



WP-264 2009 TNI Evaluation Final Complete Report

A Waters Company

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

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

CA01570
B664812
03/06/17
01/16/17 - 03/02/17

(DMRQA Analytes Only)

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# P264-506)

1505	Alkalinity as CaCO3	mg/L	83	85.4	72.6 - 98.2	Acceptable	SM2320B 21st ED 1997	1/23/2017	-0.364	84.1	2.94	
1575	Chloride	mg/L	77.8	82.9	72.5 - 93.5	Acceptable	EPA 300.0 2.1 1993	1/26/2017	-0.920	80.7	3.17	
1610	Conductivity at 25°C	µmhos/cm	511	508	457 - 559	Acceptable	SM2510B online	1/24/2017	0.442	505	13.0	
1730	Fluoride	mg/L	1.42	1.59	1.25 - 1.88	Acceptable	EPA 300.0 2.1 1993	1/25/2017	-1.29	1.54	0.0907	
1125	Potassium	mg/L		27.8	22.2 - 33.4	Not Reported				27.0	1.36	
1155	Sodium	mg/L		92.9	74.3 - 111	Not Reported				89.8	4.81	
2000	Sulfate	mg/L	28.8	30.1	24.3 - 34.8	Acceptable	EPA 300.0 2.1 1993	1/25/2017	-0.0856	28.9	1.61	
1955	Total Dissolved Solids at 180°C	mg/L	358	381	336 - 426	Acceptable	SM2540C online	1/23/2017	-0.635	369	17.7	
1950	Total Solids at 105°C	mg/L	377	395	350 - 440	Acceptable	SM2540B online	1/27/2017	-0.244	381	16.3	

WP Hardness (cat# 580, lot# P264-507)

1960	Total Suspended Solids	mg/L	68.0	71.4	57.7 - 80.0	Acceptable	SM2540D online	1/23/2017	-0.438	69.1	2.57	
1035	Calcium	mg/L		88.8	75.5 - 102	Not Reported				87.7	3.96	
1085	Magnesium	mg/L		15.9	13.5 - 18.3	Not Reported				15.6	0.720	
1550	Calcium Hardness as CaCO3	mg/L		222	189 - 255	Not Reported				218	9.36	
1755	Total Hardness as CaCO3	mg/L	279	287	244 - 330	Acceptable	SM2340C online	1/24/2017	-0.269	282	11.0	

WP pH (cat# 577, lot# P264-977)

1900	pH	S.U.	9.50	9.65	9.45 - 9.85	Acceptable	SM4500H+ B online	1/19/2017	-0.995	9.59	0.0920	
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WP Settleable Solids (cat# 883, lot# P264-911)

1965	Settleable Solids	mL/L	32.0	28.8	23.5 - 36.6	Acceptable	SM2540F online	1/19/2017	0.694	30.6	2.02	
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WP Volatile Solids (cat# 884, lot# P264-913)

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WP Simple Nutrients (cat# 584, lot# P264-505)

1515	Ammonia as N	mg/L		4.14	3.17 - 5.16	Not Reported				4.14	0.273	
1820	Nitrate + Nitrite as N	mg/L	16.1	15.2	12.7 - 17.6	Acceptable	EPA 353.2 2 1993	2/16/2017	1.01	15.4	0.729	
1810	Nitrate as N	mg/L	16.1	15.2	12.7 - 17.7	Acceptable	EPA 353.2 2 1993	2/16/2017	1.09	15.3	0.695	
1870	ortho-Phosphate as P	mg/L	4.74	4.69	3.99 - 5.39	Acceptable	SM4500P E online	1/25/2017	0.0588	4.73	0.233	

WP Simple Nutrients (cat# 584, lot# P264-505)

1515	Ammonia as N	mg/L		4.14	3.17 - 5.16	Not Reported				4.14	0.273	
1820	Nitrate + Nitrite as N	mg/L	15.0	15.2	12.7 - 17.6	Acceptable	SM4500NO3- E online	1/25/2017	-0.497	15.4	0.729	
1810	Nitrate as N	mg/L	15.0	15.2	12.7 - 17.7	Acceptable	SM4500NO3- E online	1/25/2017	-0.493	15.3	0.695	
1870	ortho-Phosphate as P	mg/L		4.69	3.99 - 5.39	Not Reported				4.73	0.233	

WP Simple Nutrients (cat# 584, lot# P264-505)

1515	Ammonia as N	mg/L		4.14	3.17 - 5.16	Not Reported				4.14	0.273	
1820	Nitrate + Nitrite as N	mg/L	15.0	15.2	12.7 - 17.6	Acceptable	EPA 300.0 2.1 1993	1/26/2017	-0.497	15.4	0.729	
1810	Nitrate as N	mg/L	15.0	15.2	12.7 - 17.7	Acceptable	EPA 300.0 2.1 1993	1/26/2017	-0.493	15.3	0.695	
1870	ortho-Phosphate as P	mg/L		4.69	3.99 - 5.39	Not Reported				4.73	0.233	

