Closer to Home (C2H)

Smaller Centres Water & Wastewater Capacity Renewal Initiative*

Area Cohort Drinking Water Safety Plan (DWSP) Completion Sessions (SP3/SP7)

Evaluation Summary Report (rev 01/2014)

* Closer to Home Project Development Office
c/o AWWOA Provincial Office
10806-119 Street NW
Edmonton ▪ Alberta ▪ Canada ▪ T5H-3P2

Project Administration

Major Project Funding

Closer to Home (C2H) Initiative has been made possible through a financial contribution from Rural Alberta's Development Fund (RADF), a one-time investment from the Government of Alberta. The views expressed herein do not necessarily represent the policies of the RADF, the Government of Alberta, or the organizations participating in project governance and/or collaborating to complete the Closer to Home (C2H) Initiative's program of work.

AREA COHORT DRINKING WATER SAFETY PLAN (DWSP) COMPLETION SESSION EVALUATION SUMMARY REPORT

A COMPANION SUMMARY REPORT TO BE USED WITH THE CLOSER TO HOME (C2H) INITIATIVE PROJECT REPORT

A legacy of the
Closer to Home (C2H) Initiative
made possible with funding by
Rural Alberta Development Fund

BACKGROUND

C2H Initiative has focused on a series of one-time investments benefiting Albertans by helping enhance and strengthen the capacity of local governments to assure safe drinking water and responsibly managed wastewater. The *Closer to Home (C2H) Initiative* has been enabled by an investment from *Rural Alberta's Development Fund* (RADF). The *C2H Initiative* was approved in September 2011 and RADF funding initiated in January 2012, concluding December 31, 2013.

The C2H Initiative was approved by RADF with a "design-build" provision to accommodate program design and execution refinements during the two-year initiative implementation. The "design-build" provision was approved within the parameters of eight pre-approved sub-project areas. Sub-project 3 (SP3) provided for a *Mentor Pool Formation/Coordination* and Sub-project 7 (SP7) provided for workplace-learning based *Cohort Intakes* at strategic geographic hubs throughout Alberta. The original intent was to offer entry level training *(Level I Certification Preparation* education) in-community, closer to home. Modifications to that approach were made in late 2012, to re-orient resources to water safety planning.

Water Safety Plans (WSPs) are not new. They have been promoted by the World Health Organization (WHO) as a more responsive approach to drinking water safety, regulation and public health for over a decade. Suggested readings about the early international experience with WSPs are presented in Schedule I. The province of Alberta is, however, one of the first jurisdictions in North America to incorporate the WSP approach into a drinking water regulatory framework. Drinking Water Safety Plan (DWSP) orientation education was offered on a provincial outreach basis by *Alberta Environment & Sustainable Resource Development* in 2011. At that time, DWSPs were presented in the context of being a voluntary risk management tool.

An *Alberta Environment & Sustainable Resource Development* (ESRD) Information Letter issued in May 2012 confirmed that completing and maintaining DWSPs as a mandatory regulatory requirement, would replace an existing risk assessment process for regulated waterworks. The specific communication from ESRD is presented in Schedule II. It quickly became apparent that DWSP completion would be a challenge for many smaller Alberta communities. Consequently, the *C2H Initiative* "design-build" provision was exercised. Following preliminary investigations in late 2012 and early 2013, *C2H Initiative*'s SP3 and SP7 were amended to provide substantive one-time program development support to rural Alberta municipalities to facilitate local efforts for a first, substantively-developed DWSP.

A design approach was used to guide development and execution of *DWSP Completion Sessions* as informed by established community development and workplace learning principles. The design was also informed by a review of lessons learned from the available published, peer-reviewed literature on the early international experience of implementing water safety plans. In addition to the World Health Organization's guidance on water safety plans, the specific evidence we reviewed for lessons learned is presented in Schedule I.

PROCESS REVIEW – DESIGN AND EXECUTION

A range of options were considered, including a direct replication of the 2011 orientation-based, outreach education sessions. The goal-directed approach of having local certified operators of regulated waterworks complete a first, substantively-developed DWSP indicated a modified approach. Fact-finding specific to various rural Alberta applications was undertaken.

Field reports of early lessons learned by ESRD *Drinking Water Operating Specialist* (DWOS) Aaron Janzen, P.Eng., and *Associated Engineering's* Alvin Beier as presented at the *Canadian Water and Wastewater Association* (CWWA) conference in October 2012; a case-based approach as presented by the *Dalhousie University, Water Studies* group in March 2013 in Ottawa; and a review of international lessons (i.e., Summerill, et. al., 2010 in Schedule I) were considered.

The insights from fact-finding indicated a pragmatic, active and locally-relevant design would likely yield the best opportunity for assisting local operators complete a first DWSP prior to December 31, 2013. A multi-session approach aligning with one that ESRD's Mr. Janzen was demonstrating good early results with, in partnership with a working group co-sponsored by the *Henry Kroeger Regional Water Services* commission (located in Hanna, Alberta), was adopted, modified and scaled-out, with permission, on a province-wide basis.

The *DWSP Completion Sessions* were designed by drawing on a traditional university agricultural extension, in-community delivery approach. It was initially thought four ½ day completion sessions would be required over a period of three to four months. The first cohort session (i.e., Session Day One) was designed with a didactic "theory burst" briefing. The intent of a briefing at the outset was used to assure that all *DWSP Completion Session* participants were given common foundation and essential information about key concepts. These included:

- the regulatory foundations,
- the rationale of Water Safety Plan (WSP) approach,
- the concept of Risk and it's mitigation,
- the concept of the four risk Nodes in the Alberta approach (i.e., Source, Treatment, Network, Customer),
- the organization of the Alberta DWSP Excel template, as well as
- representative examples used to "prime" participant's thinking and application.

In May 2013, 377 Chief Administrative Officers and 377 Chief Elected Officials of smaller Alberta communities were sent briefing information by regular mail detailing the DWSP completion requirements and confirming the opportunity that *C2H Initiative* was making available to commission DWSP area cohorts. A copy of the communication appears in Schedule III. Cohorts were commissioned via a local champion, typically a certified operator or a municipal Chief Administrative Officer (CAO) liaising with the *C2H Initiative* Project Associate to find other area champions. Alternatively, several cohorts were established through the networks of ESRD DWOS, former DWOS and/or ESRD municipal approvals engineers.

A "take away" *Drinking Water Safety Plan (DWSP) Completion Session Toolkit* for each participating municipality was commissioned and distributed in a 1[1/2]" durable binder. Each toolkit included a ready-to-use USB flash drive with foundational information pertaining to DWSPs, operator certification, and operational succession. A complete listing of the Toolkit contents is presented in Schedule IV. An application for Continuing Education Units (CEUs) was made to Alberta ESRD in spring 2013 and CEUs were made available, ranging from 0.3 to 0.6 CEUs. A copy of the communication verifying CEUs available for DWSP Completion Sessions appears as Schedule V.

A demonstration *DWSP Completion Session* was conducted in Calgary in June 2013, with contracted delivery team leads Alvin Beier and Paul Yardley testing it with Mr. Janzen. The default delivery model was adjusted to three, ½ day sessions, with participants having to travel no more than two hours in each direction of an area cohort hub. Completion Session work was supported throughout July and August 2013 through a series of "office hour" style type virtual drop in sessions for participants that were made available via pre-scheduled teleconferences.

Exceptions to the three session approach were made for the cohorts working out of High Level, High River, and a modified network distribution group of municipalities who are wholesale water customers of EPCOR Water Services in the capital region. In High Level two, two-day sessions were conducted in partnership with the ESRD municipal approvals engineer/designated DWOS for the region. In High River an accommodation was made in December 2013 for an intensive two-day format under the facilitation of an experienced contract Operating Specialist, to assure completion of a DWSP for the Town of High River and area municipalities in light of exceptional circumstances arising from the June 2013 Alberta Floods.

Between June and December 2013, 195 participants from 131 regulated drinking systems across Alberta had an opportunity to complete and/or verify the completion of a first Drinking Water Safety Plan (DWSP) through fourteen cohorts, using the area cohort approach. A listing of the municipalities/regulated systems that were engaged in the cohorts appears in Schedule VI.

PROCESS REVIEW – EVALUATION

The evaluation process for the DWSP Completion Sessions was realized through a mix of formative and summative evaluation. Formative evaluation took place with the *C2H Initiative* Project Associate maintaining regular contact with area cohort champions by telephone and email and making continuous improvement adjustments for logistics, communications, and program materials support as was reasonable (e.g., connected to other area resources that could provide Source Node risk data point information), etc.

The *C2H Initiative* Project Associate maintained contact with the contract delivery partners and monitored delivery within a basic Plan-Do-Check-Act (PDCA) cycle. Two "check point" sessions were also held with members of the *C2H Initiative Project Executive Group (PEG)*, with one formative evaluation session conducted on August 14, 2013 with the assigned lead from *Associated Engineering* and a second on August 30, 2013, with the team supporting the High Level and area modified delivery model.

To operationalize participant evaluation, an evaluator with membership in the *Canadian Evaluation Society* was contracted in May 2013. A *DWSP Completion Session, Participant Feedback* tool was developed. The *Introduction* section of the form was tailored for each area cohort and distributed at each *DWSP Completion Session* launch (session one) with directions it was to be completed post-session and returned directly to the independent, contracted evaluator. A copy of the evaluation consultant's October 2013 report is presented in Schedule VII.

By early October 2013, it became known to the *C2H Initiative* team that there was a low return rate of the instruments compared to the volume of participants engaged in the sessions. Options were considered. The evaluation consultant recommended a more intensive program of follow-up with participants. The recommendation was considered in light of additional *C2H Initiative* resources required, the available time, and the process invasiveness for busy operators.

A modified participant evaluation approach was adopted in late October 2013. The modified approach streamlined the *DWSP Completion Session* evaluation activity for session participants. The scope focused on self-reported learner outcomes, workplace action items associated with implementing DWSPs, and only essential information necessary to complete *Outcome Achievement submission* requirements for the *Rural Alberta Development Fund* (RADF) reporting.

A revised one-page evaluation tool was developed and administered as a learner outcome evaluation instrument. It was dispatched by the *C2H Initiative* Project Associate during the CEU administration process in November and December 2013. Participants were asked to provide three new things they learned or discovered about drinking water safety in their community and three key "action pieces" they had taken away from the sessions to help implement and sustain the DWSP. Participants were asked four RADF-related *Outcome Achievement submission* questions about outreach education delivered near or in their community and they were asked if they expected to complete a first DWSP before the end of 2013.

Eighty-five of the 195 participants completed the simplified one-page form, with 83 overall usable responses. The qualitative data were assigned a unique identification number by respondent to assure anonymity. Preliminary content analysis of the qualitative data points was undertaken. The full presentation of the qualitative data is presented in Schedule VIII, with the intent that it be more widely-available to stakeholders who would benefit from using it for continuous improvement and future program planning activities. It is not intended to be used in the application of humanities or social science research involving the use of human subjects and use in this manner in strictly beyond the scope of representations made to participants.

MILESTONES/OUTCOMES

A high-level of *DWSP Completion Session* participation was achieved in a short time period using the area cohorts. The fourteen cohorts engaged in the completion sessions despite a very busy period of summer and fall work, which was often complicated by extremes in 2013 summer weather (e.g., extensive flooding, extensive source water management requirements/turbidity, exceptional demands on available regional DWOS time and resources).

Of the eighty-five respondents who completed a DWSP learner evaluation, 98.7% indicated they have or expected to complete a first Drinking Water Safety Plan before the end of 2013. Two responses were not usable, three respondents indicated no response to the question, and one respondent indicated *No*, notwithstanding the regulatory implications.

