



MUNICIPALITY *of the*
COUNTY *of* **KINGS**

GREENWOOD SOURCE WATER PROTECTION COMMITTEE

Thursday March 20, 2025, at 10:00 a.m.
Greenwood Village Commission Office
904 Central Ave, Greenwood

1. Roll Call, Welcome, Introductions
2. Approval of Agenda
3. Disclosure of Conflict-of-Interest Issues
4. Election for Vice Chair
5. Approval of Minutes – July 25, 2024 (page: 2-4)
6. Review of the Committee Policy – Policy EPW-04-009 (page: 5-8)
7. Business Arising from Minutes
 - a. Zeke Brook Treatment Facility and Transmission Line
 - b. How Are We Preparing for Climate Change
 - c. 2019 Draft Management Plan (page: 9-24)
8. New Business
9. Next Meeting – TBD
10. Adjournment

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**THE MUNICIPALITY OF THE COUNTY OF KINGS
GREENWOOD SOURCE WATER COMMITTEE
MINUTES - Thursday, July 25, 2024**

**Meeting Date
and Time**

Greenwood Source Water Protection Committee meeting was held on Thursday, July 25, 2024, at 10:00 a.m. at the Greenwood Village Office

1. Roll Call

In attendance were:

14 Wing Greenwood: Allan Ng – Environmental Officer
Justine Ridgeway – Property Officer
Province of Nova Scotia: Mike Allen – Watershed Planner
Village Commissioner: Bob Baker
Citizen Member: Chantal Gagnon
Councillor: Tim Harding – Chair
Municipality of the County of Kings: Michael Edgar – Manager of Environmental Services
Trish Javorek – Director of Planning & Development
Laura Mosher – Manager of Planning & Development
Carme Telesford – Compliance Officer

Regrets: None

Meeting Called to Order

The Chair called the meeting to order at 10:06 a.m. Roll call was taken.

2. Additions to the Agenda

Review of Policy.

3. Approval of the Agenda

On the motion of Chantal Gagnon and Carme Telesford, that the agenda was approved as presented.

Motion carried.

4. Disclosure of Conflict-of-Interest Issues

None

5. Approval of Minutes:
• November 16, 2023

On motion of Chantal Gagnon and Mike Allen, that the November 16, 2023, minutes be approved as circulated.

Motion carried.

6. Business Arising from Minutes:

- **Status/update on raw water transmission line or full treatment facility**

- Upgrades were completed to the Utility's UV system with the intent of transporting raw water from the new wellfield to the Utility.
- Gary Parker Excavating was awarded the contract to install the transmission lines.
- A new water treatment facility is anticipated to be built in 2025.

Ng, Allan: Where and when will construction commence, as the "base" is 5km away from Zeke Brook Road?

Edgar, Michael: Will confirm whether it will come up Glebe Rd., or the back road, as well as when GPE will be starting on the transmission line.

- **County Website Update**

- Focused on plain language and three click maximum to navigate within the site and proper contact details on an of the Municipality Web pages.
- Include protective maps / GIS Atlas on the website.

7. Management Plan Evaluation – 2023 Annual Report

- Monitoring wells around the sewage treatment plant are tested quarterly to ensure there are no sewage leaks.
- All wells have shown a decrease in levels in 2023.
- Education and Stewardship – advertising as well as inserts have been distributed.

On motion of Chantal Gagnon and Mike Allen, to accept the report as circulated.

Motion Carried.**8. NSECC Response to Dillon's 10-year System Assessment Report (pertaining to SWPP)**

Source water characterization recommendation:

- Discussion around interest to increasing the PFAS sampling from 5 years to unknown. No final decision was made.

NOTE: Allan Ng excused himself from the meeting at 10:42am.

9. Review Management Plan

As per the NS Environment, their last document was from 2009. Request to get an updated plan to them by end of 2024. It was determined that the 2009 report was from Land Use Planning from CBCL. The Municipality has a new planning strategy since that report. Mapping areas to be identical to the attached plan to the agenda.

Gagnon, Chantal: how is the Utility preparing for climate change? Redundancy in system by having the new Wellfield, but what about aging wastewater facility in the wellfield zone?

