

## An Audit of the Management of Groundwater Resources in British Columbia

As at 15 February 2013      Released: [1 December 2010](#)

1st Follow-up: [March 2012](#)

Discussed by the Public Accounts Committee: [10 February 2011](#)

**Self-assessment conducted by Water Protection and Sustainability Branch, Ministry of Environment**

### Comments:

“The Ministry of Environment (MOE) and Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) continue to make progress regarding the seven recommendations of the OAG in their 2010 performance audit of the management of groundwater resources in BC. For this second-year self-assessment, we have included the original ministry response to each of the recommendations in the first paragraph. The subsequent paragraph(s) outline the ministry’s progress to-date on the commitments made in our response. As noted below, recommendation 1 is substantially implemented, with a number of additional aquifer mapping projects initiated around the province this year; MOE and MFLNRO continue to work with various agencies, industry and academic institutions to further our understanding of priority aquifers in the province. This knowledge is used to improve decision-making and manage groundwater resources. The other 6 recommendations are underway.”

#### RECOMMENDATIONS ADDRESSED IN PREVIOUS FOLLOW-UP REPORT(S):

#### SELF-ASSESSED STATUS

**Recommendation 1:** Ensure that classification of the province’s aquifers is completed for all priority areas and that the WELLS database is kept up to date. The ministry should also ensure that aquifers are characterized, starting with those classified as having the highest priority.

Fully or substantially implemented

RECOMMENDATION AND SUMMARY OF PROGRESS	SELF-ASSESSED STATUS
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<p><b>Recommendation 2:</b> Expand the Provincial Observation Wells Network and review the Provincial Ambient Groundwater Quality Monitoring Network to ensure there is sufficient monitoring of groundwater levels and quality across the province.</p>	<p>Partially implemented</p>
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**Actions taken, results and/or actions planned:**

“Ministry 2010 response: The Ministry will continue to implement the recommendations of the 2009 independent review to expand the Provincial Observation Wells Network as available resources allow. The Ministry will initiate a review of the Ambient Groundwater Quality Monitoring Network in 2011 to help assess groundwater quality in priority areas.

The MFLNRO and MOE continue to implement the recommendations of the 2009 review to expand the Observation Well Network. In August 2012, an additional well was established in the Peace region bringing the total to 7 new wells for this area in 2011/2012. In 2012/13, MOE-MFLNRO established 26 observation wells in the following areas: Lower Mainland (Langley, Surrey, and 2 wells in Agassiz), Central Vancouver Island (10 wells), Gabriola Island (1 well), Okanagan Basin (7 wells in Kelowna and West Kelowna, Penticton, Okanagan Falls, Summerland), Logan Lake, Hat Creek (Cariboo - 2 wells), and Groundbirch (near Dawson Creek). This brings the number of observation wells from 126 in December 2010 to 172.

MoE, in collaboration with MFLNRO, initiated an operational review of the Provincial Observation Well Network using LEAN principles. The project identified actions to improve the quality of the water quantity data and improve overall operations of the network. These changes, in combination with improved reporting tools, will improve the availability of data to the public.

A review of the Ambient Groundwater Quality Monitoring Network, initiated in 2011/12, will be completed by March, 2013.”

<p><b>Recommendation 3:</b> Take the lead on coordinating the consolidation of all of the groundwater monitoring information collected by provincial ministries and other agencies to reduce duplication of effort and to ensure the best use of limited resources.</p>	<p>Partially implemented</p>
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**Actions taken, results and/or actions planned:**

“Ministry 2010 response: The Ministry will work with MFLNRO, the Ministry of Health (MOH) and Regional Health Authorities to explore the feasibility of coordinating the consolidation of groundwater monitoring data collected by various parties.

The pilot project initiated in 2011 by MOE with Fraser Health, four water supply systems in the Fraser Valley, MOH and MFLNRO to assess the feasibility of consolidating drinking water quality data collected by the public water systems was completed in 2012. Next steps include presenting the results of the pilot to various groups and discussing the feasibility of proposed options to consolidate additional source water data from public water supply systems.”

**Recommendation 4:** Develop a groundwater information management strategy that takes into account detailed scientific information and identified trends, and ensure that the information required to support this strategy is collected, analyzed and available through one location. Partially implemented

**Actions taken, results and/or actions planned:**

“Ministry 2010 response: By 2011, the Ministry will complete the review of the Groundwater Program in collaboration with MFLNRO. The program review will include the development of a groundwater information management strategy with associated actions (e.g., linking databases containing groundwater data, consolidating groundwater data in one location, explore how best to interpret and report groundwater data).

