



A Waters Company

WP-264 2009 TNI Evaluation Final Complete Report

Josh Kirkpatrick
 Quality Assurance Manager
 Basic Laboratory, Inc.
 2218 Railroad Ave
 Redding, CA 96001
 (530) 243-7234-204

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

CA00381
 B062101
 03/06/17
 01/16/17 - 03/02/17

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	84	85.4	72.6 - 98.2	Acceptable	SM 2320 B-1997 1997	1/25/2017	-0.0236	84.1	2.94	
1575	Chloride	mg/L	77.9	82.9	72.5 - 93.5	Acceptable	EPA 300.0 2.1 1993	2/7/2017	-0.889	80.7	3.17	
1610	Conductivity at 25°C	µmhos/cm	513	508	457 - 559	Acceptable	SM2510B online	1/26/2017	0.596	505	13.0	
1730	Fluoride	mg/L	1.54	1.59	1.25 - 1.88	Acceptable	EPA 300.0 2.1 1993	2/7/2017	0.0350	1.54	0.0907	
1125	Potassium	mg/L	26.5	27.8	22.2 - 33.4	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.361	27.0	1.36	
1155	Sodium	mg/L	88.3	92.9	74.3 - 111	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.316	89.8	4.81	
2000	Sulfate	mg/L	30.1	30.1	24.3 - 34.8	Acceptable	EPA 300.0 2.1 1993	2/7/2017	0.720	28.9	1.61	
1955	Total Dissolved Solids at 180°C	mg/L	380	381	336 - 426	Acceptable	SM2540C online	1/27/2017	0.606	369	17.7	
1950	Total Solids at 105°C	mg/L	383	395	350 - 440	Acceptable	SM2540B online	1/30/2017	0.125	381	16.3	

WP Minerals (cat# 581, lot# P264-506)

1505	Alkalinity as CaCO3	mg/L		85.4	72.6 - 98.2	Not Reported				84.1	2.94	
1575	Chloride	mg/L		82.9	72.5 - 93.5	Not Reported				80.7	3.17	
1610	Conductivity at 25°C	µmhos/cm		508	457 - 559	Not Reported				505	13.0	
1730	Fluoride	mg/L		1.59	1.25 - 1.88	Not Reported				1.54	0.0907	
1125	Potassium	mg/L	26.4	27.8	22.2 - 33.4	Acceptable	EPA 200.8 5.4 1994	2/8/2017	-0.435	27.0	1.36	
1155	Sodium	mg/L	88.4	92.9	74.3 - 111	Acceptable	EPA 200.8 5.4 1994	2/8/2017	-0.295	89.8	4.81	
2000	Sulfate	mg/L		30.1	24.3 - 34.8	Not Reported				28.9	1.61	
1955	Total Dissolved Solids at 180°C	mg/L		381	336 - 426	Not Reported				369	17.7	
1950	Total Solids at 105°C	mg/L		395	350 - 440	Not Reported				381	16.3	



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WP Minerals (cat# 581, lot# P264-506)

1505	Alkalinity as CaCO3	mg/L		85.4	72.6 - 98.2	Not Reported				84.1	2.94	
1575	Chloride	mg/L		82.9	72.5 - 93.5	Not Reported				80.7	3.17	
1610	Conductivity at 25°C	µmhos/cm		508	457 - 559	Not Reported				505	13.0	
1730	Fluoride	mg/L		1.59	1.25 - 1.88	Not Reported				1.54	0.0907	
1125	Potassium	mg/L	26.5	27.8	22.2 - 33.4	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.361	27.0	1.36	
1155	Sodium	mg/L	88.3	92.9	74.3 - 111	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.316	89.8	4.81	
2000	Sulfate	mg/L		30.1	24.3 - 34.8	Not Reported				28.9	1.61	
1955	Total Dissolved Solids at 180°C	mg/L		381	336 - 426	Not Reported				369	17.7	
1950	Total Solids at 105°C	mg/L		395	350 - 440	Not Reported				381	16.3	

