1	80-120		
Dibromofluoromethane	Surrogate	%	101	80-120		
Toluene-d8	Surrogate	%	105	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		
Chlordane-cis		µg/L	<0.5	0.5		

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Sample Location	
Sample Description	220 / 112 St / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued					
Chlordane-trans	µg/L	<0.5	0.5		
Chlorfenson	µg/L	<0.5	0.5		
Chlorothalonil	µg/L	<0.5	0.5		
Chlorthal-dimethyl	µg/L	<0.5	0.5		
DDD-o,p'	µg/L	<0.5	0.5		
DDD-p,p'	µg/L	<0.5	0.5		
DDE-o,p'	µg/L	<0.5	0.5		
DDE-p,p'	µg/L	<0.5	0.5		
DDT-o,p'	µg/L	<0.5	0.5		
DDT-p,p'	µg/L	<0.5	0.5		
Dichlofluanid	µg/L	<0.5	0.5		
Dieldrin	µg/L	<0.5	0.5		
Endosulfan I	µg/L	<0.5	0.5		
Endosulfan II	µg/L	<0.5	0.5		
Endosulfan sulfate	µg/L	<0.5	0.5		
Endrin	µg/L	<0.5	0.5		
Folpet	µg/L	<3.0	3.0		
Heptachlor	µg/L	<0.5	0.5		
Heptachlor Epoxide	µg/L	<0.5	0.5		
Hexachlorobenzene	µg/L	<0.5	0.5		
Lindane	µg/L	<0.5	0.5		
Methoxychlor	µg/L	<0.5	0.5		
Mirex	µg/L	<0.5	0.5		
Permethrin-cis	µg/L	<0.5	0.5		
Permethrin-trans	µg/L	<0.5	0.5		
Procymidone	µg/L	<0.5	0.5		
Propachlor	µg/L	<0.5	0.5		
Quintozene	µg/L	<0.5	0.5		
Tecnazene	µg/L	<0.5	0.5		
Tetradifon	µg/L	<0.5	0.5		
Tolyfluanid	µg/L	<0.5	0.5		
Triadimefon	µg/L	<0.5	0.5		
Vinclozolin	µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.					
TPP Surrogate	%	110	50-140		
Organophosphate Pesticides in Water					
Aspon	µg/L	<0.5	0.5		
Azinphos-ethyl	µg/L	<0.5	0.5		
Azinphos-methyl	µg/L	<0.5	0.5	20	Below MAC

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V4K 3E2
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Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
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P.O.: 22134592
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Reference Number	1560191-1
Sample Date	March 18, 2022
Sample Time	08:30
Sample Location	
Sample Description	220 / 112 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued						
Bromophos		µg/L	<0.5	0.5		
Bromophos-ethyl		µg/L	<0.5	0.5		
Carbophenothion		µg/L	<0.5	0.5		
Chlorfenvinphos		µg/L	<0.5	0.5		
Chlormephos		µg/L	<0.5	0.5		
Chlorpyrifos		µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl		µg/L	<0.5	0.5		
Chlorthiophos		µg/L	<0.5	0.5		
Cyanophos		µg/L	<0.5	0.5		
Demeton		µg/L	<0.5	0.5		
Diazinon		µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion		µg/L	<0.5	0.5		
Dimethoate		µg/L	<0.5	0.5	20	Below MAC
Disulfoton		µg/L	<0.5	0.5		
Ethion		µg/L	<0.5	0.5		
Fenchlorphos		µg/L	<0.5	0.5		
Fenitrothion		µg/L	<0.5	0.5		
Fenthion		µg/L	<0.5	0.5		
Fonofos		µg/L	<0.5	0.5		
Isofenphos		µg/L	<0.5	0.5		
Malaoxon		µg/L	<0.5	0.5		
Malathion		µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion		µg/L	<0.5	0.5		
Mevinphos		µg/L	<0.5	0.5		
Parathion		µg/L	<0.5	0.5		
Phorate		µg/L	<0.5	0.5	2	Below MAC
Phosalone		µg/L	<0.5	0.5		
Phosmet		µg/L	<0.5	0.5		
Phosphamidon		µg/L	<0.5	0.5		
Pirimiphos-ethyl		µg/L	<0.5	0.5		
Pirimiphos-methyl		µg/L	<0.5	0.5		
Pyrazophos		µg/L	<0.5	0.5		
Quinalophos		µg/L	<0.5	0.5		
Sulfotep		µg/L	<0.5	0.5		
Terbufos		µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos		µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	110	50-140		

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Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	110	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	40.8	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	110	50-140		

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-2
Sample Date	March 18, 2022
Sample Time	09:00
Sample Location	
Sample Description	308 / Burns Dr / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	<0.05	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0013	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.005	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.003	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0007	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	0.004	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.048	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0010	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	0.001	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.2	0.1	0.1/0.3/1.0 OG	
Turbidity		NTU	0.2	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.77	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.4			
Electrical Conductivity	at 25 °C	µS/cm	123	1		
Calcium	Dissolved	mg/L	15.1	0.2		
Calcium	Extractable	mg/L	15.7	0.2		
Magnesium	Dissolved	mg/L	3.9	0.2		
Magnesium	Extractable	mg/L	4.0	0.2		
Sodium	Dissolved	mg/L	4.1	0.4	200	Below AO
Sodium	Extractable	mg/L	4.0	0.4	200	Below AO
Potassium	Dissolved	mg/L	0.8	0.4		

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Reference Number	1560191-2
Sample Date	March 18, 2022
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Sample Location	
Sample Description	308 / Burns Dr / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Potassium	Extractable	mg/L	0.8	0.4		
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	5.0	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	0.45	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	0.45	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	4.6	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	61			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	50	5		
Total Dissolved Solids		mg/L	64	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	54			
Hardness	as CaCO3	mg/L	56			
Ionic Balance		%	103			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	99.0	80-120		
Dibromofluoromethane	Surrogate	%	104	80-120		
Toluene-d8	Surrogate	%	102	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		

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Sample Time	09:00
Sample Location	
Sample Description	308 / Burns Dr / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued					
Chlordane-cis	µg/L	<0.5	0.5		
Chlordane-trans	µg/L	<0.5	0.5		
Chlorfenson	µg/L	<0.5	0.5		
Chlorothalonil	µg/L	<0.5	0.5		
Chlorthal-dimethyl	µg/L	<0.5	0.5		
DDD-o,p'	µg/L	<0.5	0.5		
DDD-p,p'	µg/L	<0.5	0.5		
DDE-o,p'	µg/L	<0.5	0.5		
DDE-p,p'	µg/L	<0.5	0.5		
DDT-o,p'	µg/L	<0.5	0.5		
DDT-p,p'	µg/L	<0.5	0.5		
Dichlofluanid	µg/L	<0.5	0.5		
Dieldrin	µg/L	<0.5	0.5		
Endosulfan I	µg/L	<0.5	0.5		
Endosulfan II	µg/L	<0.5	0.5		
Endosulfan sulfate	µg/L	<0.5	0.5		
Endrin	µg/L	<0.5	0.5		
Folpet	µg/L	<3.0	3.0		
Heptachlor	µg/L	<0.5	0.5		
Heptachlor Epoxide	µg/L	<0.5	0.5		
Hexachlorobenzene	µg/L	<0.5	0.5		
Lindane	µg/L	<0.5	0.5		
Methoxychlor	µg/L	<0.5	0.5		
Mirex	µg/L	<0.5	0.5		
Permethrin-cis	µg/L	<0.5	0.5		
Permethrin-trans	µg/L	<0.5	0.5		
Procymidone	µg/L	<0.5	0.5		
Propachlor	µg/L	<0.5	0.5		
Quintozene	µg/L	<0.5	0.5		
Tecnazene	µg/L	<0.5	0.5		
Tetradifon	µg/L	<0.5	0.5		
Tolyfluanid	µg/L	<0.5	0.5		
Triadimefon	µg/L	<0.5	0.5		
Vinclozolin	µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.					
TPP Surrogate	%	109	50-140		
Organophosphate Pesticides in Water					
Aspon	µg/L	<0.5	0.5		
Azinphos-ethyl	µg/L	<0.5	0.5		

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Reference Number	1560191-2
Sample Date	March 18, 2022
Sample Time	09:00
Sample Location	
Sample Description	308 / Burns Dr / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued					
Azinphos-methyl	µg/L	<0.5	0.5	20	Below MAC
Bromophos	µg/L	<0.5	0.5		
Bromophos-ethyl	µg/L	<0.5	0.5		
Carbophenothion	µg/L	<0.5	0.5		
Chlorfenvinphos	µg/L	<0.5	0.5		
Chlormephos	µg/L	<0.5	0.5		
Chlorpyrifos	µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl	µg/L	<0.5	0.5		
Chlorthiophos	µg/L	<0.5	0.5		
Cyanophos	µg/L	<0.5	0.5		
Demeton	µg/L	<0.5	0.5		
Diazinon	µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion	µg/L	<0.5	0.5		
Dimethoate	µg/L	<0.5	0.5	20	Below MAC
Disulfoton	µg/L	<0.5	0.5		
Ethion	µg/L	<0.5	0.5		
Fenchlorphos	µg/L	<0.5	0.5		
Fenitrothion	µg/L	<0.5	0.5		
Fenthion	µg/L	<0.5	0.5		
Fonofos	µg/L	<0.5	0.5		
Isofenphos	µg/L	<0.5	0.5		
Malaoxon	µg/L	<0.5	0.5		
Malathion	µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion	µg/L	<0.5	0.5		
Mevinphos	µg/L	<0.5	0.5		
Parathion	µg/L	<0.5	0.5		
Phorate	µg/L	<0.5	0.5	2	Below MAC
Phosalone	µg/L	<0.5	0.5		
Phosmet	µg/L	<0.5	0.5		
Phosphamidon	µg/L	<0.5	0.5		
Pirimiphos-ethyl	µg/L	<0.5	0.5		
Pirimiphos-methyl	µg/L	<0.5	0.5		
Pyrazophos	µg/L	<0.5	0.5		
Quinalophos	µg/L	<0.5	0.5		
Sulfotep	µg/L	<0.5	0.5		
Terbufos	µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos	µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.					
TPP Surrogate	%	109	50-140		

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Sample Date	March 18, 2022
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Sample Location	
Sample Description	308 / Burns Dr / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	109	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
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Report Number: 2730229

Reference Number	1560191-2
Sample Date	March 18, 2022
Sample Time	09:00
Sample Location	
Sample Description	308 / Burns Dr / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	72.1	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	109	50-140		

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Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-3
Sample Date	March 18, 2022
Sample Time	09:30
Sample Location	
Sample Description	225 / 88 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	<0.05	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0011	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.005	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.003	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0006	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	0.002	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.044	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0009	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	<0.001	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.1	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.81	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.4			
Electrical Conductivity	at 25 °C	µS/cm	114	1		
Calcium	Dissolved	mg/L	14.1	0.2		
Calcium	Extractable	mg/L	14.5	0.2		
Magnesium	Dissolved	mg/L	3.4	0.2		
Magnesium	Extractable	mg/L	3.4	0.2		
Sodium	Dissolved	mg/L	3.7	0.4	200	Below AO
Sodium	Extractable	mg/L	3.7	0.4	200	Below AO
Potassium	Dissolved	mg/L	0.7	0.4		
Potassium	Extractable	mg/L	0.7	0.4		

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Reference Number	1560191-3
Sample Date	March 18, 2022
Sample Time	09:30
Sample Location	
Sample Description	225 / 88 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	4.4	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	0.39	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	0.39	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	3.8	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	55			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	45	5		
Total Dissolved Solids		mg/L	58	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	49			
Hardness	as CaCO3	mg/L	50			
Ionic Balance		%	105			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	97.8	80-120		
Dibromofluoromethane	Surrogate	%	102	80-120		
Toluene-d8	Surrogate	%	105	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		
Chlordane-cis		µg/L	<0.5	0.5		

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-3
Sample Date	March 18, 2022
Sample Time	09:30
Sample Location	
Sample Description	225 / 88 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued						
Chlordane-trans		µg/L	<0.5	0.5		
Chlorfenson		µg/L	<0.5	0.5		
Chlorothalonil		µg/L	<0.5	0.5		
Chlorthal-dimethyl		µg/L	<0.5	0.5		
DDD-o,p'		µg/L	<0.5	0.5		
DDD-p,p'		µg/L	<0.5	0.5		
DDE-o,p'		µg/L	<0.5	0.5		
DDE-p,p'		µg/L	<0.5	0.5		
DDT-o,p'		µg/L	<0.5	0.5		
DDT-p,p'		µg/L	<0.5	0.5		
Dichlofluanid		µg/L	<0.5	0.5		
Dieldrin		µg/L	<0.5	0.5		
Endosulfan I		µg/L	<0.5	0.5		
Endosulfan II		µg/L	<0.5	0.5		
Endosulfan sulfate		µg/L	<0.5	0.5		
Endrin		µg/L	<0.5	0.5		
Folpet		µg/L	<3.0	3.0		
Heptachlor		µg/L	<0.5	0.5		
Heptachlor Epoxide		µg/L	<0.5	0.5		
Hexachlorobenzene		µg/L	<0.5	0.5		
Lindane		µg/L	<0.5	0.5		
Methoxychlor		µg/L	<0.5	0.5		
Mirex		µg/L	<0.5	0.5		
Permethrin-cis		µg/L	<0.5	0.5		
Permethrin-trans		µg/L	<0.5	0.5		
Procymidone		µg/L	<0.5	0.5		
Propachlor		µg/L	<0.5	0.5		
Quintozene		µg/L	<0.5	0.5		
Tecnazene		µg/L	<0.5	0.5		
Tetradifon		µg/L	<0.5	0.5		
Tolyfluanid		µg/L	<0.5	0.5		
Triadimefon		µg/L	<0.5	0.5		
Vinclozolin		µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	108	50-140		
Organophosphate Pesticides in Water						
Aspon		µg/L	<0.5	0.5		
Azinphos-ethyl		µg/L	<0.5	0.5		
Azinphos-methyl		µg/L	<0.5	0.5	20	Below MAC

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Sample Location	
Sample Description	225 / 88 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued						
Bromophos		µg/L	<0.5	0.5		
Bromophos-ethyl		µg/L	<0.5	0.5		
Carbophenothion		µg/L	<0.5	0.5		
Chlorfenvinphos		µg/L	<0.5	0.5		
Chlormephos		µg/L	<0.5	0.5		
Chlorpyrifos		µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl		µg/L	<0.5	0.5		
Chlorthiophos		µg/L	<0.5	0.5		
Cyanophos		µg/L	<0.5	0.5		
Demeton		µg/L	<0.5	0.5		
Diazinon		µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion		µg/L	<0.5	0.5		
Dimethoate		µg/L	<0.5	0.5	20	Below MAC
Disulfoton		µg/L	<0.5	0.5		
Ethion		µg/L	<0.5	0.5		
Fenchlorphos		µg/L	<0.5	0.5		
Fenitrothion		µg/L	<0.5	0.5		
Fenthion		µg/L	<0.5	0.5		
Fonofos		µg/L	<0.5	0.5		
Isofenphos		µg/L	<0.5	0.5		
Malaoxon		µg/L	<0.5	0.5		
Malathion		µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion		µg/L	<0.5	0.5		
Mevinphos		µg/L	<0.5	0.5		
Parathion		µg/L	<0.5	0.5		
Phorate		µg/L	<0.5	0.5	2	Below MAC
Phosalone		µg/L	<0.5	0.5		
Phosmet		µg/L	<0.5	0.5		
Phosphamidon		µg/L	<0.5	0.5		
Pirimiphos-ethyl		µg/L	<0.5	0.5		
Pirimiphos-methyl		µg/L	<0.5	0.5		
Pyrazophos		µg/L	<0.5	0.5		
Quinalophos		µg/L	<0.5	0.5		
Sulfotep		µg/L	<0.5	0.5		
Terbufos		µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos		µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	108	50-140		

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Sample Location	
Sample Description	225 / 88 St / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	108	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-3
Sample Date	March 18, 2022
Sample Time	09:30
Sample Location	
Sample Description	225 / 88 St / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	55.9	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	108	50-140		

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Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-4
Sample Date	March 18, 2022
Sample Time	10:00
Sample Location	
Sample Description	305 / Well #1 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	0.09	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0046	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.005	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.006	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0025	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	0.003	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	0.0005	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.107	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0030	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	<0.001	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.2	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.90	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.4			
Electrical Conductivity	at 25 °C	µS/cm	263	1		
Calcium	Dissolved	mg/L	29.3	0.2		
Calcium	Extractable	mg/L	30.1	0.2		
Magnesium	Dissolved	mg/L	10.5	0.2		
Magnesium	Extractable	mg/L	10.8	0.2		
Sodium	Dissolved	mg/L	9.0	0.4	200	Below AO
Sodium	Extractable	mg/L	9.1	0.4	200	Below AO
Potassium	Dissolved	mg/L	2.1	0.4		
Potassium	Extractable	mg/L	2.2	0.4		

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Report Number: 2730229

Reference Number	1560191-4
Sample Date	March 18, 2022
Sample Time	10:00
Sample Location	
Sample Description	305 / Well #1 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	0.006	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	0.007	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	12.8	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	1.26	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	1.26	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	10	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	125			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	103	5		
Total Dissolved Solids		mg/L	137	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	116.0			
Hardness	as CaCO3	mg/L	120.0			
Ionic Balance		%	105			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	99.7	80-120		
Dibromofluoromethane	Surrogate	%	102	80-120		
Toluene-d8	Surrogate	%	105	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		
Chlordane-cis		µg/L	<0.5	0.5		

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Reference Number	1560191-4
Sample Date	March 18, 2022
Sample Time	10:00
Sample Location	
Sample Description	305 / Well #1 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued						
Chlordane-trans		µg/L	<0.5	0.5		
Chlorfenson		µg/L	<0.5	0.5		
Chlorothalonil		µg/L	<0.5	0.5		
Chlorthal-dimethyl		µg/L	<0.5	0.5		
DDD-o,p'		µg/L	<0.5	0.5		
DDD-p,p'		µg/L	<0.5	0.5		
DDE-o,p'		µg/L	<0.5	0.5		
DDE-p,p'		µg/L	<0.5	0.5		
DDT-o,p'		µg/L	<0.5	0.5		
DDT-p,p'		µg/L	<0.5	0.5		
Dichlofluanid		µg/L	<0.5	0.5		
Dieldrin		µg/L	<0.5	0.5		
Endosulfan I		µg/L	<0.5	0.5		
Endosulfan II		µg/L	<0.5	0.5		
Endosulfan sulfate		µg/L	<0.5	0.5		
Endrin		µg/L	<0.5	0.5		
Folpet		µg/L	<3.0	3.0		
Heptachlor		µg/L	<0.5	0.5		
Heptachlor Epoxide		µg/L	<0.5	0.5		
Hexachlorobenzene		µg/L	<0.5	0.5		
Lindane		µg/L	<0.5	0.5		
Methoxychlor		µg/L	<0.5	0.5		
Mirex		µg/L	<0.5	0.5		
Permethrin-cis		µg/L	<0.5	0.5		
Permethrin-trans		µg/L	<0.5	0.5		
Procymidone		µg/L	<0.5	0.5		
Propachlor		µg/L	<0.5	0.5		
Quintozene		µg/L	<0.5	0.5		
Tecnazene		µg/L	<0.5	0.5		
Tetradifon		µg/L	<0.5	0.5		
Tolyfluanid		µg/L	<0.5	0.5		
Triadimefon		µg/L	<0.5	0.5		
Vinclozolin		µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	109	50-140		
Organophosphate Pesticides in Water						
Aspon		µg/L	<0.5	0.5		
Azinphos-ethyl		µg/L	<0.5	0.5		
Azinphos-methyl		µg/L	<0.5	0.5	20	Below MAC

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-4
Sample Date	March 18, 2022
Sample Time	10:00
Sample Location	
Sample Description	305 / Well #1 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued						
Bromophos		µg/L	<0.5	0.5		
Bromophos-ethyl		µg/L	<0.5	0.5		
Carbophenothion		µg/L	<0.5	0.5		
Chlorfenvinphos		µg/L	<0.5	0.5		
Chlormephos		µg/L	<0.5	0.5		
Chlorpyrifos		µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl		µg/L	<0.5	0.5		
Chlorthiophos		µg/L	<0.5	0.5		
Cyanophos		µg/L	<0.5	0.5		
Demeton		µg/L	<0.5	0.5		
Diazinon		µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion		µg/L	<0.5	0.5		
Dimethoate		µg/L	<0.5	0.5	20	Below MAC
Disulfoton		µg/L	<0.5	0.5		
Ethion		µg/L	<0.5	0.5		
Fenchlorphos		µg/L	<0.5	0.5		
Fenitrothion		µg/L	<0.5	0.5		
Fenthion		µg/L	<0.5	0.5		
Fonofos		µg/L	<0.5	0.5		
Isofenphos		µg/L	<0.5	0.5		
Malaoxon		µg/L	<0.5	0.5		
Malathion		µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion		µg/L	<0.5	0.5		
Mevinphos		µg/L	<0.5	0.5		
Parathion		µg/L	<0.5	0.5		
Phorate		µg/L	<0.5	0.5	2	Below MAC
Phosalone		µg/L	<0.5	0.5		
Phosmet		µg/L	<0.5	0.5		
Phosphamidon		µg/L	<0.5	0.5		
Pirimiphos-ethyl		µg/L	<0.5	0.5		
Pirimiphos-methyl		µg/L	<0.5	0.5		
Pyrazophos		µg/L	<0.5	0.5		
Quinalophos		µg/L	<0.5	0.5		
Sulfotep		µg/L	<0.5	0.5		
Terbufos		µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos		µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	109	50-140		

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P.O.: 22134592
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Sample Description	305 / Well #1 / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	109	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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Reference Number	1560191-4
Sample Date	March 18, 2022
Sample Time	10:00
Sample Location	
Sample Description	305 / Well #1 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	97.1	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	109	50-140		

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P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-5
Sample Date	March 18, 2022
Sample Time	10:30
Sample Location	
Sample Description	306 / Well #5 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	<0.05	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0041	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.010	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.007	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0020	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	0.005	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	0.0007	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.112	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0032	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	0.006	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	4.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.2	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.81	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.5			
Electrical Conductivity	at 25 °C	µS/cm	275	1		
Calcium	Dissolved	mg/L	29.7	0.2		
Calcium	Extractable	mg/L	30.8	0.2		
Magnesium	Dissolved	mg/L	11.7	0.2		
Magnesium	Extractable	mg/L	12.0	0.2		
Sodium	Dissolved	mg/L	8.9	0.4	200	Below AO
Sodium	Extractable	mg/L	9.2	0.4	200	Below AO
Potassium	Dissolved	mg/L	2.3	0.4		
Potassium	Extractable	mg/L	2.3	0.4		

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Project ID:
Project Name: Well Water
Project Location:
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P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-5
Sample Date	March 18, 2022
Sample Time	10:30
Sample Location	
Sample Description	306 / Well #5 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	0.008	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	0.009	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	10.5	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	1.16	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	1.16	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	13	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	145			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	119	5		
Total Dissolved Solids		mg/L	149	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	122.0			
Hardness	as CaCO3	mg/L	127.0			
Ionic Balance		%	99			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	99.4	80-120		
Dibromofluoromethane	Surrogate	%	104	80-120		
Toluene-d8	Surrogate	%	107	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		
Chlordane-cis		µg/L	<0.5	0.5		

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Reference Number	1560191-5
Sample Date	March 18, 2022
Sample Time	10:30
Sample Location	
Sample Description	306 / Well #5 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued						
Chlordane-trans		µg/L	<0.5	0.5		
Chlorfenson		µg/L	<0.5	0.5		
Chlorothalonil		µg/L	<0.5	0.5		
Chlorthal-dimethyl		µg/L	<0.5	0.5		
DDD-o,p'		µg/L	<0.5	0.5		
DDD-p,p'		µg/L	<0.5	0.5		
DDE-o,p'		µg/L	<0.5	0.5		
DDE-p,p'		µg/L	<0.5	0.5		
DDT-o,p'		µg/L	<0.5	0.5		
DDT-p,p'		µg/L	<0.5	0.5		
Dichlofluanid		µg/L	<0.5	0.5		
Dieldrin		µg/L	<0.5	0.5		
Endosulfan I		µg/L	<0.5	0.5		
Endosulfan II		µg/L	<0.5	0.5		
Endosulfan sulfate		µg/L	<0.5	0.5		
Endrin		µg/L	<0.5	0.5		
Folpet		µg/L	<3.0	3.0		
Heptachlor		µg/L	<0.5	0.5		
Heptachlor Epoxide		µg/L	<0.5	0.5		
Hexachlorobenzene		µg/L	<0.5	0.5		
Lindane		µg/L	<0.5	0.5		
Methoxychlor		µg/L	<0.5	0.5		
Mirex		µg/L	<0.5	0.5		
Permethrin-cis		µg/L	<0.5	0.5		
Permethrin-trans		µg/L	<0.5	0.5		
Procymidone		µg/L	<0.5	0.5		
Propachlor		µg/L	<0.5	0.5		
Quintozene		µg/L	<0.5	0.5		
Tecnazene		µg/L	<0.5	0.5		
Tetradifon		µg/L	<0.5	0.5		
Tolyfluanid		µg/L	<0.5	0.5		
Triadimefon		µg/L	<0.5	0.5		
Vinclozolin		µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	112	50-140		
Organophosphate Pesticides in Water						
Aspon		µg/L	<0.5	0.5		
Azinphos-ethyl		µg/L	<0.5	0.5		
Azinphos-methyl		µg/L	<0.5	0.5	20	Below MAC

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Reference Number	1560191-5
Sample Date	March 18, 2022
Sample Time	10:30
Sample Location	
Sample Description	306 / Well #5 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued						
Bromophos		µg/L	<0.5	0.5		
Bromophos-ethyl		µg/L	<0.5	0.5		
Carbophenothion		µg/L	<0.5	0.5		
Chlorfenvinphos		µg/L	<0.5	0.5		
Chlormephos		µg/L	<0.5	0.5		
Chlorpyrifos		µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl		µg/L	<0.5	0.5		
Chlorthiophos		µg/L	<0.5	0.5		
Cyanophos		µg/L	<0.5	0.5		
Demeton		µg/L	<0.5	0.5		
Diazinon		µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion		µg/L	<0.5	0.5		
Dimethoate		µg/L	<0.5	0.5	20	Below MAC
Disulfoton		µg/L	<0.5	0.5		
Ethion		µg/L	<0.5	0.5		
Fenchlorphos		µg/L	<0.5	0.5		
Fenitrothion		µg/L	<0.5	0.5		
Fenthion		µg/L	<0.5	0.5		
Fonofos		µg/L	<0.5	0.5		
Isofenphos		µg/L	<0.5	0.5		
Malaoxon		µg/L	<0.5	0.5		
Malathion		µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion		µg/L	<0.5	0.5		
Mevinphos		µg/L	<0.5	0.5		
Parathion		µg/L	<0.5	0.5		
Phorate		µg/L	<0.5	0.5	2	Below MAC
Phosalone		µg/L	<0.5	0.5		
Phosmet		µg/L	<0.5	0.5		
Phosphamidon		µg/L	<0.5	0.5		
Pirimiphos-ethyl		µg/L	<0.5	0.5		
Pirimiphos-methyl		µg/L	<0.5	0.5		
Pyrazophos		µg/L	<0.5	0.5		
Quinalophos		µg/L	<0.5	0.5		
Sulfotep		µg/L	<0.5	0.5		
Terbufos		µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos		µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	112	50-140		

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Reference Number	1560191-5
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Sample Location	
Sample Description	306 / Well #5 / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	112	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-5
Sample Date	March 18, 2022
Sample Time	10:30
Sample Location	
Sample Description	306 / Well #5 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	96.6	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	112	50-140		

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Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-6
Sample Date	March 18, 2022
Sample Time	11:00
Sample Location	
Sample Description	307 / Well #3 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	0.05	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0032	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.010	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.007	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0027	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	0.003	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.122	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0023	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	<0.001	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.1	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.63	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.5			
Electrical Conductivity	at 25 °C	µS/cm	287	1		
Calcium	Dissolved	mg/L	31.5	0.2		
Calcium	Extractable	mg/L	32.8	0.2		
Magnesium	Dissolved	mg/L	12.4	0.2		
Magnesium	Extractable	mg/L	12.9	0.2		
Sodium	Dissolved	mg/L	9.2	0.4	200	Below AO
Sodium	Extractable	mg/L	9.5	0.4	200	Below AO
Potassium	Dissolved	mg/L	2.3	0.4		
Potassium	Extractable	mg/L	2.3	0.4		

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Attn: Accounts Payable
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Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-6
Sample Date	March 18, 2022
Sample Time	11:00
Sample Location	
Sample Description	307 / Well #3 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	9.2	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	1.28	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	1.28	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	13	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	140			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	115	5		
Total Dissolved Solids		mg/L	149	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	130.0			
Hardness	as CaCO3	mg/L	135.0			
Ionic Balance		%	109			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	98.9	80-120		
Dibromofluoromethane	Surrogate	%	102	80-120		
Toluene-d8	Surrogate	%	107	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		
Chlordane-cis		µg/L	<0.5	0.5		

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Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-6
Sample Date	March 18, 2022
Sample Time	11:00
Sample Location	
Sample Description	307 / Well #3 / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued					
Chlordane-trans	µg/L	<0.5	0.5		
Chlorfenson	µg/L	<0.5	0.5		
Chlorothalonil	µg/L	<0.5	0.5		
Chlorthal-dimethyl	µg/L	<0.5	0.5		
DDD-o,p'	µg/L	<0.5	0.5		
DDD-p,p'	µg/L	<0.5	0.5		
DDE-o,p'	µg/L	<0.5	0.5		
DDE-p,p'	µg/L	<0.5	0.5		
DDT-o,p'	µg/L	<0.5	0.5		
DDT-p,p'	µg/L	<0.5	0.5		
Dichlofluanid	µg/L	<0.5	0.5		
Dieldrin	µg/L	<0.5	0.5		
Endosulfan I	µg/L	<0.5	0.5		
Endosulfan II	µg/L	<0.5	0.5		
Endosulfan sulfate	µg/L	<0.5	0.5		
Endrin	µg/L	<0.5	0.5		
Folpet	µg/L	<3.0	3.0		
Heptachlor	µg/L	<0.5	0.5		
Heptachlor Epoxide	µg/L	<0.5	0.5		
Hexachlorobenzene	µg/L	<0.5	0.5		
Lindane	µg/L	<0.5	0.5		
Methoxychlor	µg/L	<0.5	0.5		
Mirex	µg/L	<0.5	0.5		
Permethrin-cis	µg/L	<0.5	0.5		
Permethrin-trans	µg/L	<0.5	0.5		
Procymidone	µg/L	<0.5	0.5		
Propachlor	µg/L	<0.5	0.5		
Quintozene	µg/L	<0.5	0.5		
Tecnazene	µg/L	<0.5	0.5		
Tetradifon	µg/L	<0.5	0.5		
Tolyfluanid	µg/L	<0.5	0.5		
Triadimefon	µg/L	<0.5	0.5		
Vinclozolin	µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.					
TPP Surrogate	%	107	50-140		
Organophosphate Pesticides in Water					
Aspon	µg/L	<0.5	0.5		
Azinphos-ethyl	µg/L	<0.5	0.5		
Azinphos-methyl	µg/L	<0.5	0.5	20	Below MAC

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-6
Sample Date	March 18, 2022
Sample Time	11:00
Sample Location	
Sample Description	307 / Well #3 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued						
Bromophos		µg/L	<0.5	0.5		
Bromophos-ethyl		µg/L	<0.5	0.5		
Carbophenothion		µg/L	<0.5	0.5		
Chlorfenvinphos		µg/L	<0.5	0.5		
Chlormephos		µg/L	<0.5	0.5		
Chlorpyrifos		µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl		µg/L	<0.5	0.5		
Chlorthiophos		µg/L	<0.5	0.5		
Cyanophos		µg/L	<0.5	0.5		
Demeton		µg/L	<0.5	0.5		
Diazinon		µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion		µg/L	<0.5	0.5		
Dimethoate		µg/L	<0.5	0.5	20	Below MAC
Disulfoton		µg/L	<0.5	0.5		
Ethion		µg/L	<0.5	0.5		
Fenchlorphos		µg/L	<0.5	0.5		
Fenitrothion		µg/L	<0.5	0.5		
Fenthion		µg/L	<0.5	0.5		
Fonofos		µg/L	<0.5	0.5		
Isofenphos		µg/L	<0.5	0.5		
Malaoxon		µg/L	<0.5	0.5		
Malathion		µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion		µg/L	<0.5	0.5		
Mevinphos		µg/L	<0.5	0.5		
Parathion		µg/L	<0.5	0.5		
Phorate		µg/L	<0.5	0.5	2	Below MAC
Phosalone		µg/L	<0.5	0.5		
Phosmet		µg/L	<0.5	0.5		
Phosphamidon		µg/L	<0.5	0.5		
Pirimiphos-ethyl		µg/L	<0.5	0.5		
Pirimiphos-methyl		µg/L	<0.5	0.5		
Pyrazophos		µg/L	<0.5	0.5		
Quinalophos		µg/L	<0.5	0.5		
Sulfotep		µg/L	<0.5	0.5		
Terbufos		µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos		µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	107	50-140		

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Company: City of Delta

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Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-6
Sample Date	March 18, 2022
Sample Time	11:00
Sample Location	
Sample Description	307 / Well #3 / 7.1 °C
Sample Matrix	Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	107	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-6
Sample Date	March 18, 2022
Sample Time	11:00
Sample Location	
Sample Description	307 / Well #3 / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	96.1	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	107	50-140		

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V4K 3E2
Attn: Accounts Payable
Sampled By: Mark M.
Company: City of Delta

Project ID:
Project Name: Well Water
Project Location:
LSD:
P.O.: 22134592
Proj. Acct. code:

Lot ID: **1560191**
Control Number:
Date Received: Mar 18, 2022
Date Reported: Mar 25, 2022
Report Number: 2730229

Reference Number	1560191-7
Sample Date	March 18, 2022
Sample Time	11:30
Sample Location	
Sample Description	329 / Reservoir / 7.1 °C
Sample Matrix	Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Inorganic Nonmetallic Parameters						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Bromide		mg/L	<0.05	0.05		
Hydrogen Sulfide	Calculated	mg/L	<0.002			
Metals Dissolved						
Mercury	Dissolved	mg/L	<0.000005	0.000005	0.001	Below MAC
Arsenic	Dissolved	mg/L	0.0016	0.0002	0.01	Below MAC
Barium	Dissolved	mg/L	0.005	0.001	2.0	Below MAC
Boron	Dissolved	mg/L	0.003	0.002	5	Below MAC
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Dissolved	mg/L	0.0009	0.0005	0.05	Below MAC
Cobalt	Dissolved	mg/L	<0.0001	0.0001		
Copper	Dissolved	mg/L	0.002	0.001	1 AO; 2 MAC	Below AO
Lead	Dissolved	mg/L	<0.0001	0.0001	0.005	Below MAC
Selenium	Dissolved	mg/L	0.0003	0.0002	0.05	Below MAC
Strontium	Dissolved	mg/L	0.056	0.001	7.0	Below MAC
Uranium	Dissolved	mg/L	0.0012	0.0005	0.02	Below MAC
Zinc	Dissolved	mg/L	<0.001	0.001	5	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.1	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH			7.50	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	20.6			
Electrical Conductivity	at 25 °C	µS/cm	140	1		
Calcium	Dissolved	mg/L	16.7	0.2		
Calcium	Extractable	mg/L	17.3	0.2		
Magnesium	Dissolved	mg/L	4.8	0.2		
Magnesium	Extractable	mg/L	4.9	0.2		
Sodium	Dissolved	mg/L	4.5	0.4	200	Below AO
Sodium	Extractable	mg/L	4.5	0.4	200	Below AO
Potassium	Dissolved	mg/L	1.0	0.4		
Potassium	Extractable	mg/L	1.0	0.4		

