
Report on the Review of Drinking Water Resources

Ministry of Healthy Living and Sport

**Internal Audit & Advisory Services
Ministry of Finance**

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Abbreviations

action plan	Action Plan for Safe Drinking Water in British Columbia
ADMC-Water	Assistant Deputy Ministers' Committee on Water
DWLC	Drinking Water Leadership Council
DWPA	<i>Drinking Water Protection Act</i>
EOCP	Environmental Operators Certification Program
FRPA	<i>Forests and Range Practices Act</i>
HA	Health Authority
HAs	Health Authorities
MCRD	Ministry of Community and Rural Development
MoE	Ministry of Environment
MHLS	Ministry of Healthy Living and Sport
MoTI	Ministry of Transportation and Infrastructure
PIP	Performance Improvement Plan
PHO	Provincial Health Officer

Executive Summary

We have completed our review of the progress, processes and accountabilities over protection of drinking water in the Province of British Columbia. At the request of Cabinet, we assessed the effectiveness of performance management and accountability processes in place that support the province's drinking water resources. We also assessed progress achieved in implementing the actions outlined in "The Action Plan for Safe Drinking Water in British Columbia" (action plan) and the subsequent progress report.

The action plan was announced in June 2002, to ensure that: leadership and accountability exist in the drinking water system; drinking water is protected from source to tap in the most effective manner possible; small drinking water systems have adequate checks and balances to ensure ongoing quality and supply; and, the system produces safe and affordable drinking water. In February 2007, the Provincial Health Officer (PHO) made 18 recommendations in the report entitled "Progress on the Action Plan for Safe Drinking Water in British Columbia".

While the Ministry of Healthy Living and Sport (MHLS) and Health Authorities (HAs) share responsibility for the action plan, the responsibility for drinking water protection resides across the government. Accordingly, the Ministries of Environment, Community and Rural Development, Forests and Range, Energy, Mines and Petroleum Resources, Agriculture and Lands, and Transportation and Infrastructure have roles and responsibilities to ensure that their activities, and those of their clients, adequately protect drinking water.

Overall, we found significant progress has been achieved in implementing key requirements outlined in the action plan and drinking water programs are in place across the province. However, we found that there are also some significant accountability gaps at the provincial and regional levels that create risks to public health.

We also found that there has been limited progress achieved in addressing the 18 recommendations contained in the PHO progress report on the action plan issued in 2007. Greater inter-agency coordination and integration of activities is required on critical issues such as watershed planning and source water protection, drinking water information management, water system assessments, increasing the capacity of private water systems and the development of strategies to discourage the proliferation of small water supply systems.

Legislation and Regulations

While the *Drinking Water Protection Act* (DWPA or the Act) and regulation provide an effective framework for drinking water protection, it does allow for a high degree of interpretation and inspector discretion, creating the potential for misinterpretation and inconsistency of application at the health inspector level. MHLS should take a lead role in the interpretation of statutory requirements to ensure greater clarity and consistency.

Leadership and Accountability

While there are well developed drinking water programs in all the HAs, we found that leadership and accountability could be increased through the development of drinking water strategic plans with goals, objectives, strategies and clear, reportable performance measures that are aligned with the action plan.

Coordination and Cooperation

We did find examples of effective inter-agency coordination. However, there is a need to increase coordination and cooperation between ministries and agencies involved in drinking water protection, in particular with respect to source water protection. Inter-ministry referral and consultation should also be improved as part of ministry and agency approval processes to ensure water demand and supply issues are given appropriate consideration.

Monitoring and Assessment

Water monitoring and assessment activities are in place in all regions of the province. However, based on our review, we found low levels of compliance with regulatory requirements and controls such as water sampling requirements, terms and conditions on operating permits, risk assessments, inspections, hazard ratings, and emergency response plans. Enforcement and quality assurance initiatives can help to strengthen controls and increase compliance.

Small Water Systems

While drinking water teams attempt to be as flexible as possible in their dealings with small water systems, small water systems are the principal operational risk for HAs: their prevalence, geographical remoteness, lack of capacity and level of non-compliance with regulatory requirements combine to make the management of these systems very problematic resulting in risks to water quality. A number of strategies could be adopted to reduce the challenges faced by small system operators.

Funding

A Federal / Provincial Infrastructure funding program is in place, however it is only available to local and regional governments and funding for private water systems continues to be a challenge across the province. As a result, BC citizens served by small and mid-size water systems continue to face public health risks posed by drinking water quality. More effective use of funding resources should be considered.

Recommendations to address these issues are contained in this report and a detailed discussion of the issues has been carried out with management and staff of the HAs, MHLS, and Ministry of Environment (MoE). Our findings have also been presented to the Assistant Deputy Ministers' Committee on Water.

We wish to express our appreciation to staff from the HAs and all ministries for their cooperation and assistance during the course of this review.



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Introduction

As part of the 2008/09 audit plan, Internal Audit & Advisory Services was requested by Cabinet to “conduct a review of the province’s water resources plan; review progress and accountabilities over planning for the province’s water resources, including a review of the processes and accountabilities over the Drinking Water Protection Program.” As the announcement of the *Living Water Smart* strategy coincided with our review, we focused our engagement on the management of drinking water resources across the province.

The action plan for Safe Drinking Water in British Columbia (action plan) was announced in June 2002, to ensure that: leadership and accountability exist in the drinking water system; drinking water is protected from source to tap in the most effective manner possible; small drinking water systems have adequate checks and balances to ensure ongoing quality and supply; and the system produces safe and affordable drinking water.

Our review included assessing whether the intended benefits of the action plan have been achieved. These intended benefits are:

- Stronger and more effective legislation and regulations that places public health as the first priority.
- Improved leadership and accountability.
- Better coordination and co-operation between agencies involved in providing drinking water.
- Increased and more effective monitoring and assessment of local drinking water systems.
- Flexibility that recognizes the unique challenges involved in operating and maintaining small water systems.
- A commitment to funding improved and expanded services in a way that is fair, workable and affordable.

In February 2007, the Provincial Health Officer (PHO) released a report entitled “Progress on the action plan for Safe Drinking Water in British Columbia”. This report covered progress from inception of the *Drinking Water Protection Act* (DWPA) and regulation in May 2003 to March 2005 and included 18 recommendations intended to address safe drinking water for all British Columbians.

While the Ministry of Healthy Living and Sport (MHLS) and Health Authorities (HAs) share responsibility for the action plan, the responsibility for drinking water protection resides across the government. Accordingly, the Ministries of Environment, Community and Rural Development, Forests and Range, Energy, Mines and Petroleum Resources, Agriculture and Lands, and Transportation and Infrastructure have roles and responsibilities to ensure that their activities, and those of their clients, adequately protect drinking water.

Purpose

The purpose of this engagement was to conduct a review of the progress, processes, and accountabilities over protection of drinking water in the Province of British Columbia.

Objectives and Scope

The engagement scope and objectives were to:

- determine whether the province's drinking water resources are supported by an effective performance management and accountability framework; and
- assess progress achieved in implementing the actions outlined in the action plan and the subsequent progress report.

The Ombudsman conducted a review of the complaints processes in the report "Fit to Drink: Challenges in Providing Safe Drinking Water in British Columbia" issued in June 2008. Consequently, we did not review the complaints process or boil water advisory processes.

Fieldwork was conducted between September and December 2008 and included interviews with management and staff from the five HAs, MHLS and with ministries responsible for protecting drinking water sources, as well as a review of drinking water program legislation and regulations, plans, policies procedures and reports.

Observations and Recommendations

Overall, we found significant progress has been achieved in implementing key requirements outlined in the action plan and drinking water programs intended to protect drinking water are in place across the province.

However, there are also some significant accountability gaps at the provincial and regional levels that create risks to public health. The MHLS, in collaboration with its action plan stakeholders, needs to take steps to increase the effectiveness of performance management and accountability of the drinking water legislation, regulations and program plans and policies to mitigate risks to drinking water quality, in particular, those risks associated with source water protection and with small and mid-size water systems.

We also found that there has been limited progress achieved on the PHO's 18 recommendations outlined in the Progress Report on the action plan issued in 2007. Greater inter-agency coordination and integration of activities is required on critical issues such as watershed planning and source water protection, drinking water information management, water system assessments, increasing the capacity of private water systems and the development of strategies to discourage the proliferation of small water supply systems. We have been advised that a new PHO report is anticipated to be publicly released in March 2009 to update the status of the recommendations as well. Appendix A is a summary of our findings regarding progress on the recommendations.

1.0 Legislation and Regulations

Based on our review, we found the DWPA and regulation provide an effective framework for drinking water protection. However, the framework also provides for a high degree of inspector discretion and interpretation creating the potential for misinterpretation and inconsistency of application.

We also found that the *Groundwater Protection Regulation* does not adequately regulate groundwater consumption.

Further, we found a patchwork of legislation and regulations across government resulting in a fragmented approach that may not adequately address drinking water protection at all times.

1.1 Drinking Water Protection Act

The DWPA and regulation came into force in May, 2003 in response to the action plan. While the regulatory framework is a sound basis for drinking water protection, we found ambiguity in a number of sections of the *Act* and regulations, outlined below, resulting in operational challenges for inspectors and water system suppliers.

Definition of Potable Water

The definition of potable water in the *Act* is vague and the regulations may not protect drinking water from all hazards. The *Act* defines potable water in general terms as “safe to drink and fit for domestic purposes without further treatment”. The regulations prescribe standards limited to bacterial risks such as fecal coliform and total coliform bacteria, and *Escherichia coli*.

As a result, standards for other criteria, most notably chemical parameters such as arsenic and uranium which pose public health risks are not specified. This creates the potential for widely different interpretation of treatment standards from one inspector to the next and from one HA to the next. It is also difficult for approval authorities such as the Subdivision Approval Officers to determine that water is potable when high chemicals levels are present.

Treatment Standards

Language in the *Act* and regulations regarding treatment requirements and types of treatment standards is vague and may not address all health risks. For example, the regulations require the disinfection of drinking water when the source is surface water or groundwater that, in the *opinion of a drinking water officer*, is at risk of containing pathogens. Further, the *Act* authorizes inspectors to include in an operating permit terms and conditions the official considers “*advisable*”, such as treatment requirements and standards.

This results in a high level of discretion, heavy reliance on the judgment of inspectors, and inconsistency in treatment requirements. In addition, inspectors may have difficulty enforcing the ambiguous language.

Water System Definition

A water supply system is defined in the *Act* as any domestic system other than a system that serves a single family residence. The definition creates the following challenges for HAs:

- confusion in classifying strata titles - Based on the definition a strata title property would be considered a water supply system even if the strata is served by a water supplier such as a regional district. An Order-in-Council effective December 31, 2008 now excludes strata corporation systems that receive water from a water supply system from the definition of a domestic water system in the DWPA;
- confusion in classifying single connections such as gas stations as water systems; and
- a large number of very small systems resulting in significant workload impacts for HAs.