Reports from the field indicate that participants valued having protected time to focus on completing the DWSP templates. Many valued the participation of the Chief Administrative Officer or other senior local public works officials as being engaged in the *DWSP Completion Session* process. The contracted delivery partners were asked to have area cohorts self-organize an update session approximately one-year from the final DWSP session (i.e., Session Three or Session Two where applicable). It is unclear, however, how effective this intervention will be without a coordinating structure/intervention, such as *C2H Initiative* to support follow-up. This is further discussed in the *C2H Initiative Project Report* in *Sustainability* pertaining to ESRD *Drinking Water Operating Specialist* (DWOS) resourcing.

There is little doubt the mandated nature of DWSPs was a catalyst for the high participation rates of rural municipalities. Notwithstanding, the Completion Sessions facilitated community-building among area certified operators and many professional connections were made or reinforced and many insights shared, including comparisons of local waterworks systems and shared watershed and Source Node concerns.

A cursory thematic review of the qualitative data presented in Schedule VIII indicates DWSP Completion Sessions provided a venue to help local operators and officials:

- Better understand concepts of *risk* as applied to waterworks generally, as well as to their specific utility/operating context;
- Become more sensitized to specific examples of *risk*;
- Normalize or validate *risk* as an inherent factor in any operating environment, including the idea that risk is not necessarily something which is "bad" or an "operator performance" issue, but rather represents factors to be identified, classified, managed and/or mitigated as possible;
- Become more sensitized to specific vulnerabilities in their own waterworks, or potential vulnerabilities as informed by the insights and lessons of others;
- Reinforce the importance of being continually vigilant and responsive "before little problems become big problems";
- Reframe waterworks maintenance, operational and system reinvestment decisions at the local-level as informed by priorities associated with *risk*;
- Engage waterworks safety planning and operation as one with shared roles and responsibilities of operators and officials; and
- Identify specific issues, problems, practices, or procedures within their own waterworks that require modification or action for improvement or change.

For operators and officials in northern Alberta in particular, the sessions also helped to clarify the current dual-role of several municipal approval engineers' joint-assignment as *Drinking Water Operating Specialist* (DWOS).

IMPACTS AND/OR LESSONS LEARNED

The field reports and associated debriefings suggest in the absence of the *C2H Initiative* efforts, there is a high likelihood many rural municipalities would remain unaware and/or unengaged about DWSPs, similar to the field reports about the 2005 mandatory risk assessment requirement that DWSPs have replaced. Notwithstanding the extensive efforts to communicate with rural locales undertaken by Alberta ESRD, we continued to find people who were new to various roles since 2011, who were promoted since 2011, or for whatever other reason simply did not recall receiving written information about the requirement. This is consistent with our own efforts to engage and communicate with rural communities throughout 2012 and 2013.

What we can say about impact, however, is that 131 rural municipalities/regulated systems took advantage of a facilitated opportunity to complete a first *Drinking Water Safety Plan* (DWSP) template specific to the four nodes of their waterworks system. We also know that 195 operators and officials were directly engaged in the process in a way that they would not otherwise have been able to be engaged within existing supports and processes. We can also report that participants completing the Learner Evaluation reported that they were satisfied to very satisfied with the learning experience made available to them closer to home.

At this time we are not in a position to comment on the quality or completeness of individual DWSPs. This remains an area for further investigation, potentially through the *C2H Initiative* partner, *University of Alberta, Alberta Centre for Sustainable Rural Communities* (ACSRC) in collaboration with the *University of Alberta, Water Initiative.* We'd encourage further dialogue and partnership among Alberta ESRD, the *University of Alberta*, and other partners, including the *Canadian Water Network* and *RES'EAU WaterNET*, based at *University of British Columbia* (http://www.reseauwaternet.ca/).

The *DWSP Completion Sessions* served as an action-learning platform for lessons, including:

- A municipal government culture in many communities where *risk* is perceived in a negative (or more specifically, a pejorative) way, including certified operators internalizing a DWSP Red-level risk as "If I have a high risk then I (or he/she) must not be doing my (or his/her) job (or doing it right)."

- Operators report employing waterworks system-specific "workarounds" that are dependent on that *specific* operator's knowledge, practice, or insight, and which can immediately alter the Risk rating for said item if that *specific* operator is removed from the operating context.

- Many operators intuitively and tacitly manage risk, don't perceive many specific risks as risks at all, or as risky as it may actually be, and benefit from the intervention of a re-framing discourse and/or dialogue with colleagues who have similar experiences in other systems. This has also been described as "you don't see the warts when you live with them every day", especially with specific Source Node, Treatment Node or Network/Customer Node considerations (e.g., cross-contamination or backflow risks).

- A municipal government public works culture exists in many communities where there is a default triage described as "Does it affective the water right away?" (i.e., "short-termism"), with many issues left unaddressed until they manifest as compounded, expensive problems.

- A municipal public works culture in many communities where "they're doing what they need to do to keep it going" and perhaps masking/delaying opportunities for earlier intervention in maintenance, rehabilitation, renewal or replacement, until things become serious and otherwise unduly expensive to address.

- A municipal government governance and public works culture which has been described throughout the fieldwork as "grant-dependent." That is, if there is no external (to the local government) grant-based funding then "nothing tends to get done". This local government political culture, where it exists, is counter to Alberta ESRD's Full Cost Accounting (FCA) and other sustainability initiatives. It has been suggested the culture has its roots in policy incentives initiated in the mid-to-late 1970s and may take considerable effort to change.

- Operators benefit from "protected time" away from daily operations to focus on cognitively-complex, involved tasks such as are required to complete a DWSP using higher-order skills of critical reflection, structured dialogue with peers and mentors, and deriving insights and lessons learned from peer-jurisdictions. This has been described in this sub-project as the need for participants to "pull themselves away" from reacting throughout a typical working day, to focus on substantial tasks of completing a DWSP.

- Many participants seemed confused by a mandatory requirement where they do not have to submit DWSPs to Alberta ESRD, with several expressing concern in sessions about where they will get feedback on the quality, completeness, and robustness of the DWSP.

- When engaged, some participants self-reported they had not seen and/or did not understand the facility Approval and/or Registration Letter detailing the Code of Practice of the specific waterworks for which they are responsible. Many also seemed unclear or confused when the requirement of an Operations Program was discussed. Where these awareness or comprehension issues exist, it seems to stem from gaps in local communications about roles and responsibilities among owners, officials and operators. It's hoped the commissioning of the *Getting on the Right Track with Local Water & Wastewater Utilities* toolkit as a companion to ESRD's *Taking Care of Your Drinking Water and Wastewater: A Guide for Members of Local Municipal Councils* will provide tools to address some of these gaps, especially when used in conjunction with supportive interventions from DWOS, municipal approvals officials, compliance officials, consulting engineers/operating specialists, and municipal leadership organizations.

The *DWSP Completion Session* program intervention helped shine a further light on what are known and understood issues with sustaining municipal waterworks operations in many rural Alberta locales. There are many well-run systems and the process served to validate those efforts. There is also much variation in what's being done in rural Alberta and the *DWSP Completion Sessions* serve as one catalyst, or point of engagement, that can be built on moving forward.

SUSTAINABILITY

It is a reporting requirement of the *Rural Alberta Development Fund* (RADF) outcome achievement process that *Sustainability* be addressed and discussed. Sustainability for *DWSP Completion Sessions* occurs at several levels. There is an embedded sustainability that resides in the operators and officials who have been engaged in the process and for the duration of their work within Alberta rural municipalities/regulated waterworks.

There is a sustainability which has been designed into the preparation and presentation of this Evaluation Summary Report. The report exists as a legacy of the process undertaken and lessons learned, such that other stakeholders may draw upon the content, learn from the early development and demonstration work, and propose and/or undertake programs of ongoing work more suitable for inclusion in enduring structures (e.g., Alberta ESRD *Drinking Water Operating Specialists*; *Alberta Water & Wastewater Operators Association*, Training Program; *Alberta Association of Municipal Districts and Counties*; and *Alberta Urban Municipalities Association* environment/water programming, etc.).

There is a particular opportunity for more active engagement with rural Alberta's regional water commissions as area hubs working more closely with their network distribution partner municipalities. This ought to be considered and encouraged, including potential opportunities for education, extension, and innovation support.

There is also an opportunity for stakeholders to be working more actively through the *Alberta Rural Development* Network (ARDN) and purpose specific centres, such as the *University of Alberta*, *Alberta Centre for Sustainable Rural Communities* on priority socio-technical research questions about implementing and sustaining the water safety planning approach in rural locales. This is worthy of further investigation as the *World Health Organization* (WHO), water safety plan (WSP) approach represents a significant shift in regulatory practice, culture and tone. It is more a reflection of a goal-oriented, capacity-building Responsive Regulation approach, requiring pyramids of support and sanctions as pro-offered by Braithwaite[1] and others[2,3]. It would be in the interest of those stakeholders directly engaged in the public policy domain (e.g., provincial government, municipal leadership organizations, post-secondary institutions, etc.) to better understand the assumptions underlying the water safety planning approach and respond accordingly over time to support sustainability of rural Alberta municipal waterworks.

[1.] Braithwiate, J. (2011). The essence of responsive regulation. *University of British Columbia Law Review, 44*(3), 475-520.

[2.] Baldwin, R., & Black, J. (2007). *Really responsive regulation* [LSE Law, Society and Economy Working Papers 15/2007]. London, UK: London School of Economics.

[3.] Karassin, O., & Perez,). (2010). From regulation to implementation: Responsive assessment of environmental compliance and enforcement. In, *Proceedings of Regulation in the Age of Crisis Third Biennial Conference,* June 17-19, Dublin,Ireland.

SCHEDULES

Schedule I – Papers Reviewed for the Design and Execution of DWSP Completion Sessions

Schedule II - Alberta Environment – May 2012 Information Letter 2

Schedule III – Communication to Rural Alberta CAOs and CEOs (May 2013)

Schedule IV – Contents of DWSP Completion Session Toolkit

Schedule V – Verification of Continuing Education Units (CEUs) available for DWSP Completion Sessions

Schedule VI - Verified Cohort Engagement by Municipality/Community/Regulated System

Schedule VII – October 2013 DWSP Completion Session Evaluation as delivered

Schedule VIII – December 2013 DWSP Learner Evaluation instrument and dataset

Schedule I

Published Papers Reviewed for the Design and Execution of Closer to Home (C2H) Initiative's, Area Cohort-based Drinking Water Safety Plan (DWSP) Completion Sessions

Byleveld, P. M., Deer, D., & Davison, A. (2008). Water safety plans: Planning for adverse events and communicating with consumers. *Journal of Water and Health, 06*(S1), 1-9.

Figueras, M. J., & Borrego, J. J. (2010). New perspectives in monitoring drinking water microbial quality. *International Journal of Environmental Research and Public Health, 7*, 4179 – 4202; doi: 10.3390/ijerph7124179

Gunnarsdóttir, M. J., Gardarsson, S. M., & Bartram, J. (2012). Icelandic experience with water safety plans. *Water Science & Technology, 65*(2), 277-288.

Gunnarsdóttir, M. J., Gardarsson, S. M., Elliott, M., Sigmundsdottir, G., & Bartram, J. (2012). Benefits of water safety plans: Microbiology, compliance and public health. *Environmental Science & Technology, 46*, 7782-7789.

Hamilton, P. D., Gale, P., & Pollard, S. J. T. (2006). A commentary on recent water safety initiatives in the context of water utility risk management. *Environment International, 32*, 958-966.

Howard, G. Water safety plans for small systems: A model for applying HACCP concepts for cost-effective monitoring in developing countries. *Water Science and Technology, 47*(3), 215-220.

