

# Committee Report

City of Portage la Prairie

*Proud of our Past...Building our Future*

**To:** Waterworks Committee  
**From:** Administration  
**File #:** DOP- CC-15  
**Date:** March 8, 2010  
**Re:** Water Treatment Plant Year-end Report for 2009



---

The total influent volume of water drawn from the Assiniboine River for treatment was approximately 1.98% higher in 2009 than in 2008. 2009 had an influent volume of 6,754,760 m<sup>3</sup> as compared to 6,623,819 m<sup>3</sup> in 2008.

Treated effluent increased by 0.223% as effluents were 6,120,956 m<sup>3</sup> in 2009 as compared to 6,107,290 in 2008.

The water used for the treatment process in 2009 was 6.45% of the influent as compared to 7.8% used in 2008.

The higher percentage of treated water effluent, and less waste, is the result of better operation of the treatment process, new sand filter media and the new under-drain system which allows for better backwashing with less water wasted.

The raw water quality for the past year has remained the norm with higher flows and lower hardness. The average raw water hardness for the winter months; January, February, March, October, November and December 2009, was 387 PPM. The raw water hardness average for the other six months was 297 PPM. The treated water average hardness was 196 PPM and 143 ppm for the respective periods. The 2009 yearly average hardness for Raw Water was 342 PPM and Treated Water was 169 PPM.

Effluent turbidity peaks were consistent with the spring runoff and the draining of the Assiniboine River Reservoir in the fall. The Actiflo clarifier was able to reduce the high levels of turbidity to minimize the impact on the downstream treatment process. The effluent turbidity and color were elevated in early April due to spring runoff. There was a similar result in late September when the river was lowered to do an inspection for work to be done at a later date. Removal of sand and silt from the raw water intake was completed in October.

Distribution testing for 2009 was completed on weekly basis for Heterotrophic Plate Count, Total Coliforms and Echerichia Coli. All drinking water guidelines were met. Metals sampling and testing was conducted on bimonthly 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, is recommended for all homes with lead services before consuming. More information may be obtained from the City's web page.

Restoration work on the number 3 clarifier was started in the fall of 2008. The work is expected to continue into April 2010.

The 2009 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 February 2010. 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 following the seasonal trend with higher hardness in the winter to the low during spring run off. The plant effluent shows peaks of hardness that relate to lime slaker problems that allowed temporary elevated levels. The low levels of hardness are shown during the spring run off 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 events that were due to lime slaker problems that were of the short term and the spring run off with color issues. Filters were backwashed and returned to service. Some peaks during spring were related to raw water quality requiring polymer changes to correct turbidity spikes.

The graph for the Effluent pH shows some peaks above 8.5 due to over feed of lime due to lime slaker problems. The lime slaker problems tend to be in the winter when much higher level of lime is required for the softening process. The Raw Water pH tends to follow seasonal trends.

The Graph for Fluoride shows a wide range of feeds due to product feed amounts. The bulk product is read by level and then converted in amount of product feed. The operators estimate can be high or low and result in the difference from mass feed rate to test results. 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 was reduced late in 2009 to 0.7 mg/L, which has been deemed optimum by Health Canada.

At present we meet all THM guidelines for our drinking water. The taste and odor is removed by the activated carbon but shows higher levels of other TOC that could react with Chlorine to form THM'S. The graphs tend to show a problem that might be in the chemistry of the raw water that could affect the Granular Activated Carbon by shorting the efficiency of the product. The effective removal of THM compounds could be well less than the five year rating, and the replacement of the GAC media every two years would be cost prohibitive. We will monitor the effluent water and see if we can detect problems within the raw water that would cause this. We may have to consider the possibility of changing that part of the treatment system over to membrane technology some time in the near future in order to remain within the drinking water guideline requirements for THM's.