Operating Permit Requirements

Operating permits are issued inconsistently across the HAs. In some cases, inspectors issue permits when they become aware of a system. In other cases, the inspector will not issue an operating permit until the water system meets the treatment requirements specified by the HA. As a result water systems continue to operate without meeting legislated requirements (including sampling). HAs and MHLS should provide clarification on the requirements and a consistent approach to deal with these systems.

Environmental Operators Certification Program

Certification requirements under the regulations are redundant for the larger water system operators. Level 4 of the Environmental Operators Certification Program (EOCP) is required for larger water systems that have professional staff such as engineers who may already meet or exceed EOCP skill and knowledge requirements.

Other Issues

Definitions of water system size, and resultant water treatment standards and sampling frequency requirements, are unclear in the Act and regulation.

The size of water systems in the regulations are defined on the basis of both number of connections and size of population served. Further, the regulations define a small system as one serving less than 500 people during any 24 hour period however, they reference a population of 5,000 people to set minimum sampling requirements.

This results in the risk that inadequate treatment and water sampling may be applied to a small system that serves a large population. For example, a single connection such as a day use area has no fixed population therefore minimal treatment and sampling requirements, yet may serve large numbers of people over 24 hour period.

Public reporting requirements for system operators are unclear and both inspectors and operators do not know what should be reported and how.

The sampling requirement of four samples per month creates the potential for inappropriate sampling protocols for small and mid-size systems. For example, operators could meet this requirement by taking four samples in one day rather than one sample a week which would be a superior measure of water quality and public health protection.

Overall, the lack of clarity in the DWPA and regulation creates the risk of inconsistent application of statutory requirements from one HA to the next and even from one inspector to the next.

Recommendation

- (1) **MHLS should take a lead role in the interpretation and application of statutory requirements to ensure greater consistency across the province.**

1.2 Groundwater Protection Regulation

The *Groundwater Protection Regulation* does not adequately protect the quality and quantity of drinking water. It focuses on technical specifications and construction standards and does not regulate the consumption of groundwater. As a result, anyone can drill and potentially deplete an aquifer creating risks to groundwater quantity and quality. We were advised that the Ministry of Environment (MoE) is currently developing new *Groundwater Protection Regulations* to strengthen protection of groundwater sources.

Recommendation

- (2) **MoE should amend the *Groundwater Protection Regulation* to protect groundwater sources.**

1.3 Statutory Framework across Government

There are numerous separate pieces of legislation and regulations across different ministries that contain requirements intended to address and support drinking water protection, and no single ministry has the sole mandate for source water protection, although some ministries do carry out water monitoring protocols. This patchwork of legislation and regulations reinforces competing mandates and priorities across government and drinking water issues may not always be a top priority in the decision making process.

For example, The *Land Act* does not currently require water planning, including analysis of water demand, supply, availability and flows, as part of the Crown Land Tenure process.

As a result, the impacts of land use tenures on drinking water sources, is not always considered.

There are limited provisions for water protection under the *Water Act*. Water Management Plans may be developed on ministerial order, however generally only as a measure of last resort. As a result, the MoE relies on other ministry legislation and frameworks such as the DWPA and the *Forests and Range Practices Act* (FRPA). Moreover, we were advised that the ability to enforce outcome based legislation, such as FRPA, is challenging given the difficulty in determining whether an adverse impact is natural or man-made and to prove cause and effect.

The Community Watershed Designation under FRPA is limited to forestry activity impacts on drinking water and does not consider the impacts resulting from multiple land uses such as agriculture, mining, road construction and recreational use on drinking water sources.

Given the numerous pieces of legislation and regulations and resultant mandates, ministries need to coordinate and communicate their activities in a timely way to ensure that ministry decisions consider drinking water impacts. The Assistant Deputy Ministers' Committee on Water (ADMC-Water) is an appropriate forum for this leadership. The ADCM-Water should provide leadership across government to ensure that activities and decisions are coordinated and that impacts on drinking water are mitigated.

Recommendation

(3) The ADCM-Water should ensure ministry decisions address drinking water protection.

2.0 Leadership and Accountability

We found that leadership and accountability within HAs could be increased through the development of drinking water strategic frameworks with plans that contain goals, objectives and strategies that support the action plan. We also found there is a need for performance measurement processes that are in alignment with the action plan, and for clearer roles and responsibilities for the development of program policies and guidelines.

Finally, we found there are opportunities for the Drinking Water Leadership Council (DWLC) and the ADCM-Water to show leadership by focusing on critical issues facing drinking water teams across the province.

2.1 Strategic Framework

There are well developed drinking water programs in all the HAs, however they are not always supported by a strong strategic framework with operational plans, objectives, strategies and performance measures. Only one HA had a multi-year strategic plan that was clearly linked to the action plan. Well developed program frameworks ensure drinking water team members have clear direction in the execution of drinking water program activities and in priority setting thereby reducing risks to water quality.

All HAs have, or are completing, a gap analysis and a Performance Improvement Plan (PIP) with performance indicators for their drinking water program. Going forward, the PIP should be used as the guiding document for developing a strategic framework which should be linked to the action plan. This can help to ensure critical issues are adequately addressed and highest risk water systems are inspected at the appropriate frequency.

MHLS has not yet developed a drinking water strategic plan. This presents an opportunity for the ministry to further define their stewardship role, provide leadership to the HAs, and to focus on key issues that impact drinking water quality and quantity.

The Water Stewardship Division within the MoE has recently completed a strategic plan that includes drinking water protection strategies and activities. As multiple ministries are involved in drinking water protection, the plan should be shared with other agencies and partners.

2.2 Performance Measures

The ability to measure performance and results achieved is key to demonstrating accountability as well as continually improving the program. We noted inconsistency of measures, lack of alignment of performance measures between different plans and lack of awareness of key performance measures among drinking water team members.

Further, we observed the potential for multiple sets of performance measures: PHO reporting measures, measures contained in local and regional work plans, Ombudsman Report follow-up measures (e.g. boil water advisories and complaints) and the measures outlined in PIPs. In consultation with MHLS, HAs should focus on identifying a few key, meaningful, achievable and reportable performance measures that can be used to assess and demonstrate progress.

We found that the information systems used by the HAs have limited ability to support performance measurement including levels of water system compliance with regulatory requirements. As a result, HAs rely on ad-hoc reporting creating the potential for incomplete and inaccurate reporting. The Population and Public Health Division within MHLS is currently developing a strategic plan for information systems and management which should facilitate the coordination and reporting of water data across government. Resourcing for systems should be a priority for MHLS, and the ministry should ensure that new systems adequately support performance measurement, risk management, continuous improvement and that it meets internal and external reporting needs.

Recommendations

- (4) HAs and MHLS should develop drinking water strategic plans with objectives, strategies and clear, reportable performance measures that are in alignment with the action plan.**
- (5) MHLS should ensure that the new information system adequately supports performance measurement, risk management, continuous improvement and meets internal and external reporting needs.**

2.3 Policies and Guidelines

HAs have developed a number of policies, procedures and guidelines in response to operational issues. Some of these policies are provincial in scope, such as progressive enforcement, water treatment standards, Conditions on Operating Permits, and uranium, arsenic and turbidity guidelines. Where operational issues are provincial in scope, MHLS should lead and/or coordinate their development.

It is unclear whether these policy and guidelines documents are shared with MHLS and other HAs. This creates the risk of policy gaps, inconsistencies and duplication of activities within the HAs. MHLS should coordinate the sharing of all policy and guidelines across HAs.

The mandate of the DWLC is to provide leadership to HAs by promoting the delivery and application of coordinated, streamlined, and consistent approaches to service delivery and drinking water issues. The DWLC has a SharePoint web site to exchange information, however not all policies and guidelines are posted. The DWLC should ensure meaningful program information is posted and their SharePoint site is accessible to drinking water team members and other key stakeholders.

Recommendations

- (6) **MHLS should take a lead role in policy development and in sharing policy and guidelines across HAs.**
- (7) **The DWLC should ensure their SharePoint site is current and accessible to key stakeholders**

2.4 Shared Leadership and Accountability

The protection of drinking water quantity and quality is an issue requiring leadership and accountability across multiple ministries. Given the criticality of drinking water to public health, its protection should involve a clear accountability framework with senior level support, and which includes well-defined and agreed-upon objectives, shared planning and shared risks, sharing of authority and responsibility for results achieved, and accurate and reliable reporting of results.

Committees

Various inter-ministry committees (ADMC-Water, Directors' Committee on Drinking Water and Regional Drinking Water Teams) are in place to provide leadership on drinking water quality and quantity issues. However, their progress is limited on critical issues such as the management of risks associated with small and mid-size water systems, utilization of effective risk-based inspection approaches, completion of source to tap assessments on the highest risk water systems, and strategies to assure watershed protection. The ADCM-Water is well positioned to provide leadership to ensure a clear accountability framework is in place and that key issues are addressed.

Recommendations

- (8) **The ADCM-Water should ensure a clear accountability framework is in place and that key issues are addressed.**

3.0 Coordination and Co-operation

While we did find examples of effective inter-agency coordination, overall there remains a need to increase the coordination and cooperation between ministries and agencies involved in drinking water protection, in particular with respect to source water protection. We also found ministries' roles and responsibilities regarding source water protection are not always clearly defined, and there has been limited progress achieved in implementing source-to-tap assessments across the province. The establishment of Regional Drinking Water Teams in all HAs should assist in improving awareness, coordination and co-operation among all stakeholders.

3.1 Interagency Coordination

During our fieldwork, we identified examples of effective interagency integration and coordination across the province including a nitrate study conducted in the Fraser Valley, a well tagging initiative underway with MoE in each HA, and integrated watershed management activities such as the Langley Watershed Management Plan, Kiskatenaw Watershed protection activities, the Regional District of Nanaimo Watershed Protection action plan and the Greater Vernon Water System. MHLS has an opportunity to build on the success of these initiatives, and to foster additional inter-agency activities by facilitating the exchange of information on local/regional initiatives across HAs.

Inter- ministry Referral and Consultation

There is a need to improve inter-ministry referral and consultation processes such that relevant information and data is considered as part of agency approval processes. This can help to ensure water quality and quantity issues are given appropriate consideration. Referral and consultation processes should be formalized and routinely implemented on land tenure and water license applications, mining exploration permits, and the subdivision approval process. In addition, high level planning processes such as forest management plans, land and resource management plans and sustainable resource management plans should clearly consider impacts of commercial and recreational activities on drinking water and should include strategies to mitigate risks.

