



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

WS-282  **Final Report**

WatR™ Supply Proficiency Testing

WatR™ Supply Study

Open Date: 01/06/20

Close Date: 02/20/20

Report Issued Date: 02/24/20



A Waters Company

February 24, 2020

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

Enclosed is your final report for ERA's WS-282 WatR™ Supply 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 WS-282 WatR™ Supply Proficiency Testing (PT) study have been evaluated using the following tiered approach. If the analyte is listed in the most current NELAC 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 NELAC 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 WS-282 WatR™ Supply 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".

Matthew Seebeck
Quality Officer

attachments



A Waters Company

Report Recipient	Contact/Phone Number	Reporting Type
Alabama	Benny Laughlin / 334-271-7775	All Analytes
California ELAP	Christine Sotelo / 916-341-5175	All Analytes
Colorado	Ben Chouaf / 303-692-3045	All Analytes
EPA Region 8	Marcie Tidd / (303) 462-9476	All Analytes
Florida	Vanessa Soto / 904-791-1599	All Analytes
Georgia	Lynne Grubb / 404-657-3189	All Analytes
Idaho	Ernie Bader / 208-334-2235 x 290	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 (WS)	Bethany Anderson / 505-222-9552	All Analytes
North Dakota	Cynthia Auen / 701-328-6172	All Analytes
Oregon	Stephanie Ringsage / 503-693-4126	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
Washington	Rebecca Wood / 360-871-8811	All Analytes



WS-282 Definitions & Study Discussion

Study Dates: 01/06/20 - 02/20/20

Report Issued: 02/24/20

WS Study Definitions

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

The ERA Assigned Values are compliant with the most current NELAC 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 NELAC 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.

WS Study Discussion

ERA's WS-282 WatR™ Supply Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI PT Standards and the 2016 TNI Standard, Volume 3, Section 5.9 and the criteria contained in the most current NELAC Fields of Proficiency Testing (FoPT) table.

ERA's WS-282 WatR™ Supply 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 in the standards met the acceptance criteria contained in the 2009 TNI PT Standard and the criteria contained in the most current NELAC 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 WS-282 WatR™ Supply 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™ Supply Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.





A Waters Company

WS-282 Laboratory Exception Report

Donny Juarez
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2393 Salt Creek Hwy
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307-235-0515 x3244

EPA ID: WY00002
ERA Customer Number: E772828
Report Issued: 02/24/20
Study Dates: 01/06/20 - 02/20/20

Not Acceptable Evaluations

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
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WS Inorganics (cat# 591, lot# S282-698)

1730	Fluoride	mg/L	1.2	1.34	1.21 - 1.47	Not Acceptable	EPA 300.0 2.1 1993
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Final Report Results For Laboratory Energy Laboratories





Final Evaluation Report

Study: **WS-282**

ERA Customer Number: **E772828**

Laboratory Name: **Energy Laboratories**

Inorganic Results





A Waters Company

WS-282 Final Evaluation Report

Donny Juarez
Quality Assurance Manager
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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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WS Hardness (cat# 555, lot# S282-693)

1035	Calcium	mg/L	55.6	52.2	44.4 - 60.0	Acceptable	EPA 200.7 4.4 1994	1/24/2020	1.88	51.6	2.12	jcg
1085	Magnesium	mg/L	15.1	14.6	12.4 - 16.8	Acceptable	EPA 200.7 4.4 1994	1/24/2020	0.799	14.6	0.664	jcg
1155	Sodium	mg/L	40.2	36.6	31.1 - 42.1	Acceptable	EPA 200.7 4.4 1994	1/24/2020	2.61	36.5	1.42	jcg
1550	Calcium Hardness as CaCO3	mg/L	139	130	110 - 150	Acceptable	SM2340B 22nd ED 2011	1/28/2020	1.87	130	5.06	tlf
1755	Total Hardness as CaCO3	mg/L	201	190	162 - 218	Acceptable	SM2340B 22nd ED 2011	1/28/2020	1.88	188	6.95	tlf

WS Inorganics (cat# 591, lot# S282-698)

