

***APPENDIX A:
MEASUREMENT PERFORMANCE SPECIFICATIONS
(TABLE A7.1A THRU TABLE A7.1H)***

TABLE A7.1a Measurement Performance Specifications for Houston-Galveston Area Council

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	Field
SALINITY - PARTS PER THOUSAND	PPT	water	SM 2520 and TCEQ SOP, V1	00480	NA*	NA	NA	NA	NA	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	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP, V1	74069	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPL	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE (1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
TIDE STAGE 1=LOW, 2=FALLING, 3=SLACK, 4=RISING, 5=HI	NU	water	NA	89972	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field
WATER CLARITY (1=EXCELLENT, 2=GOOD, 3=FAIR, 4=POOR)	NU	water	NA	20424	NA	NA	NA	NA	NA	Field
TURBIDITY, OBSERVED (1=LOW, 2=MEDIUM, 3=HIGH)	NU	water	NA	88842	NA	NA	NA	NA	NA	Field

TABLE A7.1a Measurement Performance Specifications for Houston-Galveston Area Council

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
<p>* Reporting to be consistent with SWQM guidance and based on measurement capability.</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 for Water, Sediment, and Tissue, 2008 (RG-415).</p>										

**TABLE A7.1a Measurement Performance Specifications for Houston-Galveston Area Council
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	1	NA	NA	NA	Eastex
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM4500NH3-D & G	00610	0.1	0.1	70-130	20	80-120	Eastex
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N)	mg/L	water	SM 4500-NO ₃ E & F	00630	0.05	0.02	70-130	20	80-120	Eastex
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM 4500-P E	00665	0.06	0.02	70-130	20	80-120	Eastex
CHLORIDE (MG/L AS CL)	mg/L	water	SM 4500 Cl-C	00940	5	5	70-130	20	80-120	Eastex
SULFATE (MG/L AS SO ₄)	mg/L	water	ASTM D516	00945	5	5	70-130	20	80-120	Eastex
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50**	NA	Eastex
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ****	MPN/100 mL	water	ASTM D-6503	31701	1	1	NA	0.50**	NA	Eastex
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	Eastex
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex
ORTHOPHOSPHATE PHOSPHORUS,DISS,MG/L,FLDFILT<15MIN	mg/L	water	SM 4500-P E & F	00671	0.04	0.04	70-130	20	80-120	Eastex
HARDNESS, TOTAL (MG/L AS CaCO ₃)*	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	Eastex
TURBIDITY,LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130B	82079	0.5	0.5	NA	NA	NA	Eastex

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.

** 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 SM 9223-B 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 48 hours.

**** Enterococcus Samples should be diluted 1:10 for all waters.

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 for Water, Sediment, and Tissue, 2008 (RG-415).

**TABLE A7.1a Measurement Performance Specifications for Houston-Galveston Area Council
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
TEMPERATURE, WATER (DEGREES CENTGRADE), 24HR AVG	DEG C	Water	TCEQ SOP, V1	00209	NA	NA	NA	NA	NA	field
WATER TEMPERATURE, DEGREES CENTIGRADE, 24HR MAX	DEG C	Water	TCEQ SOP, V1	00210	NA	NA	NA	NA	NA	field
TEMPERATURE, WATER (DEGREES CENTIGRADE) 24HR MIN	DEG C	Water	TCEQ SOP, V1	00211	NA	NA	NA	NA	NA	field
SPECIFIC CONDUCTANCE, uS/CM, FIELD, 24HR AVG	uS/cm	Water	TCEQ SOP, V1	00212	NA	NA	NA	NA	NA	field
SPECIFIC CONDUCTANCE, uS/CM, FIELD, 24HR MAX	uS/cm	Water	TCEQ SOP, V1	00213	NA	NA	NA	NA	NA	field
SPECIFIC CONDUCTANCE, uS/CM, FIELD, 24HR MIN	uS/cm	Water	TCEQ SOP, V1	00214	NA	NA	NA	NA	NA	field
PH, S.U., 24HR MAXIMUM VALUE	std. units	Water	TCEQ SOP, V1	00215	NA	NA	NA	NA	NA	field
PH, S.U., 24HR, MINIMUM VALUE	std. units	Water	TCEQ SOP, V1	00216	NA	NA	NA	NA	NA	field
SALINITY, 24-HR, MAXIMUM, PPT	ppt	Water	TCEQ SOP, V1	00217	NA	NA	NA	NA	NA	field
SALINITY, 24-HR, AVERAGE, PPT	ppt	Water	TCEQ SOP, V1	00218	NA	NA	NA	NA	NA	field
SALINITY, 24-HR, MINIMUM, PPT	ppt	Water	TCEQ SOP, V1	00219	NA	NA	NA	NA	NA	field
SALINITY, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	00220	NA	NA	NA	NA	NA	field
WATER TEMPERATURE, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	00221	NA	NA	NA	NA	NA	field
SPECIFIC CONDUCTANCE, # OF MEASUREMENTS IN 24-HR	NU	Water	TCEQ SOP, V1	00222	NA	NA	NA	NA	NA	field
pH, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	00223	NA	NA	NA	NA	NA	field
DISSOLVED OXYGEN, 24-HOUR MIN. (MG/L) MIN. 4 MEA	mg/l	Water	TCEQ SOP, V1	89855	NA	NA	NA	NA	NA	field
DISSOLVED OXYGEN, 24-HOUR MAX. (MG/L) MIN. 4 MEA	mg/l	Water	TCEQ SOP, V1	89856	NA	NA	NA	NA	NA	field
DISSOLVED OXYGEN, 24-HOUR AVG. (MG/L) MIN. 4 MEA	mg/l	Water	TCEQ SOP, V1	89857	NA	NA	NA	NA	NA	field
DISSOLVED OXYGEN, # OF MEASUREMENTS IN 24-HRS	NU	Water	TCEQ SOP, V1	89858	NA	NA	NA	NA	NA	field