Recommendation

- (9) Ministries and agencies should formalize and routinely implement referral and consultation processes on activities that may impact drinking water.**

3.2 Regional Drinking Water Teams

Regional Drinking Water Teams composed of HA and various ministry representatives, have been established in each of the HAs. Four of the five teams are still in the formation stage and need to clearly define their mandate. Presently, inter-ministry activities tend to be reactive in response to emerging issues affecting drinking water and should be more strategic to ensure a more targeted approach to addressing key risks to drinking water quality and more effective integration of activities. As part of their stewardship role, MHLS should ensure all teams should undertake strategic planning to identify priorities and develop strategies that will address them. Further, MHLS should ensure that teams establish accountability mechanisms to track the achievement of progress.

Various ministries also have roles and responsibilities for drinking water protection. As discussed in section 1.3, the numerous pieces of legislation and various ministry mandates make it a challenge. Regional Drinking Water Teams present an opportunity to increase the communication, coordination and integration of activities with other ministries, in particular at the inspector level, in order to ensure that risks to specific water systems are mitigated. Pro-active approaches to drinking water protection planning involving ministries and stakeholders should also be considered.

There may also be opportunities to increase the effectiveness of Regional Drinking Water Teams by giving consideration to the structure and make-up of these teams. For example, sub-regional teams could be created to address local issues and representatives from relevant ministries, municipalities and regional districts should be engaged.

Recommendation

(10) MHLS and HAs should:

- **develop local strategic plans and priorities; and**
- **create sub-regional teams to address local issues and engage municipalities and regional districts.**

3.3 Source Water Protection

The roles and responsibilities for source water protection within MoE and MHLS are not clear, and capacity issues have limited the effectiveness of source water protection activities.

The action plan states that MoE is responsible for source water quality standards, as well as monitoring, compliance and enforcement activities. However, the government re-organization announced in June 2008 has resulted in the shifting of some of these responsibilities between MoE and MHLS. The current re-structuring exercise within the two ministries is an opportunity to clarify roles and responsibilities for source water protection including regional and local level responsibilities.

Based on our review, the establishment of water quality objectives and their monitoring and the development of compliance and enforcement strategies have been limited as a result of capacity issues within MoE. Again, the current re-structuring within the two ministries is an opportunity to redress this.

Recommendation

(11) MoE and MHLS should clarify respective roles and responsibilities for source water protection activities.

3.4 Source-Tap-Assessment

The action plan states “all drinking water systems in British Columbia will undergo a Source-to-Tap assessment starting with those that may pose the highest risk to users”. The Source-to-Tap assessment envisioned in the action plan requires a high degree of inter-agency coordination. Currently, source-to-tap assessment requirements remain unclear and there has been minimal progress achieved on the province wide Source-to-Tap assessment.

A comprehensive Source-to-Tap assessment tool was developed, however due to its complexity and cost; it has not progressed beyond the pilot stage. As MHLS finalizes the assessment tool, it should ensure it is both practical and affordable. Given that province wide source-to-tap assessments are a cross government issue, MHLS should take a lead role in engaging other ministries in moving this forward.

Recommendation

(12) MHLS should finalize the Source-to-Tap assessment tool, and take a lead role in engaging other ministries to implement source-to-tap assessments.

4.0 Monitoring and Assessment

Based on our review, we found that water monitoring and assessment activities are in place in all regions of the province and the number of inspections has increased in three of the five HAs. However, we found low levels of compliance with regulatory requirements, in particular, water sampling. We also found weaknesses with key control activities including risk assessments, inspections and file documentation. The implementation of progressive enforcement procedures, quality assurance processes and risk based approaches can strengthen the controls and serve to increase compliance with requirements.

4.1 Compliance with Drinking Water Protection Act Requirements

We reviewed 120 HA water supply system files and found a low level of compliance with the requirements of the DWPA. Table 1 below summarizes these results:

Table 1: Compliance with DWPA Requirements

DWPA Requirements	% of Water Systems in Compliance
Must have a valid operating permit	82%
Must comply with all terms and conditions on operating permit	47%
Must have a written emergency response and contingency plan which must be made public	40%
Must monitor water by sampling at a frequency prescribed in the regulations or on the operating permit	37%
Must make public results of monitoring by preparing an annual report of the results of the monitoring	9%

Low levels of compliance may be due to inconsistent practices resulting in incomplete and inadequate documentation on files. Implementing a quality assurance function consisting of on-going practice and file reviews can promote continuous quality improvement and consistency of practice, completeness of documentation and increase compliance with regulatory requirements.

Water Sampling

The low level of compliance with water sampling requirements is compounded by the lack of timely reporting of water system compliance. Currently the information systems used by the HAs do not have the capability to track compliance with water sampling and inspectors may not know when samples are not submitted. The new information system currently under development should enable inspectors to track water system compliance with sampling requirements.

We found that in some HA regions, inspectors rather than the water system operators conduct monthly sampling, creating the potential for liability risks to the HA (for example if the sampling frequency requirements are not met).

We also found that transporting water samples from remote locations to the testing facilities on a timely basis are a challenge for the Northern and Interior HA regions as samples may not be received by the lab within the required 30 hour period.

This is compounded by the shortage of approved lab facilities, most notably in Fort St. John, the Cariboo and the Kootenays.

Violation Tickets

In spite of the low levels of compliance, tickets are rarely issued for drinking water violations under the DWPA. We were advised that inspectors have taken a coaching and training approach since the introduction of the legislation and they are now planning a more a progressive enforcement approach to violations to ensure a higher level of compliance with statutory requirements.

To strengthen the new approach, consideration should be given to the development of compliance and enforcement performance targets and measures including the monitoring and reporting of results.

4.2 Risk Based Approach

Drinking water teams conduct water monitoring and assessment activities following a risk based approach. Water systems are assigned a risk rating and hazard rating based on factors such as population served, source of the water, water treatment, and operation and maintenance history of system.

There is also a heavy reliance on drinking water team members' knowledge of local conditions and their professional judgement.

We found multiple issues related to the risk-based approach:

- The frequency of inspections was not based on level of risk, rather three of the five HAs target annual inspections on all water systems.
- Risk tools are primarily workload prioritization tools and may not adequately capture public health risks.
- Definitions of risks are unclear and weightings of risks may be inaccurate.
- Compliance with water sampling requirements does not appear to be considered in the risk assessment tool.
- Risk assessments are not consistently completed on all systems across the province (only 66% of files we reviewed had risk assessments completed).
- There are different risk ranking tools used in each HA.

These inconsistent risk management practices result in the potential for public health risks. MHLS, in consultation with HA's, should take steps to strengthen risk-based policies and procedures and consider modifying the risk assessment tools, or developing new tools, to reduce the degree of subjectivity and provide assurance that the most critical risks are identified and accurately assessed.

4.3 Inspection Activity

Based on HA data obtained in our review, the number of inspections (as a percentage of all systems) has risen in three of the five HAs since the release of the action plan. However, as inspection activity is not risk based, there is no assurance that the highest risk water systems were inspected more frequently than lower risks systems.

Further, we found that inspection targets, whether risk-based or volume-based (annual) are not being achieved. Where volume-based, less than 75% of systems reviewed had an on-site inspection during the previous 12 months. Where risk-based, less than half of the systems reviewed had an on-site inspection during the previous 12 months, and 11% of files demonstrated no evidence of on-site inspection the past three years. As a result drinking water risks on these systems may not be identified.

As discussed in the previous section, HAs and MHLS should take steps to strengthen risk-based policies and procedures. Further, this could be supplemented by a quality assurance function to monitor effectiveness and results achieved.

Recommendations

- (13) HAs should implement a quality assurance function and consider setting performance measures for compliance with regulatory requirements.**
- (14) MHLS, in consultation with HAs, should consider developing risk-based policies, procedures and tools.**

5.0 Small Water System Flexibility

Based on our review, we found that small water systems, defined in the *Drinking Water Protection Regulation* as serving up to 500 individuals during a 24 hour period, are problematic across the province as a result of technical and financial shortfalls resulting in risks to public health.

We also found that drinking water teams attempt to be as flexible as possible in their dealings with small water systems and work with system operators to develop meaningful, practical and affordable strategies to mitigate risks to drinking water where feasible. Finally, we found that there are opportunities to address risks by adopting strategies to assist small water systems and reduce the number of small systems.

5.1 Small System Challenges

Small water systems are the principal operational challenge for most HAs. There are a large number of them: based on the system data reports we reviewed, approximately 3,600 systems of the 4,100 systems serve less than 500 people. Many are in geographically remote locations. These systems may also lack financial and operator capacity to upgrade. These factors, combined with limited HA resources, result in a high level of non-compliance with regulatory requirements and make the oversight of these systems very problematic.

5.2 Small System Strategies

We found that there are some opportunities for HAs and ministries to address small water system issues which could result in greater maximization of drinking water resources. These opportunities include:

- Public education and tools including business planning targeted at small water systems to foster increased autonomy and to assist with long term financial plans to upgrade their infrastructure.
- Coaching on the multiple barrier approach to treatment, also to foster increased autonomy as well as to ensure that water systems understand the health risks of not upgrading their system from one source of disinfection (such as chlorine) to a multiple barrier approach such as including filtration and ultra violet treatment.
- Accurate risk rating of systems and caseload analysis leading to the development of HA inspection plans based on high, moderate and low risks.
- Rigorous HA procedures to track water sampling compliance on a timely basis.
- Financial assistance for small systems such as low interest loans, rebates or other incentives (including for point of entry/point of use devices) could serve to mitigate water quality risks.
- Ministry of Community and Rural Development (MCRD) continuing encouragement of amalgamation of small water systems with larger municipal water systems, wherever possible, through infrastructure program funding in an effort to reduce the number of small systems.

- Regional District engagement in small water system planning to encourage local governments to provide water service to new areas being developed and, wherever possible, areas currently served by small systems.
- Changes to MCRD legislation and/or policy and Ministry of Transportation and Infrastructure (MoTI) subdivision approval processes to discourage small system creation.

Recommendation

(15) HAs, MHLs, MCRD and MoTI should adopt strategies to reduce the challenges facing small systems.

6.0 Funding

Based on our review, we found that funding for private water systems continues to be a challenge across the province as Federal / Provincial Infrastructure funding, the primary vehicle for water system upgrades, is available only to local and regional governments. As a result, BC citizens served by small and mid-size water systems continue to face public health risks posed by drinking water quality.

We also found that there are opportunities to improve the level of integration of HA and MCRD activities which can serve to maximize funding.

As a means of addressing funding challenges, MCRD actively encourages amalgamation of areas served by small and mid size water systems with local governments and regional districts. MCRD should continue this approach wherever possible.