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

1960	Total Suspended Solids	mg/L	67.3	71.4	57.7 - 80.0	Acceptable	SM2540D online	1/25/2017	-0.710	69.1	2.57	
1035	Calcium	mg/L	87.5	88.8	75.5 - 102	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.0500	87.7	3.96	
1085	Magnesium	mg/L	15.4	15.9	13.5 - 18.3	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.341	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	282	287	244 - 330	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.00422	282	11.0	

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

1960	Total Suspended Solids	mg/L		71.4	57.7 - 80.0	Not Reported				69.1	2.57	
1035	Calcium	mg/L	87.5	88.8	75.5 - 102	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.0500	87.7	3.96	
1085	Magnesium	mg/L	15.4	15.9	13.5 - 18.3	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.341	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	282	287	244 - 330	Acceptable	EPA 6010B 2 1996	2/8/2017	0.00422	282	11.0	



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

1960	Total Suspended Solids	mg/L		71.4	57.7 - 80.0	Not Reported				69.1	2.57	
1035	Calcium	mg/L	85.6	88.8	75.5 - 102	Acceptable	EPA 200.8 5.4 1994	2/8/2017	-0.530	87.7	3.96	
1085	Magnesium	mg/L	15.4	15.9	13.5 - 18.3	Acceptable	EPA 200.8 5.4 1994	2/8/2017	-0.341	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	277	287	244 - 330	Acceptable	EPA 200.8 5.4 1994	2/8/2017	-0.450	282	11.0	

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

1960	Total Suspended Solids	mg/L		71.4	57.7 - 80.0	Not Reported				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	270	287	244 - 330	Acceptable	SM2340C online	1/30/2017	-1.09	282	11.0	

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

1900	pH	S.U.	9.50	9.65	9.45 - 9.85	Acceptable	EPA 9040B 2 1995	1/26/2017	-0.995	9.59	0.0920	
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WP pH (cat# 577, lot# P264-977)

1900	pH	S.U.	9.50	9.65	9.45 - 9.85	Acceptable	SM4500H+ B online	1/26/2017	-0.995	9.59	0.0920	
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WP Settleable Solids (cat# 883, lot# P264-911)

1965	Settleable Solids	mL/L	30.0	28.8	23.5 - 36.6	Acceptable	SM2540F online	1/19/2017	-0.298	30.6	2.02	
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WP Simple Nutrients (cat# 584, lot# P264-505)

1515	Ammonia as N	mg/L	4.19	4.14	3.17 - 5.16	Acceptable	EPA 350.1 2 1993	2/13/2017	0.198	4.14	0.273	
1820	Nitrate + Nitrite as N	mg/L	15.8	15.2	12.7 - 17.6	Acceptable	EPA 353.2 2 1993	2/6/2017	0.601	15.4	0.729	
1810	Nitrate as N	mg/L	15.8	15.2	12.7 - 17.7	Acceptable	EPA 353.2 2 1993	2/6/2017	0.657	15.3	0.695	
1870	ortho-Phosphate as P	mg/L	4.15	4.69	3.99 - 5.39	Acceptable	SM4500P E online	2/6/2017	-2.47	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	15.5	15.2	12.7 - 17.6	Acceptable	EPA 300.0 2.1 1993	2/7/2017	0.190	15.4	0.729	
1810	Nitrate as N	mg/L	15.5	15.2	12.7 - 17.7	Acceptable	EPA 300.0 2.1 1993	2/7/2017	0.226	15.3	0.695	
1870	ortho-Phosphate as P	mg/L		4.69	3.99 - 5.39	Not Reported				4.73	0.233	

WP Complex Nutrients (cat# 579, lot# P264-525)

1795	Total Kjeldahl Nitrogen	mg/L	11.8	13.0	9.62 - 16.1	Acceptable	EPA 351.2 2 1993	1/23/2017	-1.05	12.7	0.903	
1910	Total phosphorus as P	mg/L	9.27	9.35	7.80 - 10.8	Acceptable	SM4500P E online	1/22/2017	-0.301	9.41	0.461	

