Minutes of the meeting of the

QUINTE REGION SOURCE PROTECTION COMMITTEE

Date: November 15, 2018 at 6:30 pm
Location: Quinte Conservation - Joe Eberwein Board Room
2061 Old Highway 2
Belleville ON

Members Present: **Max Christie** (Quinte Region Source Protection Committee Chair), **Garnett Thompson** (Municipal - City of Belleville), **Jack Alexander** (Economic - Small Business, **Clarence Zieman** (Municipal - Greater Napanee and Town of Deseronto), **Heather Lang** (Economic - Agriculture), **Ron Hamilton** (Municipal - Group 5), **Terry Shea** (Economic - Tourism and Recreation), **Phil Norton** (Other Interests - Rural Non-Farm), **Mel Plewes** (Other Interests - Public Urban), **Mary Wooding** (Liaison - Ministry of the Environment, Conservation and Parks), **Terry Kennedy** (Other Interests - Environmental), **Curtis Maracle**(First Nations - Mohawks of the Bay of Quinte), **Rahmathulla Marikkar** (Economic - Large Business).

Members Absent: **Todd Kring** (First Nations - Mohawks of the Bay of Quinte), **Doug Parker** (Other Interests - General Public), **Roy Pennell** (Municipal - Prince Edward County), **Mike Kerby** (Liaison - Quinte Region Source Protection Authority), **Jo-Anne Albert** (Municipal - Marmora and Lake, Centre Hastings, and Tweed), **Eric Bauer** (Other Interests - General Public), **Andrew Landy** (Liaison - Health Unit), **Gary Fox** (Economic – Agriculture).

Also Present: **Amy Dickens** (Source Water Protection Project Coordinator – Quinte Conservation), **Connor Dennehy** (GIS Technician - Quinte Conservation), **Dr. Josh Powles** (Professor – Loyalist College)

54.1 Call to Order

Chair, Max Christie called the meeting to order at 6:35 pm.

54.2 Approval of Agenda

The agenda was approved through consensus.

54.3 Chair's Statement to Guests

This is addressed to anyone that is not a board member and/or staff person of Quinte Conservation: Your name will be used in the meeting minutes and the minutes will become public information after review and approval of the source protection committee. If you are present for a delegation or hearing, the context of your presentation will be recorded in the minutes of the source protection committee meeting.

54.4 Disclosure of Conflict of Interest

There were no disclosures of conflict of interest.

54.5 Adoption of the Previous Minutes

By consensus the Quinte Region Source Protection Committee approved the minutes of the March 29, 2018 meeting.

54.6 Technical Science Update

Dr. Josh Powles from Loyalist College gave a presentation titled "The Biology of Cyanobacteria". Dr. Powles explained that cyanobacteria are commonly referred to as "blue-green algae" which is a misnomer as it is not an algae, rather a bacteria. Algae are small non-toxic plant like organisms whereas bacteria are a separate sometimes toxic organism. Blue green algae blooms are growing larger and more aggressively in Southern Ontario.

Cyanobacteria are photosynthetic meaning they get their energy from the sun and are considered ancient bacteria as they have been found in fossil records. They likely form the start of the food chain as they produce oxygen which is vital to most life forms. These bacteria are pervasive and essential to ecosystems but they must be managed effectively.

Cyanobacteria tend to be more prevalent in warmer seasons however there has been evidence that they can survive into cooler fall temperatures. They form a thick, viscous film on the water which is formed by strings of the photosynthetic cells. The bacteria are very adaptable and can manipulate their environment in order to extract nutrients. They also grow very fast when compared to plant based life forms. Cyanobacteria are reactive to anthropogenic influences such as fertilizer run-off or temperature fluctuations at water discharge points from nuclear plants or other industry. The bacteria produce toxins to alter their environment in response to external influences which in turn changes the dynamics of the aquatic ecosystem.

