Experience, training and confidence among small, non-community drinking water system operators in Ontario, Canada

APPENDIX

Telephone survey of small drinking water operators conducted in July–August, 2011

Q1. How long have you been a water operator?
   1. Enter text (Open-ended text box)
   88. Don’t know
   99. Refused

Q2. Do you oversee more than one water system?
   1. Yes
   2. No
   88. Don’t know
   99. Refused

Q2a. How many do you oversee?
   1. Enter number (Number field)
   88. Don’t know
   99. Refused

Q2b. Are any or all of them small drinking water systems?
   1. Yes – All
   2. Yes – Some
   3. No – None
   88. Don’t know
   99. Refused

Q3. Do you contract out the operation of this water system to another company?
   1. Yes
   2. No
   88. Don’t know
   99. Refused

Q4. Before you held this position, had you ever been responsible for any other water systems?
   1. Yes
   2. No
   88. Don’t know
   99. Refused

Q4a. How long were you responsible for these systems?
   1. Enter text (Open-ended text box)
   88. Don’t know
   99. Refused

Q4b. Were any or all of them also small water systems?
   1. Yes – All
   2. Yes – Some
   3. No – None
   88. Don’t know
   99. Refused

For the next few questions, please refer to the current water system that you oversee

Q5. Is the water source: (Select one)
   1. Ground water (a well)
   2. Surface water (a spring or lake) or
   3. Both
   4. Other (e.g. a cistern) (Specify)
   88. Don’t know
   99. Refused

Q6. Do you use filtration on the water system?
   1. Yes
   2. No
Q6a. Is it a: (Check one only)
1. Sand filter
2. Carbon filter
3. Membrane filter
4. Diatomaceous earth
5. Other (Specify)
88. Don't know
99. Refused

Q7. Do you use treatment for the water system?
1. Yes
2. No
88. Don't know
99. Refused

Q7a. Is it: (Check one only)
1. UV treatment
2. Chlorination
3. Chlorine dioxide
4. Other (Specify)
88. Don't know
99. Refused

Q8. Do you have a back-up operator designated for the water system?
1. Yes
2. No
88. Don't know
99. Refused

Q9. Do you put any protection measures in place to protect the source of the water (i.e. to protect the well from contamination)?
1. Yes
2. No
88. Don't know
99. Refused

Q10. What is the main reason you become a water operator? (Check one only)
1. By chance as an owner or operator of the premise
2. Part of the responsibilities of another job
3. Chosen profession
4. Volunteer position
5. Paid part-time job
6. Other (Specify)
88. Don't know
99. Refused

Q11. Have you taken any formal water operator training?
1. Yes
2. No
88. Don't know
99. Refused

Q11a. Was the training a: (Select all that apply)
1. College course or program
2. Ministry of the Environment certificate
3. Walkerton Small water operator training course
4. Apprenticeship
5. Workshop
6. Other (Specify)
88. Don't know
99. Refused
The next few questions will cover specific water issues you may encounter

Q12. Please rate how confident you feel in managing the following events that you may encounter in your water system as not confident, somewhat confident or very confident.

<table>
<thead>
<tr>
<th>Q12a. Managing the day to day operations of the water system</th>
<th>Not confident</th>
<th>Somewhat confident</th>
<th>Very confident</th>
<th>Not applicable</th>
<th>Don’t know 88</th>
<th>Refused 99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q12b. Understanding an adverse water test result</td>
<td></td>
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<tr>
<td>Q12c. Repairing a broken or not working treatment or filtration system</td>
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<tr>
<td>Q12d. Taking action to improve cloudy water (aka turbidity)</td>
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<tr>
<td>Q12e. Dealing with a broken septic system nearby</td>
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<tr>
<td>Q12f. Dealing with the public health unit</td>
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<tr>
<td>Q12g. Dealing with the laboratory</td>
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</tbody>
</table>

Q13. Please rate the importance of the following items for ensuring safe drinking water, using a scale from 1 to 5, where 1 is not important and 5 is extremely important.