1505	Alkalinity as CaCO3	mg/L	37.9	37.2	33.5 - 40.9	Acceptable	SM2320B 22nd ED 2011	1/20/2020	0.646	36.7	1.82	dmb
1575	Chloride	mg/L	98.8	100	85.0 - 115	Acceptable	EPA 300.0 2.1 1993	1/18/2020	0.0805	98.5	3.75	dmb
1610	Conductivity at 25°C	µmhos/cm	761	759	683 - 835	Acceptable	SM2510B 22nd ED 2011	1/20/2020	0.716	747	19.3	kjp
1730	Fluoride	mg/L	1.2	1.34	1.21 - 1.47	Not Acceptable	EPA 300.0 2.1 1993	1/18/2020	-1.23	1.29	0.0760	dmb
1820	Nitrate + Nitrite as N	mg/L	3.65	3.90	3.32 - 4.48	Acceptable	EPA 353.2 2 1993	1/18/2020	-0.743	3.81	0.210	dmb
1810	Nitrate as N	mg/L	3.53	3.90	3.51 - 4.29	Acceptable	EPA 300.0 2.1 1993	1/18/2020	-1.34	3.80	0.198	dmb
1125	Potassium	mg/L	14.7	13.7	11.6 - 15.8	Acceptable	EPA 200.7 4.4 1994	1/24/2020	1.94	13.5	0.616	jcg
2000	Sulfate	mg/L	130	132	112 - 152	Acceptable	EPA 300.0 2.1 1993	1/18/2020	0.102	129	5.31	dmb
1955	Total Dissolved Solids at 180°C	mg/L	461	463	370 - 556	Acceptable	SM2540C 21st ED 1997	1/20/2020	0.357	453	21.6	kjp

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WS Inorganics (cat# 591, lot# S282-698)

1505	Alkalinity as CaCO3	mg/L		37.2	33.5 - 40.9	Not Reported				36.7	1.82	
1575	Chloride	mg/L		100	85.0 - 115	Not Reported				98.5	3.75	
1610	Conductivity at 25°C	µmhos/cm		759	683 - 835	Not Reported				747	19.3	
1730	Fluoride	mg/L	1.29	1.34	1.21 - 1.47	Acceptable	SM4500F- C 22nd ED 2011	1/18/2020	-0.0441	1.29	0.0760	dmb
1820	Nitrate + Nitrite as N	mg/L		3.90	3.32 - 4.48	Not Reported				3.81	0.210	
1810	Nitrate as N	mg/L	3.65	3.90	3.51 - 4.29	Acceptable	EPA 353.2 (calc)	2/1/2020	-0.735	3.80	0.198	tlf
1125	Potassium	mg/L		13.7	11.6 - 15.8	Not Reported				13.5	0.616	
2000	Sulfate	mg/L		132	112 - 152	Not Reported				129	5.31	
1955	Total Dissolved Solids at 180°C	mg/L		463	370 - 556	Not Reported				453	21.6	

WS pH (cat# 552, lot# S282-779)

1900	pH	S.U.	5.64	5.61	5.41 - 5.81	Acceptable	SM4500H+ B 22nd ED 2011	1/20/2020	0.495	5.62	0.0447	kjp
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WS-282 Final Evaluation Report

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WS Metals (cat# 590, lot# S282-697)

1000	Aluminum	µg/L	209	197	158 - 236	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.350	205	11.6	jcj
1005	Antimony	µg/L	32.2	32.4	22.7 - 42.1	Acceptable	EPA 200.7 4.4 1994	1/16/2020	-0.0886	32.3	1.60	jcj
1010	Arsenic	µg/L	36.8	37.3	26.1 - 48.5	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.351	36.0	2.36	jcj
1015	Barium	µg/L	1534	1410	1200 - 1620	Acceptable	EPA 200.7 4.4 1994	1/16/2020	2.03	1400	67.8	jcj
1020	Beryllium	µg/L	15.9	16.0	13.6 - 18.4	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.185	15.7	0.941	jcj
1025	Boron	µg/L	901	872	741 - 1000	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.709	870	44.2	jcj
1030	Cadmium	µg/L	5.57	5.57	4.46 - 6.68	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.126	5.53	0.314	jcj
1040	Chromium	µg/L	166	161	137 - 185	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.729	161	7.29	jcj
1055	Copper	µg/L	1680	1570	1410 - 1730	Acceptable	EPA 200.7 4.4 1994	1/16/2020	1.81	1560	67.3	jcj
1070	Iron	µg/L	1234	1210	1030 - 1390	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.307	1210	63.3	jcj
1075	Lead	µg/L	101	95.4	66.8 - 124	Acceptable	EPA 200.7 4.4 1994	1/16/2020	1.31	94.6	4.89	jcj
1090	Manganese	µg/L	90.5	86.1	73.2 - 99.0	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.639	87.8	4.17	jcj
1100	Molybdenum	µg/L	94.5	88.5	75.2 - 102	Acceptable	EPA 200.7 4.4 1994	1/16/2020	1.52	87.8	4.38	jcj
1105	Nickel	µg/L	397	375	319 - 431	Acceptable	EPA 200.7 4.4 1994	1/16/2020	1.11	377	18.4	jcj
1140	Selenium	µg/L	24	20.1	16.1 - 24.1	Acceptable	EPA 200.7 4.4 1994	1/16/2020	2.56	20.3	1.46	jcj
1150	Silver	µg/L	87	90.7	63.5 - 118	Acceptable	EPA 200.7 4.4 1994	1/16/2020	-0.886	91.1	4.61	jcj
1165	Thallium	µg/L		5.12	3.58 - 6.66	Not Reported				5.04	0.324	
1185	Vanadium	µg/L	850	824	700 - 948	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.915	819	33.5	jcj
1190	Zinc	µg/L	897	847	720 - 974	Acceptable	EPA 200.7 4.4 1994	1/16/2020	1.08	854	39.5	jcj



