

ACZ Laboratories, Inc. Memorandum

To	Analytical Staff		
From	Mark McNeal		
Cc	Audrey Stover, Matt Sowards		
Subject	WS-141 Unacceptable Results	Laboratory ID(s): L68549; L69837; L71046	
CAR#	885	Open: 6/17/08	Close: 8/28/08

ACZ received the results of ERA's WS - 141 study. Unacceptable results and corrective actions are as follows.

Unacceptable Results							
Analyte	Method	Units	Reported	Assigned	Limits	%Rec.	Workgroup#
Alkalinity as CaCO ₃	SM2320B	mg/L	85.4	71.2	64.1-78.3	120%	242814
Total Organic Carbon	SM5310B	mg/L	3.32	2.68	2.20 – 3.20	124%	243229
Aluminum	EPA 200.7	ug/L	2910	1480	1270 - 1640	197%	243184
Iron	EPA 200.7	ug/L	2490	1220	1090 - 1340	204%	243184
Manganese	EPA 200.7	ug/L	1690	842	758 - 926	201%	243184
Zinc	EPA 200.7	ug/L	1340	676	608 - 744	198%	243184
Fluoride	M300.0		NR				
Sulfate	M300.0		NR				

CORRECTIVE ACTIONS

Alkalinity — Alkalinity was analyzed by SM2320B and a value of 85.4 mg/L was reported which is outside the PT acceptance limits of 64.1 to 78.3 mg/L

ACZ participated in a quick response study (Study# 061108B) and reported 33.3 mg Alkalinity/L by SM2320B which is within the PT acceptance criteria of 30.2→37.6 mg/L. The system is judged to be in control.

Total Organic Carbon — TOC was analyzed by SM5310B and a value of 3.32 mg/L was reported which is outside the PT acceptance limits of 2.20 to 3.20. The percent recoveries for TOC

in the associated quality control samples were: ICV = 102%; LFB = 99%; CCV = 96.1%; CCV2 = 98; LFB2 = 95.2; CCV3 = 96.8; and CCV4 = 96.8. No problems or anomalies with the analysis were noted. The MDL for TOC is 1.0 mg/L and the RL is 5.0 mg/L. The assigned value of the WS PT sample is below ACZ's reporting limit. For client samples, data between ACZ's MDL and RL is reported with the appropriate qualifier to indicate the value is estimated. The system is judged to be in control.

Aluminum — Aluminum was analyzed by EPA200.7 and a result of 2910 ug/L was reported, which is outside the PT acceptance limits of 1270 to 1640 ug/L. Review of the associated data showed no indication of systematic problems. The result suggests an error occurred during dilution of the PT sample concentrate.

L69837-02 & L69837-03 were scheduled for reanalysis in order to investigate the suspicion that the PT sample was not correctly diluted. For L69837-02, the PT sample was re-diluted and analyzed by standard procedure. A result of 1540 ug/L was obtained which is within the PT acceptance limits. For L69837-03, the solution from which the failing result was obtained, a result of 2590 ug/L was obtained, confirming that the PT concentrate was diluted incorrectly. The system is judged to be in control.

Iron — Iron was analyzed by EPA200.7 and a result of 2490 ug/L was reported, which is outside the PT acceptance limits of 1090 to 1340 ug/L. Review of the associated data showed no indication of systematic problems. The result suggests an error occurred during dilution of the PT sample concentrate.

L69837-02 & L69837-03 were scheduled for reanalysis in order to investigate the suspicion that the PT sample was not correctly diluted. For L69837-02, the PT sample was re-diluted and analyzed by standard procedure. A result of 1290 ug/L was obtained which is within the PT acceptance limits. For L69837-03, the solution from which the failing result was obtained, a result of 890 ug/L was obtained. The sample was analyzed for Al, Mn, & Zn as part of this corrective action. Al, Mn, & Zn values indicated the initial dilution was performed incorrectly. It is likely that the lower than expected Fe value is due to the analyte falling out of solution. The system is deemed to be in control.

Manganese — Mn was analyzed by EPA200.7 and a result of 1690 ug/L was reported, which is outside the PT acceptance limits of 758 to 926 ug/L. Review of the associated data showed no indication of systematic problems. The result suggests an error occurred during dilution of the PT sample concentrate.