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

1840	Nitrite as N	mg/L	3.07	2.98	2.57 - 3.39	Acceptable	EPA 353.2 2 1993	2/6/2017	0.382	3.01	0.170	
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WP Nitrite (cat# 888, lot# P264-770)

1840	Nitrite as N	mg/L	2.99	2.98	2.57 - 3.39	Acceptable	EPA 300.0 2.1 1993	2/7/2017	-0.0882	3.01	0.170	
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WP Nitrite (cat# 888, lot# P264-770)

1840	Nitrite as N	mg/L	2.75	2.98	2.57 - 3.39	Acceptable	SM4500NO2- B online	2/6/2017	-1.50	3.01	0.170	
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WP Demand (cat# 578, lot# P264-516)

1530	BOD	mg/L	63	75.6	40.1 - 111	Acceptable	SM5210B online	1/30/2017	-1.07	74.9	11.1	
1555	CBOD	mg/L	72	68.4	31.2 - 106	Acceptable	SM5210B online	1/30/2017	0.0786	71.0	13.1	
1565	COD	mg/L	121	123	95.8 - 146	Acceptable	SM5220D online	1/31/2017	-0.0247	121	7.29	
2040	TOC	mg/L	49.3	48.6	40.5 - 56.4	Acceptable	SM5310C online	2/1/2017	0.283	48.6	2.48	

WP Demand (cat# 578, lot# P264-516)

1530	BOD	mg/L		75.6	40.1 - 111	Not Reported				74.9	11.1	
1555	CBOD	mg/L		68.4	31.2 - 106	Not Reported				71.0	13.1	
1565	COD	mg/L	121	123	95.8 - 146	Acceptable	HACH 8000	1/31/2017	-0.0247	121	7.29	
2040	TOC	mg/L		48.6	40.5 - 56.4	Not Reported				48.6	2.48	

WP Oil & Grease (cat# 582, lot# P264-518)

1803	n-Hexane Extractable Material(O&G)(Grav)	mg/L	35.6	37.5	22.5 - 47.2	Acceptable	EPA 1664A HEM 1999	2/16/2017	0.124	35.2	2.85	
1803	n-Hexane Extractable Material(O&G)(IR)	mg/L		46.1	29.1 - 56.7	Not Reported				46.1	5.55	

WP Oil & Grease (cat# 582, lot# P264-518)

1803	n-Hexane Extractable Material(O&G)(Grav)	mg/L	35.6	37.5	22.5 - 47.2	Acceptable	EPA 1664B (HEM) 2010	2/16/2017	0.124	35.2	2.85	
1803	n-Hexane Extractable Material(O&G)(IR)	mg/L		46.1	29.1 - 56.7	Not Reported				46.1	5.55	



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WP Trace Metals (cat# 586, lot# P264-500)

1000	Aluminum	µg/L	3570	3530	2940 - 4010	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.137	3540	184	
1005	Antimony	µg/L	698	693	566 - 799	Acceptable	EPA 200.7 4.4 1994	2/21/2017	0.470	682	33.8	
1010	Arsenic	µg/L	453	456	380 - 527	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.0757	455	23.4	
1015	Barium	µg/L	355	349	297 - 401	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.509	347	15.9	
1020	Beryllium	µg/L	399	394	335 - 453	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.300	393	20.4	
1025	Boron	µg/L	1660	1680	1430 - 1930	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.212	1640	83.8	
1030	Cadmium	µg/L	209	210	178 - 242	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.271	206	9.35	
1040	Chromium	µg/L	630	614	522 - 706	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.319	622	26.1	
1050	Cobalt	µg/L	906	860	731 - 989	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.156	899	42.0	
1055	Copper	µg/L	380	375	319 - 431	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.295	375	17.7	
1070	Iron	µg/L	3600	3590	3050 - 4130	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.189	3630	174	
1075	Lead	µg/L	846	824	700 - 948	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.603	823	37.9	
1090	Manganese	µg/L	1340	1290	1100 - 1480	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.158	1330	62.9	
1100	Molybdenum	µg/L	543	554	482 - 621	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.121	546	25.3	
1105	Nickel	µg/L	642	637	558 - 721	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.0787	644	30.2	
1140	Selenium	µg/L	867	882	750 - 1010	Acceptable	EPA 200.7 4.4 1994	2/8/2017	-0.101	872	46.4	
1150	Silver	µg/L	224	224	190 - 258	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.00154	224	12.0	
1160	Strontium	µg/L	456	452	384 - 520	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.0916	454	20.4	
1165	Thallium	µg/L	388	379	308 - 443	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.345	380	23.2	
1185	Vanadium	µg/L	219	222	189 - 255	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.238	216	11.6	



