

**REPORT ON THE U.S. GEOLOGICAL SURVEY'S EVALUATION PROGRAM
FOR STANDARD REFERENCE SAMPLES DISTRIBUTED IN APRIL 1994:
T-129 (TRACE CONSTITUENTS), M-130 (MAJOR CONSTITUENTS),
N-42 (NUTRIENTS), P-22 (LOW IONIC STRENGTH),
AND Hg-18 (MERCURY)**

by H. Keith Long and Jerry W. Farrar

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ABSTRACT

This report presents the results of the U.S. Geological Survey's analytical evaluation program for 5 standard reference samples--T-129 (trace constituents), M-130 (major constituents), N-42 (nutrients), P-22 (low ionic strength), and Hg-18 (mercury)--that were distributed in April 1994 to 157 laboratories registered in the U.S. Geological Survey sponsored interlaboratory testing program. Analytical data that were received from 133 of the laboratories were evaluated with respect to: overall laboratory performance and relative laboratory performance for each analyte in the five 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 five 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.

One hundred eighty-five 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. Nutrients.
4. Low ionic strength.
5. Mercury.
6. Whole water (water with suspended sediment).
7. Acid mine drainage.
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 on request. Participating laboratories can request previous SRS for further testing, continuing quality assurance, and quality control programs by contacting:

Chief Laboratory Section, BQA
U.S. Geological Survey
Branch of Quality Assurance
Denver Federal Center
Box 25046 MS 401
Denver, CO 80225-0046

Purpose and Scope

This report summarizes the analytical results submitted by 133 (table 1) of the 157 laboratories that requested and were shipped SRS for the April 1994 evaluation. 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 April 25, 1994, are presented in this report:

T-129	Trace constituents
M-130	Major constituents
N-42	Nutrients
P-22	Low ionic strength (precipitation)
Hg-18	Mercury

The USGS requested that analytical results be returned by June 17, 1994 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

analytical method used to determine the concentration of each analyte. When analytical-method information was provided, it has been included in the respective data table. The analytical data are presented in ways that allow participants to evaluate data distribution, scatter, outliers, central tendency, bias, skewness, and method relationships.

Table 1.—*Laboratory participants in the analyses of standard reference samples distributed in April 1994*

<u>State</u>	<u>City</u>	<u>Participating Laboratory</u>
Alabama	Tuscaloosa	Geological Survey of Alabama
Arizona	Phoenix	Arizona Department of Health Services
	Phoenix	Nestech Laboratories, Inc.
	Yuma	Burns and Roe Services Corporation
Arkansas	Arkadelphia	Ouachita Baptist University
	Fayetteville	University of Ar
	Little Rock	Arkansas Department of Pollution Control and Ecology
California	Castiac	Castaic Chemical Laboratory, Department of Water Resources
	Davis	University of California - Davis
	La Verne	Metropolitan Water District of Southern California
	Lakeside	Helix Water District
	Martinez	Central Contra Costa Sanitary District
	Oakland	East Bay Municipal Utility District
	Riverside	University of California - Riverside
	Sacramento	Anlab
	Sacramento	US Bureau of Reclamation
	Sacramento	USGS WRD
	San Diego	USGS WRD
	Santa Barbara	University of California - Santa Barbara
	Santa Fe Springs	West Coast Analytical Service, Inc.
	Three Rivers	Southern Sierra Research Center
	West Sacramento	California Department of Water Resources
	West Sacramento	Enseco - CALLAB
Colorado	Alamosa	US Bureau of Reclamation
	Arvada	Enseco - Rocky Mountain Analytical Laboratory
	Arvada	USGS National Water Quality Laboratory
	Aurora	Core Laboratories, Inc.
	Denver	US Bureau of Reclamation
	Denver	Denver Water Department
	Denver	Metro Wastewater Reclamation
	Denver	USGS - Hydrologic Research Unit
	Denver	USGS
	Denver	USGS WRD
	Fort Collins	City of Fort Collins - Water Quality
	Fort Collins	USDA US Forest Service
	Golden	EG & G Rocky Flats
	Northglenn	Northglenn Water Treatment Plant
	Pueblo	Pueblo Board of Water Works
	Westminster	City of Westminster
Florida	Brooksville	SW Florida Water Management District
	Ft. Lauderdale	Spectrum Laboratories, Inc.
	Ocala	USGS WRD
	Orlando	Post, Bucklye, Schuh, and Jernigan, Inc.
	Ormand Beach	Environmental Laboratory
	Palatka	St. John's River Management District
	Tallahassee	City of Tallahassee
	Tallahassee	Florida Department of Environmental Regulations
	Tallahassee	Savannah Laboratories

Table 1.--Laboratory participants in the analyses of standard reference samples distributed in April 1994--Continued

State	City	Participating Laboratory
Florida	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 - Agriculture Research Station
Hawaii	Honolulu	University of Hawaii - SOEST Analytical Services
		Atomic Spectroscopy Laboratory
Idaho	Boise	US Bureau of Reclamation
Illinois	Champaign	Hazardous Waste Research Center
	Chicago	Illinois Environmental Protection Agency
Indiana	Indianapolis	Indianapolis Department of Public Works
	Valparaiso	Coast to Coast Analytical Services, Inc.
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
Kentucky	Frankfort	Division of Environmental Services
	Lexington	Kentucky Geological Survey
	Louisville	Metropolitan Sewer District
Maine	Orono	Sawyer Environmental Center, University of Maine
	Orono	University of Maine
Maryland	Baltimore	Martel Laboratory Services, Inc.
	Baltimore	Maryland Department of Health and Mental Hygiene
Massachusetts	Wellesley Hills	Massachusetts Highway Department
Michigan	Ann Arbor	University of Michigan - Department of Geological Science
	Detroit	Detroit Water and Sewerage Department
Minnesota	Minneapolis	Braun Intertec Environmental, Inc.
	Minneapolis	University of Minnesota, Department of Geology and Geophysics
	St. Paul	Metropolitan Waste Control Commission
Missouri	Jefferson City	Missouri Department of Health
Montana	Helena	Department of Health and Environment
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
New Jersey	Lyndhurst	Hackensack Meadowlands Center
	Trenton	New Jersey Department of Health
New Mexico	Albuquerque	City of Albuquerque
New York	Albany	USGS WRD
	Brockport	State University of New York - Brockport
	Buffalo	Erie County Laboratory
	Grahamsville	New York City Department of Environmental Protection
	Hempstead	Nassau County Department of Health
	Milbrook	Institute of Ecosystem Studies
	Oakdale	Suffolk County Water Authority
	Port Washington	New York Test Environmental, Inc.
	Rochester	Monroe County
	Shokan	New York City Department of Environmental Protection
	Syracuse	Onondaga County Department of Drainage and Sanitation
	Syracuse	State University of New York - Syracuse

Table 1.--Laboratory participants in the analyses of standard reference samples distributed in April 1994--Continued

State	City	Participating Laboratory
New York	Valhalla	Department of Environmental Protection
	Wantaugh	Cedar Creek Projects Laboratory
North Carolina	Charlotte	Mecklenburg County - Department of Environmental Protection
	Durham	Department of Water Resources
	Durham	Duke University
	Greensboro	City of Greensboro
North Dakota	Bismarck	North Dakota State Health Department
	Bismarck	North Dakota State Water Commission
	Bismarck	US Bureau of Reclamation
Ohio	Columbus	City of Columbus
	Medina	Medina County Sanitary Engineering
	Tiffin	Heidelberg College
Oklahoma	Norman	Oklahoma Geological Survey
Oregon	Corvallis	US Department of Agriculture
	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	Northern Great Plains Laboratory
	Brookings	SDSU - Water Quality Laboratory
	Vermillion	South Dakota Geological Survey
Tennessee	Chattanooga	Tennessee Valley Authority, Environmental Chemistry
Texas	San Antonio	Pollution Control Services
	Tyler	Analytical Testing Laboratories
Vermont	Waterbury	Vermont Agency of Natural Resources
Virginia	Culpepper	ESS Laboratories
	Manassas	Occoquan Watershed Monitoring Laboratory
	Reston	USGS WRD
	Richmond	Consolidated Laboratory Services
	Virginia Beach	Hampton Road Sanitation District
Washington	Richland	Battelle - Pacific Northwest
	Seattle	Brooks-Rand, Ltd.
West Virginia	Morgantown	University of West Virginia
Wisconsin	Green Bay	Green Bay Metro Sewerage District
	Madison	State Laboratory of Hygiene
	Milwaukee	Milwaukee Metro Sewerage District
Wyoming	Laramie	Wyoming Department of Agriculture

Preparation of Standard Reference Samples

All of the SRS used in this evaluation were prepared by personnel of the USGS in Golden, Colo. and were analyzed for analyte concentrations and physical property values prior to mailing.

Trace constituent sample T-129 was prepared using water collected from the Clear Creek near Idaho Springs, Colorado. The water was pumped through 2- and 0.1- μ m filters, in series, into a 1300-L polypropylene drum. The water was continuously circulated and passed through a 0.1- μ m filter and ultraviolet sterilizer for 24 hours. Following this circulation, the water was acidified to pH 1.5 with nitric acid and chlorinated to 5-ppm free chlorine with sodium hypochlorite. 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- μ m filter. The 500-mL polypropylene bottles

used were acid leached, deionized-water rinsed, and autoclave sterilized. Bottles not mailed for this SRS evaluation are stored until requested for use.

