

# TOWN OF SMITHS FALLS

*Sensational!*



*Heart of the  
Rideau Canal*

## SMITHS FALLS DRINKING WATER SYSTEM

2015 ANNUAL REPORT

Revision 2

Smiths Falls Drinking Water System  
2015 Annual Report

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|  |   |
|--|---|
| <b>Drinking-Water System Number:</b>   | 220001307   |
| <b>Drinking-Water System Name:</b>     | Smiths Falls Drinking Water System                          |
| <b>Drinking-Water System Owner:</b>    | Corporation of the Town of Smiths Falls                     |
| <b>Drinking-Water System Category:</b> | Large Municipal Drinking Water System                       |
| <b>Period being reported:</b>          | January 1 <sup>st</sup> to December 31 <sup>st</sup> , 2015 |

|  |   |
|--|---|
| <p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p><b>Does your Drinking-Water System serve more than 10,000 people?</b><br/>Yes [ <input type="checkbox"/> ] No [ <input checked="" type="checkbox"/> ]</p> <p><b>Is your annual report available to the public at no charge on a web site on the Internet?</b><br/>Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]</p> <p><b>Location where Annual Report required under O. Reg. 170/03 Schedule 11 will be available to the public.</b></p> <p>Smiths Falls Town Hall Complex<br/>77 Beckwith St. N<br/>Smiths Falls, ON K7A 4T6</p> <p><a href="http://www.smithsfalls.ca">www.smithsfalls.ca</a></p> | <p><b><u>Complete for all other Categories.</u></b></p> <p><b>Number of Designated Facilities served:</b><br/>N/A</p> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve?</b> N/A</p> <p><b>Number of Interested Authorities you report to:</b> N/A</p> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?</b><br/>N/A</p> |
|--|---|

**List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:**

| <b>Drinking Water System Name</b>        | <b>Drinking Water System Number</b> |
|--|-------------------------------------|
| Atironto Subdivision – Montague Township | 260006828                           |

**Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?**  
Yes [  ] No [  ]

**Indicate how you notified system users that your annual report is available, and is free of charge.**  
 Public access/notice via the web  
 Public access/notice via a newspaper

# Smiths Falls Drinking Water System 2015 Annual Report

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## **Describe your Drinking-Water System**

The Smiths Falls Drinking Water System is comprised of the Water Treatment Plant (WTP) and Distribution system which together provides a supply of potable water to the residents and businesses of the Town of Smiths Falls.

The WTP is a Class IV high rate dissolved air floatation (AquaDAF ®) surface water plant having an approved design capacity of 14,000 m<sup>3</sup>/d with a future expansion to 18,000 m<sup>3</sup>/d. Raw water for the treatment process is drawn from the Rideau River (surface water). The intake structure is located upstream of the WTP approximately 170m. The intake consists of a concrete structure and a 762 millimeter diameter concrete pipe connecting the intake to the diversion chamber where the raw water is directed into the WTP.

Low lift pumps pump water to the AquaDAF ® which is a high rate dissolved air floatation clarifier. Here a coagulant & polymer are mixed together to aid in particle removal. Dissolved air will float these particles to form a blanket of sludge which is discharged to the collection system.

Clarified water flows to 3 dual granular activate carbon (GAC) & sand filters where further particle removal will take place.

Process involved include: UV disinfection; chlorination with chlorine gas; corrosion control; fluoridation; residue management and de-chlorination.

The Distribution system is a Class I subsystem, consisting of 62.23 kilometers (km) of mains, 1096 valves, 332 hydrants and 3010 house services. With a 49.2 meter (m) high water tower that contains 945.75 cubic meters (m<sup>3</sup>) of storage.