On motion of Chantal Gagnon and Bob Baker, to accept the discussions on Agenda # 8, 9 with feedback mid-August.

Motion Carried.

10. Next Meeting Thursday, November 21, 2024 @ 10:00 AM

11. Public Comments None

12. Adjournment The meeting adjourned at 11:02 a.m.

On motion of Michael Edgar and Bob Baker, to adjourn the meeting.

Motion Carried.

Approval:

GREENWOOD SOURCE WATER COMMITTEE



MUNICIPALITY OF THE COUNTY OF KINGS

Greenwood Water Utility Source Water Protection Committee Policy

Creation Date: August 28, 2012
Approval Date: September 18, 2012
Revision Date: September 2, 2014
May 3, 2016

Policy Category: Engineering & Public Works
Next Review Date: September 2015
Replaces:

1. Committee Mandate:

The function of the Greenwood Source Water Protection Committee (*"the Committee"*) is to advise Municipal Council and staff on the development and maintenance of a mutually beneficial, locally developed and administered Source Water Protection Program that protects the water source(s) of the Greenwood Water Utility (*"the Utility"*).

2. Authority:

Nova Scotia Environment requires the Municipality to implement certain policies and procedures to safeguard the source waters of the Greenwood Water Utility as part of the Greenwood Water Utility's operating permits. Per Section 23(1) (c) and Section 24 of the Municipal Government Act, Municipal Council authorizes the formation of the Committee and authorizes it to conduct the activities outlined in this Policy on its behalf.

3. Definitions:

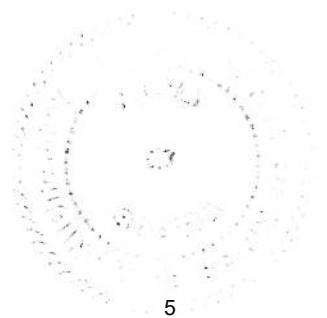
- 3.1 "EPW" means the Engineering and Public Works section of the Municipality of the County of Kings.
- 3.2 "Source Water Protection Program" means a program developed by the stakeholders of a water utility to protect and monitor the health of a source water supply.
- 3.3 "Source Water Protection Area Boundary" means the area of land which contributes water to the Utility's production wells.

4. Committee Composition:

The Committee shall be composed of stakeholders of the Utility. The Committee will consist of the following:

- Planning Advisor (Municipality's Manager of Community Development or designate)

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MUNICIPALITY OF THE COUNTY OF KINGS

Greenwood Water Utility Source Water Protection Committee Policy

- Engineering Advisor (Municipality's Manager of EPW, Lands and Parks Services or designate)
- District Councillor
- Citizen Representative appointed by Council for a two year term commencing in the fall of the appointment year
- A Commissioner from the Village of Greenwood appointed by Council for a two year term commencing on the first day of May of the appointment year
- Representative of Nova Scotia Environment
- Representative from the Greenwood Water Utility (employee of the Municipality)
- Representative from 14 Wing Greenwood (Ex officio, non-voting)

The Chair shall be the District Councillor. The Vice-Chair will be appointed by members of the Committee.

5. Related Policies, Procedures and Legislation:

Environment Act 1994-95, Province of Nova Scotia

Greenwood Wellfield Approval for Water Withdrawal No. 2004-039399-A01, Province of Nova Scotia

Greenwood Water Utility Approval to Operate No. 2009-066399-A01, Province of Nova Scotia

Water for Life: Nova Scotia's Water Resource Management Strategy, Province of Nova Scotia

Water and Wastewater Facilities and Public Drinking Water Supplies Regulations, Province of Nova Scotia

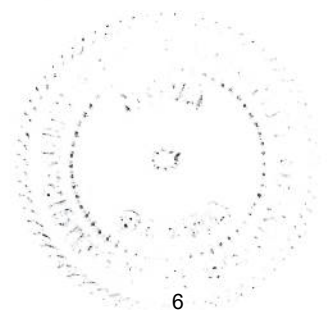
6. Responsibilities:

The Committee is responsible for advising Council about the following issues:

6.1 Source Water Protection Area Boundary

- a) Identify and delineate the source water supply area.
- b) Assess the delineated boundary to ensure it adequately encompasses the source water supply area and meets the needs of the stakeholders.
- c) Recommend changes to the delineated area, as required, within the confines of the regulations.