Lake Erie is quite susceptible to cyanobacteria blooms due to warmer, shallower water and a large agricultural component in its watershed. In the Bay of Quinte blooms tend to be more prevalent when the water is warmer due to the thermophilic nature of the bacteria (they prefer warm temperatures).

In the right conditions cyanobacteria can produce blooms such as the "red tide" which is a cyanobacteria Harmful Algal Bloom (cHAB). This phenomenon consists of excessive growth of the bacteria, high production of toxins, heavy particulate conditions, hypoxia which affects

oxygen levels, and taste and odour issues in drinking water. Shellfish paralysis and fish kills are common with this cHAB and there is evidence that mammals such as manatees are being affected by the toxins produced. cHAB compromise water quality as they are difficult and expensive to mitigate.

Several toxins can be produced by cyanobacteria. Anatoxins (ANA) can be a lethal toxin as it attacks the neurons and receptors and causes muscle paralysis and failure. Cyanotoxins affect the kidneys and liver functions and cause the breakdown of cells. Microcystin (MC) is the most common type of toxin produced and is a threat to drinking water and crops through irrigation. There are over 50 types of microcystin that have been discovered. Saxitoxins build up over time in an organism and eventually causes paralysis by blocking neuron cells from communicating. This is typically the toxin that causes shellfish paralysis. There is also a bioaccumulation risk with these toxins, even in terrestrial crops.

It is very difficult to detect cyanobacteria because they do not fit into the traditional categories of parameters for water testing such as synthetic chemicals or pathogenic organisms. As a result potable water consumption requires a multidisciplinary approach which includes: avoidance, filtering, chemical treatment and biodegration using other organism to break down the bacteria.

Ontario has a 12 step management plan for dealing with cyanobacteria. The Bay of Quinte is one of 43 areas of concern for the blooms and as such water samples need to be continually assessed.

It is anticipated that climate change will have an impact on the frequency and toxicity of the blooms as warmer seasons may expand creating favourable environments for longer periods of time. There is still a great deal of information and study that is required to create better detection and treatment methods.

It was noted that zebra mussels tend to compound the problem of the cyanobacteria as they filter out many toxins in lakes but do not filter out the cyanobacteria toxins leading to a higher concentration.

Josh indicated that for treatment aeration alone is not enough; however chemicals such as chlorine and peroxide can be used. The concern with this however is that the result of using these chemicals is a residual oxygenated byproduct that is often cancer causing.

A committee member asked whether there are certain areas within the Quinte Region, such as Deseronto that are at an increased risk to cyanobacteria due to shallower surface water. It was indicated that deeper intakes that sit on the bottom of a lake are better however spring turnover, high winds and storms can move the bacteria throughout the lake environment. Amy mentioned that the Picton and Deseronto areas tend to experience more blooms as they are shallow and narrow which creates low turnover and semi-stagnant conditions.

A committee member asked if groundwater was susceptible to contamination from cyanobacteria as well. It was explained that it is not particularly a risk for groundwater

contamination or fast moving streams as the bacteria favour warmer water that experiences low turnover.

There was a brief discussion among the committee that the Ontario Government announced the Environmental Commissioner will no longer be an independent commission and will now be reporting to a Ministry. A discussion of the source protection highlights from the Commissioner's "Back to Basics – Clean Water" report followed.

54.7 S36 Workplan

Staff reminded the committee the S36 workplan is due to the Ministry of the Environment, Conservation and Parks on November 30, 2018. Staff also reviewed the 9 factors that were to be considered during the development of the workplan.

Staff then discussed each factor as it related to the Quinte Region Source Protection Plan:

Monitoring program results: Madoc quality issues are improving however e. Coli and total coliform remain elevated in the raw water. Raw water at the Tweed wells is reviewed as part of the Permit to Take Water program. Reports summarizing results in Tweed show a trend of rising nitrate levels. The reports are reviewed every two years by a qualified hydro-geologist. Microcystin has been found in several instances at the Picton and Deseronto intakes. It is surmised that the narrow area and low hydrodynamic dispersion could be a cause. There are no exceedances of the Ontario Drinking Water Quality System from any Provincial Groundwater Monitoring Network or Provincial Water Quality Monitoring Network results.

