

BUFFALO
POUND
WATER

BOARD OF
DIRECTORS

ANNUAL
REPORT



2020

BUFFALO POUND WATER MANAGEMENT TEAM



The Buffalo Pound Water Treatment Plant is located approximately 30 kilometres northeast of the City of Moose Jaw, Saskatchewan, on Highway No. 301, 17 kilometres north of the intersection with Highway No. 1.

The Plant's mailing address is PO Box 944, Moose Jaw, Saskatchewan, S6H 2V2.

The telephone number is 306-694-1377.

Information about the Buffalo Pound Water Treatment Plant is also available from the Plant's website. This may be accessed by going to:

<http://www.buffalopoundwtp.ca>

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BUFFALO POUND WATER
ANNUAL REPORT 2020



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This report summarizes the activities and major events of the Buffalo Pound Water Treatment Corporation (the “Corporation”) for the operations of the Buffalo Pound Water Treatment Plant (the “Plant”) during 2020. The report outlines the Mission and Goals, achievements and areas of concern. It’s intended as an information source for City administration personnel, elected officials and the general public. This report also contains the Drinking Water Quality and Compliance Report required by provincial regulations and the Audited Financial Statements.

**BUFFALO POUND WATER
BOARD OF DIRECTORS**

The Buffalo Pound Water Board of Directors (the “Board”) was created in 2016 by the Unanimous Membership Agreement (UMA), which replaced the previous Buffalo Pound Water Administration Board from 1951. The UMA is an Agreement between the Cities of Regina and Moose Jaw (the “Owners”) and the Corporation. In accordance with the Agreement, the skill based Board is comprised of seven independent members.





BOARD CHAIRPERSON'S LETTER

DALE SCHOFFER

FCPA, FCA, C.DIR

On behalf of the Board, I am pleased to present the Buffalo Pound Water Treatment Corporation's (BPWTC) 2020 Annual Report.

The Canadian arrival of COVID-19 in March of 2020 meant the past year was a challenging one for the Corporation, as it was for individuals and organizations the world over. Our staff and Management Team worked exceedingly hard over the year to promptly implement the evolving procedure and process changes required to meet or exceed all public health protocols in relation to COVID-19. I want to commend the Corporation's staff and Management Team for their ongoing commitment to providing a safe, clean, and reliable source of drinking water to our more than 260,000 Saskatchewan consumers throughout the year, and for their continued support to customers while much of the world was locked down.

I am very pleased to report that despite the challenges posed by this extraordinary year, the Corporation was able to achieve a number of significant milestones in 2020.

With input from the staff, Management Team and Board of Directors, the Corporation successfully updated its Strategic Plan, laying out a strong direction for the organization through to 2023.

In addition, the risk of a disruption in the water supply, as a result of power loss, was reduced with the completion of electrical capital upgrade work, and the work on the renewal of the Lake Pump Station to ensure the reliability of the future water supply progressed well.

Significant work was done on the Plant Renewal Project which will ensure the long-term viability of the Buffalo Pound Water Treatment Plant. In 2020, design work for the Project was awarded to the Graham-Aecon Joint Venture Group, the pre-design research and report was completed, and design development was initiated. Financial planning for the Project is well underway and remains on schedule and within budget. We look forward to the evolution of this Project in 2021.

As a Corporation, we are guided by the BPWTC's vision of being an expertly operated, independent, and trusted entity, that will be positioned to provide sustainable and reliable water as a critical service for generations to come. This vision is the basis for the BPWTC strategic plan, which ensures our ongoing focus on capital investment, staffing, processes, financial stability, risk management and governance.

While this year has been a challenging one for the Corporation, it has also been a very successful one. The successes achieved by the Corporation this year are due entirely to the skilled, diligent, and dedicated staff of the organization, under the leadership of President & CEO Ryan Johnson and his Management Team. I want to say a special thank-you to each and every employee of the Corporation for their commitment to, and support of, the Corporation and the many consumers we serve.

Dale Schoffer, FCPA, FCA, C.Dir



PRESIDENT AND CEO'S LETTER

RYAN JOHNSON
CD, M.A.SC., P.ENG.

On behalf of the Buffalo Pound Water Treatment Corporation's Management Team and staff, I am very pleased to present the 2020 Annual Report.

COVID-19

As readers can appreciate, 2020 began like any other year, but in March, with the arrival of COVID-19, morphed into a year that became unlike any we had dealt with in the past. The year 2020 will be remembered as being full of COVID-19 related challenges that were offset by our team's determination to succeed.

OPERATIONS

That team determination resulted in an overall positive year for operations despite the COVID-19 related disruptions and constant changes at the Buffalo Pound Water Treatment Plant. As both a critical and essential service, the Plant was able to continue providing safe drinking water to over 260,000 people in Moose Jaw, Regina and the surrounding region, without incident. Throughout the year, the Plant met all regulatory requirements and criteria in the production of safe drinking water and the Corporation met its obligations under the Unanimous Membership Agreement and Mandate established by the Cities of Regina and Moose Jaw.

Issues experienced by the Plant were minimal and were mainly due to loss of power, changes in raw water conditions and equipment failure. Regulatory concerns remain with the operations of the Plant's process waste ponds discharging higher levels of total suspended solids and chlorine residuals back into the environment than what is acceptable under the Permit to Operate. Short term adjustments continue to be made to processes and procedures to improve that operation. However, the Plant Renewal Project will satisfactorily address these deficiencies in the long term.

WATER QUALITY IMPROVEMENTS

Raw water quality continued to improve with increased water flows from Lake Diefenbaker and with releases from Buffalo Pound Lake, which has positively impacted operations. Over the past year, total dissolved solids decreased by 7% and dissolved organic carbon remained about the same as in 2019. Since 2015, total dissolved solids and dissolved organic carbon have decreased by 47%. Trihalomethanes at the Plant averaged 16 ug/L during 2020 compared to 78 ug/L in 2015.

WATER TREATMENT PROCESS

Beginning in February, the Plant ceased chlorination at the lake pump station on a semi-permanent basis. The removal of chlorination at the beginning of the treatment process was to reduce trihalomethane formation within the Plant and the Cities' distribution systems. From February through the remainder of 2020, trihalomethanes at the Plant were reduced by an astounding 69%, averaging 11 µg/L compared to 35 µg/L for the same period in 2019. As well, trihalomethane concentrations declined by 43% and 46% in Regina and Moose Jaw respectively. In addition, chlorine use at the Plant declined by 45%, the downside was that there was a 38% increase in coagulant.

SAFETY MANAGEMENT

The Corporation's Safety Management System Certificate of Recognition continued to be certified at the Bronze level by the Safety Association of Saskatchewan Manufacturers. The Corporation completed a required internal audit for the certification in 2020.

The Safety Management System continued to contribute to the strengthening of the safety culture core value, resulting in no lost time incidents during the year.

LABOUR NEGOTIATIONS

The Corporation and UNIFOR 595, which represents the Corporation's in-scope employees, successfully negotiated a five-year agreement. This agreement will provide continued stability through the Plant Renewal Project.

RISK AUDIT

The Risk Registry went through a triannual audit in 2020. Some minor adjustments were made to the living document, which is reviewed quarterly by the Management Team.

STRATEGIC PLAN

The Corporation's Strategic Plan was reviewed and updated. This process included input from the staff, Management Team, and Board of Directors. The newly updated Strategic Plan and Balanced Score Card now cover the 2020 to 2023 period.

PROJECTS

1. Electrical Capital Upgrade

Phase 2 of the Electrical Capital Upgrade Project for the transmission line was completed in 2020, further reducing the risk of a utility power loss.

2. Lake Pump Station Renewal

Construction on Phase 3 of the Lake Pump Station renewal commenced in 2019 and will be completed in early 2021. The project experienced some COVID related delays of materials supplied by third parties. The renewal project will increase the efficiency of the raw water pumps, replace the electrical substation and add backup generators to ensure the reliability of future water supply. In 2018, the Provincial and the Federal Governments committed \$20.6 million in grant funds for this work under the Provincial-Territorial

Infrastructure component of the New Building Canada Fund.

3. Plant Renewal Project (PRP)

The Plant Renewal Project (PRP) will ensure the long-term viability of the Buffalo Pound Water Treatment Plant by: addressing the increasing number of challenges associated with dynamic raw water conditions and limited treatment options; meeting future regulatory requirements; resolving ageing infrastructure issues and enabling the Corporation to fulfill its mandate for generations to come.

The PRP progressed on schedule in 2020. Following the detailed evaluation and review process, the design portion of the project was awarded in June to the Graham-Aecon Joint Venture Group, with Stantec and Associated Engineering providing engineering services. A Class 3 estimate was provided to assist with finalizing the financing plan.

With permission from the Cities of Regina and Moose Jaw, the Corporation submitted a request for PRP grant funding of \$222.8 million under the Investing in Canada Infrastructure Program – Green Infrastructure Stream. The Corporation is working with the funding agencies and await their formal decision.

The PRP progressed with the Corporation, advisors, the Graham-Aecon Joint Venture Group and the engineering design team, actively engaged. The Pre-design Report was completed in October; the design development continued as scheduled; scope was well managed and the costs remained within budget.

4. Computerized Maintenance Management System

In early 2020, implementation of the Computerized Maintenance and Inventory Management System was completed and staff has started collecting and utilizing maintenance data to improve maintenance practices and asset health.

OPERATING BUDGET

In April, a decision was made to delete and defer some operational costs to ensure the Corporation would not operate in a deficit, as water sales were anticipated to be below forecast due to the economic impact of COVID-19. Unknown to the Corporation at the time, 2020 turned out to be a very dry year resulting in increased water usage subsequently offsetting a large portion of the projected reduction in consumption. The overall operations generated a surplus of \$1.0 million. These surplus funds will be used to offset the amount of the loan required for the PRP.

CAPITAL PROJECTS

All Capital Projects progressed or were completed during the year. The strategy has been to have the Corporation self finance the PRP Engineering and Advisory Services. The Corporation will need to obtain grant funds from the Provincial and Federal Governments, and to incur debt, to cover the construction costs.

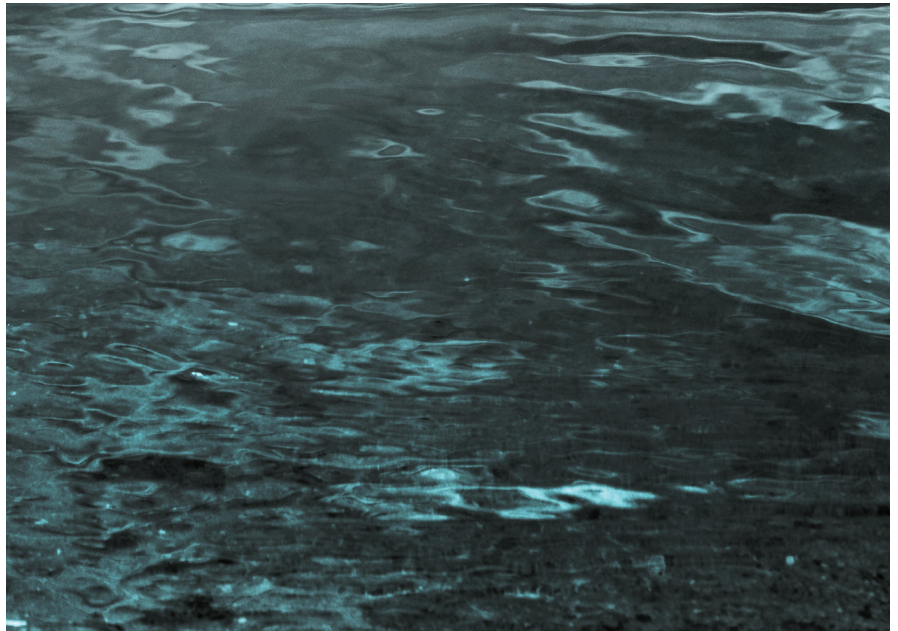
Any available funds not utilized for a project will be used to offset

the size of the debt or provide a contingency cushion. The Corporation has a Capital Reserve of \$36.3 million which is allocated to the PRP and the completion of any remaining Capital Projects. The reserve was reduced by \$10.3 million over the course of the year.

I want to specially thank the Buffalo Pound Water Management Team and staff for their collective hard work and dedication to ensure that the Corporation met its regulatory requirements, mandate, and objectives throughout the year, especially during a pandemic.

Finally, I would again like to express my gratitude to the Board of Directors for their continued insight and input they provide to ensure the Corporation is able to meet its mandate and mission.

Ryan Johnson, CD, M.A.Sc., P.Eng.





The Corporation will reliably and efficiently provide safe, high quality and affordable drinking water to the Cities.

To provide the Cities of Regina and Moose Jaw a reliable and affordable supply of safe, high-quality drinking water which meet the needs and expectations of consumers.

- Treated water that meets the quality expectations of the citizens of Moose Jaw and Regina, as well as meeting, or exceeding, all government regulated parameters.
- Operational practices and controls that ensure a continuous and safely-treated supply of water within an environmentally-responsible and cost-efficient operation.
- Judicious monitoring of the treated water from the Plant to the end of the Cities' distribution systems. Appropriate monitoring of the water in Buffalo Pound Lake, the Upper Qu'Appelle River and Lake Diefenbaker to identify long-term trends and areas of concern to protect the water supply.
- Water quality research to identify possible chemical and microbiological contaminants and to test and implement the best available treatment technologies, thus ensuring that the Water Treatment Plant can meet current and future expectations for regulated parameters.

Safety | Team Culture | Process Driven | Innovation | Continuous Improvement | Operational Excellence

Buffalo Pound Water (BPW) is an expertly operated, independent, and trusted entity, that will be positioned to provide sustainable and reliable water as a critical service for generations to come.

MISSION (WHY WE EXIST)	To provide a reliable and affordable supply of safe, high quality drinking water which meets the needs and expectations of consumers for the Cities of Regina and Moose Jaw.			
VALUES (HOW WE OPERATE)	SAFETY TEAM CULTURE ACCOUNTABILITY PROCESS-DRIVEN INNOVATION CONTINUOUS IMPROVEMENT			
VISION (WHERE WE ARE GOING) 3-YEAR BUSINESS PLAN 2018-2020	BPW is an expertly operated, independent, and trusted entity, that will be positioned to provide sustainable and reliable water as a critical service <i>for generations to come.</i> Deliver on Mission, and by 2020, Renewal Construction begins.			
CORE SERVICES	WATER QUALITY Regulatory Requirements and Customer Expectations Met 100% of the Time		WATER QUANTITY Meet Customer Demand 100% of the Time	
PROJECTS	RENEWAL PROJECT 2018 Renewal Vision is Clear 2018 Funding Pre-approval		CRITICAL PROJECTS Electrical Project SCADA Project Chlorine Project CMMS Project	
PEOPLE	SAFETY CULTURE Plant-wide Safety Management System	PEOPLE DEVELOPMENT & PERFORMANCE Performance Plans, Learning Plans, Plant-wide and Department Goals	COMMUNICATIONS & MANAGING CHANGE Internal Communication to Create One Team, Successful Change Implementation, Evolution of Project Management	BOARD GOVERNANCE Bylaws, Policies, Customer Services Agreement, Asset Transfer, Board Education & On-boarding
FINANCIAL & RISK MANAGEMENT	FUNDING SOURCES Grants, Loans, Research New Lines of Business	FINANCIAL OPERATING PERFORMANCE Budget Variance	RISK MANAGEMENT Risk Registry & QMS Framework	ASSET LIFECYCLE MANAGEMENT Asset Maintenance Plan

MANDATE, MISSION, GOALS AND VALUES CONTINUED

STRATEGIC PLAN 2018 – 2020

The Corporation's Strategic Plan for 2018 -2020 is above. The Plant's Key Performance Indicators (KPIs) use targets that are set by the Board through the Strategic Plan's Balanced Scorecard. These are reviewed by the Board and the targets adjusted accordingly at the Annual Retreat.

All of the targets in the Strategic Plan were met at year end with the exception of:

- (i) The Customer Service Agreements between the Corporation and Cities should be completed in 2021.

In January 2020, Allen-Hardisty Leadership Group (Consultant) was re-engaged to facilitate the strategic planning process. Re-engaging this firm ensured strong continuity since the development of the Corporation's first Strategic Plan 2015 – 2017.

The strategic planning process was designed to be a more mature, evolved and inclusive planning process that included employee engagement at the kick-off phase, with significant emphasis on Management Team engagement throughout the entire process.

The Board approved the 2020 - 2023 Strategic Plan and Balanced Scorecard on September 30, 2020. The renewed Strategic Plan was rolled out to staff in October, 2020 and will take effect January, 2021.



THE YEAR IN REVIEW

RESOURCES

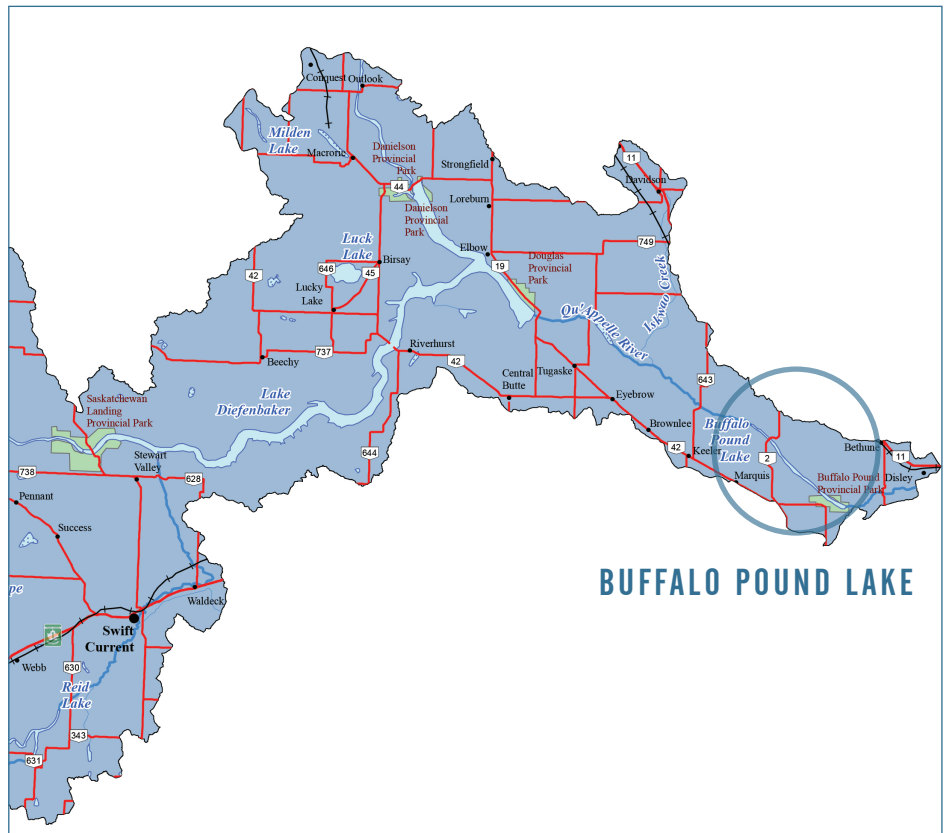


FIGURE 1: UPSTREAM SOURCE WATER IN SASKATCHEWAN

WATER SOURCE

Water for Regina and Moose Jaw is taken from Buffalo Pound Lake, a shallow reservoir in the Qu'Appelle Valley which is a part of the Upper Qu'Appelle River. The lake is 29 km long, 1 km wide but has an average depth of only 3 metres. The surface area of Buffalo Pound Lake is 2900 hectares inferring it has a capacity of 90 million cubic metres at the “full supply level” of 509.3 metres above sea level. Water levels in Buffalo Pound Lake are controlled by the Saskatchewan Water Security Agency and maintained by the release of water from the Qu'Appelle Dam on Lake Diefenbaker. From 2015 through 2020, the mean annual water release from Lake Diefenbaker has increased from 1.8 to 4.8 m³/sec. Rain, snow melt and flood waters from the Moose Jaw River have compromised water quality. The lake water is potentially affected by discharges

from point sources (upstream cities) and non-point sources (agricultural and recreational).

Buffalo Pound Lake is generally free of industrial pollution but is naturally rich in nutrients (phosphate, nitrogen and dissolved organic carbon) which encourage the growth of phytoplankton (typically diatoms in the winter and green algae or cyanobacteria in the summer). Weed growth can also be extensive. Algae and weeds pose many treatment challenges such as high chemical demands and undesirable tastes or odours. The lake and watershed appear to also be impacted by ground water and surface runoff infusing minerals.

PLANT TREATMENT

Raw water from Buffalo Pound Lake passes through a series of treatment stages designed to remove impurities such as algae, bacteria, clay particles and dissolved organic materials. The objective of this treatment is to produce water that is clear, colourless, odour free, aesthetically pleasing and safe to drink.

The treatment process consists of six stages: cascade de-gasification, coagulation/flocculation, clarification, filtration, carbon adsorption and disinfection.

