

**Trace Elements Proficiency Testing Program  
Whole Blood  
Performance Evaluation**

**Shipment Date: May 07, 2014**

**Test Event: 142**

**PFI: 1067  
Jill Taylor, Ph.D.  
Wadsworth Center - Biggs Laboratory  
PO Box 509 Empire State Plaza  
Albany, NY 12201-0509**

Report reviewed:

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Signature

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Date

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Analyte	Sample	Your Response	Target	Acceptable Range	D/Dmax	Relative Distance from Target			Score	
						-1	0	1		
<b>Arsenic (ug/L)</b> - DRC/CC-ICP-MS	BE14-06	2.3	3.1	0.0 - 9.1	-0.26		x		100	
	BE14-07	34.5	34.3	27.4 - 41.2	0.03			x	100	
	BE14-08	9.8	11.0	5.0 - 17.0	-0.20		x		100	
	BE14-09	25.1	26.3	20.3 - 32.3	-0.20		x		100	
	BE14-10	57.3	58.9	47.1 - 70.7	-0.14			x	100	
					<b>Average D/Dmax:</b>	<b>-0.15</b>				<b>Analyte Score: 100</b> <b>Pass</b>
<b>Cadmium (ug/L)</b> - ICP-MS	BE14-06	0.9	0.9	0.0 - 1.9	0.00			x	100	
	BE14-07	6.3	6.2	5.2 - 7.2	0.10			x	100	
	BE14-08	3.0	3.0	2.0 - 4.0	0.00			x	100	
	BE14-09	11.4	11.2	9.5 - 12.9	0.12			x	100	
	BE14-10	18.3	17.6	15.0 - 20.2	0.27				x	100
					<b>Average D/Dmax:</b>	<b>0.10</b>				<b>Analyte Score: 100</b> <b>Pass</b>
<b>Mercury (ug/L)</b> - ICP-MS	BE14-06	2.1	2.1	0.0 - 5.1	0.00			x	100	
	BE14-07	9.6	9.7	6.7 - 12.7	-0.03			x	100	
	BE14-08	3.3	3.5	0.5 - 6.5	-0.07			x	100	
	BE14-09	15.1	15.9	11.1 - 20.7	-0.17			x	100	
	BE14-10	44.5	44.5	31.1 - 57.9	0.00				x	100
					<b>Average D/Dmax:</b>	<b>-0.05</b>				<b>Analyte Score: 100</b> <b>Pass</b>

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Analyte	Sample	Your Response	Target	Acceptable Range	D/Dmax	Relative Distance from Target			Score	
						-1	0	1		
<b>Antimony (ug/L)</b> - ICP-MS	BE14-06	<0.10		-					Edu†	
	BE14-07	<0.10		-					Edu†	
	BE14-08	<0.10		-					Edu†	
	BE14-09	<0.10		-					Edu†	
	BE14-10	<0.10		-					Edu†	
<b>Beryllium (ug/L)</b> - ICP-MS	BE14-06	<0.14		-					Edu†	
	BE14-07	<0.14		-					Edu†	
	BE14-08	<0.14		-					Edu†	
	BE14-09	<0.14		-					Edu†	
	BE14-10	<0.14		-					Edu†	
<b>Caesium (ug/L)</b> - ICP-MS	BE14-06	0.3		-					Edu†	
	BE14-07	0.4		-					Edu†	
	BE14-08	0.3		-					Edu†	
	BE14-09	0.3		-					Edu†	
	BE14-10	0.4		-					Edu†	
<b>Chromium (ug/L)</b> - DRC/CC-ICP-MS	BE14-06	0.4	0.7	0.0 - 2.7	-0.43		x		Edu†	
	BE14-07	3.4	3.7	1.7 - 5.7	-0.15		x		Edu†	
	BE14-08	1.6	1.5	0.0 - 3.5	0.05				Edu†	
	BE14-09	8.8	8.3	6.3 - 10.3	0.25				Edu†	
	BE14-10	16.5	16.2	13.0 - 19.4	0.09				Edu†	
					<b>Average D/Dmax:</b>					
										<b>Analyte Score: Educational</b>