## **List all water treatment chemicals used over this reporting period**

| <b>CHEMICAL NAME</b> | <b>USE</b>        | <b>SUPPLIER</b>    |
|----------------------|-------------------|--------------------|
| PAS-8                | Coagulant         | Kemira             |
| Magnafloc LT22       | Polymer           | Northland Chemical |
| Chlorine Gas         | Disinfection      | Brenntag           |
| Sodium Hydroxide     | Corrosion Control | CCC Chemicals      |
| Fluorosilicic Acid   | Fluoride          | ControlChem        |
| Calcium Thiosulfate  | De-chlorination   | Clartech           |

## **Were any significant expenses incurred to?**

- Install required equipment
- Repair required equipment
- Replace required equipment

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**Please provide a brief description and a breakdown of monetary expenses incurred**

- Transformer & transfer switch inspection - \$14,000
- Infrared thermal scan of control panels - \$2,500
- Water tower inspected - \$2,500
- Repairs to street valves, hydrants, mains and services

**Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre**

| Incident Date                     | Parameter                                    | Result | Unit of Measure | Corrective Action  | Corrective Action Date |
|-----------------------------------|--|--------|-----------------|--|------------------------|
| April 9 2015<br>(AWQI #123149)    | Filter #2 effluent turbidity                 | 5      | NTU             | Filter to waste run until turbidity dropped to below 1 NTU and filter backwashed                         | April 9, 2015          |
| June 3, 2015<br>(AWQI #123895)    | 2 <sup>nd</sup> quarter rolling average TTHM | 101    | ug/L            | Re-sampled of June 8, 2015   | June 9, 2015           |
| August 7, 2015<br>(AWQI 125546)   | 3rd quarter rolling average TTHM             | 103    | ug/L            | Re-sampled on August 10, 2015, lowered pre-reservoir Cl2 dose  | August 12, 2015        |
| September 10, 2015 (AWQI #126218) | 3rd quarter rolling average TTHM             | 108    | ug/L            | No corrective action required as per MOECC inspector, already reported for this parameter in the quarter | N/A                    |
| October 8, 2015<br>(AWQI #126787) | 4th quarter rolling average TTHM             | 107    | ug/L            | Re-sampled on October 13, 2015, Zebra mussel Cl2 shut off and pre-reservoir chlorine dose lowered        | October 15, 2015       |
| November 5, 2015 (AWQI #127247)   | 4th quarter rolling average TTHM             | 111    | ug/L            | No corrective action required as per MOECC inspector, already reported for this parameter in the quarter | N/A                    |

**Microbiological testing completed under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting period.**

|                                    | Number of Samples | Range of E.Coli Results (min #)-(max #) (CFU/100mL) | Range of Total Coliform Results (min #)-(max #) (CFU/100mL) | Number of HPC Samples | Range of HPC Results (min #)-(max #) (CFU/100mL) |
|------------------------------------|-------------------|---|---|-----------------------|--|
| <b>Raw</b>                         | 52                | 2 - 220   | 50 - >4000  | N/A                   | N/A  |
| <b>Treated</b>                     | 52                | 0   | 0   | 52                    | <10 - 20   |
| <b><u>Distribution Routine</u></b> | 323               | 0   | 0   | 323                   | <10 - 160  |

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|  |    |   |   |    |          |
|--|----|---|---|----|----------|
| WM Repairs/new installations/service repairs | 51 | 0 | 0 | 20 | <10 – 30 |
| Customer request                             | 1  | 0 | 0 | 1  | <10      |