Lake water enters a pumping station located on the south east shore of Buffalo Pound Lake through two submerged intakes. Raw water is pumped to the Plant via two pipelines connecting the pumping station to the main treatment Plant. The pipelines are 1.05 and 1.35 metres in diameter, extend a distance of approximately 3,000 metres and rise 82 metres. After reaching the Plant, water is initially divided into two streams, each with cascade de-gasification, coagulation/flocculation and clarification. The streams are then recombined for the final stages of treatment, including filtration, carbon adsorption, disinfection through ultra violet radiation and chlorination.

Cascade operation is used to remove excessive dissolved gas levels in the raw lake water. Excessive dissolved gases are most commonly produced by photosynthetic cyanobacteria and algae. During cascade de-gasification, the water falls over a series of steps which releases excess dissolved gasses and prevents the formation of gas bubbles in later treatment processes. Clarification and filtration processes could be impeded by gas bubbles that attach to particles of floc, causing them to float rather than sink, and by causing air binding in the filters.

If conditions warrant, Powdered Activated Carbon (PAC) is added to reduce taste and odour. The use of PAC, while relatively infrequent, is occasionally necessary when granular activated carbon contactors are offline or to temporarily reduce the odour loading when the contactors are online.

Coagulation and flocculation are the next steps in treatment. Aluminium sulphate (alum), for the summer season, and polyaluminum chloride (PACl), for the winter season, is vigorously mixed with the water. In the process of coagulation, the alum and PACl neutralizes the surface charges of colloidal and dissolved organic particulate matter contained in the water. This forms a fluffy precipitate (floc) that entraps suspended materials such as algae and clay particles. The water is then stirred slowly in flocculation tanks to allow floc particles to become larger and denser prior to their removal.

The floc-bearing water then enters clarifiers, where most (more than 95%) of the floc with its entrapped impurities settles out by gravity while clear water is constantly removed from the top. Settled floc is removed from the bottom of the clarifiers as sludge and pumped to holding lagoons where it's further separated into clear water (returned to the lake) and solid sludge (removed for disposal).

Any floc that was not removed by clarification is removed in the filtration stage. Water is passed through mixed-media filters consisting of a top layer of coarse anthracite followed by successive layers of fine silica sand, and even finer garnet sand. The floc trapped by the filters eventually accumulates and is removed by backwashing with clean water. The filtration step completes the removal of particulate impurities.

The removal of dissolved organic impurities, which are responsible for taste and odour, happens in the carbon adsorption stage of treatment. Large rectangular tanks (contactors) contain Granular Activated Carbon (GAC) to a depth of three metres. Water is lifted by Archimedes screw pumps from the bottom of the filters and taken to the top of the contactors where it is allowed to flow down through the GAC. GAC contains many microscopic pores which adsorb dissolved organic impurities. Water is in contact with the GAC for 30 to 80 minutes, depending on flow rates, and emerges freed of the dissolved organic materials, like cyanobacteria and algae, which cause objectionable taste and odour. GAC filtration is normally in operation from May through December.

The final water treatment process directs the water going two stages of disinfection. The first stage is ultraviolet disinfection, which inactivates protozoa. In the second stage, chlorine is added to inactivate remaining microorganisms.

All stages of water treatment are now essentially complete. Prior to delivery, chlorine levels are adjusted to disinfect and counteract any possible contamination during its travel to the cities' reservoir and distribution systems. Water delivered to the City of Moose Jaw is also fluoridated during pumping, when their equipment is working properly.

The carbon used in the contactors retains its effectiveness for taste and odour reduction up to seven months, after which time it must be regenerated or replaced. It's cost effective as well as environmentally responsible to regenerate the spent GAC rather than to discard it and purchase new. Regeneration is accomplished by heating the spent GAC to 850°C in an oxygen-free

atmosphere contained in a fluidized bed gas-fired furnace. Spent GAC is transferred by pipeline as a slurry from the contactors to the furnace, regenerated to process specifications, and returned to the contactors for reuse. Carbon regeneration is usually performed at the Plant generally from mid-November to mid-April.

ENVIRONMENTAL PROTECTION AND CONSERVATION

The Plant, like any large industrial facility, has the potential to affect the environment. The Plant has facilities in place to handle all process wastes including alum sludge, off gases from the carbon regeneration facility, laboratory wastes, various solid wastes generated by Plant operations, process waste water, and sewage. The Plant uses a considerable quantity of electrical energy in its operation; conservation efforts give returns in the form of reduced demands on the environment and lower operating costs.

A series of sludge lagoons is used in the treatment of the alum sludge waste stream. This form of sludge management can be very effective in ensuring that the sludge is not released to the environment. Sludge is exposed to a natural freeze-thaw cycle that dewateres it to produce a nearly dry granular material which is transported to a landfill site. Buffalo Pound is one of the few water treatment plants in Canada with the ability to manage waste sludge in this manner.

The natural gas-fired furnace in the carbon regeneration facility produces off gases which are thoroughly scrubbed before being released to the atmosphere.

Waste disposal agencies are contracted to handle laboratory wastes and solid wastes generated

[illegible]

by the Plant. As necessary, firms specializing in hazardous waste disposal are contracted to dispose of chemical wastes.

The Plant recycles fiber based materials and metals.

Sewage generated by the Plant is pumped to treatment and evaporation lagoons located on Plant property. The primary lagoon has a geotextile fabric and bentonitic clay liner to prevent seepage.

Due to the environmental impact of the Plant's operations, an Environmental Strategy is being developed.

WATER QUALITY MONITORING

A well-equipped accredited laboratory is located on site and used to monitor the quality of raw and treated water as well as at several intermediate steps in the treatment process. Major process control parameters (turbidity, pH, chlorine residual, particle counts, dissolved oxygen and temperature) are monitored continuously by instruments communicating with the Plant process computer system. Analyses are performed in-house for parameters regulated on a daily to monthly schedule; for other parameters required less frequently, (most trace-level

organics and metals) samples are sent to commercial laboratories. Analytical results are compared to Canadian Federal guidelines and to Water Security Agency objectives.

In 2020, there was one incident with a filter valve that allowed a small volume of non-compliant water into the filter clearwell. At no time was the health or safety of consumers at risk. Refer to the Compliance Report for additional details.

Analyses for a wide variety of physical, chemical, and microbiological parameters are performed in the Buffalo Pound Laboratory. Some 65 different constituents are routinely determined. The 2020 results are summarized in Appendix 1. Over the course of the year, those analyses exceeded 4,000 in number.

The quality of the regenerated granular activated carbon is monitored by Plant staff for a variety of physical and chemical parameters.

A vigorous in-house quality control program is maintained to ensure data generated by the Plant Laboratory is valid. The laboratory is accredited by the Canadian Association for Laboratory Accreditation (CALA) to ISO/IEC 17025 for 23 chemical and seven bacteriological parameters.

THE YEAR IN REVIEW CONTINUED

PLANT OPERATIONS AND MAINTENANCE



WATER PRODUCTION

Monthly water production and potable water sales (in megaliters) were as shown in Table 1. (See also related Graphs 1 and 2.) Total sales to the Cities in 2020 were 29,554.15 ML to Regina and 5,084.60 ML to Moose Jaw. Sales to Regina decreased 2.35% from 2019 and sales to Moose Jaw decreased 2.14%.

Sales to SaskWater Corporation in 2020 increased by 7.38%, to 221.55 ML. Sales to SaskWater represent less than one percent of the Plant's production.

Graph 3 shows annual water withdrawn by year since the Plant began operation in 1955.

2020 WATER SALES
IN MEGALITRES (ML)

TABLE 1

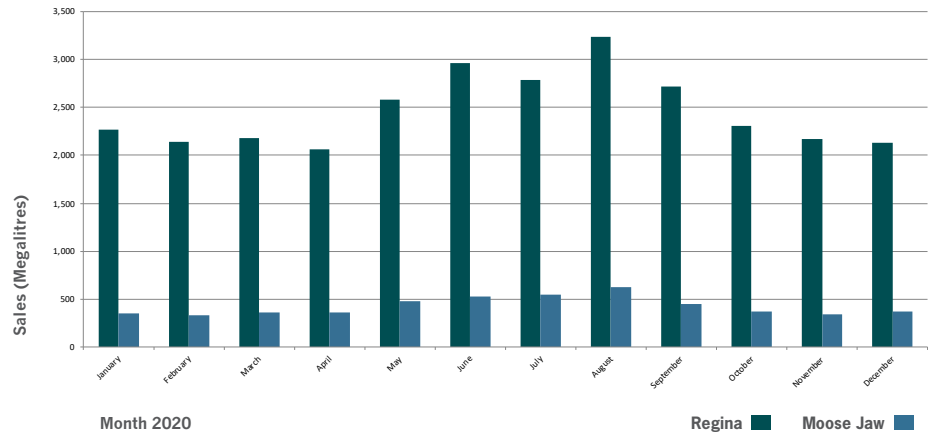
Month	Regina	Moose Jaw	SaskWater Corp.	Totals
January	2268.35	354.37	11.97	2634.69
February	2142.64	326.38	12.77	2481.79
March	2175.45	356.60	14.20	2546.25
April	2067.47	355.54	16.98	2439.99
May	2581.61	476.75	23.64	3082.00
June	2962.20	524.55	23.90	3510.65
July	2786.00	548.00	21.62	3355.62
August	3239.57	624.81	27.20	3891.58
September	2721.57	448.55	18.36	3188.48
October	2304.84	365.31	18.01	2688.16
November	2169.23	338.09	17.07	2524.39
December	2135.22	365.65	15.83	2516.70
Totals	29,554.15	5,084.60	221.55	34,860.30

THE YEAR IN REVIEW CONTINUED

PLANT OPERATIONS AND MAINTENANCE (CONTINUED)

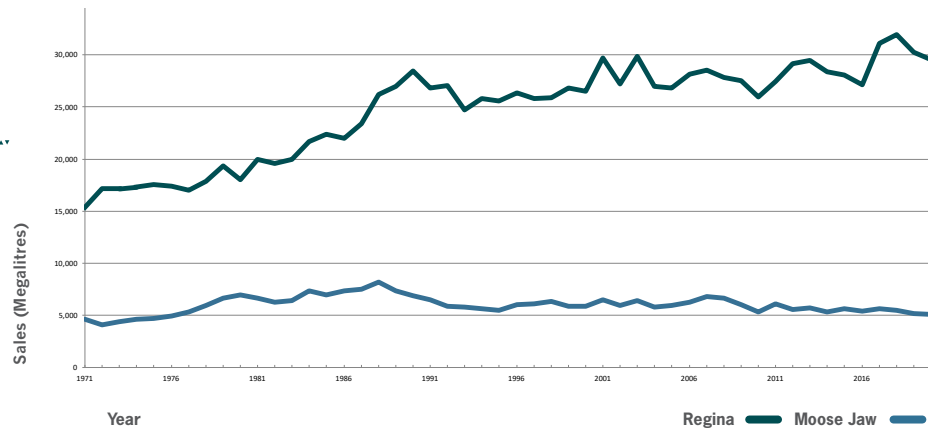
GRAPH 1

MONTHLY POTABLE WATER SALES TO REGINA AND MOOSE JAW



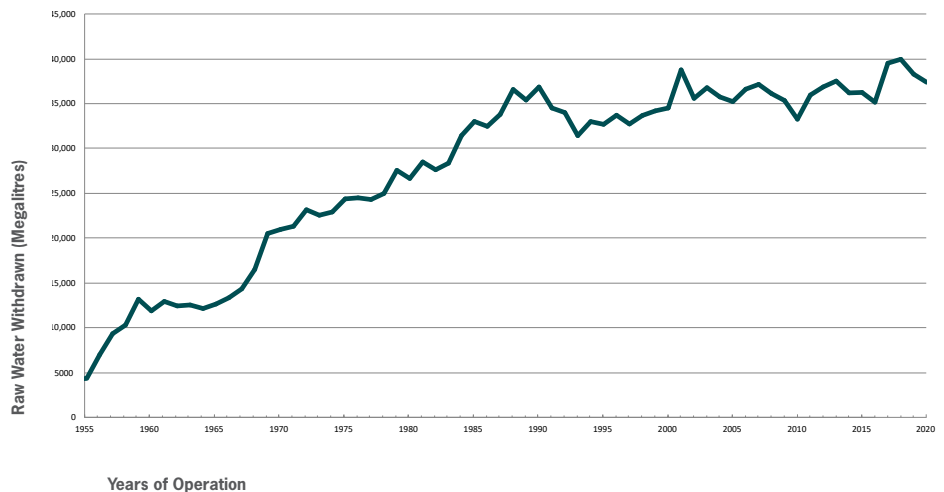
GRAPH 2

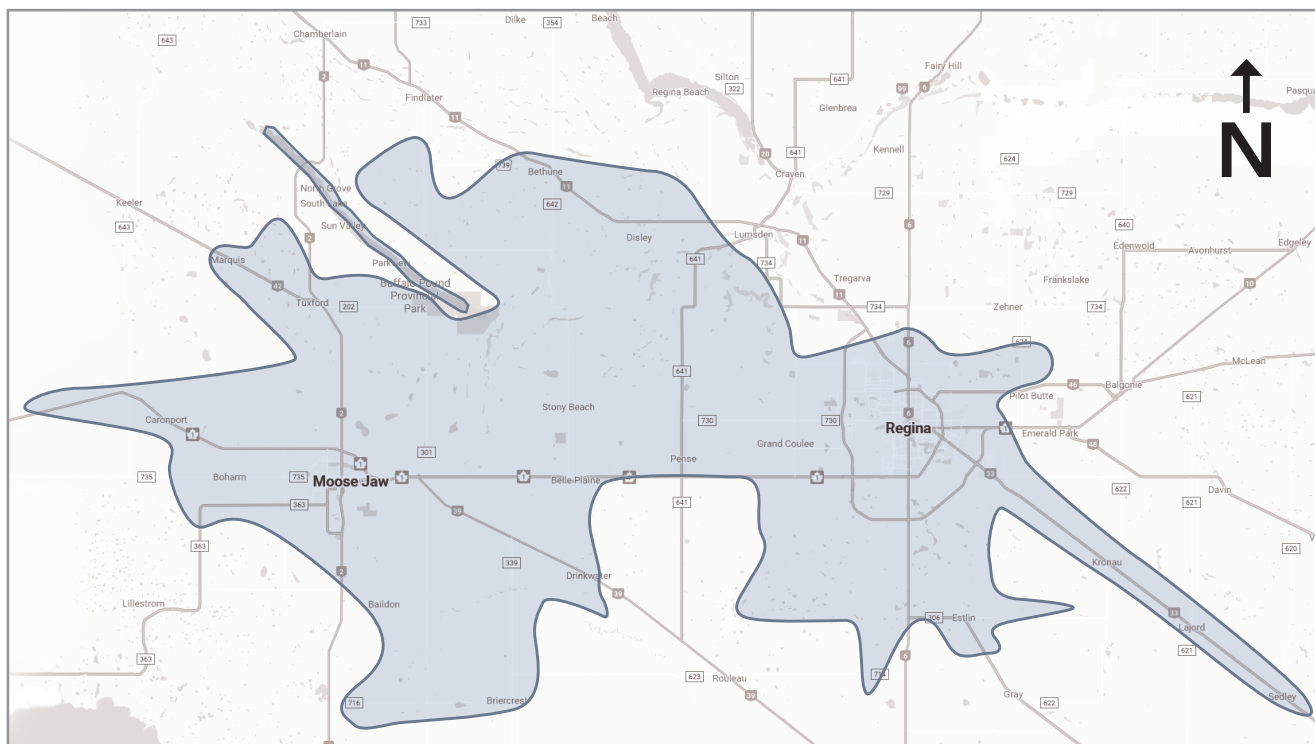
ANNUAL POTABLE WATER SALES TO REGINA AND MOOSE JAW



GRAPH 3

ANNUAL RAW WATER WITHDRAWN FROM BUFFALO POUND LAKE





BUFFALO POUND REGIONAL WATER SYSTEM SERVICE AREA

A map representing the Region where over 260,000 people obtain their potable water from the Buffalo Pound Water Treatment Plant.

PLANT OPERATIONS

The processes employed at the Plant are modified during the year as water quality in Buffalo Pound Lake changes. Ice came off of Buffalo Pound Lake on April 8th. The lake froze over November 14th.

Lake water quality continued to improve in terms of Dissolved Organic Carbon (DOC) and mineral content. Average DOC concentrations declined to 5.4 mg/L from 8.5 mg/L in 2016. Furthermore, the character of DOC continues to change to a less humic form. This has resulted in a continued reduction in the production of trihalomethanes in our treated water.

Trihalomethanes (THMs) at the Plant averaged 16 µg/L (weekly analyses); as compared to the 61 µg/L annual average produced in 2016. Most of this THM reduction is due to the reduced formation of the brominated forms of THMs [Bromodichloromethane (CHBrCl₂), Dibromochloromethane (CHBr₂Cl) and Bromoform (CHBr₃)]. This

reflects the lower mineral content of Buffalo Pound Lake. Bromide occurs naturally in lake water as a result of local run off and ground water intrusion. Bromide is oxidized by aqueous chlorine to hypobromous acid and can then react to form the brominated forms of THMs. Chloroform (CHCl₃), which is most impacted by the character and concentration of the DOC has not changed significantly over the last two years.

The granular activated carbon contactors (GAC) were put into operation May 19th. They remained in service until December 10th.

Cold water temperatures bring about different problems for water treatment. The kinetics of alum coagulation is much slower in cold water, so the Plant used a Polyaluminum Chloride coagulant from January 1st until May 7th and again after November 30th. Polyaluminum Chloride forms a better floc somewhat faster than alum, which benefits the Plant by

reducing chemical addition and residuals production. Another benefit from Polyaluminum Chloride use is that the finished water is of slightly higher pH, and so is somewhat less corrosive. The Plant does not have provision for the addition of alkaline chemicals that could raise the pH of the treated water to more appropriate levels.

A cationic polymer was added as a flocculent aid at doses that ranged 0.1 – 0.15 mg/L. This treatment is done to strengthen floc interbridging and resist zones of high shear within treatment equipment and clarifier short-circuiting.

There were no production events that occurred where the Owners' demands were not met.

The peak day of demand was 162.1 ML on June 26th.

THE YEAR IN REVIEW CONTINUED

PLANT OPERATIONS AND MAINTENANCE (CONTINUED)



CARBON REGENERATION FACILITY

The carbon is regenerated during the winter so that it can be used to remove taste and odour from the water the following summer. The 2019/2020 regeneration season was from November 19, 2019 to March 23, 2020. The 2020/2021 regeneration season commenced November 17, 2020.

WASTEWATER FACILITY

The clarifier underflow removes particulate matter (alum sludge) from the raw water. The effluent stream is directed to sludge lagoons where the sludge is deposited and the clear water overflow returns to Buffalo Pound Lake. The sludge from the stockpile location was removed to the Moose Jaw landfill. The sludge from the lagoon was excavated to the stockpile location.

MAINTENANCE AND CAPITAL PROJECTS

Effective maintenance plays a key role in keeping the Plant running efficiently and producing high quality water. All vessels are drained, cleaned and inspected at least annually. All critical Plant equipment is inspected, tested and maintained at least annually to help ensure satisfactory operation during peak flow demands. All water quality monitoring instruments are checked or calibrated in accordance with the Board's Quality Assurance/Quality Control Policy. The results from major on-line instruments are verified with laboratory testing.

THE YEAR IN REVIEW CONTINUED

CAPITAL PLAN

PLANT CAPACITY

The two primary measurements of Plant Capacity are Firm Capacity and Total Capacity. Firm Capacity is typically the capacity of the smallest bottleneck in the Plant without the use of redundant equipment. Redundant equipment is used only when main equipment systems are down for maintenance or servicing and are able to maintain the Plant capacity for both planned and unplanned downtime periods. Total Capacity is the Firm Capacity plus any additional capacity that can be provided by redundant systems if used rather than kept back in reserve – which currently does not exist in all unit operations. A review done on an equipment-by-equipment basis throughout the existing Plant arrived at the Firm Capacity of 205 ML/d.

The Plant distributes water to the City of Regina, the City of Moose Jaw, SaskWater, Buffalo Pound Provincial Park and the Buffalo Pound Water Treatment Plant Truck Fill. Plant Demand is the total water taken by these users and is largely the City of Regina and City of Moose Jaw. SaskWater, Buffalo Pound Provincial Park and the Buffalo Pound

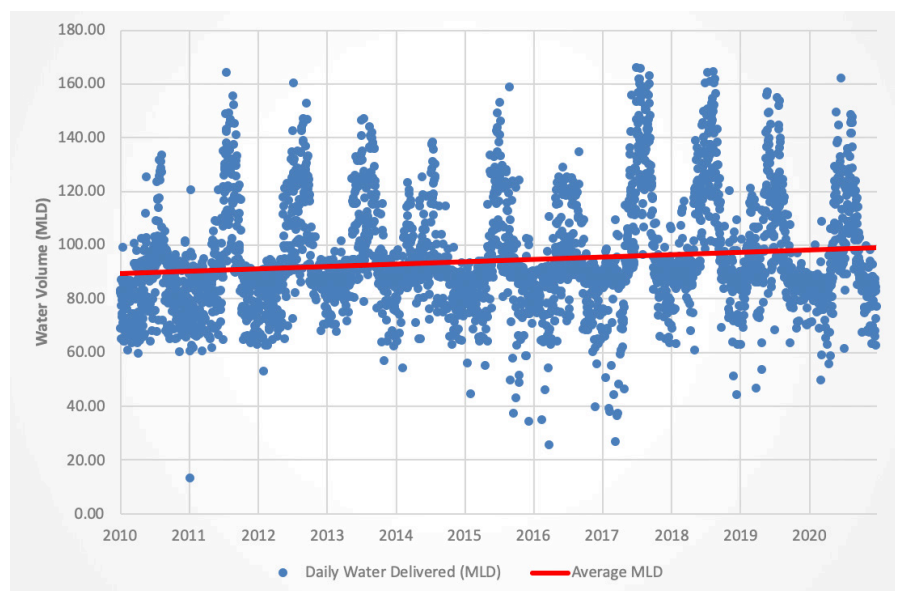
Water Treatment Plant Truck Fill represent only a very small portion of total flow – less than one percent.

