

Magic Lake Estates – Water Quality Update

December 12, 2014

Water Quality Observations

- Odour complaints at the end of the summer primarily relating to chlorine
- Some earthy odour complaints in the fall
- Algae samples were collected from Magic and Buck lakes on 9 Sep and analyzed by the Water Quality Aquatic Ecology lab
 - No algae species was predominant in Buck Lake
 - Blue-green algae was predominant in Magic Lake – insufficient historical data exists to evaluate if the population was a bloom or not
- Staff collected water samples and analyzed taste and odour parameters on 25 Sept. The results indicate:
 - Raw water odour: strong green vegetation odour present in raw Buck Lake (weak green vegetation odour in Magic Lake)
 - Treated water odour: weak to moderate chlorine odour in 4/4 locations, weak green vegetation odour at 1/4 locations and trace musty odour in 1/4 locations
 - Treated water taste: weak chlorine taste in 3/4 locations, and trace musty odour in 1/4 locations
- Staff collected water samples and analyzed taste and odour parameters on 9 Oct. The results indicate:
 - Raw water odour: strong earthy odour present in raw Buck Lake (strong fishy odour in Magic Lake)
 - Treated water odour: weak to moderate chlorine odour in 4/4 locations, and trace earthy odour in 2/4 locations
 - Treated water taste: weak chlorine taste in 1/4 locations, and trace to weak earthy odour in 2/4 locations
- In preparation of a planned short-term switch to Magic Lake as the source water, staff collected water samples and analyzed taste and odour parameters on 28 Nov. The results indicate:
 - Raw Magic Lake water: weak hay odour
 - Treated water: strong earthy odour and weak earthy taste
- In late November/early December yellow water has been observed following the chlorine injection at the treatment plant and in the distribution system
 - Suspected to be a chemical reaction between the chlorine and the naturally high iron and manganese concentrations in the raw lake water
 - Staff are optimizing the potassium permanganate dosing to pre-oxidize the raw water to remove the metals before they are exposed to the chlorine – this should alleviate the problem of yellow water in the distribution system
 - Coloured water poses no risk to health but is understandably objectionable

Residential outreach

- Few calls from the public came into Water Quality but Ops staff on Pender have been responding to a number of complaints of yellow coloured water
- On Dec. 11 Water Quality staff received a comment of generally good water quality from a member of the public who has regularly been in touch with K. Wilson regarding observations from the residential side
- This indicates that conditions are variable in the system

Operational Events

- Adjustments to chlorine dosing at the treatment plant began in late Sept to address chlorine complaints
- There have been a number of operational challenges in the fall 2014:
 - a) Water leak at Capstan pressure reducing station in late September
 - b) Small volume (<200 iga) sewer overflow into Buck Lake on 19 Oct
 - Increased bacteria sampling was conducted between 19 Oct and 3 Nov
 - No fecal or total coliforms were detected in the distribution system
 - Chlorine dosing was increased at the treatment plant as a precautionary step and was returned to normal by 7 Nov
 - c) Two water main breaks on the evening of 30 Oct
 - Repairs were done in short order and distribution sampling indicated no water quality issues due to the breaks
 - Increased turbidity would likely have been noticed by some residents in the system, but the water remained safe to drink
 - d) Staff discovered deficiencies with the potassium permanganate dosing systems at the Buck and Magic Lake intakes
 - Staff are attempting to correct the deficiencies
 - The potassium permanganate is expected to alleviate the yellow coloured water problem currently found in some parts of the distribution
 - e) Staff have found problems with the water intake pump on Buck Lake and on 11 Dec inspected the intake
 - The water source was switched to Magic Lake for a short period that day

Next steps

- Continue to monitor chlorine levels in the distribution system to confirm adequate dosage that protects health while limiting taste and odour complaints
- Staff will routinely sample for odour/taste in the raw and treated water
- Staff continue to address the potassium permanganate dosing system deficiencies and will continue optimizing the dosing to alleviate the yellow coloured water in the distribution
- Staff will monitor algae in source water (next sampling January 2015)
- Staff will provide an update at the next Committee meeting