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Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Iron	Extractable	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Manganese	Extractable	mg/L	0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	5.6	0.4	250	Below AO
Fluoride		mg/L	<0.05	0.05	1.5	Below MAC
Nitrate - N		mg/L	0.53	0.01	10	Below MAC
Nitrite - N		mg/L	<0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	0.53	0.01	10	Below MAC
Sulfate (SO4)	Extractable	mg/L	5.3	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	68			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	56	5		
Total Dissolved Solids		mg/L	72	1	500	Below AO
Hardness	Dissolved as CaCO3	mg/L	62			
Hardness	as CaCO3	mg/L	63			
Ionic Balance		%	105			
Mono-Aromatic Hydrocarbons - Water						
Benzene		µg/L	<0.5	0.5	5	Below MAC
Ethylbenzene		µg/L	<0.5	0.5	1.6 AO; 140 MAC	Below AO
Methyl t-Butyl Ether		µg/L	<0.5	0.5	15	Below AO
Styrene		µg/L	<0.5	0.5		
Toluene		µg/L	<0.5	0.5	24 AO; 60 MAC	Below AO
Total Xylenes (m,p,o)		µg/L	<0.5	0.5	20 AO; 90 MAC	Below AO
4-Bromofluorobenzene	Surrogate	%	97.5	80-120		
Dibromofluoromethane	Surrogate	%	104	80-120		
Toluene-d8	Surrogate	%	107	80-120		
Organochlorine Pesticides in Water						
Aldrin		µg/L	<0.5	0.5	0.7	Below MAC
BHC (alpha isomer)		µg/L	<0.5	0.5		
BHC (beta isomer)		µg/L	<0.5	0.5		
BHC (delta isomer)		µg/L	<0.5	0.5		
Captan		µg/L	<3.0	3.0		
Chlorbenside		µg/L	<0.5	0.5		
Chlordane-cis		µg/L	<0.5	0.5		

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Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organochlorine Pesticides in Water - Continued						
Chlordane-trans		µg/L	<0.5	0.5		
Chlorfenson		µg/L	<0.5	0.5		
Chlorothalonil		µg/L	<0.5	0.5		
Chlorthal-dimethyl		µg/L	<0.5	0.5		
DDD-o,p'		µg/L	<0.5	0.5		
DDD-p,p'		µg/L	<0.5	0.5		
DDE-o,p'		µg/L	<0.5	0.5		
DDE-p,p'		µg/L	<0.5	0.5		
DDT-o,p'		µg/L	<0.5	0.5		
DDT-p,p'		µg/L	<0.5	0.5		
Dichlofluanid		µg/L	<0.5	0.5		
Dieldrin		µg/L	<0.5	0.5		
Endosulfan I		µg/L	<0.5	0.5		
Endosulfan II		µg/L	<0.5	0.5		
Endosulfan sulfate		µg/L	<0.5	0.5		
Endrin		µg/L	<0.5	0.5		
Folpet		µg/L	<3.0	3.0		
Heptachlor		µg/L	<0.5	0.5		
Heptachlor Epoxide		µg/L	<0.5	0.5		
Hexachlorobenzene		µg/L	<0.5	0.5		
Lindane		µg/L	<0.5	0.5		
Methoxychlor		µg/L	<0.5	0.5		
Mirex		µg/L	<0.5	0.5		
Permethrin-cis		µg/L	<0.5	0.5		
Permethrin-trans		µg/L	<0.5	0.5		
Procymidone		µg/L	<0.5	0.5		
Propachlor		µg/L	<0.5	0.5		
Quintozene		µg/L	<0.5	0.5		
Tecnazene		µg/L	<0.5	0.5		
Tetradifon		µg/L	<0.5	0.5		
Tolyfluanid		µg/L	<0.5	0.5		
Triadimefon		µg/L	<0.5	0.5		
Vinclozolin		µg/L	<0.5	0.5		
Organochlorine Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	114	50-140		
Organophosphate Pesticides in Water						
Aspon		µg/L	<0.5	0.5		
Azinphos-ethyl		µg/L	<0.5	0.5		
Azinphos-methyl		µg/L	<0.5	0.5	20	Below MAC

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Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Organophosphate Pesticides in Water - Continued						
Bromophos		µg/L	<0.5	0.5		
Bromophos-ethyl		µg/L	<0.5	0.5		
Carbophenothion		µg/L	<0.5	0.5		
Chlorfenvinphos		µg/L	<0.5	0.5		
Chlormephos		µg/L	<0.5	0.5		
Chlorpyrifos		µg/L	<0.5	0.5	90	Below MAC
Chlorpyrifos-methyl		µg/L	<0.5	0.5		
Chlorthiophos		µg/L	<0.5	0.5		
Cyanophos		µg/L	<0.5	0.5		
Demeton		µg/L	<0.5	0.5		
Diazinon		µg/L	<0.10	0.10	20	Below MAC
Dichlofenthion		µg/L	<0.5	0.5		
Dimethoate		µg/L	<0.5	0.5	20	Below MAC
Disulfoton		µg/L	<0.5	0.5		
Ethion		µg/L	<0.5	0.5		
Fenchlorphos		µg/L	<0.5	0.5		
Fenitrothion		µg/L	<0.5	0.5		
Fenthion		µg/L	<0.5	0.5		
Fonofos		µg/L	<0.5	0.5		
Isofenphos		µg/L	<0.5	0.5		
Malaoxon		µg/L	<0.5	0.5		
Malathion		µg/L	<0.1	0.1	190	Below MAC
Methyl Parathion		µg/L	<0.5	0.5		
Mevinphos		µg/L	<0.5	0.5		
Parathion		µg/L	<0.5	0.5		
Phorate		µg/L	<0.5	0.5	2	Below MAC
Phosalone		µg/L	<0.5	0.5		
Phosmet		µg/L	<0.5	0.5		
Phosphamidon		µg/L	<0.5	0.5		
Pirimiphos-ethyl		µg/L	<0.5	0.5		
Pirimiphos-methyl		µg/L	<0.5	0.5		
Pyrazophos		µg/L	<0.5	0.5		
Quinalophos		µg/L	<0.5	0.5		
Sulfotep		µg/L	<0.5	0.5		
Terbufos		µg/L	<0.5	0.5	1	Below MAC
Tetrachlorvinphos		µg/L	<0.5	0.5		
Organophosphate Pesticides -Water- Surrogate Rec.						
TPP	Surrogate	%	114	50-140		

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Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Neutral Herbicides in Water					
Alachlor	µg/L	<0.5	0.5		
Benfluralin	µg/L	<0.5	0.5		
Butylate	µg/L	<0.5	0.5		
Chlorpropham	µg/L	<0.5	0.5		
Diallate	µg/L	<0.5	0.5		
Dichlobenil	µg/L	<0.5	0.5		
Diclofop-methyl	µg/L	<0.1	0.1	9	Below MAC
Diphenylamine	µg/L	<0.5	0.5		
Eptam (EPTC)	µg/L	<0.5	0.5		
Ethalfluralin	µg/L	<0.5	0.5		
Fenoxaprop-ethyl	µg/L	<0.5	0.5		
Fluazifop-p-butyl	µg/L	<0.5	0.5		
Hexazinone	µg/L	<0.5	0.5		
Metalaxyl	µg/L	<0.5	0.5		
Metolachlor	µg/L	<0.5	0.5	50	Below MAC
Metribuzin	µg/L	<0.5	0.5	80	Below MAC
Pirimicarb	µg/L	<0.5	0.5		
Profluralin	µg/L	<0.5	0.5		
Prometryn	µg/L	<0.5	0.5		
Propazine	µg/L	<0.5	0.5		
Propyzamide	µg/L	<0.5	0.5		
Quizalofop-ethyl	µg/L	<0.5	0.5		
Simetryn	µg/L	<0.5	0.5		
Terbuthylazine	µg/L	<0.5	0.5		
Terbutryn	µg/L	<0.5	0.5		
Triallate	µg/L	<0.10	0.10		
Trifluralin	µg/L	<0.1	0.1	45	Below MAC
Neutral Herbicides - Water - Surrogate Recovery					
TPP Surrogate	%	114	50-140		
Multiresidue Pesticides in Water					
Bifenox	µg/L	<0.5	0.5		
Carboxin	µg/L	<0.5	0.5		
Deltamethrin	µg/L	<0.5	0.5		
Fenamiphos	µg/L	<0.5	0.5		
Fenvalerate	µg/L	<0.5	0.5		
Methoprene	µg/L	<0.5	0.5		
Norflurazon	µg/L	<0.5	0.5		
Pebulate	µg/L	<0.5	0.5		
Prometon	µg/L	<0.5	0.5		

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Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Multiresidue Pesticides in Water - Continued						
Propargite		µg/L	<0.5	0.5		
Propiconazole		µg/L	<0.5	0.5		
Terbacil		µg/L	<0.5	0.5		
Vernolate		µg/L	<0.5	0.5		
Carbamates in Water						
3-Hydroxycarbofuran		µg/L	<0.1	0.1		
Aldicarb		µg/L	<0.1	0.1	9	Below MAC
Aldicarb sulfone		µg/L	<0.1	0.1		
Aldicarb sulfoxide		µg/L	<0.1	0.1		
Bendiocarb		µg/L	<0.1	0.1		
BPMC		µg/L	<0.1	0.1		
Carbaryl		µg/L	<0.1	0.1	90	Below MAC
Carbofuran		µg/L	<0.1	0.1	90	Below MAC
Imidacloprid		µg/L	<0.1	0.1		
Methiocarb		µg/L	<0.1	0.1		
Methomyl		µg/L	<0.1	0.1		
Oxamyl		µg/L	<0.1	0.1		
Promecarb		µg/L	<0.1	0.1		
Propoxur		µg/L	<0.1	0.1		
Carbamates in Water - Surrogate Recovery						
BDMC	Surrogate	%	62.1	50-140		
Multiresidue Pesticides - Water - Surrogate Rec.						
TPP	Surrogate	%	114	50-140		

Approved by:

Carol Nam, Dipl. T.
Quality Assurance Coordinator

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

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Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alkalinity, pH, and EC in water	APHA	*	Alkalinity - Titration Method, 2320 B	Mar 22, 2022	Element Edmonton - Roper Road
Alkalinity, pH, and EC in water	APHA	*	Conductivity, 2510 B	Mar 22, 2022	Element Edmonton - Roper Road
Alkalinity, pH, and EC in water	APHA	*	pH - Electrometric Method, 4500-H+ B	Mar 22, 2022	Element Edmonton - Roper Road
Anions (Routine) by Ion Chromatography	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Mar 23, 2022	Element Edmonton - Roper Road
Approval-Edmonton	APHA		Checking Correctness of Analyses, 1030 E	Mar 24, 2022	Element Edmonton - Roper Road
BTEX-VPH - Water (MS) (VAN)	BCELM	*	Volatile Hydrocarbons in Water by GC/FID, VH Water	Mar 18, 2022	Element Vancouver
Carbamates - Water	US EPA	*	N-methylcarbamates by High Performance Liquid Chromatography (HPLC), 8318	Mar 22, 2022	Element Calgary
Chloride in Water	APHA	*	Automated Ferricyanide Method, 4500-Cl- E	Mar 23, 2022	Element Edmonton - Roper Road
Colour (Apparent) in water	APHA	*	Visual Comparison Method, 2120 B	Mar 22, 2022	Element Edmonton - Roper Road
FV2 Pesticides - Water	JAOAC	*	Multi-Res Determination of Pesticides in FV by GC-MSD & LC, vol78	Mar 23, 2022	Element Calgary
Heterotrophic (Standard) Plate Count (Aerobic SP) - VAN	APHA		Enzyme Substrate Method, 9215 E	Mar 18, 2022	Element Vancouver
Mercury (Dissolved) in water	APHA	*	Cold Vapour Atomic Absorption Spectrometric Method, 3112 B	Mar 21, 2022	Element Edmonton - Roper Road
Mercury (Dissolved) in water	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Mar 21, 2022	Element Edmonton - Roper Road
Metals ICP-MS (Dissolved) in water	APHA/USEPA	*	Metals By Inductively Coupled Plasma/Mass Spectrometry, APHA 3125 B / USEPA 200.2, 200.8	Mar 23, 2022	Element Edmonton - Roper Road
Metals ICP-MS (Dissolved) in water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Mar 23, 2022	Element Edmonton - Roper Road
Metals Trace (Dissolved) in water	APHA		Hardness by Calculation, 2340 B	Mar 23, 2022	Element Edmonton - Roper Road
Metals Trace (Dissolved) in water	APHA	*	Inductively Coupled Plasma (ICP) Method, 3120 B	Mar 23, 2022	Element Edmonton - Roper Road
Metals Trace (Extractable) in water	APHA		Hardness by Calculation, 2340 B	Mar 23, 2022	Element Edmonton - Roper Road
Metals Trace (Extractable) in water	APHA	*	Inductively Coupled Plasma (ICP) Method, 3120 B	Mar 23, 2022	Element Edmonton - Roper Road
Neutral Herbicides - Water	US EPA	*	OC Pesticides by Gas Chromatography, 8081B	Mar 23, 2022	Element Calgary
Organochlorine Pesticides - Water	US EPA	*	OC Pesticides by Gas Chromatography, 8081B	Mar 23, 2022	Element Calgary
Organophosphate Pesticides - Water	US EPA	*	OP Compounds by GC: Capillary Column Technique, 8141B	Mar 21, 2022	Element Calgary
Sulfide in water	APHA	*	Gas Dialysis, Automated Methylene Blue	Mar 24, 2022	Element Edmonton - Roper

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Method Name	Reference		Method	Date Analysis Started	Location
Sulfide in water	APHA		Method, 4500-S2- E		Road
Total and E-Coli - Colilert - DW (VAN)	APHA		Enzyme Substrate Test, APHA 9223 B	Mar 18, 2022	Element Vancouver
Turbidity in Water	APHA	*	Turbidity - Nephelometric Method, 2130 B	Mar 22, 2022	Element Edmonton - Roper Road

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
APHA/USEPA	Standard Methods For Water/ Environmental Protection Agency
BCELM	B.C. Environmental Laboratory Manual
EPA	Environmental Protection Agency Test Methods - US
JAOAC	J. Assoc. Off. Anal. Chem.
US EPA	US Environmental Protection Agency Test Methods

Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

Comments:

- Mar 23, 2022 - Sample 1: Surrogate BDMC assigned to Carbamates - Water analysis does not meet acceptance criteria (50-140 %) due to possible matrix interference. The analytes in this method should be qualified.

Second Quarter Reporting

June 16, 2022

Element
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Report Transmission Cover Page

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Contact	Company	Address
Accounts Payable	**City of Delta**	4500 Clarence Taylor Crescent Delta, BC V4K 3E2 Phone: (604) 946-4141 Fax: (604) 946-3962 Email: accountspayable@delta.ca

Delivery	Format	Deliverables
Email - Single Report	PDF	Invoice

Contact	Company	Address
Mark MacDonald	**City of Delta**	5404 - 64 Street Delta, BC V4K 3M6 Phone: (604) 952-3406 Fax: (604) 946-4855 Email: mmacdonald@delta.ca

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	Invoice

Contact	Company	Address
Scott Bradshaw	**City of Delta**	5404 - 64 Street Delta, BC V4K 3M6 Phone: (604) 952-3406 Fax: (604) 946-4855 Email: sbradshaw@delta.ca

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	COR
Email - Single Report	PDF	Invoice

Notes To Clients:

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Analytical Report

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Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-1
Sample Date	June 10, 2022
Sample Time	09:00
Sample Location	
Sample Description	305 / Well #1 / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00013	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0042	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0052	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0025	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0025	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	<0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0005	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.10	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0030	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0074	0.00005		
Zinc	Extractable	mg/L	0.0008	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	1.05	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.89	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	276	1		
Calcium	Extractable	mg/L	28	0.01		
Iron	Extractable	mg/L	0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	11	0.02		
Manganese	Extractable	mg/L	0.008	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.1	0.04		
Silicon	Extractable	mg/L	12	0.005		
Sodium	Extractable	mg/L	8.0	0.1	200	Below AO

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4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-1
Sample Date	June 10, 2022
Sample Time	09:00
Sample Location	
Sample Description	305 / Well #1 / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	101	5		
Chloride	Dissolved	mg/L	12.6	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.06	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.23	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	10.1	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	113	1		
Total Dissolved Solids	Extractable	mg/L	169	1	500	Below AO

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Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-2
Sample Date	June 10, 2022
Sample Time	09:42
Sample Location	
Sample Description	307 / Well #3 / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.007	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00008	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0029	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.016	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0026	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0028	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00007	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.12	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0022	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0054	0.00005		
Zinc	Extractable	mg/L	0.0051	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.88	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	298	1		
Calcium	Extractable	mg/L	31	0.01		
Iron	Extractable	mg/L	0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	13	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.2	0.04		
Silicon	Extractable	mg/L	12	0.005		
Sodium	Extractable	mg/L	8.4	0.1	200	Below AO

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Analytical Report

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Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-2
Sample Date	June 10, 2022
Sample Time	09:42
Sample Location	
Sample Description	307 / Well #3 / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	119	5		
Chloride	Dissolved	mg/L	8.69	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.06	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.21	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	12.9	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	128	1		
Total Dissolved Solids	Extractable	mg/L	186	1	500	Below AO

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Sampled By: S. Bradshaw
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Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-3
Sample Date	June 10, 2022
Sample Time	09:20
Sample Location	
Sample Description	306 / Well #5 / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.052	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00015	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0037	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.095	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0018	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.015	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00072	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0032	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0061	0.00005		
Zinc	Extractable	mg/L	0.046	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.88	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	295	1		
Calcium	Extractable	mg/L	32	0.01		
Iron	Extractable	mg/L	0.006	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	12	0.02		
Manganese	Extractable	mg/L	0.010	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.3	0.04		
Silicon	Extractable	mg/L	12	0.005		
Sodium	Extractable	mg/L	8.2	0.1	200	Below AO

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V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-3
Sample Date	June 10, 2022
Sample Time	09:20
Sample Location	
Sample Description	306 / Well #5 / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	112	5		
Chloride	Dissolved	mg/L	12.1	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.05	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.96	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	12.4	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	132	1		
Total Dissolved Solids	Extractable	mg/L	184	1	500	Below AO

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Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-4
Sample Date	June 10, 2022
Sample Time	10:02
Sample Location	
Sample Description	329 / Reservoir / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.022	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00005	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0014	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0054	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.003	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00077	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0028	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00003	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.048	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0012	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0023	0.00005		
Zinc	Extractable	mg/L	0.0014	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.12	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.75	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	148	1		
Calcium	Extractable	mg/L	17	0.01		
Iron	Extractable	mg/L	0.005	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	4.5	0.02		
Manganese	Extractable	mg/L	0.004	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.89	0.04		
Silicon	Extractable	mg/L	5.2	0.005		
Sodium	Extractable	mg/L	4.3	0.1	200	Below AO

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Analytical Report

Bill To:	City of Delta	Project ID:		Lot ID:	**1577490**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Jun 10, 2022
	V4K 3E2	LSD:		Date Reported:	Jun 16, 2022
Attn:	Accounts Payable	P.O.:	22166056	Report Number:	2756826
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Reference Number	1577490-4
Sample Date	June 10, 2022
Sample Time	10:02
Sample Location	
Sample Description	329 / Reservoir / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	55	5		
Chloride	Dissolved	mg/L	5.79	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.05	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.40	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	5.1	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	61	1		
Total Dissolved Solids	Extractable	mg/L	86	1	500	Below AO

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Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-5
Sample Date	June 10, 2022
Sample Time	08:04
Sample Location	
Sample Description	225 / 88th St / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.027	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00004	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0009	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0052	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.002	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00053	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0057	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00003	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.036	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00076	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0015	0.00005		
Zinc	Extractable	mg/L	0.0030	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	1.0	1.0	0 per 100 mL	Above MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.65	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	116	1		
Calcium	Extractable	mg/L	14	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	3.1	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.59	0.04		
Silicon	Extractable	mg/L	3.8	0.005		
Sodium	Extractable	mg/L	3.5	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-5
Sample Date	June 10, 2022
Sample Time	08:04
Sample Location	
Sample Description	225 / 88th St / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	43	5		
Chloride	Dissolved	mg/L	4.63	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.06	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.26	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	3.3	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	48	1		
Total Dissolved Solids	Extractable	mg/L	67	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-6
Sample Date	June 10, 2022
Sample Time	07:38
Sample Location	
Sample Description	308 / Delview Hospital / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.031	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00004	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0010	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0075	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.003	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00058	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0093	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00026	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.038	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00081	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0016	0.00005		
Zinc	Extractable	mg/L	0.0054	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.65	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	118	1		
Calcium	Extractable	mg/L	14	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	3.2	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.63	0.04		
Silicon	Extractable	mg/L	3.8	0.005		
Sodium	Extractable	mg/L	3.4	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-6
Sample Date	June 10, 2022
Sample Time	07:38
Sample Location	
Sample Description	308 / Delview Hospital / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	44	5		
Chloride	Dissolved	mg/L	4.72	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.05	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.27	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	3.5	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	49	1		
Total Dissolved Solids	Extractable	mg/L	68	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-7
Sample Date	June 10, 2022
Sample Time	08:32
Sample Location	
Sample Description	220 / 112th St / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.021	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00005	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0014	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0052	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00077	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0010	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.049	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0012	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0024	0.00005		
Zinc	Extractable	mg/L	0.0006	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.72	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	148	1		
Calcium	Extractable	mg/L	16	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	4.5	0.02		
Manganese	Extractable	mg/L	0.004	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.92	0.04		
Silicon	Extractable	mg/L	5.2	0.005		
Sodium	Extractable	mg/L	4.1	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22166056
Proj. Acct. code:

Lot ID: **1577490**
Control Number:
Date Received: Jun 10, 2022
Date Reported: Jun 16, 2022
Report Number: 2756826

Reference Number	1577490-7
Sample Date	June 10, 2022
Sample Time	08:32
Sample Location	
Sample Description	220 / 112th St / 3.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	55	5		
Chloride	Dissolved	mg/L	5.90	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.05	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.41	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	4.9	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	59	1		
Total Dissolved Solids	Extractable	mg/L	86	1	500	Below AO

Approved by:

Max Hewitt
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

Bill To:	City of Delta	Project ID:		Lot ID:	**1577490**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Jun 10, 2022
	V4K 3E2	LSD:		Date Reported:	Jun 16, 2022
Attn:	Accounts Payable	P.O.:	22166056	Report Number:	2756826
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	*	Alkalinity - Titration Method, 2320 B	Jun 13, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	Conductivity, 2510 B	Jun 13, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	pH - Electrometric Method, 4500-H+ B	Jun 13, 2022	Element Vancouver
Anions by IEC in water (VAN)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Jun 13, 2022	Element Vancouver
Heterotrophic (Standard) Plate Count (Aerobic SP) - VAN	APHA		Enzyme Substrate Method, 9215 E	Jun 10, 2022	Element Vancouver
Mercury Low Level (Total) in water (VAN)	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Jun 13, 2022	Element Vancouver
Metals SemiTrace (Extractable) in water (VAN)	US EPA	*	Metals & Trace Elements by ICP-AES, 6010C	Jun 13, 2022	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA		Enzyme Substrate Test, APHA 9223 B	Jun 10, 2022	Element Vancouver
Trace Metals (extractable) in Water (VAN)	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Jun 13, 2022	Element Vancouver
True Color in water (VAN)	APHA	*	Spectrophotometric - Single Wavelength Method, 2120 C	Jun 13, 2022	Element Vancouver
Turbidity - Water (VAN)	APHA	*	Turbidity - Nephelometric Method, 2130 B	Jun 13, 2022	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

Third Quarter Reporting

October 4, 2022

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Report Transmission Cover Page

Bill To:	City of Delta 4500 Clarence Taylor Crescent Delta, BC, Canada V4K 3E2	Project ID:		Lot ID:	**1601378**
		Project Name:	Well Water Test	Control Number:	
		Project Location:		Date Received:	Sep 23, 2022
		LSD:		Date Reported:	Oct 4, 2022
Attn:	Accounts Payable	P.O.:	22195169	Report Number:	2790842
Sampled By:	Scott Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Contact	Company	Address
Accounts Payable	**City of Delta**	4500 Clarence Taylor Crescent Delta, BC V4K 3E2 Phone: (604) 946-4141 Fax: (604) 946-3962 Email: accountspayable@delta.ca

Delivery	Format	Deliverables
Email - Single Deliverable	PDF	Invoice

Contact	Company	Address
Scott Bradshaw	**City of Delta**	5404 - 64 Street Delta, BC V4K 3M6 Phone: (604) 952-3406 Fax: (604) 946-4855 Email: sbradshaw@delta.ca

Delivery	Format	Deliverables
Email - Merge Deliverables	PDF	COC / Test Report
Email - Single Deliverable	PDF	COA
Email - Single Deliverable	PDF	COR
Email - Single Deliverable	PDF	Invoice

Notes To Clients:

- Oct 04, 2022 - The combined analyses of water samples 1601378-1,2,3,4,5,6,7 are below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality.

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-1
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	305 / Well #1 / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.002	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00013	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0041	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0052	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0025	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0017	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0005	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.099	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0028	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0073	0.00005		
Zinc	Extractable	mg/L	0.0016	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.73	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	280	1		
Calcium	Extractable	mg/L	29	0.01		
Iron	Extractable	mg/L	0.005	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	10	0.02		
Manganese	Extractable	mg/L	0.008	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.1	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	8.3	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-1
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	305 / Well #1 / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	99	5		
Chloride	Dissolved	mg/L	11.6	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.03	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.33	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	11.3	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	113	1		
Total Dissolved Solids	Extractable	mg/L	167	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-2
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	307 / Well #3 / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.003	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00011	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0028	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0096	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0026	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0024	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00007	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0022	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0056	0.00005		
Zinc	Extractable	mg/L	0.0018	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.76	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	304	1		
Calcium	Extractable	mg/L	31	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	12	0.02		
Manganese	Extractable	mg/L	0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.2	0.04		
Silicon	Extractable	mg/L	12	0.005		
Sodium	Extractable	mg/L	8.6	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-2
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	307 / Well #3 / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	116	5		
Chloride	Dissolved	mg/L	8.75	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.03	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.23	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	13.6	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	127	1		
Total Dissolved Solids	Extractable	mg/L	183	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-3
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	306 / Well #5 / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.002	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00014	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0036	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0099	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0019	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0069	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00040	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0032	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0062	0.00005		
Zinc	Extractable	mg/L	0.0057	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	8.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.76	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	301	1		
Calcium	Extractable	mg/L	31	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	12	0.02		
Manganese	Extractable	mg/L	0.009	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.3	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	8.4	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-3
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	306 / Well #5 / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	110	5		
Chloride	Dissolved	mg/L	11.7	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.03	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.05	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	13.3	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	126	1		
Total Dissolved Solids	Extractable	mg/L	180	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-4
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	329 / Reservoir / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.037	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00007	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0014	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0049	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00083	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0022	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00005	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.044	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0013	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0024	0.00005		
Zinc	Extractable	mg/L	0.0017	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.14	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.65	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	151	1		
Calcium	Extractable	mg/L	14	0.01		
Iron	Extractable	mg/L	0.023	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	4.6	0.02		
Manganese	Extractable	mg/L	0.006	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.97	0.04		
Silicon	Extractable	mg/L	5.1	0.005		
Sodium	Extractable	mg/L	8.1	0.1	200	Below AO

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Analytical Report

Bill To:	City of Delta	Project ID:		Lot ID:	**1601378**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Sep 23, 2022
	V4K 3E2	LSD:		Date Reported:	Oct 4, 2022
Attn:	Accounts Payable	P.O.:	22195169	Report Number:	2790842
Sampled By:	Scott Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Reference Number	1601378-4
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	329 / Reservoir / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	55	5		
Chloride	Dissolved	mg/L	5.55	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.02	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.45	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	5.4	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	53	1		
Total Dissolved Solids	Extractable	mg/L	87	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-5
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	225 / 88th St / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.036	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00011	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0009	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0044	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.003	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00003	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00067	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0035	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00014	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.032	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00088	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0014	0.00005		
Zinc	Extractable	mg/L	0.0091	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.17	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.57	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	122	1		
Calcium	Extractable	mg/L	10	0.01		
Iron	Extractable	mg/L	0.023	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	3.2	0.02		
Manganese	Extractable	mg/L	0.005	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.66	0.04		
Silicon	Extractable	mg/L	3.8	0.005		
Sodium	Extractable	mg/L	8.1	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-5
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	225 / 88th St / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	45	5		
Chloride	Dissolved	mg/L	4.49	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.32	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	3.9	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	38	1		
Total Dissolved Solids	Extractable	mg/L	69	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-6
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	308 / Delview Hospital / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.040	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00007	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0010	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0042	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.003	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00058	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0096	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00038	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.032	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00087	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0017	0.00005		
Zinc	Extractable	mg/L	0.0056	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.13	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.57	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	122	1		
Calcium	Extractable	mg/L	10	0.01		
Iron	Extractable	mg/L	0.020	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	3.3	0.02		
Manganese	Extractable	mg/L	0.004	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.74	0.04		
Silicon	Extractable	mg/L	3.8	0.005		
Sodium	Extractable	mg/L	8.1	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-6
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	308 / Delview Hospital / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	45	5		
Chloride	Dissolved	mg/L	4.51	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.02	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.32	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	4.0	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	39	1		
Total Dissolved Solids	Extractable	mg/L	70	1	500	Below AO

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Analytical Report

Bill To: City of Delta
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Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-7
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	220 / 112th St / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.034	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00007	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0014	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0050	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00079	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0018	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00008	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0003	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.046	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0012	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0024	0.00005		
Zinc	Extractable	mg/L	0.0011	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.14	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.62	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	151	1		
Calcium	Extractable	mg/L	13	0.01		
Iron	Extractable	mg/L	0.026	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	4.6	0.02		
Manganese	Extractable	mg/L	0.006	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.00	0.04		
Silicon	Extractable	mg/L	5.0	0.005		
Sodium	Extractable	mg/L	8.1	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-7
Sample Date	September 23, 2022
Sample Time	NA
Sample Location	
Sample Description	220 / 112th St / 4.4 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	55	5		
Chloride	Dissolved	mg/L	5.56	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.02	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.45	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	5.4	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	52	1		
Total Dissolved Solids	Extractable	mg/L	87	1	500	Below AO

Approved by:

Abhishek Suryawanshi
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-2	1601378-3	1601378-4
Sample Date	Sep 23, 2022	Sep 23, 2022	Sep 23, 2022
Sample Time	NA	NA	NA
Sample Location			
Sample Description	307 / Well #3 / 4.4 °C	306 / Well #5 / 4.4 °C	329 / Reservoir / 4.4 °C
Matrix	Drinking Water	Drinking Water	Drinking Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Extractable						
Aluminum	Extractable	mg/L	0.003	0.002	0.037	0.001
Antimony	Extractable	mg/L	0.00011	0.00014	0.00007	0.00002
Arsenic	Extractable	mg/L	0.0028	0.0036	0.0014	0.0001
Barium	Extractable	mg/L	0.0096	0.0099	0.0049	0.0001
Boron	Extractable	mg/L	0.008	0.008	0.004	0.002
Cadmium	Extractable	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Chromium	Extractable	mg/L	0.0026	0.0019	0.00083	0.00005
Copper	Extractable	mg/L	0.0024	0.0069	0.0022	0.0005
Lead	Extractable	mg/L	0.00007	0.00040	0.00005	0.00001
Selenium	Extractable	mg/L	0.0006	0.0006	0.0002	0.0002
Strontium	Extractable	mg/L	0.11	0.11	0.044	0.0001
Uranium	Extractable	mg/L	0.0022	0.0032	0.0013	0.00001
Vanadium	Extractable	mg/L	0.0056	0.0062	0.0024	0.00005
Zinc	Extractable	mg/L	0.0018	0.0057	0.0017	0.0005
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg	Field Pres, digest as total Hg	Field Pres, digest as total Hg	
Mercury	Total	mg/L	<0.00001	<0.00001	0.00001	0.00001
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	<1.0	1.0
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	<1.0	1.0
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	8.0	<2.0	2
Physical and Aggregate Properties						
Colour	True	Colour units	<5	<5	<5	5
Turbidity		NTU	<0.10	<0.10	0.14	0.1
Routine Water						
pH - Holding Time			Exceeded	Exceeded	Exceeded	
pH	at 25 °C		7.76	7.76	7.65	0.01
Electrical Conductivity		µS/cm at 25 °C	304	301	151	1
Calcium	Extractable	mg/L	31	31	14	0.01
Iron	Extractable	mg/L	<0.004	<0.004	0.023	0.004
Magnesium	Extractable	mg/L	12	12	4.6	0.02
Manganese	Extractable	mg/L	0.001	0.009	0.006	0.001
Potassium	Extractable	mg/L	2.2	2.3	0.97	0.04
Silicon	Extractable	mg/L	12	11	5.1	0.005
Sodium	Extractable	mg/L	8.6	8.4	8.1	0.1
T-Alkalinity	as CaCO3	mg/L	116	110	55	5

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-2	1601378-3	1601378-4
Sample Date	Sep 23, 2022	Sep 23, 2022	Sep 23, 2022
Sample Time	NA	NA	NA
Sample Location			
Sample Description	307 / Well #3 / 4.4 °C	306 / Well #5 / 4.4 °C	329 / Reservoir / 4.4 °C
Matrix	Drinking Water	Drinking Water	Drinking Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Routine Water - Continued						
Chloride	Dissolved	mg/L	8.75	11.7	5.55	0.05
Fluoride	Dissolved	mg/L	0.03	0.03	0.02	0.01
Nitrate - N	Dissolved	mg/L	1.23	1.05	0.45	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	13.6	13.3	5.4	0.1
Hardness	as CaCO3 (extractable)	mg/L	127	126	53	1
Total Dissolved Solids	Extractable	mg/L	183	180	87	1

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-5	1601378-6	1601378-7
Sample Date	Sep 23, 2022	Sep 23, 2022	Sep 23, 2022
Sample Time	NA	NA	NA
Sample Location			
Sample Description	225 / 88th St / 4.4 °C	308 / Delview Hospital / 4.4 °C	220 / 112th St / 4.4 °C
Matrix	Drinking Water	Drinking Water	Drinking Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Extractable						
Aluminum	Extractable	mg/L	0.036	0.040	0.034	0.001
Antimony	Extractable	mg/L	0.00011	0.00007	0.00007	0.00002
Arsenic	Extractable	mg/L	0.0009	0.0010	0.0014	0.0001
Barium	Extractable	mg/L	0.0044	0.0042	0.0050	0.0001
Boron	Extractable	mg/L	0.003	0.003	0.004	0.002
Cadmium	Extractable	mg/L	0.00003	<0.00001	<0.00001	0.00001
Chromium	Extractable	mg/L	0.00067	0.00058	0.00079	0.00005
Copper	Extractable	mg/L	0.0035	0.0096	0.0018	0.0005
Lead	Extractable	mg/L	0.00014	0.00038	0.00008	0.00001
Selenium	Extractable	mg/L	<0.0002	<0.0002	0.0003	0.0002
Strontium	Extractable	mg/L	0.032	0.032	0.046	0.0001
Uranium	Extractable	mg/L	0.00088	0.00087	0.0012	0.00001
Vanadium	Extractable	mg/L	0.0014	0.0017	0.0024	0.00005
Zinc	Extractable	mg/L	0.0091	0.0056	0.0011	0.0005
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg	Field Pres, digest as total Hg	Field Pres, digest as total Hg	
Mercury	Total	mg/L	<0.00001	<0.00001	0.00001	0.00001
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	<1.0	1.0
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	<1.0	<1.0	1.0
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	<2.0	<2.0	2
Physical and Aggregate Properties						
Colour	True	Colour units	<5	<5	<5	5
Turbidity		NTU	0.17	0.13	0.14	0.1
Routine Water						
pH - Holding Time			Exceeded	Exceeded	Exceeded	
pH	at 25 °C		7.57	7.57	7.62	0.01
Electrical Conductivity		µS/cm at 25 °C	122	122	151	1
Calcium	Extractable	mg/L	10	10	13	0.01
Iron	Extractable	mg/L	0.023	0.020	0.026	0.004
Magnesium	Extractable	mg/L	3.2	3.3	4.6	0.02
Manganese	Extractable	mg/L	0.005	0.004	0.006	0.001
Potassium	Extractable	mg/L	0.66	0.74	1.00	0.04
Silicon	Extractable	mg/L	3.8	3.8	5.0	0.005
Sodium	Extractable	mg/L	8.1	8.1	8.1	0.1
T-Alkalinity	as CaCO3	mg/L	45	45	55	5

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Reference Number	1601378-5	1601378-6	1601378-7
Sample Date	Sep 23, 2022	Sep 23, 2022	Sep 23, 2022
Sample Time	NA	NA	NA
Sample Location			
Sample Description	225 / 88th St / 4.4 °C	308 / Delview Hospital / 4.4 °C	220 / 112th St / 4.4 °C
Matrix	Drinking Water	Drinking Water	Drinking Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Routine Water - Continued						
Chloride	Dissolved	mg/L	4.49	4.51	5.56	0.05
Fluoride	Dissolved	mg/L	0.01	0.02	0.02	0.01
Nitrate - N	Dissolved	mg/L	0.32	0.32	0.45	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	3.9	4.0	5.4	0.1
Hardness	as CaCO3 (extractable)	mg/L	38	39	52	1
Total Dissolved Solids	Extractable	mg/L	69	70	87	1

Approved by:

Abhishek Suryawanshi
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: Scott Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22195169
Proj. Acct. code:

Lot ID: **1601378**
Control Number:
Date Received: Sep 23, 2022
Date Reported: Oct 4, 2022
Report Number: 2790842

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	*	Alkalinity - Titration Method, 2320 B	Sep 24, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	Conductivity, 2510 B	Sep 24, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	pH - Electrometric Method, 4500-H+ B	Sep 24, 2022	Element Vancouver
Anions by IEC in water (VAN)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Sep 23, 2022	Element Vancouver
Heterotrophic (Standard) Plate Count (Aerobic SP) - VAN	APHA		Enzyme Substrate Method, 9215 E	Sep 23, 2022	Element Vancouver
Mercury Low Level (Total) in water (VAN)	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Sep 30, 2022	Element Vancouver
Metals SemiTrace (Extractable) in water (VAN)	US EPA	*	Metals & Trace Elements by ICP-AES, 6010C	Sep 27, 2022	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA		Enzyme Substrate Test, APHA 9223 B	Sep 23, 2022	Element Vancouver
Trace Metals (extractable) in Water (VAN)	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Sep 27, 2022	Element Vancouver
True Color in water (VAN)	APHA	*	Spectrophotometric - Single Wavelength Method, 2120 C	Sep 23, 2022	Element Vancouver
Turbidity - Water (VAN)	APHA	*	Turbidity - Nephelometric Method, 2130 B	Sep 26, 2022	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

Comments:

- Oct 04, 2022 - The combined analyses of water samples 1601378-1,2,3,4,5,6,7 are below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality.