Major constituent sample M-130 was prepared using water collected from the Clear Creek near Idaho Springs, Colorado. The water was pumped through 2- and 0.1- μ m 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- μ m filter and ultraviolet sterilizer for 24 hours prior to bottling. During bottling the sample was pumped through an ultraviolet sterilizer and a 0.1- μ m filter. The 500-mL polypropylene bottles used were acid leached, deionized-water rinsed, and autoclave sterilized. Bottles not mailed for this SRS evaluation are stored until requested for use.

Nutrient sample N-42 was prepared using water collected from the Fall River near Idaho Springs, Colorado. These samples were prepared the week prior to the mailing for this SRS evaluation. The water was pumped through 2- and 0.1- μ m filters, in series, into a 600-L polypropylene drum and continuously circulated and passed through a 0.1- μ m filter for 48 hours. The desired nutrient concentrations were obtained by adding reagent-grade chemicals. The sample was circulated an additional 24 hours. A number of nonpreserved samples were bottled from this solution and refrigerated at 4 °C. The remaining sample was preserved with mercuric chloride, to a concentration of 50 mg/L, and with sodium chloride, to a concentration of 450 mg/L. The preserved 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. Bottles not mailed for this SRS evaluation are refrigerated at 4 °C until requested for use.

Sample P-22 was prepared in a 400-L polypropylene drum using snow collected at Mt. Evans near Summit Lake in Colorado. The collected snow was allowed to melt; then it was pumped into the drum through 2- and 0.1- μ m filters in series. Desired phosphate and fluoride concentrations were obtained by adding reagent-grade chemicals. Prior to bottling, the sample was continuously mixed for 48 hours while being circulated through a 0.1- μ m filter and an ultraviolet sterilizer. During bottling the sample was pumped through an ultraviolet sterilizer and a 0.1- μ m filter. The 500-mL polypropylene bottles used were acid leached, deionized-water rinsed, and autoclave sterilized. Bottles not mailed for this SRS evaluation are stored until requested for use.

Sample Hg-18 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 2- and 0.1- μ m filters in series. The water was continuously circulated and passed through a 0.1- μ m filter and ultraviolet sterilizer for 72 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 125-mL glass bottles and tetrafluoroethylene fluorocarbon resin caps used were new, acid leached, and deionized-water rinsed. Bottles not mailed for this SRS evaluation are stored until requested for use.

LABORATORY ANALYSES

The participating laboratories were asked to determine analytes which are summarized in table 2. The number of analytes varied from 26 in T-129 (trace constituents) to 1 in Hg-18 (mercury).

Table 2.--Analytes determined in standard reference samples distributed in April 1994

[mg/L, milligrams per liter; µg/L, micrograms per liter; µS/cm, microsiemens per centimeter at 25 degrees Celsius]							
Analyte or property		Units	T-129	M-130	N-42	P-21	Hg-18
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	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		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	X	
Pb	Lead	µg/L	X				
pH		unit		X		X	
PO ₄ as P	Orthophosphate	mg/L			X	X	
total P as P	Phosphorus	mg/L		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			
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-method codes

Code	Method
0	Other
1	Atomic absorption: direct, air
2	Atomic absorption: direct, nitrous oxide
3	Atomic absorption: graphite furnace
4	Inductively coupled argon plasma
5	Direct current plasma
6	Inductively coupled argon plasma/Mass spectrometry
7	Ion chromatography
8	Atomic absorption: cold vapor
10	Atomic absorption: extraction [<i>specify chelating agents</i>]
11	Atomic absorption: hydride [<i>specify reducing agent</i>]
12	Flame emission
20	Titration: colorimetric [<i>specify color reagent</i>]
22	Colorimetric: [<i>specify reducing or oxidizing agent/color reagent</i>]
40	Ion selective electrode
41	Electrometric [<i>pH and Specific Conductance</i>]
50	Gravimetric: [<i>specify filtration, evaporation, and so forth</i>]
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, 1989, Standard methods for the examination of water and wastewater 17th ed: Washington, D.C., American Public Health Association, 1527p.
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 12 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.

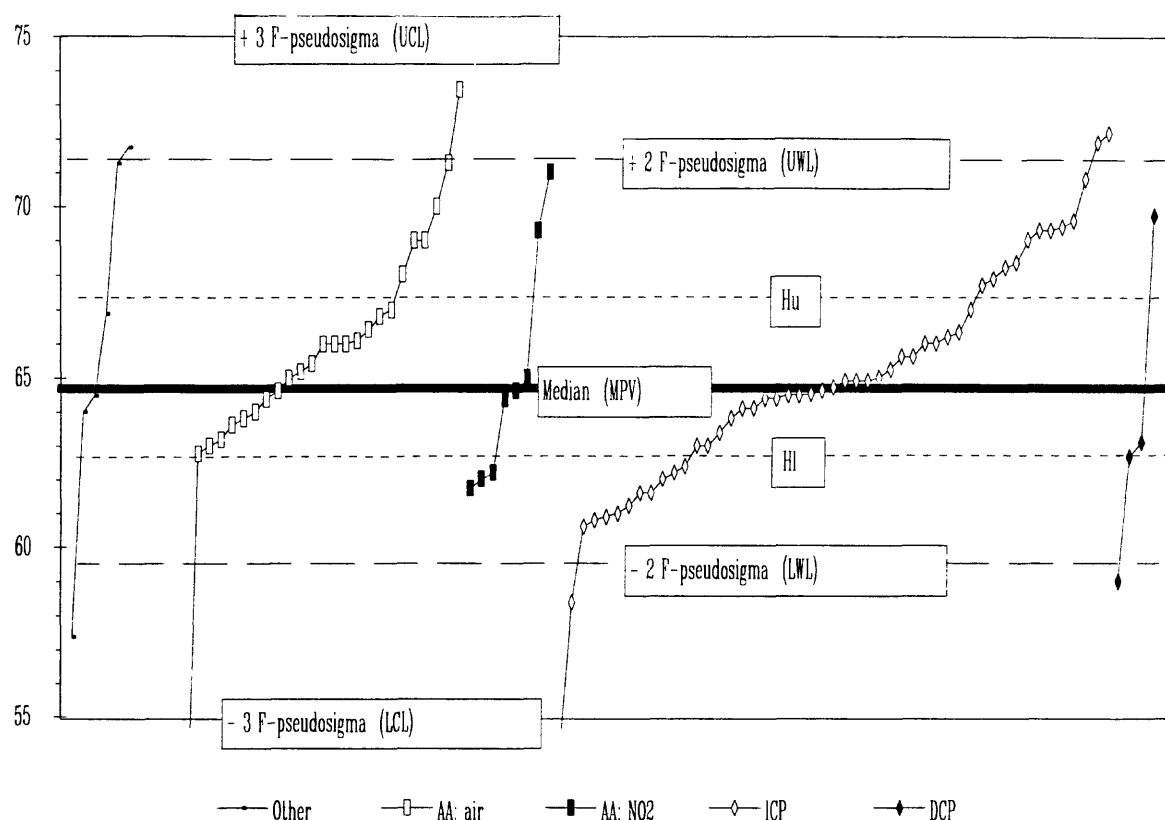
STATISTICAL PRESENTATION OF DATA

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 10 through 14. Tabulated data for each analyte include the laboratory code number, reported values, analytical method, most probable value (MPV), number of reported values (N), less than values (<), 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 σ 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 not used in this report to establish the median or 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 (H_u) and the lower hinge (H_l), 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 more 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, HI, and the (UWL) and (LWL) at +2 and -2 F-pseudosigma, respectively. "Less than" values are not plotted.



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 10 through 14.

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

DISCUSSION

In this report, less than values have not been used to establish MPV's for T-129 analytes. This sample has low concentrations for many of the trace analytes. Many of the laboratories do not routinely report concentrations at these low levels, therefore, the many less than values have not been incorporated into the statistics.

Users need to review the tabulated and graphical plots for individual analytes because these tables and plots give indications of the method and instrumentation precision, and help provide additional evidence as to the desirability of upgrading methods or equipment or both.

