

TABLE A7.2 Measurement Performance Specifications for UGRA										
Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
PH (STANDARD UNITS)	s.u	water	SM 4500-H+ B. and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	UGRA Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	UGRA Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	SM 2510 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	UGRA Field
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 and TCEQ SOP, V1	00010	NA*	NA	NA	NA	NA	UGRA Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	UGRA Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	UGRA Field
FLOW SEVERITY:1=No Flow,2=Low,3=Normal,4=Flood,5=High,6=Dry	NU	water	TCEQ SOP V1	01351	NA*	NA	NA	NA	NA	UGRA Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP, V1	74069	NA*	NA	NA	NA	NA	UGRA Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	UGRA Field
CHLORINE, TOTAL RESIDUAL (MG/L)**	mg/L	water	SM 4500-Cl G and TCEQ SOP, V1	50060	0.1	NA	NA	NA	NA	UGRA Field
MAXIMUM POOL WIDTH AT TIME OF STUDY (METERS)***	meters	other	TCEQ SOP V2	89864	NA*	NA	NA	NA	NA	UGRA Field
MAXIMUM POOL DEPTH AT TIME OF STUDY (METERS)***	meters	other	TCEQ SOP V2	89865	NA*	NA	NA	NA	NA	UGRA Field
PERCENT POOL COVERAGE IN 500 M REACH***	%	other	TCEQ SOP V2	89870	NA*	NA	NA	NA	NA	UGRA Field
POOL LENGTH, METERS***	meters	other	TCEQ SOP V2	89869	NA*	NA	NA	NA	NA	UGRA Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE***	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	UGRA Field
PRIMARY CONTACT, OBSERVED ACTIVITY (# OF PEOPLE OBSERVED)	# of people observed	other	NA	89978	NA	NA	NA	NA	NA	UGRA Field
EVIDENCE OF PRIMARY CONTACT RECREATION (1 = OBSERVED, 0 = NOT OBSERVED)	NU	other	NA	89979	NA	NA	NA	NA	NA	UGRA Field

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<b>Field Parameters</b>										
<b>Parameter</b>	<b>Units</b>	<b>Matrix</b>	<b>Method</b>	<b>Parameter Code</b>	<b>AWRL</b>	<b>LOQ</b>	<b>LOQ Check Sample %Rec</b>	<b>Precision (RPD of LCS/LCSD)</b>	<b>Bias %Rec. of LCS</b>	<b>Lab</b>
<p>* Reporting to be consistent with SWQM guidance and based on measurement capability.</p> <p>** Chlorine residual to be collected downstream of chlorinated outfalls.</p> <p>*** To be routinely reported when collecting data from perennial pools.</p> <p>References:</p> <p>United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020</p> <p>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.)</p> <p>TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012, (RG-415)</p> <p>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>										

<b>TABLE A7.2 Measurement Performance Specifications for UGRA</b>										
<b>Conventional and Bacteriological Parameters in Water</b>										
<b>Parameter</b>	<b>Units</b>	<b>Matrix</b>	<b>Method</b>	<b>Parameter Code</b>	<b>AWRL</b>	<b>LOQ</b>	<b>LOQ Check Sample %Rec</b>	<b>Precision (RPD of</b>	<b>Bias %Rec. of LCS</b>	<b>Lab</b>
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540 D.	00530	5	1.0**	NA	NA	NA	UGRA
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130 B	82079	0.5	0.5	NA	NA	NA	UGRA
SULFATE (MG/L AS SO4)	mg/L	water	EPA 300.0 Rev. 2.1, (1993)	00945	5	0.4	70-130	20	80-120	UGRA
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev. 2.1, (1993)	00940	5	0.4	70-130	20	80-120	UGRA
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	SM 10200-H4	32211	3	1	NA	20	80-120	GBRA
PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.	µg/L	water	SM 10200-H4	32218	3	1	NA	NA	NA	GBRA
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223 B	31699	1	1	NA	0.5*	NA	UGRA
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0	00620	0.05	0.04	70-130	20	80-120	UGRA
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM 4500-P E.	00665	0.06	0.04	70-130	20	80-120	UGRA
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2 Rev. 2 (1993)	00625	0.2	0.2	70-130	20	80-120	GBRA
RESIDUE, VOLATILE NONFILTRABLE (MG/L)	mg/L	water	SM 2540 E.	00535	4	1	NA	NA	NA	UGRA

\*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.  
is based on the volume of sample used.

\*\* TSS LOQ

References:  
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020  
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<b>TABLE A7.2 Measurement Performance Specifications for UGRA 24 Hour Parameters in Water</b>										
<b>Parameter</b>	<b>Units</b>	<b>Matrix</b>	<b>Method</b>	<b>Parameter Code</b>	<b>AWRL</b>	<b>LOQ</b>	<b>LOQ Check Sample %Rec</b>	<b>Precision (RPD of Bias %Rec. of LCS)</b>	<b>Lab</b>	
TEMPERATURE, WATER (DEGREES CENTIGRADE), 24HR AVG	DEG C	Water	TCEQ SOP, V1	00209	NA	NA	NA	NA	UGRA Field	
WATER TEMPERATURE, DEGREES CENTIGRADE, 24HR MAX	DEG C	Water	TCEQ SOP, V1	00210	NA	NA	NA	NA	UGRA Field	
TEMPERATURE, WATER (DEGREES CENTIGRADE) 24HR MIN	DEG C	Water	TCEQ SOP, V1	00211	NA	NA	NA	NA	UGRA Field	
SPECIFIC CONDUCTANCE, uS/CM, FIELD, 24HR AVG	uS/cm	Water	TCEQ SOP, V1	00212	NA	NA	NA	NA	UGRA Field	
SPECIFIC CONDUCTANCE, uS/CM, FIELD, 24HR MAX	uS/cm	Water	TCEQ SOP, V1	00213	NA	NA	NA	NA	UGRA Field	
SPECIFIC CONDUCTANCE, uS/CM, FIELD, 24HR MIN	uS/cm	Water	TCEQ SOP, V1	00214	NA	NA	NA	NA	UGRA Field	
PH, S.U., 24HR MAXIMUM VALUE	std. units	Water	TCEQ SOP, V1	00215	NA	NA	NA	NA	UGRA Field	
PH, S.U., 24HR, MINIMUM VALUE	std. units	Water	TCEQ SOP, V1	00216	NA	NA	NA	NA	UGRA Field	
WATER TEMPERATURE, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	00221	NA	NA	NA	NA	UGRA Field	
SPECIFIC CONDUCTANCE, # OF MEASUREMENTS IN 24-HR	NU	Water	TCEQ SOP, V1	00222	NA	NA	NA	NA	UGRA Field	
pH, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	00223	NA	NA	NA	NA	UGRA Field	
DISSOLVED OXYGEN, 24-HOUR MIN. (MG/L) MIN. 4 MEA	mg/l	Water	TCEQ SOP, V1	89855	NA	NA	NA	NA	UGRA Field	
DISSOLVED OXYGEN, 24-HOUR MAX. (MG/L) MIN. 4 MEA	mg/l	Water	TCEQ SOP, V1	89856	NA	NA	NA	NA	UGRA Field	
DISSOLVED OXYGEN, 24-HOUR AVG. (MG/L) MIN. 4 MEA	mg/l	Water	TCEQ SOP, V1	89857	NA	NA	NA	NA	UGRA Field	
DISSOLVED OXYGEN, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	89858	NA	NA	NA	NA	UGRA Field	

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24 Hour Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of	Bias %Rec. of LCS	Lab
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