The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted.

Fourth Quarter Reporting

December 22, 2022

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Report Transmission Cover Page

Bill To:	City of Delta 4500 Clarence Taylor Crescent Delta, BC, Canada V4K 3E2	Project ID:		Lot ID:	**1622130**
		Project Name:	Well Water Test	Control Number:	
		Project Location:		Date Received:	Dec 16, 2022
		LSD:		Date Reported:	Dec 22, 2022
Attn:	Accounts Payable	P.O.:	22222407	Report Number:	2828935
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Contact	Company	Address
Accounts Payable	**City of Delta**	4500 Clarence Taylor Crescent Delta, BC V4K 3E2 Phone: (604) 946-4141 Fax: (604) 946-3962 Email: accountspayable@delta.ca

Delivery	Format	Deliverables
Email - Single Deliverable	PDF	Invoice

Contact	Company	Address
Scott Bradshaw	**City of Delta**	5404 - 64 Street Delta, BC V4K 3M6 Phone: (604) 952-3406 Fax: (604) 946-4855 Email: sbradshaw@delta.ca

Delivery	Format	Deliverables
Email - Merge Deliverables	PDF	COC / Test Report
Email - Single Deliverable	PDF	COA
Email - Single Deliverable	PDF	COR
Email - Single Deliverable	PDF	Invoice

Notes To Clients:

- Dec 22, 2022 - The analysis of water sample 1622130-1,2,3,4,5,6,7 are below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality for the parameters tested.

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-1
Sample Date	December 16, 2022
Sample Time	07:16
Sample Location	
Sample Description	305 Well / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00015	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0042	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0049	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.008	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0023	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0027	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00011	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0005	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.093	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0032	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0071	0.00005		
Zinc	Extractable	mg/L	0.0007	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.77	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	265	1		
Calcium	Extractable	mg/L	27	0.01		
Iron	Extractable	mg/L	0.007	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	10	0.02		
Manganese	Extractable	mg/L	0.007	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.2	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	8.2	0.1	200	Below AO

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Analytical Report

Bill To:	City of Delta	Project ID:		Lot ID:	**1622130**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Dec 16, 2022
	V4K 3E2	LSD:		Date Reported:	Dec 22, 2022
Attn:	Accounts Payable	P.O.:	22222407	Report Number:	2828935
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Reference Number	1622130-1
Sample Date	December 16, 2022
Sample Time	07:16
Sample Location	
Sample Description	305 Well / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	100	5		
Chloride	Dissolved	mg/L	11.7	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.34	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	11.9	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	110	1		
Total Dissolved Solids	Extractable	mg/L	168	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-2
Sample Date	December 16, 2022
Sample Time	07:35
Sample Location	
Sample Description	306 Well 5 / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	<0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00014	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0036	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0098	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.007	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0019	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0050	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00038	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0035	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0059	0.00005		
Zinc	Extractable	mg/L	0.0063	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.75	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	288	1		
Calcium	Extractable	mg/L	30	0.01		
Iron	Extractable	mg/L	0.005	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	11	0.02		
Manganese	Extractable	mg/L	0.011	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.3	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	8.3	0.1	200	Below AO

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Analytical Report

Bill To:	City of Delta	Project ID:		Lot ID:	**1622130**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Dec 16, 2022
	V4K 3E2	LSD:		Date Reported:	Dec 22, 2022
Attn:	Accounts Payable	P.O.:	22222407	Report Number:	2828935
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Reference Number	1622130-2
Sample Date	December 16, 2022
Sample Time	07:35
Sample Location	
Sample Description	306 Well 5 / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	112	5		
Chloride	Dissolved	mg/L	12.2	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.10	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	13.7	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	120	1		
Total Dissolved Solids	Extractable	mg/L	179	1	500	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-3
Sample Date	December 16, 2022
Sample Time	07:51
Sample Location	
Sample Description	307 Well 3 / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.002	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00009	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0028	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0099	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.007	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.0026	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0023	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00012	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0005	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0023	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0054	0.00005		
Zinc	Extractable	mg/L	0.0015	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.79	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	287	1		
Calcium	Extractable	mg/L	30	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	12	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.4	0.04		
Silicon	Extractable	mg/L	12	0.005		
Sodium	Extractable	mg/L	8.7	0.1	200	Below AO

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Analytical Report

Bill To:	City of Delta	Project ID:		Lot ID:	**1622130**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Dec 16, 2022
	V4K 3E2	LSD:		Date Reported:	Dec 22, 2022
Attn:	Accounts Payable	P.O.:	22222407	Report Number:	2828935
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Reference Number	1622130-3
Sample Date	December 16, 2022
Sample Time	07:51
Sample Location	
Sample Description	307 Well 3 / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	118	5		
Chloride	Dissolved	mg/L	8.93	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.28	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	13.9	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	126	1		
Total Dissolved Solids	Extractable	mg/L	185	1	500	Below AO

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Analytical Report

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Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-4
Sample Date	December 16, 2022
Sample Time	08:07
Sample Location	
Sample Description	Reservoir 329 / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.017	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00007	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0016	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0059	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00093	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0010	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00002	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0003	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.053	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0015	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0027	0.00005		
Zinc	Extractable	mg/L	0.0007	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.11	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.63	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	157	1		
Calcium	Extractable	mg/L	17	0.01		
Iron	Extractable	mg/L	0.009	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	4.8	0.02		
Manganese	Extractable	mg/L	0.006	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.1	0.04		
Silicon	Extractable	mg/L	5.6	0.005		
Sodium	Extractable	mg/L	4.5	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-4
Sample Date	December 16, 2022
Sample Time	08:07
Sample Location	
Sample Description	Reservoir 329 / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	58	5		
Chloride	Dissolved	mg/L	6.45	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.59	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	6.5	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	62	1		
Total Dissolved Solids	Extractable	mg/L	93	1	500	Below AO

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Analytical Report

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Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-5
Sample Date	December 16, 2022
Sample Time	09:15
Sample Location	
Sample Description	225 (88th) / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.035	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00006	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0011	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0054	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00063	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0015	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00004	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.039	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00097	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0018	0.00005		
Zinc	Extractable	mg/L	0.0022	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.13	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.53	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	122	1		
Calcium	Extractable	mg/L	15	0.01		
Iron	Extractable	mg/L	0.009	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	3.4	0.02		
Manganese	Extractable	mg/L	0.007	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.79	0.04		
Silicon	Extractable	mg/L	4.4	0.005		
Sodium	Extractable	mg/L	3.7	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-5
Sample Date	December 16, 2022
Sample Time	09:15
Sample Location	
Sample Description	225 (88th) / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	46	5		
Chloride	Dissolved	mg/L	5.08	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.44	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	4.6	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	51	1		
Total Dissolved Solids	Extractable	mg/L	74	1	500	Below AO

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Analytical Report

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Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-6
Sample Date	December 16, 2022
Sample Time	08:52
Sample Location	
Sample Description	308 (D.Hosp) / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.021	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00006	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0011	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0052	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00062	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.012	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00074	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.040	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00100	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0017	0.00005		
Zinc	Extractable	mg/L	0.0029	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.43	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	124	1		
Calcium	Extractable	mg/L	14	0.01		
Iron	Extractable	mg/L	0.007	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	3.5	0.02		
Manganese	Extractable	mg/L	0.003	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	0.83	0.04		
Silicon	Extractable	mg/L	4.6	0.005		
Sodium	Extractable	mg/L	3.8	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-6
Sample Date	December 16, 2022
Sample Time	08:52
Sample Location	
Sample Description	308 (D.Hosp) / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	46	5		
Chloride	Dissolved	mg/L	5.18	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.45	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	4.8	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	50	1		
Total Dissolved Solids	Extractable	mg/L	75	1	500	Below AO

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E: info.vancouver@element.com
W: www.element.com

Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-7
Sample Date	December 16, 2022
Sample Time	08:33
Sample Location	
Sample Description	220 (112) / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.017	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00007	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0016	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0060	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.005	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00089	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0008	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00003	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.053	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.0015	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.0026	0.00005		
Zinc	Extractable	mg/L	0.0006	0.0005	5.0	Below AO
Metals Total						
Digestion	Preparation		Field Pres, digest as total Hg			
Mercury	Total	mg/L	<0.00001	0.00001	0.001	Below MAC
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.11	0.1	0.1/0.3/1.0 OG	
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.58	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	157	1		
Calcium	Extractable	mg/L	17	0.01		
Iron	Extractable	mg/L	0.005	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	4.8	0.02		
Manganese	Extractable	mg/L	0.006	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.1	0.04		
Silicon	Extractable	mg/L	5.5	0.005		
Sodium	Extractable	mg/L	4.5	0.1	200	Below AO

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Analytical Report

Bill To: City of Delta
4500 Clarence Taylor Crescent
Delta, BC, Canada
V4K 3E2
Attn: Accounts Payable
Sampled By: S. Bradshaw
Company: City of Delta

Project ID:
Project Name: Well Water Test
Project Location:
LSD:
P.O.: 22222407
Proj. Acct. code:

Lot ID: **1622130**
Control Number:
Date Received: Dec 16, 2022
Date Reported: Dec 22, 2022
Report Number: 2828935

Reference Number	1622130-7
Sample Date	December 16, 2022
Sample Time	08:33
Sample Location	
Sample Description	220 (112) / Heavy Metals and Arsenic / 3.3°C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
T-Alkalinity	as CaCO3	mg/L	59	5		
Chloride	Dissolved	mg/L	6.47	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.58	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	6.5	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	62	1		
Total Dissolved Solids	Extractable	mg/L	93	1	500	Below AO

Approved by:

Rachel Eden , B. Sc.
Business Development Associate

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

Bill To:	City of Delta	Project ID:		Lot ID:	**1622130**
	4500 Clarence Taylor Crescent	Project Name:	Well Water Test	Control Number:	
	Delta, BC, Canada	Project Location:		Date Received:	Dec 16, 2022
	V4K 3E2	LSD:		Date Reported:	Dec 22, 2022
Attn:	Accounts Payable	P.O.:	22222407	Report Number:	2828935
Sampled By:	S. Bradshaw	Proj. Acct. code:			
Company:	City of Delta				

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	*	Alkalinity - Titration Method, 2320 B	Dec 16, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	Conductivity, 2510 B	Dec 16, 2022	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	pH - Electrometric Method, 4500-H+ B	Dec 16, 2022	Element Vancouver
Anions by IEC in water (VAN)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Dec 16, 2022	Element Vancouver
Heterotrophic (Standard) Plate Count (Aerobic SP) - VAN	APHA		Enzyme Substrate Method, 9215 E	Dec 16, 2022	Element Vancouver
Mercury Low Level (Total) in water (VAN)	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Dec 20, 2022	Element Vancouver
Metals SemiTrace (Extractable) in water (VAN)	US EPA	*	Metals & Trace Elements by ICP-AES, 6010C	Dec 17, 2022	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA		Enzyme Substrate Test, APHA 9223 B	Dec 16, 2022	Element Vancouver
Trace Metals (extractable) in Water (VAN)	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Dec 19, 2022	Element Vancouver
True Color in water (VAN)	APHA	*	Spectrophotometric - Single Wavelength Method, 2120 C	Dec 16, 2022	Element Vancouver
Turbidity - Water (VAN)	APHA	*	Turbidity - Nephelometric Method, 2130 B	Dec 19, 2022	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

Comments:

- Dec 22, 2022 - The analysis of water sample 1622130-1,2,3,4,5,6,7 are below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality for the parameters tested.

The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

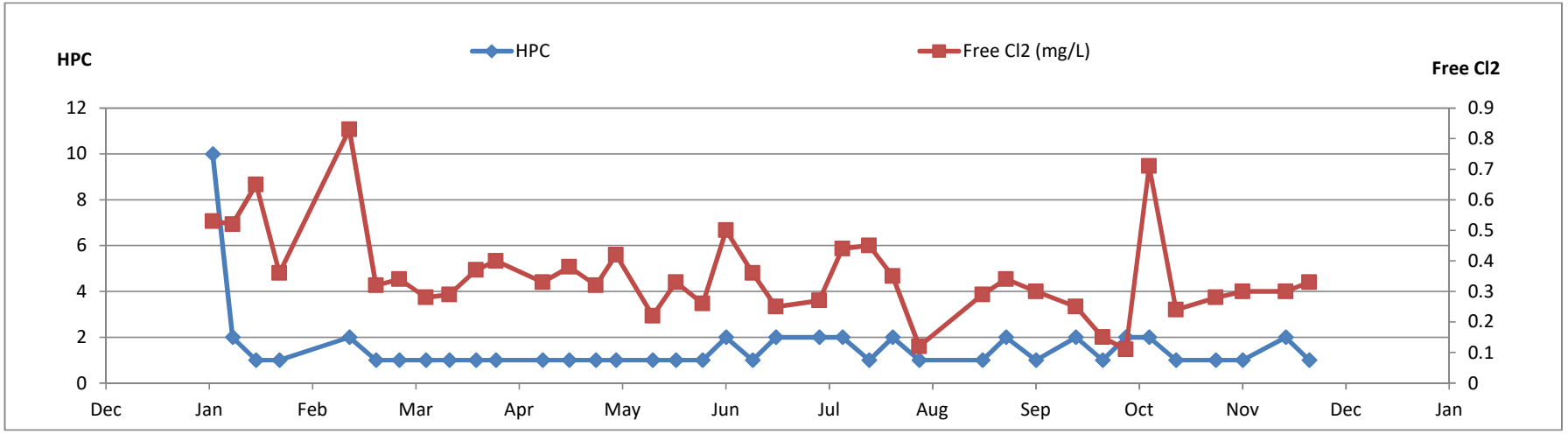
Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted.

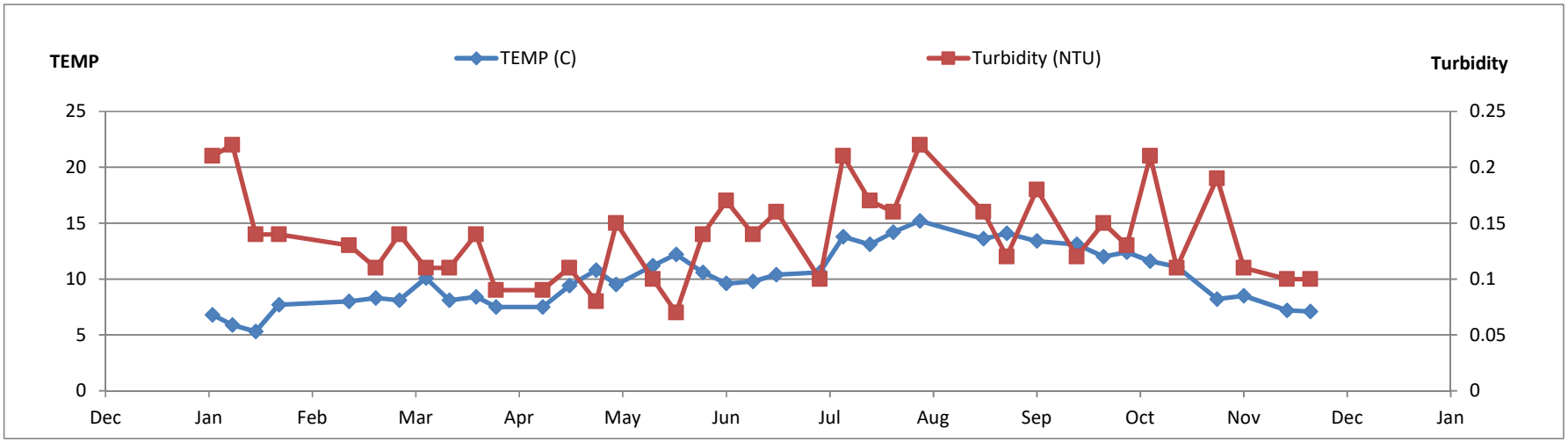
Appendix 8

Delta Water Distribution System

Microbiological Test Results

Sample Site DmDel 220
5860 112 Street - Ladner





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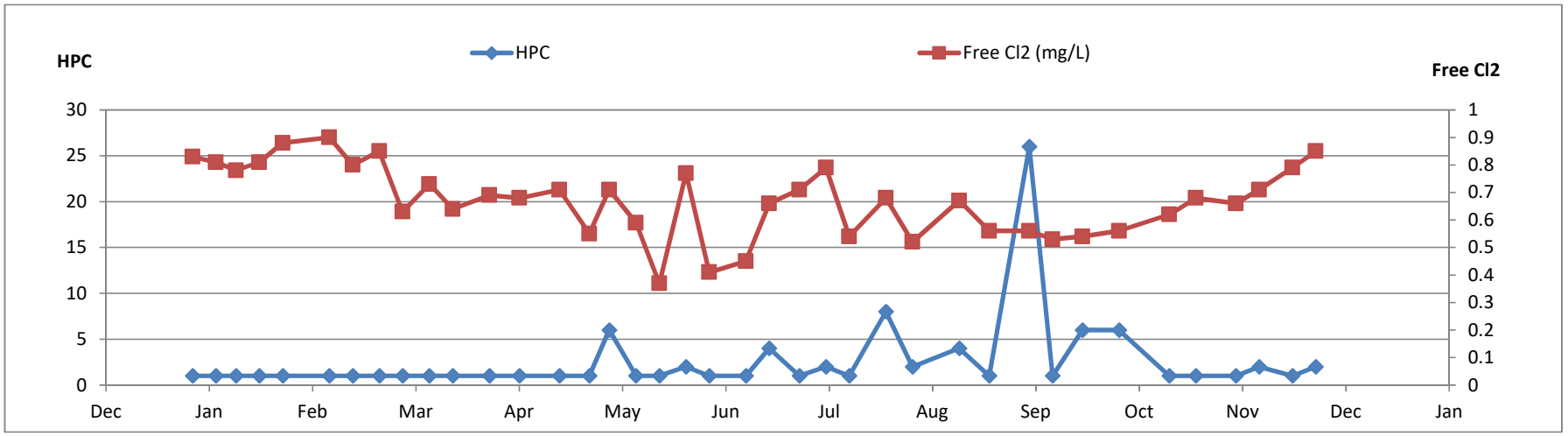
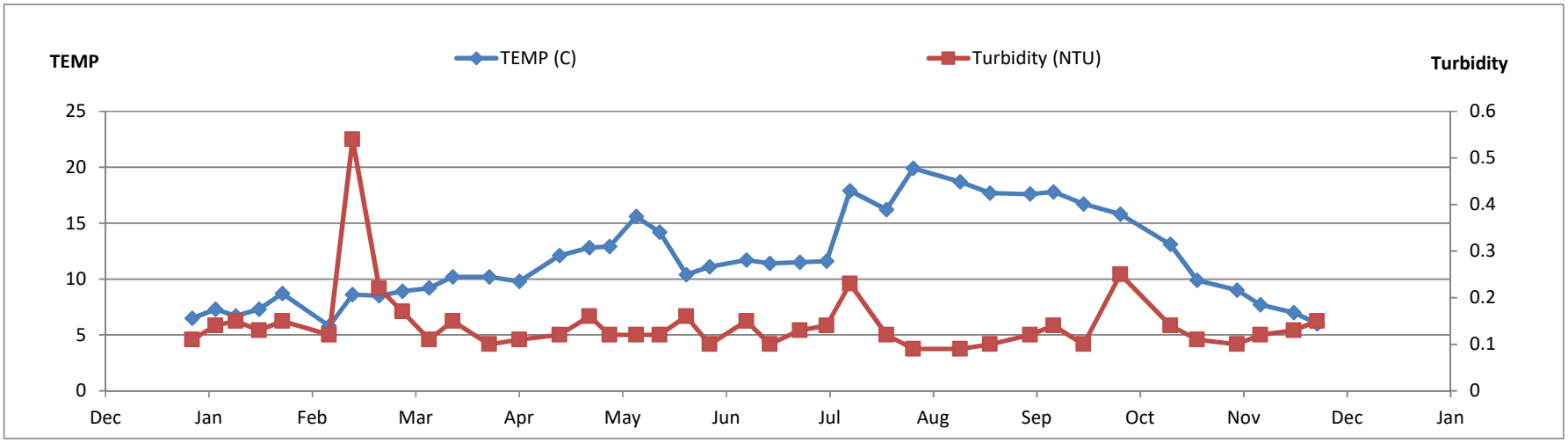
4802 42A Avenue - Ladner





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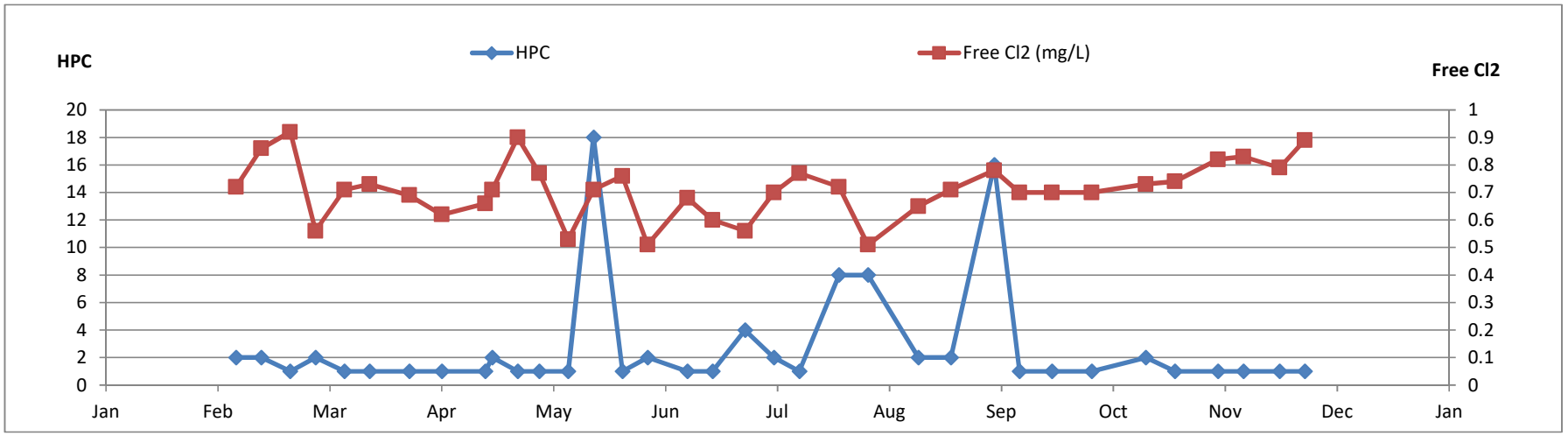
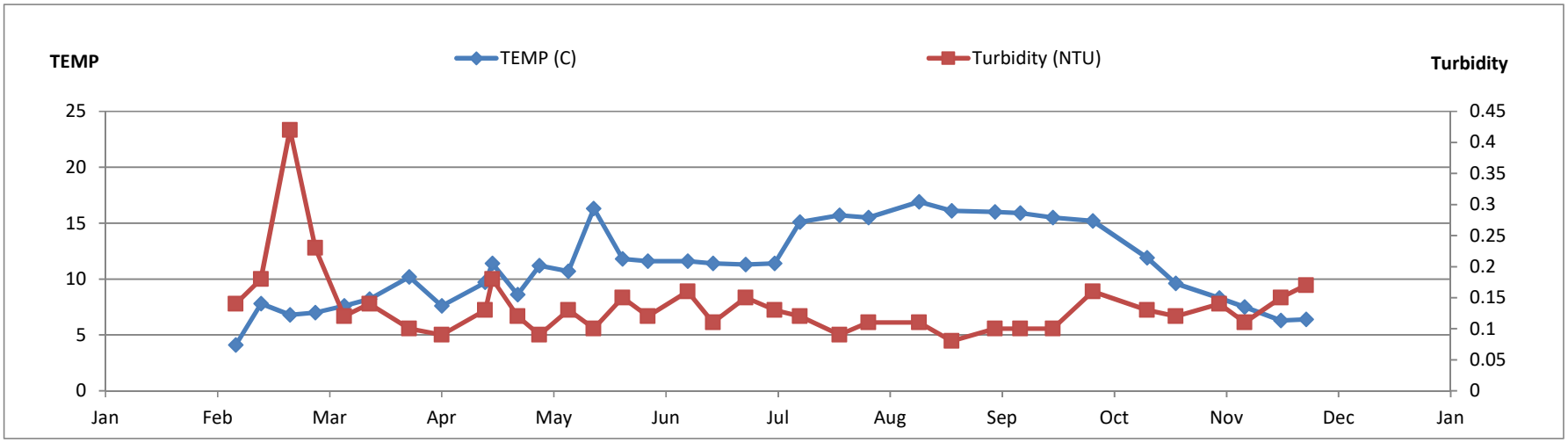
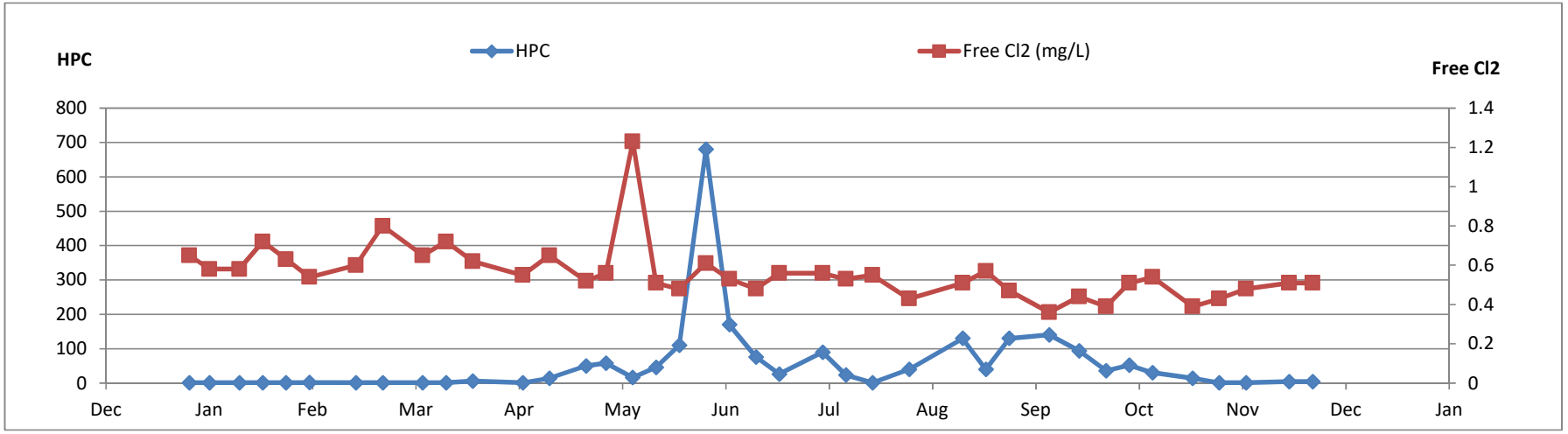
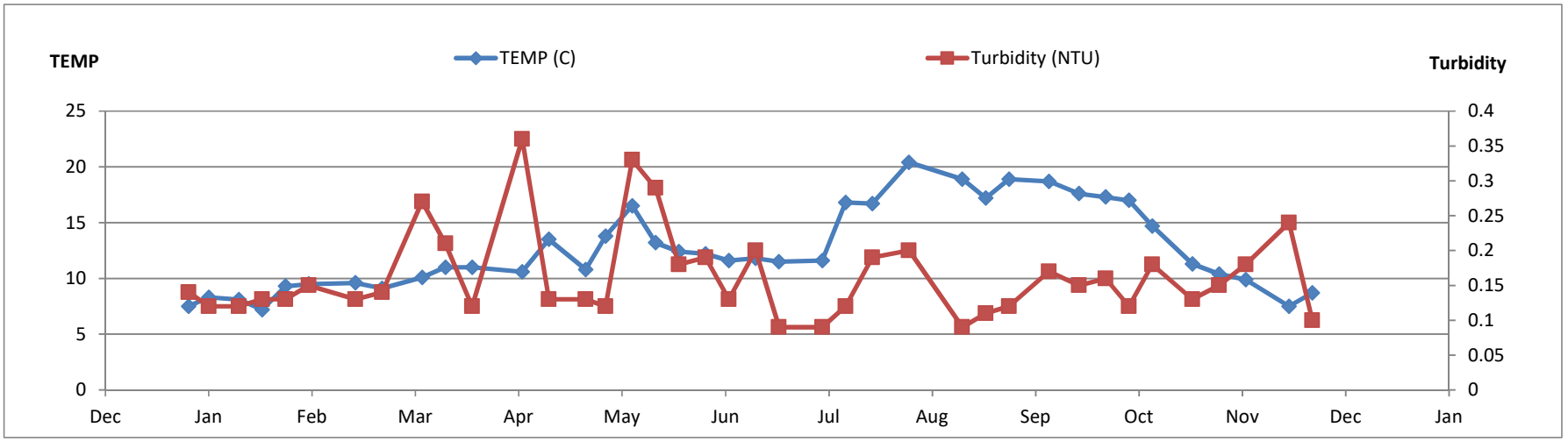
4734 51 Street - Ladner



