REPORT ON THE U.S. GEOLOGICAL SURVEY'S EVALUATION PROGRAM FOR STANDARD REFERENCE SAMPLES DISTRIBUTED IN SEPTEMBER 1996: T-143 (TRACE CONSTITUENTS), T-145 (TRACE CONSTITUENTS), M-140 (MAJOR CONSTITUENTS), N-51 (NUTRIENT CONSTITUENTS), N-52 (NUTRIENT CONSTITUENTS), P-27 (LOW IONIC STRENGTH CONSTITUENTS), AND Hg-23 (MERCURY)

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REPORT ON THE U.S. GEOLOGICAL SURVEY'S EVALUATION PROGRAM FOR STANDARD REFERENCE SAMPLES DISTRIBUTED IN SEPTEMBER 1996: T-143 (TRACE CONSTITUENTS), T-145 (TRACE CONSTITUENTS), M-140 (MAJOR CONSTITUENTS), N-51 (NUTRIENT CONSTITUENTS), N-52 (NUTRIENT CONSTITUENTS), P-27 (LOW IONIC STRENGTH CONSTITUENTS), AND Hg-23 (MERCURY)

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ABSTRACT

This report presents the results of the U.S. Geological Survey's analytical evaluation program for 7 standard reference samples -- T-143 (trace constituents), T-145 (trace constituents), M-140 (major constituents), N-51 (nutrient constituents), N-52 (nutrient constituents), P-27 (low ionic strength constituents), and Hg-23 (mercury) -- that were distributed in September 1996 to 167 laboratories registered in the U.S. Geological Survey sponsored interlaboratory testing program. Analytical data that were received from 140 of the laboratories were evaluated with respect to: overall laboratory performance and relative laboratory performance for each analyte in the seven reference samples. Results of these evaluations are presented in tabular form. Also presented are tables and graphs summarizing the analytical data provided by each laboratory for each analyte in the seven standard reference samples. The most probable value for each analyte was determined using nonparametric statistics.

INTRODUCTION

The U.S. Geological Survey (USGS) conducts an interlaboratory evaluation program semiannually. This program provides a variety of reference materials to accomplish quality assurance testing of laboratories and to provide an adequate supply of samples that contribute to quality control programs of participating laboratories. Natural-matrix reference materials are preferred for use in this interlaboratory evaluation program. A series of samples are prepared and distributed each spring and fall. Occasionally, sediment samples are provided.

The program began in 1962 with a single sample containing major constituents that was prepared from distilled water and reagent grade chemicals. Twenty-three USGS laboratories participated in the 1962 determinations of six analytes in the major standard reference sample (SRS). Since that time, objectives of the program have been to:

(1) evaluate and improve the performance of USGS and other participating laboratories;
(2) provide a library of carefully prepared, homogeneous, stable reference materials for use in the quality control programs of laboratories;
(3) identify analytical problem areas;
(4) identify quality assurance needs with respect to environmental analyses and develop new reference materials to meet these needs; and
(5) ascertain the accuracy and precision of analytical methods.

Two hundred fifteen USGS and non-USGS laboratories are registered in the program, which can currently provide eight standard reference sample types:

1. Trace constituents.
2. Major constituents.
3. Nutrient constituents.
4. Low ionic strength constituents.
5. Mercury.
6. Whole water (water with suspended sediment).
7. Acid mine drainage constituents.
8. Sediment (bed material) for major and trace constituents.

When sufficient data are available, a most probable value is statistically determined for each analyte in the SRS.

Though this is not a laboratory certification program, participation in this continuing quality assurance program is mandatory for all laboratories providing water-analyses data for USGS data storage or use (publications). Federal, State, municipal, and university laboratories can participate even though they do not provide data to the USGS. Analyses of these SRS provides the means to alert participating laboratories of possible deficiencies in their analytical operations, and also provides reference materials for in-house quality control programs. Participating laboratories are identified only by a confidential code number.

A library of SRS, from previous evaluations, are available. Participating laboratories can purchase previous SRS for further testing, continuing quality assurance, and quality control programs by contacting:

U.S. Geological Survey
Branch of Technical Development and Quality Systems
Denver Federal Center
Box 25046 MS 401
Denver, Colorado 80225-0046
(303) 236-1870

Purpose and Scope

This report summarizes the analytical results submitted by 140 of the 167 laboratories that requested and were shipped SRS for the January 1997 evaluation (table 1). Not all SRS are requested, nor necessarily analyzed by all the laboratories; nor do all laboratories enrolled in the program participate in each evaluation. Analytical results for the following, which were mailed the week of September 9, 1996, are presented in this report:

T-143	Trace constituents
T-145	Trace constituents
M-140	Major constituents
N-51	Nutrient constituents
N-52	Nutrient constituents
P-27	Low ionic strength constituents (precipitation)
Hg-23	Mercury

The USGS requested that analytical results be returned by November 15, 1996 for evaluation and preparation of this report. Each participating laboratory is requested to perform those determinations routinely made on the respective SRS for USGS investigations and to indicate the information was provided, it has been included in the respective data table. The analytical data are represented in ways

that allow participants to evaluate data distribution, scatters, outliers, central tendency, bias, skewness, and method relationships.

Table 1.-*Laboratory participants in the analyses of standard reference samples distributed in September 1996*

State	City	Participating Laboratory
Alabama	Tuscaloosa	Geological Survey of Alabama
Alaska	Soldotna	Alaska Department of Fish and Game
Arizona	Yuma	Burns and Roe Services Corporation
Arkansas	Arkadelphia	Ouachita Baptist University
	Fayetteville	University of Arkansas
	Little Rock	Arkansas Department of Pollution Control and Ecology
California	Davis	University of California - Davis
	La Verne	Metropolitan Water District
	Martinez	Central Contra Costa Sanitary District
	Oakland	East Bay Municipal Utility District
	Perris	Eastern Municipal Water District
	Sacramento	Anlab
	Sacramento	US Bureau of Reclamation
	Sacramento	USGS WRD
	Santa Fe Springs	West Coast Analytical Service, Inc.
	Tahoe City	Tahoe Research Group
	West Sacramento	California Department of Water Resources
	West Sacramento	Quanterra
Colorado	Alamosa	Bureau of Reclamation
	Arvada	Quanterra
	Arvada	USGS-NWQL
	Aurora	Core Laboratories, Inc.
	Colorado Springs	City of Colorado Springs
	Denver	US Bureau of Reclamation
	Denver	USGS Colorado District Toxic Project
	Denver	Denver Water Department
	Fort Collins	City of Fort Collins - Water Quality
	Fort Collins	CSU - Soil Testing Laboratory
	Fort Collins	USDA Forest Service
	Golden	Kaiser - Hill Rocky Flats
	Loveland	Northern Colorado Water Conservation
	Northglenn	Northglenn Water Treatment Plant
	Westminster	City of Westminster
Florida	Bradenton	Manatee County Environmental Management
	Brooksville	SW Florida Water Management District
	Ocala	USGS WRD QWSU
	Orlando	Post, Bucklye, Schuh, and Jernigan, Inc.
	Ormond Beach	Environmental Laboratory
	Palatka	St. John's River Management District
	Tallahassee	City of Tallahassee
	Tallahassee	Florida Department of Environmental Regulations
	Tallahassee	Savannah Laboratories
	Tampa	Hillsborough County Environmental Protection Commission
	West Palm Beach	South Florida Water Management District
Georgia	Athens	University of Georgia
	Atlanta	Georgia Department of Natural Resources
	Atlanta	USGS WRD
	Decatur	Dekalb County Water Quality Laboratory
	Tifton	USDA - ARS
Hawaii	Honolulu	University of Hawaii - SOEST Analytical Services

Table 1.-*Laboratory participants in the analyses of standard reference samples distributed in September 1996--Continued*

State	City	Participating Laboratory
Idaho	Boise	US Bureau of Reclamation
	Pocatello	Idaho State University
Illinois	Champaign	Hazardous Waste Research Center
	Champaign	Illinois Environmental Protection Agency
Indiana	Indianapolis	Indianapolis Department of Public Works
Iowa	Des Moines	University Hygienic Laboratory, Des Moines Branch
Kansas	Lawrence	Kansas Geological Survey
	Topeka	City of Topeka
	Topeka	Kansas Department of Health and Environment
	Wichita	City of Wichita
Kentucky	Frankfort	Division of Environmental Studies
	Lexington	Kentucky Geological Survey
	Louisville	Metropolitan Sewer District
Maryland	Baltimore	Maryland Department of Health and Mental Hygiene
Michigan	Ann Arbor	University of Michigan
	Detroit	Detroit Water and Sewerage Department
Minnesota	Minneapolis	University of Minnesota, Department of Geology and Geophysics
	St. Paul	Metro Waste Control Commission
	St. Paul	University of Minnesota
Missouri	Columbia	University of Missouri
	Jefferson City	Missouri Department of Health
Montana	Butte	Montana Bureau of Mines & Geology
	Missoula	University of Montana
Nevada	Boulder City	US Bureau of Reclamation
	Las Vegas	University of Nevada - Las Vegas
	Reno	Desert Research Institute
	Reno	Nevada State Health Laboratory
	Reno	Reno-Sparks Wastewater Treatment
	Sutcliffe	Pyramid Lake Fisheries
New York	Brewster	NYC DEP Brewster Lab
	Brockport	SUNY - Brockport
	Grahamsville	New York City Department of Environmental Protection
	Hauppauge	Suffolk County Water Authority
	Hempstead	Nassau County Department of Health
	Ithaca	Cornell Nutrient Analysis Lab
	Milbrook	Institute of Ecosystem Studies
	North Babylon	Ecotest Laboratories
	Rochester	Monroe County
	Shokan	New York City Department of Environmental Protection
	Syracuse	Onandaga County DDS
	Troy	USGS-WRD
	Valhalla	Department of Environmental Protection
	Wantagh	Cedar Creeks Projects laboratory
	Yorktown	New York City Department of Environmental Protection
North Carolina	Chapel Hill	City of Durham Water Resources
	Charlotte	Mecklenburg County
North Carolina	Greensboro	City of Greensboro
North Dakota	Bismarck	North Dakota State Health Department
	Bismarck	North Dakota State Water Commission
	Bismarck	US BOR
Ohio	Cincinnati	US EPA
	Cuyahoga Heights	Northeast Ohio Regional Sewer District
	Tiffin	Heidelberg College
	Wooster	The Ohio State University

Table 1.-*Laboratory participants in the analyses of standard reference samples distributed in September 1996--Continued*

State	City	Participating Laboratory
Oklahoma	Norman	Oklahoma Geological Survey
	Oklahoma City	Oklahoma Department of Environmental Quality
Oregon	Corvallis	USDA - CCAL
	Tigard	Unified Sewerage Agency
Pennsylvania	Harrisburg	Pennsylvania Department of Environmental Resources
	Somerset	Geochemical Testing
Puerto Rico	San Juan	Department of Natural Resources
South Dakota	Brookings	SDSU - Water Quality Laboratory
Tennessee	Chattanooga	TVA Environmental Chemistry
Texas	Austin	Lower Colorado River Authority
	College Station	Texas A & M
	Seguin	Guadalupe-Blanco River Authority
Vermont	Waterbury	Vermont Agency of Natural Resources
Virginia	Culpepper	ESS Labs
	Manassas	Occoquan Watershed Monitoring Laboratory
	Richmond	Consolidated Laboratory Services
Washington	Seattle	Frontier Geoscience
	Seattle	Brooks-Rand, Ltd.
Wisconsin	Madison	University of Wisconsin, Department of Hygiene
	Milwaukee	Milwaukee Metro Sewerage District

Middle East Laboratories

Location	Participating Laboratory
Gaza	Al-Azar University, Water Research Center Laboratory
	Islamic University, Environmental & Rural Research Center Laboratory
	Ministry of Agriculture Laboratory
	Ministry of Health, Public Health Laboratory
Israel	Geological Survey of Israel Laboratory
	Israeli Hydrological Service Laboratory
	Mekeroth Water Company, Central Laboratory
	Water Resources Research Center, Institute for Desert Research
Jordan	Royal Scientific Society of Jordan, Environmental Research Center Laboratory
	Water Authority of Jordan, Central Laboratory
West Bank	Al-Quds University, College of Science & Technology, Water Research Center
	Bethlehem University , Water and Soil Environmental Research Unit
	Birzeit University, Center for Environmental & Occupational Health Services
	Najah-WESC

Preparation of Standard Reference Samples

All of the SRS used in this evaluation were prepared by personnel of the USGS in Lakewood, Colorado and were analyzed for analyte concentrations and physical property values prior to mailing. A library of reference samples is maintained and can be requested by participating laboratories for use in their quality control programs.

Trace constituent sample T-143 was prepared using water collected from the North Platte River near Windover, Wyoming. The water was pumped through 0.45, 0.2- and 0.1-µm filters, in series, into a 3500-L polypropylene drum. The water was continuously circulated and passed through a 0.1-µm filter and ultraviolet sterilizer for 24 hours. Following this circulation, the water was acidified to pH 1.3 with nitric acid and chlorinated to 5 ppm free chlorine. The trace constituent concentrations were adjusted by adding reagent grade chemicals. The sample was circulated an additional 24 hours prior to bottling.

polypropylene bottles used were acid leached, deionized-water rinsed, and autoclave sterilized.

Trace constituent sample T-145 was prepared using water collected from the Yampa River near Steamboat Springs, Colorado. The water was pumped through 0.45, 0.2- and 0.1-μm filters, in series, into a 3500-L polypropylene drum. The water was continuously circulated and passed through a 0.1-μm filter and ultraviolet sterilizer for 24 hours. Following this circulation, the water was acidified to pH 1.3 with nitric acid and chlorinated to 5 ppm free chlorine. The trace constituent concentrations were adjusted by adding reagent grade chemicals. The sample was circulated an additional 24 hours prior to bottling. During bottling the sample was pumped through an ultraviolet sterilizer and a 0.1-μm filter. The 500-mL polypropylene bottles used were acid leached, deionized-water rinsed, and autoclave sterilized.

Major constituent sample M-140 was prepared using water collected from the Arkansas River near Avondale, Colorado. The water was pumped through 0.45, 0.2- and 0.1-μm filters, in series, into a 1300-L polypropylene drum. The water was chlorinated to 5-ppm free chlorine with sodium hypochlorite, continuously circulated, and passed through a 0.1-μm filter and ultraviolet sterilizer for 24 hours prior to bottling. During bottling the sample was pumped through an ultraviolet sterilizer and a 0.1-μm filter. The 500-mL polypropylene bottles used were acid leached, deionized-water rinsed, and autoclave sterilized.

Nutrient sample N-51 was prepared using water collected from the West Chicago Creek near Idaho Springs, Colorado. These samples were prepared the week prior to the mailing for this SRS evaluation. The water was pumped through 0.45, 0.2- and 0.1-μm filters, in series, into a 600-L polypropylene drum and continuously circulated and passed through a 0.1-μm filter for 24 hours. The desired nutrient concentrations were obtained by adding reagent-grade chemicals. The sample was continuously circulated for 24 hours prior to being bottled. The 250-mL polyethylene bottles used were new, amber, acid leached, and deionized-water rinsed.

Nutrient sample N-52 was prepared using deionized water. These samples were prepared the week prior to the mailing for this SRS evaluation. The water was pumped through 0.45, 0.2- and 0.1-μm filters, in series, into a 600-L polypropylene drum and continuously circulated and passed through a 0.1-μm filter for 24 hours. The desired nutrient concentrations were obtained by adding reagent-grade chemicals. The sample was continuously circulated for 24 hours prior to being bottled. The 30-mL glass vials used were new, amber, acid leached, and deionized-water rinsed.

Sample P-27 was prepared in a 400-L polypropylene drum using water collected from the West Chicago Creek near Idaho Springs, Colorado. The water was pumped into the drum through 0.45, 0.2- and 0.1-μm filters in series. Desired phosphate and fluoride concentrations were obtained by adding reagent-grade chemicals. Prior to bottling, the sample was continuously mixed for 24 hours while being circulated through a 0.1-μm filter and an ultraviolet sterlizer. During bottling the sample was pumped through an ultraviolet sterilizer and a 0.1-μm filter. The 500-mL polypropylene bottles used were acid leached, deionized-water rinsed, and autoclave sterilized.

Sample Hg-23 was prepared using water collected from the Fall River near Idaho Springs, Colorado. The sample was prepared in a 190-L polypropylene drum. The river water was pumped into this drum through 0.45, 0.2- and 0.1-μm filters in series. The water was continuously circulated and passed through a 0.1-μm filter and ultraviolet sterilizer for 48 hours. Nitric acid (5-percent, v/v) and dichromate ion (0.05-percent, w/w) were added to stabilize the sample. The desired mercury concentration was obtained by adding a mercury standard solution. Following an additional 24 hours of circulation, the sample was bottled. The 250-mL glass bottles and tetrafluoroethylene fluorocarbon resin caps used were new, acid leached, and deionized-water rinsed.

LABORATORY ANALYSES

The participating laboratories were asked to determine analytes which are summarized in table 2. The number of analytes varied from 28 in T-143 & T-145 (trace constituents) to 1 in Hg-23 (mercury).

Table 2.-*Analytes determined in standard reference samples distributed in September 1996*

[mg/L, milligrams per liter; µg/L, micrograms per liter; µS/cm, microsiemens per centimeter at 25 degrees Celsius]:

Analyte or property		Units	T-143,T-145	M-140	N-51,N 52	P-27	Hg-23
Acidity	Acidity as $CaCO_3$	mg/L				X	
Alk	Alkalinity as $CaCO_3$	mg/L		X			
Ag	Silver	µg/L	X				
Al	Aluminum	µg/L	X				
As	Arsenic	µg/L	X				
B	Boron	µg/L	X				
Ba	Barium	µg/L	X				
Be	Beryllium	µg/L	X				
Ca	Calcium	mg/L	X	X		X	
Cd	Cadmium	µg/L	X				
Cl	Chloride	mg/L		X			
Co	Cobalt	µg/L	X				
Cr	Chromium, total	µg/L	X				
Cu	Copper	µg/L	X				
DSRD	Dissolved solids	mg/L		X			
F	Fluoride	mg/L		X		X	
Fe	Iron	µg/L	X				
Hg	Mercury	µg/L					X
K	Potassium	mg/L	X	X		X	
Li	Lithium	µg/L	X				
Mg	Magnesium	mg/L	X	X		X	
Mn	Manganese	µg/L	X				
Mo	Molybdenum	µg/L	X				
Na	Sodium	mg/L	X	X		X	
NH_3 as N	Ammonia	mg/L			X		
NH_3+Org N as N	Ammonia + Organic N	mg/L			X		
Ni	Nickel	µg/L	X				
NO_3+NO_2 as N	Nitrate + Nitrite	mg/L			X		
Pb	Lead	µg/L	X				
pH		unit		X		X	
PO_4 as P	Orthophosphate	mg/L			X		
total P as P	Phosphorus	mg/L		X	X	X	
Sb	Antimony	µg/L	X				
Se	Selenium	µg/L	X				
SiO_2	Silica	mg/L	X	X			
SO_4	Sulfate	mg/L		X		X	
Sp Cond	Specific conductance	µS/cm		X		X	
Sr	Strontium	µg/L	X	X			
Tl	Thallium	µg/L	X				
U	Uranium	µg/L	X				
V	Vanadium	µg/L	X	X			
Zn	Zinc	µg/L	X				

Laboratories were requested to identify the method used for each analyte according to table 3 analytical method codes.

Table 3. *Analytical methods codes*

Code	Method
0	Other
1	Atomic absorption: direct, air
2	Atomic absorption: direct, nitrous oxide
3	Atomic absorption: graphite furnace
4	Inductively coupled plasma
5	Direct current plasma
6	Inductively coupled plasma/Mass spectrometry
7	Ion chromatography
8	Atomic absorption: cold vapor
9	Atomic fluoresence
10	Atomic absorption: extraction [*specify chelating agents*]
11	Atomic absorption: hydride [*specify reducing agent*]
12	Flame emission
20	Titration: colorimetric [*specify color reagent*]
21	Titration: electrometric [*specify reducing or oxidizing agent/color reagent*]
22	Colorimetric: [*specify reducing or oxidizing agent/color reagent*]
40	Ion selective electrode
41	Electrometric [*pH and Specific Conductance*]
50	Gravimetric: [*specify filtration, evaporation,and so forth*]
51	Turbidimetric

Participating laboratories were also asked to use the references listed below to further define the methods.

1. American Public Health Association and others, 1992, Standard methods for the examination of water and wastewater 18th ed: Washington, D.C., American Public Health Association, 981p.

2. American Society for Testing and Materials, Annual book of ASTM standards: Philadelphia, v. 11.01, and v. 11.02.

3. Kopp, J.F., and McKee, G.F., 1979, Methods for chemical analysis of water and wastes: Cincinnati, U.S. Environmental Protection Agency, EPA 600/4-79-020, rev. 1983, 460 p.

4. Fishman, M.J., and Friedman, L.C., eds., 1989. Methods for determination of inorganic substances in water and fluvial sediments (3d ed.): U.S. Geological Survey Techniques of Water-Resources Investigations, Book 5, Chapter A1, 545 p.

5. Miscellaneous manufacturer's instrument manuals or references.

LABORATORY PERFORMANCE RATINGS

To facilitate interlaboratory performance comparisons, laboratory performance ratings, based on the analyses reported for each SRS, are included in tables 4 through 11 in this report. Averages of the analyte ratings and the number of analyte values reported for each SRS are given for each participating laboratory. Laboratory performance for each analyte is rated on a scale 4 to 0, based on the absolute Z-value, as listed below:

Rating	Absolute Z-value
4 (Excellent)	0.00 to 0.50
3 (Good)	0.51 to 1.00
2 (Satisfactory)	1.01 to 1.50
1 (Questionable)	1.51 to 2.00
0 (Poor).	Greater than 2.00

Overall laboratory performance ratings greater than 2.4 are considered satisfactory. Overall laboratory performance ratings between 2.0 and 2.39 are considered marginal; those less than 2.0 are considered poor.

STATISTICAL PRESENTATION OF DATA

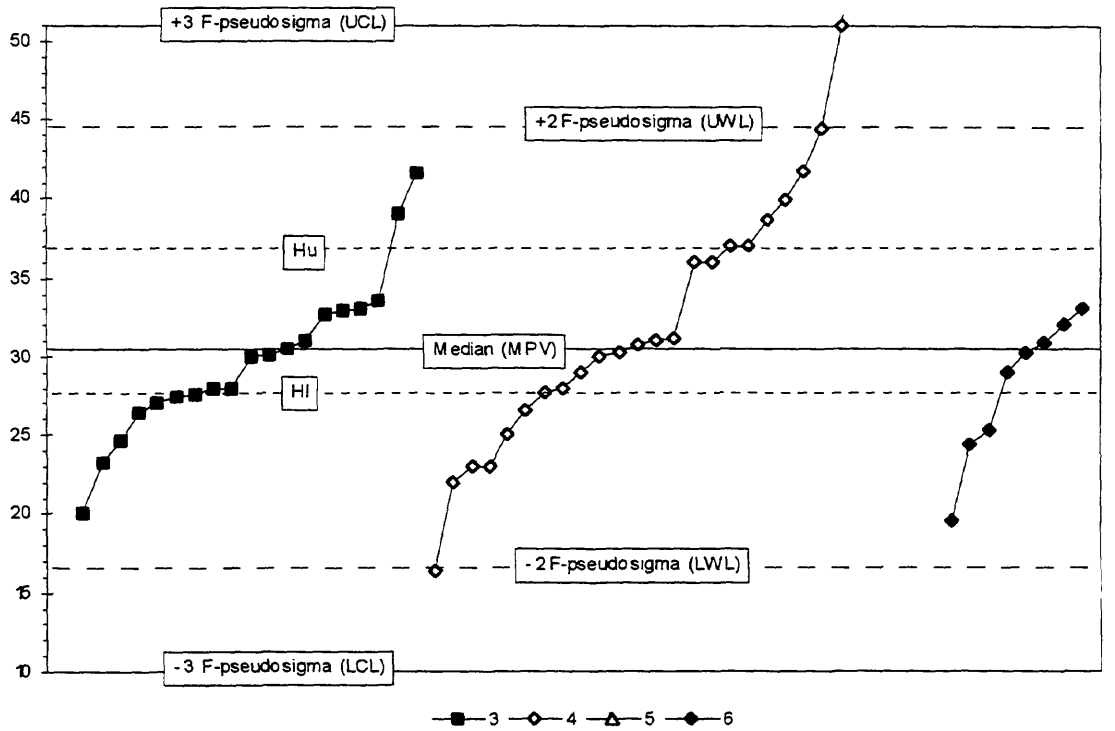
Data in this report have been evaluated using nonparametric statistics as described by Hoaglin and others (1983). This statistical approach is a resistant statistic because the median is not influenced by outliers as is the mean in traditional statistics.

Analytical data for each analyte are presented in tabular and graphical forms in tables 12 through 18. Tabulated data for each analyte include the laboratory code number, reported values, analytical method, most probable value (MPV), number of reported values - excluding less than values (N), data range, Z-value, and the F-pseudosigma. (The Z-value is equivalent to the Z-score of traditional statistics, being the number of deviations the reported value is from the MPV. The F-pseudosigma is equivalent to the standard deviation (σ) of traditional statistics when the data has a Gaussian distribution.) If an analyte has a sufficient number of determinations by a given method, usually 7, the F-pseudosigma for that analytical method is reported in the block of data listed for each analyte.

The median value is considered the MPV. Reported values of "less than" are used to establish the median, but are not considered in determining the data range. The median (midpoint) divides the ordered data into halves and is designated the MPV. The hinges include the middle 50-percent of the data and are the mid-values of the upper and lower halves of the data. (The hinges are similar to quartiles, but are not mathematically equivalent.) The range of data between the upper hinge (Hu) and the lower hinge (Hl), the hinge spread (H-spr), is used to calculate the F-pseudosigma, the laboratory performance rating, the upper warning level (UWL) and lower warning level (LWL), the upper control level (UCL) and the lower control level (LCL). The F-pseudosigma is calculated by comparison of the H-spr value to the Gaussian distribution relation; 67.45 percent of the data "hinges" between plus and minus 1σ, resulting in a H-spr of $2 \times 0.6745 = 1.349\sigma$, This relation allows the calculation of the F-pseudosigma = (H-spr)/1.349. Laboratories reporting "less than" values are not performance rated unless their reported "less than" values are greater than two Z-values from the MPV.

The graphical plot of the reported data is shown in figure 1. The upper and lower boundaries of the graphical plots generally are +3 and -3 F-pseudosigma deviations from the median. (Computer-program

scaling constraints do not permit these boundaries to always be graphed at exactly these values.) The graphical plot is a box plot/control chart with reported values grouped by analytical method in ascending order of value. Lines designate the MPV, Hu, Hl, and the (UWL) and (LWL) at +2 and -2 F-pseudosigma, respectively. "Less than" values are not plotted. The analytical data are presented in ways that allow participants to evaluate data distribution, scatter, outliers, central tendency, bias, skewness, and method relationships.



NOTE: vertical scale is the concentration value of the individual analyte in appropriate units (see table 2.) Methods shown are defined in Tables 3 and 12 through 18.

Figure 1.-Statistical parameters shown on reported-data graphs

REFERENCE

Hoaglin, D.C., Mosteller, F., and Tukey, J.W., eds., 1983, Understanding Robust and Exploratory Data Analysis: John Wiley and Sons, Inc., 447p.

Table 4. *Overall laboratory performance ratings for standard reference water samples distributed in September 1996*

[Lab, laboratory number; OWR, overall weighted rating for all sample types; OLR, overall laboratory rating for reported values of a sample type; V/94, number of reported values of 94 total possible values from all sample types; V/28,V/28, V/16, V/5,V/5,V/11,V/1 are number of reported values possible for T-143,T-145, M-140, N-51,N-52, P-27 and Hg-23 respectively]

Standard reference sample =			T-143		T-145		M-140		N-51		N-52		P-27		Hg-23	
Lab	OWR	V/94	OLR	V/28	OLR	V/28	OLR	V/16	OLR	V/5	OLR	V/5	OLR	V/11	OLR	V/1
1	3.5	90	3.6	28	3.4	28	3.5	16	3.0	3	3.4	5	3.8	9	3	1
2	1.7	18					1.5	10					2.0	8		
3	1.8	86	1.7	26	1.5	25	1.9	16	2.5	4	3.0	5	2.0	9	0	1
4	3.1	29	2.8	10	3.2	17	4.0	2								
5	3.0	49			3.4	23	3.4	13	0.5	2	2.0	3	2.3	8		
7	2.6	59	2.6	23	2.5	19	2.2	6	2.0	1	1.3	4	3.8	5	4	1
10	3.3	37	2.8	6	2.8	8	3.5	13	3.8	4	3.6	5			4	1
11	2.8	72	3.0	25	2.9	26	1.7	12	2.7	3	3.2	5			3	1
13	2.8	61	2.6	23	2.8	22	2.7	12			3.8	4				
15	1.9	70	2.2	21	1.6	20	1.8	12	0.0	2	2.6	5	1.9	9	3	1
16	2.8	80	3.2	27	2.7	27	2.6	15	2.2	5	1.6	5			4	1
18	3.3	66	3.5	22	3.6	20	2.9	14	2.8	4	2.6	5			3	1
19	3.2	33	3.2	13	3.3	6	3.0	10			3.5	4				
21	3.0	6	0.0	1					3.6	5						
22	3.3	3					4.0	1	2.0	1	4.0	1				
23	2.7	53	2.9	15	2.4	14	2.7	14	0.0	1	1.3	3	3.7	6		
24	2.9	47	2.6	20	2.8	14	3.7	13								
25	2.5	55	2.1	15	2.2	11	2.5	12	3.0	4	2.4	5	3.1	8		
26	3.4	73	3.3	24	3.5	24	3.4	13			2.0	2	3.4	9	4	1
28	1.5	46	1.5	16	1.5	16	2.3	7	0.0	2			1.5	4	0	1
30	3.1	49	3.2	21	2.9	21	3.2	5			4.0	2				
32	3.4	67	3.6	26	3.6	26	2.9	14							3	1
33	3.0	42	2.7	10	2.4	10	3.4	11	3.0	1	2.5	2	3.6	8		
34	3.6	7	3.3	3	3.7	3									4	1
35	3.5	2	4.0	1	3.0	1										
36	1.4	59	1.3	18	0.8	20	1.8	11			2.0	5	2.5	4	3	1
38	3.4	27					3.3	10	3.0	5	3.6	5	3.6	7		
39	2.4	27	2.5	11			2.6	7	2.0	3			2.2	5	3	1
40	2.4	48	2.2	19	2.1	16	2.9	13								
42	2.3	72	3.0	25	2.0	26	1.8	12			0.3	3	2.4	5	4	1
43	3.6	25	3.4	7	3.4	7	3.7	11								
46	3.0	70	3.2	22	3.1	21	2.6	12	3.0	2	2.0	5	3.3	7	4	1
48	2.4	74	2.2	22	2.8	21	2.2	12	3.5	4	2.0	5	1.9	9	4	1
50	2.6	25	2.1	11			3.2	13							0	1
51	2.7	15	2.7	3	2.7	3	2.8	8							3	1
53	1.5	6							1.0	3	2.0	3				
55	2.8	32	2.7	10			2.6	12	2.8	4	3.6	5			3	1
56	2.2	18					2.3	9	3.3	4	1.0	5				
57	2.0	18					2.2	13			1.4	5				
58	1.7	34	2.4	9	1.0	8			1.0	4	1.5	4	1.9	9		
59	3.2	46			3.5	21	2.3	12	3.3	3	4.0	5	3.5	4	4	1
64	3.6	23	3.0	3			3.4	7	3.5	2	4.0	3	3.9	8		
68	2.2	71	2.2	25	1.9	24	2.5	13	2.3	4	2.8	4			2	1
69	2.9	48	2.9	18	2.9	18	2.6	10			4.0	1			4	1
70	3.4	55	3.3	19	3.3	16	3.5	13	4.0	1	3.4	5			3	1
73	2.6	22	2.7	11	2.5	11										
75	3.5	51	3.3	21	3.6	19	3.7	10			2.0	1				
76	2.8	26	2.7	10	2.8	9	2.6	5			4.0	1			3	1
80	2.3	30	2.8	8	2.6	7	1.8	12			2.0	3				
81	2.7	76	2.2	21	2.3	22	3.4	14	3.3	3	2.6	5	3.4	10	3	1
83	3.4	51	3.6	15	3.6	16	3.0	9	3.0	1	2.8	4	3.2	6		
85	3.1	52	3.2	17	2.8	13	3.1	12	3.4	5	3.2	5				
86	3.3	55	3.4	21	3.2	21	3.3	9			3.0	3			3	1
87	2.0	58	2.6	18	1.3	18	1.8	12	2.8	4	2.4	5			0	1
88	1.2	6							1.3	3	1.0	3				
89	3.0	76	2.8	22	2.9	21	3.0	13	3.0	4	3.8	5	3.4	10	3	1
90	1.8	6					1.0	4	4.0	1	3.0	1				
91	3.4	10	3.5	2	3.5	2			3.5	2	3.3	4				
92	3.6	14					3.8	6	3.7	3	3.7	3	3.0	2		
96	3.0	42	2.5	13	2.9	13	3.3	7	3.3	3	3.8	5			4	1
97	2.9	72	2.7	25	3.1	24	2.7	14	2.8	4	3.2	5				
102	1.8	63	1.8	22	1.8	23	1.5	10	2.7	3	2.2	5				
104	3.7	12	4.0	1	3.0	1			3.4	5	4.0	5				
105	3.1	81	3.0	25	3.4	25	2.9	14	3.3	3	3.0	5	2.9	8	4	1
107	3.1	44	2.6	11	3.1	11	3.5	11			3.0	4	3.6	7		
108	2.6	5									3.3	4			0	1
109	2.5	43	2.1	11	2.5	11	2.8	11					2.6	10		
110	2.9	11	2.0	4					4.0	1			3.3	6		
113	3.1	71	3.2	21	3.2	21	2.9	14	4.0	1	2.6	5	3.0	8	3	1
114	2.4	31	2.1	12	1.7	7	3.6	8	4.0	1	1.3	3				

Table 4. *Overall laboratory performance ratings for standard reference water samples distributed in September 1996—Continued*

[Lab, laboratory number; OWR, overall weighted rating for all sample types; OLR, overall laboratory rating for reported values of a sample type; V/94, number of reported values of 94 total possible values from all sample types; V/28,V/28, V/16, V/5,V/5,V/11,V/1 are number of reported values possible for T-143,T-145, M-140, N-51,N-52, P-27 and Hg-23 respectively]

Standard reference sample =			T-143		T-145		M-140		N-51		N-52		P-27		Hg-23	
Lab	OWR	V/94	OLR	V/28	OLR	V/28	OLR	V/16	OLR	V/5	OLR	V/5	OLR	V/11	OLR	V/1
118	1.9	35	0.6	10	2.7	10	2.7	6	2.0	4	2.2	5				
119	3.0	85	3.0	26	2.8	26	3.2	14	3.0	4	2.6	5	3.1	9	3	1
121	3.3	36	3.2	16	3.1	14	4.0	6								
127	3.1	46	3.0	24			3.4	14	3.5	2	2.4	5			4	1
128	3.0	68	2.8	25	2.8	25	3.3	12	3.0	2	3.5	4				
129	2.3	41	2.0	9	1.7	9	2.6	14	3.8	4	1.8	5				
132	2.5	56	2.8	16	2.1	16	3.1	9	2.5	4	2.3	4	2.1	7		
133	2.8	45	3.1	14	2.5	14	2.8	6	3.0	5	2.4	5			4	1
134	3.7	89	3.8	27	3.7	27	3.3	15	3.6	5	3.6	5	3.9	9	3	1
138	3.4	86	3.3	26	3.3	26	3.8	15	3.0	4	3.2	5	3.9	9	4	1
140	2.4	54	2.9	13	1.9	13	2.5	11	3.7	3	1.8	5	2.2	9		
141	2.9	72	3.0	22	2.4	19	3.3	12	1.0	3	3.4	5	3.5	10	2	1
142	2.9	83	3.1	28	2.9	28	2.8	16	2.6	5	2.8	5			2	1
143	3.6	18					3.6	5	3.6	5	3.4	5	3.7	3		
144	2.7	9	2.3	4	2.8	4									4	1
145	1.8	78	1.0	23	1.2	23	2.9	15	3.5	2	3.2	5	2.8	9	2	1
146	2.6	55	2.9	18	2.5	16	2.8	11			0.0	4	2.8	5	4	1
149	3.0	22			3.0	11	3.2	6	2.5	4					4	1
151	3.3	54	3.3	19	3.5	19	3.0	13	3.3	3						
155	2.9	23	4.0	1	1.0	1	3.3	8	3.2	5	2.6	5	2.0	3		
158	2.4	56	2.5	16	1.9	17	3.5	8	3.0	3	3.8	4	1.3	8		
180	3.4	64	3.4	20	3.6	18	2.8	12	3.5	2	3.4	5	3.9	7		
183	1.5	13	0.0	1	0.0	1	1.7	3	2.0	2	2.0	3	1.7	3		
190	2.4	70	2.4	18	2.6	18	2.4	14	1.8	5	1.6	5	3.1	10		
191	3.2	70	3.3	25	3.4	25	3.0	11	4.0	1	3.5	2	2.2	6		
193	2.3	35	2.3	15	1.9	12	3.0	3	3.0	1	2.5	2	3.0	1	2	1
196	3.5	48	3.7	21	3.3	21	2.7	3					4.0	3		
197	3.5	6							3.0	2	4.0	2	3.5	2		
203	2.4	36	2.7	9	2.3	9	2.2	6	3.5	4	2.4	5	1.3	3		
204	2.5	48	2.3	14	2.2	13	3.0	8	3.0	3	2.8	4	2.7	6		
212	2.4	80	2.1	27	2.3	28	2.7	16	3.3	3	2.8	5			3	1
213	2.3	34	1.8	12	2.9	12	3.0	4	4.0	1	1.5	4			0	1
215	2.4	79	2.4	24	2.0	24	2.8	14	2.0	2	2.2	5	2.8	9	0	1
217	2.6	69	3.0	28	2.7	27	1.6	14								
218	2.2	18	2.8	5	2.6	5	1.6	8								
219	2.7	50	2.7	21	2.8	19	2.7	9							3	1
220	3.0	40	3.1	10	3.3	10	3.3	7	2.7	3	1.3	3	2.9	7		
221	3.0	62	3.2	18	3.3	18	3.1	8	2.8	5	2.4	5	2.4	7	3	1
224	1.9	71	1.6	19	1.8	19	1.6	13	2.2	5	2.0	5	3.2	10		
234	3.2	78	3.1	27	3.1	27	3.5	16	3.3	3	3.3	4			4	1
235	2.0	60	2.4	23	1.8	22	1.1	9					2.0	5	2	1
236	2.2	65	1.8	25	2.2	25	2.9	15								
240	2.0	64	1.7	18	1.2	18	3.0	12	0.7	3	2.6	5	3.1	8		
241	2.1	80	1.7	23	1.6	23	2.3	14	3.6	5	3.4	5	2.2	9	3	1
243	2.7	10					2.7	3	3.0	2	3.0	3	2.0	2		
244	2.9	7	0.0	1	0.0	1	4.0	3					4.0	2		
245	2.4	11			2.3	10									3	1
246	0.0	5	0.0	5												
247	2.7	15					2.3	6	4.0	1	3.0	2	2.8	6		
248	2.0	4									2.0	4				
249	1.6	38	1.4	12	1.8	12	1.8	9			1.4	5				
253	1.4	19	0.5	4	0.8	4	2.0	5	4.0	1	1.4	5				
255	3.4	71	3.5	23	3.5	23	3.1	14			3.5	4	3.7	6	4	1
256	1.6	29	1.8	13			1.6	9					1.3	7		
257	1.4	62	1.3	19	0.7	19	2.0	13					2.2	10	0	1
258	1.0	20					1.4	11					0.4	9		
259	2.1	42	1.5	13	1.5	13	3.1	15							3	1
261	1.1	24	2.0	4	0.8	4	1.0	9					0.9	7		
262	2.2	20					1.9	11					2.4	9		
265	3.2	77	3.3	28	3.5	28	3.3	13					2.4	7	1	1
268	2.6	24	3.3	4	2.7	3	2.0	9					3.0	8		
270	0.3	12	0.0	3	0.7	3	0.0	3					0.3	3		
271	1.3	24	2.5	4	1.0	4	1.1	8					1.1	8		
272	0.6	26	0.0	4	0.8	4	0.4	9					1.0	9		
273	1.1	57	1.1	18	0.7	18	1.1	12					1.7	9		
274	0.3	34	0.5	11	0.1	11	0.4	12								
276	1.3	12					0.7	6					1.8	6		

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte = Ag (Silver)		Al (Aluminium)		As (Arsenic)		B (Boron)		Ba (Barium)		Be (Beryllium)		Ca (Calcium)	
			MPV = 19.8	µg/L	22.1	µg/L	15.2	µg/L	35.0	µg/L	81.9	µg/L	8.50	µg/L	53.7	mg/L
			F-pseudosigma = 1.4		8.3		1.2		5.2		4.5		0.66		2.2	
Lab	OLR	V/28	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.6	28	19.6	4	19.1	4	16.2	3	34.9	4	82.2	4	8.13	3	52.5	4
3	1.7	26	15.0	0	206.0	0	14.3	3	30.0	3	84.4	3	8.00	3	54.4	4
4	2.8	10			< 2000	NR					87.0	2	9.00	3	53.4	4
7	2.6	23	21.6	2	37.6	1	< 120	NR			83.6	4	8.10	3	55.8	3
10	2.8	6					16.0	3								
11	3.0	25	21.0	3			15.0	4	37.0	4	81.0	4	8.40	4	56.3	2
13	2.6	23	20.1	4	22.2	4	15.5	4			88.1	2	8.74	4	59.0	0
15	2.2	21	17.6	1	< 50	NR	< 100	NR	< 50	NR	77.9	3	8.60	4	50.6	2
16	3.2	27	19.9	4	18.5	4	15.4	4	57.1	0	82.2	4	7.70	2	54.0	4
18	3.5	22	20.9	3	< 100	NR	14.6	4	< 50	NR	79.0	3	8.50	4	53.5	4
19	3.2	13									82.2	4			53.6	4
21	0.0	1														
23	2.9	15	22.2	1	< 50	NR	20.5	0							52.5	3
24	2.6	20							30.7	3	78.8	3			53.4	4
25	2.1	15									84.4	3	9.90	0	54.8	3
26	3.3	24	15.6	0	18.2	4	14.9	4	26.1	1	80.9	4	8.66	4	53.8	4
28	1.5	16			32.3	2			42.2	2	85.1	3			55.4	3
30	3.2	21	19.0	3			14.0	3			80.0	4	7.30	1	54.0	4
32	3.6	26	19.9	4	22.6	4	14.9	4			77.9	3	9.40	2	55.0	3
33	2.7	10			100.0	0					102.0	0			54.2	4
34	3.3	3					15.6	4								
35	4.0	1														
36	1.3	18	13.0	0	< 200	NR	11.0	0			90.0	1	10.00	0	52.0	3
39	2.5	11	20.2	4			18.2	0			79.1	3	9.50	1		
40	2.2	19	19.3	4							78.1	3	7.90	3		
42	3.0	25	19.0	3	23.0	4	15.0	4	36.0	4					56.7	2
43	3.4	7													54.0	4
46	3.2	22	20.0	4			13.5	2	22.7	0	85.0	3	8.76	4	56.0	2
48	2.2	22	20.0	4	18.5	4	14.2	3	< 100	NR	97.8	0	10.00	0	55.9	2
50	2.1	11					14.0	3			90.0	1				
51	2.7	3														
55	2.7	10									78.2	3			54.9	3
58	2.4	9	21.0	3	17.0	3	19.0	0								
64	3.0	3														
68	2.2	25	40.0	0	54.5	0	9.6	0	140.0	0	83.0	4	8.90	3	56.5	2
69	2.9	18	19.8	4	16.5	3	16.2	3					7.32	1	52.4	3
70	3.3	19	18.7	3	< 100	NR	15.3	4	< 50	NR	82.3	4	8.67	4	55.4	3
73	2.7	11	17.0	1			22.0	0								
75	3.3	21	20.1	4	< 30	NR	14.6	4			81.2	4	8.50	4	53.3	4
76	2.7	10	19.4	4	20.2	4	16.5	2					9.68	1		
80	2.8	8					16.3	3								
81	2.2	21			< 6	NR	16.0	3			78.0	3	7.00	0	53.0	4
83	3.6	15			< 25	NR					77.8	3	8.20	4	53.1	4
85	3.2	17	20.0	4	< 100	NR			35.6	4	83.2	4	9.17	2	55.4	3
86	3.4	21					15.3	4	36.9	4	81.5	4	8.25	4	55.5	3
87	2.6	18	26.0	0			14.9	4			90.7	1			51.3	2
89	2.8	22	19.1	4	23.1	4	16.4	2			98.1	0	7.40	1	52.6	4
91	3.5	2														
96	2.5	13	20.4	4			14.6	4			< 100	NR	10.00	0		
97	2.7	25	19.0	3	25.7	4	17.0	1			69.6	0	8.99	3	51.8	3
102	1.8	22	143.0	0	20.0	4	15.8	3			94.0	0	8.00	3	58.0	1
104	4.0	1														
105	3.0	25	17.9	2	21.1	4	15.3	4			76.2	2	7.30	1	52.8	4
107	2.6	11	20.0	4	23.0	4					77.0	2			52.0	3
109	2.1	11					13.1	1							52.6	4
110	2.0	4													55.0	3
113	3.2	21	18.1	2	20.2	4	17.5	1			80.2	4	8.78	4	57.9	1
114	2.1	12	18.0	2											44.0	0
118	0.6	10	6.7	0	< 2000	NR	17.9	0								
119	3.0	26	16.5	0	19.5	4	15.0	4	32.0	3	84.0	4	7.72	2	53.7	4
121	3.2	16									81.0	4	8.00	3	52.2	3
127	3.0	24	18.8	3	< 30	NR	14.4	3	35.7	4	75.8	2	6.53	0		
128	2.8	25	19.5	4	18.7	4	14.8	4	30.0	3	70.1	0	7.54	2	55.7	3
129	2.0	9							95.0	0					58.0	1
132	2.8	16			49.0	0			26.5	1					53.4	4

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)—Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte = Ag (Silver)		Al (Aluminium)		As (Arsenic)		B (Boron)		Ba (Barium)		Be (Beryllium)		Ca (Calcium)	
			MPV = 19.8	µg/L	22.1	µg/L	15.2	µg/L	35.0	µg/L	81.9	µg/L	8.50	µg/L	53.7	mg/L
			F-pseudosigma = 1.4		8.3		1.2		5.2		4.5		0.66		2.2	
Lab	OLR	V/28	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	3.1	14	19.6	4			16.5	2			77.7	3	8.70	4	53.0	4
134	3.8	27	19.0	3	22.9	4	14.0	3	35.8	4	78.9	3	8.51	4	54.5	4
138	3.3	26	20.6	3	20.0	4	14.0	3	28.8	2	80.5	4	8.65	4	54.9	3
140	2.9	13													54.5	4
141	3.0	22	29.0	0	< 100	NR	15.0	4	24.1	0	84.8	3	8.15	3	56.2	2
142	3.1	28	19.3	4	27.3	3	15.2	4	35.7	4	81.8	4	8.87	3	53.3	4
144	2.3	4					14.5	3					< 0.01	0		
145	1.0	23			58.3	0	27.4	0	35.4	4	90.9	1	9.50	1	59.1	0
146	2.9	18	< 10	0	< 200	NR	15.1	4			82.2	4	7.23	1	50.0	1
151	3.3	19	17.9	2	18.1	4	14.1	3			84.2	3	8.16	3		
155	4.0	1														
158	2.5	16							38.0	3	82.0	4	9.30	2	54.7	4
180	3.4	20	19.9	4	< 40.6	NR	< 37.1	NR	32.4	4	79.0	3	8.60	4	54.4	4
183	0.0	1														
190	2.4	18	22.4	1	16.7	3	15.4	4							53.3	4
191	3.3	25			22.0	4	17.0	1	34.0	4	41.0	0	8.89	3	53.1	4
193	2.3	15	19.0	3			13.0	1					8.00	3	51.8	3
196	3.7	21	19.5	4	22.0	4	15.5	4			82.2	4	8.85	3		
203	2.7	9			18.6	4									47.8	0
204	2.3	14			24.6	4	15.1	4			87.6	2			53.2	4
212	2.1	27	14.0	0	21.0	4	16.0	3	< 50	NR	92.0	0	9.80	1	56.5	2
213	1.8	12	19.2	4			13.9	2					8.87	3		
215	2.4	24	28.0	0	137.0	0	15.0	4	106.0	0	82.0	4	8.10	3	55.3	3
217	3.0	28	20.7	3	53.1	0	15.7	4	40.2	2	82.4	4	8.40	4	50.2	1
218	2.8	5													52.0	3
219	2.7	21			29.0	3			35.0	4	80.0	4			50.0	1
220	3.1	10					14.6	4							55.0	3
221	3.2	18	22.1	1	27.8	3	14.7	4							55.1	3
224	1.6	19			0.0	0	15.5	4			64.5	0	12.60	0	51.3	2
234	3.1	27	20.6	3	17.9	3	17.2	1	33.2	4	84.0	4	8.38	4	55.5	3
235	2.4	23	20.0	4	15.0	3			30.0	3	88.0	2	8.00	3	59.0	0
236	1.8	25	14.5	0	29.7	3	< 35	NR	29.2	2	79.6	3	7.90	3	52.5	4
240	1.7	18			181.0	0			28.0	2	72.0	0			47.6	0
241	1.7	23	18.3	2	15.2	3	14.4	3			92.3	0	6.70	0	44.8	0
244	0.0	1														
246	0.0	5													32.7	0
249	1.4	12	16.0	0	45.5	0	19.1	0								
253	0.5	4														
255	3.5	23	19.9	4	15.0	3	14.6	4	36.0	4	80.5	4	8.27	4	52.8	4
256	1.8	13	25.4	0												
257	1.3	19	17.0	1	110.0	0									51.0	2
259	1.5	13	21.0	3							74.0	1				
261	2.0	4													57.1	1
265	3.3	28	20.2	4	26.9	3	16.7	2	34.7	4	77.0	2	8.70	4	54.1	4
268	3.3	4													53.3	4
270	0.0	3													48.3	0
271	2.5	4													53.9	4
272	0.0	4													23.7	0
273	1.1	18	33.0	0	6.0	1			58.0	0					56.9	2
274	0.5	11													0.0	0

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value, <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Cd (Cadmium)		Co (Cobalt)		Cr (Chromium)		Cu (Copper)		Fe (Iron)		K (Potassium)		Li (Lithium)	
MPV =	19.1	µg/L	17.0	µg/L	37.0	µg/L	22.3	µg/L	222	µg/L	2.50	mg/L	18.0	µg/L
F-pseudosigma =	1.5		1.2		2.6		1.9		14		0.21		2.1	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	20.1	3	17.4	4	35.5	3	22.2	4	211	3	2.55	4	16.6	3
3	19.5	4	15.0	1	39.0	3	24.0	3	261	0	5.40	0	26.0	0
4	< 100	NR	< 100	NR	< 100	NR	23.0	4	235	3			< 100	NR
7	21.0	2	19.9	0	38.1	4	23.4	3	225	4	2.84	1	19.4	3
10							22.8	4	246	1				
11	19.0	4	18.0	3	36.0	4	24.0	3	202	2	2.50	4		
13	17.4	2	12.6	0	38.5	3	10.4	0	207	2	2.38	3		
15	15.0	0	< 20	NR	35.1	3	21.3	4	208	2	2.28	2		
16	19.7	4	16.9	4	34.2	2	21.8	4	200	1	2.10	1	14.5	1
18	18.7	4	16.1	3	36.3	4	22.3	4	222	4	2.40	4		
19	19.8	4			37.8	4	16.0	0	227	4	2.50	4		
21									152	0				
23	18.8	4			35.0	3	23.9	3	218	4	2.44	4		
24	17.7	3	12.3	0	31.2	0	16.2	0	222	4	2.34	3	24.4	0
25	21.0	2			37.0	4	21.0	3	202	2	2.64	3	18.0	4
26	20.4	3	16.4	3	37.5	4	23.4	3	222	4	2.49	4	17.7	4
28	13.6	0					7.8	0			2.32	3		
30	19.5	4	17.0	4	37.0	4	22.5	4	470	0			16.0	3
32	18.6	4	17.2	4	37.3	4	23.2	4	365	0	2.50	4	17.2	4
33									250	1	2.54	4		
34														
35									216	4				
36	19.0	4			37.0	4	10.0	0	250	1	1.80	0		
39	18.0	3			28.0	0								
40	18.6	4	15.2	1	32.5	1	21.3	4	21	0	2.32	3	16.7	3
42	18.0	3	20.0	0	38.0	4	22.0	4	224	4	2.50	4	< 6	0
43									230	3	2.30	3		
46	18.6	4	17.4	4	35.8	4	22.4	4	222	4	2.62	3		
48	18.0	3	< 50	NR	41.8	1	19.7	2	160	0	2.51	4		
50			16.0	3	36.0	4	24.0	3	251	0				
51											2.48	4		
55							20.8	3	222	4				
58	20.0	3			37.0	4	< 50	NR	210	3				
64											2.57	4	22.2	1
68	19.5	4	18.0	3	38.5	3	27.0	0	225	4	2.80	2	18.0	4
69	20.0	3			36.0	4	21.4	4	226	4	2.72	2	19.2	3
70	18.2	3	< 50	NR	37.1	4	22.8	4	214	3	2.43	4		
73	19.0	4			33.0	1	22.0	4	221	4				
75	19.2	4	18.9	1	37.1	4	22.2	4	214	3			19.7	3
76					36.3	4							18.3	4
80	13.9	0					22.0	4	223	4				
81	20.0	3			41.0	1	22.0	4	220	4	2.37	3		
83	18.5	4			37.2	4	23.0	4	219	4	2.50	4		
85	19.6	4			38.4	3	25.2	1	224	4	2.82	2	17.5	4
86	17.7	3	16.8	4	29.2	0	23.1	4	213	3	2.58	4		
87	21.0	2			38.2	4	21.0	3	212	3	2.42	4		
89	20.3	3	17.8	3	36.0	4	21.4	4	244	1	2.35	3		
91									212	3				
96	17.5	2			38.9	3	23.4	3	248	1				
97	19.3	4	17.2	4	39.0	3	21.2	3	233	3	2.54	4		
102	21.0	2	20.0	0	41.0	1	22.0	4	244	1	2.50	4		
104														
105	19.7	4	15.5	2	32.9	1	22.4	4	213	3	2.47	4	15.7	2
107							24.8	2	200	1	2.63	3		
109									256	0	2.51	4	19.4	3
110														
113	19.1	4			38.1	4	23.5	3	223	4	2.40	4		
114	19.0	4					21.0	3	204	2	3.00	0		
118	6.4	0			44.8	0	7.9	0						
119	18.4	4	15.9	3	35.0	3	26.0	1	226	4	3.20	0		
121	18.0	3	16.0	3			18.0	0	210	3	2.55	4		
127	17.4	2	17.3	4	39.2	3	22.4	4	220	4	2.68	3	16.5	3
128	19.5	4	17.0	4	32.4	1	19.2	1	205	2	2.11	1		
129							30.0	0	185	0	2.40	4		
132	18.5	4	17.0	4	40.5	2	42.0	0	228	4	2.64	3		

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Cd (Cadmium)		Co (Cobalt)		Cr (Chromium)		Cu (Copper)		Fe (Iron)		K (Potassium)		Li (Lithium)	
MPV =	19.1 µg/L		17.0 µg/L		37.0 µg/L		22.3 µg/L		222 µg/L		2.50 mg/L		18.0 µg/L	
F-pseudosigma =	1.5		1.2		2.6		1.9		14		0.21		2.1	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	19.9	3			34.3	2	19.5	2	223	4				
134	18.8	4	16.7	4	36.2	4	22.4	4	218	4	2.48	4	19.6	3
138	19.0	4	15.1	1	38.7	3	20.1	2	224	4	2.48	4		
140	20.0	3			35.0	3	26.0	1	237	2	2.51	4		
141	19.8	4	16.2	3	36.7	4	23.3	3	200	1	2.55	4		
142	20.0	3	16.3	3	35.4	3	20.0	2	221	4	2.22	2	19.0	4
144							20.2	2						
145	22.3	0	24.2	0	42.1	1	33.2	0	216	4	2.66	3	21.1	2
146	18.6	4	16.2	3	36.4	4	25.2	1	220	4	2.93	1		
151	19.6	4			34.7	3	22.1	4	200	1			16.9	3
155									228	4				
158	8.8	0	17.1	4	25.6	0	25.8	1	222	4				
180	19.6	4	17.3	4	36.8	4	23.3	3	222	4	2.32	3		
183														
190	20.7	2			39.4	3	22.2	4	192	0	2.50	4		
191	18.6	4	17.6	3	38.4	3	22.3	4	221	4	2.47	4	21.0	2
193	20.0	3			36.0	4	26.0	1			2.32	3		
196	19.2	4	17.3	4	34.5	3	23.7	3					17.9	4
203							18.7	1	220	4	2.88	1		
204					47.0	0	11.7	0	208	2	2.40	4		
212	23.0	0	17.0	4	33.0	1	26.0	1	260	0	2.40	4	19.0	4
213	21.4	1	18.7	2	44.5	0	23.2	4	302	0				
215	19.0	4	19.0	1	35.0	3	30.4	0	224	4	3.10	0		
217	17.1	2	16.8	4	37.6	4	23.9	3	230	3	2.92	1	17.5	4
218											2.35	3		
219	18.0	3	16.0	3	34.0	2	19.0	1	208	2	2.50	4	17.0	4
220									222	4	2.60	4		
221	19.6	4	16.0	3	37.7	4	21.3	4	220	4	2.61	3		
224	13.9	0	15.9	3			21.5	4	201	1	2.31	3		
234	19.7	4	17.4	4	41.6	1	23.6	3	224	4	2.45	4	19.8	3
235	20.0	3	19.0	1	40.0	2	20.0	2	235	3	3.60	0		
236	17.0	2	13.9	0	35.1	3	18.7	1	215	3	2.14	1	13.1	0
240			15.0	1			21.0	3	184	0				
241	20.3	3			34.0	2	19.7	2	264	0	2.54	4		
244														
246											< 0.2	0		
249	16.0	0			42.4	1	21.7	4	188	0	2.68	3		
253					40.2	2	30.0	0	330	0				
255	19.6	4	17.2	4	36.0	4	21.7	4	217	4	2.38	3		
256	20.4	3			40.0	2	23.6	3	221	4	3.52	0	< 0.1	0
257	26.0	0	23.0	0	52.0	0	28.0	0	170	0	2.90	1	16.0	3
259	14.0	0	10.0	0	34.0	2	25.0	2			2.70	3	14.0	1
261											2.35	3		
265	20.0	3	17.8	3	37.0	4	23.0	4	230	3	2.46	4	18.4	4
268											2.70	3		
270											3.05	0		
271											2.80	2		
272											3.00	0		
273	16.0	0	8.0	0	38.0	4	22.0	4	230	3	2.97	0	24.0	0
274	7.4	0					4.2	0	232	3	2.78	2		

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)—Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Mg (Magnesium)		Mn (Manganese)		Mo (Molybdenum)		Na (Sodium)		Ni (Nickel)		Pb (Lead)		Sb (Antimony)	
MPV =	10.4 mg/L		18.2 µg/L		36.1 µg/L		34.0 mg/L		71.0 µg/L		83.4 µg/L		16.6 µg/L	
F-pseudosigma =	0.5		1.9		4.3		1.6		5.0		7.1		1.5	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	10.1	3	17.8	4	34.4	4	33.6	4	71.1	4	83.6	4	15.9	4
3	10.3	4	14.7	1	27.0	0	55.0	0	57.0	0	88.6	3	19.0	1
4	10.9	3	19.0	4	< 500	NR	34.9	3	< 200	NR	< 400	NR		
7	10.8	3	18.6	4	29.4	1	35.6	2	79.5	1	86.5	4	31.3	0
10			22.0	1										
11	11.1	2	18.0	4	37.0	4	33.8	4	73.0	4	86.4	4	16.8	4
13	10.7	3	16.7	3			35.0	3	64.4	2	89.5	3	15.4	3
15	9.8	2	28.3	0	38.3	3	31.8	2	75.3	3	95.6	1	17.2	4
16	10.5	4	18.2	4	37.7	4	32.8	3	72.9	4	86.7	4	16.6	4
18	10.2	4	16.5	3	37.0	4	33.2	4	71.1	4	83.5	4	14.6	2
19	10.5	4	18.8	4			34.3	4	84.7	0	93.9	2		
21														
23	10.2	4	17.8	4	< 100	NR	33.4	4	74.0	3	78.3	3		
24	10.3	4	17.4	4	34.0	4	33.3	4	68.0	3	59.8	0		
25	10.0	3	22.0	1			37.8	0						
26	10.9	3	14.7	1	37.0	4	34.6	4	74.6	3	80.7	4	< 20	NR
28	10.8	3	25.1	0	26.8	0	37.3	0	31.8	0	17.9	0		
30	10.0	3	17.0	3	36.0	4			70.0	4	82.0	4	17.0	4
32	10.8	3	17.7	4	36.4	4	33.1	3	71.0	4	81.3	4	16.0	4
33	10.3	4	20.0	3			33.7	4						
34											74.1	2		
35														
36	8.7	0	19.0	4			38.0	0	62.0	1	78.0	3	10.0	0
39									66.0	3	81.0	4	16.7	4
40	10.3	4	14.4	1	37.9	4	32.9	3	51.3	0			5.7	0
42	11.1	2	21.0	2	36.0	4	33.9	4	70.0	4	83.0	4	16.0	4
43	10.5	4	20.0	3			35.0	3						
46	10.5	4	16.2	2	36.0	4	35.6	2	74.2	3	77.0	3	17.2	4
48	10.8	3	20.0	3	37.6	4	35.2	3	76.4	2	84.4	4	12.8	0
50			21.0	2	32.0	3			56.0	0				
51	8.8	0					34.3	4						
55	11.3	1	13.0	0	30.0	2								
58			< 50	NR					110.0	0	92.0	2		
64							33.8	4						
68	11.0	2	18.5	4	37.0	4	34.5	4	74.0	3	183.0	0	9.5	0
69	10.1	3	< 20	NR			32.6	3	58.5	0	80.4	4	15.0	2
70	10.5	4	< 20	NR	< 50	NR	34.2	4	70.9	4	82.2	4	21.2	0
73			18.0	4					73.0	4	87.0	4		
75	10.6	4	18.1	4	31.7	2	34.5	4	71.1	4	97.6	1	22.9	0
76									74.8	3	83.3	4		
80			15.3	2							83.5	4		
81	10.3	4	17.0	3	28.0	1	32.7	3	50.0	0	87.0	4	< 6	0
83	10.1	3	17.4	4			32.9	3	70.6	4	83.6	4		
85	10.8	3					34.5	4	74.4	3	76.5	3		
86	10.4	4	18.0	4	40.5	2	35.0	3	64.5	2	81.0	4		
87	10.2	4	20.5	2	35.1	4	32.8	3	78.0	2	78.0	3		
89	10.4	4	17.6	4			33.6	4	67.5	3	85.2	4	18.7	2
91			17.6	4										
96			22.0	1					67.6	3	92.8	2	15.1	2
97	10.4	4	22.0	1	35.4	4	34.5	4	69.0	4	81.9	4	16.6	4
102	12.5	0	20.0	3			30.9	1	80.0	1	95.0	1	17.0	4
104														
105	10.3	4	17.5	4	40.2	3	30.8	1	66.7	3	87.9	3	17.0	4
107	10.7	3	20.0	3			32.8	3						
109	10.4	4	19.3	3	12.5	0	34.1	4			32.0	0		
110	8.3	0					33.0	3						
113	10.7	3	18.6	4			29.7	0	70.6	4	81.1	4		
114	10.0	3	20.0	3			28.0	0	70.0	4	72.0	1		
118									30.0	0	27.9	0		
119	10.6	4	20.0	3	35.1	4	34.2	4	104.0	0	82.0	4	15.2	3
121	10.0	3	18.0	4			32.0	2	70.0	4				
127	10.4	4	16.7	3	32.1	3	33.2	4	71.0	4	87.2	3	15.6	2
128	10.0	3	15.7	2	31.3	2	32.9	3	64.6	2	82.8	4	16.3	4
129	10.0	3	20.0	3			35.0	3						
132	10.5	4	17.0	3	26.0	0	34.4	4	75.0	3	80.5	4		

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Mg (Magnesium)		Mn (Manganese)		Mo (Molybdenum)		Na (Sodium)		Ni (Nickel)		Pb (Lead)		Sb (Antimony)	
MPV =	10.4	mg/L	18.2	µg/L	36.1	µg/L	34.0	mg/L	71.0	µg/L	83.4	µg/L	16.6	µg/L
F-pseudosigma =	0.5		1.9		4.3		1.6		5.0		7.1		1.5	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	9.9	3							74.3	3	92.0	2		
134	10.2	4	18.1	4	37.0	4	33.7	4	69.4	4	83.4	4	16.4	4
138	10.7	3	18.0	4	35.9	4	34.1	4	70.0	4	77.1	3	16.8	4
140	11.0	2	17.0	3			42.5	0	71.0	4	86.0	4		
141	10.9	3	18.2	4	37.3	4	35.4	3	69.0	4	101.0	0	16.4	4
142	10.0	3	19.0	4	38.3	3	34.2	4	68.3	3	87.0	4	19.9	0
144														
145	11.4	1	20.7	2	30.6	2	37.1	1	86.3	0	498.9	0		
146	10.1	3	17.8	4	36.2	4	35.5	3	72.4	4	84.2	4	< 20	NR
151			16.5	3	38.6	3			69.0	4	82.8	4	17.2	4
155														
158	11.1	2	19.5	3					76.0	3	30.1	0		
180	10.6	4	18.1	4	41.0	2	34.0	4	76.0	3	92.1	2	31.6	0
183			22.7	0										
190	10.4	4	19.3	3			34.0	4	59.4	0	60.8	0		
191	10.7	3	19.0	4	39.7	3	33.2	4	72.2	4	82.0	4		
193	9.8	2					31.6	2	66.0	3	88.0	3	15.0	2
196			19.0	4	36.4	4			70.5	4	85.4	4	15.8	3
203	10.6	4	20.0	3			32.5	3						
204	7.6	0	14.0	0			31.2	1			82.2	4		
212	11.2	1	19.0	4	38.0	4	36.7	1	72.0	4	120.0	0	16.0	4
213									91.2	0	90.0	3		
215	10.6	4	18.1	4	37.0	4	34.5	4	71.0	4	82.0	4	8.0	0
217	10.0	3	18.2	4	37.8	4	33.9	4	74.1	3	90.1	3	17.9	3
218	10.4	4					31.0	1						
219	10.0	3	17.0	3	27.0	0	33.0	3	66.0	3	70.0	1		
220	10.0	3	19.2	3			31.0	1			78.4	3		
221	9.7	2	19.7	3	35.4	4	34.1	4	71.2	4	84.5	4		
224	10.0	3	19.0	4	48.0	0	31.2	1	59.9	0	140.3	0		
234	9.9	3	18.4	4	34.3	4	33.1	3	74.6	3	89.3	3	17.0	4
235	10.5	4	18.0	4	39.0	3	39.0	0	74.0	3	87.0	4	< 50	NR
236	10.7	4	16.4	3	19.7	0	32.8	3	65.5	2	62.4	0	49.7	0
240	10.2	4	18.0	4	11.0	0			75.0	3	131.0	0	18.0	3
241	9.4	1	17.0	3	52.0	0	31.0	1	67.6	3	99.2	0	15.0	2
244			31.5	0										
246	8.7	0					41.0	0						
249							35.6	2	69.2	4	79.2	3		
253														
255	10.3	4	18.0	4	36.3	4	32.8	3	70.9	4	83.4	4	20.4	0
256			19.0	4			31.2	1	76.6	2	155.0	0		
257	8.7	0	18.0	4	44.0	1	33.0	3	68.0	3	91.0	2	2.0	0
259							34.0	4	125.0	0	54.0	0		
261	10.5	4					40.2	0						
265	10.1	3	19.0	4	35.0	4	33.0	3	73.0	4	79.6	3	16.8	4
268	10.2	4					35.8	2						
270							42.2	0						
271	25.4	0					34.0	4						
272	9.0	0					50.0	0						
273	11.2	1	21.0	2			36.2	2	82.0	0	65.0	0		
274	17.7	0	7.4	0			18.4	0			1.2	0		

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Se (Selenium)		SiO2 (Silica)		Sr (Strontium)		Tl (Thallium)		U (Uranium)		V (Vanadium)		Zn (Zinc)	
MPV =	9.63	µg/L	23.4	mg/L	306	µg/L	10.0	µg/L	12.0	µg/L	30.0	µg/L	20.0	µg/L
F-pseudosigma =	1.64		1.7		15		1.0		0.9		3.0		2.2	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	8.80	4	22.1	3	301	4	10.4	4	10.8	2	31.1	4	18.7	3
3	< 5	0	24.4	3	309	4	< 10	NR			23.0	0	17.1	2
4			27.0	0	323	2					< 50	NR	< 200	NR
7	< 50	NR	23.8	4	303	4			< 120	NR	32.4	3	19.1	4
10	9.40	4											21.0	4
11	13.60	0	18.1	0	299	4	14.0	0			30.0	4	16.0	1
13	7.20	2	22.9	4			9.8	4			39.7	0	20.1	4
15	10.40	4	25.6	2			8.0	1			20.8	0	18.2	3
16	11.20	3			282	1	10.2	4	12.0	4	30.3	4	19.5	4
18	8.20	3			290	2	9.7	4			28.0	3	< 100	NR
19													21.1	4
21														
23	8.92	4					< 5	0					< 20	NR
24			24.1	4	306	4					24.0	1	17.9	3
25			25.5	2	324	2					23.0	0		
26	8.57	3	23.3	4							30.0	4	20.1	4
28					319	3					30.2	4	16.5	1
30	12.00	2							11.0	2	30.0	4	20.0	4
32	9.67	4	24.0	4	311	4	9.6	4			30.5	4	19.9	4
33			22.2	3	308	4								
34	9.25	4												
35														
36	5.00	0											22.0	3
39	10.60	3					10.8	3						
40					249	0					27.7	3	13.8	0
42	12.00	2	24.8	3	299	4	< 5	0			32.0	3	19.0	4
43			23.0	4										
46	9.30	4					10.9	3			32.2	3		
48	7.80	2					7.9	1			27.7	3	< 5	0
50	9.10	4									22.0	0		
51														
55			23.5	4	306	4					28.3	3		
58	10.00	4											< 50	NR
64														
68	6.25	0			310	4					26.0	2	21.5	3
69	9.55	4					11.0	3					< 50	NR
70	< 10	NR	22.4	3	309	4	7.8	0			< 50	NR	20.1	4
73	26.00	0											20.0	4
75	9.67	4							< 100	NR	29.6	4	19.2	4
76			26.1	1			7.4	0						
80	9.30	4											15.5	1
81			23.6	4	262	0	53.0	0			19.0	0	17.0	2
83			21.3	2									18.3	3
85					318	3					30.4	4		
86	10.90	3			301	4					31.3	4	20.5	4
87	19.40	0	23.4	4									24.0	1
89	8.00	3	21.2	2			< 10	NR			32.3	3	40.7	0
91														
96	9.70	4											22.0	3
97	5.75	0	23.0	4	255	0	10.9	3			34.9	1	14.6	0
102	19.00	0			356	0					33.0	2	20.0	4
104			22.7	4										
105	10.30	4	21.2	2	285	2					29.4	4	19.3	4
107			26.3	1										
109					265	0								
110			25.4	2										
113	8.65	3	22.8	4	295	3	9.6	4					19.4	4
114													18.0	3
118	8.10	3	25.5	2									24.0	1
119	10.40	4	23.0	4			10.1	4	12.0	4	28.0	3	44.0	0
121			22.7	4	300	4					32.0	3	20.0	4
127	10.30	4	21.4	2	285	2					31.1	4	16.3	1
128	10.50	3	24.0	4			10.0	4			27.7	3	20.2	4
129			23.7	4										
132													20.0	4