The graph for the chlorine feed shows low free chlorine concentration in May and April due to analyzer failure and water quality changes. The feed units were corrected and levels returned to normal within 5 hours. The effluent chlorine levels are higher as it enters the distribution system. Weekly sampling of the distribution areas for chlorine residual was done and samples sent to an independent lab for analyses and reporting to the Drinking Water Officer and Water Plant Management. All samples were shown to be free of Total Coliform and Escherichia Coli. There were several positive Heterotrophic Plate Counts at three dead

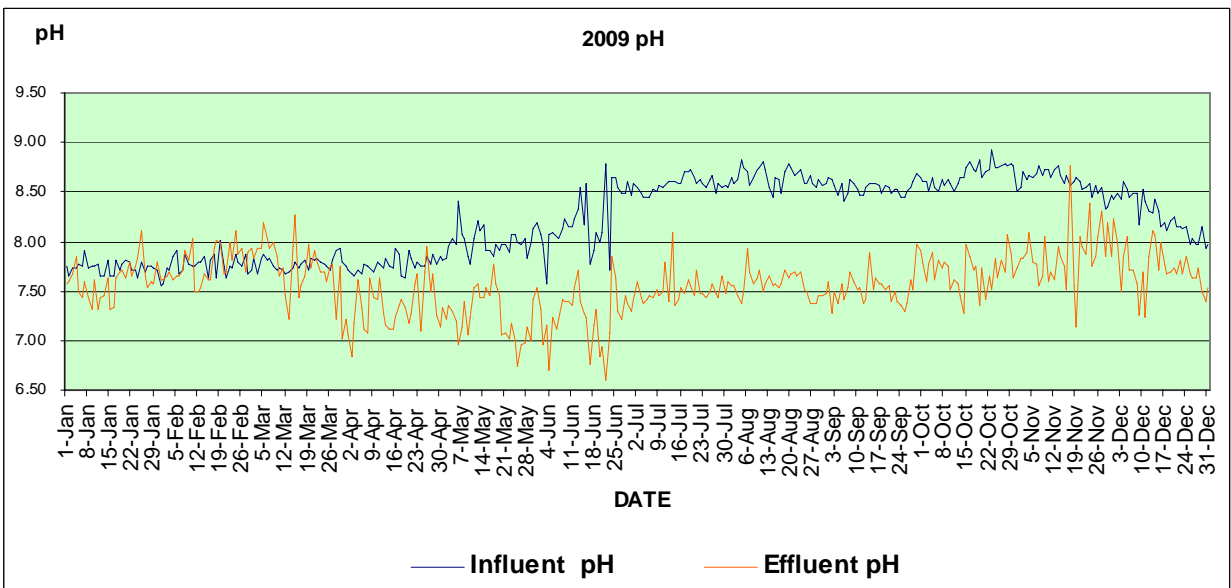
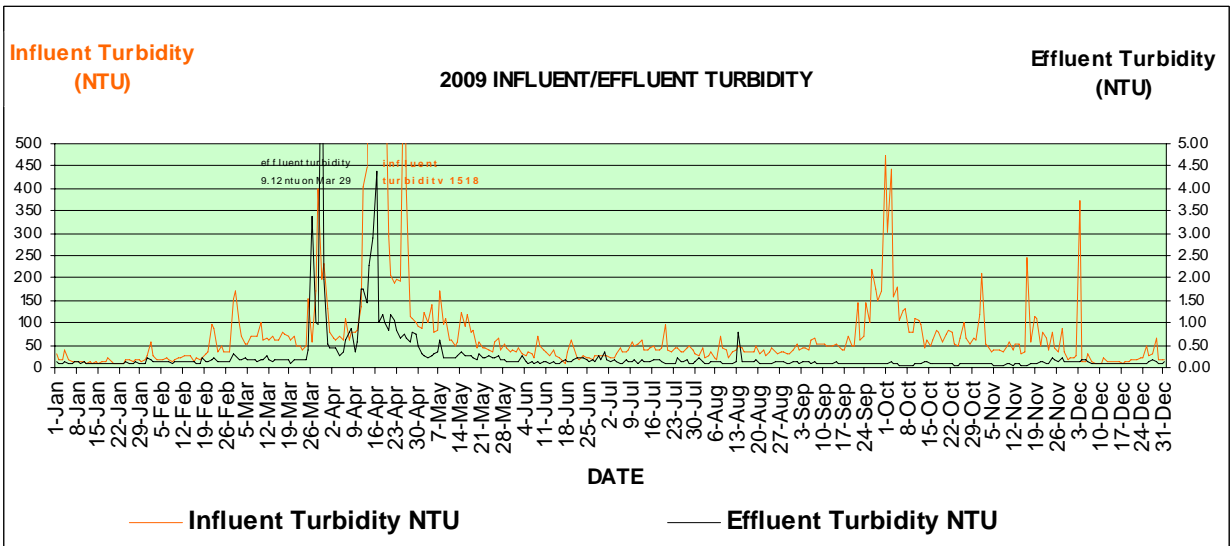
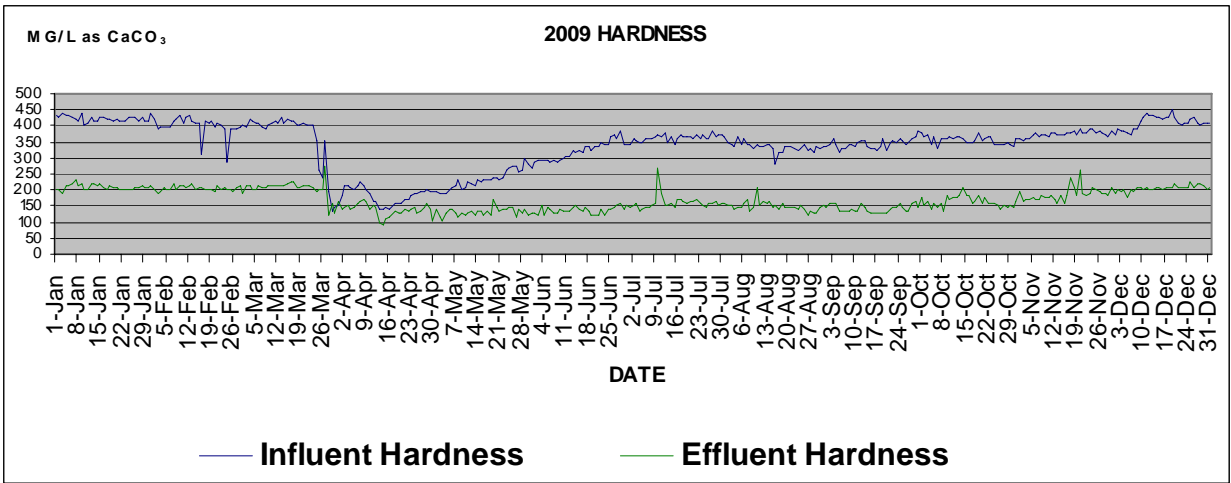
end lines that were flushed to bring the levels lower. These areas will continue to be monitored and tested on a regular basis.