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WS Metals (cat# 590, lot# S282-697)

1000	Aluminum	µg/L	204	197	158 - 236	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.0796	205	11.6	meh
1005	Antimony	µg/L	31.5	32.4	22.7 - 42.1	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.526	32.3	1.60	meh
1010	Arsenic	µg/L	36.8	37.3	26.1 - 48.5	Acceptable	EPA 200.8 5.4 1994	1/15/2020	0.351	36.0	2.36	meh
1015	Barium	µg/L	1385	1410	1200 - 1620	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.171	1400	67.8	meh
1020	Beryllium	µg/L	14.6	16.0	13.6 - 18.4	Acceptable	EPA 200.8 5.4 1994	1/16/2020	-1.20	15.7	0.941	meh
1025	Boron	µg/L	822	872	741 - 1000	Acceptable	EPA 200.8 5.4 1994	1/16/2020	-1.08	870	44.2	meh
1030	Cadmium	µg/L	5.56	5.57	4.46 - 6.68	Acceptable	EPA 200.8 5.4 1994	1/16/2020	0.0946	5.53	0.314	meh
1040	Chromium	µg/L	160	161	137 - 185	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.0941	161	7.29	meh
1055	Copper	µg/L	1625	1570	1410 - 1730	Acceptable	EPA 200.8 5.4 1994	1/15/2020	0.988	1560	67.3	meh
1070	Iron	µg/L		1210	1030 - 1390	Not Reported				1210	63.3	
1075	Lead	µg/L	93.6	95.4	66.8 - 124	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.203	94.6	4.89	meh
1090	Manganese	µg/L	87.5	86.1	73.2 - 99.0	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.0803	87.8	4.17	meh
1100	Molybdenum	µg/L	84.2	88.5	75.2 - 102	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.825	87.8	4.38	meh
1105	Nickel	µg/L	387	375	319 - 431	Acceptable	EPA 200.8 5.4 1994	1/15/2020	0.567	377	18.4	meh
1140	Selenium	µg/L	20	20.1	16.1 - 24.1	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.172	20.3	1.46	meh
1150	Silver	µg/L	93.9	90.7	63.5 - 118	Acceptable	EPA 200.8 5.4 1994	1/16/2020	0.610	91.1	4.61	meh
1165	Thallium	µg/L	5.09	5.12	3.58 - 6.66	Acceptable	EPA 200.8 5.4 1994	1/15/2020	0.157	5.04	0.324	meh
1185	Vanadium	µg/L	792	824	700 - 948	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.818	819	33.5	meh
1190	Zinc	µg/L	851	847	720 - 974	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.0820	854	39.5	meh

WS Uranium (cat# 858, lot# S282-930)

3055	Uranium (Nat)	µg/L	34.7	36.4	29.3 - 40.5	Acceptable	EPA 200.8 5.4 1994	1/15/2020	-0.812	36.6	2.28	meh
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WS Inorganic Disinfection #2 (cat# 5260, lot# S282-5262)

1535	Bromate	µg/L		42.8	30.0 - 55.6	Not Reported				42.8	2.75	
1540	Bromide	µg/L	58	54.1	46.0 - 62.2	Acceptable	EPA 300.0 2.1 1993	1/22/2020	0.550	55.0	5.46	ljl