Jayaratne, A. (2008). Application of a risk management system to improve drinking water safety. *Journal of Water and Health, 6*(4), 547-557.

Mahmud, S. G., Shamsuddin, S. A. J., Ahmed, M. F., Davison, A., Deere, D., & Howard, G. (2007). Development and implementation of water safety plans for small water supplies in Bangladesh: Benefits and lessons learned. *Journal of Water and Health, 5*(4), 585-597.

Mälzer, H. J., Staben, N., Hein, A., & Merkel, W. (2010). Identification, assessment, and control of hazards in water supply: Experiences from water safety plan implementation in Germany. *Water Science & Technology, 61*(5), 1307-1315.

Smeets, P. W. M. H., Rietveld, L. C., van Dijk, J. C., & Medema, G. J. (2010). Practical applications of quantitative microbial risk assessment (QMRA) for water safety plans. *Water Science & Technology, 61*(6), 1561-1568.

Summerill, C., Smith, J., Webster, J., & Pollard, S. (2010). An international review of the challenges associated with securing 'buy-in' for water safety plans within providers of drinking water supplies. *Journal of Water and Health, 8*(2), 387-398.

Vieira, J. M. P. (2011). A strategic approach for water safety plans implementation in Portugal. *Journal of Water and Health, 9*(1), 107-116.

Viljoen, F. C. (2010). The World Health Organization's water safety plan is much more than just an integrated drinking water quality management plan. *Water Science & Technology, 61*(1), 173-179.

Yokoi, H., Embutsu, I., Yoda, M., & Waseda, K. (2006). Study on the introduction of hazard analysis and critical point (HACCP) concept of the water quality management in water supply systems. *Water Science & Technology, 53*(4), 483-492.

Government of Alberta

Drinking Water Information Letter 2/2012

Drinking Water Safety Plans

Purpose

1. This Information Letter sets out Alberta Environment and Water's "road map" for introducing drinking water safety plans to all Environmental Protection and Enhancement Act (EPEA) regulated drinking water systems (a.k.a. waterworks system under EPEA).

Scope

2. This Information Letter applies to all drinking water systems holding an approval or registration from Alberta Environment and Water (AEW).

Background

3. The World Health Organization in their 4th Edition of the Guidelines for Drinking-Water Quality define a Water Safety plan as being "the most effective means of consistently ensuring the safety of a drinking-water supply through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer." In Alberta the term for a water safety plan is "Drinking Water Safety Plan".

4. A Drinking Water Safety Plan (DWSP) represents a system-wide approach to ensuring that the quality of water delivered to consumers is of good and consistent quality. To do this, it is necessary to consider the source of the water, how it is treated, and the storage and distribution of the treated water. A DWSP is based on a comprehensive assessment of the risk factors that could adversely affect the quality of the water delivered to consumers, and sets out how risk factors are to be monitored and managed. A DWSP is a location-specific assessment of a water supply system, from the source, or sources, of the raw water through to the points of delivery, considering risks and hazards, means to address and monitor the hazards, and procedures for managing and operating the system, under both normal and exceptional circumstances[1].

5. Traditionally the regulatory approach to maintaining the quality and safety of drinking water has largely been a prescriptive one, based on the ability of any

[1] This paragraph is taken from Chapter 15, Basic Water Treatment (4th Edition), Binnie and Kimber, Thomas Telford 2009.

given supply to meet standards (usually in the form of Maximum Acceptable Concentrations) set for a number of different chemical and biological parameters. Whilst it may be argued that this approach has successfully driven the investment programs for water authorities all over the world, it is not the whole story as it has not prevented a significant number of water supply incidents where large numbers of people have been infected and fatalities have occurred. There are a number of issues around the assumptions and the limitations of a sampling and analysis regime, but more importantly, the basis for such regimes is essentially reactive rather than proactive and consequently any concern may impact consumers before any effective action can be taken.

6. The most effective means of consistently ensuring the safety of a drinking water supply is through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. This approach is termed a drinking water safety plan.

7. Alberta Environment and Water has developed a "template" for completing a drinking water safety plan for use by drinking water systems in Alberta. The template is published on the AEW website[2]. The template is built as an MS-Excel spreadsheet and is broken into four main components (source water, treatment, distribution network and consumers' premises) with supporting pages and summaries of key actions required and interventions to be undertaken.

8. Through late 2011 and early 2012, Alberta Environment and Water provided training workshops for operators in the concepts of drinking water safety plans and, specifically, on how to address the completion of the template in anticipation of changes to approval/registration requirements that will require the adoption and completion of a drinking water safety plan for all approved drinking water systems by December 31, 2013. On-going support is available, in the first instance, from Drinking Water Operations Specialists (DWOS) who can be contacted via AEW's district or regional offices.

9. This Information Letter is to inform partners and stakeholders of Alberta Environment and Water's adoption of the use of drinking water safety plans.

Details of Implementation of DWSP

10. On April 30, 2012, a revised requirement at section 1.13 will be placed in the Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems; Part 1 – Standards for Municipal Waterworks (2012) replacing the existing requirement for a risk assessment. Approval and registration holders will be required to prepare a DWSP in accordance with the requirement in the Standards. Waterworks facilities in existence on June 1, 2012

[2] www.environment.alberta.ca/apps/regulateddwq/dwsp.aspx

will have until December 31, 2013 to prepare their DWSP. New facilities as of June 1, 2012 will have 12 months to prepare their DWSP.

Enquiries

11. Enquiries on this Drinking Water Information Letter should be addressed to the Drinking Water Specialist, Drinking Water and Wastewater Section, Regional Integration Branch (Dr Donald Reid, Donald.Reid@gov.ab.ca, 780-644-8061).

Closer to Home (C2H)

Smaller Centres Water & Wastewater Capacity Renewal Initiative*

April 2013

To Alberta Municipal Affairs designated local Chief Elected Officials (CEOs)

Re: Information update on water and wastewater capacity supports – Spring 2013

Dear CEO,

Water and wastewater utility issues can prove some of the most challenging and complex of the issues a municipal Council juggles. Over the last year, through the C2H Initiative, small teams have been addressing many of the capacity issues which challenge smaller Alberta communities in your efforts to consistently provide safe drinking water and responsibly manage wastewater.

Supports and tools for municipalities continue to be offered and developed in 2013 to make the job a bit easier. We've found many Council members benefit from information organized in a focused manner. We're pleased to enclose a complimentary copy of *Taking Care of Your Drinking Water and Wastewater: A Guide for Members of Municipal Councils*.* This Alberta Environment and Sustainable Resource Development (AESRD) guide can help reduce the time needed and places to seek out information as Council engages it's duty of care and diligence for water and wastewater utilities. This copy is for your Council secretariat. A desk reference copy has been sent under separate cover to the Office of the CAO of your community. Several other helpful resources to address emerging issues for many Alberta municipalities can be accessed at:

- AESRD *Drinking Water Safety Plan* (DWSP) information for new DWSP requirements: **http://environment.alberta.ca/apps/regulateddwq/DWSP.aspx**
- May 2012 Information Letter on DWSP completion: **http://environment.alberta.ca/04010.html**
- Monthly *WaterWise Alberta* Information Session for local elected officials and administrators (3rd Thursday of every month at noon): **https://awwoa.ab.ca/home/content/1075**
- AUMA Water microsite: **http://water.auma.ca/**
- Operational succession primer: **https://awwoa.ab.ca/home/pdfs/C2H_Succession_2012.pdf**
- Operations recruiting toolkit: **https://awwoa.ab.ca/home/content/1064**

We've also included a *What Can C2H Initiative Do For You?* flyer. We have DWSP completion support workshops planned for 2013, which could save your municipality time and resources. We'd love to hear from you. Our C2H Project Associate, Mr. Jeffrey Hanger is available at **C2HAssociate@awwoa.ca** or via phone at 1-877-454-7745, Ext 221 or 403-783-4164.

Sincerely,

** a PDF copy of the Guide is accessible at **http://environment.alberta.ca/03992.html**

Brian Brost & Garth Carl
Project Executive Group Co-Chairs, C2H Initiative

* Closer to Home Project Development Office
c/o AWWOA Provincial Office
10806-119 Street NW
Edmonton ▪ Alberta ▪ Canada ▪ T5H-3P2

Project Administration

Alberta Water & Wastewater Operators Association

Major Project Funding

Rural Alberta Development Fund

This project received financial support from Rural Alberta Development Fund. Visit: radf.ca

DRINKING WATER SAFETY PLAN RELATED NOTICES (SPRING 2013)

SMALLER ALBERTA MUNICIPALITIES – HAVE YOUR SAY!

Alberta is the first jurisdiction in North America to implement the World Health Organization's (WHO), Water Safety Plan approach, through Alberta Environment & Sustainable Resource Development's mandated Drinking Water Safety Plans (DWSPs).

The Canadian Water Network (CWN), a national research network of excellence, has funded a project to study the experience of smaller Alberta municipalities as DWSPs are being implemented. A researcher from the Centre for Water Studies at Dalhousie University will be in Alberta throughout the next several months to conduct interviews with local elected officials, senior administrative officials, and water utility operators about their DWSP experiences.

If you would like your community to assist with this study, please see the information circular at **https://awwoa.ab.ca/home/pdfs/DWSP_Research_Project_Description.pdf**, or contact the field researcher directly by email at **Kelsey.Chandler@dal.ca** or by phone at **(250) 619-7819**.

INFORMATION LIST OF RESOURCES FOR SMALLER COMMUNITIES

The Secretariat of the Council of the Federation (i.e., council of Canadian provincial/territorial Premiers) has recently commissioned a fact-finding study to assess information gaps in the information and resources available to assist smaller municipalities and communities with preparing and maintaining their Drinking Water Safety Plans (DWSPs). An early outcome of the study, made available on the web in late March 2013, is an inventory of existing resources from several jurisdictions. The inventory is available for viewing/downloading of documents at:

http://centreforwaterresourcesstudies.dal.ca/Guidance_Documents

GROUP ASSISTANCE IN DRINKING WATER SAFETY PLAN (DWSP) COMPLETION

Following the initial development and subsequent review by local councils, Alberta's new Drinking Water Safety Plans (DWSPs) are to be **maintained on an annual basis**, consistent with the intent DWSPs are an ongoing risk-management and continuous quality management tool.

To help local Approval Holders and their Operators in smaller Alberta communities get off to a good start in completing their first DWSP, as well as supporting the relationships that will be beneficial to maintaining DWSPs on an annual basis, the Closer to Home (C2H) Initiative is supporting several group-based opportunities to learn about, and complete, your first DWSP. If your municipality or community is interested in these opportunities please contact **Jeffrey Hanger, C2H Initiative Project Associate** in **May** or **early June** at **C2HAssociate@awwoa.ca**

Closer to Home (C2H)

Smaller Centres Water & Wastewater Capacity Renewal Initiative*

April 2013

To Alberta Municipal Affairs designated local Chief Administrative Officers (CAOs)

Re: Information update on water and wastewater capacity supports – Spring 2013

Dear CAO,

Water and wastewater utility issues are proving some of the most challenging and complex for a local government. Over the last year, through the C2H Initiative, small teams have been addressing many of the capacity issues which challenge smaller Alberta communities to consistently provide safe drinking water and responsibly manage wastewater.