Table 5. *Laboratory performance ratings for standard reference water sample T-143 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Se (Selenium)		SiO2 (Silica)		Sr (Strontium)		Tl (Thallium)		U (Uranium)		V (Vanadium)		Zn (Zinc)	
MPV =	9.63	µg/L	23.4	mg/L	306	µg/L	10.0	µg/L	12.0	µg/L	30.0	µg/L	20.0	µg/L
F-pseudosigma =	1.64		1.7		15		1.0		0.9		3.0		2.2	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	8.20	3											20.5	4
134	10.65	3	22.9	4	295	3	10.2	4			29.7	4	20.4	4
138	9.58	4	21.5	2	297	3	9.4	3			29.5	4	17.3	2
140			22.8	4									20.0	4
141	10.30	4					< 50	NR			30.8	4	19.7	4
142	10.50	3	26.7	1	315	3	10.4	4	12.2	4	29.6	4	15.7	1
144	9.30	4												
145			26.0	1	333	1					37.3	0	25.1	0
146	< 10	NR					< 10	NR			30.0	4	< 20	NR
151	10.80	3			316	3	10.3	4					20.2	4
155														
158			24.6	3							30.6	4	18.6	3
180	< 50.1	NR					< 32.1	NR			30.7	4	20.4	4
183														
190	31.50	0	23.5	4	613	0							21.3	3
191	11.40	2	23.3	4	305	4	9.9	4			32.2	3	18.8	3
193	7.00	1					7.0	0					< 50	NR
196	10.80	3			312	4	10.1	4	11.5	3	29.9	4	19.8	4
203			23.7	4										
204			23.4	4									18.0	3
212	12.00	2	24.3	3	330	1	10.0	4	14.0	0	32.0	3	22.0	3
213							9.0	3					29.3	0
215	9.10	4	45.9	0			< 7	0					20.0	4
217	9.77	4	20.7	1	295	3	10.9	3	13.0	2	28.6	4	17.9	3
218					318	3								
219			23.0	4	310	4					28.0	3	17.0	2
220	7.80	2											20.0	4
221	9.16	4											34.8	0
224	6.10	0									34.5	1	19.0	4
234	9.56	4	22.5	4	310	4	7.6	0			27.6	3	15.4	0
235			25.9	2	311	4	5.0	0			36.0	1	19.5	4
236	174.10	0	14.3	0	297	3					31.1	4	15.5	1
240	15.00	0	21.0	2	294	3	9.0	3					23.0	2
241	6.44	1	24.7	3			10.5	4			34.7	1	16.0	1
244														
246			5.8	0										
249													184.0	0
253													50.0	0
255	5.33	0									29.7	4	18.8	3
256			20.6	1									20.4	4
257											93.0	0	21.0	4
259	8.60	3											50.0	0
261														
265	11.85	2	21.2	2	300	4	8.9	2	11.0	2	30.0	4	22.0	3
268														
270														
271														
272														
273					336	1							15.0	0
274			31.3	0									5.8	0

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte = Ag (Silver)		Al (Aluminium)		As (Arsenic)		B (Boron)		Ba (Barium)		Be (Beryllium)		Ca (Calcium)	
			MPV = 7.55	µg/L	67.6	µg/L	9.88	µg/L	45.6	µg/L	37.1	µg/L	9.04	µg/L	30.7	mg/L
			F-pseudosigma = 0.92		11.0		1.04		5.8		1.9		0.70		1.3	
Lab	OLR	V/28	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.4	28	7.55	4	60.1	3	9.90	4	45.7	4	36.8	4	8.94	4	29.0	2
3	1.5	25	6.00	1	98.0	0	10.00	4	40.0	3	36.5	4	9.20	4	31.1	4
4	3.2	17	8.00	4	68.0	4	13.00	0			37.0	4			30.5	4
5	3.4	23	6.55	2	74.2	3	9.86	4	49.2	3	36.0	3	8.84	4	28.3	1
7	2.5	19	9.90	0	83.8	2	< 120	NR			38.5	3	8.70	4	31.8	3
10	2.8	8					10.00	4								
11	2.9	26	8.00	4	60.0	3	10.00	4	50.0	3	36.0	3	9.00	4	31.7	3
13	2.8	22	8.13	3	79.8	2	10.50	3			39.8	2	9.17	4	33.2	1
15	1.6	20	< 10	NR	82.1	2	< 100	NR	< 50	NR	34.2	1	8.70	4	28.6	1
16	2.7	27	7.60	4	59.1	3	10.40	4	77.0	0	38.0	4	8.40	3	30.1	4
18	3.6	20	8.40	3	< 100	NR	9.20	3	< 50	NR	36.2	4	9.20	4	30.6	4
19	3.3	6													31.0	4
23	2.4	14	7.79	4	< 50	NR	12.80	0							12.4	0
24	2.8	14							36.9	2	34.8	2			30.0	3
25	2.2	11									38.3	3	8.10	2	31.1	4
26	3.5	24	7.76	4	65.8	4	9.62	4	37.6	2	37.6	4	9.17	4	30.6	4
28	1.5	16			37.5	0			45.5	4	38.6	3			31.5	3
30	2.9	21	7.60	4			9.00	3			36.0	3	7.60	0	32.0	2
32	3.6	26	7.40	4	69.1	4	9.77	4			35.4	3	9.65	3	31.5	3
33	2.4	10			100.0	0					41.0	0			30.3	4
34	3.7	3					9.60	4								
35	3.0	1														
36	0.8	20	15.00	0	300.0	0	8.00	1			< 0.05	0	11.00	0	30.0	3
40	2.1	16			58.8	3					35.3	3	2.30	0		
42	2.0	26	7.50	4	67.0	4	11.00	2	47.0	4			13.00	0	12.1	0
43	3.4	7													31.0	4
46	3.1	21	7.10	4	86.8	1	9.10	3	22.4	0	37.6	4	8.96	4	32.0	2
48	2.8	21	7.60	4	49.2	1	9.80	4	< 100	NR	43.2	0	10.00	2	31.6	3
51	2.7	3														
58	1.0	8	9.00	1	117.0	0	12.00	1								
59	3.5	21	7.60	4	74.4	3	10.00	4			37.0	4	9.80	2	30.0	3
68	1.9	24	10.10	0	98.5	0	6.90	0	125.0	0	38.5	3	9.30	4		
69	2.9	18	6.97	3	50.0	1	10.20	4					7.94	1	30.2	4
70	3.3	16	< 10	NR	< 100	NR	< 10	NR	< 50	NR	< 50	NR	9.17	4	31.6	3
73	2.5	11			62.0	3	13.00	0								
75	3.6	19	6.12	1	67.2	4	9.44	4			37.2	4	9.10	4	30.0	3
76	2.8	9			66.7	4	10.60	3					10.20	1		
80	2.6	7					10.60	3								
81	2.3	22			51.0	1	10.00	4			35.0	2	8.00	2	30.1	4
83	3.6	16			57.0	3					35.5	3	8.80	4	30.0	3
85	2.8	13	8.20	3	< 100	NR			42.4	3	37.7	4	9.64	3	31.0	4
86	3.2	21					9.95	4	45.7	4	36.8	4	8.79	4	31.8	3
87	1.3	18	13.00	0			9.40	4			40.0	1			29.2	2
89	2.9	21	7.60	4	64.6	4	9.00	3			< 50	NR	8.20	2	29.5	3
91	3.5	2														
96	2.9	13	8.20	3			9.70	4			< 100	NR	10.00	2		
97	3.1	24	6.64	3	72.7	4	10.40	4			29.2	0	9.43	3	29.1	2
102	1.8	23	52.00	0	69.0	4	6.10	0			42.0	0	8.80	4	33.0	1
104	3.0	1														
105	3.4	25	6.78	3	66.0	4	10.30	4			34.8	2	10.00	2	30.3	4
107	3.1	11	7.40	4	65.0	4					39.0	2			30.9	4
109	2.5	11					8.50	2							28.7	1
113	3.2	21	6.80	3	68.1	4	11.50	1			37.0	4	10.10	1	33.2	1
114	1.7	7	< 10	NR									< 10	NR	24.0	0
118	2.7	10	6.90	3	< 2000	NR	10.60	3								
119	2.8	26	6.90	3	62.0	3	9.00	3	42.0	3	39.0	2	8.92	4	31.7	3
121	3.1	14									36.0	3	10.00	2	30.0	3
128	2.8	25	7.50	4	71.0	4	9.95	4	40.9	3	31.9	0	8.40	3	32.0	2
129	1.7	9							125.0	0					34.0	0
132	2.1	16			73.0	4			28.0	0					30.8	4

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte =	Ag (Silver)		Al (Aluminium)		As (Arsenic)		B (Boron)		Ba (Barium)		Be (Beryllium)		Ca (Calcium)	
			MPV =	7.55	µg/L	67.6	µg/L	9.88	µg/L	45.6	µg/L	37.1	µg/L	9.04	µg/L	30.7	mg/L
			F-pseudosigma =	0.92		11.0		1.04		5.8		1.9		0.70		1.3	
Lab	OLR	V/28		RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	2.5	14		6.10	1			7.30	0			36.4	4	9.40	3	30.4	4
134	3.7	27		6.89	3	71.7	4	9.07	3	47.1	4	35.6	3	9.13	4	31.5	3
138	3.3	26		7.07	3	64.6	4	9.51	4	41.8	3	36.4	4	9.22	4	31.5	3
140	1.9	13														35.0	0
141	2.4	19		12.30	0	< 100	NR	8.65	2	38.7	2	38.2	3	9.07	4	32.0	2
142	2.9	28		6.60	2	66.3	4	9.61	4	46.6	4	37.2	4	9.35	4	30.1	4
144	2.8	4						9.60	4					< 0.01	0		
145	1.2	23				107.2	0	19.30	0	44.7	4	40.8	1	9.90	2	32.8	1
146	2.5	16		< 10	NR	< 200	NR	13.50	0			38.5	3	8.19	2	29.6	3
149	3.0	11		7.60	4	60.0	3					40.0	1				
151	3.5	19		7.64	4	64.1	4	9.29	3			37.8	4	8.97	4		
155	1.0	1															
158	1.9	17				71.5	4			47.8	4	38.3	3	9.90	2	32.6	1
180	3.6	18		6.30	2	< 40.6	NR			48.8	3	36.2	4	8.70	4	31.0	4
183	0.0	1															
190	2.6	18		8.78	2	61.7	3	11.20	2							30.3	4
191	3.4	25				68.0	4	11.20	2	44.0	4	38.0	4	10.00	2	30.6	4
193	1.9	12		6.00	1			8.00	1					9.00	4	29.4	2
196	3.3	21		7.71	4	67.2	4	9.85	4			36.3	4	8.83	4		
203	2.3	9				60.9	3									29.1	2
204	2.2	13				79.4	2	11.40	2			39.4	2			31.7	3
212	2.3	28		6.80	3	74.0	3	9.60	4	52.0	2	42.0	0	11.00	0	31.9	3
213	2.9	12		7.45	4			8.60	2					9.12	4		
215	2.0	24		10.00	0	127.0	0	11.00	2	121.0	0	39.0	2	8.70	4	31.7	3
217	2.7	27		6.83	3	81.9	2	9.14	3	45.9	4	37.1	4	8.60	3	26.9	0
218	2.6	5														31.0	4
219	2.8	19				68.0	4			47.0	4	34.0	1			30.0	3
220	3.3	10						9.50	4							31.0	4
221	3.3	18		7.36	4	68.5	4	9.31	3							32.4	2
224	1.8	19				54.9	2	8.10	1			33.2	0	13.20	0	28.5	1
234	3.1	27		7.34	4	67.0	4	10.90	3	44.1	4	38.3	3	8.94	4	31.0	4
235	1.8	22		7.00	3	52.0	2			40.0	3	40.0	1	9.00	4	33.5	0
236	2.2	25		4.70	0	71.2	4	42.70	0	37.4	2	36.3	4	8.50	3	30.2	4
240	1.2	18				115.0	0			34.0	1	31.0	0			28.4	1
241	1.6	23		6.90	3	54.4	2	7.40	0			44.5	0	7.20	0	28.4	1
244	0.0	1															
245	2.3	10		5.82	1									8.93	4		
249	1.8	12		5.26	0	77.8	3	11.00	2								
253	0.8	4															
255	3.5	23		7.93	4	58.1	3	10.00	4	46.8	4	36.8	4	8.83	4	30.2	4
257	0.7	19		13.00	0	50.0	1									34.0	0
259	1.5	13		10.50	0							35.0	2				
261	0.8	4														30.1	3
265	3.5	28		7.65	4	66.9	4	11.00	2	44.0	4	38.0	4	9.15	4	30.7	4
268	2.7	3														29.5	
270	0.7	3														32.5	2
271	1.0	4														32.6	1
272	0.8	4														14.0	0
273	0.7	18		18.00	0	157.0	0			150.0	0					32.4	2
274	0.1	11														0.0	0

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Cd (Cadmium)		Co (Cobalt)		Cr (Chromium)		Cu (Copper)		Fe (Iron)		K (Potassium)		Li (Lithium)	
MPV =	9.33	µg/L	10.0	µg/L	15.3	µg/L	11.0	µg/L	101	µg/L	2.13	mg/L	27.3	µg/L
F-pseudosigma =	0.82		0.9		1.4		1.4		8		0.16		2.5	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	9.79	3	10.0	4	15.5	4	11.1	4	96	3	2.17	4	25.5	3
3	10.10	3	6.0	0	17.0	2	8.0	0	120	0	4.50	0	33.0	0
4	9.50	4	10.6	3	15.0	4			102	4			36.0	0
5	8.90	3	10.1	4	15.5	4	11.8	3	100	4	2.12	4	26.2	4
7	13.00	0	11.4	1	18.0	1	13.9	1	104	4	2.46	1	27.5	4
10					16.0	4	10.8	4	105	3				
11	9.00	4	11.0	2	15.0	4	12.0	3	90	2	2.12	4	44.3	0
13	9.44	4	7.6	0	16.1	3	11.3	4	117	1	2.08	4		
15	17.20	0	< 20	NR	16.1	3	11.1	4	92	2	38.30	0		
16	9.10	4	10.4	4	13.8	2	11.4	4	77	0	1.60	0	22.8	1
18	9.20	4	9.9	4	14.3	3	12.3	3	100	4	2.10	4		
19							8.0	0			2.10	4		
23	9.16	4			12.3	0	11.5	4	< 500	NR	2.09	4		
24	7.60	0	4.8	0					98	4	1.94	2	27.6	4
25									83	0	2.31	2	29.0	3
26	10.40	2	10.4	4	15.4	4	11.7	4	102	4	2.13	4	25.5	3
28	8.10	1					4.6	0			2.32	2		
30	9.60	4	10.2	4	14.3	3	11.0	4	230	0			24.0	2
32	9.18	4	10.2	4	14.5	3	11.3	4	183	0	2.10	4	27.3	4
33									120	0	2.18	4		
34														
35									97	3				
36	8.60	3			10.0	0	19.0	0	140	0	1.60	0		
40	8.50	2	7.1	0	9.5	0	10.0	3	95	3	1.99	3	25.3	3
42	9.00	4	14.0	0	18.0	1	13.0	2	107	3	2.30	2	6.0	0
43									110	2	2.20	4		
46	8.84	3	10.7	3	16.4	3	11.3	4	101	4	2.26	3		
48	9.20	4	< 50	NR	17.4	2	11.3	4	30	0	2.13	4		
51											2.16	4		
58	37.00	0			17.0	2	< 50	NR	100	4				
59	9.00	4			16.0	4	10.8	4	100	4	1.70	0		
68	10.00	3	11.5	1	16.5	3	15.0	0	105	3	2.10	4	2.8	0
69	10.40	2			14.2	3	10.2	3	108	3	2.34	2	28.7	3
70	8.60	3	< 50	NR	15.2	4	11.8	3	102	4	1.96	2		
73	9.00	4			16.0	4	11.0	4	101	4				
75	8.99	4	10.8	3	16.1	3	10.2	3	98	4			27.3	4
76					14.8	4							27.6	4
80	< 10	NR					10.7	4	99	4				
81	10.00	3	8.0	0	16.0	4	11.0	4	85	1	2.03	3		
83	8.80	3			15.2	4	11.8	3	100	4	2.20	4		
85	7.60	0			< 10	NR	12.6	2	103	4	2.50	0	26.2	4
86	9.20	4	10.5	3	14.7	4	10.9	4	103	4	2.21	4		
87	12.00	0			14.4	3	8.3	1	128	0	5.15	0		
89	9.46	4	10.0	4	17.5	1	10.2	3	126	0	2.01	3		
91									96	3				
96	8.90	3			16.2	3	12.9	2	112	2				
97	9.20	4	9.7	4	16.2	3	10.2	3	102	4	2.14	4		
102	9.90	3	11.0	2	16.0	4	11.0	4	111	2	2.00	3		
104														
105	9.86	3	9.6	4	15.4	4	11.4	4	103	4	2.08	4	23.2	1
107							10.2	3	90	2	2.28	3		
109									97	4	2.20	4	26.6	4
113	9.71	4			15.6	4	12.2	3	102	4	2.12	4		
114	< 10	NR			20.0	0	< 10	NR	100	4	2.00	3		
118	10.60	1			16.5	3	10.9	4						
119	9.20	4	9.4	3	13.0	1	10.0	3	104	4	1.60	0		
121	8.00	1	10.0	4			11.0	4	101	4	2.15	4		
128	10.10	3	11.0	2	13.0	1	9.3	2	91	2	1.99	3		
129							30.0	0	78	0	2.10	4		
132	8.50	2	9.5	3	15.5	4	29.0	0	129	0	2.29	3		

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Cd (Cadmium)		Co (Cobalt)		Cr (Chromium)		Cu (Copper)		Fe (Iron)		K (Potassium)		Li (Lithium)	
MPV =	9.33	µg/L	10.0	µg/L	15.3	µg/L	11.0	µg/L	101	µg/L	2.13	mg/L	27.3	µg/L
F-pseudosigma =	0.82		0.9		1.4		1.4		8		0.16		2.5	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	10.60	1			15.3	4	8.9	1	104	4				
134	9.26	4	10.2	4	14.6	4	11.0	4	100	4	2.13	4	27.7	4
138	9.08	4	8.6	1	10.9	0	9.8	3	104	4	2.10	4		
140	9.00	4			16.0	4	14.0	0	107	3	2.25	3		
141	8.98	4	< 10	NR	12.0	0	12.7	2	85	1	2.17	4		
142	9.82	3	9.7	4	13.9	3	10.1	3	106	3	1.86	1	28.0	4
144							10.3	3						
145	11.00	1	14.6	0	19.3	0	19.3	0	102	4	2.22	3	31.3	1
146	9.03	4	9.2	3	14.5	3	13.7	1	99	4	2.61	0		
149	10.00	3			17.0	2			100	4				
151	9.39	4			14.5	3	11.8	3	90	2			25.5	3
155									113	1				
158	4.60	0	10.6	3	13.1	1	13.8	1	109	2				
180	10.00	3	9.7	4	14.3	3	10.6	4	99	4	2.00	3		
183														
190	10.30	2			19.1	0	11.0	4	88	1	2.13	4		
191	9.31	4	10.8	3	15.4	4	11.0	4	98	4	2.11	4	31.1	1
193	11.00	1			15.0	4	< 25	NR			2.04	3		
196	9.39	4	9.4	3	13.6	2	11.2	4					26.6	4
203							7.7	0	96	3	2.53	0		
204					19.8	0	5.4	0	93	2	2.12	4		
212	11.00	1	10.0	4	12.0	0	14.0	0	110	2	2.00	3	29.0	3
213	8.19	2	10.6	3	15.4	4	11.2	4	105	3				
215	10.00	3	9.0	2	14.0	3	15.0	0	106	3	2.20	4		
217	7.10	0	9.5	3	12.7	1	11.0	4	106	3	1.84	1	26.3	4
218											2.07	4		
219	8.80	3	9.3	3	13.0	1	9.4	2	92	2	2.20	4	25.0	3
220									98	4	2.20	4		
221	9.63	4	10.0	4	15.0	4	10.6	4	117	1	2.22	3		
224	5.90	0	10.1	4			13.2	1	95	3	1.95	2		
234	9.60	4	10.6	3	16.9	2	12.4	3	102	4	2.12	4	30.4	2
235	9.80	3	13.0	0	15.0	4	8.5	1	110	2	3.50	0		
236	7.40	0	5.6	0	14.7	4	8.8	1	98	4	2.13	4	20.6	0
240	12.00	0	5.8	0			12.0	3	83	0				
241	9.80	3			14.4	3	14.9	0	121	0	2.06	4		
244														
245	9.35	4			13.0	1	11.2	4						
249	8.00	1			17.6	1	10.4	4	41	0	2.36	2		
253					20.1	0	10.0	3	180	0				
255	9.87	3	10.5	3	14.6	3	10.3	4	99	4	2.08	4		
257	16.00	0	19.0	0	30.0	0	13.0	2	81	0	2.60	0	28.0	4
259	6.00	0	9.0	2	14.0	3	11.0	4			2.30	2	21.0	0
261											1.76	0		
265	10.00	3	9.5	3	16.0	4	11.8	3	97	3	2.09	4	27.4	4
268											2.55	0		
270											2.66	0		
271											2.80	0		
272											2.00	3		
273	17.20	0	11.0	2	17.0	2	5.0	0	96	3	2.98	0	46.0	0
274	6.90	0					2.6	0	147	0	2.68	0		

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Mg (Magnesium)		Mn (Manganese)		Mo (Molybdenum)		Na (Sodium)		Ni (Nickel)		Pb (Lead)		Sb (Antimony)	
MPV =	8.68	mg/L	20.9	µg/L	9.23	µg/L	41.2	mg/L	11.0	µg/L	12.7	µg/L	8.80	µg/L
:-pseudosigma =	0.45		1.5		1.29		1.9		1.3		1.2		0.96	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	8.17	2	20.3	4	8.67	4	40.2	3	10.9	4	12.6	4	8.65	4
3	8.52	4	17.0	0	6.00	0	43.6	2	7.8	0	6.0	0	12.00	0
4	8.70	4	21.0	4					10.0	3	13.0	4		
5	8.10	2	21.0	4	< 10	NR	41.4	4	< 10	NR	13.5	3	< 20	NR
7	9.06	3	21.4	4	< 15	NR	43.3	2	< 20	NR	< 55	NR	< 30	NR
10			25.0	0							12.7	4		
11	9.20	2	21.0	4	10.00	3	40.7	4	10.0	3	13.0	4	9.70	3
13	9.07	3	19.5	3			43.7	2	10.5	4	13.5	3	7.80	2
15	8.10	2	24.0	0	20.10	0	38.3	1	13.0	2	15.2	1	9.25	4
16	8.60	4	21.5	4	8.90	4	40.2	3	13.4	1	13.4	3	8.80	4
18	8.60	4	20.3	4	< 20	NR	40.0	3	< 25	NR	12.7	4	7.20	1
19	8.80	4					41.9	4			13.2	4		
23	8.72	4	21.8	3	< 100	NR	38.6	2	11.8	3	11.1	2		
24	8.44	3	19.8	3			40.5	4						
25	8.40	3	21.0	4			46.0	0						
26	9.10	3	21.5	4	9.90	3	42.8	3	10.8	4	10.8	1	< 20	NR
28	8.90	4	23.3	1	6.40	0	53.1	0	17.3	0	9.5	0		
30	9.00	3	21.0	4	9.40	4			11.5	4	11.5	2	9.20	4
32	9.11	3	20.9	4	8.18	3	40.5	4	11.0	4	12.6	4	8.43	4
33	8.95	3	20.0	3			42.2	3						
34											13.4	3		
35														
36	7.60	0	22.0	3			38.0	1	9.0	2	15.0	1	6.00	0
40	8.48	4	18.1	1	9.90	3	40.0	3						
42	9.30	2	23.0	2	10.00	3	41.0	4	13.0	2	6.0	0	10.00	2
43	8.80	4	20.0	3			43.0	3						
46	8.67	4	20.4	4			42.6	3			13.7	3	9.30	3
48	8.89	4	20.0	3	9.30	4	42.7	3	11.4	4	13.0	4	7.60	2
51	16.47	0					41.0	4						
58			< 50	NR					70.0	0	42.0	0		
59	8.50	4	21.0	4			40.0	3	11.4	4	12.4	4	9.30	3
68	9.05	3	21.5	4	7.30	2	43.0	3	8.5	1	16.6	0	7.85	3
69	8.37	3	< 20	NR			41.2	4	9.6	2	12.0	3	8.15	3
70	8.73	4	20.6	4	< 50	NR	41.8	4	< 50	NR	12.8	4	11.40	0
73			21.0	4					10.0	3	16.0	0		
75	8.90	4	20.8	4	< 10	NR	42.5	3	< 20	NR	12.5	4	< 50	NR
76									11.7	3	12.1	3		
80			18.5	1							11.7	3		
81	8.58	4	20.0	3			40.0	3	7.0	0	13.0	4	< 6	0
83	8.45	4	20.3	4			40.4	4	10.5	4	12.4	4		
85	8.92	3					42.1	4	< 10	NR	< 50	NR		
86	8.67	4	20.3	4	17.70	0	42.8	3	9.0	1	13.4	3		
87	8.36	3	27.0	0	11.00	2	39.6	3	15.3	0	11.2	2		
89	8.29	3	20.4	4			40.1	3	11.3	4	12.1	3	8.30	3
91			20.3	4										
96			27.0	0					10.5	4	13.1	4	8.20	3
97	8.55	4	24.2	0	9.58	4	41.8	4	10.5	4	12.7	4	9.06	4
102	10.30	0	23.0	2			37.0	0	11.0	4	15.0	1	< 1	0
104														
105	8.68	4	19.6	3	9.38	4	42.2	3	10.8	4	13.8	3	9.03	4
107	8.91	3	20.0	3			40.2	3						
109	8.50	4	19.3	2	8.20	3	41.2	4			10.0	0		
113	8.84	4	21.5	4			35.5	0	11.5	4	12.2	4		
114	8.00	1	21.0	4			34.0	0	< 10	NR	< 10	NR		
118									13.4	1	12.5	4		
119	9.10	3	21.0	4	8.33	3	43.1	2	14.3	0	11.5	2	8.10	3
121	8.30	3	22.0	3			39.0	2						
128	8.28	3	18.7	2	5.50	0	40.4	4	11.0	4	12.9	4	9.15	4
129	9.00	3	10.0	0			42.0	4						
132	8.79	4	19.0	2	12.00	0	42.4	3	14.0	0	22.5	0		

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Mg (Magnesium)		Mn (Manganese)		Mo (Molybdenum)		Na (Sodium)		Ni (Nickel)		Pb (Lead)		Sb (Antimony)	
MPV =	8.68	mg/L	20.9	µg/L	9.23	µg/L	41.2	mg/L	11.0	µg/L	12.7	µg/L	8.80	µg/L
F-pseudosigma =	0.45		1.5		1.29		1.9		1.3		1.2		0.96	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	8.39	3							9.9	3	21.7	0		
134	8.57	4	21.1	4	8.68	4	41.2	4	10.5	4	12.6	4	8.58	4
138	8.88	4	20.5	4	8.39	3	41.6	4	9.4	2	12.0	3	8.80	4
140	9.50	1	19.0	2			48.5	0	10.0	3	10.0	0		
141	9.13	2	20.9	4	< 10	NR	43.0	3	< 20	NR	13.6	3	5.13	0
142	8.18	2	22.0	3	9.31	4	41.8	4	11.0	4	12.7	4	11.30	0
144														
145	9.28	2	23.3	1	7.60	2	44.2	1	16.4	0	115.0	0		
146	8.20	2	20.6	4	< 10	NR	42.4	3	< 40	NR	15.4	0	< 20	NR
149			22.0	3	10.00	3			10.0	3	12.0	3		
151			19.5	3	9.10	4			11.6	4	12.8	4	9.04	4
155														
158	9.50	1	22.7	2					12.5	2	6.6	0		
180	8.85	4	20.5	4	10.50	3	41.7	4	11.1	4	< 27.2	NR	< 31.4	NR
183			25.2	0										
190	8.63	4	22.4	2			41.4	4	11.2	4	11.1	2		
191	8.99	3	22.0	3	9.30	4	40.1	3	11.9	3	12.8	4		
193	8.20	2					39.2	2	< 50	NR	14.0	2	< 10	NR
196			19.1	2	8.54	3			10.6	4	12.6	4	8.21	3
203	8.54	4	20.0	3			39.4	3						
204			16.0	0			39.4	3			12.3	4		
212	9.40	1	22.0	3	8.40	3	44.4	1	14.0	0	18.0	0	8.60	4
213									10.3	3	13.6	3		
215	8.90	4	19.7	3	8.40	3	42.4	3	12.0	3	13.5	3	14.00	0
217	8.09	2	19.8	3	7.20	1	40.9	4			12.5	4	8.69	4
218	8.45	4					38.0	1						
219	8.60	4			5.00	0	40.0	3	9.7	3				
220	9.00	3	20.4	4			38.0	1			12.1	3		
221	8.35	3	22.4	2	8.19	3	41.2	4	10.2	3	12.8	4		
224	8.26	3	22.0	3	13.00	0	36.1	0	10.9	4	11.0	2		
234	8.51	4	20.9	4	10.70	2	39.2	2	13.3	1	14.4	2	10.50	1
235	9.60	0	20.0	3	8.00	3	48.0	0	12.0	3				
236	9.00	3	20.5	4	< 11	NR	40.3	4	10.2	3	5.6	0	26.10	0
240	8.50	4	19.0	2					23.0	0	27.0	0	14.00	0
241	7.40	0	23.0	2	11.40	1	37.0	0	10.5	4	16.4	0	8.30	3
244			30.7	0										
245			25.0	0	12.20	0			10.7	4	14.6	1		
249							42.1	4	8.7	1	13.7	3		
253														
255	8.62	4	20.8	4	9.23	4	40.2	3	11.7	3	13.1	4	11.93	0
257	7.40	0	17.0	0	72.00	0	40.0	3	14.0	0	49.0	0	2.00	0
259							42.0	4	16.0	0	10.0	0		
261	10.80	0					45.9	0						
265	8.70	4	22.6	2	9.00	4	40.6	4	10.0	3	12.4	4	9.00	4
268	8.65	4					41.0	4						
270							49.4	0						
271	25.15	0					40.0	3						
272	6.06	0					50.0	0						
273	9.60	0	25.1	0			44.9	1	12.0	3	7.0	0		
274	0.00	0	8.0	0			22.4	0			1.3	0		

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Se (Selenium)		SiO2 (Silica)		Sr (Strontium)		Tl (Thallium)		U (Uranium)		V (Vanadium)		Zn (Zinc)	
MPV =	10.1	µg/L	11.3	mg/L	203	µg/L	15.3	µg/L	1.10	µg/L	11.7	µg/L	10.0	µg/L
F-pseudosigma =	1.3		0.7		9		2.7		0.04		1.7		2.4	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	10.0	4	10.6	2	198	3	16.7	3	1.06	2	12.0	4	11.4	3
3	< 10	NR	5.7	0	207	4	< 10	NR			6.0	0	7.0	2
4			11.4	4	205	4							14.0	1
5	10.0	4	11.1	4	205	4					12.4	4	9.7	4
7	< 50	NR	11.6	4	203	4			< 120	NR	12.6	3	11.0	4
10	9.0	3											16.0	0
11	12.6	1	8.9	0	202	4	20.0	1			11.0	4		
13	8.2	2	11.2	4			15.8	4			< 50	NR	9.9	4
15	12.1	1	12.3	2			11.6	2			< 10	NR	< 5	0
16	10.0	4			184	0	16.0	4	1.20	0	15.0	1	9.4	4
18	10.1	4			200	4	13.8	3			11.2	4	< 100	NR
19														
23	9.3	3					< 5	0					< 20	NR
24			11.6	4	204	4							10.2	4
25			12.7	1	215	2								
26	8.8	3	11.5	4							12.5	4	9.2	4
28					207	4					14.6	1	6.0	1
30	11.0	3							1.20	0	11.4	4	9.6	4
32	10.3	4	11.4	4	203	4	15.6	4			11.8	4	10.0	4
33			10.9	3	200	4								
34	10.2	4												
35														
36	8.0	1					8.0	0					16.0	0
40					169	0					10.4	3		
42	13.0	0	12.1	2	201	4	9.0	0			15.0	1	10.0	4
43			11.0	4										
46	9.5	4					16.2	4			10.4	3		
48	8.6	2					12.1	2			9.5	2	< 5	NR
51														
58	< 10	NR											< 50	NR
59	11.0	3			200	4	15.5	4					10.0	4
68	6.9	0			210	3					9.9	2	10.5	4
69	10.2	4					16.4	4					< 50	NR
70	11.0	3	10.9	3	206	4	13.3	3			< 50	NR	< 20	NR
73	33.0	0											13.0	2
75	10.1	4							< 100	NR	11.5	4	11.0	4
76			12.2	2			11.2	1						
80	9.3	3											4.8	0
81			11.5	4	175	0	84.0	0			9.0	1	8.0	3
83			10.4	2									9.8	4
85					214	2					< 20	NR		
86	11.6	2			196	3					13.1	3	11.8	3
87	19.2	0	11.8	3									16.3	0
89	9.3	3	10.7	3			< 10	NR			14.2	2	13.8	1
91														
96	10.0	4											11.0	4
97	8.8	3	11.3	4	169	0	16.7	3			14.0	2	< 4.6	NR
102	13.0	0			239	0	19.0	2			10.0	3	8.8	3
104			10.7	3										
105	11.3	3	10.9	3	194	2					11.1	4	9.0	4
107			11.9	3										
109					183	0								
113	9.5	4	11.0	4	203	4	13.1	3					8.5	3
114													< 10	NR
118	9.6	4	11.4	4									15.0	0
119	10.0	4	12.0	2			15.9	4	1.07	3	10.3	3	10.0	4
121			11.3	4	195	3							12.0	3
128	11.2	3	11.8	3			15.3	4			10.2	3	10.1	4
129			11.5	4										
132													9.0	4

Table 6. *Laboratory performance ratings for standard reference water sample T-145 (trace constituents)--Continued*

(MPV,most probable value; µg/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/28, number of reported values of 28 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Se (Selenium)		SiO2 (Silica)		Sr (Strontium)		Tl (Thallium)		U (Uranium)		V (Vanadium)		Zn (Zinc)	
MPV =	10.1	µg/L	11.3	mg/L	203	µg/L	15.3	µg/L	1.10	µg/L	11.7	µg/L	10.0	µg/L
F-pseudosigma =	1.3		0.7		9		2.7		0.04		1.7		2.4	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	10.8	3											10.1	4
134	10.7	4	11.2	4	196	3	16.9	3			10.7	3	11.7	3
138	9.6	4	10.8	3	198	3	15.0	4			11.0	4	8.0	3
140			11.2	4									14.0	1
141	9.3	3					< 50	NR			12.7	3	9.9	4
142	10.8	3	12.8	0	212	2	16.7	3	0.86	0	10.7	3	8.4	3
144	10.0	4												
145			12.5	1	216	1					17.0	0	13.0	2
146	< 10	NR					14.0	4			11.5	4	< 20	NF
149	10.0	4												
151	11.2	3			208	3	16.0	4					8.9	4
155														
158			12.4	1							12.5	4	7.2	2
180	< 50.1	NR					< 32.1	NR			12.0	4	9.5	4
183														
190	11.0	3	11.9	3	390	0							13.3	2
191	12.0	2	11.1	4	203	4	15.8	4			12.0	4	8.5	3
193	8.0	1					9.0	0					< 50	NF
196	11.1	3			194	2	15.3	4	1.12	3	10.2	3	14.5	1
203			10.8	3										
204			11.4	4									7.2	2
212	11.0	3	11.8	3	210	3	16.0	4	1.10	4	12.0	4	12.0	3
213							12.4	2					14.0	1
215	5.0	0	11.3	4			< 7	0					0.0	0
217	10.2	4	9.9	1	193	2	15.2	4	1.10	4	8.9	1	7.9	3
218					229	0								
219			10.8	3	210	3					10.0	3	11.0	4
220	8.6	2											10.0	4
221	9.7	4											11.3	3
224	10.5	4									18.8	0	10.2	4
234	9.6	4	11.0	4	206	4	10.9	1			11.0	4	6.7	2
235			12.6	1	208	3	7.9	0			15.0	1	8.3	3
236	128.3	0	7.0	0	199	4					12.1	4	8.6	3
240	18.0	0	10.5	2	197	3	10.0	1					11.0	4
241	7.0	0	11.8	3			15.9	4			13.0	3	5.0	0
244														
245													9.3	4
249													0.6	0
253													20.0	0
255	8.1	2									11.6	4	9.7	4
257											39.0	0	9.0	4
259	8.7	2											66.0	0
261														
265	12.4	1	10.1	1	200	4	15.0	4	1.10	4	12.0	4	10.5	4
268														
270														
271														
272														
273			227.0	0									20.0	0
274			19.2	0									5.8	1

Table 7. *Laboratory performance ratings for standard reference water sample M-140 (major constituents)*

(MPV,most probable value; mg/L, micrograms per liter; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/16, number of reported values of 16 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte = Alkalinity		B (Boron)		Ca (Calcium)		Cl (Chloride)		DSRD	
			MPV = 114 mg/L		41.6 µg/L		60.7 mg/L		25.8 mg/L		382 mg/L	
			F-pseudosigma = 3		5.2		3.1		1.4		16	
Lab	OLR	V/16	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.5	16	115	4	43.6	4	56.3	2	24.7	3	370	3
2	1.5	10	106	0					27.7	2		
3	1.9	16	116	3	43.0	4	67.5	0	26.7	3	370	3
4	4.0	2							26.0	4		
5	3.4	13	113	4	44.5	3	59.8	4	24.8	3	386	4
7	2.2	6	117	3					24.1	2		
10	3.5	13	116	3	60.0	0	59.2	4	26.3	4	386	4
11	1.7	12	116	3			2.9	0	26.7	3	358	1
13	2.7	12	108	0			65.4	1	24.8	3	388	4
15	1.8	12	96	0	< 50	NR	53.2	0	26.4	4	367	3
16	2.5	15	113	3	61.6	0	58.6	3	28.9	0	372	3
18	2.9	14	108	0	< 50	NR	60.1	4	27.0	3	397	3
19	3.0	10	115	4			60.3	4	25.0	3	374	4
22	4.0	1										
23	2.7	14	111	2			65.3	2	26.2	4	371	3
24	3.7	13	115	4	38.2	3	59.8	4	25.6	4		
25	2.5	12	116	3			64.4	2	24.6	3	368	3
26	3.4	13	114	4	35.3	2	61.1	4	26.2	4	378	4
28	2.3	7			35.0	2	61.5	4				
30	3.2	5					63.0	3	25.2	4		
32	2.9	14	116	3			61.3	4	26.9	3	372	3
33	3.4	11	113	3			59.2	4	24.3	2		
36	1.8	11	115	4			56.0	2	26.0	4	410	1
38	3.3	10	116	4			58.1	3			378	4
39	2.6	7	100	0					30.0	0		
40	2.9	13	113	4			53.6	0	26.9	3	378	4
42	1.8	12	140	0	21.0	0	63.3	3	35.8	0		
43	3.7	11	115	4			61.0	4	26.0	4	386	4
46	2.6	12	113	4	21.5	0	58.8	3	26.6	3		
48	2.2	12	112	3	20.0	0	62.2	4	24.0	2		
50	3.2	13	118	2	51.0	1	63.0	3	25.0	3	382	4
51	2.8	8	116	3					27.8	2		
55	2.6	12	108	0			59.2	4	25.8	4	380	4
56	2.3	9	119	2			61.8	4	23.5	1		
57	2.2	13	120	1	< 100	NR	63.0	3	25.0	3	390	4
59	2.3	12	117	3			68.0	0	24.0	2	371	3
64	3.4	7							26.3	4		
68	2.5	13	116	3	145.0	0	63.0	3	26.5	4		
69	2.6	10	118	2			58.8	3	26.2	4	401	2
70	3.5	13	115	4	< 50	NR	61.4	4	25.8	4	385	4
75	3.7	10	114	4	40.9	4	58.2	3	26.1	4	398	3
76	2.6	5	108	0					27.9	2	398	3
80	1.8	12	112	3			66.0	1	25.0	3	411	1
81	3.4	14	115	4			59.9	4	23.9	2	424	0
83	3.0	9	113	3			58.4	3	25.2	4		
85	3.1	12	111	2	40.6	4	62.1	4	25.0	3	378	4
86	3.3	9			44.1	4	62.6	3				
87	1.8	12	120	1			56.0	2	29.0	0	348	0
89	3.0	13	114	4			58.3	3	25.0	3	394	3
90	1.0	4	103	0			58.4	3			410	1
92	3.8	6	113	4							374	4
96	3.3	7	115	4					24.9	3	402	2
97	2.7	14	117	3			57.9	3	25.7	4	406	1
102	1.5	10					60.4	4	25.5	4		
105	2.9	14	111	2			61.0	4	25.2	4	365	2
107	3.5	11	114	4			58.0	3	27.2	3		
109	2.8	11	122	0			58.7	3	23.3	1	387	4
113	2.9	14	115	4			66.0	1	24.9	3	396	3
114	3.6	8	115	4					25.0	3	375	4
118	2.7	6	115	4							398	3
119	3.2	14	110	2	43.0	4	61.1	4	24.7	3	370	3
121	4.0	6					60.0	4				
127	3.4	14	116	3	39.4	4			26.4	4	387	4
128	3.3	12	116	3	33.1	1	62.0	4	25.4	4		
129	2.6	14	118	2	55.0	0	62.0	4	25.0	3	379	4

Table 7. *Laboratory performance ratings for standard reference water sample M-140 (major constituents)—Continued*

(MPV,most probable value; mg/L, micrograms per liter; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/16, number of reported values of 16 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte = Alkalinity		B (Boron)		Ca (Calcium)		Cl (Chloride)		DSRD	
			MPV = 114 mg/L		41.6 µg/L		60.7 mg/L		25.8 mg/L		382 mg/L	
			F-pseudosigma = 3		5.2		3.1		1.4		16	
Lab	OLR	V/16	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
132	3.1	9	114	4	42.5	4	58.8	3				
133	2.8	6	115	4			59.7	4	19.6	0		
134	3.3	15	136	0	42.3	4	61.1	4	26.8	3	397	3
138	3.8	15	114	4	37.6	3	62.0	4	25.9	4	368	3
140	2.5	11					62.5	3	26.8	3	377	4
141	3.3	12	116	3	37.5	3	63.3	3	25.6	4	376	4
142	2.8	16	116	3	41.0	4	59.0	3	25.2	4	393	3
143	3.6	5	113	4					26.4	4	398	3
145	2.9	15	99	0	48.3	2	62.8	3	24.9	3		
146	2.8	11	114	4			56.9	2	27.0	3	374	4
149	3.2	6	114	4					27.0	3		
151	3.0	13	114	4			61.2	4	25.0	3	378	4
155	3.3	8	117	3			60.7	4			397	3
158	3.5	8	111	2					24.9	3	388	4
180	2.8	12	111	2	44.5	3	60.4	4	24.6	3		
183	1.7	3							28.2	1		
190	2.4	14	115	4			58.6	3	28.7	0	0	0
191	3.0	11	118	2			59.1	4	26.1	4		
193	3.0	3	114	4								
196	2.7	3							23.2	1		
203	2.2	6	105	0					24.1	2		
204	3.0	8	111	2			59.8	4	25.3	4		
212	2.7	16	112	3	45.0	3	62.9	3	26.2	4	354	1
213	3.0	4	112	3					26.9	3		
215	2.8	14	112	3	40.0	4	62.0	4	24.0	2	375	4
217	1.6	14	117	3	40.6	4	50.6	0	25.9	4	381	4
218	1.6	8	106	0			55.7	1				
219	2.7	9			44.0	4	58.0	3				
220	3.3	7	112	3			60.0	4	26.8	3		
221	3.1	8					66.4	1	25.4	4	396	3
224	1.6	13	104	0			65.9	1	27.6	2	380	4
234	3.5	16	112	3	39.0	3	60.6	4	24.0	2	382	4
235	1.1	9			38.0	3	66.5	1				
236	2.9	15	114	4	40.4	4	59.6	4	29.0	0	385	4
240	3.0	12	112	3	58.7	0	59.4	4	23.9	2	380	4
241	2.3	14	116	4			63.0	3	22.0	0	284	0
243	2.7	3										
244	4.0	3	115	4								
247	2.3	6	4	0					25.7	4		
249	1.8	9	107	0			65.2	2	30.6	0		
253	2.0	5							24.2	2	404	2
255	3.1	14	113	4	22.4	0	60.6	4	26.3	4	384	4
256	1.6	9	107	0	< 20	NR	63.2	3	28.2	1		
257	2.0	13	115	4			68.0	0	26.0	4	395	3
258	1.4	11	124	0			67.0	1	32.2	0		
259	3.1	15	114	4	85.0	0	59.6	4	25.0	3	384	4
261	1.0	9	120	1			64.6	2	23.5	1		
262	1.9	11	108	0	22.0	0	63.0	3	25.7	4		
265	3.3	13	136	0	43.0	4	61.0	4	25.5	4		
268	2.0	9	118	2			53.9	0	25.6	4		
270	0.0	3					53.1	0				
271	1.1	8					63.1	3	27.0	3		
272	0.4	9	310	0			27.3	0	42.5	0		
273	1.1	12	124	0	70.0	0	63.0	3	27.0	3		
274	0.4	12	229	0			40.4	0	41.3	0		
276	0.7	6	117	2			63.9	2	35.5	0		

Table 7. *Laboratory performance ratings for standard reference water sample M-140 (major constituents)—Continued*

(MPV, most probable value; mg/L, micrograms per liter; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/16, number of reported values of 16 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	F (Fluoride)		K (Potassium)		Mg (Magnesium)		Na (Sodium)		(total Phosphorus) as P	
MPV =	0.530 mg/L		2.58 mg/L		18.0 mg/L		39.0 mg/L		0.032 mg/L	
F-pseudosigma =	0.037		0.14		1.0		1.9		0.011	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	0.560	3	2.57	4	17.4	3	38.2	4	0.030	4
2	0.590	1	2.10	0	17.0	2	35.0	0	0.052	1
3	0.599	1	2.43	2	20.6	0	34.5	0	0.030	4
4										
5			2.37	2	17.1	3	39.6	4		
7	0.680	0								
10	0.520	4	2.58	4	18.4	4	38.8	4		
11	0.500	3			0.5	0	1.5	0	0.045	2
13	0.510	3	2.30	1	19.0	2	41.2	2		
15	0.521	4	2.36	1	16.0	0	34.5	0	< 0.05	NR
16	0.544	4	2.50	3	17.8	4	38.5	4	0.051	1
18	0.510	3	2.20	0	18.0	4	39.0	4	0.027	4
19			2.60	4	18.4	4	41.2	2		
22									0.032	4
23	0.556	3	2.68	3	18.0	4	34.8	0	0.034	4
24	0.560	3	2.45	3	18.1	4	38.8	4		
25	0.510	3			19.2	2	42.7	1		
26	0.570	2	2.68	3	19.2	2	40.9	3		
28			2.32	1	18.2	4	42.7	1		
30					17.0	2				
32	0.431	0	2.53	4	20.0	0	39.5	4	0.050	1
33			2.62	4	17.8	4	38.2	4		
36	0.467	1	2.10	0	17.0	2	35.0	0		
38			2.62	4	18.1	4	34.4	0	0.032	4
39	0.540	4							0.034	4
40	0.506	3	2.64	4	16.8	2	37.1	3		
42			2.70	3	19.3	2	39.2	4		
43			2.60	4	19.0	2	40.0	3		
46	0.523	4	2.25	0	17.2	3	39.6	4		
48	0.690	0	2.58	4	18.3	4	39.8	4	0.070	0
50	0.530	4	2.50	3	18.0	4	40.0	3		
51			2.56	4	11.0	0	38.8	4		
55	0.520	4			19.4	2			0.024	3
56			3.02	0	19.3	2	50.8	0		
57	0.520	4	3.20	0	20.0	0	36.0	1	0.040	3
59	0.550	3	< 5	NR	20.5	0	44.5	0	0.040	3
64			2.68	3			37.9	3	0.030	4
68			2.90	0	18.0	4	40.5	3	0.052	1
69	0.580	2	2.82	1	17.5	3	38.6	4		
70	0.580	2	2.48	3	18.1	4	39.4	4	< 0.1	NR
75					18.4	4	38.4	4		
76	0.542	4								
80	0.510	3	2.00	0	17.0	2	37.0	2		
81	0.538	4	2.53	4	18.2	4	39.1	4	0.028	4
83	0.650	0	2.60	4	17.2	3	38.1	4	< 100	NR
85			2.95	0	18.3	4	39.8	4		
86			2.64	4	18.1	4	41.2	2		
87			2.47	3	17.2	3	37.3	3	0.028	4
89	0.084	0	2.38	2	18.2	4	38.2	4	0.029	4
90										
92									0.027	4
96	0.525	4								
97	0.495	3	2.60	4	18.0	4	40.1	3	< 0.002	0
102			2.30	1	19.9	1	33.2	0	0.007	0
105	0.550	3	2.61	4	18.8	3	40.8	3	0.019	2
107	0.527	4	2.75	2	17.7	4	39.6	4	0.028	4
109	0.590	1	2.56	4	17.6	4	38.6	4		
113	0.525	4	2.77	2	19.9	1	35.9	1	0.028	4
114	0.530	4							0.031	4
118									0.020	2
119	0.530	4	2.50	3	18.6	3	39.9	4	0.030	4
121			2.56	4	17.7	4	38.9	4		
127	0.476	2	2.53	4	18.6	3	39.0	4	< 0.01	NR
128	0.520	4	2.58	4	17.2	3	38.1	4		
129	0.645	0	2.50	3	18.0	4	37.0	2	0.027	4

Table 7. *Laboratory performance ratings for standard reference water sample M-140 (major constituents)—Continued*

(MPV, most probable value; mg/L, micrograms per liter; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/16, number of reported values of 16 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	F (Fluoride)		K (Potassium)		Mg (Magnesium)		Na (Sodium)		(total Phosphorus) as P	
MPV =	0.530 mg/L		2.58 mg/L		18.0 mg/L		39.0 mg/L		0.032 mg/L	
F-pseudosigma =	0.037		0.14		1.0		1.9		0.011	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
132			2.66	3	17.8	4	39.3	4	0.030	4
133					16.9	2			0.028	4
134	0.590	1	2.54	4	17.9	4	39.3	4	0.030	4
138	0.531	4	2.59	4	18.5	3	39.7	4	0.032	4
140	0.441	0	2.58	4	18.5	3	49.0	0	< 0.02	NR
141	0.570	2	2.57	4	18.8	3	40.6	3	< 0.05	NR
142	0.603	1	2.30	1	17.8	4	39.6	4	0.020	2
143									0.033	4
145	0.460	1	2.54	4	17.8	4	41.1	2	0.035	4
146	0.557	3	3.22	0	17.6	4	42.2	1	< 0.1	NR
149	0.530	4								
151	0.510	3	2.68	3	18.1	4	42.6	1		
155					18.3	4			0.029	4
158	0.540	4							0.041	3
180			2.42	2	18.4	4	39.9	4	0.052	1
183										
190	0.521	4	2.58	4	17.8	4	39.3	4	0.050	1
191			2.56	4	18.4	4	38.5	4	0.034	4
193										
196	0.525	4								
203										
204					1.1	0				
212	0.510	3	2.50	3	19.7	1	42.4	1	0.043	3
213									0.020	2
215	0.500	3	2.80	1	18.6	3	41.5	2	0.040	3
217	0.420	0	4.20	0	15.6	0	34.8	0		
218			2.41	2	17.7	4	36.0	1		
219			2.80	1	19.0	2	39.0	4		
220			2.60	4	18.0	4	36.0	1		
221			2.61	4	18.1	4	39.8	4		
224	0.920	0	3.10	0	22.8	0	41.1	2	0.030	4
234	0.485	2	2.64	4	17.6	4	39.2	4	0.030	4
235			4.15	0	19.4	2	48.3	0	0.050	1
236			2.31	1	19.2	2	38.2	4	0.040	3
240	0.535	4			17.6	4			0.022	3
241	0.590	1	2.56	4	14.0	0	37.0	2	0.032	4
243									0.030	4
244										
247	0.510	3								
249			2.68	3			39.1	4	0.050	1
253										
255	0.556	3	2.62	4	18.2	4	38.7	4		
256			3.91	0	16.6	2	37.0	2		
257	0.560	3	3.30	0	9.8	0	39.0	4	0.100	0
258	0.510	3	2.75	2	16.6	2	37.5	3	0.143	0
259	0.500	3	2.50	3	17.0	2	39.0	4	0.040	3
261			2.35	1	17.4	3	45.9	0		
262	0.502	3	2.83	1	21.4	0	37.5	3		
265	0.520	4	2.52	4	17.8	4	38.1	4		
268			2.85	1	17.5	3	40.8	3		
270			3.21	0			46.9	0		
271			2.50	3	10.4	0	34.0	0		
272	2.000	0	3.00	0	13.3	0	50.0	0		
273	0.430	0	2.80	1	20.7	0	44.2	0	0.710	0
274	0.760	0	3.08	0	30.8	0	20.6	0	0.141	0
276					16.0	0				

Table 7. *Laboratory performance ratings for standard reference water sample M-140 (major constituents)—Continued*

(MPV,most probable value; mg/L, micrograms per liter; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/16, number of reported values of 16 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	pH		SiO_2 (Silica)		SO_4 (Sulfate)		Sp Cond		Sr (Strontium)		V (Vanadium)	
MPV =	8.28		7.35 mg/L		150 mg/L		600 µS/cm		671 µg/L		3.42 µg/L	
F-pseudosigma =	0.17		0.46		7		19		31		3.01	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	8.21	4	6.89	3	150	4	600	4	666	4	1.40	3
2	8.04	2			152	4	586	3				
3	7.83	0	8.43	0	142	2	608	4	784	0	3.00	4
4					152	4						
5	8.17	3	7.08	3	151	4	612	3	670	4	< 4	NR
7	8.20	4			155	3	571	1				
10	8.42	3	7.30	4	151	4	606	4				
11	8.26	4			5	0	597	4	17	0		
13	8.36	4	7.37	4	150	4	608	4			< 50	NR
15	8.11	2	7.97	2	140	2	599	4			< 10	NR
16	8.10	2			143	2	598	4	628	2	5.19	3
18	8.25	4	7.44	4	148	4	563	1	650	3	< 5	NR
19	8.55	1			149	4	666	0				
22												
23	8.28	4	7.75	3	158	2	568	1	693	3	< 5	NR
24	8.20	4	7.76	3	150	4	600	4	676	4		
25	8.36	4	11.04	0	148	4	607	4	730	1		
26	8.33	4	7.53	4	150	4	606	4			< 4	NR
28									671	4	10.20	0
30	8.40	3			150	4						
32	8.40	3	7.50	4	146	3	601	4	679	4		
33	8.28	4	7.10	3	147	4	571	1	685	4		
36	8.33	4			160	2	70	0				
38	8.40	3	7.29	4			612	3				
39	8.40	3			150	4	584	3				
40	8.35	4	7.18	4	119	0	608	4	650	3		
42	7.90	0	8.00	2	197	0	604	4	656	4	< 5	NR
43	8.21	4	7.50	4	150	4	600	4				
46	8.38	3	7.04	3	185	0	599	4				
48	8.00	1			104	0	608	4			< 200	NR
50	8.31	4	7.30	4	149	4	622	2				
51	8.29	4			156	3	580	2				
55	8.00	1	7.36	4	133	0	625	2	644	3		
56	8.35	4			149	4	597	4				
57	8.20	4	7.40	4	140	2	660	0			< 100	NR
59	8.40	3	7.70	3	148	4	588	3				
64	8.38	3			151	4	613	3				
68	8.38	3	7.05	3			608	4	675	4	50.00	0
69	8.40	3			158	2						
70	8.28	4	7.10	3	146	3	587	3	673	4	< 50	NR
75	8.27	4			153	4	610	3				
76	8.26	4										
80	8.17	3	5.50	0	130	0	600	4				
81	8.37	3	7.24	4	145	3	600	4	662	4	< 3	NR
83			6.76	2	151	4						
85	8.37	3	7.32	4	148	4			718	1	< 20	NR
86	8.35	4					624	2	666	4	5.73	3
87	7.95	1	7.18	4	127	0	320	0				
89	8.39	3	6.80	2	148	4	589	3			< 10	NR
90							552	0				
92	8.14	3			147	4	597	4				
96	8.34	4			145	3	618	3				
97	8.37	3	7.37	4	153	4	625	2	578	0	< 0	NR
102			6.66	2	143	2	719	0	732	1		
105	8.34	4	7.45	4	140	2	615	3	554	0	< 13	NR
107	8.49	2	7.21	4			591	4				
109	8.42	3			155	3	591	4				
113	8.32	4	7.34	4	154	3	590	3	680	4		
114	8.07	2			152	4	608	4				
118	7.90	0	7.47	4			590	3				
119	8.50	2	7.00	3	143	2	597	4				
121			7.12	4					678	4		
127	8.31	4	7.21	4	159	2	595	4	631	2	1.40	3
128	8.43	3	7.79	3	155	3	615	3				
129	7.99	1	7.95	2	150	4	582	3				

Table 7. *Laboratory performance ratings for standard reference water sample M-140 (major constituents)—Continued*

(MPV,most probable value; mg/L, micrograms per liter; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/16, number of reported values of 16 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	pH		SiO_2 (Silica)		SO_4 (Sulfate)		Sp Cond		Sr (Strontium)		V (Vanadium)	
MPV =	8.28		7.35 mg/L		150 mg/L		600 µS/cm		671 µg/L		3.42 µg/L	
F-pseudosigma =	0.17		0.46		7		19		31		3.01	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
132	8.05	2					457	0				
133	8.15	3										
134	8.44	3	7.47	4	152	4	606	4	654	3	< 1	NR
138	8.29	4	7.14	4	149	4	597	4	658	4	< 2	NR
140	8.33	4	7.40	4	155	3	708	0				
141	8.35	4			156	3	607	4			< 10	NR
142	8.26	4	8.41	0	163	1	604	4	694	3	3.42	4
143	8.38	3										
145	8.30	4	7.95	2	149	4	615	3	699	3	4.70	4
146	8.15	3			155	3	595	4			< 10	NR
149	8.40	3			160	2	612	3				
151	8.39	3	5.88	0	151	4	602	4	710	2		
155	8.24	4	7.08	3			631	1				
158	8.26	4			152	4	609	4				
180	8.40	3			140	2	620	2			4.95	3
183	8.33	4					535	0				
190	8.10	2	7.70	3	177	0	604	4	958	0		
191	8.39	3	8.71	0	149	4			1	0		
193					149	4	568	1				
196					145	3						
203	8.31	4	6.90	3	168	0	598	4				
204	8.16	3	7.42	4	155	3	594	4				
212	8.30	4	7.90	2	156	3	637	1	660	4	2.10	4
213	8.35	4										
215	8.25	4	8.08	1	155	3	574	2				
217	8.40	3	6.08	0	158	2	625	2	578	0		
218	8.02	1					556	0	673	4		
219			7.50	4	40	0			700	3	1.00	3
220					148	4						
221	8.08	2			146	3						
224	8.17	3			152	4	560	0			8.30	1
234	8.13	3	7.20	4	153	4	611	3	668	4	2.02	4
235			8.26	1	174	0			709	2	< 5	NR
236	8.24	4	4.66	0	152	4	589	3	649	3	3.80	4
240	8.24	4	6.88	2	147	4	576	2				
241	8.30	4	7.68	3	152	4	414	0			1.00	3
243	7.91	0					595	4				
244	8.34	4					600	4				
247	8.56	1			143	2	595	4				
249	7.98	1			141	2	617	3				
253	8.20	4			117	0	625	2				
255	8.49	2	7.38	4	120	0	595	4			1.40	3
256	8.05	2	6.65	1	154	3						
257	8.21	4			195	0	600	4			39.00	0
258	8.20	4			200	0	539	0				
259	8.50	2	7.00	3	148	4	609	4	680	4		
261	7.95	1			16	0	522	0				
262	7.42	0			150	4	582	3				
265	8.12	3	6.85	2	155	3			658	4	1.20	3
268	8.10	2			154	3	560	0				
270												
271	7.83	0			17	0	545	0				
272	8.28	4					645	0				
273	8.20	4					620	2	770	0		
274	7.90	0	14.93	0	149	4	634	1				
276	7.70	0					550	0				

Table 8. *Laboratory performance ratings for standard reference water sample N-51 (nutrient constituents)*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/5, number of reported values of 5 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte = NH_3 as N (Ammonia)		NH_3 + Org N as N (Ammonia+Organic N)		NO_3 + NO_2 as N (Nitrate + Nitrite)		total P as P (total Phosphorus)		PO_4 as P (Orthophosphate as P)	
		MPV =	0.07 mg/L		0.29 mg/L		0.01 mg/L		0.04 mg/L		0.02 mg/L	
		F-pseudosigma =	0.05		0.10		0.04		0.01		0.01	
Lab	OLR	V/5	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.0	3	0.03	3	0.22	3	< 0.005	NR	0.03	3	< 0.001	NR
2	2.5	4	0.05	4	0.50	0	< 0.02	NR	0.05	4	0.00	2
5	0.5	2	0.15	1			< 0.03	NR			0.04	0
7	2.0	1	0.13	2			< 0.05	NR				
10	3.8	4	0.09	4	0.26	4	< 0.01	NR	0.05	3	0.02	4
11	2.7	3	0.17	1	0.36	3			0.04	4		
13	NR	0	< 0.02	NR			< 0.06	NR	< 0.05	NR	< 0.05	NR
15	0.0	2	< 0.05	NR	0.53	0	< 0.02	NR	0.12	0	< 0.02	NR
16	2.2	5	0.08	4	0.11	1	0.07	1	0.07	1	0.02	4
18	2.8	4	0.14	2	0.17	2	< 0.01	NR	0.03	3	0.02	4
21	3.6	5	0.01	2	0.29	4	0.01	4	0.04	4	0.02	4
22	2.0	1							0.06	2		
23	0.0	1	< 0.1	NR	0.50	0	< 0.05	NR	< 0.1	NR	< 0.1	NR
25	3.0	4	0.08	4	0.08	0	0.01	4			0.02	4
28	0.0	2	0.34	0							0.04	0
33	3.0	1	0.04	3							< 0.01	NR
36	NR	0					< 0.05	NR	< 0.05	NR	< 0.05	NR
38	3.0	5	0.01	2	0.25	4	0.00	4	0.06	2	0.01	3
39	2.0	3	0.10	3					0.00	0	0.01	3
46	3.0	2							0.03	3	0.01	3
48	3.5	4	0.11	3	0.39	3	< 0.08	NR	0.04	4	0.02	4
53	1.0	3	0.11	3			0.40	0			0.12	0
55	2.8	4	0.12	3	0.30	4			0.04	4	0.08	0
56	3.3	4	0.04	3	0.23	3	< 0.02	NR	0.03	3	0.02	4
58	1.0	4	0.03	3	0.48	1			0.13	0	0.10	0
59	3.3	3	0.05	4	0.20	3	< 0.04	NR	0.03	3	< 0.01	NR
64	3.5	2	0.06	4			< 0.02	NR			0.01	3
68	2.3	4	0.15	1	0.33	4	0.01	4	0.08	0		
69	NR	0					< 0.05	NR				
70	4.0	1	< 0.1	NR	0.29	4	< 0.1	NR	< 0.1	NR	< 0.1	NR
75	NR	0					< 0.1	NR				
80	NR	0	< 0.02	NR			< 0.01	NR			< 0.05	NR
81	3.3	3	< 0.05	NR	0.40	2	0.01	4	0.03	4	< 0.005	NR
83	3.0	1	< 0.01	NR			< 0.02	NR	< 0.075	NR	0.01	3
85	3.4	5	0.03	3	0.20	3	0.04	3	0.04	4	0.02	4
87	2.8	4	0.07	4	0.12	1	< 0.01	NR	0.05	3	0.01	3
88	1.3	3	0.04	4			1.16	0			0.05	0
89	3.0	4	0.02	3	0.15	2	< 0.05	NR	0.04	4	0.01	3
90	4.0	1	0.08	4								
91	3.5	2	< 0.03	NR	0.32	4	< 0.02	NR	0.05	3		
92	3.7	3					0.01	4	0.03	4	0.02	3
96	3.3	3	0.09	4	0.23	3	< 0.05	NR	0.03	3	< 0.01	NR
97	2.8	4	0.10	3	0.33	4	< 0.003	NR	0.01	0	0.01	4
102	2.7	3			0.30	4			0.03	2	0.00	2
104	3.4	5	0.01	2	0.27	4	0.00	4	0.05	4	0.01	3
105	3.3	3	0.08	4	< 0.2	NR	< 0.04	NR	0.02	2	0.02	4
110	4.0	1	0.10	4								
113	4.0	1					< 0.015	NR	0.03	4	< 0.004	NR
114	4.0	1	< 0.1	NR			< 0.04	NR	0.04	4		
118	2.0	4	0.04	3	0.24	4	0.08	1	0.01	0	< 0.01	NR
119	3.0	4	0.03	3	0.36	3	0.01	4	0.06	2	0.00	NR
127	3.5	2	0.02	3	0.31	4	< 0.01	NR	< 0.01	NR	< 0.05	NR
128	3.0	2	0.11	3	0.20	3	< 0.01	NR			< 0.01	NR
129	3.8	4	0.00	NR	0.30	4	0.00	4	0.04	4	0.03	3
132	2.5	4	0.08	4			0.11	0	0.03	3	0.01	3
133	3.0	5	0.08	4	0.24	4	0.18	0	0.04	4	0.01	3
134	3.6	5	0.04	4	0.30	4	0.00	4	0.04	4	0.00	2
138	3.0	4	0.03	3	0.28	4	< 0.005	NR	0.05	3	0.00	2
140	3.7	3	0.07	4	0.21	3	0.00	4	< 0.02	NR	< 0.01	NR
141	1.0	3	0.17	1	< 1	NR	< 0.05	NR	0.06	2	0.05	0

Table 8. *Laboratory performance ratings for standard reference water sample N-51 (nutrient constituents)--Continued*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/5, number of reported values of 5 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte =	NH_3 as N (Ammonia)		NH_3 + Org N as N (Ammonia+Organic N)		NO_3 + NO_2 as N (Nitrate + Nitrite)		total P as P (total Phosphorus)		PO_4 as P (Orthophosphate as P)	
			MPV =	0.07 mg/L		0.29 mg/L		0.01 mg/L		0.04 mg/L		0.02 mg/L	
			F-pseudosigma =	0.05		0.10		0.04		0.01		0.01	
Lab	OLR	V/5		RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
142	2.6	5		0.02	3	0.20	3	0.02	4	0.05	3	0.08	0
143	3.6	5		0.01	2	0.29	4	0.03	4	0.05	4	0.01	4
145	3.5	2		< 0.02	NR	0.21	3	< 0.02	NR	0.04	4	< 0.01	NR
146	NR	0		< 0.03	NR			< 0.05	NR	< 0.1	NR	< 0.05	NR
149	2.5	4		0.01	2			0.12	0	0.04	4	0.02	4
151	3.3	3		0.06	4			< 0.05	NR	0.05	3	0.03	3
155	3.2	5		0.10	3	0.21	3	0.00	4	0.03	3	0.01	3
158	3.0	3		0.04	3			< 0.02	NR	0.03	3	0.02	3
180	3.5	2		< 0.02	NR	0.21	3	< 0.01	NR	0.05	4	< 0.01	NR
183	2.0	2								0.05	3	0.03	1
190	1.8	5		0.10	3	0.40	2	0.01	4	0.14	0	0.14	0
191	4.0	1						< 0.01	NR			0.02	4
193	3.0	1						< 0.02	NR	0.03	3		
196	NR	0						< 0.05	NR			< 0.05	NR
197	3.0	2		0.13	2			0.02	4				
203	3.5	4		0.08	4	0.35	3	< 0.02	NR	0.05	4	0.02	3
204	3.0	3		< 0.005	NR	0.19	3	< 0.02	NR	0.03	2	0.01	4
212	3.3	3		< 0.1	NR	0.33	4	< 0.1	NR	0.05	3	0.01	3
213	4.0	1		< 1	NR	< 1	NR			0.04	4	< 0.02	NR
215	2.0	2		< 0.01	NR	0.51	0	< 0.01	NR	0.04	4	< 0.01	NR
220	2.7	3		0.00	2			0.01	4			0.00	2
221	2.8	5		0.04	3	0.48	1	0.02	4	0.03	3	0.01	3
224	2.2	5		0.12	2	0.45	1	0.06	2	0.03	3	0.02	3
234	3.3	3		0.07	4			< 0.01	NR	0.03	3	0.01	3
240	0.7	3		0.19	0	0.47	1	< 0.1	NR	0.07	1	< 0.1	NR
241	3.6	5		0.01	2	0.26	4	0.01	4	0.03	4	0.02	4
243	3.0	2		0.04	3			< 0.01	NR	0.05	3		
247	4.0	1						< 0.01	NR			0.02	4
253	4.0	1				0.29	4						

Table 9. *Laboratory performance ratings for standard reference water sample N-52 (nutrient constituents)*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/5, number of reported values of 5 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