WS Nitrite (cat# 594, lot# S282-695)

1840	Nitrite as N	mg/L	1.71	1.84	1.56 - 2.12	Acceptable	SM4500NO2- B 22nd ED 2011	1/16/2020	-1.61	1.84	0.0809	dmb
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WS o-Phosphate Nutrients (cat# 558, lot# S282-667)

1870	ortho-Phosphate as P	mg/L	5.36	5.41	4.60 - 6.22	Acceptable	EPA 365.1 2 1993	1/16/2020	-0.169	5.39	0.192	dmb
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WS Organic Carbon (cat# 557, lot# S282-669)

1710	Dissolved Organic Carbon (DOC)	mg/L		1.58	1.37 - 1.90	Not Reported				1.66	0.155	
2040	Total Organic Carbon (TOC)	mg/L	1.63	1.58	1.26 - 1.90	Acceptable	SM5310C 22nd ED 2011	1/23/2020	-0.0917	1.64	0.127	dmb

WS Organic Carbon (cat# 557, lot# S282-669)

1710	Dissolved Organic Carbon (DOC)	mg/L		1.58	1.37 - 1.90	Not Reported				1.66	0.155	
2040	Total Organic Carbon (TOC)	mg/L	1.71	1.58	1.26 - 1.90	Acceptable	EPA 9060A 2004	1/25/2020	0.538	1.64	0.127	dmb

WS Silica (cat# 902, lot# S282-785)

1990	Silica as SiO2	mg/L	50.3	47.8	40.6 - 55.0	Acceptable	EPA 200.7 4.4 1994	1/16/2020	0.810	47.7	3.18	jcg
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WS Corrosivity (cat# 900, lot# S282-980)

1620	Corrosivity	S.I. @ 20°C	1.82	1.73	1.33 - 2.13	Acceptable	SM2330B 21st ED 2000	1/28/2020	0.952	1.62	0.206	tlf
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WS Turbidity (cat# 592, lot# S282-699)

2055	Turbidity	NTU	2.08	2.10	1.74 - 2.48	Acceptable	SM2130B 21st ED 2001	1/16/2020	-0.233	2.11	0.147	dmb
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Final Evaluation Report

Study: **WS-282**

ERA Customer Number: **E772828**

Laboratory Name: **Energy Laboratories**

Microbiology Results





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WS MicrobE™ (Coliforms) (cat# 080A, lot# S282-085A)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 2	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 3	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 10	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf

Total Coliforms Evaluation : Acceptable
Fecal Coliforms Evaluation : Not Reported
E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli (ATCC 35421), Samples 4, 7 and 8
 Total Coliform Organism - Enterobacter cloacae (NCTC 10005), Samples 1, 2 and 10
 Negative (1) Coliform Organism - Proteus mirabilis (NCIMB 13283), Sample 6
 Negative (2) Coliform Organism - Pseudomonas aeruginosa (NCIMB 12469), Sample 3
 Blank - Blank Pellet (Qualitative), Samples 5 and 9



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A Waters Company

WS-282 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
02/24/20
01/06/20 - 02/20/20

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WS MicrobE™ (Coliforms) (cat# 080A, lot# S282-085A) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable
Fecal Coliforms Evaluation : Not Reported
E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli (ATCC 35421), Samples 4, 7 and 8
 Total Coliform Organism - Enterobacter cloacae (NCTC 10005), Samples 1, 2 and 10
 Negative (1) Coliform Organism - Proteus mirabilis (NCIMB 13283), Sample 6
 Negative (2) Coliform Organism - Pseudomonas aeruginosa (NCIMB 12469), Sample 3
 Blank - Blank Pellet (Qualitative), Samples 5 and 9



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WS MicrobE™ (Coliforms) (cat# 080A, lot# S282-085A) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 3	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 6	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 7	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 8	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLILERT 22nd ED 2004	1/27/2020				dmf

Total Coliforms Evaluation : Acceptable
Fecal Coliforms Evaluation : Not Reported
E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli (ATCC 35421), Samples 4, 7 and 8
 Total Coliform Organism - Enterobacter cloacae (NCTC 10005), Samples 1, 2 and 10
 Negative (1) Coliform Organism - Proteus mirabilis (NCIMB 13283), Sample 6
 Negative (2) Coliform Organism - Pseudomonas aeruginosa (NCIMB 12469), Sample 3
 Blank - Blank Pellet (Qualitative), Samples 5 and 9