Diurnal fluctuations within each city are assisted by reservoirs in each city. The equalization volumes available permit Plant Capacity to be measured around daily peak flow demands.

Water demand is also tightly correlated to population. An examination of the data for both Cities shows that despite an increasing population, water demand has remained relatively stable. This is attributed to the efforts of each City and their respective water use and conservation strategies.

Ideally, a plant is designed such that it will reach capacity at the end of its useful life. The last capacity expansion was in 1989 which was over 30 years ago. This is beyond the lifespan of most mechanical, electronic and electrical assets. Using 175 ML/d as the current daily peak demand (and therefore our current capacity requirement), the Plant is at approximately 85% of this capacity that has not increased or decreased much over the past decade.

BPWTP WATER DEMAND 2010-2020



However, if conservation efforts stagnate, city populations growth rates rise, commercial demand increases, or additions of nearby populations occur, an increase in demand would result.

Assuming per capita consumption stabilizing in 2019 and a moderate population growth, as has been indicated by the cities in their Official Community Plans, the water demand may equal Firm Capacity in approximately 2037.



THE YEAR IN REVIEW CONTINUED

CAPITAL PLAN (CONTINUED)

CAPITAL PROJECTS

Capital Projects are infrastructure projects that may increase capacity, improve performance or renew the lifecycle of an asset or group of assets. These projects are typically undertaken when the scope cannot be performed with internal staffing and resources. The Board

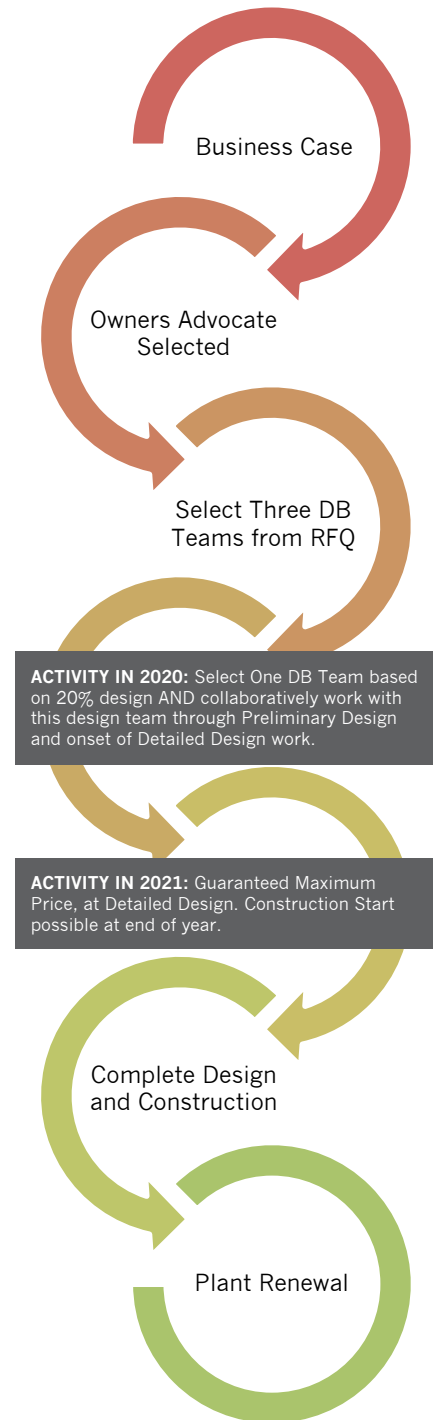
of Directors formed a committee to oversee the Capital Projects at the Portfolio level. The Capital Projects Committee currently oversees the Plant Renewal Project, Lake Pump Station Renewal, UV Corrective Actions, DCS Controls Upgrade (SCADA), and several smaller capital projects.

PLANT RENEWAL PROJECT

External engineering assessments and analysis identified a growing body of risks and costs to maintain the existing water treatment plant. This identified list of needs has approached a cost equivalent to a total plant replacement. It was therefore prudent for the Board to objectively evaluate options to address these needs. To that end, a financial consultant was retained to develop a Business Case Strategy, which in turn was used to retain a consultant to develop a Business Case for the sustainment or renewal of assets best capable of delivering treated water to Corporation's customers.

The Corporation retained the services of CH2M Hill Canada Ltd. (CH2M) to perform a business case to evaluate the range of investment options and provide direction on the delivery method using a Value for Money (VfM) analysis. The major findings from this Business Case were that the Progressive Design Build (PDB) procurement method was the most advantageous for the Corporation to use that would allow the market to identify the best renewal options. CH2M was selected in February 2018, to provide technical consulting services as Owner's Advocate to oversee procurement of the PDB team, and to assist the Corporation in overseeing the design, construction, and commissioning of the Plant Renewal. This work will be completed as part of an integrated team of Corporation staff and CH2M. CH2M has since been purchased by Jacobs.

In 2018, Jacobs assisted the Corporation in retaining the services of a Legal Advisor and Fairness Advisor. Aird and Berlis LLP were retained through a competitive process as Legal Advisor to provide expertise on Canadian best practices used in procurement documents and in design build agreements for



THE YEAR IN REVIEW CONTINUED

CAPITAL PLAN (CONTINUED)

municipal water treatment design build projects. RFP Solutions were retained, also through a competitive process, to act as an independent observer with respect to the fairness of the implementation of the PDB procurement process and to report on their observations.

Three PDB teams (engineering consultant(s) with general contractor(s)) were selected to use their collective strengths to innovate a solution for the Plant Renewal Project. After the evaluation of the 20% designs put forward on December 20, 2019, the successful proponent was the Graham-Aecon Joint Venture team with the notice to proceed with engineering design was awarded at the beginning of June 2020 for approximately \$19.8M. Since the award, the design team has advanced the design and worked collaboratively with the Buffalo Pound Water Treatment Plant personnel and the owners advocate engineering group. A significant milestone reached in late December 2020 was the final Preliminary Design Report (PDR).

For the last six months of 2020, the Plant Renewal Project design collaboration has been progressed through 11 design review meetings covering the following areas: Site civil, equipment redundancy, key equipment sizing, design criteria (process, building mechanical, civil, electrical, I&C, structural, and architectural), administration building layout, key new area process design, value engineering, residual ponds and Geotech concerns, fire water/clearwell/bypass options, lifting strategy, backwash supply system, low lift pump room, BAC area, ozone area, chemical building update, UV header pipe, additional residual pond design, and the new facility model review. Through these design review meetings, the information

covered started more general and has moved to more detailed design. Outside of the design reviews, there was considerable collaboration with the BPWTC staff involving planning condition assessments, assisting with filter pilot plant operations, walk through of the existing facility (via electronic Matterport) to clarify best practices and improvement opportunities, and finalization of the lab and maintenance areas and workstations within the administration building. There were also additional discussions focused on understanding how the work will proceed including a risk registry, construction sequencing, procurement strategy, and asset management planning. In summary, collaborative meetings have occurred almost every week and have had consistent involvement from operations, maintenance, laboratory, leadership team, and our owners advocate engineering team.

In the coming year, the design team will be providing design updates and pricing with the Initial Design Development submission in early March 2021, followed by a preliminary GMP (Guaranteed Maximum Price) submission expected in August 2021. Each of these steps provide more detailed design work and increasingly tighter cost certainty. The final GMP submission, along with the Construction Services Proposal, should be provided in September 2021. The Corporation may accept the GMP and commence construction, or reject the GMP and complete the project as a Design Bid Build. If the GMP and Construction Services Proposal is accepted by early December 2021, construction activities are anticipated to commence in January 2022.

The current cost estimate provided in the PDR is an AACE Class 3 which continues to hold a higher level of uncertainty due to the preliminary level of design and the need to carry potential construction cost risks. The Corporation is using a construction budget of \$222.8 million. This project has been seeking substantial grant funding through the Federal and Provincial Governments anticipating a response in 2021. The balance of the cost will be obtained by the BPWTC through a loan with the Cities of Regina and Moose Jaw providing the necessary guarantees and should be in place around the time grant funding is confirmed.

OTHER PROJECTS

The Lake Pump Station Renewal construction contract was awarded to Westridge Construction in February 2019 with site work starting in April 2019. Like the Main Plant Substation project, this project includes a new substation and backup diesel power generation system that will provide the power for the raw water pumping at the lake. This project also includes upgrades to the pumping system that will replace the pumps and add variable frequency drives and improved controls to improve operational efficiency. The project has seen delays related to delivery timing lags for the pumps and valves, with a final commissioning date expected in May 2021. However, the substation and generators have been installed and commissioned sufficiently to be available through the 2020-21 winter period.

The Lake Pump Station Power Line commenced construction in November 2019. The construction portion of this work was completed in April 2020, with the final payment to the contractor with all remaining holdback completed in late June 2020. There remains a very small amount of engineering work to finalize drawings, reports, and operations manuals.

The Equipment Supply procurement process for the Control System Upgrade Project was started in 2019, with Spartan Controls selected with the contract signed in June 2020. The Equipment Supply procurement will likely be novated to the Plant Renewal Project and will be designed to match the needs of the final plant design. This was a change from the initial idea of installing a new control system in advance of the upgrade but should be able to be incorporated into the new plant design and constructed effectively. The existing control system will need to be relied on for an additional period of time, but efforts are underway to mitigate potential breakdowns until the new system is in place.

After the UV Facility work was completed, there remained numerous deficiencies that was to form an additional capital project. These items were carefully reviewed with many of the items covered by the scope of the Plant Renewal Project and the general facility restoration. Of the items that were remaining, these are currently being prepared to be processed through several individual RFPs being developed by AECOM. This work is being planned to be completed before the Plant Renewal Project construction commences.

THE YEAR
IN REVIEW
CONTINUED

PLANT SAFETY

PLANT SAFETY

The Safety Management System (SMS) continues to maintain its Certificate of Recognition (COR) and is functioning effectively within the organization. With the COVID pandemic hitting in March, 2020, the Buffalo Pound Water Treatment Corporation had to make adjustments to ensure the safety of all staff was paramount and the facility was able to continue to operate as an essential service. Measures were put into place internally to mitigate risk using the Provincial Health Authority guidelines along with the Corporation's own risk analyses and will stay in place until such time as they may be eased upon. The Corporation continues to monitor its processes, communicates with staff and adjusts accordingly.

The Occupational Health Committee is functioning well and continues to meet approximately every 10 weeks. An internal audit was completed in 2020 as it is a requirement of the COR. As programs, processes and procedures continue to change, or be developed, staff are trained accordingly prior to implementation. Given the challenges with internal communications that COVID caused, there were still 41 weekly Tool Box meetings conducted in 2020. Bi-monthly staff meetings were ceased in March of 2020 due to COVID.

The Safety Association of Saskatchewan Manufacturers (SASM) continues to be the safety association with whom the Corporation has an active membership. This membership provides the Corporation with valuable training, resources and guidance in the continued development of the Safety Management System. The internal audit for 2020 was completed and submitted on time.

The Corporation reported 0 lost time incidents, 0 near misses and 3 no lost time incidents with 2 being internal and 1 being a contractor on site that resulted in minor property damage. All 3 incidents followed the SMS Incident Investigation Procedure and corrective action was implemented.

There were 2 prime contractor incidents that were dangerous occurrences. The sites were shut down until properly investigated by the prime contractor and the Corporation. Corrective actions were implemented from all investigations.

THE YEAR IN REVIEW CONTINUED

RISK REVIEW

RISK REVIEW

The Corporation operates within a complex environment and is exposed to a variety of risks that can impact the ability of the Plant to achieve its mandate. The Corporation's Board and Management Team manages risk through a formal risk management framework. The Corporation's risk management framework is designed to address the top business and asset risks that could arise from internal and external sources.

The Corporation implements the risk management framework through a risk management process to identify, analyze, evaluate and treat risk. The Management Team is responsible for identifying, analyzing and evaluating risks. The Board is responsible for reviewing the top risks and determining if the appropriate controls and mitigations are in place and evaluating the effectiveness of the risk management framework.

The Corporation risk assessment process considers the entire system from the source water to the customer boundary. The following is a description of the types of risks the Corporation manages.

AGEING INFRASTRUCTURE

Since the Plant was first constructed and started operating in 1955 there have been combinations of expansions and upgrades. As the Plant and infrastructure age, there is a risk of increased failure that could cause service impacts, compromise regulatory compliance or increase operations and maintenance costs.

REGULATORY CHANGES

The supply of drinking water requires strict compliance with health, safety and environmental regulations. Federal and Provincial regulators continually review and update

regulations and there is a potential for changes in regulations to require investment in new or upgrades to existing infrastructure and increase operation and maintenance costs.

THIRD PARTY INFLUENCES

Damages or other negative influences are a consistent source of risk for water supply organizations. A power supply interruption, damages to infrastructure and contamination of the watershed could cause service impacts, compromise regulatory compliance or increase operations and maintenance costs.

CLIMATE AND WEATHER

Extreme and even more modest changes in climate and weather conditions are potential sources of risk. An increase in frequency or intensity of such events could cause service impacts, compromise regulatory compliance, increase investment in infrastructure resiliency, or increase in operations and maintenance costs.

GENERAL BUSINESS

There are several types of risks that could arise that the Corporation views as part of its general business. These include, general economic conditions, human resource management, reputation, purchasing and information systems. While the cause and impacts for each are different, there is the potential for any of these risks to have financial and non-financial impacts on the Corporation.

In addressing risks that arise, the Corporation uses several strategies that include:

- Capital Investments
- Operations Procedures
- Enhanced Maintenance
- Emergency Response Plans
- Communication with Third Parties
- Transfer of Risk

The Board of Directors reviewed the Risk Registry at its June 24th retreat. The consultant from Jacobs, Mr. Paul Smeaton, presented the Board with an initial draft of the Risk Registry review. The Board reviewed existing risks along with identifying new risks while making some revisions to the initial report. The Board subsequently approved the Risk Registry on September 30th.

For 2020, there were 39 active risks. However, many of these risks will be mitigated through the Board's actions relating to Capital Investment; Operational Procedures, Enhanced Maintenance, Emergency Response Plans, Communications and Risk Transference.

The Risk Profile decreased from 2002 identified risks in 2019 to 1802 in 2020. The decrease is mainly from the mitigation of high profile risks related to the electrical system vulnerabilities.

ASSET MANAGEMENT

Initially, in order to minimize the COVID risks, the maintenance crew was split into two groups and efforts were focused on ensuring all critical assets were maintained to ensure uninterrupted water supply. After the risks were managed appropriately, the split shifts were suspended. As a part of the Plant Renewal Project design, Plant employees also assisted in assessing the conditions of all major assets including the raw water line, clarifiers, channels etc. Depending upon the condition of these assets they will either be replaced or refurbished.

Since the majority of the Plant assets are being replaced during the Plant Renewal Project, Long Term Asset Management plans will be developed during the Project execution.



NATIONAL WATER AND WASTEWATER BENCHMARKING INITIATIVE

The Corporation has been participating in the NWWBI since 2014. The NWWBI is the national standard for Canadian water, wastewater and storm water utilities to benchmark and report on goal based outcomes across financial, environment and social “bottom lines”. The data provides a strategic management model to compare Buffalo Pound results to similar pan-Canadian water treatment utilities and improve the Plant’s operational performance.

Due to its national reach, it takes considerable amount of time to process the data and report back on the data to the utilities. The performance data for 2018 was received in early 2020 and was reported to the stakeholders.

As demonstrated by the sufficient capacity and Protect Public Health measures, the Plant maintained its water demand and provided safe drinking water to its customers.

The environmental stewardship goal is made up of two measures (i.e. percentage of water wasted and the GHG emissions from the energy consumed). Over the last several years, the amount of wasted water has been stable. In 2018, the

amount of wasted water was 6.2% of yearly production which is not statistically different from other similar utilities. The ageing filters, which require frequent backwashing, are one of the leading contributors of the higher levels of wasted water. There are a number of initiatives underway to improve the filter performance and reduce process waste water generated during filter backwashing process. The goal of the Plant is to continuously improve its environmental stewardship.

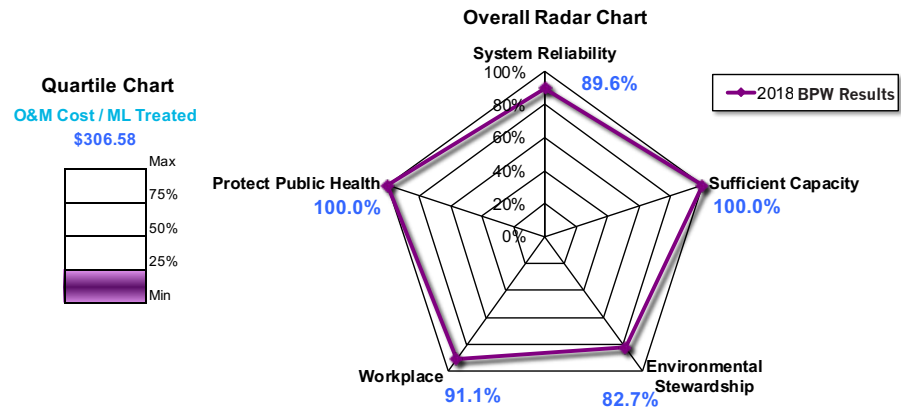
The residuals created by Green House Gas (GHG) were higher due to the amount of electrical energy used to bring the water to the Plant from the lake and the amount of natural gas used to regenerate the granular activated carbon.

In 2018, the System Reliability goal was lower due to the lower capital reinvestment rate than previous years and higher unplanned downtime caused by power outages resulting from severe frosting of the power lines in December 2018.

The Plant continues scoring well on its O&M cost as compared to 24 other participants, including Cities, Private Utilities, Regional Systems and Water Commissions representing other water treatment plants across Canada, which puts it in the 0 – 25% Quartile at \$306.58/ML treated.

OVERALL RADAR CHART

2018 Results



Quartile Charts show in which quarter your utility falls

GOALS

Provide Reliable Service and Infrastructure

5 year Average Capital Reinvestment / Replacement Value
of Unplanned Hours that Plant Could Not Operate at Rated Capacity
Unplanned Maintenance Hours / Total Maintenance Hours

Protect the Environment

% of Water Wasted During Treatment Process
GHG Emissions from Energy Consumed / ML Treated

Protect Public Health

of days over Group Target for Turbidity
of days with Total Coliforms
of days over Group Target for Nitrates

Ensure Adequate Capacity

ADD / Existing Licence Capacity
of Days Plant Operated at >100% Capacity

Provide Safe and Productive Workplace

of sick days taken per O&M employee
of O&M Accidents with Lost Time / 1,000 O&M labour hours
of Lost Hours due to O&M Accidents / 1,000 O&M labour hours

BALANCED SCORECARD (BSC): CORE SERVICES

2020 KEY PERFORMANCE INDICATORS

The Corporation uses internal KPIs which are based on targets established by the Board, NWWBI results or regulatory requirements.

These are reviewed annually by the Board with the targets being adjusted accordingly.

The KPIs are rated based on a comparison of the Plant's score versus the target. These are used to make decisions internally.

The actual KPIs have been included in the Strategic Plan which is available to the public.