		Analyte =	NH_3 as N	1.33	NH_3 + Org N as N		NO_3 + NO_2 as N		total P as P		PO_4 as P	
			Ammonia)	0.09	(Ammonia+Organic N)		(Nitrate + Nitrite)		(total Phosphorus)		(Orthophosphate as P)	
		MPV =	1.33 mg/L		2.37 mg/L		1.72 mg/L		1.60 mg/L		1.16 mg/L	
		F-pseudosigma =	0.09		0.22		0.10		0.06		0.06	
Lab	OLR	V/5	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.4	5	1.36	4	2.16	3	1.70	4	1.55	3	1.20	3
3	3.0	5	1.27	3	2.20	3	1.80	3	1.55	3	1.12	3
5	2.0	3	1.38	3			1.30	0			1.12	3
7	1.3	4	1.10	0			1.54	1	1.64	3	1.05	1
10	3.6	5	1.32	4	2.48	3	1.74	4	1.62	4	1.20	3
11	3.2	5	1.42	2	2.58	3	1.71	4	1.58	4	1.13	3
13	3.8	4	1.30	4			1.72	4	1.61	4	1.20	3
15	2.6	5	1.11	0	2.58	3	1.72	4	1.68	2	1.15	4
16	1.6	5	1.25	3	1.94	1	1.73	4	1.97	0	1.45	0
18	2.6	5	1.37	4	1.89	0	1.83	2	1.59	4	1.19	3
19	3.5	4	1.34	4			1.78	3	1.64	3	1.14	4
22	4.0	1							1.59	4		
23	1.3	3	0.93	0					1.43	0	1.14	4
25	2.4	5	1.14	0	2.64	2	1.77	4	1.68	2	1.17	4
26	2.0	2	1.42	2							1.24	2
30	4.0	2					1.74	4			1.16	4
33	2.5	2	1.22	2							1.12	3
36	2.0	5	1.44	2	2.15	3	1.90	1	1.40	0	1.15	4
38	3.6	5	1.33	4	2.23	3	1.70	4	1.57	4	1.13	3
42	0.3	3					28.10	0	1.50	1	0.58	0
46	2.0	5	1.32	4	2.24	3	1.48	0	1.55	3	0.12	0
48	2.0	5	1.20	2	2.30	4	1.61	2	1.50	1	1.05	1
53	2.0	3	1.30	4			1.84	2			3.49	0
55	3.6	5	1.37	4	2.40	4	1.73	4	1.56	3	1.21	3
56	1.0	5	1.50	1	2.74	1	1.79	3	1.10	0	0.66	0
57	1.4	5	1.22	2	3.60	0	1.90	1	1.60	4	1.30	0
58	1.5	4	1.18	1	2.49	3			1.54	2	0.92	0
59	4.0	5	1.35	4	2.30	4	1.74	4	1.60	4	1.16	4
64	4.0	3	1.34	4			1.72	4			1.17	4
68	2.8	4	1.59	0	2.42	4	1.68	4	1.64	3		
69	4.0	1					1.76	4				
70	3.4	5	1.24	3	2.34	4	1.58	2	1.62	4	1.16	4
75	2.0	1					1.61	2				
76	4.0	1	1.29	4								
80	2.0	3	1.30	4			0.86	0			1.24	2
81	2.6	5	1.50	1	2.15	3	1.72	4	1.59	4	1.06	1
83	2.8	4	1.20	2			1.59	2	1.60	4	1.20	3
85	3.2	5	1.25	3	2.43	4	1.55	1	1.61	4	1.15	4
86	3.0	3	1.37	4			1.72	4	1.69	1		
87	2.4	5	1.00	0	2.10	2	1.74	4	1.63	3	1.19	3
88	1.0	3	1.09	0			2.49	0			1.11	3
89	3.8	5	1.32	4	2.22	3	1.72	4	1.62	4	1.16	4
90	3.0	1	1.38	3								
91	3.3	4	1.34	4	2.43	4	1.62	2	1.63	3		
92	3.7	3					1.79	3	1.60	4	1.18	4
96	3.8	5	1.37	4	2.39	4	1.64	3	1.58	4	1.14	4
97	3.2	5	1.34	4	2.23	3	1.65	3	1.52	2	1.16	4
102	2.2	5	1.00	0	2.23	3	1.83	2	1.57	3	1.11	3
104	4.0	5	1.33	4	2.43	4	1.69	4	1.61	4	1.17	4
105	3.0	5	1.36	4	1.50	0	1.76	4	1.65	3	1.17	4
107	3.0	4	1.39	3			1.74	4	1.66	2	1.12	3
108	3.3	4	1.29	4	2.34	4	1.75	4			1.28	1
113	2.6	5	1.38	3	2.14	2	1.50	0	1.60	4	1.15	4
114	1.3	3	1.10	0			2.29	0	1.60	4		
118	2.2	5	1.26	3	2.47	4	1.94	0	1.90	0	1.18	4
119	2.6	5	1.42	2	1.87	0	1.64	3	1.62	4	1.18	4
127	2.4	5	1.68	0	2.66	2	1.71	4	1.54	2	1.16	4
128	3.5	4	1.30	4	2.50	3	1.72	4			1.19	3
129	1.8	5	1.18	1	2.18	3	1.75	4	1.50	1	1.04	0
132	2.3	4	1.32	4			1.53	1	1.63	3	1.25	1

Table 9. *Laboratory performance ratings for standard reference water sample N-52 (nutrient constituents)--Continued*

(MPV, most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/5, number of reported values of 5 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

		Analyte =	NH_3 as N	1.33	NH_3 + Org N as N		NO_3 + NO_2 as N		total P as P		PO_4 as P	
			Ammonia)	0.09	(Ammonia+Organic N)		(Nitrate + Nitrite)		(total Phosphorus)		(Orthophosphate as P)	
		MPV =	1.33 mg/L		2.37 mg/L		1.72 mg/L		1.60 mg/L		1.16 mg/L	
		F-pseudosigma =	0.09		0.22		0.10		0.06		0.06	
Lab	OLR	V/5	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
133	2.4	5	1.35	4	2.05	2	2.16	0	1.63	3	1.12	3
134	3.6	5	1.37	4	2.30	4	1.73	4	1.65	3	1.19	3
138	3.2	5	1.28	3	2.38	4	1.66	3	1.52	2	1.15	4
140	1.8	5	1.52	0	2.35	4	1.66	3	1.66	2	1.01	0
141	3.4	5	1.26	3	2.56	3	1.72	4	1.59	4	1.21	3
142	2.8	5	1.26	3	2.33	4	1.98	0	1.65	3	1.15	4
143	3.4	5	1.34	4	2.53	3	1.85	2	1.60	4	1.15	4
145	3.2	5	1.45	2	2.34	4	1.68	4	1.66	2	1.17	4
146	0.0	4	3.57	0			4.54	0	4.03	0	3.48	0
155	2.6	5	1.29	4	2.12	2	1.66	3	1.52	2	1.08	2
158	3.8	4	1.36	4			1.76	4	1.60	4	1.10	3
180	3.4	5	1.32	4	2.47	4	1.74	4	1.68	2	1.19	3
183	2.0	3					0.15	0	1.58	4	1.10	2
190	1.6	5	1.55	0	2.70	1	1.82	3	1.22	0	1.14	4
191	3.5	2					1.73	4			1.21	3
193	2.5	2					1.63	3	1.67	2		
197	4.0	2	1.34	4			1.74	4				
203	2.4	5	1.41	3	1.44	0	1.83	3	1.63	4	1.22	2
204	2.8	4	1.35	4	2.48	3	1.35	0	1.59	4		
212	2.8	5	1.30	4	2.50	3	16.40	0	1.60	4	1.20	3
213	1.5	4	1.50	1	4.00	0			1.58	4	1.06	1
215	2.2	5	1.35	4	2.51	3	1.72	4	0.82	0	0.54	0
220	1.3	3	1.36	4			2.04	0			1.32	0
221	2.4	5	1.31	4	2.30	4	1.87	2	1.76	0	1.09	2
224	2.0	5	1.40	3	3.70	0	1.70	4	1.55	3	1.31	0
234	3.3	4	1.40	3			1.65	3	1.62	4	1.11	3
240	2.6	5	1.32	4	2.42	4	1.60	2	2.03	0	1.21	3
241	3.4	5	1.35	4	2.15	3	1.81	3	1.56	3	1.16	4
243	3.0	3	1.24	3			1.76	4	1.67	2		
247	3.0	2					1.78	3			1.19	3
248	2.0	4	1.40	3			0.76	0	1.56	3	1.23	2
249	1.4	5	0.74	0	2.57	3	6.71	0	1.75	0	1.18	4
253	1.4	5	1.29	4	3.62	0	0.92	0	1.43	0	1.20	3
255	3.5	4	1.25	3	< 5	NR	1.72	4	1.58	4	1.13	3

Table 10. *Laboratory performance ratings for standard reference water sample P-27 (low ionic strength)*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for for all reported values; V/11, number of reported values of 11 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte =	Acidity as $CaCO_3$		Ca (Calcium)		Cl (Chloride)		F (Fluoride)		K (Potassium)		Mg (Magnesium)	
			MPV =	4.74 mg/L		2.53 mg/L		1.20 mg/L		0.100 mg/L		0.336 mg/L		0.461 mg/L	
			F-pseudosigma =	3.19		0.24		0.49		0.033		0.038		0.050	
Lab	OLR	V/11	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.8	9	2.50	3	2.50	4	1.20	4	< 0.1	NR	0.330	4	0.450	4
2	2.0	8			2.80	2	1.13	4			0.330	4	0.545	1
3	2.0	9	< 10	NR	2.40	3	1.78	2	0.063	2	0.330	4	0.420	3
5	2.3	8	7.42	3	2.41	4	2.39	0			< 1	NR	0.434	3
7	3.8	5	5.20	4			1.13	4	< 0.5	NR				
15	1.9	9	< 2	NR	2.82	2	1.63	3	0.108	4	0.511	0	0.639	0
23	3.7	6			2.60	4	1.27	4	< 0.1	NR	0.350	4	< 0.5	NR
25	3.1	8	27.00	0	2.50	4	1.20	4	0.100	4			0.420	3
26	3.4	9			2.96	1	1.13	4	0.120	3	0.350	4	0.470	4
28	1.5	4			2.85	2					0.190	0	0.450	4
33	3.8	8			2.37	3	1.24	4			0.300	3	0.440	4
36	2.5	4			2.40	3	< 5	NR	< 0.1	NR	< 0.5	NR	< 0.5	NR
38	3.6	7	6.85	3	2.47	4					0.320	4	0.437	4
39	2.2	5					2.00	1	0.006	0				
42	2.4	5			3.30	0	1.10	4			0.400	1	0.500	3
46	3.3	7			2.44	4	1.65	3			0.330	4	0.442	4
48	1.9	9			2.53	4	2.00	1	0.240	0	0.380	2	0.500	3
58	1.9	9			1.70	0	1.49	3	0.092	4	0.350	4	0.320	0
59	3.5	4			< 5	NR	1.10	4	< 0.2	NR	< 5	NR	< 5	NR
64	3.9	8			2.50	4	1.20	4			0.320	4	0.450	4
81	3.4	10	0.50	2	2.42	4	1.15	4	0.069	3	0.336	4	0.433	3
83	3.2	6	5.10	4	2.50	4	< 5	NR	0.170	0	< 2	NR	0.434	3
89	3.4	10	2.26	3	2.29	3	1.29	4	0.537	0	0.333	4	0.453	4
92	3.0	2												
105	2.9	8	0.42	2	2.58	4	1.14	4	< 0.2	NR	< 0.5	NR	0.387	2
107	3.6	7			2.39	3	< 0.6	NR	0.077	3	0.340	4	0.450	4
109	2.6	10	6.57	3	2.58	4	1.01	4	0.090	4	0.270	1	0.490	3
110	3.3	6			1.45	0	1.13	4					0.450	4
113	3.0	8			2.86	2	1.98	1	0.090	4	0.288	2	0.504	3
119	3.1	9			2.57	4	1.18	4	0.100	4	0.000	0	0.410	2
132	2.1	7	5.08	4	2.71	3					0.550	0	0.450	4
134	3.9	9			2.60	4	1.17	4	0.120	3	0.343	4	0.447	4
138	3.9	9			2.60	4	1.07	4	0.101	4	0.330	4	0.460	4
140	2.2	9			2.39	3	0.87	3	0.053	2	0.289	2	0.467	4
141	3.5	10	2.40	3	2.74	3	1.40	4	0.130	3	0.351	4	0.486	3
143	3.7	3					1.20	4						
145	2.8	9			2.67	3	1.04	4	0.080	3	0.290	2	0.490	3
146	2.8	5	< 10	NR	2.43	4	1.53	3	< 0.2	NR	< 1	NR	< 0.5	NR
155	2.0	3			2.72	3								
158	1.3	8			3.16	0	0.27	1			0.350	4	0.550	1
180	3.9	7			2.62	4	1.00	4			< 1.26	NR	0.469	4
183	1.7	3					1.01	4						
190	3.1	10	6.00	4	2.19	2	1.09	4	0.073	3	0.319	4	0.427	3
191	2.2	6			2.32	3	1.83	2			1.110	0	0.470	4
193	3.0	1												
196	4.0	3					1.19	4	0.106	4				
197	3.5	2					0.94	3						
203	1.3	3					< 2	NR						
204	2.7	6			2.75	3	1.40	4					3.580	0
215	2.8	9	3.60	4	2.60	4	2.00	1	0.100	4	< 1	NR	0.460	4
220	2.9	7	7.21	3	2.50	4	1.18	4			0.300	3	0.400	2
221	2.4	7			2.52	4	1.47	3			0.329	4	0.461	4
224	3.2	10	4.01	4	2.59	4	1.36	4	0.450	0	0.332	4	0.519	2
235	2.0	5			2.75	3					0.460	0	0.490	3
240	3.1	8	1.88	3	2.65	4	1.13	4	0.076	3			0.430	3
241	2.2	9			2.30	3	3.50	0	0.116	4	0.370	3	0.300	0
243	2.0	2												
244	4.0	2												
247	2.8	6	0.20	2			1.80	2	0.100	4				
255	3.7	6			2.57	4	< 5	NR	< 0.2	NR	0.367	3	0.470	4

Table 10. *Laboratory performance ratings for standard reference water sample P-27 (low ionic strength)--Continued*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for for all reported values; V/11, number of reported values of 11 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

			Analyte =	Acidity as $CaCO_3$		Ca (Calcium)		Cl (Chloride)		F (Fluoride)		K (Potassium)		Mg (Magnesium)	
			MPV =	4.74 mg/L		2.53 mg/L		1.20 mg/L		0.100 mg/L		0.336 mg/L		0.461 mg/L	
			F-pseudosigma =	3.19		0.24		0.49		0.033		0.038		0.050	
Lab	OLR	V/11		RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
256	1.3	7				2.50	4	1.95	1			0.000	0	1.500	0
257	2.2	10		1.25	2	2.80	2	1.63	3	0.085	4	0.200	0	0.630	0
258	0.4	9				1.60	0	8.40	0	0.170	0	0.500	0	1.940	0
261	0.9	7				3.26	0	0.00	0			< 0.39	NR	1.950	0
262	2.4	9				2.50	4	1.30	4	0.082	3	0.350	4	0.440	4
265	2.4	7				2.90	1	0.95	3	< 0.1	NR	0.370	3	0.720	0
268	3.0	8				1.42	0	1.11	4			0.365	3	0.480	4
270	0.3	3				1.06	0					0.410	1		
271	1.1	8				4.28	0	2.00	1			0.900	0	10.370	0
272	1.0	9		15.00	0	2.41	3	7.09	0	0.405	0	0.000	0	0.000	0
273	1.7	9		5.20	4	2.80	2	13.00	0	0.400	0	0.412	1	0.521	2
276	1.8	6		4.40	4	1.80	0	3.50	0					1.400	0

Table 10. *Laboratory performance ratings for standard reference water sample P-27 (low ionic strength)–Continued*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/11, number of reported values of 11 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Na (Sodium)		pH		PO_4 as P		SO_4 (Sulfate)		Specific Conductance	
MPV =	1.34 mg/L		6.92		0.002 mg/L		2.42 mg/L		26.1	µS/cm
F-pseudosigma =	0.10		0.32		0.014		0.37		1.1	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	1.34	4	6.99	4	< 0.001	NR	2.43	4	26.8	3
2	2.02	0	6.33	1			2.32	4	21.3	0
3	0.78	0	6.22	0	< 0.01	NR	3.40	0	26.6	4
5	1.34	4	6.21	0			4.37	0	26.3	4
7			6.98	4	< 0.16	NR	2.40	4	25.3	3
15	1.76	0	6.23	0	< 0.02	NR	2.50	4	26.1	4
23	1.43	3	6.93	4	< 0.01	NR	< 2.5	NR	27.0	3
25	1.36	4	7.13	3					27.0	3
26	1.32	4	6.95	4	< 0.5	NR	2.46	4	27.2	3
28	0.94	0			0.002	NR				
33	1.30	4	6.74	3	< 0.01	NR	2.34	4	25.8	4
36	1.20	2	6.96	4	< 0.025	NR	< 5	NR	23.9	1
38	1.24	3	7.10	3	0.001	NR			26.1	4
39			6.90	4	< 0.005	NR	2.30	4	27.5	2
42	1.30	4			0.002	NR	< 2.5	NR		
46	1.31	4	7.58	0			2.40	4		
48	1.38	4	6.40	1	< 0.005	NR	60.00	0	24.5	2
58	0.96	0	8.07	0	0.010	NR	2.00	2	26.1	4
59	< 5	NR	6.69	3			2.30	4	25.4	3
64	1.29	4	7.01	4	0.001	NR	2.44	4	25.5	3
81	1.24	3	6.88	4	< 0.005	NR	2.65	3	26.3	4
83	1.33	4			0.009	NR	2.52	4		
89	1.31	4	7.01	4	< 0.002	NR	2.48	4	25.8	4
92			7.03	4	< 0.005	NR	1.88	2		
105	1.18	1	6.65	3	0.002	NR	2.28	4	27.0	3
107	1.34	4	7.15	3	< 0.002	NR			26.0	4
109	1.36	4	6.17	0			3.70	0	27.0	3
110	1.32	4	7.03	4			2.34	4		
113	1.30	4	7.05	4	< 0.004	NR	< 1	NR	26.0	4
119	1.35	4	6.49	2	0.000	NR	2.38	4	26.0	4
132	1.50	1	7.15	3	< 0.01	NR			20.5	0
134	1.34	4	6.93	4	0.000	NR	2.35	4	26.6	4
138	1.35	4	6.78	4	< 0.004	NR	2.31	4	26.7	3
140	1.43	3	6.42	1	< 0.01	NR	2.00	2	32.5	0
141	1.39	4	6.96	4	< 0.05	NR	2.57	4	26.8	3
143			6.69	3	0.002	NR			25.9	4
145	1.34	4	7.30	2	< 0.01	NR	2.19	3	28.0	1
146	1.26	3	6.90	4	< 0.05	NR	< 5	NR	30.6	0
155			6.53	2	0.001	NR			27.8	1
158	0.96	0	4.69	0			30.50	0	26.1	4
180	1.34	4	7.10	3	< 0.01	NR	2.60	4	26.0	4
183			7.46	1					23.2	0
190	1.39	4	6.60	3	0.021	NR	2.80	2	27.6	2
191	2.07	0			0.400	NR	2.38	4		
193									26.8	3
196					< 0.05	NR	2.40	4		
197							2.36	4		
203			6.50	2			2.86	2	263.0	0
204			6.74	3	< 0.002	NR	2.03	2	26.3	4
215	1.60	0	7.05	4	0.030	NR	3.16	1	26.7	3
220	1.30	4					8.90	0		
221	1.45	2	6.09	0			0.41	0		
224	1.34	4	6.76	4	0.001	NR	2.62	3	25.0	3
235	1.19	2			< 0.5	NR	2.89	2		
240			6.74	3	< 0.1	NR	2.68	3	24.7	2
241	1.30	4	6.83	4	0.003	NR	2.00	2	20.0	0
243			8.23	0					25.7	4
244			6.98	4					25.9	4
247			7.01	4	< 0.001	NR	2.80	2	27.1	3
255	1.33	4	7.20	3					26.2	4

Table 10. *Laboratory performance ratings for standard reference water sample P-27 (low ionic strength)--Continued*

(MPV,most probable value; ug/L, micrograms per liter; mg/L, milligrams per liter; Lab, laboratory number; OLR, overall laboratory rating for all reported values; V/11, number of reported values of 11 possible values; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte =	Na (Sodium)		pH		PO_4 as P		SO_4 (Sulfate)		Specific Conductance	
MPV =	1.34 mg/L		6.92		0.002 mg/L		2.42 mg/L		26.1 µS/cm	
F-pseudosigma =	0.10		0.32		0.014		0.37		1.1	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
256	0.92	0	7.04	4			17.04	0		
257	1.20	2	7.03	4	0.020	NR	2.97	2	25.5	3
258	1.50	1	6.30	1	0.038	NR	1.99	2	29.4	0
261	2.30	0	6.44	2	< 0.05	NR	< 0.5	0	26.1	4
262	1.46	2	5.18	0			6.38	0	24.0	1
265	1.19	2	6.76	4			2.39	4		
268	1.38	4	6.76	4			2.25	4	24.0	1
270	1.68	0								
271	4.30	0	6.98	4	0.150	NR	0.00	0	25.7	4
272	2.00	0	7.21	3					25.0	3
273	1.46	2	7.03	4	0.000	NR			50.7	0
276			6.89	4					25.1	3

Table 11. *Laboratory performance ratings for standard reference water sample Hg-23 (mercury)*

(MPV,most probable value; ug/L, micrograms per liter; Lab, laboratory number; V/1 number of reported values of 1 value; RV, reported value; <, less than)

Rating	Absolute Z-value	Rating	Absolute Z-value
4 (Excellent)	0.00 - 0.50	1 (Questionable)	1.51 - 2.00
3 (Good)	0.51 - 1.00	O (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte = Hg (Mercury)
MPV = 0.34 µ g/L
F-pseudosigma = 0.07

Lab	V/1	RV	Rating
1	1	0.30	3
3	1	4.40	0
7	1	0.34	4
10	1	0.33	4
11	1	0.28	3
13	1	< 0.4	NR
15	1	0.29	3
16	1	0.35	4
18	1	0.38	3
26	1	0.37	4
28	1	2.40	0
32	1	0.29	3
34	1	0.32	4
36	1	0.30	3
39	1	0.30	3
42	1	0.32	4
46	1	0.31	4
48	1	0.37	4
50	1	0.52	0
51	1	0.39	3
55	1	0.30	3
58	1	< 0.5	NR
59	1	0.32	4
68	1	0.25	2
69	1	0.33	4
70	1	0.40	3
76	1	0.29	3
81	1	0.30	3
86	1	0.31	3
87	1	0.50	0
89	1	0.39	3
96	1	0.37	4
97	1	< 0.42	NR
105	1	0.37	4
108	1	0.53	0
113	1	0.39	3
119	1	0.39	3
127	1	0.32	4
133	1	0.33	4
134	1	0.28	3
138	1	0.32	4
141	1	0.43	2
142	1	0.44	2
144	1	0.35	4
145	1	0.43	2
146	1	0.36	4
149	1	0.35	4
193	1	0.43	2
212	1	0.28	3
213	1	0.75	0
215	1	0.92	0
219	1	0.30	3
221	1	0.30	3
234	1	0.34	4
235	1	0.43	2
241	1	0.39	3
245	1	0.28	3
255	1	0.32	4
257	1	1.00	0
259	1	0.40	3
265	1	0.20	1

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0. Other/Not reported		
1. AA: direct, air	=	atomic absorption: direct,air
2. AA: direct, N_2O	=	atomic absorption: direct,nitrous oxide
3. AA: graphite furnace	=	atomic absorption: graphite furnace
4. ICP	=	inductively coupled plasma
5. DCP	=	direct current plasma
6. ICP/MS	=	inductively coupled plasma/mass spectrometry
7. IC	=	ion chromatography
10. AA: extraction	=	atomic absorption: extraction [chelating agent(s) specified]
11. AA: hydride	=	atomic absorption: hydride [reducing agent specified]
12. AA: flame emission	=	atomic absorption: flame emission
22. Color:	=	colorimetric [color reagent specified]

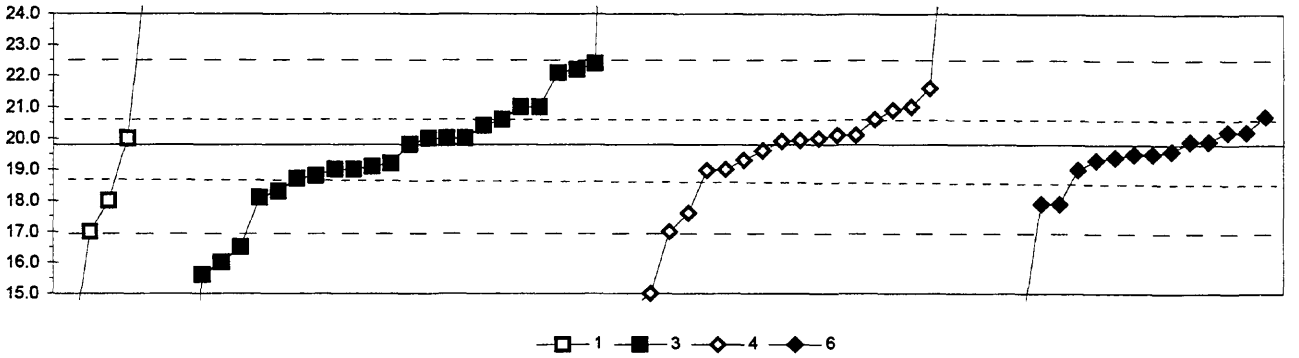
Abbreviations and symbols

N	=	number of samples
MPV	=	most probable value
F-pseudosigma	=	nonparametric statistic deviation
Hu	=	upper hinge value
Hl	=	lower hinge value
µg/L	=	micrograms per liter
mg/L	=	milligrams per liter
Lab	=	laboratory code number
NR	=	not rated, less than value reported
<	=	less than

Constituent		page	Constituent		page
Ag	Silver	45	Mg	Magnesium	59
Al	Aluminium	46	Mn	Manganese	60
As	Arsenic	47	Mo	Molybdenum	61
B	Boron	48	Na	Sodium	62
Ba	Barium	49	Ni	Nickel	63
Be	Beryllium	50	Pb	Lead	64
Ca	Calcium	51	Sb	Antimony	65
Cd	Cadmium	52	Se	Selenium	66
Co	Cobalt	53	SiO2	Silica	67
Cr	Chromium	54	Sr	Strontium	68
Cu	Copper	55	Tl	Thallium	69
Fe	Iron	56	U	Uranium	70
K	Potassium	57	V	Vanadium	71
Li	Lithium	58	Zn	Zinc	72

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Ag (Silver) µg/L



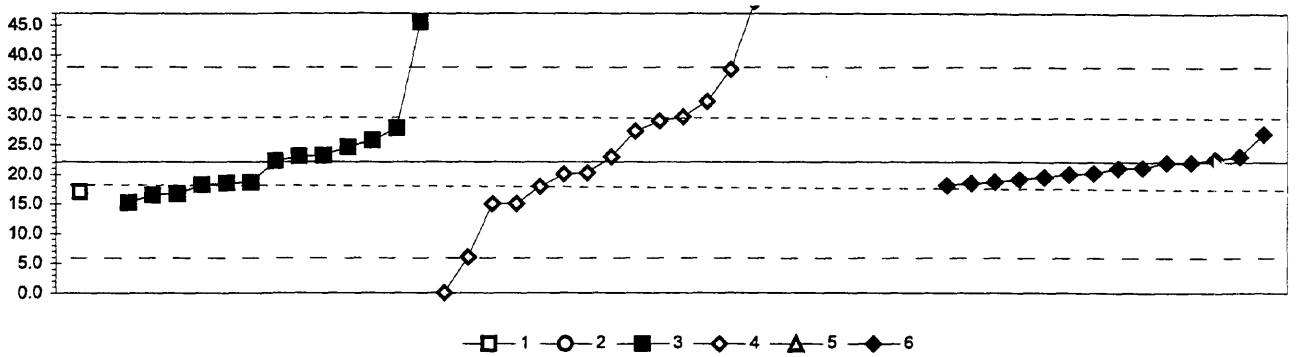
1. AA: direct air		6. ICP/MS		
3. AA: graphite furnace				
4. ICP				
N =	6	24	21	14
Minimum =	13.0	6.7	14.5	14.0
Maximum =	26.0	40.0	143.0	20.7
Median =		19.5	20.0	19.5
F-pseudosigma =		1.7	1.5	0.7

MPV =	19.8
F-pseudosigma =	1.4
N =	65
Hu =	20.6
Hl =	18.7

Lab	Rating	Z-value	1	3	4	6
1	4	-0.15				19.6
3	0	-3.41			15.0	
7	2	1.28			21.6	
11	3	0.85			21.0	
13	4	0.21			20.1	
15	1	-1.56			17.6	
16	4	0.07				19.9
18	3	0.78			20.9	
23	1	1.70		22.2		
26	0	-2.98		15.6		
30	3	-0.57			19.0	
32	4	0.07				19.9
36	0	-4.83	13.0			
39	4	0.28				20.2
40	4	-0.36			19.3	
42	3	-0.57				19.0
46	4	0.14		20.0		
48	4	0.14		20.0		
58	3	0.85		21.0		
68	0	14.34		40.0		
69	4	0.00		19.8		
70	3	-0.78		18.7		
73	1	-1.99			17.0	
75	4	0.21			20.1	
76	4	-0.28				19.4
85	4	0.14	20.0			
87	0	4.40	26.0			
89	4	-0.50		19.1		
96	4	0.43		20.4		
97	3	-0.57		19.0		
102	0	87.47			143.0	
105	2	-1.35				17.9
107	4	0.14		20.0		
113	2	-1.21		18.1		
114	2	-1.28	18.0			
118	0	-9.30		6.7		
119	0	-2.34		16.5		
127	3	-0.71		18.8		
128	4	-0.21				19.5
133	4	-0.14			19.6	
134	3	-0.59			19.0	
138	3	0.57			20.6	
141	0	6.53			29.0	
142	4	-0.36				19.3
146	0	-6.40			< 10	
151	2	-1.35				17.9
180	4	0.07			19.9	
190	1	1.85		22.4		
193	3	-0.57		19.0		
196	4	-0.21				19.5
212	0	-4.12				14.0
213	4	-0.43		19.2		
215	0	5.82			28.0	
217	3	0.64				20.7
221	1	1.63		22.1		
234	3	0.57		20.6		
235	4	0.14			20.0	
236	0	-3.76			14.5	
241	2	-1.07		18.3		
249	0	-2.70		16.0		
255	4	0.09			19.9	
256	0	3.98	25.4			
257	1	-1.99	17.0			
259	3	0.85		21.0		
265	4	0.28				20.2
273	0	9.37			33.0	

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Al (Aluminum) µg/L



1. AA: direct air
2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
5. DCP
6. ICP/MS

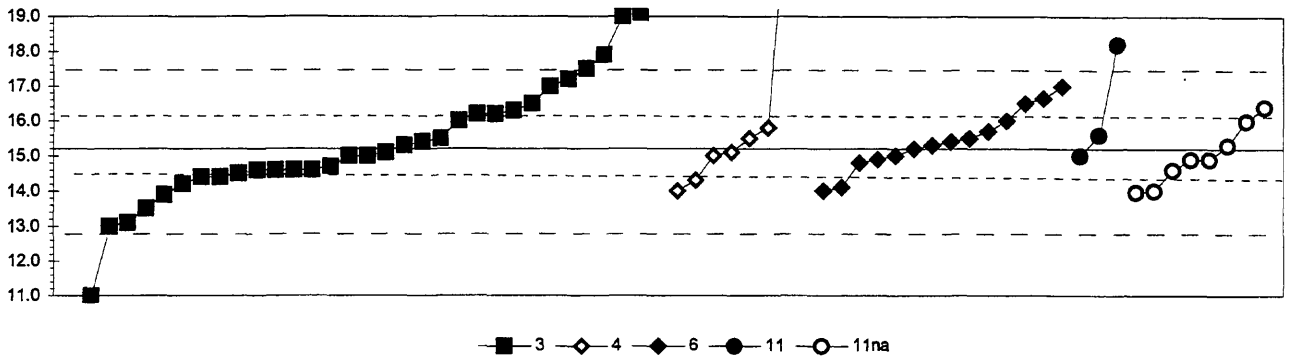
	1	2	3	4	5	6
N =	1	1	13	20	1	14
Minimum =	17.0	110.0	15.2	0.0	100.0	18.1
Maximum =			45.5	206.0		26.9
Median =			22.2	29.4		20.6
F-pseudosigma =			4.7	25.8		2.1

MPV = 22.1
F-pseudosigma = 8.3
N = 50
Hu = 29.7
Hl = 18.5

Lab	Rating	Z-value	1	2	3	4	5	6
1	4	-0.36						19.1
3	0	22.15				206.0		
4	NR					< 2000		
7	1	1.87				37.6		
13	4				22.2			
15	NR					< 50		
16	4	-0.43						18.5
18	NR					< 100		
23	NR				< 50			
26	4				18.2			
28	2	1.23				32.3		
32	4	0.06						22.6
33	0	9.38					100.0	
36	NR			< 200				
42	4	0.11						23.0
48	4				18.5			
58	3	-0.61	17.0					
68	0	3.90				54.5		
69	3				16.5			
70	NR					< 100		
75	NR					< 30		
76	4	-0.23						20.2
81	NR							< 6
83	NR					< 25		
85	NR					< 100		
89	4				23.1			
97	4				25.7			
102	4	-0.25				20.0		
105	4	-0.12						21.1
107	4				23.0			
113	4	-0.23				20.2		
118	NR			< 2000				
119	4	-0.31						19.5
127	NR					< 30		
128	4	-0.41						18.7
132	0	3.24				49.0		
134	4	0.10				22.9		
138	4	-0.25						20.0
141	NR					< 100		
142	3	0.62				27.3		
145	0	4.36				58.3		
146	NR					< 200		
151	4	-0.48						18.1
180	NR					< 40.6		
190	3				16.7			
191	4	-0.01						22.0
196	4	-0.01						22.0
203	4				18.6			
204	4				24.6			
212	4	-0.13						21.0
215	0	13.84				137.0		
217	0	3.73				53.1		
219	3	0.83				29.0		
221	3				27.8			
224	0	-2.66				0.0		
234	3	-0.51				17.9		
235	3	-0.86				15.0		
236	3	0.92				29.7		
240	0	19.14				181.0		
241	3				15.2			
249	0				45.5			
255	3	-0.86				15.0		
257	0	10.59		110.0				
265	3	0.57						26.9
273	1	-1.94				6.0		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

As (Arsenic) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS
11. AA: hydride
11na. AA: hydride $NaBH_4$

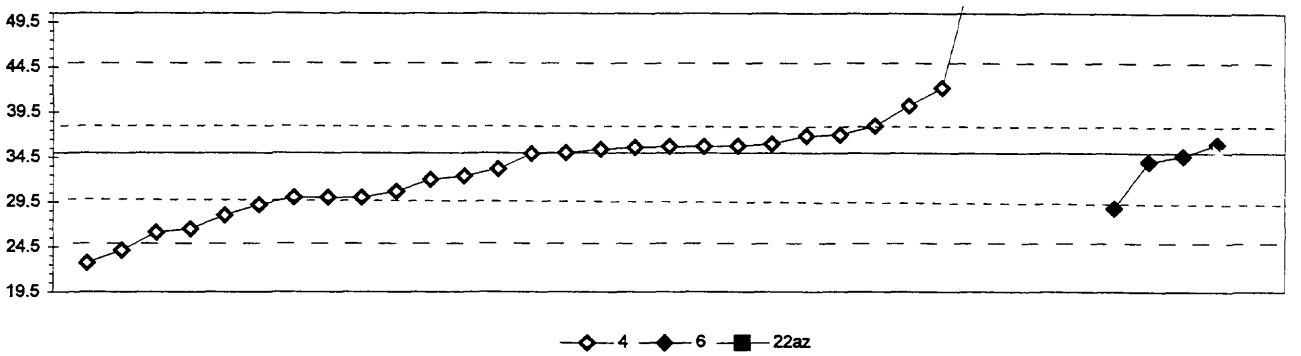
	3	4	6	11	11na
N =	33	8	14	3	8
Minimum =	9.6	14.0	14.0	15.0	14.0
Maximum =	20.5	27.4	17.0	18.2	16.4
Median =	15.0	15.3	15.4		14.9
F-pseudosigma =	1.4	3.2	0.8		1.0

MPV = 15.2
F-pseudosigma = 1.2
N = 66
Hu = 16.2
HI = 14.6

Lab	Rating	Z-value	3	4	6	11	11na
1	3	0.89	16.2				
3	3	-0.72		14.3			
7	NR			< 120			
10	3	0.72					16.0
11	4	-0.13		15.0			
13	4	0.30	15.5				
15	NR			< 100			
16	4	0.21			15.4		
18	4	-0.46	14.6				
23	0	4.51	20.5				
26	4	-0.21					14.9
30	3	-0.97		14.0			
32	4	-0.21			14.9		
34	4	0.38				15.6	
36	0	-3.50	11.0				
39	0	2.57				18.2	
42	4	-0.13			15.0		
46	2	-1.39	13.5				
48	3	-0.80	14.2				
50	3	-0.97					14.0
58	0	3.25	19.0				
68	0	-4.72	9.6				
69	3	0.89	16.2				
70	4	0.13	15.3				
73	0	5.78		22.0			
75	4	-0.46					14.6
76	2	1.14			16.5		
80	3	0.97	16.3				
81	3	0.72	16.0				
86	4	0.13					15.3
87	4	-0.21					14.9
89	2	1.05					16.4
96	4	-0.46	14.6				
97	1	1.56	17.0				
102	3	0.55		15.8			
105	4	0.13			15.3		
109	1	-1.73	13.1				
113	1	1.98	17.5				
118	0	2.32	17.9				
119	4	-0.13				15.0	
127	3	-0.63	14.4				
128	4	-0.30			14.8		
133	2	1.14	16.5				
134	3	-1.00					14.0
138	3	-0.97			14.0		
141	4	-0.13	15.0				
142	4	0.04			15.2		
144	3	-0.55	14.5				
145	0	10.33		27.4			
146	4	-0.04		15.1			
151	3	-0.89			14.1		
180	NR			< 37.1			
190	4	0.21	15.4				
191	1	1.56			17.0		
193	1	-1.81	13.0				
196	4	0.30			15.5		
204	4	-0.04	15.1				
212	3	0.72			16.0		
213	2	-1.05	13.9				
215	4	-0.13	15.0				
217	4	0.46			15.7		
220	4	-0.46	14.6				
221	4	-0.38	14.7				
224	4	0.30		15.5			
234	1	1.73	17.2				
236	NR			< 35			
241	3	-0.63	14.4				
249	0	3.33	19.1				
255	4	-0.46	14.6				
265	2	1.26			16.7		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

B (Boron) µg/L



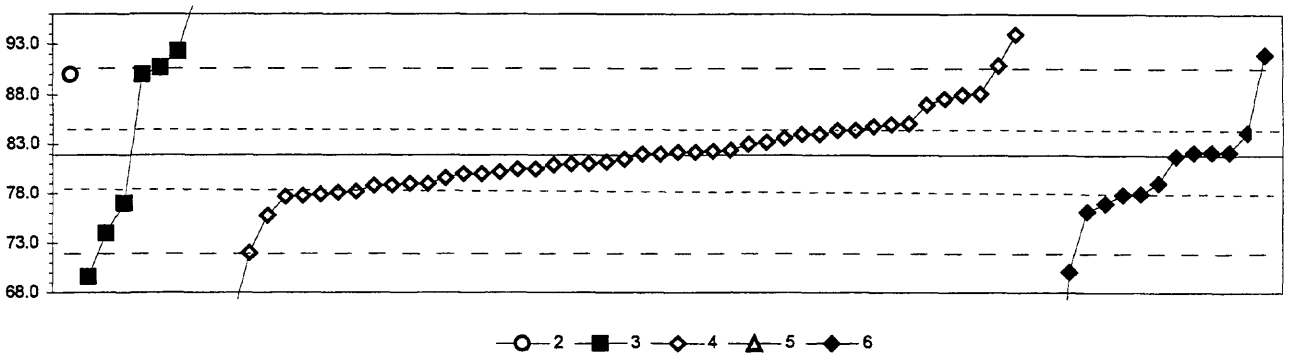
4. ICP					
6. ICP/MS					
22az. Color: azomethine					
		N =	30	4	1
		Minimum =	22.7	28.8	95.0
		Maximum =	140.0	36.0	
		Median =	35.2		
		F-pseudosigma =	5.2		

MPV =	35.0
F-pseudosigma =	5.2
N =	35
Hu =	37.0
Hl =	30.0

Lab	Rating	Z-value	4	6	22az
1	4	-0.02	34.9		
3	3	-0.97	30.0		
11	4	0.39	37.0		
15	NR		< 50		
16	0	4.29	57.1		
18	NR		< 50		
24	3	-0.83	30.7		
26	1	-1.73	26.1		
28	2	1.40	42.2		
42	4	0.19		36.0	
46	0	-2.39	22.7		
48	NR		< 100		
68	0	20.38	140.0		
70	NR		< 50		
85	4	0.12	35.6		
86	4	0.37	36.9		
119	3	-0.58	32.0		
127	4	0.14	35.7		
128	3	-0.97	30.0		
129	0	11.65			95.0
132	1	-1.65	26.5		
134	4	0.15	35.8		
138	2	-1.20		28.8	
141	0	-2.12	24.1		
142	4	0.14	35.7		
145	4	0.08	35.4		
158	3	0.58	38.0		
180	4	-0.50	32.4		
191	4	-0.19		34.0	
212	NR			< 50	
215	0	13.78	106.0		
217	2	1.01	40.2		
219	4	0.00	35.0		
234	4	-0.35	33.2		
235	3	-0.97	30.0		
236	2	-1.13	29.2		
240	2	-1.36	28.0		
255	4	0.19	36.0		
265	4	-0.07		34.7	
273	0	4.46	58.0		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Ba (Barium) µg/L



2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
5. DCP
6. ICP/MS

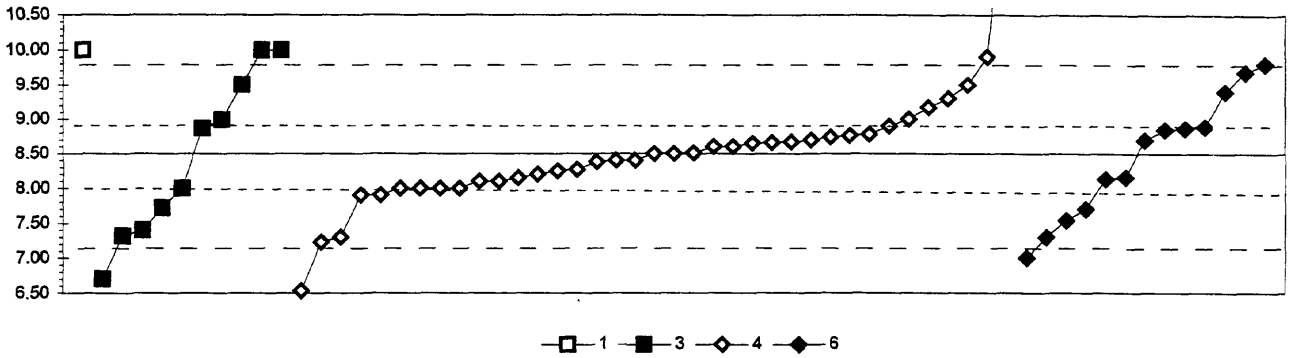
	2	3	4	5	6
N =	1	8	45	1	13
Minimum =	90.0	69.6	64.5	102.0	41.0
Maximum =		98.1	94.0		92.0
Median =		90.4	81.5		79.1
F-pseudosigma =		14.5	3.7		3.9

MPV = 81.9
F-pseudosigma = 4.5
N = 68
Hu = 84.6
Hl = 78.5

Lab	Rating	Z-value	2	3	4	5	6
1	4	0.08					82.2
3	3	0.55			84.4		
4	2	1.13			87.0		
7	4	0.38			83.6		
11	4	-0.20			81.0		
13	2	1.37			88.1		
15	3	-0.88			77.9		
16	4	0.07					82.2
18	3	-0.64			79.0		
19	4	0.07			82.2		
24	3	-0.69			78.8		
25	3	0.55			84.4		
26	4	-0.22			80.9		
28	3	0.71			85.1		
30	4	-0.42			80.0		
32	3	-0.88					77.9
33	0	4.45				102.0	
36	1	1.79	90.0				
39	3	-0.62					79.1
40	3	-0.84			78.1		
46	3	0.69			85.0		
48	0	3.52		97.8			
50	1	1.79		90.0			
55	3	-0.82			78.2		
68	4	0.24			83.0		
70	4	0.09			82.3		
75	4	-0.15			81.2		
81	3	-0.86					78.0
83	3	-0.91			77.8		
85	4	0.29			83.2		
86	4	-0.09			81.5		
87	1	1.95		90.7			
89	0	3.58		98.1			
96	NR		< 100				
97	0	-2.72		69.6			
102	0	2.68			94.0		
105	2	-1.26					76.2
107	2	-1.08		77.0			
113	4	-0.38			80.2		
119	4	0.46			84.0		
121	4	-0.20			81.0		
127	2	-1.35			75.8		
128	0	-2.61					70.1
133	3	-0.93			77.7		
134	3	-0.67			78.9		
138	4	-0.31			80.5		
141	3	0.64			84.8		
142	4	-0.02					81.8
145	1	1.99			90.9		
146	4	0.07			82.2		
151	3	0.51					84.2
158	4	0.02			82.0		
180	3	-0.64			79.0		
191	0	-9.04					41.0
196	4	0.07					82.2
204	2	1.26			87.6		
212	0	2.23					92.0
215	4	0.02			82.0		
217	4	0.11			82.4		
219	4	-0.42			80.0		
224	0	-3.85			64.5		
234	4	0.46			84.0		
235	2	1.35			88.0		
236	3	-0.51			79.6		
240	0	-2.19			72.0		
241	0	2.30		92.3			
255	4	-0.31			80.5		
259	1	-1.75		74.0			
265	2	-1.08					77.0

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Be (Berlyium) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

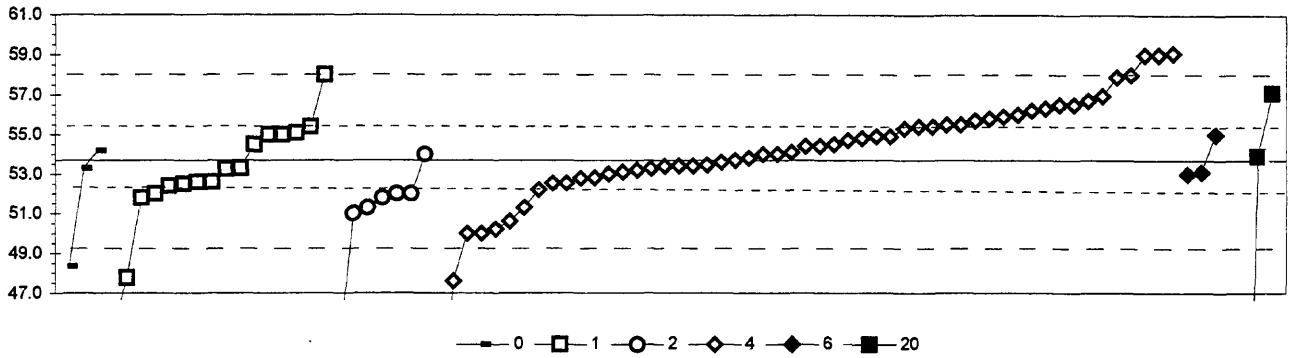
	1	3	4	6
N =	1	10	37	13
Minimum =	10.00	6.70	6.53	7.00
Maximum =		10.00	12.60	9.80
Median =		8.44	8.50	8.70
F-pseudosigma =		1.56	0.47	0.88

MPV = 8.50
F-pseudosigma = 0.66
N = 61
Hu = 8.89
Hl = 8.00

Lab	Rating	Z-value	1	3	4	6
1	3	-0.56				8.13
3	3	-0.76			8.00	
4	3	0.76			9.00	
7	3	-0.61			8.10	
11	4	-0.15			8.40	
13	4	0.36			8.74	
15	4	0.15			8.60	
16	2	-1.21				7.70
18	4	0.00			8.50	
25	0	2.12			9.90	
26	4	0.24			8.66	
30	1	-1.82			7.30	
32	2	1.36				9.40
36	0	2.27		10.00		
39	1	1.52		9.50		
40	3	-0.91			7.90	
46	4	0.39			8.76	
48	0	2.27		10.00		
68	3	0.61			8.90	
69	1	-1.79		7.32		
70	4	0.26			8.67	
75	4	0.00			8.50	
76	1	1.79				9.68
81	0	-2.27				7.00
83	4	-0.45			8.20	
85	2	1.02			9.17	
86	4	-0.38			8.25	
89	1	-1.67		7.40		
96	0	2.27	10.00			
97	3	0.74		8.99		
102	3	-0.76			8.00	
105	1	-1.82				7.30
113	4	0.42			8.78	
119	2	-1.18		7.72		
121	3	-0.76			8.00	
127	0	-2.99			6.53	
128	2	-1.46				7.54
133	4	0.30			8.70	
134	4	0.02			8.51	
138	4	0.23			8.65	
141	3	-0.53			8.15	
142	3	0.56				8.87
144	0	-12.86	< 0.01			
145	1	1.52			9.50	
146	1	-1.92			7.23	
151	3	-0.52				8.16
158	2	1.21			9.30	
180	4	0.15			8.60	
191	3	0.59				8.89
193	3	-0.76		8.00		
196	3	0.53				8.85
212	1	1.97				9.80
213	3	0.56	8.87			
215	3	-0.61			8.10	
217	4	-0.15			8.40	
224	0	6.21			12.60	
234	4	-0.18			8.38	
235	3	-0.76			8.00	
236	3	-0.91			7.90	
241	0	-2.73	6.70			
255	4	-0.35			8.27	
265	4	0.30				8.70

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Ca (Calcium) mg/L



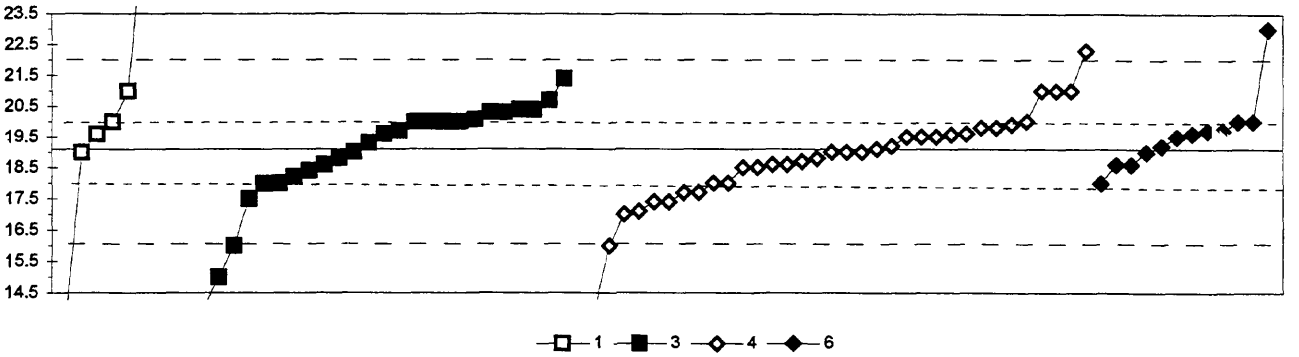
0. Other		4. ICP					
1. AA: direct air		6. ICP/MS					
2. AA: direct nitrous oxide		20. Titrate: colorimetric					
N =	3	16	7	53	3	4	
Minimum =	48.3	44.8	44.0	32.7	53.0	0.0	
Maximum =	54.2	58.0	54.0	59.1	55.0	57.1	
Median =		52.9	51.8	54.4			
F-pseudosigma =		2.1	0.6	2.0			

MPV = 53.7
F-pseudosigma = 2.2
N = 86
Hu = 55.4
Hl = 52.4

Lab	Rating	Z-value	0	1	2	4	6	20
1	4	-0.50				52.5		
3	4	0.34				54.4		
4	4	-0.11				53.4		
7	3	0.97				55.8		
11	2	1.19				56.3		
13	0	2.41				59.0		
15	2	-1.37				50.6		
16	4	0.16				54.0		
18	4	-0.09				53.5		
19	4	-0.02				53.6		
23	3	-0.52		52.5				
24	4	-0.11				53.4		
25	3	0.52				54.8		
26	4	0.07				53.8		
28	3	0.79				55.4		
30	4	0.16			54.0			
32	3	0.61					55.0	
33	4	0.25	54.2					
36	3	-0.74			52.0			
42	2	1.37				56.7		
43	4	0.16				54.0		
46	2	1.06				56.0		
48	2	1.01				55.9		
55	3	0.56				54.9		
68	2	1.28				56.5		
69	3	-0.56		52.4				
70	3	0.79				55.4		
75	4	-0.16		53.3				
81	4	-0.29					53.0	
83	4	-0.25				53.1		
85	3	0.79		55.4				
86	3	0.83				55.5		
87	2	-1.06			51.3			
89	4	-0.47		52.6				
97	3	-0.83		51.8				
102	1	1.96				58.0		
105	4	-0.38				52.8		
107	3	-0.74		52.0				
109	4	-0.47		52.6				
110	3	0.61		55.0				
113	1	1.91				57.9		
114	0	-4.34			44.0			
119	4	0.02				53.7		
121	3	-0.65				52.2		
128	3	0.92				55.7		
129	1	1.96		58.0				
132	4	-0.12				53.4		
133	4	-0.29				53.0		
134	4	0.38				54.5		
138	3	0.56				54.9		
140	4	0.38		54.5				
141	2	1.15				56.2		
142	4	-0.17				53.3		
145	0	2.45				59.1		
146	1	-1.64				50.0		
158	4	0.47				54.7		
180	4	0.34				54.4		
190	4	-0.16	53.3					
191	4	-0.25					53.1	
193	3	-0.83			51.8			
203	0	-2.64		47.8				
204	4	-0.20				53.2		
212	2	1.28				56.5		
215	3	0.74				55.3		
217	1	-1.55				50.2		
218	3	-0.74			52.0			
219	1	-1.64				50.0		
220	3	0.61		55.0				
221	3	0.65		55.1				
224	2	-1.06				51.3		
234	3	0.83				55.5		
235	0	2.41				59.0		
236	4	-0.50				52.5		
240	0	-2.72				47.6		
241	0	-3.98		44.8				
246	0	-9.44				32.7		
255	4	-0.38				52.8		
257	2	-1.19			51.0			
261	1	1.55						57.1
265	4	0.20				54.1		
268	4	-0.18		53.3				
270	0	-2.39	48.3					
271	4	0.12						53.9
272	0	-13.49						23.7
273	2	1.48				56.9		
274	0	-24.12						0.0

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Cd (Cadmium) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

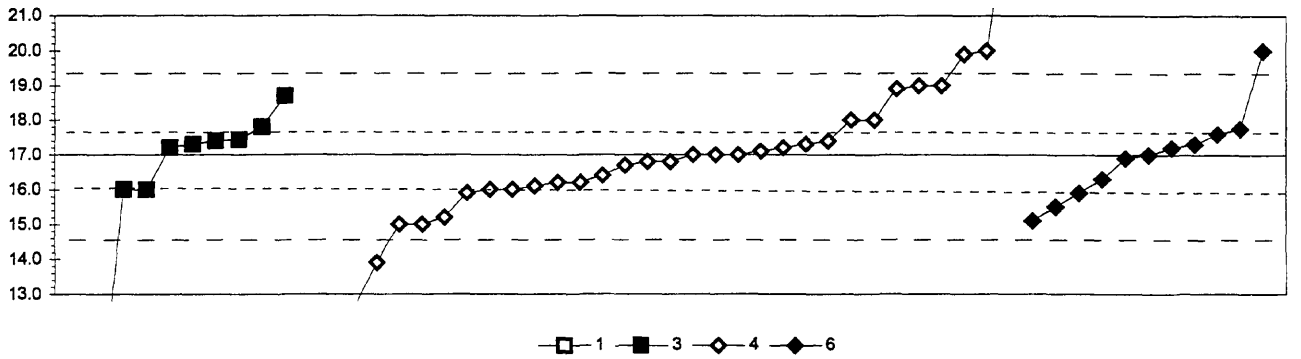
	1	3	4	6
N =	6	28	35	12
Minimum =	13.9	6.4	13.6	18.0
Maximum =	26.0	21.4	22.3	23.0
Median =		19.2	19.0	19.6
F-pseudosigma =		1.7	1.3	0.8

MPV = 19.1
F-pseudosigma = 1.5
N = 81
Hu = 20.0
HI = 18.0

Lab	Rating	Z-value	1	3	4	6
1	3	0.65		20.1		
3	4	0.27			19.5	
4	NR				< 100	
7	2	1.28			21.0	
11	4	-0.07			19.0	
13	2	-1.15			17.4	
15	0	-2.77		15.0		
16	4	0.40				19.7
18	4	-0.27			18.7	
19	4	0.47			19.8	
23	4	-0.20		18.8		
24	3	-0.94			17.7	
25	2	1.28			21.0	
26	3	0.88		20.4		
28	0	-3.71			13.6	
30	4	0.27			19.5	
32	4	-0.34				18.6
36	4	-0.07		19.0		
39	3	-0.74		18.0		
40	4	-0.34			18.6	
42	3	-0.74				18.0
46	4	-0.34		18.6		
48	3	-0.74		18.0		
58	3	0.61		20.0		
68	4	0.27			19.5	
69	3	0.61		20.0		
70	3	-0.61		18.2		
73	4	-0.07			19.0	
75	4	0.07			19.2	
80	0	-3.51	13.9			
81	3	0.61		20.0		
83	4	-0.40			18.5	
85	4	0.34	19.6			
86	3	-0.94			17.7	
87	2	1.28	21.0			
89	3	0.81		20.3		
96	2	-1.08		17.5		
97	4	0.13		19.3		
102	2	1.28			21.0	
105	4	0.40				19.7
113	4	0.00			19.1	
114	4	-0.07	19.0			
118	0	-8.57		6.4		
119	4	-0.47		18.4		
121	3	-0.74			18.0	
127	2	-1.15			17.4	
128	4	0.27				19.5
132	4	-0.40			18.5	
133	3	0.54			19.9	
134	4	-0.20			18.8	
138	4	-0.07				19.0
140	3	0.61	20.0			
141	4	0.47			19.8	
142	3	0.61				20.0
145	0	2.16			22.3	
146	4	-0.34			18.6	
151	4	0.34				19.6
158	0	-6.95		8.8		
180	4	0.34			19.6	
190	2	1.08		20.7		
191	4	-0.34				18.6
193	3	0.61		20.0		
196	4	0.07				19.2
212	0	2.63				23.0
213	1	1.55		21.4		
215	4	-0.07			19.0	
217	2	-1.35			17.1	
219	3	-0.74			18.0	
221	4	0.34		19.6		
224	0	-3.51			13.9	
234	4	0.40		19.7		
235	3	0.61			20.0	
236	2	-1.42			17.0	
241	3	0.81		20.3		
249	0	-2.09		16.0		
255	4	0.32			19.6	
256	3	0.88		20.4		
257	0	4.65	26.0			
259	0	-3.44		14.0		
265	3	0.61				20.0
273	0	-2.09			16.0	
274	0	-7.88		7.4		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Co (Cobalt) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

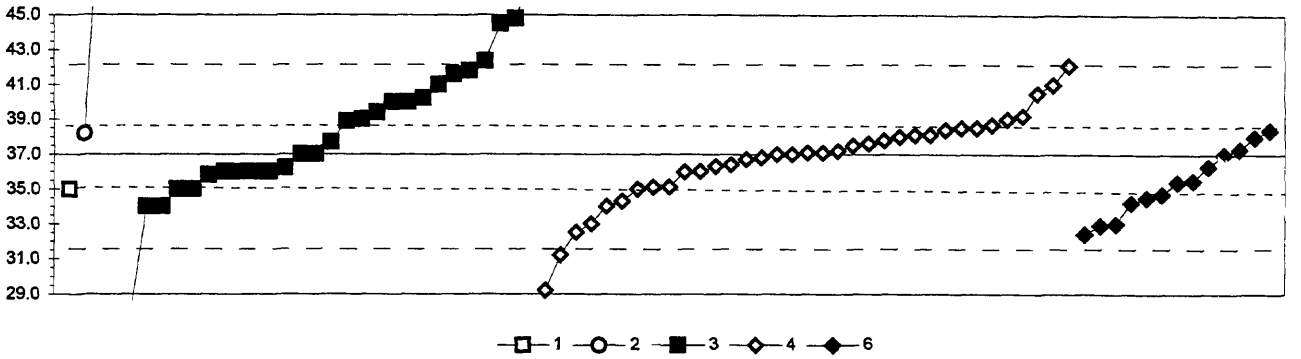
	1	3	4	6
N =	1	9	32	11
Minimum =	23.0	10.0	8.0	15.1
Maximum =		18.7	24.2	20.0
Median =		17.3	16.8	17.0
F-pseudosigma =		1.1	1.3	1.0

MPV = 17.0
F-pseudosigma = 1.2
N = 53
Hu = 17.6
Hl = 16.0

Lab	Rating	Z-value	1	3	4	6
1	4	0.36		17.4		
3	1	-1.69			15.0	
4	NR				< 100	
7	0	2.45			19.9	
11	3	0.84			18.0	
13	0	-3.71			12.6	
15	NR				< 20	
16	4	-0.08				16.9
18	3	-0.76			16.1	
24	0	-3.96			12.3	
26	3	-0.51			16.4	
30	4	0.00			17.0	
32	4	0.17				17.2
40	1	-1.52			15.2	
42	0	2.53				20.0
46	4	0.34			17.4	
48	NR				< 50	
50	3	-0.84		16.0		
68	3	0.84			18.0	
70	NR				< 50	
75	1	1.60			18.9	
86	4	-0.17			16.8	
89	3	0.67		17.8		
97	4	0.17		17.2		
102	0	2.53			20.0	
105	2	-1.26				15.5
119	3	-0.93				15.9
121	3	-0.84			16.0	
127	4	0.25		17.3		
128	4	0.00			17.0	
132	4	0.00			17.0	
134	4	-0.25			16.7	
138	1	-1.60				15.1
141	3	-0.67			16.2	
142	3	-0.59				16.3
145	0	6.07			24.2	
146	3	-0.67			16.2	
158	4	0.08			17.1	
180	4	0.25			17.3	
191	3	0.51				17.6
196	4	0.25				17.3
212	4	0.00				17.0
213	2	1.43		18.7		
215	1	1.69			19.0	
217	4	-0.17			16.8	
219	3	-0.84			16.0	
221	3	-0.84		16.0		
224	3	-0.93			15.9	
234	4	0.34		17.4		
235	1	1.69			19.0	
236	0	-2.61			13.9	
240	1	-1.69			15.0	
255	4	0.17			17.2	
257	0	5.06	23.0			
259	0	-5.90		10.0		
265	3	0.63				17.8
273	0	-7.59			8.0	

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Cr (Chromium) µg/L



1. AA: direct air
2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
6. ICP/MS

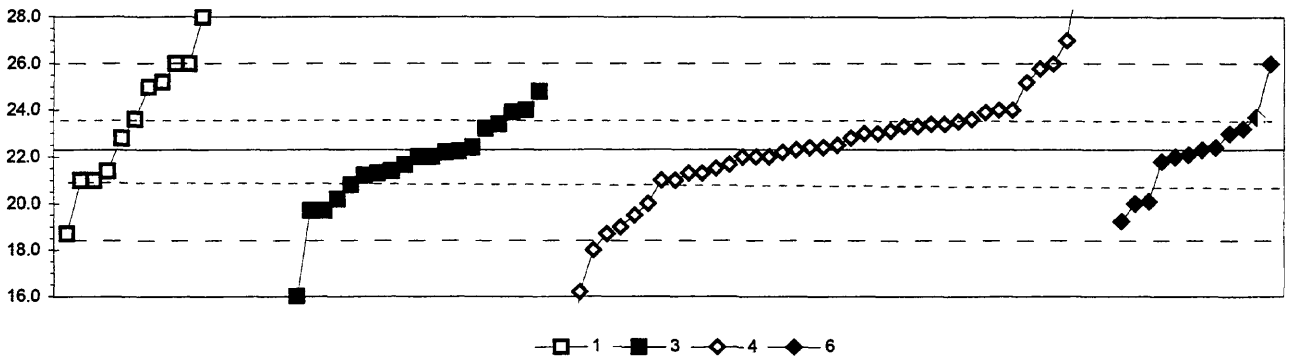
	1	2	28	35	13
N =	1	2	28	35	13
Minimum =	35.0	38.2	25.6	29.2	32.4
Maximum =		52.0	47.0	42.1	38.4
Median =			37.4	37.1	35.4
F-pseudosigma =			3.5	2.0	2.1

MPV = 37.0
F-pseudosigma = 2.6
N = 79
Hu = 38.6
Hl = 35.1

Lab	Rating	Z-value	1	2	3	4	6
1	3	-0.57					35.5
3	3	0.76				39.0	
4	NR					< 100	
7	4	0.42				38.1	
11	4	-0.38				36.0	
13	3	0.57				38.5	
15	3	-0.72				35.1	
16	2	-1.06					34.2
18	4	-0.27				36.3	
19	4	0.30				37.8	
23	3	-0.76			35.0		
24	0	-2.20				31.2	
25	4	0.00				37.0	
26	4	0.19				37.5	
30	4	0.00				37.0	
32	4	0.11					37.3
36	4	0.00			37.0		
39	0	-3.42			28.0		
40	1	-1.71				32.5	
42	4	0.38					38.0
46	4	-0.46			35.8		
48	1	1.82			41.8		
50	4	-0.38			36.0		
58	4	0.00			37.0		
68	3	0.57				38.5	
69	4	-0.38			36.0		
70	4	0.04				37.1	
73	1	-1.52				33.0	
75	4	0.04				37.1	
76	4	-0.27					36.3
81	1	1.52			41.0		
83	4	0.08				37.2	
85	3	0.53				38.4	
86	0	-2.96				29.2	
87	4	0.46		38.2			
89	4	-0.38			36.0		
96	3	0.72			38.9		
97	3	0.76			39.0		
102	1	1.52				41.0	
105	1	-1.56					32.9
113	4	0.42				38.1	
118	0	2.96			44.8		
119	3	-0.76			35.0		
127	3	0.84				39.2	
128	1	-1.75					32.4
132	2	1.33				40.5	
133	2	-1.03				34.3	
134	4	-0.30			36.2		
138	3	0.65				38.7	
140	3	-0.76	35.0				
141	4	-0.11				36.7	
142	3	-0.61					33.4
145	1	1.94				42.1	
146	4	-0.23				36.4	
151	3	-0.87					34.7
158	0	-4.33			25.6		
180	4	-0.08				36.8	
190	3	0.91			39.4		
191	3	0.53					38.4
193	4	-0.38			36.0		
196	3	-0.95					34.5
204	0	3.80			47.0		
212	1	-1.52					33.0
213	0	2.85			44.5		
215	3	-0.76				35.0	
217	4	0.23				37.6	
219	2	-1.14				34.0	
221	4	0.27			37.7		
234	1	1.75			41.6		
235	2	1.14			40.0		
236	3	-0.72				35.1	
241	2	-1.14			34.0		
249	1	2.03			42.4		
253	2	1.23			40.2		
255	4	-0.39				36.0	
256	2	1.14			40.0		
257	0	5.70		52.0			
259	2	-1.14			34.0		
265	4	0.00					37.0
273	4	0.38				38.0	

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Cu (Copper) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

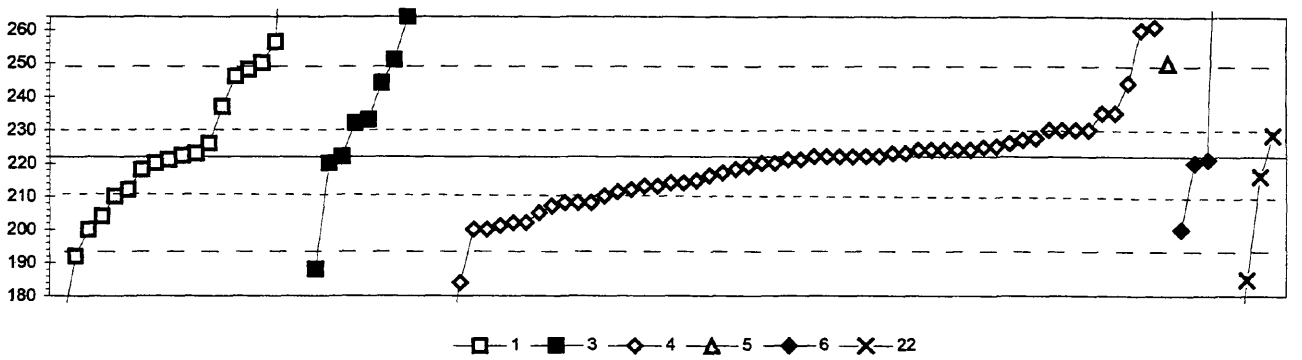
	1	3	4	6
N =	13	23	42	12
Minimum =	18.7	4.2	7.8	19.2
Maximum =	30.0	24.8	42.0	26.0
Median =	25.0	21.4	22.5	22.2
F-pseudosigma =	3.4	1.9	1.7	1.6

MPV = 22.3
F-pseudosigma = 1.9
N = 90
Hu = 23.6
Hl = 21.0

Lab	Rating	Z-value	1	3	4	6
1	4	-0.02		22.2		
3	3	0.90			24.0	
4	4	0.38			23.0	
7	3	0.59			23.4	
10	4	0.28	22.8			
11	3	0.90			24.0	
13	0	-6.16			10.4	
15	4	-0.50			21.3	
16	4	-0.24				21.8
18	4	0.02			22.3	
19	0	-3.25		16.0		
23	3	0.85		23.9		
24	0	-3.15			16.2	
25	3	-0.66			21.0	
26	3	0.59			23.4	
28	0	-7.51			7.8	
30	4	0.12			22.5	
32	4	0.49				23.2
36	0	-6.36		10.0		
40	4	-0.50			21.3	
42	4	-0.14				22.0
46	4	0.07		22.4		
48	2	-1.33		19.7		
50	3	0.90		24.0		
55	3	-0.76		20.8		
58	NR		< 50			
68	0	2.46			27.0	
69	4	-0.45		21.4		
70	4	0.28			22.8	
73	4	-0.14			22.0	
75	4	-0.03			22.2	
80	4	-0.14		22.0		
81	4	-0.14		22.0		
83	4	0.38			23.0	
85	1	1.52	25.2			
86	4	0.43			23.1	
87	3	-0.66	21.0			
89	4	-0.45	21.4			
96	3	0.59		23.4		
97	3	-0.55		21.2		
102	4	-0.14			22.0	
105	4	0.07				22.4
107	2	1.32		24.8		
113	3	0.64			23.5	
114	3	-0.66	21.0			
118	0	-7.45		7.9		
119	1	1.94			26.0	
121	0	-2.21			18.0	
127	4	0.07			22.4	
128	1	-1.57				19.2
129	0	4.01	30.0			
132	0	10.24			42.0	
133	2	-1.43			19.5	
134	4	0.07			22.4	
138	2	-1.12				20.1
140	1	1.94	26.0			
141	3	0.54			23.3	
142	2	-1.18				20.0
144	2	-1.07		20.2		
145	0	5.67			33.2	
146	1	1.52			25.2	
151	4	-0.09				22.1
158	1	1.83			25.8	
180	3	0.54			23.3	
190	4	-0.03		22.2		
191	4	0.02				22.3
193	1	1.94	26.0			
196	3	0.74				23.7
203	1	-1.85	18.7			
204	0	-5.48		11.7		
212	1	1.94				26.0
213	4	0.49		23.2		
215	0	4.22			30.4	
217	3	0.85			23.9	
219	1	-1.69			19.0	
221	4	-0.50		21.3		
224	4	-0.40			21.5	
234	3	0.69			23.6	
235	2	-1.18			20.0	
236	1	-1.85			18.7	
240	3	-0.66			21.0	
241	2	-1.33		19.7		
249	4	-0.32		21.7		
253	0	4.01	30.0			
255	4	-0.31			21.7	
256	3	0.69	23.6			
257	0	2.98	28.0			
259	2	1.42	25.0			
265	4	0.38				23.0
273	4	-0.14			22.0	
274	0	-9.37		4.2		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Fe (Iron) µg/L