L69837-02 & L69837-03 were scheduled for reanalysis in order to investigate the suspicion that the PT sample was not correctly diluted. For L69837-02, the PT sample was re-diluted and analyzed by standard procedure. A result of 931 ug/L (111% Rec) was obtained which is outside the PT acceptance limits. For L69837-03, the solution from which the failing result was obtained, a result of 1920 ug/L was obtained, confirming that the PT concentrate was diluted incorrectly. The PT sample was scheduled for additional Mn analysis (L71046) to further evaluate the system for control. A result of 850 ug/L was obtained which is within the PT acceptance limits of 758-926 ug/L. The system is judged to be in control.

Zinc — Zn was analyzed by EPA200.7 and a result of 1340 ug/L was reported, which is outside the PT acceptance limits of 608 to 734 ug/L. Review of the associated data showed no indication of systematic problems. The result suggests an error occurred during dilution of the PT sample concentrate.

L69837-02 & L69837-03 were scheduled for reanalysis in order to investigate the suspicion that the PT sample was not correctly diluted. For L69837-02, the PT sample was re-diluted and analyzed by standard procedure. A result of 720 ug/L was obtained which is within the PT acceptance limits. For L69837-03, the solution from which the failing result was obtained, a result of 1520 ug/L was obtained, confirming that the PT concentrate was diluted incorrectly. The system is judged to be in control.

Fluoride & Sulfate – F & SO₄ were not reported for WS-141 due to instrument problems.

A quick response sample (study# 061108B) was ordered in order to maintain ACZ's biannual schedule. Acceptable results were reported for F & SO₄ by EPA300.0. The system is judged to be in control.



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WS-141 L 69837

061108B



Final Report

QuiK™ Response Proficiency Testing

QuiK™ Response Study

Open Date: 06/11/08

Close Date: 07/18/08

Report Issued Date: 07/18/08



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July 18, 2008

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Fax: 815-301-3857

Enclosed is your final report for ERA's QuiK™Response program. Your final report includes an evaluation of all results submitted by your laboratory to ERA. None of the assigned value(s) or acceptance limits were available to your laboratory at or before the time of reporting.

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 the quality of your routine data. Our laboratory and technical staff have well over three hundred 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 helpful in helping you work through your technical issues.

Thank you for your participation in ERA's QuiK™Response program. If you have any questions, please contact myself, or Amber Bolger, QuiK™Response Coordinator, at 1-800-372-0122.

Sincerely,

Shawn Kassner
Proficiency Testing Manager

Cc: Project File Number 061108B



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Report Recipient	Contact/Phone Number	Reporting Type
Arizona	Terry Norcop / 602-364-0720	All Analytes
Colorado	Ken Johnson / 303-692-3045	All Analytes
EPA Region 8	Jim Gindelberger / 303-312-6985	All Analytes
Utah	Kristin Brown / 801-584-8467	All Analytes



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Project Number: **061108B**

ERA Customer Number: **A144801**

Laboratory Name: **ACZ Laboratories**

Inorganic Results





Mark McNeal
QA/QC Coordinator
ACZ Laboratories
2773 Downhill Drive
Steamboat Springs, CO 80487
970-879-6590

EPA ID: **CO00028**
ERA Customer Number: **A144801**
Report Issued: **07/18/08**
Study Dates: **06/11/08 - 07/18/08**

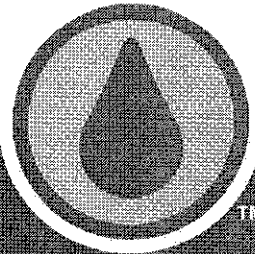
Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WS Inorganics							
0027	Alkalinity as CaCO ₃	mg/L	33.3	33.6	30.2 - 37.6	Acceptable	SM2320B
1575	Chloride	mg/L		56.7	51.0 - 62.4	Not Reported	
1610	Conductivity at 25°C	µmhos/cm		468	421 - 515	Not Reported	
0010	Fluoride	mg/L	7.22	7.38	6.64 - 8.12	Acceptable	EPA 300.0
1820	Nitrate + Nitrite as N	mg/L		4.91	4.37 - 5.40	Not Reported	
0009	Nitrate as N	mg/L		4.91	4.42 - 5.40	Not Reported	
1125	Potassium	mg/L		28.9	24.9 - 32.8	Not Reported	
0145	Sulfate	mg/L	57.1	57.7	50.1 - 64.8	Acceptable	EPA 300.0
0024	Total Dissolved Solids at 180°C	mg/L		298	195 - 401	Not Reported	



