Meeting Notes
Private Drinking Water Protection Committee
30 September 2013, 12:00 am
Living with Lakes Centre – Room LL202

Present: David Young, Lilly Noble, Richard Witham, Lesley Flowers, Linda Heron

Regrets: John Fraser, Margaret McLaughlin

1. **Review of Meeting Notes**
   Update to 14 August 2013 meeting notes – Section 4: as follows:
   - Sudbury had 5th worst report for total volume bypassed of those municipalities that reported
   - Large volume of primary bypasses still a big problem that needs to be addressed – some bypasses are partially treated
   - Lesley reported that in a meeting with Nick Benkovich, he has committed to posting any bypass information once a month on the City website – starting in 2014
   - Wastewater is only required to report to Sudbury District Health Unit and MOE
   - Question arose as to reporting requirements for the Wastewater Treatment facility on McFarlane Lake.

   Action: Linda will contact MOE for reporting details of McFarlane Lake WWTF.

2. **Ontario Grants for Community Projects** – Turning Spill Penalties into Environmental Benefits
   - Deadline is 8 November 2013
   - Spanish, Vermilion and Wanapitei watersheds qualify for this grant
   - Could be used to undertake a watershed study
   - Appears they have funded this type of study in the past
   - Decided we need to wait until we have a more focused course of action
   - Explore the possibility of applying next year

3. **Meeting with MOE - No meeting date suggested at this time:**
   Linda talked with Kathy McDonald, Technical Support Manager, and Marnie Managhan, Supervisor with Drinking Water Management, MOE, Sudbury. Both said they totally understand our concerns, and agree that private water intakes are a sector that needs to be protected, but cannot help us at this time. Marnie didn't feel she could be of much assistance at this time as she deals primarily with municipal drinking water and there are no real legislative provisions for what we are trying to do with private drinking water.
   They made the following comments:
   - Sudbury is the largest community in the Canadian Shield and agrees it is a huge challenge to protect all the private intakes on lakes and rivers in the area
   - Suggested we address it through the municipality
   - Need data to support major requests or claims
     - Use the Source Protection model - do a land use survey (broad strokes) to identify areas of potential impact
     - Incorporate data from local studies and reports

    - Suggested the Vermilion River Stewardship's water quality study will be very pertinent information (Our VRS study report won't be completed until 2015)
    - There are numerous other pertinent studies that could also be compiled
- Doesn't agree with SDHU's statement that a proper septic system that is properly maintained would have same nutrient impact as a breakthrough problem - but she has no studies to back up that statement
- Suggested we educate our community that prevention is paramount:
    - Proper vegetative buffers
    - No manicured lawns on a waterfront property
    - Proper development setbacks
    - Septic inspection and maintenance to avoid breakthroughs of effluent leaking directly into the watershed
    - Treatment of freshwater is a must - ultra violet, filters, etc.
    - Test drinking water frequently
- Agrees blue-green algae is of particular concern because there is no recommended treatment for private intakes but they are at a loss for what to suggest other than prevention measures as above
- Marnie suggested that when we have all the information and cursory assessments we should contact them again to set up a meeting with their Drinking Water Management, Abatement, and Technical surface water specialists to discuss potential next steps.

4. **Deadline for Submissions to the City of Sudbury Official Plan:**
Won't know the final deadline until the draft is released sometime this fall/winter. In the meantime, submissions can be sent in any time.
    - We will likely need to make recommendations to the official plan

5. **Phosphorus Removal/Abatement Systems** – Richard
    - Phosphorus removal from small-scale septic systems
        - All studies are from outside of North America
        - Iron binds to phosphorus but resulting effluent would be overly caustic
        - An excellent article in FOCA - Ontario Cottages and Sewage System Nutrients, Part III – in the 2011 Spring Lake Stewards Newsletter
        - Domestic onsite treatment of single-family wastewater using small-scale subsurface flow constructed
            - 63.3% Total Phosphorus removal
    - Biological nutrient removal in a small-scale MNR treating household wastewater - Membrane bioreactor (MBR) located
        - When using the first membrane as an anaerobic/anoxic reactor by recycling activated sludge and mixing the first reactor, nitrogen and phosphorus removals of over 90% and 70% were achieved
    - Modeling phosphate transport and removal in a compact bed filled with a mineral-based sorbent for domestic wastewater treatment
        - Filtra P and Polonite are two promising mineral-based sorbents for phosphorus removal from households, and at least part of the accumulated phosphorus is present in a soluble form, readily available to plants
        - Filtra P is prone to clogging because of structural degradation
    - Dalron might fund sewage system research if it allows for more development
    - Should development go ahead before watershed study is complete?