Infrastructure Grants

As Federal / Provincial Infrastructure funding is available only to local governments and regional districts, access to financing and funding for infrastructure improvements continues to be an issue for small and medium size water systems, most notably Irrigation and Improvement Districts in the interior, which can supply water for up to 20,000 residents.

MCRD should examine the criteria for water system infrastructure funding including alternatives to provide financial assistance to upgrade those systems that do not currently qualify for funding.

We also found there is no formal integration of HA and MCRD activities with respect to water systems. For example, those water systems which were identified by HAs as high risk systems based on inspections, risk and hazard ratings, and water sample results, should

be communicated to MCRD and should be given priority for infrastructure funding.

MCRD and the HAs should take a coordinated approach in prioritizing requests for funding to target funding to the highest risk systems.

Recommendations

- (16) MCRD should examine the criteria for water system infrastructure improvement funding.**
- (17) MCRD and the HAs should coordinate their activities to target funding to the highest risk systems.**

Appendix A – Progress Achieved on Provincial Health Officer’s Recommendations

As part of our review we assessed progress achieved in addressing the recommendations made in the Progress Report¹ on The action plan for Safe Drinking Water in British Columbia. Below are our observations.

Recommendations from the Office of the Provincial Health Officer.	Observations
<p>RECOMMENDATION 1</p> <p>Provincial and federal government commitments to the Environmental Farm Plan Program should remain a priority, with a target of all farms participating in the program.</p>	<p>Progress has been achieved.</p> <ul style="list-style-type: none"> The Environmental Farm Plan Program continues to be funded and the number of farms participating in the program has exceeded the target for 2006/07. Target was 800 farms develop plans and total of 1,565 farms have developed plans. (Source: PHO progress report draft 2008).
<p>RECOMMENDATION 2</p> <p>The MoE should continue to expand its activities to support drinking water officers in meeting government’s source protection commitments and report out to the public on its activities. Staff at the regional level should have a clear understanding of their role in providing support to water suppliers and drinking water officers in their source protection activities.</p>	<p>Limited progress achieved.</p> <ul style="list-style-type: none"> We were advised that lack of resources in MoE is a barrier to expanding activities for source water protection. MoE has hired Source Protection Officers in some regions. The roles and responsibilities of staff at the regional level with respect to providing support to water suppliers and drinking water officers regarding source protection activities remain unclear. With the recent re-organization of MHLS, there is an opportunity to ensure that the roles and responsibilities of both MHLS and MoE regarding source water protection are clarified.
<p>RECOMMENDATION 3</p> <p>To ensure comprehensive management of BC’s drinking water sources, especially where water quantity is threatened, government should introduce legislation requiring the licensing of groundwater extraction and restricting access to groundwater where aquifers are being over-used. Groundwater licensing should complement surface water licensing.</p>	<p>No progress achieved.</p> <ul style="list-style-type: none"> Groundwater usage is not regulated. The <i>Groundwater Protection Act</i> does not adequately protect quality and quantity of water as we were advised that anyone can drill and potentially deplete an aquifer. MoE is considering amendments to the <i>Groundwater Protection Act</i>.
<p>RECOMMENDATION 4</p> <p>Government should improve monitoring of the impacts of resource activities on drinking water sources to ensure adverse impacts on water quality can be identified. Clear responsibilities for monitoring need to be established and the parties responsible for adverse impacts on water supplies should be held accountable.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> Ministry of Forests and Range has the Forest and Range Evaluation Program (FREP). Under FREP, a range of Resource Value Indicators (RVIs) have been identified and water quality indicators used to identify logging activity impacts on water quality have been monitored in all forest districts on a pilot basis this year, and will become routine going forward. The action plan states that the MoE is responsible for source water quality standards, monitoring, compliance and enforcement. Based on our review, the establishment of water quality objectives and their monitoring by MoE is limited as a result of capacity issues within the ministry. As well, there is no compliance and enforcement strategy targeting source water protection. As there are limited provisions for water protection under the <i>Water Act</i> and as a result MoE relies on the legislation of other ministries (e.g. DWPA, Forests and Range). Moreover, we were advised that the ability to enforce outcome based legislation is challenging given the difficulty in determining if impacts on water supplies are due to activity in the watershed or natural variation, to prove cause and effect and determine responsibility for adverse impacts. The current re-structuring across MoE and MHLS may be an opportunity to clarify roles and responsibilities for these functions.

¹ Progress on the Action Plan for Safe Drinking Water in British Columbia, Office of the Provincial Health Officer, February 2007 for the years 2003/2004 and 2004/2005

Recommendations from the Office of the Provincial Health Officer.	Observations
<p>RECOMMENDATION 5</p> <p>The MoE and Ministry of Agriculture and Lands should work to gain a better understanding of how different land use practices can influence drinking water sources.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • Integrated Land Management Branch (ILMB) refers and consults with HAs on crown land tenure and water license applications impacts on drinking water issues. • ILMB facilitates the development of Land and Resource Management Plans (LRMP) and Sustainable Resource Management Plans (RMP) across the province. LRMPs are a high level strategic document without a lot of specific operational considerations. • ILMB completed the Corporate Watershed Base in 2007/08 which provides a single hydrographic network for the province and is used to facilitate crown land planning decisions (ILMB Service Plan). • ILMB leads regionally-based Inter-Agency Management Committees to coordinate government interests in the management of natural resources.
<p>RECOMMENDATION 6</p> <p>Government should complete the process for water management plan development to include groundwater and surface water source areas. This process should accommodate formal planning under both the <i>Water Act</i> and the DWPA, as well as planning occurring outside of a statutory decision. Where source water assessments show drinking water sources to be at risk from land use, or where source contamination has led to water quality advisories or identified outbreaks. Watershed management plans should be developed.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • Some watershed management plans and activities have been developed: • Langley Watershed Management Plan. • A Water System Assessment under DWPA was ordered for Comox Lake which may result in a Drinking Water Protection Plan. This would be the first one in the province. • Regional District of Nanaimo Watershed Protection action plan. • Greater Vernon District. • Kiskatenaw watershed protection activities. • While some progress has been achieved, overall in the province there have been very few plans developed.
<p>RECOMMENDATION 7</p> <p>The systematic collection of better information about drinking water quality conditions in the province is needed. The drinking water information management project needs to be completed to ensure drinking water officers and the PHO has ready access to all data needed to administer and report on activities under the DWPA. These data include those needed to hold water suppliers, drinking water officers and the government accountable through public reporting.</p>	<p>Limited progress achieved.</p> <ul style="list-style-type: none"> • We found that the information systems used by the HAs have limited ability to support performance measurement including levels of compliance and public reporting. • MHLS is working with the HAs to develop a new information system. MHLS should ensure that the new system planned adequately supports performance measurement, risk management, continuous improvement and meets internal and external reporting needs.
<p>RECOMMENDATION 8</p> <p>Where government activities affect the safety of drinking water; the decision makers responsible for the activity must ensure that they involve the appropriate health officials, either within the MHLS or within the regional health authority.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • Regional Drinking Water Teams have been established in each of the HAs, which should serve to strengthen inter-ministry coordination and cooperation on drinking water issues. Four of the five teams are still in the formation stage and need to clearly define their mandate. Presently, inter-ministry activities tend to be reactive in response to emerging issues affecting drinking water and could be more strategic to ensure stronger integration of activities. • There is a need to improve inter-ministry referral and consultation processes such that relevant information and data is considered as part of agency approval processes to ensure water demand and supply issues are given appropriate consideration. Referral and consultation processes should be regularized on land tenure and water license applications, mining exploration permits, subdivision approval process, forest management plans, land and resource management plans, and sustainable resource management plans.

Recommendations from the Office of the Provincial Health Officer.	Observations
<p>RECOMMENDATION 9</p> <p>All ministries and government agencies should regularly review their activities in the context of government's commitment to an integrated approach to drinking water protection.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • The ADMC and the Directors Inter-ministry Committee on Drinking Water have been established to provide leadership. • The establishment of Regional Drinking Water Teams should also serve to strengthen communication and coordination to provide an integrated approach to drinking water protection.
<p>RECOMMENDATION 10</p> <p>All government policy decisions related to land use or water management which could have an impact on the province's drinking water program should be taken to the ADMC-Water to ensure that policy direction is consistent with the action plan. The work of the Committee should be made more transparent; its decisions should be made publicly available.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • The ADMC was established "to ensure an integrated approach to defining, developing, implementing and evaluating water policies, plans and programs across government, oversee the development and implementation of the provincial water strategy, and make recommendations to Deputies Committees, Caucus Committees, Cabinet and Treasury Board as required". (Source: TOR). • Land use and water management issues have been taken to the ADM committee for information and awareness (e.g. Chapman Creek, Comox Lake). Ministries at the committee meetings also provide potential issues and updates on policies and initiatives related to water.
<p>RECOMMENDATION 11</p> <p>All water suppliers need to undertake thorough assessments of their systems and develop assessment response plans. HAs need to ensure that all water suppliers have established time frames to complete the assessments. In evaluating assessment response plans HAs should require water suppliers relying on surface water sources to plan for treatment capable of achieving 99.99 per cent reduction in virus levels, 99.9 per cent reduction in protozoa levels and turbidity levels below 1NTU, through treatment processes involving at least two barriers, unless there is good justification, acceptable to the Drinking Water Officer, for not achieving those levels.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • Risk assessments are conducted by drinking water team members in the HAs and are not consistently done on all systems across the province. There are different risk ranking tools in use in each HA. There is heavy reliance on team member's local knowledge, professional judgment and expertise in lieu of a formal risk based approach. It is unclear what the risk assessment is used for with regards to informing DWO activities and decisions. The risk tools are primarily workload prioritization tools and do not adequately capture the public health risks. The risk assessment tools should be revisited (clearer definitions of risks and accuracy of the weighting) to reduce the degree of subjectivity and provide assurance that the most critical risks are identified and assessed. • Some HAs have implemented the Source-to-tap Screening Tool to assist water suppliers in conducting an assessment of their systems. • All HAs have policies and procedures in place regarding treatment standards. Currently the drinking water team members use a coaching approach to assist water suppliers in developing an action plan to meet the treatment requirements.
<p>RECOMMENDATION 12</p> <p>Government should consider options to improve access to funding support for public water supply systems that are currently ineligible for federal/provincial infrastructure assistance.</p>	<p>No progress.</p> <ul style="list-style-type: none"> • Federal / Provincial Infrastructure funding is available only to municipalities and regional districts. As a result, access to financing and funding for capital and operations continue to be an issue for small water systems as well as Irrigation and Improvement Districts.
<p>RECOMMENDATION 13</p> <p>Based on the needs identified by assessments and the requirements stipulated on operating permits, water suppliers should implement or expand treatment performance monitoring to include variables such as CT, filtration performance, turbidity, UV performance, pH and pressure regimes as appropriate.</p>	<ul style="list-style-type: none"> • Not reviewed. Out of scope as water suppliers were not consulted as part of our review.