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L68549

WS-141



Final Report

WatR™ Supply Proficiency Testing

WatR™ Supply Study

Open Date: 04/07/08

Close Date: 05/22/08

Report Issued Date: 06/09/08

Study: **WS-141**

ERA Customer Number: **A144801**

Laboratory Name: **ACZ Laboratories**

Inorganic Results



WS-141 Final Complete Report

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2773 Downhill Drive
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EPA ID: CO00028
ERA Customer Number: A144801
Report Issued: 06/09/08
Study Dates: 04/07/08 - 05/22/08

Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WS Metals							
1000	Aluminum	µg/L		1480	1270 - 1640	Not Reported	
0140	Antimony	µg/L	33.3	28.6	20.0 - 37.2	Acceptable	EPA 200.8
0001	Arsenic	µg/L	27.4	30.0	21.0 - 39.0	Acceptable	EPA 200.8
0002	Barium	µg/L	1970	2030	1720 - 2330	Acceptable	EPA 200.8
0141	Beryllium	µg/L	5.90	6.38	5.42 - 7.34	Acceptable	EPA 200.8
0226	Boron	µg/L		913	807 - 1010	Not Reported	
0003	Cadmium	µg/L	8.74	9.68	7.74 - 11.6	Acceptable	EPA 200.8
0004	Chromium	µg/L	109	119	101 - 137	Acceptable	EPA 200.8
0091	Copper	µg/L	82.5	84.3	75.9 - 92.7	Acceptable	EPA 200.8
1070	Iron	µg/L		1220	1090 - 1340	Not Reported	
0005	Lead	µg/L	85.6	93.8	65.7 - 122	Acceptable	EPA 200.8
0236	Manganese	µg/L		842	758 - 926	Not Reported	
0237	Molybdenum	µg/L		116	101 - 128	Not Reported	
0142	Nickel	µg/L	191	217	184 - 250	Acceptable	EPA 200.8
0007	Selenium	µg/L	50.6	56.8	45.4 - 68.2	Acceptable	EPA 200.8
1150	Silver	µg/L	123	128	112 - 142	Acceptable	EPA 200.8
0143	Thallium	µg/L	6.06	7.13	4.99 - 9.27	Acceptable	EPA 200.8
1185	Vanadium	µg/L		930	837 - 1020	Not Reported	
0239	Zinc	µg/L		676	608 - 744	Not Reported	

WS Metals							
1000	Aluminum	µg/L	2910	1480	1270 - 1640	Not Acceptable	EPA 200.7
0140	Antimony	µg/L		28.6	20.0 - 37.2	Not Reported	
0001	Arsenic	µg/L		30.0	21.0 - 39.0	Not Reported	
0002	Barium	µg/L		2030	1720 - 2330	Not Reported	
0141	Beryllium	µg/L		6.38	5.42 - 7.34	Not Reported	
0226	Boron	µg/L		913	807 - 1010	Not Reported	
0003	Cadmium	µg/L		9.68	7.74 - 11.6	Not Reported	
0004	Chromium	µg/L		119	101 - 137	Not Reported	
0091	Copper	µg/L		84.3	75.9 - 92.7	Not Reported	
1070	Iron	µg/L	2490	1220	1090 - 1340	Not Acceptable	EPA 200.7
0005	Lead	µg/L		93.8	65.7 - 122	Not Reported	
0236	Manganese	µg/L	1690	842	758 - 926	Not Acceptable	EPA 200.7
0237	Molybdenum	µg/L		116	101 - 128	Not Reported	
0142	Nickel	µg/L		217	184 - 250	Not Reported	
0007	Selenium	µg/L		56.8	45.4 - 68.2	Not Reported	
1150	Silver	µg/L		128	112 - 142	Not Reported	
0143	Thallium	µg/L		7.13	4.99 - 9.27	Not Reported	
1185	Vanadium	µg/L		930	837 - 1020	Not Reported	
0239	Zinc	µg/L	1340	676	608 - 744	Not Acceptable	EPA 200.7