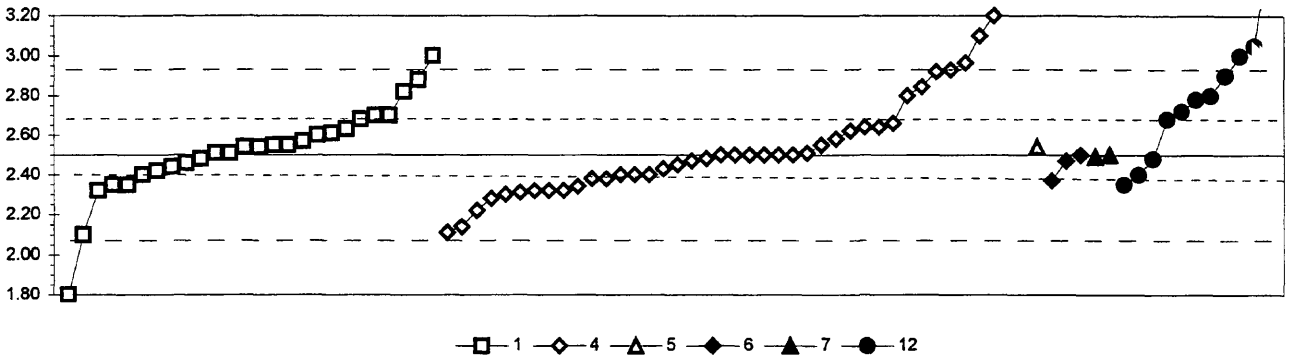
1. AA: direct air			5. DCP				
3. AA: graphite furnace			6. ICP/MS				
4. ICP			22. Colorimetric				
	N =	19	9	56	1	4	4
	Minimum =	170	188	21	250	200	152
	Maximum =	470	302	261		365	228
	Median =	222	233	221			
	F-pseudosigma =	27	22	10			

MPV = 222
F-pseudosigma = 14
N = 93
Hu = 230
Hl = 211

Lab	Rating	Z-value	1	3	4	5	6	22
1	3	-0.77			211			
3	0	2.81			261			
4	3	0.94			235			
7	4	0.20			225			
10	1	1.73	246					
11	2	-1.44			202			
13	2	-1.08			207			
15	2	-1.01			208			
16	1	-1.59			200			
18	4	0.00			222			
19	4	0.36			227			
21	0	-5.05						152
23	4	-0.29	218					
24	4	0.00		222				
25	2	-1.44			202			
26	4	0.00			222			
30	0	17.89	470					
32	0	10.32					365	
33	1	2.02				250		
35	4	-0.43						216
36	1	2.02	250					
40	0	-14.52			21			
42	4	0.14			224			
43	3	0.58			230			
46	4	0.00			222			
48	0	-4.47			160			
50	0	2.09		251				
55	4	0.00			222			
58	3	-0.87	210					
68	4	0.22			225			
69	4	0.29	226					
70	3	-0.58			214			
73	4	-0.07			221			
75	3	-0.58			214			
80	4	0.07	223					
81	4	-0.14					220	
83	4	-0.22			219			
85	4	0.14			224			
86	3	-0.65			213			
87	3	-0.72	212					
89	1	1.59		244				
91	3	-0.72			212			
96	1	1.88	248					
97	3	0.79		233				
102	1	1.59			244			
105	3	-0.65			213			
107	1	-1.59	200					
109	0	2.48	256					
113	4	0.07			223			
114	2	-1.30	204					
119	4	0.29			226			
121	3	-0.87			210			
127	4	-0.14			220			
128	2	-1.23			205			
129	0	-2.67						185
132	4	0.40			228			
133	4	0.07			223			
134	4	-0.28			218			
138	4	0.14			224			
140	2	1.08	237					
141	1	-1.59			200			
142	4	-0.07			221			
145	4	-0.42			216			
146	4	-0.14			220			
151	1	-1.59					200	
155	4	0.46						228
158	4	0.00			222			
180	4	0.00			222			
190	0	-2.16	192					
191	4	-0.07					221	
203	4	-0.14	220					
204	2	-1.01			208			
212	0	2.74			260			
213	0	5.77		302				
215	4	0.14			224			
217	3	0.58			230			
219	2	-1.01			208			
220	4	0.02	222					
221	4	-0.14		220				
224	1	-1.51			201			
234	4	0.14			224			
235	3	0.94			235			
236	3	-0.53			215			
240	0	-2.74			184			
241	0	3.03		264				
249	0	-2.45		188				
253	0	7.79	330					
255	4	-0.35			217			
256	4	-0.07	221					
257	0	-3.75	170					
265	3	0.58			230			
273	3	0.58			230			
274	3	0.73		232				

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

K (Potassium) mg/L



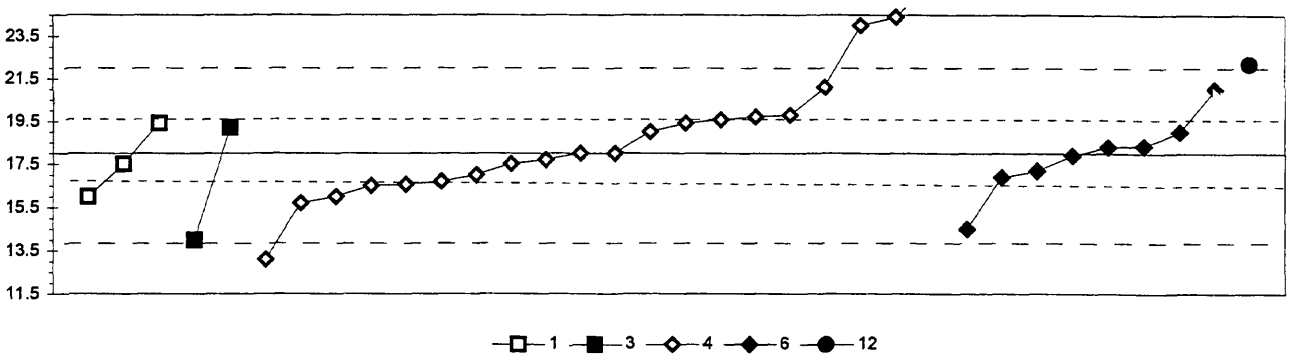
1. AA: direct air			6. ICP/MS					
4. ICP			7. Ion chromatography					
5. DCP			12. Flame emission					
		N =	26	41	1	3	2	11
		Minimum =	1.80	2.11	2.54	2.37	2.49	2.35
		Maximum =	3.00	5.40		2.50	2.50	3.52
		Median =	2.54	2.50				2.78
		F-pseudosigma =	0.16	0.19				0.27

MPV = 2.50
F-pseudosigma = 0.21
N = 84
Hu = 2.69
HI = 2.40

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	0.23	2.55					
3	0	13.49		5.40				
7	1	1.60		2.84				
11	4	0.00		2.50				
13	3	-0.56		2.38				
15	2	-1.02		2.28				
16	1	-1.86	2.10					
18	4	-0.47		2.40				
19	4	0.00		2.50				
23	4	-0.28	2.44					
24	3	-0.74		2.34				
25	3	0.65		2.64				
26	4	-0.05					2.49	
28	3	-0.84		2.32				
32	4	0.00				2.50		
33	4	0.19			2.54			
36	0	-3.26	1.80					
40	3	-0.84		2.32				
42	4	0.00		2.50				
43	3	-0.93		2.30				
46	3	0.56		2.62				
48	4	0.05		2.51				
51	4	-0.09						2.48
64	4	0.33	2.57					
68	2	1.40		2.80				
69	2	1.02						2.72
70	4	-0.33		2.43				
81	3	-0.60				2.37		
83	4	0.00		2.50				
85	2	1.49	2.82					
86	4	0.37		2.58				
87	4	-0.37	2.42					
89	3	-0.70	2.35					
97	4	0.19	2.54					
102	4	0.00		2.50				
105	4	-0.14		2.47				
107	3	0.60	2.63					
109	4	0.05	2.51					
113	4	-0.47		2.40				
114	0	2.33	3.00					
119	0	3.26		3.20				
121	4	0.23	2.55					
127	3	0.84	2.68					
128	1	-1.81		2.11				
129	4	-0.47	2.40					
132	3	0.65		2.64				
134	4	-0.09	2.48					
138	4	-0.09		2.48				
140	4	0.05	2.51					
141	4	0.23		2.55				
142	2	-1.30		2.22				
145	3	0.74		2.66				
146	1	2.00		2.93				
180	3	-0.84		2.32				
190	4	0.00					2.50	
191	4	-0.14				2.47		
193	3	-0.84	2.32					
203	1	1.77	2.88					
204	4	-0.47						2.40
212	4	-0.47		2.40				
215	0	2.79		3.10				
217	1	1.95		2.92				
218	3	-0.70	2.35					
219	4	0.00		2.50				
220	4	0.47	2.60					
221	3	0.51	2.61					
224	3	-0.88		2.31				
234	4	-0.23		2.45				
235	0	5.12		3.60				
236	1	-1.67		2.14				
241	4	0.19	2.54					
246	0	-10.95		< 0.2				
249	3	0.84						2.68
255	3	-0.56		2.38				
256	0	4.74						3.52
257	1	1.86						2.90
259	3	0.93	2.70					
261	3	-0.70						2.35
265	4	-0.19	2.46					
268	3	0.93	2.70					
270	0	2.56						3.05
271	2	1.40						2.80
272	0	2.33						3.00
273	0	2.16		2.97				
274	2	1.30						2.78

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Li (Lithium) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS
12. Flame emission

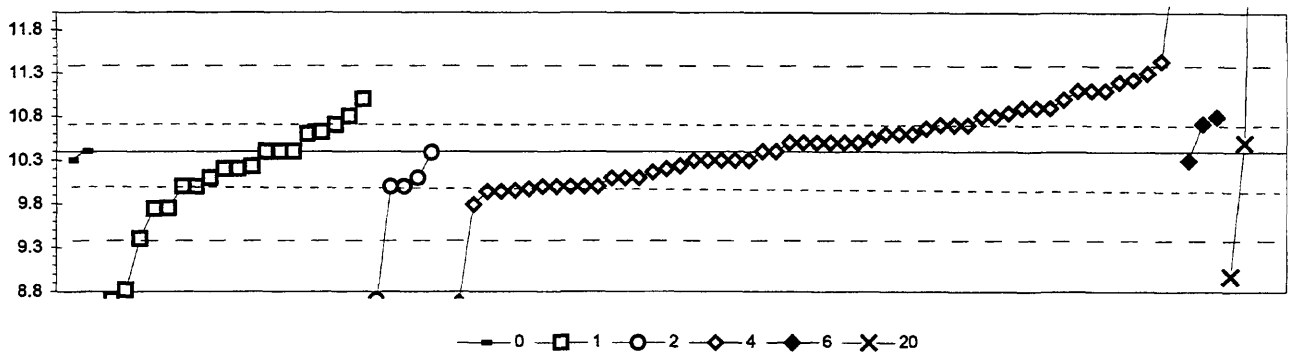
	1	3	4	6	12
N =	3	2	20	8	1
Minimum =	16.0	14.0	13.1	14.5	22.2
Maximum =	19.4	19.2	26.0	21.0	
Median =			18.0	18.1	
F-pseudosigma =			2.4	1.2	

MPV = 18.0
F-pseudosigma = 2.1
N = 34
Hu = 19.6
HI = 16.7

Lab	Rating	Z-value	1	3	4	6	12
1	3	-0.67			16.6		
3	0	3.77			26.0		
4	NR				< 100		
7	3	0.66			19.4		
16	1	-1.65				14.5	
24	0	3.02			24.4		
25	4	0.00			18.0		
26	4	-0.14			17.7		
30	3	-0.94			16.0		
32	4	-0.38				17.2	
40	3	-0.61			16.7		
42	0	-5.71			< 6		
64	1	1.98					22.2
68	4	0.00			18.0		
69	3	0.57		19.2			
75	3	0.80			19.7		
76	4	0.14				18.3	
85	4	-0.24	17.5				
105	2	-1.08			15.7		
109	3	0.66	19.4				
127	3	-0.71			16.5		
134	3	0.74			19.6		
142	4	0.47			19.0		
145	2	1.46			21.1		
151	3	-0.52				16.9	
191	2	1.41				21.0	
196	4	-0.05				17.9	
212	4	0.47				19.0	
217	4	-0.24			17.5		
219	4	-0.47			17.0		
234	3	0.85			19.8		
236	0	-2.31			13.1		
256	0	-8.52					< 0.1
257	3	-0.94	16.0				
259	1	-1.89		14.0			
265	4	0.16				18.4	
273	0	2.83			24.0		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Mg (Magnesium) mg/L



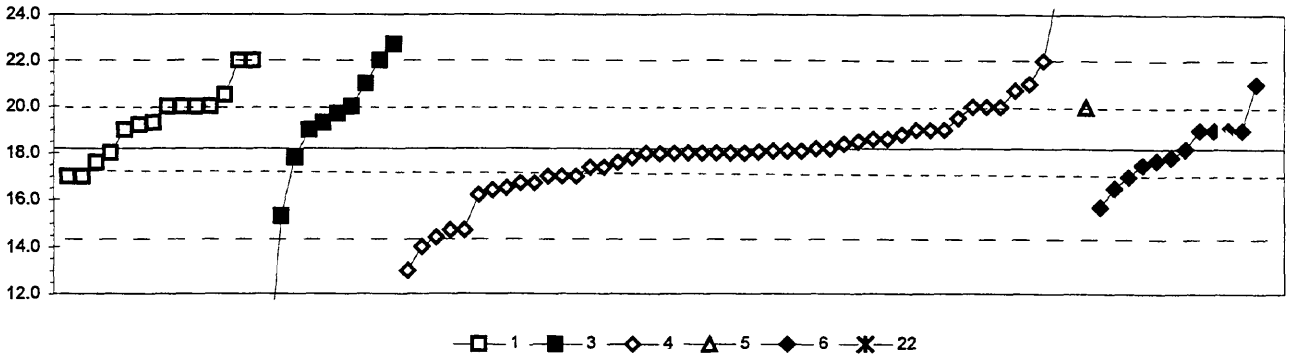
0. Other		4. ICP					
1. AA: direct air		6. ICP/MS					
2. AA: direct nitrous oxide		20. Titrate: colorimetric					
N =	2	20	5	54	3	4	
Minimum =	10.3	8.3	8.7	7.6	10.3	9.0	
Maximum =	10.4	11.0	10.4	12.5	10.8	25.4	
Median =		10.2		10.5			
F-pseudosigma =		0.6		0.5			

MPV = 10.4
F-pseudosigma = 0.5
N = 88
Hu = 10.7
HI = 10.0

Lab	Rating	Z-value	0	1	2	4	6	20
1	3	-0.58				10.1		
3	4	-0.19				10.3		
4	3	0.96				10.9		
7	3	0.85				10.8		
11	2	1.35				11.1		
13	3	0.58				10.7		
15	2	-1.18				9.8		
16	4	0.19				10.5		
18	4	-0.31				10.2		
19	4	0.19				10.5		
23	4	-0.33		10.2				
24	4	-0.19				10.3		
25	3	-0.77				10.0		
26	3	0.96				10.9		
28	3	0.77				10.8		
30	3	-0.77			10.0			
32	3	0.77					10.8	
33	4	-0.19	10.3					
36	0	-3.28		8.7				
40	4	-0.19				10.3		
42	2	1.35				11.1		
43	4	0.19				10.5		
46	4	0.19				10.5		
48	3	0.77				10.8		
51	0	-3.04		8.8				
55	1	1.73				11.3		
68	2	1.16				11.0		
69	3	-0.58		10.1				
70	4	0.19				10.5		
75	4	0.39		10.6				
81	4	-0.19					10.3	
83	3	-0.58				10.1		
85	3	0.77		10.8				
86	4	0.00				10.4		
87	4	-0.39		10.2				
89	4	0.00		10.4				
97	4	0.00		10.4				
102	0	4.05				12.5		
105	4	-0.19				10.3		
107	3	0.58		10.7				
109	4	0.00		10.4				
110	0	-4.09		8.3				
113	3	0.58				10.7		
114	3	-0.77			10.0			
119	4	0.39				10.6		
121	3	-0.77				10.0		
127	4	0.00				10.4		
128	3	-0.87				10.0		
129	3	-0.77		10.0				
132	4	0.27				10.5		
133	3	-0.89				9.9		
134	4	-0.45				10.2		
138	3	0.58				10.7		
140	2	1.16		11.0				
141	3	0.96				10.9		
142	3	-0.77				10.0		
145	1	2.00				11.4		
146	3	-0.58				10.1		
158	2	1.35				11.1		
180	4	0.39				10.6		
190	4	0.00	10.4					
191	3	0.62					10.7	
193	2	-1.25		9.8				
203	4	0.42		10.6				
204	0	-5.40				7.6		
212	1	1.54				11.2		
215	4	0.39				10.6		
217	3	-0.77				10.0		
218	4	-0.02			10.4			
219	3	-0.77				10.0		
220	3	-0.77		10.0				
221	2	-1.27		9.7				
224	3	-0.83				10.0		
234	3	-0.89				9.9		
235	4	0.19				10.5		
236	4	0.50				10.7		
240	4	-0.39				10.2		
241	1	-1.93		9.4				
246	0	-3.33				8.7		
255	4	-0.19				10.3		
257	0	-3.28			8.7			
261	4	0.19						10.5
265	3	-0.58			10.1			
268	4	-0.39		10.2				
271	0	28.83						25.4
272	0	-2.75						9.0
273	1	1.60				11.2		
274	0	14.13						17.7

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Mn (Manganese) µg/L



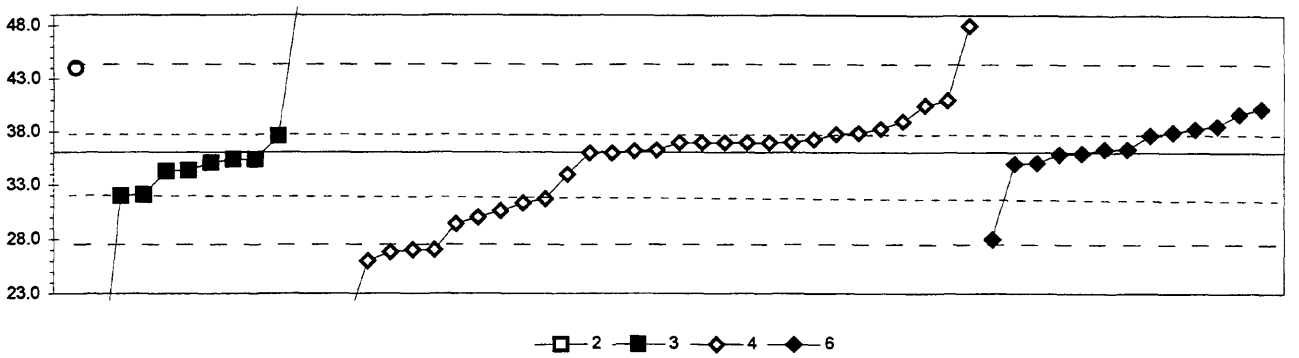
1. AA: direct air		5. DCP					
3. AA: graphite furnace		6. ICP/MS					
4. ICP		22. Colorimetric					
N =	14	10	48	1	12	1	
Minimum =	17.0	7.4	13.0	20.0	15.7	31.5	
Maximum =	22.0	22.7	28.3		21.0		
Median =	19.7	19.5	18.0		18.0		
F-pseudosigma =	1.5	2.4	1.4		1.3		

MPV = 18.2
F-pseudosigma = 1.9
N = 86
Hu = 20.0
Hl = 17.4

Lab	Rating	Z-value	1	3	4	5	6	22
1	4	-0.19					17.8	
3	1	-1.82			14.7			
4	4	0.42			19.0			
7	4	0.21			18.6			
10	1	1.97	22.0					
11	4	-0.10			18.0			
13	3	-0.78			16.7			
15	0	5.24			28.3			
16	4	0.00					18.2	
18	3	-0.88			16.5			
19	4	0.31			18.8			
23	4	-0.21		17.8				
24	4	-0.42			17.4			
25	1	1.97			22.0			
26	1	-1.82			14.7			
28	0	3.58			25.1			
30	3	-0.62			17.0			
32	4	-0.26					17.7	
33	3	0.93				20.0		
36	4	0.42		19.0				
40	1	-1.97			14.4			
42	2	1.45					21.0	
43	3	0.93			20.0			
46	2	-1.04			16.2			
48	3	0.93		20.0				
50	2	1.45		21.0				
55	0	-2.70			13.0			
58	NR		< 50					
68	4	0.16			18.5			
69	NR		< 20					
70	NR				< 20			
73	4	-0.10			18.0			
75	4	-0.05			18.1			
80	2	-1.50		15.3				
81	3	-0.62					17.0	
83	4	-0.42			17.4			
86	4	-0.10			18.0			
87	2	1.19	20.5					
89	4	-0.31	17.6					
91	4	-0.31			17.6			
96	1	1.97	22.0					
97	1	1.97		22.0				
102	3	0.93			20.0			
105	4	-0.36					17.5	
107	3	0.93	20.0					
109	3	0.57	19.3					
113	4	0.21			18.6			
114	3	0.93	20.0					
119	3	0.93			20.0			
121	4	-0.10			18.0			
127	3	-0.78			16.7			
128	2	-1.30					15.7	
129	3	0.93	20.0					
132	3	-0.62			17.0			
134	4	-0.08			18.1			
138	4	-0.10			18.0			
140	3	-0.62	17.0					
141	4	0.00			18.2			
142	4	0.42			19.0			
145	2	1.30			20.7			
146	4	-0.21			17.8			
151	3	-0.88					16.5	
158	3	0.67			19.5			
180	4	-0.05			18.1			
183	0	2.33		22.7				
190	3	0.57		19.3				
191	4	0.42					19.0	
196	4	0.42					19.0	
203	3	0.93	20.0					
204	0	-2.18			14.0			
212	4	0.42					19.0	
215	4	-0.05			18.1			
217	4	0.00			18.2			
219	3	-0.62			17.0			
220	3	0.52	19.2					
221	3	0.78		19.7				
224	4	0.42			19.0			
234	4	0.10			18.4			
235	4	-0.10			18.0			
236	3	-0.93			16.4			
240	4	-0.10			18.0			
241	3	-0.62	17.0					
244	0	6.90						31.5
255	4	-0.12			18.0			
256	4	0.42	19.0					
257	4	-0.10	18.0					
265	4	0.42					19.0	
273	2	1.45			21.0			
274	0	-5.60		7.4				

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Mo (Molybdenum) µg/L



2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
6. ICP/MS

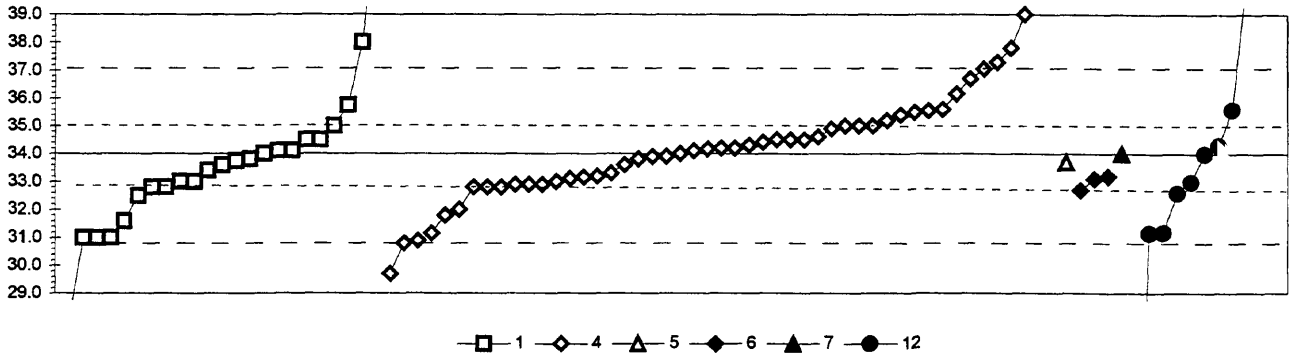
	2	3	4	6
N =	1	10	30	13
Minimum =	44.0	12.5	11.0	28.0
Maximum =		52.0	48.0	40.2
Median =		34.8	36.3	36.4
F-pseudosigma =		2.5	5.4	1.8

MPV = 36.1
F-pseudosigma = 4.3
N = 54
Hu = 37.8
HI = 32.0

Lab	Rating	Z-value	2	3	4	6
1	4	-0.40		34.4		
3	0	-2.12			27.0	
4	NR				< 500	
7	1	-1.56			29.4	
11	4	0.21			37.0	
15	3	0.51			38.3	
16	4	0.37				37.7
18	4	0.21			37.0	
23	NR		< 100			
24	4	-0.49			34.0	
26	4	0.21			37.0	
28	0	-2.16			26.8	
30	4	-0.02			36.0	
32	4	0.07				36.4
40	4	0.42			37.9	
42	4	-0.02				36.0
46	4	-0.02			36.0	
48	4	0.35		37.6		
50	3	-0.95		32.0		
55	2	-1.42			30.0	
68	4	0.21			37.0	
70	NR				< 50	
75	2	-1.02			31.7	
81	1	-1.88				28.0
86	2	1.02			40.5	
87	4	-0.23		35.1		
97	4	-0.16		35.4		
105	3	0.95				40.2
109	0	-5.49		12.5		
119	4	-0.23				35.1
127	3	-0.93		32.1		
128	2	-1.12			31.3	
132	0	-2.35			26.0	
134	4	0.21			37.0	
138	4	-0.05				35.9
141	4	0.28			37.3	
142	3	0.51				38.3
145	2	-1.28			30.6	
146	4	0.02			36.2	
151	3	0.58				38.6
180	2	1.14			41.0	
191	3	0.84				39.7
196	4	0.07				36.4
212	4	0.44				38.0
215	4	0.21			37.0	
217	4	0.40			37.8	
219	0	-2.12			27.0	
221	4	-0.16		35.4		
224	0	2.77			48.0	
234	4	-0.42		34.3		
235	3	0.67			39.0	
236	0	-3.81			19.7	
240	0	-5.84			11.0	
241	0	3.70		52.0		
255	4	0.05			36.3	
257	1	1.84	44.0			
265	4	-0.26				35.0

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Na (Sodium) mg/L



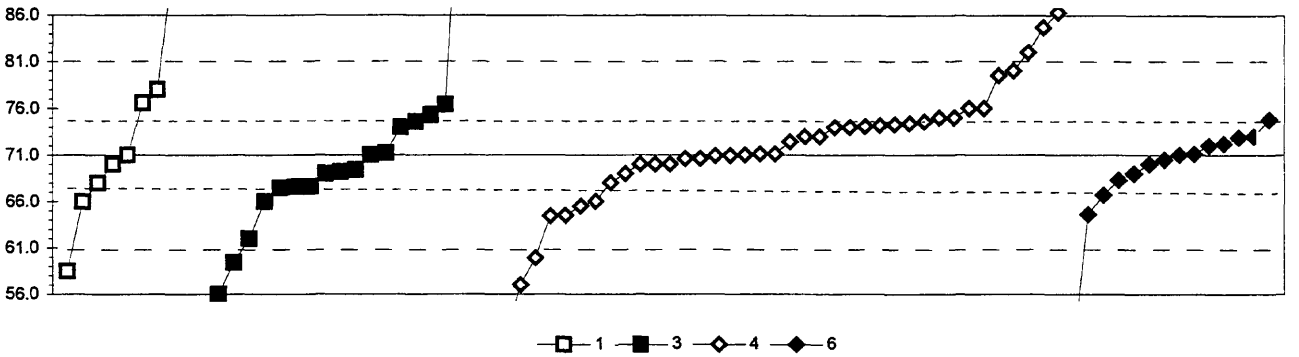
1. AA: direct air			6. ICP/MS					
4. ICP			7. Ion chromatography					
5. DCP			12. Flame emission					
		N =	23	49	1	3	1	11
		Minimum =	28.0	29.7	33.7	32.7	34.0	18.4
		Maximum =	42.5	55.0		33.2		50.0
		Median =	33.6	34.2				34.0
		F-pseudosigma =	1.2	1.6				4.5

MPV = 34.0
F-pseudosigma = 1.6
N = 88
Hu = 35.0
HI = 32.9

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	-0.22		33.6				
3	0	13.24		55.0				
4	3	0.60		34.9				
7	2	1.01		35.6				
11	4	-0.09		33.8				
13	3	0.66		35.0				
15	2	-1.35		31.8				
16	3	-0.72		32.8				
18	4	-0.50		33.2				
19	4	0.22		34.3				
23	4	-0.35	33.4					
24	4	-0.41		33.3				
25	0	2.42		37.8				
26	4	0.41		34.6				
28	0	2.11		37.3				
32	3	-0.53				33.1		
33	4	-0.16			33.7			
36	0	2.55	38.0					
40	3	-0.66		32.9				
42	4	-0.03		33.9				
43	3	0.66		35.0				
46	2	1.04		35.6				
48	3	0.79		35.2				
51	4	0.22						34.3
64	4	-0.09	33.8					
68	4	0.35		34.5				
69	3	-0.85						32.6
70	4	0.16		34.2				
75	4	0.35		34.5				
81	3	-0.79				32.7		
83	3	-0.66		32.9				
85	4	0.35	34.5					
86	3	0.66		35.0				
87	3	-0.72	32.8					
89	4	-0.22	33.6					
97	4	0.35	34.5					
102	1	-1.92		30.9				
105	1	-1.98		30.8				
107	3	-0.72	32.8					
109	4	0.09	34.1					
110	3	-0.60	33.0					
113	0	-2.67		29.7				
114	0	-3.74	28.0					
119	4	0.16		34.2				
121	2	-1.23		32.0				
127	4	-0.47		33.2				
128	3	-0.66		32.9				
129	3	0.66	35.0					
132	4	0.28		34.4				
134	4	-0.14	33.7					
138	4	0.09		34.1				
140	0	5.38	42.5					
141	3	0.91		35.4				
142	4	0.13		34.2				
145	1	1.96		37.1				
146	3	0.97		35.5				
180	4	0.03		34.0				
190	4	0.03					34.0	
191	4	-0.47				33.2		
193	2	-1.48	31.6					
203	3	-0.91	32.5					
204	1	-1.73						31.2
212	1	1.73		36.7				
215	4	0.35		34.5				
217	4	-0.03		33.9				
218	1	-1.86	31.0					
219	3	-0.60		33.0				
220	1	-1.86	31.0					
221	4	0.09	34.1					
224	1	-1.75		31.2				
234	3	-0.53		33.1				
235	0	3.18		39.0				
236	3	-0.72		32.8				
241	1	-1.86	31.0					
246	0	4.45		41.0				
249	2	1.04						35.6
255	3	-0.72		32.8				
256	1	-1.75						31.2
257	3	-0.60						33.0
259	4	0.03	34.0					
261	0	3.93						40.2
265	3	-0.60	33.0					
268	2	1.13	35.8					
270	0	5.21						42.2
271	4	0.03						34.0
272	0	10.09						50.0
273	2	1.39		36.2				
274	0	-9.80						18.4

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Ni (Nickel) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

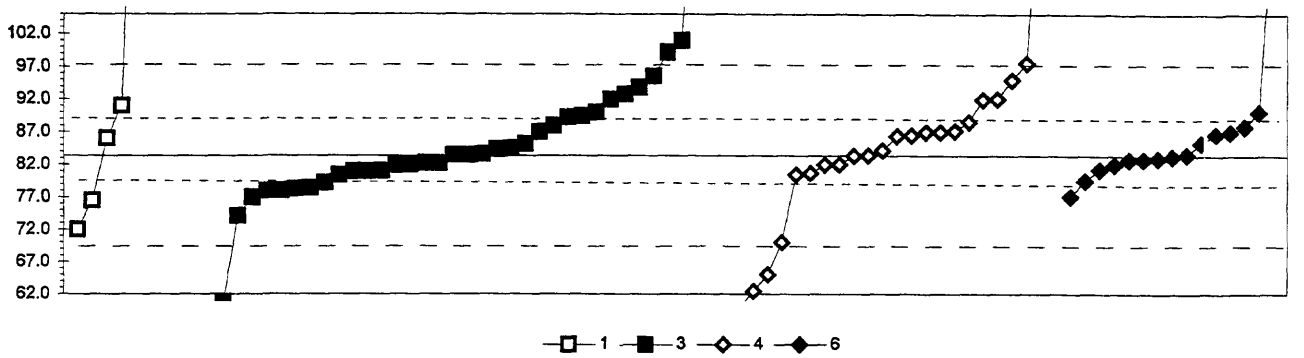
	1	3	4	6
N =	9	19	39	14
Minimum =	58.5	30.0	31.8	50.0
Maximum =	110.0	125.0	86.3	74.8
Median =	71.0	69.2	71.1	70.8
F-pseudosigma =	7.4	5.6	3.7	2.9

MPV = 71.0
F-pseudosigma = 5.0
N = 81
Hu = 74.4
Hl = 67.6

Lab	Rating	Z-value	1	3	4	6
1	4	0.02				71.1
3	0	-2.78			57.0	
4	NR				< 200	
7	1	1.69			79.5	
11	4	0.40			73.0	
13	2	-1.31			64.4	
15	3	0.85		75.3		
16	4	0.38				72.9
18	4	0.02			71.1	
19	0	2.72			84.7	
23	3	0.60		74.0		
24	3	-0.60			68.0	
26	3	0.71			74.6	
28	0	-7.78			31.8	
30	4	-0.20			70.0	
32	4	0.00				71.0
36	1	-1.79		62.0		
39	3	-0.99		66.0		
40	0	-3.91			51.3	
42	4	-0.20				70.0
46	3	0.63			74.2	
48	2	1.07		76.4		
50	0	-2.98		56.0		
58	0	7.74	110.0			
68	3	0.60			74.0	
69	0	-2.48	58.5			
70	4	-0.02			70.9	
73	4	0.40			73.0	
75	4	0.02			71.1	
76	3	0.75				74.6
81	0	-4.17				50.0
83	4	-0.08			70.6	
85	3	0.67			74.4	
86	2	-1.29			64.5	
87	2	1.39	78.0			
89	3	-0.69		67.5		
96	3	-0.67		67.6		
97	4	-0.40		69.0		
102	1	1.79			80.0	
105	3	-0.85				66.7
113	4	-0.08			70.6	
114	4	-0.20	70.0			
118	0	-8.13		30.0		
119	0	6.55		104.0		
121	4	-0.20			70.0	
127	4	0.00		71.0		
128	2	-1.27				64.6
132	3	0.79			75.0	
133	3	0.65			74.3	
134	4	-0.32		69.4		
138	4	-0.20			70.0	
140	4	0.00	71.0			
141	4	-0.40			69.0	
142	3	-0.54				68.3
145	0	3.04			86.3	
146	4	0.28			72.4	
151	4	-0.40				69.0
158	3	0.99			76.0	
180	3	0.99			76.0	
190	0	-2.30		59.4		
191	4	0.24				72.2
193	3	-0.99	66.0			
196	4	-0.10				70.5
212	4	0.20				72.0
213	0	4.01	91.2			
215	4	0.00			71.0	
217	3	0.61			74.1	
219	3	-0.99			66.0	
221	4	0.04		71.2		
224	0	-2.20			59.9	
234	3	0.71		74.6		
235	3	0.60			74.0	
236	2	-1.09			65.5	
240	3	0.79			75.0	
241	3	-0.67		67.6		
249	4	-0.36		69.2		
255	4	-0.01			70.9	
256	2	1.11	76.6			
257	3	-0.60	68.0			
259	0	10.71		125.0		
265	4	0.40				73.0
273	0	2.18			82.0	

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Pb (Lead) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

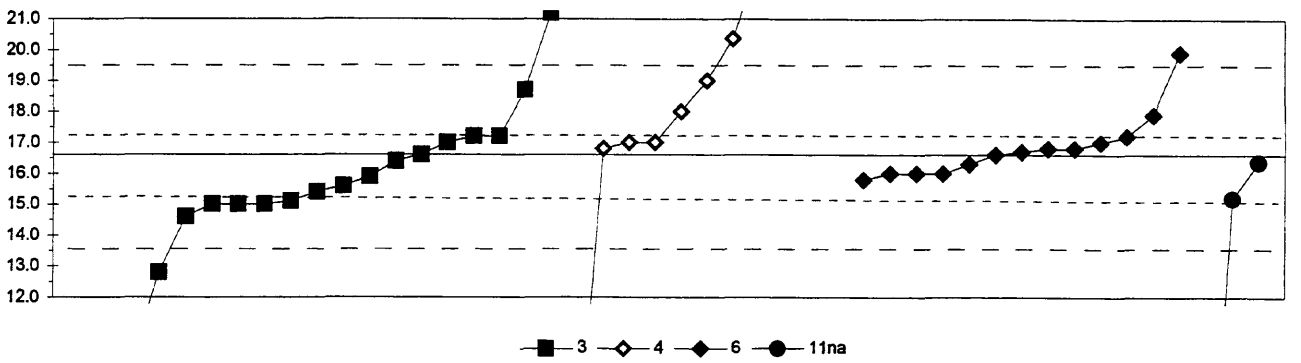
	1	3	4	6
N =	5	40	24	15
Minimum =	72.0	1.2	17.9	77.1
Maximum =	155.0	183.0	498.9	120.0
Median =		82.2	85.3	83.3
F-pseudosigma =		8.3	7.2	3.3

MPV = 83.4
F-pseudosigma = 7.1
N = 84
Hu = 89.0
Hl = 79.4

Lab	Rating	Z-value	1	3	4	6
1	4	0.02				83.6
3	3	0.73			88.6	
4	NR				< 400	
7	4	0.43			86.5	
11	4	0.42			86.4	
13	3	0.85		89.5		
15	1	1.71		95.6		
16	4	0.46				86.7
18	4	0.01		83.5		
19	2	1.47		93.9		
23	3	-0.72		78.3		
24	0	-3.33			59.8	
26	4	-0.39			80.7	
28	0	-9.23			17.9	
30	4	-0.20			82.0	
32	4	-0.30				81.3
34	2	-1.32		74.1		
36	3	-0.77		78.0		
39	4	-0.34		81.0		
42	4	-0.06				83.0
46	3	-0.91		77.0		
48	4	0.14		84.4		
58	2	1.21		92.0		
68	0	14.03		183.0		
69	4	-0.43		80.4		
70	4	-0.17		82.2		
73	4	0.50			87.0	
75	1	1.99			97.6	
76	4	-0.02				83.3
80	4	0.01		83.5		
81	4	0.50		87.0		
83	4	0.02		83.6		
85	3	-0.98	76.5			
86	4	-0.34		81.0		
87	3	-0.77		78.0		
89	4	0.25		85.2		
96	2	1.32		92.8		
97	4	-0.22		81.9		
102	1	1.63			95.0	
105	3	0.63				87.9
109	0	-7.25		32.0		
113	4	-0.33		81.1		
114	1	-1.61	72.0			
118	0	-7.82		27.9		
119	4	-0.20		82.0		
127	3	0.53			87.2	
128	4	-0.09				82.8
132	4	-0.41			80.5	
133	2	1.21			92.0	
134	4	-0.01			83.4	
138	3	-0.89				77.1
140	4	0.36	86.0			
141	0	2.47		101.0		
142	4	0.50				87.0
145	0	58.53			498.9	
146	4	0.11			84.2	
151	4	-0.09				82.8
158	0	-7.51		30.1		
180	2	1.22			92.1	
190	0	-3.19		60.8		
191	4	-0.20				82.0
193	3	0.64		88.0		
196	4	0.28				85.4
204	4	-0.17		82.2		
212	0	5.15				120.0
213	3	0.92		90.0		
215	4	-0.20			82.0	
217	3	0.94				90.1
219	1	-1.89			70.0	
220	3	-0.71		78.4		
221	4	0.15		84.5		
224	0	8.00		140.3		
234	3	0.83		89.3		
235	4	0.50			87.0	
236	0	-2.96			62.4	
240	0	6.70			131.0	
241	0	2.22		99.2		
249	3	-0.60		79.2		
255	4	-0.01			83.4	
256	0	10.08	155.0			
257	2	1.07	91.0			
259	0	-4.15		54.0		
265	3	-0.55				79.6
273	0	-2.60			65.0	
274	0	-11.59		1.2		

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Sb (Antimony) µg/L

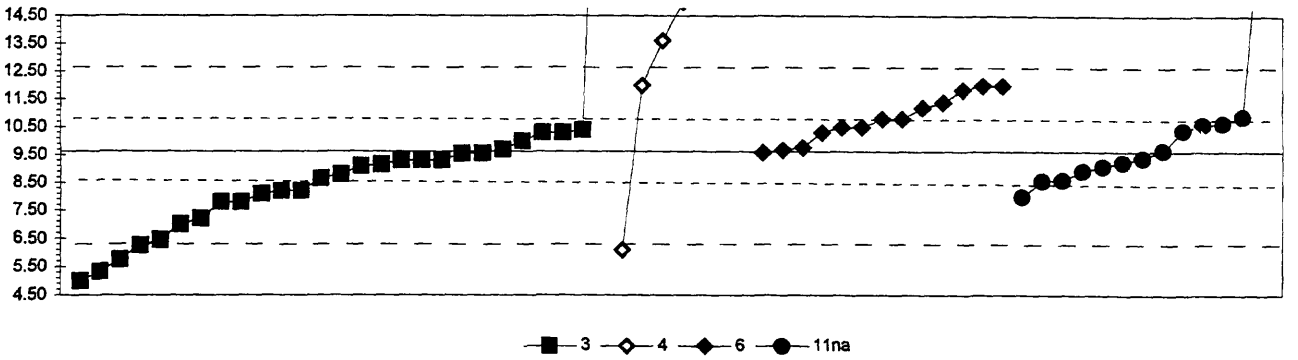


3. AA: graphite furnace			11na. AA: hydride $NaBH_4$			
4. ICP						
6. ICP/MS						
		N =	19	11	13	3
		Minimum =	8.0	5.7	15.8	2.0
		Maximum =	21.2	49.7	19.9	16.4
		Median =	15.4	19.0	16.7	
		F-pseudosigma =	1.5	7.5	0.7	
Lab	Rating	Z-value	3	4	6	11na
1	4	-0.47	15.9			
3	1	1.62		19.0		
7	0	9.92		31.3		
11	4	0.13		16.8		
13	3	-0.81	15.4			
15	4	0.40	17.2			
16	4	0.00			16.6	
18	2	-1.35	14.6			
26	NR			< 20		
30	4	0.27		17.0		
32	4	-0.40			16.0	
36	0	-4.45	10.0			
39	4	0.07			16.7	
40	0	-7.35		5.7		
42	4	-0.40			16.0	
46	4	0.40	17.2			
48	0	-2.56	12.8			
68	0	-4.79	9.5			
69	2	-1.08	15.0			
70	0	3.10	21.2			
75	0	4.25		22.9		
81	0	-7.07			< 6	
89	2	1.42	18.7			
96	2	-1.01	15.1			
97	4	0.00	16.6			
102	4	0.27		17.0		
105	4	0.27			17.0	
119	3	-0.94				15.2
127	3	-0.67	15.6			
128	4	-0.20			16.3	
134	4	-0.15				16.4
138	4	0.13			16.8	
141	4	-0.13	16.4			
142	0	2.23			19.9	
146	NR			< 20		
151	4	0.40			17.2	
180	0	10.12		31.6		
193	2	-1.08	15.0			
196	3	-0.54			15.8	
212	4	-0.40			16.0	
215	0	-5.80	8.0			
217	3	0.88			17.9	
234	4	0.27	17.0			
235	NR			< 50		
236	0	22.33		49.7		
240	3	0.94		18.0		
241	2	-1.08	15.0			
255	0	2.54		20.4		
257	0	-9.85				2.0
265	4	0.13			16.8	

MPV =	16.6
F-pseudosigma =	1.5
N =	46
Hu =	17.2
Hl =	15.2

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Se (Selenium) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS
11na. AA: hydride $NaBH_4$

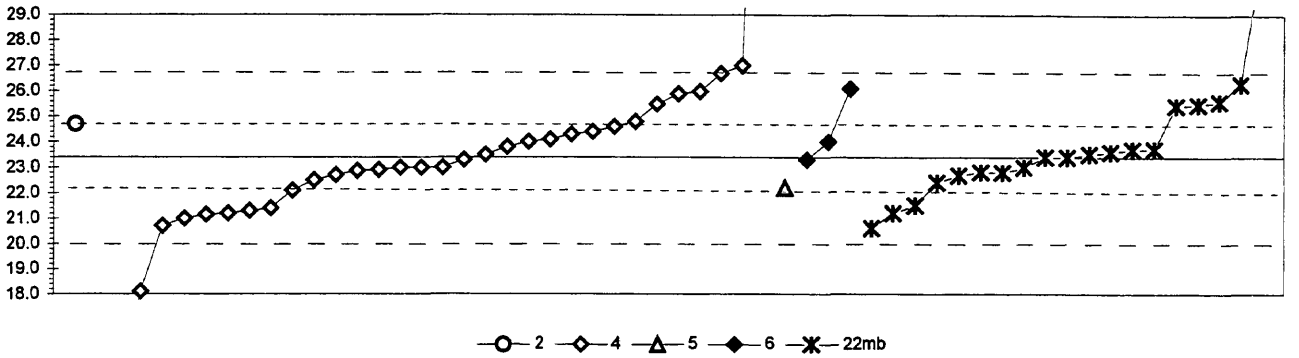
	3	4	6	11na
N =	27	7	13	13
Minimum =	5.0	6.1	9.6	8.0
Maximum =	31.5	174.1	12.0	19.4
Median =	8.8	15.0	10.8	9.4
F-pseudosigma =	1.5	7.2	0.8	1.3

MPV = 9.63
F-pseudosigma = 1.64
N = 60
Hu = 10.80
Hl = 8.59

Lab	Rating	Z-value	3	4	6	11na
1	4	-0.50	8.80			
3	0	-2.82		< 5		
7	NR			< 50		
10	4	-0.14				9.40
11	0	2.42		13.60		
13	2	-1.48	7.20			
15	4	0.47	10.40			
16	3	0.96			11.20	
18	3	-0.87	8.20			
23	4	-0.43				8.92
26	3	-0.64				8.57
30	2	1.45		12.00		
32	4	0.03			9.67	
34	4	-0.23				9.25
36	0	-2.82	5.00			
39	3	0.59				10.60
42	2	1.45			12.00	
46	4	-0.20	9.30			
48	2	-1.11	7.80			
50	4	-0.32				9.10
58	4	0.23	10.00			
68	0	-2.06	6.25			
69	4	-0.05	9.55			
70	NR		< 10			
73	0	9.97		26.00		
75	4	0.03				9.67
80	4	-0.20	9.30			
86	3	0.78				10.90
87	0	5.95				19.40
89	3	-0.99				8.00
96	4	0.05	9.70			
97	0	-2.36	5.75			
102	0	5.71		19.00		
105	4	0.41			10.30	
113	3	-0.59	8.65			
118	3	-0.93	8.10			
119	4	0.47				10.40
127	4	0.41	10.30			
128	3	0.53			10.50	
133	3	-0.87	8.20			
134	3	0.62				10.65
138	4	-0.03			9.58	
141	4	0.41	10.30			
142	3	0.53			10.50	
144	4	-0.20	9.30			
146	NR			< 10		
151	3	0.72			10.80	
180	NR			< 50.1		
190	0	13.32	31.50			
191	2	1.08			11.40	
193	1	-1.60	7.00			
196	3	0.72			10.80	
212	2	1.45			12.00	
215	4	-0.32	9.10			
217	4	0.09			9.77	
220	2	-1.11	7.80			
221	4	-0.28	9.16			
224	0	-2.15		6.10		
234	4	-0.04	9.56			
236	0	100.17		174.10		
240	0	3.27		15.00		
241	1	-1.94	6.44			
255	0	-2.62	5.33			
259	3	-0.62				8.60
265	2	1.36			11.85	

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

SiO_2 (Silica) mg/L



2. AA: direct nitrous oxide
4. ICP
5. DCP
6. ICP/MS
22mb. Color: molybdate blue

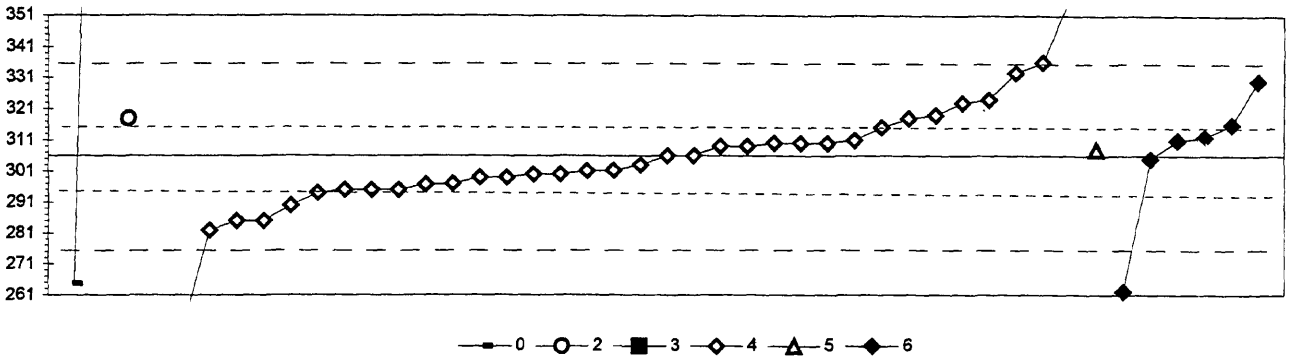
	2	4	5	6	22mb
N =	1	32	1	3	19
Minimum =	24.7	5.8	22.2	23.3	20.6
Maximum =		45.9		26.1	31.3
Median =		23.0			23.4
F-pseudosigma =		2.3			1.4

MPV = 23.4
F-pseudosigma = 1.7
N = 56
Hu = 24.7
Hl = 22.3

Lab	Rating	Z-value	2	4	5	6	22mb
1	3	-0.72		22.1			
3	3	0.60		24.4			
4	0	2.10		27.0			
7	4	0.26		23.8			
11	0	-3.01		18.1			
13	4	-0.26		22.9			
15	2	1.29					25.6
24	4	0.43		24.1			
25	2	1.23		25.5			
26	4	-0.03		23.3			
32	4	0.37				24.0	
33	3	-0.66			22.2		
42	3	0.83		24.8			
43	4	-0.20		23.0			
55	4	0.09		23.5			
70	3	-0.55					22.4
76	1	1.58				26.1	
81	4	0.14					23.6
83	2	-1.18		21.3			
87	4	0.03					23.4
89	2	-1.23					21.2
97	4	-0.20					23.0
104	4	-0.39					22.7
105	2	-1.23		21.2			
107	1	1.69					26.3
110	2	1.19					25.4
113	4	-0.32					22.8
118	2	1.22					25.5
119	4	-0.20		23.0			
121	4	-0.37		22.7			
127	2	-1.12		21.4			
128	4	0.37		24.0			
129	4	0.20					23.7
134	4	-0.28		22.9			
138	2	-1.06					21.5
140	4	-0.32					22.8
142	1	1.92		26.7			
145	1	1.52		26.0			
158	3	0.72		24.6			
190	4	0.09					23.5
191	4	-0.03				23.3	
203	4	0.21					23.7
204	4	0.03					23.4
212	3	0.55		24.3			
215	0	12.94		45.9			
217	1	-1.52		20.7			
219	4	-0.20		23.0			
234	4	-0.49		22.5			
235	2	1.46		25.9			
236	0	-5.19		14.3			
240	2	-1.35		21.0			
241	3	0.77	24.7				
246	0	-10.05		5.8			
256	1	-1.58					20.6
265	2	-1.26		21.2			
274	0	4.55					31.3

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

Sr (Strontium) µg/L

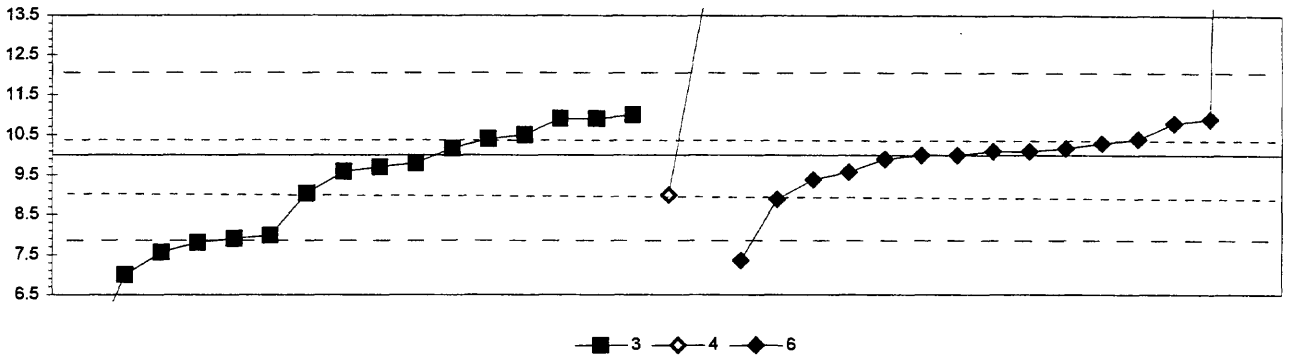


0. Other			4. ICP					
2. AA: direct nitrous oxide			5. DCP					
3. AA: graphite furnace			6. ICP/MS					
		N =	2	1	1	34	1	6
		Minimum =	265	318	255	249	308	262
		Maximum =	613			356		330
		Median =				302		
		F-pseudosigma =				12		
Lab	Rating	Z-value	0	2	3	4	5	6
1	4	-0.32				301		
3	4	0.20				309		
4	2	1.14				323		
7	4	-0.20				303		
11	4	-0.47				299		
16	1	-1.62				282		
18	2	-1.07				290		
24	4	0.00				306		
25	2	1.21				324		
28	3	0.87				319		
32	4	0.34						311
33	4	0.13					308	
40	0	-3.83				249		
42	4	-0.47				299		
55	4	0.00				306		
68	4	0.27				310		
70	4	0.20				309		
81	0	-2.95						262
85	3	0.81				318		
86	4	-0.34				301		
97	0	-3.42			255			
102	0	3.36				356		
105	2	-1.41				285		
109	0	-2.77	265					
113	3	-0.74				295		
121	4	-0.40				300		
127	2	-1.41				285		
134	3	-0.74				295		
138	3	-0.60				297		
142	3	0.61				315		
145	1	1.79				333		
151	3	0.67						316
190	0	20.60	613					
191	4	-0.07						305
196	4	0.40						312
212	1	1.61						330
217	3	-0.74				295		
218	3	0.81		318				
219	4	0.27				310		
234	4	0.27				310		
235	4	0.34				311		
236	3	-0.62				297		
240	3	-0.81				294		
265	4	-0.40				300		
273	1	2.01				336		

MPV =	306
F-pseudosigma =	15
N =	45
Hu =	315
Hl =	295

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Tl (Thallium) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS

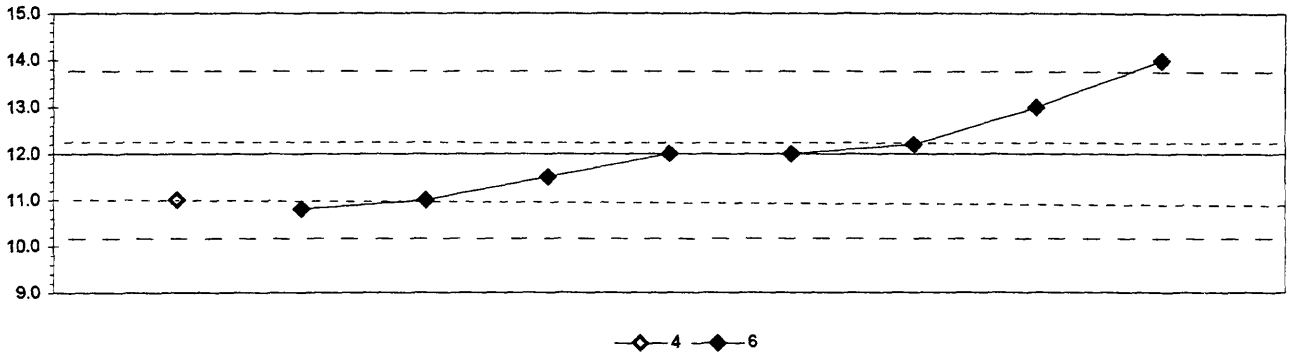
N =	16	2	15
Minimum =	5.0	9.0	7.4
Maximum =	11.0	14.0	53.0
Median =	9.6		10.1
F-pseudosigma =	1.9		0.5

MPV =	10.0
F-pseudosigma =	1.0
N =	33
Hu =	10.4
Hl =	9.0

Lab	Rating	Z-value	3	4	6
1	4	0.39	10.4		
3	NR			< 10	
11	0	3.85		14.0	
13	4	-0.19	9.8		
15	1	-1.95	8.0		
16	4	0.16			10.2
18	4	-0.29	9.7		
23	0	-5.00	< 5		
32	4	-0.40			9.6
39	3	0.77			10.8
42	0	-5.00			< 5
46	3	0.87	10.9		
48	1	-2.02	7.9		
69	3	0.96	11.0		
70	0	-2.12	7.8		
76	0	-2.54			7.4
81	0	41.43			53.0
89	NR		< 10		
97	3	0.87	10.9		
113	4	-0.40	9.6		
119	4	0.10			10.1
128	4	0.00			10.0
134	4	0.16	10.2		
138	3	-0.59			9.4
141	NR			< 50	
142	4	0.39			10.4
146	NR			< 10	
151	4	0.29			10.3
180	NR			< 32.1	
191	4	-0.10			9.9
193	0	-2.89	7.0		
196	4	0.10			10.1
212	4	0.00			10.0
213	3	-0.93	9.0		
215	0	-3.00	< 7		
217	3	0.87			10.9
234	0	-2.35	7.6		
235	0	-4.87	5.0		
240	3	-0.96		9.0	
241	4	0.48	10.5		
265	2	-1.06			8.9

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

U (Uranium) µg/L



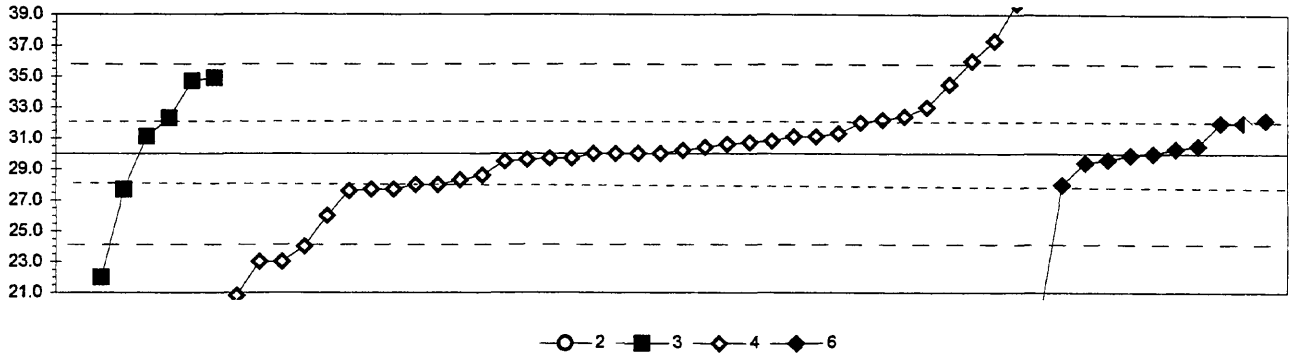
4. ICP
6. ICP/MS
0. Other

		N =	1	8
		Minimum =	11.0	10.8
		Maximum =		14.0
		Median =		12.0
		F-pseudosigma =		1.0
Lab	Rating	Z-value	4	6
1	2	-1.34		10.8
7	NR		< 120	
16	4	0.00		12.0
30	2	-1.12	11.0	
75	NR		< 100	
119	4	0.00		12.0
142	4	0.22		12.2
196	3	-0.56		11.5
212	0	2.25		14.0
217	2	1.12		13.0
265	2	-1.12		11.0

MPV =	12.0
F-pseudosigma =	0.9
N =	9
Hu =	12.2
Hl =	11.0

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)--Continued*

V (Vanadium) µg/L



2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
6. ICP/MS

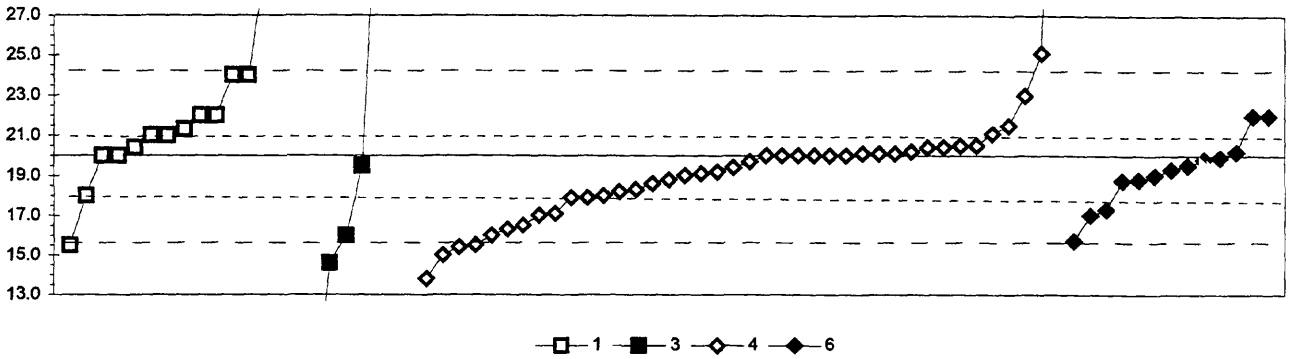
	2	3	4	6
N =	1	6	36	11
Minimum =	93.0	22.0	20.8	19.0
Maximum =		34.9	39.7	32.2
Median =			30.0	30.0
F-pseudosigma =			2.5	1.3

MPV = 30.0
F-pseudosigma = 3.0
N = 54
Hu = 32.0
Hl = 28.0

Lab	Rating	Z-value	2	3	4	6
1	4	0.37			31.1	
3	0	-2.36			23.0	
4	NR				< 50	
7	3	0.81			32.4	
11	4	0.00			30.0	
13	0	3.27			39.7	
15	0	-3.10			20.8	
16	4	0.10				30.3
18	3	-0.67			28.0	
24	1	-2.02			24.0	
25	0	-2.36			23.0	
26	4	0.00			30.0	
28	4	0.07			30.2	
30	4	0.00			30.0	
32	4	0.17				30.5
40	3	-0.78			27.7	
42	3	0.67				32.0
46	3	0.74			32.2	
48	3	-0.78		27.7		
50	0	-2.70		22.0		
55	3	-0.57			28.3	
68	2	-1.35			26.0	
70	NR				< 50	
75	4	-0.13			29.6	
81	0	-3.71				19.0
85	4	0.13			30.4	
86	4	0.44			31.3	
89	3	0.78		32.3		
97	1	1.65		34.9		
102	2	1.01			33.0	
105	4	-0.20				29.4
119	3	-0.67				28.0
121	3	0.67			32.0	
127	4	0.37		31.1		
128	3	-0.78			27.7	
134	4	-0.11			29.7	
138	4	-0.17			29.5	
141	4	0.27			30.8	
142	4	-0.13				29.6
145	0	2.46			37.3	
146	4	0.00			30.0	
158	4	0.20			30.6	
180	4	0.24			30.7	
191	3	0.74				32.2
196	4	-0.03				29.9
212	3	0.67				32.0
217	4	-0.47			28.6	
219	3	-0.67			28.0	
224	1	1.52			34.5	
234	3	-0.81			27.6	
235	1	2.02			36.0	
236	4	0.37			31.1	
241	1	1.59		34.7		
255	4	-0.10			29.7	
257	0	21.25	93.0			
265	4	0.00				30.0

Table 12. *Statistical summary of reported data for standard reference water sample T-143 (trace constituents)–Continued*

Zn (Zinc) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

	1	3	4	6
N =	15	7	40	13
Minimum =	15.5	5.8	13.8	15.7
Maximum =	50.0	184.0	44.0	22.0
Median =	21.3	19.5	19.6	19.3
F-pseudosigma =	2.8	16.6	1.7	0.9

MPV = 20.0
F-pseudosigma = 2.2
N = 75
Hu = 21.0
Hl = 18.0

Lab	Rating	Z-value	1	3	4	6
1	3	-0.57				18.7
3	2	-1.30			17.1	
4	NR				< 200	
7	4	-0.40			19.1	
10	4	0.45	21.0			
11	1	-1.80			16.0	
13	4	0.04			20.1	
15	3	-0.81			18.2	
16	4	-0.22				19.5
18	NR				< 100	
19	4	0.49			21.1	
23	NR		< 20			
24	3	-0.94			17.9	
26	4	0.04			20.1	
28	1	-1.57			16.5	
30	4	0.00			20.0	
32	4	-0.04				19.9
36	3	0.90	22.0			
40	0	-2.79			13.8	
42	4	-0.45				19.0
48	0	-6.82			< 5	
58	NR		< 50			
68	3	0.67			21.5	
69	NR		< 50			
70	4	0.04			20.1	
73	4	0.00			20.0	
75	4	-0.36			19.2	
80	1	-2.02	15.5			
81	2	-1.35				17.0
83	3	-0.76			18.3	
86	4	0.22			20.5	
87	1	1.80	24.0			
89	0	9.31		40.7		
96	3	0.90	22.0			
97	0	-2.43		14.6		
102	4	0.00			20.0	
105	4	-0.31				19.3
113	4	-0.27			19.4	
114	3	-0.90	18.0			
118	1	1.80	24.0			
119	0	10.79			44.0	
121	4	0.00			20.0	
127	1	-1.66			16.3	
128	4	0.09			20.2	
132	4	0.00			20.0	
133	4	0.22			20.5	
134	4	0.19			20.4	
138	2	-1.21				17.3
140	4	0.00	20.0			
141	4	-0.13			19.7	
142	1	-1.93				15.7
145	0	2.29			25.1	
146	NR				< 20	
151	4	0.09				20.2
158	3	-0.63			18.6	
180	4	0.18			20.4	
190	3	0.58	21.3			
191	3	-0.54				18.8
193	NR		< 50			
196	4	-0.09				19.8
204	3	-0.90			18.0	
212	3	0.90				22.0
213	0	4.18	29.3			
215	4	0.00			20.0	
217	3	-0.94			17.9	
219	2	-1.35			17.0	
220	4	0.00	20.0			
221	0	6.66		34.8		
224	4	-0.45			19.0	
234	0	-2.07			15.4	
235	4	-0.22		19.5		
236	1	-2.02			15.5	
240	2	1.35			23.0	
241	1	-1.80		16.0		
249	0	73.75		184.0		
253	0	13.49	50.0			
255	3	-0.54			18.8	
256	4	0.18	20.4			
257	4	0.45	21.0			
259	0	13.49	50.0			
265	3	0.90				22.0
273	0	-2.25			15.0	
274	0	-6.37		5.8		

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0. Other/Not reported		
1. AA: direct, air	=	atomic absorption: direct,air
2. AA: direct, N_2O	=	atomic absorption: direct,nitrous oxide
3. AA: graphite furnace	=	atomic absorption: graphite furnace
4. ICP	=	inductively coupled plasma
5. DCP	=	direct current plasma
6. ICP/MS	=	inductively coupled plasma/mass spectrometry
10. AA: extraction	=	atomic absorption: extraction [chelating agent(s) specified]
11. AA: hydride	=	atomic absorption: hydride [reducing agent specified]
12. Flame emission	=	flame emission
22. Color:	=	colorimetric [color reagent specified]

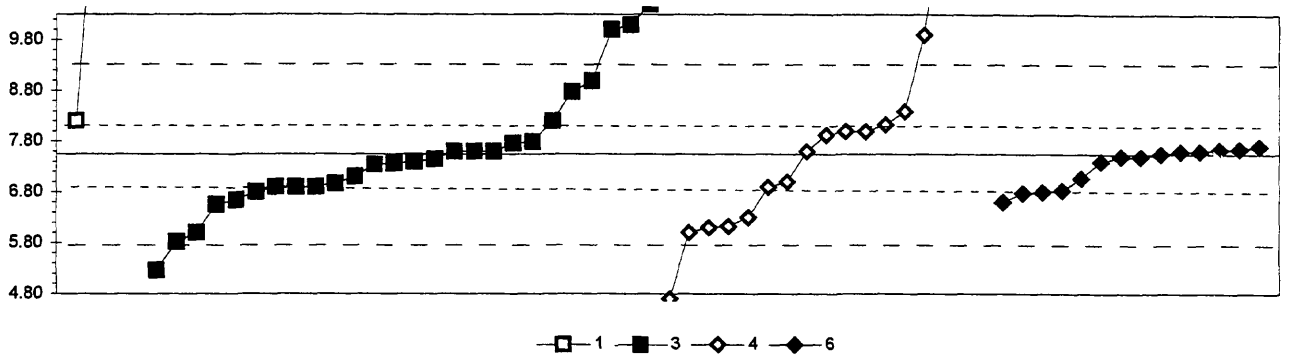
Abbreviations and symbols

N	=	number of samples
MPV	=	most probable value
F-pseudosigma	=	nonparametric statistic deviation
Hu	=	upper hinge value
Hl	=	lower hinge value
µg/L	=	micrograms per liter
mg/L	=	milligrams per liter
Lab	=	laboratory code number
NR	=	not rated, less than value reported
<	=	less than