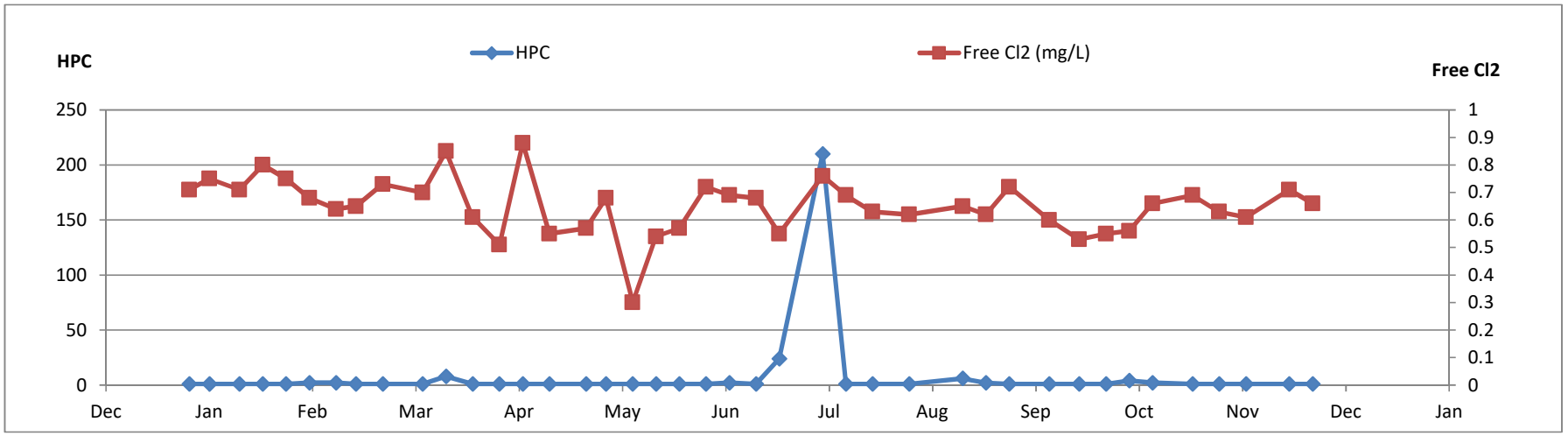


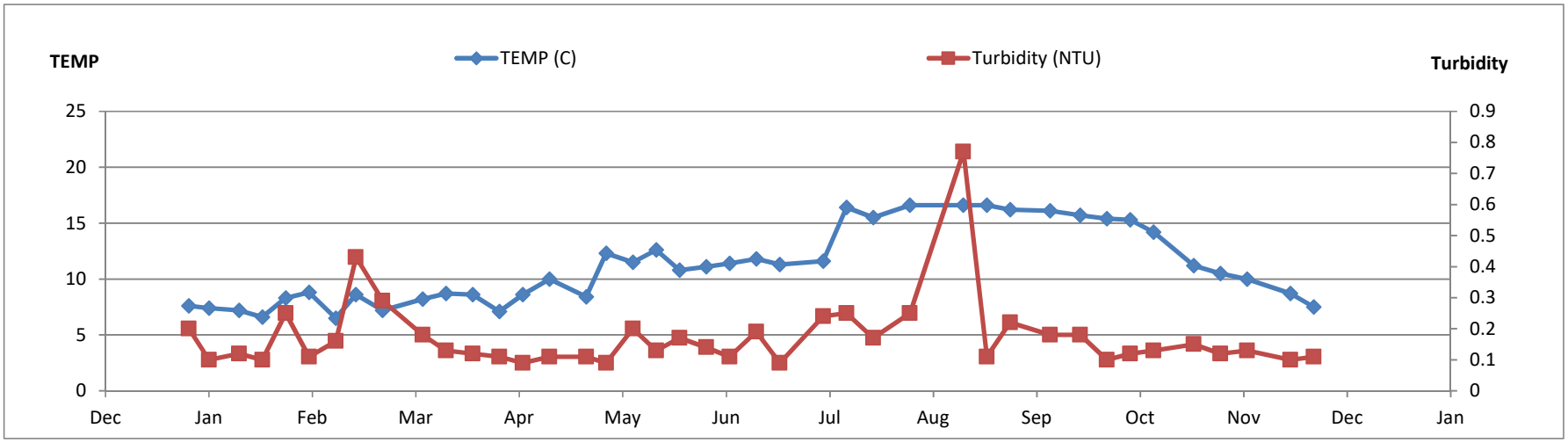
Sample Site DmDel 223
#10 Centennial Parkway - Tsawwassen





Sample Site DmDel 224
5575 9 Avenue - Tsawwassen





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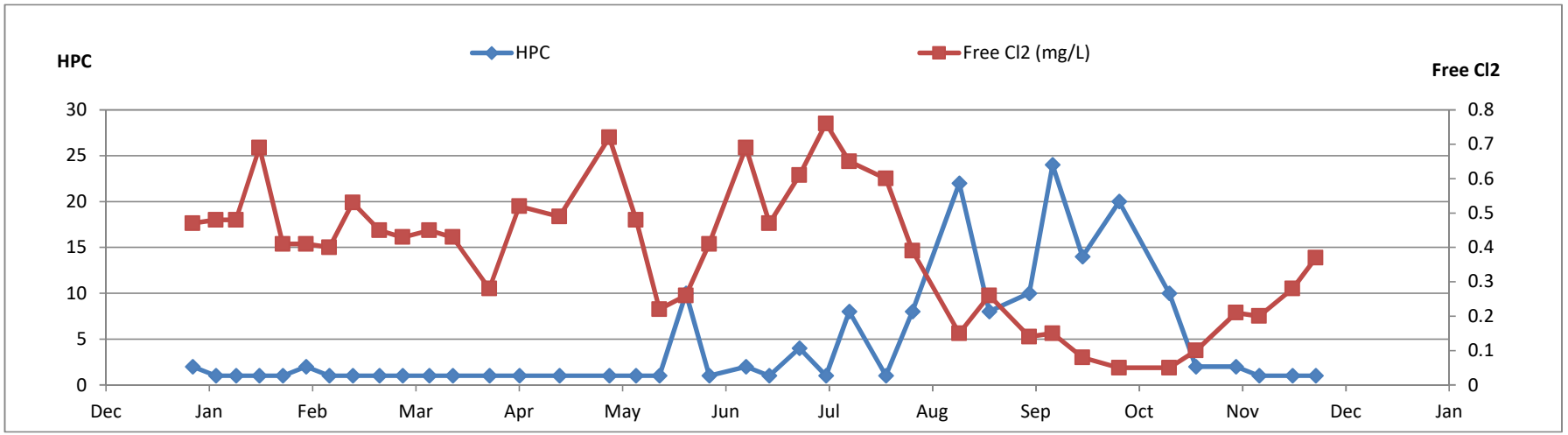
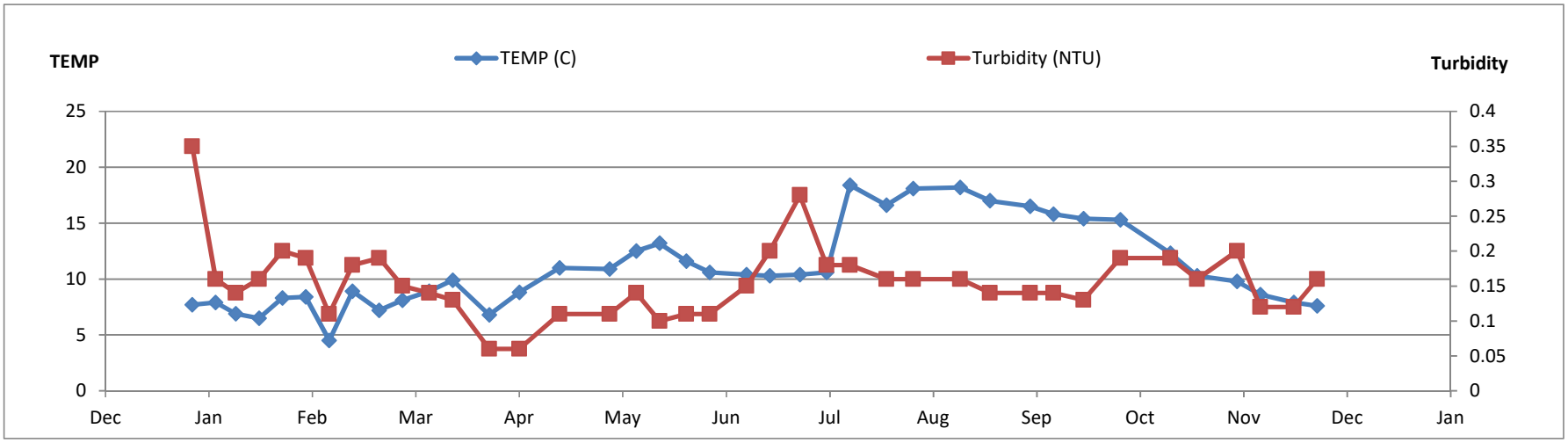
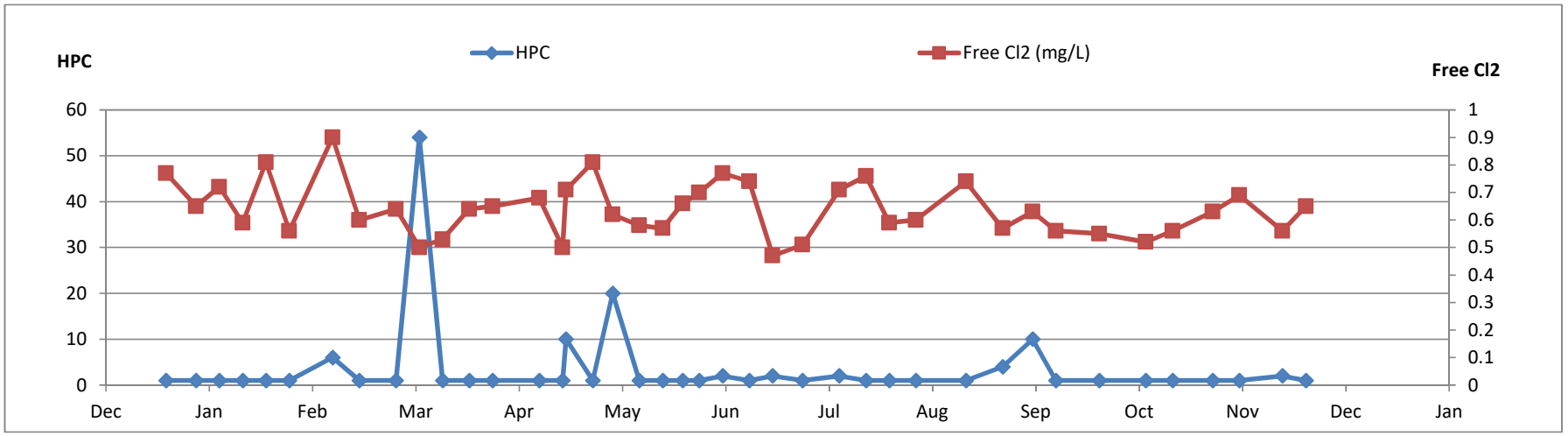
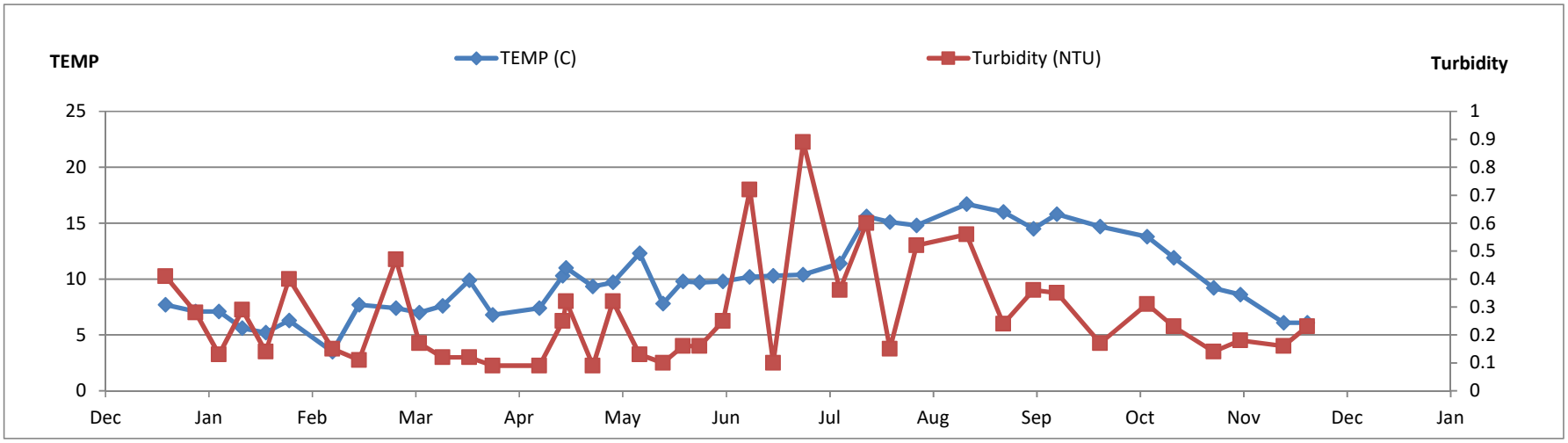
3706 88 Street - Ladner





Sample Site DmDel 227
6487 Sunshine Drive - North Delta





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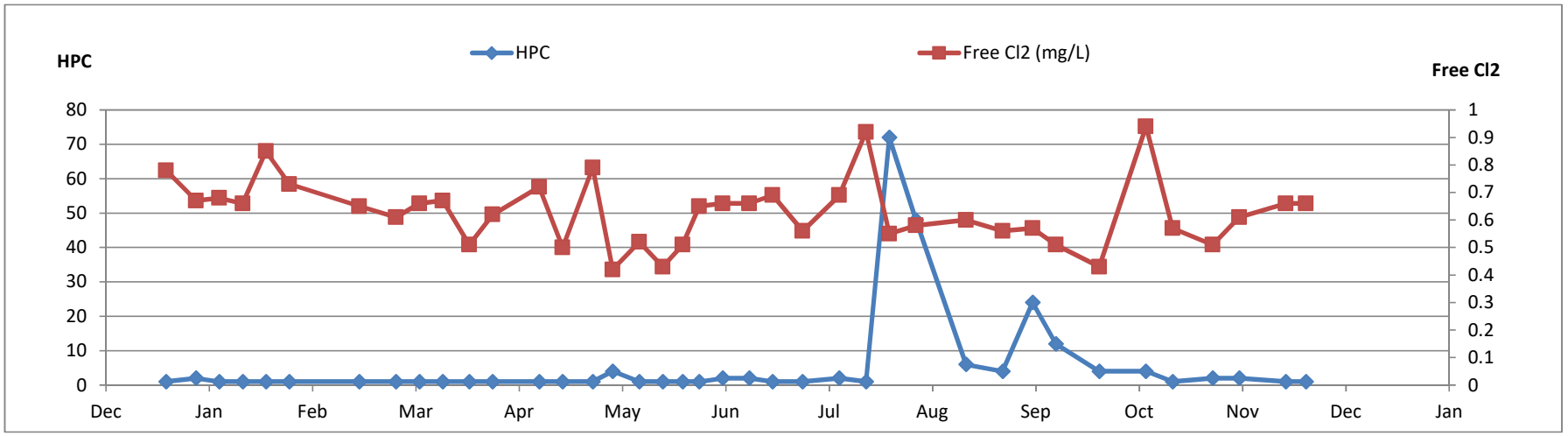
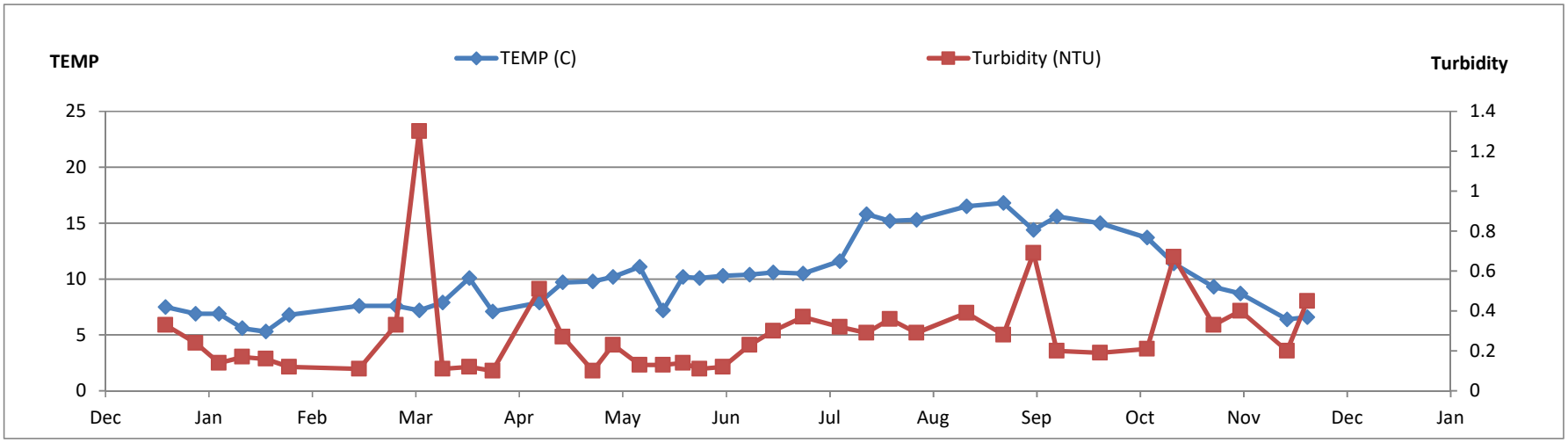
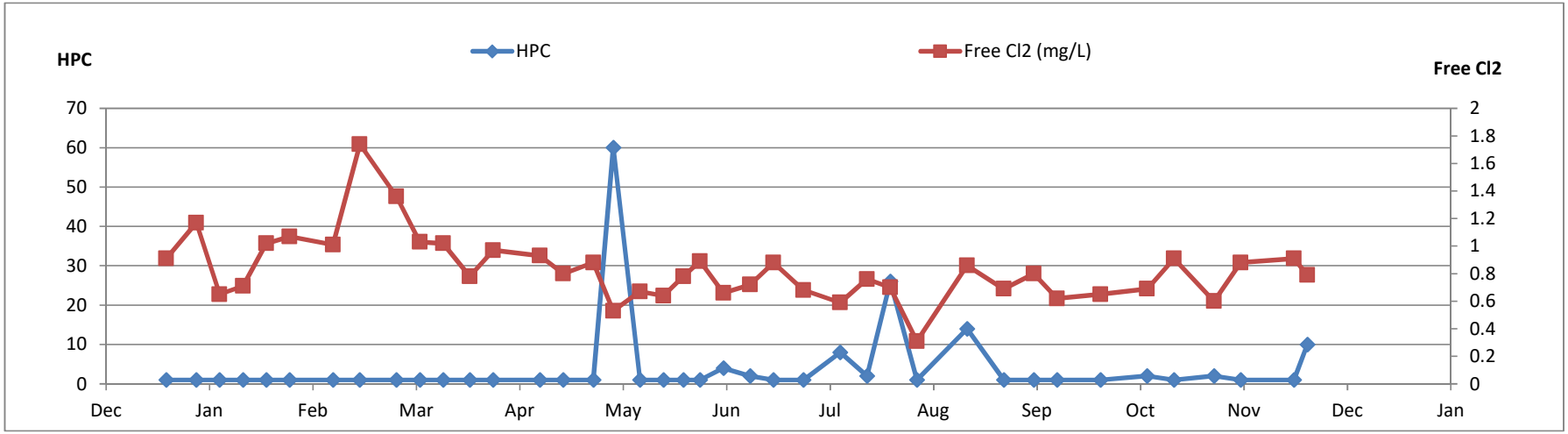
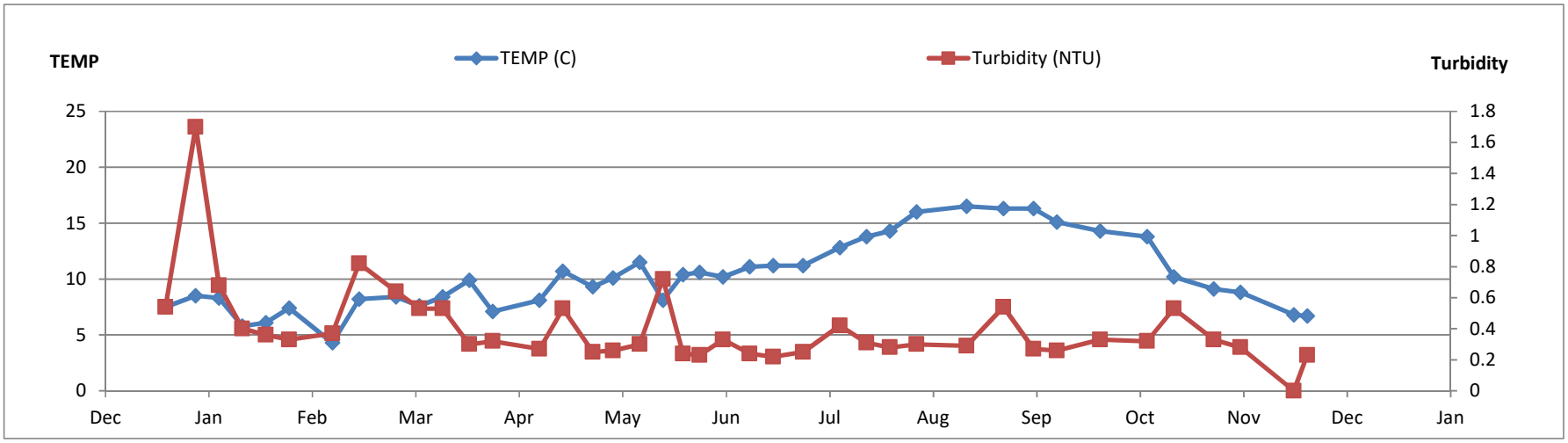
6603 Cabeldu Crescent - North Delta



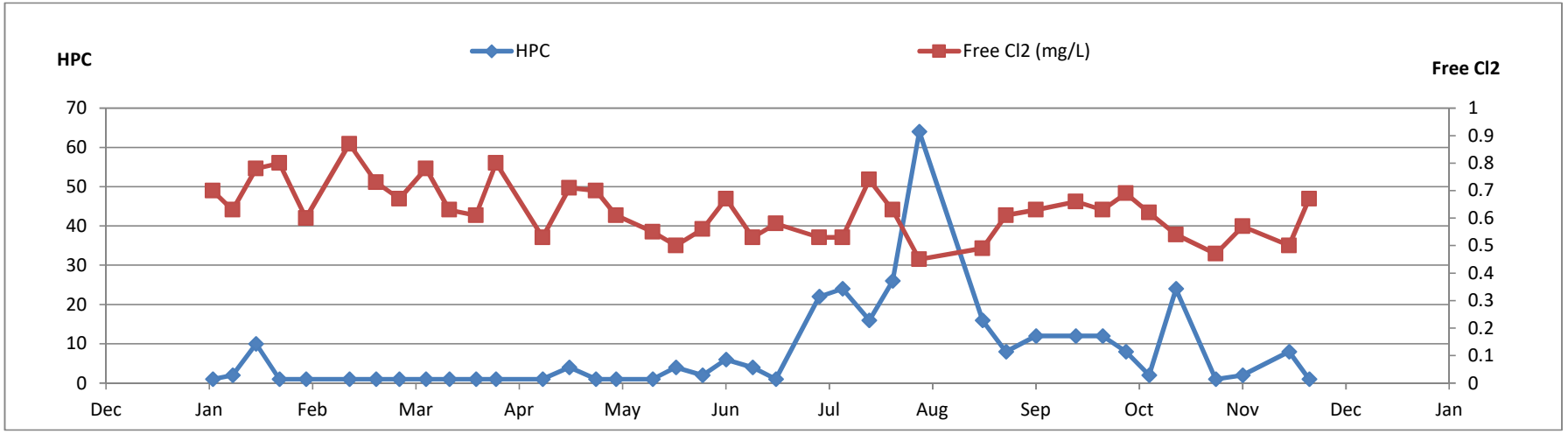


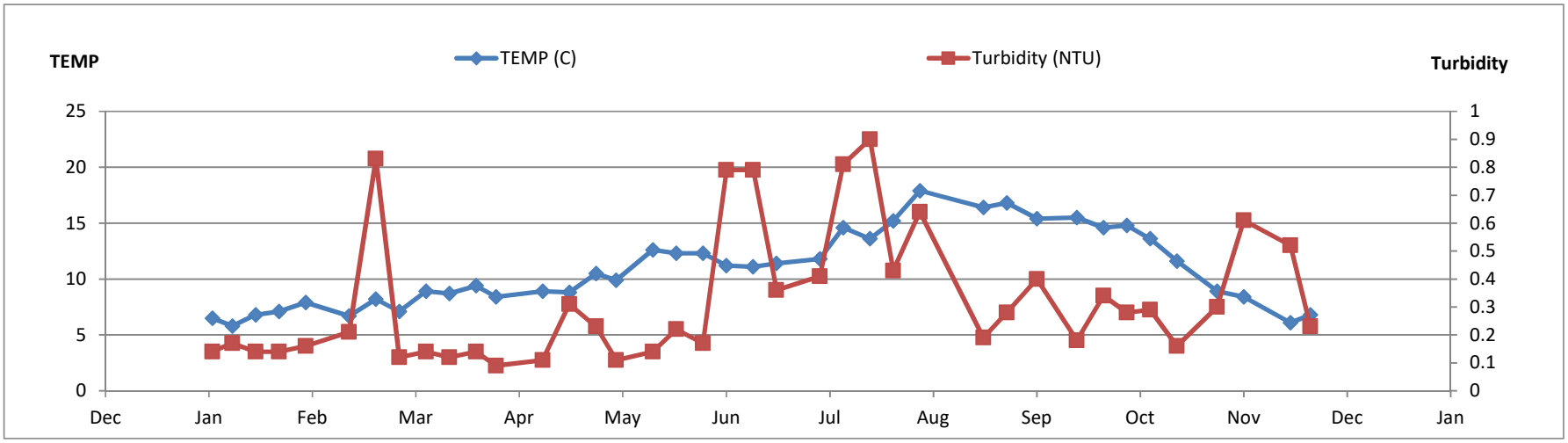
Sample Site DmDel 229
726 Chester Road - Annacis Island



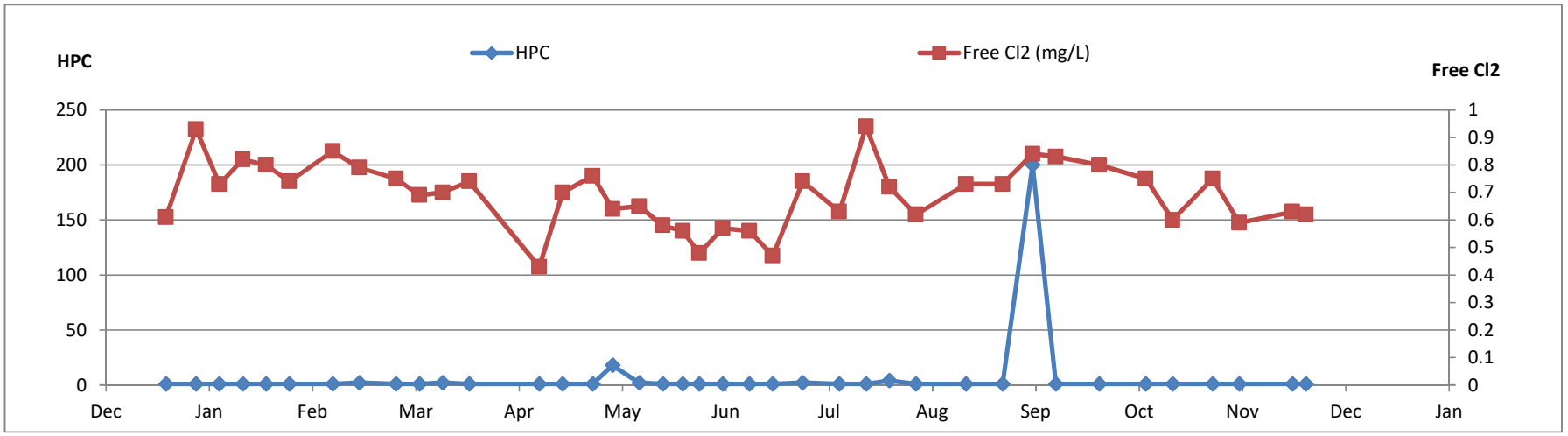


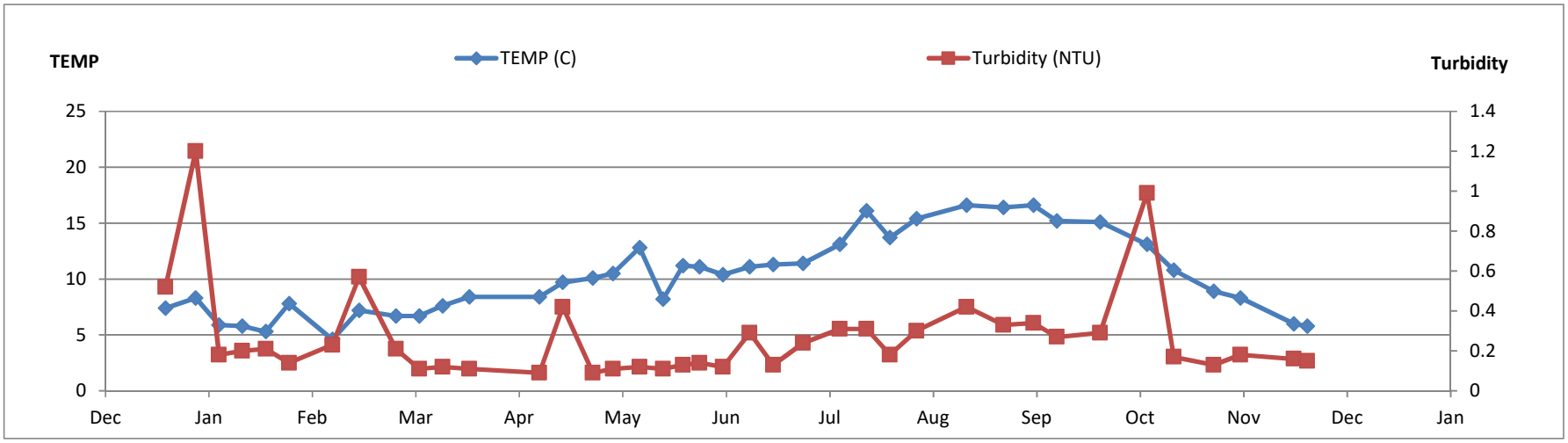
Sample Site DmDel 301
11043 86 Avenue - North Delta





Sample Site DmDel 302
610 Derwent Way - Annacis Island





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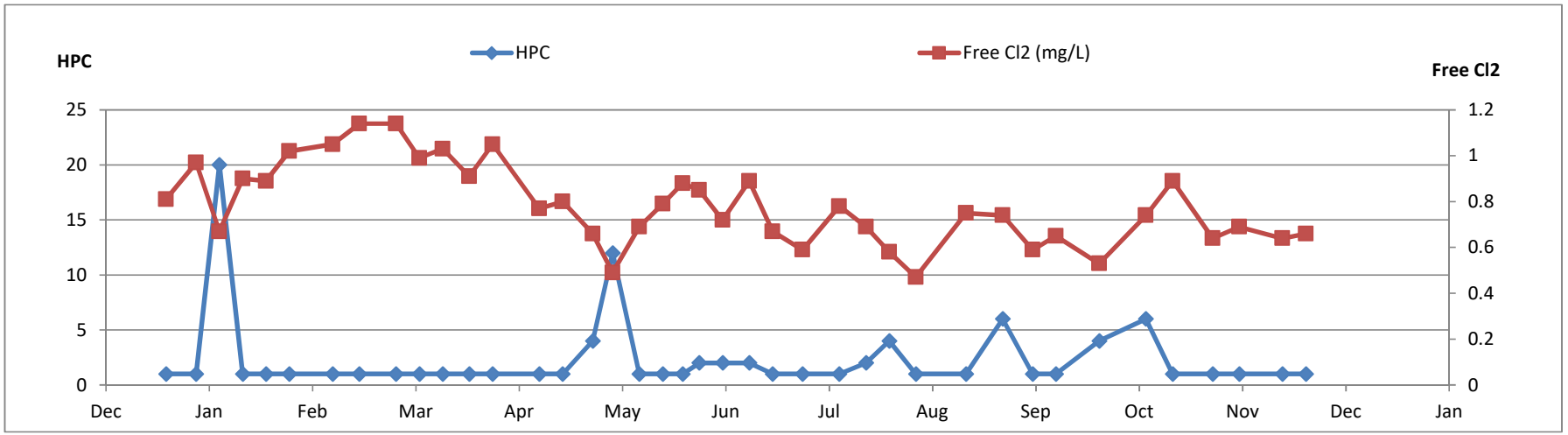
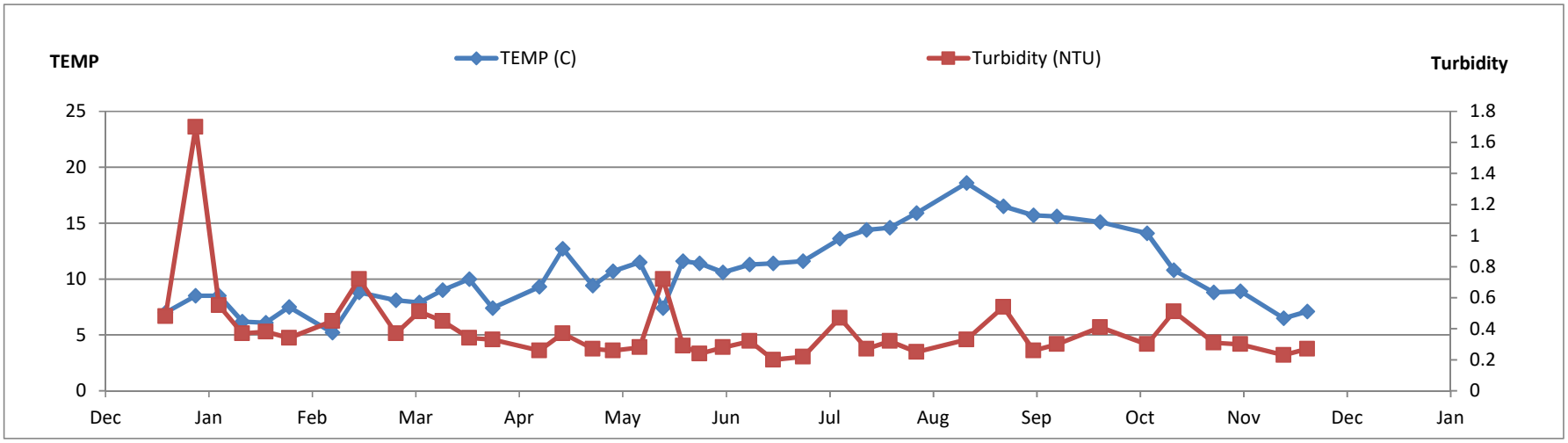
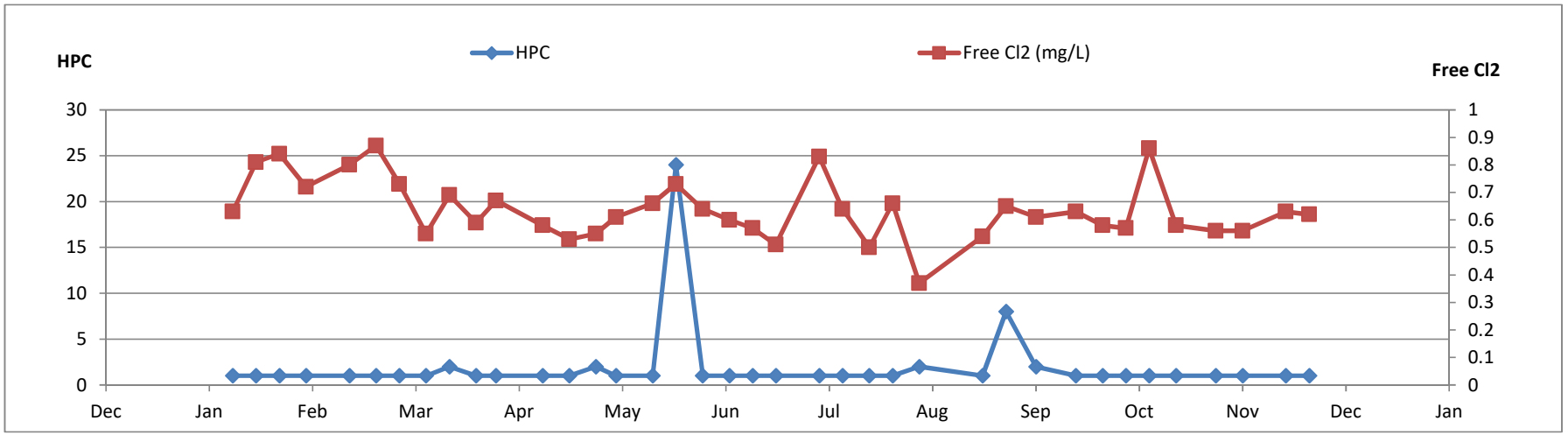
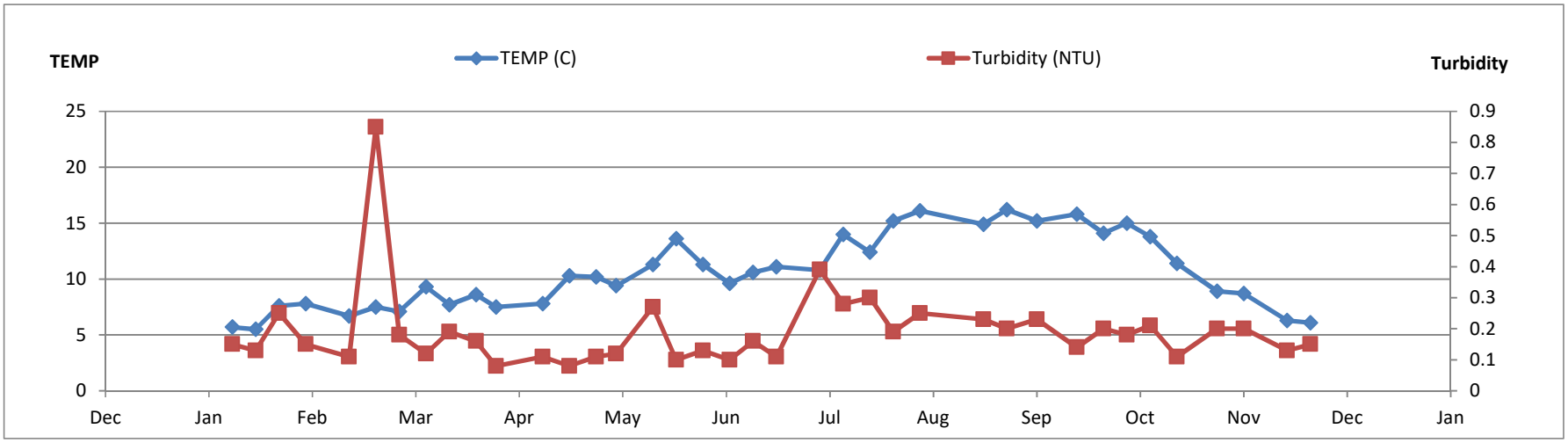
718 Eaton Way - Annacis Island



