



**Donny Juarez  
Energy Laboratories  
2393 Salt Creek Hwy  
Casper, WY 82601  
USA**

***WP-306***  ***Final Report***

**WatR™ Pollution Proficiency Testing**

**WatR™ Pollution Study**

**Open Date: 07/13/20**

**Close Date: 08/27/20**

**Report Issued Date: 08/31/20**



A Waters Company

August 31, 2020

Donny Juarez  
Energy Laboratories  
2393 Salt Creek Hwy  
Casper, WY 82601

Enclosed is your final report for ERA's WP-306 WatR™ Pollution Proficiency Testing (PT) study. Your final report includes an evaluation of all results submitted by your laboratory to ERA.

Data Evaluation Protocols: All analytes in ERA's WP-306 WatR™ Pollution Proficiency Testing study have been evaluated using the following tiered approach. If the analyte is listed in the most current TNI/NELAP Fields of Proficiency Testing (FoPT) table the evaluation was completed by comparing the reported result to the acceptance limits generated using the criteria contained in the table and the evaluation criteria contained in the 2016 TNI Standard, Volume 3. If the analyte is not included in the TNI/NELAP FoPT table, the reported result has been evaluated using the procedures outlined in ERA's Standard Operating Procedure for the Generation of Performance Acceptance Limits (SOP 730002268).

Corrective Action Help: As part of your accreditation(s), you may be required to identify the root cause of any "Not Acceptable" results, implement the necessary corrective actions, and then satisfy your PT requirements by participating in a Supplemental (QuiK™ Response) or future ERA PT study. ERA's technical staff is available to help your laboratory resolve any technical issues that may be impairing your PT performance and possibly affecting your routine data quality. Our laboratory and technical staff have many years of collective experience in performing the full range of environmental analyses. As part of our technical support, ERA offers QC samples that can be useful in helping you work through your technical issues.

Thank you for your participation in ERA's WP-306 WatR™ Pollution Proficiency Testing study. If you have any questions, please contact our Proficiency Testing Department at 1-800-372-0122.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Seebeck", written in a cursive style.

Matthew Seebeck  
Quality Officer

attachments



A Waters Company

<b>Report Recipient</b>	<b>Contact/Phone Number</b>	<b>Reporting Type</b>
Alabama	Benny Laughlin / 334-271-7775	All Analytes
ANAB	Zaneta Popovska / 414-501-5341	All Analytes
California ELAP	Christine Sotelo / 916-341-5175	All Analytes
EPA Region 8	Marcie Tidd / (303) 462-9476	All Analytes
Florida	Vanessa Soto / 904-791-1599	All Analytes
Idaho	Ernie Bader / 208-334-2235 x 290	All Analytes
Louisiana	Paul Bergeron / 225-219-3247	All Analytes
Montana	Russell Leu / 406-444-5259	All Analytes
Nebraska	Laurie Wieting / 402-471-8407	All Analytes
Nevada	Paige Menicucci / 775-687-9311	All Analytes
New Mexico (WP)	Barbara Cooney / 505-827-0212	All Analytes
Oregon	Travis Bartholomew / 503-693-4122	All Analytes
South Dakota	Stacy Ellwanger / 605-773-4757	All Analytes
Texas	Frank Jamison / (512) 239-3754	All Analytes
Utah	Cathy Mitchell / (801) 965-2588	All Analytes



# WP-306 Definitions & Study Discussion

**Study Dates: 07/13/20 - 08/27/20**

**Report Issued: 08/31/20**

## WP Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values are compliant with the most current TNI/NELAP Fields of Proficiency Testing (FoPT) table. A parameter not added to the standard is given an Assigned Value of "< PTRL" per the guidelines contained in the 2009 TNI Standards. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards.

The Acceptance Limits are established per the criteria contained in the most current TNI/NELAP FoPT table or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable. This report is scored by the criteria in the 2016 TNI Standard, Volume 3, instead of by the criteria in the 2009 TNI Standard to which the Proficiency Testing Provider is accredited. This is a planned change and is endorsed by the TNI Proficiency Testing Program Executive Committee for transition to the 2016 TNI Standard.

The Performance Evaluation:

- Acceptable = Reported Value falls within the Acceptance Limits.
- Not Acceptable = Reported Value falls outside the Acceptance Limits.
- No Evaluation = Reported Value cannot be evaluated.
- Not Reported = No Value reported.

The Method Description is the method the laboratory reported to ERA.

## WP Study Discussion

ERA's WP-306 WatR™Pollution Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI Standard and the 2016 TNI Standard, Volume 3, Section 5.9 and the criteria contained in the most current TNI/NELAP Fields of Proficiency Testing (FoPT) table.

ERA's WP-306 WatR™Pollution study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes met the acceptance criteria contained in the 2009 TNI Standard and the criteria contained in the most current TNI/NELAP FoPT table.

All analytes are included in ERA's A2LA accreditation, certification number 1539.01.

All activities associated with this proficiency testing study were performed by Waters/ERA with the exception of those noted below. The following physical samples/products were manufactured for Waters/ERA by a subcontractor:

Microbiology products with the following catalog numbers:  
880, 935, 079, 077, 080, 595, 595A, 576, 576A

The data submitted by participating laboratories was also examined for study anomalies. There were no anomalies observed during the statistical review of the data.

ERA's WP-306 WatR™Pollution study reports shall not be reproduced except in their entirety and not without the permission of the participating laboratories. The report must not be used by the participating laboratories to claim product endorsement by any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's WatR™Pollution Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.