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WP Trace Metals (cat# 586, lot# P264-500) (Continued)

1190	Zinc	µg/L	914	918	780 - 1060	Acceptable	EPA 200.7 4.4 1994	2/8/2017	0.0668	911	39.3	
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WP Trace Metals (cat# 586, lot# P264-500)

1000	Aluminum	µg/L	3570	3530	2940 - 4010	Acceptable	EPA 6010B 2 1996	2/8/2017	0.137	3540	184	
1005	Antimony	µg/L	698	693	566 - 799	Acceptable	EPA 6010B 2 1996	2/21/2017	0.470	682	33.8	
1010	Arsenic	µg/L	453	456	380 - 527	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.0757	455	23.4	
1015	Barium	µg/L	355	349	297 - 401	Acceptable	EPA 6010B 2 1996	2/8/2017	0.509	347	15.9	
1020	Beryllium	µg/L	399	394	335 - 453	Acceptable	EPA 6010B 2 1996	2/8/2017	0.300	393	20.4	
1025	Boron	µg/L	1660	1680	1430 - 1930	Acceptable	EPA 6010B 2 1996	2/8/2017	0.212	1640	83.8	
1030	Cadmium	µg/L	209	210	178 - 242	Acceptable	EPA 6010B 2 1996	2/8/2017	0.271	206	9.35	
1040	Chromium	µg/L	630	614	522 - 706	Acceptable	EPA 6010B 2 1996	2/8/2017	0.319	622	26.1	
1050	Cobalt	µg/L	906	860	731 - 989	Acceptable	EPA 6010B 2 1996	2/8/2017	0.156	899	42.0	
1055	Copper	µg/L	380	375	319 - 431	Acceptable	EPA 6010B 2 1996	2/8/2017	0.295	375	17.7	
1070	Iron	µg/L	3600	3590	3050 - 4130	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.189	3630	174	
1075	Lead	µg/L	846	824	700 - 948	Acceptable	EPA 6010B 2 1996	2/8/2017	0.603	823	37.9	
1090	Manganese	µg/L	1340	1290	1100 - 1480	Acceptable	EPA 6010B 2 1996	2/8/2017	0.158	1330	62.9	
1100	Molybdenum	µg/L	543	554	482 - 621	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.121	546	25.3	
1105	Nickel	µg/L	642	637	558 - 721	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.0787	644	30.2	
1140	Selenium	µg/L	867	882	750 - 1010	Acceptable	EPA 6010B 2 1996	2/8/2017	-0.101	872	46.4	
1150	Silver	µg/L	224	224	190 - 258	Acceptable	EPA 6010B 2 1996	2/8/2017	0.00154	224	12.0	
1160	Strontium	µg/L	456	452	384 - 520	Acceptable	EPA 6010B 2 1996	2/8/2017	0.0916	454	20.4	
1165	Thallium	µg/L	388	379	308 - 443	Acceptable	EPA 6010B 2 1996	2/8/2017	0.345	380	23.2	
1185	Vanadium	µg/L	219	222	189 - 255	Acceptable	EPA 6010B 2 1996	2/8/2017	0.238	216	11.6	