Objectives	Measures (Core Outcomes of Strategy)	2018	2019	Status at December 31, 2020	2020	Initiatives (RACI)
Water Quality: Objective — Meets regulatory requirements and customer expectations 100% of the time	Regulatory requirements met. Taste and odor quality met.	100%	100%	100% July 16 th , for 30-60 seconds a slug of water from 1 of 12 filters, which exceeded 1 NTU, entered the filter clear well; protocols activated, no risk to public. WSA had no concerns with the actions taken and SOP updated.	100%	Quality & Quantity: SOPs documented & followed (Lead measure by all Operations, Maintenance, Lab) Quality: (a) ensure regulatory monitoring according to Permit to Operate; annual report appendix 1 (Lab) (b)Taste and odor of water leaving the Plant less than 8-10 TON (Threshold Odor Number) (Operations and Lab)
Water Quantity: Objective — To deliver water that meets customer demand 100% of the time	Parent: Customer demand met without compromising Quantity	100%	100%	99.88% 1 Hour Power Outage, January 9th 1 Hour with UV Outage, February 25th 7 Hours with damaged power pole from farming accident, May 1st 15 minutes SPC Power Outage High Winds, May 31st 45 minutes due to O/H Line contact by contractor, June 28th 20 min Power Outage, August 20th	100%	Quantity: Reliability (Operations, Maintenance) including e.g. immediate reporting of failure of critical assets (see notes page) Maintenance
Renewal Project: Objective — Successful achievement of all aspects of this massive undertaking to transform the plant's ability to deliver, meeting its mission and vision	Project deliverables: - On-time - On-budget - Scope management	Project Charter & Plan (Including: Vision, owner's engineer resource, and funding pre-approval)	Project reporting	- Charter completed - Financing Strategy completed - Funding pre-approval on hold pending direction of Cities for financing - RFP Awarded - ICIP Grant Funding Application Approved by both Cities and submitted - Contract signed with Graham JV for Design Services Only - Internal & External communication commenced - The Corporation is working with the funding agencies and await their formal decision regarding the ICIP Grant. - Several meetings with Cities on financing plan; was completed by year end.	Project reporting	Capital Projects Committee

**BUFFALO POUND WATER
ANNUAL REPORT 2020**

Objectives	Measures (Core Outcomes of Strategy)	2018	2019	Status at December 31, 2020	2020	Initiatives (RACI)
Communication & Managing Change: Objective – To evolve all communication and project management processes plant-wide	a. Employee Engagement Survey b. Organizational Change Management plans for projects with significant process changes	Design survey & set baseline Design/adopt model	Annual 100% Complete	Employee engagement survey completed in conjunction with the Strategic Planning process. Action Plan was completed with elements being implemented. Completed 2018.	Annual 100% Complete	Internal Communication: Meetings (daily toolbox, Operations hand off; monthly staff meetings recorded); Plant wide e-mails; F2F conversations; Successful change implementations; adopt Org. Change Management model Project management evolution: RACI, Charters, Capital Projects Committee
Board Governance: Objective – To continue to evolve board governance effectiveness (Ryan, Laurie, Board)	Initiative completion	Policies: - Annual review - Customer Services Agreement Board Education	Policies: Annual review Board Education	- Policy reviews completed. Updates occurring with new format on several policies and procedures following the Board Retreat. - Water Supply Agreements issued to Cities, SaskWater and Provincial Park. - Operational & Pump ownership under discussions based on CPC and Board feedback. SaskWater provided comments and minor edits were made. Province has signed the WSA. RACI Chart approved by the Board on September 30th. - Training Module for New Members on WT Completed. - Training session with new Board Member completed July 24, 2020.	Policies: Annual review Board Education	Policies: Ongoing review and updates (Customer Service Agreement; Asset Transfer; Board Education & Onboarding)
Funding Sources: Objective – Establish funding sources into the corporation	% of critical projects funded % of O&M budget funded	100% 100%	100% 100%	100% 100%	100% 100%	- Grants - Loans - Research new lines of business: business & economic development funding partners (defer post Plant Renewal)
Financial Operating Performance: Objective –To meet budget variance targets	Sum of O&M budget under management control within 5%	5%	5%	- Expenditures 7.8% below budget - Revenues 1.2% above budget - Overall 9.0% surplus	5%	Approximately \$13M budget
Risk Management: Objective – To manage risk and take action on risk items	- Initiative milestones - Reporting	RR Annual Review QMS Framework Completed	RR Annual Review QMS Begins Implementation	- Jacobs commissioned to do audit. Completed September, 2020 - QMS gap analysis complete. RFP Awarded, Kickoff April 3rd, work is progressing.	RR Annual Review QMS fully implemented	- Risk Registry - QMS
Asset Management: Objective – To adopt a formal asset lifecycle management approach	Project milestones	Working on CMMS Project	Complete asset criticality analysis	CMMS inventory system completed. New module for safety management system added to CMMS for efficiency is complete.	Start developing the asset management plan	Asset Management Plan

THE YEAR IN REVIEW CONTINUED

REGULATORY AND GOVERNMENTAL AFFAIRS



The Water Security Agency conducted two routine inspections of the Plant; the first being on March 31st (which was done virtually with all documentation submitted electronically) and the second on October 28th.

One requirement of the regulations is that the laboratory analytical work required by a Water Treatment Plant's Permit to Operate must be done by an accredited laboratory. The Corporation's laboratory fulfilled all requirements to maintain accreditation from the Canadian Association for Laboratory Accreditation (CALA). The laboratory participates in four sets of proficiency test samples each year.

The Water Regulations require that the Corporation submit results of the weekly bacteriological, monthly trihalomethane and quarterly major ion analyses promptly to The Water Security Agency and that a Drinking Water Quality and Compliance Report be published annually.

The required Drinking Water Quality and Compliance Report is provided in the Appendix. The Plant met all sample submission requirements of the Plant's operating permit. The Plant is in full compliance

with the Water Regulations.

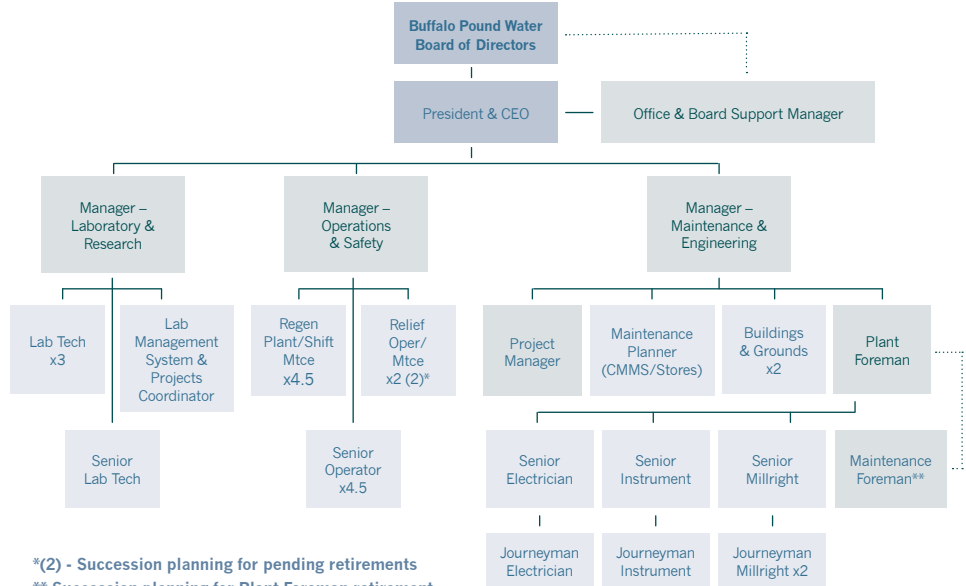
Plant operations are subject to the Federal National Pollutant Release Inventory (NPRI) Legislation, Canadian Nuclear Safety Commission (CNSC), as well as the Environmental Emergency Regulations. The required inventory submissions were made to the NPRI program. Radioactive substances are used in the laboratory's electron capture detectors. Although the license requirements for electron capture detectors have been terminated by the CNSC, swipe tests are still conducted as part of the general maintenance program. Swipe tests, ensuring the integrity of these detectors, were sent to Saskatchewan Labour for analysis. No leakage above the guidelines was detected.

ICIP GRANT

The Corporation obtained approval from the Cities of Regina and Moose Jaw to make application for funding under the Investing in Canada Infrastructure Program (ICIP) grant for \$222.8 million. The Corporation is working with the funding agencies and await their formal decision.

December 2020

BUFFALO POUND WATER ORGANIZATIONAL CHART



THE YEAR IN REVIEW CONTINUED

HUMAN RESOURCES

HUMAN RESOURCES

In 2020, the Plant employed a total permanent staff of 36, consisting of eight (8) out-of-scope staff, nine (9) operating staff, five (5) laboratory technologists, seven (7) journeyman maintenance persons, five (5) maintenance persons, and two (2) buildings and grounds staff.

The UNIFOR Local No. 595 Collective Agreement was negotiated and accepted by the Board and the union membership late in 2020 for a five (5) year term effective January 1, 2021 to December 31, 2025.

There was 1 staff retirement and 1 staff member's employment terminated in 2020.

Staff at the Plant participate in the Regina Civic Employees Pension Plan.

WATERSHED PROTECTION

The Corporation continues to be involved in consultation processes dealing with watershed protection in the Upper Qu'Appelle River and Buffalo Pound Lake.

MISCELLANEOUS

The President & CEO; Maintenance & Engineering Manager and Project Manager attended a BPWTC Plant Renewal Partnering Session in Calgary, AB.



THE YEAR IN REVIEW CONTINUED

APPLIED RESEARCH

RESEARCH AND ANALYTICAL PROGRAM PROCESS DEVELOPMENT

Process Development

A major research study completed in 2018 concluded that removing prechlorination is the simplest and least expensive modification to reduce Total Trihalomethane (TTHM) formation. On February 19th, 2020 and for the first time in the Plant's history, prechlorination was ceased from the Plant's treatment process

on a semi-permanent basis. From that date and through the remainder of 2020, trihalomethanes at the Plant were reduced by an astounding 69%, averaging 11 ug/L compared to 35 ug/L for the same time period in 2019. From the sampling locations that the Plant Laboratory routinely analyzes, trihalomethane concentrations declined by 43% and 46% in Regina and Moose Jaw respectively. Figures 1, 2 and 3 show the year over year TTHM comparisons for each location.

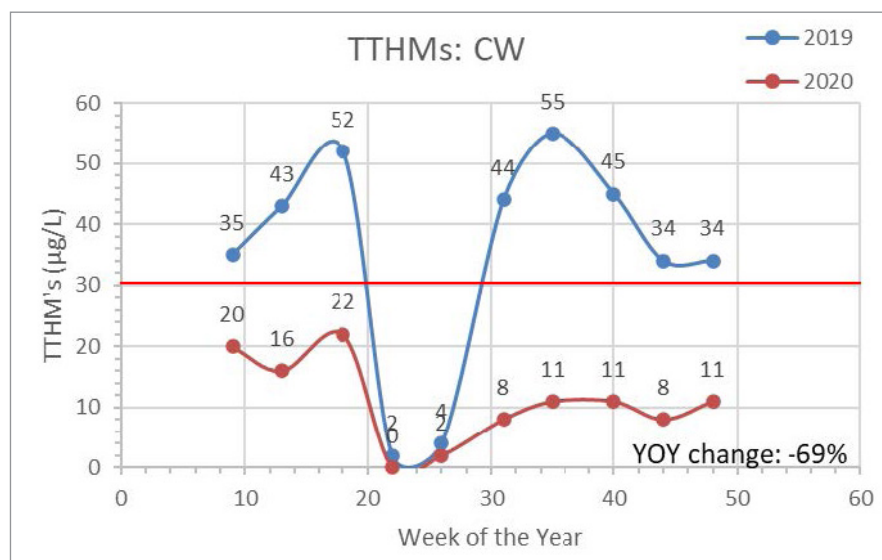


FIGURE 1: CLEARWELL TTHMs

The concentration of Natural Organic Matter (NOM) as measured by Dissolved Organic Carbon (DOC) changed little over the 2 year period of comparison. There was a small (~10%) reduction in the humic characterization of NOM from March to December 2020 as measured by ultraviolet absorption (UV254). Despite the small decrease in humic character over the comparison period, the data suggests that elimination of prechlorination was the single most important factor contributing to the year over year decrease in TTHM concentrations. It is widely known that the humic portions of NOM are the primary

precursors to TTHM formation.

There were additional benefits that occurred after prechlorination was eliminated. Chlorine use by the Plant was reduced by 45%. Since there was no need to change chlorine tonners at the Lake Pumping Station (LPS), staff were freed up for other duties and were not exposed to occupation health and safety risks associated with changing chlorine cylinders. There has been no evidence of algae/biofilm growth nor manganese solubility despite having no free chlorine present from the LPS through to the clarifiers for over 10 months.

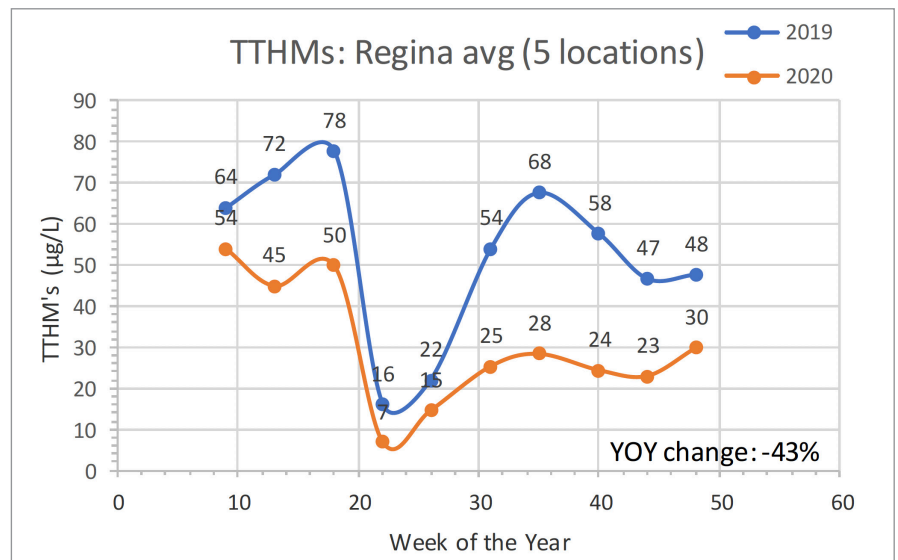


FIGURE 2: REGINA TTHMs

The downside of eliminating the strong oxidation properties of chlorination prior to coagulation was a 38% increase in coagulant dosing. Additional coagulant was necessary to destabilize the less oxidized NOM and colloidal contaminants in the source water. This increase was

necessary for continued optimized coagulation and flocculation to ensure the same high quality water was produced after settling by clarification and filtration. The extra alum also caused additional residuals loading in the sludge lagoons.

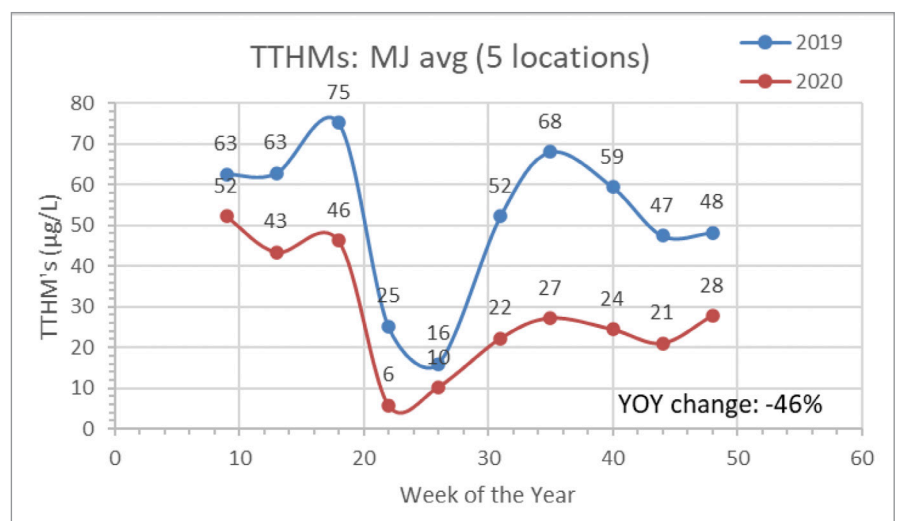


FIGURE 3: MOOSE JAW TTHMs

THE YEAR IN REVIEW CONTINUED

APPLIED RESEARCH (CONTINUED)

LAGOON RESIDUALS

POLYMER STUDY

In 2017, a wastewater regulatory limit for Total Suspended Solids (TSS) was introduced to the Plant's Permit to Operate. Currently, the Plant's lagoons effluent does not meet the TSS limit 100% of the time. From November 2019 to January 2020, the laboratory performed bench scale evaluations of adding high molecular weight Cationic PolyAcrylaMide polymers (CPAM) to clarifier sludge. Since clarifiers are the main source of waste solids produced by the Plant, the purpose of the investigation was to explore a treatment application that could enhance settling, dewatering and compression of clarifier solids in the settling lagoons and reduce the number of TSS non compliances of lagoon effluent.

Bench scale testing did demonstrate that adding CPAMs to both alum and polyaluminum chloride clarifier solids does enhance aggregation and substantially promotes settling and dewatering of the solid particles compared to not using polymer. In addition, CPAMs did not alter the sludges ability to freeze dry to further dewater and maintain hydrophobicity after completely drying.

Based on the bench scale results, AECOM was hired to do a cost estimate for installation and operation of chemical feed system for addition of dry CPAM polymer to sludge from clarifiers. However, it proved to be too costly to implement the system on a temporary basis (~5 years) and was not guaranteed to fully mitigate TSS noncompliance. The project was cancelled knowing that an expansion and redesign of the lagoon system is within the scope of the Plant Renewal Project.

EXCAVATION BY SLURRY

Lambourne Environmental Ltd. was hired to excavate sludge from the two north summer settling lagoons using a slurry method which has never been utilized at the Buffalo Pound Water Treatment Plant. Traditionally, freeze-dried lagoon sludge is excavated using a backhoe.

The four summer lagoons were simultaneously in operation when they were taken out of service in December 2019. As a result, decanting could not be done prior to freeze up and the contained sludge did not freeze during the winter. Without freezing and subsequent dewatering after the spring thaw, the sludge in each lagoon had a very high water content and as a result could not be removed by normal excavation.

Two of the summer lagoons underwent Lambourne's slurry excavation process. The unfrozen settled sludge was mixed with water to form a homogeneous slurry which could then be pumped from the lagoon. As the slurry traveled through piping, a nonionic polymer was injected to enhance dewatering and the resulting mixture was dispensed into several geobags. The geobags allow water to escape but contains the dewatered sludge. Dewatering continued until freeze-up. Over the 2020-2021 winter, freezing of the contained sludge will occur and be followed by a second dewatering during the spring thaw. When sufficiently dry, the sludge will be removed from the geobags and hauled to the Moose Jaw landfill during summer 2021; perhaps 2022 to allow full freeze.

Each of the slurry excavated lagoons was placed into service in 2020. An adequate quality of decanted effluent overflowed back to the environment for ~6 weeks from each lagoon.

MIXED MEDIA FILTER MUDBALLS

An extensive evaluation of mixed media filters revealed an accumulation of mudballs within the top layer of anthracite. If left to continue to increase in size and number, mudballs in a filter create areas where water is unable to be properly filtered. This increases the possibility of turbidity breakthrough and decreases filter run times.

Close inspection of the surface of the mudballs revealed a gelatinous substance holding the particles of anthracite together. It was suspected that alum and coagulant aid were the source of the gelatinous material, but confirmation was necessary.

The coagulant aid used at the Plant is CP1086 which is a cationic polymer manufactured from polyacrylamide. A number of specialized tests for polyacrylamide were performed on the gelatinous material and on the neat polymer by contract labs - BV Labs and ALFA Chemistry. Test results from both labs confirmed that polyacrylamide was abundantly present.

Aluminum is the primary component of the coagulants used at the Plant – alum and polyaluminum chloride. Metals testing was performed on the anthracite containing the gelatinous material and on virgin anthracite. Aluminum was the most predominant metal found on the gelatinized anthracite and was many times higher than the virgin anthracite.

Based on all the evidence, the gelatinous substance causing the formation of mudballs confirmed the hypothesis that it was coagulant floc intertwined with coagulant aid.

Given that backwashing is unable to break up the mudballs, another

physical procedure to eliminate the mudballs was investigated. AWI, a company specialized in optimizing water treatment filters, recommended a slurry edactor procedure to break down media accumulations or “mudballs” in the anthracite bed. The procedure involved transferring anthracite by slurry from one filter to another. As the transfer proceeds, attrition breaks up the mudballs. Four filters underwent the procedure and had their media depth returned to original specification. The last filter was topped with virgin anthracite. The procedure eliminated the mudball problem in the treated filters. The remaining filters will undergo the edactor procedure in 2021.

ADDITIONAL WATER QUALITY MONITORING

RAW WATER

The analyses required in the Permit to Operate on treated water represent only a portion of those carried out at the Plant. Staff also carry out regular monitoring of raw water quality as this would provide early warning of chemicals that could impact treated water quality. This work was contracted out to a laboratory capable of providing analyses as low as parts per trillion. Ninety-three (93) pesticide and herbicide compounds were tested for. Most of those are without Health Canada Guidelines. Various anthropogenic compounds (47 in total) associated with human use such as pharmaceuticals and personal care products were also tested for. The Plant's laboratory also conducts regular analyses throughout the year for benzene, toluene, xylenes and ethylbenzene that would indicate spilled gasoline or diesel fuels. Thus far, Buffalo Pound Lake does not seem impacted

THE YEAR IN REVIEW CONTINUED

APPLIED RESEARCH (CONTINUED)

to any level of concern by the above suites of chemical pollutants.