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Analyte	Sample	Your Response	Target	Acceptable Range	D/Dmax	Relative Distance from Target			Score
						-1	0	1	
<b>Cobalt (ug/L)</b> - ICP-MS	BE14-06	0.8	0.8	0.0 - 2.3	0.00		x		Edu†
	BE14-07	3.9	3.7	2.2 - 5.2	0.13		x		Edu†
	BE14-08	1.7	1.6	0.1 - 3.1	0.07		x		Edu†
	BE14-09	10.8	10.2	8.2 - 12.2	0.30			x	Edu†
	BE14-10	21.4	21.0	16.8 - 25.2	0.10			x	Edu†
					<b>Average D/Dmax:</b>	<b>0.12</b>			
<b>Copper (ug/L)</b> - ICP-MS	BE14-06	1130	-	-	-				Edu†
	BE14-07	1226	-	-	-				Edu†
	BE14-08	1146	-	-	-				Edu†
	BE14-09	1100	-	-	-				Edu†
	BE14-10	1117	-	-	-				Edu†
<b>Manganese (ug/L)</b> - ETAAS-Z	BE14-06	15.6	-	-	-				Edu†
	BE14-07	27.2	-	-	-				Edu†
	BE14-08	18.8	-	-	-				Edu†
	BE14-09	25.2	-	-	-				Edu†
	BE14-10	36.5	-	-	-				Edu†
<b>Molybdenum (ug/L)</b> - ICP-MS	BE14-06	41.7	-	-	-				Edu†
	BE14-07	25.3	-	-	-				Edu†
	BE14-08	15.7	-	-	-				Edu†
	BE14-09	42.4	-	-	-				Edu†
	BE14-10	17.8	-	-	-				Edu†

**Analyte Score: Educational**

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Analyte	Sample	Your Response	Target	Acceptable Range	D/Dmax	Relative Distance from Target			Score
						-1	0	1	
<b>Nickel (ug/L)</b> - DRC/CC-ICP-MS	BE14-06	1.2		-					Edu†
	BE14-07	4.1		-					Edu†
	BE14-08	2.5		-					Edu†
	BE14-09	10.7		-					Edu†
	BE14-10	15.7		-					Edu†
<b>Platinum (ug/L)</b> - ICP-MS	BE14-06	<0.10		-					Edu†
	BE14-07	<0.10		-					Edu†
	BE14-08	<0.10		-					Edu†
	BE14-09	<0.10		-					Edu†
	BE14-10	<0.10		-					Edu†
<b>Thallium (ug/L)</b> - ICP-MS	BE14-06	0.6		-					Edu†
	BE14-07	3.8		-					Edu†
	BE14-08	2.1		-					Edu†
	BE14-09	9.2		-					Edu†
	BE14-10	12.4		-					Edu†
<b>Tin (ug/L)</b> - ICP-MS	BE14-06	1.7		-					Edu†
	BE14-07	9.9		-					Edu†
	BE14-08	3.2		-					Edu†
	BE14-09	5.7		-					Edu†
	BE14-10	14.2		-					Edu†

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Analyte	Sample	Your Response	Target	Acceptable Range	D/Dmax	Relative Distance from Target			Score
						-1	0	1	
<b>Uranium (ug/L)</b> - ICP-MS	BE14-06	<0.02		-					Edu†
	BE14-07	<0.02		-					Edu†
	BE14-08	<0.02		-					Edu†
	BE14-09	<0.02		-					Edu†
	BE14-10	<0.02		-					Edu†
<b>Vanadium (ug/L)</b> - DRC/CC-ICP-MS	BE14-06	0.9		-					Edu†
	BE14-07	11.2		-					Edu†
	BE14-08	2.0		-					Edu†
	BE14-09	4.9		-					Edu†
	BE14-10	15.8		-					Edu†
<b>Zinc (ug/L)</b> - ICP-MS	BE14-06	2663		-					Edu†
	BE14-07	1676		-					Edu†
	BE14-08	1955		-					Edu†
	BE14-09	1801		-					Edu†
	BE14-10	1946		-					Edu†

**NOTES:**

- Laboratory results were evaluated using criteria specified by the New York State Department of Health. Analytes were evaluated against targets derived from the robust mean of the results reported by all participants in this event. The robust statistics were obtained utilizing algorithms based on those presented in ISO 13528: 2005E Statistical methods for use in proficiency testing by interlaboratory comparisons.
- D/Dmax: D represents the deviation of a result from the target value. Dmax represents the maximal allowable deviation from that target. For satisfactory performance, the D/Dmax value must fall between -1 and +1. A negative D/Dmax indicates that your result is below the target value; a positive D/Dmax means your result is above the target value. A blank entry in this column indicates that your result either contains a qualifier (< or >) or is non-gradable, in which case "N/G" is shown in the "Score" column. The average D/Dmax is provided to assess overall test performance for each analyte. A close review of your laboratory's results is recommended if D/Dmax is > +/- 0.5 for a result or analyte.