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WP-264 2009 TNI Evaluation Final Complete Report

Josh Kirkpatrick
Quality Assurance Manager
Basic Laboratory, Inc.
2218 Railroad Ave
Redding, CA 96001
(530) 243-7234-204

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WP Trace Metals (cat# 586, lot# P264-500) (Continued)

1190	Zinc	µg/L	914	918	780 - 1060	Acceptable	EPA 6010B 2 1996	2/8/2017	0.0668	911	39.3	
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WP Trace Metals (cat# 586, lot# P264-500)

1000	Aluminum	µg/L	3500	3530	2940 - 4010	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.243	3540	184	
1005	Antimony	µg/L	690	693	566 - 799	Acceptable	EPA 200.8 5.4 1994	2/9/2017	0.234	682	33.8	
1010	Arsenic	µg/L	447	456	380 - 527	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.332	455	23.4	
1015	Barium	µg/L	339	349	297 - 401	Acceptable	EPA 200.8 5.4 1994	2/8/2017	-0.497	347	15.9	
1020	Beryllium	µg/L	391	394	335 - 453	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.0923	393	20.4	
1025	Boron	µg/L	1630	1680	1430 - 1930	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.146	1640	83.8	
1030	Cadmium	µg/L	201	210	178 - 242	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.585	206	9.35	
1040	Chromium	µg/L	606	614	522 - 706	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.602	622	26.1	
1050	Cobalt	µg/L	874	860	731 - 989	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.606	899	42.0	
1055	Copper	µg/L	373	375	319 - 431	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.100	375	17.7	
1070	Iron	µg/L	3550	3590	3050 - 4130	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.477	3630	174	
1075	Lead	µg/L	806	824	700 - 948	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.453	823	37.9	
1090	Manganese	µg/L	1300	1290	1100 - 1480	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.478	1330	62.9	
1100	Molybdenum	µg/L	540	554	482 - 621	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.240	546	25.3	
1105	Nickel	µg/L	638	637	558 - 721	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.211	644	30.2	
1140	Selenium	µg/L	872	882	750 - 1010	Acceptable	EPA 200.8 5.4 1994	2/9/2017	0.00725	872	46.4	
1150	Silver	µg/L	219	224	190 - 258	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.416	224	12.0	
1160	Strontium	µg/L	433	452	384 - 520	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-1.03	454	20.4	
1165	Thallium	µg/L	379	379	308 - 443	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.0439	380	23.2	
1185	Vanadium	µg/L	219	222	189 - 255	Acceptable	EPA 200.8 5.4 1994	2/9/2017	0.238	216	11.6	



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WP Trace Metals (cat# 586, lot# P264-500) (Continued)

1190	Zinc	µg/L	909	918	780 - 1060	Acceptable	EPA 200.8 5.4 1994	2/9/2017	-0.0603	911	39.3	
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WP Trace Metals (cat# 586, lot# P264-500)