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Greenwood Water Utility Source Water Protection Committee Policy

6.2 Identify Potential Contaminates and Assess Risks

- a) Identify and document potential sources of contamination.
- b) Assess the risk they pose to the source water supply area.
- c) Recommend to staff and Council as appropriate any changes in laws, policies, or regulations governing the Utility.

6.3 Source Water Protection Management Plan

- a) Review and comment on the Plan and any proposed amendment thereto.
- b) Work with and consult community members and the Village of Greenwood when drafting the Source Water Protection Plan or revisions thereto.
- c) Work with staff to develop community education and awareness strategies on the Plan.
- d) Review monitoring results at an acceptable frequency, at least annually, to verify the continued quality of the source water to ensure the management plan is effective and current to conditions within the supply area.

6.4 Compliance with Laws, Regulations and Guidelines

Review as required, reports from staff and others relating to the Utility's compliance with laws, regulations and other obligations governing the Source Water Protection Plan.

7. Operating Procedures and Principles:

The Committee shall conduct itself in accordance with the following principles and procedures:

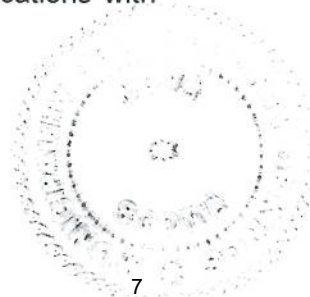
7.1 Committee Values

The Committee and staff are expected to operate in compliance with the Municipal Code of Conduct, and the policies, laws, and regulations governing the Municipality. The Committee is expected to use a consensus-based approach to its decision making.

7.2 Communications

The Committee members will maintain direct, open, frank communications with staff, Council and other key advisors as appropriate.

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Greenwood Water Utility Source Water Protection Committee Policy

7.3 Policy Development

Review and comment on all applicable materials to help staff and Council to establish technically sound and achievable goals using a combination of management practices as referred by NSE; Acquisition of Land, By-laws, Best Management Practices, Contingency Plans, Designation, and Education. The Committee may invite experts or other appropriate resource person(s) to provide advice on matters before it and may in good faith rely upon any reports and findings they provide.

7.4 Meetings

Meetings shall be held semi-annually at a time to be established by the Committee. Special meetings may be convened throughout the year at the request of the Chair, the Utility Representative, or at the written request by a majority of the Committee's member. A copy of the minutes of each meeting shall be provided to each member in a timely fashion.

7.5 Accountability and Reporting

The Committee is accountable to Council. The Committee shall report to Council as often as necessary but at least annually. Reporting shall normally be done through the Committee's Chair.

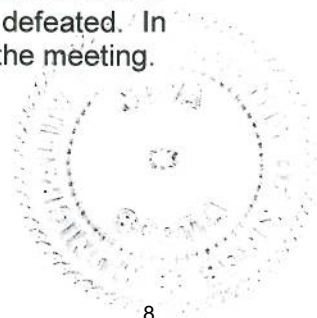
7.6 Committee Self Assessment

The Committee shall annually review, discuss and assess its performance. The Committee will review this Policy on an annual basis and recommend any changes to this Policy that may be considered appropriate.

8. Quorum and Decision Making:

A quorum consists of a majority of the voting members of the Committee. The Committee shall use a consensus-based approach in its decision making. The Chair may put the matter to a vote if they deem that a consensus is not achievable. Each Committee member is entitled to one (1) vote and decisions shall be majority vote of those present. The Chair presiding at any meeting of the Committee shall have a vote in all matters considered by the Committee. In the event of a tie the motion is defeated. In the absence of the Chair of the Committee, the Vice-Chair will preside over the meeting.