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 April 1994

[Lab, laboratory number; OWR, overall weighted rating for all sample types; OLR, overall laboratory rating for reported values of a sample type; V/63, number of reported values of 63 total possible values from all sample types; V/26, V/15, V/10, V/11, V/1 are number of reported values possible for T-129, M-130, N-42, P-22, and Hg-18 respectively]

Standard reference sample =			T-129		M-130		N-42		P-22		Hg-18	
Lab	OWR	V/63	OLR	V/26	OLR	V/15	OLR	V/10	OLR	V/11	OLR	V/1
1	3.5	53	3.7	22	3.4	15	3.6	5	3.0	10	3	1
2	1.9	7							1.9	7		
3	2.5	44	2.6	16	2.7	15	3.0	5	1.6	7	3	1
4	1.8	17	1.2	9	2.5	8						
5	2.7	38	3.4	13	2.6	13	2.2	5	1.7	7		
6	2.3	20	2.4	9	2.4	7	1.5	4				
7	2.6	34	2.8	14	2.5	11	2.5	4	3.0	4	2	1
9	2.7	22	2.5	8	2.7	9	3.2	5				
10	3.8	20	3.3	3	3.9	12	3.6	5				
11	2.3	52	2.4	17	2.5	15	1.2	10	2.9	9	4	1
12	3.1	24	3.3	8	3.0	11	3.3	4			3	1
13	2.7	27	2.1	9	3.0	13	4.0	4			0	1
15	2.5	46	2.7	13	1.8	14	3.5	8	2.5	10	4	1
19	2.5	21	2.7	7	2.3	10	2.8	4				
21	3.0	4	3.0	1			3.0	3				
22	4.0	1					4.0	1				
23	2.9	43	2.6	14	2.7	13	4.0	5	3.1	11		
24	3.2	37	3.2	24	3.0	12					4	1
25	2.3	37	1.9	10	2.2	13	2.5	4	2.8	10		
26	1.8	22	2.0	3	1.7	11	3.3	3	1.0	5		
30	3.2	14	3.6	9	2.6	5						
32	2.8	34	2.4	16	2.9	14	4.0	3			4	1
33	3.0	29	2.6	10	3.3	10	1.0	1	3.4	8		
34	3.7	3	3.5	2							4	1
36	2.3	54	2.3	21	2.7	13	1.6	10	2.2	9	3	1
38	3.5	23			3.3	10	3.2	5	4.0	8		
39	3.5	22	3.8	13	3.8	5			3.3	3	0	1
40	3.3	13			3.3	13						
43	3.3	18	3.8	6	3.3	11	1.0	1				
44	2.8	6							2.8	6		
45	3.0	28	2.8	12	3.3	11	2.8	4			2	1
46	3.6	38	3.7	11	3.7	13	3.6	5	3.4	8	4	1
48	2.2	36	2.7	12	1.7	10	2.6	5	1.8	8	4	1
50	2.9	17	2.0	4	3.3	12					1	1
51	2.3	32	2.3	15	2.2	11	2.8	5			2	1
52	2.8	47	2.6	16	2.4	13	3.8	10	3.0	7	1	1
53	2.0	2					2.0	2				
54	3.3	15	2.8	4	3.7	10	1.0	1				
55	3.0	25	2.6	9	3.0	12	3.7	3			4	1
56	1.7	13			2.2	9	0.5	4				
58	1.5	54	1.8	24	0.8	13	1.8	5	1.5	11	3	1
59	3.3	16	3.1	10			3.4	5			4	1
61	2.6	26	2.7	10			2.4	5	2.6	10	3	1
62	3.5	2							3.5	2		
63	2.5	42	2.2	10	2.4	12	2.6	10	2.6	9	3	1
64	3.2	25	3.8	4	3.0	8	2.0	4	3.6	9		
68	2.8	33	2.8	16	3.1	11	2.6	5			1	1
69	2.6	19	2.3	6	2.6	11	3.0	1			4	1
70	3.1	29	3.4	9	3.2	14	2.2	5			3	1
72	2.0	22	0.7	7	2.8	10	2.2	5				
73	3.0	5	3.0	5								
75	3.3	30	3.1	11	3.6	10	3.1	8			4	1
76	3.0	13			3.1	10	2.5	2			3	1
78	2.7	55	3.2	21	2.1	13	2.3	10	2.8	10	4	1
79	2.5	13	1.7	6	3.5	4	2.5	2			3	1
80	1.9	13			2.3	10	0.7	3				
81	3.7	6					3.8	5			3	1
84	3.2	14	3.3	4	3.3	7	3.0	3				
85	3.2	30	3.3	11	3.4	14	2.4	5				
86	3.0	22	3.5	11	2.5	10		0			4	1
87	2.3	33	1.9	15	2.2	12	3.8	5			3	1
88	1.3	6					1.3	6				
90	2.3	24	1.4	12	2.8	6	3.8	5			3	1
91	2.8	4	4.0	1			2.3	3				
92	2.1	35	1.5	13	3.2	12	1.7	7	3.0	2	0	1
93	2.3	20			2.1	9	2.0	2	2.6	9		
94	3.1	36	3.1	11	3.4	13	2.5	4	3.0	8		
96	2.8	15	3.0	2	2.7	7	2.6	5			4	1
97	2.7	39	2.5	14	2.6	14	3.1	10			4	1
100	2.6	42	2.4	17	3.1	8	2.8	10	2.3	6	0	1

Table 4. -Overall laboratory performance ratings for standard reference water samples distributed in April 1994

--Continued

Standard reference sample =			T-129		M-130		N-42		P-22		Hg-18	
Lab	OWR	V/63	OLR	V/28	OLR	V/15	OLR	V/10	OLR	V/11	OLR	V/1
101	2.3	30	2.2	15	2.4	8			2.6	7		
102	2.3	33	2.4	14	2.9	9	1.8	5	1.6	5		
103	3.4	21	3.4	14	3.6	7						
105	3.2	41	3.5	21	2.9	14	3.4	5			0	1
107	2.9	36	2.5	12	2.8	11	2.3	4	3.9	9		
108	3.1	12	3.8	6	4.0	1	1.5	4			4	1
109	3.2	27	3.3	13	3.0	13					4	1
110	3.7	9							3.7	9		
111	2.2	27	1.8	6	1.7	10	2.3	3	3.0	8		
112	3.4	7							3.4	7		
113	2.6	39	2.3	14	2.9	14	3.3	4	2.8	6	0	1
114	2.2	29	1.5	12	2.7	11	3.2	5			0	1
116	3.2	17	3.1	9	3.4	8						
118	2.5	16	1.0	1	1.5	4	3.3	10			0	1
119	3.2	40	3.3	15	3.3	14	2.9	10			4	1
121	3.5	24	3.4	17	3.6	7						
122	3.0	22	0.0	1	2.8	11	3.4	10				
126	3.3	3	4.0	2			2.0	1				
127	3.2	35	2.9	15	3.3	14	3.8	5			3	1
128	2.2	29	2.5	11	2.3	12	2.0	5			0	1
129	2.8	22	0.0	2	2.6	10	3.6	10				
131	2.3	4			2.3	4						
133	2.6	14	3.0	4	2.3	4	2.6	5			2	1
134	3.5	47	3.8	15	3.6	13	3.6	10	2.9	8	4	1
136	2.1	36	1.9	14	2.4	10	3.0	3	1.8	9		
138	3.2	24			2.9	11	3.6	5	3.1	7	4	1
140	2.9	39	3.2	13	3.1	13	2.0	5	2.8	8		
141	2.6	38	2.5	11	2.6	13	3.6	5	2.1	8	4	1
142	3.0	43	3.3	25	3.1	12	2.0	5			2	1
143	3.3	14			3.2	5	3.6	5	3.0	4		
145	3.1	40	3.5	10	2.8	12	3.0	10	3.3	7	2	1
146	1.6	23	1.9	10	1.2	10	1.0	2			4	1
149	2.8	11	2.8	6	2.5	4					4	1
151	3.3	21	3.0	12	3.6	8					4	1
153	2.9	10			2.9	10						
158	2.6	22	3.2	5	2.4	5	2.8	4	2.4	8		
179	2.2	27	1.4	8	2.1	9	3.0	10				
180	3.2	32	3.3	10	3.1	9	3.8	5	2.7	7	3	1
182	3.5	2	3.5	2								
183	1.9	7			2.2	5	1.0	2				
190	2.2	33	2.5	10	2.2	11	2.7	3	1.9	9		
191	2.4	30	2.0	18	2.9	10	3.0	2				
193	2.6	10	2.3	8	2.7	3	4.0	1				
194	2.7	25	2.6	7	3.0	10	1.8	4	3.0	3	3	1
196	3.0	42	3.4	22	2.5	10	3.0	1	2.8	9		
197	4.0	2					4.0	2				
198	2.9	11	3.0	10							2	1
203	2.5	22	3.4	8	2.2	6	1.3	4	2.3	4		
204	2.5	31	2.1	9	2.3	9	3.3	4	2.6	8	3	1
208	2.8	5			2.3	3	3.5	2				
209	3.0	16			2.6	9			3.6	7		
210	2.7	31	2.9	7	2.7	11	3.2	5	2.0	7	3	1
211	1.9	38	1.1	15	2.3	12	2.8	10			0	1
212	3.0	1			3.0	1						
213	3.2	16	3.6	10	1.5	2	3.0	4				
217	2.7	7	2.7	7								
220	3.0	25	3.4	9	3.3	8	2.1	7			2	1
221	2.4	28	2.8	13	2.4	9	1.6	5			1	1
224	2.3	49	2.7	15	2.0	13	1.8	10	2.6	11		
225	1.0	29	0.5	6	1.9	8	0.8	5	0.8	9	0	1
227	3.5	2					3.5	2				
230	2.7	6			2.7	6						