**TABLE A7.1a Measurement Performance Specifications for Houston-Galveston Area Council
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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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 A7.1b - Measurement Performance Specifications for Harris County Pollution Control Services
Field Parameters

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	Field
SALINITY - PARTS PER THOUSAND	PPT	water	SM 2520 and TCEQ SOP, V1	00480	NA*	NA	NA	NA	NA	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE (1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
TIDE STAGE 1=LOW, 2=FALLING, 3=SLACK, 4=RISING, 5=HI	NU	water	NA	89972	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field
TURBIDITY, OBSERVED (1=LOW, 2=MEDIUM, 3=HIGH)	NU	water	NA	88842	NA	NA	NA	NA	NA	Field

* Reporting to be consistent with SWQM guidance and based on measurement capability.

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 A7.1b Measurement Performance Specifications for Harris County Pollution Control Services
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	4	NA	NA	NA	Harris County
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500 - NH ₃ D	00610	0.1	0.1	70-130	20	80-120	Harris County
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500- NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N)	mg/L	water	SM 4500- NO ₃ E	00630	0.05	0.04	70-130	20	80-120	Harris County
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM 4500-P B and E	00665	0.06	0.02	70-130	20	80-120	Harris County
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ***	MPN/100 mL	water	ASTM D-6503	31701	1	10	NA	0.50* *	NA	Harris County
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.

** 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.
*** Enterococcus Samples should be diluted 1:10 for all waters

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 A7.1c - Measurement Performance Specifications for City of Houston, Health & Human Services
Field Parameters

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP,	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	Field
SALINITY - PARTS PER THOUSAND	PPT	water	SM 2520 and TCEQ SOP, V1	00480	NA*	NA	NA	NA	NA	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	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP, V1	74069	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPL	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE(1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
TIDE STAGE 1=LOW, 2=FALLING, 3=SLACK, 4=RISING, 5=HI	NU	water	NA	89972	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field

* Reporting to be consistent with SWQM guidance and based on measurement capability.

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 A7.1c - Measurement Performance Specifications for City of Houston, Health & Human Services
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	4	NA	NA	NA	Braeswood
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.1 Rev. 2.0 (1993)	00610	0.1	0.1	70-130	20	80-120	Braeswood
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00620	0.05	0.02	70-130	20	80-120	Braeswood
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.1	00665	0.06	0.02	70-130	20	80-120	Braeswood
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	Braeswood
SULFATE (MG/L AS SO ₄)	mg/L	water	EPA 300.0, Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	Braeswood
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	Colilert - 18	31699	1	1	NA	0.50*	NA	Braeswood
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ****	MPN/100 mL	water	Enterolert	31701	1	1	NA	0.50*	NA	Braeswood
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	Braeswood

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.

** 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 SM 9223-B 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 48 hours.

**** Enterococcus Samples should be diluted 1:10 for all waters.

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 A7.1d - Measurement Performance Specifications for City of Houston - Water Quality Control
Field Parameters**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	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	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP, V1	74069	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPL	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE (1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field
TURBIDITY, OBSERVED (1=LOW, 2=MEDIUM, 3=HIGH)	NU	water	NA	88842	NA	NA	NA	NA	NA	Field

**TABLE A7.1d - Measurement Performance Specifications for City of Houston - Water Quality Control
Field Parameters**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
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* Reporting to be consistent with SWQM guidance and based on measurement capability.