Action: Lesley will ask Nick Benkovich what they plan to do with the bio-solids produced from sewage.

Action: Linda will check with Jim Rook on results of the 10 peat moss septic systems installed on French River – any significant improvement.

Action: Richard will look for small-scale phosphorus removal techniques employed in North America.

6. **Blue-green Algae - Activated Carbon** – Lilly
    - The Bayside Water Treatment plant draws water via a gravity raw water intake pipe, 404 m long extending approximately 370 m into the Bay of Quinte. This conventional chemically assisted filtration plant has a rated capacity of 11, 360 m3/day. Processes used at the filtration plant include flocculation, sedimentation, Dual-Media filtration, and Granular-Activated Carbon adsorption filtration.
        - Reduced toxins from a level 3 to a level 1
        - 3 processes in treatment
            - Flocculation can remove cyanobacteria but not the toxin.
            - Chlorination does not remove toxins.
            - Carbon filter is best.
    - Ultrafiltration has not yet been established as being able to remove toxins
    - Cyanobacterial Toxins: Removal during Drinking Water Treatment, and Human Risk Assessment
        - Cyanobacteria & toxins effects range from liver damage, including liver cancer, to neurotoxicity.
        - WHO set a new guideline value for microcystin at 1.0 microg/L drinking water
        - Of the water treatment procedures discussed by the National Institute of Health, **chlorination**, **possibly micro-/ultrafiltration**, but especially **ozonation** are the most effective in destroying cyanobacteria and in removing microcystins. However, these treatments may not be sufficient during bloom situations or when a high organic load is present, and toxin levels should therefore be monitored during the water treatment process.
    - Conventional water treatment facilities can remove the cells by adding chemicals that bind them together. As the cells clump together, they become heavier and fall to the bottom of the reservoir or tank, where they can be easily filtered out. While this method will remove cells, it will not remove potentially harmful cyanobacterial toxins. These can be removed using certain **oxidation procedures or activated charcoal**. Further research in this area is required.

Action: Lilly will look into home systems for toxin removal.

Recommend: GSWA join FOCA.

7. **Huron County Model** – Lesley
    - The project is under the auspices of the Huron County Water Protection Steering committee.
    - The initial need was recognized because of disagreement between the Agricultural sector of the county and the Tourism sector.

- Councillors, community reps., agricultural reps., tourism reps., as well as provincial representatives are involved. One very dedicated and enthusiastic staff member of Huron County herds everyone through the process.
- T**he project is a line item in the Huron County budget.**
- Budget started at $100,000, 5 years ago and is now at $400,000.
- Money comes from Huron County funds and some granting agencies. (Conservation Authorities do the grant writing)
- The project is seen as an economic driver by council because it means contractors are hired to do the work within the county.
- Landowners contribute 50% of the cost of their project. So double the Councils contribution moves out into the community.
- The list of threats to water that is included in the project were developed by the Conservation Authorities: Ausable Bayfield Conservation Authority and Maitland Valley Conservation Authority.
- Criteria included what could be done with the money available.
- Changes occur yearly and they must meet with Council approval.
- The involvement of the CAs does not cost the County because they are funded by lower tier municipalities.
- Project approval is done by a review committee with representatives from council, agriculture and tourism
- An optimum budget for this project would be a million dollars so then manure storage and septic system maintenance and inspection could be included.
- This area is very different from the Sudbury district but the model for development of a private water project has some promise.

Recommend: Huron County Model is a good model to follow – include in our final report - to form a steering committee to explore interest.

8. Strategies

a. Science North Event – Lesley
- Lake Advisory Panel is not planning an event at Science North this year

b. Submission to the Official Plan
- It will be important but we are not there yet

c. Wastewater/Stormwater Forum

Recommend: A wastewater/Stormwater Forum for GSWA's annual Science North event – in April 2014.

9. Next Steps:

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Action: Linda will check with Jim Rook on results of the 10 peat moss septic systems installed on French River – any significant improvement.

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Next meeting: Tuesday, 20 November 2013, 12:00 to 1:30 pm, at the Living with Lakes Centre.