

## Appendix A: Measurement Performance Specifications (Tables A7.1 and A7.2)

Measurement performance specifications define the data quality needed to satisfy project objectives. To this end, measurement performance specifications are qualitative and quantitative statements that:

- clarify the intended use of the data
- define the type of data needed to support the end use
- identify the conditions under which the data should be collected

Appendix A of the QAPP addresses measurement performance specifications, including:

- analytical methodologies
- AWRLs
- limits of quantitation
- bias limits for LCSs
- precision limits for LCSDs
- completeness goals
- qualitative statements regarding representativeness and comparability

The items identified above need to be considered for each type of monitoring activity. The CRP emphasizes that data should be collected to address multiple objectives, if possible, thereby maximizing the expenditure of resources. Caution should be applied when attempting to collect data for multiple purposes because measurement performance specifications may vary according to the purpose. For example, limits of quantitation may differ for data used to assess standards attainment and for trend analysis. When planning projects, first priority should be given to the main use of the project data and the data quality needed to support that use, then secondary goals should be considered.

Tables A7.1 and A7.2 have been modified to reflect actual parameters, methods, etc. employed by the SRBA and its participants. Procedures for laboratory analysis must be in accordance with the most recently published edition of Standard Methods for the Examination of Water and Wastewater, 40 CFR 136, or otherwise approved independently. Only data collected that have a valid TCEQ parameter code assigned in the Tables are stored in SWQMIS. Any parameters listed in Table A7.1 or A7.2 that do not have a valid TCEQ parameter code assigned will not be stored in SWQMIS.

## Table A7.1 - Measurement Performance Specifications

TABLE A7.1 Measurement Performance Specifications for TC					
Field Parameters					
Parameter	Units	Matrix	Method	Parameter Code	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	Field
SPECIFIC CONDUCTANCE, FIELD (US/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP V1	00300	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP V1	00400	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	Field
MAXIMUM POOL WIDTH AT TIME OF STUDY (METERS)***	meters	other	TCEQ SOP V2	89864	Field
MAXIMUM POOL DEPTH AT TIME OF STUDY(METERS)***	meters	other	TCEQ SOP V2	89865	Field
POOL LENGTH, METERS***	meters	other	TCEQ SOP V2	89869	Field
% POOL COVERAGE IN 500 METER REACH***	%	other	TCEQ SOP V2	89870	Field
WIND INTENSITY (1=CALM,2=SLIGHT,3=MOD.,4=STRONG)	NU	other	NA	89965	Field
PRESENT WEATHER (1=CLEAR,2=PTCLDY,3=CLDY,4=RAIN,5=OTHER)	NU	other	NA	89966	Field
WATER SURFACE(1=CALM,2=RIPPLE,3=WAVE,4=WHITECAP)	NU	water	NA	89968	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGGS, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER (WRITE IN COMMENTS))	NU	water	NA	89971	Field
WATER COLOR 1=BRWN 2=RED 3=GRN 4=BLCK 5=CLR 6=OT	NU	water	NA	89969	Field
TEMPERATURE, AIR (DEGREES CENTIGRADE)	DEG C	air	NA	00020	Field
PRIMARY CONTACT, OBSERVED ACTIVITY (# OF PEOPLE OBSERVED)	# of people observed	other	NA	89978	Field
EVIDENCE OF PRIMARY CONTACT RECREATION (1 = OBSERVED, 0 = NOT OBSERVED)	NU	other	NA	89979	Field

Reporting to be consistent with SWQM guidance and based on measurement capability.  
 \*\*\* To be routinely reported when collecting data from perennial pools.  
 † As published by the Texas Water Development Board on their website <https://waterdatafortexas.org/reservoirs/statewide>

References:  
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020  
 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)  
 TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).  
 TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