Growth and Infrastructure Changes: Madoc is in the process of getting approval for their new well. There has been minimal growth on average however some Municipalities have yet to respond to the survey. Systems within the area are meeting the current demand and climate change appears to have a minimal impact. None of the Municipalities in the Source Protection Region are identified in the Places to Grow Act so there is no action required for this item. The Napanee backup intake may be expanded further into the Napanee River. A new sewage lagoon may be constructed in Tweed. Peats Point and Ameliasburgh in Prince Edward County are undergoing studies to determine the feasibility of creating storage at these systems.

Council Resolutions: With the exception of the new well in Madoc there have not been any new council resolutions regarding drinking water systems. The new system on the Mohawk Territory is a federal system and is beyond the scope of this committee.

Policy Effectiveness: Policy G-1 (Education and Outreach) overlooks road salt threats, this should be updated and addressed through education and outreach (E&O). Policy G-3-E&F (Emergency Planning in Intake Protection Zones and Wellhead Protection Areas) does not have any monitoring associated with it so there are no reports being received regarding whether updates are being made or implemented for any spills that are occurring. A review of the compliance guidelines should be undertaken and an E&O component should be completed to highlight the implications of not implementing the policy. In light of the spills in Picton Bay the policy should

also be updated to account for any oversight or concerns that arose. Policy G-5-F (Transport Pathways Preventative Measures) should be revised to include transport pathways prevention in IPZ's as well as possible wording surrounding notification requirements of Municipalities regarding new transport pathways. Policy 2-6-E&F (Prescribed Instrument for Management of Future Sewage Infrastructure) need to be revised to include IPZ's as it currently only includes wellheads. Policy 12-E&F (Risk Management Plan for the Management of Application of Road Salt) currently applies only to commercial lots however large parking lots for high density residential complexes (condominiums) are not address and should be added in.

A committee member asked how the plan will address the exception for condominiums as non-commercial lands. Staff explained the policy will have to be amended to specifically define this. It was noted that different methodologies will be explored before updating the policy as differing methodologies may be more defendable than the current arbitrary grid.

Staff noted that policies specific to Pits and Quarries is missing which was discovered when dealing with a case where issues were not addressed despite multiple pieces of legislation that were applicable to the property.

Transition Policies were discussed for situations where development is proposed but a plan is still being finalized which could ultimately impact that development. It was noted that other SWP plans have them.

Implementation Challenges: A definition of "handling" related to fuel policies should be added to reduce uncertainty for specific actions. Policies 16-1 and 2-E&F (Prohibition of Dense Non-Aqueous Phase Liquids) will require a review and possibly an update based on new guidance from the Provincial DNAPL Working Group. Policy 12-1-E&F (Salt Management Plan for Significant, Moderate and Low Threats Related to Application of Road Salt) and Policy 12-3-E&F (Risk Management Plan for the Management of Application of Road Salt) are difficult to implement based on the $1km^2$ grid methodology and an alternate methodology to determine areas vulnerable to road salt should be reviewed.

Technical Rule Changes: Mandatory Changes: Vulnerability scores associated with Significant Groundwater Recharge Areas (SRGA) will be removed and may result in the removal/amendment of mapping and/or minor changes to the report text. This will remove the duplication of moderate and low risk areas. Some SGRA's do not meet the test of Rule 45 and should be removed. There have been changes to the calculations to determine where above grade handling and storage of fuel can be a significant threat and these should be updated accordingly. A new threat circumstance regarding pipelines has been identified and requires the assessment plan and mapping to be updated.

The chair explained it has been provincially established that only pipelines containing hydrocarbons are considered a threat.