### Operational testing completed under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

| Parameter Tested - (Online Analyzers)                                 | Number of Grab Samples                  | Range of Results |         |         |
|---|---|------------------|---------|---------|
|   |   | Minimum          | Maximum | Average |
| Turbidity - Raw Water (NTU) AIT 102                                   | Continuous Monitoring                   | 0.000            | 31.22   | 1.01    |
| Turbidity - Raw Water (NTU)   | 365 (bench test)                        | 0.422            | 5.86    | 1.05    |
| Turbidity - Filter #1 (NTU) AIT 111                                   | Continuous Monitoring                   | 0.000            | 2.84    | 0.055   |
| Turbidity - Filter #1 (NTU)   | 52 (bench test)                         | 0.039            | 0.314   | 0.114   |
| Turbidity – Filter #2 (NTU) AIT 121                                   | Continuous Monitoring                   | 0.000            | 5.00    | 0.051   |
| Turbidity – Filter #2 (NTU)   | 52 (bench test)                         | 0.053            | 0.396   | 0.137   |
| Turbidity – Filter #3 (NTU) AIT 131                                   | Continuous Monitoring                   | 0.000            | 5.00    | 0.061   |
| Turbidity – Filter #3 (NTU)   | 52 (bench test)                         | 0.029            | 0.890   | 0.138   |
| Turbidity – Finished Water (NTU) AIT 184                              | Continuous Monitoring                   | 0.000            | 5.00    | 0.079   |
| Turbidity – Finished Water (NTU)                                      | 251 (bench test)                        | 0.009            | 0.273   | 0.119   |
| Chlorine Total – Zebra Mussel (operation May to October mg/L) AIT 103 | Continuous Monitoring<br>Total Chlorine | 0.00             | 5.00    | 0.01    |
| Chlorine Total – Zebra Mussel (operation May to October mg/L)         | 48(bench test)                          | 0.03             | 0.47    | 0.24    |
| Chlorine Free – Pre Reservoir (mg/L) AIT 165                          | Continuous Monitoring<br>Free Chlorine  | 0.00             | 5.00    | 2.02    |
| Chlorine Free – Pre Reservoir (mg/L)                                  | 50 (bench test)                         | 1.21             | 2.63    | 1.92    |
| Chlorine Free – Post Reservoir (mg/L) AIT 180                         | Continuous Monitoring<br>Free Chlorine  | 0.00             | 5.00    | 1.45    |
| Chlorine Free – Post Reservoir (mg/L)                                 | 51 (bench test)                         | 0.84             | 2.46    | 1.49    |
| Chlorine Free – Finished Water (mg/L) AIT 185                         | Continuous Monitoring<br>Free Chlorine  | 0.00             | 5.00    | 1.78    |
| Chlorine Free – Finished Water (mg/L)                                 | 252 (bench test)                        | 0.80             | 2.40    | 1.68    |
| Chlorine Total – Finished Water (mg/L) AIT 186                        | Continuous Monitoring<br>Total Chlorine | 0.00             | 5.00    | 2.08    |
| Chlorine Total – Finished Water (mg/L)                                | 251 (bench test)                        | 1.19             | 2.67    | 2.00    |
| Chlorine – Distribution System (180 Queen St WPCP mg/L)               | 182 (bench test)                        | 0.06             | 1.44    | 0.74    |
| Fluoride – Finished Water (mg/L) AIT 187                              | Continuous Monitoring                   | 0.00             | 2.00    | 0.50    |
| Fluoride – Finished Water (mg/L)                                      | 251 (bench test)                        | 0.05             | 1.07    | 0.63    |
| UV Transmittance (%) AIT 160  | Continuous Monitoring                   | 70.0             | 100.0   | 91.27   |
| UV Transmittance (%)  | 67 (bench test)                         | 80.7             | 92.8    | 87.07   |

**Notes:**

1. High raw water turbidity spikes when the low lift pumps starts and stop, maintenance and flushing of lines.
2. High filter turbidities results of filter backwash, or calibration, may be the result of bad water.
3. High finished water turbidities results of high lift pumps starting or calibration.
4. High fluoride readings due to HLP starts, maintenance or calibration while chemical system was off.
5. Low total chlorine (finished water) result of gen set testing, maintenance or calibration.

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6. High total chlorine (zebra mussel) due to the sampling alternates between intake and LLP header.
7. Bench tests for zebra mussel are sampled from raw water DWSP line or raw water sample tap in lab
8. Low UV transmittance result of gen set testing, maintenance, calibration or OptiView failure.

### Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

| Date of legal instrument issued                    | Parameter | Date Sampled      | Result (ug/L) | Highest value in Quarter (ug/L) | Rolling Annual Average Quarter (ug/L) |
|--|-----------|-------------------|---------------|---------------------------------|---------------------------------------|
| Municipal Drinking Water License #164-101 issue #2 | TTHM      | January 7, 2015   | 32.6          | 44.8                            | 86.5                                  |
|  |           | February 3, 2015  | 37.0          |                                 |                                       |
|  |           | March 2, 2015     | 44.8          |                                 |                                       |
|  |           | April 7, 2015     | 37.9          | 147.0                           | 101                                   |
|  |           | May 4, 2015       | 78.3          |                                 |                                       |
|  |           | June 1 2015       | 147.0         |                                 |                                       |
|  |           | June 8, 2015*     | 122.0         |                                 |                                       |
|  |           | July 6, 2015      | 96.4          | 157.0                           | 107.7                                 |
|  |           | August 4, 2015    | 137.0         |                                 |                                       |
|  |           | August 10, 2015*  | 109.0         |                                 |                                       |
|  |           | September 8, 2015 | 157.0         |                                 |                                       |
|  |           | October 5, 2015   | 80.3          | 96.1                            | 107.3                                 |
|  |           | October 13, 2015* | 79.1          |                                 |                                       |
|  |           | November 2, 2015  | 96.1          |                                 |                                       |
| December 7, 2015                                   | 75.6      |                   |               |                                 |                                       |

**Notes:**

\*re-samples results not included in rolling annual average quarter  
 Maximum Allowable Concentration (MAC) for THM is based on a four quarter rolling annual average of 0.100 mg/L or 100.0 ug/L

### Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

| Date of legal instrument issued  | Parameter                                    | Date Sampled                 | Result – Quarterly Average (mg/L) |      |      |
|--|--|------------------------------|-----------------------------------|------|------|
| Municipal Drinking Water License #164-101 issue #2 (section 4.2 table 7) | TSS (grab sample)                            | January 19, 2015             | 6.10                              |      |      |
|  |  | April 21, 2015               | 5.28                              |      |      |
|  |  | July 14, 2015                | 8.80                              |      |      |
|  |  | October 7, 2015              | 6.00                              |      |      |
|  |  | Annual Average               | 6.545                             |      |      |
|  |  |                              | Min.                              | Max. | Avg. |
|  | Total Chlorine AIT 164 (non – detect) (mg/L) | Continuous Monitoring (mg/L) | 0.00                              | 1.00 | 0.01 |

**Notes:** High chlorine readings were a result of the decant valve not open at time of chlorine spike, should the decant valve be open at time of a spike the waste system will shut down which generates a critical alarm when the chlorine reading is 0.05 mg/L.

### Summary of Inorganic parameters tested during this reporting period or the most recent sample results

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| Parameter  | Sample Date   | Result Value                 | Unit of Measure              | Exceedance           |
|--|---|------------------------------|------------------------------|----------------------|
| Antimony   | March 23, 2015  | < 0.0001                     | mg/L                         | No                   |
| Arsenic  | March 23, 2015  | 0.0004                       | mg/L                         | No                   |
| Barium   | March 23, 2015  | 0.048                        | mg/L                         | No                   |
| Boron  | March 23, 2015  | 0.015                        | mg/L                         | No                   |
| Cadmium  | March 23, 2015  | < 0.00002                    | mg/L                         | No                   |
| Chromium   | March 23, 2015  | < 0.002                      | mg/L                         | No                   |
| Mercury  | March 23, 2015  | < 0.00002                    | mg/L                         | No                   |
| Selenium   | March 23, 2015  | < 0.001                      | mg/L                         | No                   |
| Uranium  | March 23, 2015  | < 0.00005                    | mg/L                         | No                   |
| 1 <sup>st</sup> Quarter Nitrite<br>2 <sup>nd</sup> Quarter Nitrite<br>3 <sup>rd</sup> Quarter Nitrite<br>4 <sup>th</sup> Quarter Nitrite | January 7, 2015<br>April 7, 2015<br>July 6, 2015<br>October 5, 2015 | <0.1<br><0.1<br><0.1<br><0.1 | mg/L<br>mg/L<br>mg/L<br>mg/L | No<br>No<br>No<br>No |
| 1 <sup>st</sup> Quarter Nitrate<br>2 <sup>nd</sup> Quarter Nitrate<br>3 <sup>rd</sup> Quarter Nitrate<br>4 <sup>th</sup> Quarter Nitrate | January 7, 2015<br>April 7, 2015<br>July 6, 2015<br>October 5, 2015 | 0.2<br>0.3<br>0.1<br><0.1    | mg/L<br>mg/L<br>mg/L<br>mg/L | No<br>No<br>No<br>No |