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WS MicrobE™ (Coliforms) (cat# 080B, lot# S282-085B)

2500	Total Coliforms - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 4	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 5	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 6	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2500	Total Coliforms - Sample 10	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf

Total Coliforms Evaluation : Acceptable
Fecal Coliforms Evaluation : Not Reported
E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli (ATCC 35421), Samples 1, 3 and 6
 Total Coliform Organism - Enterobacter cloacae (NCTC 10005), Samples 4, 5 and 10
 Negative (1) Coliform Organism - Proteus mirabilis (NCIMB 13283), Sample 7
 Negative (2) Coliform Organism - Pseudomonas aeruginosa (NCIMB 12469), Sample 2
 Blank - Blank Pellet (Qualitative), Samples 8 and 9



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WS MicroB™ (Coliforms) (cat# 080B, lot# S282-085B) (Continued)

2530	Fecal Coliforms - Sample 1	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 2	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 3	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 4	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 5	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 6	CFU/100mL		Presence	Presence	Not Reported						
2530	Fecal Coliforms - Sample 7	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 8	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 9	CFU/100mL		Absence	Absence	Not Reported						
2530	Fecal Coliforms - Sample 10	CFU/100mL		Absence	Absence	Not Reported						

Total Coliforms Evaluation : Acceptable
Fecal Coliforms Evaluation : Not Reported
E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli (ATCC 35421), Samples 1, 3 and 6
 Total Coliform Organism - Enterobacter cloacae (NCTC 10005), Samples 4, 5 and 10
 Negative (1) Coliform Organism - Proteus mirabilis (NCIMB 13283), Sample 7
 Negative (2) Coliform Organism - Pseudomonas aeruginosa (NCIMB 12469), Sample 2
 Blank - Blank Pellet (Qualitative), Samples 8 and 9



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WS MicrobE™ (Coliforms) (cat# 080B, lot# S282-085B) (Continued)

2525	E.coli - Sample 1	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 2	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 3	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 4	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 5	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 6	CFU/100mL	Presence	Presence	Presence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 7	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 8	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 9	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf
2525	E.coli - Sample 10	CFU/100mL	Absence	Absence	Absence	Acceptable	SM9223 COLert18 22nd ED 2004	1/27/2020				dmf

Total Coliforms Evaluation : Acceptable
Fecal Coliforms Evaluation : Not Reported
E.coli Evaluation : Acceptable

Fecal Coliform Organism - Escherichia coli (ATCC 35421), Samples 1, 3 and 6
 Total Coliform Organism - Enterobacter cloacae (NCTC 10005), Samples 4, 5 and 10
 Negative (1) Coliform Organism - Proteus mirabilis (NCIMB 13283), Sample 7
 Negative (2) Coliform Organism - Pseudomonas aeruginosa (NCIMB 12469), Sample 2
 Blank - Blank Pellet (Qualitative), Samples 8 and 9

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WS-282 Final Evaluation Report

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307-235-0515 x3244

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WS WS SourceWatR™ MicrobE™ (cat# 595, lot# S282-078)

2500	Total Coliforms (MF)	CFU/100mL		111	58.0 - 140	Not Reported				90.0	20.6	
2530	Fecal Coliforms (MF)	CFU/100mL		73.0	20.0 - 148	Not Reported				54.1	31.9	
2525	E.coli (MF)	CFU/100mL		111	57.0 - 149	Not Reported				92.5	22.9	
2500	Total Coliforms (MPN)	MPN/100mL	101.7	106	68.1 - 147	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	2/14/2020	0.00566	100	19.7	
2530	Fecal Coliforms (MPN)	MPN/100mL		77.0	14.5 - 401	Not Reported				96.7	22.8	
2525	E.coli (MPN)	MPN/100mL	101.7	106	67.2 - 150	Acceptable	SM 9223 B (Colilert Quanti-Tray)-2004 2004	2/14/2020	0.00373	101	20.8	

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.