A Waters Company

# WP-306 Laboratory Exception Report

**Donny Juarez**  
**Quality Assurance Manager**  
**Energy Laboratories**  
**2393 Salt Creek Hwy**  
**Casper, WY 82601**  
**307-235-0515 x3244**

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

**WY00002**  
**E772828**  
**08/31/20**  
**07/13/20 - 08/27/20**

## Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
<b>WP pH (cat# 577, lot# P306-977)</b>							
1900	pH	S.U.	5.83	6.05	5.85 - 6.25	Not Acceptable	SM4500H+ B 22nd ED 2011
<b>WP Trace Metals (cat# 586, lot# P306-500)</b>							
1140	Selenium	µg/L	728	959	815 - 1100	Not Acceptable	EPA 6020A 1 2007
1150	Silver	µg/L	199	528	449 - 607	Not Acceptable	EPA 200.8 5.4 1994
1150	Silver	µg/L	186	528	449 - 607	Not Acceptable	EPA 200.7 4.4 1994
<b>WP Tin &amp; Titanium (cat# 573, lot# P306-517)</b>							
1180	Titanium	µg/L	121	166	141 - 191	Not Acceptable	EPA 6020A 1 2007
<b>WP Silica (cat# 890, lot# P306-775)</b>							
1990	Silica as SiO2	mg/L	135	205	154 - 256	Not Acceptable	EPA 6020A 1 2007



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# Final Report Results For Laboratory Energy Laboratories





# Final Evaluation Report

## Study: **WP-306**

ERA Customer Number: **E772828**

Laboratory Name: **Energy Laboratories**

## Inorganic Results





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# WP-306 Final Evaluation Report

**Donny Juarez**  
Quality Assurance Manager  
Energy Laboratories  
2393 Salt Creek Hwy  
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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 Minerals (cat# 581, lot# P306-506)**

1505	Alkalinity as CaCO3	mg/L	52.5	51.0	43.4 - 58.7	Acceptable	SM2320B 22nd ED 2011	7/16/2020	0.513	51.3	2.26	dmb
1575	Chloride	mg/L	65	65.7	57.3 - 74.3	Acceptable	EPA 300.0 2.1 1993	7/21/2020	-0.884	67.1	2.37	dmb
1610	Conductivity at 25°C	µmhos/cm	430	432	389 - 475	Acceptable	SM2510B 22nd ED 2011	7/16/2020	-0.221	432	11.2	kjp
1730	Fluoride	mg/L	1.97	2.10	1.67 - 2.45	Acceptable	EPA 300.0 2.1 1993	7/23/2020	-0.907	2.11	0.154	hat
1125	Potassium	mg/L	36.2	33.0	26.4 - 39.6	Acceptable	EPA 6010B 2 1996	7/18/2020	1.80	33.4	1.57	jcg
1155	Sodium	mg/L	69.3	65.1	52.1 - 78.1	Acceptable	EPA 6010B 2 1996	7/18/2020	0.985	66.0	3.36	jcg
2000	Sulfate	mg/L	34.6	35.2	28.6 - 40.6	Acceptable	EPA 300.0 2.1 1993	7/21/2020	-0.436	35.5	1.97	dmb
1955	Total Dissolved Solids at 180°C	mg/L		286	241 - 331	Not Reported				288	19.8	
1950	Total Solids at 105°C	mg/L		293	248 - 338	Not Reported				300	17.0	

**WP Minerals (cat# 581, lot# P306-506)**

1505	Alkalinity as CaCO3	mg/L		51.0	43.4 - 58.7	Not Reported				51.3	2.26	
1575	Chloride	mg/L		65.7	57.3 - 74.3	Not Reported				67.1	2.37	
1610	Conductivity at 25°C	µmhos/cm		432	389 - 475	Not Reported				432	11.2	
1730	Fluoride	mg/L	2.1	2.10	1.67 - 2.45	Acceptable	SM4500F- C 22nd ED 2011	7/17/2020	-0.0616	2.11	0.154	dmb
1125	Potassium	mg/L	33.3	33.0	26.4 - 39.6	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.0406	33.4	1.57	meh
1155	Sodium	mg/L	64.6	65.1	52.1 - 78.1	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.416	66.0	3.36	meh
2000	Sulfate	mg/L		35.2	28.6 - 40.6	Not Reported				35.5	1.97	
1955	Total Dissolved Solids at 180°C	mg/L		286	241 - 331	Not Reported				288	19.8	
1950	Total Solids at 105°C	mg/L		293	248 - 338	Not Reported				300	17.0	



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**WP Minerals (cat# 581, lot# P306-506)**

1505	Alkalinity as CaCO3	mg/L		51.0	43.4 - 58.7	Not Reported				51.3	2.26	
1575	Chloride	mg/L		65.7	57.3 - 74.3	Not Reported				67.1	2.37	
1610	Conductivity at 25°C	µmhos/cm		432	389 - 475	Not Reported				432	11.2	
1730	Fluoride	mg/L		2.10	1.67 - 2.45	Not Reported				2.11	0.154	
1125	Potassium	mg/L	32.8	33.0	26.4 - 39.6	Acceptable	EPA 200.8 5.4 1994	8/27/2020	-0.358	33.4	1.57	jcg
1155	Sodium	mg/L	65	65.1	52.1 - 78.1	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.297	66.0	3.36	jcg
2000	Sulfate	mg/L		35.2	28.6 - 40.6	Not Reported				35.5	1.97	
1955	Total Dissolved Solids at 180°C	mg/L		286	241 - 331	Not Reported				288	19.8	
1950	Total Solids at 105°C	mg/L		293	248 - 338	Not Reported				300	17.0	