<table>
<thead>
<tr>
<th>Q13a. Treatment system (this could include UV treatment, or chlorination)</th>
<th>Not important 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Extremely important 5</th>
<th>Don’t know 88</th>
<th>Refused 99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q13b. Filtration (this could include reverse osmosis, sand filter, activated carbon)</td>
<td></td>
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<tr>
<td>Q13c. Surrounding land use (such as if animals are kept nearby)</td>
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<tr>
<td>Q13d. Regular maintenance of the water system by the operator</td>
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<tr>
<td>Q13e. Regular water sampling</td>
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<tr>
<td>Q13f. Heavy rainfall, flooding or drought</td>
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</tr>
</tbody>
</table>
Q14. Please rate if you agree or disagree with the following statements, using a scale from 1 to 5, where 1 is strongly disagree and 5 is strongly agree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
<th>Don't know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q14a. I would like to have greater knowledge of the water system I operate</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14b. I would like to have greater knowledge on what to do if something goes wrong with the water system I operate</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14c. The legal requirements for water systems are in place to improve water safety</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14d. The cost of meeting the legal requirements for water safety is a burden</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14e. Conducting regular water tests is a hassle</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14f. Public health inspectors should have a greater role in ensuring water safety</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14g. Drinking water safety is my responsibility as the owner or operator of the system</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14h. Having poor water will negatively affect my business</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14i. The safety of drinking water is out of my control</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Q14j. Maintaining a safe water system is time consuming</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

The next three questions are situations. Please choose the best course of action for each situation

Q15. There was a power failure lasting 12 hrs that shut down the pump for your water system. How would you respond? (Check all that apply)

1. Once the power was back, we would keep using the water
2. Contact the public health inspector to ask for their guidance
3. Flush the lines before using the water again
4. Take a water sample and send it to the lab
5. Do nothing
6. Other (Specify)
88. Don't know
99. Refused

Q16. You receive a water sample result that reports total coliforms of 5 and E. coli 1. This report means: (Check all that apply)

1. The water is safe to drink
2. The water is unsafe to drink
3. The lab had an error during testing
4. The sample wasn’t collected properly
5. Don’t know/not sure
6. Other (Specify)
88. Don’t know
99. Refused

Q17. There has been heavy rain the last three days. You notice there is water collecting or pooling around the well and the water is slightly cloudy. You received a water result from last week that indicated the water was safe. How would you respond? (Check all that apply)

1. Do nothing
2. Check for infiltration of surface water
3. Call the public health inspector to ask for their guidance
4. Take another water sample and send it to the lab
5. Stop using the water until it becomes clear again
6. Other (Specify)
88. Don’t know
99. Refused
The final five questions are about future training needs

Q18. Are you aware of any water operator training that is currently available to you?
   1. Yes
   2. No
   88. Don't know
   99. Refused

Q18a. Can you please tell me the name of the training opportunity:
   1. Enter text (Open-ended text box)
   88. Don't know
   99. Refused

Q19. Which of the following topics for operator training would interest you? (Select all that apply)
   1. General overview of how to maintain the water system
   2. Maintenance and use of equipment
   3. Treatment and filtration
   4. Well construction and maintenance
   5. How to conduct water sampling
   6. Interpreting lab test results
   7. How to protect the source of your drinking water
   8. Legal requirements
   9. Trouble shooting
   10. Other (Specify)
   88. Don't know
   99. Refused

Q20. Which of the following ways would you prefer the training be delivered? (Select all that apply)
   1. In a classroom setting in one day or less
   2. By distance (mail)
   3. Online course
   4. Other (Specify)
   88. Don't know
   99. Refused

Q21. Which of the following items would stop you from participating in operator training? (Select all that apply)
   1. Training is not needed
   2. Time it was offered
   3. Location
   4. Language
   5. Cost
   6. Other (Specify)
   88. Don't know
   99. Refused

Q22. Do you have regular access to a computer with the internet?
   1. Yes
   2. No
   88. Don't know
   99. Refused