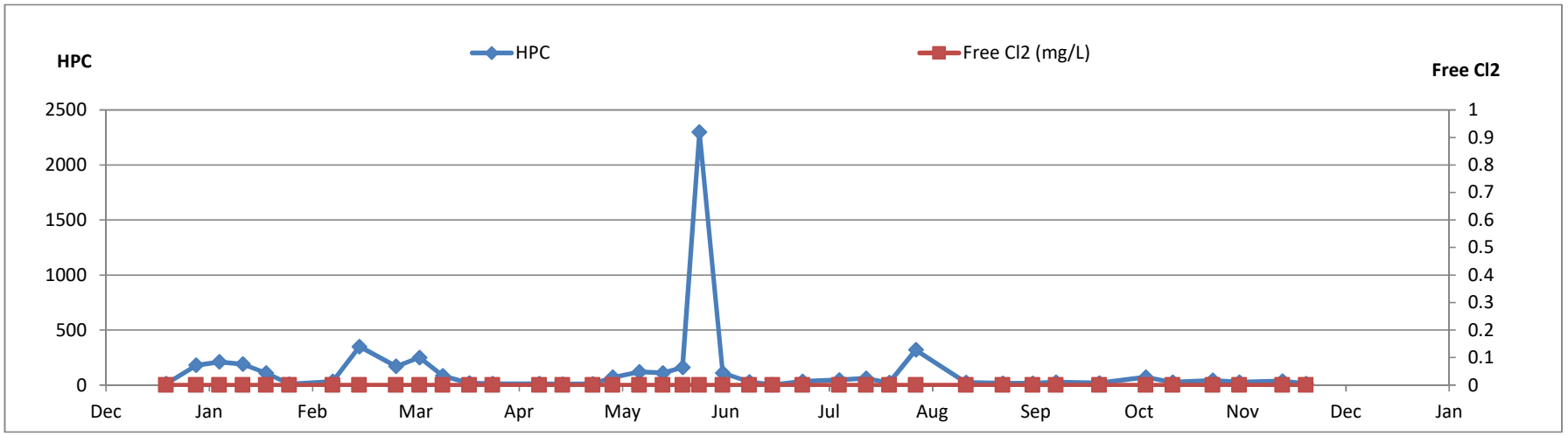


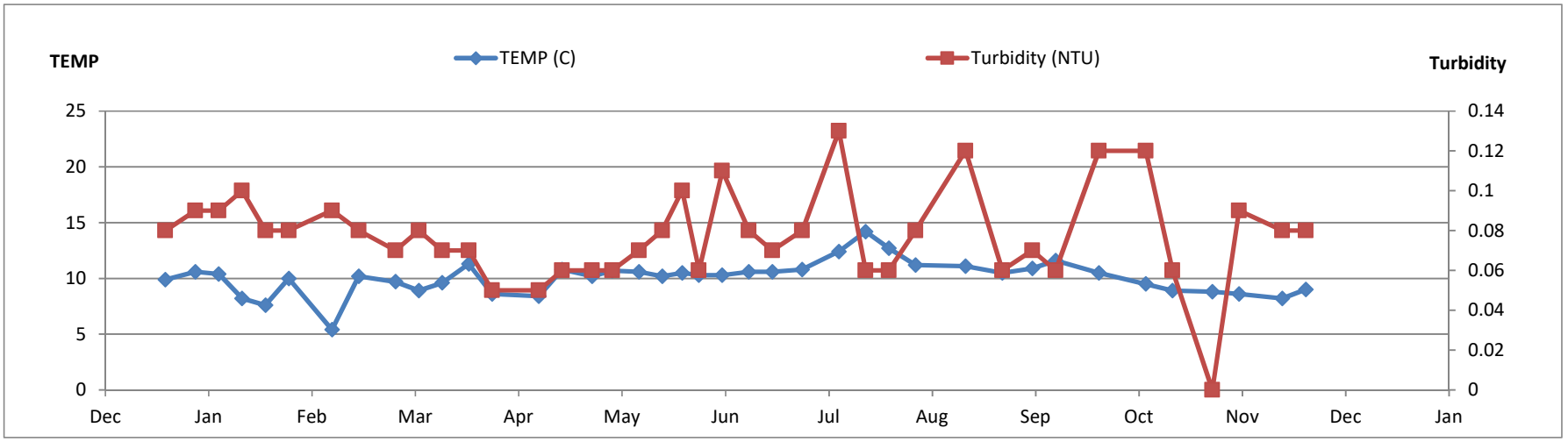
Sample Site DmDel 304
11920 70 Avenue - North Delta





Sample Site DmDel 305
Well #1 Watershed Park 11600 Kittson Parkway - North Delta





Sample Site DmDel 306
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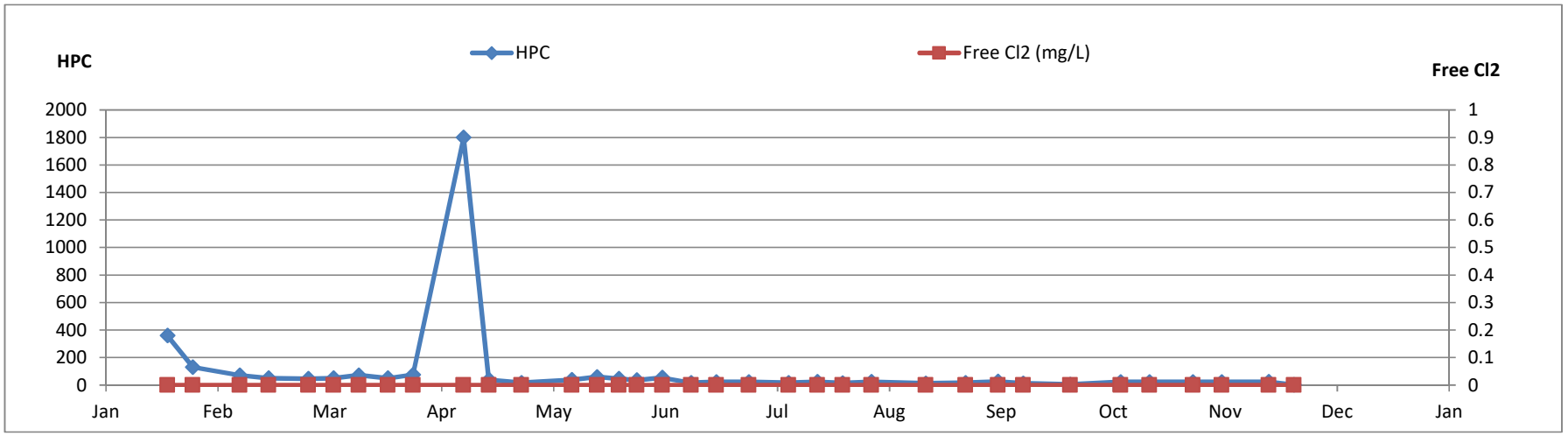
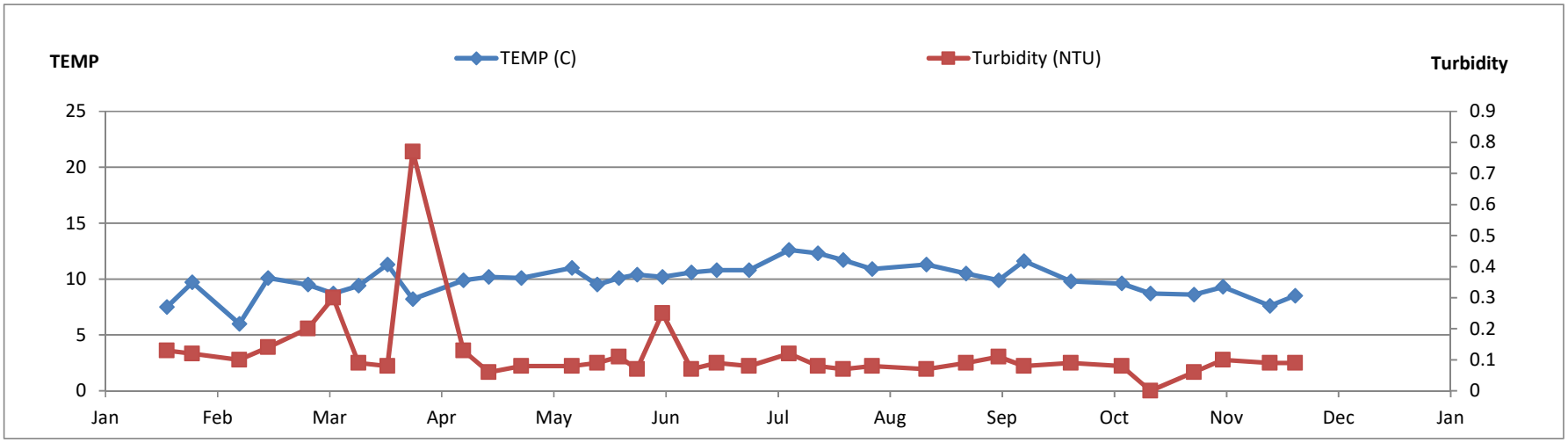
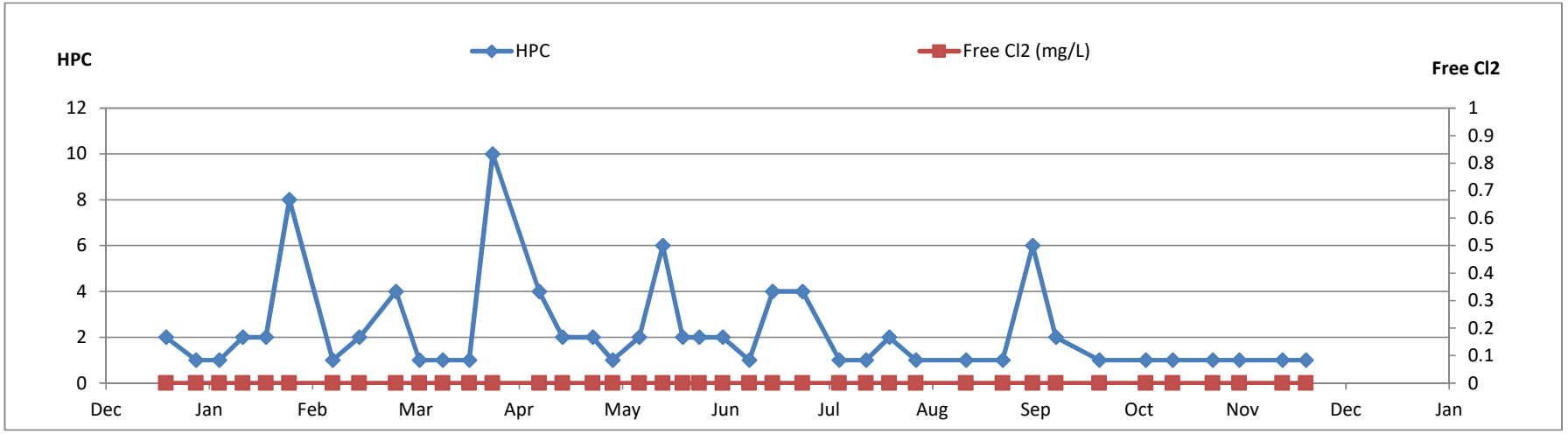
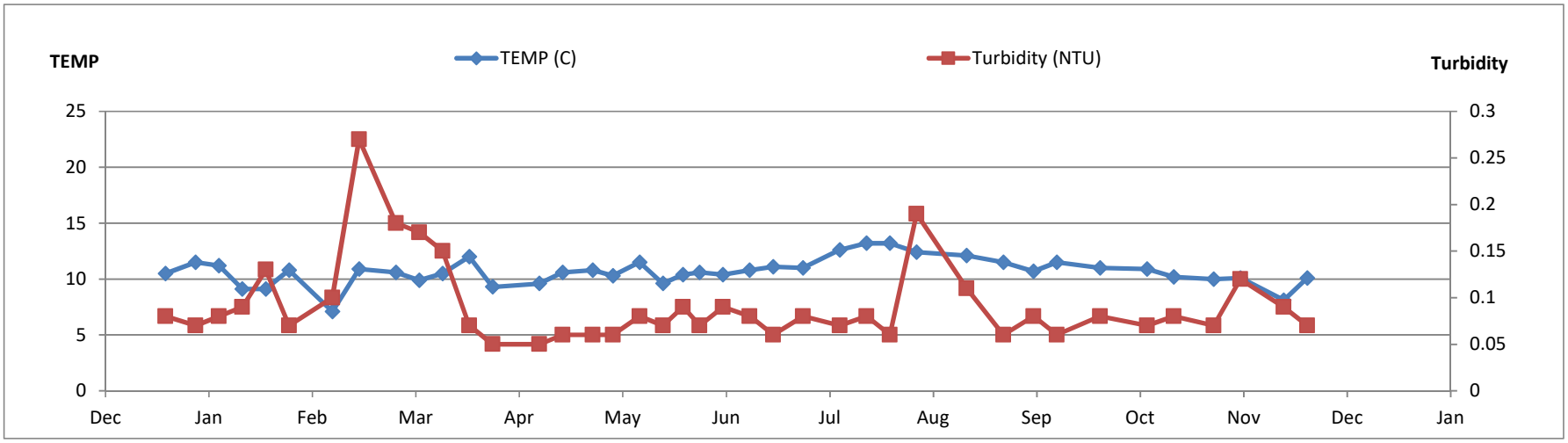


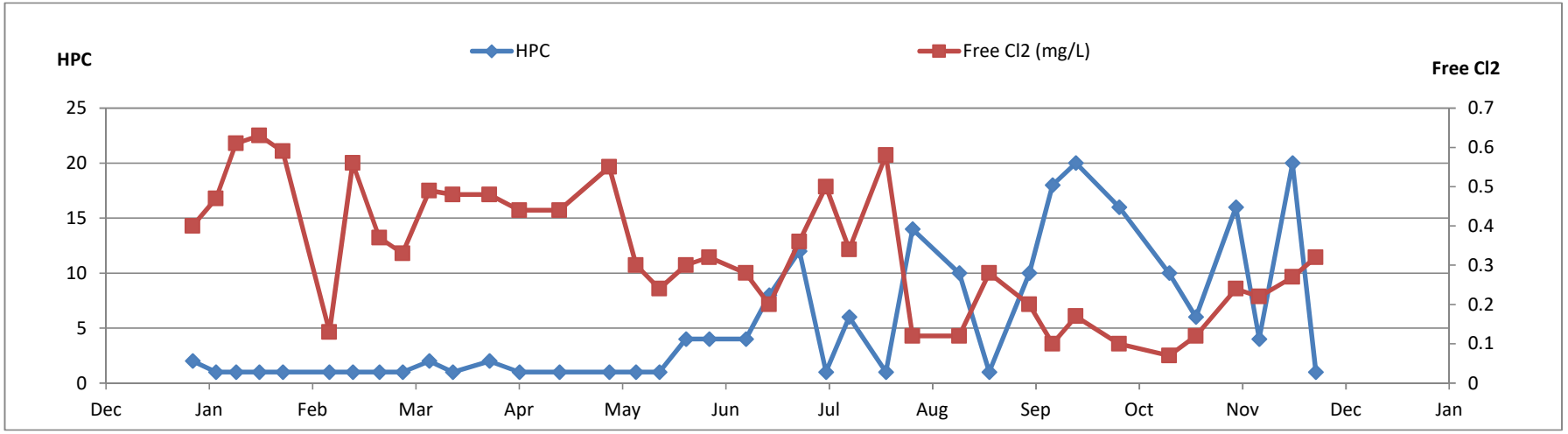


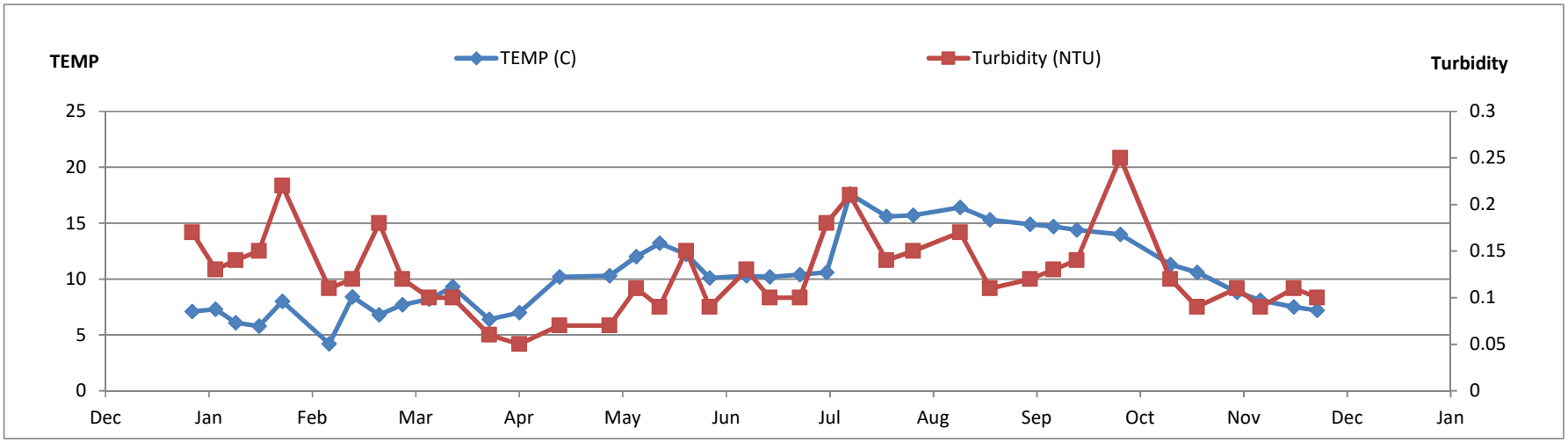
Sample Site DmDel 307
Well #3 Watershed Park 11600 Kittson Parkway - North Delta



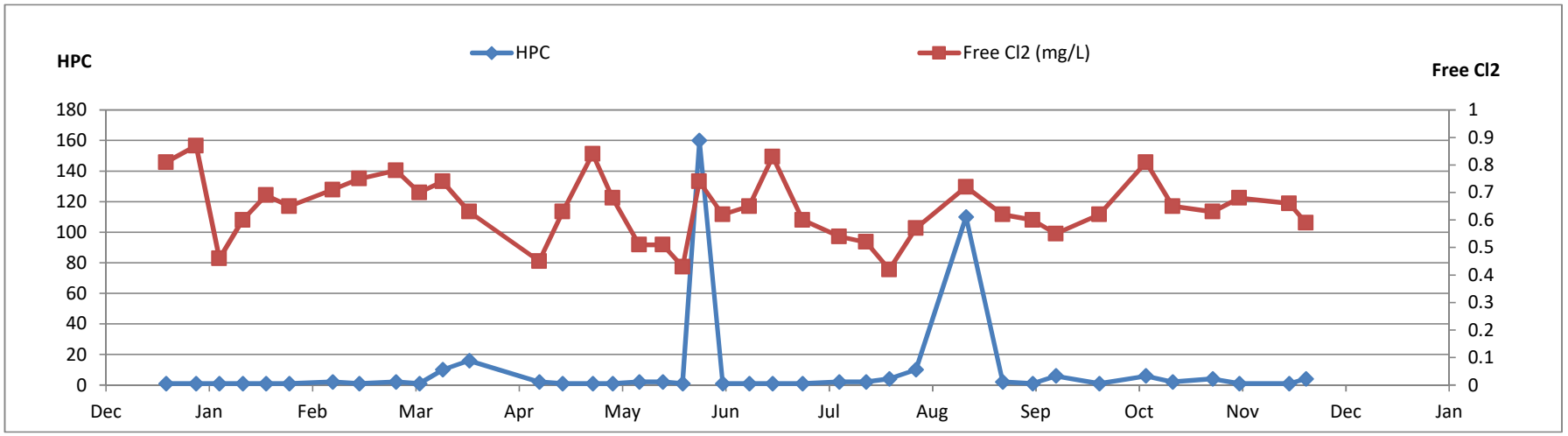


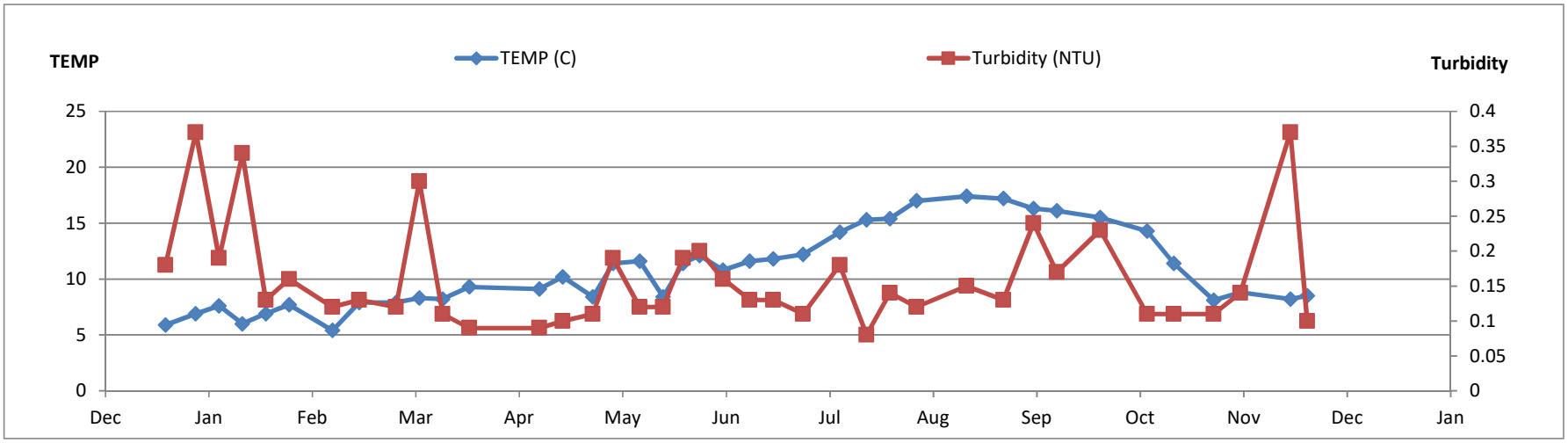
Sample Site DmDel 308
9341 Burns Drive - Ladner



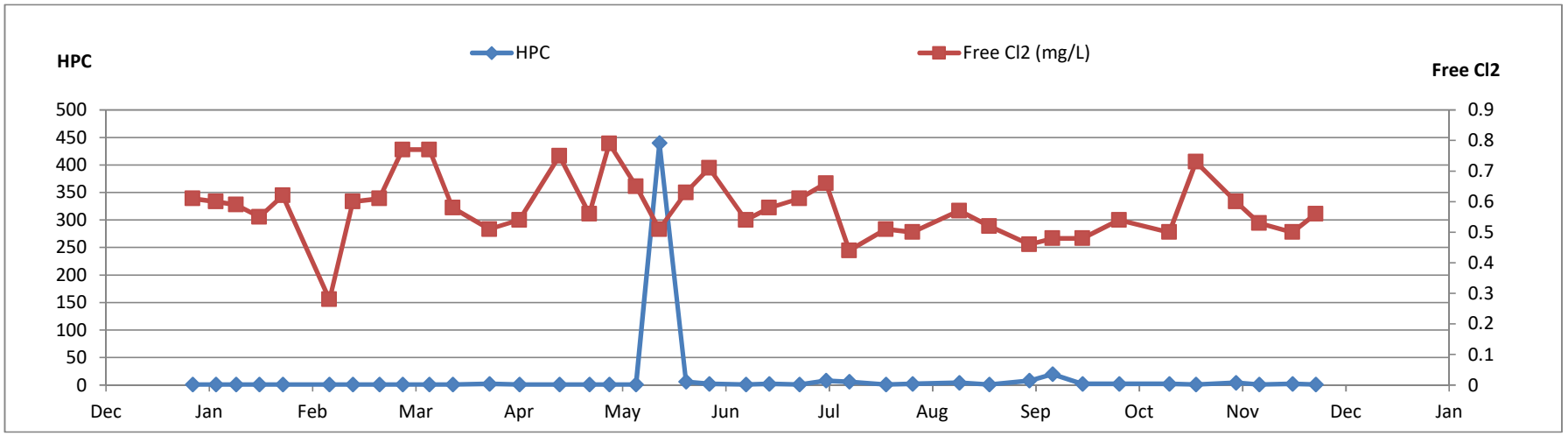


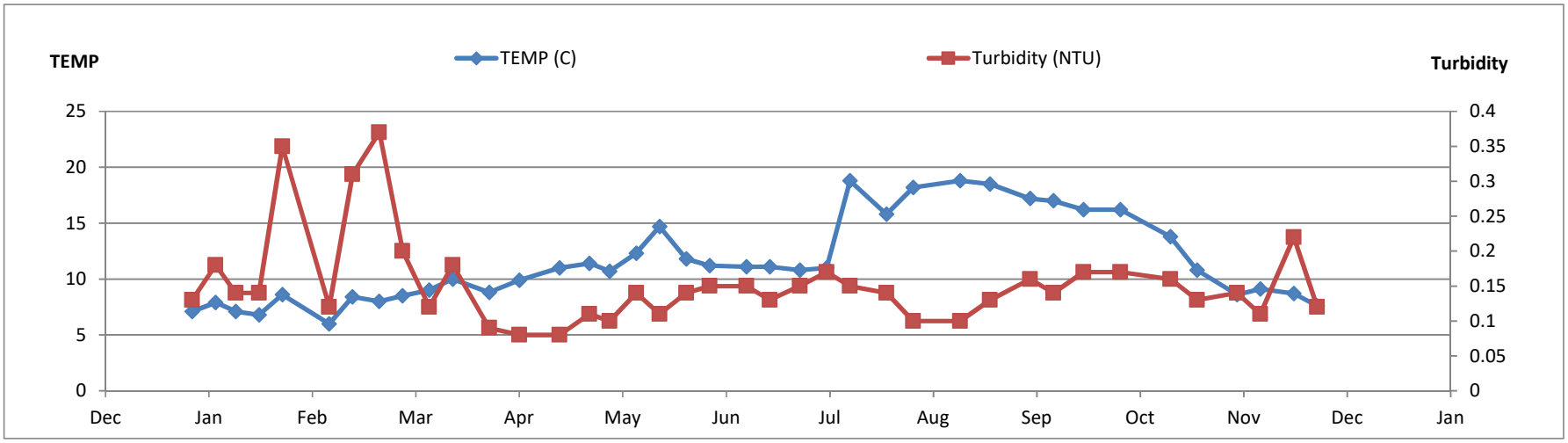
Sample Site DmDel 309
7979 Vantage Way - Tilbury Industrial Park



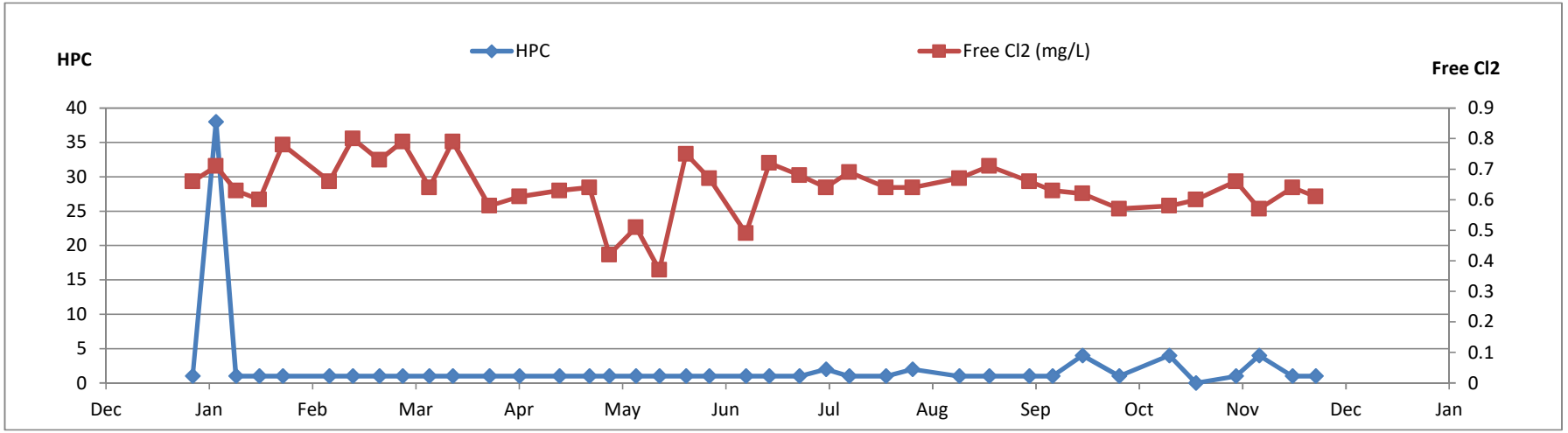


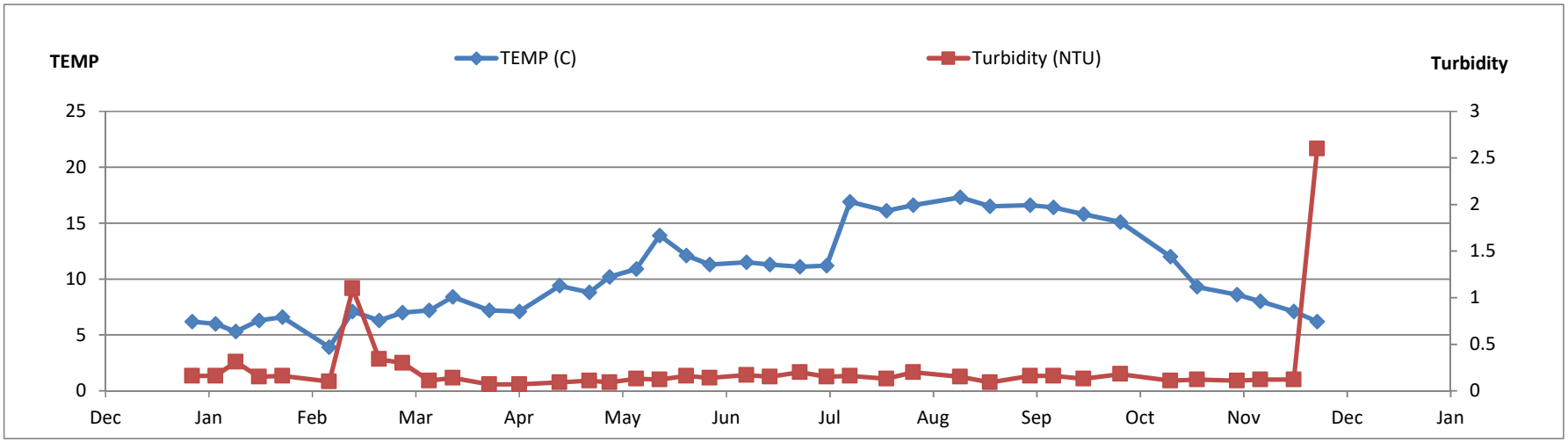
Sample Site DmDel 310
4905 Galbraith Street - Ladner