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace 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/26, number of reported values of 26 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)	
MPV = 0.37 µ g/L					50.0 µ g/L		0.55 µ g/L		11.6 µ g/L		34.0 µ g/L		0.12 µ g/L	
F-pseudosigma = 1.40					11.9		1.14		2.8		1.9		0.13	
Lab	OLR	V/26	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.7	22	0.11	4	45.8	4	< 1	NR	8.9	3	33.0	3	< 0.5	NR
3	2.6	16	2.10	2	59.0	3	< 1	NR	10.0	4	34.3	4	0.30	2
4	1.2	9							< 10	NR	36.0	2	< 5	NR
5	3.4	13	< 0.1	NR	48.0	4	< 1	NR			32.6	3	< 5	NR
6	2.4	9	< 0.5	NR	80.0	0	< 1	NR	< 250	NR	34.6	4	< 0.5	NR
7	2.8	14	< 0.3	NR	56.3	3	< 1.2	NR			33.4	4	< 1	NR
9	2.5	8												
10	3.3	3					< 2	NR						
11	2.4	17			44.0	3	3.28	0	7.0	3	36.0	2		
12	3.3	8	< 0.2	NR	< 100	NR	< 10	NR					< 20	NR
13	2.1	9	< 2	NR	88.0	0	< 5	NR			37.3	1		
15	2.7	13	< 10	NR	112.0	0	< 4	NR	< 20	NR	34.9	4	< 1	NR
19	2.7	7									35.0	3		
21	3.0	1												
23	2.6	14	0.03	4	37.4	2	< 1	NR			69.2	0	< 0.1	NR
24	3.2	24	1.00	4	81.0	0	0.50	4			34.3	4	0.09	4
25	1.9	10	< 6	NR	< 19	NR	< 50	NR	< 23	NR	29.0	0	< 2.4	NR
26	2.0	3	< 0.3	NR			< 1	NR	< 5	0				
30	3.6	9									35.5	3		
32	2.4	16	< 0.1	NR	40.5	3	< 0.2	NR	7.0	3	29.2	0	< 0.2	NR
33	2.6	10			50.0	4					36.0	2		
34	3.5	2					0.12	4						
35		<					< 1	NR						
36	2.3	21	0.00	nr	75.4	0	0.20	4	167.0	0	32.1	3	0.04	3
39	3.8	13	0.10	4			< 1	NR	< 10	NR	34.0	4	< 1	NR
43	3.8	6												
45	2.8	12	< 2	NR	38.1	3	< 3	NR			34.4	4		
46	3.7	11			48.2	4			11.6	4	34.0	4		
48	2.7	12	< 0.2	NR	49.5	4	< 1	NR	< 10	NR	47.0	0	< 0.2	NR
50	2.0	4	< 2	NR	63.0	2	< 1	NR			< 50	NR		
51	2.3	15					0.20	4						
52	2.6	16	< 1	NR	48.4	4	< 2	NR	< 100	NR	31.5	2	< 0.2	NR
54	2.8	4												
55	2.6	9									32.7	3		
58	1.8	24	3.00	1	43.0	3	2.30	1	47.0	0	43.0	0	0.12	4
59	3.1	10			50.0	4	< 5	NR			32.0	2	< 5	NR
61	2.7	10	< 5	NR	55.5	4	< 5	NR	< 10	NR	28.6	0	< 1	NR
63	2.2	10	< 0.5	NR	< 100	NR	< 5	NR	< 100	NR	< 500	NR	< 0.5	NR
64	3.8	4												
68	2.8	16	5.50	0	265.0	0	0.50	4			31.5	2	< 1	NR
69	2.3	6	< 2	NR	< 100	NR	< 5	NR					< 1	NR
70	3.4	9	< 5	NR	< 100	NR	< 5	NR	< 50	NR	34.6	4	< 2	NR
72	0.7	7	< 1	NR			< 1	NR			74.3	0	< 1	NR
73	3.0	5			36.0	2								
75	3.1	11	< 0.1	NR	41.8	3	< 50	NR			32.2	3	< 1	NR
78	3.2	21	0.60	4	47.3	4	1.10	4			42.7	0	0.10	4
79	1.7	6	0.30	4									< 5	NR
84	3.3	4												
85	3.3	11	< 5	NR	< 100	NR	< 2	NR	12.0	4	32.8	3	< 10	NR
86	3.5	11			50.1	4			13.5	4	33.3	4		
87	1.9	15	2.00	2			2.00	3			112.0	0		
90	1.4	12	0.32	4	373.0	0	7.80	0			50.3	0		
91	4.0	1												
92	1.5	13												
94	3.1	11	3.00	1	54.0	4	< 5	NR	< 10	NR	34.0	4	< 1	NR

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace constituents)

--Continued

Analyte = Ag (Silver)				Al (Aluminium)				As (Arsenic)				B (Boron)				Ba (Barium)				Be (Beryllium)			
MPV = 0.37 μ g/L				50.0 μ g/L				0.55 μ g/L				11.6 μ g/L				34.0 μ g/L				0.12 μ g/L			
F-pseudosigma = 1.40				11.9				1.14				2.8				1.9				0.13			
Lab	OLR	V/26	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating			
96	3.0	2	< 5	NR			< 5	NR					< 100	NR			< 0.04	NR					
97	2.5	14			49.5	4	< 0.36	NR					28.2	0			< 1	NR					
100	2.4	17	< 0.05	NR	< 40	NR	< 2	NR	35.6	0			31.9	2									
101	2.2	15			215.0	0							33.3	4									
102	2.4	14	< 1	NR	39.0	3	< 5	NR					33.0	3			< 1	NR					
103	3.4	14	< 5	NR	50.0	4			6.0	2			33.0	3			< 5	NR					
105	3.5	21	< 0.06	NR	47.9	4	0.22	4					34.0	4			< 1	NR					
107	2.5	12	< 1	NR	54.0	4	< 5	NR					25.7	0									
108	3.8	6					0.60	4	10.3	4													
109	3.3	13																					
111	1.8	6			41.6	3																	
113	2.3	14	< 0.5	NR	44.6	4	< 1.5	NR					37.0	1			< 0.2	NR					
114	1.5	12	< 5	NR	94.0	0	0.50	4									1.50	0					
116	3.1	9											34.0	4									
118	1.0	1	< 0.5	NR			< 4	NR															
119	3.3	15			37.0	2			7.0	3			35.0	3			0.05	3					
121	3.4	17							13.0	4			35.0	3									
122	0.0	1			94.2	0																	
126	4.0	2					< 10	NR					< 200	NR									
127	2.9	15	< 1	NR	76.1	0	< 2	NR	10.3	4			32.6	3			< 0.5	NR					
128	2.5	11	< 1	NR	40.5	3	1.33	3					30.8	1			< 1	NR					
129	0.0	2																					
133	3.0	4	< 6	NR			< 5	NR					33.0	3			< 0.5	NR					
134	3.6	15	< 1	NR	50.0	4	< 1	NR	< 20	NR			35.0	3			< 0.5	NR					
136	1.9	14			32.0	1	1.00	4									14.00	0					
140	3.2	13																					
141	2.5	11	< 1	NR	63.0	2	< 10	NR	16.8	3			35.0	3			< 1	NR					
142	3.3	25	0.45	4	42.4	3	0.50	4	10.3	4			32.0	2			0.20	3					
145	3.5	10			< 179	NR	< 39	NR	< 23	NR			34.0	4			< 2	NR					
146	1.9	10	< 10	NR	< 200	NR	< 10	NR	< 50	NR			29.3	0			< 4	NR					
149	2.8	6			45.0	4	< 1	NR									< 0.5	NR					
151	3.0	12	< 10	NR	45.2	4	0.20	4					38.9	0									
158	3.2	5	0.25	4																			
179	1.4	8	< 1	NR			< 5	NR									< .5	NR					
180	3.3	10	< 6.3	NR	53.3	4	< 25.8	NR	16.6	3			34.5	4			< .4	NR					
182	3.5	2																					
190	2.5	10																					
191	2.0	18			53.0	4	82.40	0					32.8	3									
193	2.3	6	< 1	NR			< 5	NR					37.1	1									
194	2.6	7	< 1	NR	< 500	NR	< 10	NR	< 100	NR			< 100	NR			< .5	NR					
196	3.4	22	0.02	4	51.4	4	0.19	4					34.7	4			0.03	3					
198	3.0	10	< 0.001	NR	43.6	3	< 0.005	NR					33.8	4			0.0005	NR					
203	3.4	8	< 2	NR	45.0	4	< 5	NR					36.6	2									
204	2.1	9	< 1	NR	48.3	4	< 5	NR					35.2	3									
210	2.9	7	< 2	NR	< 300	NR	< 5	NR	< 50	NR			34.6	4			< 0.5	NR					
211	1.1	15	< 0.7	NR	310.0	0	< 2	NR	30.0	0			30.0	0			< 2	NR					
213	3.6	10	0.37	4			1.50	3									0.12	4					
217	2.7	7	< 1	NR	< 100	NR	< 1	NR	< 100	NR			34.7	4			< 2	NR					
220	3.4	9					< 1	NR															
221	2.8	13	< 1	NR	57.7	3	< 1	NR					22.5	0									
224	2.7	15			27.0	1	< 3	NR					30.2	1			< 3	NR					
225	0.5	6	< 10	NR	60.0	3							40.0	0									