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GREENWOOD WATER UTILITY

SOURCE WATER PROTECTION PLAN



THE MUNICIPALITY OF THE COUNTY OF KINGS

Greenwood Source Water Protection Plan, Rev. 1

Created by:	Reviewed by:	Approved by:
Greenwood Source Water Protection Committee	Manager Engineering and Public Works	CAO
	Date	Date

Table of Contents

1. INTRODUCTION	5
2. DESCRIPTION OF THE WATER SUPPLY	6
2.1 Well(s) Location and Ownership	6
2.2 Description of Utility:	6
2.3 Wellhead Protection Area Delineation:	6
2.5 Current Land Uses in the Greenwood Source Water Protection Area - Appendix C	7
3. GOALS AND OBJECTIVES:	7
3.1 Context	7
3.2 Goal	7
3.3 Stakeholders.....	8
3.4 Responsibilities	8
3.5 Deliverables.....	8
4. MANAGEMENT RECOMMENDATIONS:.....	8
4.1 Source Water Protection Management Options:	8
4.2 Potential Contaminants:	9
4.3 Risk Assessment Worksheet – Appendix E	10
4.4 Management Plan	10
5. IMPLEMENTATION AND EVALUATION:.....	11
5.1 Implementation	11
5.2 Evaluation.....	14
6. REFERENCES	16
7. APPENDIX A – GREENWOOD CAPTURE ZONE MODELING; TECHNICAL REPORT	
8. APPENDIX B – GREENWOOD WELLFIELD DELINEATION MAP	
9. APPENDEX C – LAND USE PLANNING RECOMMENDATIONS FOR GREENWOOD WELLFIELD PROTECTION PLAN	
10. APPENDIX D – BY-LAW #56 & MPS	

11. APPENDIX E – RISK ASSESSMENT WORKSHEET

12. APPENDIX F – OPERATIONS AND MAINTENANCE MANUAL: GREENWOOD SEWAGE TREATMENT PLANT

13. APPENDIX G – GREENWOOD WATER UTILITY SOURCE WATER PROTECTION COMMITTEE POLICY

14. APPENDIX H – BEST MANAGEMENT PRACTICES

1. INTRODUCTION

In October 2002, the province released the policy document *A Drinking Water Strategy for Nova Scotia*, which provides the framework for managing drinking water supplies across the province. The Operating Permit for the Greenwood Water System requires the Municipality, as System owner, to implement elements of this policy document to ensure the long term integrity of the groundwater source.

The policy describes a multi-barrier approach to clean, safe drinking water. The three lines of defense of the multi-barrier approach are:

- Keeping clean water clean – an effective source water protection plan.
- Making it safe – treatment of water supply.
- Proving it is safe – monitoring and verification.

This document was developed to address the first barrier of this approach- keeping clean water clean. The most economical and effective method of achieving this is through a comprehensive and inclusive Plan to ensure the protection of the Greenwood Water Supply.

2. DESCRIPTION OF THE WATER SUPPLY

2.1 Well(s) Location and Ownership

The Municipality of Kings owns two production wells (GW8 and GW13) to supply the Greenwood water distribution system. The wells are located at 893 and 907 Meadowvale Road (respectively) in the Community of Tremont. Well GW 8 was drilled to a depth of 23.8 meters below grade and GW 13 was drilled to a depth of 27.1 meters below grade. Through testing conducted it has been determined that the aquifer that feeds the two production wells is *Groundwater Under Direct Influence of Surface Water (GUDI)*. GUDI means there is groundwater and surface water interaction that occurs at less than 90 days travel time.

2.2 Description of Utility:

The current water supply and distribution system consists of standard pipe networks of various sizes, serving residential and commercial customers. The supply is delivered by pumping production wells GW8 and GW13. Well GW8 and GW13 are housed in vaults and control buildings. They pump water directly from the wellhead to GW12B, the water disinfection building. From there it is sent to two 360,000 US gallon (1.6 million litres) water storage towers. Water is fed from the towers to the return distribution main via gravity on demand.

