

Quality System Manual	TNI 2016 Reference
Quality System Manual partially filled out	V1M2 Sections 4.2.8.3 and 4.2.8.4

### Microbiology

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
Multiple Tube methods for Total Coliform/Fecal Coliform/ <i>e. Coli</i> MPN and P/A	SM 9221-2006 22 <sup>nd</sup> edition. Covers the combos of TC/FC (B+C) and TC/FC/EC (B+C+F) SM 9221-D-2006 22 <sup>nd</sup> edition. Uses P/A medium
Enzyme substrate methods for Total Coliforms and <i>e. Coli</i> for QuantiTray (MPN) and P/A	SM 9223-B-2004 Enzyme Substrate (Colilert or Colisure only) Other enzyme substrate methods on request
Heterotrophic Plate Count	SM 9215-B-2000 21 <sup>st</sup> edition SM 9215-B-2005 22 <sup>nd</sup> edition Simplate by Idexx method
<i>Enterococci</i>	Idexx method using Enterolert
Total Coliform/ <i>e. Coli</i> Membrane filter CFU	SM 9222-B-2011 22 <sup>nd</sup> edition

### BOD/COD/TOC/UV-254 and Solids

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
BOD/cBOD	SM 5210-B-2011 22 <sup>nd</sup> edition
COD	SM 5220-B-2011 22 <sup>nd</sup> edition SM 5220-C-2011 22 <sup>nd</sup> edition
Suspended Solids/Volatile Suspended Solids	SM 2540-D+E-2011 22 <sup>nd</sup> edition
Settleable Solids	SM 2540-F-2011 22 <sup>nd</sup> edition
Total Dissolved Solids	SM 2540-C-1997 20 <sup>th</sup> edition (DW only) SM 2540-C-2011 22 <sup>nd</sup> edition
Total Solids/Volatile Solids	SM 2540-B+E-2011 22 <sup>nd</sup> edition
TOC/DOC	SM 5310-B- 21 <sup>st</sup> edition SM 5310-B-2011 22 <sup>nd</sup> edition SM 5310-B-2014 23 <sup>rd</sup> edition
UV-254	SM 5910-B-2011 22 <sup>nd</sup> edition SM 5910-B-2014 23 <sup>rd</sup> edition

**Chemistry including nutrients**

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
<b>Hardness by EDTA titration required for WW</b>	SM 2340-C-2011 22 <sup>nd</sup> edition
<b>Ion Chromatography</b>	EPA method 300.0
<b>Ammonia</b>	SM 4500-NH <sub>3</sub> B + C-2011 22 <sup>nd</sup> edition SM 4500-NH <sub>3</sub> -B + D-2011 22 <sup>nd</sup> edition
<b>Nitrite</b>	SM 4500-NO <sub>2</sub> B-2000 21 <sup>st</sup> edition SM 4500-NO <sub>2</sub> -B-2011 22 <sup>nd</sup> edition
<b>Ortho-Phosphate required for WW</b>	SM 4500-P E-2011 22 <sup>nd</sup> edition
<b>Calcium by EDTA titration required for WW</b>	SM Methods 3500-Ca-B-2011 22 <sup>nd</sup> edition
<b>Chloride by silver nitrate titration</b>	SM 4500-Cl-B-1997 20 <sup>th</sup> edition SM 4500-Cl-B-2011 22 <sup>nd</sup> edition
<b>Fluoride by ISE</b>	SM 4500-F-C-1997 20 <sup>th</sup> edition DW only SM 4500-F B + C-2011 22 <sup>nd</sup> edition
<b>Sulfate by gravimetric</b>	SM 4500-SO <sub>4</sub> -B-2011 22 <sup>nd</sup> edition
<b>Nitrates</b>	SM 4500-NO <sub>3</sub> -E-2011 22 <sup>nd</sup> edition
<b>Nitrite</b>	SM 4500-NO <sub>2</sub> -B-2000 21 <sup>st</sup> edition (aka online) SM 4500-NO <sub>2</sub> -B-2011 22 <sup>nd</sup> edition
<b>Total/Acid Hydrolysable/ortho phosphate</b>	EPA method 365.3
<b>TKN</b>	HACH method 10282