**Summary of lead testing under Schedule 15.1 during this reporting period**

| Location Type              | Number of Total Samples | Range of Lead Results 1 <sup>st</sup> One Litre Sample<br>min# – max #<br>(mg/L) | Number of Exceedances 1 <sup>st</sup> Sample | Range of Lead Results 2 <sup>nd</sup> One Litre Sample<br>min# – max #<br>(mg/L) | Number of Exceedances 2 <sup>nd</sup> Sample |
|----------------------------|-------------------------|--|--|--|--|
| Plumbing – residential     | 6                       | 0.00064 – 0.0299   | 1  | 0.00034 – 0.0134   | 1  |
| Plumbing – non residential | 6                       | 0.00016 -0.00247   | 0  | 0.0004 – 0.00158   | 0  |
| Distribution               | 8                       | 0.00004 – 0.00050  | 0  | N/A  | N/A  |

**Notes:**

1. Maximum Allowable Concentration (MAC) for lead is 0.010 mg/L or 10.0 ug/L
2. Sampling rounds are from December 15 to April 15 & June 15 to October 15
3. As per MDWL 164-101 Issue #2 Schedule D dated February 2, 2012 require to sample only four (4) distribution samples and monitor the effectiveness of the corrosion control system.

**Summary of Organic parameters sampled during this reporting period or the most recent sample results**

| Parameter              | Sample Date    | Result Value | Unit of Measure | Exceedance |
|------------------------|----------------|--------------|-----------------|------------|
| Alachlor               | March 23, 2015 | < 0.3        | µg/L            | No         |
| Aldicarb               | March 23, 2015 | < 3          | µg/L            | No         |
| Aldrin + Dieldrin      | March 23, 2015 | < 0.02       | µg/L            | No         |
| Atrazine + metabolites | March 23, 2015 | < 0.5        | µg/L            | No         |
| Azinphos-methyl        | March 23, 2015 | < 1          | µg/L            | No         |
| Bendiocarb             | March 23, 2015 | < 3          | µg/L            | No         |
| Benzene                | March 23, 2015 | < 0.5        | µg/L            | No         |
| Benzo(a)pyrene         | March 23, 2015 | < 0.005      | µg/L            | No         |
| Bromoxynil             | March 23, 2015 | < 0.3        | µg/L            | No         |
| Carbaryl               | March 23, 2015 | < 3          | µg/L            | No         |
| Carbofuran             | March 23, 2015 | < 1          | µg/L            | No         |
| Carbon Tetrachloride   | March 23, 2015 | < 0.2        | µg/L            | No         |
| Chlordane (Total)      | March 23, 2015 | < 0.04       | µg/L            | No         |
| Chlorpyrifos           | March 23, 2015 | < 0.5        | µg/L            | No         |