<b>TABLE A7.1 Measurement Performance Specifications for TC</b>					
<b>24 Hour Parameters in Water</b>					
<b>Parameter</b>	<b>Units</b>	<b>Matrix</b>	<b>Method</b>	<b>Parameter Code</b>	<b>Lab</b>
TEMPERATURE, WATER (DEGREES CENTIGRADE), 24HR AVG	DEG C	Water	TCEQ SOP V1	00209	field
WATER TEMPERATURE, DEGREES CENTIGRADE, 24HR MAX	DEG C	Water	TCEQ SOP V1	00210	field
TEMPERATURE, WATER (DEGREES CENTIGRADE) 24HR MIN	DEG C	Water	TCEQ SOP V1	00211	field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR AVG	uS/cm	Water	TCEQ SOP V1	00212	field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR MAX	uS/cm	Water	TCEQ SOP V1	00213	field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR MIN	uS/cm	Water	TCEQ SOP V1	00214	field
PH, S.U., 24HR MAXIMUM VALUE	std. units	Water	TCEQ SOP V1	00215	field
PH, S.U., 24HR, MINIMUM VALUE	std. units	Water	TCEQ SOP V1	00216	field
WATER TEMPERATURE, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP V1	00221	field
SPECIFIC CONDUCTANCE, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP V1	00222	field
pH, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP V1	00223	field
<b>DISSOLVED OXYGEN, 24-HOUR MIN. (MG/L) MIN. 4 MEA</b>	mg/l	Water	TCEQ SOP V1	89855	field
<b>DISSOLVED OXYGEN, 24-HOUR MAX. (MG/L) MIN. 4 MEA</b>	mg/l	Water	TCEQ SOP V1	89856	field
<b>DISSOLVED OXYGEN, 24-HOUR AVG. (MG/L) MIN. 4 MEA</b>	mg/l	Water	TCEQ SOP V1	89857	field
<b>DISSOLVED OXYGEN, # OF MEASUREMENTS IN 24-HRS</b>	NU	Water	TCEQ SOP V1	89858	field
References: United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.) TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415). TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).					

TABLE A7.1 Measurement Performance Specifications for TC					
Flow Parameters					
Parameter	Units	Matrix	Method	Parameter Code	Lab
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	Field
FLOW SEVERITY:1=No Flow,2=Low,3=Normal,4=Flood,5=High,6=Dry	NU	water	TCEQ SOP V1	01351	Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP V1	74069	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	other	TCEQ SOP V1	89835	Field
References: United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.) TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415). TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).					

**TABLE A7.1 Measurement Performance Specifications for TC**

Conventional Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD %Rec/Level)	Bias %Rec. of LCS	Lab
<b>NITROGEN, AMMONIA, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 350.1 Rev. 2.0 (1993)	00610	0.1	0.1	70-130	20	80-120	Ana-Lab
<b>NITRITE NITROGEN, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00615	0.05	0.05	70-130	20	80-120	Ana-Lab
<b>NITRATE NITROGEN, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00620	0.05	0.05	70-130	20	80-120	Ana-Lab
<b>NITROGEN, KJELDAHL, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 351.2 2	00625	0.2	0.2	70-130	20	80-120	Ana-Lab
<b>PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)</b>	mg/L	water	EPA 365.3	00665	0.06	0.06	70-130	20	80-120	Ana-Lab
<b>RESIDUE, TOTAL NONFILTRABLE (MG/L)</b>	mg/L	water	SM 2540D	00530	5	5	NA	NA	NA	Ana-Lab
<b>CHLORIDE (MG/L AS CL)</b>	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	Ana-Lab
<b>SULFATE (MG/L AS SO4)</b>	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	Ana-Lab
<b>RESIDUE, TOT DISS, UNSPEC CALC BASED ON COND (MG/</b>	mg/L	water	calculation	70294	NA	NA	NA	NA	NA	Ana-Lab

References:  
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020  
 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)  
 TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).  
 TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

**TABLE A7.1 Measurement Performance Specifications for TC**

<b>Bacteriological Parameters in Water</b>										
<b>Parameter</b>	<b>Units</b>	<b>Matrix</b>	<b>Method</b>	<b>Parameter Code</b>	<b>TCEQ AWRL</b>	<b>LOQ</b>	<b>LOQ Check Sample %Rec</b>	<b>Log Difference of Duplicates</b>	<b>Bias %Rec. of LCS</b>	<b>Lab</b>
<b>E.COLI, COLILERT, IDEXX, HOLDING TIME</b>	hours	water	NA	31704	NA	NA	NA	NA	NA	Ana-Lab
<b>E. COLI, COLILERT, IDEXX METHOD, MPN/100ML</b>	MPN/100 mL	water	SM 9223 B-2004**	31699	1	1	NA	0.50*	NA	Ana-Lab

\* This value is not expressed as a relative percent difference. It represents the maximum allowable difference between the logarithm of the result of a sample and the logarithm of the duplicate result. See Section B5.