**Metals**

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
<b>Metals</b>	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4 Std. Methods 3111 B FAA 21 <sup>st</sup> edition (1999) Std. Methods 3113 B GFAA 21 <sup>st</sup> edition (1999)
<b>Mercury</b>	Std. Methods 3112 B Cold Vapor 21 <sup>st</sup> edition (1999)
<b>Arsenic/Selenium (and other metals)</b>	Std. Methods 3114 B Hydride 21 <sup>st</sup> edition (1999)

**Organic methods**

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
<b>Total Trihalomethanes and individual Trihalomethanes</b>	EPA method 524.2 V 4.1

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
<b>Oil and Grease</b>	EPA method 1664A References text in method. Comes with a copy of the method. EPA method 1664B References text in method. Comes with a copy of the method.

***Methods exempt from certification. May not be written to fully comply with TNI 2016***

Analytical SOPS Method/Technic	Method references (separate templates unless otherwise indicated)
<b>Alkalinity with pH endpoint DW Only</b>	SM 2320 B-1997 20 <sup>th</sup> edition SM 2320 B-2011 22 <sup>nd</sup> edition
<b>Dissolved Oxygen by LDO</b>	Hach method 10630 Rev 1.2
<b>Chlorine Residual</b>	SM 4500-Cl <sub>2</sub> G-1999 21 <sup>st</sup> edition SM 4500-Cl <sub>2</sub> D-2011 22 <sup>nd</sup> edition
<b>Conductivity</b>	SM 2510 B-1997 20 <sup>th</sup> edition SM 2510 B-2011 22 <sup>nd</sup> edition
<b>pH</b>	SM 4500-H <sup>+</sup> B-2011 22 <sup>nd</sup> edition + Calibration procedure from EPA method 150.2 1983
<b>Turbidity</b>	SM 2130 B-2011 22 <sup>nd</sup> edition
<b>Ortho-Phosphate DW only</b>	SM 4500-P E-1999 21 <sup>st</sup> edition SM 4500-P E-2011 22 <sup>nd</sup> edition
<b>Calcium by EDTA titration DW only</b>	SM 3500-Ca B-2011 20 <sup>th</sup> edition SM 3500-Ca B-2011 22 <sup>nd</sup> edition

***Other Documents***

Support Procedure for Analytical Methods	Method references (separate templates unless otherwise indicated) or TNI 2016 reference
<b>Microbiological Equipment/Glassware Required Procedures and QC</b>	SM 9020-9060 various dates from 22 <sup>nd</sup> edition
<b>Bacterial Media/Reagents/Reagent Grade of Water</b>	SM 9020-9060 various dates from 22 <sup>nd</sup> edition
<b>Sample Collection Procedure (needed only if the lab samples at any level)</b>	Sample Collection V1M2 section 5.8
<b>Sample Receipt/Handling/Acceptance/Storage</b>	Sample Receipt-Handling-Acceptance V1M2 Section 5.9
<b>Training and Demonstrations of Capability</b>	Training and Demonstrations of Capability V1M2 Sections 4.2.8.4.q) and 5.2.1; plus V1M3 thru M7, section 1.6

<b>Support Procedure for Analytical Methods</b>	<b>Method references (separate templates unless otherwise indicated) or TNI 2016 reference</b>
<b>Limits of Detection and Limits of Quantitation</b>	LOD/LOQ V1M2 Section and V1M3 thru M7, section 1.5

<b>Other Policies and Procedures</b>	<b>TNI 2016 reference</b>
<b>Client/Customer Relations</b>	V1M2 Sections 4.4 Requests for Work; 4.5 Subcontracting; 4.6 Comments; 4.7 Complaints
<b>Data Integrity + Ethics Policy</b>	V1M2 Section 4
<b>Procurement</b>	V1M2 Section 4.5
<b>Data Review and Reporting</b>	V1M2 Sections 5.9 and 5.10
<b>Document Control</b>	V1M2 Section 4.3
<b>Record Control</b>	V1M2 Section 4.15

<b>Support Materials</b>	<b>Supports</b>
<b>Document List Excel Spreadsheet</b>	Document Control
<b>MDL calculation workbook + LOQ record WW only [Appendix B]; DW only [Not Appendix B]</b>	LOD/LOQ

What can I do you for? Please contact William Ray Consulting if you need an SOP not listed or for questions and comments.