Supports and tools for municipalities continue to be offered and developed in 2013 to make the job a bit easier. We continue to be concerned about reports of confusion among many local administrators and councils about the safety and regulatory requirements for water and wastewater operations. We're pleased to re-issue a complimentary copy **for CAO office reference use** of *Taking Care of Your Drinking Water and Wastewater: A Guide for Members of Municipal Councils*.** This Alberta Environment and Sustainable Resource Development (AESRD) guide is a starting point to help organize oversight and compliance information as a desk reference. A copy of the Guide has also been sent to your designed Chief Elected Official. Operators have separate access to the Guide. Other helpful resources can be accessed at:

- AESRD *Drinking Water Safety Plan* (DWSP) information for new DWSP requirements: **http://environment.alberta.ca/apps/regulateddwq/DWSP.aspx**
- May 2012 Information Letter on DWSP completion: **http://environment.alberta.ca/04010.html**
- Monthly *WaterWise Alberta* Information Session for local elected officials and administrators (3rd Thursday of every month at noon): **https://awwoa.ab.ca/home/content/1075**
- AUMA Water microsite: **http://water.auma.ca/**
- Operational succession primer: **https://awwoa.ab.ca/home/pdfs/C2H_Succession_2012.pdf**
- Operations recruiting toolkit: **https://awwoa.ab.ca/home/content/1064**

We've also included a *What Can C2H Initiative Do For You?* flyer. We have DWSP completion support workshops planned for 2013, which could save your municipality time and resources. We'd love to hear from you. Our C2H Project Associate, Mr. Jeffrey Hanger is available at **C2HAssociate@awwoa.ca** or via phone at 1-877-454-7745, Ext 221 or 403-783-4164.

Sincerely,

** a PDF copy of the Guide is accessible at **http://environment.alberta.ca/03992.html**

Brian Brost & Garth Carl
Project Executive Group Co-Chairs, C2H Initiative

* Closer to Home Project Development Office
c/o AWWOA Provincial Office
10806-119 Street NW
Edmonton ▪ Alberta ▪ Canada ▪ T5H-3P2

Project Administration

Alberta Water & Wastewater Operators Association

Major Project Funding

Rural Alberta Development Fund

This project received financial support from Rural Alberta Development Fund. Visit: radf.ca

Schedule IV
Drinking Water Safety Plan (DWSP) Completion Session
Toolkit Contents

Binder

Tab 1

- Powerpoint handout of Session One briefing/didactic information
- May 2012 Alberta Environment & Sustainable Resource Development (ESRD) *Information Letter 2* [as presented in Schedule II]
- Communication to Chief Administrative Officers (CAOs) and Chief Elected Officials (CEOs) [as presented in Schedule III]

Tab 2

- Alberta ESRD Drinking Water Safety Plan (DWSP) Training Book [in color]

Tab 3

- Government of Alberta - *A Guidance Framework for the Production of Drinking Water Safety Plans* (DWSPs) document

Tab 4

- Government of Alberta, *Guidance Notes for Drinking Water Safety Plan Template* document

Tab 5

- 11" x 17" worksheets for *Source, Treatment, Network, Customer* nodes[optional]

Front sleeve

- *Exploring Careers in Water & Wastewater Operations* DVD

Back sleeve

- *Taking Care of Your Drinking Water & Wastewater: A Guide for Members of Local Municipal Councils* [coil bound Alberta ESRD guide]

USB storage drive *["flash drive" included in binder] – all public information accessible via web, but made universally-accessible to all DWSP participants due to Internet connectivity is parts of Alberta, etc.*

- DWSP MS Excel Template (DWSP_Template_8487-AccessJune13)
- *What Can C2H Initiative Do For You?* community circular

DWSP Tools folder including

- *Drinking Water Safety Plan Completion Session, Session One Participant Briefing/Orientation* [powerpoint slides in PDF format]
- *Drinking Water Safety Plans – Proactive Risk Management for Water Supply Systems* brochure [Government of Alberta, print-on-demand for educating local officials]
- Government of Alberta - *A Guidance Framework for the Production of Drinking Water Safety Plans* (DWSPs) document
- Government of Alberta, *Guidance Notes for Drinking Water Safety Plan Template*

- Alberta ESRD *Drinking Water Safety Plan Training Course* package
- Alberta Environment's Drinking Water Program: A 'Source to Tap, Multi-Barrier' Approach (May 2009) booklet in printable PDF

Alberta-Printable Worksheets sub-folder

- DWSP – Source Node worksheet [11" x 17" printable]
- DWSP – Treatment Node worksheet [11" x 17" printable]
- DWSP – Network Node worksheet [11" x 17" printable]
- DWSP – Customer Node worksheet [11" x 17" printable]
- DWSP – Worksheet Package complete [11" x 17" printable]

World Health Organization (WHO), Water Safety Plan (WSP) Training Materials folder

- WHO/IWA *Water Safety Plans – Training Package, Facilitator Handbook*
- WHO/IWA *Water Safety Plans – Training Package, Participant Handbook*
- WHO/IWA *Water Safety Plan Manual: Step-by-Step Risk Management for Drinking-Water Suppliers*
- WHO *Water Safety Plans – Training Package* power point by module
- WHO *Water Safety Planning for Small Community Water Supplies: Step-by-Step Risk Management Guidance for Drinking-Water Supplies in Small Communities*
- WHO Water Safety Plans: Managing Drinking-Water Quality from Catchment to Consumer [WHO/SDE/WSH/05.06 English only, 2005].

Alberta Operator Certification folder [CertificationInfo]

- *Demystifying Operator Certification in Alberta* video in MP4 format [Nov 2011]
- *Demystifying Operator Certification in Alberta* handout for video [PDF format]
- Alberta ESRD Water & Wastewater Operator Certification Program *Code of Conduct* [PDF format]
- Alberta ESRD Water & Wastewater Operator Certification Program *Examination Code of Conduct* [PDF format]
- Alberta ESRD Water & Wastewater Operator Certification Program *Frequently Asked Questions (FAQs)* [PDF format]
- Alberta ESRD Water & Wastewater *Operators' Certification Guidelines* [PDF format]
- Alberta Environment, *Minimum Certified Operator Attendance Guidelines for Waterworks Systems* (effective January 1, 2009) [PDF format]

Operator Succession folder

- 8 *Exploring Careers in Water & Wastewater Operations* video segments [MP4 format]
- *Working with Water* form fillable 11 x 17 recruiting poster for local use [PDF format]
- *Who Will Follow in Your Footsteps?* Alberta Utility Operator one-page reprint [PDF format]
- *Is Your Operation Ready for 'the Big Handoff'?* Alberta Utility Operator reprint [PDF format]
- *Operational Succession for Water & Wastewater Utilities* primer [PDF format]

Alberta Water & Wastewater Operators Association

10806 - 119 Street
Edmonton, AB T5H 3P2
P (780) 454-7745 F (780) 454-7748
www.awwoa.ca

Drinking Water Safety Plan (DWSP)

Group Completion Sessions

Guidance on Continuing Education Unit (CEU) Eligibility

Following consultation with Alberta Environment and Sustainable Resource Development (ESRD), the total number of Continuing Education Units (CEUs) available to operators who participate in the entire DWSP Group Completion Sessions is 0.6* CEUs.

The CEUs will be allocated as follows:

- Initial half-day DWSP training session is approved for 0.3 CEUs.
- Attendance at two follow-up group completion sessions is approved for 0.3 CEUs.

*** Please note:** The 0.6 CEUs are only available to operators who have never taken full day DWSP training before – either through the province-wide sessions hosted by ESRD or any other full-day DWSP training that was approved for CEUs.

If an Operator has previously taken the ½ day DWSP training through the AWWOA and is now participating in the DWSP Group Completion Sessions, they would only be eligible for 0.3 CEUs if they attend the two follow-up completion sessions.

The maximum number of CEUs any Operator can receive for any and all DWSP related training is 0.6 CEUs.

August 2013

FINAL AT DECEMBER 31, 2013

Schedule VI - Verified Cohort Engagement by Municipality/Community (to Dec 31/2013)

Drinking Water Safety Plan (DWSP) Completion Session – Cohort Distributed Learning

COHORT	AREA OF PROVINCE		MUNICIPALITY, REGULATED CO-OPERATIVE, OR REGIONAL COMMISSION
Cohort One (2013-01)	**Calgary & Area** (includes water co-operatives)	*1*	Town of High River *(interrupted by June '13 flood)*
		2	Town of Banff
		3	Town of Langdon
		4	Cottonwood Estates Water Co-operative
		5	Hill Spring Meadows Water Co-operative
		6	George/ Delrich Water Co-operative
		7	Mount Vista Estates Waterworks System
		8	Mountain River Estates Water Co-op
		9	Big Hill Creek Estates
		10	Ravencrest Water Co-operative
Cohort Two (2013-02)	**Grande Prairie & Area**	*11*	Village of Hines Creek
		12	Town of Beaverlodge
		13	Town of Wembley
		14	Village of Rycroft
		15	Village of Hythe
		16	City Grande Prairie, Aquatera
		17	Municipal District Greenview
		18	Town of Peace River
		19	Town of Grande Cache
		20	County of Grand Prairie
Cohort Three (2013-03)	**Slave Lake & Area**	*21*	Municipal District of Big Lakes (Kinuso)
		22	Municipal District of Big Lakes (Faust)
		23	Municipal District of Big Lakes (Joussard)
		24	Municipal District of Big Lakes (Enilda)
		25	Municipal District of Big Lakes (Grouard)
		26	Town of High Prairie
		27	East Prairie Metis Settlement
		28	Town of Fox Creek
		29	Municipal District of Opportunity (Wabasca)
		30	Town of Whitecourt
		31	Municipal District of Opportunity (Red Earth Creek)
		32	Gift Lake Metis Settlement
		33	Peavine Metis Settlement
		34	Municipal District of Opportunity (Calling Lake)

FINAL AT DECEMBER 31, 2013

COHORT	AREA OF PROVINCE		MUNICIPALITY, REGULATED CO-OPERATIVE, OR REGIONAL COMMISSION
Cohort Four (2013-04)	**Flagstaff County Area municipalities**	*35*	Municipal District of Wainwright
		36	Town of Killam
		37	Town of Sedgewick
		38	Village of Strome
		39	Village of Heisler
		40	County Paintearth
		41	Town of Coronation
		42	Village of Galahad
		43	Village of Forestburg
		44	Town of Daysland
		45	Town of Hardisty
		46	Village of Lougheed
Cohort Five (2013-05)	**Red Deer & Area** (conducted in Penhold)	*47*	Village of Delburne
		48	Town of Penhold
		49	Town of Eckville
		50	Town of Rimbey
		51	Town of Bentley
		52	Village of Elnora
		53	City of Red Deer
		54	Town of Three Hills
		55	Village of Caroline
Cohort Six (2013-06)	**Municipal District of Provost area municipalities**	*56*	Village of Edgerton
		57	Village of Chauvin
		58	Village of Irma
		59	Municipal District of Provost
		60	Town of Provost
		61	Village of Amisk
		62	Village of Hughenden
Cohort Seven (2013-07)	**North Saskatchewan River Basin (East of Edmonton)** (conducted in St. Paul)	*63*	Village of Vilna
		64	Town of St. Paul
		65	City of Cold Lake
		66	Elinor Lake Resort, Lac La Biche County
		67	Village of Myrnam
		68	Smoky Lake County
		69	City of Lloydminster
		70	Town of Bonnyville
		71	County of Two Hills
		72	Westwind RV Park, Athabasca