Sample Site DmDel 312
5289 Commodore Drive - Ladner





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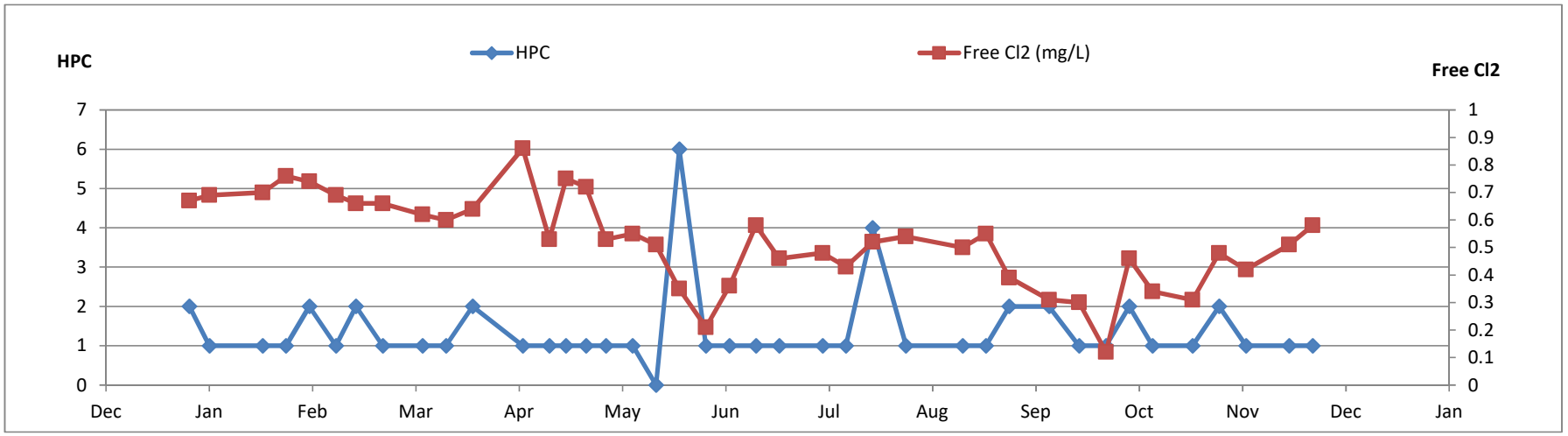
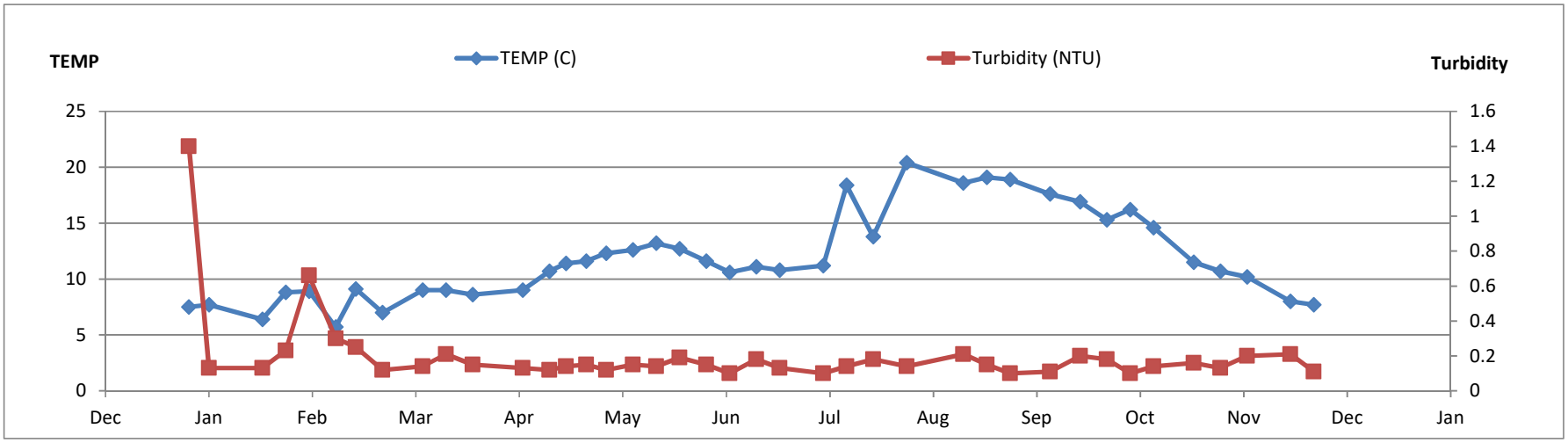
5191 Robertson Road - Westham Island





Sample Site DmDel 314
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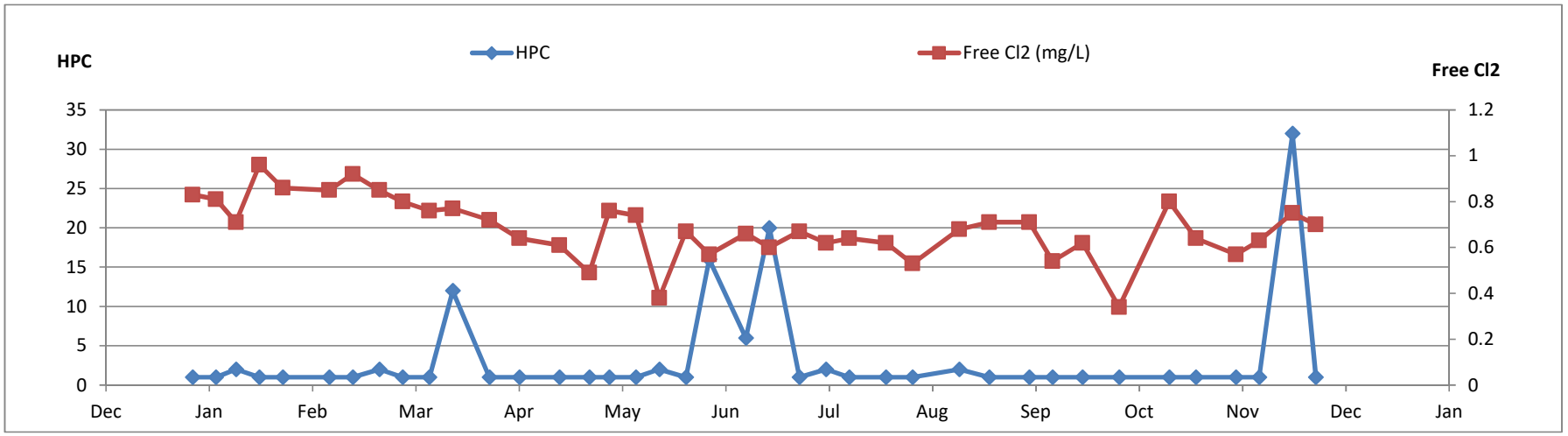

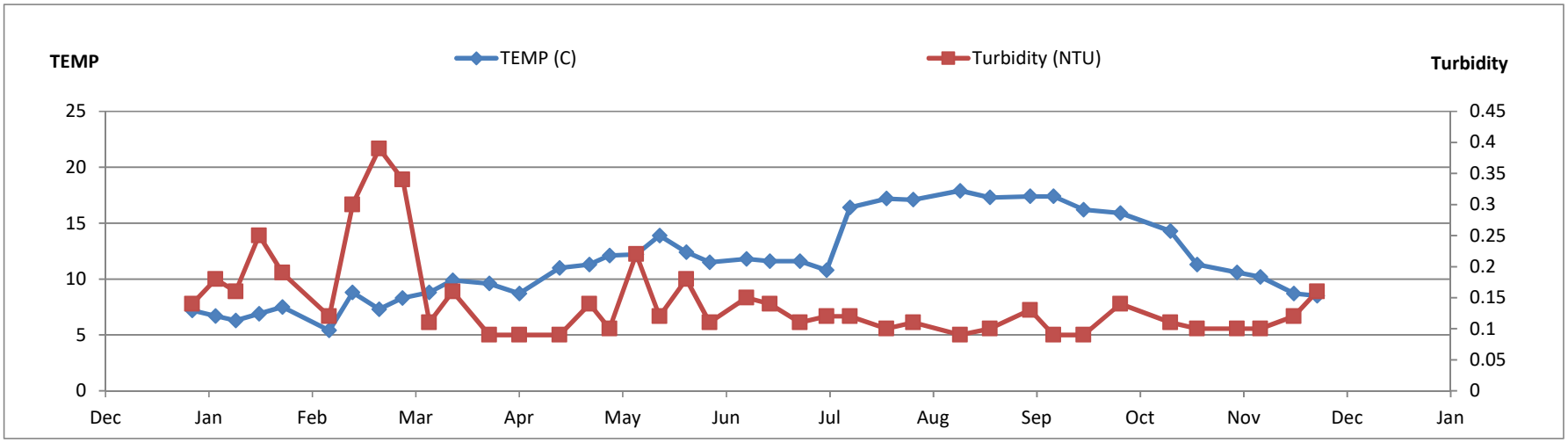

Sample Site DmDel 316
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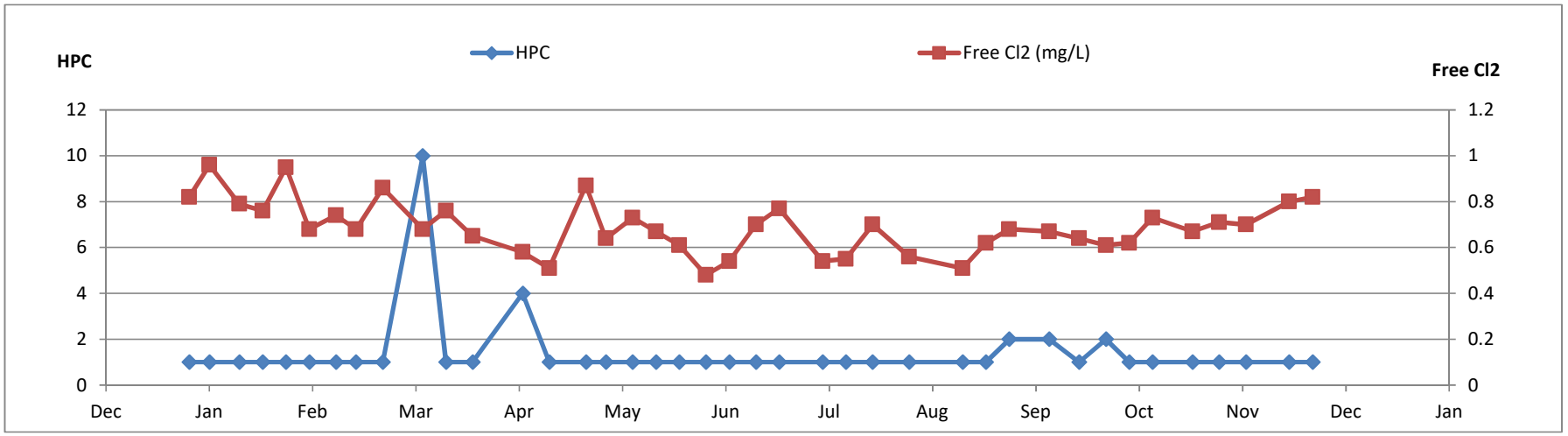
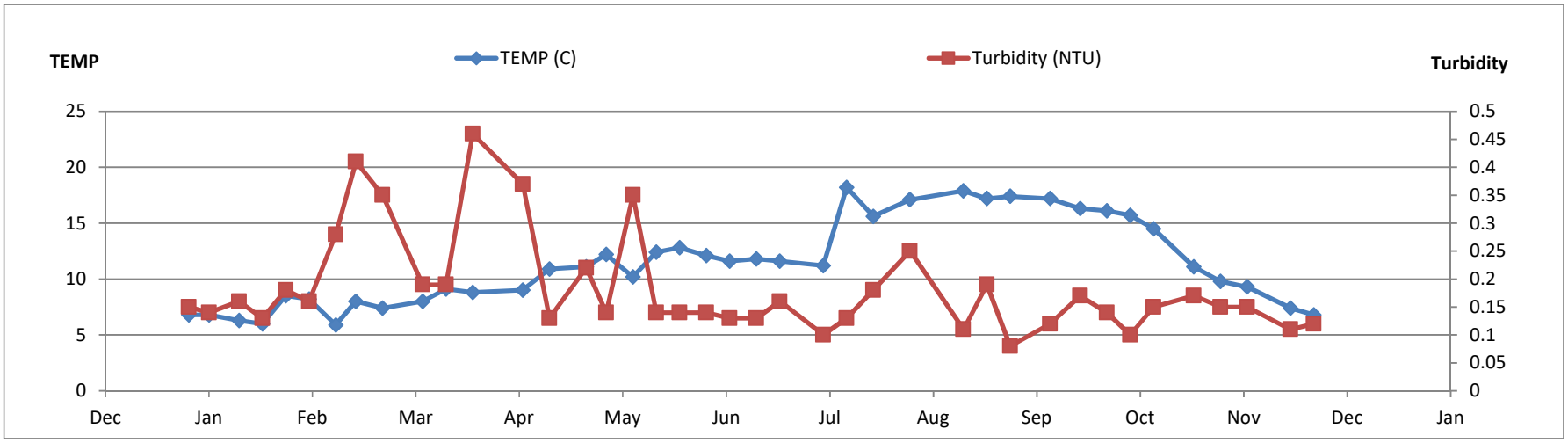
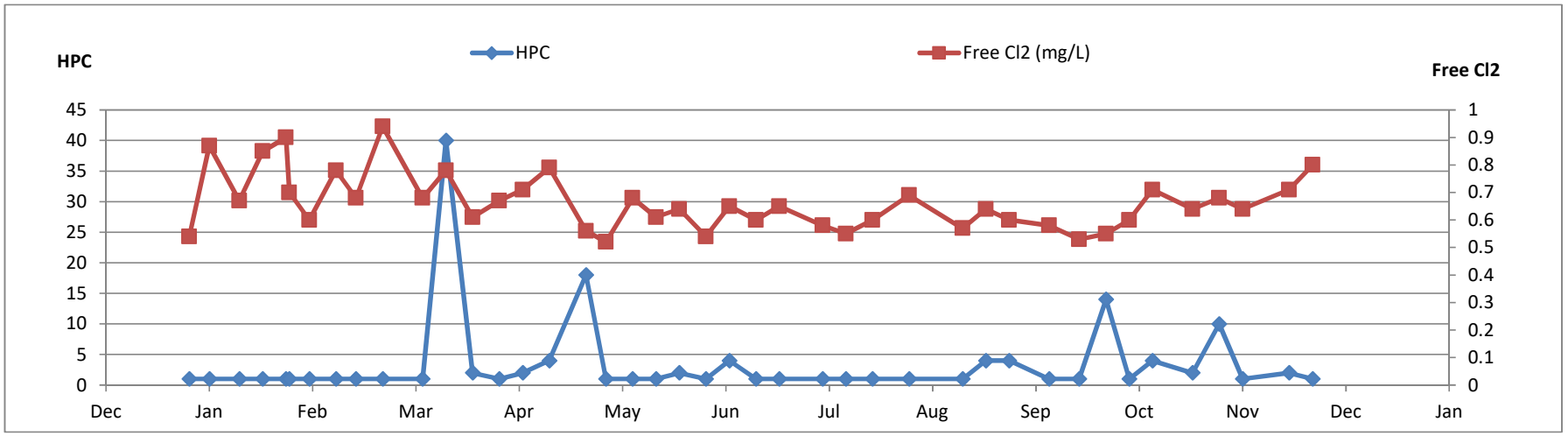
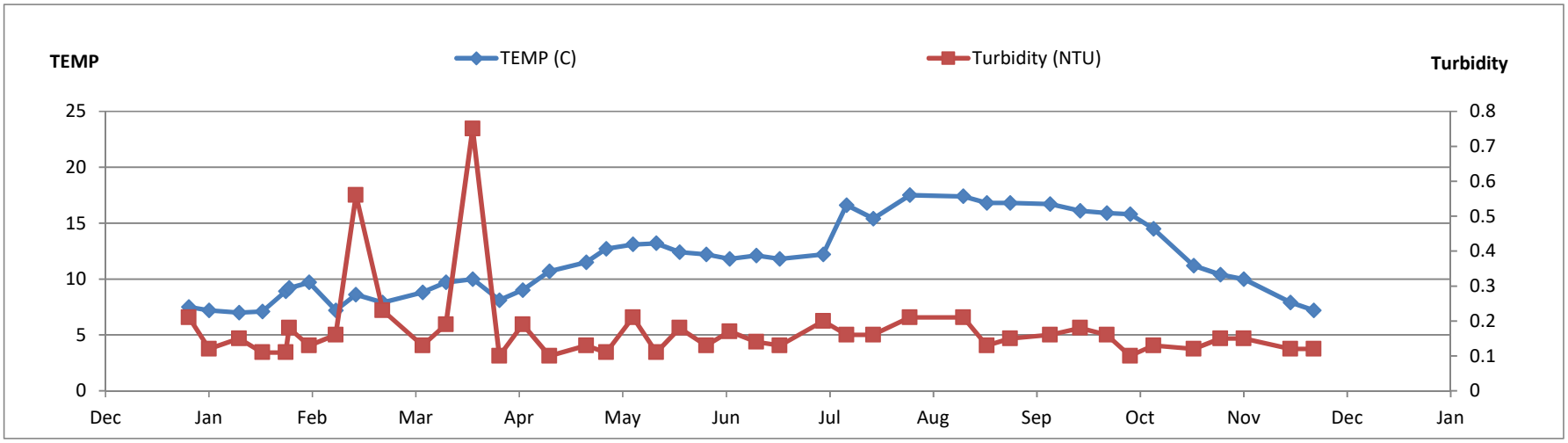




Sample Site DmDel 317
1720 56 Street - Tsawwassen





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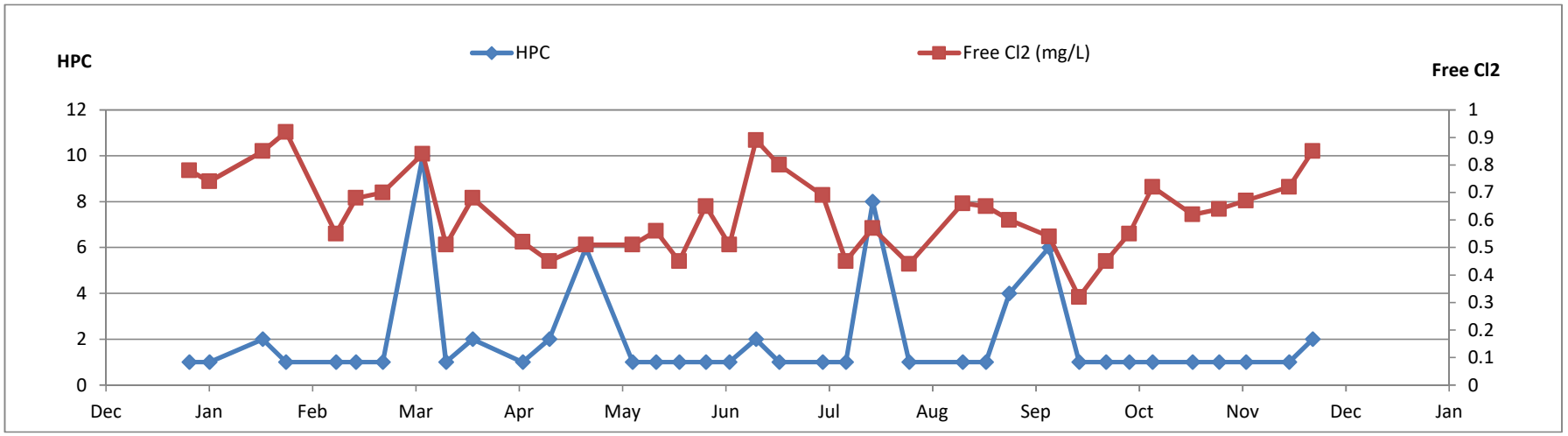
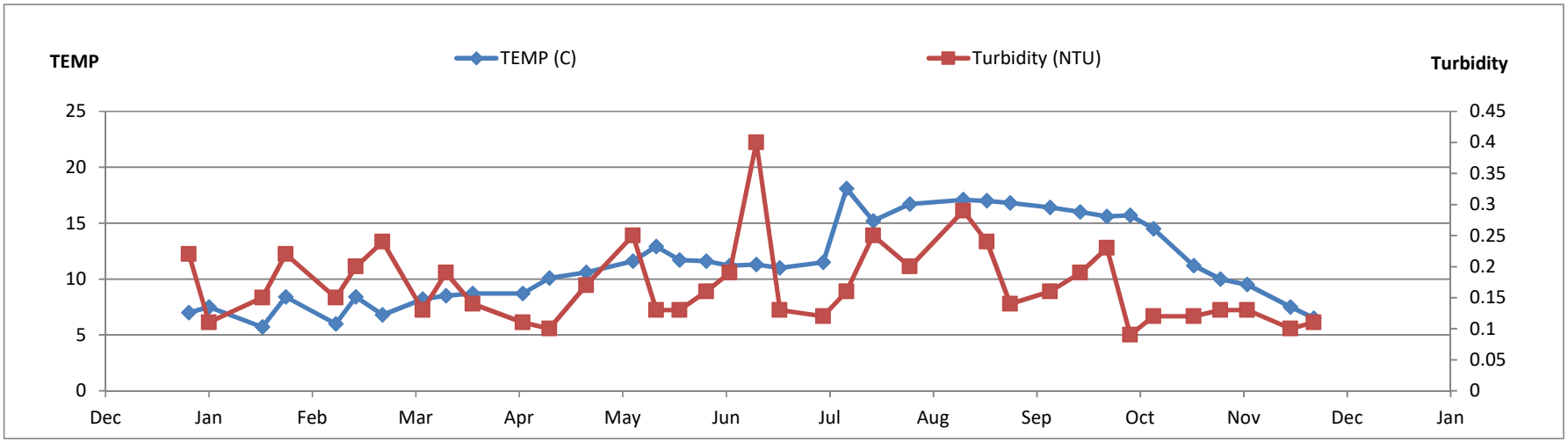
4933 Cliff Drive - Tsawwassen





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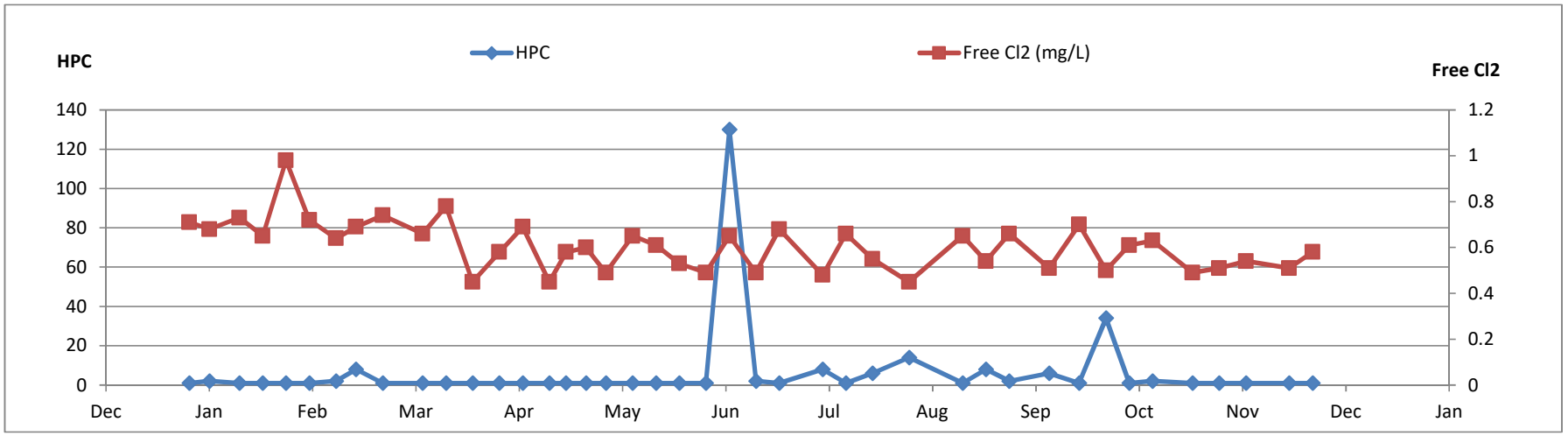

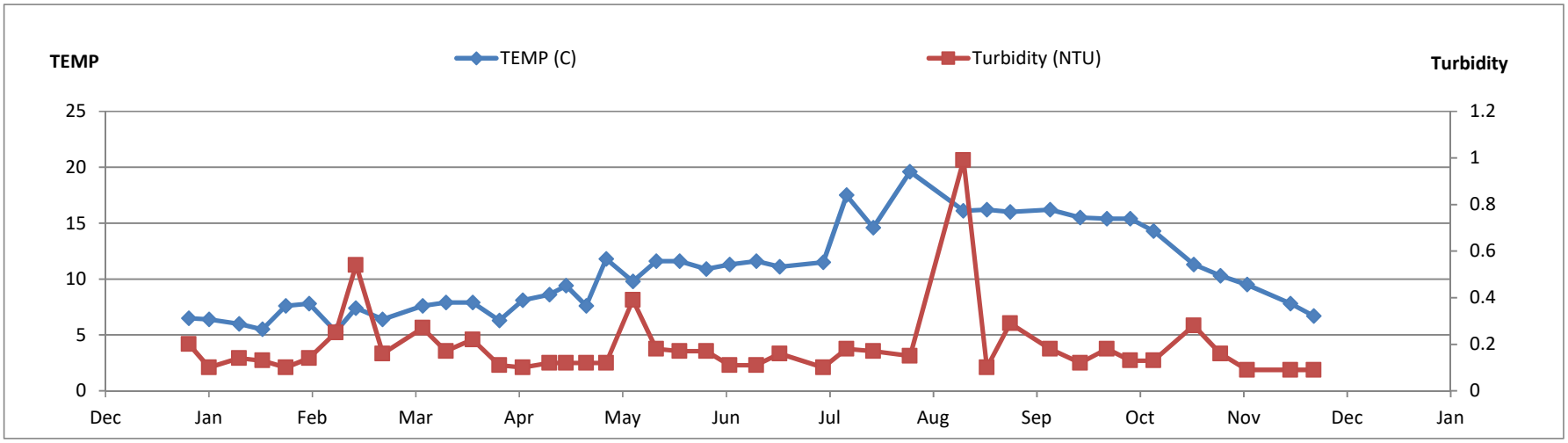

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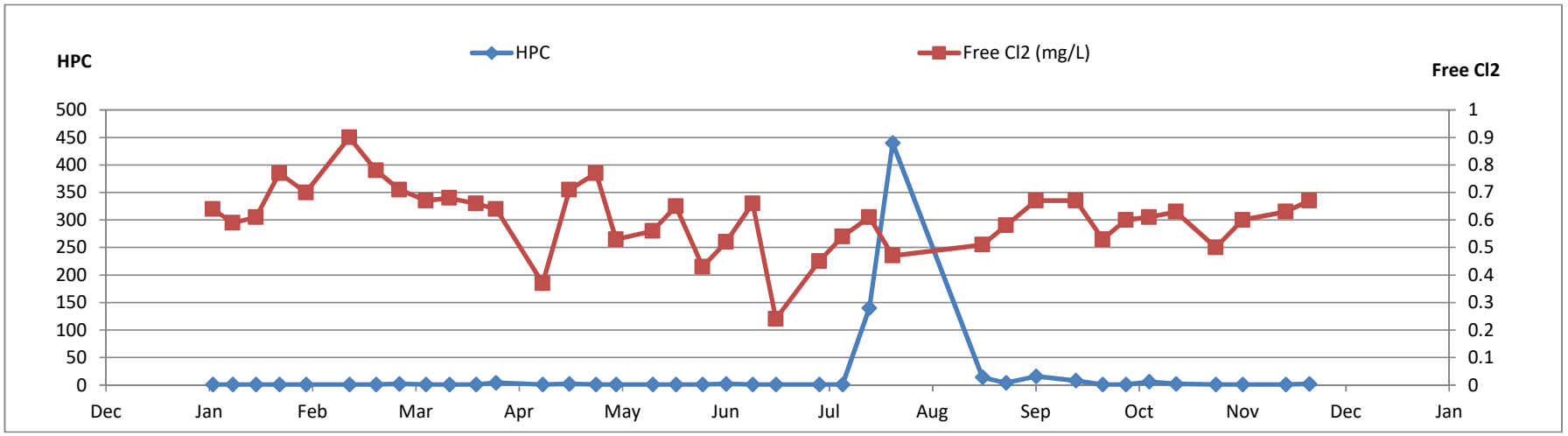
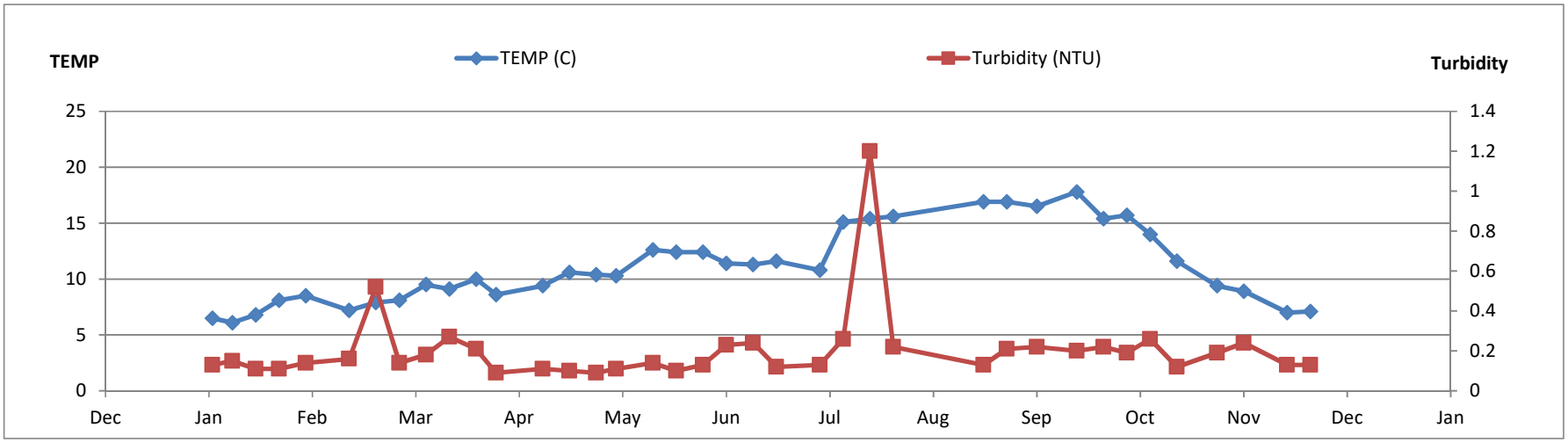
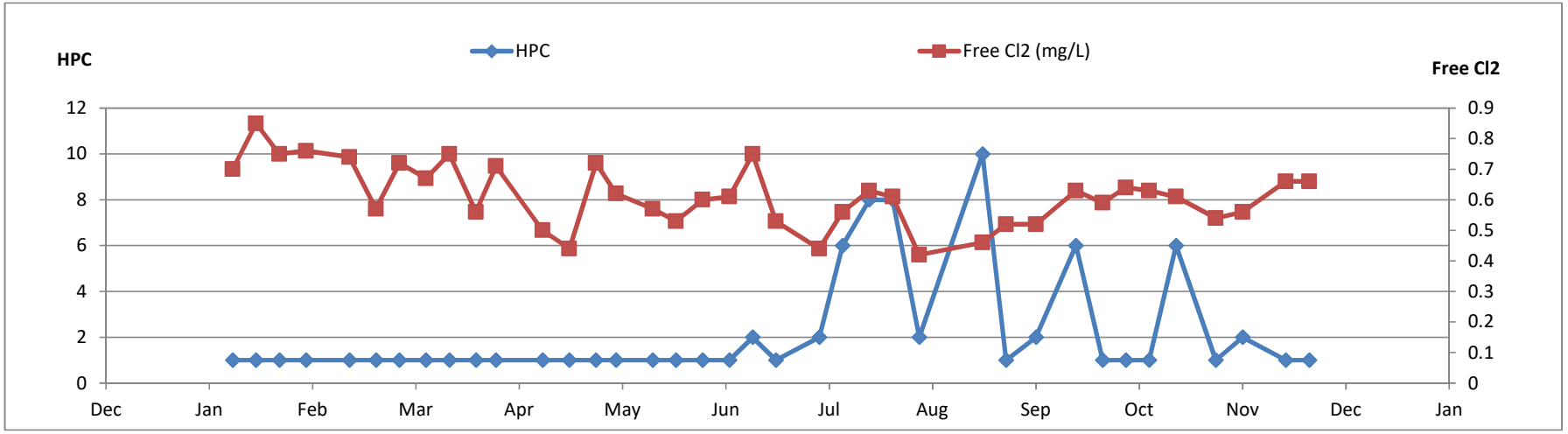
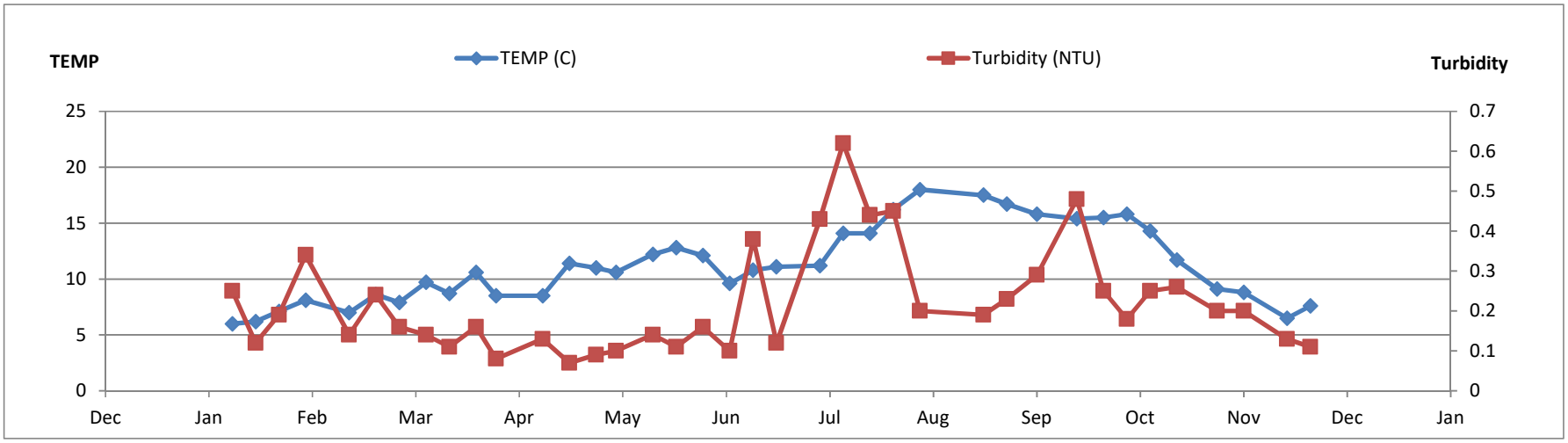
11321 80 Avenue - North Delta