**WP Minerals (cat# 581, lot# P306-506)**

1505	Alkalinity as CaCO3	mg/L		51.0	43.4 - 58.7	Not Reported				51.3	2.26	
1575	Chloride	mg/L		65.7	57.3 - 74.3	Not Reported				67.1	2.37	
1610	Conductivity at 25°C	µmhos/cm		432	389 - 475	Not Reported				432	11.2	
1730	Fluoride	mg/L		2.10	1.67 - 2.45	Not Reported				2.11	0.154	
1125	Potassium	mg/L	31.2	33.0	26.4 - 39.6	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.38	33.4	1.57	meh
1155	Sodium	mg/L	62.4	65.1	52.1 - 78.1	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.07	66.0	3.36	meh
2000	Sulfate	mg/L		35.2	28.6 - 40.6	Not Reported				35.5	1.97	
1955	Total Dissolved Solids at 180°C	mg/L		286	241 - 331	Not Reported				288	19.8	
1950	Total Solids at 105°C	mg/L		293	248 - 338	Not Reported				300	17.0	



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**WP Hardness (cat# 580, lot# P306-507)**

1960	Total Suspended Solids	mg/L		86.6	71.1 - 96.1	Not Reported				82.8	3.10	
1035	Calcium	mg/L	84.8	84.5	71.8 - 97.2	Acceptable	EPA 6010B 2 1996	7/18/2020	0.882	81.6	3.64	jcg
1085	Magnesium	mg/L	22.6	23.8	20.2 - 27.4	Acceptable	EPA 6010B 2 1996	7/18/2020	-0.916	23.4	0.901	jcg
1550	Calcium Hardness as CaCO3	mg/L	201	211	179 - 243	Acceptable	SM2340B 22nd ED 2011	8/5/2020	-0.612	206	7.61	tlf
1755	Total Hardness as CaCO3	mg/L	294	309	263 - 355	Acceptable	SM2340B 22nd ED 2011	8/5/2020	-0.615	301	11.1	tlf

**WP Hardness (cat# 580, lot# P306-507)**

1960	Total Suspended Solids	mg/L		86.6	71.1 - 96.1	Not Reported				82.8	3.10	
1035	Calcium	mg/L	80.6	84.5	71.8 - 97.2	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.273	81.6	3.64	meh
1085	Magnesium	mg/L	22.4	23.8	20.2 - 27.4	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.14	23.4	0.901	meh
1550	Calcium Hardness as CaCO3	mg/L		211	179 - 243	Not Reported				206	7.61	
1755	Total Hardness as CaCO3	mg/L		309	263 - 355	Not Reported				301	11.1	

**WP Hardness (cat# 580, lot# P306-507)**

1960	Total Suspended Solids	mg/L		86.6	71.1 - 96.1	Not Reported				82.8	3.10	
1035	Calcium	mg/L	78.8	84.5	71.8 - 97.2	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.768	81.6	3.64	jcg
1085	Magnesium	mg/L	23.3	23.8	20.2 - 27.4	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.139	23.4	0.901	jcg
1550	Calcium Hardness as CaCO3	mg/L		211	179 - 243	Not Reported				206	7.61	
1755	Total Hardness as CaCO3	mg/L		309	263 - 355	Not Reported				301	11.1	



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**WP Hardness (cat# 580, lot# P306-507)**

1960	Total Suspended Solids	mg/L		86.6	71.1 - 96.1	Not Reported				82.8	3.10	
1035	Calcium	mg/L	77	84.5	71.8 - 97.2	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.26	81.6	3.64	meh
1085	Magnesium	mg/L	23	23.8	20.2 - 27.4	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.472	23.4	0.901	meh
1550	Calcium Hardness as CaCO3	mg/L		211	179 - 243	Not Reported				206	7.61	
1755	Total Hardness as CaCO3	mg/L		309	263 - 355	Not Reported				301	11.1	

**WP pH (cat# 577, lot# P306-977)**

1900	pH	S.U.	5.83	6.05	5.85 - 6.25	Not Acceptable	SM4500H+ B 22nd ED 2011	7/16/2020	-4.36	6.05	0.0499	kjp
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**WP Solids (cat# 241, lot# P306-499)**

1960	Total Suspended Solids	mg/L	85.8	90.2	74.3 - 100	Acceptable	SM2540D 22nd ED 2011	7/18/2020	0.0739	85.4	5.29	kjp
1955	Total Dissolved Solids at 180°C	mg/L	314	314	269 - 359	Acceptable	SM2540C 21st ED 1997	7/21/2020	0.500	306	15.8	kjp
1950	Total Solids at 105°C	mg/L		399	354 - 444	Not Reported				402	19.5	

**WP Simple Nutrients (cat# 584, lot# P306-505)**

1515	Ammonia as N	mg/L	4.92	5.13	3.98 - 6.32	Acceptable	EPA 350.1 2 1993	7/17/2020	-0.629	5.15	0.362	dmb
1820	Nitrate + Nitrite as N	mg/L	12	12.3	10.2 - 14.2	Acceptable	EPA 300.0 2.1 1993	7/21/2020	-0.474	12.3	0.611	dmb
1810	Nitrate as N	mg/L	12	12.3	10.2 - 14.3	Acceptable	EPA 353.2 (calc)	7/21/2020	-0.394	12.3	0.643	atd
1870	ortho-Phosphate as P	mg/L	2.98	2.88	2.45 - 3.31	Acceptable	EPA 365.1 2 1993	7/15/2020	0.531	2.88	0.185	dmb