Routine raw water quality testing (done bimonthly and monthly) continues to show broad based improvements due to sufficient water flows from Lake Diefenbaker and releases from Buffalo Pound Lake. Total Dissolved Solids (TDS) decreased by 7% and Dissolved Organic Carbon (DOC) remained about the same in 2020 as compared to 2019. Since 2015 (one of the worst years of raw water quality on record with respect to dissolved minerals and organic matter), TDS and DOC have decreased

by 47%. From 2015 to 2020, annual average discharges through the Qu'Appelle Dam from Lake Diefenbaker increased by 167% (1.8 to 4.8 m³/s) as illustrated in Figure 4. The improvements in raw water quality as represented by the yearly average concentrations of TDS and organic carbon are summarized in Figures 4 and 5. The reduction in organic carbon and the elimination of prechlorination has resulted in a 79% decrease in trihalomethanes at the Plant since 2015. TTHMs averaged 16 ug/L in 2020 and 78 ug/L in 2015.

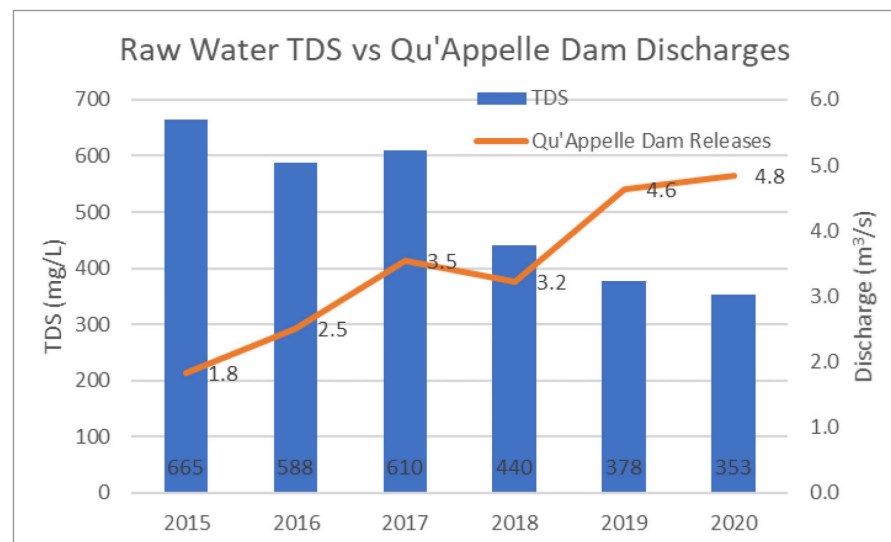


FIGURE 4: RAW WATER TDS vs QU'APPELLE DAM RELEASES

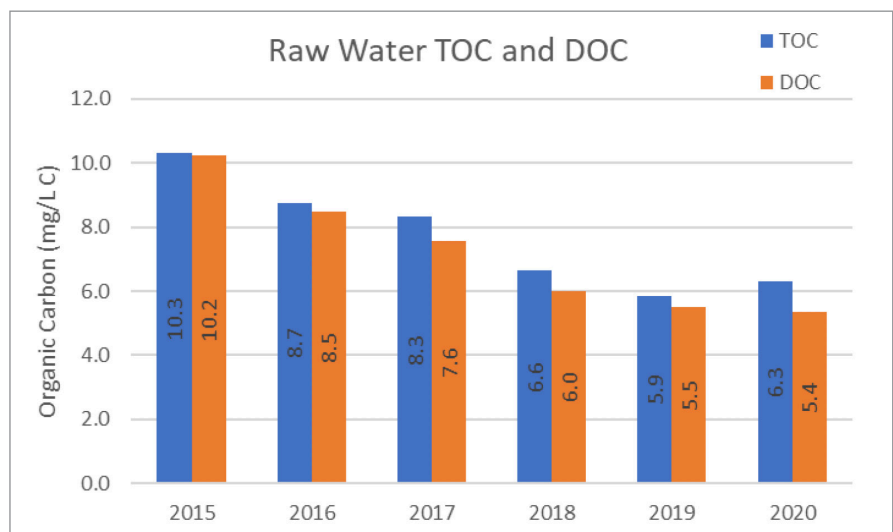


FIGURE 5: RAW WATER TOC/DOC

RESIDUALS TREATMENT LAGOONS

Solids recovered from the clarification processes are settled out in lagoons and ultimately taken to the Moose Jaw landfill for disposal. The lagoons were designed and constructed over 30 years ago when Plant flows were lower. Regulatory limits of effluent quality also did not apply. With the introduction of a regulatory monitoring and compliance schedule in 2017, the effluent remaining after treatment is monitored weekly for TTS and chlorine. Total and dissolved aluminum are measured monthly. Twice a year samples are sent for acute toxicity evaluation. Results of these analyses are reviewed by the Water Security Agency.

The effluent samples did not demonstrate acute trout toxicity. After the elimination of prechlorination in February 2020 and efforts to decrease volumes of process wastewater, free and total chlorine were not detected in lagoon overflows. However, solids analyses from the lagoon overflow confirm that the lagoons do not always meet quality requirements.

The causes include solids and hydraulic overloading, poor overflow design, no underdrains and no control for wind effects. The deficiencies in residuals handling have been recognized in engineering studies and lagoon improvements have been identified as a requirement in the Plant Renewal. Until a redesign can be completed and implemented, management will continue to minimize process waste water volumes to decrease effluent overflow rates and maximize solids settling times. In addition, more frequent excavation of freeze dried sludge will be done before lagoons are put back into service. This will provide maximum buffer of clear water depth above settled sludge and minimize disturbances by wind.

WATERSHED MONITORING

Monitoring of the Upper Qu'Appelle River watershed, including Buffalo Pound Lake, is typically carried out on an annual basis. In 2020, two sampling episodes were done to examine expected changes resulting from different flow rates in releases from the Qu'Appelle Dam. Seven (7) sites were sampled in each collection

THE YEAR IN REVIEW CONTINUED

APPLIED RESEARCH (CONTINUED)

period. As shown in Figure 6, the sites included Q1 - Lake Diefenbaker via the Riverhurst Ferry, four locations throughout the reach of the Upper Qu'Appelle River (Q2 - Qu'Appelle Dam, Q3 - Eyebrow, Q4 - Keeler & Q5 - Marquis), Q6 - west arm of Buffalo Pound Lake, and Q7 - Plant's

raw water intake. The river flows out of the Qu'Appelle Dam at Lake Diefenbaker, through the upper Qu'Appelle Valley and into Buffalo Pound Lake. The first survey was done on June 22nd & 23rd followed by a second on September 21st & 22nd.

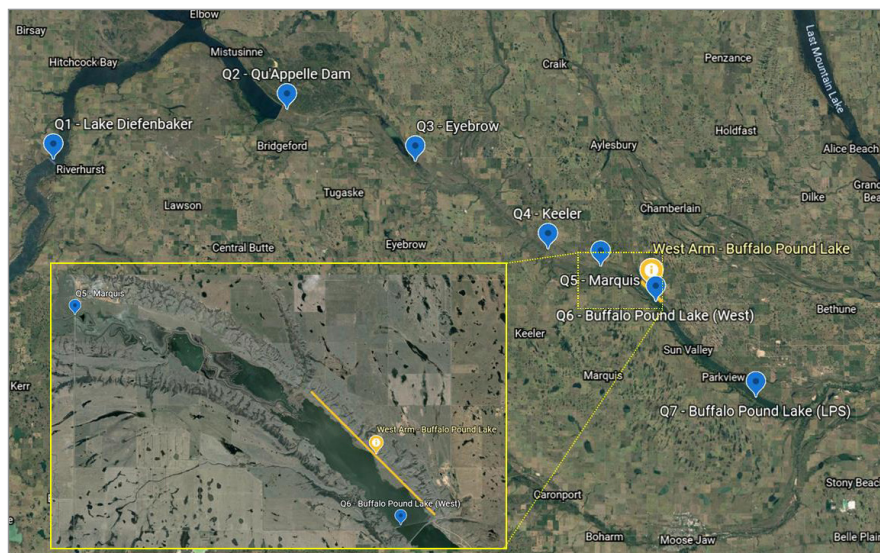


FIGURE 6: UPPER QU'APPELLE SAMPLING LOCATIONS

Releases from the Qu'Appelle Dam were highest for the year from approximately May 4th to July 3rd and ranged between 10 and 11 m³/sec. As normally occurs, concentrations of TSS increased at each successive down stream location in the Upper Qu'Appelle river. However, TSS concentrations were less than the long-term average. As expected, TSS decreased dramatically in Q6 - west arm of Buffalo Pound Lake which functions as a solids settling area (inset within Figure 6).

TSS was also below the long-term average at Q6. TSS was near average at the Plant's raw water intake. Total phosphorus levels in June's collections were at or below average from Q2 through Q6 and, at or slightly above at Q1 and Q7. Normally, high flow rates within the Upper Qu'Appelle River cause progressively higher levels

of TSS and total phosphorus due to erosion of light soils in the river channel and as water travels through the Qu'Appelle Dam to Buffalo Pound Lake. Phosphorus is a nutrient that promotes the growth of cyanobacteria.

Releases from the Qu'Appelle Dam were reduced to ~9 m³/sec starting the week of July 8th and were further reduced to ~7 m³/s during the two weeks prior and including the week of September's collection. The lower flow contributed to lower concentrations of TSS at all sites sampled as compared to June's collection and long-term average. In addition, rainfall in May through October 2020 (as measured at the BPWTP) was 171 mm or 44% below the long-term average of 307 mm which suggests less soil derived TSS and nutrient contributions from the many tributaries draining into

the Upper Qu'Appelle Valley. Total phosphorus concentrations from Q2 to Q6 were also below June's levels and the long-term average. Q1 and Q7 had higher levels of total phosphorus than June's collection and long-term average suggesting higher evaporation rates from the lakes was a significant influence.

Sampling for various pharmaceuticals and anthropogenic compounds was also carried out during the June survey. A variety of herbicides, used for broad leaf weed control, were detected at Q2, Q5, Q6 and Q7. The regulated herbicides 2,4-D and MCPA were detected from Q2 through to Q6. MCPA was detected at Q7. The average concentrations of 2,4-D and MCPA were 23 parts per trillion (ppt) and 18 ppt, respectively.

Both herbicides were at concentrations many orders of magnitude lower than drinking water guidelines. Two other herbicides detected at ppt concentrations at most locations were Fluroxypyr and Triclopyr. A fungicide called Benomyl, which is used to control a wide range of diseases of fruits, nuts, vegetables, and field crops, was detected near Q2. None of the above compounds were detected in treated water analyzed during the summer as shown in the Compliance Report. There were several compounds associated with wastewater that were detected at the Marquis site. Five antibacterial agents (Ciprofloxacin, Enrofloxacin, Norfloxacin, Ofloxacin and Methyl Triclosan) had concentrations less than 45 ppt. Carbamazepine, an anticonvulsant medication, N, N-diethyl-metatoluamide, better known as DEET, and 2,4-Dichlorophenol, a by-product of drinking water, were detected at concentrations of 40 ppt, 12 ppt, and 43 ppt, respectively.

For the seventh consecutive year, the Formbloom project buoy was deployed near the lake pumping

station's east intake. The buoy is owned by the University of Saskatchewan and is managed by a limnology research team led by Dr. Helen Baulch and Dr. Jason Venkiteswaran of the Global Institute for Water Security. The buoy is a forecasting tool containing a weather station and various sensors designed to monitor and help understand key environmental factors that drive cyanobacteria bloom onset, duration, and cessation while also evaluating the impact blooms have on ecosystem services such as treating water from Buffalo Pound Lake. Since the Buffalo Pound Water Treatment Corporation is a significant stakeholder of Buffalo Pound Lake, the Corporation has supported the work of the research team since 2014. In addition to receiving published research papers, managers and operators use real time weather and water quality data from the buoy to monitor rapid changes in water quality parameters influenced by wind, temperature, and cyanobacteria activity.



This information aids Plant operators to be proactive in mitigating treatment process upsets when light winds, hot day time temperatures and high concentrations of cyanobacteria are occurring at the intakes. Visit the following link for more information on the Corporation's partnership with the research team: [Research Impact Profiles - Global Water Futures - University of Saskatchewan \(usask.ca\)](#).

The laboratory at the Plant has been analyzing many components of raw and treated water over the years. The database of Buffalo Pound Lake water quality extends from 1969 to the present. The database of the

Upper Qu'Appelle River Watershed, which includes Lake Diefenbaker, covers the years from 1980 to the present. These long-term databases prove very useful to various government agencies including the Water Security Agency and university researchers that request to use them. During the past year, work has begun to defragment the various data files by programming and integrating them into a SQL relational database management system for more efficient retrieval of past and addition of future information.

THE YEAR IN REVIEW CONTINUED

APPLIED RESEARCH (CONTINUED)

THE YEAR IN REVIEW CONTINUED

BUDGET

OPERATIONS BUDGET

The 2020 water rate for the Cities of Regina and Moose Jaw remained status quo from the 2019 rate of \$355.00 per megalitre. The electrical rate was set at \$0.11799 per KWH for 2020; an increase of 6.40% from 2019.

The Cities of Regina and Moose Jaw forecasted water sales of 30,000 ML and 5,350 ML respectively. Actual water sales were down 1.49% from Regina's and down 4.96% from Moose Jaw's water sales forecasts.

Total water sales to the Cities in 2020 were 29,554.15 ML to Regina and 5,084.60 ML to Moose Jaw. Sales to Regina decreased 2.35% (from 2019) and sales to Moose Jaw decreased 2.14%.

In April, a decision was made to delete or defer a total of \$750,000 of expenditures. This was done to offset the anticipated negative impacts of COVID-19 to water sale projections. The actual water sales were slightly below budget and the increase in revenues from Regina's electrical power charges resulted in a small surplus of ~\$150,000. While COVID-19 negatively impacted water sales with some commercial and industrial users, as well discretionary usage of some residential users, the dry summer offset most of the shortfall. Had COVID-19 not been a factor, 2020 would likely have broken all previous water sale records. Had the weather been a more normal or average year, with COVID-19, the revenues were estimated to have been ~\$800,000 below the budget resulting in a \$600,000 deficit. The actual expenditures came in under budget by ~\$850,000.

Operations at the Plant resulted in a surplus of \$1.019 million in 2020. Water sales generated \$13.189 million in revenue and expenses were \$12.170 million.

The Board's Reserve Policy has a target balance of \$2 million for the reserve to the Corporation when there are periods of time with low water demand.

Audited financial statements are contained in Appendix 2. Graph 4 on the following page summarizes expenses for 2020 as a percent of the total budget.

CAPITAL BUDGET

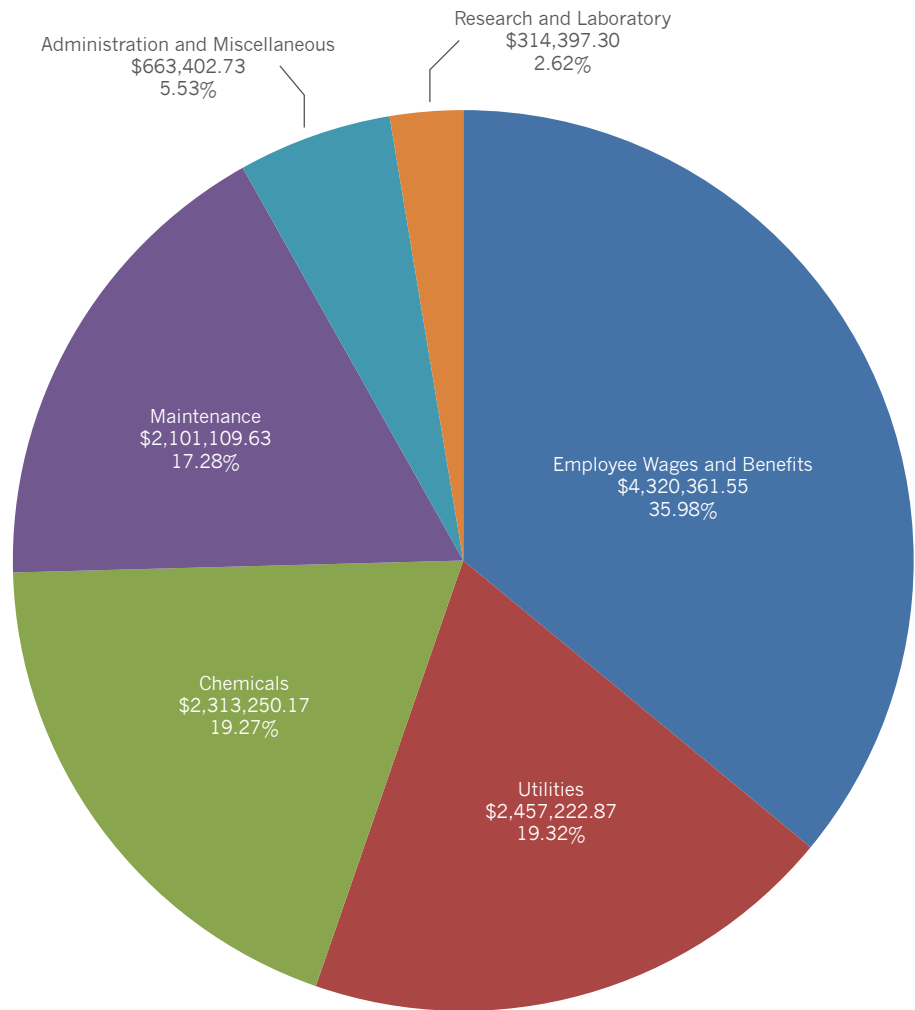
The 2020 Capital Water Rate was \$215.00 per megaliter. This was an increase of 14.36% from 2019. This rate provided funding for capital works for the Corporation. The rate will increase to be at sustainable levels to cover the principle and interest payments for the anticipated debt levels in 2021.

The Capital Budget started the year with \$46.5 million in reserves. The Capital Water Rate proceeds, grant funds and interest income generated \$20.6 million during the course of 2020 and \$30.9 million was spent on capital projects.

At year end, \$36.3 million was carried forward into 2021 to complete projects initiated in 2020.

EXPENSES SUMMARY

GRAPH 4







2020

WATER QUALITY ANALYTICAL DATA – 2020

- ## APPENDIX 2

AUDITED FINANCIAL STATEMENTS – 2020



APPENDIX 1

WATER QUALITY AND COMPLIANCE REPORT FOR 2020

INTRODUCTION

The Water Security Agency (WSA) requires each Permittee to monitor water quality as stipulated under its Permit to Operate a Waterworks. Permittees are also required to prepare an annual report to their customers and the Saskatchewan Water Security Agency summarizing the analytical results of the monitoring in a report entitled “Drinking Water Quality and Compliance Report.”

For more information about the meaning and type of sample refer to the Water Security Agency’s “Municipal Drinking Water Quality Monitoring Guidelines, or the associated website <http://www.saskh2o.ca/DWBinder/epb205.pdf>.

The guidelines for Canadian Drinking Water Quality are developed by the Federal –Provincial-Territorial Committee on Drinking Water and are published by Health Canada. The province of Saskatchewan utilizes the guidelines in issuing Permits to Operate for regulated water

works. Guidelines for chemical and physical parameters are either:

1. health based and listed as a Maximum Acceptable Concentration (MAC);
2. based on aesthetic considerations and listed as an Aesthetic Objective (AO); or
3. established based on operational considerations and listed as an Operational Guidance value (OG).

Throughout this document, the analytical values are reported as well as the units of measure. Many parameters are not detectable in the treated water. Wherever the “less than sign” (<) is used it is followed by the method detection limit. This means that the parameter was not detected at or above the level indicated.

The Buffalo Pound Water Treatment Plant was fully compliant with the requirements for sample submission as defined in our Permit to Operate a Waterworks No. 00050083-06-00.

WATER QUALITY STANDARDS – BACTERIOLOGICAL QUALITY

According to its Permit to Operate a Waterworks the Buffalo Pound Water Treatment Plant is required to analyze one sample every week from the treated water for Bacteriological Quality. Results of that sampling follow. All required samples were submitted over the year, none of which had detectable coliform or background organisms.

Parameter	Limit	Number of Samples Submitted	Number of Samples Exceeding Limit
Total Coliforms	0 per 100 mL	52	0
Background Organisms	<200 per 100 mL	52	0

WATER QUALITY STANDARDS – FILTER TURBIDITY

The Buffalo Pound Water Treatment Plant is required to monitor the effluent turbidity from all twelve filters on a Continuous Basis. The turbidity from each individual filter shall be less than 0.3 NTU, 95% of the time. The turbidity shall not exceed 0.3 NTU for more than 12 consecutive hours and shall never exceed 1.0 NTU. If, on those occasions when the monthly average of the source water turbidity is less than 1.5 NTU, the water turbidity levels from each filter must be less than 0.2 NTU, 95% of the time, the turbidity shall not exceed 0.2 NTU for more than 12 consecutive hours and shall never exceed 1.0 NTU.

This Plant's SCADA Control System automatically generates an alarm if a filter effluent turbidity exceeds 0.3 NTU. If the turbidity exceeds 0.4 NTU at any time, the Plant's SCADA Control System automatically closes the filter effluent valve, turning off the filter. The plant's operating permit requires on-line turbidity monitoring on the effluent of each of its twelve filters. A problem with the turbidity monitor or data transfer system to the plant's SCADA requires a shutdown of the affected filter. To address this possibility the plant has a second independent turbidimeter on each filter so that continuous monitoring can be maintained even if the first turbidimeter fails. A fault condition on any one turbidimeter will also generate an alarm.

