



A Waters Company

WP-276 2009 TNI Evaluation Final Complete Report

Josh Kirkpatrick
Quality Assurance Manager
Basic Laboratory - Chico
2218 Railroad Ave
Redding, CA 96001
(530) 243-7234 x204

EPA ID:
ERA Customer Number:
Report Issued:
Study Dates:

CA01570
B664812
03/05/18
01/15/18 - 03/01/18

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name
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WP Minerals (cat# 581, lot# P276-506)

1505	Alkalinity as CaCO3	mg/L	78	80.2	68.2 - 92.2	Acceptable	SM 2320 B-2011 2011	2/1/2018	-0.198	78.6	3.06	
1575	Chloride	mg/L		40.3	34.7 - 46.0	Not Reported				39.2	1.64	
1610	Conductivity at 25°C	µmhos/cm	384	383	345 - 421	Acceptable	SM 2510 B-2011 2011	2/5/2018	-0.0269	384	9.15	
1730	Fluoride	mg/L		0.636	0.460 - 0.812	Not Reported				0.609	0.0500	
1125	Potassium	mg/L		34.5	27.6 - 41.4	Not Reported				33.8	1.86	
1155	Sodium	mg/L		63.2	50.6 - 75.8	Not Reported				60.9	3.07	
2000	Sulfate	mg/L		40.8	33.3 - 46.9	Not Reported				39.7	1.74	
1955	Total Dissolved Solids at 180°C	mg/L	299	318	273 - 363	Acceptable	SM 2540 C-2011 2011	2/1/2018	-0.229	302	12.9	
1950	Total Solids at 105°C	mg/L	318	331	286 - 376	Acceptable	SM 2540 B-2011 2011	2/8/2018	-0.0529	319	11.7	

WP Hardness (cat# 580, lot# P276-507)

1960	Total Suspended Solids	mg/L	82.7	90.7	74.7 - 101	Acceptable	SM 2540 D-2011 2011	2/1/2018	-0.919	85.9	3.45	
1035	Calcium	mg/L		28.2	24.0 - 32.4	Not Reported				27.4	1.37	
1085	Magnesium	mg/L		14.6	12.4 - 16.8	Not Reported				14.3	0.735	
1550	Calcium Hardness as CaCO3	mg/L		70.3	59.8 - 80.8	Not Reported				68.3	3.20	
1755	Total Hardness as CaCO3	mg/L	121	130	110 - 150	Acceptable	SM 2340 C-2011 2011	2/1/2018	-1.11	127	5.28	

WP pH (cat# 577, lot# P276-977)

1900	pH	S.U.	6.95	6.89	6.69 - 7.09	Acceptable	SM 4500-H+ B-2011 2011	1/26/2018	0.442	6.93	0.0482	
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WP Settleable Solids (cat# 883, lot# P276-911)

1965	Settleable Solids	mL/L	12.0	10.0	7.27 - 13.6	Acceptable	SM 2540 F-2011 2011	1/26/2018	1.29	10.8	0.946	
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WP Simple Nutrients (cat# 584, lot# P276-505)

1515	Ammonia as N	mg/L		15.9	12.8 - 18.9	Not Reported				15.9	0.930	
1820	Nitrate + Nitrite as N	mg/L	7.28	7.54	6.24 - 8.78	Acceptable	SM 4500-NO3 E-2011 2011	2/20/2018	-0.625	7.52	0.389	
1810	Nitrate as N	mg/L	7.28	7.54	6.18 - 8.86	Acceptable	SM 4500-NO3 E-2011 2011	2/20/2018	-0.620	7.52	0.387	
1870	ortho-Phosphate as P	mg/L	3.15	3.22	2.74 - 3.70	Acceptable	SM 4500-P E-2011 2011	2/7/2018	-0.320	3.20	0.155	

WP Simple Nutrients (cat# 584, lot# P276-505)

1515	Ammonia as N	mg/L		15.9	12.8 - 18.9	Not Reported				15.9	0.930	
1820	Nitrate + Nitrite as N	mg/L	7.58	7.54	6.24 - 8.78	Acceptable	EPA 353.2 2 1993	2/7/2018	0.146	7.52	0.389	
1810	Nitrate as N	mg/L	7.58	7.54	6.18 - 8.86	Acceptable	EPA 353.2 2 1993	2/7/2018	0.156	7.52	0.387	
1870	ortho-Phosphate as P	mg/L		3.22	2.74 - 3.70	Not Reported				3.20	0.155	

WP Nitrite (cat# 888, lot# P276-770)

1840	Nitrite as N	mg/L	2.48	2.66	2.29 - 3.04	Acceptable	SM 4500-NO2 B-2011 2011	2/20/2018	-1.04	2.64	0.158	
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WP Nitrite (cat# 888, lot# P276-770)

1840	Nitrite as N	mg/L	2.65	2.66	2.29 - 3.04	Acceptable	EPA 353.2 2 1993	2/7/2018	0.0347	2.64	0.158	
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WP Demand (cat# 578, lot# P276-516)

1530	BOD	mg/L	85	96.8	51.9 - 142	Acceptable	SM 5210 B-2011 2011	2/13/2018	-0.649	94.8	15.1	
1555	CBOD	mg/L	89	87.6	40.6 - 135	Acceptable	SM 5210 B-2011 2011	2/13/2018	-0.00898	89.2	17.1	
1565	COD	mg/L	150	157	125 - 184	Acceptable	SM 5220 D-2011 2011	2/27/2018	-0.330	154	13.3	
2040	TOC	mg/L		62.1	51.9 - 71.7	Not Reported				61.8	2.68	

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WP Demand (cat# 578, lot# P276-516)

1530	BOD	mg/L		96.8	51.9 - 142	Not Reported				94.8	15.1	
1555	CBOD	mg/L		87.6	40.6 - 135	Not Reported				89.2	17.1	
1565	COD	mg/L	149	157	125 - 184	Acceptable	HACH 8000	2/27/2018	-0.405	154	13.3	
2040	TOC	mg/L		62.1	51.9 - 71.7	Not Reported				61.8	2.68	

WP Hexavalent Chromium (cat# 898, lot# P276-984)

1045	Hexavalent Chromium	µg/L	329	340	283 - 393	Acceptable	SM 3500-Cr B-2011 2011	2/12/2018	-0.474	338	18.8	
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WP Turbidity (cat# 893, lot# P276-777)

2055	Turbidity	NTU	8.6	8.72	7.00 - 10.4	Acceptable	SM 2130 B-2011 2011	2/5/2018	0.189	8.50	0.515	
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WP Turbidity (cat# 893, lot# P276-777)

2055	Turbidity	NTU	8.6	8.72	7.00 - 10.4	Acceptable	EPA 180.1 2 1993	2/5/2018	0.189	8.50	0.515	
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WP Total Residual Chlorine (cat# 587, lot# P276-501)

1940	Total Residual Chlorine	mg/L	1.98	2.07	1.52 - 2.42	Acceptable	SM 4500-Cl G-2011 2011	2/19/2018	-0.155	2.00	0.123	
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Per Section 6.4.3 a of the 2009 TNI Standard, "The assigned values for quantitative microbiology analytes shall be equal to the mean of the assigned value verification and/or homogeneity testing per Sections 7.1 and 7.2". The final acceptance limits are derived from the calculated study mean and study standard deviation from laboratory-reported results. Disagreement between the assigned values and study means/acceptance limits are due to the inherent variability of microbiology methods and differences in the methods used by ERA and participant laboratories. For quantitative microbiology analytes, the assigned value is not used in the evaluation of laboratories.



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