**WP Simple Nutrients (cat# 584, lot# P306-505)**

1515	Ammonia as N	mg/L		5.13	3.98 - 6.32	Not Reported				5.15	0.362	
1820	Nitrate + Nitrite as N	mg/L	12	12.3	10.2 - 14.2	Acceptable	EPA 353.2 2 1993	7/17/2020	-0.474	12.3	0.611	dmb
1810	Nitrate as N	mg/L		12.3	10.2 - 14.3	Not Reported				12.3	0.643	
1870	ortho-Phosphate as P	mg/L		2.88	2.45 - 3.31	Not Reported				2.88	0.185	



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**WP Complex Nutrients (cat# 579, lot# P306-525)**

1795	Total Kjeldahl Nitrogen	mg/L		10.1	7.39 - 12.7	Not Reported				10.0	0.854	
1910	Total phosphorus as P	mg/L	2.87	2.83	2.31 - 3.32	Acceptable	EPA 6010B 2 1996	7/18/2020	0.631	2.77	0.159	jcj

**WP Complex Nutrients (cat# 579, lot# P306-525)**

1795	Total Kjeldahl Nitrogen	mg/L		10.1	7.39 - 12.7	Not Reported				10.0	0.854	
1910	Total phosphorus as P	mg/L	2.59	2.83	2.31 - 3.32	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.13	2.77	0.159	meh

**WP Complex Nutrients (cat# 579, lot# P306-525)**

1795	Total Kjeldahl Nitrogen	mg/L		10.1	7.39 - 12.7	Not Reported				10.0	0.854	
1910	Total phosphorus as P	mg/L	2.71	2.83	2.31 - 3.32	Acceptable	EPA 365.1 2 1993	7/16/2020	-0.376	2.77	0.159	dmb

**WP Nitrite (cat# 888, lot# P306-770)**

1840	Nitrite as N	mg/L	3.26	3.33	2.88 - 3.78	Acceptable	SM4500NO2- B 22nd ED 2011	7/15/2020	-0.569	3.37	0.194	hat
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**WP Demand (cat# 578, lot# P306-516)**

1530	BOD	mg/L	61.4	71.8	38.1 - 106	Acceptable	SM5210B 21st ED 2001	7/29/2020	-0.903	72.5	12.3	kjp
1555	CBOD	mg/L	76.4	65.1	29.6 - 101	Acceptable	SM5210B 21st ED 2001	8/6/2020	0.696	68.1	12.0	kjp
1565	COD	mg/L		116	89.8 - 138	Not Reported				115	9.34	
2040	TOC	mg/L	46.8	46.0	38.2 - 53.4	Acceptable	SM5310C 22nd ED 2011	7/30/2020	0.317	46.0	2.51	dmb

**WP Demand (cat# 578, lot# P306-516)**

1530	BOD	mg/L		71.8	38.1 - 106	Not Reported				72.5	12.3	
1555	CBOD	mg/L		65.1	29.6 - 101	Not Reported				68.1	12.0	
1565	COD	mg/L		116	89.8 - 138	Not Reported				115	9.34	
2040	TOC	mg/L	43.5	46.0	38.2 - 53.4	Acceptable	EPA 9060A 2004	7/30/2020	-0.998	46.0	2.51	dmb



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A Waters Company

# WP-306 Final Evaluation Report

**Donny Juarez**  
**Quality Assurance Manager**  
**Energy Laboratories**  
**2393 Salt Creek Hwy**  
**Casper, WY 82601**  
**307-235-0515 x3244**

**EPA ID:** WY00002  
**ERA Customer Number:** E772828  
**Report Issued:** 08/31/20  
**Study Dates:** 07/13/20 - 08/27/20

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 Oil & Grease (cat# 582, lot# P306-518)**

1803	n-Hexane Extractable Material(O&G)(Grav)	mg/L	39.3	40.7	25.0 - 50.7	Acceptable	EPA 1664A 1999	7/21/2020	0.139	38.7	4.39	
1803	n-Hexane Extractable Material(O&G)(IR)	mg/L		50.1	32.3 - 61.1	Not Reported				51.4	9.49	



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**WP Trace Metals (cat# 586, lot# P306-500)**

1000	Aluminum	µg/L	3089	2940	2450 - 3350	Acceptable	EPA 6010B 2 1996	7/18/2020	0.524	3010	160	jcg
1005	Antimony	µg/L	743	776	636 - 892	Acceptable	EPA 6010B 2 1996	7/22/2020	-0.632	770	43.3	jcg
1010	Arsenic	µg/L	604	609	513 - 698	Acceptable	EPA 6010B 2 1996	7/18/2020	0.564	589	26.4	jcg
1015	Barium	µg/L	1939	1850	1570 - 2130	Acceptable	EPA 6010B 2 1996	7/18/2020	1.09	1850	78.9	jcg
1020	Beryllium	µg/L	94.4	94.2	80.1 - 108	Acceptable	EPA 6010B 2 1996	7/18/2020	0.0728	94.0	4.84	jcg
1025	Boron	µg/L	1232	1240	1050 - 1430	Acceptable	EPA 6010B 2 1996	7/18/2020	0.0346	1230	74.5	jcg
1030	Cadmium	µg/L	604	627	533 - 721	Acceptable	EPA 6010B 2 1996	7/18/2020	-0.729	623	25.9	jcg
1040	Chromium	µg/L	214	218	185 - 251	Acceptable	EPA 6010B 2 1996	7/18/2020	-0.579	220	9.95	jcg
1050	Cobalt	µg/L	283	279	237 - 321	Acceptable	EPA 6010B 2 1996	7/18/2020	-0.405	288	12.0	jcg
1055	Copper	µg/L	458	446	379 - 513	Acceptable	EPA 6010B 2 1996	7/18/2020	0.385	449	22.2	jcg
1070	Iron	µg/L	420	398	338 - 458	Acceptable	EPA 6010B 2 1996	7/18/2020	0.895	402	20.0	jcg
1075	Lead	µg/L	466	481	409 - 553	Acceptable	EPA 6010B 2 1996	7/22/2020	-0.909	486	21.6	jcg
1090	Manganese	µg/L	903	881	749 - 1010	Acceptable	EPA 6010B 2 1996	7/18/2020	0.0449	901	37.7	jcg
1100	Molybdenum	µg/L	516	530	461 - 594	Acceptable	EPA 6010B 2 1996	7/22/2020	-0.419	527	25.3	jcg
1105	Nickel	µg/L	1128	1190	1050 - 1340	Acceptable	EPA 6010B 2 1996	7/18/2020	-1.22	1190	52.8	jcg
1140	Selenium	µg/L	919	959	815 - 1100	Acceptable	EPA 6010B 2 1996	7/18/2020	-0.617	948	46.4	jcg
1150	Silver	µg/L	504	528	449 - 607	Acceptable	EPA 6010B 2 1996	7/22/2020	-0.898	529	28.4	jcg
1160	Strontium	µg/L	94.2	90.5	76.9 - 104	Acceptable	EPA 6010B 2 1996	7/18/2020	0.703	91.4	4.02	jcg
1165	Thallium	µg/L		182	141 - 219	Not Reported				182	11.4	
1185	Vanadium	µg/L	1332	1290	1100 - 1480	Acceptable	EPA 6010B 2 1996	7/18/2020	0.886	1280	55.0	jcg