FINAL AT DECEMBER 31, 2013

COHORT	AREA OF PROVINCE		MUNICIPALITY, REGULATED CO-OPERATIVE, OR REGIONAL COMMISSION
Cohort Eight (2013-08)	**North Saskatchewan River Basin (West of Edmonton)** (conducted in Drayton Valley)	*73*	Town of Rocky Mountain House
		74	Town of Westlock
		75	Town of Drayton Valley
		76	Parkland County
		77	Clearwater County
		78	Hamlet of Nordegg
		79	Village of Warburg
		80	Village of Thorsby
		81	Village of Breton
		82	Brazeau County
		83	Trestle Creek Golf Resort
		84	Leduc County
Cohort Nine (2013-09)	**Vulcan County**	*85*	Village of Milo
		86	County of Lethbridge Rural Water Assoc
		87	Village of Champion
		88	Village of Carmangay
		89	Town of Milk River
		90	Town of Pincher Creek
		91	Village of Arrowood
Cohort Ten (2013-10)	**High Level & Mackenzie County Area**	*92*	Town of High Level
		93	Town of Manning
		94	Town of Rainbow Lake
		95	Footner Lake, Mackenzie County
		96	Town of Garden River
		97	County Northern Lights
		98	La Crete, Mackenzie County
		99	Zama, Mackenzie County
		100	Fort Vermillion, Mackenzie County
		101	Jean D'Or Prairie, Little Red River Cree Nation
Cohort Eleven (2013-11)	**MD Wood Buffalo area**	*102*	Municipality of Wood Buffalo
		103	City of Fort McMurray
		104	Hamlet of Fort MacKay
		105	Hamlet of Fort Chipewyan
		106	Hamlet of Conklin
		107	Hamlet of Anzac
		108	Hamlet of Janvier

FINAL AT DECEMBER 31, 2013

COHORT	AREA OF PROVINCE		MUNICIPALITY, REGULATED CO-OPERATIVE, OR REGIONAL COMMISSION
Cohort Twelve (2013-12)	**Henry Kroeger Regional Water Services Commission partners** (Hanna & area)	*109*	Town of Hanna
		110	Village of Cereal
		111	Special Areas 2 & 3 Multiple Hamlets
		112	MD of Acadia (Village of Acadia Valley)
		113	Henry Kroeger RWS Commission
Cohort Thirteen (2013-13)	**EPCOR Rural Regional Partners** (Network Distribution)	*114*	City of Leduc
		115	City of St Albert
		116	Hwy 14 WSC
		117	Hwy 28/63 Thorhild County
		118	Village of Redwater
		119	Town of Bon Accord
		120	Village of Ferintosh
		121	Town of Ponoka
		122	Village of Viking
		123	Town of Tofield
		124	Village of Mannville
		125	Town of Vermilion
		126	Town of Beaumont
		127	Sturgeon County
		128	Parkland County
		129	Town of Morinville
Cohort Fourteen (2013-14)	**High River & Area** (June '13 flood response contingency for DWSP)	*N/A*	Town of High River (reported as 01 in 2013-01)
		130	Wheatland County
		131	Municipal District of Foothills No. 31
		131	**Total Rural Municipalities, Co-operatives, or Regional Commissions Participating in an Area Cohort to December 31, 2013**

Drinking Water Safety Plan (DWSP) Completion Sessions

Participant Evaluation Findings

(From results as of October 08, 2013)

Prepared for the Closer to Home Initiative (CH2) by
Komali Naidoo, MSc.
Date: October 08, 2013

Table of Contents

DWSP Sessions Participant Feedback

Participant Overview

Participants attending a Drinking Water Safety Plan (DWSP) Completion Session were asked to complete a Participant Feedback Form at the end of the Session. The Participant Feedback Form can be found in Appendix A. The information gathered is to be used to improve and refine future Sessions planned and provided within Alberta so the information is useful and relevant for session participants.

Across Alberta Sessions to date have been held between June 12th and October 2nd, 2013. Within that time period 26 participants submitted completed Participant Feedback Forms via email, fax or mail. These 26 participants attended sessions offered in seven different locations across the province. Table 1 shows the breakdown in these session locations by frequency and percentages.

Table 1. Participant Session Location

Session Location	Frequency	Percent
Drayton Valley	7	26.9
Edmonton	7	26.9
Grande Prairie	2	7.7
Killam	3	11.5
Provost	1	3.8
Slave Lake	1	3.8
Village of Milo	5	19.2
Total	**26**	**100**

Findings

Overall Session Usefulness

Participants were asked to rate on an agreement scale the Session in terms of its usefulness for the system in which they worked, volunteered or co-owned. On a scale of “1” to “4”, where “1” was “Disagree” and “4” was “Agree”, unanimously all 26 participants “Agreed” that overall the session was useful to the system in which they worked, volunteered or co-owned.

The following are specific comments made by 15 participants:

- Agree-Very informative and help to understanding definitions.
- Any assistance in the preparation of a DWSP is appreciated.

- Being on a regional system. How to handle some questions answered terminology to use or not to use. What explanations needed or not all helped did not find or hear about any other supports.
- Even though two systems are not alike it gives the operator the stepping stones to get the plan in operation.
- He keeps it interesting and relevant.
- Helped put our risks in perspective. Very clean. Good format.
- It is all a good starting point.
- It was good to have definitions explained.
- It's regulated. So it has to be done.
- Knowledge of how the instrument is designed to work. Straight from the guy who wrote it is very useful, particularly for generating a good mindset to fill out the forms.
- Not necessarily "system" related. General information was relevant.
- The consultant that presided at the workshop was knowledgeable and informative. He had answers to questions that I and our operator had pertaining to our specific water plant and location.
- The session assisted me with identifying the risks in the Water Work System in which I work in.
- This will enhance the understanding of expectations of the assessment and erection of the DWSP.
- Yes. Lots of help in understanding the DWSP and what to write in response to the risks.

Session Design Elements

Participants were asked to rate the Session based on a number of session format and design elements.

Usefulness of Session design elements

First they were asked to rate the usefulness of the Session based on five different design elements notably:

1. Morning oral briefing on DWSPs
2. Questions and answers with multiple choice remotes
3. Risk identification exercises
4. Structured practice using Excel template
5. Printed materials and USB as supplied

Table 2 below ranks the five design elements from highest to lowest based on the average scores computed.

Table 2. Averages of the Five Design Elements, ranked from highest to lowest

Design Elements	Number of Participants	Average
Usefulness of questions/answers with multiple choice remotes	24	4.54
Usefulness of having printed materials and USB as supplied	25	3.52
Usefulness of structured practice using Excel template	25	3.36
Usefulness of risk identification exercises	26	3.31
Usefulness of Morning Oral Briefing on DWSPs	26	3.15

The next set of Tables 3 to 7, examine the ratings for each of the five design elements separately summarizing participant comments where applicable.

Table 3. Frequencies and Percentages for Ratings of "Morning Oral Briefing on DWSPs"

Ratings	Frequency	Percent
Not Important	1	3.8
Somewhat Important	4	15.4
Important	16	61.5
Very Important	4	15.4
Does Not Apply	1	3.8
Total	**26**	**100.0**

Four participants commented on the DWSP briefings. For one participant this was important because it provided background and explanations. For another participant they found it to be a good background. However, this participant also added that it would be of limited use for people who have already taken the seminar. Two others had positive reflections on the DWSP briefings, one saying that they had good reviews from St. Paul and the other one thought the session was well organized.

Table 4. Frequencies and Percentages for Ratings of "Questions/Answers with Multiple Choice Remotes"

Ratings	Frequency	Percent
Not Important	1	4.2
Somewhat Important	4	16.7
Important	11	45.8
Very Important	1	4.2
Does Not Apply	7	29.2
Total	**24**	**100.0**

Two participants shared some additional comments related to this question. One said they found the questions to be "Excellent". And the other liked the simplicity of this questions and answers format.

Table 5. Frequencies and Percentages for Ratings of "Risk Identification Exercises"

Ratings	Frequency	Percent
Somewhat Important	3	11.5
Important	12	46.2
Very Important	11	42.3
Total	**26**	**100.0**

Overall, the majority of participants rated the usefulness of having the risk identification exercises as either "Important" or "Very Important". One person liked the consistency of this exercise. For two participants this was good insights into unsuspecting risks and helping to identify new risks. For a fourth person, they liked the warning around not ranking all risks as a high risk.

Table 6. Frequencies and Percentages for Ratings of "Structured Practice using Excel Template"

Rating	Frequency	Percent
Somewhat Important	3	12.0
Important	10	40.0
Very Important	12	48.0
Total	**25**	**100.0**

Again, overall the majority of participants rated the usefulness of having a structured practice using an Excel template as "Important" or "Very Important". For the four participants who provided some additional comments they found the Excel template to be easy to use and liked having this template.

Table 7. Frequencies and Percentages for Ratings of "Printed Materials and USB as Supplied"

Rating	Frequency	Percent
Somewhat Important	1	4.0
Important	10	40.0
Very Important	14	56.0
Total	**25**	**100.0**

Overall the majority of participants rated the usefulness of having printed materials and USB supplied as either "Important" or "Very Important". These were some additional comments provided by five participants:

- Gave me materials to bring home and share with other operators.
- Nice to have fresh copies of everything you read.
- Or get it off line.
- Very handy and useful.
- We had already downloaded the program.

Use of workbook and worksheets

A final Session design element question asked related to whether or not participants used the Workbook and the 11”x17” worksheets. Twenty-five participants responded to this question. The majority, 13 participants (52%) said they DID use the workbook and worksheets. Then, 8 participants (32%) said they used them “Somewhat”. And a minority of participants, 4 (16%) had not used the workbook and worksheets. One participant specifically commented that the workbook and worksheets made things easy. Another said these materials were very informative and helpful. And a third participant indicated that they will use these materials.

Worked Well

Participants were asked to comment on what worked well about the Session. Of the 26 participants who submitted a Participant Feedback Form, 23 provided specific comments. The following are their verbatim comments:

- All his reasoning when you think nothing is reasonable.
- Allotted time for actually working to complete DWSP.
- Alvin - that man is a provincial treasure. Keep him involved in these things.
- Computer with me.
- Going through the session with Alvin was very helpful.
- Good presentation and explanation of materials. Good facility for session.
- Group size-not too big. Facilitator is excellent.
- Hands on. Explanation and user-friendly.
- Having other operators talk about their risks.
- Information explanation.
- Like having the template.
- Lunch
- Lunch was good.
- Materials offered. Good speaker and worthwhile having Alberta Environment on hand.
- Person leading it was well versed in the template and in the industry.
- Session leader well informed.
- Size was good. Location was good. Session information was good.
- Spreadsheet, material and knowledge and easiness to work with the instructor.
- The Excel template worked and was easy to understand.
- The instructor was very well informed. Good interaction with other participants.
- The session worked well as all the municipalities that were in attendance had suggestions, ideas, problems that we were all familiar with or found useful and the consultant provided answers and easy to understand information.
- The USB template was very useful.
- Utilizing a computer to work through the template.

Improvements

Participants were also asked to comment on what could have been done differently in the Sessions. Sixteen of the 26 participants who submitted Participant Feedback Forms responded to this question. The following are their verbatim comments:

- I do not think it should be changed.
- More breaks.
- More time to work on template.
- Nothing unless a little common sense could become a part of environment.
- Perhaps a larger venue.
- Review timelines since Council needs to sign off.
- Speed it up. Not difficult to understand.
- Too many people crammed into too small an area. Room was way too small. Class size was OK but should not be any bigger. Found way too many people talking and such while seminar was going on. No control of class. Could not hear what was going on sometimes. Several people I talked to during breaks thought they were going to be able to fill out the template at this seminar, not just learn how to do it. People beside me were filling it out and talking while doing it and I missed several things because of that and hoe we were jammed in there. Nowhere while taking adult courses or seminars of this nature have I seen having a full 2 hours between breaks.
- All good
- Can't think of anything.
- I do not have any suggestions as I have nothing to compare this workshop to. I felt that the workshop was needed by me and my operator as we are both fairly new to municipal government and public works.
- N/A
- None
- Not much. Well done.
- Nothing

Unintended Outcomes

Participants were asked to reflect upon and then comment on whether there were any unintended outcomes or surprises that they experienced during the Session. These were some of their verbatim comments:

- Assisted me with identifying new risks in the system.
- Controls in place have a much larger impact on scores than I would have thought.
- How important it is to know the process of your water systems.
- Maybe a few areas that has been neglected and now has been brought back to the forefront.
- Not really. A few things were brought to my attention.
- Now aware of everything I hadn't thought of before today.