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace 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/26, number of reported values of 26 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 = Ca (Calcium)			Cd (Cadmium)		Co (Cobalt)		Cr (Chromium)		Cu (Copper)		Fe (Iron)		K (Potassium)	
MPV = 21.1 m g/L			0.34 µ g/L		0.74 µ g/L		0.68 µ g/L		2.7 µ g/L		10.4 µ g/L		3.00 m g/L	
F-pseudosigma = 1.0			0.15		1.20		1.36		1.4		8.2		0.20	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	21.3	4	0.32	4	0.12	3	0.60	4	2.7	4	5.1	3	2.92	4
3	22.5	2	0.41	4	< 5	NR	< 1	NR	< 1	NR	< 10	NR	4.00	0
4	24.0	0	< 10	NR	< 10	NR	< 15	NR	< 6	NR	< 30	NR		
5	20.7	4	0.30	4	< 3	NR	< 10	NR	< 5	NR			3.21	2
6			0.25	3			0.52	4	< 50	NR				
7	22.1	2	< 0.1	NR	< 5	NR	< 5	NR	3.0	4	14.9	3	3.05	4
9	19.4	1							1.7	2			3.20	3
10			< 1	NR			< 2	NR	2.0	3	< 20	NR		
11	23.3	0	0.40	4							6.0	3	3.05	4
12	21.0	4	0.30	4			< 20	NR	2.0	3	< 50	NR	3.00	4
13	20.3	3	< 1	NR			< 5	NR	< 20	NR	< 20	NR	3.16	3
15	22.7	1	< 10	NR	< 20	NR	< 1	NR	2.0	3	< 30	NR	2.93	4
19	22.4	2											2.88	3
21											5.0	3		
23	20.6	3	0.32	4			0.54	4	2.1	3			2.74	2
24	20.9	4	0.50	2	0.70	4	0.90	4	3.3	3	5.6	3	2.91	4
25	20.0	2	< 6	NR	< 12	NR	< 8	NR	< 7	NR	< 6	NR	2.79	2
26			< 0.3	NR			< 5	NR	< 5	NR	< 20	NR		
30			0.51	2	0.21	4	0.30	4	2.5	4				
32	21.1	4	0.41	4	< 0.1	NR	< 0.3	NR	1.5	1	60.5	0	2.70	1
33	22.3	2									10.0	4	2.86	3
34														
35											< 10	NR		
36	19.3	1	0.22	3	0.00	NR	0.65	4	7.0	0	13.5	4	2.93	4
39	21.1	4			< 0.2	NR			3.0	4				
43	21.0	4									< 10	NR	3.00	4
45	21.6	3	0.40	4			< 5	NR					2.96	4
46	21.0	4	0.34	4									2.95	4
48	22.4	2	0.30	4	< 50	NR	< 1	NR	2.2	3	< 30	NR	3.18	3
50			< 2	NR	< 2	NR	< 2	NR	< 2	NR	< 2	NR		
51	20.2	3	0.30	4	2.10	2	0.10	4	2.7	0			3.48	0
52	20.5	3	0.30	4	< 1	NR	0.76	4	1.3	1	18.8	2	2.88	3
54	21.5	4											1.23	0
55	21.5	4												
58	16.9	0	0.20	3	0.15	4	0.40	4	2.0	3	30.0	0	3.39	1
59	21.0	4	< 5	NR			< 5	NR	8.0	0	< 5	NR	2.95	4
61	20.4	3	< 4	NR	< 11	NR	< 9	NR	< 5	NR	< 30	NR	3.13	3
63	20.1	2	0.70	0	< 10	NR	< 5	NR	< 2	NR	< 10	NR	3.14	3
64	20.8	4											3.01	4
68	21.5	4	< 2	NR	< 5	NR	< 5	NR	4.0	1	< 10	NR	2.95	4
69	20.7	4	< 1	NR			< 5	NR	< 50	NR	< 50	NR	3.35	1
70	22.3	2	< 1	NR	< 50	NR	< 1	NR	< 10	NR	< 20	NR	3.15	3
72			< 1	NR	1.40	3	< 1	NR	4.7	0				
73							3.20	1	2.4	4				
75	21.8	3	0.26	3	< 5	NR	< 2	NR	< 3	NR	< 5	NR	2.88	3
78	20.3	3	0.40	4			0.60	4	2.1	3	7.8	4	3.08	4
79			< 5	NR			< 5	NR	6.1	0				
84	21.2	4							3.5	2				
85	20.6	3	< 5	NR	< 10	NR	< 10	NR	< 5	NR	< 10	NR	3.52	0
86	21.3	4									20.9	2	3.00	4
87	20.0	2	2.00	0			15.00	0	5.0	0	< 40	NR	2.98	4
90			0.36	4			0.09	4						
91											< 20	NR		
92	11.0	0	1.50	0	2.50	2	10.00	0	4.0	1			2.90	4
94	22.1	2	< 3	NR	< 5	NR	< 5	NR	< 5	NR	< 30	NR	3.00	4

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace constituents)

--Continued

Analyte = Ca (Calcium)			Cd (Cadmium)		Co (Cobalt)		Cr (Chromium)		Cu (Copper)		Fe (Iron)		K (Potassium)	
MPV = 21.1 m g/L			0.34 µ g/L		0.74 µ g/L		0.68 µ g/L		2.7 µ g/L		10.4 µ g/L		3.00 m g/L	
F-pseudosigma = 1.0			0.15		1.20		1.36		1.4		8.2		0.20	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
96			< 2	NR			< 5	NR	< 5	NR	< 50	NR		
97	21.4	4	< 0.28	NR	< 0.09	NR	< 0.17	NR	1.8	2	< 1.41	NR	2.90	4
100	20.6	3	1.45	0	3.40	0	1.55	3	4.0	1	10.4	4	2.60	1
101	21.1	4	0.60	1			4.90	0	6.5	0	6.5	4	3.05	4
102	21.8	3	0.30	4	< 1	NR	3.80	0	2.7	4	4.7	3	3.18	3
103	20.0	2	< 5	NR	< 5	NR	< 5	NR	< 5	NR	4.0	3	2.90	4
105	22.3	2	0.30	4	0.12	3	0.37	4	2.7	4	< 10	NR	3.03	4
107	23.2	0	< 1	NR			3.25	1	2.1	3	< 10	NR	2.92	4
108			0.27	4			1.00	4	3.0	4				
109	20.7	4									7.0	4	2.93	4
111	24.3	0											3.29	2
113	19.8	2	0.36	4			< 0.5	NR	2.4	4	36.0	0	3.01	4
114	20.8	4	< 5	NR					< 5	NR	14.5	3	2.36	0
116	2.2	0									11.0	4		
118			< 1	NR					< 2	NR				
119	21.0	4	0.40	4					3.7	2			3.30	2
121	20.8	4	0.30	4	0.64	4	2.50	2	4.7	0	< 5	NR	3.05	4
122														
126			< 1	NR					< 20	NR	< 50	NR		
127	23.4	0	0.31	4	< 1	NR	< 1	NR	< 3	NR	5.2	3	3.12	3
128			< 1	NR	< 1	NR	< 1	NR	2.1	3				
129											155.0	0		
133	21.5	4	< 2	NR			< 3	NR	< 2	NR	< 5	NR		
134	22.0	3	< 1	NR	1.10	4	< 1	NR	2.5	4	< 3	NR	3.10	4
136	20.9	4	0.80	0	< 50	NR	2.00	3	4.0	1	14.0	4	3.88	0
140	21.0	4	0.50	2			1.00	4	4.0	1	5.0	3	3.25	2
141	22.1	2	< 0.5	NR	< 10	NR	< 5	NR	< 5	NR	< 20	NR	3.31	1
142	21.8	3	0.50	2	< 0.2	NR	1.25	4	3.0	4	6.1	3	2.90	4
145	21.1	4	< 6	NR	< 12	NR	< 14	NR	< 26	NR	< 17	NR	2.62	1
146	19.1	1	< 5	NR	< 10	NR	< 10	NR	< 25	NR	< 50	NR	1.98	0
149	13.6	0							< 9	NR	< 10	NR	2.70	2
151	22.1	2					0.39	4	< 10	NR			2.90	4
158			0.25	3			0.40	4	2.0	3				
179	21.6	3	< 5	NR			< 2	NR	1.7	2	< 100	NR	3.34	1
180	19.8	2	< 2.7	NR	< 3.8	NR	< 4	NR	< 4.3	NR	< 3.5	NR	2.87	3
182							0.34	4						
190	22.1	2					0.62	4	2.0	3	16.6	3	3.48	0
191	20.8	4	11.49	0	21.30	0	16.96	0	18.2	0	< 0.01	NR	3.01	4
193	21.0	4	< 5	NR	< 25	NR	< 25	NR	< 25	NR	< 25	NR	30.00	0
194	20.8	4	< 1	NR	< 10	NR	< 10	NR	< 10	NR	< 100	NR	3.35	1
196	22.2	2	0.32	4	0.10	3	0.42	4	3.2	3			3.06	4
198	21.3	4	0.25	3			< 0.001	NR	< 0.01	NR	< 0.01	NR	3.22	2
203	19.6	2	< 0.5	NR			< 2	NR	< 2	NR	< 10	NR	2.91	4
204	19.6	1	< 1	NR			< 2	NR	2.6	4	< 10	NR	2.83	3
210	21.7	3	< 0.5	NR	< 50	NR	< 5	NR	< 10	NR	< 50	NR	2.98	4
211	25.6	0	0.30	4	< 50	NR	< 50	NR	20.0	0	30.0	0	2.25	0
213			0.54	2	0.78	4	0.50	4	2.5	4	3.4	3		
217	22.3	2	< 5	NR	< 10	NR	< 1	NR	< 20	NR	< 100	NR	< 5	NR
220	21.5	4	0.22	3			< 1	NR	1.9	2	< 20	NR	3.00	4
221	21.4	4	0.28	4	< 5	NR	< 1	NR	1.9	2	12.0	4	3.07	4
224	21.9	3			1.00	4	0.70	4	2.9	4	10.3	4	2.92	4
225			< 5	NR			< 10	NR	< 10	NR	< 10	NR		