The Greenwood water supply system is treated to provide system disinfection and to maintain biostability and safe potable water. Primary disinfection is conducted by two redundant UV systems that are used alternately for each well pump. Secondary disinfection is provided by sodium hypochlorite injection with metering pumps after the UV system. The reservoirs provide sufficient chlorine contact time.

2.3 Wellhead Protection Area Delineation:

The wellhead protection area is the area surrounding a well or wellfield that supplies a municipal drinking water supply. In Nova Scotia a minimum of 3 zones are recommended, based on the time of travel of certain contaminants or the amount of time it would take contaminants to enter the Greenwood source water.

In March of 2008, CBCL Limited in partnership with Terry W. Hennigar Water Consulting provided to the Municipality of Kings the report entitled: *Greenwood Capture Zone Modeling: Technical Report, Appendix A*. The purpose of this report was to provide the Municipality with a groundwater flow model for the Greenwood Water Utility's production wells.

Based on the information provided in the Technical Report, the zones were based on the consideration that the wells were GUDI and included the Annapolis Valley watershed. The study indicated that groundwater flow patterns flow from "the south mountain toward the Annapolis River, with components of the southwest in the outwash valley aquifer".

The zones are defined as the following:

Zone A – Well site control zone, encompassing a 25 meter radius around each well.

Zone B – the area within the 2 year capture zone.

Zone C – the area within the 5 year capture zone.

Zone D – the area within the 25 year capture zone.

A map of the delineated area can be found in Appendix B.

2.5 Current Land Uses in the Greenwood Source Water Protection Area - Appendix C

The report found in Appendix C entitled Land Use Planning Recommendations for the Greenwood Wellfield Protection Plan, CBCL Limited, illustrates the Risk Analysis conducted within the well field area. Page 13 of the report, table 5.2, contains an inventory of possible contamination issues per zone. As a note, in the original report Zone A was set at 250 ft surrounding each well, based on the fact the report indicates that the hydraulic conductivity of the sand units were increased by a factor of 10 beyond expected conditions, the committee felt it was acceptable to have Zone A protected area set at 25 meter “which is the absolute minimum size for this zone (CBCL, 2009, p. 10). With the surrounding area set at this, it has identified that Zone A was under the complete ownership of the Municipality.

The map as Appendix B, illustrating the delineation area has the Well Site Control Zone set at 25 meters and it also identifies areas of non-conforming uses. Non-conforming uses as per the Nova Scotia Municipal Government Act “means a use of land that is not permitted in the zone”. For the purpose of this report these are uses of the land that do not meet the requirements for the Land-use By-law’s developed for these areas, but for reasons of grandfathering are permitted to continue operating in their current form and may be considered for expansion or redevelopment only by Development Agreement as per by-law #56 Section 2.12.9.5 as Appendix D. It would be ensured through the Development Agreement that there would be no increase in potential for contamination of the groundwater.

3. GOALS AND OBJECTIVES:

3.1 Context

The Municipality of Kings owns and operates the water utility that provides the potable drinking water to the Village of Greenwood and surrounding area. The Drinking Water Strategy issued by Province of Nova Scotia requires that utilities that use ground water for drinking water undertake well head protection measures.

3.2 Goal

The function of the Greenwood Source Water Protection Committee is to advise Municipal Council and staff on the development and maintenance of a mutually beneficial, locally developed and administered Source Water Protection Program that protects the water source(s) of the Greenwood Water Utility. The goal of the plan is to protect the source water of the Greenwood Water Utility.

3.3 Stakeholders

- Policy: EPW-04-009, MUNICIPALITY OF THE COUNTY OF KINGS; Greenwood Water Utility Source Water Protection Committee Policy - Section 4 (Appendix G)

3.4 Responsibilities

- Policy: EPW-04-009, MUNICIPALITY OF THE COUNTY OF KINGS; Greenwood Water Utility Source Water Protection Committee Policy - Section 6 (Appendix G)

3.5 Deliverables

- A comprehensive and inclusive Plan to ensure the protection of the Greenwood Water Supply.

4. MANAGEMENT RECOMMENDATIONS:

4.1 Source Water Protection Management Options:

Acquisition of Land (A) – Land acquisition gives direct ownership and control of the source water protection area to the utility or municipality. This is a preferred option because of its obvious benefits. The purchase of land may include all lands within the source water protection area, or may be confined only to land areas that play a critical role in protecting the water source.