WS WS SourceWatR™ MicrobE™ (cat# 595, lot# S282-078)

2500	Total Coliforms (MF)	CFU/100mL		111	58.0 - 140	Not Reported				90.0	20.6	
2530	Fecal Coliforms (MF)	CFU/100mL		73.0	20.0 - 148	Not Reported				54.1	31.9	
2525	E.coli (MF)	CFU/100mL		111	57.0 - 149	Not Reported				92.5	22.9	
2500	Total Coliforms (MPN)	MPN/100mL	88.4	106	68.1 - 147	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	2/14/2020	-0.0413	100	19.7	
2530	Fecal Coliforms (MPN)	MPN/100mL		77.0	14.5 - 401	Not Reported				96.7	22.8	
2525	E.coli (MPN)	MPN/100mL	88.4	106	67.2 - 150	Acceptable	SM 9223 B (Colilert-18 Quanti-Tray)-2004 2004	2/14/2020	-0.0424	101	20.8	

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.

WS Heterotrophic Plate Count (cat# 079, lot# S282-084)

2555	Heterotrophic Plate Count (MF, PP)	CFU/mL		76.0	61.0 - 100	Not Reported				78.4	9.75	
2555	Heterotrophic Plate Count (MPN)	MPN/mL	77.0	67.0	45.9 - 128	Acceptable	Simplate 2000	1/27/2020	0.000981	76.8	20.6	

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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Final Evaluation Report

Study: **WS-282**

ERA Customer Number: **E772828**

Laboratory Name: **Energy Laboratories**

Organic Results





A Waters Company

WS-282 Final Evaluation Report

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WS Carbamate/Carbamoyloxime Pesticides (cat# 846, lot# S282-707)

7010	Aldicarb	µg/L	88.2	91.2	68.4 - 114	Acceptable	EPA 531.1 3.1 1995	1/24/2020	-0.619	92.4	6.82	ljl
7015	Aldicarb sulfone	µg/L	48.4	46.5	34.9 - 58.1	Acceptable	EPA 531.1 3.1 1995	1/24/2020	0.251	47.5	3.44	ljl
7020	Aldicarb sulfoxide	µg/L	41.9	42.8	32.1 - 53.5	Acceptable	EPA 531.1 3.1 1995	1/24/2020	0.470	40.7	2.45	ljl
8080	Baygon	µg/L	138	134	110 - 158	Acceptable	EPA 531.1 3.1 1995	1/24/2020	1.03	131	6.88	ljl
7195	Carbaryl	µg/L	69	75.7	56.8 - 94.6	Acceptable	EPA 531.1 3.1 1995	1/24/2020	-1.18	74.2	4.44	ljl
7205	Carbofuran	µg/L	106	101	55.6 - 146	Acceptable	EPA 531.1 3.1 1995	1/24/2020	0.278	103	9.43	ljl
7710	3-Hydroxycarbofuran	µg/L	56.6	55.5	44.4 - 66.6	Acceptable	EPA 531.1 3.1 1995	1/24/2020	0.0457	56.4	5.27	ljl
7800	Methiocarb	µg/L	36.9	38.1	29.6 - 44.7	Acceptable	EPA 531.1 3.1 1995	1/24/2020	-0.263	37.9	3.72	ljl
7805	Methomyl	µg/L	85.2	84.2	67.4 - 101	Acceptable	EPA 531.1 3.1 1995	1/24/2020	0.0624	84.8	6.62	ljl
7940	Oxamyl (vydate)	µg/L	89.3	84.0	63.0 - 105	Acceptable	EPA 531.1 3.1 1995	1/24/2020	0.573	85.7	6.20	ljl

WS Regulated Semivolatiles #2 Herbicides (cat# 849, lot# S282-691)

9390	Diquat	µg/L	8.19	13.4	6.70 - 20.1	Acceptable	EPA 549.2 1 1997	1/28/2020	-2.01	11.8	1.79	ljl
7525	Endothall	µg/L		288	144 - 432	Not Reported				268	57.1	
9411	Glyphosate	µg/L	602	662	530 - 794	Acceptable	EPA 547 1990	1/27/2020	-0.792	665	79.4	ljl
9528	Paraquat	µg/L		81.4	38.7 - 90.8	Not Reported				64.7	15.2	



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CERTIFICATE OF RECOGNITION

ERA congratulates
Energy Laboratories
WS-282

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

Carbamate/Carbamoxime Pesticides	Corrosivity	Hardness	Heterotrophic Plate Count
Inorganic Disinfection #2	Metals	MicrobE™ (Coliforms)	Nitrite
o-Phosphate Nutrients	Organic Carbon	pH	Regulated Semivolatiles #2 Herbicides
Silica	Turbidity	Uranium	WS SourceWatR™ MicrobE™



Matthew Seebeck
Quality Officer