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Report Date: July 09, 2014 (Date Generated: 10-Jul-2014)  
 Report ID: 1067TRELWB142-1

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3. The graph plots show the relative distance of your laboratory's result (represented by an "X") from the target value for each sample analyzed. Any result exceeding the high or low limit by >25% of the D/Dmax is indicated by a pound sign (#).
  4. Summaries of participant statistics from this and prior Trace Elements proficiency test events are available on the Internet at:  
<http://www.wadsworth.org/testing/lead/ptresults.htm>
  5. The source of the five blood-based proficiency survey materials shipped 7 May 2014 is caprine (goat) whole blood obtained from animals dosed with lead acetate to create physiologically-bound lead. Blood pools were spiked with different amounts of arsenic, cadmium and mercury, and supplemented with additional trace elements. Test material (BE14-06, BE14-07, BE14-08, BE14-09, BE14-10) was subsequently dispensed as 2-mL aliquots into acid-leached polypropylene cryovials prior to distributing to participants for analysis.
  6. Additional elements in whole blood pools: chromium, cobalt, manganese, nickel, silver, thallium, tin, titanium, tungsten and vanadium

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Event:	May 07, 2014	January 15, 2014	September 11, 2013	Status
Analyte	Score	Score	Score	
Arsenic (ug/L)	100% Sat	100% P/C†	100% Sat	Successful
Cadmium (ug/L)	100% Sat	100% P/C†	100% Sat	Successful
Mercury (ug/L)	100% Sat	100% Sat	100% Sat	Successful
Aluminum (ug/L)	Not Offered	Not Offered	Not Offered	
Antimony (ug/L)	Educational	P/C†	P/C†	Educational
Barium (ug/L)	Not Offered	Not Offered	Not Offered	
Beryllium (ug/L)	Educational	Not Offered	Not Offered	Educational
Bismuth (ug/L)	Not Offered	Not Offered	Not Offered	
Caesium (ug/L)	Educational	P/C†	P/C†	Educational
Chromium (ug/L)	Educational	Educational	P/C†	Educational
Cobalt (ug/L)	Educational	Educational	P/C†	Educational
Copper (ug/L)	Educational	P/C†	P/C†	Educational
Iodine (ug/L)	Not Offered	Not Offered	Not Offered	
Manganese (ug/L)	Educational	P/C†	P/C†	Educational
Molybdenum (ug/L)	Educational	Not Offered	Not Offered	Educational
Nickel (ug/L)	Educational	P/C†	P/C†	Educational
Platinum (ug/L)	Educational	P/C†	P/C†	Educational
Selenium (ug/L)	Not Offered	Not Offered	Not Offered	
Silver (ug/L)	Not Offered	Not Offered	P/C†	
Tellurium (ug/L)	Not Offered	Not Offered	Not Offered	
Thallium (ug/L)	Educational	P/C†	P/C†	Educational
Thorium (ug/L)	Not Offered	Not Offered	Not Offered	
Tin (ug/L)	Educational	P/C†	P/C†	Educational

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<b>Event:</b>	<b>May 07, 2014</b>	<b>January 15, 2014</b>	<b>September 11, 2013</b>	
Analyte	Score	Score	Score	Status
Uranium (ug/L)	Educational	P/C†	P/C†	Educational
Vanadium (ug/L)	Educational	P/C†	P/C†	Educational
Zinc (ug/L)	Educational	P/C†	P/C†	Educational
<b>Event Score:</b>	100% Sat	100% Sat	100% Sat	Successful

Unsatisfactory (Unsat) performance is the failure to attain the minimum satisfactory score for the category or analyte for a testing event. A second unsatisfactory score in one of the next two testing events for the same analyte or category will result in an unsuccessful performance. Please refer to the CLRS Program Guide, available at [www.wadsworth.org/clep](http://www.wadsworth.org/clep), for category specific grading criteria.

† N/G = non-gradable

† P/C = Pass credit was issued for one or more test results that were non-gradable

† Edu = For educational analyte responses, values that appear under the column designated "target value" are more correctly described as the participant mean value, and are given for informational purposes only. Designating an analyte as "educational" implies a lack of robustness in the assigned target value and/or the absence of quality specifications for performance assessment purposes.

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