- Only have to do THMs once every three years instead of yearly. Awesome!
- Some of the risks can be taken for granted. A person might overlook a risk and not be aware of it.
- With the assistance of the consultants, the drinking water safety plan completion requirement is not as daunting of a task as previously thought in the beginning.

Action Items and Commitment Levels

For a final question, participants were asked to identify up to three concrete action items that they might consider or recommend locally as a result of participating in the Session. First, they were asked to list the action items and then they were asked to rank their perceived level of commitment of local leadership about the action being implemented. Commitment levels ranged from 1 (lowest level of commitment) to 4 (highest level of commitment).

Table 8. Action 1 Cross tabulated by Commitment level for Action 1

		Commitment level for Action 1		
		3	4	Total
Action 1	Assessment of system	1	0	1
	Briefing Council on important requirements for our water treatment system.	0	1	1
	Confirm control measures in place.	0	1	1
	Do the DWSP as soon as possible.	0	1	1
	Door alarms of WTP	0	1	1
	Get all crew members involved	0	1	1
	Hands on	1	0	1
	May prepare an information session on DSWP for senior management and/or elected officials.	1	0	1
	More practical time on template	0	1	1
	PRV testing	1	0	1
	Spray all meter and pipe repairs with bleach. It will be implemented.	0	1	1
Total		**4**	**7**	**11**

Table 9. Action 2 Cross tabulated by Commitment level for Action 2

		Commitment level for Action 2		
		3	4	Total
Action 2	Continue to update monthly.	0	1	1
	Develop SOGS to support the plan	0	1	1
	Good direction	1	0	1
	Loss of supply. Result of failure of critical mass.	0	1	1
	Procedures written for replacing meters and tie-ins. It will be implemented.	0	1	1
	Review of approval	1	0	1
	Schedule regular meetings between water operator and Council.	0	1	1
Total		2	5	7

Table 10. Action 3 Cross tabulated by Commitment level for Action 3

		Commitment level for Action 3			
		1	3	4	Total
Action 3	Back up operator training	0	0	1	1
	Could utilize it if situation arises.	0	1	0	1
	Insufficient supply due to insufficient storage capabilities.	1	0	0	1
	Set annual timeframe for updating DWSP.	0	0	1	1
Total		1	1	2	4

DWSP Sessions Participant Feedback

APPENDIX A: Participant Feedback Form

DRINKING WATER SAFETY PLAN (DWSP) COMPLETION SESSIONS
LAUNCH SESSION 2013-01 (Calgary, June 12, 2013)
Participant Feedback

Introduction
Thank you for attending the Drinking Water Safety Plan (DWSP) Completion Session launch on June 12 at NAIT Campus in Calgary. This is the Participant Feedback form.

The information collected will help with supports that may be useful for completing a first DWSP. The information will also be used to improve and refine other sessions planned in Alberta. Your participation in this evaluation activity matters and the information is taken seriously and used.

Completing and Returning the Form
Your identity will be removed before the information is shared with the Closer to Home (C2H) Initiative or its partners, suppliers, or funders. Please email the completed Participant Feedback document to the independent evaluation consultant **Komali Naidoo** at knaidoo@tbwifi.ca or fax back to 780 413-8196 or mail to DWSP Completion Sessions c/o Box 60639, U. Alberta RPO, Edmonton, AB, T6H-0W9. **PLEASE HIGHLIGHT OR OTHERWISE CLEARLY MARK THE RESPONSES BELOW IF COMPLETING BY COMPUTER. If you are completing this document by handwriting, please use a pen with black ink and write/print legibly.**

Instructions
Please carefully review the following objective statements as a review exercise before completing the instrument:

The DWSP Completion Session launch had the following objectives:

- Provide an opportunity for operator- and owner -level awareness education about the introduction of DWSPs in Alberta;
- Provide an opportunity to receive DWSP completion information in a 'one-stop-shop' way;
- Receive a working introduction to the Alberta Environment & SRD Excel template for recording DWSP system-specific Risk information;
- Provide an opportunity to introduce, identify, and explore identifiable Risks for your own system and with people in your geographic area of Alberta; and
- Identify other supports that your local system may require in order to successfully complete a first DWSP before the end of 2013.

Based on the objectives listed above, how would you rate the following statements as your immediate response to the usefulness of the DWSP Completion Session launch?

Question 1

Overall, the Session has been useful for the system in which I work or volunteer/co-own:

disagree somewhat disagree somewhat agree agree

Please Elaborate:

_____

_____

Question 2
Please rate and comment on the usefulness of the Session design elements:

	Does Not Apply	Not Important	Somewhat Important	Important	Very Important
Morning Oral Briefing on DWSPs	9	1	2	3	4

Comment:

_____

_____

Questions/Answers with multiple choice remotes	9	1	2	3	4

Comment:

_____

_____

Risk Identification Exercises	9	1	2	3	4

Comment:

_____

_____

Structured Practice using Excel template	9	1	2	3	4

Comment:

_____

_____

Printed materials and USB as supplied	9	1	2	3	4

Comment:

_____

_____

Question 3
Did you use the workbook and 11" x 17" worksheets?
____Yes ____No ____ Somewhat

Comment:

_____

Question 4
What worked well about the Session?

_____

_____

_____

Question 5:
What could have been done differently?

_____

_____

_____

Question 6:
Upon reflection, at this time, are there any unintended outcomes or surprises that you have experienced during the Session? Please comment:

_____

_____

_____

_____

Question 7:
Please identify up to ANY 3 concrete action items that you might consider or recommend locally as a result of participating in the Session AND rank your perceived level of commitment of local leadership about the Action being implemented:

Action 1. _____

_____

Commitment level for *Action 1*	1 (lowest)	2	3	4 (highest)

Action 2. _____

_____

Commitment level for *Action 2*	1 (lowest)	2	3	4 (highest

Action 3. _____

_____

Commitment level for *Action 3*	1 (lowest)	2	3	4 (highest)

CONTACT INFORMATION
Name of Person completing Form:
Name of the water treatment and/or distribution system(s):
Email or contact information for the Evaluator:

THANK YOU AND REMINDER – SEND COMPLETED FORMS AS LISTED ON PAGE 1

Drinking Water Safety Plan (DWSP) Completion Sessions - Learner Evaluation

REMINDER: Participating in a DWSP Completion Session qualifies you for **between 0.3 and 0.6 Continuing Education Units (CEUs)** depending on the sessions attended and work completed.

A. As a result of participating in the Sessions list **three new things you learned or discovered** about drinking water safety in your community:

1) _____

2) _____

3) _____

B. What are **three key "Action Pieces"** that you have taken from the Sessions, and will help you **implement and sustain** your Drinking Water Safety Plan?

1) _____

2) _____

3) _____

C. How satisfied are you with the opportunity to have the following **delivered near or in your community:**

1) **CEU accredited education**

___ Not Satisfied at all ___ Somewhat Satisfied ___ Satisfied ___ Very Satisfied

2) **Information/Resources** (e.g. DWSP materials in print and electronic files)

___ Not Satisfied at all ___ Somewhat Satisfied ___ Satisfied ___ Very Satisfied

3) **Mentoring** (e.g., by having an experienced Operating Specialist facilitate the sessions)

___ Not Satisfied at all ___ Somewhat Satisfied ___ Satisfied ___ Very Satisfied

4) **Opportunity to work in a group and learn from others**

___ Not Satisfied at all ___ Somewhat Satisfied ___ Satisfied ___ Very Satisfied

D. Have you, or do you expect to, **complete a first DWSP before the end of 2013?** ____ Yes ____ No

E. Please use the space below or a separate sheet to share **any other information** that you would like to have considered about future outreach education or support for rural Alberta operators:

NAME _____ Cert # _____ Phone _____

Drinking Water Safety Plan (DWSP) Completion Sessions - Learner Evaluation
Unedited Presentation of Qualitative Data coded by Returned Instrument

A. As a result of participating in the Sessions list **three new things you learned or discovered** about drinking water safety in your community:

001 – maintaining solvency of community water co-operative – escalating costs to maintain, monitor, report and operate a 14 member coop to the same level of a small town (e.g. Canmore). Members are struggling to make payments. Water safety is at risk
001 – Volunteer positions managing the water co-op under current regulations are becoming part-time jobs. No succession interest by community members. Water safety is at risk.
001 – Importance of ongoing flushing on end of dead leg of main system is very important

002 – A better understanding of risk and how they are controlled
002 – Identification of critical maintenance and investment requirements
002 – Ways to make drinking water safer

003 – We do talk about risks, maintenance, etc., at AGM [editorial note = Annual General Meeting]
003 – Not enough upcoming volunteers to sustain volunteer model of operation

004 – Chlorine contact time
004 – Preferred flush points for the system
004 – 4 Log virus awareness and testing

005 – There are numerous safety risks to consider beyond those of the operations of the plant itself
005 – These risks can be categorized into four main areas and then assessed appropriately
005 – While many of these risks can not be eliminated, the can be managed by planning for them

006 – Emphasis of health related issues
006 – Responsibility as an operator/manager

007 – Our “new” plant has eliminated many of the risks involved in “treatment”
007 – Our biggest threat is lack of “succession planning/training”
007 – We need to budget for new distribution and collection infrastructure

008 – Air release valve
008 – Back Flow Prevention valve on water lines
008 – Action items for minor things

009 – I learned to pay more attention to potential risks and hazards and try to head them off before there is a problem
009 – Learned to be aware of potential risks of contamination of the drinking water supply
009 – I learned that that Giraffe’s could be in the community, but just couldn’t see them, because they have very good camouflage [editorial note = reference to Giraffe comes from visual teaching aid used in the DWSP Completion Session to highlight idea that risks can be right in your midst and daily context of community operations serves to hide or camouflage a risk]

010 – How vulnerable our Distribution system is
010 – The need for more monitoring
010 – Security of site buildings needs improvement

011 – Unforeseen risks involved
011 – “Laxidasical” attitudes regarding potable water
011 – All situations are preventable

012 – How a seemingly minor thing can lead to a catastrophic situation
012 – How risks that were in the back burner are now in the forefront
012 – We can use the DWSP to budget for high risk areas

013 – Different situations I hadn’t considered as problems
013 – Not as overwhelming an exercise as I first thought
013 – The value in having to do this DWSP

014 – Learned how to better identify hidden risks
014 – Discovered how to better classify and manage the risks identified
014 –Learned that the DWSP is an ongoing report that needs to be revised and updated periodically

015 – Possible hazards upstream from our source
015 – Existing hazard barriers already in place
015 – The probability of a catastrophe happening

016 – Information for upper management knowing what to budget for
016 – Looking outside the box

017 – Different types of risk
017 – The level of hazard that could happen with something that is minor to start with
017 – Learning different risks at other plants, communities

018 – Be aware of customers with special needs
018 – Made me aware of problem areas
018 – Looking at a system [from] source to tap

019 – How serious it can be if not on top of things (i.e., chlorine levels, bacteria)
019 – Security is more important than we realized
019 – It’s nice to have a guideline (DWSP) – better awareness

020 – That there are many different factors that contribute to drinking water safety

021 – How to better identify risks
021 – Prioritize risks
021 – Realized the need for DWSP

022 – It [editorial note = DWSP risk assessment] is an ongoing process, not a one-time endeavour
022 – It is a simple investigation process – clear and concise
022 – The investigation process is invaluable

023 – Lack of awareness about possible hazards
023 – Lack of awareness of Liabilities resulting from unknown hazards