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# WP-306 Final Evaluation Report

**Donny Juarez**  
**Quality Assurance Manager**  
**Energy Laboratories**  
**2393 Salt Creek Hwy**  
**Casper, WY 82601**  
**307-235-0515 x3244**

**EPA ID:** WY00002  
**ERA Customer Number:** E772828  
**Report Issued:** 08/31/20  
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**WP Trace Metals (cat# 586, lot# P306-500) (Continued)**

1190	Zinc	µg/L	736	813	691 - 935	Acceptable	EPA 6010B 2 1996	7/18/2020	-2.14	819	38.9	jcg
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**WP Trace Metals (cat# 586, lot# P306-500)**

1000	Aluminum	µg/L	3018	2940	2450 - 3350	Acceptable	EPA 200.8 5.4 1994	8/27/2020	0.0808	3010	160	jcg
1005	Antimony	µg/L	752	776	636 - 892	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.425	770	43.3	jcg
1010	Arsenic	µg/L	594	609	513 - 698	Acceptable	EPA 200.8 5.4 1994	8/20/2020	0.186	589	26.4	jcg
1015	Barium	µg/L	1804	1850	1570 - 2130	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.626	1850	78.9	jcg
1020	Beryllium	µg/L	90.7	94.2	80.1 - 108	Acceptable	EPA 200.8 5.4 1994	8/27/2020	-0.691	94.0	4.84	jcg
1025	Boron	µg/L	1247	1240	1050 - 1430	Acceptable	EPA 200.8 5.4 1994	8/27/2020	0.236	1230	74.5	jcg
1030	Cadmium	µg/L	646	627	533 - 721	Acceptable	EPA 200.8 5.4 1994	8/20/2020	0.889	623	25.9	jcg
1040	Chromium	µg/L	216	218	185 - 251	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.378	220	9.95	jcg
1050	Cobalt	µg/L	273	279	237 - 321	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-1.24	288	12.0	jcg
1055	Copper	µg/L	460	446	379 - 513	Acceptable	EPA 200.8 5.4 1994	8/20/2020	0.475	449	22.2	jcg
1070	Iron	µg/L	396	398	338 - 458	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.307	402	20.0	jcg
1075	Lead	µg/L	468	481	409 - 553	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.817	486	21.6	jcg
1090	Manganese	µg/L	857	881	749 - 1010	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-1.18	901	37.7	jcg
1100	Molybdenum	µg/L	478	530	461 - 594	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-1.92	527	25.3	jcg
1105	Nickel	µg/L	1232	1190	1050 - 1340	Acceptable	EPA 200.8 5.4 1994	8/20/2020	0.751	1190	52.8	jcg
1140	Selenium	µg/L	958	959	815 - 1100	Acceptable	EPA 200.8 5.4 1994	8/20/2020	0.223	948	46.4	jcg
1150	Silver	µg/L	199	528	449 - 607	Not Acceptable	EPA 200.8 5.4 1994	8/27/2020	-11.6	529	28.4	jcg
1160	Strontium	µg/L	86.8	90.5	76.9 - 104	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-1.14	91.4	4.02	jcg
1165	Thallium	µg/L	176	182	141 - 219	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.491	182	11.4	jcg
1185	Vanadium	µg/L	1200	1290	1100 - 1480	Acceptable	EPA 200.8 5.4 1994	8/27/2020	-1.51	1280	55.0	jcg



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A Waters Company

# WP-306 Final Evaluation Report

**Donny Juarez**  
**Quality Assurance Manager**  
**Energy Laboratories**  
**2393 Salt Creek Hwy**  
**Casper, WY 82601**  
**307-235-0515 x3244**

**EPA ID:** WY00002  
**ERA Customer Number:** E772828  
**Report Issued:** 08/31/20  
**Study Dates:** 07/13/20 - 08/27/20

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 Trace Metals (cat# 586, lot# P306-500) (Continued)**

1190	Zinc	µg/L	856	813	691 - 935	Acceptable	EPA 200.8 5.4 1994	8/27/2020	0.944	819	38.9	jcg
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**WP Trace Metals (cat# 586, lot# P306-500)**