Warranted Changes: A definition of transport pathways should be included for surface water intakes. Further assess and make appropriate changes to the Assessment Report and/or Source Protection Plan regarding:

Great Lakes/ connecting channel surface water intake vulnerability assessment of Wellington drinking water system. Reducing the setbacks from watercourses based on local conditions. Align the policy wording with updated "short names" in the Table of Contents of the Tables of Drinking Water Threats.

Impacts of Prohibition: An assessment of the impacts of agricultural activities outside the WHPA should be done where prohibition policies are in place. There are no agricultural prohibitions outside the WHPA A so they should not apply.

Local Considerations: Update the threats enumeration tables in Sections 5 and 6 of the AR based on field verification and changes on the landscape. Investigate and review the lack of event-based modelling for Great Lake IPZ and update accordingly. Feedback regarding the livestock density methodology is that it results in very conservative calculations. A review should be made to determine if there is sufficient date to calculate nutrient units on a larger scale. Information received from the Fuel Working Group regarding existing non-captured threats of above grade home heating oil tanks should be reviewed and added as a threat if required. It has been determined that there is some infiltration from fuel tank leaks which is not being addressed. Assess the gap in the SPP related to shipping lanes and create a policy if required. Consider if climate change impacts could be inferred based on improved data.

Next Steps: Consult with the Ministry of Environment, Conservation and Parks, Municipalities and stakeholders. Prepare the final draft for SPC comments and SPA final approval and submit by November 30, 2018.

54.8 Committee Turnover

Staff gave an update on the turnover process and that all current members are strongly encouraged to apply. Chair, Max Christie, asked all committee members to inform the project manager whether or not they intend to reapply. It was explained that an interview committee will submit new member recommendations to the Source Protection Authority for approval.

54.9 Committee Outreach

Chair, Max Christie, stated that due to the 2018 Municipal elections there has not been a lot of communication between committee members and their respective municipalities or interest groups. A crib sheet will be developed for committee members to deliver to their respective Chambers of Commerce meetings to engage the community in source protection.

The Chair encouraged committee members to bring forward any presentations or materials.

54.10 Risk Management Update

Staff gave an update on the Risk Management efforts and the importance of the risk management plans. Staff stated that risk management plans are continuing to be implemented successfully. One landowner initially refused to sign a management plan but when and Order was drafted and the consequences of non-compliance were explained he agreed to sign.

A committee member asked why some landowners would object to signing the risk management plan and staff explained that some landowners do not want to be told what they can/can't do with their land and that in some cases cost is an issue. The Act does have some weight which enables enforcement of the plans however additional stewardship funding from the Province would be helpful. There is evidence that funding provided to landowners for the replacement of septic systems on Roblin Lake has led to an increase in water quality. Additional funding would be beneficial to landowners who may struggle with the cost of implementing their risk management plan.

54.11 Madoc Well Update

Staff updated the Committee on the new well system that is proposed in Madoc. A location has been chosen that has adequate quantity however does have a high level of arsenic which will be treated. Dillon Consulting was hired to complete the technical work and Environmental Assessment required that must be approved before the new system can go online. The new well lands on a fracture which decreases the area that water will be drawn from. As a result of the new well location the WHPA zones will be altered. The proposed wellhead protection area is generally smaller and has shifted to a slightly western orientation.

Staff noted that the municipality is proposing the new well will be hooked into the Whytock pump house and the old well will be decommissioned once final approval has been given.

A committee member asked about the levels of arsenic and how high the level was. Staff responded that the levels are borderline.

A discussion was had about timing for approvals for the new well as the Assessment Report and Source Protection Plan need to be updated and approved by MECP prior to the well being used as a municipal drinking water supply. Staff noted that they were working to update the reports and were working closely with the municipality and the hired consultants to ensure a timely submission.

Other Business:

Committee members were reminded that once new councilors are appointed they will need to be briefed on the Source Protection Program.

Future Meetings: A future meeting will be called at the discretion of the Chair.

Meeting Adjournment: The meeting adjourned at 8:26 pm.

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Max Christie, Chair