By-laws (B) – Land-use planning through the use of municipal planning strategies and zoning is a very powerful tool to ensure that potential contaminant threats or activities are sited away from the water source. Developing by-laws is subject to mandatory public consultation requirements.

Best Management Practices (B) – Once individuals and industries understand they may be part of the problem, they also understand they can be part of the solution. BMPs are a good way to introduce a change in the way businesses, industry and individuals treat the environment.

Contingency Planning (C) – An emergency response plan provides a blueprint for action in the event of a dangerous contamination occurrence within the source water protection area. All utilities or municipalities must have a contingency plan in place for their source water protection areas.

Designation (D) – Formal designation as a Protected Water Area under section 106 of the Nova Scotia Environment Act is a mechanism for utilities or municipalities to develop regulations for activities that have the potential to impair source water quality. Regulations will apply to the source water protection area defined by the utility or municipality and advisory committee.

Education and Stewardship (E) – Educating the people who live and work within source water protection areas creates a sense of ownership and shared responsibility for the protection of the water resource.

4.2 Potential Contaminants:

<i>Potential Contaminants – Point sources</i>	<i>Description</i>	<i>Well Control Site Zone A</i>	<i>Zone B 0-2 year</i>	<i>Zone C 2-5 year</i>	<i>Zone D 5–25 year</i>
Aggregate Related Industry	Petroleum hydrocarbons		<u>X</u>	<u>X</u>	<u>X</u>
Livestock Operation	Bacteria, nutrients, dissolved organic carbon		<u>X</u>		
Small Engine Repair Shop	Petroleum hydrocarbons, solvents		<u>X</u>		
NSPI Substation	PCB's, Petroleum hydrocarbons		<u>X</u>		
Heavy Machinery Maintenance and Storage	Petroleum hydrocarbons, solvents		<u>X</u>		
Private Wells	Point of entry for contaminants into groundwater		<u>X</u>	<u>X</u>	<u>X</u>
Liquid chlorine	Chemical contamination		<u>X</u>		
Greenwood Sewage Treatment Plant	Bacteria, nutrients, pharmaceuticals, dissolved organic carbon, chloride		<u>X</u>	<u>X</u>	
Cemetery	Bacteria, nutrients, dissolved organic carbon, chemicals			<u>X</u>	
Abattoir	Bacteria, nutrients, dissolved organic carbon, heavy metals (if contained in pest controls)				<u>X</u>
Salvage Yard	Petroleum hydrocarbons, solvents, metals, PAHs, battery acid				<u>X</u>
Home Heating Oil Tanks	Petroleum hydrocarbons		<u>X</u>	<u>X</u>	<u>X</u>
Residential Septic Systems	Bacteria, nutrients, pharmaceuticals, dissolved organic carbon, chloride		<u>X</u>	<u>X</u>	<u>X</u>
Residential herbicide and pesticide use	Chemicals		<u>X</u>	<u>X</u>	<u>X</u>

4.3 Risk Assessment Worksheet – Appendix E

As per CBCL Limited Table 5.2: Summary of Risk Analysis

4.4 Management Plan

Acquisition of Land (A)

The Municipality of Kings owns much of the land in zone A of the Source Water Protection Area. If the opportunity arises and the monies are available for further acquisition, this will be explored at this time. Currently, there is no active plan for Land Acquisition within the wellfield.

By-laws (B)

Land Use Planning / Municipal Planning Strategy

By-law 56, the Municipal Planning Strategy and Bylaw 75 were amended on January 12, 2012, to include land use policies and regulations aimed at protecting the Greenwood wellfields, as referenced in Appendix D. These amendments were developed by the Greenwood Wellfield Committee based on recommendations as delivered by CBCL Limited in the report “Land Use Recommendations for Greenwood Wellfield Protection Plan” found in Appendix C.

Best Management Practices (B)

Best Management practices will be recommended to residents, businesses and the Department of Transportation and Infrastructure Renewal, specifically for non-conforming uses.