1000	Aluminum	µg/L	3430	3530	2940 - 4010	Acceptable	EPA 6020	2/9/2017	-0.624	3540	184	
1005	Antimony	µg/L	672	693	566 - 799	Acceptable	EPA 6020	2/9/2017	-0.298	682	33.8	
1010	Arsenic	µg/L	447	456	380 - 527	Acceptable	EPA 6020	2/8/2017	-0.332	455	23.4	
1015	Barium	µg/L	324	349	297 - 401	Acceptable	EPA 6020	2/9/2017	-1.44	347	15.9	
1020	Beryllium	µg/L	365	394	335 - 453	Acceptable	EPA 6020	2/9/2017	-1.37	393	20.4	
1025	Boron	µg/L	1530	1680	1430 - 1930	Acceptable	EPA 6020	2/9/2017	-1.34	1640	83.8	
1030	Cadmium	µg/L	198	210	178 - 242	Acceptable	EPA 6020	2/9/2017	-0.906	206	9.35	
1040	Chromium	µg/L	606	614	522 - 706	Acceptable	EPA 6020	2/8/2017	-0.602	622	26.1	
1050	Cobalt	µg/L	853	860	731 - 989	Acceptable	EPA 6020	2/9/2017	-1.11	899	42.0	
1055	Copper	µg/L	364	375	319 - 431	Acceptable	EPA 6020	2/9/2017	-0.608	375	17.7	
1070	Iron	µg/L	3500	3590	3050 - 4130	Acceptable	EPA 6020	2/9/2017	-0.764	3630	174	
1075	Lead	µg/L	784	824	700 - 948	Acceptable	EPA 6020	2/9/2017	-1.03	823	37.9	
1090	Manganese	µg/L	1270	1290	1100 - 1480	Acceptable	EPA 6020	2/9/2017	-0.954	1330	62.9	
1100	Molybdenum	µg/L	530	554	482 - 621	Acceptable	EPA 6020	2/9/2017	-0.635	546	25.3	
1105	Nickel	µg/L	618	637	558 - 721	Acceptable	EPA 6020	2/9/2017	-0.874	644	30.2	
1140	Selenium	µg/L	886	882	750 - 1010	Acceptable	EPA 6020	2/8/2017	0.309	872	46.4	
1150	Silver	µg/L	219	224	190 - 258	Acceptable	EPA 6020	2/9/2017	-0.416	224	12.0	
1160	Strontium	µg/L	421	452	384 - 520	Acceptable	EPA 6020	2/9/2017	-1.62	454	20.4	
1165	Thallium	µg/L	367	379	308 - 443	Acceptable	EPA 6020	2/9/2017	-0.562	380	23.2	
1185	Vanadium	µg/L	219	222	189 - 255	Acceptable	EPA 6020	2/8/2017	0.238	216	11.6	



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Redding, CA 96001
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WP Trace Metals (cat# 586, lot# P264-500) (Continued)

1190	Zinc	µg/L	897	918	780 - 1060	Acceptable	EPA 6020	2/9/2017	-0.365	911	39.3	
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WP Trace Metals (cat# 586, lot# P264-500)

1000	Aluminum	µg/L	3590	3530	2940 - 4010	Acceptable	EPA 1638	2/10/2017	0.246	3540	184	
1005	Antimony	µg/L	616	693	566 - 799	Acceptable	EPA 1638	2/10/2017	-1.95	682	33.8	
1010	Arsenic	µg/L	464	456	380 - 527	Acceptable	EPA 1638	2/10/2017	0.394	455	23.4	
1015	Barium	µg/L	338	349	297 - 401	Acceptable	EPA 1638	2/10/2017	-0.560	347	15.9	
1020	Beryllium	µg/L	392	394	335 - 453	Acceptable	EPA 1638	2/10/2017	-0.0433	393	20.4	
1025	Boron	µg/L	1560	1680	1430 - 1930	Acceptable	EPA 1638	2/10/2017	-0.982	1640	83.8	
1030	Cadmium	µg/L	203	210	178 - 242	Acceptable	EPA 1638	2/10/2017	-0.371	206	9.35	
1040	Chromium	µg/L	593	614	522 - 706	Acceptable	EPA 1638	2/10/2017	-1.10	622	26.1	
1050	Cobalt	µg/L	868	860	731 - 989	Acceptable	EPA 1638	2/10/2017	-0.749	899	42.0	
1055	Copper	µg/L	363	375	319 - 431	Acceptable	EPA 1638	2/10/2017	-0.665	375	17.7	
1070	Iron	µg/L	3470	3590	3050 - 4130	Acceptable	EPA 1638	2/10/2017	-0.937	3630	174	
1075	Lead	µg/L	800	824	700 - 948	Acceptable	EPA 1638	2/10/2017	-0.612	823	37.9	
1090	Manganese	µg/L	1290	1290	1100 - 1480	Acceptable	EPA 1638	2/10/2017	-0.637	1330	62.9	
1100	Molybdenum	µg/L	519	554	482 - 621	Acceptable	EPA 1638	2/10/2017	-1.07	546	25.3	
1105	Nickel	µg/L	632	637	558 - 721	Acceptable	EPA 1638	2/10/2017	-0.410	644	30.2	
1140	Selenium	µg/L	904	882	750 - 1010	Acceptable	EPA 1638	2/10/2017	0.697	872	46.4	
1150	Silver	µg/L	216	224	190 - 258	Acceptable	EPA 1638	2/10/2017	-0.666	224	12.0	
1160	Strontium	µg/L	434	452	384 - 520	Acceptable	EPA 1638	2/10/2017	-0.985	454	20.4	
1165	Thallium	µg/L	371	379	308 - 443	Acceptable	EPA 1638	2/10/2017	-0.389	380	23.2	
1185	Vanadium	µg/L	205	222	189 - 255	Acceptable	EPA 1638	2/10/2017	-0.974	216	11.6	