Recommendations from the Office of the Provincial Health Officer.	Observations
<p>RECOMMENDATION 14</p> <p>To ensure all public water supply systems have improved access to laboratory testing of water samples, a broader network of approved laboratories should be encouraged.</p>	<p>Limited progress achieved.</p> <ul style="list-style-type: none"> • There are problems getting water samples transported from remote locations to the testing facilities on a timely basis, which is compounded by the shortage of BCCDC approved lab facilities (e.g. Fort St John, Kootenays). We were advised that the lab facilities in Fort St. John have been accredited but not approved by BCCDC.
<p>RECOMMENDATION 15</p> <p>Government should undertake to develop an accurate inventory of BC's small public drinking water supply systems and obtain all of the data identified as part of the drinking water information management project core data set. The drinking water information management project must be completed to ensure ready access to relevant information, as appropriate.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • Not all small water systems in BC have been inventoried. Small unidentified water systems may be operating without a permit and in some HAs identified systems that do not meet the drinking water treatment requirements also have not been granted an operating permit. • Vancouver Island Health Authority has implemented the drinking water information management project core data set (DWIMP), however the information systems currently used by the HA is unable to capture the information collected. We have been advised that a new information system is planned for all HAs.
<p>RECOMMENDATION 16</p> <p>Strategies should be developed to prevent the creation of new small water supply systems where other supplies could be expanded or existing supplies amalgamated. These strategies should include regulatory amendments that:</p> <ol style="list-style-type: none"> Prohibit the creation of multiple small water supply systems where one larger system could be developed. Facilitate extensions of local government boundaries to allow expansion of local government-owned water supply systems. Provide authority to require developers to connect new properties with existing adjacent water supply systems. 	<p>No progress.</p> <ul style="list-style-type: none"> • No legal authority exists to allow the province to prohibit the proliferation of small private systems during the subdivision process, nor to move them towards amalgamation or transfer of ownership to local government once they are created. (source: PHO progress report draft 2008) • HA drinking water team members have had some success in encouraging local governments to amalgamate small water systems into their existing municipal systems.
<p>RECOMMENDATION 17</p> <p>To follow up on the action plan, public drinking water system suppliers should engage their customers in fiscal planning for maintaining and upgrading their systems over the short and long-term. In addition, small water supply systems should be offered assistance to develop revenue streams to fund assessments, response plans and system upgrades.</p>	<p>Some progress achieved.</p> <ul style="list-style-type: none"> • HA drinking water teams across the province attempt to be as flexible as possible in their dealings with small water systems and work with system operators to develop meaningful, practical and affordable strategies to mitigate risk to drinking water where possible.
<p>RECOMMENDATION 18</p> <p>Rates for drinking water should reflect the true, long-term, costs of water treatment, distribution and water system operation, maintenance and monitoring. Revenue generated from charges for water should be reinvested in programs that promote awareness of water quality and quantity, protect water quality, improve public health and encourage sustainable water use to promote healthy communities.</p>	<ul style="list-style-type: none"> • Not reviewed. Out of scope as water suppliers were not consulted as part of our review.

Appendix B – Detailed Action Plan

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
1.0 Legislation and Regulations					
1.1 <i>Drinking Water Protection Act</i>					
	1.	MHLS should take a lead role in the interpretation and application of statutory requirements to ensure greater consistency across the province.	<p>MHLS to provide greater policy support and stewardship in application of DWPA and regulations.</p> <ul style="list-style-type: none"> • A new turbidity decision tree is being used as a trial by all HAs and will be expanded as MHLS implements new drinking water management system and accountability framework. • A decision on whether to adopt unique chemical parameters as drinking water standards in BC which would require mandatory sampling is underway. Canadian Guidelines for Drinking Water Quality will be used as the supporting framework. Development of the process for selecting appropriate parameters and mandating sampling for these criteria underway. Plan as follows: <ul style="list-style-type: none"> ➤ draft guideline; ➤ Consult with Regional Directors and Medical Health Officers; ➤ Policy addendums created and website updated; and ➤ Field tested and adjusted as necessary. • Review and development of provincial policy on 4-3-2-1-0 treatment. Goal is to ensure consistent policy is applied for treatment requirements with considerations for source water quality and other risk factors. • Draft OIC for requirements of drinking water “systems within systems” developed to replace current limited provisions for strata developments. Consultation with HAs underway. • Intergovernmental working group to assess and develop recommendations for management of small water systems formed. Terms of Reference developed and problem formulation draft completed. 	MHLS (Directors of Water and Health Communities)	<p>2009 (ongoing)</p> <p>Dec 2011</p> <p>June 2011</p> <p>ongoing</p>

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
1.3 Statutory Framework across Government					
	3.	The ADMC-Water should ensure ministry decisions address drinking water protection.	<p>Being addressed through the strengthening of the new MHLS drinking water management system and accountability framework, which will link to the ADM committee.</p> <p>The ADMC - Water committee was dissolved in summer 2009. The proposal is to have ADM-Water issues dealt with under the ILMB structure, through ADM-Committee on Integrated Land Management (ADM-CILM). The committee is responsible for providing senior-level recommendations on, or review of, policy and programs affecting the natural resource sector and ensures that any decisions requiring deputy-level approval are referred to the appropriate deputies' committee.</p> <p>ADM-CILM is also responsible for overseeing strategic water management issues and ensuring that regular agendas are set aside specifically to address water issues and these meetings would include the participation of the member from Healthy Living and Sport.</p> <p>The Directors Committee on Drinking Water has continued to meet and is chaired by MHLS. The committee is addressing drinking water protection, facilitating response/coordination with Regional Drinking Water Teams, and developing a small water system strategy. The Directors Committee will report up through ADM-CILM.</p>	MHLS (ADM) MOE support (ADM)	2010 ADM Water Committee to be rolled in under ILMB structure

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
2.0 Leadership and Accountability					
	4.	HAs and MHLS should develop drinking water strategic plans with objectives, strategies, and clear, reportable performance measures that are in alignment with the action plan.	<p>MHLS will work with HAs and link this to <i>performance improvement planning</i> process for HAs, and accountability framework for water.</p> <p><u>Health Authority actions:</u></p> <p>VCHA: Developed a Water Quality Performance Improvement Plan recommending main opportunities for improvement in the areas of Prevention, Advocacy, Education, Regulatory Compliance, and Program Surveillance/Evaluation.</p> <p>NHA: Northern Health will review this initiative during its development, and during 2010 will consider this initiative as we review our drinking water strategic plan of objectives, strategies, and clear, reportable performance measures.</p> <p>VIHA: VIHA Drinking Water Program has a multiyear strategic work plan and a Core Program Performance improvement Plan that includes objectives, strategies, and performance measures that are consistent with the core program functions, Ombudsman's report, and the Action Plan.</p> <p>IHA: Interior Health has developed a Water Quality Performance Improvement Plan with objectives, strategies, and clear, reportable performance measures that are in alignment with the Action Plan and the Ombudsman's Recommendations.</p> <p>Interior Health's Water Quality Performance Improvement Plan is available on line at http://www.interiorhealth.ca/uploadedFiles/Information/Accountability/Health_Service_Planning/Core_Functions/WaterQualityPIPOverview.pdf</p>	HAs/MHS MHLS support	2010

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	4	(con't)	<p>FHA: each year, FHA develops a set of program objectives for the Drinking Water Program which aligns with the Provincial action plan, the Water Quality Core Model Paper and the DWPA/DWPR (Appendix A).</p> <p>(Further details on a number of HA actions are available in their Performance Improvement Plan reports).</p>		
	5.	MHLS should ensure that the new information system adequately supports performance measurement, risk management, continuous improvement and meets internal and external reporting needs.	<p>Two proposals for development of an integrated information system were developed to meet this recommendation.</p> <p>1. EHPHIP</p> <p>An Environmental Health Public Health Information System (EHPHIP) was envisioned to cover all aspects of environmental health, and included a specific focus on drinking water performance measures. As part of the original Ministry of Health Services EH-PHIP 2008/09 project charter an Environmental Health project was articulated with an earmark of \$8 Million capital dollars. A project was started with a vendor to supply a custom off the shelf solution (COTS) in 2008/09.</p> <p>\$800,000 was spent primarily on procuring a solution in 2009 but phase 2.1 of the project resulted in a failure of the vendor to provide the required solution agreed to by the project team and the vendor. The project ended with no COTS solution being achievable.</p> <p>In the fall of 2009, Health Sector Information Management and Technology Division, MHS was approached and asked to suggest an interim re-scoping from a complete solution to one of an assessment of the feasibility to meet any of the drinking water or food safety core performance measures with data available from HAs existing HealthSpace or Hedgehog systems. An initial cost estimate for this work was drafted with a projected cost of \$300,000, which has not been formally approved but agreed to in principle in July 2010.</p>	<p>MHLS /MHS</p> <p>HAs support</p>	2011

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	5.	(con't)	<p>2. Air and Water Information Management System</p> <p>A strategic plan was developed to meet MHLS role for air and water monitoring and reporting, with full participation of MOE, and GeoBC. The approach was to incorporate existing government information assets into one strategic plan. The following key goals were developed.</p> <p># 1 – Support stakeholder engagement and partner relationships</p> <p>Establishing the necessary management and control structures to support delivery as well as maintaining key relationships with stakeholder groups and partners to manage air and water sheds planning and delivery.</p> <p># 2 – Provide decision support information products and services for environmental health programs</p> <p>Developing interactive maps and reports that show the health impacts resulting from human exposure to air and water related environmental health hazards. Working with GeoBC to publish these products to a web portal that will support a range of reporting and decision-support uses by key public and environmental health professionals, as well as inform policy development.</p> <p># 3 – Develop environmental health surveillance knowledge model.</p> <p>Determining the key measures and indicators for portraying air and water related health hazards, exposures, risks and health effects in a clear, consistent and meaningful manner. Defining specific analytic methods or processes used to derive measures and indicators from source data, as determined by research and via engagement with the research community.</p> <p># 4 – Improve environmental monitoring source data.</p> <p>Working cooperatively with our partners to improve source data quality and integration to enable more timely, complete, and reliable determination of air and water quality environmental health hazards and impacts; resulting in improved reporting, more effective decision-making, and more informed policy development.</p>		