Sample Site DmDel 321
9434 117A Street - North Delta





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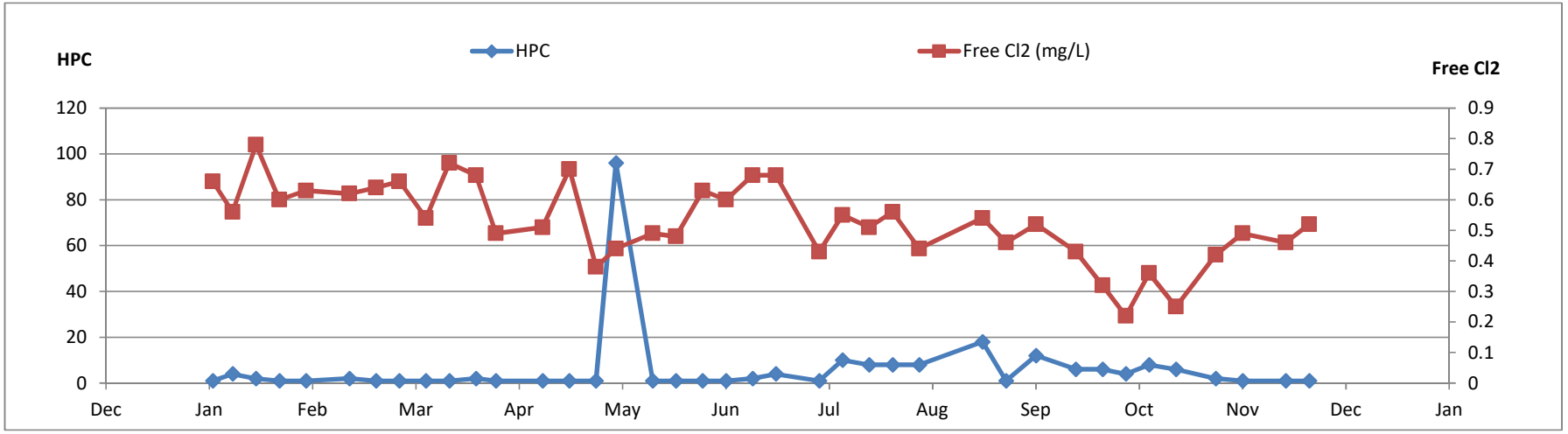
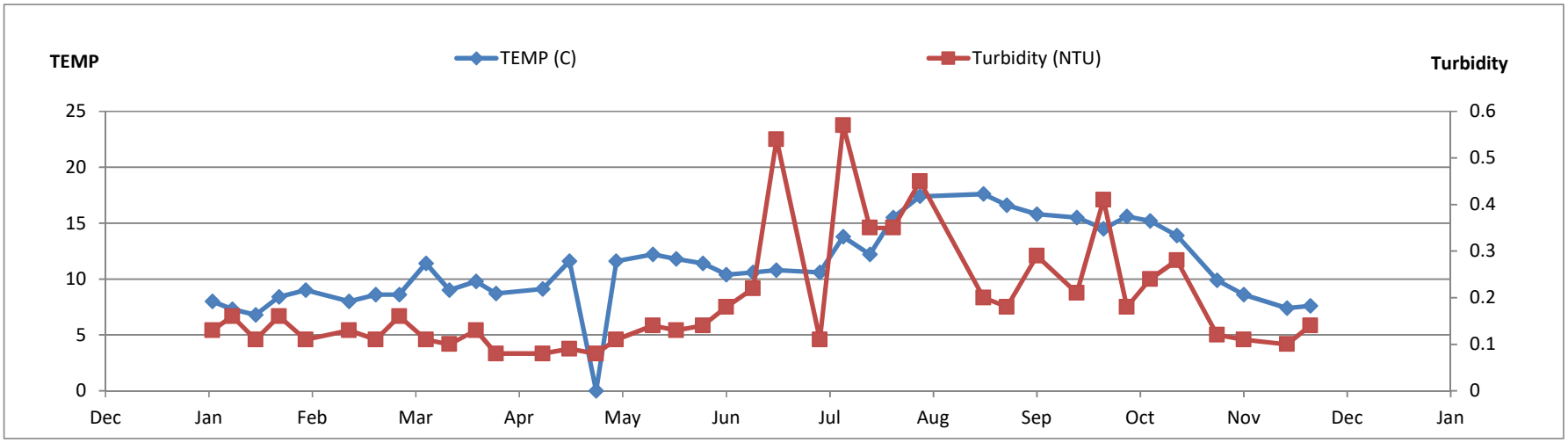
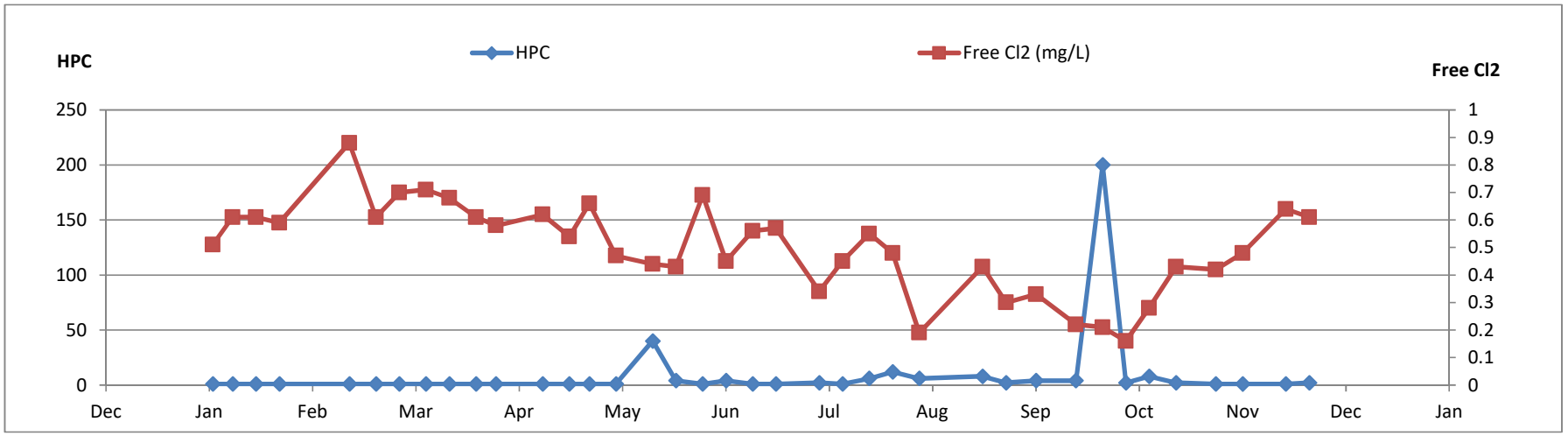
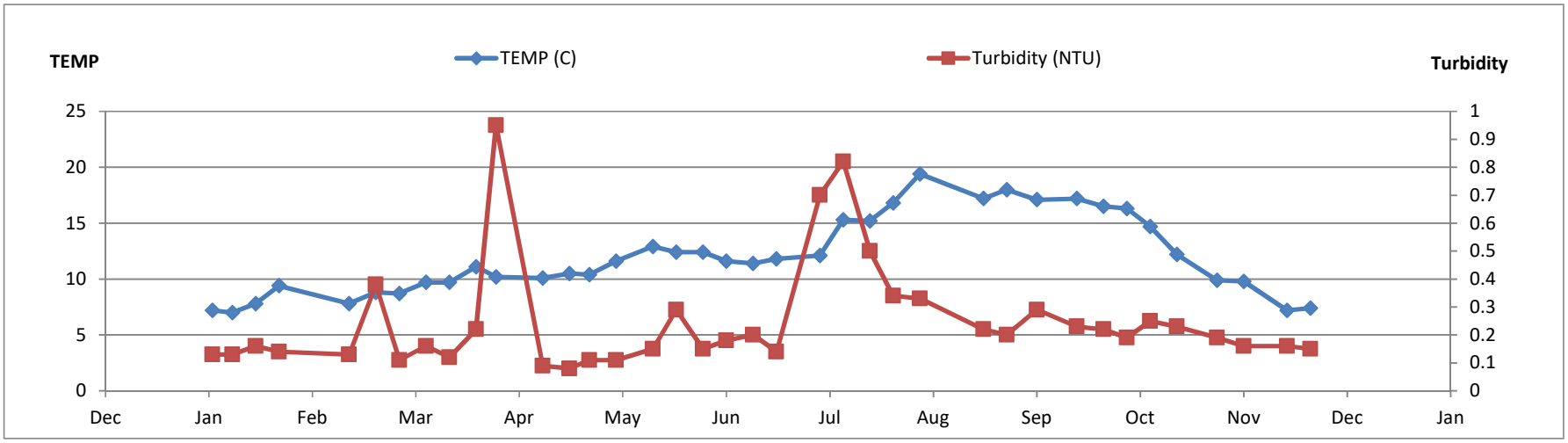
11970 Clark Drive - North Delta



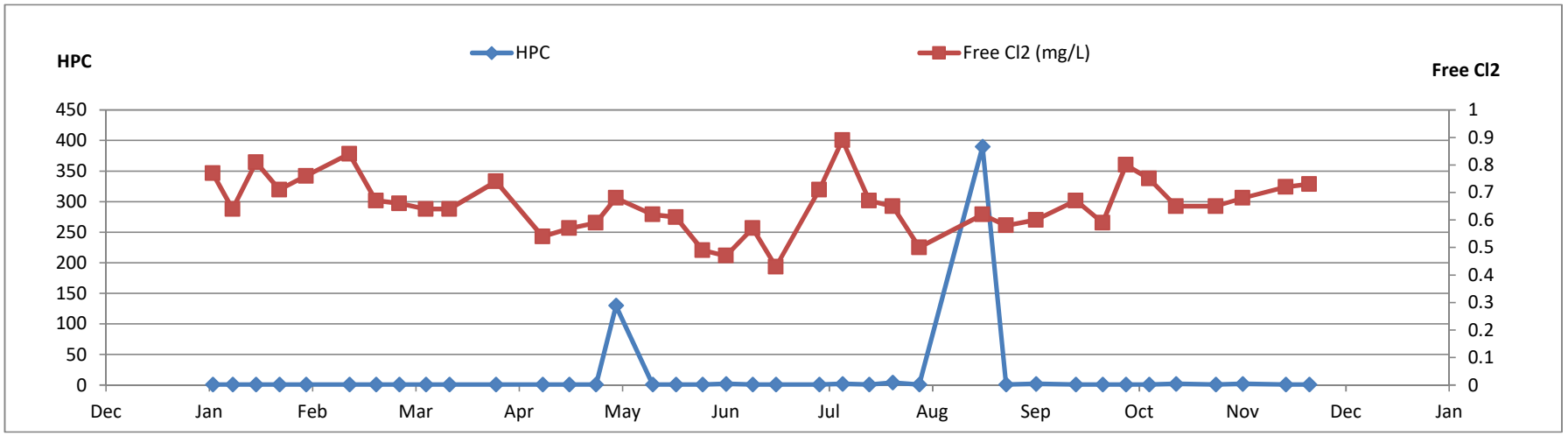


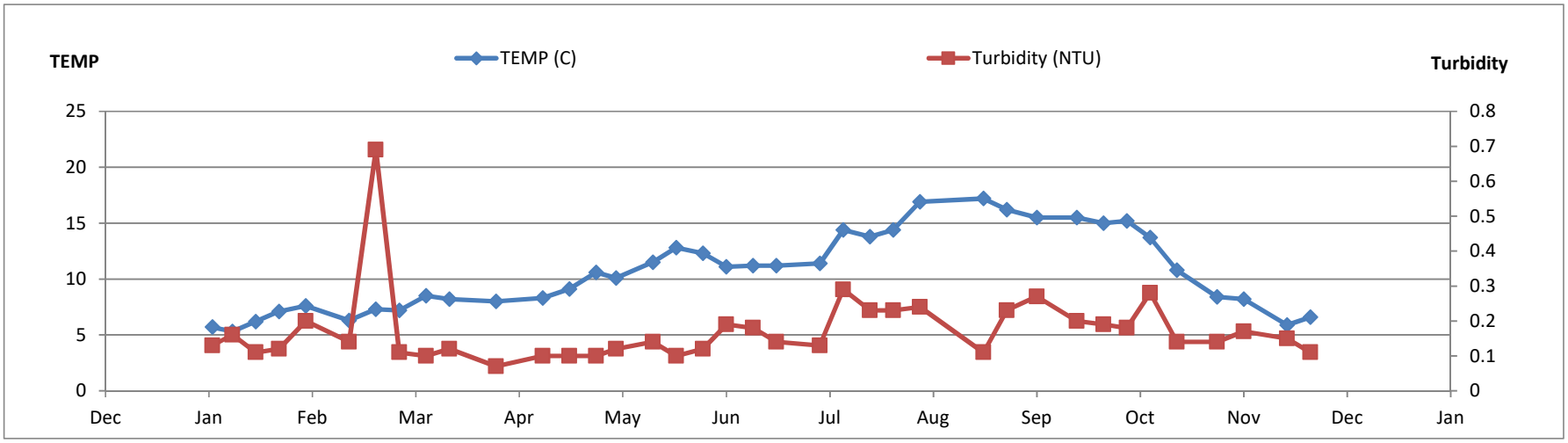
Sample Site DmDel 323
7348 Priory Place - North Delta



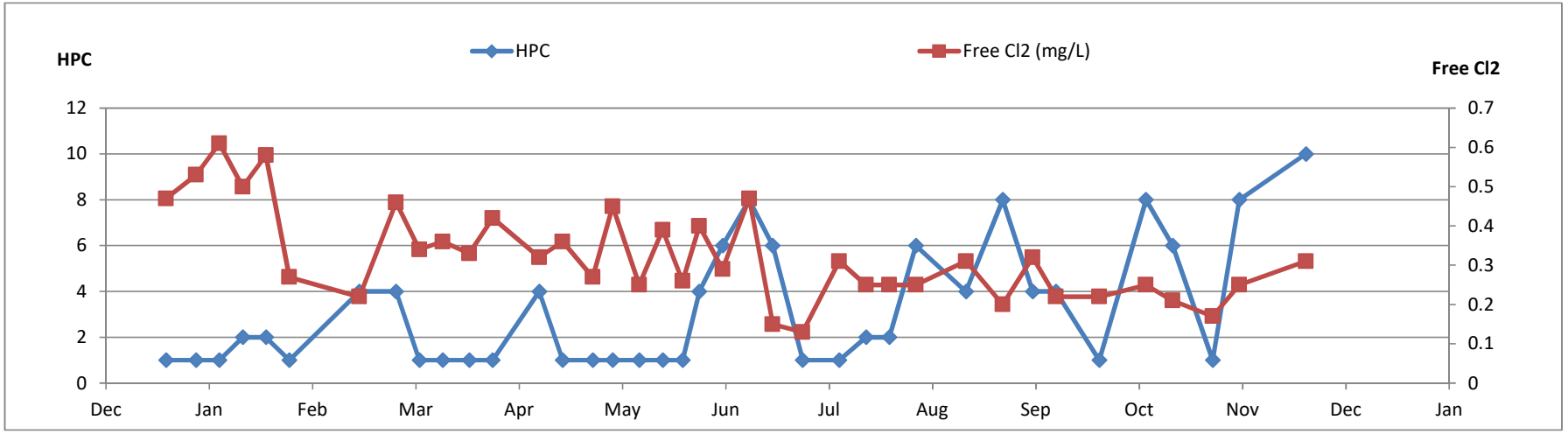


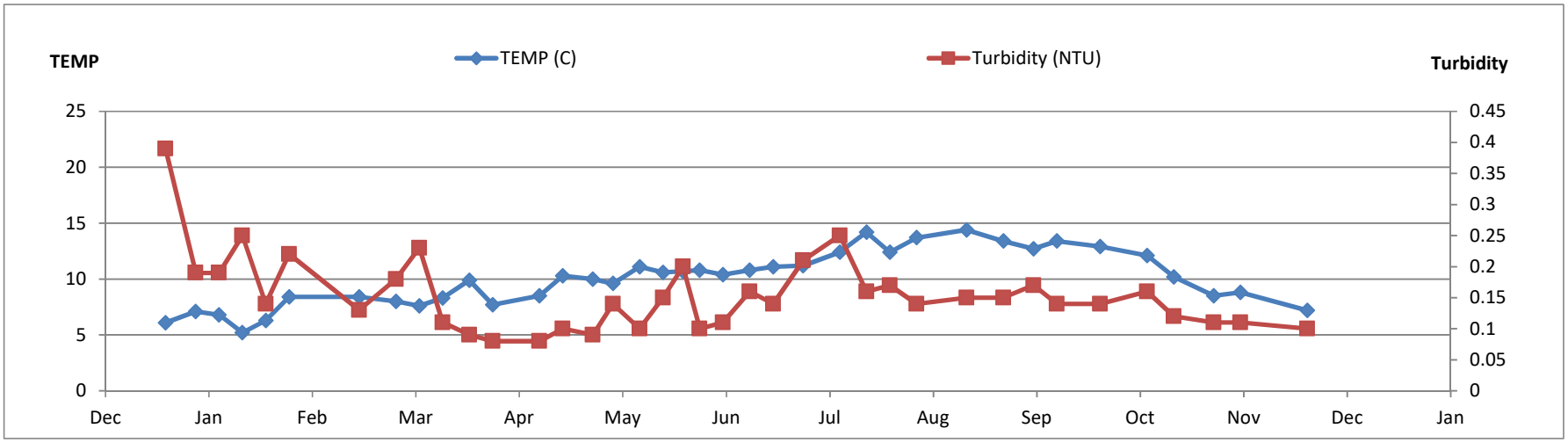
Sample Site DmDel 327
11405 84 Avenue - North Delta



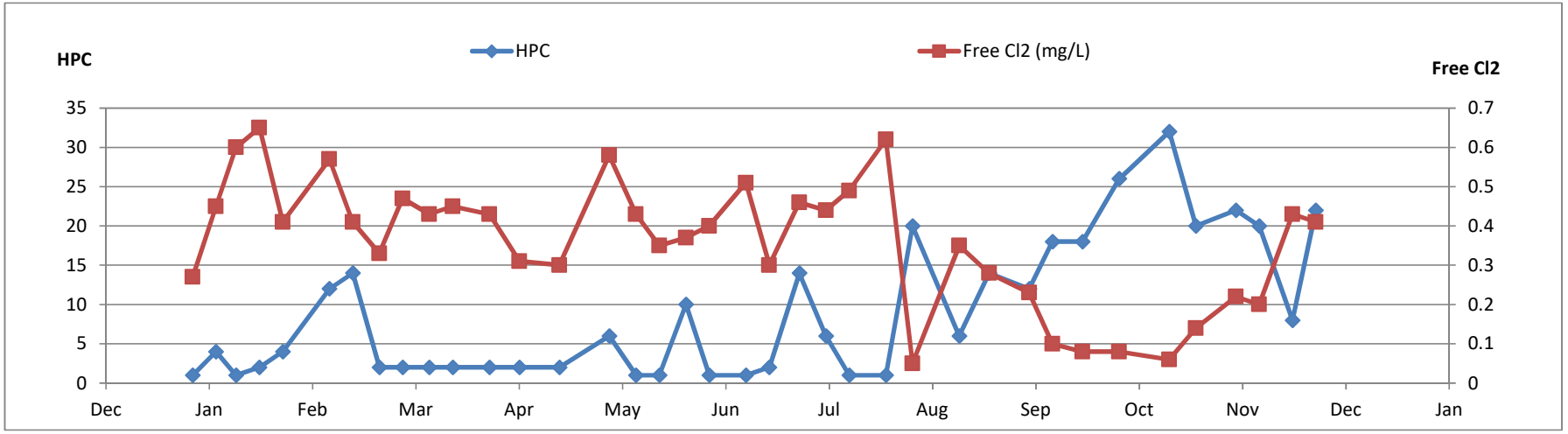


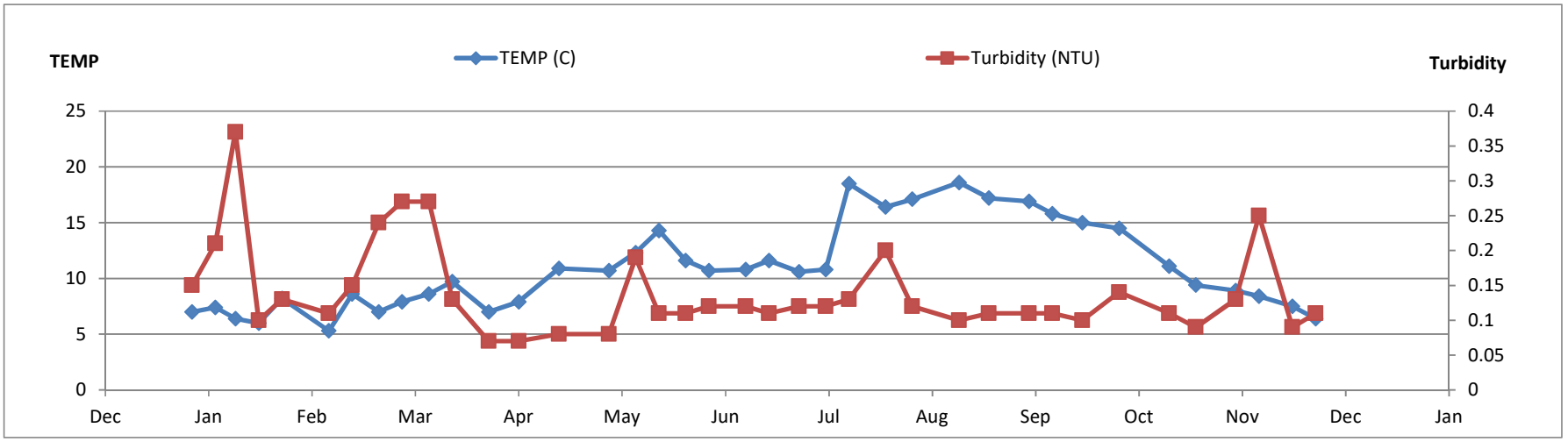
Sample Site DmDel 329
Watershed Park Reservoir 11600 Kittson Parkway - North Delta



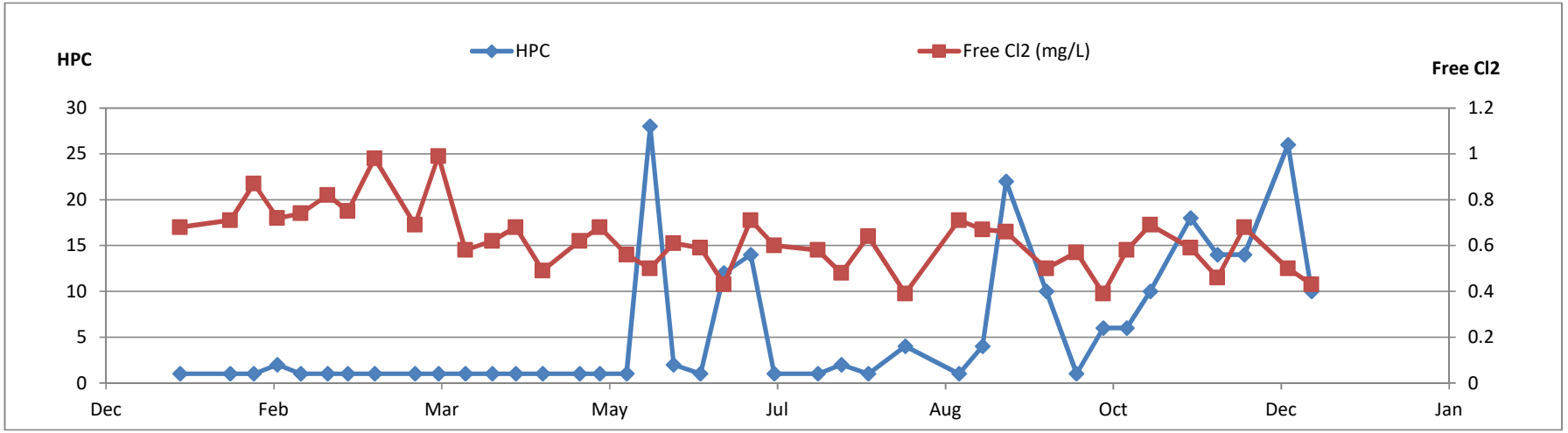


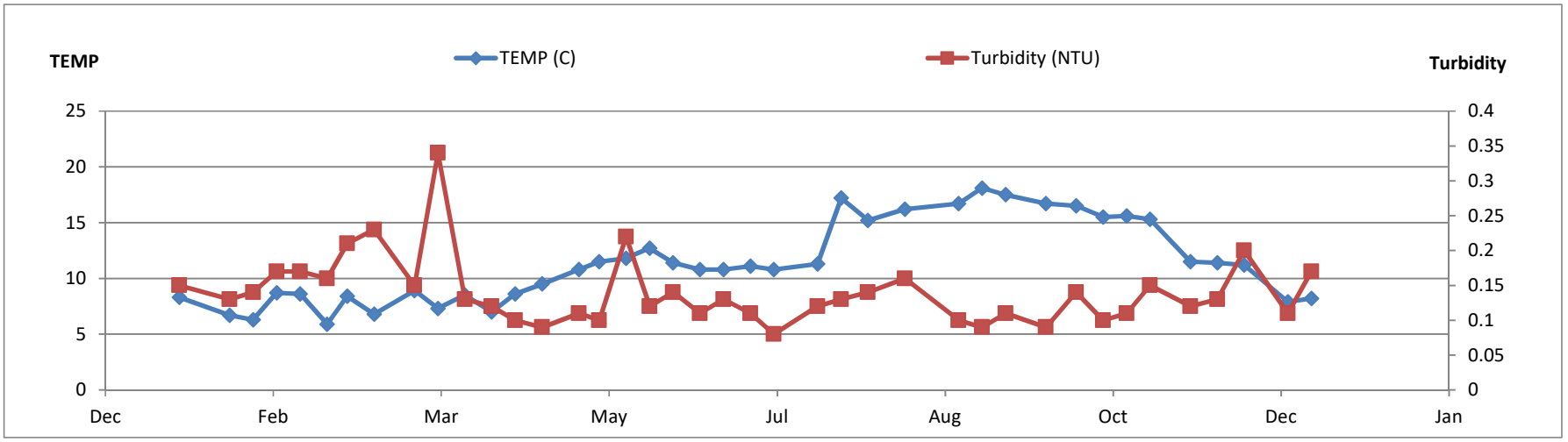
Sample Site DmDel 391
Ladner Trunk Road East of 80 Street - Ladner





Sample Site DmDel 392
3044 41B Street - Ladner





Appendix 9

Delta Water Distribution System

Free Chlorine Residual Test Results

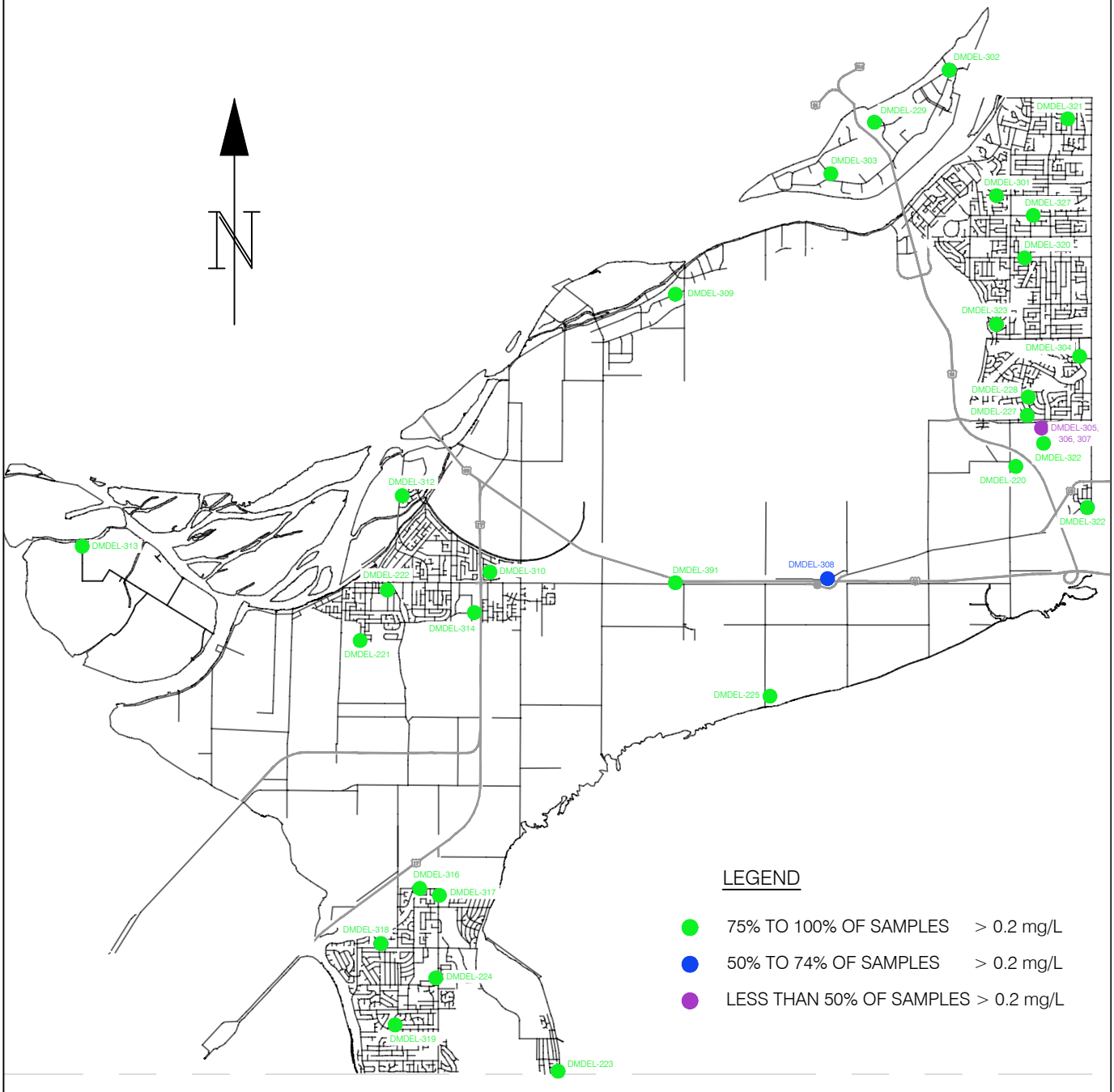
and Map

Delta

City of Delta
Free Chlorine Residual Sample Results

Sample Site	Civic Address	Location	Min Free Cl_2 (mg/L)	Max Free Cl_2 (mg/L)	Average Free Cl_2 (mg/L)
DmDel 220	5860 112 Street	Ladner	0.11	0.83	0.36
DmDel 221	4802 42A Avenue	Ladner	0.37	0.9	0.67
DmDel 222	4734 51 Street	Ladner	0.51	0.92	0.71
DmDel 223	10 Centennial Parkway	Tsawwassen	0.36	1.23	0.56
DmDel 224	5575 9 Avenue	Tsawwassen	0.3	0.88	0.65
DmDel 225	3706 88 Avenue	Ladner	0.05	0.76	0.39
DmDel 227	6487 Sunshine Drive	North Delta	0.47	0.9	0.64
DmDel 228	6603 Cabeldu Crescent	North Delta	0.42	0.94	0.63
DmDel 229	726 Chester Road	Annacis Island	0.31	1.74	0.83
DmDel 301	11043 86 Avenue	North Delta	0.45	0.87	0.63
DmDel 302	610 Derwent Way	Annacis Island	0.43	0.94	0.69
DmDel 303	718 Eaton Way	Annacis Island	0.47	1.14	0.79
DmDel 304	11920 70 Avenue	North Delta	0.37	0.87	0.64
DmDel 305	Watershed Park WELL HEAD 1	North Delta	0	0	0.00
DmDel 306	Watershed Park WELL HEAD 5	North Delta	0	0	0.00
DmDel 307	Watershed Park WELL HEAD 3	North Delta	0	0	0.00
DmDel 308	9341 Burns Drive	Ladner	0.07	0.63	0.33
DmDel 309	7979 Vantage Way	Tilbury	0.42	0.87	0.64
DmDel 310	4905 Galbraith Street	Ladner	0.28	0.79	0.58
DmDel 312	5289 Commodore Drive	Ladner	0.37	0.8	0.64
DmDel 313	5191 Robertson Road	Westham Island	0.12	0.86	0.53
DmDel 314	4455 Clarence Taylor Crescent	Ladner	0.34	0.96	0.69
DmDel 315	2760 41B Street	Ladner	N/A	N/A	N/A
DmDel 316	5408 Candlewyck Wynd	Tsawwassen	0.48	0.96	0.69
DmDel 317	1720 56 Street	Tsawwassen	0.52	0.94	0.66
DmDel 318	4933 Cliff Drive	Tsawwassen	0.32	0.92	0.63
DmDel 319	5169 Kilkenny Drive	Tsawwassen	0.45	0.98	0.61
DmDel 320	11321 80 Avenue	North Delta	0.24	0.9	0.61
DmDel 321	9434 117A Street	North Delta	0.42	0.85	0.61
DmDel 322	11970 Clark Drive	North Delta	0.22	0.78	0.53
DmDel 323	7348 Priory Place	North Delta	0.16	0.88	0.50
DmDel 327	11405 84 Avenue	North Delta	0.43	0.89	0.66
DmDel 329	Watershed Reservoir	North Delta	0.13	0.61	0.33
DmDel 391	80 Street and Ladner Trunk	Ladner	0.05	0.65	0.36
DmDel 392	3044 41B Street	Ladner	0.39	0.99	0.63

CITY OF DELTA
CHLORINE RESIDUAL MAP - 2022



F:\Eng\Water Quality\Water Quality Report\2022 Water Quality Report\2022 Water Quality Report\Appendix 9 - Delta Distribution System & Chlorine Results Map\DELTA WATER CHLORINE SAMPLING 2022.dwg

Appendix 10

Emergency Notification Protocol

NOTIFICATION REQUIREMENTS

Event	Notifying Agency	Agency Notified	Response Parameter
MV E.coli. Positive sample	MV Laboratory	MV, Delta, MHO	Immediate
Delta E.coli. Positive sample	MV Laboratory	Delta, Environmental Health Officer, MHO	Immediate
MV chemical contamination	MV Laboratory	MV, Delta, MHO	Immediate
MV turbidity > 5 NTU	MV Laboratory	Delta, Environmental Health Officer	Immediate
Delta turbidity > 5 NTU	MV Laboratory	Environmental Health Officer	Immediate
MV source water disinfection failure	MV Laboratory	Delta, MHO, Environmental Health Officer	Immediate
MV rechlorination failure	MV Laboratory	Delta, Environmental Health Officer	Immediate
Delta system pressure loss due to high demand	Delta	MV, Environmental Health Officer	Immediate
MV watermain break with no contamination	MV	Delta	As required
MV watermain break with contamination suspected	MV	Delta, MHO, Environmental Health Officer	Immediate
Delta watermain break with no contamination	Delta	Environmental Health Officer	Immediate
Delta watermain break with contamination suspected	Delta	MHO, Environmental Health Officer, GVRD Laboratory	Immediate

5.4.3 DISINFECTION PROCEDURES - WATERMAIN REPAIRS OR TIE-INS

INTENT:

Watermains are to be disinfected whenever the system has been exposed to atmosphere. The following procedures are based on AWWA Standards C651-92.

5.4.3.1 REPAIRS OR TIE-INS WITH NO GROUNDWATER ENTRY INTO WATERMAIN:

These typically consist of electrolysis holes, cracked or split watermains which are repaired using robar repair clamps. Assuming that the watermain will have a positive outflow of water until the trench is excavated below the invert of the pipe, we can determine that no contaminant has entered the watermain.

a) Under these circumstances the only disinfection required is to swab the area to be repaired and the repair clamp with 6% chlorine solution. (household bleach)
b) No bacterial tests are required.
c) After repairs have been completed, it is recommended to flush the watermain.
d) If positive pressure cannot be achieved, more disinfection is required. See 5.4.3.2.

5.4.3.2 REPAIRS OR TIE-INS WITH GROUNDWATER CONTAMINATION OF THE WATERMAIN:

These are cases where large blowouts have occurred, or it has been impossible to maintain continual outflow from the watermain, or impossible to pump down below watermain before shutting it off. We would then assume that ground water has entered the watermain. These cases require disinfection and bacterial testing. Results of bacterial test are required before putting watermain back in service.
In these cases, a written notice shall be given to affected residents and bottled water shall be provided.

a) Valves feeding each side of break should be left cracked open.
b) Once repairs begin, groundwater must be kept below the main. (Pumps, vactor etc.)
c) Ground water and debris in main should be flushed out if possible.
d) All repair pieces must be swabbed with 6% chlorine solution before installation.
e) Bacterial samples shall be taken from the repaired area as well as one up and one downstream from the isolated break area. In addition, one test shall be taken from a nearby hose bib to compare as the source.
f) These bacterial samples are to be taken to a certified bacterial lab for total and fecal coliform analysis.
g) These tests are taken as a precautionary measure. However, if samples come back positive (coliform present) then further disinfection and testing is required. See 5.4.3.3.