Constituent		page	Constituent		page
Ag	Silver	74	Mg	Magnesium	88
Al	Aluminium	75	Mn	Manganese	89
As	Arsenic	76	Mo	Molybdenum	90
B	Boron	77	Na	Sodium	91
Ba	Barium	78	Ni	Nickel	92
Be	Beryllium	79	Pb	Lead	93
Ca	Calcium	80	Sb	Antimony	94
Cd	Cadmium	81	Se	Selenium	95
Co	Cobalt	82	SiO2	Silica	96
Cr	Chromium	83	Sr	Strontium	97
Cu	Copper	84	Tl	Thallium	98
Fe	Iron	85	U	Uranium	99
K	Potassium	86	V	Vanadium	100
Li	Lithium	87	Zn	Zinc	101

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Ag (Silver) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

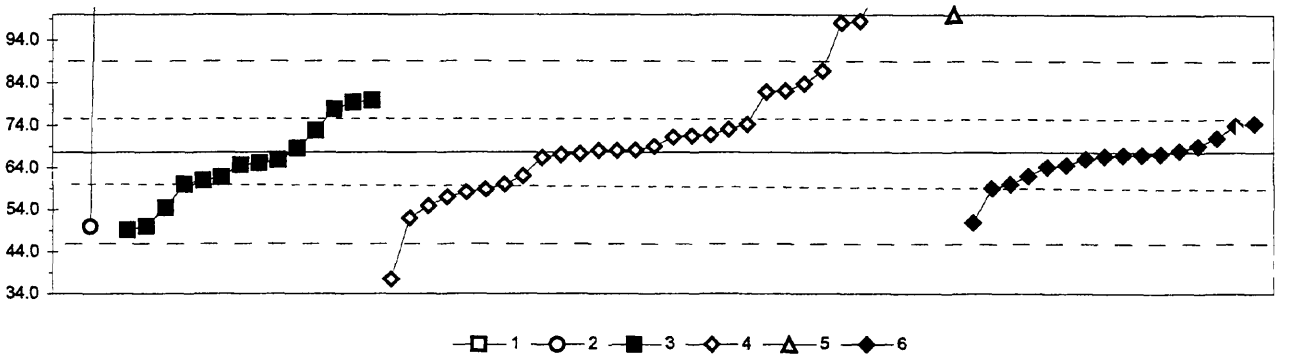
	1	3	4	6
N =	4	26	17	14
Minimum =	8.20	5.26	4.70	6.60
Maximum =	15.00	10.50	52.00	7.71
Median =		7.38	7.93	7.50
F-pseudosigma =		0.66	1.56	0.57

MPV = 7.55
F-pseudosigma = 0.92
N = 61
Hu = 8.13
Hl = 6.89

Lab	Rating	Z-value	1	3	4	6
1	4	0.00				7.55
3	1	-1.69			6.00	
4	4	0.49			8.00	
5	2	-1.09		6.55		
7	0	2.56			9.90	
11	4	0.49			8.00	
13	3	0.63			8.13	
15	NR				< 10	
16	4	0.05				7.60
16	3	0.92			8.40	
23	4	0.26		7.79		
26	4	0.23		7.76		
30	4	0.05			7.60	
32	4	-0.16				7.40
36	0	8.10	15.00			
42	4	-0.05				7.50
46	4	-0.49		7.10		
48	4	0.05		7.60		
58	1	1.58		9.00		
59	4	0.05				7.60
68	0	2.77		10.10		
69	3	-0.63		6.97		
70	NR			< 10		
75	1	-1.56			6.12	
85	3	0.71	8.20			
87	0	5.93	13.00			
89	4	0.05		7.60		
96	3	0.71		8.20		
97	3	-0.99		6.64		
102	0	48.36			52.00	
105	3	-0.84				6.78
107	4	-0.16		7.40		
113	3	-0.82		6.80		
114	NR		< 10			
118	3	-0.71		6.90		
119	3	-0.71		6.90		
128	4	-0.05				7.50
133	1	-1.58			6.10	
134	3	-0.72			6.89	
138	3	-0.52				7.07
141	0	5.17			12.30	
142	2	-1.03				6.60
146	NR				< 10	
149	4	0.05		7.60		
151	4	0.10				7.64
180	2	-1.36			6.30	
190	2	1.34		8.78		
193	1	-1.69		6.00		
196	4	0.17				7.71
212	3	-0.82				6.80
213	4	-0.11		7.45		
215	0	2.67		10.00		
217	3	-0.78				6.83
221	4	-0.21		7.36		
234	4	-0.23		7.34		
235	3	-0.60			7.00	
236	0	-3.10			4.70	
241	3	-0.71		6.90		
245	1	-1.88		5.82		
249	0	-2.49		5.26		
255	4	0.41			7.93	
257	0	5.93	13.00			
259	0	3.21		10.50		
265	4	0.11				7.65
273	0	11.37			18.00	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Al (Aluminum) µg/L



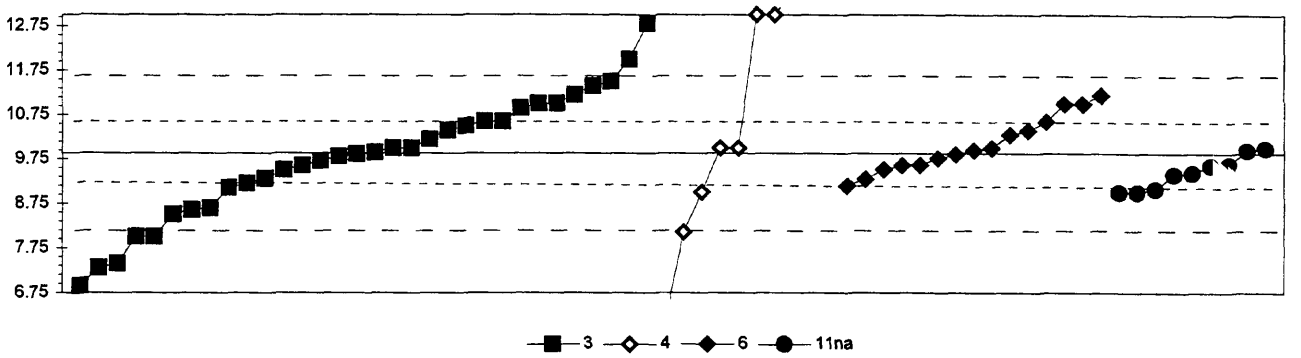
1. AA: direct air				4. ICP				
2. AA: direct nitrous oxide				5. DCP				
3. AA: graphite furnace				6. ICP/MS				
		N =	1	2	13	31	1	16
		Minimum =	117.0	50.0	49.2	37.5	100.0	51.0
		Maximum =		300.0	79.8	157.0		74.4
		Median =			64.8	70.1		66.8
		F-pseudosigma =			9.4	16.2		4.1
Lab	Rating	Z-value	1	2	3	4	5	6
1	3	-0.69						60.1
3	0	2.77				98.0		
4	4	0.04				68.0		
5	3	0.60				74.2		
7	2	1.48				83.8		
11	3	-0.69				60.0		
13	2	1.11			79.8			
15	2	1.32				82.1		
16	3	-0.77						59.1
18	NR					< 100		
23	NR				< 50			
26	4	-0.16				65.8		
28	0	-2.74				37.5		
32	4	0.14						69.1
33	0	2.95					100.0	
36	0	21.18		300.0				
40	3	-0.80				58.8		
42	4	-0.05						67.0
46	1	1.75				86.8		
48	1	-1.68			49.2			
58	0	4.50	117.0					
59	3	0.62						74.4
68	0	2.82				98.5		
69	1	-1.60			50.0			
70	NR					< 100		
73	3	-0.51				62.0		
75	4	-0.04				67.2		
76	4	-0.08						66.7
81	1	-1.51						51.0
83	3	-0.97				57.0		
85	NR					< 100		
89	4	-0.27			64.6			
97	4	0.46			72.7			
102	4	0.13				69.0		
105	4	-0.15						66.0
107	4	-0.24			65.0			
113	4	0.05				68.1		
118	NR			< 2000				
119	3	-0.51						62.0
128	4	0.31						71.0
132	4	0.49				73.0		
134	4	0.37				71.7		
138	4	-0.27						64.6
141	NR					< 100		
142	4	-0.12				66.3		
145	0	3.61				107.2		
146	NR					< 200		
149	3	-0.69			60.0			
151	4	-0.32						64.1
158	4	0.36				71.5		

MPV =	67.6
F-pseudosigma =	11.0
N =	64
Hu =	76.1
Hl =	61.3

Lab	Rating	Z-value	1	2	3	4	5	6
180	NR					< 40.6		
190	3	-0.54			61.7			
191	4	0.04						68.0
196	4	-0.04						67.2
203	3	-0.61			60.9			
204	2	1.08			79.4			
212	3	0.58						74.0
215	0	5.41				127.0		
217	2	1.30				81.9		
219	4	0.04				68.0		
221	4	0.08			68.5			
224	2	-1.16				54.9		
234	4	-0.05				67.0		
235	2	-1.42				52.0		
236	4	0.33				71.2		
240	0	4.32				115.0		
241	2	-1.20			54.4			
249	3	0.93			77.8			
255	3	-0.87				58.1		
257	1	-1.60		50.0				
265	4	-0.06						66.9
273	0	8.15				157.0		

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

As (Arsenic) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS
11na. AA: hydride $NaBH_4$

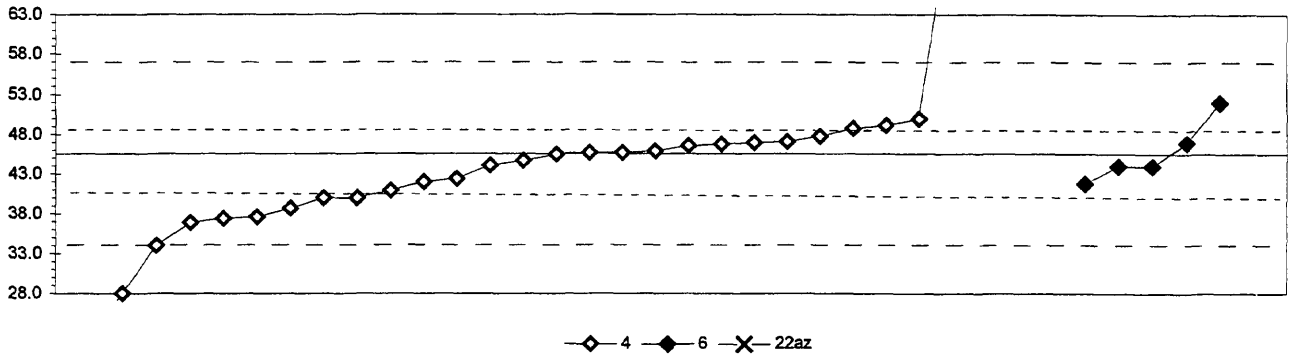
	3	4	6	11na
N =	32	10	15	9
Minimum =	6.90	6.10	9.14	9.00
Maximum =	12.80	42.70	11.20	10.00
Median =	9.88	11.50	9.95	9.44
F-pseudosigma =	1.22	3.34	0.66	0.41

MPV = 9.88
F-pseudosigma = 1.04
N = 66
Hu = 10.60
Hl = 9.20

Lab	Rating	Z-value	3	4	6	11na
1	4	0.02	9.90			
3	4	0.12		10.00		
4	0	3.01		13.00		
5	4	-0.02	9.86			
7	NR			< 120		
10	4	0.12				10.00
11	4	0.12		10.00		
13	3	0.60	10.50			
15	NR			< 100		
16	4	0.50			10.40	
18	3	-0.66	9.20			
23	0	2.81	12.80			
26	4	-0.25				9.62
30	3	-0.85		9.00		
32	4	-0.11			9.77	
34	4	-0.27				9.60
36	1	-1.81	8.00			
42	2	1.08			11.00	
46	3	-0.75	9.10			
48	4	-0.08	9.80			
58	1	2.04	12.00			
59	4	0.12			10.00	
68	0	-2.87	6.90			
69	4	0.31	10.20			
70	NR		< 10			
73	0	3.01		13.00		
75	4	-0.42				9.44
76	3	0.69			10.60	
80	3	0.69	10.60			
81	4	0.12	10.00			
86	4	0.07				9.95
87	4	-0.46				9.40
89	3	-0.85				9.00
96	4	-0.17	9.70			
97	4	0.50	10.40			
102	0	-3.64		6.10		
105	4	0.40			10.30	
109	2	-1.33	8.50			
113	1	1.56	11.50			
118	3	0.69	10.60			
119	3	-0.85				9.00
128	4	0.07			9.95	
133	0	-2.49	7.30			
134	3	-0.78				9.07
138	4	-0.36			9.51	
141	2	-1.19	8.65			
142	4	-0.26			9.61	
144	4	-0.27	9.60			
145	0	9.08		19.30		
146	0	3.49		13.50		
151	3	-0.57			9.29	
190	2	1.27	11.20			
191	2	1.27			11.20	
193	1	-1.81	8.00			
196	4	-0.03			9.85	
204	2	1.46	11.40			
212	4	-0.27			9.60	
213	2	-1.23	8.60			
215	2	1.08	11.00			
217	3	-0.71			9.14	
220	4	-0.37	9.50			
221	3	-0.55	9.31			
224	1	-1.72		8.10		
234	3	0.98	10.90			
236	0	31.62		42.70		
241	0	-2.39	7.40			
249	2	1.08	11.00			
255	4	0.12	10.00			
265	2	1.08			11.00	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

B (Boron) µg/L



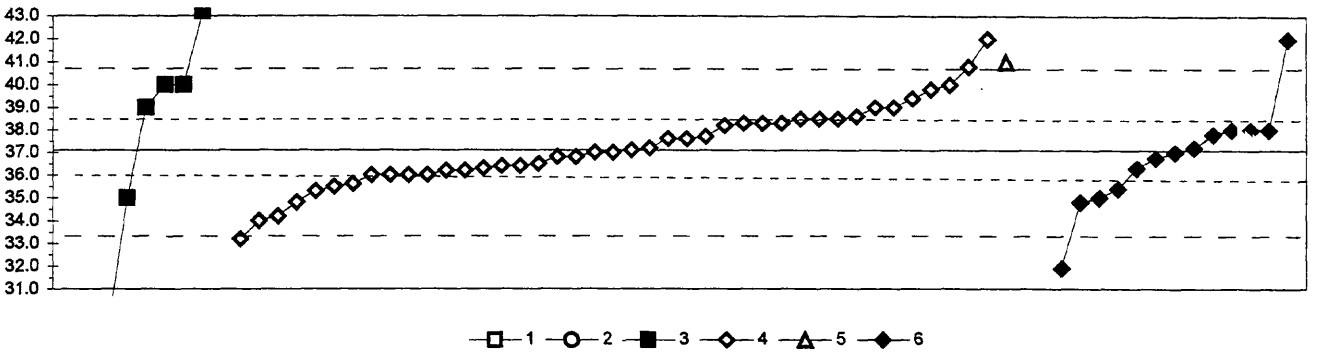
4. ICP					
6. ICP/MS					
22az. Color: azomethine					
		N =	30	5	1
		Minimum =	22.4	41.8	125.0
		Maximum =	150.0	52.0	
		Median =	45.6		
		F-pseudosigma =	5.8		

MPV =	45.6
F-pseudosigma =	5.8
N =	36
Hu =	48.3
HI =	40.5

Lab	Rating	Z-value	4	6	22az
1	4	0.02	45.7		
3	3	-0.96	40.0		
5	3	0.62	49.2		
11	3	0.76	50.0		
15	NR		< 50		
16	0	5.40	77.0		
18	NR		< 50		
24	2	-1.50	36.9		
26	2	-1.37	37.6		
28	4	-0.02	45.5		
42	4	0.24		47.0	
46	0	-3.99	22.4		
48	NR		< 100		
68	0	13.64	125.0		
70	NR		< 50		
85	3	-0.55	42.4		
86	4	0.02	45.7		
119	3	-0.62	42.0		
128	3	-0.81	40.9		
129	0	13.64			125.0
132	0	-3.02	28.0		
134	4	0.26	47.1		
138	3	-0.65		41.8	
141	2	-1.19	38.7		
142	4	0.17	46.6		
145	4	-0.15	44.7		
158	4	0.38	47.8		
180	3	0.55	48.8		
191	4	-0.27		44.0	
212	2	1.10		52.0	
215	0	12.96	121.0		
217	4	0.05	45.9		
219	4	0.24	47.0		
234	4	-0.26	44.1		
235	3	-0.96	40.0		
236	2	-1.41	37.4		
240	1	-1.99	34.0		
255	4	0.21	46.8		
265	4	-0.27		44.0	
273	0	17.94	150.0		

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Ba (Barium) µg/L



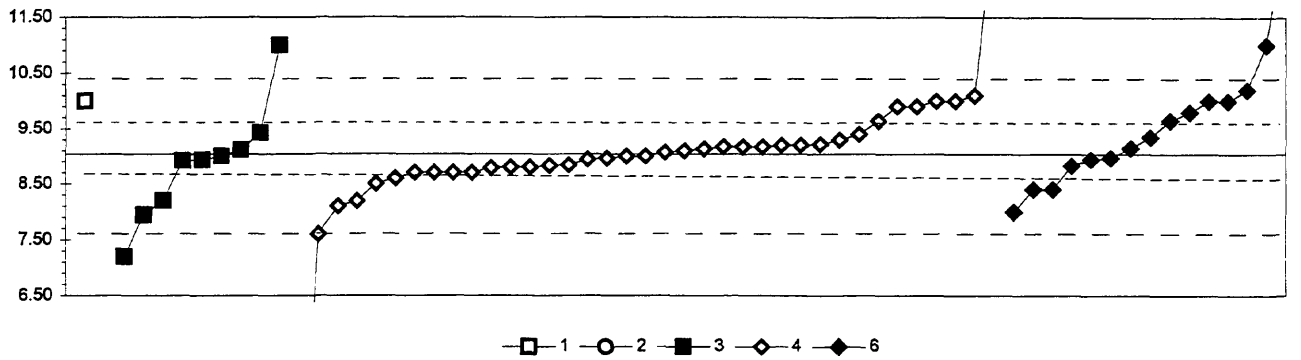
1. AA: direct air			4. ICP				
2. AA: direct nitrous oxide			5. DCP				
3. AA: graphite furnace			6. ICP/MS				
N =	0	0	7	42	1	13
Minimum =	< 0.05	< 100	29.2	31.0	41.0	31.9
Maximum =			44.5	42.0		42.0
Median =			40.0	37.0		37.0
F-pseudosigma =			3.4	1.9		1.9

MPV =	37.1
F-pseudosigma =	1.9
N =	63
Hu =	38.5
HI =	36.0

Lab	Rating	Z-value	1	2	3	4	5	6
1	4	-0.19						36.8
3	4	-0.32				36.5		
4	4	-0.05				37.0		
5	3	-0.59				36.0		
7	3	0.76				38.5		
11	3	-0.59				36.0		
13	2	1.46				39.8		
15	1	-1.56				34.2		
16	4	0.49						38.0
18	4	-0.49				36.2		
24	2	-1.24				34.8		
25	3	0.65				38.3		
26	4	0.27				37.6		
28	3	0.81				38.6		
30	3	-0.59				36.0		
32	3	-0.92						35.4
33	0	2.10					41.0	
36	0	-20.02	< 0.05					
40	3	-0.97				35.3		
46	4	0.27				37.6		
48	0	3.29			43.2			
59	4	-0.05						37.0
68	3	0.76				38.5		
70	NR					< 50		
75	4	0.05				37.2		
81	2	-1.13						35.0
83	3	-0.86				35.5		
85	4	0.32				37.7		
86	4	-0.16				36.8		
87	1	1.56			40.0			
89	NR				< 50			
96	NR			< 100				
97	0	-4.26			29.2			
102	0	2.64				42.0		
105	2	-1.24						34.8
107	2	1.03			39.0			
113	4	-0.05				37.0		
119	2	1.03				39.0		
121	3	-0.59				36.0		
128	0	-2.81						31.9
133	4	-0.38				36.4		
134	3	-0.81				35.6		
138	4	-0.38				36.4		
141	3	0.59				38.2		
142	4	0.05						37.2
145	1	2.00				40.8		
146	3	0.76				38.5		
149	1	1.56			40.0			
151	4	0.38						37.8
158	3	0.65				38.3		
180	4	-0.49				36.2		
191	4	0.49						38.0
196	4	-0.43						36.3
204	2	1.24				39.4		
212	0	2.64						42.0
215	2	1.03				39.0		
217	4	0.00				37.1		
219	1	-1.67				34.0		
224	0	-2.10				33.2		
234	3	0.65				38.3		
235	1	1.56				40.0		
236	4	-0.43				36.3		
240	0	-3.29				31.0		
241	0	3.99			44.5			
255	4	-0.16				36.8		
259	2	-1.13			35.0			
265	4	0.49						38.0

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Be (Berylium) µg/L



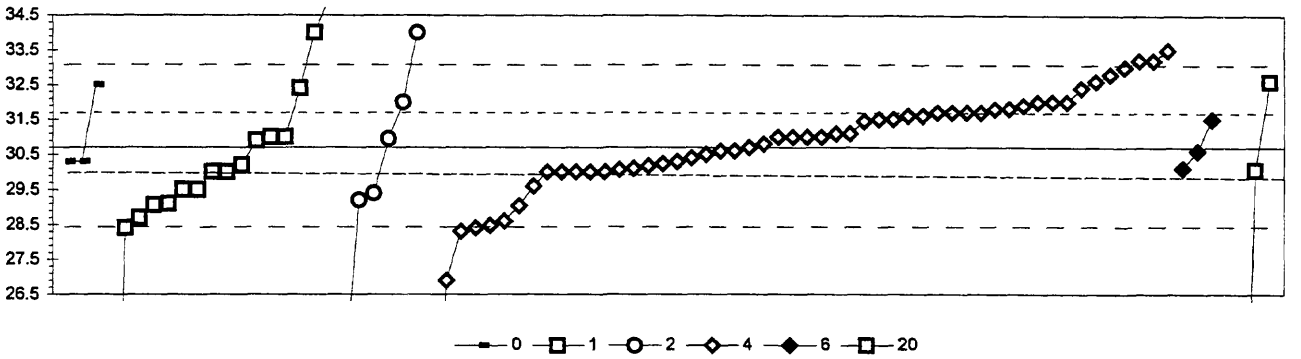
1. AA: direct air			4. ICP				
2. AA: direct nitrous oxide			6. ICP/MS				
3. AA: graphite furnace			0. Other				
		N =	1	0	9	37	15
		Minimum =	10.00	< 10	7.20	2.30	8.00
		Maximum =			11.00	13.20	13.00
		Median =			8.93	9.00	9.35
		F-pseudosigma =			0.68	0.39	0.83
Lab	Rating	Z-value	1	2	3	4	6
1	4	-0.14					8.94
3	4	0.24				9.20	
5	4	-0.28				8.84	
7	4	-0.48				8.70	
11	4	-0.05				9.00	
13	4	0.19				9.17	
15	4	-0.48				8.70	
16	3	-0.91					8.40
18	4	0.24				9.20	
25	2	-1.34				8.10	
26	4	0.19				9.17	
30	0	-2.06				7.60	
32	3	0.88					9.65
36	0	2.82			11.00		
40	0	-9.67				2.30	
42	0	5.69					13.00
46	4	-0.11				8.96	
48	2	1.38				10.00	
59	2	1.10					9.80
68	4	0.38				9.30	
69	1	-1.57			7.94		
70	4	0.19				9.17	
75	4	0.09				9.10	
76	1	1.67					10.20
81	2	-1.49					8.00
83	4	-0.34				8.80	
85	3	0.87				9.64	
86	4	-0.35				8.79	
89	2	-1.20			8.20		
96	2	1.38	10.00				
97	3	0.57			9.43		
102	4	-0.34				8.80	
105	2	1.38					10.00
113	1	1.53				10.10	
114	NR			< 10			
119	4	-0.17			8.92		
121	2	1.38				10.00	
128	3	-0.91					8.40
133	3	0.52				9.40	
134	4	0.14				9.13	
138	4	0.27				9.22	
141	4	0.05				9.07	
142	4	0.45					9.35
144	0	-12.96	< 0.01				
145	2	1.24				9.90	
146	2	-1.21				8.19	
151	4	-0.09					8.97
158	2	1.24				9.90	
180	4	-0.48				8.70	
191	2	1.38					10.00

MPV =	9.04
F-pseudosigma =	0.70
N =	62
Hu =	9.64
Hl =	8.70

Lab	Rating	Z-value	1	2	3	4	6
193	4	-0.05			9.00		
196	4	-0.29					8.83
212	0	2.82					11.00
213	4	0.12			9.12		
215	4	-0.48				8.70	
217	3	-0.62				8.60	
224	0	5.98				13.20	
234	4	-0.14				8.94	
235	4	-0.05				9.00	
236	3	-0.77				8.50	
241	0	-2.63			7.20		
245	4	-0.15			8.93		
255	4	-0.29				8.83	
265	4	0.17					9.15

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Ca (Calcium) mg/L



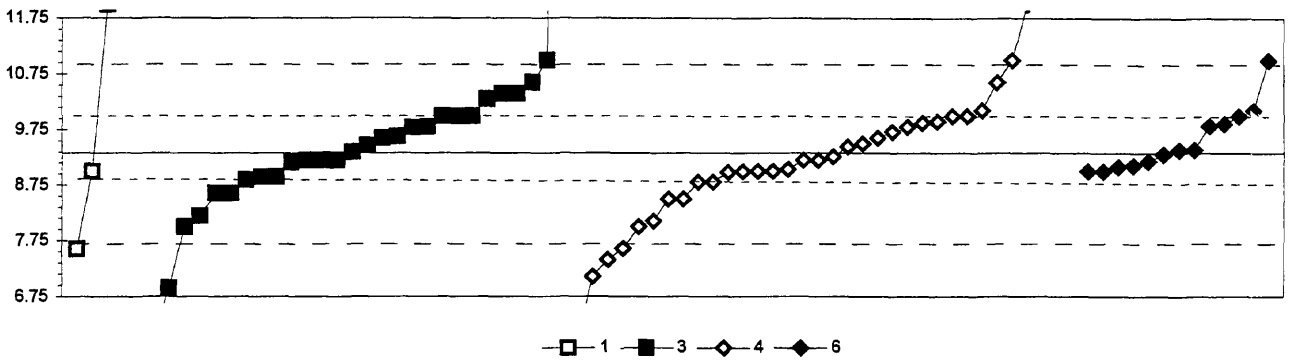
0. Other		4. ICP					
1. AA: direct air		6. ICP/MS					
2. AA: direct nitrous oxide		20. Titrate: colorimetric					
N =	3	16	6	52	3	4	
Minimum =	30.3	12.4	24.0	12.1	30.1	0.0	
Maximum =	32.5	35.0	34.0	33.5	31.5	32.6	
Median =		30.0		31.0			
F-pseudosigma =		1.4		1.3			

MPV =	30.7
F-pseudosigma =	1.3
N =	84
Hu =	31.7
Hl =	30.0

Lab	Rating	Z-value	0	1	2	4	6	20
1	2	-1.32				29.0		
3	4	0.32				31.1		
4	4	-0.16				30.5		
5	1	-1.90				28.3		
7	3	0.88				31.8		
11	3	0.79				31.7		
13	1	1.98				33.2		
15	1	-1.67				28.6		
16	4	-0.48				30.1		
18	4	-0.08				30.6		
19	4	0.24				31.0		
23	0	-14.52		12.4				
24	3	-0.56				30.0		
25	4	0.32				31.1		
26	4	-0.08				30.6		
28	3	0.63				31.5		
30	2	1.03			32.0			
32	3	0.63					31.5	
33	4	-0.32	30.3					
36	3	-0.56		30.0				
42	0	-14.76				12.1		
43	4	0.24				31.0		
46	2	1.03				32.0		
48	3	0.71				31.6		
59	3	-0.56				30.0		
69	4	-0.40		30.2				
70	3	0.71				31.6		
75	3	-0.56		30.0				
81	4	-0.48					30.1	
83	3	-0.56				30.0		
85	4	0.24		31.0				
86	3	0.87				31.8		
87	2	-1.19			29.2			
89	3	-0.95		29.5				
97	2	-1.27		29.1				
102	1	1.83				33.0		
105	4	-0.32				30.3		
107	4	0.16		30.9				
109	1	-1.59		28.7				
113	1	1.98				33.2		
114	0	-5.32			24.0			
119	3	0.79				31.7		
121	3	-0.56				30.0		
128	2	1.03				32.0		
129	0	2.62		34.0				
132	4	0.08				30.8		
133	4	-0.24				30.4		
134	3	0.60				31.5		
138	3	0.63				31.5		
140	0	3.41		35.0				
141	2	1.03				32.0		
142	4	-0.50				30.1		
145	1	1.67				32.8		
146	3	-0.87				29.6		
158	1	1.51				32.6		
180	4	0.24				31.0		
190	4	-0.32	30.3					
191	4	-0.08					30.6	
193	2	-1.03			29.4			
203	2	-1.29		29.1				
204	3	0.79				31.7		
212	3	0.95				31.9		
215	3	0.79				31.7		
217	0	-3.02				26.9		
218	4	0.20			31.0			
219	3	-0.56				30.0		
220	4	0.24		31.0				
221	2	1.35		32.4				
224	1	-1.77				28.5		
234	4	0.24				31.0		
235	0	2.22				33.5		
236	4	-0.37				30.2		
240	1	-1.83				28.4		
241	1	-1.83		28.4				
255	4	-0.42				30.2		
257	0	2.62			34.0			
261	3	-0.51						30.1
265	4	0.00				30.7		
268	2	-0.92		29.5				
270	2	1.43	32.5					
271	1	1.51						32.6
272	0	-13.23						14.0
273	2	1.35				32.4		
274	NR	-24.36						0.0

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Cd (Cadmium) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

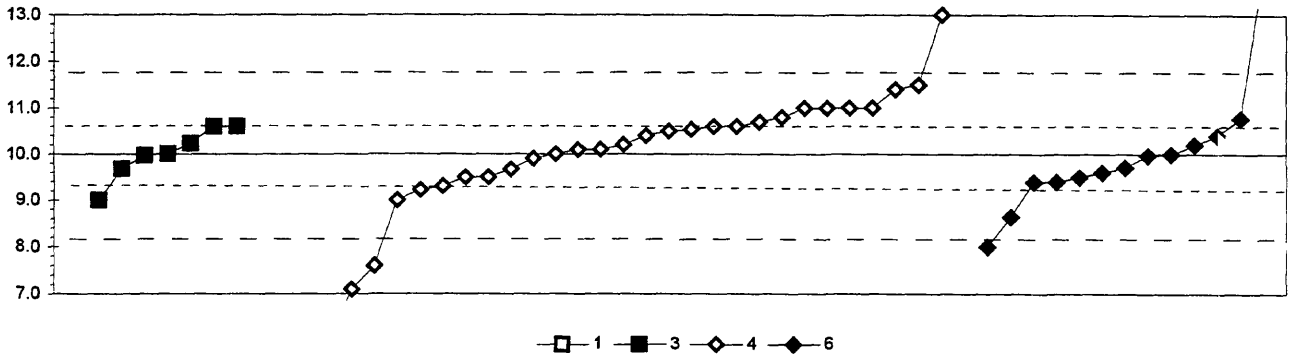
	1	3	4	6
N =	4	29	34	13
Minimum =	7.60	4.60	5.90	9.00
Maximum =	16.00	37.00	17.20	11.00
Median =		9.35	9.23	9.39
F-pseudosigma =		0.86	0.89	0.56

MPV = 9.33
F-pseudosigma = 0.82
N = 80
Hu = 10.00
Hl = 8.90

Lab	Rating	Z-value	1	3	4	6
1	3	0.56		9.79		
3	3	0.94			10.10	
4	4	0.21			9.50	
5	3	-0.53		8.90		
7	0	4.50			13.00	
11	4	-0.40			9.00	
13	4	0.13			9.44	
15	0	9.65			17.20	
16	4	-0.28				9.10
18	4	-0.16			9.20	
23	4	-0.21		9.16		
24	0	-2.12			7.60	
26	2	1.31		10.40		
28	1	-1.51			8.10	
30	4	0.33			9.60	
32	4	-0.18				9.18
36	3	-0.90		8.60		
40	2	-1.02			8.50	
42	4	-0.40				9.00
46	3	-0.60		8.84		
48	4	-0.16		9.20		
58	0	33.93		37.00		
59	4	-0.40				9.00
68	3	0.82			10.00	
69	2	1.31		10.40		
70	3	-0.90		8.60		
73	4	-0.40			9.00	
75	4	-0.42			8.99	
80	NR		< 10			
81	3	0.82		10.00		
83	3	-0.65			8.80	
85	0	-2.12	7.60			
86	4	-0.16			9.20	
87	0	3.27	12.00			
89	4	0.16		9.46		
96	3	-0.53		8.90		
97	4	-0.16		9.20		
102	3	0.70			9.90	
105	3	0.65				9.86
113	4	0.47			9.71	
114	NR		< 10			
118	1	1.56		10.60		
119	4	-0.16		9.20		
121	1	-1.63			8.00	
128	3	0.94				10.10
132	2	-1.02			8.50	
133	1	1.56			10.60	
134	4	-0.09			9.26	
138	4	-0.31				9.08
140	4	-0.40	9.00			
141	4	-0.43			8.98	
142	3	0.60				9.82
145	1	2.05			11.00	
146	4	-0.37			9.03	
149	3	0.82		10.00		
151	4	0.07				9.39
158	0	-5.80		4.60		
180	3	0.82			10.00	
190	2	1.19		10.30		
191	4	-0.02				9.31
193	1	2.05		11.00		
196	4	0.07				9.39
212	1	2.05				11.00
213	2	-1.40		8.19		
215	3	0.82		10.00		
217	0	-2.73			7.10	
219	3	-0.65			8.80	
221	4	0.37		9.63		
224	0	-4.21			5.90	
234	4	0.33		9.60		
235	3	0.58			9.80	
236	0	-2.37			7.40	
240	0	3.27			12.00	
241	3	0.58		9.80		
245	4	0.02		9.35		
249	1	-1.63		8.00		
255	3	0.66			9.87	
257	0	8.18	16.00			
259	0	-4.08		6.00		
265	3	0.82				10.00
273	0	9.65			17.20	
274	0	-2.98		6.90		

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Co (Cobalt) µg/L



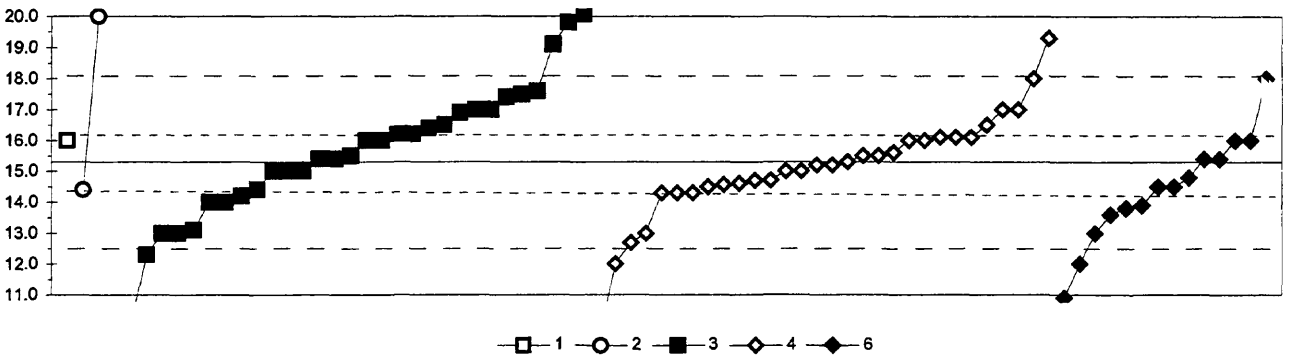
1. AA: direct air		6. ICP/MS			
3. AA: graphite furnace		0. Other			
4. ICP		0. Other			
N =	1	7	32	13	
Minimum =	19.0	9.0	4.8	8.0	
Maximum =		10.6	14.6	14.0	
Median =		10.0	10.2	9.7	
F-pseudosigma =		0.4	1.2	0.6	

MPV =	10.0
F-pseudosigma =	0.9
N =	53
Hu =	10.6
HI =	9.4

Lab	Rating	Z-value	1	3	4	6
1	4	-0.03				10.0
3	0	-4.50			6.0	
4	3	0.67			10.6	
5	4	0.11			10.1	
7	1	1.57			11.4	
11	2	1.12			11.0	
13	0	-2.70			7.6	
15	NR				< 20	
16	4	0.45				10.4
18	4	-0.11			9.9	
24	0	-5.85			4.8	
26	4	0.45			10.4	
30	4	0.22			10.2	
32	4	0.22				10.2
40	0	-3.26			7.1	
42	0	4.50				14.0
46	3	0.79			10.7	
48	NR				< 50	
68	1	1.69			11.5	
70	NR				< 50	
75	3	0.90			10.8	
81	0	-2.25				8.0
86	3	0.56			10.5	
89	4	-0.03		10.0		
97	4	-0.36		9.7		
102	2	1.12			11.0	
105	4	-0.45				9.6
119	3	-0.69				9.4
121	4	0.00			10.0	
128	2	1.12			11.0	
132	3	-0.56			9.5	
134	4	0.26		10.2		
138	1	-1.53				8.6
141	NR				< 10	
142	4	-0.33				9.7
145	0	5.17			14.6	
146	3	-0.88			9.2	
158	3	0.67			10.6	
180	4	-0.37			9.7	
191	3	0.87				10.8
196	3	-0.67				9.4
212	4	0.00				10.0
213	3	0.67		10.6		
215	2	-1.12			9.0	
217	3	-0.56			9.5	
219	3	-0.79			9.3	
221	4	0.00		10.0		
224	4	0.11			10.1	
234	3	0.67		10.6		
235	0	3.37			13.0	
236	0	-4.95			5.6	
240	0	-4.72			5.8	
255	3	0.60			10.5	
257	0	10.12	19.0			
259	2	-1.12		9.0		
265	3	-0.56				9.5
273	2	1.12			11.0	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Cr (Chromium) µg/L



1. AA: direct air
2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
6. ICP/MS

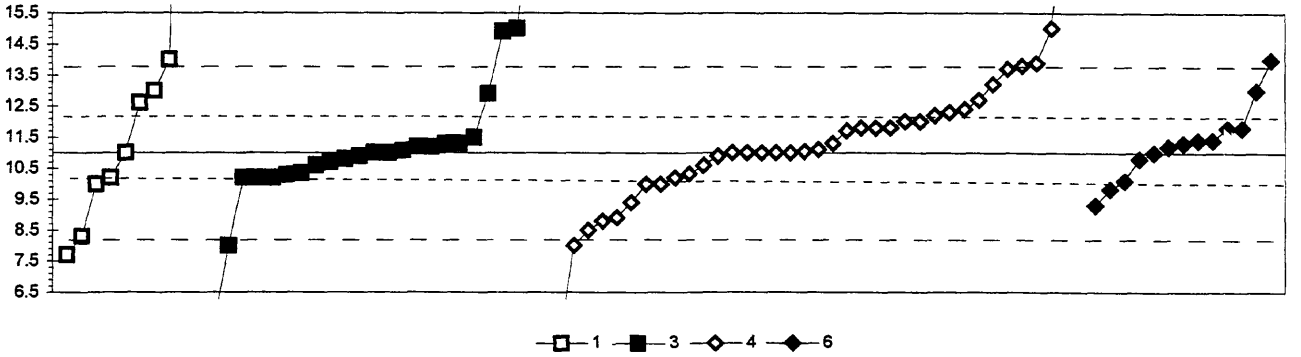
	1	3	30	30	14
N =	1	3	30	30	14
Minimum =	16.0	14.4	10.0	9.5	10.9
Maximum =		30.0	20.1	19.3	18.0
Median =			15.8	15.2	14.5
F-pseudosigma =			2.1	1.2	1.3

MPV = 15.3
F-pseudosigma = 1.4
N = 78
Hu = 16.2
Hl = 14.3

Lab	Rating	Z-value	1	2	3	4	6
1	4	0.14			15.5		
3	2	1.21				17.0	
4	4	-0.21				15.0	
5	4	0.14				15.5	
7	1	1.92				18.0	
10	4	0.50			16.0		
11	4	-0.21				15.0	
13	3	0.57				16.1	
15	3	0.57				16.1	
16	2	-1.07					13.8
18	3	-0.71				14.3	
23	0	-2.13			12.3		
26	4	0.07			15.4		
30	3	-0.71				14.3	
32	3	-0.57					14.5
36	0	-3.76			10.0		
40	0	-4.12				9.5	
42	1	1.92					18.0
46	3	0.78			16.4		
48	2	1.49			17.4		
58	2	1.21			17.0		
59	4	0.50					16.0
68	3	0.85				16.5	
69	3	-0.78			14.2		
70	4	-0.07				15.2	
73	4	0.50				16.0	
75	3	0.57				16.1	
76	4	-0.36					14.8
81	4	0.50			16.0		
83	4	-0.07				15.2	
85	NR					< 10	
86	4	-0.43				14.7	
87	3	-0.64		14.4			
89	1	1.56			17.5		
96	3	0.64			16.2		
97	3	0.64			16.2		
102	4	0.50				16.0	
105	4	0.07					15.4
113	4	0.21				15.6	
114	0	3.34		20.0			
118	3	0.85			16.5		
119	1	-1.63			13.0		
128	1	-1.63					13.0
132	4	0.14				15.5	
133	4	0.00				15.3	
134	4	-0.49				14.6	
138	0	-3.12					10.9
140	4	0.50	16.0				
141	0	-2.34				12.0	
142	3	-0.99					13.9
145	0	2.84				19.3	
146	3	-0.57				14.5	
149	2	1.21			17.0		
151	3	-0.57					14.5
158	1	-1.56			13.1		
180	3	-0.71				14.3	
190	0	2.70			19.1		
191	4	0.07					15.4
193	4	-0.21			15.0		
196	2	-1.21					13.6
204	0	3.20			19.8		
212	0	-2.34					12.0
213	4	0.07			15.4		
215	3	-0.92			14.0		
217	1	-1.85				12.7	
219	1	-1.63				13.0	
221	4	-0.21			15.0		
234	2	1.14			16.9		
235	4	-0.21			15.0		
236	4	-0.43				14.7	
241	3	-0.64			14.4		
245	1	-1.63			13.0		
249	1	1.63			17.6		
253	0	3.39			20.1		
255	3	-0.52				14.6	
257	0	10.44		30.0			
259	3	-0.92			14.0		
265	4	0.50					16.0
273	2	1.21				17.0	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Cu (Copper) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

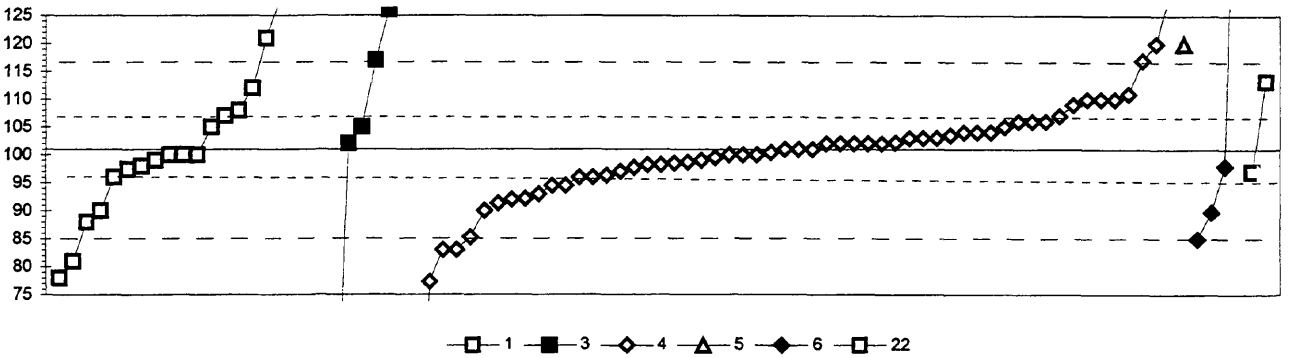
	1	3	4	6
N =	9	24	38	13
Minimum =	7.7	2.6	4.6	9.3
Maximum =	30.0	19.0	29.0	14.0
Median =	11.0	11.0	11.1	11.3
F-pseudosigma =	2.2	0.8	1.6	0.7

MPV = 11.0
F-pseudosigma = 1.4
N = 84
Hu = 12.1
Hl = 10.2

Lab	Rating	Z-value	1	3	4	6
1	4	0.04		11.1		
3	0	-2.14			8.0	
5	3	0.55			11.8	
7	1	2.04			13.9	
10	4	-0.16		10.8		
11	3	0.70			12.0	
13	4	0.20			11.3	
15	4	0.06			11.1	
16	4	0.27				11.4
18	3	0.91			12.3	
19	0	-2.14		8.0		
23	4	0.34		11.5		
26	4	0.48			11.7	
28	0	-4.56			4.6	
30	4	-0.01			11.0	
32	4	0.20				11.3
36	0	5.67		19.0		
40	3	-0.72			10.0	
42	2	1.41				13.0
46	4	0.20		11.3		
48	4	0.20		11.3		
58	NR		< 50			
59	4	-0.16				10.8
68	0	2.83			15.0	
69	3	-0.58		10.2		
70	3	0.55			11.8	
73	4	-0.01			11.0	
75	3	-0.58			10.2	
80	4	-0.23		10.7		
81	4	-0.01		11.0		
83	3	0.55			11.8	
85	2	1.12	12.6			
86	4	-0.09			10.9	
87	1	-1.93	8.3			
89	3	-0.58	10.2			
96	2	1.33		12.9		
97	3	-0.58		10.2		
102	4	-0.01			11.0	
105	4	0.27				11.4
107	3	-0.58		10.2		
113	3	0.84			12.2	
114	NR		< 10			
118	4	-0.09		10.9		
119	3	-0.72			10.0	
121	4	-0.01			11.0	
128	2	-1.22				9.3
129	0	13.48	30.0			
132	0	12.77			29.0	
133	1	-1.51			8.9	
134	4	0.01			11.0	
138	3	-0.84				9.8
140	0	2.12	14.0			
141	2	1.19			12.7	
142	3	-0.65				10.1
144	3	-0.51		10.3		
145	0	5.88			19.3	
146	1	1.90			13.7	
151	3	0.55				11.8
158	1	1.97			13.8	
180	4	-0.30			10.6	
190	4	-0.01		11.0		
191	4	-0.01				11.0
193	NR		< 25			
196	4	0.13				11.2
203	0	-2.36	7.7			
204	0	-3.99		5.4		
212	0	2.12				14.0
213	4	0.13		11.2		
215	0	2.83		15.0		
217	4	-0.01			11.0	
219	2	-1.15			9.4	
221	4	-0.30		10.6		
224	1	1.55			13.2	
234	3	0.98			12.4	
235	1	-1.79			8.5	
236	1	-1.58			8.8	
240	3	0.70			12.0	
241	0	2.75		14.9		
245	4	0.13		11.2		
249	4	-0.48		10.4		
253	3	-0.72	10.0			
255	4	-0.49			10.3	
257	2	1.41	13.0			
259	4	-0.01	11.0			
265	3	0.55				11.8
273	0	-4.27			5.0	
274	0	-6.01		2.6		

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Fe (Iron) µg/L



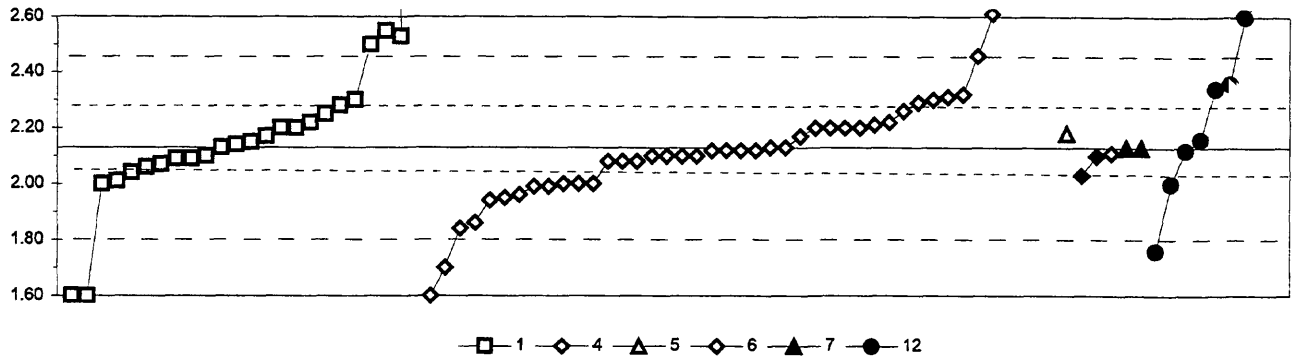
1. AA: direct air			5. DCP					
3. AA: graphite furnace			6. ICP/MS					
4. ICP			22. Colorimetric					
		N =	20	6	56	1	4	2
		Minimum =	78	41	30	120	85	97
		Maximum =	230	147	129		183	113
		Median =	100		101			
		F-pseudosigma =	15		6			

MPV = 101
F-pseudosigma = 8
N = 89
Hu = 107
HI = 96

Lab	Rating	Z-value	1	3	4	5	6	22
1	3	-0.59			96			
3	0	2.41			120			
4	4	0.13			102			
5	4	-0.19			100			
7	4	0.32			104			
10	3	0.51	105					
11	2	-1.39			90			
13	1	2.03			117			
15	2	-1.13			92			
16	0	-3.00			77			
18	4	-0.13			100			
23	NR		< 500					
24	4	-0.35			98			
25	0	-2.28			83			
26	4	0.13			102			
30	0	16.34	230					
32	0	10.39					183	
33	0	2.41				120		
35	3	-0.51						97
36	0	4.94	140					
40	3	-0.82			95			
42	3	0.76			107			
43	2	1.14			110			
46	4	0.00			101			
48	0	-8.99			30			
58	4	-0.13	100					
59	4	-0.13			100			
68	3	0.51			105			
69	3	0.89	108					
70	4	0.13			102			
73	4	0.00			101			
75	4	-0.35			98			
80	4	-0.25	99					
81	1	-2.03					85	
83	4	-0.13			100			
85	4	0.25			103			
86	4	0.25			103			
87	0	3.42	128					
89	0	3.17		126				
91	3	-0.63			96			
96	2	1.39	112					
97	4	0.13		102				
102	2	1.27			111			
105	4	0.25			103			
107	2	-1.39	90					
109	4	-0.46	97					
113	4	0.13			102			
114	4	-0.13	100					
119	4	0.38			104			
121	4	0.00			101			
128	2	-1.23			91			
129	0	-2.91	78					
132	0	3.55			129			
133	4	0.38			104			
134	4	-0.08			100			
138	4	0.38			104			
140	3	0.76	107					
141	1	-1.99			85			
142	3	0.63			106			
145	4	0.15			102			
146	4	-0.32			99			
149	4	-0.13	100					
151	2	-1.42					90	
155	1	1.56						113
158	2	1.01			109			
180	4	-0.29			99			
190	1	-1.65	88					
191	4	-0.38					98	
203	3	-0.63	96					
204	2	-1.01			93			
212	2	1.14			110			
213	3	0.51		105				
215	3	0.63			106			
217	3	0.63			106			
219	2	-1.14			92			
220	4	-0.38	98					
221	1	2.03		117				
224	3	-0.82			95			
234	4	0.13			102			
235	2	1.14			110			
236	4	-0.42			98			
240	0	-2.28			83			
241	0	2.53	121					
249	0	-7.60		41				
253	0	10.01	180					
255	4	-0.25			99			
257	0	-2.53	81					
265	3	-0.51			97			
273	3	-0.63			96			
274	0	5.83		147				

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

K (Potassium) mg/L



1. AA: direct air
4. ICP
5. DCP
6. ICP/MS
7. Ion chromatography
12. Flame emission

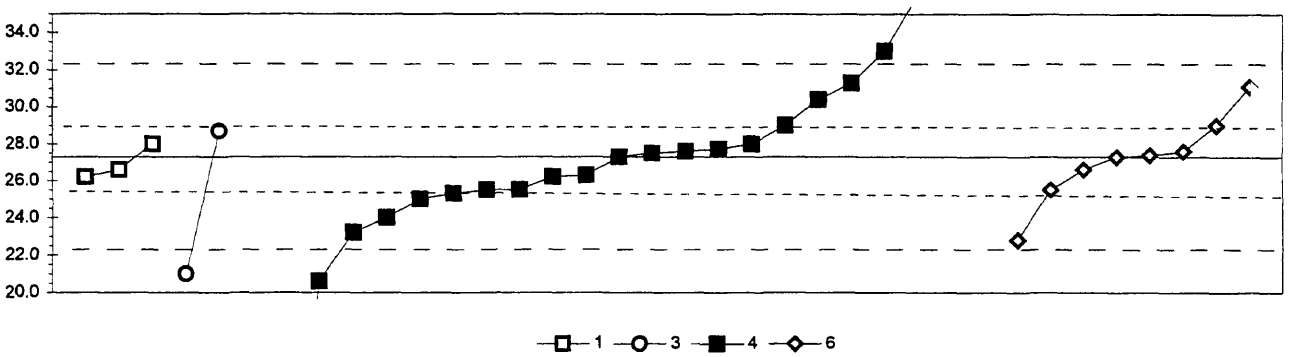
	1	4	5	6	7	12
N =	24	43	1	3	2	10
Minimum =	1.60	1.60	2.18	2.03	2.13	1.76
Maximum =	5.15	38.30		2.11	2.13	2.80
Median =	2.14	2.12				2.35
F-pseudosigma =	0.13	0.18				0.40

MPV = 2.13
F-pseudosigma = 0.16
N = 83
Hu = 2.28
Hl = 2.06

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	0.25	2.17					
3	0	14.53		4.50				
5	4	-0.06		2.12				
7	1	2.02		2.46				
11	4	-0.06		2.12				
13	4	-0.31		2.08				
15	0	221.79		38.30				
16	0	-3.25	1.60					
18	4	-0.18		2.10				
19	4	-0.18		2.10				
23	4	-0.25	2.09					
24	2	-1.17		1.94				
25	2	1.10		2.31				
26	4	0.00					2.13	
28	2	1.17		2.32				
32	4	-0.18				2.10		
33	4	0.31			2.18			
36	0	-3.25	1.60					
40	3	-0.86		1.99				
42	2	1.04		2.30				
43	4	0.43		2.20				
46	3	0.80		2.26				
48	4	0.00		2.13				
51	4	0.18						2.16
59	0	-2.64		1.70				
68	4	-0.18		2.10				
69	2	1.29						2.34
70	2	-1.04		1.96				
81	3	-0.61				2.03		
83	4	0.43		2.20				
85	0	2.27	2.50					
86	4	0.49		2.21				
87	0	18.52	5.15					
89	3	-0.74	2.01					
97	4	0.06	2.14					
102	3	-0.80		2.00				
105	4	-0.31		2.08				
107	3	0.92	2.28					
109	4	0.43	2.20					
113	4	-0.06		2.12				
114	3	-0.80	2.00					
119	0	-3.25		1.60				
121	4	0.12	2.15					
128	3	-0.86		1.99				
129	4	-0.18	2.10					
132	3	0.98		2.29				
134	4	0.00	2.13					
138	4	-0.18		2.10				
140	3	0.74	2.25					
141	4	0.25		2.17				
142	1	-1.66		1.86				
145	3	0.55		2.22				
146	0	2.94		2.61				
180	3	-0.80		2.00				
190	4	0.00					2.13	
191	4	-0.12				2.11		
193	3	-0.55	2.04					
203	0	2.45	2.53					
204	4	-0.06						2.12
212	3	-0.80		2.00				
215	4	0.43		2.20				
217	1	-1.78		1.84				
218	4	-0.37	2.07					
219	4	0.43		2.20				
220	4	0.43	2.20					
221	3	0.55	2.22					
224	2	-1.10		1.95				
234	4	-0.06		2.12				
235	0	8.40		3.50				
236	4	0.00		2.13				
241	4	-0.43	2.06					
249	2	1.41						2.36
255	4	-0.31		2.08				
257	0	2.88						2.60
259	2	1.04	2.30					
261	0	-2.27						1.76
265	4	-0.25	2.09					
268	0	2.63	2.55					
270	0	3.25						2.66
271	0	4.11						2.80
272	3	-0.80						2.00
273	0	5.21		2.98				
274	0	3.37						2.68

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Li (Lithium) µg/L

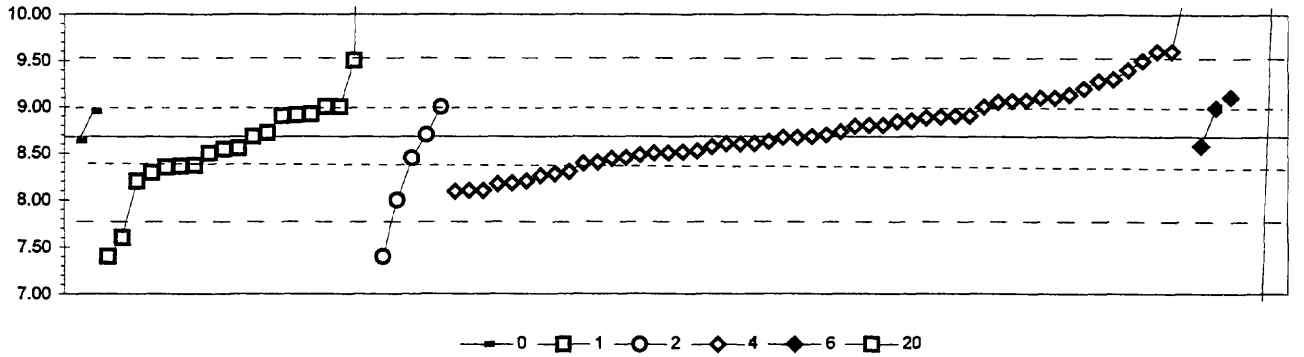


1. AA: direct air				6. ICP/MS		
3. AA: graphite furnace				0. Other		
4. ICP				0. Other		
		N =	3	2	23	8
		Minimum =	26.2	21.0	2.8	22.8
		Maximum =	28.0	28.7	46.0	31.1
		Median =			27.3	27.4
		F-pseudosigma =			3.4	1.7
Lab	Rating	Z-value	1	3	4	6
1	3	-0.72			25.5	
3	0	2.30			33.0	
4	0	3.50			36.0	
5	4	-0.44			26.2	
7	4	0.08			27.5	
11	0	6.85			44.3	
16	1	-1.81				22.8
24	4	0.12			27.6	
25	3	0.68			29.0	
26	3	-0.72			25.5	
30	2	-1.33			24.0	
32	4	0.00				27.3
40	3	-0.81			25.3	
42	0	-8.58			6.0	
68	0	-9.89			2.8	
69	3	0.56		28.7		
75	4	0.00			27.3	
76	4	0.12				27.6
85	4	-0.44	26.2			
105	1	-1.65			23.2	
109	4	-0.28	26.6			
134	4	0.17			27.7	
142	4	0.28			28.0	
145	1	1.61			31.3	
151	3	-0.72				25.5
191	1	1.53				31.1
196	4	-0.28				26.6
212	3	0.68				29.0
217	4	-0.40			26.3	
219	3	-0.93			25.0	
234	2	1.25			30.4	
236	0	-2.70			20.6	
257	4	0.28	28.0			
259	0	-2.54		21.0		
265	4	0.04				27.4
273	0	7.53			46.0	

MPV =	27.3
F-pseudosigma =	2.5
N =	36
Hu =	28.9
Hl =	25.5

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Mg (Magnesium) mg/L



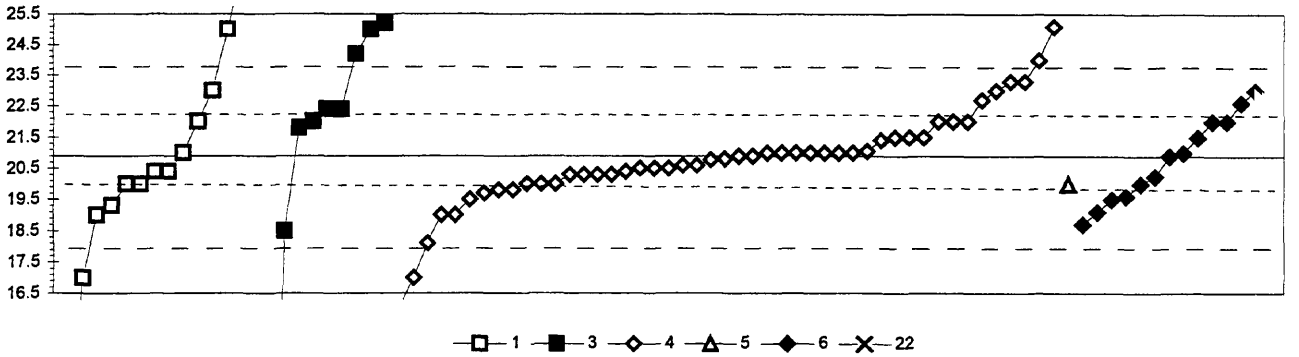
0. Other			4. ICP				
1. AA: direct air			6. ICP/MS				
2. AA: direct nitrous oxide			20. Titrate: colorimetric				
	N =	2	19	5	52	3	4
	Minimum =	8.63	7.40	7.40	8.09	8.58	0.00
	Maximum =	8.95	16.47	9.00	10.30	9.11	25.15
	Median =		8.55		8.69		
	F-pseudosigma =		0.42		0.44		

MPV = 8.68
F-pseudosigma = 0.45
N = 85
Hu = 9.00
Hl = 8.40

Lab	Rating	Z-value	0	1	2	4	6	20
1	2	-1.13				8.17		
3	4	-0.35				8.52		
4	4	0.06				8.70		
5	2	-1.28				8.10		
7	3	0.87				9.06		
11	2	1.17				9.20		
13	3	0.88				9.07		
15	2	-1.28				8.10		
16	4	-0.17				8.60		
18	4	-0.17				8.60		
19	4	0.28				8.80		
23	4	0.10		8.72				
24	3	-0.52				8.44		
25	3	-0.61				8.40		
26	3	0.95				9.10		
28	4	0.50				8.90		
30	3	0.72			9.00			
32	3	0.97					9.11	
33	3	0.61	8.95					
36	0	-2.40		7.60				
40	4	-0.43				8.48		
42	2	1.39				9.30		
43	4	0.28				8.80		
46	4	-0.01				8.67		
48	4	0.48				8.89		
51	0	17.38		16.47				
59	4	-0.39				8.50		
68	3	0.84				9.05		
69	3	-0.68		8.37				
70	4	0.12				8.73		
75	4	0.50		8.90				
81	4	-0.21					8.58	
83	4	-0.50				8.45		
85	3	0.55		8.92				
86	4	-0.01				8.67		
87	3	-0.70		8.36				
89	3	-0.86		8.29				
97	4	-0.28		8.55				
102	0	3.62				10.30		
105	4	0.01				8.68		
107	3	0.52		8.91				
109	4	-0.39		8.50				
113	4	0.37				8.84		
114	1	-1.51			8.00			
119	3	0.95				9.10		
121	3	-0.84				8.30		
128	3	-0.88				8.28		
129	3	0.72		9.00				
132	4	0.26				8.79		
133	3	-0.64				8.39		
134	4	-0.23				8.57		
138	4	0.46				8.88		
140	1	1.84		9.50				
141	2	1.01				9.13		
142	2	-1.10				8.18		
145	2	1.35				9.28		
146	2	-1.06				8.20		
158	1	1.84				9.50		
180	4	0.39				8.85		
190	4	-0.10	8.63					
191	3	0.70					8.99	
193	2	-1.06		8.20				
203	4	-0.30		8.54				
212	1	1.62				9.40		
215	4	0.50				8.90		
217	2	-1.30				8.09		
218	4	-0.50			8.45			
219	4	-0.17				8.60		
220	3	0.72		9.00				
221	3	-0.72		8.35				
224	3	-0.93				8.26		
234	4	-0.37				8.51		
235	0	2.06				9.60		
236	3	0.72				9.00		
240	4	-0.39				8.50		
241	0	-2.84		7.40				
255	4	-0.12				8.62		
257	0	-2.84			7.40			
261	0	4.74						10.80
265	4	0.06			8.70			
268	4	-0.07		8.65				
271	0	36.74						25.15
272	0	-5.82						6.06
273	0	2.06				9.60		
274	0	-19.34						0.00

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Mn (Manganese) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
5. DCP
6. ICP/MS
22. Colorimetric

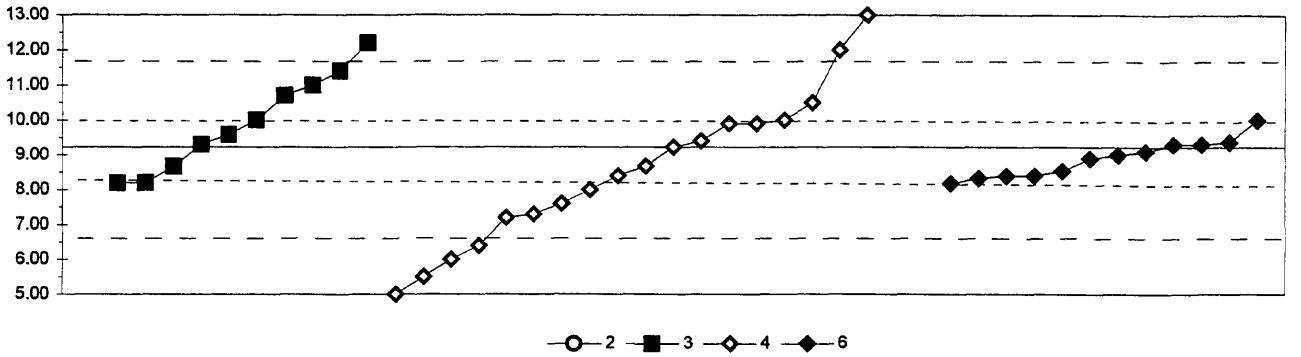
MPV = 20.9
F-pseudosigma = 1.5
N = 85
Hu = 22.0
Hl = 20.0

	1	3	4	5	6	22
N =	14	9	47	1	13	1
Minimum =	10.0	8.0	16.0	20.0	18.7	30.7
Maximum =	27.0	25.2	25.1		23.0	
Median =	20.4	22.4	20.8		20.9	
F-pseudosigma =	2.7	1.8	1.0		1.8	

Lab	Rating	Z-value	1	3	4	5	6	22
1	4	-0.44					20.3	
3	0	-2.63			17.0			
4	4	0.07			21.0			
5	4	0.07			21.0			
7	4	0.34			21.4			
10	0	2.77	25.0					
11	4	0.07			21.0			
13	3	-0.94			19.5			
15	0	2.09			24.0			
16	4	0.40					21.5	
18	4	-0.40			20.3			
23	3	0.61		21.8				
24	3	-0.74			19.8			
25	4	0.07			21.0			
26	4	0.40			21.5			
28	1	1.62			23.3			
30	4	0.07			21.0			
32	4	0.00					20.9	
33	3	-0.61				20.0		
36	3	0.74		22.0				
40	1	-1.89			18.1			
42	2	1.42					23.0	
43	3	-0.61			20.0			
46	4	-0.34			20.4			
48	3	-0.61			20.0			
58	NR		< 50					
59	4	0.07					21.0	
68	4	0.40			21.5			
69	NR		< 20					
70	4	-0.20			20.6			
73	4	0.07			21.0			
75	4	-0.07			20.8			
80	1	-1.62		18.5				
81	3	-0.61					20.0	
83	4	-0.40			20.3			
86	4	-0.40			20.3			
87	0	4.11	27.0					
89	4	-0.34	20.4					
91	4	-0.40			20.3			
96	0	4.11	27.0					
97	0	2.23		24.2				
102	2	1.42			23.0			
105	3	-0.88					19.6	
107	3	-0.61	20.0					
109	2	-1.08	19.3					
113	4	0.40			21.5			
114	4	0.07	21.0					
119	4	0.07			21.0			
121	3	0.74			22.0			
128	2	-1.48					18.7	
129	0	-7.35	10.0					
132	2	-1.28			19.0			
134	4	0.10			21.1			
138	4	-0.27			20.5			
140	2	-1.28	19.0					
141	4	0.00			20.9			
142	3	0.74			22.0			
145	1	1.62			23.3			
146	4	-0.20			20.6			
149	3	0.74	22.0					
151	3	-0.94					19.5	
158	2	1.21			22.7			
180	4	-0.27			20.5			
183	0	2.90		25.2				
190	2	1.01		22.4				
191	3	0.74					22.0	
196	2	-1.21					19.1	
203	3	-0.61	20.0					
204	0	-3.31			16.0			
212	3	0.74					22.0	
215	3	-0.81			19.7			
217	3	-0.74			19.8			
220	4	-0.34	20.4					
221	2	1.01		22.4				
224	3	0.74			22.0			
234	4	0.00			20.9			
235	3	-0.61			20.0			
236	4	-0.27			20.5			
240	2	-1.28			19.0			
241	2	1.42	23.0					
244	0	6.61						30.7
245	0	2.77		25.0				
255	4	-0.09			20.8			
257	0	-2.63	17.0					
265	2	1.15					22.6	
273	0	2.83			25.1			
274	0	-8.73		8.0				

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Mo (Molybdenum) µg/L



2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
6. ICP/MS

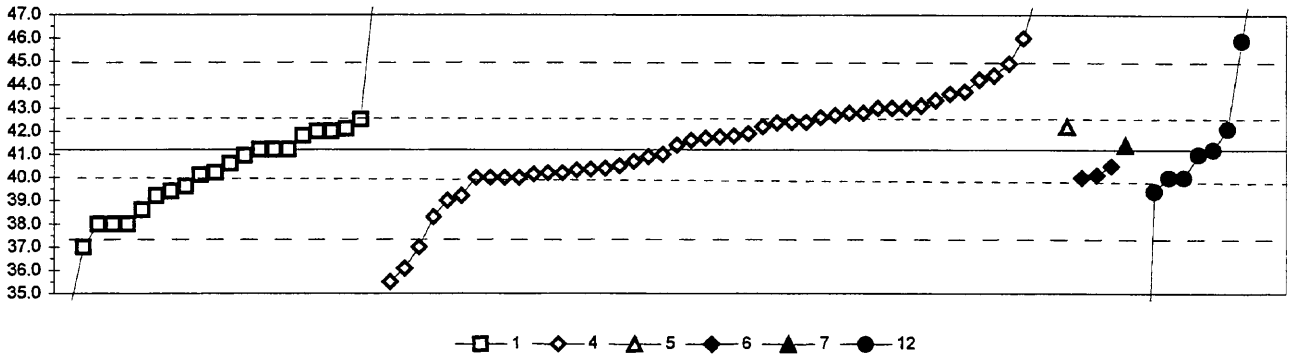
	2	3	4	6
N =	1	10	20	12
Minimum =	72.0	8.2	5.0	8.2
Maximum =		12.2	20.1	10.0
Median =		9.8	9.0	9.0
F-pseudosigma =		1.7	2.2	0.7