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace 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/26, number of reported values of 26 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 = Li (Lithium)			Mg (Magnesium)		Mn (Manganese)		Mo (Molybdenum)		Na (Sodium)		Ni (Nickel)		Pb (Lead)	
MPV = 18.0 µ g/L			5.83 m g/L		25.2 µ g/L		20.3 µ g/L		35.5 m g/L		1.7 µ g/L		1.00 µ g/L	
F-pseudosigma = 2.6			0.25		2.2		2.1		1.5		1.7		1.37	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	17.0	4	5.92	4	24.2	4	19.2	3	35.0	4	1.6	4	0.03	3
3	20.0	3	6.20	2	25.6	4	18.0	2	29.2	0	< 5	NR	< 1	NR
4	14.0	1	6.20	2	27.0	3	< 50	NR	40.0	0	< 30	NR	< 60	NR
5	17.5	4	5.82	4	25.5	4	13.3	0	36.0	4			< 1	NR
6					26.7	3	24.5	1			0.9	4	< 1	NR
7			6.20	2	26.7	3	25.4	0	37.6	2	< 15	NR	< 1	NR
9			5.58	3	27.3	3			36.0	4				
10					27.0	3							< 2	NR
11			6.25	1	25.0	4	16.0	0	37.2	2			0.40	4
12			6.00	3	20.0	0	< 30	NR	35.0	4	< 20	NR	< 10	NR
13			4.59	0	32.0	0			36.2	4	< 20	NR	< 5	NR
15	29.2	0	5.86	4	26.0	4	22.3	3	36.6	3	< 5	NR	< 1	NR
19			6.22	1	26.0	4			36.0	4				
21														
23			27.00	0			24.0	1	34.6	3			< 0.5	NR
24	20.0	3	5.81	4	26.2	4	20.0	4	34.5	3	4.2	2	0.20	3
25	15.0	2	5.60	3	18.0	0			33.9	2	< 49	NR	< 71	NR
26					26.0	4					< 5	NR	< 5	NR
30					23.2	3	20.3	4			1.7	4		
32	15.6	3	5.68	3	22.4	2	17.5	2	35.0	4	< 0.8	NR	< 0.1	NR
33			5.81	4	20.0	0			34.1	3				
34														
35														
36			6.06	3	37.1	0	18.1	2	37.4	2	3.3	3	0.55	4
39	19.0	4	6.01	3	24.0	3	21.0	4	35.5	4				
43			5.80	4	26.0	4			35.3	4				
45			5.80	4	31.5	0	27.0	0	36.7	3			< 2	NR
46			5.96	3	24.7	4			36.6	3				
48			6.17	2	30.0	0	< 100	NR	34.8	4	1.6	4	< 1	NR
50	< 50	NR			28.0	2	20.0	4			< 2	NR	< 2	NR
51			6.00	3	37.2	0			35.0	4	2.6	3	2.00	3
52			5.76	4	23.9	3	20.9	4	34.0	2	8.1	0	< 2	NR
54			6.01	3					35.4	4				
55	22.0	1	5.69	3	21.9	1							1.30	4
58			4.76	0	30.0	0	20.0	4	70.0	0	1.0	4	1.00	4
59			5.80	4	24.0	3			36.0	4	< 5	NR	< 5	NR
61			5.68	3	25.0	4	19.2	3	34.3	3	< 23	NR	< 5	NR
63	26.0	0	5.54	2	26.0	4	22.0	3	33.9	2	< 5	NR	< 5	NR
64									36.2	4				
68	17.0	4	5.75	4	25.0	4	22.0	3	34.5	3	< 7	NR	1.40	4
69	< 50	NR	5.45	2	20.0	0			34.7	3	< 50	NR	< 5	NR
70			6.04	3	25.1	4	< 50	NR	35.8	4	< 20	NR	< 1	NR
72					47.6	0	33.6	0			4.2	2	< 2	NR
73					26.0	4								
75	15.9	3	6.10	2	23.8	3	20.0	4	36.8	3	< 5	NR	< 3	NR
78			4.30	0	24.8	4	21.6	3	21.9	0	1.8	4	2.10	3
79					31.3	0	20.1	4			< 5	NR		
84			5.68	3					36.1	4				
85	19.0	4	5.78	4	23.6	3	21.2	4	35.0	4	< 10	NR	< 50	NR
86			6.08	2	24.0	3	21.6	3	36.0	4				
87			5.43	1	24.0	3	22.5	2	33.2	1	< 10	NR	< 20	NR
90					30.0	0			32.3	0	1.9	4	3.26	1
91					25.3	4								
92			2.75	0	24.0	3			34.0	2	6.0	0	6.50	0
94			5.70	4	25.0	4	18.0	2	35.6	4	< 15	NR	< 2	NR

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace constituents)

--Continued

Analyte = Li (Lithium)			Mg (Magnesium)		Mn (Manganese)		Mo (Molybdenum)		Na (Sodium)		Ni (Nickel)		Pb (Lead)	
MPV =	18.0	μ g/L	5.83	m g/L	25.2	μ g/L	20.3	μ g/L	35.5	m g/L	1.7	μ g/L	1.00	μ g/L
F-pseudosigma =	2.6		0.25		2.2		2.1		1.5		1.7		1.37	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
96					25.6	4							< 5	NR
97			5.80	4	23.0	2	20.5	4	34.9	4	< 0.44	NR	0.66	4
100	17.0	4	5.90	4	25.5	4	< 50	NR	35.6	4	2.2	4	< 2	NR
101			6.00	3	24.8	4			36.5	3	0.3	3	5.20	0
102			5.00	0	23.8	3			39.2	0	< 1	NR	< 3	NR
103	16.0	3	5.70	4	26.0	4	20.0	4	37.0	2	< 5	NR	< 20	NR
105	18.0	4	5.87	4	24.0	3	20.8	4	37.0	2	1.1	4	0.10	3
107			5.79	4	30.0	0			33.5	2	1.9	4	< 2	NR
108										1.0	4		0.25	3
109	17.7	4	6.00	3	28.0	2	22.0	3	34.5	3			0.00	NR
111			5.99	3					34.7	3				
113			6.04	3	25.4	4			3.6	0	1.2	4	< 0.5	NR
114			6.16	2	28.5	2			44.7	0			5.00	0
116			5.98	3	27.0	3			36.0	4				
118											< 8	NR	< 4	NR
119			5.80	4	25.0	4			35.3	4				
121			5.80	4	26.0	4	20.0	4	35.7	4	4.0	2	1.20	4
122														
126									35.4	4				
127	18.0	4	5.83	4	25.1	4	23.0	2	36.5	3	< 3	NR	< 1	NR
128	12.2	0			21.7	1	19.0	3			1.0	4	< 1	NR
129					10.0	0								
133			5.99	3							< 5	NR	< 20	NR
134	22.0	1	5.78	4	25.0	4	20.0	4	36.0	4	1.4	4	< 1	NR
136			5.79	4	34.0	0			37.0	2	1.0	4		
140			5.80	4	23.0	2			36.5	3	1.0	4	0.50	4
141			6.32	1	27.0	3	19.0	3	37.2	2	< 10	NR	< 5	NR
142	20.0	3	6.14	2	25.3	4	38.5	0	35.3	4	1.0	4	1.00	4
145	< 20	NR	5.76	4	24.0	3	20.0	4	34.8	4	< 22	NR	< 84	NR
146			5.60	3	23.2	3	17.8	2	34.5	3	< 40	NR	< 5	NR
149					26.0	4			35.0	4	< 1	NR	< 2	NR
151			5.85	4	37.2	0	18.8	3	35.0	4	1.8	4		
158													< 2	NR
179			5.60	3	18.0	0	31.7	0	37.4	2	< 3	NR	< 5	NR
180			5.95	4	24.4	4	18.7	3	33.9	2	< 7.3	NR	< 32.7	NR
182							21.5	3						
190			6.15	2	23.4	3			33.1	1			0.15	3
191			5.81	4	24.0	3			36.0	4	56.2	0	30.70	0
193			5.60	3					34.0	2	< 25	NR	< 5	NR
194			5.50	2	< 50	NR	23.0	2	35.7	4	< 100	NR	< 5	NR
196	18.8	4	6.12	2	28.2	2	21.0	4	37.3	2	1.5	4	0.06	3
198			6.04	3	24.1	3	< 0.05	0	36.1	4	< 0.02	NR	< 0.005	NR
203			5.72	4	26.0	4			36.1	4	< 20	NR	< 2	NR
204			6.42	0	< 10	0			33.0	1			< 5	NR
210	< 1000	NR	6.20	2	< 50	NR	< 50	NR	38.8	0	< 10	NR	< 2	NR
211			5.70	4	40.0	0	< 100	NR	31.1	0	30.0	0	1.00	4
213											< 2	NR	1.40	4
217	< 50	NR	6.31	1	26.5	3	20.0	4	36.6	3	< 40	NR	< 1	NR
220			5.91	4	27.0	3			34.1	3				
221			12.30	0	23.8	3	14.8	0	36.0	4	< 2	NR	1.00	4
224			6.28	1	22.0	2	22.0	3	34.3	3			< 3	NR
225			4.93	0	20.0	0	< 20	NR			< 20	NR	< 20	NR

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace 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/26, number of reported values of 26 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 Reted)			