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	5.	(con't)	<p># 5 – Establish integrated information delivery capability for environmental health surveillance.</p> <p>Establishing a web-based platform (applications, tools and content) that public health professionals can use to share integrated air and water quality environmental health information for use by all stakeholders interested in environmental health protection in the public health domain. Information consumers range from the general public, to community groups, to public and environmental health officials, to policy makers, to environmental health researchers.</p> <p>This project is on hold as no funding has been identified.</p>		
2.3 Policies and Guideline					
	6.	MHLS should take a lead role in policy development and in sharing policy and guidelines across HAs.	<p>MHLS is developing a drinking water management system and accountability framework in consultation with partners. This improves the processes through which MHLS will lead and share policy development.</p> <p>Committees have been formed or are ongoing: (1) Cross-Ministry ADM Committee being developed under ILMB, (2) Director's Committee on Water and Human Health with linkage to regional drinking water teams, and (3) Drinking Water Leadership Council (DWLC) which includes MHLS, and the 5 HAs, with inclusion of MCRD and MOE.</p> <p>Ongoing discussion in Directors meetings focused on response to reports from Regional Drinking Water Teams and other related policies.</p> <p>Recent initiatives on DWLC will (1) draft Guidelines for Chemical Parameters to be applied as drinking water standards in BC, (2) Review and ensure consistency for implementation of 4-3-2-1-0 water treatment technology, (3) Examine and establish initiatives in watershed protection, (4) Manage HA responses to turbidity events, (5) Improve process for dealing with decentralized and small water treatment systems.</p>	<p>MHLS</p> <p>HAs support</p>	2010

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	7.	The DWLC should ensure their SharePoint site is current and accessible to key stakeholders.	<p>MHLS staff has led development and completed the migration of the DWLC community zero website to a new SharePoint site accessible to all DWLC stakeholders. The site is available to DWLC members for reviewing confidential or early draft submissions.</p> <p>MHLS will lead this information sharing initiative, aided by the new MHLS drinking water management system and accountability framework it is developing.</p>	<p>MHLS and HAS</p> <p>(Regional Directors of Health Protection)</p>	2010
2.4 Shared Leadership and Accountability					
	8.	The ADMC-Water Committee should ensure a clear accountability framework is in place and that key issues are addressed.	<p>The ADM-Water Committee MOU on Interagency Accountability and Coordination on Drinking Water Protection is under revision to clarify objectives, broaden its scope, and identify accountabilities and available tools for the Regional Drinking Water Teams. This is part of the development of a new MHLS drinking water management system and accountability framework described in recommendation responses 3, 4, and 6. Strengthened line responsibilities will improve dissemination and implementation of direction and policy. The ADM Committee will be moved under the ILMB structure.</p> <p>A Living Water Smart Program Implementation Plan has been developed for approval and oversight by the ADMC – Water. This plan will ensure clearly established ministry accountabilities.</p>	MHLS/ MOE ADM's	2010
3.0 Coordination and Co-operation					
3.1 Interagency Coordination					
	9.	Ministries and agencies should formalize and routinely implement referral and consultation processes on activities that may impact drinking water.	<p>New MHLS drinking water management system to provide support to the Regional Drinking Water Teams. Committee to assist with interpreting policy and providing technical expertise for local decision-making.</p> <p>MOE and MHLS continue to support and encourage coordination amongst government ministries, other governments, and stakeholder interests on activities that may impact drinking water. It also actively supports the Inter-Agency MOU on Drinking Water Protection and the activities of the Regional Drinking Water Teams.</p>	<p>MHLS</p> <p>Other ministries support including HAS</p>	2010

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	9.	(con't)	<p>In addition, MHLS and MOE:</p> <ul style="list-style-type: none"> participates on the <i>Forest and Range Practice Act</i> Joint Management Committee, which is responsible for providing guidance on the implementation of FRPA and issues related to forest and range impacts on water; participates on the regional Inter Agency Management Committees that coordinate referral processes and resolve issues associated with activities on Crown Land at the local level; and MOE routinely refers water licence applications. <p>Inter-agency Director's Committee on Drinking Water will discuss issues and develop approaches for routine referral processes. Proposal to develop best management practices will be tabled. Consultation processes under discussion on various committees.</p> <p>Five Regional Drinking Water Teams develop responses to regional issues related to impact of development on drinking water.</p> <p>MHLS participation on regional IADC committees (North, Coast and Interior) will highlight importance of drinking water in resource management decision-making.</p> <p>(Also see #6)</p>		
3.2 Regional Drinking Water Teams					
	10.	MHLS and HAs should: develop local strategic plans and priorities; and create sub-regional teams to address local issues and engage municipalities and regional districts.	The ADM-Water Committee MOU on "Interagency Accountability and Coordination on Drinking Water Protection" is under revision to clarify objectives, broaden its scope, and identify accountabilities and available tools for the Regional Drinking Water Teams. This is part of the development of a new drinking water management system and accountability framework described in recommendation responses 3, 4, 6, and 8. Engagement with local governments (both directly and via MCRD & UBCM) is being promoted by MHLS and the Regional Drinking Water Teams.	MHLS to lead MOU revision with various support including HAs	2009 ongoing

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	10.	(con't)	<p>In Living Water Smart government has committed to supporting communities to do watershed management planning in priority areas.</p> <p>MHLS engage HAs and local governments in the activities of regional drinking water teams to improve the coordination and cooperation amongst agencies in resolving local drinking water issues.</p> <p>MHLS staff participate on regional drinking water teams, various other local planning processes, and responds to site-specific issues. Regional Drinking Water Teams have been created and report to ADM-CILM. The concept of sub-regional teams is under review and links with ILMB structure is being explored.</p> <p>UBCM is being consulted on decentralized water treatment systems and Point of Entry/Point of Use treatment as part of the Small Water System Strategy.</p>		
3.3 Source Water Protection					
	11.	MOE and MHLS should clarify respective roles and responsibilities for source water protection activities.	<p>The following outlines roles and responsibilities for MHLS and MOE for source water protection.</p> <p>Provincial Level & Government Plans</p> <p>Each ministry has specific roles identified in government initiatives. The key provincial water initiative is Living Water Smart. MOE has responsibility for leading the cross government implementation and coordination, and a number of specific actions. MHLS has a number of specific actions related to human health, and in particular, responsibility for source water protection.</p> <p>There are a number of reports (Ombudsman 2008 "Fit To Drink", Audit Office of the Comptroller General 2009, Provincial Health Officer drinking water report) that identify specific recommendations that need to be addressed for each ministry.</p> <p>Each ministry has responsibility to develop strategic plans, and the ministries will build collaboration into the plans to ensure a comprehensive approach to water management and increase efficiencies.</p>	MHLS/ MOE ADM's	2009

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	11.	(con't)	<p>Legislation, Policy, and Tools</p> <p>There are three specific acts related to water. MHLS has primary responsibility for DWPA, and MOE primary responsibility for the <i>Environmental Management Act (EMA)</i> and <i>Water Act</i>. MHLS has responsibility for management of drinking water systems. Future work needs to define the ability of MHLS to use <i>EMA</i> and application of the new <i>Public Health Act</i> for source water protection. In addition there are other related Acts which influence water management (Oil and Gas - OGAA, Forest and Range - FRPA, <i>Local Government Act</i>, <i>Water Utilities</i>) in which MOE and MHLS have responsibilities, and further dialogue on these responsibilities will occur moving forward. One specific area where responsibilities are under discussion is Community Watershed designations under FRPA and OGAA.</p> <p>There are a number of regulations and policies related to water, drinking water, groundwater, and sewerage. MOE and MHLS will collaborate to reduce gaps in the regulatory framework, develop mutual reference where appropriate, and build relationships to ensure implementation of the regulations and development of policy and tools that advance comprehensive, proactive management of risks to water.</p> <p>Provincial, Regional and Local Planning and Support</p> <p>Both ministries have an active role in supporting watershed and aquifer planning and responsibilities are defined in Living Water Smart. MHLS has primary responsibility for drinking water protection plans (Part 5 of the <i>Drinking Water Protection Act</i>) and MOE primary responsibility for Water Management Plans (Part 4, Section 62-67 of the <i>Water Act</i>), and BC Hydro's Water Use Plans (implemented through orders under the <i>Water Act</i>). The ministries need to collaborate on tracking and priority setting for watershed and aquifer planning. MOE is developing water planning guidance tools for local government, in partnership with Ministry of Community Development and MHLS. All three ministries will work to ensure common messaging in their outreach and engagement activities with local government, water suppliers, and other stakeholders.</p>		

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	11.	(con't)	<p>At a regional level, Regional Drinking Water Teams (RDWTs) have been established. RDWTs are being revisited given the new mandate of MHLS and in response to issues raised in the RDWTs annual reports. RDWTs will be supported at the provincial level by both ministries. HAS and regional MOE staff participate on these teams. Both ministries have a role in interaction with regional districts and local governments; HAS and regional MOE staff have responsibility for day to day interaction. The ADM and Directors' water committees provide stewardship of regional committees.</p> <p>Standard, Objective and Guideline Setting</p> <p>Both ministries have a role in standard and guideline setting. MHLS provides expertise on human health and MOE provides expertise on ecological health with respect to setting standards and guidelines for provincial and specific water bodies to meet provincial and regional priorities. The ministries will collaborate on setting priorities for standard/objective/guideline setting for specific water bodies. MHLS has the main responsibility for setting standards/objectives/guidelines for drinking water quality, recreational water quality, and food related pathways (irrigation water, bio-accumulative substances in fish, i.e., tissue), with MOE providing input where these have a link to ecological health (e.g., irrigation water and tissue). MOE has the main responsibility for setting standards/objectives/guidelines for freshwater, marine, and estuarine aquatic life. The ministries will work together to integrate both ecological and human health driven water quality objectives into an overall provincial and regional plan.</p> <p>The ministries will collaborate with respect to development of approaches to influencing water management, with MHLS responsible for human health outcomes and MOE for ecological health outcomes.</p>		

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	11.	(con't)	<p>Monitoring</p> <p>MOE has the primary responsibility for operating and maintaining the water quality and quantity network, which includes, the design, monitoring activities, and funding. MOE already works extensively partners and stakeholders, including with Environment Canada in fulfilling this role. MHLS will collaborate with MOE on setting monitoring priorities. MOE has the primary responsibility for regional water quality impact assessment monitoring. For all types of monitoring, MHLS will identify health priorities and discuss these with MOE. MHLS will collaborate on human health related monitoring, and fund additional monitoring related to human health that falls outside the scope of the monitoring priorities. MHLS has responsibility for drinking water quality monitoring and health advisories related to drinking water. For regional drinking water monitoring projects, MHLS will identify monitoring needs and work with MOE and HAs.</p> <p>Data Management</p> <p>MOE maintains its existing applications and databases (WELLS, WIDM, EMS), and MHLS will collaborate and use this data. MHLS is responsible for developing and maintaining a new data system with respect to water and health outcomes; the IT/IM strategy developed in collaboration between MHLS, MHS, MOE, and ILMB provides the design framework for the new data system.</p> <p>Assessment and Reporting</p> <p>MOE has responsibility for water quality attainment reporting for individual water bodies, and MHLS will identify health issues for specific water bodies and contribute to attainment reports. MHLS has responsibility to integrate information provided by MOE into broader water quality interpretation for human health.</p>		