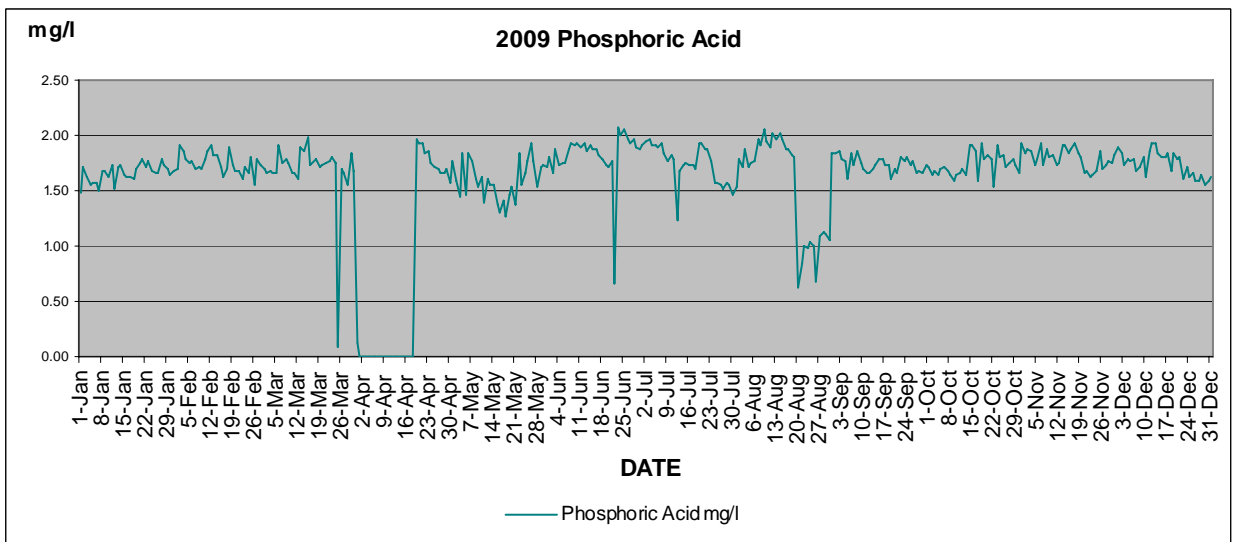
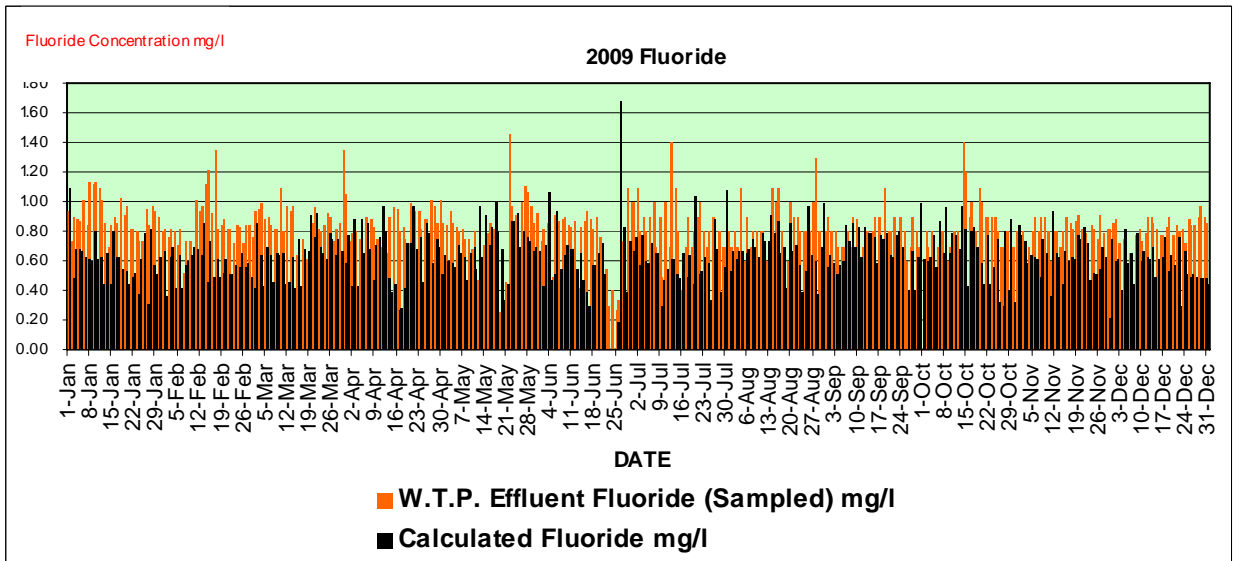
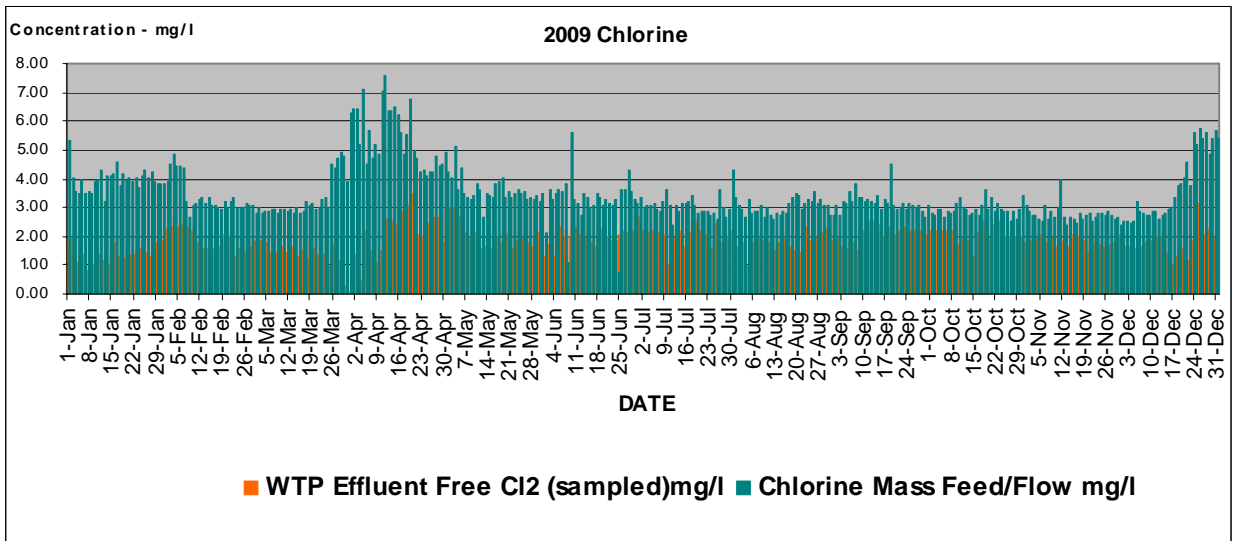
The plant was kept in operation during upgrades and any shutdowns will be done in a manner so as to keep the consumers supplied with water. Operating staff will continue to abide by all Government operational requirements and work with the local Drinking Water Officer to insure the best quality of water for all persons.