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 for Water, Sediment, and Tissue, 2008 (RG-415).

**TABLE A7.1d - Measurement Performance Specifications for City of Houston - Water Quality Control
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	4	NA	NA	NA	WQC
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.3	00610	0.1	0.1	70-130	20	80-120	WQC
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00620	0.05	0.05	70-130	20	80-120	WQC
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	615	0.05	0.05	70-130	20	80-120	WQC
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06	0.02	70-130	20	80-120	WQC
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	WQC
SULFATE (MG/L AS SO ₄)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	WQC
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50*	NA	WQC
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	WQC
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ****	MPN/100 mL	water	Enterolert	31701	1	1	NA	0.50*	NA	WQC
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex
ALKALINITY, TOTAL (MG/L AS CaCO ₃)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	WQC

**TABLE A7.1d - Measurement Performance Specifications for City of Houston - Water Quality Control
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
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* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM4500-Norg C which is the digestion step.

** 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 SM 9223-B 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 48 hours.

****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.)

TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2008 (RG-415).

TABLE A7.1e - Measurement Performance Specifications for San Jacinto River Authority - Lake Conroe Division

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE (1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field

* Reporting to be consistent with SWQM guidance and based on measurement capability.

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 for Water, Sediment, and Tissue, 2008 (RG-415).

TABLE A7.1e - Measurement Performance Specifications for San Jacinto River Authority - Lake Conroe Division

Conventional and Bacteriological Parameters in Water

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	4	NA	NA	NA	WQC
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.3	00610	0.1	0.1	70-130	20	80-120	WQC
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00620	0.05	0.05	70-130	20	80-120	WQC
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	615	0.05	0.05	70-130	20	80-120	WQC
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06	0.02	70-130	20	80-120	WQC
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	WQC
SULFATE (MG/L AS SO ₄)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	WQC
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50*	NA	WQC
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	WQC
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex
ALKALINITY, TOTAL (MG/L AS CaCO ₃)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	WQC

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.
 ** 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 SM 9223-B 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 48 hours.
 **** 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.)
 TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2008 (RG-415).

TABLE A7.1f - Measurement Performance Specifications for San Jacinto River Authority - Woodlands Division

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	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	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPL	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field

* Reporting to be consistent with SWQM guidance and based on measurement capability.

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 for Water, Sediment, and Tissue, 2008 (RG-415).

**TABLE A7.1f - Measurement Performance Specifications for San Jacinto River Authority - Woodlands Division
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	1	NA	NA	NA	Eastex
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM4500 NH ₃ -D & G	00610	0.1	0.1	70-130	20	80-120	Eastex
NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N)	mg/L	water	SM 4500-NO ₃ E & F	00630	0.05	0.02	70-130	20	80-120	Eastex
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NO ₃ E & F	00620	0.05	0.02	70-130	20	80-120	Eastex
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM4500 - PE	00665	0.06	0.02	70-130	20	80-120	Eastex
HARDNESS, TOTAL (MG/L AS CaCO ₃)*****	mg/L	water	SM 2340 C	00900	5	5	70-130	20	80-120	Eastex
CHLORIDE (MG/L AS CL)	mg/L	water	SM 4500- Cl C	00940	5	5	70-130	20	80-120	Eastex
SULFATE (MG/L AS SO ₄)	mg/L	water	ASTM D 516	00945	5	5	70-130	20	80-120	Eastex
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50* *	NA	Eastex
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ****	MPN/100 mL	water	ASTM D-6503	31701	1	1	NA	0.50* *	NA	Eastex
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	Eastex
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.
 ** 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 SM 9223-B 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 48 hours.
 **** Enterococcus Samples should be diluted 1:10 for all waters. ***** 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.)
 TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2008 (RG-415).

**TABLE A7.1f - Measurement Performance Specifications for San Jacinto River Authority - Woodlands Division
Metals in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
COPPER, TOTAL (UG/L AS CU)	µg/L	water	EPA 200.7	01042	NA	10	70-130	20	80-120	Eastex
SELENIUM, TOTAL (UG/L AS SE)	ug/L	water	EPA 200.7	01147	2	2	70-130	20	80-120	Eastex
HARDNESS, TOTAL (MG/L AS CaCO ₃)*	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	Eastex

*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.)
 TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2008 (RG-415).