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	11.	(con't)	<p>Public Reporting and Communication</p> <p>MOE has responsibility for public reporting with respect to progress on Living Water Smart and development of the State of Environment reports. MHLS has responsibility for communicating with HAs with respect to public health concerns, and public communication on health objectives. MHLS is developing its public reporting capacity with regional districts.</p> <p>Both ministries have responsibility with respect to public reporting on water quality standards/objectives/guidelines. Emphasis is placed on providing one place for the public to seek the combined reporting of water quality information.</p> <p>A strategic information management plan has been developed (see 5).</p>		
3.4 Source-Tap-Assessment					
	12.	MHLS should finalize the Source-to-Tap assessment tool, and take a lead role in engaging other ministries to implement source-to-tap assessments.	<p>The Source-to-Tap assessment tool was transferred from MOE to MHLS. MHLS has completed the document.</p> <p>The document has been released to all stakeholders. A workshop on implementation was held at the BC Water and Waste Water Association annual convention by MHLS.</p> <p>The document is available online for easy access.</p>	<p>MHLS</p> <p>HAs support</p>	2010
4.0 Monitoring and Assessment					
4.3 Inspection Activity					
	13.	HAs should implement a quality assurance function and consider setting performance measures for compliance with regulatory requirements.	MHLS will work with HAs, and link this to EH-PHIP and <i>performance improvement planning</i> process for HAs (see recommendation responses 4 & 5).	HAs	2010

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	13.	(con't)	<p>Health Authority Action noted as follows:</p> <p>VCHA: Developed a Water Quality Performance Improvement Plan recommending main opportunities for improvement in the areas of Prevention, Advocacy, Education, Regulatory Compliance, and Program Surveillance/Evaluation.</p> <p>NHA: Northern Health's current Work Plan Objective #5-2 includes monitoring progress on Improvement Plans for Institutional Facilities on long-term advisories. The scope will be expanded to include additional water suppliers identified by assessment or Operating Permit Conditions as able to benefit from treatment performance monitoring.</p> <p>VIHA: VIHA PIP includes performance measurements for compliance with regulatory requirements with a commitment to increasing compliance through monitoring, education, and progressive enforcement actions as required.</p> <p>IHA: Interior Health has quality assurance and performance measures for compliance with regulatory requirement included in a Water Quality Performance Improvement Plan.</p> <p>Interior Health's Water Quality Performance Improvement Plan is available on line at http://www.interiorhealth.ca/uploadedFiles/Information/Accountability/Health_Service_Planning/Core_Functions/WaterQualityPIPOverview.pdf</p> <p>FHA: Fraser uses a Workload Prioritization Assessment Tool to establish a priority ranking for inspections. Priority ranking are reviewed on an annual basis. In 2008/2009, 84% of all water systems were inspected, including all high risk water systems which were deemed high priority. Quality assurance audits are conducted on water system files to ensure required inspection documentation is present.</p>	MHLS support	

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	14.	MHLS, in consultation with HAs, should consider developing risk-based policies, procedures and tools.	<p>MHLS will work with HAs in developing risk based policies. This has commenced with recent development of turbidity decision tree via DWLC & HA Regional Directors of Health Protection. This risk-based approach will be utilized by MHLS as it implements a new drinking water management system and accountability framework. Some examples include:</p> <ul style="list-style-type: none"> • Water Quality Advisory/Boil Water Notice criteria Guideline drafted for turbidity events. • Policy addendum posted on website. • Turbidity Decision Tree completed and being field tested and adjusted as necessary. <p>Chemical Drinking Water Standards are being developed (first draft 30% complete).</p>	MHLS HAs support	2010
5.0 Small Water System Flexibility					
5.2 Small System Strategies					
	15.	HAs, MHLS, MCRD and MOTI should adopt strategies to reduce the challenges facing small systems.	<p>MHLS currently leads an interagency team, with representation from MHLS, MCRD, MOTI, and MOE, that was tasked by the ADMC – Water to develop a provincial small water systems strategy. It is expected that the strategy will identify ways to deal with existing small system challenges, as well as mechanisms that will help prevent the creation of new small water systems that are not sustainable.</p> <p>Various strategies to be promoted, including: risk management, new governance model, regulatory adjustments, regional planning, amalgamations with larger systems, and infrastructure improvements.</p> <p>Sustainable Infrastructure Society produced a report for MHLS to guide development of a strategy framework and a capacity assistance program for small water systems.</p> <p>A Small Water System Inter-ministry Working Group has been established to deal with small water systems.</p>	MHLS, HAs, MCRD, MOTI Various support agencies	2010 and beyond

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	15.	(con't)	<p>Terms of Reference established, government group has met and produced a terms of reference and a “problem formulation” report has been produced.</p> <p>Member selection for UBCM committee underway. Representation from HA, UBCM, local government, Small Water System Users Association, MHLS and MCRD currently being sought.</p>		
6.0 Funding					
	16.	MCRD should examine the criteria for water system infrastructure improvement funding.	<p>MCRD continually evaluates and changes criteria for water system infrastructure improvement funding. This is standard program operating procedures. Criteria evolve based on a number of factors such as ministry, provincial and federal mandates, strategies, and plans. Program goals and outcomes are the integration of these factors. As examples, criteria for water system infrastructure improvement funding includes, but is not limited to:</p> <ul style="list-style-type: none"> • Public Health outcomes; • Environmental health outcomes; • Water conservation; • Sustainability outcomes (asset management, long term financial planning, etc.); • Land use planning; • Innovation; and • Climate change. <p>As far as applicant eligibility, the MCRD operates under legislation (<i>Local Government Grants Act</i>) that identifies applicant eligibility for MCRD funding programs as well as Ministry policy with respect to eligibility of Improvement Districts for water and wastewater infrastructure funding.</p>	MCRD	ongoing

Priority	Rec. #	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
	17.	MCRD and the HAs should coordinate their activities to target funding to the highest risk systems.	<p>MHLS will support MCRD and HAs to determine high risk systems.</p> <ul style="list-style-type: none"> MCRD has worked with Public Health Engineers (from HAs) in past programs to identify priority systems and link those with funding applications. In the past, MCRD had requested involvement from the Drinking Water Leadership Council but the group was not supportive of establishing public health priorities. <p>NOTE: Public health risk is only one of many criteria that projects are evaluated against, and in no way ensures successful funding outcomes (See funding criteria).</p> <p>MCRD would support any opportunity to further engage HAs in local government funding and financing issues. Programs are designed to meet various provincial goals, with public health being one of the key goals for water and wastewater infrastructure programs. Opportunities to partner and collaborate with HAs can only improve program delivery and program outcomes.</p>	MHLS support MCRD, HA	ongoing

Fraser Health Drinking Water Program Objectives for 2009 – 2010

Program Objective 2009/2010

1. 95% of water systems complying with minimum 80% of Schedule B microbiological monitoring requirement.
2. Develop a guideline for monitoring chemical and physical parameters.
3. Reduce number of water systems with High Hazard Ratings (as of March 31, 2009) by 20%.
4. Reduce number of water systems with Moderate Hazard Ratings (as of March 31, 2009) by 20%.
5. Reduce number of water systems on Long Term (>18 months) Boil Water Notice or Water Quality Advisories (as of March 31, 2009) by 20%.
6. 100% of water systems receive an inspection.
7. 70% of all surface water systems comply with 4-3-3 treatment outcome expectations.
8. Conduct a Screening Tool Assessment of 50% of shallow ground water systems, using the new GWUDI guideline.
9. 80% of water systems have EOCP certified operators in accordance with the water system classification.
10. 100% of water systems have adequate Emergency Response and Contingency Plans.
11. Collect at least one post treatment audit sample for Arsenic from each water system with elevated Arsenic (i.e. >10 micrograms/L).
12. Develop and Implement a communications plan to educate and inform the general population on the value and safe use of drinking water. Plan to include list of available resource materials and tools; list of stakeholders and partnerships; incorporate information on Health Protection website.
13. Develop and implement a communication plan for targeting educational materials to specific drinking water quality issues that are of special concern to a neighbourhood, community, or sector. Plan to include list of available resource materials and tools; list of stakeholders and partnerships; incorporate information on Health Protection website.
14. According to Ministry of Finance (IAAS), develop and implement Quality Assurance measures for the monitoring of the administration and delivery of services related to the implementation of the *Drinking Water Protection Act and Regulation*, i.e. water system to have valid operating permit; comply with terms and conditions on operating permit; written ERCP made public; comply with sampling frequency monitoring; prepare and make public annual report of sample monitoring results. Goal is to audit 10% of all water system files for compliance with the above.
15. Develop a system to electronically record and track drinking water complaints and generate reports in accordance with the Ombudsman Recommendation 1.2.
16. Post water quality advisories on Health Protection website in accordance with the Ombudsman Recommendation 9.
17. Reduce the number of systems on Water Quality advisories and Boil Water Notices (as of March 31, 2009) by 10% in accordance with Ombudsman Recommendation 16.
18. Eliminate the number of water systems on advisories/notices for more than 18 months (as of March 31, 2009) by the end of FY11/12, in accordance with Ombudsman Recommendation 16.
19. Develop a system to track and publicly report water sampling data; post test results on Health Protection website, by June 1, 2009 in accordance with Ombudsman Recommendation 18.
20. Proactively work to identify small water systems within the region by posting written information on Health Protection website and working with the Inter-Agency Regional Drinking Water Team to ensure referral process is in place to identify small water systems, in accordance with Ombudsman Recommendation 32.

Appendix C

(Fraser Health Authority further detail)

FHA: 1. *The safety of drinking water is a public health issue.*

- Develop and implement a communication plan for targeting educational materials to specific drinking water quality issues (i.e. Arsenic) that are of special concern to a neighbourhood, community, or sector. Plan to include list of available resource materials and tools; list of stakeholders and partnerships; incorporate information on Health Protection website.(Core Program PIP)

2. *Source protection is a critical part of drinking water protection.*

- FHA is a member of the Fraser Inter Agency Regional Drinking Water Team Part of the teams activities include discussions related to source protection strategies within Fraser. For example: Township of Langley Water Mgt Plan & City of Abbotsford Ground Water Protection Strategy.