On July 16, 2020, during some routine maintenance, a filter effluent valve accidentally opened during a filter to waste cycle for 30 to 60 seconds. This resulted in water leaving the filter to have turbidity exceed 1.0 NTU. The noncompliant water was immediately mixed with effluent from eleven (11) other filters then went onto and passed through the granular activated carbon filters. The refiltered mixed water was then disinfected with adequate levels of ultraviolet light and chlorine before leaving the treatment plant. At no time was the health or safety of the public at risk. The Water Security Agency was notified of the event and corrective actions were taken to prevent a similar event from occurring in the future.

WATER QUALITY STANDARDS – FLUORIDE

The Buffalo Pound Water Treatment Plant did not add fluoride to the water pumped to the City of Moose Jaw in 2020. Operation of the fluoride feeder was terminated the first week of October in 2018 due to an equipment failure. The system is dated, and it is no longer possible to obtain replacement parts. The system is being replaced by the City of Moose Jaw.

APPENDIX 1 (CONTINUED)

DRINKING WATER QUALITY AND COMPLIANCE REPORT FOR 2020 (CONTINUED)

WATER QUALITY STANDARDS – CHLORINE RESIDUAL

To ensure adequate disinfection the Buffalo Pound Water Treatment Plant must monitor the chlorine residual of the treated water on a continuous basis and the free chlorine residual shall not be less than 0.1 mg/L. The normal operating range for the free chlorine residual in the treated water is 0.9 to 1.1 mg/L. The SCADA control system will automatically shut off pumping to the Cities if the chlorine level is less than 0.5 mg/L. A high level chlorine alarm will alert the operator if chlorine levels in the clearwell exceed 1.3 mg/L.

WATER QUALITY STANDARDS – CHEMICAL – GENERAL

As part of the Plant's "Permit to Operate" a general chemical analysis is required once in every three month period from the treated water. Only two of these parameters have an established Maximum Acceptable Concentration (MAC). Eight others have an Aesthetic Objective (AO) which is desirable but has no impact on human health. Four analytes have no MAC or AO but are collected upon the request of the WSA.

Parameter (mg/L) unless stated	Feb. 10 th	May 11 th	Aug 10 th	Nov. 16 th	MAC	No. of Samples Exceeding MAC or AO
Nitrate	0.57	0.17	0.21	0.04	45	0
Fluoride	0.11	0.10	0.06	0.09	1.5	0
					AO	
Alkalinity	163	137	83	120	500	0
Chloride	39.1	18.9	18.3	18.9	250	0
Hardness	233	212	170	198	800	0
Magnesium	24.8	22.8	20.0	22.5	200	0
pH (pH units)	7.51	7.43	6.87	7.17	7.0 – 10.5	0
Sodium	51	48	37	38	300	0
Sulphate	134	153	154	147	500	0
Total Dissolved Solids	360	394	364	356	1500	0
Carbonate	ND	ND	ND	ND	None*	
Calcium	50	48	36	43	None*	
Conductivity (uS/cm)	670	610	525	561	None*	
Bicarbonate	199	167	101	146	None*	

(ND) Not Detected

*No MAC or AO but requested by the WSA

WATER QUALITY STANDARDS – CHEMICAL – HEALTH

The Buffalo Pound Water Treatment Plant is required to sample the treated water for the following parameters once in every six-month period. Sixteen of these parameters have an established MAC. Three parameters have guideline values which establish a target that could be expected from well-functioning water treatment plants or are aesthetic objectives for the taste or appearance of treated water. Silver is included here upon the request of the WSA.

Antimony	<0.0002	<0.0002	0.006	0
Arsenic	0.0004	0.0004	0.010	0
Barium	0.057	0.050	1.0	0
Boron	0.04	0.04	5.0	0
Bromate	<0.005	<0.005	0.01	0
Cadmium	<0.00001	<0.00001	0.005	0
Chlorate	<0.05	<0.05	1.0 (July 1, 2020)	0
Chlorite	<0.05	<0.05	1.0 (July 1, 2020)	0
Chromium	<0.0005	<0.0005	0.050	0
Copper	0.0004	<0.0002	2.0	0
Cyanide	0.002	0.002	0.200	0
Lead	<0.0001	<0.0001	0.010	0
Manganese	<0.0005	<0.0005	0.12	0
Mercury	0.000001	0.000001	0.001	0
Selenium	0.0003	0.0003	0.010	0
Uranium	0.0004	<0.0001	0.020	0

			Guideline	# of Samples Exceeding Guideline
Aluminum	0.025	0.015	0.1 (annual average)	0
Iron	<0.0005	<0.0005	0.3	0
Silver	<0.00005	<0.00005	None*	0
Zinc	<0.0005	<0.0005	5.0	0

*Health Canada has not established a guideline as drinking water is not a significant source of silver.

WATER QUALITY STANDARDS – PESTICIDES

Once per year the Buffalo Pound Water Treatment Plant is required to have the treated water analyzed for the following pesticides. The fourteen of the parameters listed below have an established MAC or IMAC (Interim MAC).

Parameter (mg/L)	Aug. 31	MAC	IMAC	Number of Samples Exceeding Limit
Atrazine	<0.0001		0.005	0
Bromoxynil	<0.00010		0.005	0
Carbofuran	<0.00050	0.09		0
Chlorpyrifos	<0.00010	0.09		0
Dicamba	<0.00010	0.12		0
2,4-D	<0.00010		0.1	0
Diclofop-methyl	<0.00010	0.009		0
Dimethoate	<0.00010		0.02	0
Glyphosate	<0.00020	0.28	0.28	0
Malathion	<0.00010	0.19		0
MCPA	<0.00050	0.10		0
Pentachlorophenol	<0.00050	0.06		0
Picloram	<0.00010		0.19	0
Trifluralin	<0.00010		0.045	0

*Highlighted chemicals may be withdrawn from the Canadian Drinking Water Quality Guidelines.

APPENDIX 1 (CONTINUED)

DRINKING WATER QUALITY AND COMPLIANCE REPORT FOR 2020 (CONTINUED)

WATER QUALITY STANDARDS – DISINFECTION BY-PRODUCT – TOTAL TRIHALOMETHANES

As part of the Plant's "Permit to Operate" an analysis of total trihalomethanes is required once per month from the treated water. The MAC is 0.1 mg/L, or, 100 ug/L (parts per billion) for the sum of four trihalomethanes on an annual average. The annual average of total trihalomethanes was 15 ug/L which is well below the MAC and down substantially from 35 ug/L in 2019.

Prechlorination was removed on February 19th. The main objective of this significant process change was to remove disinfection byproduct precursors prior to adding chlorine and reducing DBP's to consumers. This objective was accomplished.

Parameter (ug/L)	Jan 13	Feb 3	Mar 9	Apr 14	May 11	Jun 8
Chloroform	24	24	11	8	11	<1
Bromodichloromethane	10	11	6	4	7	<1
Dibromochloromethane	2	3	3	2	3	<1
Bromoform	<1	<1	<1	<1	<1	<1
Total Trihalomethanes	36	38	20	14	21	<1

	Jul 13	Aug 13	Sep 8	Oct 5	Nov 16	Dec 7
Chloroform	2	7	9	8	6	8
Bromodichloromethane	<1	1	2	3	2	3
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Total Trihalomethanes	2	8	11	11	8	11

WATER QUALITY STANDARDS – DISINFECTION BY-PRODUCT – HALOACETIC ACIDS (HAA₅'S)

The Buffalo Pound Water Treatment Plant is obligated to sample for Haloacetic Acids every three months. The annual average of quarterly samples was <10 ug/L and well below the MAC of 80 ug/L which is also based on an average of four samples. In 2019, the annual average of quarterly samples was 12.8 ug/L. The reduction year over year was a result of the removal of prechlorination from the plant process. The 2020 results are as follows:

Parameter (ug/L)	Feb 4	May 12	Aug 10	Nov 16	Annual Average	MAC (Average)
HAA ₅	<10	<10	<10	<10	<10	80

WATER QUALITY STANDARDS – SYNTHETIC ORGANICS

The Buffalo Pound Water Treatment Plant is required to submit one (1) sample per year for analysis for various organics originating from industrial activities.

Parameter (mg/L)	Aug 20	MAC (mg/L)	IMAC (mg/L)	Number of Samples Exceeding Limit
Benzene	<0.00050	0.005		0
Benzo(a)pyrene	<0.00001	0.00001		0
Carbon Tetrachloride	<0.00050	0.005		0
Dichlorobenzene 1,2	<0.00040	0.200		0
Dichlorobenzene 1,4	<0.00040	0.005		0
Dichloroethane 1,2	<0.00050		0.005	0
Dichloroethylene 1,1	<0.00050	0.014		0
Dichloromethane	<0.00050	0.050		0
Dichlorophenol 2,4	<0.0003	0.900		0
Ethylbenzene	<0.00050	0.14		0
Monochlorobenzene	<0.00050	0.08		0
Perfluorooctanesulfonate	<0.00001	*		0
Perfluorooctanoic Acid	<0.00001	*		0
Tetrachloroethylene	<0.00050	0.01		0
Tetrachlorophenol 2,3,4,6	<0.0005	0.1		0
Trichloroethylene	<0.0010	0.05		0
Trichlorophenol 2,4,6	<0.0005	0.005		0
Vinyl Chloride	<0.00050	0.002		0
Xylenes	<0.00050	0.09		0

*under development by Health Canada

Highlighted chemicals may with be withdrawn from the Canadian Drinking Water Quality Guidelines.

WATER QUALITY STANDARDS – RADIOLOGICAL

The Buffalo Pound Water Treatment Plant is required to submit one (1) sample per year for the measurement of gross alpha and gross beta activity. Should those measures exceed the MACs, an additional larger sample must be submitted for the estimation of contributions to activity from various individual radioisotopes. Additional analyses were not necessary as the gross alpha and gross beta activity were both less than the MAC.

Parameter (mg/L)	Sep 10	MAC
Gross Alpha (Becquerel/L)	<0.22	0.5
Gross Beta (Becquerel/L)	0.20±0.04	1.0

APPENDIX 1 (CONTINUED)

DRINKING WATER QUALITY AND COMPLIANCE REPORT FOR 2020 (CONTINUED)

WATER QUALITY STANDARDS – MICROCYSTIN

The Buffalo Pound Water Treatment Plant is required to submit monthly samples from May through October for Microcystin LR or Total Microcystin toxins from both the raw and treated water. Microcystins may be produced by various cyanobacteria. The microcystin MAC for drinking water is 1.5 ug/L. Microcystin was not detected in the treated water.

Date	Microcystin (ug/L)	
	Raw Water	Treated Water
May 5	<0.1	<0.1
June 15	1.1	<0.1
July 13	0.9	<0.1
August 10	0.3	<0.1
September 14	<0.1	<0.1
October 26	<0.1	<0.1

RAW WATER ANALYSIS GIARDIA AND CRYPTOSPORIDIUM

Although not a regulated water quality parameter the Buffalo Pound Water Treatment Plant is required to sample the raw water on a quarterly basis for the presence of *Giardia* spp. and *Cryptosporidium* spp. which are waterborne protozoa. The filter cartridges are limited by particulates in the raw water so the volumes actually filtered can vary substantially. *Cryptosporidium* oocysts and *giardia* cysts were not detected in the four raw water samples.

Date	Giardia (cysts per 100L)	Cryptosporidium (oocysts per 100L)
February 25	<5.8	<5.8
May 19	<9.9	<9.9
September 14	<12	<12
November 23	<1.6	<1.6

[illegible]

RAW LAKE WATER ANALYSIS

Parameters	Units	JAN Avg	FEB Avg	MAR Avg	APR Avg	MAY Avg	JUN Avg	JUL Avg	AUG Avg	SEP Avg	OCT Avg	NOV Avg	DEC Avg	YEAR AVG	YEAR MIN	YEAR MAX
PHYSICAL																
Colour (Apparent)	Pt/Co	9	9	8	5	5	8	15	15	10	9	8	8	9	5	15
Conductivity	µS/cm	627	657	654	593	596	571	505	499	507	525	548	573	573	499	661
Bench Diss. Oxygen	mg/L	7.4	7.5	7.3	10.6	8.8	7.9	8.2	8.0	7.3	11.0	10.2	11.6	8.7	6.0	12.3
Bench Diss. Oxygen	%	57.6	61.3	31.0	86.3	88.4	83.4	95.8	86.2	75.3	85.1	75.3	87.7	76.9	47.0	95.8
ON-LINE Diss. Oxygen	%	66.5	68.6	65.6	89.5	91.0	96.3	95.4	72.1	89.0	94.5	106.5	114.0	87.6	52.0	118.7
Odour	T.O.N.	16	29	49	50	80	84	75	85	60	50	60	40	57	10	100
pH	pH units	7.94	7.91	7.93	8.20	8.25	8.41	8.52	8.47	8.44	8.40	8.37	8.46	8.28	7.85	8.73
Temperature	° C	4.8	6.6	8.3	7.5	16.9	20.0	23.6	21.2	16.7	7.5	2.9	3.7	3.2	1.0	9.1
Turbidity	NTU	1.9	2.6	1.8	2.3	2.1	4.3	3.4	5.9	4.7	4.9	3.3	1.3	3.2	1.0	9.1
TDS	mg/L	390	394	416	358	368	342	286	348	310	316	348	366	353	286	422
TSS	mg/L	1.0	1.3	1.8	1.3	1.8	5.0	5.0	11.0	3.5	8.0	3.0	1.0	2.8	0.0	12.0
Langelier Saturation Index	pH units (calc)	-0.06	-0.02	-0.06	0.26	0.29	0.68	0.89	0.70	0.45	0.28	0.25	0.46	0.33	-0.11	0.89
MAJOR CONSTITUENTS																
Alkalinity(p)	mg/L CaCO3	<DL	<DL	<DL	<DL	<DL	1	5	4	1	1	<DL	2	1	<DL	5
Alkalinity(total)	mg/L CaCO3	182	192	192	172	174	169	141	137	143	157	164	172	167	137	194
Bicarbonate	mg/L	222	235	234	210	212	203	160	157	172	189	198	205	201	157	237
Carbonate	mg/L	<DL	<DL	<DL	<DL	<DL	1	6	5	1	1	<DL	2	1	<DL	6
Calcium	mg/L	49	52	52	49	49	48	39	37	38	41	43	49	45	36	52
Magnesium	mg/L	24	25	26	22	23	22	21	20	21	21	22	24	23	20	26
Hardness (total)	mg/L CaCO3	222	235	232	211	214	209	174	170	175	191	198	210	204	170	235
Sodium	mg/L	49	52	53	47	48	45	42	37	38	40	38	39	44	37	54
Potassium	mg/L	5.4	5.4	5.3	4.8	5.2	4.9	4.6	4.6	4.7	4.8	4.8	5.0	5.0	4.6	5.5
Sulphate	mg/L	128	133	132	113	121	115	100	100	101	99	103	105	113	98	134
Chloride	mg/L	18.1	19.6	19.4	16.7	17.1	16.2	15.3	15.7	16.6	16.1	16.7	17.0	14.1	15.3	20.0
TRACE CONSTITUENTS																
Aluminum (dissolved 0.45µ)	ug/L	<DL	<DL	<DL	<DL	50	69	12	14	40	46	21	14	23	<DL	69
Aluminum (Total)	ug/L	<DL	26	13	20	112	370	55	51	97	382	82	30	103	<DL	382
Ammonia N	mg/L N	<DL	<DL	<DL	<DL	<DL	<DL	0.13	<DL	0.10	0.04	<DL	<DL	<DL	<DL	0.13
BOD (5-day)	mg/L	3.6	4.5	3.9	2.8	1.6	1.7	4.5	4.1	NA	2.4	4.8	4.9	3.5	1.6	4.9
Bromide	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	NA	NA	NA	NA	NA	NA	<DL	<DL	<DL
Chlorophyll a	µg/L	26	22	10	6	4	19	43	42	23	20	18	16	21	4	43
Fluoride	mg/L	0.17	0.18	0.17	0.016	0.17	0.19	0.17	0.16	0.18	0.18	0.17	0.19	0.17	0.16	0.19
Iron (dissolved)	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Manganese (dissolved)	mg/L	0.05	0.09	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.01	0.02	<DL	0.10
Nitrate	mg/L	0.14	0.14	0.13	0.09	0.09	0.08	<DL	<DL	<DL	<DL	<DL	<DL	0.07	<DL	0.14
Organic N	mg/L N	0.14	0.60	0.60	0.40	0.40	0.50	0.90	0.60	0.75	0.75	0.60	0.50	0.61	0.30	0.90
Raw TOC	mg/LC(UV)	5.9	5.9	5.8	5.3	5.0	5.5	7.0	7.5	7.9	6.8	6.5	6.3	6.3	4.8	8.9
Raw DOC (GF diss)	mg/LC(UV)	5.3	5.2	5.1	4.1	4.6	4.7	5.7	5.8	6.2	6.2	5.6	5.7	5.4	2.8	7.5
UV absorbance @ 254nm	Abs10cm ⁻¹	0.887	0.912	0.858	0.719	0.678	0.716	0.834	0.879	0.908	0.868	0.820	0.882	0.827	0.644	0.945
SUVA	L/mg.m ⁻¹	1.678	1.668	1.695	1.851	1.476	1.515	1.459	1.509	1.467	1.397	1.464	1.538	1.557	1.148	2.616
PreFM UV abs @ 254nm	Abs10cm ⁻¹	0.739	0.767	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.744	0.726	0.767
Phosphate(ortho)	µg/L P	7	5	5	5	15	12	3	6	11	3	5	3	7	<DL	15
Phosphate(total)	µg/L P	50	47	45	41	48	69	81	104	87	75	46	43	62	41	104
Silica (SiO3)	mg/L	3.7	3.6	3.7	2.6	1.6	1.0	1.5	3.8	4.4	4.1	3.9	4.0	3.3	1.0	4.4

RAW LAKE WATER ANALYSIS (CONT'D)

Parameters	Units	JAN Avg	FEB Avg	MAR Avg	APR Avg	MAY Avg	JUN Avg	JUL Avg	AUG Avg	SEP Avg	OCT Avg	NOV Avg	DEC Avg	YEAR AVG	YEAR MIN	YEAR MAX
TRACE CONSTITUENTS																
PreFM																
TTHM's (total)	µg/L(calc)	28	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	26	32
Chloroform	µg/L	20	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19	18	22
Bromodichloromethane	µg/L	7	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	6	8
Chlorodibromomethane	µg/L	2	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1	2
Bromoform	µg/L	<DL	<DL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<DL	<DL	<DL
BIOLOGICAL																
Blue Green Algae (x10³)	per litre	78	244	347	233	317	1,996	5,889	7,261	4,227	1,672	385	36	1,938	<DL	12,267
Green Algae (x10³)	per litre	1,444	2,589	3,711	3,600	3,922	8,413	9,439	11,600	31,716	7,261	5,185	2,942	8,149	1,222	121,111
Diatoms (x10³)	per litre	159	94	111	222	572	787	939	1,467	1,351	683	489	271	609	<DL	2,778
Flagellates (x10³)	per litre	96	89	196	467	283	693	1,011	1,883	1,151	672	578	329	630	22	3,333
Crustaceans	per litre	<3	<3	<3	<3	<3	10	19	27	3	7	3	<3	6	<3	40
Nematodes (x10³)	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Rotifers (x10³)	per litre	<DL	<DL	<DL	<DL	<DL	22	28	78	36	<DL	<DL	<DL	15	<DL	222
Other (x10³)	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Total Green & B-G	per litre	1,522	2,833	4,058	3,833	4,239	10,409	15,328	18,861	35,942	8,933	5,570	2,978	4,036	2,000	4,400
Total Coliforms (mEndo)	per 100 ml	8	20	20	13	167	120	250	<DL	600	<DL	<DL	<DL	105	<DL	2,000
Total Coliforms (background)	per 100 ml	365	213	380	1,703	3,400	7,940	23,925	66,500	50,750	11,400	1,775	175	15,031	144	100,000
Faecal Coliforms (mFC)	per 100 ml	NA	NA	<DL	9	2	<DL	1	8	NA	4	NA	NA	3	<DL	9
Total Coliforms (MPN)	per 100 ml	35	32	57	116	97	94	1,448	3,165	4,398	124	41	6	841	3	12,997
E.coli (MPN)	per 1 ml	<DL	<DL	1	3	2	<DL	1	4	9	4	<DL	<DL	2	<DL	13
Standard Plate Count	per 1 ml	9	11	27	51	238	328	1,543	1,855	1,524	259	26	9	501	5	3,400
CHEMICAL DOSES																
Alum	mg/L	NA	NA	NA	NA	65	76	95	110	103	88	85	90	89	60	110
Alum\Raw DOC	ratio	NA	NA	NA	NA	14.51	16.08	10.02	16.59	18.89	14.31	15.49	14.01	16.09	12.03	19.61
Alum-DOC Stoich	ratio	NA	NA	NA	NA	1.18	1.30	1.35	1.53	1.35	1.16	1.26	1.14	1.31	0.98	1.59
Chlorine-pre	mg/L	3.1	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	1.8	4.9
Chlorine-intermed	mg/L		1.2	1.1	0.8	0.9	1.1	1.6	1.5	1.2	1.4	1.2	1.2	1.2	0.5	1.7
Chlorine-post	mg/L	1.2	1.3	1.5	1.4	1.4	1.4	1.6	1.5	1.5	1.3	1.5	1.6	1.4	1.0	1.8
Plant Flow	MLD	93.5	85.5	89.4	89.8	101.0	114.6	115.0	130.8	118.2	91.3	89.5	86.4	100.5	69.0	164.0
Qu'Appelle Dam Flow	cu m/s	1.95	1.80	2.02	4.68	10.38	10.64	7.83	6.83	6.46	1.58	1.80	1.82	4.85	0.8	11.0
Fluoride (Set Point for MJ)	mg/L															
Powdered Carbon	mg/L															
CPAC Train A	mg//L	37.0	37.8	40.0	36.8	35.0	NA	NA	NA	NA	NA	NA	37.2	37.7	32.0	40.0
CPAC Train B	mg//L	37.0	37.8	40.0	36.8	35.0	NA	NA	NA	NA	NA	NA	36.5	37.6	32.0	40.0
Total Chlorine dose	mg/L (Calc)	4.3	3.1	2.6	2.2	2.3	2.5	3.2	3.0	2.7	2.7	2.7	2.8	2.8	1.9	6.0
Date GAC's ON														19-May		
Date GAC's OFF														10-Dec		
Date Ice ON Lake														14-Nov		
Date Ice OFF Lake														08-Apr		
Date PAC ON																
Date PAC OFF																
Chlorine Residuals Exit Plant (week avg.)																
Free Chlorine	mg/L	1.15	1.21	1.24	1.30	1.26	1.27	1.27	1.30	1.32	1.27	1.26	1.28	1.26	1.11	1.35
Combined Chlorine	mg/L	0.30	0.31	0.30	0.25	0.17	0.07	0.11	0.12	0.12	0.13	0.15	0.26	0.19	<DL	0.33