5.4.3.3 E.COLI DETECTED:

If E.coli is detected, that section of main must be shutdown until disinfection and proper re-testing is completed. Any case where a test comes back positive, the waterworks engineer, a member from Environmental Services and Fraser Health must be notified.

Chlorination of the watermain may require complete isolation of the main. Disinfection of the watermain requires a minimum concentration of 200 ppm for a retention time of 2 hours. At the end of this time the chlorine residual must be a minimum of 100 ppm. If this is not met re-chlorination must take place. After chlorination, the watermain must be flushed until chlorine residual is less than 1 ppm. Individual services should also be flushed to remove chlorine that may have entered these connections.

5.4.3.4 <u>WASTEWATER OR OTHER SERIOUS CONTAMINATION</u>:

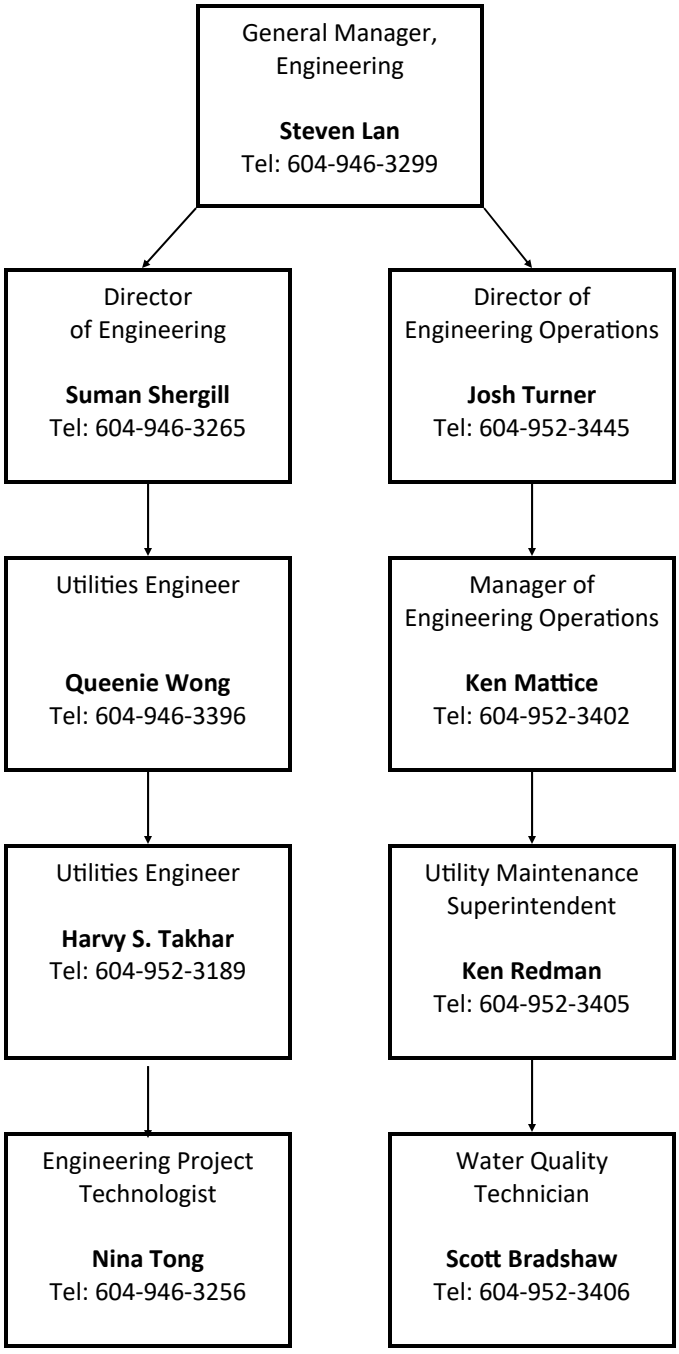
In any case where a watermain break is accompanied by a broken sanitary sewer, the procedures for 5.4.3.3 should be followed.

The watermain must not be put back into service until 3 consecutive successful samples, 24 hours apart, have been obtained for E.coli.

Appendix 11

Delta Water Quality Organizational Chart

Delta Water Quality Organization Chart

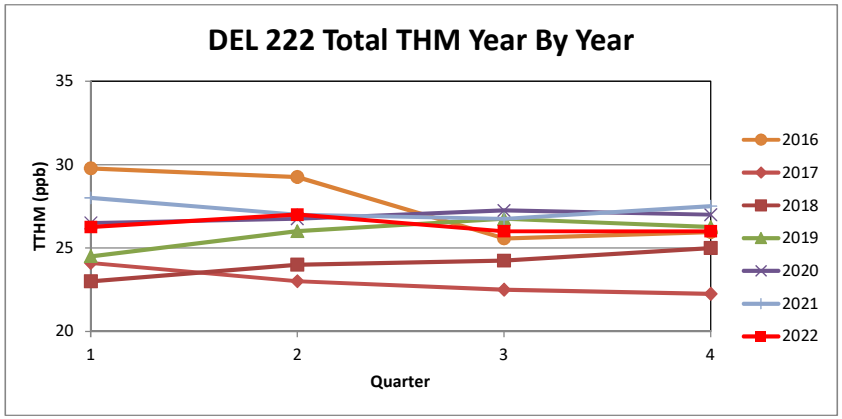


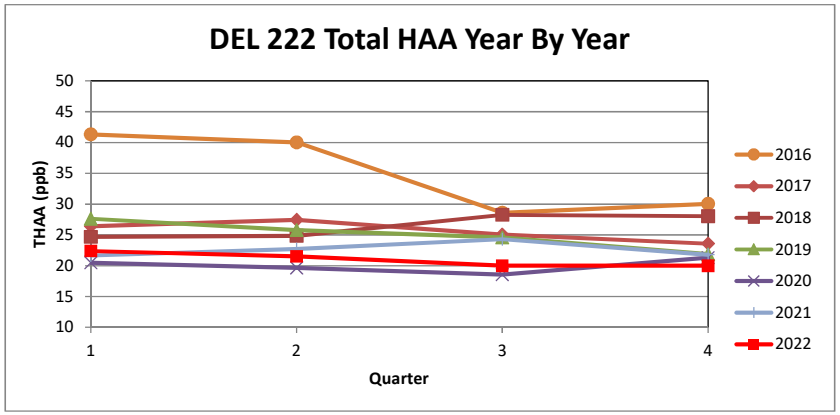
Appendix 12

Disinfection By-Product Results

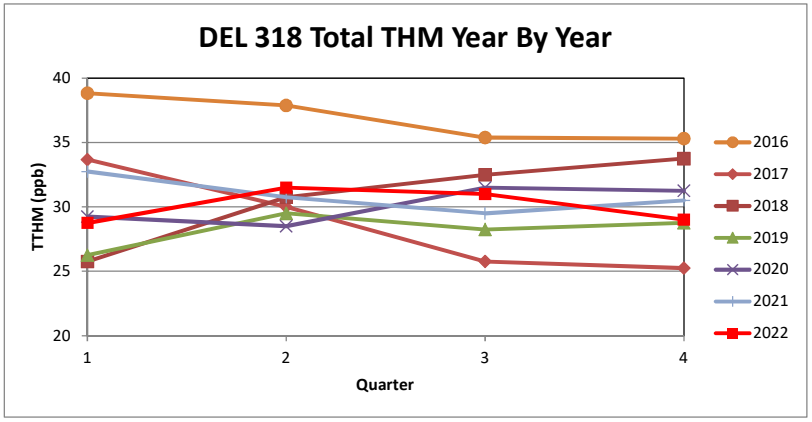
2016 - 2022

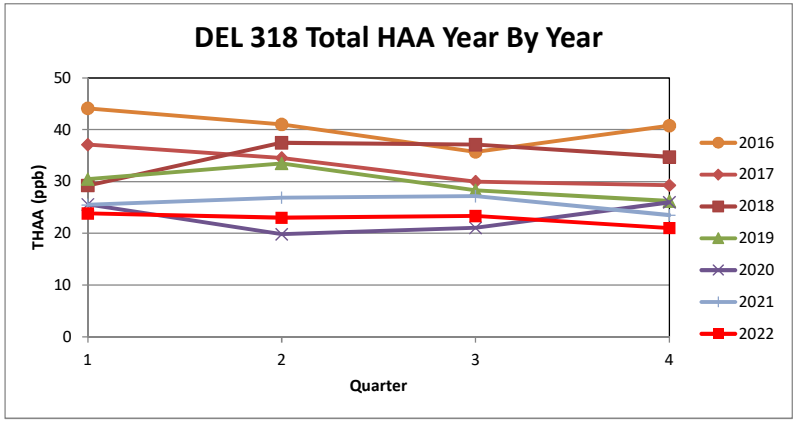
Sample	Date Sampled	THM (ppb)							HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average		Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average
DEL-222	Mar 04 2016	<1	<1	<1	26	26.4	**30**		<0.5	10	<1	9	12.7	32.5	**41**
DEL-222	Jun 02 2016	<1	<1	<1	22	22.4	**29**		<0.5	11	<1	5	10.9	26.5	**40**
DEL-222	Aug 31 2016	1	<1	1	25	27	**26**		<0.5	11	<1	4	8.5	24.6	**29**
DEL-222	Oct 18 2016	<1	<1	<1	27	28	**26**		<0.5	14	<1	5	16.9	36.6	**30**
DEL-222	Mar 02 2017	<1	<1	<1	17	19.0	**24**		<0.5	7	<1	<2	8.6	18.0	**26**
DEL-222	May 18 2017	<1	<1	<1	18	18.0	**23**		<0.5	15	<1	<2	13	30.5	**27**
DEL-222	Aug 22 2017	<1	<1	<1	24	25.0	**23**		<0.5	8	<1	<2	6.3	15.1	**25**
DEL-222	Dec 01 2017	<1	<1	<1	27	27.0	**22**		<0.5	14	<1	<2	14.1	30.7	**24**
DEL-222	Feb 16 2018	<1	<1	<1	20	22	**23**		<0.5	11	<1	<2	9.8	22.5	**25**
DEL-222	May 29 2018	<1	<1	<1	21	22	**24**		<0.5	14	<1	<2	14.5	31.1	**25**
DEL-222	Aug 7 2018	<1	<1	<1	25	26	**24**		<0.5	14	<1	2	12.2	28.7	**28**
DEL-222	Nov 22 2018	1	<1	<1	27	30	**25**		<0.5	15	<1	<2	12.4	29.8	**28**
DEL-222	22-Feb-19	<1	<1	<1	18	20	**25**		<0.5	10	<1	<2	9.5	20.9	**28**
DEL-222	16-May-19	<1	<1	<1	28	28	**26**		<0.5	12	<1	<2	10	23.7	**26**
DEL-222	21-Aug-19	1	<1	<1	27	29	**27**		<0.5	12	<1	<2	10.3	23.9	**25**
DEL-222	3-Dec-19	<1	<1	<1	26	28	**26**		<0.5	7	<1	<2	10.4	19	**22**
DEL-222	Feb 26 2020	<1	<1	<1	19	21	**27**		<0.5	8	<1	<2	7	15.3	**20**
DEL-222	May 27 2020	<1	<1	<1	27	29	**27**		<0.5	12	<1	<2	7.7	20.3	**20**
DEL-222	Aug 13 2020	1	<1	<1	29	31	**27**		<0.5	12	<1	<2	7.2	19.6	**19**
DEL-222	Dec 03 2020	<1	<1	<1	26	27	**27**		<0.5	13	<1	2	14.2	30	**21**
DEL-222	Mar 26 2021	<1	<1	<1	24	25	**28**		<0.5	8	<1	<2	7.4	16.7	**22**
DEL-222	Jun 03 2021	<1	<1	<1	23	25	**27**		<0.5	13	<1	<2	8.8	24.5	**23**
DEL-222	Aug 25 2021	1	<1	<1	28	30	**27**		<0.5	16	<1	<2	9.7	26	**24**
DEL-222	Nov 25 2021	<1	<1	<1	30	30	**28**		<0.5	11	<1	<2	9.1	20	**22**
DEL-222	Feb 17 2022	<1	<1	<1	20	20	**26**		<0.5	11	<5.0	<5.0	7.8	19	**22**
DEL-222	May 11 2022	<1	<1	<1	25	28	**27**		<0.5	12	<0.5	1	7.5	21	**22**
DEL-222	Aug 25 2022	<1	<1	<1	26	26	**26**		<0.5	11	<0.5	0.9	6.7	19	**20**
DEL-222	Nov 16 2022	2	<1	<1	28	31	**26**		<0.5	10	<0.5	<5.0	8	20	**20**



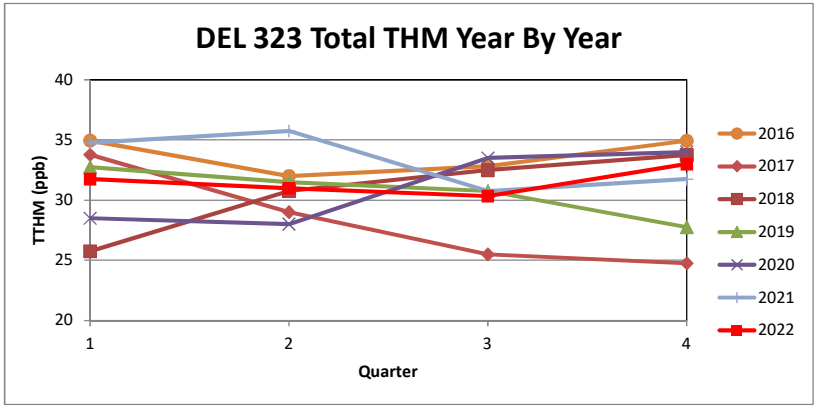


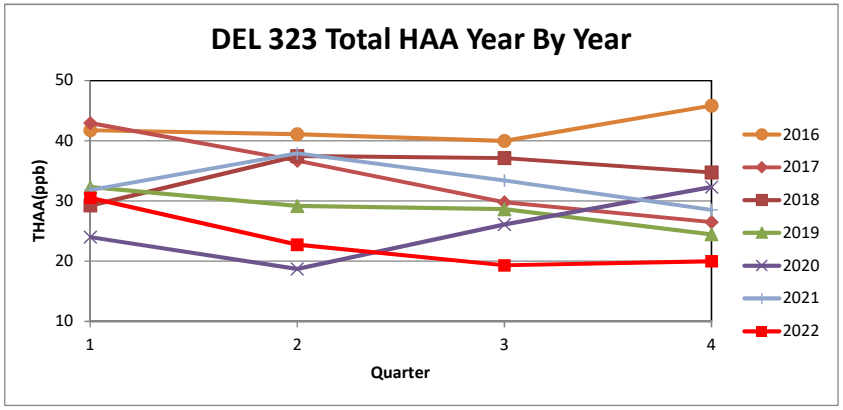
Sample	Date Sampled	THM (ppb)							HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average		Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average
DEL-318	Mar 04 2016	<1	<1	<1	27	28.5	**39**		<0.5	13	<1	6	19.1	39.3	**44**
DEL-318	Jun 02 2016	<1	<1	<1	39	39.7	**38**		<0.5	20	<1	8	25.6	54.3	**41**
DEL-318	Aug 31 2016	1	<1	1	38	39	**35**		<0.5	12	<1	5	12.6	31.4	**36**
DEL-318	Oct 18 2016	1	<1	<1	32	34	**35**		<0.5	4	<1	4	28.9	38.2	**41**
DEL-318	Mar 02 2017	<1	<1	<1	20	22.0	**34**		<0.5	9	<1	<2	13.4	24.6	**37**
DEL-318	May 18 2017	<1	<1	<1	25	25.0	**30**		<0.5	20	<1	2	20.8	44.0	**35**
DEL-318	Aug 22 2017	<1	<1	<1	21	22.0	**26**		<0.5	7	<1	<2	5.5	13.2	**30**
DEL-318	Dec 01 2017	<1	<1	<1	32	32.0	**25**		<0.5	16	<1	<2	17.6	35.4	**29**
DEL-318	Feb 16 2018	<1	<1	<1	22	23	**26**		<0.5	14	<1	<2	20.2	35.9	**32**
DEL-318	May 29 2018	<1	<1	<1	19	20	**24**		<0.5	14	<1	<2	14.9	30.8	**29**
DEL-318	Aug 7 2018	<1	<1	<1	30	31	**27**		<0.5	17	<1	<2	17.5	36.8	**35**
DEL-318	Nov 22 2018	<1	<1	<1	27	29	**26**		<0.5	12	<1	<2	10.8	25.3	**32**
DEL-318	22-Feb-19	<1	<1	<1	23	25	**26**		<0.5	12	<1	<2	14.4	29	**30**
DEL-318	16-May-19	<1	<1	<1	33	33	**30**		<0.5	18	<1	<2	23.1	42.9	**34**
DEL-318	21-Aug-19	1	<1	<1	24	26	**28**		<0.5	8	<1	<2	7	16	**28**
DEL-318	3-Dec-19	<1	<1	<1	30	31	**29**		<0.5	7	<1	<2	9.7	17	**26**
DEL-318	Feb 26 2020	<1	<1	<1	26	27	**29**		<0.5	11	<1	<2	15.2	26.5	**26**
DEL-318	May 27 2020	<1	<1	<1	28	30	**29**		<0.5	10	<1	<2	8.8	19.9	**20**
DEL-318	Aug 13 2020	1	<1	<1	36	38	**32**		<0.5	10	<1	<2	10.8	20.8	**21**
DEL-318	Dec 03 2020	<1	<1	<1	29	30	**31**		<0.5	14	<1	2	19.5	36.7	**26**
DEL-318	Mar 26 2021	<1	<1	<1	32	33	**33**		<0.5	10	<1	3	10.7	24.6	**26**
DEL-318	Jun 03 2021	<1	<1	<1	20	22	**31**		<0.5	11	<1	<2	12.1	25.4	**27**
DEL-318	Aug 25 2021	1	<1	<1	30	33	**30**		<0.5	12	<1	<2	9.3	22	**27**
DEL-318	Nov 25 2021	<1	<1	<1	33	34	**31**		<0.5	9	<1	<2	11.7	22	**24**
DEL-318	Feb 17 2022	<1	<1	<1	25	26	**29**		<0.5	13	<0.5	<5.0	12	26	**24**
DEL-318	May 11 2022	<1	<1	<1	30	33	**32**		<0.5	12	<0.5	0.8	9	22	**23**
DEL-318	Aug 25 2022	<1	<1	<1	26	26	**31**		<0.5	8.6	<0.5	<5.0	6.4	16	**23**
DEL-318	Nov 16 2022	2	<1	<1	30	32	**29**		<0.5	11	<0.5	0.9	8.3	20	**21**





		THM (ppb)							HAA (ppb)						
Sample	Date Sampled	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average		Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average
DEL-323	Mar 04 2016	<1	<1	<1	22	23.6	**35**		<0.5	9	<1	8	10.3	28.1	**42**
DEL-323	Jun 02 2016	<1	<1	<1	37	37.1	**32**		<0.5	19	<1	9	23.1	50.5	**41**
DEL-323	Aug 31 2016	1	<1	1	39	41	**33**		<0.5	16	<1	7	28.1	52.7	**40**
DEL-323	Oct 18 2016	<1	<1	<1	37	38	**35**		<0.5	9	<1	6	35.3	52.1	**46**
DEL-323	Mar 02 2017	<1	<1	<1	17	19.0	**34**		<0.5	7	<1	<2	8.3	16.5	**43**
DEL-323	May 18 2017	<1	<1	<1	18	18.0	**29**		<0.5	13	<1	<2	10.8	25.5	**37**
DEL-323	Aug 22 2017	<1	<1	<1	27	27.0	**26**		<0.5	10	<1	<2	13.2	25.1	**30**
DEL-323	Dec 01 2017	<1	<1	<1	34	35.0	**25**		<0.5	13	<1	<2	24.2	38.9	**27**
DEL-323	Feb 16 2018	<1	<1	<1	21	23	**26**		<0.5	12	<1	<2	13.2	27.5	**29**
DEL-323	May 29 2018	<1	<1	<1	36	38	**31**		0.5	24	<1	2	31.9	58.4	**37**
DEL-323	Aug 7 2018	<1	<1	<1	33	34	**33**		<0.5	11	<1	<2	11	23.7	**37**
DEL-323	Nov 22 2018	<1	<1	<1	37	40	**34**		<0.5	8	<1	<2	20.6	29.4	**35**
DEL-323	22-Feb-19	<1	<1	<1	17	19	**33**		<0.5	9	<1	<2	7.4	17.8	**32**
DEL-323	16-May-19	<1	<1	<1	33	33	**32**		<0.5	18	<1	2	25	45.9	**29**
DEL-323	21-Aug-19	1	<1	<1	28	31	**31**		<0.5	10	<1	<2	10.9	21.4	**29**
DEL-323	3-Dec-19	<1	<1	<1	27	28	**28**		<0.5	5	<1	<2	6.9	12.8	**24**
DEL-323	Feb 26 2020	<1	<1	<1	20	22	**29**		<0.5	8	<1	<2	7.7	16	**24**
DEL-323	May 27 2020	<1	<1	<1	29	31	**28**		<0.5	12	<1	<2	12.5	24.7	**19**
DEL-323	Aug 13 2020	1	<1	<1	51	53	**34**		<0.5	20	<1	2	28.7	51	**26**
DEL-323	Dec 03 2020	<1	<1	<1	29	30	**34**		<0.5	12	<1	2	22.4	37.6	**32**
DEL-323	Mar 26 2021	<1	<1	<1	24	25	**35**		<0.5	7	<1	<2	5.2	14	**32**
DEL-323	Jun 03 2021	<1	<1	<1	33	35	**36**		<0.5	18	<1	2	28.3	49.1	**38**
DEL-323	Aug 25 2021	1	<1	<1	31	33	**31**		<0.5	11	<1	<2	21.6	33	**33**
DEL-323	Nov 25 2021	<1	<1	<1	32	34	**32**		<0.5	4	<1	<2	13.5	18	**29**
DEL-323	Feb 17 2022	<1	<1	<1	24	25	**32**		<0.5	11	<5.0	<5.0	9.6	22	**31**
DEL-323	May 11 2022	<1	<1	<1	30	32	**31**		<0.5	10	<0.5	0.9	6.8	18	**23**
DEL-323	Aug 25 2022	1	<1	<1	43	44	**30**		<0.5	7.7	<0.5	0.6	22	30	**19**
DEL-323	Nov 16 2022	2	<1	<1	27	29	**33**		<0.5	2.7	<0.5	<0.5	7.1	9.8	**20**





Appendix 13

Metals Test Results

2022 Metals Test Results

Metals	Sample Name	DEL-222 : 4734 51 Street		DEL-227 : 6487 Sunshine Drive		DEL-313 : 5191 Robertson Road		DEL-319 : 5169 Kilkenny Drive		Canadian	Reason Guideline
	Sample Date	5/4/2022 10:00	11/8/2022 7:50	5/4/2022 10:30	11/8/2022 7:20	5/4/2022 9:30	11/8/2022 8:25	5/4/2022 8:15	11/8/2022 9:45	Guideline Limit	Established
Aluminum Total	µg/L	27	29	41	52	35	35	31	38	200	Aesthetic
Antimony Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	Health
Arsenic Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10	Health
Barium Total	µg/L	2.4	3.3	2.8	3.4	2.4	3.0	2.4	3.4	2000	Health
Boron Total	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	5000	Health
Cadmium Total	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	7	Health
Calcium Total	µg/L	8610	8140	7360	5380	8050	7760	8280	7650	none	
Chromium Total	µg/L	<0.05	0.08	<0.05	0.09	<0.05	0.06	<0.05	0.07	50	Health
Cobalt Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	none	
Copper Total	µg/L	7	3.8	0.9	0.5	1.6	1.5	0.9	1.0	≤2000	Health
Iron Total	µg/L	7	<5	18	36	21	19	<5	7	≤ 300	Aesthetic
Lead Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	Health
Magnesium Total	µg/L	191	221	175	170	197	228	202	215	none	
Manganese Total	µg/L	9.1	8.4	9.8	9.7	2	8.5	4	8.1	120	Health
Mercury Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0	Health
Molybdenum Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	none	
Nickel Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	none	
Potassium Total	µg/L	156	232	145	195	147	231	154	230	none	
Selenium Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	50	Health
Silver Total	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	none	
Sodium Total	µg/L	1650	2040	3310	5590	1560	2070	1560	2310	≤ 200,000	Aesthetic
Zinc Total	µg/L	<3.0	3.3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	≤ 5000	Aesthetic

Appendix 14

Vinyl Chloride Test Results

2022 Vinyl Chloride Test Results

Sample Site Number	Sample Reported Name	1st Half of 2022 Sampled Date	Vinyl Chloride (mg/L)	2nd Half of 2022 Sampled Date	Vinyl Chloride (mg/L)
DEL-223	#10 Centennial Parkway	16-May-22	<0.001	29-Nov-22	<0.001
DEL-310	4905 Galbraith Street	16-May-22	<0.001	29-Nov-22	<0.001
DEL-313	5191 Robertson Road	16-May-22	<0.001	29-Nov-22	<0.001
DEL-319	5169 Kilkenny Drive	16-May-22	<0.001	29-Nov-22	<0.001
DEL-321	9434 117A Street	16-May-22	<0.001	29-Nov-22	<0.001
DEL-323	7348 Priory Place	16-May-22	<0.001	29-Nov-22	<0.001

Notes:

Canadian Guideline Limit for Vinyl Chloride is 0.002 mg/L

Appendix 15

Health Information

BULLETIN
From Environmental Health Services

fraserhealth

Responsibilities of a Water System Owner / Operator

Under the Drinking Water Protection Act and Regulation owners and operators of a drinking water system are responsible by law to ensure that the water is safe for domestic use. Domestic use is defined as water used for human consumption, food preparation or sanitation (i.e., water used for drinking, cooking, cleaning, etc.).

The following table is a summary of the water system owner and operator responsibilities.

1. Supply Safe Drinking Water (Act s.6, Reg s.5)	All water supplied to customers/users must be free from harmful microorganisms (bacteria, viruses or parasites). Health related chemicals found in the drinking water must not exceed certain levels. Drinking water taken from surface sources (lake, creek or spring) or ground water sources (shallow well) at risk of containing harmful microorganisms must be treated (i.e. Chlorine, Ultra Violet light).
2. Construction Permit (Act s.7, Reg s.6)	Construction permits are required to construct a new water system or to alter or extend an existing water system.
3. Operating Permit (Act s.8, Reg s.7)	To operate a water system requires a valid Operating Permit issued by Fraser Health. Terms and Conditions may be applied to the permit where necessary.
4. Operator Training (Act s.9, Reg s.12, 4.2)	A Certified Operator is required for all water systems serving a population of 500 or more persons. A small water system is not required to have a certified operator unless otherwise required by the Drinking Water Officer/Inspector as a condition on your operating permit.

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5. Water Sample Collection & Testing (Act s.11, Reg s. 2,8,9)	Owners/operators are required to collect and submit water samples to an approved laboratory. The laboratory tests for the presence of total coliform and E.coli bacteria. Owners/operators are expected to have the drinking water tested for specific chemicals every 3 to 5 years.
6. Emergency Response Plan (Act s.10, Reg s.13)	Owners/operators must have a written plan detailing what they will do in the event of an emergency (e.g. if the drinking water supply becomes contaminated with E.coli bacteria – issue a boil water advisory to all users).
7. Immediate Reporting (Act s.12, Reg s.9)	If an owner/operator receives a report from a laboratory regarding an E.coli positive water test result, he/she must immediately notify Fraser Health (Drinking Water Officer/Inspector).
8. Notify Drinking Water Officer of Threat (Act s.13)	As soon as an owner/operator becomes aware of a possible threat to their water system (e.g. chemical is spilled into their water supply or someone has tampered with their system) he/she must immediately notify Fraser Health (Drinking Water Officer/Inspector).
9. Notify Water Users of Threats to Drinking Water (Act s.14)	If an owner/operator becomes aware of a possible health threat and is unable to immediately notify the Drinking Water Officer/Inspector, he/she must immediately notify the users of the drinking water supply of the threat. For example: • Owner/operator receives a report from a laboratory regarding an E.coli positive water test result or • Owner/operator considers that there may be a health threat to the drinking water system.
10. Publication of Information (Act s.15, Reg s.11)	Owners/operators are required to make various types of information public. This includes information regarding their emergency response plans and water quality monitoring test results.
Recommendation: Operation & Maintenance Recordkeeping	Owners/operators should keep a record of routine maintenance and repairs, water test results, operational issues, etc.

Unofficial versions of the act and regulation can be downloaded from: www.hls.gov.bc.ca/protect/dwact.html

For any questions or concerns contact your Drinking Water Officer/Inspector at 604-870-7900.

Website: www.healthspace.ca/fha
www.fraserhealth.ca

What can I do if there is arsenic in my drinking water?

Water with arsenic is a problem only if you are using it for drinking, preparing food or watering food plants. Exposure through breathing and skin contact is not harmful. For example, there are no known health effects from hand washing, bathing, or washing clothing in water with arsenic.

If an initial test detects arsenic, even at levels below the guideline, it is important to have a second test done to confirm the results. If arsenic is present, then you can either use another source for drinking water or treat the current source.

Chlorination and mechanical filters do not remove arsenic from water. **Boiling water may increase the concentration of arsenic and make the problem worse.** There are several treatment options for removing arsenic including reverse osmosis filters and distillation.

There is no regulatory control over treatment devices for private homes, so you have to be careful to buy one that works for removing arsenic. Look for a treatment device that has been certified by an organization accredited by the Standards Council of Canada (SCC) and meets one of the following standards:

- NSF/ANSI Standard 62 on drinking water distillation systems; or
- Standard 58 on reverse osmosis drinking water treatment systems; or
- Standards 53 on drinking water treatment units – with specific designation for arsenic.

Be sure to operate and maintain your treatment device as per the manufacturer's instructions and test your raw and treated water regularly for arsenic to make sure that the device is indeed working properly.

For more information pertaining to drinking water and other services, visit the Fraser Health website below or contact the Drinking Water Program staff at 1-604-870-7900.

www.fraserhealth.ca/your_environment

Health Protection is responsible for regulating and monitoring many public facilities and those aspects of the environment that have a direct impact on public health. Our mission is "ensuring healthy people and healthy environments".

fraserhealth

Better health.
Best in health care.

Revised: December 2013

fraserhealth

Arsenic in Well Water

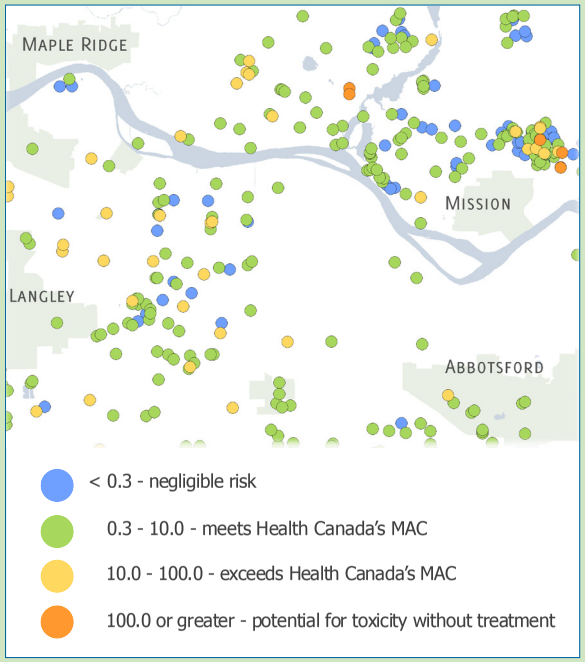
Information for Private Well Owners

Health Protection

Ensuring Healthy People and Healthy Environments

Drinking water that contains arsenic can have serious short-term and long-term health effects. As you can see on the map, some groundwater in the Fraser Valley is known to contain arsenic concentrations exceeding Health Canada's Maximum Acceptable Concentration (MAC) of 0.010mg/L (10 ug/L or 10 parts per billion). This pamphlet provides information about arsenic, including how to test your well water for arsenic and what to do if arsenic is found in your well water.

Pre-Treatment Arsenic Levels



For a detailed and larger area view of the above Arsenic Map visit the Fraser Health website at: www.fraserhealth.ca/your_environment/drinking_water/resources/private-well-owners/.

How does arsenic get into drinking water?

Arsenic can get into drinking water from natural deposits or runoff from agriculture, mining or industrial processes. In British Columbia, natural minerals are the most common sources of arsenic in drinking water. The amount of arsenic found in groundwater wells is usually higher than that found in surface water supplies such as lakes, streams and rivers.

What are the health effects of arsenic exposure?

Arsenic in water is a concern only if the water is being used for drinking or preparing food. Exposure through breathing and skin contact is not harmful. For example, there are no known health effects from hand washing, bathing or washing clothing in water with arsenic.

However, if you use your water for drinking or preparing food, water that contains arsenic can have serious short-term and long-term health effects, depending on how much arsenic is in your water and for how long you drink it.

Short to medium-term (days to weeks) exposure to very high levels of arsenic (over 200 parts per billion) in drinking water can lead to arsenic poisoning. For an added margin of safety, do not drink water containing 100 parts per billion arsenic or greater.

Symptoms of exposure to high levels of arsenic include stomach pain, vomiting, diarrhea, and impaired nerve function, which may result in 'pins and needles' sensation in hands and feet.

As children tend to drink more water per unit of body weight than adults, they may have more exposure to arsenic in drinking water and may be at greater risk of illness when higher levels of arsenic are present.

Long-term (years to decades) exposure to even relatively low amounts of arsenic in drinking water can increase your risk of developing certain cancers, including skin, lung, kidney, and bladder cancer. The risk of cancer is the reason for developing the Canadian guideline for arsenic in drinking water. Long term arsenic exposure can also cause skin changes, including darkening, and wart or corn-like growths mostly found on the palms of the hands and soles of the feet.

Health Canada set a Maximum Acceptable Concentration (MAC) of 0.010 mg/L (10 ug/L or 10 parts per billion) for arsenic in drinking water. This level was set based on the ability to treat water practicably to this level. This amount is still linked with a health risk higher than the level considered to be a very minor risk. For this reason people should consider taking precautions with their drinking water even if the arsenic levels are slightly below the guideline.

For more information on arsenic in drinking water and the Guidelines for Canadian Drinking Water Quality visit the Health Canada website at www.hc-sc.gc.ca.

How can I find out if there is arsenic in my drinking water?

Any well may contain arsenic or other contaminants. As the well owner, it is your responsibility to test your well water for arsenic and other indicators of water quality.

Arsenic in drinking water has no odour or taste. It is detected by a chemical test that is done only by specialized laboratories. For a list of "Laboratories Analytical" check the yellow pages in the telephone book or contact an Environmental Health Officer in the Drinking Water Program at 1-604-870-7900.

For more information on water testing go to www.healthlinkbc.ca/healthfiles/hfile05b.stm. See file #05b "Should I Get My Well Water Tested?"

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February 1, 2022

Water System Operators

Re: Metals in Drinking Water – "Flush" Message in Annual Reports

Fraser Health has recently revised its metals at the tap "Flush" message and we are asking all water systems to please include the following health message with your next annual reports to your users.

Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.) The more time water has been sitting in your home's pipes, the more lead it may contain.

Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.

The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants.

If you have any questions, please contact our Drinking Water Program at 604-870-7903.

Sincerely,

Drinking Water Program
Fraser Health Authority
HPLand@fraserhealth.ca