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WP Trace Metals (cat# 586, lot# P264-500) (Continued)

1190	Zinc	µg/L	923	918	780 - 1060	Acceptable	EPA 1638	2/10/2017	0.296	911	39.3	
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WP Trace Metals (cat# 586, lot# P264-500)

1000	Aluminum	µg/L		3530	2940 - 4010	Not Reported				3540	184	
1005	Antimony	µg/L		693	566 - 799	Not Reported				682	33.8	
1010	Arsenic	µg/L		456	380 - 527	Not Reported				455	23.4	
1015	Barium	µg/L		349	297 - 401	Not Reported				347	15.9	
1020	Beryllium	µg/L		394	335 - 453	Not Reported				393	20.4	
1025	Boron	µg/L		1680	1430 - 1930	Not Reported				1640	83.8	
1030	Cadmium	µg/L	220	210	178 - 242	Acceptable	EPA 7131A 1 1994	2/28/2017	1.45	206	9.35	
1040	Chromium	µg/L		614	522 - 706	Not Reported				622	26.1	
1050	Cobalt	µg/L		860	731 - 989	Not Reported				899	42.0	
1055	Copper	µg/L		375	319 - 431	Not Reported				375	17.7	
1070	Iron	µg/L		3590	3050 - 4130	Not Reported				3630	174	
1075	Lead	µg/L		824	700 - 948	Not Reported				823	37.9	
1090	Manganese	µg/L		1290	1100 - 1480	Not Reported				1330	62.9	
1100	Molybdenum	µg/L		554	482 - 621	Not Reported				546	25.3	
1105	Nickel	µg/L		637	558 - 721	Not Reported				644	30.2	
1140	Selenium	µg/L		882	750 - 1010	Not Reported				872	46.4	
1150	Silver	µg/L		224	190 - 258	Not Reported				224	12.0	
1160	Strontium	µg/L		452	384 - 520	Not Reported				454	20.4	
1165	Thallium	µg/L		379	308 - 443	Not Reported				380	23.2	
1185	Vanadium	µg/L		222	189 - 255	Not Reported				216	11.6	



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WP Trace Metals (cat# 586, lot# P264-500) (Continued)

1190	Zinc	µg/L		918	780 - 1060	Not Reported				911	39.3	
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WP Mercury (cat# 574, lot# P264-514)

1095	Mercury	µg/L	5.62	5.68	3.98 - 7.38	Acceptable	EPA 245.1 3 1994	2/7/2017	-0.110	5.67	0.426	
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WP Mercury (cat# 574, lot# P264-514)

1095	Mercury	µg/L	5.62	5.68	3.98 - 7.38	Acceptable	EPA 245.2 1983	2/7/2017	-0.110	5.67	0.426	
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WP Mercury (cat# 574, lot# P264-514)