\*\* E.coli samples analyzed by these methods should always be processed as soon as possible and within 8 hours. When transport conditions necessitate delays in delivery longer than 6 hours, the holding time may be extended and samples must be processed as soon as possible and within 30 hours.

References:  
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020  
 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)  
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**TABLE A7.2 Measurement Performance Specifications for NTMWD**

Field Parameters					
Parameter	Units	Matrix	Method	Parameter Code	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	Field
SPECIFIC CONDUCTANCE, FIELD (US/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP V1	00300	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP V1	00400	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	Field
RESERVOIR STAGE (FEET ABOVE MEAN SEA LEVEL)†	FT ABOVE MSL	water	TWDB	00052	Field
RESERVOIR PERCENT FULL†	% RESERVOIR CAPACITY	water	TWDB	00053	Field
Reservoir Storage (Acre-Feet)	Acre-Feet	water	TWDB	00054	Field
RESERVOIR ACCESS NOT POSSIBLE LEVEL TOO LOW ENTER 1 IF REPORTING	NS	other	TCEQ Drought Guidance	00051	Field
MAXIMUM POOL WIDTH AT TIME OF STUDY (METERS)***	meters	other	TCEQ SOP V2	89864	Field
MAXIMUM POOL DEPTH AT TIME OF STUDY(METERS)***	meters	other	TCEQ SOP V2	89865	Field
POOL LENGTH, METERS***	meters	other	TCEQ SOP V2	89869	Field
% POOL COVERAGE IN 500 METER REACH***	%	other	TCEQ SOP V2	89870	Field
WIND INTENSITY (1=CALM,2=SLIGHT,3=MOD.,4=STRONG)	NU	other	NA	89965	Field
PRESENT WEATHER (1=CLEAR,2=PTCLDY,3=CLDY,4=RAIN,5=OTHER)	NU	other	NA	89966	Field
WATER SURFACE(1=CALM,2=RIPPLE,3=WAVE,4=WHITECAP)	NU	water	NA	89968	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGGS, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER (WRITE IN COMMENTS))	NU	water	NA	89971	Field

**TABLE A7.2 Measurement Performance Specifications for NTMWD, con't.**

Field Parameters					
Parameter	Units	Matrix	Method	Parameter Code	Lab
WATER COLOR 1=BRWN 2=RED 3=GRN 4=BLCK 5=CLR 6=OT	NU	water	NA	89969	Field
<b>PRIMARY CONTACT, OBSERVED ACTIVITY (# OF PEOPLE OBSERVED)</b>	# of people observed	other	NA	89978	Field
<b>EVIDENCE OF PRIMARY CONTACT RECREATION (1 = OBSERVED, 0 = NOT OBSERVED)</b>	NU	other	NA	89979	Field

Reporting to be consistent with SWQM guidance and based on measurement capability.  
 \*\*\* To be routinely reported when collecting data from perennial pools.  
 † As published by the Texas Water Development Board on their website  
<http://wiid.twdb.state.tx.us/ims/resinfo/BushButton/lakestatus.asp?selcat=3&slbasin=2>

References:  
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020  
 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)  
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**TABLE A7.2 Measurement Performance Specifications for NTMWD**

Flow Parameters					
Parameter	Units	Matrix	Method	Parameter Code	Lab
<b>FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)</b>	cfs	water	TCEQ SOP V1	00061	Field
<b>FLOW SEVERITY:1=No Flow,2=Low,3=Normal,4=Flood,5=High,6=Dry</b>	NU	water	TCEQ SOP V1	01351	Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP V1	74069	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	other	TCEQ SOP V1	89835	Field
References: United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.) TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415). TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).					