MPV = 9.23
F-pseudosigma = 1.29
N = 43
Hu = 10.00
Hl = 8.27

Lab	Rating	Z-value	2	3	4	6
1	4	-0.44		8.67		
3	0	-2.51			6.00	
5	NR				< 10	
7	NR				< 15	
11	3	0.60			10.00	
15	0	8.45			20.10	
16	4	-0.26				8.90
18	NR				< 20	
23	NR		< 100			
26	3	0.52			9.90	
28	0	-2.20			6.40	
30	4	0.13			9.40	
32	3	-0.82				8.18
40	3	0.52			9.90	
42	3	0.60				10.00
48	4	0.05		9.30		
68	2	-1.50			7.30	
70	NR				< 50	
75	NR				< 10	
86	0	6.59			17.70	
87	2	1.38		11.00		
97	4	0.27		9.58		
105	4	0.12				9.38
109	3	-0.80		8.20		
119	3	-0.70				8.33
128	0	-2.90			5.50	
132	0	2.15			12.00	
134	4	-0.43			8.68	
138	3	-0.65				8.39
141	NR				< 10	
142	4	0.06				9.31
145	2	-1.27			7.60	
146	NR				< 10	
149	3	0.60		10.00		
151	4	-0.10				9.10
180	3	0.99			10.50	
191	4	0.05				9.30
196	3	-0.54				8.54
212	3	-0.65				8.40
215	3	-0.65			8.40	
217	1	-1.58			7.20	
219	0	-3.29			5.00	
221	3	-0.81		8.19		
224	0	2.93			13.00	
234	2	1.14		10.70		
235	3	-0.96			8.00	
236	NR				< 11	
241	1	1.69		11.40		
245	0	2.31		12.20		
255	4	0.00			9.23	
257	0	48.81	72.00			
265	4	-0.18				9.00

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Na (Sodium) mg/L



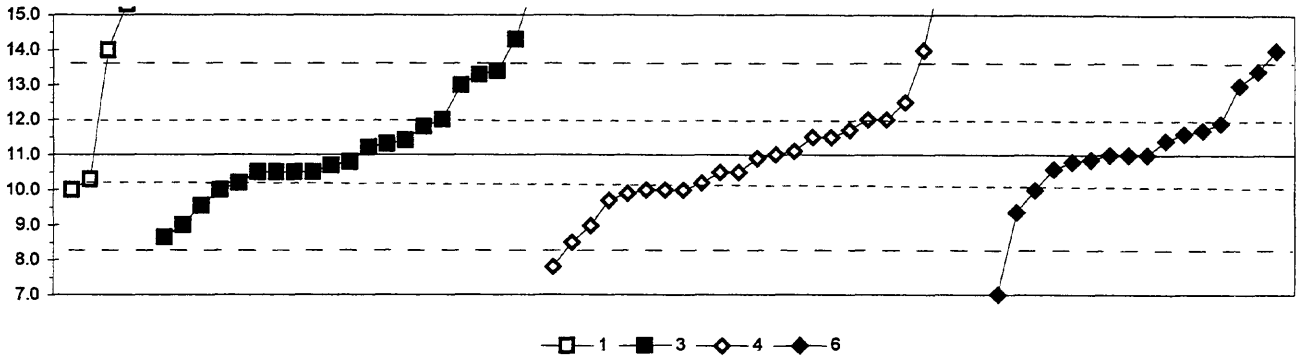
1. AA: direct air				6. ICP/MS				
4. ICP				7. Ion chromatography				
5. DCP				12. Flame emission				
		N =	22	47	1	3	1	10
		Minimum =	34.0	35.5	42.2	40.0	41.4	22.4
		Maximum =	48.5	53.1		40.5		50.0
		Median =	40.4	41.8				41.1
		F-pseudosigma =	2.4	2.1				4.4

MPV = 41.2
F-pseudosigma = 1.9
N = 84
Hu = 42.6
Hl = 40.0

Lab	Rating	Z-value	1	4	5	6	7	12
1	3	-0.53		40.2				
3	2	1.27		43.6				
5	4	0.11		41.4				
7	2	1.13		43.3				
11	4	-0.26		40.7				
13	2	1.32		43.7				
15	1	-1.53		38.3				
16	3	-0.53		40.2				
18	3	-0.63		40.0				
19	4	0.37		41.9				
23	2	-1.38	38.6					
24	4	-0.37		40.5				
25	0	2.54		46.0				
26	3	0.85		42.8				
28	0	6.30		53.1				
32	4	-0.37				40.5		
33	3	0.53			42.2			
36	1	-1.69	38.0					
40	3	-0.63		40.0				
42	4	-0.11		41.0				
43	3	0.95		43.0				
46	3	0.74		42.6				
48	3	0.79		42.7				
51	4	-0.11						41.0
59	3	-0.63		40.0				
68	3	0.95		43.0				
69	4	0.00						41.2
70	4	0.32		41.8				
75	3	0.69	42.5					
81	3	-0.63				40.0		
83	4	-0.45		40.4				
85	4	0.48	42.1					
86	3	0.85		42.8				
87	3	-0.85	39.6					
89	3	-0.58	40.1					
97	4	0.32	41.8					
102	0	-2.22		37.0				
105	3	0.53		42.2				
107	3	-0.53	40.2					
109	4	0.00	41.2					
113	0	-3.02		35.5				
114	0	-3.81	34.0					
119	2	1.01		43.1				
121	2	-1.16		39.0				
128	4	-0.42		40.4				
129	4	0.42	42.0					
132	3	0.61		42.4				
134	4	0.00	41.2					
138	4	0.21		41.6				
140	0	3.86	48.5					
141	3	0.95		43.0				
142	4	0.30		41.8				
145	1	1.59		44.2				
146	3	0.63		42.4				
180	4	0.26		41.7				
190	4	0.11					41.4	
191	3	-0.58				40.1		
193	2	-1.06	39.2					
203	3	-0.95	39.4					
204	3	-0.95						39.4
212	1	1.69		44.4				
215	3	0.63		42.4				
217	4	-0.16		40.9				
218	1	-1.69	38.0					
219	3	-0.63		40.0				
220	1	-1.69	38.0					
221	4	0.00	41.2					
224	0	-2.71		36.1				
234	2	-1.06		39.2				
235	0	3.60		48.0				
236	4	-0.46		40.3				
241	0	-2.22	37.0					
249	4	0.48						42.1
255	3	-0.56		40.2				
257	3	-0.63						40.0
259	4	0.42	42.0					
261	0	2.49						45.9
265	4	-0.32	40.6					
268	4	-0.13	41.0					
270	0	4.35						49.4
271	3	-0.63						40.0
272	0	4.66						50.0
273	1	1.96		44.9				
274	0	-9.92						22.4

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Ni (Nickel) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

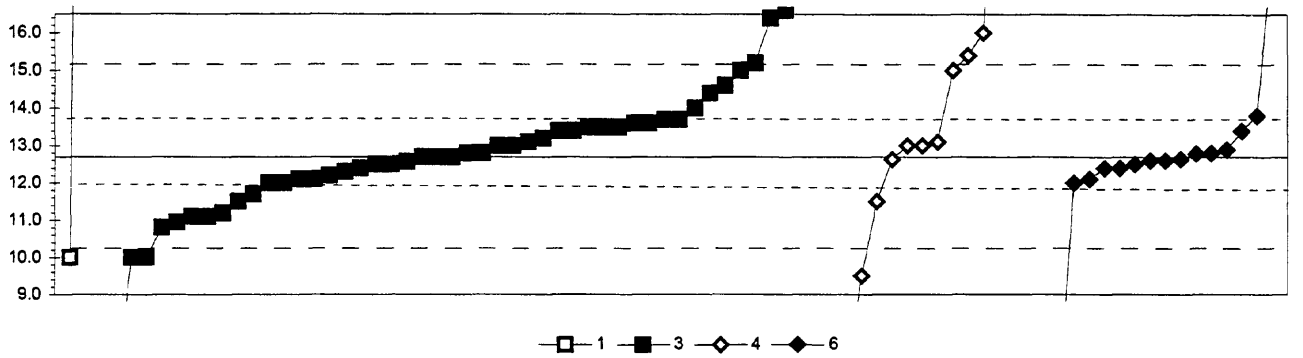
	1	3	4	6
N =	5	21	24	16
Minimum =	10.0	8.7	7.8	7.0
Maximum =	70.0	16.0	23.0	14.0
Median =		10.8	11.0	11.0
F-pseudosigma =		1.1	1.5	0.8

MPV = 11.0
F-pseudosigma = 1.3
N = 66
Hu = 12.0
HI = 10.2

Lab	Rating	Z-value	1	3	4	6
1	4	-0.10				10.9
3	0	-2.40			7.8	
4	3	-0.75			10.0	
5	NR				< 10	
7	NR				< 20	
11	3	-0.75			10.0	
13	4	-0.37			10.5	
15	2	1.50		13.0		
16	1	1.80				13.4
18	NR				< 25	
23	3	0.60		11.8		
26	4	-0.15		10.8		
28	0	4.72			17.3	
30	4	0.37			11.5	
32	4	0.00				11.0
36	2	-1.50		9.0		
42	2	1.50				13.0
48	4	0.30		11.4		
58	0	44.22	70.0			
59	4	0.30				11.4
68	1	-1.87			8.5	
69	2	-1.09		9.6		
70	NR				< 50	
73	3	-0.75			10.0	
75	NR				< 20	
76	3	0.52				11.7
81	0	-3.00				7.0
83	4	-0.37			10.5	
85	NR				< 10	
86	1	-1.51			9.0	
87	0	3.22	15.3			
89	4	0.22		11.3		
96	4	-0.37		10.5		
97	4	-0.37		10.5		
102	4	0.00			11.0	
105	4	-0.15				10.8
113	4	0.37			11.5	
114	NR		< 10			
118	1	1.80		13.4		
119	0	2.47		14.3		
128	4	0.00				11.0
132	0	2.25			14.0	
133	3	-0.82			9.9	
134	4	-0.37		10.5		
138	2	-1.23				9.4
140	3	-0.75	10.0			
141	NR				< 20	
142	4	0.00				11.0
145	0	4.05			16.4	
146	NR				< 40	
149	3	-0.75		10.0		
151	4	0.45				11.6
158	2	1.12			12.5	
180	4	0.07			11.1	
190	4	0.15		11.2		
191	3	0.67				11.9
193	NR		< 50			
196	4	-0.30				10.6
212	0	2.25				14.0
213	3	-0.52	10.3			
215	3	0.75		12.0		
219	3	-0.97			9.7	
221	3	-0.60		10.2		
224	4	-0.07			10.9	
234	1	1.72		13.3		
235	3	0.75			12.0	
236	3	-0.60			10.2	
240	0	8.99			23.0	
241	4	-0.37		10.5		
245	4	-0.22		10.7		
249	1	-1.76		8.7		
255	3	0.52			11.7	
257	0	2.25	14.0			
259	0	3.75		16.0		
265	3	-0.75				10.0
273	3	0.75			12.0	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Pb (Lead) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

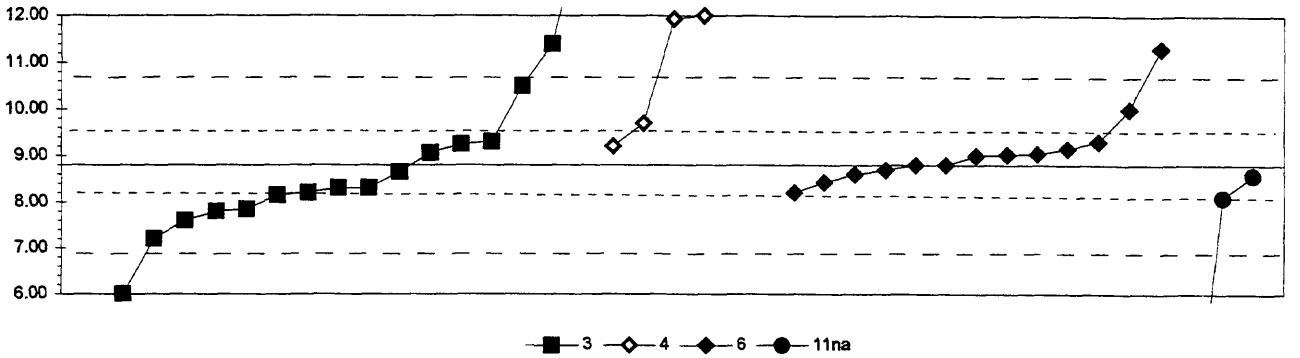
	1	3	4	6
N =	2	47	16	15
Minimum =	10.0	1.3	5.6	6.0
Maximum =	49.0	42.0	115.0	18.0
Median =		12.7	13.1	12.6
F-pseudosigma =		1.2	6.2	0.3

MPV = 12.7
F-pseudosigma = 1.2
N = 80
Hu = 13.7
HI = 12.0

Lab	Rating	Z-value	1	3	4	6
1	4	-0.14		12.6		
3	0	-5.51			6.0	
4	4	0.21			13.0	
5	3	0.62		13.5		
7	NR				< 55	
10	4	-0.04		12.7		
11	4	0.21			13.0	
13	3	0.62		13.5		
15	1	2.01		15.2		
16	3	0.54				13.4
18	4	-0.04		12.7		
19	4	0.37		13.2		
23	2	-1.34		11.1		
26	1	-1.59		10.8		
28	0	-2.65			9.5	
30	2	-1.02			11.5	
32	4	-0.12				12.6
34	3	0.54		13.4		
36	1	1.84		15.0		
42	0	-5.51				6.0
46	3	0.78		13.7		
48	4	0.21		13.0		
58	0	23.92		42.0		
59	4	-0.28				12.4
68	0	3.15		16.6		
69	3	-0.61		12.0		
70	4	0.04		12.8		
73	0	2.66			16.0	
75	4	-0.20		12.5		
76	3	-0.53				12.1
80	3	-0.85		11.7		
81	4	0.21		13.0		
83	4	-0.28		12.4		
85	NR		< 50			
86	3	0.54		13.4		
87	2	-1.26		11.2		
89	3	-0.53		12.1		
96	4	0.29		13.1		
97	4	-0.04		12.7		
102	1	1.84			15.0	
105	3	0.86				13.8
109	0	-2.24		10.0		
113	4	-0.45		12.2		
114	NR		< 10			
118	4	-0.20		12.5		
119	2	-1.02		11.5		
128	4	0.13				12.9
132	0	7.98			22.5	
133	0	7.32			21.7	
134	4	-0.09			12.6	
138	3	-0.61				12.0
140	0	-2.24	10.0			
141	3	0.70		13.6		
142	4	-0.08				12.7
145	0	83.60			115.0	
146	0	2.17			15.4	
149	3	-0.61		12.0		
151	4	0.04				12.8
158	0	-5.02		6.6		
180	NR				< 27.2	
190	2	-1.34		11.1		
191	4	0.04				12.8
193	2	1.03		14.0		
196	4	-0.12				12.6
204	4	-0.36		12.3		
212	0	4.30				18.0
213	3	0.70		13.6		
215	3	0.62		13.5		
217	4	-0.20				12.5
220	3	-0.53		12.1		
221	4	0.04		12.8		
224	2	-1.47		11.0		
234	2	1.35		14.4		
236	0	-5.84			5.6	
240	0	11.65			27.0	
241	0	2.99		16.4		
245	1	1.52		14.6		
249	3	0.78		13.7		
255	4	0.29			13.1	
257	0	29.64	49.0			
259	0	-2.24		10.0		
265	4	-0.28				12.4
273	0	-4.70			7.0	
274	0	-9.35		1.3		

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Sb (Antimony) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS
11na. AA: Hydride $NaBH_4$

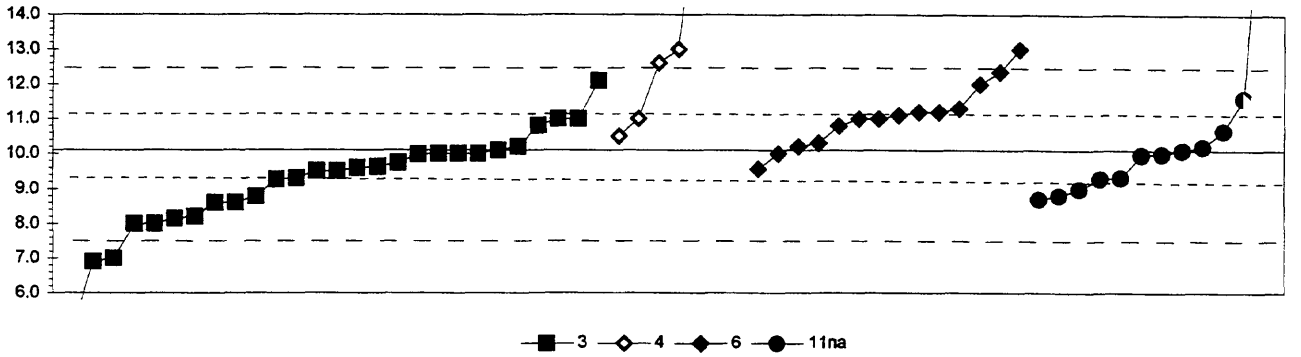
	3	4	6	11na
N =	17	6	13	3
Minimum =	5.13	9.20	8.21	2.00
Maximum =	14.00	26.10	11.30	8.58
Median =	8.30		9.00	
F-pseudosigma =	1.07		0.34	

MPV = 8.80
F-pseudosigma = 0.96
N = 39
Hu = 9.50
Hl = 8.21

Lab	Rating	Z-value	3	4	6	11na
1	4	-0.16	8.65			
3	0	3.33		12.00		
5	NR			< 20		
7	NR			< 30		
11	3	0.94		9.70		
13	2	-1.04	7.80			
15	4	0.47	9.25			
16	4	0.00			8.80	
18	1	-1.67	7.20			
26	NR			< 20		
30	4	0.42		9.20		
32	4	-0.39			8.43	
36	0	-2.92	6.00			
42	2	1.25			10.00	
46	3	0.52	9.30			
48	2	-1.25	7.60			
59	3	0.52			9.30	
68	3	-0.99	7.85			
69	3	-0.68	8.15			
70	0	2.71	11.40			
75	NR			< 50		
81	0	-2.92			< 6	
89	3	-0.52	8.30			
96	3	-0.63	8.20			
97	4	0.27	9.06			
102	0	-8.13		< 1		
105	4	0.24			9.03	
119	3	-0.73				8.10
128	4	0.36			9.15	
134	4	-0.23				8.58
138	4	0.00			8.80	
141	0	-3.82	5.13			
142	0	2.60			11.30	
146	NR			< 20		
151	4	0.25			9.04	
180	NR			< 31.4		
193	NR		< 10			
196	3	-0.61			8.21	
212	4	-0.21			8.60	
215	0	5.42	14.00			
217	4	-0.11			8.69	
234	1	1.77	10.50			
236	0	18.02		26.10		
240	0	5.42		14.00		
241	3	-0.52	8.30			
255	0	3.26		11.93		
257	0	-7.08				2.00
265	4	0.21			9.00	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Se (Selenium) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS
11na. AA: Hydride $NaBH_4$

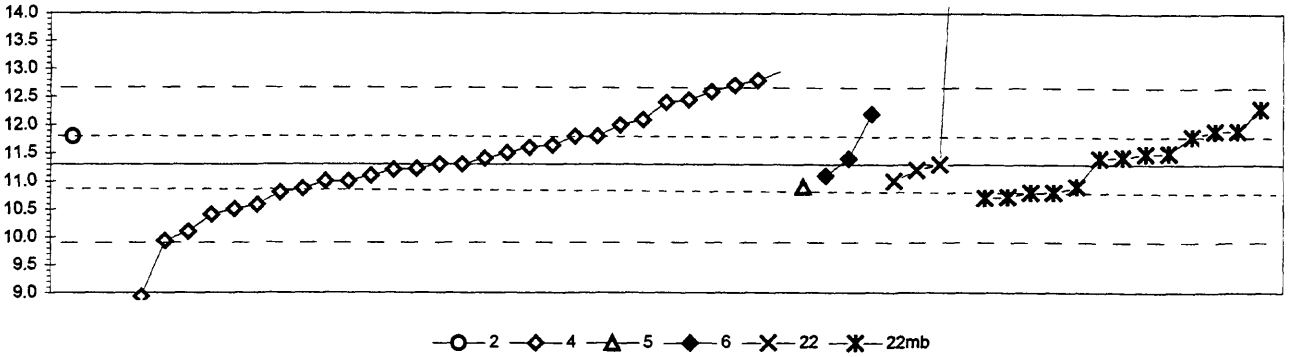
	3	4	6	11na
N =	27	7	14	12
Minimum =	5.0	10.5	9.6	8.7
Maximum =	12.1	128.3	13.0	19.2
Median =	9.5	13.0	11.1	10.0
F-pseudosigma =	1.2	0.0	0.7	0.9

MPV = 10.1
F-pseudosigma = 1.3
N = 60
Hu = 11.1
Hl = 9.3

Lab	Rating	Z-value	3	4	6	11na
1	4	-0.06				10.0
3	NR			< 10		
5	4	-0.05	10.0			
7	NR			< 50		
10	3	-0.81				9.0
11	1	1.97		12.6		
13	2	-1.43	8.2			
15	1	1.58	12.1			
16	4	-0.04			10.0	
18	4	0.04	10.1			
23	3	-0.56				9.3
26	3	-0.96				8.8
30	3	0.73		11.0		
32	4	0.19			10.3	
34	4	0.12				10.2
36	1	-1.58	8.0			
42	0	2.27			13.0	
46	4	-0.42	9.5			
48	2	-1.12	8.6			
58	NR		< 10			
59	3	0.73			11.0	
68	0	-2.43	6.9			
69	4	0.12	10.2			
70	3	0.73	11.0			
73	0	17.69		33.0		
75	4	0.04				10.1
80	3	-0.58	9.3			
86	2	1.19				11.6
87	0	7.05				19.2
89	3	-0.58				9.3
96	4	-0.04	10.0			
97	3	-0.98	8.8			
102	0	2.27		13.0		
105	3	0.96			11.3	
113	4	-0.42	9.5			
118	4	-0.35	9.6			
119	4	-0.04				10.0
128	3	0.89			11.2	
133	3	0.58	10.8			
134	4	0.47				10.7
138	4	-0.37			9.6	
141	3	-0.61	9.3			
142	3	0.58			10.8	
144	4	-0.04	10.0			
146	NR			< 10		
149	4	-0.04	10.0			
151	3	0.89			11.2	
180	NR			< 50.1		
190	3	0.73	11.0			
191	2	1.50			12.0	
193	1	-1.58	8.0			
196	3	0.81			11.1	
212	3	0.73			11.0	
215	0	-3.89	5.0			
217	4	0.12			10.2	
220	2	-1.12	8.6			
221	4	-0.24	9.7			
224	4	0.35		10.5		
234	4	-0.33	9.6			
236	0	91.15		128.3		
240	0	6.13		18.0		
241	0	-2.35	7.0			
255	2	-1.47	8.1			
259	2	-1.04				8.7
265	1	1.77			12.4	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

SiO_2 (Silica) mg/L



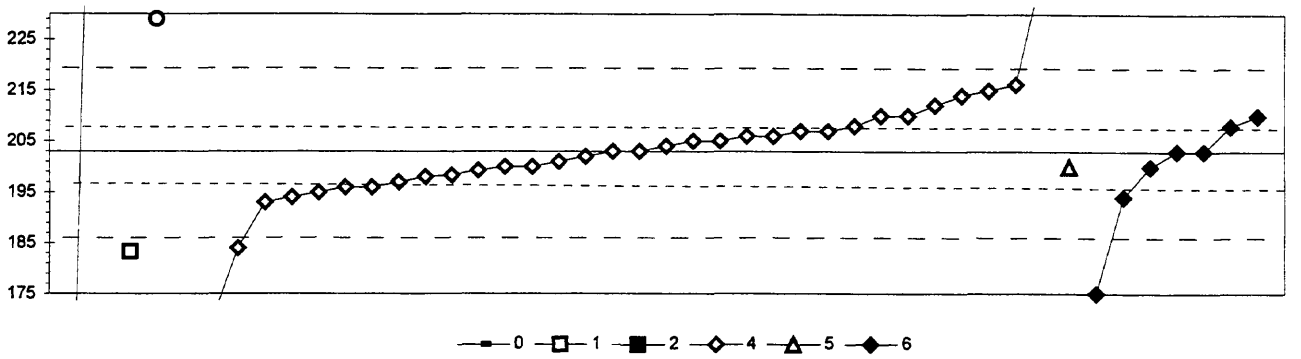
2. AA: direct nitrous oxide			6. ICP/MS					
4. ICP			22. Colorimetric					
5. DCP			22mb. Color: molybdate blue					
		N =	1	31	1	3	4	13
		Minimum =	11.8	5.7	10.9	11.1	11.0	10.7
		Maximum =		227.0		12.2	19.2	12.3
		Median =		11.3				11.4
		F-pseudosigma =		0.9				0.7
Lab	Rating	Z-value	2	4	5	6	22	22mb
1	2	-1.04		10.6				
3	0	-8.12		5.7				
4	4	0.15		11.4				
5	4	-0.29		11.1				
7	4	0.49		11.6				
11	0	-3.44		8.9				
13	4	-0.15		11.2				
15	2	1.45						12.3
24	4	0.44		11.6				
25	1	2.05		12.7				
26	4	0.29		11.5				
32	4	0.15				11.4		
33	3	-0.58			10.9			
42	2	1.16		12.1				
43	4	-0.44		11.0				
70	3	-0.58						10.9
76	2	1.31				12.2		
81	4	0.29						11.5
83	2	-1.31		10.4				
87	3	0.73						11.8
89	3	-0.87						10.7
97	4	0.00					11.3	
104	3	-0.84						10.7
105	3	-0.62		10.9				
107	3	0.87						11.9
113	4	-0.44					11.0	
118	4	0.19						11.4
119	2	1.02		12.0				
121	4	0.00		11.3				
128	3	0.73		11.8				
129	4	0.26						11.5
134	4	-0.12		11.2				
138	3	-0.73						10.8
140	4	-0.15					11.2	
142	0	2.18		12.8				
145	1	1.67		12.5				
158	1	1.60		12.4				
190	3	0.87						11.9
191	4	-0.29				11.1		
203	3	-0.73						10.8
204	4	0.15						11.4
212	3	0.73		11.8				
215	4	0.00		11.3				
217	1	-1.99		9.9				
219	3	-0.73		10.8				
234	4	-0.44		11.0				
235	1	1.89		12.6				
236	0	-6.18		7.0				
240	2	-1.16		10.5				
241	3	0.73	11.8					

MPV =	11.3
F-pseudosigma =	0.7
N =	53
Hu =	11.8
Hl =	10.9

Lab	Rating	Z-value	2	4	5	6	22	22mb
265	1	-1.74		10.1				
273	0	312.88		227.0				
274	0	11.44					19.2	

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)--Continued*

Sr (Strontium) µg/L

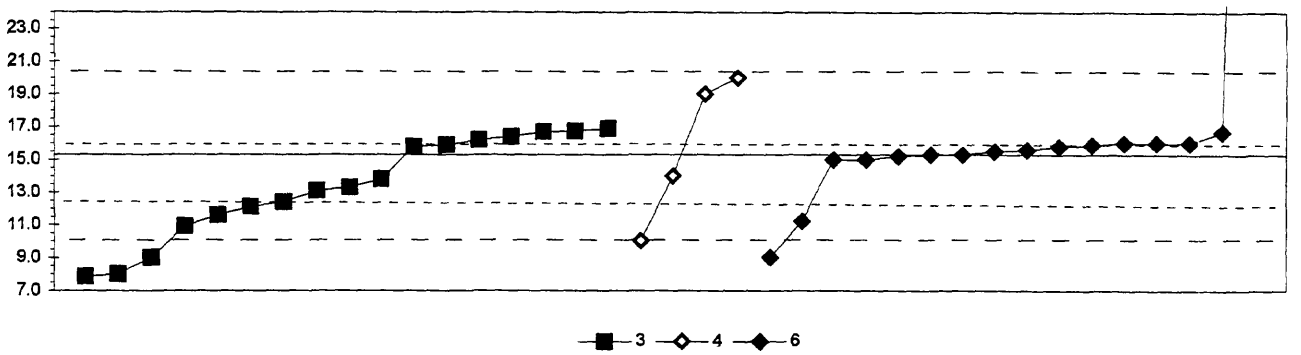


0. Other			4. ICP					
1. AA: direct air			5. DCP					
2. AA: direct nitrous oxide			6. ICP/MS					
		N =	2	1	1	32	1	7
		Minimum =	169	183	229	169	200	175
		Maximum =	390			239		210
		Median =				203		203
		F-pseudosigma =				7		6
Lab	Rating	Z-value	0	1	2	4	5	6
1	3	-0.55				198		
3	4	0.47				207		
4	4	0.23				205		
5	4	0.23				205		
7	4	0.00				203		
11	4	-0.12				202		
16	0	-2.23				184		
18	4	-0.35				200		
24	4	0.12				204		
25	2	1.41				215		
28	4	0.47				207		
32	4	0.00						203
33	4	-0.35					200	
40	0	-3.99				169		
42	4	-0.23				201		
59	4	-0.35				200		
68	3	0.82				210		
70	4	0.35				206		
81	0	-3.28						175
85	2	1.29				214		
86	3	-0.82				196		
97	0	-3.99	169					
102	0	4.22				239		
105	2	-1.06				194		
109	0	-2.31		183				
113	4	0.00				203		
121	3	-0.94				195		
134	3	-0.82				196		
138	3	-0.59				198		
142	2	1.07				212		
145	1	1.55				216		
151	3	0.59						208
190	0	21.94	390					
191	4	0.00						203
196	2	-1.06						194
212	3	0.82						210
217	2	-1.17				193		
218	0	3.05			229			
219	3	0.82				210		
234	4	0.35				206		
235	3	0.59				208		
236	4	-0.43				199		
240	3	-0.70				197		
265	4	-0.35						200

MPV =	203
F-pseudosigma =	9
N =	44
Hu =	208
Hl =	197

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Tl (Thallium) µg/L



3. AA: graphite furnace
4. ICP
6. ICP/MS

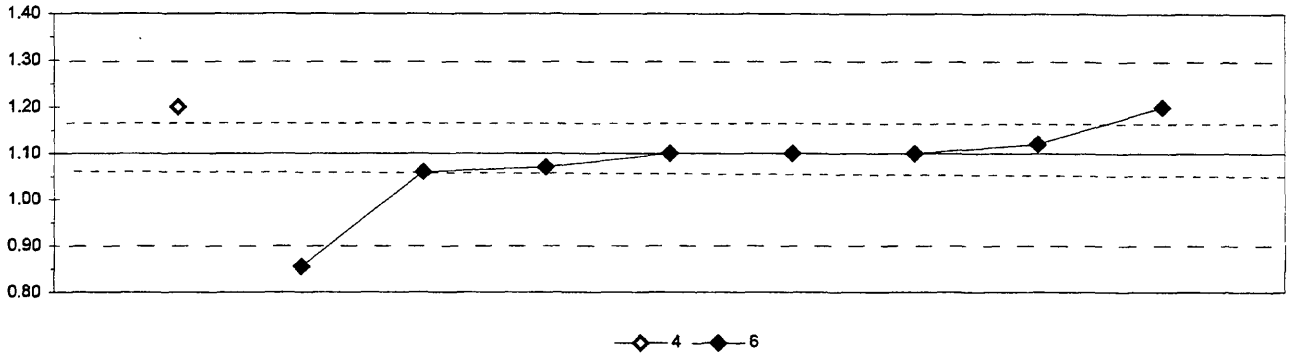
	3	4	6
N =	17	4	16
Minimum =	7.9	10.0	9.0
Maximum =	16.9	20.0	84.0
Median =	13.3		15.6
F-pseudosigma =	3.4		0.7

MPV = 15.3
F-pseudosigma = 2.7
N = 37
Hu = 16.0
Hl = 12.4

Lab	Rating	Z-value	3	4	6
1	3	0.54	16.7		
3	NR			< 10	
11	1	1.76		20.0	
13	4	0.19	15.8		
15	2	-1.39	11.6		
16	4	0.26			16.0
18	3	-0.56	13.8		
23	0	-3.81	< 5		
32	4	0.11			15.6
36	0	-2.74	8.0		
42	0	-2.36			9.0
46	4	0.34	16.2		
48	2	-1.20	12.1		
59	4	0.07			15.5
69	4	0.41	16.4		
70	3	-0.75	13.3		
76	1	-1.54			11.2
81	0	25.74			84.0
89	NR		< 10		
97	3	0.52	16.7		
102	2	1.39		19.0	
113	3	-0.82	13.1		
119	4	0.22			15.9
128	4	0.00			15.3
134	3	0.60	16.9		
138	4	-0.11			15.0
141	NR			< 50	
142	3	0.52			16.7
146	4	-0.49		14.0	
151	4	0.26			16.0
180	NR			< 32.1	
191	4	0.19			15.8
193	0	-2.36	9.0		
196	4	0.00			15.3
212	4	0.26			16.0
213	2	-1.09	12.4		
215	0	-3.07	< 7		
217	4	-0.04			15.2
234	1	-1.65	10.9		
235	0	-2.79	7.9		
240	1	-1.99		10.0	
241	4	0.22	15.9		
265	4	-0.11			15.0

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

U (Uranium) µg/L



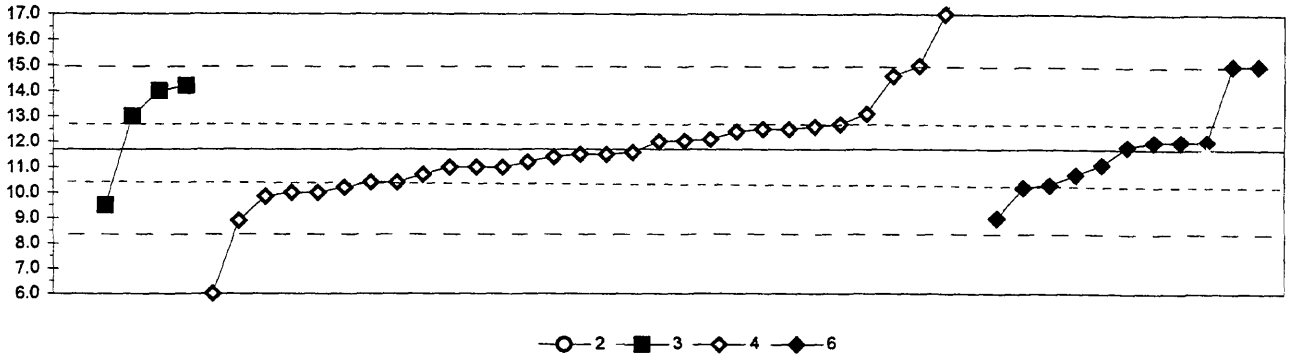
4. ICP
6. ICP/MS

		N =	1	8
		Minimum =	1.20	0.86
		Maximum =		1.20
		Median =		1.10
		F-pseudosigma =		0.08
Lab	Rating	Z-value	4	6
1	4	-0.40		1.06
7	NR		< 120	
16	3	1.00		1.20
30	3	1.00	1.20	
75	NR		< 100	
119	4	-0.30		1.07
142	0	-2.45		0.86
196	4	0.20		1.12
212	4	0.00		1.10
217	4	0.00		1.10
265	4	0.00		1.10

MPV =	1.10
F-pseudosigma =	0.10
N =	9
Hu =	1.12
Hl =	1.07

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

V (Vanadium) µg/L



2. AA: direct nitrous oxide
3. AA: graphite furnace
4. ICP
6. ICP/MS

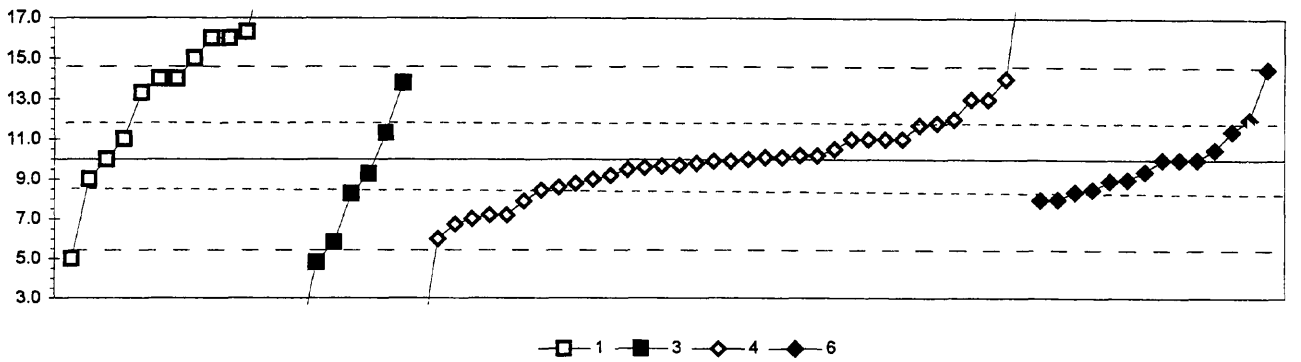
	2	3	4	6
N =	1	4	30	11
Minimum =	39.0	9.5	6.0	9.0
Maximum =		14.2	18.8	15.0
Median =			11.5	11.8
F-pseudosigma =			1.6	1.1

MPV =	11.7
F-pseudosigma =	1.7
N =	46
Hu =	12.7
HI =	10.4

Lab	Rating	Z-value	2	3	4	6
1	4	0.20			12.0	
3	0	-3.33			6.0	
5	4	0.42			12.4	
7	3	0.54			12.6	
11	4	-0.40			11.0	
13	NR				< 50	
15	NR				< 10	
16	1	1.94				15.0
18	4	-0.28			11.2	
26	4	0.48			12.5	
28	1	1.71			14.6	
30	4	-0.17			11.4	
32	4	0.07				11.8
40	3	-0.75			10.4	
42	1	1.94				15.0
46	3	-0.75			10.4	
48	2	-1.28		9.5		
68	2	-1.08			9.9	
70	NR				< 50	
75	4	-0.11			11.5	
81	1	-1.57				9.0
85	NR				< 20	
86	3	0.83			13.1	
89	2	1.48		14.2		
97	2	1.36		14.0		
102	3	-0.99			10.0	
105	4	-0.34				11.1
119	3	-0.81				10.3
128	3	-0.87			10.2	
134	3	-0.58			10.7	
138	4	-0.40			11.0	
141	3	0.60			12.7	
142	3	-0.58				10.7
145	0	3.12			17.0	
146	4	-0.11			11.5	
158	4	0.48			12.5	
180	4	0.18			12.0	
191	4	0.18				12.0
196	3	-0.87				10.2
212	4	0.18				12.0
217	1	-1.63			8.9	
219	3	-0.99			10.0	
224	0	4.17			18.8	
234	4	-0.40			11.0	
235	1	1.94			15.0	
236	4	0.24			12.1	
241	3	0.77		13.0		
255	4	-0.07			11.6	
257	0	16.02	39.0			
265	4	0.18				12.0

Table 13. *Statistical summary of reported data for standard reference water sample T-145 (trace constituents)–Continued*

Zn (Zinc) µg/L



1. AA: direct air
3. AA: graphite furnace
4. ICP
6. ICP/MS

	1	3	4	6
N =	13	7	36	14
Minimum =	5.0	0.6	0.0	8.0
Maximum =	66.0	13.8	20.0	14.5
Median =	14.0	8.3	9.9	9.7
F-pseudosigma =	3.7	3.7	1.7	1.5

MPV = 10.0
F-pseudosigma = 2.4
N = 70
Hu = 11.8
Hl = 8.6

Lab	Rating	Z-value	1	3	4	6
1	3	0.59				11.4
3	2	-1.26			7.0	
4	1	1.69			14.0	
5	4	-0.13			9.7	
7	4	0.42			11.0	
10	0	2.53	16.0			
13	4	-0.04			9.9	
15	0	-2.11			< 5	
16	4	-0.25				9.4
18	NR				< 100	
23	NR		< 20			
24	4	0.08			10.2	
26	4	-0.34			9.2	
28	1	-1.69			6.0	
30	4	-0.17			9.6	
32	4	0.00				10.0
36	0	2.53	16.0			
42	4	0.00				10.0
48	NR				< 5	
58	NR		< 50			
59	4	0.00				10.0
68	4	0.21			10.5	
69	NR		< 50			
70	NR				< 20	
73	2	1.26			13.0	
75	4	0.42			11.0	
80	0	-2.19		4.8		
81	3	-0.84				8.0
83	4	-0.08			9.8	
86	3	0.76			11.8	
87	0	2.66	16.3			
89	1	1.60		13.8		
96	4	0.42	11.0			
97	NR			< 4.6		
102	3	-0.51			8.8	
105	4	-0.42				9.0
113	3	-0.65			8.5	
114	NR		< 10			
118	0	2.11	15.0			
119	4	0.00			10.0	
121	3	0.84			12.0	
128	4	0.04			10.1	
132	4	-0.42			9.0	
133	4	0.04			10.1	
134	3	0.71			11.7	
138	3	-0.85				8.0
140	1	1.69	14.0			
141	4	-0.04			9.9	
142	3	-0.68				8.4
145	2	1.26			13.0	
146	NR				< 20	
151	4	-0.45				8.9
158	2	-1.18			7.2	
180	4	-0.21			9.5	
190	2	1.39	13.3			
191	3	-0.63				8.5
193	NR		< 50			
196	1	1.90				14.5
204	2	-1.18			7.2	
212	3	0.84				12.0
213	1	1.69	14.0			
215	0	-4.21			0.0	
217	3	-0.89			7.9	
219	4	0.42			11.0	
220	4	0.00	10.0			
221	3	0.55		11.3		
224	4	0.08			10.2	
234	2	-1.38			6.7	
235	3	-0.72		8.3		
236	3	-0.59			8.6	
240	4	0.42			11.0	
241	0	-2.11	5.0			
245	4	-0.30		9.3		
249	0	-3.96		0.6		
253	0	4.22	20.0			
255	4	-0.14			9.7	
257	4	-0.42	9.0			
259	0	23.61	66.0			
265	4	0.21				10.5
273	0	4.22			20.0	
274	1	-1.76		5.8		

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0	Other/Not reported		
1	AA: direct, air	=	atomic absorption: direct,air
2	AA: direct, N_2O	=	atomic absorption: direct,nitrous oxide
3	AA: graphite furnace	=	atomic absorption: graphite furnace
4	ICP	=	inductively coupled plasma
5	DCP	=	direct current plasma
6	ICP/MS	=	mass spectrometry/inductively coupled plasma
7	IC	=	ion chromatography
12	Flame emission	=	flame emission
20	Titrate: color	=	titration: colorimetric [color reagent specified]
21	Titrate: electro	=	titration: electrometric
22	Color:	=	colorimetric [color reagent specified]
40	Ion electrode	=	ion selective electrode
41	Electro	=	electrometric: [type meter specified]
50	Gravimetric	=	gravimetric: [precipitate specified]
51	Turbidimetric	=	turbidimetric: [precipitate specified]

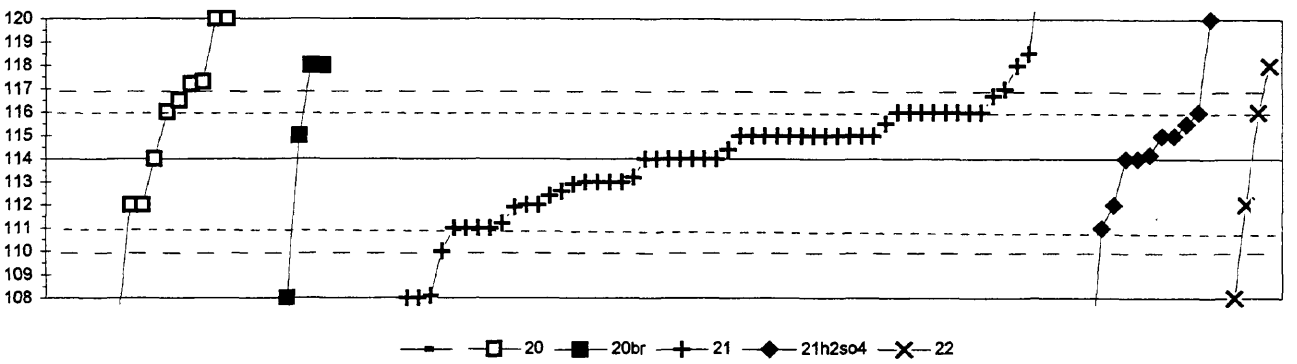
Abbreviations and symbols

N	=	number of samples
MPV	=	most probable value
F-pseudosigma	=	nonparametric statistic deviation
Hu	=	upper hinge value
Hl	=	lower hinge value
µg/L	=	micrograms per liter
mg/L	=	milligrams per liter
µS/cm	=	microsiemens per centimeter at 25^0 C
Lab	=	laboratory code number
NR	=	not rated, less than value reported
<	=	less than

Constituent		page
Alk	Alkalinity as $CaCO_3$	103
B	Boron	104
Ca	Calcium	105
Cl	Chloride	106
DSRD	Dissolved solids	107
F	Fluoride	108
K	Potassium	109
Mg	Magnesium	110
Na	Sodium	111
total P	Phosphorus	112
pH		113
SiO_2	Silica	114
SO_4	Sulfate	115
Sp Con	Specific Conductance	116
Sr	Strontium	117
V	Vanadium	118

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

Alkalinity (as $CaCO_3$) mg/L



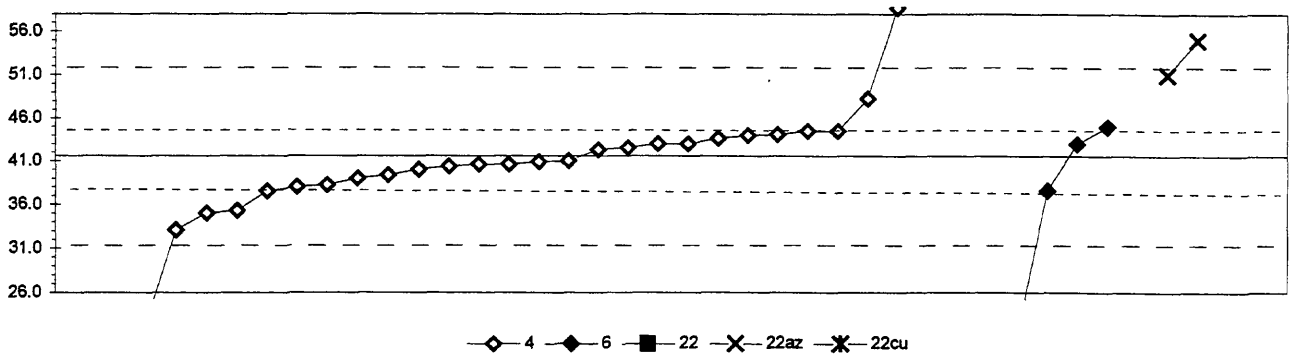
0. Other		21. Titrate: electrometric					
20. Titrate: colorimetric		21h_2so_4. Titrate: sulfuric acid					
20br. Titrate: bromcresol		22. Colorimetric					
N =	5	15	4	62	12	5	
Minimum =	107	107	108	4	104	99	
Maximum =	136	310	118	140	120	118	
Median =		117		114	114		
F-pseudosigma =		8		3	3		

MPV = 114
F-pseudosigma = 3
N = 103
Hu = 116
HI = 112

Lab	Rating	Z-value	0	20	20br	21	21h_2so_4	22
1	4	0.24				115		
2	0	-2.80				106		
3	3	0.58				116		
5	4	-0.44				113		
7	3	0.81				117		
10	3	0.58		116				
11	3	0.58				116		
13	0	-2.12				108		
15	0	-6.17				96		
16	3	-0.54	113					
18	0	-2.12						108
19	4	0.24				115		
23	2	-1.11				111		
24	4	0.24				115		
25	3	0.58				116		
26	4	-0.10				114		
32	3	0.58				116		
33	3	-0.57				113		
36	4	0.24					115	
38	4	0.41				116		
39	0	-4.82				100		
40	4	-0.44				113		
42	0	8.67				140		
43	4	0.24				115		
46	4	-0.37				113		
48	3	-0.77						112
50	2	1.25				118		
51	3	0.58				116		
55	0	-2.12				108		
56	2	1.43				119		
57	1	1.93		120				
59	3	0.85	117					
68	3	0.58						116
69	2	1.25						118
70	4	0.24				115		
75	4	-0.10				114		
76	0	-2.12			108			
80	3	-0.77		112				
81	4	0.24					115	
83	3	-0.57	113					
85	2	-1.11				111		
87	1	1.93					120	
89	4	-0.10				114		
90	0	-3.92				103		
92	4	-0.47				113		
96	4	0.24				115		
97	3	0.98		117				
105	2	-1.04				111		
107	4	-0.10					114	
109	0	2.70				122		
113	4	0.24				115		
114	4	0.24				115		
118	4	0.24			115			
119	2	-1.45				110		
127	3	0.58				116		
128	3	0.58					116	
129	2	1.25			118			
132	4	-0.04					114	
133	4	0.24				115		
134	0	7.39	136					
138	4	-0.10				114		
141	3	0.58				116		
142	3	0.58				116		
143	4	-0.44				113		
145	0	-5.16						99
146	4	-0.10				114		
149	4	-0.10		114				
151	4	-0.10					114	
155	3	0.75		117				
158	2	-1.11				111		
180	2	-1.11				111		
190	4	0.24				115		
191	2	1.25			118			
193	4	-0.10				114		
203	0	-3.23					105	
204	2	-1.11					111	
212	3	-0.77					112	
213	3	-0.77				112		
215	3	-0.77				112		
217	3	0.91				117		
218	0	-2.80				106		
220	3	-0.64				112		
224	0	-3.47					104	
234	3	-0.77		112				
236	4	0.04				114		
240	3	-0.81				112		
241	4	0.41					116	
244	4	0.24				115		
247	0	-37.34				4		
249	0	-2.46	107					
255	4	-0.44				113		
256	0	-2.46		107				
257	4	0.24				115		
258	0	3.41		124				
259	4	-0.10				114		
261	1	1.93		120				
262	0	-2.09				108		
265	0	7.32		136				
268	2	1.25		310		118		
272	0	66.00		310				
273	0	3.27				124		
274	0	38.56		229				
276	2	1.02		117				

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

B (Boron) µg/L



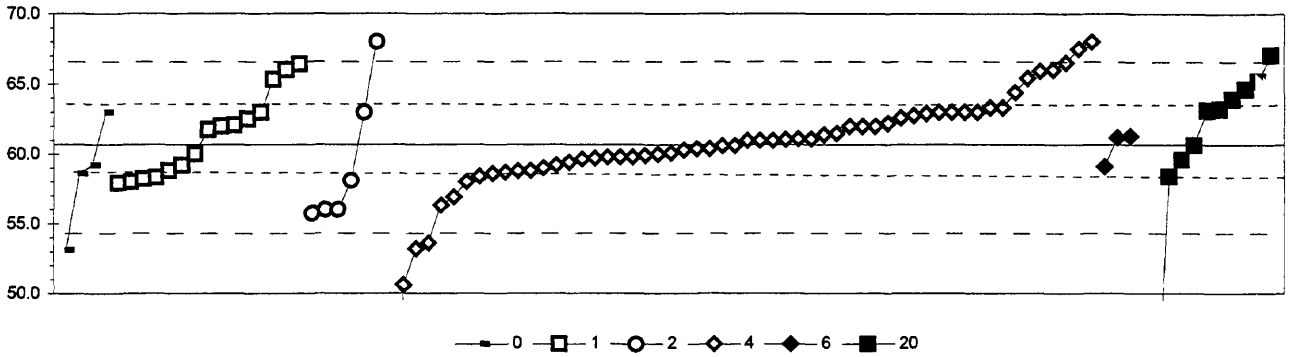
4. ICP				22az. Color: azomethine			
6. ICP/MS				22cu. Color: curcumin			
22. Colorimetric							
		N =	31	4	1	2	2
		Minimum =	20.0	21.0	22.0	51.0	60.0
		Maximum =	145.0	45.0		55.0	85.0
		Median =	40.9				
		F-pseudosigma =	4.4				

MPV =	41.6
F-pseudosigma =	5.2
N =	40
Hu =	44.8
Hl =	37.8

Lab	Rating	Z-value	4	6	22	22az	22cu
1	4	0.38	43.6				
3	4	0.26	43.0				
5	3	0.55	44.5				
10	0	3.56					60.0
15	NR		< 50				
16	0	3.87	61.6				
18	NR		< 50				
24	3	-0.67	38.2				
26	2	-1.23	35.3				
28	2	-1.29	35.0				
42	0	-4.01		21.0			
46	0	-3.91	21.5				
48	0	-4.20	20.0				
50	1	1.82				51.0	
57	NR		< 100				
68	0	20.06	145.0				
70	NR		< 50				
75	4	-0.14	40.9				
85	4	-0.20	40.6				
86	4	0.48	44.1				
119	4	0.26	43.0				
127	4	-0.44	39.4				
128	1	-1.66	33.1				
129	0	2.59				55.0	
132	4	0.17	42.5				
134	4	0.13	42.3				
138	3	-0.79		37.6			
141	3	-0.80	37.5				
142	4	-0.13	41.0				
145	2	1.29	48.3				
180	3	0.55	44.5				
212	3	0.65		45.0			
215	4	-0.32	40.0				
217	4	-0.20	40.6				
219	4	0.46	44.0				
234	3	-0.51	39.0				
235	3	-0.71	38.0				
236	4	-0.24	40.4				
240	0	3.31	58.7				
255	0	-3.74	22.4				
256	NR				< 20		
259	0	8.42					85.0
262	0	-3.81			22.0		
265	4	0.26		43.0			
273	0	5.50	70.0				

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

Ca (Calcium) mg/L



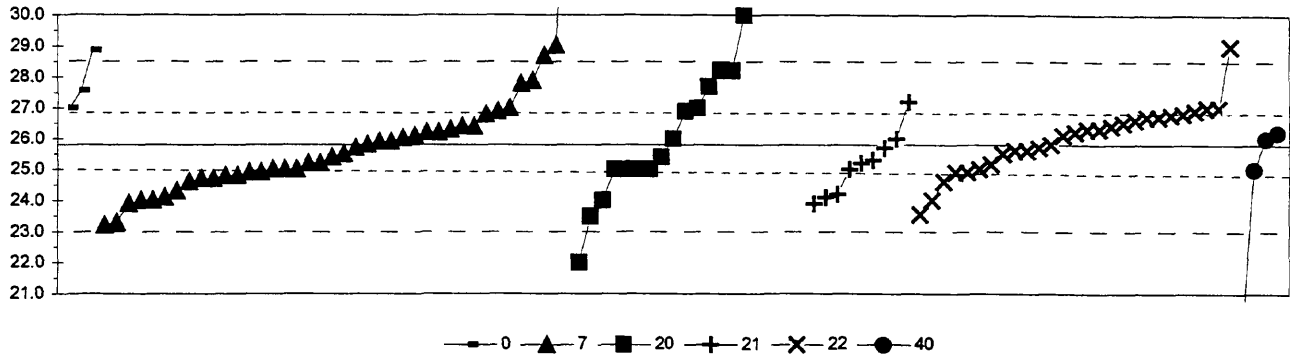
0. Other		4. ICP					
1. AA: direct air		6. ICP/MS					
2. AA: direct nitrous oxide		20. Titrate: colorimetric					
N =	4	16	6	56	3	11	
Minimum =	53.1	57.9	55.7	2.9	59.1	27.3	
Maximum =	63.0	66.4	68.0	68.0	61.3	67.0	
Median =		61.8		60.8		63.1	
F-pseudosigma =		3.1		2.6		3.9	

MPV = 60.7
F-pseudosigma = 3.1
N = 96
Hu = 63.0
Hl = 58.8

Lab	Rating	Z-value	0	1	2	4	6	20
1	2	-1.40				56.3		
3	0	2.19				67.5		
5	4	-0.27				59.8		
10	4	-0.47		59.2				
11	0	-18.50				2.9		
13	1	1.52				65.4		
15	0	-2.39				53.2		
16	3	-0.66				58.6		
18	4	-0.18				60.1		
19	4	-0.11				60.3		
23	2	1.49		65.3				
24	4	-0.27				59.8		
25	2	1.20				64.4		
26	4	0.14				61.1		
28	4	0.27				61.5		
30	3	0.75			63.0			
32	4	0.21					61.3	
33	4	-0.47	59.2					
36	2	-1.49			56.0			
38	3	-0.82			58.1			
40	0	-2.26				53.6		
42	3	0.85				63.3		
43	4	0.11				61.0		
46	3	-0.59				58.8		
48	4	0.49				62.2		
50	3	0.75				63.0		
55	4	-0.47				59.2		
56	4	0.36		61.8				
57	3	0.75				63.0		
59	0	2.35				68.0		
68	3	0.75				63.0		
69	3	-0.59		58.8				
70	4	0.24				61.4		
75	3	-0.79		58.2				
80	1	1.71		66.0				
81	4	-0.24				59.9		
83	3	-0.72				58.4		
85	4	0.46		62.1				
86	3	0.62				62.6		
87	2	-1.49			56.0			
89	3	-0.76		58.3				
90	3	-0.72						58.4
97	3	-0.88		57.9				
102	4	-0.08				60.4		
105	4	0.11				61.0		
107	3	-0.85		58.0				
109	3	-0.63				58.7		
113	1	1.71				66.0		
119	4	0.14				61.1		
121	4	-0.21				60.0		
128	4	0.43				62.0		
129	4	0.43		62.0				
132	3	-0.60				58.8		
133	4	-0.31				59.7		
134	4	0.13				61.1		
138	4	0.43				62.0		
140	3	0.59		62.5				
141	3	0.85				63.3		
142	3	-0.53				59.0		
145	3	0.67				62.8		
146	2	-1.20				56.9		
151	4	0.17					61.2	
155	4	0.00						60.7
180	4	-0.08				60.4		
190	3	-0.66	58.6					
191	4	-0.50					59.1	
204	4	-0.27				59.8		
212	3	0.72				62.9		
215	4	0.43				62.0		
217	0	-3.22				50.6		
218	1	-1.58			55.7			
219	3	-0.85				58.0		
220	4	-0.21		60.0				
221	1	1.84		66.4				
224	1	1.68				65.9		
234	4	-0.02				60.6		
235	1	1.87				66.5		
236	4	-0.33				59.6		
240	4	-0.40				59.4		
241	3	0.75		63.0				
249	2	1.46						65.2
255	4	-0.01				60.6		
256	3	0.82						63.2
257	0	2.35			68.0			
258	1	2.05						67.0
259	4	-0.34						59.6
261	2	1.27						64.6
262	3	0.75	63.0					
265	4	0.11				61.0		
268	0	-2.21		53.85				
270	0	-2.41	53.1					
271	3	0.79						63.1
272	0	-10.70						27.3
273	3	0.75				63.0		
274	0	-6.50						40.4
276	2	1.04						63.9

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

Cl (Chloride) mg/L



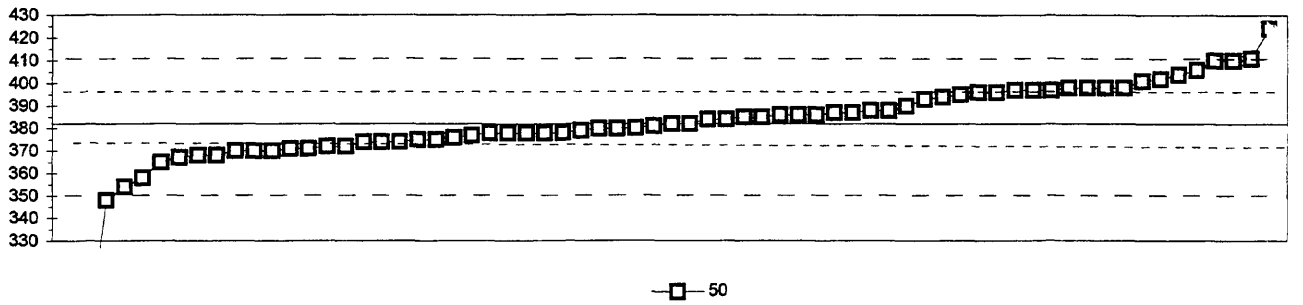
0. Other		21. Titrate: electrometric					
7. Ion chromatography		22. Colorimetric					
20. Titrate: colorimetric		40. Ion selective electrode					
N =	3	41	20	9	27	4	
Minimum =	27.0	23.2	22.0	23.9	23.5	19.6	
Maximum =	27.6	35.8	42.5	27.2	29.0	26.2	
Median =		25.5	27.0	25.2	26.2		
F-pseudosigma =		1.2	3.9	0.8	0.6		

MPV = 25.8
F-pseudosigma = 1.4
N = 103
Hu = 26.9
Hl = 25.0

Lab	Rating	Z-value	0	7	20	21	22	40
1	3	-0.78		24.7				
2	2	1.35			27.7			
3	3	0.64					26.7	
4	4	0.16		26.0				
5	3	-0.71		24.8				
7	2	-1.21		24.1				
10	4	0.36					26.3	
11	3	0.64					26.7	
13	3	-0.71		24.8				
15	4	0.43		26.4				
16	0	2.18	28.9					
18	3	0.85					27.0	
19	3	-0.57			25.0			
23	4	0.28						26.2
24	4	-0.14					25.6	
25	3	-0.85		24.6				
26	4	0.28		26.2				
30	4	-0.43		25.2				
32	3	0.78		26.9				
33	2	-1.07		24.3				
36	4	0.14			26.0			
39	0	2.99			30.0			
40	3	0.78					26.9	
42	0	7.12		35.8				
43	4	0.14						26.0
46	3	0.57					26.6	
48	2	-1.28					24.0	
50	3	-0.57					25.0	
51	2	1.42		27.8				
55	4	0.00					25.8	
56	1	-1.61					23.5	
57	3	-0.57			25.0			
59	2	-1.28		24.0				
64	4	0.36		26.3				
68	4	0.50					26.5	
69	4	0.28					26.2	
70	4	0.00		25.8				
75	4	0.21					26.1	
76	2	1.49		27.9				
80	3	-0.57			25.0			
81	2	-1.35				23.9		
83	4	-0.43				25.2		
85	3	-0.57		25.0				
87	0	2.28					29.0	
89	3	-0.57			25.0			
96	3	-0.64					24.9	
97	4	-0.07					25.7	
102	4	-0.21					25.5	
105	4	-0.43		25.2				
107	3	1.00				27.2		
109	1	-1.78		23.3				
113	3	-0.64		24.9				
114	3	-0.57						25.0
119	3	-0.78		24.7				
127	4	0.43		26.4				
128	4	-0.28		25.4				
129	3	-0.57		25.0				
133	0	-4.41						19.6
134	3	0.70		26.8				
138	4	0.07		25.9				
140	3	0.68					26.8	
141	4	-0.14					25.6	
142	4	-0.46					25.2	
143	4	0.43					26.4	
145	3	-0.63		24.9				
146	3	0.85					27.0	
149	3	0.85		27.0				
151	3	-0.57		25.0				
158	3	-0.64					24.9	
180	3	-0.85					24.6	
183	1	1.72			28.2			
190	0	2.06		28.7				
191	4	0.21		26.1				
196	1	-1.85		23.2				
203	2	-1.21				24.1		
204	4	-0.36				25.3		
212	4	0.28		26.2				
213	3	0.78			26.9			
215	2	-1.28			24.0			
217	4	0.07		25.9				
220	3	0.71					26.8	
221	4	-0.28			25.4			
224	2	1.26	27.6					
234	2	-1.28		24.0				
236	0	2.30		29.0				
240	2	-1.35		23.9				
241	0	-2.71			22.0			
247	4	-0.07		25.7				
249	0	3.42			30.6			
253	2	-1.14				24.2		
255	4	0.36					26.3	
256	1	1.72			28.2			
257	4	0.14				26.0		
258	0	4.56			32.2			
259	3	-0.57				25.0		
261	1	-1.64			23.5			
262	4	-0.07				25.7		
265	4	-0.21		25.5				
268	4	-0.14		25.6				
271	3	0.85			27.0			
272	0	11.92			42.5			
273	3	0.85	27.0					
274	0	11.00			41.3			
276	0	6.91			35.5			

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

DSRD (Dissolved solids) mg/L



50. Gravimetric

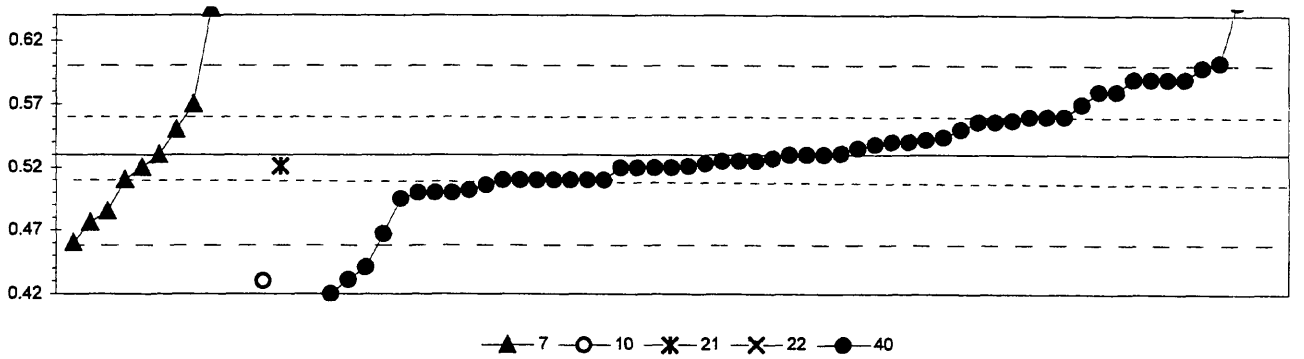
N =	67
Minimum =	0
Maximum =	424
Median =	382
F-pseudosigma =	0

MPV =	382
F-pseudosigma =	16
N =	67
Hu =	396
Hl =	374

Lab	Rating	Z-value	50
1	3	-0.75	370
3	3	-0.75	370
5	4	0.25	386
10	4	0.25	386
11	1	-1.51	358
13	4	0.38	388
15	3	-0.94	367
16	3	-0.63	372
18	3	0.94	397
19	4	-0.50	374
23	3	-0.69	371
25	3	-0.88	368
26	4	-0.25	378
32	3	-0.63	372
36	1	1.76	410
38	4	-0.25	378
40	4	-0.25	378
43	4	0.25	386
50	4	0.00	382
55	4	-0.13	380
57	4	0.50	390
59	3	-0.69	371
69	2	1.19	401
70	4	0.19	385
75	3	1.00	398
76	3	1.00	398
80	1	1.82	411
81	0	2.64	424
85	4	-0.25	378
87	0	-2.13	348
89	3	0.75	394
90	1	1.76	410
92	4	-0.50	374
96	2	1.25	402
97	1	1.51	406
105	2	-1.07	365
109	4	0.31	387
113	3	0.88	396
114	4	-0.44	375
118	3	1.00	398
119	3	-0.75	370
127	4	0.31	387
129	4	-0.19	379
134	3	0.94	397
138	3	-0.88	368
140	4	-0.31	377
141	4	-0.38	376
142	3	0.69	393
143	3	1.00	398
146	4	-0.50	374
151	4	-0.25	378
155	3	0.95	397
158	4	0.38	388
190	0	-23.94	0
212	1	-1.76	354
215	4	-0.44	375
217	4	-0.06	381
221	3	0.88	396
224	4	-0.11	380
234	4	0.00	382
236	4	0.19	385
240	4	-0.13	380
241	0	-6.15	284
253	2	1.38	404
255	4	0.13	384
257	3	0.82	395
259	4	0.13	384

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

F (Fluoride) mg/L



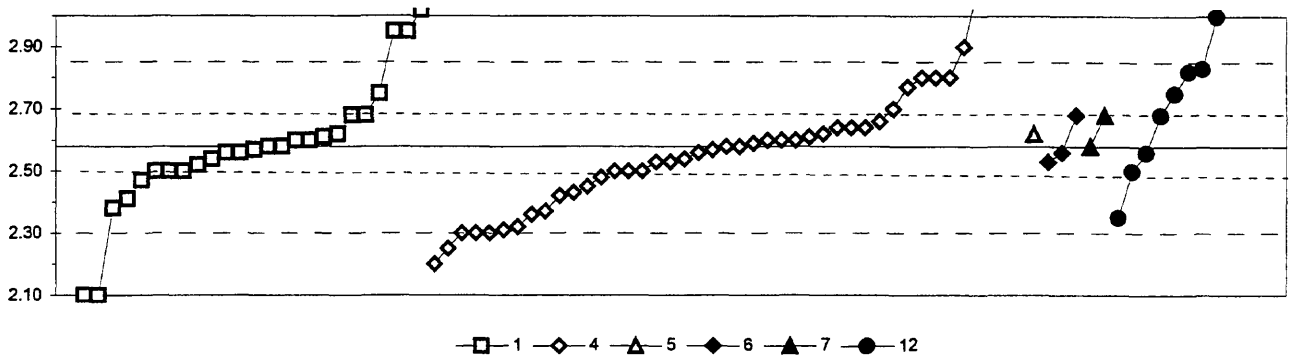
7. Ion chromatography		22. Colorimetric				
10. AA: extraction		40. Ion selective electrode				
21. Titrate: electrometric						
N =	11	1	1	1	57	
Minimum =	0.46	0.43	0.52	0.76	0.08	
Maximum =	0.92				2.00	
Median =	0.53				0.53	
F-pseudosigma =	0.08				0.04	

MPV = 0.530
F-pseudosigma = 0.037
N = 71
Hu = 0.560
Hl = 0.510

Lab	Rating	Z-value	7	10	21	22	40
1	3	0.81					0.560
2	1	1.62					0.590
3	1	1.86					0.599
7	0	4.05	0.680				
10	4	-0.27					0.520
11	3	-0.81					0.500
13	3	-0.54					0.510
15	4	-0.24					0.521
16	4	0.38					0.544
18	3	-0.54					0.510
23	3	0.70					0.556
24	3	0.81					0.560
25	3	-0.54					0.510
26	2	1.08	0.570				
32	0	-2.67					0.431
36	1	-1.70					0.467
39	4	0.27					0.540
40	3	-0.65					0.506
46	4	-0.19					0.523
48	0	4.32					0.690
50	4	0.00					0.530
55	4	-0.27					0.520
57	4	-0.27					0.520
59	3	0.54					0.550
69	2	1.35					0.580
70	2	1.35					0.580
76	4	0.32					0.542
80	3	-0.54					0.510
81	4	0.22					0.538
83	0	3.24					0.650
89	0	-12.03					0.084
96	4	-0.13					0.525
97	3	-0.94					0.495
105	3	0.54	0.550				
107	4	-0.08					0.527
109	1	1.62					0.590
113	4	-0.13					0.525
114	4	0.00					0.530
119	4	0.00					0.530
127	2	-1.46	0.476				
128	4	-0.27	0.520				
129	0	3.10	0.645				
134	1	1.62					0.590
138	4	0.03					0.531
140	0	-2.40					0.441
141	2	1.08					0.570
142	1	1.97					0.603
145	1	-1.89	0.460				
146	3	0.73					0.557
149	4	0.00	0.530				
151	3	-0.54					0.510
158	4	0.27					0.540
190	4	-0.24			0.521		
196	4	-0.13					0.525
212	3	-0.54					0.510
215	3	-0.81					0.500
217	0	-2.97					0.420
224	0	10.52	0.920				
234	2	-1.21	0.485				
240	4	0.13					0.535
241	1	1.62					0.590
247	3	-0.54	0.510				
255	3	0.70					0.556
257	3	0.81					0.560
258	3	-0.54					0.510
259	3	-0.81					0.500
262	3	-0.76					0.502
265	4	-0.27					0.520
272	0	39.66					2.000
273	0	-2.70		0.430			
274	0	6.21				0.760	