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TREATED WATER ANALYSIS

Parameters	Units	JAN Avg	FEB Avg	MAR Avg	APR Avg	MAY Avg	JUN Avg	JUL Avg	AUG Avg	SEP Avg	OCT Avg	NOV Avg	DEC Avg	YEAR AVG	YEAR MIN	YEAR MAX
PHYSICAL																
Colour (Apparent)	Pt/Co	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Conductivity	µS/cm	631	670	675	609	610	599	533	525	524	534	561	591	589	524	675
Diss. Oxygen	mg/L	11.7	12.9	11.3	11.5	10.8	9.2	7.8	8.1	8.5	10.1	9.8	12.2	10.3	7.8	12.9
% Sat. Diss. Oxygen	%	88.2	99.8	88.5	88.6	102.9	94.6	88.6	89.9	82.9	88.6	49.2	90.3	87.7	49.2	102.9
Odour(Dechlorinated)	T.O.N.	3	5	5	6	4	2	1	1	1	1	3	5	3	<1	8
PreGAC Odour	T.O.N.	NA	NA	NA	NA	8	13	13	19	24	13	9	6	14	6	40
Odour Removal by Coagulation and Filtration	%	80.6%	83.8%	88.6%	88.3%	90.5%	84.7%	83.1%	79.4%	58.7%	73.3%	85.6%	83.0%	81.0%	50.0%	93.3%
Odour Removal Overall	%	80.6%	83.8%	88.6%	88.3%	94.9%	97.1%	98.3%	98.6%	98.1%	97.5%	95.6%	84.7%	92.3%	70.0%	100.0%
PreFM pH	pH units	7.78	7.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.75	7.64	7.85
Coagulation pH - Channel 1	pH units	7.31	7.29	7.30	7.35	7.29	7.13	6.87	6.69	6.83	6.96	7.04	7.41	7.13	6.67	7.54
Coagulation pH - Channel 2	pH units	7.32	7.33	7.29	7.35	7.24	7.10	6.88	6.67	6.81	6.98	7.07	7.42	7.12	6.64	7.52
Clearwell pH	pH units	7.49	7.47	7.46	7.51	7.45	7.27	7.09	6.85	6.93	7.13	7.15	7.45	7.27	6.82	7.61
Temperature	° C	3.8	4.5	5.9	5.1	14.0	18.1	22.1	21.6	15.1	6.5	1.9	2.8	10.1	1.1	23.0
Turbidity	NTU	0.07	0.07	0.08	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.08	0.08	0.06	0.10
Total Dissolved Solids	mg/L	382	360	404	368	394	362	310	364	322	328	356	370	360	310	404
Total Suspended Solids	mg/L	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.0
Turbidity Log Removal	(calc)	1.43	1.58	1.34	1.48	1.37	1.71	1.62	1.88	1.74	1.79	1.65	1.21	1.56	1.02	2.11
Langelier Saturation Index (LSI #2, new as of 2018)	pH units (calc)	-0.59	-0.53	-0.59	-0.67	-0.53	-0.48	-1.05	-1.29	-1.28	-1.21	-1.12	-0.59	-0.83	-1.29	-0.48
MAJOR CONSTITUENTS																
Alkalinity(p)	mg/L CaCO3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Alkalinity(total)	mg/L CaCO3	159	165	164	147	137	132	93	83	93	112	120	145	130	83	168
Bicarbonate	mg/L	197	201	200	179	167	161	113	101	113	137	146	177	159	101	205
Carbonate	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Calcium	mg/L	47	50	51	45	48	49	38	36	35	39	43	45	44	35	51
Magnesium	mg/L	24	25	26	22	23	22	21	20	20	21	23	23	22	20	26
Hardness (total)	mg/L CaCO3	214	233	231	208	213	212	173	170	172	183	198	208	201	170	233
Sodium	mg/L	46	51	53	48	48	46	41	37	37	37	38	39	43	37	53
Potassium	mg/L	5.5	5.4	5.3	4.8	5.1	5.0	4.6	4.6	4.7	4.7	4.8	4.9	5.0	4.6	5.5
Sulphate	mg/L	126	134	132	119	153	158	150	154	149	144	147	105	139	105	158
Chloride	mg/L	37.0	39.1	40.0	35.7	18.9	18.7	18.0	18.3	19.1	18.3	18.9	37.6	26.6	18.0	40.0
TRACE CONSTITUENTS																
CLEAR WELL																
Aluminum (dissolved 0.45µ)	µg/L Chart	6	22	19	35	27	16	11	<DL	6	8	10	21	15	<DL	35
Aluminum (total)	µg/L Chart	19	23	20	37	25	18	13	<DL	7	10	13	32	18	<DL	37
Aluminum (total 12 mo avg)	µg/L	33	30	25	23	21	19	17	18	18	18	17	20			
Aluminum (particulate)	µg/L (Calc)	13	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	11	<DL	<DL	13
MIXED MEDIA FILTER A																
Aluminum (total)	µg/L	27	24	22	34	22	27	23	17	20	26	61	34	28	17	61
MIXED MEDIA FILTER L																
Aluminum (total)	µg/L	21	30	17	32	23	28	25	21	17	20	110	30	31	17	110
PREGAC																
Aluminum (dissolved)	µg/L	NA	NA	NA	NA	NA	23	15	<DL	15	16	26	NA	16	<DL	26
Aluminum (total)	µg/L Chart	NA	NA	NA	NA	NA	24	21	10	20	26	36	NA	23	10	36
Ammonia N	mg/L N	0.11	0.06	<DL	<DL	0.08	<DL	0.13	<DL	0.24	0.34	<DL	<DL	0.08	<DL	0.34
Bromide	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	0.23						<DL	<DL	0.23
Fluoride	mg/L	0.11	0.11	0.11	0.11	0.10	0.11	0.08	0.06	0.08	0.08	0.09	0.13	0.10	0.06	0.13
Fluoride (MJ dose by ISE)	mg/L (wk avg)															
Iron (dissolved)	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Iron (total)	mg/L	0.02	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.02
Manganese (dissolved)	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL

TREATED WATER ANALYSIS (CONT'D)

Parameters	Units	JAN Avg	FEB Avg	MAR Avg	APR Avg	MAY Avg	JUN Avg	JUL Avg	AUG Avg	SEP Avg	OCT Avg	NOV Avg	DEC Avg	YEAR AVG	YEAR MIN	YEAR MAX
Manganese (total)	mg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Nitrate	mg/L N	0.10	0.13	0.11	<DL	<DL	0.06	<DL	<DL	0.06	<DL	<DL	<DL	0.06	<DL	0.13
Organic N	mg/L N	0.30	0.20	0.20	<DL	0.20	<DL	0.10	<DL	0.10	0.20	0.10	0.10	0.13	<DL	0.30
CW TOC	mg/L C	3.2	3.2	3.1	2.7	2.2	0.6	0.9	1.3	1.7	2.0	2.3	3.3	2.2	0.3	3.9
CW DOC (GF diss)	mg/L C	3.3	3.2	3.1	2.8	2.2	0.5	0.9	1.3	1.7	2.0	2.3	3.3	2.2	0.3	4.1
PreGAC TOC (GF diss)	mg/L C	NA	NA	NA	NA	2.7	2.7	2.8	2.7	2.9	3.1	3.0	3.3	2.9	2.6	3.4
PreGAC DOC (GF diss)	mg/L C	NA	NA	NA	NA	2.7	2.7	2.8	2.7	2.9	3.1	3.1	3.3	2.9	2.6	3.4
TOC Removal by Coagulation & Filtration	% Removal	46.8%	44.3%	47.1%	48.4%	43.5%	50.1%	59.3%	63.4%	63.2%	55.0%	53.3%	44.1%	51.7%	37.9%	69.1%
DOC Removal by Coagulation & Filtration	% Removal	39.7%	38.5%	38.4%	28.7%	38.3%	42.3%	50.5%	53.5%	53.2%	49.7%	45.5%	37.4%	43.0%	<0.5	59.8%
DOC Removal by GAC Filtration	% Removal	NA	NA	NA	NA	88.5%	79.9%	67.1%	53.7%	41.9%	35.9%	26.0%	18.7%	50.9%	18.6%	88.5%
Total DOC (% Removal)	% Removal	39.7%	38.5%	38.4%	28.7%	51.8%	88.6%	83.7%	78.5%	72.8%	67.7%	59.6%	41.8%	57.9%	<0.5	93.0%
CW Organic Carbon (diss @ 254nm)	Abs 10cm	0.45	0.43	0.44	0.35	0.27	0.05	0.07	0.11	0.15	0.17	0.21	0.38	0.25	<0.5	0.47
PreGAC Organic Carbon (diss @ 254nm)	Abs 10cm	NA	NA	NA	NA	0.38	0.36	0.35	0.36	0.38	0.38	0.40	0.45	0.38	0.33	0.45
Conventional SUVA	L / mg m	1.39	1.30	1.41	1.27	1.28	1.33	1.27	1.32	1.31	1.25	1.32	1.25	1.31	1.06	1.49
CW SUVA	L / mg m	1.39	1.30	1.41	1.27	0.97	1.00	0.74	0.89	0.87	0.84	0.95	1.13	1.05	0.16	2.00
Phosphate(ortho)	µg/L P	<DL	NA	<DL	<DL	<DL	7	3	4	3	<DL	5	<DL	2	0	7
Phosphate(total)	µg/L P	7	8	<DL	<DL	10	6	5	<DL	8	4	<DL	9	5	<DL	10
Silica (SiO3)	mg/L	3.2	3.5	3.4	2.4	1.6	<DL	1.5	3.6	3.9	3.8	3.6	3.7	2.9	<DL	3.9
CLEAR WELL																
TTHM's (total)	µg/L(calc)	36	34	20	16	22	1	3	10	11	10	8	14	16	1	39
Chloroform	µg/L	23	21	11	9	9	<DL	3	8	9	7	6	10	9	<DL	24
Bromodichloromethane	µg/L	10	10	6	5	5	<DL	<DL	2	3	3	2	4	4	<DL	12
Chlorodibromomethane	µg/L	3	3	3	3	3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1	<DL	4
Bromoform	µg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
CHANNEL																
TTHM's (total)	µg/L(calc)	34	18	3	2	4	6	6	6	5	3	2	3	5	2	34
Chloroform	µg/L	23	12	3	2	4	5	5	5	5	3	2	3	4	2	23
Bromodichloromethane	µg/L	9	5	<DL	<DL	<DL	1	<DL	<DL	<DL	<DL	<DL	<DL	1	<DL	9
Chlorodibromomethane	µg/L	2	2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	3
Bromoform	µg/L	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
PreGAC																
TTHM's (total)	µg/L(calc)	NA	NA	NA	NA	14	15	17	14	12	9	6	8	12	5	19
Chloroform	µg/L	NA	NA	NA	NA	8	9	12	10	9	7	5	6	8	5	13
Bromodichloromethane	µg/L	NA	NA	NA	NA	4	4	5	4	3	2	<DL	2	3	<DL	5
Chlorodibromomethane	µg/L	NA	NA	NA	NA	2	2	1	<DL	<DL	<DL	<DL	<DL	1	<DL	2
Bromoform	µg/L	NA	NA	NA	NA	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BIOLOGICAL																
Blue Green Algae	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Green Algae	per litre	72,222	11,111	11,111	11,111	44,444	155,554	<DL	11,111	77,777	<DL	<DL	<DL	35,897	<DL	155,554
Diatoms	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	22,222	11,111	<DL	<DL	<DL	2,564	<DL	22,222
Flagellates	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Crustaceans	per litre	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nematodes	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Rotifers	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Other	per litre	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BACTERIOLOGICAL																
Total Coliforms (mEndo)	per 100 ml	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Total Coliforms (background, mEndo)	per 100 ml	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Faecal Coliforms (mFC)	per 100 ml	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Coliforms (MPN)	per 100 ml	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
E. coli (MPN)	per 100 ml	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Standard Plate Count	per 1 mL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL

NA - Not Analyzed, ND - Not detected (for biological parameters), Offline - Chemical or process not in use, <(less than) - Not found at a detectable concentrations (for chemical parameters)

*Faecal Coliforms analyzed ONLY if Total Coliforms Detected.





BUFFALO POUND WATER
ANNUAL REPORT 2020 - FINANCIAL STATEMENTS

To the Chair and Members of the Board of Directors of the Buffalo Pound Water Treatment Corporation of Buffalo Pound Water Treatment Corporation:

Opinion

We have audited the financial statements of Buffalo Pound Water Treatment Corporation (the "Organization"), which comprise the statement of financial position as at December 31, 2020, and the statements of operations, changes in net financial assets and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Organization as at December 31, 2020, and the results of its operations, changes in its net financial assets and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Organization in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Organization's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Organization or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Organization's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

Independent Auditor's Report (Continued)

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Organization's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Organization's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Organization to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Regina, Saskatchewan

March 31, 2021

MNP LLP

Chartered Professional Accountants

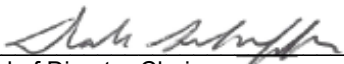
Buffalo Pound Water Treatment Corporation
STATEMENT OF FINANCIAL POSITION
[in dollars]

As at December 31

	2020	2019
FINANCIAL ASSETS		
Cash and cash equivalents (Note 3)	49,738,489	57,453,176
Accounts receivable		
City of Regina	-	1,264,864
City of Moose Jaw	408,268	383,033
GST receivable	1,690,570	665,634
Other	11,255	-
	51,848,582	59,766,707
FINANCIAL LIABILITIES		
Accounts payable and accrued liabilities	12,741,983	11,349,079
Employee benefit obligations (Note 4)	811,004	769,691
Long term debt (Note 7)	41,418,000	42,653,000
	54,970,987	54,771,770
Net financial assets	(3,122,405)	4,994,937
NON-FINANCIAL ASSETS		
Inventory of chemicals	224,048	161,119
Tangible capital assets (Note 5)	90,890,613	71,348,909
Accumulated surplus (Note 6)	87,992,256	76,504,965

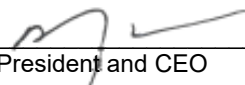
See accompanying notes.

SIGNED ON BEHALF OF THE BOARD


 Board of Director Chair


 Board Member-Chair of Finance and Audit Committee

SIGNED ON BEHALF OF THE CORPORATION


 President and CEO

Buffalo Pound Water Treatment Corporation

STATEMENT OF OPERATIONS

[in dollars]

For the year ended December 31

	Budget	2020	2019
REVENUE			
Operating contributions			
City of Regina	10,650,000	10,491,959	10,744,243
City of Moose Jaw	1,899,300	1,805,033	1,844,555
Sask Water	76,300	78,649	73,241
Capital contributions			
City of Regina	6,450,000	6,354,143	5,689,909
City of Moose Jaw	1,150,300	1,093,189	976,835
Sask Water	66,900	68,988	56,414
	20,292,800	19,891,961	19,385,197
Contributed assets (Note 5)	-	-	3,452,472
Power charges	402,700	783,459	611,110
Miscellaneous revenue	9,000	29,506	5,975
Interest	500,000	596,143	1,248,731
Government contributions (Note 9)	12,390,000	12,533,729	1,309,609
	33,594,500	33,834,798	26,013,094
EXPENSES			
Employee wages and benefits (Schedule 1)	4,097,900	4,216,932	4,079,212
Amortization of tangible capital assets	-	3,219,659	2,167,712
Utilities (Schedule 1)	2,350,000	2,457,223	1,995,603
Chemicals (Schedule 1)	2,354,800	2,313,250	2,082,336
Equipment maintenance (Schedule 1)	2,924,400	1,667,294	1,938,348
Miscellaneous (Schedule 1)	479,500	563,785	472,131
Laboratory supplies and research (Schedule 1)	323,000	314,397	318,463
Building and ground maintenance (Schedule 1)	155,800	146,760	207,281
Administration (Schedule 1)	330,200	305,382	265,071
Interest expenses and bank charges (Schedule 1)	1,807,492	1,406,140	1,490,264
Reimbursement (Note 10) (Schedule 1)	-	5,736,685	-
	14,823,092	22,347,507	15,016,421
Excess of revenue over expenses	18,771,408	11,487,291	10,996,673
Accumulated surplus, beginning of year		76,504,965	65,508,292
Accumulated surplus, end of year		87,992,256	76,504,965

See accompanying notes.

STATEMENT OF CHANGE IN NET FINANCIAL ASSETS

[in dollars]

For the year ended December 31

	2020	2019
Excess of revenue over expenses	11,487,291	10,996,673
Acquisition of tangible capital assets	(22,761,363)	(20,547,006)
Amortization of tangible capital assets	3,219,659	2,167,712
Consumption of inventory of chemicals	2,313,250	2,082,336
Acquisition of inventory of chemicals	(2,376,179)	(2,144,170)
Decrease in net financial assets	(8,117,342)	(7,444,455)
Net financial assets, beginning of year	4,994,937	12,439,392
Net financial (liabilities) assets, end of year	(3,122,405)	4,994,937

See accompanying notes.

STATEMENT OF CASH FLOWS*[in dollars]*

For the year ended December 31

	2020	2019
OPERATING ACTIVITIES		
Excess of revenue over expenses	11,487,291	10,996,673
Non-cash item		
Contributed assets transferred from cities	-	(3,452,472)
Amortization of tangible capital assets	3,219,659	2,167,712
Net change in non-cash working capital balances		
in accounts receivable	203,438	(538,933)
in accounts payable and accrued liabilities	1,392,904	9,395,470
in employee benefit obligations	41,313	(83,488)
in inventory of chemicals	(62,929)	(61,834)
Cash provided by operating activities	16,281,676	18,423,128
CAPITAL ACTIVITIES		
Acquisition of tangible capital assets	(22,761,363)	(17,094,534)
FINANCING ACTIVITIES		
Payment of long-term debt	(1,235,000)	(1,194,000)
(Decrease) increase in cash position	(7,714,687)	134,594
Cash and cash equivalents, beginning of year	57,453,176	57,318,582
Cash and cash equivalents, end of year	49,738,489	57,453,176

See accompanying notes.

Buffalo Pound Water Treatment Corporation
NOTES TO THE FINANCIAL STATEMENTS
[in dollars]

For the year ended December 31, 2020

1. BASIS OF OPERATIONS

Buffalo Pound Water Treatment Corporation (the "Corporation") was incorporated under *The Non-Profit Corporations Act, 1995* on January 1, 2016. The City of Regina owns 74 Class A voting memberships and the City of Moose Jaw owns 26 Class A voting memberships of the Corporation. The City of Regina and the City of Moose Jaw entered into a Unanimous Membership Agreement effective January 1, 2016.

The Corporation is responsible for reliable and efficient provision of safe, high quality and affordable drinking water to the City of Regina and the City of Moose Jaw. The Corporation is a not-for-profit organization, and is not subject to either federal or provincial income taxes.

2. SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the Corporation are the representation of management and have been prepared in accordance with Canadian public sector accounting standards.

The significant accounting policies used in the preparation of these financial statements are summarized below:

Use of estimates

The preparation of financial statements in conformity with Canadian public sector accounting standards requires management to make estimates and use assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the year. Actual results could differ from those estimates. Significant estimates include the amortization of tangible capital assets and employee benefits obligations.