1000	Aluminum	µg/L	3150	2940	2450 - 3350	Acceptable	EPA 6020A 1 2007	8/27/2020	0.905	3010	160	jcg
1005	Antimony	µg/L		776	636 - 892	Not Reported				770	43.3	
1010	Arsenic	µg/L		609	513 - 698	Not Reported				589	26.4	
1015	Barium	µg/L		1850	1570 - 2130	Not Reported				1850	78.9	
1020	Beryllium	µg/L	80.7	94.2	80.1 - 108	Acceptable	EPA 6020A 1 2007	8/20/2020	-2.76	94.0	4.84	jcg
1025	Boron	µg/L	1290	1240	1050 - 1430	Acceptable	EPA 6020A 1 2007	8/27/2020	0.813	1230	74.5	jcg
1030	Cadmium	µg/L		627	533 - 721	Not Reported				623	25.9	
1040	Chromium	µg/L		218	185 - 251	Not Reported				220	9.95	
1050	Cobalt	µg/L		279	237 - 321	Not Reported				288	12.0	
1055	Copper	µg/L		446	379 - 513	Not Reported				449	22.2	
1070	Iron	µg/L		398	338 - 458	Not Reported				402	20.0	
1075	Lead	µg/L		481	409 - 553	Not Reported				486	21.6	
1090	Manganese	µg/L		881	749 - 1010	Not Reported				901	37.7	
1100	Molybdenum	µg/L		530	461 - 594	Not Reported				527	25.3	
1105	Nickel	µg/L		1190	1050 - 1340	Not Reported				1190	52.8	
1140	Selenium	µg/L		959	815 - 1100	Not Reported				948	46.4	
1150	Silver	µg/L		528	449 - 607	Not Reported				529	28.4	
1160	Strontium	µg/L		90.5	76.9 - 104	Not Reported				91.4	4.02	
1165	Thallium	µg/L		182	141 - 219	Not Reported				182	11.4	
1185	Vanadium	µg/L		1290	1100 - 1480	Not Reported				1280	55.0	



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**WP Trace Metals (cat# 586, lot# P306-500) (Continued)**

1190	Zinc	µg/L		813	691 - 935	Not Reported				819	38.9	
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**WP Trace Metals (cat# 586, lot# P306-500)**

1000	Aluminum	µg/L	2848	2940	2450 - 3350	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.980	3010	160	meh
1005	Antimony	µg/L	782	776	636 - 892	Acceptable	EPA 200.7 4.4 1994	8/3/2020	0.268	770	43.3	meh
1010	Arsenic	µg/L	614	609	513 - 698	Acceptable	EPA 200.7 4.4 1994	8/3/2020	0.942	589	26.4	meh
1015	Barium	µg/L	1770	1850	1570 - 2130	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.06	1850	78.9	meh
1020	Beryllium	µg/L	89.9	94.2	80.1 - 108	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.857	94.0	4.84	meh
1025	Boron	µg/L	1222	1240	1050 - 1430	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.0996	1230	74.5	meh
1030	Cadmium	µg/L	603	627	533 - 721	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.768	623	25.9	meh
1040	Chromium	µg/L	206	218	185 - 251	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.38	220	9.95	meh
1050	Cobalt	µg/L	276	279	237 - 321	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.988	288	12.0	meh
1055	Copper	µg/L	435	446	379 - 513	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.650	449	22.2	meh
1070	Iron	µg/L	395	398	338 - 458	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.357	402	20.0	meh
1075	Lead	µg/L	476	481	409 - 553	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.446	486	21.6	meh
1090	Manganese	µg/L	879	881	749 - 1010	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.592	901	37.7	meh
1100	Molybdenum	µg/L	501	530	461 - 594	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.01	527	25.3	meh
1105	Nickel	µg/L	1109	1190	1050 - 1340	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.58	1190	52.8	meh
1140	Selenium	µg/L	950	959	815 - 1100	Acceptable	EPA 200.7 4.4 1994	8/3/2020	0.0508	948	46.4	meh
1150	Silver	µg/L	186	528	449 - 607	Not Acceptable	EPA 200.7 4.4 1994	8/3/2020	-12.1	529	28.4	meh
1160	Strontium	µg/L	89.7	90.5	76.9 - 104	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.415	91.4	4.02	meh
1165	Thallium	µg/L		182	141 - 219	Not Reported				182	11.4	
1185	Vanadium	µg/L	1255	1290	1100 - 1480	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.513	1280	55.0	meh



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**WP Trace Metals (cat# 586, lot# P306-500) (Continued)**

1190	Zinc	µg/L	799	813	691 - 935	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-0.522	819	38.9	meh
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**WP Trace Metals (cat# 586, lot# P306-500)**