1095	Mercury	µg/L	5.62	5.68	3.98 - 7.38	Acceptable	EPA 7470A 1 1994	2/7/2017	-0.110	5.67	0.426	
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WP Low-Level Mercury (cat# 896, lot# P264-931)

1095	Low Level Mercury	ng/L	64.9	62.7	46.5 - 78.2	Acceptable	EPA 1631E 2002	2/10/2017	0.157	64.0	5.76	
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WP Hexavalent Chromium (cat# 898, lot# P264-984)

1045	Hexavalent Chromium	µg/L	315	329	274 - 381	Acceptable	EPA 218.6 3.3 1994	1/19/2017	-0.703	326	15.2	
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WP Hexavalent Chromium (cat# 898, lot# P264-984)

1045	Hexavalent Chromium	µg/L	346	329	274 - 381	Acceptable	SM3500Cr B online	1/19/2017	1.33	326	15.2	
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WP Turbidity (cat# 893, lot# P264-777)

2055	Turbidity	NTU	3.9	3.78	2.75 - 4.77	Acceptable	EPA 180.1 2 1993	1/30/2017	0.0511	3.89	0.259	
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WP Turbidity (cat# 893, lot# P264-777)

2055	Turbidity	NTU	3.9	3.78	2.75 - 4.77	Acceptable	SM2130B online	1/30/2017	0.0511	3.89	0.259	
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WP Total Phenolics (4-AAP) (cat# 589, lot# P264-515)

1905	Phenolics, total	mg/L	0.91	0.948	0.475 - 1.42	Acceptable	EPA 420.1 1978	1/27/2017	-0.454	0.989	0.174	
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WP Sulfide (cat# 891, lot# P264-071)

2005	Sulfide	mg/L	8.56	9.87	4.99 - 13.8	Acceptable	SM4500S2- D online	1/24/2017	0.126	8.37	1.49	
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Quality Assurance Manager
Basic Laboratory, Inc.
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ERA Customer Number:
Report Issued:
Study Dates:

CA00381
B062101
03/06/17
01/16/17 - 03/02/17

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 Total Residual Chlorine (cat# 587, lot# P264-501)

1940	Total Residual Chlorine	mg/L	0.58	0.590	0.447 - 0.734	Acceptable	SM4500Cl G online	1/30/2017	0.309	0.567	0.0431	
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All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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Study # : WP-264





A Waters Company

WP-264 2009 TNI Evaluation Final Complete Report

Josh Kirkpatrick
Quality Assurance Manager
Basic Laboratory, Inc.
2218 Railroad Ave
Redding, CA 96001
(530) 243-7234-204

EPA ID:
ERA Customer Number:
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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 WasteWat™ Coliform MicrobE™ (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	1410	1890	747 - 3090	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	2/14/2017	-0.0126	1520	391	
2530	Fecal Coliforms (MPN)	MPN/100mL		1890	484 - 3930	Not Reported				1380	574	
2525	E.coli (MPN)	MPN/100mL	1410	1890	731 - 3170	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	2/14/2017	-0.0129	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 WasteWat™ Coliform MicrobE™ (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	1300	1890	747 - 3090	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	2/14/2017	-0.0262	1520	391	
2530	Fecal Coliforms (MPN)	MPN/100mL		1890	484 - 3930	Not Reported				1380	574	
2525	E.coli (MPN)	MPN/100mL	1300	1890	731 - 3170	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	2/14/2017	-0.0264	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 WasteWat™ Coliform MicrobE™ - SM 9221 (cat# 576A, lot# P264-083A)

2500	Total Coliforms (MPN)	MPN/100mL	1700	1890	178 - 5120	Acceptable	SM 9221 B + C-1994 1994	2/15/2017	0.0858	956	823	
2530	Fecal Coliforms (MPN)	MPN/100mL	1700	1890	154 - 5880	Acceptable	SM 9221 B + E + C-1994 1994	2/15/2017	0.0846	952	955	
2525	E.coli (MPN)	MPN/100mL		1890	150 - 5320	Not Reported				894	862	



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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