**TABLE A7.2 Measurement Performance Specifications for NTMWD**

Conventional Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
CHEMICAL OXYGEN DEMAND, .025N K2CR2O7 (MG/L)	mg/L	water	HACH 8000	00335	10	10	70-130	20	80-120	NM
ALKALINITY, TOTAL (MG/L AS CaCO3)	mg/L	water	SM 2320 B	00410	20	20	NA	20	NA	NM
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540 D	00530	5	2.5	NA	NA	NA	NM
RESIDUE, VOLATILE NONFILTRABLE (MG/L)	mg/L	water	EPA 160.4	00535	5	2.5	NA	NA	NA	NM
<b>NITROGEN, AMMONIA, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 350.1	00610	0.1	0.1	70-130	20	80-120	NM
<b>NITRITE NITROGEN, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 353.2	00615	0.05	0.02	70-130	20	80-120	NM
<b>NITRATE NITROGEN, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 353.2 (Calculated)	00620	0.05	0.02	70-130	20	80-120	NM
<b>NITROGEN, KJELDAHL, TOTAL (MG/L AS N)</b>	mg/L	water	EPA 351.2	00625	0.2	0.2	70-130	20	80-120	NM
NITRITE PLUS NITRATE, TOTAL ONE LAB DETERMINED VALUE (MG/L AS N)	mg/L	water	EPA 353.2	00630	0.05	0.05	70-130	20	80-120	NM
<b>PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)</b>	mg/L	water	EPA 365.3	00665	0.06	0.02	70-130	20	80-120	NM
CARBON, TOTAL ORGANIC, NPOC (TOC), MG/L	mg/L	water	SM 5310 C	00680	2	0.5	NA	NA	NA	NM
HARDNESS, TOTAL (MG/L AS CaCO3)*	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	NM
<b>CHLORIDE (MG/L AS CL)</b>	mg/L	water	EPA 300.0	00940	5	1	70-130	20	80-120	NM
<b>SULFATE (MG/L AS SO4)</b>	mg/L	water	EPA 300.0	00945	5	1	70-130	20	80-120	NM
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	SM 10200 H	32211	3	3	NA	20	80-120	NM
PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.	µg/L	water	SM 10200 H	32218	3	3	NA	NA	NA	NM
RESIDUE, TOTAL FILTRABLE (DRIED AT 180C) (MG/L)	mg/L	water	SM 2540 C	70300	10	10	NA	20	80-120	NM
ORTHOPHOSPHATE PHOSPHORUS, DISS, MG/L, FILTER >15MIN	mg/L	water	EPA 365.3	70507	0.04	0.02	70-130	20	80-120	NM
Bromide (mg/L as Br)	mg/L	water	EPA 300.0	71870	0.25	0.25	80-120	10	90-110	NM
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	EPA 180.1	82079	0.5	0.1	NA	NA	NA	NM

\*Hardness is not used for regulatory purposes but is used to assess metals in water at inland sites (estuarine sites do not require hardness analysis).

References:  
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020  
 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)  
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**TABLE A7.2 Measurement Performance Specifications for NTMWD**

<b>Bacteriological Parameters in Water</b>										
<b>Parameter</b>	<b>Units</b>	<b>Matrix</b>	<b>Method</b>	<b>Parameter Code</b>	<b>TCEQ AWRL</b>	<b>LOQ</b>	<b>LOQ Check Sample %Rec</b>	<b>Log Difference of Duplicates</b>	<b>Bias %Rec. of LCS</b>	<b>Lab</b>
<b>E. COLI, COLILERT, IDEXX METHOD, MPN/100ML</b>	MPN/100 mL	water	IDEXX Colilert®	31699	1	1	NA	0.50 *	NA	NM
<b>E.COLI, COLILERT, IDEXX, HOLDING TIME</b>	hours	water	NA	31704	NA	NA	NA	NA	NA	NM
<p>* This value is not expressed as a relative percent difference. It represents the maximum allowable difference between the logarithm of the result of a sample and the logarithm of the duplicate result. See Section B5.</p> <p>** E.coli samples analyzed by these methods should always be processed as soon as possible and within 8 hours. When transport conditions necessitate delays in delivery longer than 6 hours, the holding time may be extended and samples must be processed as soon as possible and within 30 hours.</p> <p>References:                      United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020                      American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)                      TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).                      TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).</p>										

**TABLE A7.2 Measurement Performance Specifications for NTMWD**

Total Metals Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
IRON, TOTAL (ug/L AS FE)	ug/L	Water	EPA 200.8	01045	300	200	70-130	20	80-120	NM
MANGANESE, TOTAL (ug/L AS MN)	ug/L	Water	EPA 200.8	01055	50	1	70-130	20	80-120	NM
References: United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.) TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415). TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).										