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

K (Potassium) mg/L



1. AA: direct air				6. ICP/MS				
4. ICP				7. Ion chromatography				
5. DCP				12. Flame emission				
		N =	26	43	1	3	2	12
		Minimum =	2.00	2.20	2.62	2.53	2.58	2.35
		Maximum =	3.20	4.20		2.68	2.68	3.91
		Median =	2.57	2.58				2.83
		F-pseudosigma =	0.09	0.16				0.39

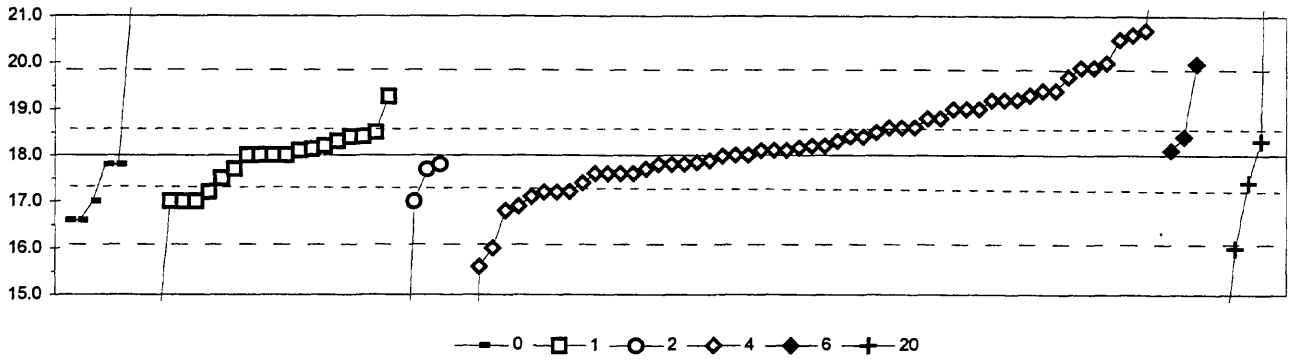
MPV = 2.58
F-pseudosigma = 0.14
N = 87
Hu = 2.69
HI = 2.50

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	-0.07	2.57					
2	0	-3.41	2.10					
3	2	-1.07		2.43				
5	2	-1.49		2.37				
10	4	0.00	2.58					
13	1	-1.99		2.30				
15	1	-1.56		2.36				
16	3	-0.57	2.50					
18	0	-2.70		2.20				
19	4	0.14		2.60				
23	3	0.71	2.68					
24	3	-0.92		2.45				
26	3	0.71					2.68	
28	1	-1.85		2.32				
32	4	-0.36				2.53		
33	4	0.28			2.62			
36	0	-3.41	2.10					
38	4	0.28	2.62					
40	4	0.43		2.64				
42	3	0.85		2.70				
43	4	0.14		2.60				
46	0	-2.34		2.25				
48	4	0.00		2.58				
50	3	-0.57		2.50				
51	4	-0.14						2.56
56	0	3.12	3.02					
57	0	4.40	3.20					
59	NR			< 5				
64	3	0.71	2.68					
68	0	2.27		2.90				
69	1	1.70						2.82
70	3	-0.71		2.48				
80	0	-4.12	2.00					
81	4	-0.36		2.53				
83	4	0.14		2.60				
85	0	2.63	2.95					
86	4	0.43		2.64				
87	3	-0.78	2.47					
89	2	-1.42	2.38					
97	4	0.14	2.60					
102	1	-1.99		2.30				
105	4	0.21		2.61				
107	2	1.21	2.75					
109	4	-0.14		2.56				
113	2	1.35		2.77				
119	3	-0.57		2.50				
121	4	-0.14	2.56					
127	4	-0.36		2.53				
128	4	0.00		2.58				
129	3	-0.57	2.50					

Lab	Rating	Z-value	1	4	5	6	7	12
132	3	0.57		2.66				
134	4	-0.28	2.54					
138	4	0.07		2.59				
140	4	0.00	2.58					
141	4	-0.07		2.57				
142	1	-1.99		2.30				
145	4	-0.28		2.54				
146	0	4.54		3.22				
151	3	0.71				2.68		
180	2	-1.14		2.42				
190	4	0.00					2.58	
191	4	-0.14				2.56		
212	3	-0.57		2.50				
215	1	1.56		2.80				
217	0	11.50		4.20				
218	2	-1.21	2.41					
219	1	1.56		2.80				
220	4	0.14	2.60					
221	4	0.21	2.61					
224	0	3.69		3.10				
234	4	0.43		2.64				
235	0	11.15		4.15				
236	1	-1.92		2.31				
241	4	-0.14	2.56					
249	3	0.71						2.68
255	4	0.28		2.62				
256	0	9.44						3.91
257	0	5.11						3.30
258	2	1.21						2.75
259	3	-0.57	2.50					
261	1	-1.63						2.35
262	1	1.78						2.83
265	4	-0.43	2.52					
268	1	1.93	2.85					
270	0	4.47						3.21
271	3	-0.57						2.50
272	0	2.98						3.00
273	1	1.56		2.80				
274	0	3.55						3.08

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

Mg (Magnesium) mg/L



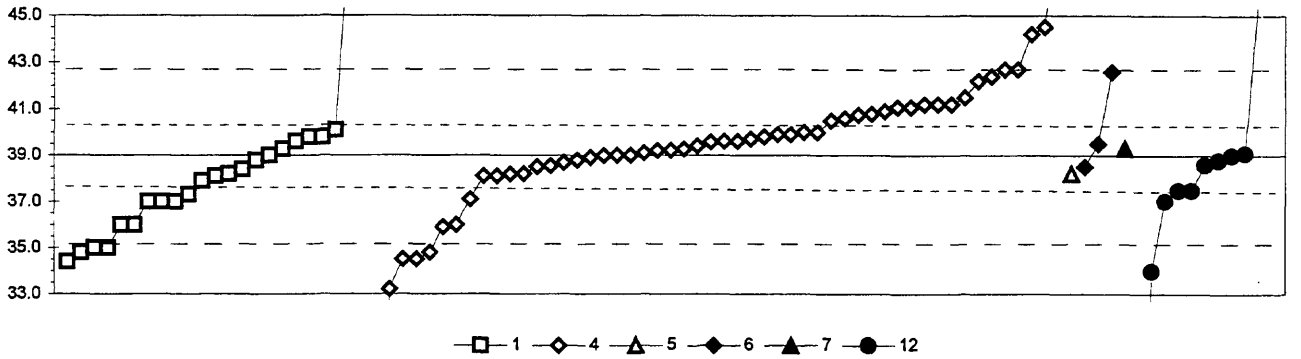
0. Other		4. ICP					
1. AA: direct air		6. ICP/MS					
2. AA: direct nitrous oxide		20. Titrate: colorimetric					
N =	6	21	4	56	3	6	
Minimum =	16.60	10.95	9.80	0.50	18.10	10.37	
Maximum =	21.40	19.27	17.80	22.76	19.98	30.79	
Median =		18.00		18.18			
F-pseudosigma =		0.85		1.11			

MPV =	18.0
F-pseudosigma =	1.0
N =	96
Hu =	18.6
Hl =	17.3

Lab	Rating	Z-value	0	1	2	4	6	20
1	3	-0.63				17.4		
2	2	-1.04		17.0				
3	0	2.71				20.6		
5	3	-0.94				17.1		
10	4	0.42		18.4				
11	0	-18.23				0.5		
13	2	1.04				19.0		
15	0	-2.08				16.0		
16	4	-0.21				17.8		
18	4	-0.02				18.0		
19	4	0.42				18.4		
23	4	0.00		18.0				
24	4	0.10				18.1		
25	2	1.25				19.2		
26	2	1.25				19.2		
28	4	0.21				18.2		
30	2	-1.04			17.0			
32	0	2.06					20.0	
33	4	-0.21	17.8					
36	2	-1.04		17.0				
38	4	0.14		18.1				
40	2	-1.25				16.8		
42	2	1.35				19.3		
43	2	1.04				19.0		
46	3	-0.82				17.2		
48	4	0.31				18.3		
50	4	0.00				18.0		
51	0	-7.34		11.0				
55	2	1.46				19.4		
56	2	1.32		19.3				
57	0	2.08				20.0		
59	0	2.60				20.5		
68	4	0.00				18.0		
69	3	-0.52		17.5				
70	4	0.10				18.1		
75	4	0.42		18.4				
80	2	-1.04		17.0				
81	4	0.21				18.2		
83	3	-0.83				17.2		
85	4	0.31		18.3				
86	4	0.10				18.1		
87	3	-0.83		17.2				
89	4	0.21		18.2				
97	4	0.00		18.0				
102	1	1.98				19.9		
105	3	0.83				18.8		
107	4	-0.31		17.7				
109	4	-0.42				17.6		
113	1	1.98				19.9		
119	3	0.63				18.6		
121	4	-0.31				17.7		
127	3	0.63				18.6		
128	3	-0.83				17.2		
129	4	0.00		18.0				
132	4	-0.21				17.8		
133	2	-1.15				16.9		
134	4	-0.13				17.9		
138	3	0.52				18.5		
140	3	0.52		18.5				
141	3	0.83				18.8		
142	4	-0.17				17.8		
145	4	-0.20				17.8		
146	4	-0.42				17.6		
151	4	0.10					18.1	
155	4	0.32						18.3
180	4	0.42				18.4		
190	4	-0.21	17.8					
191	4	0.42					18.4	
204	0	-17.64				1.1		
212	1	1.77				19.7		
215	3	0.63				18.6		
217	0	-2.50				15.6		
218	4	-0.32			17.7			
219	2	1.04				19.0		
220	4	0.00		18.0				
221	4	0.10		18.1				
224	0	4.96				22.8		
234	4	-0.42				17.6		
235	2	1.46				19.4		
236	2	1.24				19.2		
240	4	-0.42				17.6		
241	0	-4.17		14.0				
255	4	0.17				18.2		
256	2	-1.46	16.6					
257	0	-8.54			9.8			
258	2	-1.46	16.6					
259	2	-1.04	17.0					
261	3	-0.63						17.4
262	0	3.54	21.4					
265	4	-0.21			17.8			
268	3	-0.52		17.5				
271	0	-7.95						10.4
272	0	-4.85						13.3
273	0	2.81				20.7		
274	0	13.32						30.8
276	0	-2.08						16.0

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

Na (Sodium) mg/L



1. AA: direct air
4. ICP
5. DCP
6. ICP/MS
7. Ion chromatography
12. Flame emission

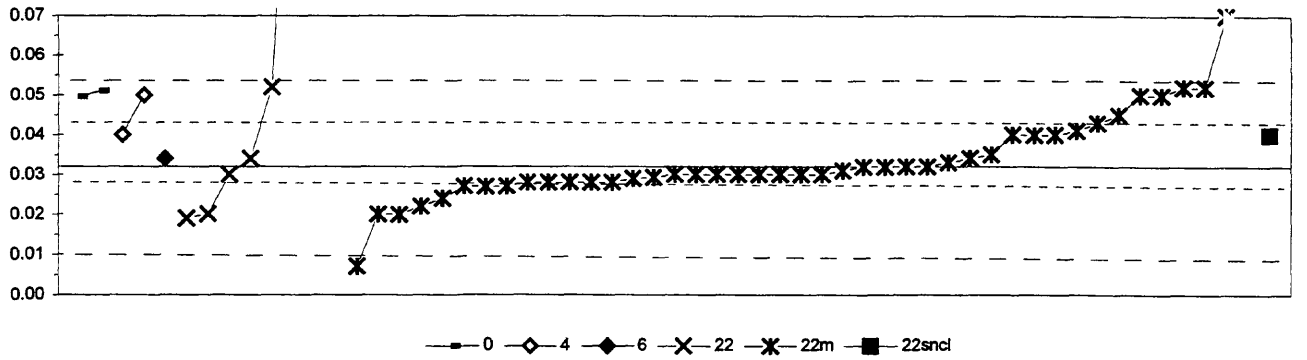
	1	4	5	6	7	12
N =	24	51	1	3	1	12
Minimum =	34.4	1.5	38.2	38.5	39.3	20.6
Maximum =	50.8	48.3		42.6		50.0
Median =	38.1	39.6				38.7
F-pseudosigma =	2.2	1.8				3.9

MPV = 39.0
F-pseudosigma = 1.9
N = 92
Hu = 40.3
Hl = 37.7

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	-0.42		38.2				
2	0	-2.08	35.0					
3	0	-2.33		34.5				
5	4	0.31		39.6				
10	4	-0.10	38.8					
11	0	-19.47		1.5				
13	2	1.14		41.2				
15	0	-2.33		34.5				
16	4	-0.26		38.5				
18	4	-0.01		39.0				
19	2	1.14		41.2				
23	0	-2.18	34.8					
24	4	-0.10		38.8				
25	1	1.92		42.7				
26	3	0.99		40.9				
28	1	1.92		42.7				
32	4	0.26				39.5		
33	4	-0.42			38.2			
36	0	-2.08	35.0					
38	0	-2.39	34.4					
40	3	-0.99		37.1				
42	4	0.10		39.2				
43	3	0.52		40.0				
46	4	0.31		39.6				
48	4	0.42		39.8				
50	3	0.52		40.0				
51	4	-0.10						38.8
56	0	6.12	50.8					
57	1	-1.56		36.0				
59	0	2.85		44.5				
64	3	-0.57	37.9					
68	3	0.78		40.5				
69	4	-0.21						38.6
70	4	0.21		39.4				
75	4	-0.31	38.4					
80	2	-1.04	37.0					
81	4	0.05		39.1				
83	4	-0.47		38.1				
85	4	0.42	39.8					
86	2	1.14		41.2				
87	3	-0.88	37.3					
89	4	-0.42	38.2					
97	3	0.57	40.1					
102	0	-3.01		33.2				
105	3	0.93		40.8				
107	4	0.31	39.6					
109	4	-0.23		38.6				
113	1	-1.61		35.9				
119	4	0.47		39.9				
121	4	-0.05		38.9				
127	4	0.00		39.0				
128	4	-0.47		38.1				
129	2	-1.04	37.0					
132	4	0.13		39.3				
134	4	0.14	39.3					
138	4	0.36		39.7				
140	0	5.19	49.0					
141	3	0.83		40.6				
142	4	0.30		39.6				
145	2	1.08		41.1				
146	1	1.66		42.2				
151	1	1.87				42.6		
180	4	0.47		39.9				
190	4	0.16					39.3	
191	4	-0.26				38.5		
212	1	1.76		42.4				
215	2	1.30		41.5				
217	0	-2.18		34.8				
218	1	-1.56	36.0					
219	4	0.00		39.0				
220	1	-1.56	36.0					
221	4	0.42	39.8					
224	2	1.08		41.1				
234	4	0.10		39.2				
235	0	4.83		48.3				
236	4	-0.43		38.2				
241	2	-1.04	37.0					
249	4	0.05						39.1
255	4	-0.17		38.7				
256	2	-1.02						37.0
257	4	0.00						39.0
258	3	-0.78						37.5
259	4	0.00	39.0					
261	0	3.58						45.9
262	3	-0.78						37.5
265	4	-0.47	38.1					
268	3	0.91	40.8					
270	0	4.09						46.9
271	0	-2.59						34.0
272	0	5.71						50.0
273	0	2.70		44.2				
274	0	-9.55						20.6

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

total P as P (total Phosphorus as Phosphorus) mg/L



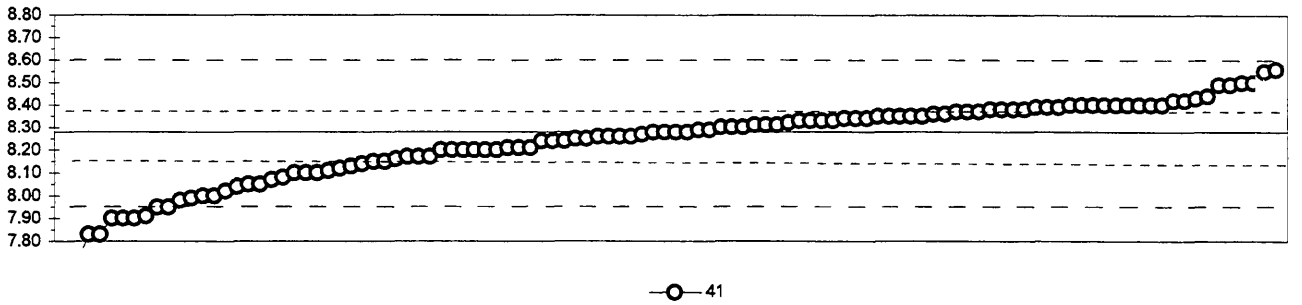
0. Other				22. Colorimetric				
4. ICP				22m. Color:phosphomolybdate				
6. ICP/MS				22sncl. Color: stanous chloride				
		N =	2	2	1	8	43	1
		Minimum =	0.05	0.04	0.03	0.02	0.01	0.04
		Maximum =	0.05	0.05	0.03	0.71	0.10	0.04
		Median =	0.05	0.05	0.03	0.04	0.03	0.04
		F-pseudosigma =	0.00	0.00	0.00	0.00	0.00	0.00
Lab	Rating	Z-value	0	4	6	22	22m	22sncl
1	4	-0.18					0.030	
2	1	1.80					0.052	
3	4	-0.18				0.030		
11	2	1.17					0.045	
15	NR						< 0.05	
16	1	1.71	0.051					
18	4	-0.45					0.027	
22	4	0.00					0.032	
23	4	0.18					0.034	
32	1	1.58	0.050					
38	4	0.00					0.032	
39	4	0.18				0.034		
48	0	3.42					0.070	
55	3	-0.72					0.024	
57	3	0.72					0.040	
59	3	0.72					0.040	
64	4	-0.18					0.030	
68	1	1.80				0.052		
70	NR						< 0.1	
81	4	-0.36					0.028	
83	NR			< 100				
87	4	-0.36					0.028	
89	4	-0.27					0.029	
92	4	-0.45					0.027	
97	0	-2.70					< 0.002	
102	0	-2.25					0.007	
105	2	-1.17				0.019		
107	4	-0.36					0.028	
113	4	-0.36					0.028	
114	4	-0.09					0.031	
118	2	-1.08					0.020	
119	4	-0.18					0.030	
127	NR						< 0.01	
129	4	-0.45					0.027	
132	4	-0.18					0.030	
133	4	-0.36					0.028	
134	4	-0.18					0.030	
138	4	0.00					0.032	
140	NR					< 0.02		
141	NR						< 0.05	
142	2	-1.08					0.020	
143	4	0.09					0.033	
145	4	0.27					0.035	
146	NR						< 0.1	
155	4	-0.24					0.029	
158	3	0.81					0.041	
180	1	1.80					0.052	
190	1	1.62					0.050	
191	4	0.18			0.034			
212	3	0.99					0.043	

MPV =	0.032
F-pseudosigma =	0.011
N =	57
Hu =	0.043
Hl =	0.028

Lab	Rating	Z-value	0	4	6	22	22m	22sncl
213	2	-1.08				0.020		
215	3	0.72					0.040	
224	4	-0.18					0.030	
234	4	-0.18					0.030	
235	1	1.62		0.050				
236	3	0.72		0.040				
240	3	-0.90					0.022	
241	4	0.00					0.032	
243	4	-0.18					0.030	
249	1	1.62					0.050	
257	0	6.12					0.100	
258	0	10.02				0.143		
259	3	0.72						0.040
273	0	60.97				0.710		
274	0	9.80				0.141		

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

pH



41. Direct reading

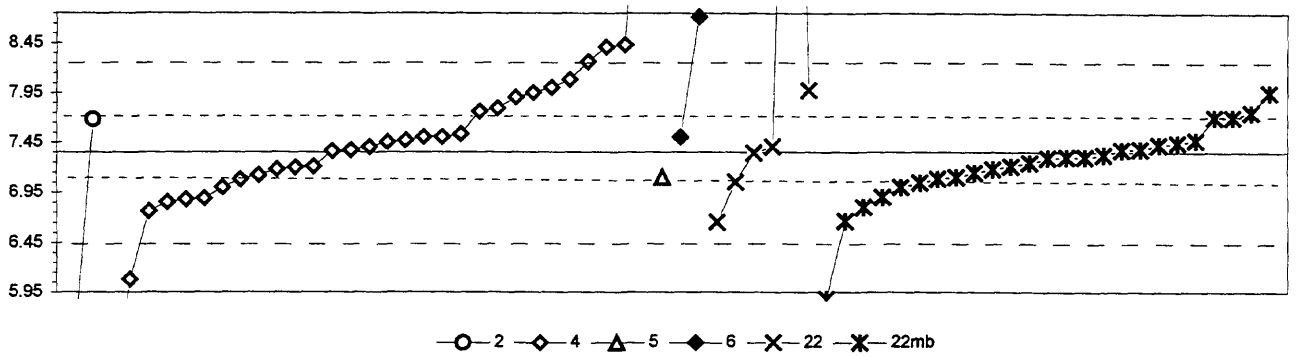
N =	108
Minimum =	7.42
Maximum =	8.56
Median =	8.28
F-pseudosigma =	0.17

MPV =	8.28
F-pseudosigma =	0.17
N =	108
Hu =	8.37
Hl =	8.15

Lab	Rating	Z-value	41
1	4	-0.42	8.21
2	2	-1.44	8.04
3	0	-2.70	7.83
5	3	-0.66	8.17
7	4	-0.48	8.20
10	3	0.84	8.42
11	4	-0.12	8.26
13	4	0.48	8.36
15	2	-1.02	8.11
16	2	-1.08	8.10
18	4	-0.18	8.25
19	1	1.62	8.55
23	4	0.00	8.28
24	4	-0.48	8.20
25	4	0.48	8.36
26	4	0.30	8.33
30	3	0.72	8.40
32	3	0.72	8.40
33	4	0.00	8.28
36	4	0.30	8.33
38	3	0.72	8.40
39	3	0.72	8.40
40	4	0.42	8.35
42	0	-2.28	7.90
43	4	-0.42	8.21
46	3	0.60	8.38
48	1	-1.68	8.00
50	4	0.18	8.31
51	4	0.06	8.29
55	1	-1.68	8.00
56	4	0.42	8.35
57	4	-0.48	8.20
59	3	0.72	8.40
64	3	0.60	8.38
68	3	0.60	8.38
69	3	0.72	8.40
70	4	0.00	8.28
75	4	-0.06	8.27
76	4	-0.12	8.26
80	3	-0.66	8.17
81	3	0.54	8.37
85	3	0.54	8.37
86	4	0.42	8.35
87	1	-1.98	7.95
89	3	0.66	8.39
92	3	-0.84	8.14
96	4	0.36	8.34
97	3	0.54	8.37
105	4	0.36	8.34
107	2	1.26	8.49
109	3	0.84	8.42
113	4	0.24	8.32
114	2	-1.26	8.07
118	0	-2.28	7.90
119	2	1.32	8.50
127	4	0.18	8.31
128	3	0.90	8.43
129	1	-1.74	7.99
132	2	-1.38	8.05
133	3	-0.78	8.15
134	3	0.96	8.44
138	4	0.06	8.29
140	4	0.30	8.33
141	4	0.42	8.35
142	4	-0.12	8.26
143	3	0.60	8.38
145	4	0.12	8.30
146	3	-0.78	8.15
149	3	0.72	8.40
151	3	0.66	8.39
155	4	-0.24	8.24
158	4	-0.12	8.26
180	3	0.72	8.40
183	4	0.30	8.33
190	2	-1.08	8.10
191	3	0.66	8.39
203	4	0.18	8.31
204	3	-0.72	8.16
212	4	0.12	8.30
213	4	0.42	8.35
215	4	-0.18	8.25
217	3	0.72	8.40
218	1	-1.56	8.02
221	2	-1.20	8.08
224	3	-0.66	8.17
234	3	-0.90	8.13
236	4	-0.24	8.24
240	4	-0.24	8.24
241	4	0.12	8.30
243	0	-2.22	7.91
244	4	0.36	8.34
247	1	1.68	8.56
249	1	-1.80	7.98
253	4	-0.48	8.20
255	2	1.26	8.49
256	2	-1.38	8.05
257	4	-0.42	8.21
258	4	-0.48	8.20
259	2	1.32	8.50
261	1	-1.98	7.95
262	0	-5.16	7.42
265	3	-0.96	8.12
268	2	-1.08	8.10
271	0	-2.70	7.83
272	4	0.00	8.28
273	4	-0.48	8.20
274	0	-2.28	7.90
276	0	-3.48	7.70

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

SiO_2 (Silca) mg/L



2. AA: direct nitrous oxide
4. ICP
5. DCP
6. ICP/MS
22. Colorimetric
22mb. Color: molybdate blue

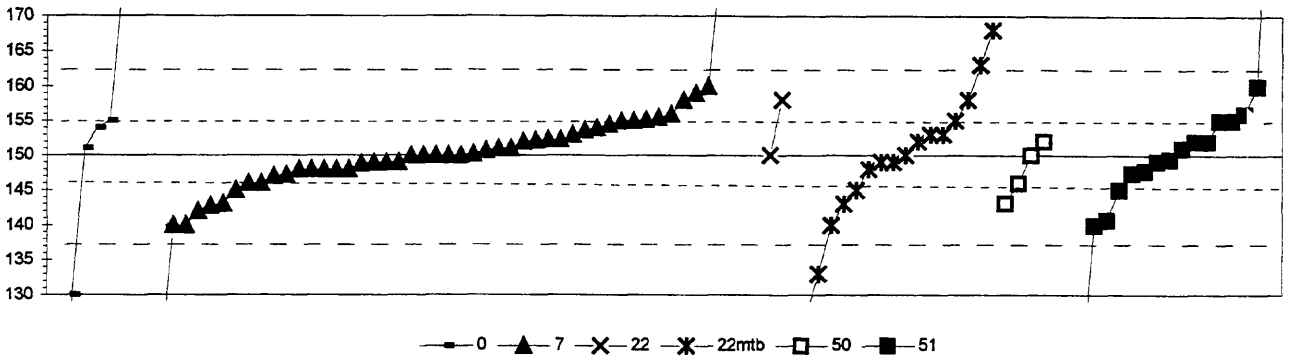
	2	4	5	6	22	22mb
N =	2	30	1	2	6	25
Minimum =	5.50	4.66	7.10	7.50	6.65	5.88
Maximum =	7.68	11.04		8.71	14.93	7.95
Median =		7.43				7.29
F-pseudosigma =		0.61				0.00

MPV = 7.35
F-pseudosigma = 0.46
N = 66
Hu = 7.70
Hl = 7.08

Lab	Rating	Z-value	2	4	5	6	22	22mb
1	3	-1.00		6.89				
3	0	2.35		8.43				
5	3	-0.59		7.08				
10	4	-0.11						7.30
13	4	0.04		7.37				
15	2	1.35					7.97	
18	4	0.20						7.44
23	3	0.87						7.75
24	3	0.89		7.76				
25	0	8.03		11.04				
26	4	0.39		7.53				
32	4	0.33				7.50		
33	3	-0.54			7.10			
38	4	-0.13						7.29
40	4	-0.37		7.18				
42	2	1.41		8.00				
43	4	0.33		7.50				
46	3	-0.67						7.04
50	4	-0.11						7.30
55	4	0.02		7.36				
57	4	0.11		7.40				
59	3	0.76						7.70
68	3	-0.65					7.05	
70	3	-0.54						7.10
80	0	-4.03	5.50					
81	4	-0.24						7.24
83	2	-1.28		6.76				
85	4	-0.07						7.32
87	4	-0.37						7.18
89	2	-1.20						6.80
97	4	0.04						7.37
102	2	-1.50						6.66
105	4	0.22		7.45				
107	4	-0.30						7.21
113	4	-0.02					7.34	
118	4	0.26						7.47
119	3	-0.76		7.00				
121	4	-0.50		7.12				
127	4	-0.30		7.21				
128	3	0.96		7.79				
129	2	1.31						7.95
134	4	0.25		7.47				
138	4	-0.46						7.14
140	4	0.11					7.40	
142	0	2.31		8.41				
145	2	1.31		7.95				
151	0	-3.20						5.88
155	3	-0.58						7.08
190	3	0.76						7.70
191	0	2.96				8.71		
203	3	-0.98						6.90
204	4	0.15						7.42
212	2	1.20		7.90				
215	1	1.59		8.08				
217	0	-2.76		6.08				
219	4	0.33		7.50				
234	4	-0.33		7.20				
235	1	1.98		8.26				
236	0	-5.85		4.66				
240	2	-1.02		6.88				
241	3	0.72	7.68					
255	4	0.07						7.38
256	1	-1.52					6.65	
259	3	-0.76						7.00
265	2	-1.09		6.85				
274	0	16.49					14.93	

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

SO_4 (Sulfate) mg/L



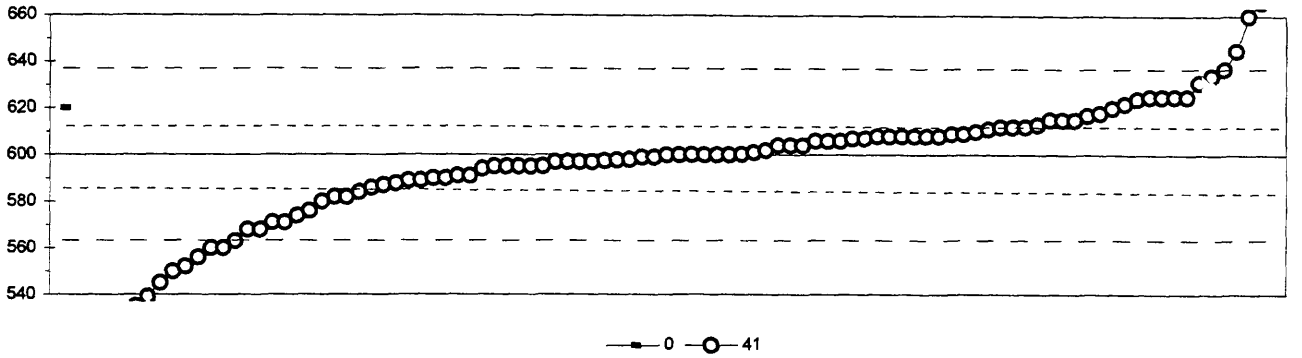
0. Other			22mtb. Color: methyl thymol blue					
7. Ion chromatography			50. Gravimetric					
22. Colorimetric			51. Turbidimetric					
		N =	6	51	2	17	4	18
		Minimum =	16	5	150	120	143	17
		Maximum =	174	197	158	168	152	200
		Median =		150		149		149
		F-pseudosigma =		5		7		11
Lab	Rating	Z-value	0	7	22	22mtb	50	51
1	4	0.03		150				
2	4	0.30					152	
3	2	-1.20		142				
4	4	0.34		152				
5	4	0.15		151				
7	3	0.67		155				
10	4	0.15						151
11	0	-21.75		5				
13	4	0.00		150				
15	2	-1.50		140				
16	2	-1.03					143	
18	4	-0.30				148		
19	4	-0.15				149		
23	2	1.20			158			
24	4	0.00				150		
25	4	-0.30		148				
26	4	0.00		150				
30	4	0.00		150				
32	3	-0.60		146				
33	4	-0.42		147				
36	2	1.50						160
39	4	0.00		150				
40	0	-4.65		119				
42	0	7.04		197				
43	4	0.00					150	
46	0	5.25		185				
48	0	-6.89						104
50	4	-0.15				149		
51	3	0.82		156				
55	0	-2.55				133		
56	4	-0.13						149
57	2	-1.50						140
59	4	-0.30		148				
64	4	0.10		151				
69	2	1.20				158		
70	3	-0.60		146				
75	4	0.45				153		
80	0	-3.00	130					
81	3	-0.75				145		
83	4	0.15	151					
85	4	-0.30		148				
87	0	-3.45				127		
89	4	-0.30		148				
92	4	-0.39						147
96	3	-0.75						145
97	4	0.45				153		
102	2	-1.05				143		
105	2	-1.50		140				
109	3	0.78		155				
113	3	0.60		154				

MPV =	150
F-pseudosigma =	7
N =	98
Hu =	155
Hl =	146

Lab	Rating	Z-value	0	7	22	22mtb	50	51
114	4	0.30						152
119	2	-1.05		143				
127	2	1.35		159				
128	3	0.75		155				
129	4	0.00		150				
134	4	0.30		152				
138	4	-0.15		149				
140	3	0.75	155					
141	3	0.90						156
142	1	1.95				163		
145	4	-0.18		149				
146	3	0.75						155
149	2	1.50		160				
151	4	0.15		151				
158	4	0.30				152		
180	2	-1.50				140		
190	0	4.05		177				
191	4	-0.15		149				
193	4	-0.15		149				
196	3	-0.75		145				
203	0	2.70				168		
204	3	0.75				155		
212	3	0.90		156				
215	3	0.75						155
217	2	1.20		158				
219	0	-16.49		40				
220	4	-0.34						148
221	3	-0.60					146	
224	4	0.32		152				
234	4	0.45		153				
235	0	3.60	174					
236	4	0.34		152				
240	4	-0.45		147				
241	4	0.30						152
247	2	-1.08		143				
249	2	-1.39						141
253	0	-4.95						117
255	0	-4.50				120		
256	3	0.65	154					
257	0	6.75		195				
258	0	7.46						200
259	4	-0.30		148				
261	0	-20.13	16					
262	4	0.00			150			
265	3	0.75		155				
268	3	0.55		154				
271	0	-20.01						17
274	4	-0.09						149

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)--Continued*

Sp Cond (Specific Conductance) µS/cm



0. Other
41. Direct reading

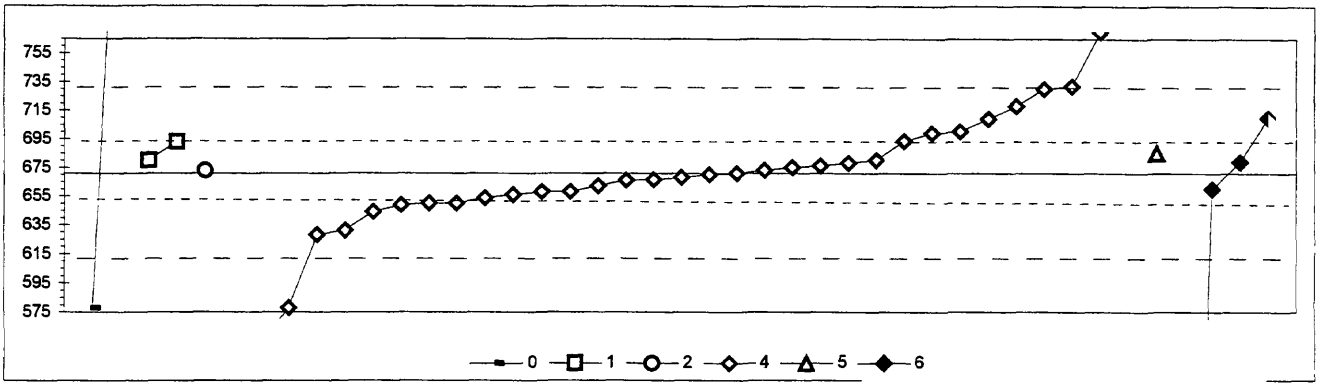
N =	1	99
Minimum =	620	70
Maximum =		719
Median =		600
F-pseudosigma =		19

MPV = 600
F-pseudosigma = 19
N = 100
Hu = 612
Hl = 587

Lab	Rating	Z-value	0	41
1	4	0.02		600
2	3	-0.76		586
3	4	0.43		608
5	3	0.65		612
7	1	-1.56		571
10	4	0.32		606
11	4	-0.16		597
13	4	0.43		608
15	4	-0.05		599
16	4	-0.12		598
18	1	-2.00		563
19	0	3.56		666
23	1	-1.73		568
24	4	0.00		600
25	4	0.38		607
26	4	0.32		606
32	4	0.05		601
33	1	-1.56		571
36	0	-28.60		70
38	3	0.65		612
39	3	-0.86		584
40	4	0.43		608
42	4	0.22		604
43	4	0.00		600
46	4	-0.05		599
48	4	0.43		608
50	2	1.19		622
51	2	-1.08		580
55	2	1.35		625
56	4	-0.14		597
57	0	3.24		660
59	3	-0.66		588
64	3	0.70		613
68	4	0.43		608
70	3	-0.70		587
75	3	0.54		610
80	4	0.00		600
81	4	0.00		600
86	2	1.30		624
87	0	-15.11		320
89	3	-0.59		589
90	0	-2.59		552
92	4	-0.17		597
96	3	0.97		618
97	2	1.35		625
102	0	6.42		719
105	3	0.81		615
107	4	-0.49		591
109	4	-0.49		591
113	3	-0.54		590
114	4	0.43		608
118	3	-0.54		590
119	4	-0.16		597
127	4	-0.27		595
128	3	0.81		615
129	3	-0.97		582
132	0	-7.72		457
134	4	0.32		606
138	4	-0.16		597
140	0	5.83		708
141	4	0.38		607
142	4	0.22		604
145	3	0.81		615
146	4	-0.27		595
149	3	0.65		612
151	4	0.11		602
155	1	1.67		631
158	4	0.49		609
180	2	1.08		620
183	0	-3.51		535
190	4	0.22		604
193	1	-1.73		568
203	4	-0.11		598
204	4	-0.32		594
212	1	2.00		637
215	2	-1.40		574
217	2	1.35		625
218	0	-2.37		556
224	0	-2.16		560
234	3	0.59		611
236	3	-0.59		589
240	2	-1.30		576
241	0	-10.03		414
243	4	-0.27		595
244	4	0.00		600
247	4	-0.27		595
249	3	0.92		617
253	2	1.35		625
255	4	-0.27		595
257	4	0.00		600
258	0	-3.29		539
259	4	0.49		609
261	0	-4.21		522
262	3	-0.97		582
268	0	-2.16		560
271	0	-2.97		545
272	0	2.43		645
273	2	1.08	620	
274	1	1.83		634
276	0	-2.70		550

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

Sr (Strontium) µg/L

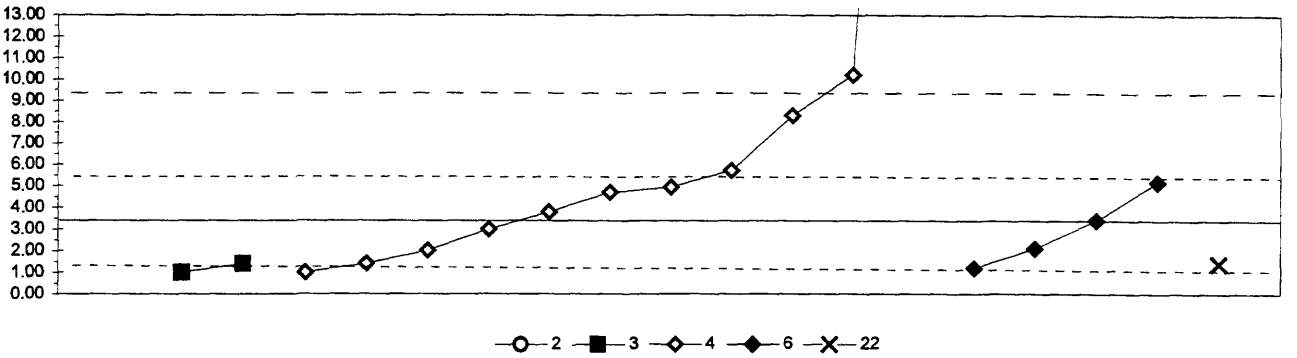


0. Other				4. ICP				
1. AA: direct air				5. DCP				
2. AA: direct nitrous oxide				6. ICP/MS				
		N =	2	2	1	33	1	4
		Minimum =	578	680	673	17	685	1
		Maximum =	958	693		784		710
		Median =				668		
		F-pseudosigma =				32		
Lab	Rating	Z-value	0	1	2	4	5	6
1	4	-0.15				666		
3	0	3.67				784		
5	4	-0.03				670		
11	0	-21.27				17		
16	2	-1.40				628		
18	3	-0.68				650		
23	3	0.72		693				
24	4	0.16				676		
25	1	1.92				730		
28	4	0.00				671		
32	4	0.26						679
33	4	0.46					685	
40	3	-0.68				650		
42	4	-0.49				656		
55	3	-0.88				644		
68	4	0.13				675		
70	4	0.07				673		
81	4	-0.29				662		
85	1	1.53				718		
86	4	-0.16				666		
97	0	-3.02	578					
102	1	1.98				732		
105	0	-3.80				554		
113	4	0.29				680		
121	4	0.23				678		
127	2	-1.30				631		
134	3	-0.57				654		
138	4	-0.42				658		
142	3	0.73				694		
145	3	0.91				699		
151	2	1.27						710
190	0	9.33	958					
191	0	-21.79						1
212	4	-0.36						660
217	0	-3.02				578		
218	4	0.07			673			
219	3	0.94				700		
234	4	-0.10				668		
235	2	1.24				709		
236	3	-0.73				649		
259	4	0.29		680				
265	4	-0.42				658		
273	0	3.22				770		

MPV =	671
F-pseudosigma =	31
N =	43
Hu =	693
Hl =	652

Table 14. *Statistical summary of reported data for standard reference water sample M-140 (major constituents)–Continued*

V (Vanadium) µg/L



2. AA: direct nitrous oxide				6. ICP/MS			
3. AA: graphite furnace				22. Colorimetric			
4. ICP				0. Other			
		N =	1	2	11	4	1
		Minimum =	39.00	1.00	1.00	1.20	1.40
		Maximum =		1.40	50.00	5.19	
		Median =			4.70		
		F-pseudosigma =			3.34		

MPV =	3.42
F-pseudosigma =	3.01
N =	19
Hu =	5.46
Hl =	1.40

Lab	Rating	Z-value	2	3	4	6	22
1	3	-0.67					1.40
3	4	-0.14			3.00		
5	NR				< 4		
13	NR				< 50		
15	NR				< 10		
16	3	0.59				5.19	
18	NR				< 5		
23	NR			< 5			
26	NR				< 4		
28	0	2.25			10.20		
42	NR					< 5	
48	NR				< 200		
57	NR				< 100		
68	0	15.48			50.00		
70	NR				< 50		
81	NR				< 3		
85	NR				< 20		
86	3	0.77			5.73		
89	NR			< 10			
97	NR			< 0			
105	NR				< 13		
127	3	-0.67		1.40			
134	NR				< 1		
138	NR					< 2	
141	NR				< 10		
142	4	0.00				3.42	
145	4	0.43			4.70		
146	NR				< 10		
180	3	0.51			4.95		
212	4	-0.44				2.10	
219	3	-0.80			1.00		
224	1	1.62			8.30		
234	4	-0.47			2.02		
235	NR				< 5		
236	4	0.13			3.80		
241	3	-0.80		1.00			
255	3	-0.67			1.40		
257	0	11.82	39.00				
265	3	-0.74				1.20	

Table 15. *Statistical summary of reported data for standard reference water sample N-51 (nutrients)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0. Other/Not reported		
4. ICP	=	inductively coupled plasma
5. DCP	=	direct coupled plasma
7. IC	=	ion chromatography
20. Titrate: color	=	titration: colorimetric (color reagent specified)
21. Titrate: electro	=	titration: electrmetric
22. Color:	=	colorimetric [color reagent specified]
40. Ion electrode	=	ion selective electrode

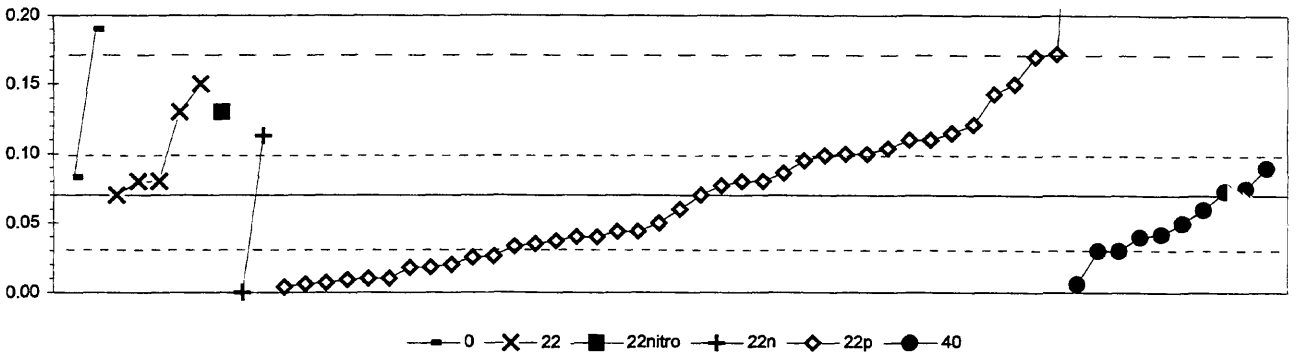
Abbreviations and symbols

N	=	number of samples
MPV	=	most probable value
F-pseudosigma	=	nonparametric statistic deviation
Hu	=	upper hinge value
Hl	=	lower hinge value
mg/L	=	milligrams per liter
Lab	=	laboratory code number
NR	=	not rated, less than value reported
<	=	less than

Constituent		page
NH_3 as N	Ammonia as nitrogen	120
NH_3+Org N as N	Ammonia plus organic nitrogen	121
NO_3+NO_2 as N	Nitrate plus nitrite as nitrogen	122
Total P as P	Total Phosphorus as phosphorus	123
PO_4 as P	Orthophosphate as phosphorus	124

Table 15. *Statistical summary of reported data for standard reference water sample N-51 (nutrient constituents)--Continued*

NH_3 as N (Ammonia as nitrogen) mg/L



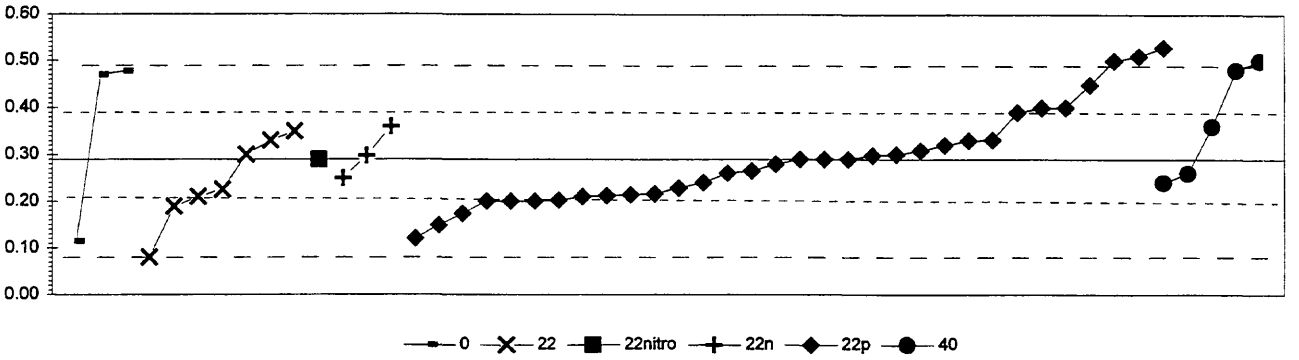
0. Other			22n. Color: Nesslerization				
22. Colorimetric			22p. Color: phenate				
22nitro. Color: nitroprusside			40. Ion selective electrode				
N =	2	5	1	2	39	10	
Minimum =	0.08	0.07	0.13	0.00	0.00	0.01	
Maximum =	0.19	0.15		0.11	0.34	0.09	
Median =					0.06	0.05	
F-pseudosigma =					0.06	0.03	

MPV = 0.07
F-pseudosigma = 0.05
N = 59
Hu = 0.10
HI = 0.03

Lab	Rating	Z-value	0	22	22nitro	22n	22p	40
1	3	-0.85					0.03	
2	4	-0.39						0.05
5	1	1.54					0.15	
7	2	1.16			0.13			
10	4	0.39						0.09
11	1	1.93					0.17	
13	NR						< 0.02	
15	NR						< 0.05	
16	4	0.25	0.08					
18	2	1.41					0.14	
21	2	-1.23					0.01	
23	NR						< 0.1	
25	4	0.19		0.08				
28	0	5.20					0.34	
33	3	-0.64					0.04	
38	2	-1.21					0.01	
39	3	0.58					0.10	
48	3	0.77					0.11	
53	3	0.83				0.11		
55	3	0.87					0.12	
56	3	-0.58						0.04
58	3	-0.77						0.03
59	4	-0.39					0.05	
64	4	-0.19					0.06	
68	1	1.54		0.15				
70	NR						< 0.1	
80	NR					< 0.02		
81	NR						< 0.05	
83	NR			< 0.01				
85	3	-0.71					0.03	
87	4	0.00					0.07	
88	4	-0.50					0.04	
89	3	-1.00					0.02	
90	4	0.13					0.08	
91	NR						< 0.03	
96	4	0.31					0.09	
97	3	0.56					0.10	
104	2	-1.18					0.01	
105	4	0.19		0.08				
110	4	0.48					0.10	
114	NR							< 0.1
118	3	-0.58					0.04	
119	3	-0.77						0.03
127	3	-1.00					0.02	
128	3	0.77					0.11	
129	NR	-1.35				0.00		
132	4	0.19					0.08	
133	4	0.10						0.08
134	4	-0.50					0.04	
138	3	-0.87					0.03	
140	4	0.00		0.07				
141	1	1.97					0.17	
142	3	-0.96					0.02	
143	2	-1.16					0.01	
145	NR						< 0.02	
146	NR						< 0.03	
149	2	-1.16					0.01	
151	4	-0.19						0.06
155	3	0.66					0.10	
158	3	-0.67					0.04	
180	NR						< 0.02	
190	3	0.58					0.10	
197	2	1.16		0.13				
203	4	0.19					0.08	
204	NR						< 0.005	
212	NR						< 0 1	
213	NR		< 1					
215	NR						< 0.01	
220	2	-1.27					0.00	
221	3	-0.54						0.04
224	2	1.02					0.12	
234	4	0.06						0.07
240	0	2.31	0.19					
241	2	-1.23						0.01
243	3	-0.58					0.04	

Table 15. *Statistical summary of reported data for standard reference water sample N-51 (nutrient constituents)--Continued*

NH_3 + Org. N as N (Ammonia + Organic nitrogen as nitrogen) mg/L



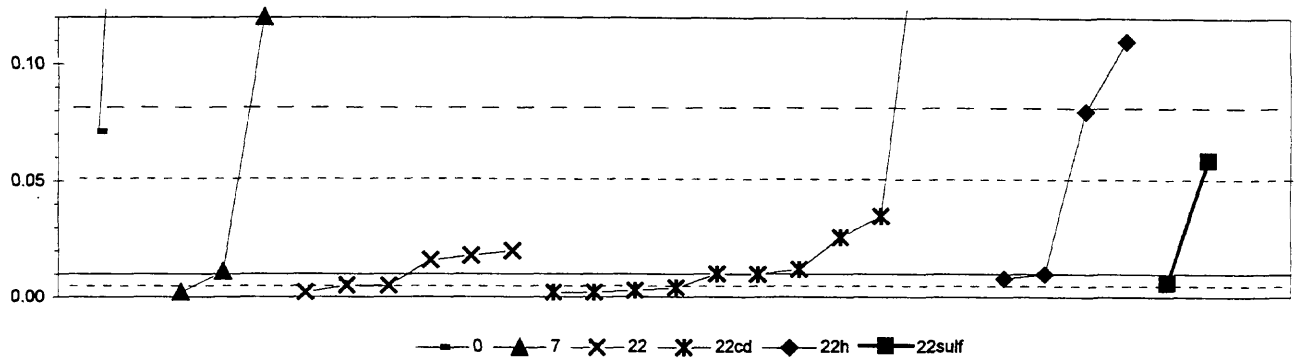
0. Other			22n. Color: Nesslerization				
22. Colorimetric			22p. Color: phenate				
22nitro. Color: nitroprusside			40. Ion selective electrode				
	N =	3	7	1	3	31	5
	Minimum =	0.11	0.08	0.29	0.25	0.12	0.24
	Maximum =	0.48	0.35		0.36	0.53	0.50
	Median =		0.23			0.28	
	F-pseudosigma =		0.09			0.09	

MPV =	0.29
F-pseudosigma =	0.10
N =	51
Hu =	0.35
HI =	0.21

Lab	Rating	Z-value	0	22	22nitro	22n	22p	40
1	3	-0.72					0.22	
2	0	2.07						0.50
10	4	-0.29					0.26	
11	3	0.69				0.36		
15	0	2.35					0.53	
16	1	-1.73	0.11					
18	2	-1.15					0.17	
21	4	0.00					0.29	
23	0	2.07					0.50	
25	0	-2.06		0.08				
38	4	-0.39				0.25		
48	3	0.99					0.39	
55	4	0.09		0.30				
56	3	-0.64		0.23				
58	1	1.88						0.48
59	3	-0.88					0.20	
68	4	0.40		0.33				
70	4	0.00					0.29	
81	2	1.08					0.40	
85	3	-0.88					0.20	
87	1	-1.67					0.12	
89	2	-1.39					0.15	
91	4	0.30					0.32	
96	3	-0.61					0.23	
97	4	0.41					0.33	
102	4	0.10					0.30	
104	4	-0.24					0.27	
105	NR			< 0.2				
118	4	-0.49					0.24	
119	3	0.69						0.36
127	4	0.18					0.31	
128	3	-0.88					0.20	
129	4	0.07				0.30		
133	4	-0.49						0.24
134	4	0.08					0.30	
138	4	-0.10					0.28	
140	3	-0.78		0.21				
141	NR					< 1		
142	3	-0.86					0.20	
143	4	0.00					0.29	
145	3	-0.78					0.21	
155	3	-0.75					0.21	
180	3	-0.76					0.21	
190	2	1.09					0.40	
203	3	0.59		0.35				
204	3	-1.00		0.19				
212	4	0.40					0.33	
213	NR		< 1					
215	0	2.17					0.51	
221	1	1.85	0.48					
224	1	-1.58					0.45	
240	1	1.78	0.47					
241	4	-0.29						0.26
253	4	0.00			0.29			

Table 15. *Statistical summary of reported data for standard reference water sample N-51 (nutrient constituents)--Continued*

$NO_3 + NO_2$ as N (Nitrate + nitrite as nitrogen) mg/L



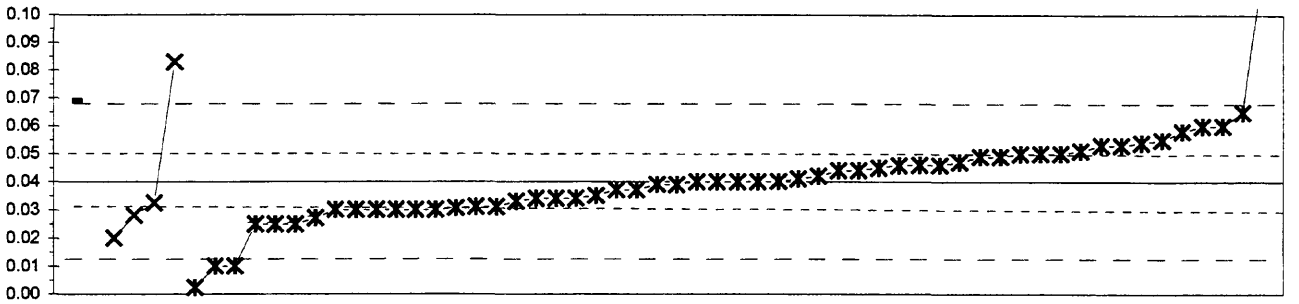
0. Other			22cd. Cd diazotization				
7. Ion chromatography			22h. Color: hydrazine diazotization				
22. Colorimetric			22sulf. Color: sulfanilamide				
	N =	2	3	6	11	4	2
	Minimum =	0.07	0.00	0.00	0.00	0.01	0.01
	Maximum =	0.40	0.12	0.02	1.16	0.11	0.06
	Median =				0.01		
	F-pseudosigma =				0.02		

MPV =	0.01
F-pseudosigma =	0.04
N =	28
Hu =	0.05
Hl =	0.01

Lab	Rating	Z-value	0	7	22	22cd	22h	22sulf
1	NR					< 0.005		
2	NR			< 0.02				
5	NR					< 0.03		
7	NR						< 0.05	
10	NR					< 0.01		
13	NR			< 0.06				
15	NR					< 0.02		
16	1	1.69	0.07					
18	NR					< 0.01		
21	4	-0.03					0.01	
23	NR					< 0.05		
25	4	-0.17			0.01			
36	NR					< 0.05		
38	4	-0.25				0.00		
48	NR						< 0.08	
53	0	10.79	0.40					
56	NR				< 0.02			
59	NR					< 0.04		
64	NR					< 0.02		
68	4	-0.17			0.01			
69	NR					< 0.05		
70	NR					< 0.1		
75	NR					< 0.1		
80	NR		< 0.01					
81	4	-0.08					0.01	
83	NR		< 0.02					
85	3	0.67				0.04		
87	NR					< 0.01		
88	0	32.29				1.16		
89	NR					< 0.05		
91	NR						< 0.02	
92	4	-0.03				0.01		
96	NR						< 0.05	
97	NR					< 0.003		
104	4	-0.20				0.00		
105	NR				< 0.04			
113	NR					< 0.015		
114	NR					< 0.04		
118	1	1.94					0.08	
119	4	0.00		0.01				
127	NR			< 0.01				
128	NR			< 0.01				
129	4	-0.25		0.00				
132	0	2.78					0.11	
133	0	4.64				0.18		
134	4	-0.25				0.00		
138	NR					< 0.005		
140	4	-0.25			0.00			
141	NR					< 0.05		
142	4	0.20			0.02			
143	4	0.42				0.03		
145	NR					< 0.02		
146	NR					< 0.05		
149	0	3.06		0.12				
151	NR					< 0.05		
155	4	-0.23				0.00		
158	NR						< 0.02	
180	NR					< 0.01		
190	4	0.03				0.01		
191	NR			< 0.01				
193	NR					< 0.02		
196	NR			< 0.05				
197	4	0.25			0.02			
203	NR							< 0.02
204	NR						< 0.02	
212	NR					< 0.1		
215	NR				< 0.01			
220	4	-0.14						0.01
221	4	0.14			0.02			
224	2	-1.23						0.06
234	NR			< 0.01				
240	NR			< 0.1				
241	4	-0.03				0.01		
243	NR					< 0.01		
247	NR			< 0.01				

Table 15. *Statistical summary of reported data for standard reference water sample N-51 (nutrient constituents)--Continued*

total P as P (total Phorphorus as phosphorus) mg/L



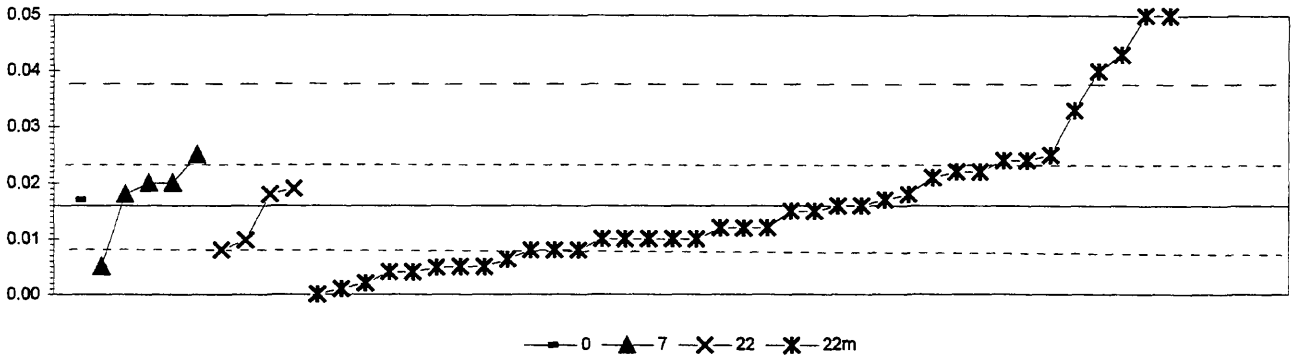
0. Other			22m. Color:phosphomolybdate			
4. ICP						
22. Colorimetric						
		N =	1	0	4	56
		Minimum =	0.07	< 0.075	0.02	0.00
		Maximum =			0.08	0.14
		Median =				0.04
		F-pseudosigma =				0.01

MPV = 0.04
F-pseudosigma = 0.01
N = 61
Hu = 0.05
Hl = 0.03

Lab	Rating	Z-value	0	4	22	22m
1	3	-0.70				0.03
2	4	0.49				0.05
10	3	0.63				0.05
11	4	-0.21				0.04
13	NR					< 0.05
15	0	5.48				0.12
16	1	2.04	0.07			
18	3	-0.70				0.03
21	4	-0.21				0.04
22	2	1.26				0.06
23	NR					< 0.1
36	NR					< 0.05
38	2	1.05				0.06
39	0	-2.65				0.00
46	3	-0.91				0.03
48	4	0.00				0.04
55	4	0.07				0.04
56	3	-0.53			0.03	
58	0	6.32				0.13
59	3	-0.70				0.03
68	0	3.02			0.08	
70	NR					< 0.1
81	4	-0.42				0.03
83	NR			< 0.075		
85	4	-0.07				0.04
87	3	0.91				0.05
89	4	0.28				0.04
91	3	0.70				0.05
92	4	-0.49				0.03
96	3	-0.63				0.03
97	0	-2.11				0.01
102	2	-1.05				0.03
104	4	0.42				0.05
105	2	-1.41			0.02	
113	4	-0.42				0.03
114	4	0.14				0.04
118	0	-2.11				0.01
119	2	1.41				0.06
127	NR					< 0.01
129	4	-0.07				0.04
132	3	-0.70				0.03
133	4	0.00				0.04
134	4	-0.35				0.04
138	3	0.70				0.05
140	NR				< 0.02	
141	2	1.41				0.06
142	3	0.77				0.05
143	4	0.42				0.05
145	4	0.00				0.04
146	NR					< 0.1
149	4	0.28				0.04
151	3	0.63				0.05
155	3	-0.66				0.03
158	3	-0.63				0.03
180	4	0.42				0.05
183	3	0.91				0.05
190	0	6.89				0.14
193	3	-0.70				0.03
203	4	0.35				0.05
204	2	-1.05				0.03
212	3	0.98				0.05
213	4	0.00				0.04
215	4	0.00				0.04
221	3	-0.84			0.03	
224	3	-0.84				0.03
234	3	-0.70				0.03
240	1	1.76				0.07
241	4	-0.42				0.03
243	3	0.70				0.05

Table 15. *Statistical summary of reported data for standard reference water sample N-51 (nutrient constituents)–Continued*

PO_4 as P (orthophosphate as phosphorus) mg/L



0. Other			22m. Color:phosphomolybdate		
7. Ion chromatography					
22. Colorimetric					
N =	1	5	4	42	
Minimum =	0.02	0.01	0.01	0.00	
Maximum =		0.03	0.02	0.14	
Median =				0.02	
F-pseudosigma =				0.01	

MPV = 0.02
F-pseudosigma = 0.01
N = 52
Hu = 0.02
HI = 0.01

Lab	Rating	Z-value	0	7	22	22m
1	NR					< 0.001
2	2	-1.08				0.00
5	0	2.43				0.04
10	4	0.45				0.02
13	NR			< 0.05		
15	NR					< 0.02
16	4	0.09	0.02			
18	4	0.00				0.02
21	4	-0.09				0.02
23	NR					< 0.1
25	4	-0.09				0.02
28	0	2.16				0.04
33	NR			< 0.01		
36	NR					< 0.05
38	3	-0.54				0.01
39	3	-0.72				0.01
46	3	-0.99				0.01
48	4	0.09				0.02
53	0	9.08				0.12
55	0	5.49				0.08
56	4	0.18			0.02	
58	0	7.55				0.10
59	NR					< 0.01
64	3	-0.54				0.01
70	NR					< 0.1
80	NR					< 0.05
81	NR					< 0.005
83	3	-0.56			0.01	
85	4	0.00				0.02
87	3	-0.72				0.01
88	0	3.06				0.05
89	3	-0.72				0.01
92	3	0.72				0.02
96	NR					< 0.01
97	4	-0.36				0.01
102	2	-1.08				0.00
104	3	-0.99				0.01
105	4	0.27			0.02	
113	NR					< 0.004
118	NR					< 0.01
119	NR	-1.44				0.00
127	NR			< 0.05		
128	NR			< 0.01		
129	3	0.81				0.03
132	3	-0.54				0.01
133	3	-0.54				0.01
134	2	-1.26				0.00
138	2	-1.01				0.00
140	NR				< 0.01	
141	0	3.06				0.05
142	0	6.03				0.08
143	4	-0.36				0.01
145	NR					< 0.01
146	NR					< 0.05
149	4	0.36		0.02		
151	3	0.81		0.03		
155	3	-0.87				0.01
158	3	0.54				0.02
180	NR					< 0.01
183	1	1.53				0.03
190	0	11.33				0.14
191	4	0.36		0.02		
196	NR		< 0.05			
203	3	0.54				0.02
204	4	-0.36				0.01
212	3	-0.54				0.01
213	NR					< 0.02
215	NR					< 0.01
220	2	-1.35				0.00
221	3	-0.72			0.01	
224	3	0.72				0.02
234	3	-0.99		0.01		
240	NR			< 0.1		
241	4	0.18				0.02
247	4	0.18		0.02		

Table 16. *Statistical summary of reported data for standard reference water sample N-52 (nutrients)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0. Other/Not reported		
4. ICP	=	inductively coupled plasma
5. DCP	=	direct coupled plasma
7. IC	=	ion chromatography
20. Titrate: color	=	titration: colorimetric (color reagent specified)
21. Titrate: electro	=	titration: electrometric
22. Color:	=	colorimetric [color reagent specified]
40. Ion electrode	=	ion selective electrode

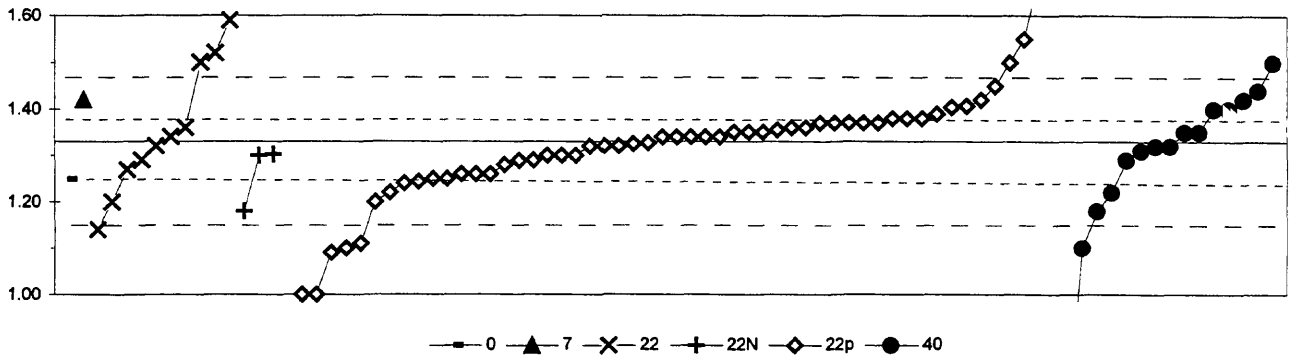
Abbreviations and symbols

N =	number of samples
MPV =	most probable value
F-pseudosigma =	nonparametric statistic deviation
Hu =	upper hinge value
Hl =	lower hinge value
mg/L =	milligrams per liter
Lab =	laboratory code number
NR =	not rated, less than value reported
< =	less than

Constituent		page
NH_3 as N	Ammonia as nitrogen	126
NH_3+Org N as N	Ammonia plus organic nitrogen	127
NO_3+NO_2 as N	Nitrate plus nitrite as nitrogen	128
Total P as P	Total Phosphorus as phosphorus	129
PO_4 as P	Orthophosphate as phosphorus	130

Table 16. *Statistical summary of reported data for standard reference water sample N-52 (nutrient constituents)--Continued*

NH_3 as N (Ammonia as nitrogen) mg/L



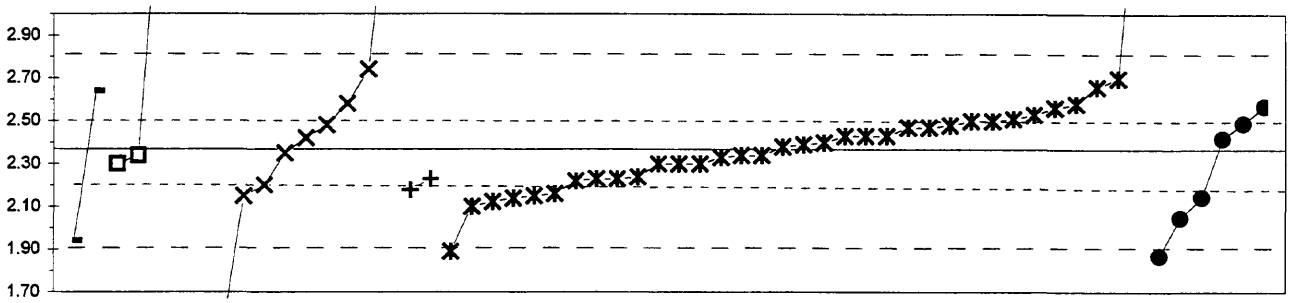
0. Other			22n. Color: Nesslerization					
7. Ion chromatography			22p. Color: phenate					
22. Colorimetric			40. Ion selective electrode					
		N =	1	1	10	3	54	15
		Minimum =	1.25	1.42	1.14	1.18	0.93	0.74
		Maximum =			1.59	1.30	3.57	1.50
		Median =			1.33		1.34	1.32
		F-pseudosigma =			0.17		0.08	0.11
Lab	Rating	Z-value	0	7	22	22N	22p	40
1	4	0.40					1.36	
3	3	-0.66			1.27			
5	3	0.63					1.38	
7	0	-2.65					1.10	
10	4	-0.07						1.32
11	2	1.10					1.42	
13	4	-0.30					1.30	
15	0	-2.53					1.11	
16	3	-0.89	1.25					
18	3	0.52					1.37	
19	4	0.16					1.34	
23	0	-4.65					0.93	
25	0	-2.18			1.14			
26	2	1.10		1.42				
33	2	-1.24					1.22	
36	2	1.34						1.44
38	4	-0.01					1.33	
46	4	-0.07					1.32	
48	2	-1.48					1.20	
53	4	-0.27				1.30		
55	3	0.52					1.37	
56	1	2.04						1.50
57	2	-1.24						1.22
58	1	-1.71						1.18
59	4	0.28					1.35	
64	4	0.16					1.34	
68	0	3.10			1.59			
70	2	-1.01					1.24	
76	4	-0.42					1.29	
80	4	-0.30				1.30		
81	1	2.04					1.50	
83	2	-1.48			1.20			
85	3	-0.89					1.25	
86	3	0.52					1.37	
87	0	-3.82					1.00	
88	0	-2.77					1.09	
89	4	-0.07					1.32	
90	3	0.63					1.38	
91	4	0.16					1.34	
96	3	0.52					1.37	
97	4	0.16					1.34	
102	0	-3.82					1.00	
104	4	0.01					1.33	
105	4	0.40			1.36			
107	3	0.75					1.39	
108	4	-0.42						1.29
113	3	0.63					1.38	
114	0	-2.65						1.10
118	3	-0.77					1.26	
119	2	1.10						1.42