1000	Aluminum	µg/L		2940	2450 - 3350	Not Reported				3010	160	
1005	Antimony	µg/L	740	776	636 - 892	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.702	770	43.3	meh
1010	Arsenic	µg/L	529	609	513 - 698	Acceptable	EPA 6020A 1 2007	7/23/2020	-2.27	589	26.4	meh
1015	Barium	µg/L	1940	1850	1570 - 2130	Acceptable	EPA 6020A 1 2007	7/23/2020	1.10	1850	78.9	meh
1020	Beryllium	µg/L		94.2	80.1 - 108	Not Reported				94.0	4.84	
1025	Boron	µg/L		1240	1050 - 1430	Not Reported				1230	74.5	
1030	Cadmium	µg/L	546	627	533 - 721	Acceptable	EPA 6020A 1 2007	7/23/2020	-2.96	623	25.9	meh
1040	Chromium	µg/L	202	218	185 - 251	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.79	220	9.95	meh
1050	Cobalt	µg/L	250	279	237 - 321	Acceptable	EPA 6020A 1 2007	7/23/2020	-3.15	288	12.0	meh
1055	Copper	µg/L	429	446	379 - 513	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.919	449	22.2	meh
1070	Iron	µg/L	377	398	338 - 458	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.26	402	20.0	meh
1075	Lead	µg/L	482	481	409 - 553	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.168	486	21.6	meh
1090	Manganese	µg/L	842	881	749 - 1010	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.57	901	37.7	meh
1100	Molybdenum	µg/L	465	530	461 - 594	Acceptable	EPA 6020A 1 2007	7/23/2020	-2.43	527	25.3	meh
1105	Nickel	µg/L	1131	1190	1050 - 1340	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.16	1190	52.8	meh
1140	Selenium	µg/L	728	959	815 - 1100	Not Acceptable	EPA 6020A 1 2007	7/23/2020	-4.73	948	46.4	meh
1150	Silver	µg/L	502	528	449 - 607	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.968	529	28.4	meh
1160	Strontium	µg/L	89.5	90.5	76.9 - 104	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.465	91.4	4.02	meh
1165	Thallium	µg/L	178	182	141 - 219	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.316	182	11.4	meh
1185	Vanadium	µg/L	1215	1290	1100 - 1480	Acceptable	EPA 6020A 1 2007	7/23/2020	-1.24	1280	55.0	meh



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A Waters Company

# WP-306 Final Evaluation Report

Donny Juarez  
Quality Assurance Manager  
Energy Laboratories  
2393 Salt Creek Hwy  
Casper, WY 82601  
307-235-0515 x3244

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

WY00002  
E772828  
08/31/20  
07/13/20 - 08/27/20

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 Trace Metals (cat# 586, lot# P306-500) (Continued)

1190	Zinc	µg/L	847	813	691 - 935	Acceptable	EPA 6020A 1 2007	7/23/2020	0.713	819	38.9	meh
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### WP Hexavalent Chromium (cat# 898, lot# P306-984)

1045	Hexavalent Chromium	µg/L	507	534	448 - 613	Acceptable	SM3500Cr B 22nd ED 2011	8/4/2020	-0.814	534	32.5	hat
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### WP Tin & Titanium (cat# 573, lot# P306-517)

1175	Tin	µg/L		1460	1020 - 1900	Not Reported				1440	87.4	
1180	Titanium	µg/L	158	166	141 - 191	Acceptable	EPA 6010B 2 1996	7/22/2020	-0.624	163	8.55	jcg

### WP Tin & Titanium (cat# 573, lot# P306-517)

1175	Tin	µg/L	1407	1460	1020 - 1900	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.337	1440	87.4	jcg
1180	Titanium	µg/L	143	166	141 - 191	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-2.38	163	8.55	jcg

### WP Tin & Titanium (cat# 573, lot# P306-517)

1175	Tin	µg/L		1460	1020 - 1900	Not Reported				1440	87.4	
1180	Titanium	µg/L	121	166	141 - 191	Not Acceptable	EPA 6020A 1 2007	8/20/2020	-4.95	163	8.55	jcg

### WP Tin & Titanium (cat# 573, lot# P306-517)

1175	Tin	µg/L		1460	1020 - 1900	Not Reported				1440	87.4	
1180	Titanium	µg/L	164	166	141 - 191	Acceptable	EPA 200.7 4.4 1994	8/3/2020	0.0777	163	8.55	meh

### WP Tin & Titanium (cat# 573, lot# P306-517)

1175	Tin	µg/L	1245	1460	1020 - 1900	Acceptable	EPA 6020A 1 2007	7/23/2020	-2.19	1440	87.4	meh
1180	Titanium	µg/L		166	141 - 191	Not Reported				163	8.55	

### WP Uranium (cat# 4400, lot# P306-4402)

3055	Uranium (Nat) mass	µg/L	35.6	38.1	27.8 - 45.3	Acceptable	EPA 200.8 5.4 1994	8/20/2020	-0.906	37.1	1.71	jcg
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# WP-306 Final Evaluation Report

**Donny Juarez**  
Quality Assurance Manager  
Energy Laboratories  
2393 Salt Creek Hwy  
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307-235-0515 x3244

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**Study Dates:**

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**E772828**  
**08/31/20**  
**07/13/20 - 08/27/20**

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<b>WP Uranium (cat# 4400, lot# P306-4402)</b>												
3055	Uranium (Nat) mass	µg/L	35.9	38.1	27.8 - 45.3	Acceptable	EPA 6020A 1 2007	7/23/2020	-0.731	37.1	1.71	meh
<b>WP Silica (cat# 890, lot# P306-775)</b>												
1990	Silica as SiO2	mg/L	166	205	154 - 256	Acceptable	EPA 6010B 2 1996	7/18/2020	-2.31	202	15.6	jcg
<b>WP Silica (cat# 890, lot# P306-775)</b>												
1990	Silica as SiO2	mg/L	174	205	154 - 256	Acceptable	EPA 200.7 4.4 1994	8/3/2020	-1.80	202	15.6	meh
<b>WP Silica (cat# 890, lot# P306-775)</b>												
1990	Silica as SiO2	mg/L	135	205	154 - 256	Not Acceptable	EPA 6020A 1 2007	7/23/2020	-4.30	202	15.6	meh
<b>WP Sulfide (cat# 891, lot# P306-071)</b>												
2005	Sulfide	mg/L	6.4	6.22	2.79 - 8.97	Acceptable	SM 4500-S2 F-2011 2011	7/24/2020	0.701	5.67	1.04	hat
<b>WP Sulfide (cat# 891, lot# P306-071)</b>												
2005	Sulfide	mg/L	5.15	6.22	2.79 - 8.97	Acceptable	SM 4500-S2 D-2011 2011	7/24/2020	-0.495	5.67	1.04	hat
<b>WP Acidity (cat# 885, lot# P306-915)</b>												
1500	Acidity as CaCO3	mg/L	1170	1220	1100 - 1340	Acceptable	SM2310B 22nd ED 2011	7/20/2020	-0.450	1190	50.8	hat
<b>WP Bromide (cat# 887, lot# P306-769)</b>												
1540	Bromide	mg/L	7.53	7.91	6.71 - 9.16	Acceptable	EPA 300.0 2.1 1993	7/21/2020	-0.958	7.99	0.479	dmb