7 Monitoring wells were installed at the Greenwood Sewage Treatment Plant to conduct ground water monitoring, **Appendix F**. The sampling was designed in line with “NSE Guidelines for the Handling, Treatment and Disposal of Septage” The intent of this sampling is to be able to identify changes in groundwater quality that may be indicative of a leak.

Monitoring plans will be established by the Municipality of Kings to ensure the water quality of the source water meets the *Guidelines for Canadian Drinking Water Quality* and as per *Guidelines for Monitoring Public Drinking Water Supplies*.

Contingency Planning (C)

Contingency Planning will be established and reviewed annually for Emergency conditions within the Source Water Protection Area; as per the **Municipality of Kings Water Utility Contingency and Emergency Notification Plan** on file at the Municipality of Kings Office.

Emergency Responders for Greenwood and surrounding area will be notified that this area is a Wellfield area, along with Emergency Contacts to use in the instance that an emergency contamination risk is introduced to this area.

Designation (D)

The Municipality of Kings does not wish to consider this, at this time.

Education and Stewardship (E)

This management option will be implemented using media outlets, the Municipal website and various other tools as agreed upon by the committee to educate residents of the source water protection area and other stakeholders.

5. IMPLEMENTATION AND EVALUATION:

5.1 Implementation

Acquisition of Land (A) - N/A

By-laws (B)

- By-law #56 and the Municipal Planning Strategy were updated to include the Greenwood Source Water Protection Area.

Date of implementation: January 12, 2012

Best Management Practices (B)

- Contact non-conforming uses within the well zones and recommend Best Management Practices as per the following guides:
 - A Guide to Recommended Agricultural Practices within Municipal Drinking Water Supply Areas in Nova Scotia
 - Best Management Practices/Forest Planning in Municipal Drinking Water Supply Areas in Nova Scotia
 - Mineral Exploration and Development in Municipal Water Supply Areas

Copies of these publications can be obtained from Nova Scotia Environment at

Date of implementation: March 24, 2015

- 7 Monitoring wells were installed at the Greenwood Sewage Treatment Plant to conduct ground water monitoring, **Appendix F**. The sampling was designed in line with “NSE Guidelines for the Handling, Treatment and Disposal of Septage” The intent of this sampling is to be able to identify changes in groundwater quality that may be indicative of a leak. The sampling schedule is as follows:

Field Measurements	Frequency	Duplicate
Water Level	Weekly	NA
Field Parameters (pH, conductivity, temperature, and dissolved oxygen)	Weekly	NA
Laboratory Analysis		
Total and Fecal Coliform, E. coli (MPN)	Quarterly	Semi-annual
Biochemical Oxygen Demand (BODs)	Quarterly	Semi-annual
Ammonia and Total Kjeldahl Nitrogen (TKN)	Semi-annual	Annual
General Chemistry (incl. nitrate, nitrite, phosphorus, chloride, boron)	Semi-annual	Annual
Dissolved Organic Carbon (DOC)	Annual	Annual
Dissolved Metals (filtered)	Annual	Annual
Bacteria, Ammonia, TKN, General Chemistry, DOC, metals	Special #1	Special #1
Volatile Organic Compounds (VOCs)	Special #2	NA
TPH/BTEX (Atlantic PIRI)	Special #2	NA

Special #1 – Sampled immediately if there are any indications of a spill or changes in groundwater quality.

Special #2 – Sampled if there is evidence that chemical contaminants could have entered the groundwater environment surrounding the STP.

Target Date for implementation: Began March 2011 and ongoing

- pH monitoring of the raw water will be conducted weekly, this will be used for trending purposes to indicate any spikes that could indicate a change in the water quality.

Target Date for implementation: Currently and ongoing

- Raw water total and E. coli coliform tests (present/absent) will be completed weekly to monitor changes in the groundwater bacterial quality.