The review of the Groundwater Program was initiated in 2010 but not completed as resources were directed towards aquifer mapping, classification and characterization, the Observation Well network and Water Act modernization. The work undertaken as part of the review in 2011/2012 included clarifying the roles and responsibilities between MOE and MFLNRO. Work on the assessment of groundwater information and reporting for various audiences continued in 2012. A prioritized list of groundwater quantity indicators needed for reporting on the state of water and to help inform future decision making affecting the groundwater resource was developed in 2012. The first priority indicator on groundwater level will be developed by the end of 2012/13 and information will be included on the Environment Reporting BC webpage.

Work is also currently under way to facilitate access to observation well data through the use of various on-line tools.

The complete review of the Groundwater Program, including the development of the information management strategy, is expected for 2013.”

**Recommendation 5:** Develop and deploy systems to protect groundwater from depletion and contamination and to ensure the viability of the ecosystems it supports. Partially implemented

**Actions taken, results and/or actions planned:**

“Ministry 2010 response: The Ministry is working to modernize the Water Act by 2012, which will better protect groundwater from depletion and contamination, as well as provide for the sustainable management of aquatic ecosystems.

With the complexity of this legislation and the widespread implications, government will be taking more time to engage with specific sectors and First Nations. Introduction of the proposed new Act into the Legislature is now planned for 2014. Regulation of groundwater extraction and use, requirements including measuring and reporting, consideration of environmental flows in licensing decisions and enabling provisions for Watershed Sustainability Plans remain cornerstone policies for the Water Sustainability Act.”

**Recommendation 6:** Develop a framework that clearly outlines the roles and responsibilities for managing groundwater provincially and locally, and ensure that agencies are able to take responsibility for groundwater in their area. Partially implemented

**Actions taken, results and/or actions planned:**

“Ministry 2010 response: The Ministry will clearly define the roles and responsibilities of the various agencies involved in the protection and management of groundwater through Water Act Modernization and the Groundwater Program review.

Agency roles and responsibilities between natural resource agencies in the management of groundwater resources was completed in 2011. Roles and responsibilities with other agencies will be further clarified through work on the Water Sustainability Act.”

**Recommendation 7:** Ensure that integrated watershed management plans are developed for all priority watersheds. Partially implemented

**Actions taken, results and/or actions planned:**

“Ministry 2010 response: The Ministry will continue to promote existing tools to help with the development of watershed plans and will work to enable the development of watershed sustainability plans through the modernized Water Act.

MOE and MFLRNO continue to develop tools to promote watershed planning and work with various local agencies to support outreach, education and the development of planning tools to protect groundwater.

In 2012, capture zones (source protection areas) were delineated for 131 public water supply systems in Northeast BC. The capture zones are available from iMAPBC and will provide added legal protection of drinking water sources from surface-based oil and gas activities regulated under the Oil and Gas Activities Act.

MOE began partnering with Agriculture Canada, the BC Ground Water Association, regional health authorities, and local governments in 2010 to develop and deliver Well Owner Workshops targeted at local citizens and farmers on how to protect their well water. In 2012, MFLNRO-MOE, and partners, delivered four workshops: two in the Cariboo (150 Mile House and Kersley) and two on Vancouver Island (Mill Bay and Duncan). Additional workshops are planned for 2013 (on Vancouver Island, Gulf Islands, and southern interior).

In 2012, MOE supported the development of a source water component to the BC Water and Wastewater Association’s Small Water System Operator Educational Course. The course has been updated and is being delivered to small water system operators to educate operators about ways to protect drinking water sources, including groundwater sources.

The Ministry partnership with the Regional District of Nanaimo on their “Drinking Water and Watershed Protection Program” which is a 10 year program continued in 2012. This project includes developing water budgets for the seven major water areas in the region, developing the groundwater and surface water monitoring networks, outreach and public education, and help in the development of planning tools to protect groundwater.

Watershed-level planning will be enabled through the Water Sustainability Act. Plans will be completed through a collaborative process in areas where there is significant risk to water supply and water quality or where ecosystems are damaged. Additional tools, such as the provincial water objectives, will be developed to complement watershed-level planning and support the protection of water by ensuring water is considered in land and water use decisions.”