Analyte = Sb (Antimony)	Se (Selenium)		SiO2 (Silica)		Sr (Strontium)		V (Vanadium)		Zn (Zinc)			
MPV = 0.55 μ g/L	1.60 μ g/L		9.15 m g/L		181 μ g/L		1.0 μ g/L		72.0 μ g/L			
F-pseudosigma = 0.87	1.59		0.83		11		2.4		4.8			
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	0.22	4	< 1	NR	9.31	4	177	4	< 6	NR	67.7	3
3	< 2	NR	< 1	NR	8.74	4	188	3	< 5	NR	77.7	2
4					10.00	2	200	1	< 10	NR	55.0	0
5			< 2	NR	9.60	3	185	4			72.6	4
6	< 3	NR	7.65	0							68.0	3
7	< 26	NR	1.90	4	10.26	2	184	4	< 4	NR	77.1	2
9							222	0			70.0	4
10			< 2	NR							70.0	4
11			2.29	4	4.18	0	190	3			75.0	3
12	< 100	NR	< 2	NR							70.0	4
13			< 5	NR	9.18	4					72.0	4
15	< 50	NR	< 1	NR	8.46	3	173	3	< 10	NR	75.4	3
19											77.0	2
21												
23	< 2	NR	< 1	NR	9.61	3			0.9	4	70.5	4
24	1.00	3	0.40	3	4.57	0	178	4			72.5	4
25	< 51	NR	< 129	NR	9.07	4	176	4	< 3	NR	49.0	0
26			< 1	NR							78.0	2
30	0.50	4										
32	< 0.3	NR	< 10	NR	8.56	3	173	3	< 0.2	NR	67.9	3
33					9.61	3	202	1				
34			0.15	3								
35			< 1	NR								
36	0.22	4	1.70	4	18.00	0					64.1	1
39	0.20	4			9.12	4	181	4	< 2	NR	76.0	3
43					9.70	3						
45	< 5	NR	0.36	3	9.45	4					65.2	2
46							191	3			72.5	4
48	< 3	NR	< 2	NR					4.0	2	70.0	4
50			< 1	NR					< 5	NR	88.0	0
51					6.90	0			0.3	4	59.0	0
52	< 6	NR	< 5	NR	6.53	0	174	3	< 2	NR	66.8	2
54												
55					9.29	4	172	3			82.0	0
58	11.00	0	6.00	0	5.18	0			3.0	3	70.0	4
59							178	4			65.0	2
61	< 26	NR	< 5	NR	4.44	0			< 9.1	NR	72.5	4
63	< 5	NR	< 5	NR	8.89	4			< 10	NR	66.0	2
64					8.50	3						
68	< 0.5	NR	1.20	4			170	3	< 3	NR	91.0	0
69	< 5	NR	< 5	NR							70.0	4
70	< 5	NR	< 5	NR	9.47	4	183	4	< 50	NR	74.5	3
72											142.0	0
73											73.0	4
75	< 50	NR	< 1	NR					< 5	NR	71.7	4
78	1.30	3	1.30	4	9.42	4			< 1	NR	71.0	4
79			5.20	0							78.7	2
84												
85	< 100	NR	< 2	NR			174	3	< 20	NR	74.2	4
86											71.2	4
87			2.00	4	9.70	3					72.0	4
90			9.45	0							62.0	0
91												
92					8.98	4					68.0	3
94			< 5	NR			177	4	< 5	NR	80.0	1

Table 5. -Laboratory performance ratings for standard reference water sample T-129 (trace constituents)

--Continued

Analyte = Sb (Antimony)		Se (Selenium)		SiO2 (Silica)		Sr (Strontium)		V (Vanadium)		Zn (Zinc)		
MPV =	0.55 μ g/L	1.60 μ g/L	9.15 m g/L	181 μ g/L	1.0 μ g/L	72.0 μ g/L						
F-pseudosigma =	0.87	1.59	0.83	11	2.4	4.8						
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
96			< 5	NR							77.0	2
97			< 0.23	NR	10.80	1	166	2	7.4	0	48.0	0
100	< 2	NR	< 2	NR	10.60	1	165	2	< 10	NR	74.4	4
101					4.53	0					76.0	3
102	< 1	NR	< 1	NR	6.98	0	181	4	< 1	NR	67.8	3
103					9.20	4	186	4	< 5	NR	73.0	4
105	0.23	4	0.09	3	10.19	2	180	4	< 20	NR	74.0	4
107			< 5	NR	9.28	4					74.0	4
108											74.0	4
109			0.40	3	8.97	4	201	1				
111					2.12	0						
113	< 2.2	NR	< 1	NR	10.03	2	225	0			83.0	0
114	179.50	0									67.5	3
116					8.88	4	181	4			79.0	2
118			< 5	NR							63.0	1
119	0.60	4	0.60	3	9.81	3					73.0	4
121					9.60	3	181	4			73.0	4
122												
126			< 1	NR							71.0	4
127	< 2	NR	< 3	NR	9.09	4	187	3	< 4	NR	75.4	3
128	< 1	NR	2.55	3			186	4	< 1	NR	75.0	3
129												
133			< 5	NR							66.4	2
134			< 1	NR	9.49	4	190	3	< 1	NR	73.0	4
136			< 10	NR					< 10	NR	96.0	0
140					9.56	4					72.0	4
141	< 3	NR	< 2	NR	8.82	4			< 10	NR	68.0	3
142	1.50	2	1.60	4	8.97	4	189	3	1.0	4	73.6	4
145					8.99	4	170	3	< 18	NR	74.0	4
146	< 50	NR	< 10	NR	8.32	3	170	3	< 10	NR	63.6	1
149	< 3	NR	< 2	NR			170	3				
151			< 1	NR							69.3	3
158											65.0	2
179	< 5	NR	< 5	NR							52.0	0
180	< 27.1	NR	< 45	NR					< 4.7	NR	73.5	4
182												
190											73.1	4
191			11.20	0	9.53	4	173	3			69.0	3
193			< 5	NR							72.0	4
194	< 5	NR	< 5	NR			180	4	< 10	NR	80.0	1
196	0.23	4	0.20	3			191	3	0.1	4		
198	< 0.01	NR	< 0.01	NR							74.4	4
203			< 5	NR							68.0	3
204			< 5	NR							69.0	3
210	< 5	NR	< 5	NR	9.88	3	< 500	NR	< 50	NR	74.4	4
211	< 2	NR	< 2	NR	6.28	0			< 2	NR	70.0	4
213											70.0	4
217	< 1	NR	< 1	NR					< 10	NR	77.1	2
220			1.00	4							72.0	4
221			< 1	NR							74.0	4
224					3.54	0			0.1	4	65.7	2
225							154	0			60.0	0

Table 6. -Laboratory performance ratings for standard reference water sample M-130 (major 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/15, 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 = Alkalinity					B (Boron)		Ca (Calcium)		Cl (Chloride)		DSRD	
MPV = 60.0 mg/L					8.87 µg/L		21.2 mg/L		21.4 mg/L		200 mg/L	
F-pseudosigma = 1.9					8.23		1.0		1.9		13	
Lab	OLR	V/15	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.4	15	59.9	4	7.66	4	21.5	4	21.6	4	193	3
3	2.7	15	62.0	2	8.40	4	21.8	3	20.3	3	224	1
4	2.5	8			< 5	NR	23.0	1	23.0	3		
5	2.6	13	122.0	0			20.7	3	20.8	4	135	0
6	2.4	7	64.0	0					19.6	3	176	1
7	2.5	11					22.4	2	20.9	4		
9	2.7	9	60.0	4					22.9	3	202	4
10	3.9	12	60.5	4	< 50	NR	20.9	4	20.4	3	203	4
11	2.5	15	64.8	0	5.00	4	23.4	0	21.4	4	188	3
12	3.0	11	65.0	0			21.0	4	26.0	0	199	4
13	3.0	13	57.6	2			20.1	2	23.0	3	204	4
15	1.8	14	57.0	1	17.90	2	24.4	0	25.6	0	204	4
19	2.3	10	61.7	3			22.4	2	20.0	3	214	2
23	2.7	13	59.2	4			21.0	4	17.3	0	176	1
24	3.0	12	59.0	3			20.3	3	21.5	4		
25	2.2	13	285.0	0	< 23	NR	19.8	2	22.9	3	226	1
26	1.7	11	59.0	3			19.5	1	20.2	3	216	2
30	2.6	5					20.0	2	22.6	3		
32	2.9	14	60.9	4	5.00	4	21.5	4	24.0	2	154	0
33	3.3	10	59.1	4			21.0	4	21.7	4		
36	2.7	13	59.0	3	0.00	NR	19.8	2	21.0	4	200	4
38	3.3	10	60.6	4			21.4	4			198	4
39	3.8	5			< 10	NR	21.4	4				
40	3.3	13	56.0	0			21.6	4	22.1	4	193	3
43	3.3	11	59.0	3			21.4	4	19.5	2	204	4
45	3.3	11	58.5	3			21.5	4	20.9	4	218	2
46	3.7	13	59.6	4			20.6	3	21.5	4	200	4
48	1.7	10	64.0	0	< 10	NR	22.3	2	20.0	3	193	3
50	3.3	12	60.0	4	< 100	NR	19.0	0	22.0	4	198	4
51	2.2	11	64.0	0			20.0	2	26.8	0	204	4
52	2.4	13	480.0	0	< 100	NR	20.3	3	22.3	4	200	4
54	3.7	10	60.0	4			21.3	4			201	4
55	3.0	12	62.0	2			21.8	3	22.9	3	200	4
56	2.2	9	61.9	3			19.6	1	36.2	0		
58	0.8	13	57.0	1	25.00	1	16.4	0	33.7	0		
63	2.4	12	58.8	3	< 100	NR	20.2	2	21.0	4	203	4
64	3.0	8					21.8	3	21.5	4		
68	3.1	11	139.0	0			21.0	4	21.1	4		
69	2.6	11	66.7	0			20.3	3	22.0	4	200	4
70	3.2	14	58.7	3	< 50	NR	22.5	2	23.0	3	202	4
72	2.8	10	61.0	3			20.9	4	18.0	1	212	3
75	3.6	10	57.5	2			20.9	4	22.0	4	204	4
76	3.1	10					22.4	2	21.2	4	198	4
78	2.1	13	58.5	3			19.1	0	20.0	3	191	3
79	3.5	4	61.0	3					21.0	4		
80	2.3	10	68.8	0			23.0	1	19.0	2	174	1
84	3.3	7	60.0	4			21.2	4	24.6	1		
85	3.4	14	59.1	4	12.00	4	20.5	3	21.3	4	189	3
86	2.5	10			16.50	3	21.7	3	23.1	3		
87	2.2	12	62.0	2			21.3	4	22.0	4	152	0
90	2.8	6	61.7	3			21.0	4			192	3
92	3.2	12	61.0	3			20.5	3	20.1	3	189	3
93	2.1	9					21.2	4	23.4	2		
94	3.4	13	60.0	4	< 10	NR	21.7	3	23.1	3	179	1
96	2.7	7	59.5	4					21.5	4	208	3
97	2.6	14	59.3	4			20.9	4	23.9	2	216	2
100	3.1	8	59.9	4					20.2	3	178	1
101	2.4	8					21.8	3	19.0	2		
102	2.9	9					20.8	4	20.0	3		
103	3.6	7			6.00	4	20.0	2				
105	2.9	14	61.4	3			21.7	3	21.0	4	232	0
107	2.8	11	55.3	0			19.3	1	19.7	3		
108	4.0	1										
109	3.0	13	61.5	3	8.05	4	20.6	3	17.4	0	219	2
111	1.7	10					24.4	0	28.4	0		