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## Final Evaluation Report

Study: **WP-306**

ERA Customer Number: **E772828**

Laboratory Name: **Energy Laboratories**

## Microbiology Results





A Waters Company

# WP-306 Final Evaluation Report

**Donny Juarez**  
**Quality Assurance Manager**  
**Energy Laboratories**  
**2393 Salt Creek Hwy**  
**Casper, WY 82601**  
**307-235-0515 x3244**

**EPA ID:**  
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**Study Dates:**

**WY00002**  
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**WP WasteWatR™ Coliform MicrobE™ (cat# 576, lot# P306-083)**

2500	Total Coliforms (MF)	CFU/100mL		114	56.0 - 232	Not Reported				114	29.3	
2530	Fecal Coliforms (MF)	CFU/100mL		62.0	15.0 - 256	Not Reported				61.7	40.2	
2525	E.coli (MF)	CFU/100mL		70.0	14.0 - 335	Not Reported				69.8	53.5	
2500	Total Coliforms (MPN)	MPN/100mL	109	133	64.4 - 274	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	7/28/2020	-0.0557	133	35.0	
2530	Fecal Coliforms (MPN)	MPN/100mL	71.7	76.1	34.2 - 169	Acceptable	Colilert®-18 (Fecal Coliforms) 2010	7/28/2020	-0.0192	76.1	22.5	
2525	E.coli (MPN)	MPN/100mL	109	128	60.8 - 271	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	7/28/2020	-0.0462	128	35.1	

**WP WasteWatR™ Coliform MicrobE™ (cat# 576, lot# P306-083)**

2500	Total Coliforms (MF)	CFU/100mL		114	56.0 - 232	Not Reported				114	29.3	
2530	Fecal Coliforms (MF)	CFU/100mL		62.0	15.0 - 256	Not Reported				61.7	40.2	
2525	E.coli (MF)	CFU/100mL		70.0	14.0 - 335	Not Reported				69.8	53.5	
2500	Total Coliforms (MPN)	MPN/100mL	159	133	64.4 - 274	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	7/28/2020	0.0505	133	35.0	
2530	Fecal Coliforms (MPN)	MPN/100mL		76.1	34.2 - 169	Not Reported				76.1	22.5	
2525	E.coli (MPN)	MPN/100mL	159	128	60.8 - 271	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	7/28/2020	0.0600	128	35.1	



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## Final Evaluation Report

Study: **WP-306**

ERA Customer Number: **E772828**

Laboratory Name: **Energy Laboratories**

## Organic Results





A Waters Company

# WP-306 Final Evaluation Report

**Donny Juarez**  
**Quality Assurance Manager**  
**Energy Laboratories**  
**2393 Salt Creek Hwy**  
**Casper, WY 82601**  
**307-235-0515 x3244**

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

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**08/31/20**  
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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 Gasoline Range Organics (GRO) in Water (cat# 640, lot# P306-762)**

9408	Gasoline Range Organics (GRO)	µg/L	2734	2800	1060 - 4900	Acceptable	EPA 8015C 3 2007	7/31/2020	-0.473	3140	867	adw
4375	Benzene in GRO	µg/L		12.4	6.23 - 19.7	Not Reported				12.0	2.07	
4765	Ethylbenzene in GRO	µg/L		47.0	29.1 - 65.8	Not Reported				48.1	7.39	
5140	Toluene in GRO	µg/L		143	79.9 - 187	Not Reported				141	18.9	
5260	Xylenes, total in GRO	µg/L		241	151 - 334	Not Reported				241	28.6	

**WP Diesel Range Organics (DRO) in Water (cat# 641, lot# P306-764)**

9369	Diesel Range Organics (DRO)	µg/L	1323	1970	292 - 2590	Acceptable	EPA 8015C 3 2007	7/17/2020	-0.0642	1350	476	dcj
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**WP Total Petroleum Hydrocarbons (TPH) in Water (cat# 642, lot# P306-642)**

1853	TPH (Gravimetric)	mg/L	31.7	55.0	24.9 - 79.4	Acceptable	EPA 1664A 1999	7/21/2020	-0.586	34.9	5.46	
1853	TPH (IR)	mg/L		67.6	31.1 - 97.6	Not Reported				52.7	19.9	



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# CERTIFICATE OF RECOGNITION

ERA congratulates  
Energy Laboratories  
WP-306

For your participation and successful evaluation, we recognize the performance of this laboratory for achieving acceptable evaluation in the following standards.

Acidity	Bromide	Complex Nutrients	Demand
Diesel Range	Gasoline Range	Hardness	Hexavalent
Organics (DRO) in Water	Organics (GRO) in Water		Chromium
Minerals	Nitrite	Oil & Grease	Simple Nutrients
Solids	Sulfide	Total Petroleum Hydrocarbons (TPH) in Water	Uranium

WasteWatR™  
Coliform MicrobE™



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Matthew Seebeck  
Quality Officer