MPV =	1.33
F-pseudosigma =	0.09
N =	84
Hu =	1.38
HI =	1.26

Lab	Rating	Z-value	0	7	22	22N	22p	40
127	0	4.15					1.68	
128	4	-0.30					1.30	
129	1	-1.71				1.18		
132	4	-0.07			1.32			
133	4	0.28						1.35
134	3	0.52					1.37	
138	3	-0.54					1.28	
140	0	2.28			1.52			
141	3	-0.77					1.26	
142	3	-0.77					1.26	
143	4	0.16					1.34	
145	2	1.45					1.45	
146	0	26.32					3.57	
155	4	-0.43					1.29	
158	4	0.34					1.36	
180	4	-0.07					1.32	
190	0	2.63					1.55	
197	4	0.16			1.34			
203	3	0.95					1.41	
204	4	0.28					1.35	
212	4	-0.30					1.30	
213	1	2.04			1.50			
215	4	0.28					1.35	
220	4	0.40					1.36	
221	4	-0.19						1.31
224	3	0.91					1.40	
234	3	0.87						1.40
240	4	-0.07						1.32
241	4	0.28						1.35
243	3	-0.97					1.24	
248	3	0.87						1.40
249	0	-6.87						0.74
253	4	-0.42			1.29			
255	3	-0.89					1.25	

Table 16. *Statistical summary of reported data for standard reference water sample N-52 (nutrient constituents)–Continued*

NH_3 + Org N as N (Ammonia + Organic nitrogen as nitrogen) mg/L



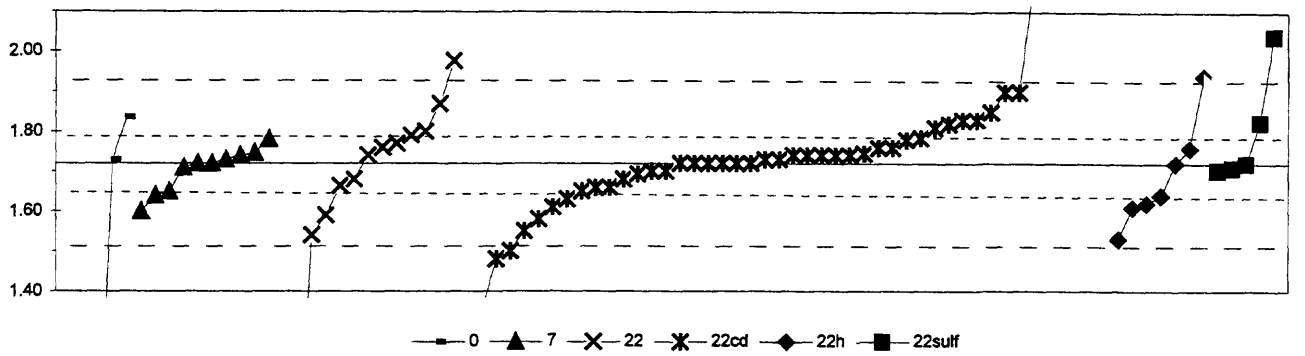
0. Other			22n. Color: Nesslerization				
20. Titrate: colorimetric			22p. Color: phenate				
22. Colorimetric			40. Ion selective electrode				
	N =	2	4	10	2	34	6
	Minimum =	1.94	2.30	1.44	2.18	1.89	1.87
	Maximum =	2.64	4.00	3.62	2.23	3.70	2.57
	Median =			2.39		2.39	
	F-pseudosigma =			0.32		0.20	

MPV = 2.37
F-pseudosigma = 0.22
N = 58
Hu = 2.50
HI = 2.20

Lab	Rating	Z-value	0	20	22	22N	22p	40
1	3	-0.92					2.16	
3	3	-0.74			2.20			
10	3	0.52					2.48	
11	3	0.97			2.58			
15	3	0.97					2.58	
16	1	-1.91	1.94					
18	0	-2.14					1.89	
25	2	1.24	2.64					
36	3	-0.97			2.15			
38	3	-0.61				2.23		
46	3	-0.56					2.24	
48	4	-0.29					2.30	
55	4	0.16					2.40	
56	1	1.69			2.74			
57	0	5.55		3.60				
58	3	0.56						2.49
59	4	-0.29					2.30	
68	4	0.25			2.42			
70	4	-0.11					2.34	
81	3	-0.97					2.15	
85	4	0.29					2.43	
87	2	-1.19					2.10	
89	3	-0.65					2.22	
91	4	0.29					2.43	
96	4	0.11					2.39	
97	3	-0.61					2.23	
102	3	-0.61					2.23	
104	4	0.29					2.43	
105	0	-3.89			1.50			
108	4	-0.11		2.34				
113	2	-1.01					2.14	
118	4	0.47					2.47	
119	0	-2.23						1.87
127	2	1.33					2.66	
128	3	0.61					2.50	
129	3	-0.84				2.18		
133	2	-1.42						2.05
134	4	-0.29					2.30	
138	4	0.07					2.38	
140	4	-0.07			2.35			
141	3	0.88					2.56	
142	4	-0.16					2.33	
143	3	0.74					2.53	
145	4	-0.11					2.34	
155	2	-1.09					2.12	
180	4	0.47					2.47	
190	1	1.51					2.70	
203	0	-4.15			1.44			
204	3	0.52			2.48			
212	3	0.61					2.50	
213	0	7.35		4.00				
215	3	0.65					2.51	
221	4	-0.29		2.30				
224	0	6.02					3.70	
240	4	0.25						2.42
241	3	-0.98						2.15
249	3	0.92						2.57
253	0	5.64			3.62			
255	NR				< 5			

Table 16. *Statistical summary of reported data for standard reference water sample N-52 (nutrient constituents)--Continued*

$NO_3 + NO_2$ as N (Nitrate + nitrite as nitrogen) mg/L



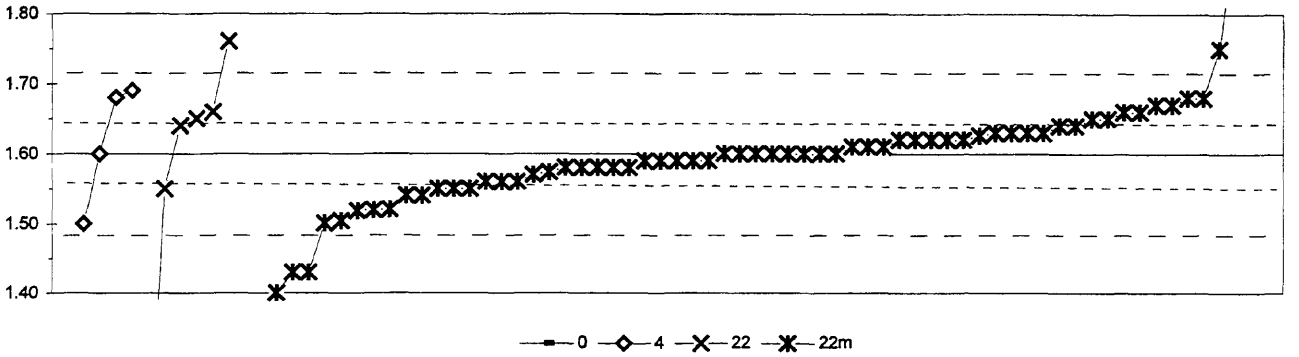
0. Other			22cd. Cd diazotization					
7. Ion chromatography			22h. Color: hydrazine diazotization					
22. Colorimetric			22sulf. Color: sulfanilamide					
		N =	5	11	12	46	7	5
		Minimum =	0.15	1.60	0.92	1.30	1.53	1.70
		Maximum =	1.84	28.10	1.98	16.40	1.94	2.04
		Median =		1.72	1.75	1.74	1.64	
		F-pseudosigma =		0.05	0.12	0.10	0.09	

MPV =	1.72
F-pseudosigma =	0.10
N =	86
Hu =	1.79
Hl =	1.65

Lab	Rating	Z-value	0	7	22	22cd	22h	22sulf
1	4	-0.24				1.70		
3	3	0.73			1.80			
5	0	-4.09				1.30		
7	1	-1.78			1.54			
10	4	0.15				1.74		
11	4	-0.14						1.71
13	4	-0.04		1.72				
15	4	-0.04						1.72
16	4	0.04	1.73					
18	2	1.02				1.83		
19	3	0.53				1.78		
25	4	0.44			1.77			
30	4	0.15		1.74				
36	1	1.69				1.90		
38	4	-0.23				1.70		
42	0	254.15		28.10				
46	0	-2.36				1.48		
48	2	-1.10					1.61	
53	2	1.07	1.84					
55	4	0.05				1.73		
56	3	0.63			1.79			
57	1	1.89				1.90		
59	4	0.15				1.74		
64	4	-0.04				1.72		
68	4	-0.43			1.68			
69	4	0.34				1.76		
70	2	-1.39				1.58		
75	2	-1.10				1.81		
80	0	-8.33	0.86					
81	4	-0.04					1.72	
83	2	-1.30			1.59			
85	1	-1.68				1.55		
86	4	-0.04				1.72		
87	4	0.15				1.74		
88	0	7.38				2.49		
89	4	-0.04				1.72		
91	2	-1.01					1.62	
92	3	0.58				1.79		
96	3	-0.81					1.64	
97	3	-0.72				1.65		
102	2	1.02				1.83		
104	4	-0.29				1.69		
105	4	0.34			1.76			
107	4	0.15				1.74		
108	4	0.20				1.75		
113	0	-2.16				1.50		
114	0	5.45				2.29		
118	0	2.08					1.94	
119	3	-0.81		1.64				
127	4	-0.14		1.71				
128	4	-0.04		1.72				
129	4	0.21		1.75				
132	1	-1.87					1.53	
133	0	4.20				2.16		
134	4	0.05				1.73		
138	3	-0.62				1.66		
140	3	-0.58			1.66			
141	4	-0.04				1.72		
142	0	2.42			1.98			
143	2	1.21				1.85		
145	4	-0.43				1.68		
146	0	27.13				4.54		
155	3	-0.63				1.66		
158	4	0.33					1.76	
180	4	0.15				1.74		
183	0	-15.17	0.15					
190	3	0.92				1.82		
191	4	0.05		1.73				
193	3	-0.91				1.63		
197	4	0.15			1.74			
203	3	0.97						1.83
204	0	-3.61				1.35		
212	0	141.41				16.40		
215	4	-0.04				1.72		
220	0	3.04						2.04
221	2	1.40			1.87			
224	4	-0.21						1.70
234	3	-0.72		1.65				
240	2	-1.20		1.60				
241	3	0.82				1.81		
243	4	0.34				1.76		
247	3	0.54		1.78				
248	0	-9.26	0.76					
249	0	48.04				6.71		
253	0	-7.75			0.92			
255	4	-0.04				1.72		

Table 16. *Statistical summary of reported data for standard reference water sample N-52 (nutrient constituents)–Continued*

total P as P (toral Phorphorus as phosphorus) mg/L



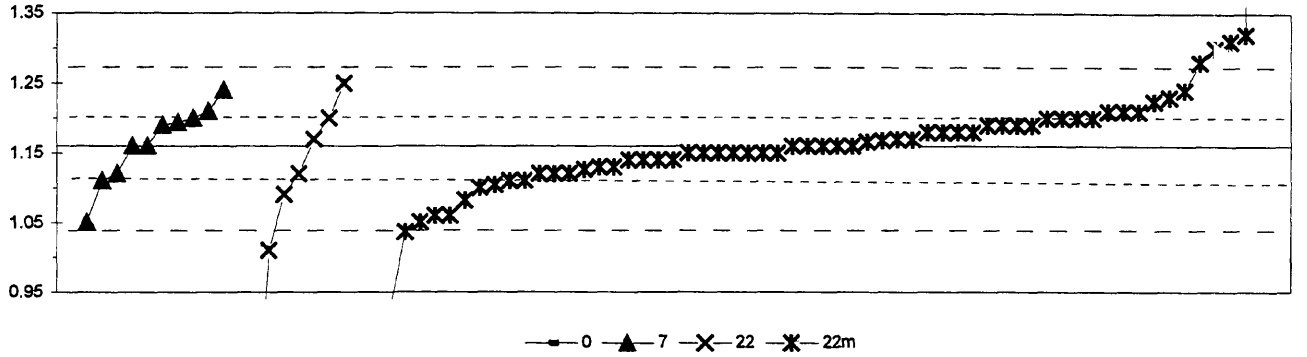
0. Other			22m. Color:phosphomolybdate			
4. ICP						
22. Colorimetric						
		N =	1	4	6	65
		Minimum =	1.97	1.50	1.10	0.82
		Maximum =		1.69	1.76	4.03
		Median =				1.60
		F-pseudosigma =				0.05

MPV = 1.60
F-pseudosigma = 0.06
N = 76
Hu = 1.64
Hl = 1.56

Lab	Rating	Z-value	0	4	22	22m
1	3	-0.84				1.55
3	3	-0.84			1.55	
7	3	0.67				1.64
10	4	0.34				1.62
11	4	-0.34				1.58
13	4	0.17				1.61
15	2	1.35				1.68
16	0	6.24	1.97			
18	4	-0.17				1.59
19	3	0.67				1.64
22	4	-0.17				1.59
23	0	-2.87				1.43
25	2	1.35		1.68		
36	0	-3.37				1.40
38	4	-0.44				1.57
42	1	-1.69		1.50		
46	3	-0.84				1.55
48	1	-1.69				1.50
55	3	-0.67				1.56
56	0	-8.43			1.10	
57	4	0.00				1.60
58	2	-1.01				1.54
59	4	0.00				1.60
68	3	0.67			1.64	
70	4	0.34				1.62
81	4	-0.17				1.59
83	4	0.00		1.60		
85	4	0.17				1.61
86	1	1.52		1.69		
87	3	0.51				1.63
89	4	0.34				1.62
91	3	0.51				1.63
92	4	0.00				1.60
96	4	-0.34				1.58
97	2	-1.38				1.52
102	3	-0.51				1.57
104	4	0.17				1.61
105	3	0.84			1.65	
107	2	1.01				1.66
113	4	0.00				1.60
114	4	0.00				1.60
118	0	5.06				1.90
119	4	0.34				1.62
127	2	-1.01				1.54
129	1	-1.62				1.50
132	3	0.51				1.63
133	3	0.51				1.63
134	3	0.84				1.65
138	2	-1.35				1.52
140	2	1.01			1.66	
141	4	-0.17				1.59
142	3	0.84				1.65
143	4	0.00				1.60
145	2	1.01				1.66
146	0	40.98				4.03
155	2	-1.37				1.52
158	4	0.00				1.60
180	2	1.35				1.68
183	4	-0.34				1.58
190	0	-6.41				1.22
193	2	1.18				1.67
203	4	0.44				1.63
204	4	-0.17				1.59
212	4	0.00				1.60
213	4	-0.34				1.58
215	0	-13.15				0.82
221	0	2.70			1.76	
224	3	-0.84				1.55
234	4	0.34				1.62
240	0	7.25				2.03
241	3	-0.67				1.56
243	2	1.18				1.67
248	3	-0.67				1.56
249	0	2.53				1.75
253	0	-2.87				1.43
255	4	-0.34				1.58

Table 16. *Statistical summary of reported data for standard reference water sample N-52 (nutrient constituents)--Continued*

PO_4 as P (orthophosphate as phosphorus) mg/L



0. Other				22m. Color:phosphomolybdate		
7. Ion chromatography						
22. Colorimetric						
		N =	1	10	8	62
		Minimum =	1.45	1.05	0.58	0.12
		Maximum =		1.24	1.25	3.49
		Median =		1.18	1.11	1.16
		F-pseudosigma =		0.06	0.26	0.05

MPV = 1.16
F-pseudosigma = 0.06
N = 81
Hu = 1.20
Hl = 1.12

Lab	Rating	Z-value	0	7	22	22m
1	3	0.67				1.20
3	3	-0.67			1.12	
5	3	-0.67				1.12
7	1	-1.85		1.05		
10	3	0.67				1.20
11	3	-0.51				1.13
13	3	0.67		1.20		
15	4	-0.17				1.15
16	0	4.89	1.45			
18	3	0.51				1.19
19	4	-0.34				1.14
23	4	-0.34				1.14
25	4	0.17				1.17
26	2	1.35		1.24		
30	4	0.00		1.16		
33	3	-0.67		1.12		
36	4	-0.17				1.15
38	3	-0.57				1.13
42	0	-9.80			0.58	
46	0	-17.54				0.12
48	1	-1.85				1.05
53	0	39.32				3.49
55	3	0.84				1.21
56	0	-8.38			0.66	
57	0	2.36				1.30
58	0	-4.05				0.92
59	4	0.00				1.16
64	4	0.10				1.17
70	4	0.00				1.16
80	2	1.35				1.24
81	1	-1.69				1.06
83	3	0.67			1.20	
85	4	-0.17				1.15
87	3	0.51				1.19
88	3	-0.84				1.11
89	4	0.00				1.16
92	4	0.34				1.18
96	4	-0.34				1.14
97	4	0.00				1.16
102	3	-0.84				1.11
104	4	0.13				1.17
105	4	0.17			1.17	
107	3	-0.67				1.12
108	1	2.02				1.28
113	4	-0.17				1.15
118	4	0.34				1.18
119	4	0.34				1.18
127	4	0.00		1.16		
128	3	0.51		1.19		
129	0	-2.09				1.04
132	1	1.52			1.25	
133	3	-0.67				1.12
134	3	0.51				1.19
138	4	-0.17				1.15
140	0	-2.53			1.01	
141	3	0.84				1.21
142	4	-0.17				1.15
143	4	-0.17				1.15
145	4	0.17				1.17
146	0	39.12				3.48
155	2	-1.32				1.08
158	3	-0.94				1.10
180	3	0.51				1.19
183	2	-1.01				1.10
190	4	-0.34				1.14
191	3	0.84		1.21		
203	2	1.08				1.22
212	3	0.67				1.20
213	1	-1.69				1.06
215	0	-10.45				0.54
220	0	2.70				1.32
221	2	-1.18			1.09	
224	0	2.53				1.31
234	3	-0.84		1.11		
240	3	0.84				1.21
241	4	0.00				1.16
247	3	0.57		1.19		
248	2	1.18				1.23
249	4	0.34				1.18
253	3	0.67				1.20
255	3	-0.51				1.13

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0	Other/Not reported		
1	AA: direct, air	=	atomic absorption: direct,air
2	AA: direct, N_2O	=	atomic absorption: direct,nitrous oxide
3	AA: graphite furnace	=	atomic absorption: graphite furnace
4	ICP	=	inductively coupled plasma
5	DCP	=	direct current plasma
6	ICP/MS	=	mass spectrometry/inductively coupled plasma
7	IC	=	ion chromatography
12	Flame emission	=	flame emission
20	Titrate: color	=	titration: colorimetric [color reagent specified]
21	Titrate: electro	=	titration: electrometric
22	Color:	=	colorimetric [color reagent specified]
40	Ion electrode	=	ion selective electrode
41	Electro	=	electrometric: [type meter specified]
50	Gravimetric	=	gravimetric: [precipitate specified]
51	Turbidimetric	=	turbidimetric: [precipitate specified]

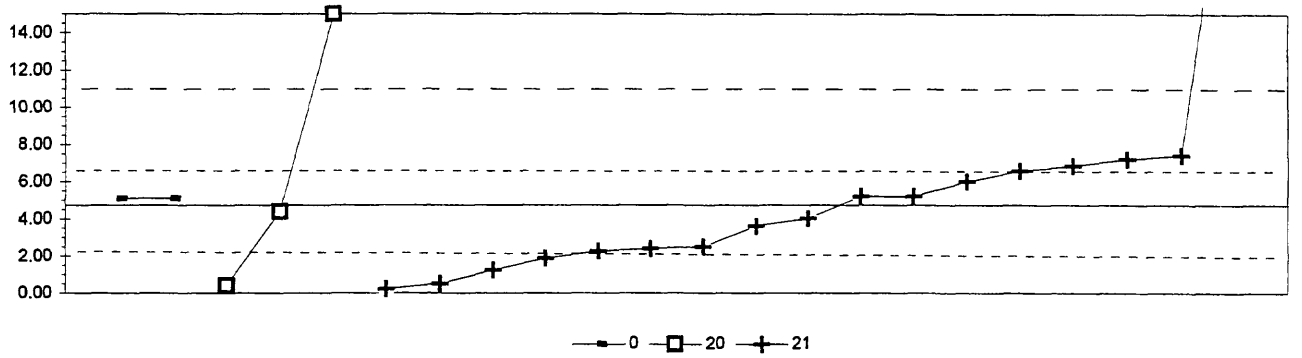
Abbreviations and symbols

N =	number of samples
MPV =	most probable value
F-pseudosigma =	nonparametric statistic deviation
Hu =	upper hinge value
Hl =	lower hinge value
mg/L =	milligrams per liter
µS/cm =	microsiemens per centimeter at 25^0 C
Lab =	laboratory code number
NR =	not rated, less than value reported
< =	less than

Constituent		page
Acid	Acidity as $CaCO_3$	132
Ca	Calcium	133
Cl	Chloride	134
F	Fluoride	135
K	Potassium	136
Mg	Magnesium	137
Na	Sodium	138
pH		139
PO_4 as P	Orthophosphate as Phosphorus	140
SO_4	Sulfate	141
Sp Cond	Specific Conductance	142

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

Acidity (as $CaCO_3$) mg/L

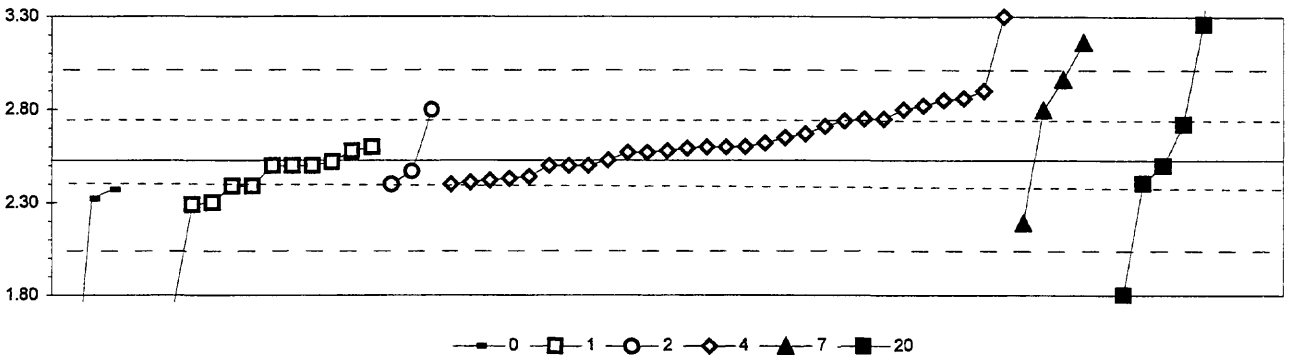


0. Other					
20. Titrate: colorimetric					
21. Titrate: electrometric					
		N =	2	3	17
		Minimum =	5.08	0.42	0.20
		Maximum =	5.10	15.00	27.00
		Median =			4.01
		F-pseudosigma =			3.19
Lab	Rating	Z-value	0	20	21
1	3	-0.70			2.50
3	NR				< 10
5	3	0.84			7.42
7	4	0.14			5.20
15	NR				< 2
25	0	6.97			27.00
38	3	0.66			6.85
81	2	-1.33			0.50
83	4	0.11	5.10		
89	3	-0.78			2.26
105	2	-1.35		0.42	
109	3	0.57			6.57
132	4	0.11	5.08		
141	3	-0.73			2.40
146	NR				< 10
190	4	0.39			6.00
215	4	-0.36			3.60
220	3	0.77			7.21
224	4	-0.23			4.01
240	3	-0.90			1.88
247	2	-1.42			0.20
257	2	-1.09			1.25
272	0	3.21		15.00	
273	4	0.14			5.20
276	4	-0.11		4.40	

MPV =	4.74
F-pseudosigma =	3.19
N =	22
Hu =	6.57
HI =	2.26

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)--Continued*

Ca (Calcium) mg/L



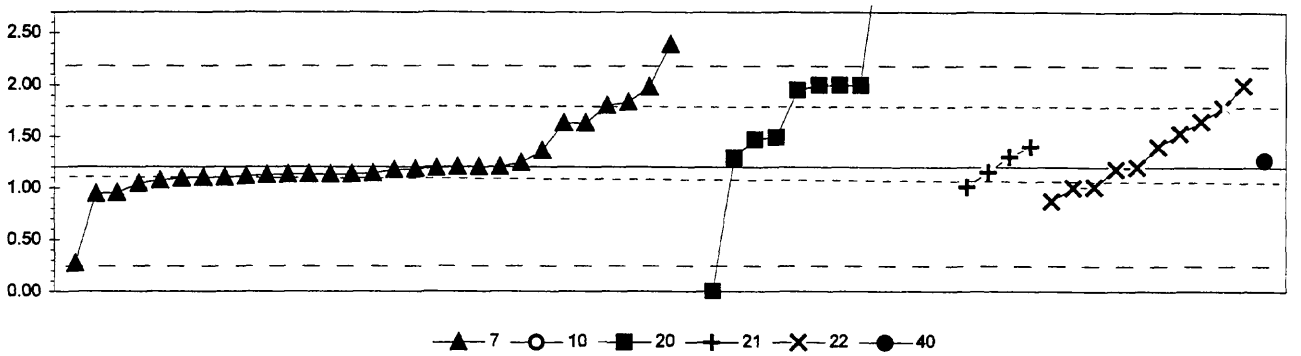
0. Other			4. ICP				
1. AA: direct air			7. Ion chromatography				
2. AA: direct nitrous oxide			20. Titrate: colorimetric				
	N =	3	13	3	29	4	7
	Minimum =	1.06	1.42	2.40	2.40	2.19	1.60
	Maximum =	2.37	2.60	2.80	3.30	3.16	4.28
	Median =		2.39		2.60		2.50
	F-pseudosigma =		0.16		0.19		0.66

MPV = 2.53
F-pseudosigma = 0.24
N = 59
Hu = 2.73
HI = 2.40

Lab	Rating	Z-value	0	1	2	4	7	20
1	4	-0.12				2.50		
2	2	1.09					2.80	
3	3	-0.53				2.40		
5	4	-0.49				2.41		
15	2	1.19				2.82		
23	4	0.29		2.60				
25	4	-0.12				2.50		
26	1	1.77					2.96	
28	2	1.31				2.85		
33	3	-0.66	2.37					
36	3	-0.53			2.40			
38	4	-0.25			2.47			
42	0	3.16				3.30		
46	4	-0.37				2.44		
48	4	0.00				2.53		
58	0	-3.41		1.70				
59	NR					< 5		
64	4	-0.12		2.50				
81	4	-0.45				2.42		
83	4	-0.12				2.50		
89	3	-0.99		2.29				
105	4	0.21				2.58		
107	3	-0.57		2.39				
109	4	0.21		2.58				
110	0	-4.43		1.45				
113	2	1.35				2.86		
119	4	0.16				2.57		
132	3	0.74				2.71		
134	4	0.30				2.60		
138	4	0.29				2.60		
140	3	-0.57		2.39				
141	3	0.86				2.74		
145	3	0.57				2.67		
146	4	-0.41				2.43		
155	3	0.79						2.72
158	0	2.59					3.16	
180	4	0.37				2.62		
190	2	-1.40					2.19	
191	3	-0.86	2.32					
204	3	0.90				2.75		
215	4	0.29				2.60		
220	4	-0.12		2.50				
221	4	-0.04		2.52				
224	4	0.26				2.59		
235	3	0.90				2.75		
240	4	0.49				2.65		
241	3	-0.94		2.30				
255	4	0.16				2.57		
256	4	-0.12						2.50
257	2	1.11			2.80			
258	0	-3.82						1.60
261	0	3.00						3.26
262	4	-0.12		2.50				
265	1	1.52				2.90		
268	0	-4.56		1.42				
270	0	-6.03	1.06					
271	0	7.18						4.28
272	3	-0.51						2.41
273	2	1.11				2.80		
276	0	-3.00						1.80

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)--Continued*

Cl (Chloride) mg/L



7. Ion chromatography			21. Titrate: electrometric				
8. AA: cold vapor			22. Colorimetric				
20. Titrate: colorimetric			40. Ion selective electrode				
	N =	29	1	12	4	10	1
	Minimum =	0.27	13.00	0.00	1.01	0.87	1.27
	Maximum =	2.39		8.40	1.40	2.00	
	Median =	1.14		2.00		1.30	
	F-pseudosigma =	0.10		1.50		0.47	

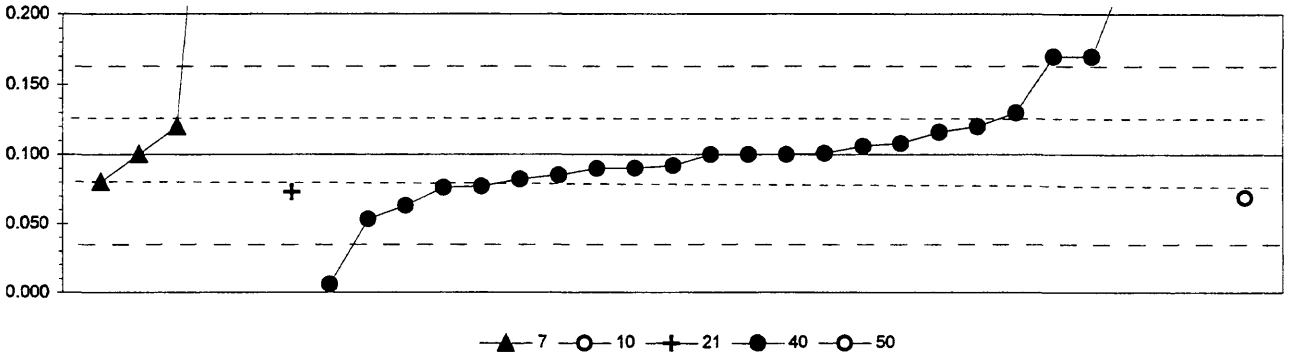
MPV =	1.20
F-pseudosigma =	0.49
N =	57
Hu =	1.78
HI =	1.13

Lab	Rating	Z-value	7	10	20	21	22	40
1	4	0.00	1.20					
2	4	-0.15	1.13					
3	2	1.19					1.78	
5	0	2.45	2.39					
7	4	-0.14	1.13					
15	3	0.89	1.63					
23	4	0.14						1.27
25	4	0.00	1.20					
26	4	-0.14	1.13					
33	4	0.08	1.24					
36	NR				< 5			
39	1	1.65			2.00			
42	4	-0.21	1.10					
46	3	0.92					1.65	
48	1	1.65					2.00	
58	3	0.60			1.49			
59	4	-0.21	1.10					
64	4	0.00	1.20					
81	4	-0.10				1.15		
83	NR					< 5		
89	4	0.19			1.29			
105	4	-0.12	1.14					
107	NR					< 0.6		
109	4	-0.39				1.01		
110	4	-0.15	1.13					
113	1	1.61	1.98					
119	4	-0.04	1.18					
134	4	-0.05	1.17					
138	4	-0.27	1.07					
140	3	-0.68					0.87	
141	4	0.41					1.40	
143	4	0.00					1.20	
145	4	-0.33	1.04					
146	3	0.68					1.53	
158	1	-1.92	0.27					
180	4	-0.41					1.00	
183	4	-0.39					1.01	
190	4	-0.23	1.09					
191	2	1.30	1.83					
196	4	-0.02	1.19					
197	3	-0.54	0.94					
203	NR					< 2		
204	4	0.41				1.40		
215	1	1.65			2.00			
220	4	-0.04					1.18	
221	3	0.56			1.47			
224	4	0.33	1.36					
240	4	-0.14	1.13					
241	0	4.74			3.50			
247	2	1.24	1.80					

Lab	Rating	Z-value	7	10	20	21	22	40
255	NR						< 5	
256	1	1.54			1.95			
257	3	0.89	1.63					
258	0	14.83			8.40			
261	0	-2.47			0.00			
262	4	0.21				1.30		
265	3	-0.51	0.95					
268	4	-0.19	1.11					
271	1	1.65			2.00			
272	0	12.13			7.09			
273	0	24.30		13.00				
276	0	4.74			3.50			

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

F (Fluoride) mg/L



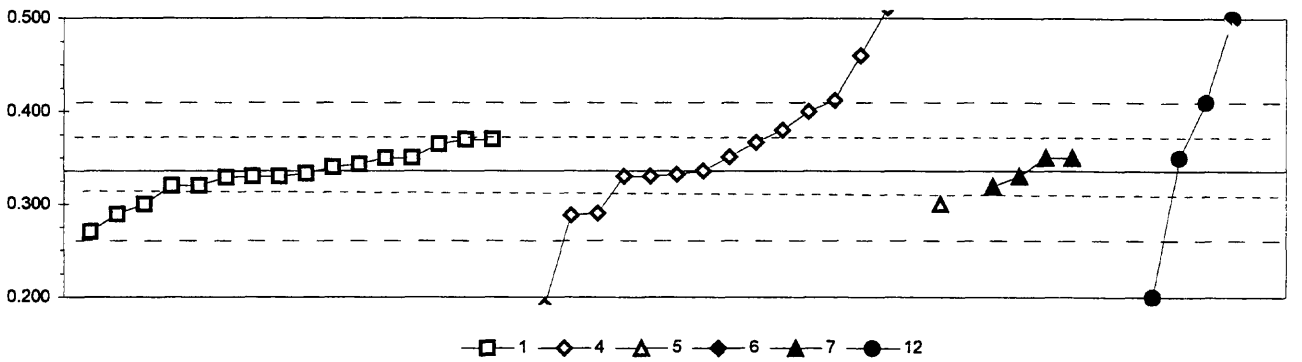
7. Ion chromatography				40. Ion selective electrode			
8. AA: cold vapor				50. Gravimetric			
21. Titrate: electrometric							
		N =	4	1	1	24	1
		Minimum =	0.08	0.40	0.07	0.01	0.07
		Maximum =	0.45			0.54	
		Median =				0.10	
		F-pseudosigma =				0.03	

MPV =	0.100
F-pseudosigma =	0.033
N =	31
Hu =	0.125
HI =	0.081

Lab	Rating	Z-value	7	10	21	40	50
1	NR					< 0.1	
3	2	-1.13				0.063	
7	NR		< 0.5				
15	4	0.25				0.108	
23	NR					< 0.1	
25	4	0.00				0.100	
26	3	0.61	0.120				
36	NR					< 0.1	
39	0	-2.88				0.006	
48	0	4.29				0.240	
58	4	-0.25				0.092	
59	NR					< 0.2	
81	3	-0.95					0.069
83	0	2.15				0.170	
89	0	13.40				0.537	
105	NR		< 0.2				
107	3	-0.71				0.077	
109	4	-0.31				0.090	
113	4	-0.30				0.090	
119	4	0.00				0.100	
134	3	0.61				0.120	
138	4	0.03				0.101	
140	2	-1.44				0.053	
141	3	0.92				0.130	
145	3	-0.61	0.080				
146	NR					< 0.2	
190	3	-0.83			0.073		
196	4	0.18				0.106	
215	4	0.00				0.100	
224	0	10.73	0.450				
240	3	-0.74				0.076	
241	4	0.49				0.116	
247	4	0.00	0.100				
255	NR					< 0.2	
257	4	-0.46				0.085	
258	0	2.15				0.170	
262	3	-0.55				0.082	
265	NR					< 0.1	
272	0	9.35				0.405	
273	0	9.20		0.400			

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

K (Potassium) mg/L



1. AA: direct air
4. ICP
5. DCP
6. ICP/MS
7. Ion chromatography
12. Flame emission

MPV = 0.336
F-pseudosigma = 0.038
N = 45
Hu = 0.370
Hl = 0.319

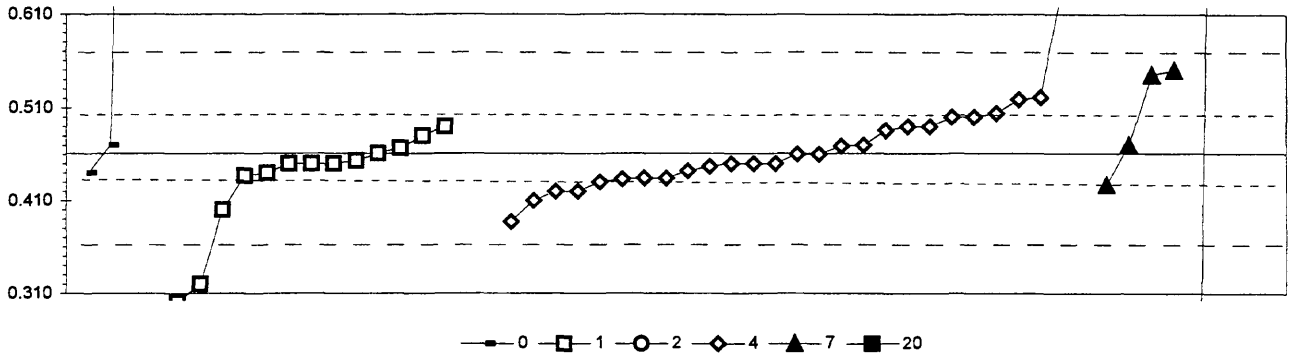
	1	4	5	6	7	12
N =	16	16	1	1	4	7
Minimum =	0.270	0.000	0.300	1.110	0.319	0.000
Maximum =	0.370	0.550			0.350	0.900
Median =	0.332	0.344				0.350
F-pseudosigma =	0.022	0.071				0.263

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	-0.16	0.330					
2	4	-0.16					0.330	
3	4	-0.16		0.330				
5	NR			< 1				
15	0	4.63		0.511				
23	4	0.37	0.350					
26	4	0.37					0.350	
28	0	-3.86		0.190				
33	3	-0.95			0.300			
36	NR		< 0.5					
38	4	-0.42	0.320					
42	1	1.69		0.400				
46	4	-0.16	0.330					
48	2	1.16		0.380				
58	4	0.37	0.350					
59	NR			< 5				
64	4	-0.42	0.320					
81	4	0.00		0.336				
83	NR			< 2				
89	4	-0.08	0.333					
105	NR			< 0.5				
107	4	0.11	0.340					
109	1	-1.75	0.270					
113	2	-1.27		0.288				
119	0	-8.89		0.000				
132	0	5.66		0.550				
134	4	0.19	0.343					
138	4	-0.16		0.330				
140	2	-1.24	0.289					
141	4	0.40		0.351				
145	2	-1.22		0.290				
146	NR			< 1				
158	4	0.37					0.350	
180	NR			< 1.26				
190	4	-0.45					0.319	
191	0	20.47				1.110		
215	NR			< 1				
220	3	-0.95	0.300					
221	4	-0.19	0.329					
224	4	-0.11		0.332				
235	0	3.28		0.460				
241	3	0.90	0.370					
255	3	0.82		0.367				
256	0	-8.89						0.000
257	0	-3.60						0.200
258	0	4.34						0.500
261	NR							< 0.39
262	4	0.37						0.350
265	3	0.90	0.370					
268	3	0.77	0.365					

Lab	Rating	Z-value	1	4	5	6	7	12
270	1	1.96						0.410
271	0	14.92						0.900
272	0	-8.89						0.000
273	1	2.01		0.412				

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

Mg (Magnesium) mg/L



0. Other			4. ICP					
1. AA: direct air			7. Ion chromatography					
2. AA: direct nitrous oxide			20. Titrate: colorimetric					
		N =	4	13	2	27	4	4
		Minimum =	0.440	0.300	0.630	0.387	0.427	0.000
		Maximum =	1.940	0.490	0.720	3.580	0.550	10.370
		Median =		0.450		0.460		
		F-pseudosigma =		0.018		0.045		

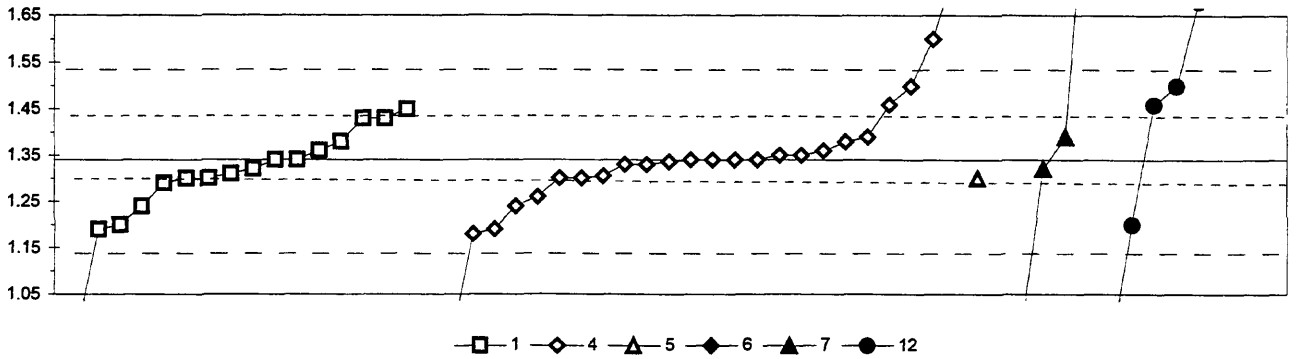
MPV = 0.461
F-pseudosigma = 0.050
N = 54
Hu = 0.504
HI = 0.437

Lab	Rating	Z-value	0	1	2	4	7	20
1	4	-0.21				0.450		
2	1	1.70					0.545	
3	3	-0.82				0.420		
5	3	-0.53				0.434		
15	0	3.59				0.639		
23	NR			< 0.5				
25	3	-0.82				0.420		
26	4	0.19					0.470	
28	4	-0.21				0.450		
33	4	-0.41	0.440					
36	NR			< 0.5				
38	4	-0.47		0.437				
42	3	0.80				0.500		
46	4	-0.37				0.442		
48	3	0.80				0.500		
58	0	-2.83		0.320				
59	NR					< 5		
64	4	-0.21		0.450				
81	3	-0.55				0.433		
83	3	-0.53				0.434		
89	4	-0.15		0.453				
105	2	-1.48				0.387		
107	4	-0.21		0.450				
109	3	0.59		0.490				
110	4	-0.21		0.450				
113	3	0.88				0.504		
119	2	-1.02				0.410		
132	4	-0.21				0.450		
134	4	-0.27				0.447		
138	4	-0.01				0.460		
140	4	0.13		0.467				
141	3	0.51				0.486		
145	3	0.59				0.490		
146	NR					< 0.5		
158	1	1.80					0.550	
180	4	0.17				0.469		
190	3	-0.67					0.427	
191	4	0.19	0.470					
204	0	62.81				3.580		
215	4	-0.01				0.460		
220	2	-1.22		0.400				
221	4	0.01		0.461				
224	2	1.18				0.519		
235	3	0.59				0.490		
240	3	-0.61				0.430		
241	0	-3.23		0.300				
255	4	0.19				0.470		
256	0	20.93	1.500					
257	0	3.41			0.630			
258	0	29.79	1.940					

Lab	Rating	Z-value	0	1	2	4	7	20
261	0	29.99						1.950
262	4	-0.41		0.440				
265	0	5.22			0.720			
268	4	0.39		0.480				
271	0	199.52						10.370
272	0	-9.27						0.000
273	2	1.22				0.521		
276	0	18.92						1.400

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

Na (Sodium) mg/L



1. AA: direct air
4. ICP
5. DCP
6. ICP/MS
7. Ion chromatography
12. Flame emission

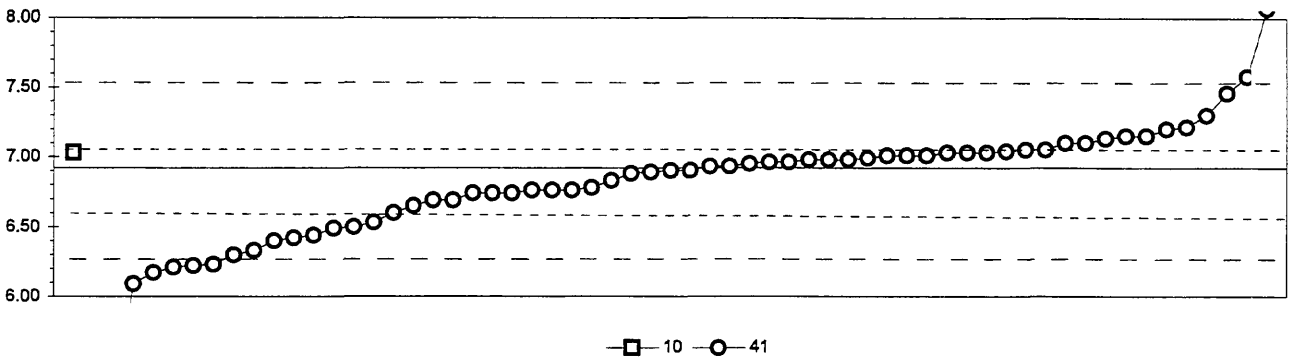
	1	4	5	6	7	12
N =	16	25	1	1	4	8
Minimum =	0.96	0.78	1.30	2.07	0.96	0.92
Maximum =	1.45	1.76			2.02	4.30
Median =	1.32	1.34				1.59
F-pseudosigma =	0.08	0.04				0.61

MPV = 1.34
F-pseudosigma = 0.10
N = 55
Hu = 1.43
HI = 1.30

Lab	Rating	Z-value	1	4	5	6	7	12
1	4	0.00		1.34				
2	0	6.77					2.02	
3	0	-5.60		0.78				
5	4	0.00		1.34				
15	0	4.20		1.76				
23	3	0.90	1.43					
25	4	0.20		1.36				
26	4	-0.20					1.32	
28	0	-4.00		0.94				
33	4	-0.40			1.30			
36	2	-1.40	1.20					
38	3	-1.00	1.24					
42	4	-0.40		1.30				
46	4	-0.35		1.31				
48	4	0.40		1.38				
58	0	-3.80	0.96					
59	NR			< 5				
64	4	-0.50	1.29					
81	3	-1.00		1.24				
83	4	-0.10		1.33				
89	4	-0.30	1.31					
105	1	-1.60		1.18				
107	4	0.00	1.34					
109	4	0.20	1.36					
110	4	-0.20	1.32					
113	4	-0.40		1.30				
119	4	0.10		1.35				
132	1	1.60		1.50				
134	4	0.00	1.34					
138	4	0.10		1.35				
140	3	0.90	1.43					
141	4	0.50		1.39				
145	4	0.00		1.34				
146	3	-0.80		1.26				
158	0	-3.80					0.96	
180	4	0.00		1.34				
190	4	0.50					1.39	
191	0	7.29				2.07		
215	0	2.60		1.60				
220	4	-0.40	1.30					
221	2	1.10	1.45					
224	4	-0.04		1.34				
235	2	-1.50		1.19				
241	4	-0.40	1.30					
255	4	-0.10		1.33				
256	0	-4.20						0.92
257	2	-1.40						1.20
258	1	1.60						1.50
261	0	9.59						2.30
262	2	1.20						1.46
265	2	-1.50	1.19					
268	4	0.40	1.38					
270	0	3.40						1.68
271	0	29.58						4.30
272	0	6.60						2.00
273	2	1.20		1.46				

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)--Continued*

pH



8. AA: cold vapor
41. Direct reading

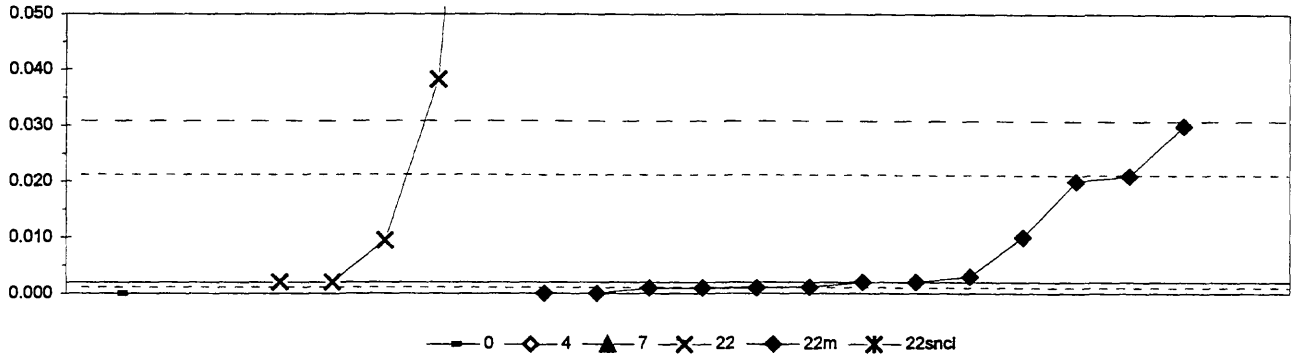
	1	61
N =	1	61
Minimum =	7.03	4.69
Maximum =		8.23
Median =		6.90
F-pseudosigma =		0.32

MPV =	6.92
F-pseudosigma =	0.32
N =	62
Hu =	7.03
Hl =	6.60

Lab	Rating	Z-value	10	41
1	4	0.23		6.99
2	1	-1.83		6.33
3	0	-2.18		6.22
5	0	-2.21		6.21
7	4	0.20		6.98
15	0	-2.14		6.23
23	4	0.05		6.93
25	3	0.67		7.13
26	4	0.11		6.95
33	3	-0.55		6.74
36	4	0.14		6.96
38	3	0.58		7.10
39	4	-0.05		6.90
46	0	2.08		7.58
48	1	-1.61		6.40
58	0	3.62		8.07
59	3	-0.70		6.69
64	4	0.30		7.01
81	4	-0.11		6.88
89	4	0.30		7.01
92	4	0.36		7.03
105	3	-0.83		6.65
107	3	0.74		7.15
109	0	-2.33		6.17
110	4	0.36		7.03
113	4	0.42		7.05
119	2	-1.33		6.49
132	3	0.74		7.15
134	4	0.05		6.93
138	4	-0.42		6.78
140	1	-1.55		6.42
141	4	0.14		6.96
143	3	-0.70		6.69
145	2	1.21		7.30
146	4	-0.05		6.90
155	2	-1.21		6.53
158	0	-6.96		4.69
180	3	0.58		7.10
183	1	1.71		7.46
190	3	-0.99		6.60
203	2	-1.30		6.50
204	3	-0.55		6.74
215	4	0.42		7.05
221	0	-2.58		6.09
224	4	-0.49		6.76
240	3	-0.55		6.74
241	4	-0.27		6.83
243	0	4.12		8.23
244	4	0.20		6.98
247	4	0.30		7.01
255	3	0.89		7.20
256	4	0.39		7.04
257	4	0.36		7.03
258	1	-1.92		6.30
261	2	-1.49		6.44
262	0	-5.43		5.18
265	4	-0.49		6.76
268	4	-0.49		6.76
271	4	0.20		6.98
272	3	0.93		7.21
273	4	0.36	7.03	
276	4	-0.08		6.89

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

PO_4 as P (orthophosphate as phosphorus) mg/L



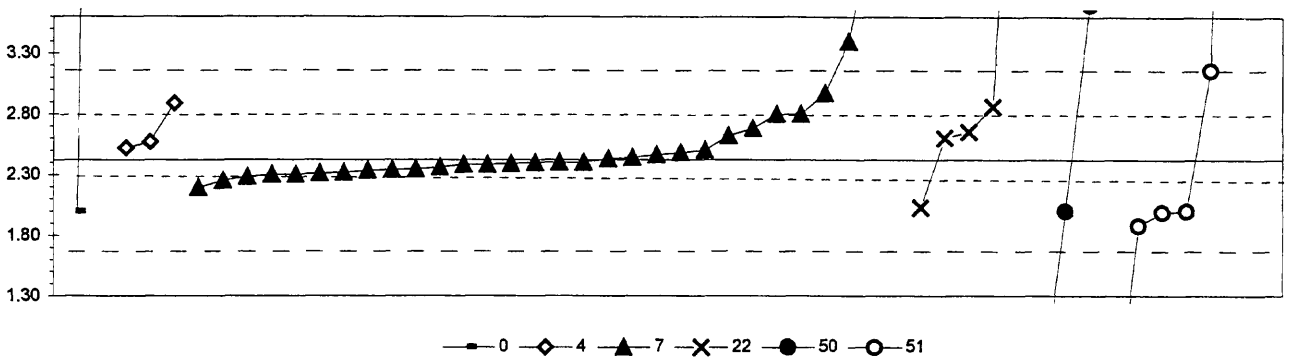
0. Other				22. Colorimetric				
4. ICP				22m. Color:phosphomolybdate				
7. Ion chromatography				22sncl. Color: stannous floride				
		N =	1	0	1	5	13	0
		Minimum =	0.000		0.400	0.002	0.000	
		Maximum =				0.150	0.030	
		Median =					0.002	
		F-pseudosigma =					0.007	

MPV =	0.002
F-pseudosigma =	0.014
N =	20
Hu =	0.021
HI =	0.001

Lab	Rating	Z-value	0	4	7	22	22m	22sncl
1	NR						< 0.001	
3	NR					< 0.01		
7	NR				< 0.16			
15	NR						< 0.02	
23	NR						< 0.01	
26	NR				< 0.5			
28	4	0.00					0.002	
33	NR				< 0.01			
36	NR						< 0.025	
38	4	-0.07					0.001	
39	NR						< 0.005	
42	4	0.00				0.002		
48	NR						< 0.005	
58	3	0.55					0.010	
64	4	-0.07					0.001	
81	NR						< 0.005	
83	3	0.51				0.009		
89	NR						< 0.002	
92	NR						< 0.005	
105	4	0.00				0.002		
107	NR						< 0.002	
113	NR						< 0.004	
119	NR	-0.14					0.000	
132	NR							< 0.01
134	NR	-0.14					0.000	
138	NR						< 0.004	
140	NR						< 0.01	
141	NR						< 0.05	
143	4	0.00					0.002	
145	NR						< 0.01	
146	NR						< 0.05	
155	4	-0.06					0.001	
180	NR						< 0.01	
190	2	1.31					0.021	
191	0	27.53			0.400			
196	NR				< 0.05			
204	NR						< 0.002	
215	1	1.94					0.030	
224	4	-0.07					0.001	
235	NR			< 0.5				
240	NR				< 0.1			
241	4	0.07					0.003	
247	NR				< 0.001			
257	2	1.25					0.020	
258	0	2.50				0.038		
261	NR		< 0.05					
271	0	10.24				0.150		
273	NR	-0.14	0.000					

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

SO_4 (Sulfate) mg/L



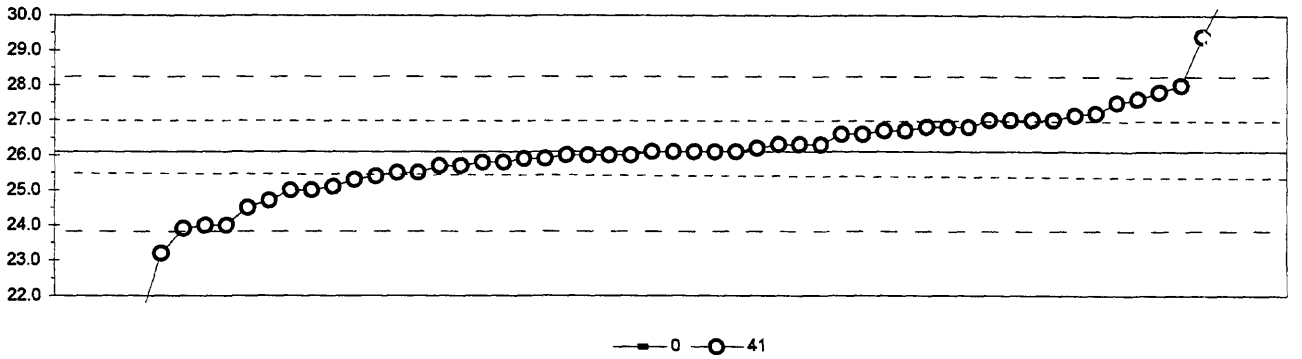
0. Other		22. Colorimetric			
4. ICP		50. Gravimetric			
7. Ion chromatography		51. Turbidimetric			
N =	2	3	30	5	3	7
Minimum =	2.00	2.52	2.19	2.03	0.41	0.00
Maximum =	17.04	2.89	30.50	6.38	3.70	60.00
Median =			2.40			2.00
F-pseudosigma =			0.21			3.04

MPV = 2.42
F-pseudosigma = 0.37
N = 50
Hu = 2.80
HI = 2.30

Lab	Rating	Z-value	0	4	7	22	50	51
1	4	0.04			2.43			
2	4	-0.27			2.32			
3	0	2.66			3.40			
5	0	5.27			4.37			
7	4	-0.04			2.40			
15	4	0.23			2.50			
23	NR					< 2.5		
26	4	0.12			2.46			
33	4	-0.20			2.34			
36	NR							< 5
39	4	-0.31			2.30			
42	NR				< 2.5			
46	4	-0.05			2.40			
48	0	155.36						60.00
58	2	-1.12					2.00	
59	4	-0.31			2.30			
64	4	0.07			2.44			
81	3	0.63				2.65		
83	4	0.28		2.52				
89	4	0.18			2.48			
92	2	-1.44						1.88
105	4	-0.36			2.28			
109	0	3.47					3.70	
110	4	-0.22			2.34			
113	NR				< 1			
119	4	-0.09			2.38			
134	4	-0.19			2.35			
138	4	-0.28			2.31			
140	2	-1.12	2.00					
141	4	0.42		2.57				
145	3	-0.61			2.19			
146	NR							< 5
158	0	75.77			30.50			
180	4	0.50				2.60		
190	2	1.04			2.80			
191	4	-0.09			2.38			
196	4	-0.04			2.40			
197	4	-0.15			2.36			
203	2	1.20				2.86		
204	2	-1.04				2.03		
215	1	2.01						3.16
220	0	17.50						8.90
221	0	-5.40					0.41	
224	3	0.55			2.62			
235	2	1.28		2.89				
240	3	0.71			2.68			
241	2	-1.12						2.00
247	2	1.04			2.80			
256	0	39.46	17.04					
257	2	1.50			2.97			
258	2	-1.15						1.99
261	0	-5.18	< 0.5					
262	0	10.70				6.38		
265	4	-0.07			2.39			
268	4	-0.45			2.25			
271	0	-6.52						0.00

Table 17. *Statistical summary of reported data for standard reference water sample P-27 (low ionic strength constituents)–Continued*

Sp Cond (Specific Conductance) µS/cm



0. Other
41. Direct reading

N =	1	56
Minimum =	50.7	20.0
Maximum =		263.0
Median =		26.1
F-pseudosigma =		1.07

MPV =	26.1
F-pseudosigma =	1.1
N =	57
Hu =	27.0
Hl =	25.5

Lab	Rating	Z-value	0	41
1	3	0.63		26.8
2	0	-4.33		21.3
3	4	0.45		26.6
5	4	0.18		26.3
7	3	-0.72		25.3
15	4	0.00		26.1
23	3	0.81		27.0
25	3	0.81		27.0
26	3	0.99		27.2
33	4	-0.27		25.8
36	1	-1.98		23.9
38	4	0.00		26.1
39	2	1.26		27.5
48	2	-1.44		24.5
58	4	0.00		26.1
59	3	-0.63		25.4
64	3	-0.54		25.5
81	4	0.18		26.3
89	4	-0.27		25.8
105	3	0.81		27.0
107	4	-0.09		26.0
109	3	0.81		27.0
113	4	-0.09		26.0
119	4	-0.09		26.0
132	0	-5.04		20.5
134	4	0.45		26.6
138	3	0.54		26.7
140	0	5.76		32.5
141	3	0.63		26.8
143	4	-0.18		25.9
145	1	1.71		28.0
146	0	4.05		30.6
155	1	1.53		27.8
158	4	0.00		26.1
180	4	-0.09		26.0
183	0	-2.61		23.2
190	2	1.35		27.6
193	3	0.63		26.8
203	0	213.05		263.0
204	4	0.18		26.3
215	3	0.54		26.7
224	3	-0.99		25.0
240	2	-1.26		24.7
241	0	-5.53		20.0
243	4	-0.36		25.7
244	4	-0.18		25.9
247	3	0.94		27.1
255	4	0.09		26.2
257	3	-0.54		25.5
258	0	2.97		29.4
261	4	0.00		26.1
262	1	-1.89		24.0
268	1	-1.89		24.0
271	4	-0.36		25.7
272	3	-0.99		25.0
273	0	22.12	50.7	
276	3	-0.90		25.1

Table 18. *Statistical summary of reported data for standard reference water sample Hg-23 (mercury)*

Definition of analytical methods, abbreviations, and symbols

Analytical methods

0 Other/Not reported		
6 ICP/MS	=	mass spectrometry/inductively coupled plasma
8 AA: cold vapor	=	atomic absorption: cold vapor

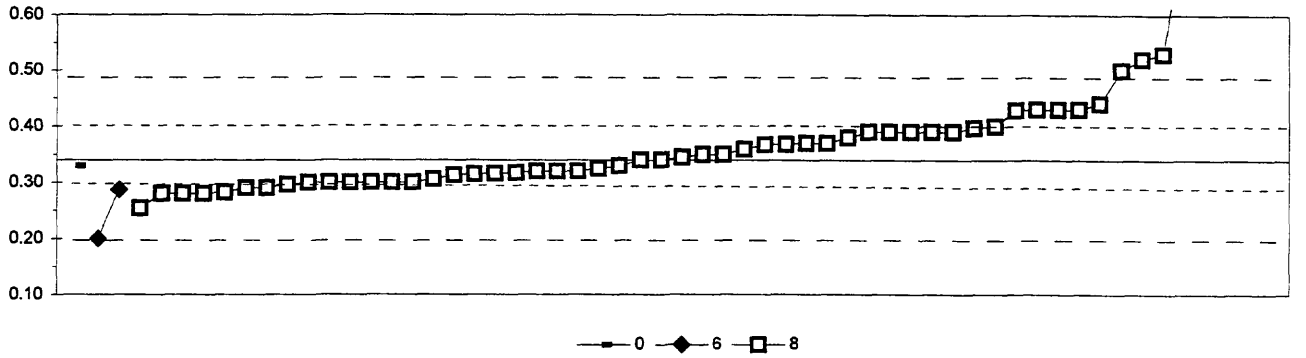
Abbreviations and symbols

N =	number of samples
MPV =	most probable value
F-pseudosigma =	nonparametric statistic deviation
Hu =	upper hinge value
Hl =	lower hinge value
µg/L =	micrograms per liter
Lab =	laboratory code number
NR =	not rated, less than value reported
< =	less than

Constituent		page
Hg	Mercury	144

Table 18. *Statistical summary of reported data for standard reference water sample Hg-23 (mercury)--Continued*

Hg (Mercury) µg/L



0. Other					
6. ICP/MS					
8. AA: cold vapor					
		N =	1	2	55
		Minimum =	0.33	0.20	0.25
		Maximum =		0.29	4.40
		Median =			0.35
		F-pseudosigma =			0.07

MPV =	0.34
F-pseudosigma =	0.07
N =	58
Hu =	0.40
Hl =	0.30

Lab	Rating	Z-value	0	6	8
1	3	-0.59			0.30
3	0	56.43			4.40
7	4	-0.03			0.34
10	4	-0.24			0.33
11	3	-0.87			0.28
13	NR				< 0.4
15	3	-0.73			0.29
16	4	0.10			0.35
18	3	0.52			0.38
26	4	0.38			0.37
28	0	28.61			2.40
32	3	-0.73			0.29
34	4	-0.37			0.32
36	3	-0.59			0.30
39	3	-0.59			0.30
42	4	-0.31			0.32
46	4	-0.41			0.31
48	4	0.38			0.37
50	0	2.47			0.52
51	3	0.66			0.39
55	3	-0.65			0.30
58	NR				< 0.5
59	4	-0.31			0.32
68	2	-1.23			0.25
69	4	-0.17			0.33
70	3	0.76			0.40
76	3	-0.77		0.29	
81	3	-0.59			0.30
86	3	-0.51			0.31
87	0	2.19			0.50
89	3	0.66			0.39
96	4	0.35			0.37
97	NR				< 0.42
105	4	0.34			0.37
108	0	2.61			0.53
113	3	0.66			0.39
119	3	0.66			0.39
127	4	-0.38			0.32
133	4	-0.17	0.33		
134	3	-0.87			0.28
138	4	-0.31			0.32
141	2	1.19			0.43
142	2	1.36			0.44
144	4	0.03			0.35
145	2	1.22			0.43
146	4	0.23			0.36
149	4	0.10			0.35
193	2	1.22			0.43
212	3	-0.87			0.28
213	0	5.67			0.75
215	0	8.03			0.92
219	3	-0.59			0.30
221	3	-0.59			0.30
234	4	-0.03			0.34
235	2	1.22			0.43
241	3	0.66			0.39
245	3	-0.84			0.28
255	4	-0.35			0.32
257	0	9.14			1.00
259	3	0.80			0.40
265	1	-1.98		0.20	

Table 19. *Most probable values for constituents and properties in standard reference samples distributed in September 1996*

[MPV, most probable value; ug/L, microgram per liter; mg/L, milligram per liter; uS/cm, microsiemen per centimeter at 25 degrees Celsius]

T-143 (trace constituents)

Analyte	MPV	F-pseudosigma	N	Analyte	MPV	F-pseudosigma	N
Ag	19.8 µg/L	1.4	65	Mg	10.4 mg/L	0.5	88
Al	22.1 µg/L	8.3	50	Mn	18.2 µg/L	1.9	86
As	15.2 µg/L	1.2	66	Mo	36.1 µg/L	4.3	54
B	35.0 µg/L	5.2	35	Na	34.0 mg/L	1.6	88
Ba	81.9 µg/L	4.5	68	Ni	71.0 µg/L	5.0	81
Be	8.50 µg/L	0.66	61	Pb	83.4 µg/L	7.1	84
Ca	53.7 mg/L	2.2	86	Sb	16.6 µg/L	1.5	46
Cd	19.1 µg/L	1.5	81	Se	9.63 µg/L	1.64	60
Co	17.0 µg/L	1.2	53	SiO_2	23.4 mg/L	1.7	56
Cr	37.0 µg/L	2.6	79	Sr	306 µg/L	15	45
Cu	22.3 µg/L	1.9	90	Tl	10.0 µg/L	1.0	33
Fe	222 µg/L	14	93	U	12.0 µg/L	0.9	9
K	2.50 mg/L	0.21	84	V	30.0 µg/L	3.0	54
Li	18.0 µg/L	2.1	34	Zn	20.0 µg/L	2.2	75

T-145 (trace constituents)

Analyte	MPV	F-pseudosigma	N	Analyte	MPV	F-pseudosigma	N
Ag	7.55 µg/L	0.92	61	Mg	8.68 mg/L	0.45	85
Al	67.6 µg/L	11.0	64	Mn	20.9 µg/L	1.5	85
As	9.88 µg/L	1.04	66	Mo	9.23 µg/L	1.29	43
B	45.6 µg/L	5.8	36	Na	41.2 mg/L	1.9	84
Ba	37.1 µg/L	1.9	63	Ni	11.0 µg/L	1.3	66
Be	9.04 µg/L	0.70	62	Pb	12.7 µg/L	1.2	80
Ca	30.7 mg/L	1.3	84	Sb	8.80 µg/L	0.96	39
Cd	9.33 µg/L	0.82	80	Se	10.1 µg/L	1.3	60
Co	10.0 µg/L	0.9	53	SiO_2	11.3 mg/L	0.7	53
Cr	15.3 µg/L	1.4	78	Sr	203 µg/L	9	44
Cu	11.0 µg/L	1.4	84	Tl	15.3 µg/L	2.7	37
Fe	101 µg/L	8	89	U	1.10 µg/L	0.10	9
K	2.13 mg/L	0.16	83	V	11.7 µg/L	1.7	46
Li	27.3 µg/L	2.5	36	Zn	10.0 µg/L	2.4	70

M-140 (major constituents)

Analyte	MPV	F-pseudosigma	N	Analyte	MPV	F-pseudosigma	N
Alkalinity	114 mg/L	3	103	Na	39.0 mg/L	1.9	92
B	41.6 mg/L	5.2	40	total P	0.032 mg/L	0.011	57
Ca	60.7 mg/L	3.1	96	pH	8.28 units	0.17	108
Cl	25.8 mg/L	1.4	104	SiO_2	7.35 mg/L	0.46	66
DSRD	382 mg/L	16	67	SO_4	150 mg/L	7	98
F	0.530 mg/L	0.037	71	Sp Cond	600 µS/cm	19	100
K	2.58 mg/L	0.14	87	Sr	671 µg/L	31	43
Mg	18.0 mg/L	1.0	96	V	3.42 µg/L	3.01	19

N-51 (nutrients)

Analyte	MPV	F-pseudosigma	N
NH_3 as N	0.07 mg/L	0.05	59
NH_3+OrgN as N	0.29 mg/L	0.10	51
NO_3+NO_2 as N	0.01 mg/L	0.04	28
Total P as P	0.04 mg/L	0.01	61
PO_4 as P	0.02 mg/L	0.01	52

N-52 (nutrients)

Analyte	MPV	F-pseudosigma	N
NH_3 as N	1.33 mg/L	0.09	84
NH_3+OrgN as N	2.37 mg/L	0.22	58
NO_3+NO_2 as N	1.72 mg/L	0.10	86
total P as P	1.60 mg/L	0.06	76
PO_4 as P	1.16 mg/L	0.06	81

P-27 (low ionic strength constituents)

Analyte	MPV	F-pseudosigma	N	Analyte	MPV	F-pseudosigma	N
Acidity	4.74 mg/L	3.19	22	Na	1.34 mg/L	0.10	55
Ca	2.53 mg/L	0.24	59	pH	6.92 units	0.32	62
Cl	1.20 mg/L	0.49	57	PO_4 as P	0.002 mg/L	0.014	20
F	0.100 mg/L	0.033	31	SO_4	2.42 mg/L	0.37	50
K	0.336 mg/L	0.038	45	Sp Cond	26.1 µS/cm	1.1	57
Mg	0.461 mg/L	0.050	54				

Hg-23 (mercury)

Analyte	MPV	F-pseudosigma	N
Hg	0.34 µg/L	0.07	58