TABLE A7.1g - Measurement Performance Specifications for Environmental Institute of Houston - University of Houston - Clear Lake

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (uS/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	Field
SALINITY - PARTS PER THOUSAND	PPT	water	SM 2520 and TCEQ SOP, V1	00480	NA*	NA	NA	NA	NA	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	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP, V1	74069	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPL	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE (1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field
TIDE STAGE 1=LOW, 2=FALLING, 3=SLACK, 4=RISING, 5=HI	NU	water	NA	89972	NA	NA	NA	NA	NA	Field

TABLE A7.1g - Measurement Performance Specifications for Environmental Institute of Houston - University of Houston - Clear Lake

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab

* Reporting to be consistent with SWQM guidance and based on measurement capability.

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 for Water, Sediment, and Tissue, 2008 (RG-415).

TABLE A7.1g - Measurement Performance Specifications for Environmental Institute of Houston - University of Houston - Clear Lake

Conventional and Bacteriological Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	1	NA	NA	NA	Eastex
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500 NH ₃ -D & G	00610	0.1	0.1	70-130	20	80-120	Eastex
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N)	mg/L	water	SM 4500-NO ₃ E & F	00630	0.05	0.02	70-130	20	80-120	Eastex
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM 4500-P E	00665	0.06	0.02	70-130	20	80-120	Eastex
CHLORIDE (MG/L AS CL)	mg/L	water	SM 4500 Cl-C	00940	5	5	70-130	20	80-120	Eastex
SULFATE (MG/L AS SO ₄)	mg/L	water	ASTM D516	00945	5	5	70-130	20	80-120	Eastex
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50*	NA	Eastex
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ****	MPN/100 mL	water	ASTM D-6503	31701	1	1	NA	0.50*	NA	Eastex
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	Eastex
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex
ORTHOPHOSPHATE PHOSPHORUS, DISS, MG/L, FLDFILT<15MIN	mg/L	water	SM 4500-P E & F	00671	0.04	0.04	70-130	20	80-120	Eastex
HARDNESS, TOTAL (MG/L AS CaCO ₃)*	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	Eastex
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130B	82079	0.5	0.5	NA	NA	NA	Eastex

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.
 ** 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 SM 9223-B 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 48 hours.
 **** Enterococcus Samples should be diluted 1:10 for all waters.

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 for Water, Sediment, and Tissue, 2008 (RG-415).

TABLE A7.h Measurement Performance Specifications for Harris County Flood Control District & City of Houston Public Works and Engineering

Field Parameters										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	NA*	NA	NA	NA	NA	Field
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA*	NA	NA	NA	NA	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	NA*	NA	NA	NA	NA	Field
SPECIFIC CONDUCTANCE, FIELD (us/cm @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	NA*	NA	NA	NA	NA	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP, V1	00300	NA*	NA	NA	NA	NA	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP, V1	00400	NA*	NA	NA	NA	NA	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	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	NA*	NA	NA	NA	NA	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	NA*	NA	NA	NA	NA	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPL	NU	other	TCEQ SOP V1	89835	NA*	NA	NA	NA	NA	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD, 4=STRONG)	NU	other	NA	89965	NA	NA	NA	NA	NA	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	NA	NA	NA	NA	NA	Field
WATER SURFACE (1=CALM, 2=RIPPLE, 3=WAVE, 4=WHITECAP)	NU	water	NA	89968	NA	NA	NA	NA	NA	Field
WATER ODOR (1=SEWAGE, 2=ILLY/CHEMICAL, 3=ROTTEN EGG, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER)	NU	water	NA	89971	NA	NA	NA	NA	NA	Field
WATER COLOR (1=BROWNISH, 2=REDDISH, 3=GREENISH, 4=BLACKISH, 5=CLEAR, 6=OTHER)	NU	water	NA	89969	NA	NA	NA	NA	NA	Field

TABLE A7.h Measurement Performance Specifications for Harris County Flood Control District & City of Houston Public Works and Engineering

Field Parameters

* Reporting to be consistent with SWQM guidance and based on measurement capability.

** Chlorine residual to be collected downstream of chlorinated outfalls.

*** To be routinely reported when collecting data from perennial pools.

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

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TABLE A7.h Measurement Performance Specifications for Harris County Flood Control District & City of Houston Public Works and Engineering

Conventional and Bacteriological Parameters in Water

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50*	NA	Hygeia *
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML)	MPN/100 mL	water	Enterolert	31701	10****	1	NA	0.50*	NA	Hygeia *
E.COLI, COLILERT, IDEXX, HOLDING TIME	hours	water	NA	31704	NA	NA	NA	NA	NA	Hygeia *

* Hygeia Lab is a sub-contractor of XENCO Lab for bacteria analyses.

** 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 SM 9223-B 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 48 hours.

****Enterococcus Samples should be diluted 1:10 for all waters

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