3. *Providing safe drinking water requires an integrated approach across all the ministries and agencies that have legislated authority for water protection from source to tap.*

- FHA is a member of the Fraser Inter Agency Regional Drinking Water Team. The team is composed of representatives from several Provincial ministries and local governments which regulate various aspects of the drinking water supply system.

4. *All water systems need to be thoroughly assessed to determine risks.*

2008/2009 Program Objective:

- 80% of water systems have EOCP certification. Note: Water Supply Systems serving a population of 500 individuals or less during a 24 hour period are classified as a small system in accordance with the Regulation.

2009/2010 Program Objectives:

- 100% of water systems receive a routine inspection;
- A Ground Water at Risk of Containing Pathogens Screening Tool Assessment (GWARCP/GWUDI) will be completed on 50% of shallow ground water systems in Fraser.

5. *Proper treatment and water distribution system integrity are important to protect public health.*

2009/2010 Program Objectives:

- 70% of all surface water systems comply with 4-3-3 treatment outcome expectations.

6. Tap water must meet acceptable safety standards and be monitored.

2009/2010 Program Objectives:

- 95% of water systems complying with minimum 80% of Schedule B microbiological monitoring requirement;
- Develop a guideline for monitoring chemical and physical parameters;
- Collect at least one post treatment audit sample for Arsenic from each water system with elevated Arsenic (i.e. >10 micrograms/L);
- Reduce number of water systems on Long Term (>18 months) Boil Water Notice or Water Quality Advisories (as of March 31, 2009) by 20%; and
- 100% of water systems receive a routine inspection.

7. Small systems require a flexible system with safeguards.

8. Safe drinking water should be affordable, with users paying appropriate costs.

This table was provided by the Ministry of Health in February 2012, reflecting the current status of report recommendations.
Appendix A Summary Table on Internal Audit and Advisory Services Report on Drinking Water Recommendation, Actions and Targets for the Ministry of Health

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
Drinking Water Protection Act				
Ministry of Health (MoH) should take a lead role in the interpretation and application of statutory requirements to ensure greater consistency across the province.	MoH is providing greater policy support and stewardship in the consistent application of the <i>Drinking Water Protection Act</i> , regulations and policy by health authorities in areas such as: turbidity, chemical parameters, drinking water treatment requirements, “systems within systems” and small water systems.	Additional items were added to the scope of the work as a result of local government concerns. Health Protection has prepared draft Surface Drinking Water Treatment Objectives, is working on Well Drinking Water Treatment Objectives and still plans a more comprehensive update of the Drinking Water Officer’s Guide.	60% implemented Status - underway and ongoing	80% implemented Completion target date: Spring 2012
Statutory Framework across Government				
The ADM-Water Committee should ensure ministry decisions address drinking water protection.	MoH represents health on water-related committees and chairs the Drinking Water Inter-Agency Directors Committee on an ongoing basis. With the reorganization of the resource ministries, many of the approvals of land-based activities now reside in the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) and the previous ADM Committees (e.g. Water) have been restructured under the Integrated Decision Making Governance model.	The Integrated Decision Making Governance model is managed as an ongoing item by MFLNRO. MFLNRO updates the Drinking Water Inter-Agency Directors Committee on their activities periodically, however the inter-agency committee has no formal link with the Integrated Decision Making Governance model.	Cross-government committee work is ongoing and links have been established with Regional Drinking Water Teams. This is an issues management approach and represents an ongoing initiative managed by MoH.	The Integrated Decision Making Governance model has been established by MFLNRO as an ongoing water resource management model.

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
Leadership and Accountability				
Health Authorities (HAs) and MoH should develop strategic plans with objectives, strategies and performance measures in alignment with the Action Plan.	MoH has worked with HAs in developing their performance improvement planning process and accountability framework for water. HA proposed plans completed.	No additional action planned	Partially implemented	Fully implemented Strategic plans developed by all HAs.
MoH should ensure that the new information system adequately supports performance measurement, risk management, continuous improvement and meets internal and external reporting needs.	Two proposals for development of an integrated information system were developed to meet this recommendation. 1. An Environmental Health Public Health Information System (EHPHIP) to cover all aspects of environmental health, including a focus on drinking water performance measures. 2. Air and Water Information Management System: to meet air and water monitoring and reporting responsibilities. [Note: responsibility for air is now with Ministry of Environment (MOE)]	No additional action planned	EHPHIP project closed due to lack of viable options for an off-the-shelf product. Subject to funding availability.	Information system will be implemented as funding permits.

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
Policies and Guidelines				
<p>MoH should take a lead role in policy development and in sharing policy and guidelines across HAs.</p>	<p>MoH is developing a drinking water management system and accountability framework to improve processes through which MoH will lead and share policy development.</p> <p>The following Committees have been formed or are ongoing:</p> <p>(1) Drinking Water Interagency Director's Committee with linkage to regional drinking water teams</p> <p>(2) Drinking Water Leadership Council (DWLC) which includes MoH, HAs, Ministry of Community, Sport and Cultural Development (MCSCD) and MOE.</p> <p>Relationship with MFLNRO to be established.</p> <p>Committees and work plans in place.</p>	<p>Committee links are on track and completed. These links have led to the development of <u>new</u> Drinking Water guidelines and policies:</p> <ul style="list-style-type: none"> • Surface water treatment objectives • Groundwater treatment objectives • Regulation for “systems within systems” • Turbidity Decision Tree • Updated Drinking Water Officers Guide 	<p>Committee links fully implemented.</p>	<p>Committee links fully implemented.</p> <p>Completion target date for <u>new</u> Drinking Water guidelines and policies: Summer 2012</p> <ul style="list-style-type: none"> • Surface water treatment objectives – 95% complete • Groundwater treatment objectives – 20% complete • Regulation for “systems within systems” – 100% complete • Turbidity decision tree – 75% complete • Updated Drinking Water Officers Guide – 40% complete

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
The Drinking Water Leadership Council should ensure their SharePoint site is current and accessible to key stakeholders.	MoH staff has led the creation of the Drinking Water Leadership Council SharePoint site accessible to all stakeholders. Site is available to members to review confidential/ early draft submissions.	No additional action planned	Fully implemented	Fully implemented
Shared Leadership and Accountability				
The ADM-Water Committee should ensure a clear accountability framework is in place and that key issues are addressed.	With the reorganization of the resource ministries, many of the approvals of land based activities now reside in MFLNRO and the previous ADM Water and ADM Integrated Land Management (ILM) Committees have been restructured under the Integrated Decision Making Governance model.	No additional action planned.	Transfer to Integrated Decision Making Governance model completed. MFLNRO to lead water responsibilities under government reorganization.	Fully implemented
Coordination and Co-operation				
Ministries and agencies should formalize and routinely implement referral and consultation processes on activities that may impact drinking water.	A new MoH drinking water management system will provide support to the Regional Drinking Water Teams. The committee will assist with interpreting policy and providing technical expertise for local decision-making.	No additional action planned	Regional Drinking Water Teams have been established, are led by HAs and meet on an ongoing basis. MoH provides support to teams.	Fully implemented
Regional Drinking Water Teams				

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
MoH and HAs should develop local strategic plans and priorities and create sub-regional teams to address local issues and engage municipalities and regional districts.	<p>Part of the development of a new drinking water management system and accountability framework described in responses to recommendations 3, 4, 6 and 8.</p> <p>Engagement with local governments (both directly and via MCSCD & UBCM) is promoted by MoH and the Regional Drinking Water Teams.</p>	No additional action planned	Regional Drinking Water Teams have been established, are led by HAs and meet on an ongoing basis. MoH provides support to teams.	Fully implemented
Source Water Protection				
MOE and MoH should clarify respective roles and responsibilities for source water protection activities.	<p>Each Ministry has specific roles in the Living Water Smart initiative. MFLNRO has responsibility for leading the cross government implementation and coordination, and a number of specific actions. MoH has a number of specific actions related to human health, and in particular, responsibility for source water protection.</p> <p>Existing agreement to be revisited due to government reorganization and transfer of water responsibilities to MFLNRO.</p>	No additional action planned	Existing agreement under review due to reorganization of resource ministries	<p>Fully implemented</p> <p>OIC #652 Item 21, assigns lead responsibility for watershed protection and human health issues related to ambient water quality to MOE. Lead responsibility for drinking water policies and issues assigned to MoH.</p>

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
Source-to-Tap-Assessment				
MoH should finalize the Source-to-Tap assessment tool, and take a lead role in engaging other ministries to implement source-to-tap assessments.	The Source-to-Tap assessment tool was transferred from MOE to MoH and MoH has completed the document. The document is available online for easy access, and an implementation workshop was held.	No additional action planned	Fully implemented	Fully implemented
Inspection Activity				
MoH, in consultation with HAs, consider developing risk-based policies, procedures and tools.	MoH will work with HAs in developing risk based policies. Work has commenced with recent examples including the development of the turbidity decision tree and Chemical Drinking Water Standards.	MoH continues to work with HAs on developing risk based policies. Work update: Trial period for the turbidity decision tree was extended by one year due to low water flows in the 2010 springtime. Field evaluation by water system operators & HAs took place in the following spring to ensure representative reporting covered a range of flow conditions – preparation of a final version is underway and will be incorporated into the Drinking Water Officers Guide.	50% implemented Completion target date: Summer 2011	75% implemented Completion target date: Spring 2012

Report Recommendations	Action Planned or Taken		Target Date/Status	
	November 2010	October 2011	November 2010	October 2011
Small System Strategies				
HAs, MoH, MCSCD and Ministry of Transportation and Infrastructure (MoTI) should adopt strategies to reduce the challenges facing small systems.	MoH currently leads an interagency team, with representation from MoH, MCSCD, MoTI and MFLNRO to develop a provincial small water systems strategy. The team is also in consultation with UBCM to ensure solutions for local government are addressed. The strategy will identify ways to deal with existing small system challenges and prevent the creation of unsustainable new small water systems.	<p>Preliminary work on small water system strategy presented at 2011 UBCM convention.</p> <p>A UBCM committee (with representation from MoH, MFLNRO and MCSCD) was subsequently formed and is working on recommendations for subdivision and financing of small water systems.</p> <p>MoH concepts for regulatory policy changes under the Drinking Water Protection Regulation have been developed, but are dependent on the work of the UBCM committee. The work on subdivision and financing of small water systems is being led by MCSCD and MFLNRO, respectively.</p>	<p>10% implemented</p> <p>Recommendations to be completed prior to 2011 UBCM convention.</p>	<p>20% implemented</p> <p>Completion target date: Summer 2012</p>
Funding – Primarily MCSCD Responsibility			N/A	