Target Date for implementation: Currently and ongoing

- Annually, testing will be conducted on the parameters as per the Guidelines for Monitoring Public Drinking Water Supplies. The following parameters at a minimum will be tested:

Alkalinity	Colour	Potassium
Aluminum	Conductivity	Selenium
Ammonia	Copper	Sodium
Antimony	Fluoride	Sulphate
Arsenic	Hardness	Total Dissolved Solids
Barium	Iron	Total Organic Carbon
Boron	Lead	Turbidity
Cadmium	Magnesium	Uranium
Calcium	Manganese	Zinc
Chloride	Nitrate	
Chromium	pH	

Target Date for implementation: Currently and ongoing

- Every 5 years the raw water is monitored for parameters according to the Guidelines for Canadian Drinking Water Quality, latest edition, having maximum acceptable or interim maximum acceptable concentrations. They are as follows:

Aldicarb	Aldrin+dielrin	Antimony
Arsenic	Altrazine+metabolites	Azinphos-methyl
Barium	Bendiocarb	Benzene
Benzo(a)pyrene	Boron	Bromate
Bromodichloromethane (BDCM)	Bromoxynil	Cadmium
Carbaryl	Carbofuran	Carbon tetrachloride
Chloramines	Chlorate	Chlorite
Chlorpyrifos	Chromium	Cyanazine
Cyanobacterial toxins – Microcystin-LR	Diazinon	Dicamba
1,2-Dichlorobenzene	1,4-Dichlorobenzene	1,2-Dichloroethane
1,1-Dichloroethylene	Dichloromethane	2,4-Dichlorophenol
2,4-Dichlorophenoxyacetic acid	Diclofop-methyl	Dimethoate
Dinoseb	Diquat	Diuron
Fluoride	Glyphosate	Haloacetic Acids – Total (HAAs)
Lead	Malathion	Mercury
Methoxychlor	Methyl tertiary-butyl ether (MTBE)	Metolachlor
Metribuzin	Monochlorobenzene	Nitrate
Nitrilotriacetic acid (NTA)	Paraquat (as dichloride)	Parathion
Pentachlorophenol	Phorate	Picloram
Selenium	Simazine	Terbufos

Tetrachloroethylene	2,3,4,6-Tetrachlorophenol	Trichloroethylene
2,4,6-Trichlorophenol	Trifluralin	Trihalomethanes-total
Uranium	Vinyl chloride	

Target Date for implementation: Currently and ongoing

- As part of the water utility operators scheduled checks, the wellheads and surrounding area will be monitored for signs of damage or security concerns.

Target Date for implementation: Currently and ongoing

Contingency Planning (C)

- The contingency plans as established by the Municipality of Kings Department of Engineering and Public Works will be reviewed by the committee to determine if recommendations are needed to meet the needs of the Source Water Protection management Plan.

Target Date for implementation: March 24, 2015

Designation (D) - N/A

Education and Stewardship (E)

- The County website and other media outlets (as determined by the committee at the **twice** annual meeting) will be utilized to deliver a reminder to the residents, of the Source Water Protection Plan, as well as an education and communication component.

Target Date for implementation: Currently and ongoing

5.2 Evaluation

Twice annually the Committee will meet to review the Management Plan and the Land uses in the area to determine if any updates are required. If there have been identified issues within the year that may impact the Groundwater or the Management Plan, the committee will meet as required.

At the twice annual meeting, or sooner if required, the committee will review the monitoring results collected that year to determine if any results indicate that an update to the Management/ Monitoring

Plan is required. The committee, at this time, will determine if any expenditures are required that would need to be included in the budget process.

All monitoring results, identified issues and updates to the plan will be reported to Nova Scotia Environment as part of the Greenwood Water Utility Annual Report due April 1st.

6. REFERENCES

1. Nova Scotia Environment, Developing a Source Water Protection Management Plan: A Guide for Water Utilities and Municipalities, Steps 1-5
2. CBCL Limited and Water and Aquifer Technical Environmental Resources, Greenwood Capture Zone Modeling: Technical Report; March 2008
3. CBCL Limited, Land Use Planning Recommendations for the Greenwood Wellfield Protection Plan; January, 2009
4. CBCL Limited, Operation and Maintenance Manual, Greenwood Sewage Treatment Plant; September 2010