

Water Treatment Plant Year-end Report for 2013

Water demand

The total influent volume of water drawn from the Assiniboine River for treatment was approximately 8.89% higher in 2013 than in 2012. 2012 had an influent volume of 5,932,344 m³, as compared to 6,502,784 m³ in 2013.

Treated effluent increased by 8.77 % as effluents were 5,303,304 m³ in 2012 as compared to 5,821,012 m³ in 2013.

The volume of water used internally for the treatment process in 2013 was 250,742 m³.

This water is used in the process production for mixing chemicals, dilution of chemicals for pumping purposes, backwashing of filters and flushing pipes after sludge removal from process systems.

Raw Water Quality

The raw water quality for the past year has had lower turbidity and hardness in 2013. Then what we had seen in the past years. The average raw water hardness for the winter months; January, February, March, October, November and December 2013, was 495 ppm. The raw water hardness average for the other six months was 382 ppm. The treated water average hardness was 245 ppm and 202 ppm for the respective periods. The 2013 yearly average hardness for Raw Water was 439 and Treated Water was 223 ppm.

Turbidity peaks were coincident with the spring runoff, flooding and the draining of the Assiniboine River impoundment area in the fall. The Actiflo clarifier was able to reduce the high levels of turbidity to minimize the impact on the downstream treatment process. Removal of sand and silt from the north side of the impoundment area was scheduled for late 2013 and is proceeding into 2014.

Operator overtime and shift changes were required during the spring runoff to service equipment around the clock to insure water production continued. The problems with the River impoundment area are being addressed by the Province and they are removing the silt and sand from the south side of the impoundment area. This will provide temporary reprieve from the excessive overtime requirements and pump damages as they plan to remove more sediment over the next few years.

Distribution System Water Quality

Distribution testing for 2013 was completed on weekly basis for Total Coliforms and Escherichia Coli. All Drinking Water Regulation treatment parameters were met. Metals sampling and testing was conducted on bi-monthly basis for the assessment of lead concentrations found in some household service lines. The samples were sent to an independent lab and all results forwarded, by the lab, to the Manitoba Water Stewardship Office of Drinking Water Officer for our area. The practice of running cold water for 2 to 3 minutes, following extended periods of non-use, and before consuming, is recommended for all homes with lead services. More information may be obtained from the City's web page.

Water Quality Monitoring and Analyses

The 2013 annual audit report from the Office of Drinking Water, as prepared by the Drinking Water Officer for the Portage la Prairie area, was submitted to the City in March 2013. Manitoba Water Stewardship and the City of Portage la Prairie will continue implementing testing changes at the Water Treatment Plant to enhance the water quality and will continue to work jointly with the local Drinking Water Officer.

The attached graphs for the Hardness shows the Raw Water was lower than the seasonal trend from May to November. Lower hardness levels were prevalent during the year and the effluent hardness rose accordingly. The low levels of hardness are shown during the spring runoff also.

The attached graph for the Turbidity shows the Raw Water peaks in the spring during run off and again in the fall during the reservoir maintenance drain down for service work on the Dam. The effluent turbidity follows the yearly trend also. There were several peak turbidity events that followed rain fall entering the river flow.

The graph for the effluent pH shows some peaks above 8.5 due to over-feed of sodium hydroxide. The raw water pH tends to follow seasonal trends for highs and lows and the effluent pH is adjusted with Sodium Hydroxide to maintain positive Langelier Index to prevent metal corrosion and metals from leaching into the water from too low of a pH.

The Graph for Fluoride shows a consistence feed throughout the year. The test results are from the morning sample and represent the reading in the effluent water at that time and not as a daily average. Cost of chemical testing negates the continuous sampling over a 24 hour time line. The average level of Fluoride feed is 0.70 mg/L, which has been deemed optimum by Health Canada.

At present we are meeting the Tri-halomethane (THM) regulation for our drinking water. The taste and odor is removed by the activated carbon but shows higher levels of other total organic carbon (TOC) that could react with chlorine to form THM'S. The graphs tend to