WS-141 Final Complete Report

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EPA ID: CO00028
 ERA Customer Number: A144801
 Report Issued: 06/09/08
 Study Dates: 04/07/08 - 05/22/08

Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
WS Mercury							
0006	Mercury	µg/L	3.66	3.45	2.42 - 4.48	Acceptable	EPA 245.1
WS pH							
0026	pH	S.U.	6.15	6.12	5.92 - 6.32	Acceptable	SM4500H+ B
WS Inorganics							
0027	Alkalinity as CaCO ₃	mg/L	85.4	71.2	64.1 - 78.3	Not Acceptable	SM2320B
1575	Chloride	mg/L	7.29	6.71	5.12 - 8.46	Acceptable	EPA 300.0
1610	Conductivity at 25°C	µmhos/cm	545	521	469 - 573	Acceptable	SM2510B
0010	Fluoride	mg/L	6.84	7.10	6.39 - 7.81	Acceptable	SM4500F- C
1820	Nitrate + Nitrite as N	mg/L	6.96	6.82	6.12 - 7.50	Acceptable	EPA 353.2
0009	Nitrate as N	mg/L	6.96	6.82	6.14 - 7.50	Acceptable	EPA 353.2
1125	Potassium	mg/L		33.6	29.0 - 37.9	Not Reported	
0145	Sulfate	mg/L		114	100 - 127	Not Reported	
0024	Total Dissolved Solids at 180°C	mg/L	388	391	251 - 530	Acceptable	SM2540C
WS Turbidity							
0023	Turbidity	NTU	2.58	2.53	2.18 - 3.12	Acceptable	EPA 180.1
WS Nitrite							
0092	Nitrite as N	mg/L	.571	0.542	0.461 - 0.623	Acceptable	EPA 353.2
WS o-Phosphate Nutrients							
0261	ortho-Phosphate as P	mg/L	4.58	5.01	4.44 - 5.62	Acceptable	EPA 365.1
WS Cyanide							
0146	Cyanide	mg/L	0.347	0.361	0.271 - 0.451	Acceptable	EPA 335.4
WS Organic Carbon							
1710	Dissolved Organic Carbon (DOC)	mg/L		2.68	2.20 - 3.20	Not Reported	
0263	Total Organic Carbon (TOC)	mg/L	3.32	2.68	2.20 - 3.20	Not Acceptable	SM5310B
WS Bromide, Bromate & Chlorate							
0193	Bromate	µg/L		19.8	13.9 - 25.7	Not Reported	
0260	Bromide	µg/L	275	253	193 - 314	Acceptable	EPA 300.0
0194	Chlorate	µg/L		99.7	80.7 - 118	Not Reported	
WS Hardness							
1035	Calcium	mg/L	72.1	66.4	59.2 - 73.5	Acceptable	EPA 200.7
1085	Magnesium	mg/L	17.9	16.5	14.8 - 18.4	Acceptable	EPA 200.7
0029	Sodium	mg/L	18.2	16.8	14.8 - 18.5	Acceptable	EPA 200.7
0025	Calcium Hardness as CaCO ₃	mg/L		166	148 - 184	Not Reported	
1755	Total Hardness as CaCO ₃	mg/L	254	234	209 - 259	Acceptable	SM2340B
WS Silica							
1990	Silica as SiO ₂	mg/L	29.6	28.5	24.2 - 32.8	Acceptable	EPA 200.7



Report Recipient	Contact/Phone Number	Reporting Type
Arizona	Terry Norcop / 602-364-0720	All Analytes
Colorado	Ken Johnson / 303-692-3045	All Analytes
EPA Region 8	Jim Gindelberger / 303-312-6985	All Analytes
Utah	Kristin Brown / 801-584-8467	All Analytes