Employee benefit obligations

Employee benefit obligations relating to severance or retirement benefits are recognized to the extent that they are vested and could be taken in cash by an employee on termination. The obligations have been determined on an actuarial basis using the projected benefit method prorated on services. Experience gains/losses are amortized over the estimated average remaining life of the employee group.

Pension benefit obligations

The Corporation is one of the sponsors of a multi-employer defined benefit pension plan. The Corporation follows defined benefit accounting under which pension expense is limited to the Corporation's contributions to the plan.

Inventory of chemicals

Inventory of chemicals are valued at the lower of net realizable value and average cost.

Buffalo Pound Water Treatment Corporation
NOTES TO THE FINANCIAL STATEMENTS
[in dollars]

For the year ended December 31, 2020

2. SIGNIFICANT ACCOUNTING POLICIES (Continued)

Contributions

Contributions are considered government transfers and are recognized in the financial statements as revenues and expenses in the period in which events giving rise to the transfer occur, providing the transfers are authorized, eligibility criteria have been met and reasonable estimates of the amounts can be made.

Operating and capital contributions for water consumed based upon the following established rates:

	2020	2019
General water rate, \$ per megalitre	355.00	355.00
Electricity rate, \$ per kilowatt hour	0.11799	0.11089

	2020	2019
Capital water rate, \$ per megalitre	215.00	188.00

Financial Instruments

Financial instruments are any contracts that give rise to financial assets of one entity and financial liabilities or equity instruments of another entity. The Corporation recognizes a financial instrument when it becomes a party to the contractual provisions of a financial instrument. Financial instruments of the Corporation include cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities and long term debt and an associated derivative.

Credit Risk

Credit risk is the risk of financial loss to the Corporation if a customer or counterparty to a financial instrument fails to meet its contractual obligations. The Corporation's credit risk is primarily attributable to accounts receivable. This risk is limited as accounts receivable is due mainly from the City of Regina and the City of Moose Jaw.

Liquidity Risk

Liquidity risk is the risk that Corporation will not be able to meet its financial obligations as they become due. The City of Regina staff on behalf of the Corporation manages liquidity risk by continually monitoring cash flow requirements to ensure that it has sufficient funds to meet obligations when they become due. The Corporation has established operating and capital rates which are calculated using a full cost recovery model that will generate sufficient revenues to cover the operating costs and capital investments.

Interest Rate Risk

Interest rate risk is the risk that the value of a financial instrument might be adversely affected by a change in interest rates. Changes in market interest rates may have an effect on the cash flows associated with some financial assets and liabilities, known as cash flow risk, and on the fair value of the other financial assets and liabilities, known as price risk.

Exposure on the Company's long term debt is managed by using a declining balance interest rate swap. The Company entered into an interest rate swap agreement to fix the interest rate on its long term debt the terms of which are disclosed in Note 7.

Buffalo Pound Water Treatment Corporation
NOTES TO THE FINANCIAL STATEMENTS
[in dollars]

For the year ended December 31, 2020

2. SIGNIFICANT ACCOUNTING POLICIES (Continued)

Tangible Capital Assets (TCA)

Tangible capital assets are recorded at cost which includes all amounts that are directly attributable to acquisition, construction, development or betterment of the asset. The cost, less residual value, of the tangible capital assets are amortized on a straight-line basis over their estimated useful lives as follows:

General		
	Vehicles and equipment	6 to 20 years
	Office and information technology	10 to 15 years
Infrastructure		
	Plants and facilities	5 to 40 years
	Roads	15 years

Assets under construction are not amortized until the asset is available for productive use.

Tangible capital assets received as contributions are recorded at their fair value at the date of receipt and also are recorded as revenue.

3. CASH AND CASH EQUIVALENTS

Cash and cash equivalents comprise cash on hand, demand deposits and a banker's acceptance at a fixed rate of 2.1% with original maturities of three months or less that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value.

4. EMPLOYEE BENEFIT OBLIGATIONS

The employee benefit obligations accrued at year end are as follows:

	2020	2019
Vacation pay	464,004	381,691
Vested termination payments	347,000	388,000
	811,004	769,691

Based upon an agreement with UNIFOR Local 595, termination payments for union employees vest after 10 years of service and upon retiring with unreduced pension. The amount payable on termination after vesting is 20 hours pay for each completed year of service.

In 2017, the Board of Directors approved a decision to end the vesting of termination payments for out-of-scope employees as of December 31, 2017. Out-of-scope employees were provided the option to have their severance paid out on December 31, 2017 or to elect to defer the payment until they leave the Corporation. For employees who elected to defer, the payment will neither increase nor decrease from the December 31, 2017 assessment.

An actuarial valuation of vested sick leave and severance payments was completed using the projected benefit method at December 31, 2020. The actuarial valuation was based on assumptions about future events including employee turnover and mortality, wage and salary increases, sick leave usage and interest rates. These rates are consistent with superannuation plan. The discount rate used to determine the unfunded employee benefit was 0.9% and the inflation rate was 2.25%. Compensation rates for employees are assumed to increase at an average rate of 3.65% per annum plus merit and promotion thereafter.

Buffalo Pound Water Treatment Corporation
NOTES TO THE FINANCIAL STATEMENTS
[in dollars]

For the year ended December 31, 2020

4. EMPLOYEE BENEFIT OBLIGATIONS (Continued)

The Corporation is a member of the City of Regina Civic Employees' Superannuation and Benefit Plan (the Plan), which is overseen by its own Administrative Board. All eligible permanent and probationary employees of the Corporation are members of the Plan. This multi-employer Plan provides defined retirement benefits and is integrated with the Canada Pension Plan (CPP). The Plan provides a lifetime monthly pension based on an employee's years of service and the average of the best three consecutive years of earnings for service before 2016. For service after 2015, a best-five-years average is used. For 2020 employees contributed 8.80% (2019 - 8.80%) of their earnings below the CPP maximum and 13.10% (2019 - 13.10%) of earnings above the CPP maximum. The Corporation's contribution rates were set as 9.80% (2019 - 9.80%) of their earnings below the CPP maximum and 14.60% (2019 - 14.60%) of earnings above the CPP maximum.

Financial statements as at December 31, 2019 indicate the Plan had a surplus of net assets of \$108,185,000 (2018 - (\$38,997,000)).

The Plan is a multi-employer defined benefit plan; therefore neither benefits nor contributions are segregated by employer. The Plan has been accounted for using the method appropriate for defined contribution plans and, as such, the amount of pension expense is equal to the contributions required for the year. Pension costs of \$333,543 (2019 - \$311,073) based on employer contributions were expensed during 2020.

The Corporation is a member of the Regina Civic Employees' Long-term Disability Plan (the Disability Plan). Financial statements as of December 31, 2019 indicate a surplus of net assets available for benefits of \$31,502,000 (2018 - \$32,087,000).

The Long-Term Disability Plan is a multi-employer plan and consequently, identification of individual employer's assets is not available from the Disability Plan managers. Accordingly, no portion of the surplus has been recognized as an asset or expense reduction in the financial statements. For all permanent employees, disability benefits are based on 75% of the member's salary and will be paid either throughout the duration of the disability until recovery, until the member elects voluntary early retirement, reaches age 65 or upon death, whichever occurs first. The Disability Plan has been accounted for using the method appropriate for defined contribution plans and, as such, the amount of benefit expense is equal to the contributions required for the year. Member contributions are made to the Plan at a rate of 0.46% with the employer matching contributions.

As well, the Corporation provides for additional coverage to its employees through the Out-Of-Scope Employment and Benefits policy and the Collective Bargaining Agreement. The Corporation guarantees full salary for out-of-scope employees (those employed before January 1, 2015) for the first two (2) years of such a disability and thereafter 90% of such employee's salary less benefit payments from all other sources. The Corporation guarantees 70% of an in-scope employee's salary through Article 30 less benefit payments from all other sources. The Corporation recorded disability premium costs for 2020 of \$14,535 (2019 - \$13,698). Dental and medical plans are also provided for most employees and are paid by the Corporation.

Buffalo Pound Water Treatment Corporation
NOTES TO THE FINANCIAL STATEMENTS
[in dollars]

For the year ended December 31, 2020

5. TANGIBLE CAPITAL ASSETS

	Net Book Value	
	2020	2019
General		
Land	88,535	88,535
Vehicles and equipment	306,042	366,913
Office and information technology	14,435	28,108
Infrastructure		
Plants and facilities	48,762,173	33,763,945
Roads	377,555	407,760
Assets under construction	41,341,873	36,693,648
	90,890,613	71,348,909

Contributed Assets:

The Corporation entered into an agreement of capital upgrades with the City of Regina and the City of Moose Jaw in 2010 whereby each city agreed to finance the capital upgrades by the share of 72.65% and 27.35% respectively. At the end of 2019, \$3,452,472 worth of capital upgrades to a new electrical substation and other electrical upgrades were transferred to the Corporation.

6. ACCUMULATED SURPLUS

	Unappropriated Surplus	Capital replacement reserve	Investment in Tangible Capital Assets	2020	2019
Opening balance	1,197,737	3,958,319	71,348,909	76,504,965	65,508,292
Excess of revenue over expenses	14,706,950	-	(3,219,659)	11,487,291	10,996,673
Tangible capital assets investment	(22,761,363)	-	22,761,363	-	-
Transfer from operations (Note i)	9,031,965	-	(9,031,965)	-	-
Transfer of surplus from operations	(24,068,406)	24,068,406	-	-	-
Expenditures from reserve for replacement of capital assets	23,941,471	(23,941,471)	-	-	-
Accumulated surplus	2,048,354	4,085,254	81,858,648	87,992,256	76,504,965

i. In 2017, the City of Regina and the City of Moose Jaw approved the Corporation to enter into a non-revolving term loan with Bank of Montreal. As disclosed in Note 7, the purpose of this advancement of these funds was to finance the Electrical Upgrade Capital Project with any remaining funds for the Plant Renewal Project. In 2020, management utilized \$9,031,965 of its term loan financing towards its investment in Tangible Capital Assets. Accordingly, this portion of the loan funds were transferred from unappropriated surplus to investment in tangible capital assets.

Buffalo Pound Water Treatment Corporation
NOTES TO THE FINANCIAL STATEMENTS
[in dollars]

For the year ended December 31, 2020

6 ACCUMULATED SURPLUS (Continued)

Capital replacement reserve

The Board of Directors of the Corporation approved the establishment of capital replacement reserve. The primary objective of the capital replacement reserve is to promote financial stability and flexibility and smooth water rates to prevent fluctuations.

During the year, the Board of Directors approved the transfer of \$24,068,406 from operations to the Capital Replacement Reserve. In addition, the Board of Directors approved the following expenditures from the capital replacement reserve:

LPS 138kV Transmission Line	1,500,371
Computerized maintenance management system	94,528
Plant Renewal Project	10,293,220
UV deficiency	33,340
LPS pump and electrical upgrades	10,391,963
Loan interest and bank expenses	1,406,140
SCADA Upgrade	44,619
QMS	52,501
Lab equipment	124,789
	23,941,471

7. LONG TERM DEBT

	2020	2019
Term loan payable to Bank of Montreal in monthly principal payments ranging from \$101,000 to \$104,000 based on a 25-year mortgage style amortization with interest rate fixed at 3.46% through an interest rate swap. The term loan is non-revolving and is subject to renewal on November 30, 2027. The term loan is guaranteed by the City of Regina and the City of Moose Jaw.	41,418,000	42,653,000

In 2017, the City of Regina and the City of Moose Jaw approved the Corporation to enter into a non-revolving term loan with Bank of Montreal for the purpose of financing the Electrical Upgrade Capital Project (EUCP) with any remaining funds for the Plant Renewal Project. The Corporation entered into an interest rate swap agreement for a 25 year term.

Buffalo Pound Water Treatment Corporation
[in dollars]

For the year ended December 31

7. LONG TERM DEBT (Continued)

Principal repayments on long term debt in each of the next five years are estimated as follows:

2021	1,279,000
2022	1,324,000
2023	1,371,000
2024	1,418,000
2025	1,469,000

8. CONTRACTUAL OBLIGATIONS

The Corporation entered into an agreement with Jacobs (formerly CH2M Hill Canada Ltd) to serve as the Owner's Advocate for the Water Treatment Plant Renewal Project. The remaining contract is valued at \$3,805,935 before tax and will cover the services up to 2024.

The Corporation entered into a construction contract on January 28, 2019 with Westridge Construction for the Lake Pump Station Electrical and Pumping Upgrades. The remaining contract is valued at \$5,394,864 before tax and will cover the services up to 2021.

The Corporation entered into an agreement with Graham - Aecon Joint Venture on June 1, 2020 for the design services for the plant renewal project. The contract was awarded at \$19,759,987 plus 20% contingency and the remaining value as of December 31, 2020 is \$12,383,062.

9. CONTRACTUAL RIGHTS

The Corporation entered into an agreement in November 2018 with the Minister of Infrastructure and Communities of the Government of Canada as part of a program entitled the New Building Canada Fund - Provincial - Territorial Infrastructure Component - National Regional Projects (the "Program"). Under this agreement, the Corporation has a contractual right to receive contributions for eligible expenditures up to a maximum of \$10,291,000 by March 31, 2024. The Corporation also entered into an agreement in January 2019 with the Minister of Government Relations of the Province of Saskatchewan as part of the Program. Under this agreement, the Corporation has a contractual right to receive contributions for eligible expenditures up to a maximum of \$10,291,000 by June 30, 2021. The Corporation will use these funds for the electrical capital upgrade projects commenced in 2019. Up until December 31, 2020, the Corporation has claimed total \$6,921,770 from each of the Federal and the Provincial governments.

10. INTER ENTITY TRANSACTION

During the year, the Corporation entered into an agreement with the City of Regina whereby the Corporation agreed to reimburse the City of Regina \$5,736,685 for the cost of generators and related capital construction costs. This inter-entity transaction was recorded at its carrying amount which represented the cost of the generators and related capital construction costs incurred by the City of Regina.

For the year ended December 31

11. RELATED PARTY TRANSACTIONS

The following related party transactions with the City of Regina and City of Moose Jaw as part of the normal course of operations and valued of fair market value.

City of Regina	2020	2019
Accounts Receivable	-	1,264,864
Accounts Payable	7,804,638	1,314
Contributed assets	-	3,452,472
Revenue	17,558,898	16,980,468
Expenses	5,896,945	239,004

City of Moose Jaw	2020	2019
Accounts Receivable	408,268	383,033
Revenue	2,959,218	2,879,514
Expenses	142,505	531,762

12. SUBSEQUENT EVENT

Subsequent to year end, the Corporation has been approved by both Cities to obtain up to \$60 million for financing the plant renewal project, subject to approval by the respective City Councils. In addition, the Corporation has been recommended for the \$163.4 million Investing In Canada Infrastructure Program by the Province.

13. SIGNIFICANT EVENT

During the year, there was a global outbreak of COVID-19 (coronavirus), which has had a significant impact on businesses through the restrictions put in place by the Canadian, provincial and municipal governments regarding travel, business operations and isolation/quarantine orders. At this time, it is unknown the extent of the impact the COVID-19 outbreak may have on the Corporation as this will depend on future developments that are highly uncertain and that cannot be predicted with confidence. These uncertainties arise from the inability to predict the ultimate geographic spread of the disease, and the duration of the outbreak, including the duration of travel restrictions, business closures or disruptions, and quarantine/isolation measures that are currently, or may be put, in place by Canada and other countries to fight the virus.

Buffalo Pound Water Treatment Corporation
SCHEDULE OF EXPENDITURES
[in dollars]

Schedule 1

For the year ended December 31

	Budget	2020	2019
EMPLOYEE WAGES AND BENEFITS			
Wages - permanent employees	3,200,000	3,412,683	3,329,898
Employee benefits - permanent employees	622,900	613,006	623,480
Overtime wages - permanent employees	149,400	72,385	126,944
WCB premiums	36,100	-	(6,898)
Premium pay - permanent employees	40,000	23,960	37,926
Car allowance	11,100	11,362	10,400
Clothing and boot allowance	5,700	5,632	3,654
Employee benefits - vacation, sick and termination	-	41,313	(83,488)
Employee awards and gifts	2,600	5,263	7,416
Other compensation	3,100	4,667	3,670
Health spending account	27,000	26,661	26,210
	4,097,900	4,216,932	4,079,212
UTILITIES			
Electricity	2,100,000	2,192,172	1,881,127
Natural gas	250,000	265,051	114,476
	2,350,000	2,457,223	1,995,603
CHEMICALS			
Alum	1,450,000	1,905,975	1,264,104
Granular activated carbon	646,800	283,338	632,000
Chlorine	168,000	117,194	158,558
Powder activated carbon	50,000	-	-
Polymer	40,000	6,743	27,674
	2,354,800	2,313,250	2,082,336
EQUIPMENT MAINTENANCE			
Filtration plant	345,100	413,282	402,981
Wastewater system	1,300,000	897,348	946,912
Regeneration plant	133,900	83,482	104,006
Lake pump station	82,400	1,130	42,214
Computer and communications	72,100	112,463	195,361
High power electrical	41,200	41,027	34,938
Pipeline	20,600	28,972	7,090
Maintenance and repair	892,000	76,558	142,456
Maintenance equipment	37,100	13,032	62,390
	2,924,400	1,667,294	1,938,348

Buffalo Pound Water Treatment Corporation
SCHEDULE OF EXPENDITURES (CONTINUED)
[in dollars]

Schedule 1

For the year ended December 31

	Budget	2020	2019
MISCELLANEOUS			
Insurance	103,000	90,206	128,217
General supplies	43,500	57,997	32,516
Telephone	25,000	30,563	25,883
Professional and membership fees	23,200	29,064	17,735
Travel and conventions	25,800	7,839	30,485
Fuel and gas	30,900	35,696	12,824
Stationery and office supplies	25,000	25,249	20,492
Contracted services	100,000	201,774	109,669
Advertising	10,000	2,393	10,036
Education and training	50,000	50,667	31,233
Reception and meetings	10,000	3,216	8,927
Other purchase	5,000	9,462	17,047
Vehicle license and registration	3,100	1,361	3,081
Software maintenance	25,000	17,959	23,986
Foreign exchange (gain)/loss	-	339	-
	479,500	563,785	472,131
LABORATORY SUPPLIES AND RESEARCH			
Laboratory supplies	90,000	98,760	99,874
Research	150,000	140,228	137,650
Laboratory equipment	50,000	47,555	54,942
Contract analytical	15,000	10,902	10,390
Accreditation	18,000	16,952	15,607
	323,000	314,397	318,463
BUILDING AND GROUND MAINTENANCE			
Filtration plant	130,000	138,866	197,764
Regeneration plant	10,300	1,473	8,237
Lake pump station	15,500	6,421	1,280
	155,800	146,760	207,281
ADMINISTRATION			
City of Regina administration	72,100	64,607	68,264
Board expenses	222,000	210,777	159,428
Audit services	36,100	29,998	37,379
	330,200	305,382	265,071
INTEREST EXPENSES AND BANK CHARGES			
Banking services for loan	-	1,194	(1,593)
Interest for loan	1,807,492	1,404,946	1,491,857
	1,807,492	1,406,140	1,490,264

Buffalo Pound Water Treatment Corporation
SCHEDULE OF EXPENDITURES (CONTINUED)
[in dollars]

Schedule 1

For the year ended December 31

	Budget	2020	2019
REIMBURSEMENT			
Reimbursement	-	5,736,685	-
	-	5,736,685	-

Buffalo Pound Water Treatment Corporation
SCHEDULE OF TANGIBLE CAPITAL ASSETS
[in dollars]

Schedule 2

For the year ended December 31

	General				Infrastructure				
	Land	Land	Vehicles and	Office and	Plants and	Roads	Assets Under	2020	2019
	Improvements		Equipment	Information	Facilities		Construction		
Cost				Technology					
Beginning of year	88,535	11,373	1,329,478	113,922	99,228,177	455,389	36,693,648	137,920,522	117,373,516
Add:									
Additions during year	-	-	-	-	320,560	-	22,440,803	22,761,363	20,547,006
Transfers from assets under construction	-	-	-	-	17,792,578	-	-	17,792,578	133,953
Less:									
Disposals during year	-	-	-	-	-	-	17,792,578	17,792,578	133,953
End of year	88,535	11,373	1,329,478	113,922	117,341,315	455,389	41,341,873	160,681,885	137,920,522
Accumulated amortization									
Beginning of year	-	11,373	962,565	85,814	65,464,232	47,629	-	66,571,613	64,403,901
Add:									
Amortization	-	-	60,871	13,673	3,114,910	30,205	-	3,219,659	2,167,712
Less:									
Accumulated amortization on disposals	-	-	-	-	-	-	-	-	-
End of year	-	11,373	1,023,436	99,487	68,579,142	77,834	-	69,791,272	66,571,613
Net Book Value	88,535	-	306,042	14,435	48,762,173	377,555	41,341,873	90,890,613	71,348,909

BUFFALO
POUND
WATER
BOARD OF
DIRECTORS

2020
ANNUAL
REPORT