024 – Importance of evaluating procedures
024 – How easily things can go wrong
024 – Importance of double-checking

025 – How much can go wrong
025 – How to identify hazards
025 – How to neutralize hazards

026 – Proper locks for wells and reservoir
026 – The chain reaction that can happen from problems with water
026 – The importance of understanding the system

027 – Good locks for security
027 – The method of chemicals administered
027 – How important testing is

028 – Codes of Practice need some work
028 – Due diligence in water system is critical
028 – Expect the unexpected

029 – Need for more security
029 – Need for more personnel
029 – Need to involve Administration

030 – How the safety plan is supposed to work
030 – Discovered some key areas that need to be addressed

031 – There are some risks we did not think about
031 – Some risks can be very severe
031 – Management and council must be involved to reduce or eliminate some risks

032 – How complacent we can be
032 – Some sampling mistakes (i.e., weekly rather than daily)

033 – Treatment plant should have auto shutdown with disinfection process fail
033 – Reservoirs need to be cleaned and inspected regularly
033 – All abandoned assets should be cut and capped

034 – Our system is much less complicated than most possible systems
034 – Detailing operating procedures is much more intense than we have been doing
034 – Having a detailed picture of the entire system is very valuable

035 – Our system is somewhat more vulnerable than expected
035 – Our monitoring is inadequate. Grab samples (daily) don't cut it
035 – Still our system is adequate and for the most part safe

036 – Identifying and categorizing risk
036 – Better way of measuring the likelihood
036 – Better way of calculating severity

037 – System vulnerability
037 – Ensure source supply
037 – Very important to keep records of changes up to date on WTP [Water Treatment Plant] to reflect changes

038 – System vulnerability
038 – Ensure source supply
038 – Importance of keeping WTP [Water Treatment Plant] up-to-date to reflect changes

039 – Have up-to-date and current SOPs [Standard Operating Procedures]
039 – We have two pumps that are not operational
039 – I am new to the community, working on the plan has helped me to get to know my system

040 – Our backflow prevention needs to be closely monitored, as it has the potential to be a very serious problem
040 – Bylaws need to be updated according to findings from the DWSP
040 – Our current facilities are not capable of fulfilling all of our needs with proper protection (such as reservoir)

041 – It is beneficial to take a more detailed look at individual components
041 – It is beneficial to have the ability to plan for what might have been unforeseen events
041 – The ability to better assess and prioritize

042 – Liability exists in many situations due to complacency developed from being exposed to an evolving system characteristic
042 – Policies do not always cover off actuality
042 – Third party activity always represents a liability even after the water has been sold

043 – It [drinking water safety] should not be over looked
043 – Always plan ahead and look toward future development
043 – Re-evaluate your system on a regular basis

044 – Assessment of risks and mitigation for distinct aspects of operations
044 – Hearing about shared challenges with other municipalities and how we can co-operate
044 – The importance of knowing who is responsible

045 – What the responsibilities are
045 – Water use needs monitoring
045 – Limit waste of water

046 – Preventative maintenance of water plant and distribution system
046 – Secure water plant entrance and well heads
046 – Monitor pressure relief valves on a regular basis

047 – Should have an alarm system on the water plant
047 – Chemicals sent may not be the right chemicals
047 – Should be locks on well heads

048 – Weak points in our system
048 – Looking at system from a different perspective
048 – Maintenance of system

049 – complexity
049 – back ups
049 – other resources

050 – It’s an excellent tool [DWSP] to be able to step back and see the whole system
050 – Some risks ended up with a much higher rating than expected
050 – We have a newer WTP [water treatment plant] but still found some issues that need addressing

051 – Identification of risks
051 – Information in one place
051 – Excellent tool

052 – Alberta Environment will not be approving the DWSP's but rather just need confirmation that they are complete
052 – It can be an aid in budget preparation and approval
052 – That it [DWSP] should be shared and communicated through the whole organization up to and including [County] Council

053 – Learned how to better address safety hazards
053 – Became more comfortable working with the program
053 – Learned more on why each municipality is putting together a DWSP

054 – Number of different customers possibly affected
054 – Supply of water is vital
054 – Source water is a key component

055 – Useful tools to isolate and clearly evaluate risk
055 – Consequences when not seen or addressed
055 – Team work and team thinking produces better results in risk assessment

056 – It requires support from both the Municipality and consumers
056 – Need to review system annually – identify any changes that we've made
056 – There is substandard work all over – watch out for it

057 – Importance of monitoring Distribution system
057 – Control of utility connections
057 – Meter check valve – built into meter

058 – [Municipality] has very well-trained operators that really care about DWQ [drinking water quality]
058 – With [number] unique facilities in [municipality], DWQ involves a lot of aligned resources
058 – Customer component of DWSP needs to be considered further (i.e. future customer education)

059 – Residents don't have check valves downstream of meter
059 – Overflows on reservoirs need to be inspected
059 – Milltronics and flight bulbs should be tested

060 – New customer risk assessments
060 – Brushed up on some new Distribution issues from upgrades
060 – Managing the key risks from within the [DWSP Microsoft] Excel spreadsheet

061 – DWSP are not to be reviewed in detail by the Province [editorial note = ESRD]
061 – They [DWSP] are a starting point for improvement
061 – No 'expectations' have been developed

062 – More in-depth and detailed information gathering needed than first anticipated
062 – Need to create Bylaws for regional system and have all partners sign off on it
062 – One cannot be over prepared for an emergency situation

063 – How to assess risks
063 – Items that need to be budgeted for
063 – Items that should be periodically serviced

064 – Maybe more risks than aware of
064 – Look at things from different perspectives
064 – The plan [DWSP] can help identify issues

065 – soil contamination and piping used
065 – making sure [Town] Council and management is aware of problems, so money's are allocated for repairs and maintenance of aging systems

066 – How many communities that use water
066 – How many communities that are moving towards regional water plans
066 – How many communities that need improvements/upgrades to their Distribution systems

067 – That our water is worse than first thought of
067 – Emergency systems
067 – It's not [drinking water safety] as good as it seems

068 – Can easily be contaminated if backflow preventers aren't used
068 – Preventative maintenance can save money and time
068 – Leave a paper trail to protect yourself

069 – Expand our level of inspections
069 – Identify potential problem areas and
069 – Add problem areas to planned maintenance budget for current or future years

070 – To involve everyone and that it is a living document
070 – Review your plan with all your employees at least once a year
070 – That once it's in place have it readily available, and get everyone's but in on it

071 – All risks can have multiple ways of controlling them. A document like the drinking water safety plan is a great way to compile your options and present a guide
071 – Every risk should have a form of mitigation, no matter how big or small

072 – Did not consider a few of the potential hazards
072 – Need to complete the some SWPs [editorial note: verified with respondent by phone that intent is that SWP = Safe Work Procedures] that did not consider

073 – Security is a concern
073 – CL 17's should have a chart history [editorial note = reference is to a Hach brand CL 17 Chlorine Analyzer]
073 – Other systems [drinking water distribution systems] have more problems than I do

074 – Our community is pretty small
074 – Didn't find out much more than we already knew
074 – Even little systems are subjected to the standards of big metropolises

075 – We need more things in "writing" policies, operating procedures and such
075 – You have to be constantly on guard against potential problems
075 – Over all our town is doing pretty good in regards to Water safety with the system we have

076 – The importance of a safe system
076 – Possibility of a contamination from residential homes
076 – Always think outside the box

077 – The importance of the PRV [editorial note = Pressure Reducing Valve] maintenance
077 – The vast array of hazards and threats out there
077 –How to apply a risk management model effectively

078 – Location of mainline valves and shut –off procedure
078 – The formation of Disinfection by-products and control
078 – The use of down-hole camera inspection

079 – SOP [Standard Operating Procedures] need to be in place
079 – Lead more off a problem
079 – More emergency planning required

080 – How to make up the plan
080 – Learned more risks that need to be addressed
080 – That there's more things that I need to learn about my system

081 – Areas in town that need improvement
081 – How to look at the system from a different point of view
081 – Learning the system and how it effects my job

082 – The need for more documentation
082 – Better understanding for risk evaluation
082 – The need for more involvement from Administration

083 – High volume of residential wells in area
083 – Indepth and living document

B. What are **three key "Action Pieces"** that you have taken from the Sessions, and will help you **implement and sustain** your Drinking Water Safety Plan?

001 – Conducting ongoing consumer (water co-op member) education
001 – We need to incorporate some type of succession planning for turnover of volunteer cooperative Board positions
001 – Need to develop a RASCI chart [editorial note RASCI = Responsible, Accountable, Supportive, Consulted, Informed] to document/educate community cooperative members about water cooperative ongoing responsibilities, accountabilities, communication, etc.

002 – Risk assessment
002 – Living document, update regularly
002 – Sharing document with management and Council

003 – Investigating back-up power
003 – Have a sub-committee to research succession/future operators (i.e., volunteer vs 3rd party)

004 – Apply for a grant if available
004 – Increase drainage around the wellhead
004 – Update information in our manuals in pumphouse

005 – Complete the DWSP as completely as possible by 31 December 2013
005 – Review and annually update the DWSP for our particular water system
005 – Communicate and obtain management support for the principles, benefits and objectives of the DWSP with Management and Executive of the Coop.

006 – Awareness to the public
006 – Education to the public
006 – Responsibility to [Operator Firm removed] and public in a DWSP

007 – Involving the CAO [editorial note = Chief Administrative Officer] in creation of the plan [DWSP]
007 – Bringing [village elected] Council up to date on the current water situation
007 – Regular meetings with other principals associated with the plan

008 –Air Release Valve
008 – Back Flow Prevention valve on water lines
008 – Involvement and education to persons directly in DWSP

009 – Probability
009 – Likelihood
009 – Consequence

010 – Valve replacement
010 – SCADA instillation [editorial note = assume intent is "installation"]
010 – Valve location

011 – Continually update the DWSP
011 – Present the Consolidate Risk chart to community leadership
011 – Establish a time-frame to fix higher risk areas first, then attend to other repairs

012 – Keep the DWSP updated
012 – Present the Consolidate high risk areas to Council
012 – Set a date when to fix the higher risk areas

013 – Having a template to look at vulnerable areas
013 – Ways to improve one's SOPs [Standard Operating Procedures]
013 – Hearing others' ideas

014 – Budgeting and purchasing of spare parts that will reduce the severity of risks
014 – Development of SOPs [editorial note = Standard Operating Procedures] to deal with and prevent risks
014 – Training of staff to deal with and avoid risks

015 – Notification of upstream and downstream issues
015 – Protocol for possible contamination situations
015 – Chain of command for various situations

016 – Water Storage and how important it is to get clearwell inspections
016 – Things that I have overlooked before just from listening to the others while talked as a group

017 – Get managers involved
017 – Share ideas and solutions with other workers at different locations within our [municipality]
017 – Ask for help or assistance when needed

018 – Navigating the program
018 – Procedure to collect and process system information
018 – Identify key risks and prepare a plan to deal with them

019 – Updated SOPs [Standard Operating Procedures]
019 – The fact that there is something to refer to
019 – Knowledge of what needs to be done, knowing that members of Alberta Environment area there to help use take appropriate actions

020 – Helped us re-evaluate how the initially rate our risks

021 – [editorial note = no response]

022 – Need for a complete generator system – not just a back-up pump
022 – During the investigation process found that our reservoir roof needs repairs
022 – Need to add well casing inspection (camera) to our maintenance program

023 – Plan is never complete, must be updated on an ongoing basis
023 – Forces all parties to take a serious look at facilities
023 – Provides platform for correction of problems hopefully before undesirable problems occur