WP Nitrite (cat# 888, lot# P264-770)

1840	Nitrite as N	mg/L	2.91	2.98	2.57 - 3.39	Acceptable	SM4500NO2- B online	1/25/2017	-0.558	3.01	0.170	
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WP Nitrite (cat# 888, lot# P264-770)

1840	Nitrite as N	mg/L	2.95	2.98	2.57 - 3.39	Acceptable	EPA 353.2 2 1993	2/16/2017	-0.323	3.01	0.170	
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WP Nitrite (cat# 888, lot# P264-770)

1840	Nitrite as N	mg/L	2.93	2.98	2.57 - 3.39	Acceptable	EPA 300.0 2.1 1993	1/26/2017	-0.441	3.01	0.170	
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WP Demand (cat# 578, lot# P264-516)

1530	BOD	mg/L	77	75.6	40.1 - 111	Acceptable	SM5210B online	2/8/2017	0.190	74.9	11.1	
1555	CBOD	mg/L	69	68.4	31.2 - 106	Acceptable	SM5210B online	2/8/2017	-0.151	71.0	13.1	
1565	COD	mg/L	118	123	95.8 - 146	Acceptable	SM5220D online	2/3/2017	-0.436	121	7.29	
2040	TOC	mg/L		48.6	40.5 - 56.4	Not Reported				48.6	2.48	

WP Dissolved Oxygen (cat# 212, lot# P264-213)

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WP Dissolved Oxygen (cat# 212, lot# P264-213)

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WP Hexavalent Chromium (cat# 898, lot# P264-984)

1045	Hexavalent Chromium	µg/L	315	329	274 - 381	Acceptable	SM3500Cr B online	1/20/2017	-0.703	326	15.2	
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WP Color (cat# 882, lot# P264-070)

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WP Turbidity (cat# 893, lot# P264-777)

2055	Turbidity	NTU	4.1	3.78	2.75 - 4.77	Acceptable	SM2130B online	1/20/2017	0.824	3.89	0.259	
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WP Turbidity (cat# 893, lot# P264-777)

2055	Turbidity	NTU	4.1	3.78	2.75 - 4.77	Acceptable	EPA 180.1 2 1993	1/20/2017	0.824	3.89	0.259	
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WP Sulfide (cat# 891, lot# P264-071)

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WP Sulfite (cat# 244, lot# P264-534)

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WP Surfactants - MBAS (cat# 892, lot# P264-776)												
WP Total Residual Chlorine (cat# 587, lot# P264-501)												
1940	Total Residual Chlorine	mg/L	0.57	0.590	0.447 - 0.734	Acceptable	SM4500Cl G online	1/20/2017	0.0774	0.567	0.0431	



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WP WasteWatTM Coliform MicrobETM (cat# 576, lot# P264-083)

2500	Total Coliforms (MF)	CFU/100mL		1360	518 - 2790	Not Reported				1200	379	
2530	Fecal Coliforms (MF)	CFU/100mL		1360	254 - 2600	Not Reported				812	391	
2525	E.coli (MF)	CFU/100mL		1360	323 - 2940	Not Reported				974	436	
2500	Total Coliforms (MPN)	MPN/100mL	1990	1890	747 - 3090	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	2/7/2017	0.0451	1520	391	
2530	Fecal Coliforms (MPN)	MPN/100mL		1890	484 - 3930	Not Reported				1380	574	
2525	E.coli (MPN)	MPN/100mL	1990	1890	731 - 3170	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	2/7/2017	0.0445	1520	407	

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.

WP WasteWatTM Coliform MicrobETM (cat# 576, lot# P264-083)

2500	Total Coliforms (MF)	CFU/100mL		1360	518 - 2790	Not Reported				1200	379	
2530	Fecal Coliforms (MF)	CFU/100mL		1360	254 - 2600	Not Reported				812	391	
2525	E.coli (MF)	CFU/100mL		1360	323 - 2940	Not Reported				974	436	
2500	Total Coliforms (MPN)	MPN/100mL	2420	1890	747 - 3090	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	2/7/2017	0.0779	1520	391	
2530	Fecal Coliforms (MPN)	MPN/100mL		1890	484 - 3930	Not Reported				1380	574	
2525	E.coli (MPN)	MPN/100mL	2420	1890	731 - 3170	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	2/7/2017	0.0770	1520	407	

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.

WP WasteWatTM Coliform MicrobETM - SM 9221 (cat# 576A, lot# P264-083A)

2500	Total Coliforms (MPN)	MPN/100mL	1300	1890	178 - 5120	Acceptable	SM 9221 B + C-1994 1994	2/8/2017	0.0458	956	823	
2530	Fecal Coliforms (MPN)	MPN/100mL	1300	1890	154 - 5880	Acceptable	SM 9221 B + E + C-1994 1994	2/8/2017	0.0455	952	955	
2525	E.coli (MPN)	MPN/100mL		1890	150 - 5320	Not Reported				894	862	



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