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|   |                |        |      |    |
|---|----------------|--------|------|----|
| Cyanazine   | March 23, 2015 | < 0.5  | µg/L | No |
| Diazinon  | March 23, 2015 | < 1    | µg/L | No |
| Dicamba   | March 23, 2015 | < 5    | µg/L | No |
| 1,2-Dichlorobenzene                                 | March 23, 2015 | < 0.1  | µg/L | No |
| 1,4-Dichlorobenzene                                 | March 23, 2015 | < 0.2  | µg/L | No |
| Dichlorodiphenyltrichloroethane (DDT) + metabolites | March 23, 2015 | < 0.01 | µg/L | No |
| 1,2-Dichloroethane                                  | March 23, 2015 | < 0.1  | µg/L | No |
| 1,1-Dichloroethylene (vinyl chloride)               | March 23, 2015 | < 0.2  | µg/L | No |
| Dichloromethane                                     | March 23, 2015 | < 0.3  | µg/L | No |
| 2-4 Dichlorophenol                                  | March 23, 2015 | < 0.1  | µg/L | No |
| 2,4-Dichlorophenoxy acetic acid (2,4-D)             | March 23, 2015 | < 5    | µg/L | No |
| Diclofop-methyl                                     | March 23, 2015 | < 0.5  | µg/L | No |
| Dimethoate  | March 23, 2015 | < 1    | µg/L | No |
| Dinoseb   | March 23, 2015 | < 0.5  | µg/L | No |
| Diquat  | March 23, 2015 | < 5    | µg/L | No |
| Diuron  | March 23, 2015 | < 5    | µg/L | No |
| Glyphosate  | March 23, 2015 | < 25   | µg/L | No |
| Heptachlor + Heptachlor Epoxide                     | March 23, 2015 | < 0.1  | µg/L | No |
| Lindane (Hexachlorocyclohexane, Gamma)              | March 23, 2015 | < 0.1  | µg/L | No |
| Malathion   | March 23, 2015 | < 5    | µg/L | No |
| Methoxychlor  | March 23, 2015 | < 0.1  | µg/L | No |
| Metolachlor   | March 23, 2015 | < 3    | µg/L | No |
| Metribuzin  | March 23, 2015 | < 3    | µg/L | No |
| Monochlorobenzene (chlorobenzene)                   | March 23, 2015 | < 0.2  | µg/L | No |
| Paraquat  | March 23, 2015 | < 1    | µg/L | No |
| Parathion   | March 23, 2015 | < 3    | µg/L | No |
| Pentachlorophenol                                   | March 23, 2015 | < 0.1  | µg/L | No |
| Phorate   | March 23, 2015 | < 0.3  | µg/L | No |
| Picloram  | March 23, 2015 | < 5    | µg/L | No |
| Polychlorinated Biphenyls(PCB)                      | March 23, 2015 | < 0.05 | µg/L | No |
| Prometryne  | March 23, 2015 | < 0.1  | µg/L | No |
| Simazine  | March 23, 2015 | < 0.5  | µg/L | No |
| Temephos  | March 23, 2015 | < 10   | µg/L | No |
| Terbufos  | March 23, 2015 | < 0.3  | µg/L | No |
| Tetrachloroethylene                                 | March 23, 2015 | < 0.2  | µg/L | No |
| 2,3,4,6-Tetrachlorophenol                           | March 23, 2015 | < 0.1  | µg/L | No |
| Triallate   | March 23, 2015 | < 10   | µg/L | No |
| Trichloroethylene                                   | March 23, 2015 | < 0.1  | µg/L | No |
| 2,4,6-Trichlorophenol                               | March 23, 2015 | < 0.1  | µg/L | No |
| 2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)        | March 23, 2015 | < 10   | µg/L | No |
| Trifluralin   | March 23, 2015 | < 0.5  | µg/L | No |
| Vinyl Chloride                                      | March 23, 2015 | < 0.2  | µg/L | No |

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

| Parameter | Result Value | Unit of Measure | Date of Sample |
|-----------|--------------|-----------------|----------------|
|           |              |                 |                |
|           |              |                 |                |

### Glossary



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AWQI = adverse water quality indicator

CFU = colony forming units

mg/L = milligrams per liter

TTHM = trihalomethane

ug/L = micrograms per liter

**Contact for more information:**

Should you require clarification or more information please contact

Sarah E. Cooke

Water & Wastewater Compliance Coordinator

Phone: 613-283-4124 ext 5502

Email: [scooke@smithsfalls.ca](mailto:scooke@smithsfalls.ca)

Revision #1 March 22, 2016: page 4 add AWQI # to September 10, 2015.

Revision #2 June 1, 2016: page 6 correct third quarter TTHM highest value.