024 – Proper procedures
024 – Importance of testing

025 – How to take care of hazards

026 – The benefits of a DWSP
026 – Water treatment risks
026 – Network & customer risk

027 – Water treatment plant risks
027 – How this affects the customer risk
027 – Knowing your SOP

028 – Security is critical
028 – Nothing for granted. Everything is potential risk or problem
028 – Training and keeping good employees that know the system and its challenges

029 – Plan for back-up power
029 – Plan for back-up personnel
029 – Plan for redundant equipment & controls

030 – That it is a working document that needs to be changed with working environments
030 – How to use [Microsoft] Excel program for the DWSP
030 – Having all the high risk actions go to on area

031 – Identifying key risks
031 – Set up an action plan with short and long term interventions
031 – Start immediately on controls and begin process of budget items required

032 – Reservoir inspections
032 – Facility (Treatment) security
032 – Staff training

033 – Complete DWSP and address high risk factor first
033 – Develop SOPs for water system
033 – Present DWSP to Management

034 – Security of system
034 – Detailed operating procedures
034 – Monitoring surrounding land use changes

035 – Fences at Reservoir/water treatment plant/[last item not legible]
035 – Automatic ventilation grill, so stand by Distribution pump can be run without leaving doors open
035 – Online chlorine monitoring along with low/high chlorine call out [editorial note = online monitoring/alarms]

036 – We started identifying weak points of our system
036 – We begin different and better way of risk assessment that we learned from DWSP
036 – Commenced locking all building and starting monitoring fence to avoid vandalism and contamination

037 – Additional monitoring and Alarm system
037 – Keep better record and changes to SOP and Emergency Response Plans
037 – Better knowledge of Drinking Water Safety Plan

038 – Additional monitoring
038 – Better knowledge of the building the Drinking Water Safety Plan
038 – Updating continuously on SOPs [Standard Operating Procedures]

039 – Have up to date and current SOP’s [Standard Operating Procedures]
039 – Repair supply pumps that are out of order
039 – Involve operations staff in the development of the plan

040 – [No response]

041 – Take a more indepth look at our system
041 – Assess and prioritize more effectively moving forward
041 – Make a conscious effort to always be reassessing the vulnerabilities of our system

042 – Actively seek new perspectives on old systems
042 – Ensure documentation is up to date
042 – Take action on items identified as high priority using the DWSP tool

043 – Presenting such an item [DWSP] to Council for further funding
043 – Knowing that the system will always be safe
043 – Having a plan to show others on how we provide a safe source of drinking water

044 – Identified responsible parties for certain risks
044 – Need regular communication between CAO and Operator
044 – Need to regularly update [village] Council

045 – Address problem immediately
045 – Report any and all problems
045 – Accept responsibility

046 – Have a Flushing program in place for water mains
046 – Put in an alarm system in water plant and locks on well head
046 – Check chemical supplies when received

047 – Have a monitoring system installed in water plant
047 – Be sure to have a system in place to check chemicals received
047 – Install locks on well heads

048 – Identify risk
048 – Define likelihood
048 – Consequence

049 – Appropriate hiring of staff
049 – Recording all actions (when, what, where, who)
049 – Constant up date of equipment as resources are available

050 – Involve all staff members
050 – Create a hard copy [of DWPS] and post it in a visible location for use
050 – Place on staff meeting agenda so it will always be a topic of discussion

051 – Safety of the water for people
051 – Planning tool
051 – Information all in one place

052 – How to better identify hazards
052 – To review the plan annually or when procedures change to keep it updated
052 – Contacts for surrounding communities to share ideas with

053 – How to work with the [DWSP] program
053 – Helped to address some of the safety concerns we have

054 – Knowledge of the [Microsoft] Excel spreadsheet
054 – Knowing how to score risks
054 – How to bring key risks to Management

055 – How to use the information and material that was given
055 – Being able to complete and continue the Drinking Water Safety Plan
055 – Understanding the DWSP in every perspective

056 – Inspect all backflow preventers
056 – Inspect reservoirs more frequently – identify issues – rectify quickly
056 – Testing – keep up-to-date records of all areas that identify issues and methods of solving

057 – Cross connection control
057 – Site inspections if residential/commercial
057 – PRV [Pressure Reducing Valve] and ARV checks done bi-weekly

058 – Regulatory need for annual review/update of the plan
058 – Facility upgrades and new infrastructure will change risks
058 – Risk responsibilities are assigned in the plan

059 – Need to find out Inspection of Plumbing process
059 – Divers need to inspect ceiling of reservoirs
059 – Screens need to go on river intake [editorial note = for raw water intake into water treatment plant]

060 – Pamphlets and communication material available or AWWOA for customers
060 – Cross connection program in [name with identifying name removed]
060 – Annual reviews and forwarding DWSP up chain [editorial note = presumably reference is ‘up chain’ of responsibility to municipal Council, but this is not stated in response]

061 – Assistance in identifying intent of some [DWSP] questions
061 – Assistance in identifying intent of DWSP

062 – Bylaw development
062 – Develop a back-flow prevention program
062 – Implement more on-line monitoring within raw water and treated water systems

063 – Planning ahead for future upgrades
063 – Coordinating routine maintenance
063 – Improved inspection of the systems

064 – Think ‘outside the box’ when considering risks
064 – Need to review physically existing system
064 – Keep date current

065 – Making sure[Town] Council is aware and has adopted plan [DWSP]
065 – Revision of plan by staff annually
065 – Updating plan as problems arise or areas of concern are addressed

066 – Mayor and [Town] Council buy-in
066 – CAO [Chief Administrative Officer] participation
066 – Staff participation

067 – Implemented A, B, C system [reference to material covered in Completion Sessions]
067 – Review and take action
067 – Keep up to date on all matters pertaining to water

068 – Need to improve monitoring in some areas
068 – Show our managers the risk/consequence table to help show what could happen
068 – Need to reinstate of Valve Exercising program

069 – Complete DWSP
069 – Identify SOPs [standard operating procedures] required
069 – Complete SOPs [standard operating procedures]

070 – I will try and set up at least two meetings a year to review any risks
070 – To try and clearly identify any Risks and to ensure that we have funding
070 – Ensure I have someone responsible for the risk, with a start date and end date to rectify

071 – Schedule an annual review of the DWSP to ensure its accuracy
071 – Present the DWSP to our [regional city] Council to receive feedback and guidance
071 – Remember the DWSP is a living document, it does not hurt to continually update and change the document

072 – Continually review and update as things change
072 – Need to complete some SWPs [editorial note: verified as Safe Work Procedures] that did not consider
072 – Ensure the DWSP is completed before deadline of December 31, 2013

073 – Contacted electrician to discuss alarm
073 – Began writing SOP [Standard Operating Procedure]
073 – Discussed DWSP with CAO [Chief Administrative Officer of village]

074 – Review it over and over
074 – Look for changes or things to be changed
074 – It is to be ongoing

075 – Develop a comprehensive written standard procedure list. Too much by word of mouth
075 – Install a system on a regular basis our main pressure relief valve
075 – Formally inspect on a regular basis our main pressure relief valve

076 – Unsure a safe system
076 – Don’t take anything for granted
076 – Involve all staff with drinking water safety

077 – Review ongoing basis as it is a “living document”
077 – Deliver the plan to the appropriate parties
077 – Take action on risk that can be mitigated

078 – I would like to determine leak protection methods
078 – Effective of elemental sulfur on R/O [Reverse Osmosis] membranes
078 – Investigate the usage of a stand-by generator during power failure

079 – Better control of access to raw [water] supply
079 – Need for building alarms
079 –Need for better documentation

080 – Helps to take an unbiased look at your system
080 – A great tool to take concerns to Administration

081 – Source risks, raw water wells need work
081 – Distribution system and the work that needs to be done
081 – Source risks looking at what is happening to our source water upstream

082 – Better documentation
082 – More routine inspections
082 – The need to monitor cross connection

083 – Take many pictures of infrastructure
083 – Revisit semi-monthly or monthly
83 – Able to educate [Village] Council with DWSP info

C. How satisfied are you with the opportunity to have the following **delivered near or in your community:**

CEU accredited education

1 Not Satisfied at all 2 Somewhat Satisfied 3 Satisfied 4 Very Satisfied 0 No Response

Average 277/84 = 3.29

Information/Resources (e.g. DWSP materials in print and electronic files)

1 Not Satisfied at all 2 Somewhat Satisfied 3 Satisfied 4 Very Satisfied 0 No Response

Average 287/85 = 3.38

Mentoring (e.g., by having an experienced Operating Specialist facilitate the sessions)

1 Not Satisfied at all 2 Somewhat Satisfied 3 Satisfied 4 Very Satisfied 0 No Response

Average 301/85 = 3.54

Opportunity to work in a group and learn from others

1 Not Satisfied at all 2 Somewhat Satisfied 3 Satisfied 4 Very Satisfied 0 No Response

Average 286/84 = 3.40

D. Have you, or do you expect to, **complete a first DWSP before the end of 2013?** ____ Yes ____ No

001 = yes; 002 = yes; 003 = yes; 004 = yes; 005 = yes; 006 = yes; 007 = yes; 008 = yes; 009 = yes; 010 = yes; 011 = yes; 012 = yes; 013 = yes; 014 = yes; 015 = yes; 016 = yes; 017 = yes; 018 = yes; 019 = yes; 020 = yes; 021 = yes 022 = yes; 023 = yes; 024 = yes; 025 = yes; 026 = yes; 027 = **No response**; 028 = yes; 029 = yes; 030 = yes; 031 = yes; 032 = yes; 033 = **No response**; 034 = yes; 035 = yes [with caveat as "Depends on how much snow removal needs to be done"]; 036 = No response; 037 = yes; 038 = yes; 039 = **No**; 040 = yes; 041 = yes; 042 = yes; 043 = yes; 044 = yes; 045 = yes; 046 = yes; 047 = yes; 048 = yes; 049 = yes; 050 = yes; 051 = yes; 052 = yes; 053 = yes; 054 = yes; 055 = yes; 056 = yes; 057 = yes; 058 = yes; 059 = yes; 060 = yes; 061 = yes; 062 = yes; 063 = yes; 064 = yes; 065 = yes; 066 = yes; 067 = yes; 068 = yes; 070 = yes; 071 = yes; 072 = yes; 073 = yes; 074 = yes; 075 = yes; 076 = yes; 077 = **No response**; 078 = yes; 079 = yes; 080 = yes; 081 = yes; 082 = yes; 83 = yes

D. Please use the space below or a separate sheet to share **any other information** that you would like to have considered about future outreach education or support for rural Alberta operators:

001 – I think very important to have the AENV water district rep at these sessions. A great source of information and a chance for system operators to gain clarity on regulations at they apply to site specific circumstances

003 – Only retired folks and stay [at home]

017 - … the biggest thing for me on these sessions was how until you really look at something and initially not think it could pose a potential risk and you start to discuss things with other workers and their experiences when you learn the different ways to look at issues you may never had before. I really enjoyed hearing other experiences from other utility operators.

018 – Record keeping for small and medium size systems

022 – Best practices for water, wastewater system

038 – To continue working as a group to share ideas to build

042 – Regional group outreach sessions for emerging needs and development is a very effective way to having networking of operators from similar facilities develop. Many systems don't interact on a frequent basis and it is valuable to at least be somewhat familiar with peers when facing challenges.

044 – Facilitating operator retention, training and regional collaboration at the municipal level

062 – Like the idea of having information/training sessions held outside Edmonton/Calgary corridor

072 – Have more than one date available for larger centres [editorial note = the respondent is servicing a set of small centres so the context of this statement is not clear]

075 – Have more sessions and earlier ones to fit more people's schedules. The powers to be must realize that the water portion of what small/rural communities do is only a small part of what we do overall.