The Office of Drinking Water requires an annual report to be submitted and posted online. Once accepted, the report will be posted on the City's website.

**Administrative Recommendation:**

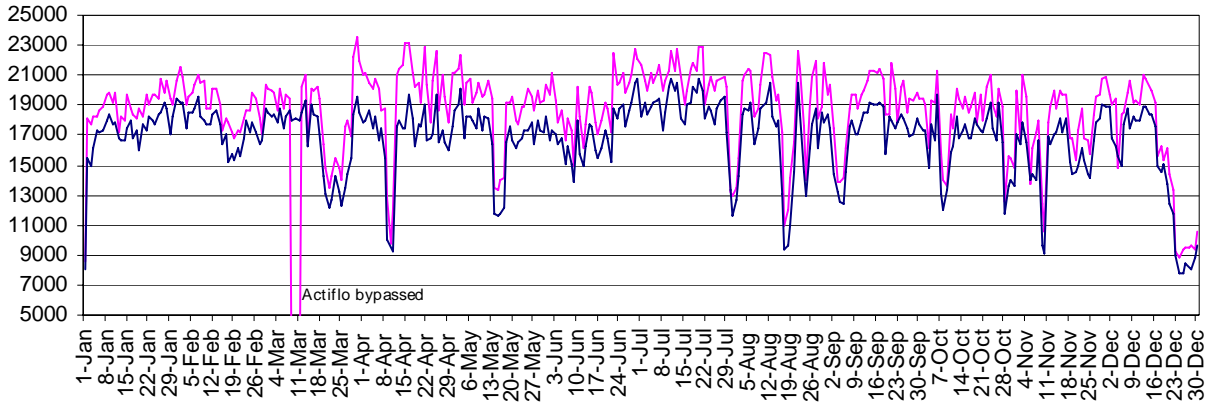
That the Council of the City of Portage la Prairie accept the 2009 Water Treatment Plant Annual Report and the 2009 Public Water System Report and forward same to the Manitoba Office of Drinking Water.





m<sup>3</sup>/d

### WTP Effluent Flow



DATE

Actiflo Influent

WTP Total Effluent