Table 6. -Laboratory performance ratings for standard reference water sample M-130 (major constituents)

-Continued

Analyte = Alkalinity					B (Boron)		Ca (Calcium)		Cl (Chloride)		DSRD	
MPV = 60.0 mg/L					8.87 μ g/L		21.2 mg/L		21.4 mg/L		200 mg/L	
F-pseudosigma = 1.9					8.23		1.0		1.9		13	
Lab	OLR	V/15	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
113	2.9	14	55.9	0			19.7	1	20.4	3	208	3
114	2.7	11	64.0	0			19.9	2	21.1	4	237	0
116	3.4	6	59.9	4			21.4	4	21.0	4		
118	1.5	4	61.7	3							228	0
119	3.3	14	58.0	2	10.00	4	21.0	4	20.0	3	200	4
121	3.6	7			20.00	2	20.8	4				
122	2.8	11	61.6	3			20.7	3	18.7	2	175	1
127	3.3	14	60.7	4	9.34	4	22.8	1	21.0	4	192	3
128	2.3	12	56.9	1	34.60	0	22.2	2	21.4	4		
129	2.6	10					19.2	0	22.7	3	225	1
131	2.3	4	57.0	1					20.1	3		
133	2.3	4	61.3	3	< 20	NR	20.5	3				
134	3.6	13	60.0	4			22.0	3	21.8	4	201	4
136	2.4	10	53.5	0	6.80	4	20.6	3	23.0	3		
138	2.9	11					22.8	1	21.4	4	205	4
140	3.1	13	57.4	2	19.60	2	21.0	4	22.2	4	199	4
141	2.6	13	61.0	3	8.05	4	21.9	3	20.9	4	173	1
142	3.1	12					22.4	2	22.8	3	198	4
143	3.2	5	57.0	1	< 23	NR			22.6	3		
145	2.8	12	59.0	3	< 50	NR	21.0	4	23.5	2		
146	1.2	10					18.6	0	25.5	0	190	3
149	2.5	4	61.0	3			23.6	0				
151	3.6	8	60.4	4			21.0	4				
153	2.9	10	59.0	3			23.0	1	19.8	3		
156	2.4	5							21.1	4	218	2
179	2.1	9	61.0	3	< 11.6	NR	22.8	1	20.0	3		
180	3.1	9					20.3	3	20.2	3		
183	2.2	5	59.3	4					23.5	2		
190	2.2	11	71.1	0			24.6	0	22.1	4	205	4
191	2.9	10					20.1	2	22.0	4		
193	2.7	3			< 100	NR			0.0	0		
194	3.0	10					21.6	4	20.5	4	199	4
196	2.5	10	53.3	0			21.7	3	22.4	3		
203	2.2	6	56.0	0					20.6	4		
204	2.3	9					21.9	3	19.3	2		
208	2.3	3							20.1	3		
209	2.6	9	61.0	3	< 50	NR	21.7	4	20.9	4		
210	2.7	11	60.8	4	< 40	NR	22.0	3	21.8	4		
211	2.3	12					20.3	3	21.7	4	212	3
212	3.0	1	59.0	3								
213	1.5	2							17.5	0		
220	3.3	8					21.2	4	23.3	2		
221	2.4	9	60.0	4			21.5	4	19.8	3	228	0
224	2.0	13	58.0	2			21.3	4	22.1	4	237	0
225	1.9	8					21.0	4	24.0	2		
230	2.7	6					21.4	4	22.1	4		

Table 6. -Laboratory performance ratings for standard reference water sample M-130 (major 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/15, 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 = 1.23 mg/L			3.00 mg/L		5.90 mg/L		35.8 mg/L		0.085 mg/L	
F-pseudostigma = 0.09			0.23		0.27		1.6		0.104	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	1.37	1	2.88	3	5.81	4	34.6	3	0.006	3
3	1.32	2	3.67	0	6.02	4	28.2	0	0.010	3
4	1.20	4			6.10	3	39.0	1		
5			2.95	4	5.80	4	36.5	4	0.006	3
6	1.23	4							< 0.5	NR
7	1.18	3	3.35	1	6.27	2	38.1	2	0.100	4
9	1.49	0	3.10	4			36.0	4		
10	1.25	4	2.97	4	5.80	4	35.6	4		
11	1.18	3	3.05	4	6.33	1	37.6	2	0.140	3
12	1.30	3	3.00	4	6.00	4	36.0	4	< 0.2	NR
13	1.24	4	2.88	3	5.91	4	35.8	4	0.500	0
15	1.18	3	3.02	4	6.28	2	39.0	1	< 0.2	NR
19			2.40	0	6.23	2	36.9	3	< 0.5	NR
23	1.17	3	2.71	2	5.43	1	34.1	2	0.150	3
24	1.24	4	2.82	3	5.63	3	33.5	2		
25	1.30	3	2.84	3	5.60	2	34.3	3		
26	0.99	0	2.68	2	5.52	2	33.4	2		
30					6.64	0				
32	1.31	3	2.82	3	6.03	4	37.2	3		
33			2.90	4	5.74	3	35.4	4		
36	1.10	2	2.79	3	5.81	4	35.6	4	0.005	3
38			3.09	4	5.91	4	32.8	1	0.230	2
39					6.12	3	36.5	4		
40	1.25	4	3.05	4	5.92	4	36.0	4		
43			3.10	4	5.90	4	35.9	4		
45			3.06	4	5.82	4	35.9	4		
46	1.30	3	2.88	3	5.82	4	35.8	4		
48			2.88	3	6.16	3	34.3	3	< 0.1	NR
50	1.30	3	3.00	4	6.10	3	35.3	4		
51			3.44	1	6.10	3	35.6	4		
52	1.31	3	2.81	3	5.68	3	33.8	2	< 0.1	NR
54	1.23	4	2.99	4	5.90	4	35.7	4		
55	1.25	4			5.60	2			0.190	2
56			3.19	3	5.25	0	35.7	4		
58	1.18	3	3.28	2	4.84	0	39.0	1	0.220	2
63	1.33	2	3.08	4	5.48	1	33.8	2	< 0.5	NR
64			3.23	2			35.6	4		
68			3.05	4	5.80	2	34.0	2	0.001	3
69	1.19	4	3.30	2	5.45	1	34.9	3		
70	1.20	4	3.19	3	6.14	3	36.6	4	0.122	4
72	1.25	4	2.90	4	5.60	2	34.3	3	< 0.02	NR
75			2.84	3	5.87	4	36.0	4		
76	1.39	1	3.40	1	5.87	4	36.4	4		
78	1.11	2	3.19	3	6.30	2	18.0	0	0.145	3
79										
80			3.00	4	6.00	4	35.0	4		
84					5.76	3	36.3	4		
85	1.20	4	3.48	0	5.77	4	35.0	4	< 0.1	NR
86	0.83	0	3.10	4	6.22	2	36.6	4		
87			2.98	4	5.39	1	32.9	1	0.001	3
90							32.7	1		
92			3.00	4	5.75	3	35.0	4	0.034	4
93	3.71	0	3.28	2	6.09	3	33.9	2		
94	1.19	4	2.85	3	5.82	4	36.1	4	0.004	3
96	1.21	4								
97	1.14	2	2.67	2	5.68	3	34.5	3	0.070	4
100	1.27	4							0.150	3
101			2.90	4	5.80	4	36.0	4		
102			2.96	4	5.57	2	32.7	1	< 0.01	NR
103			2.90	4	5.70	3	36.0	4	< 0.01	NR
105	1.18	3	3.02	4	6.10	3	37.2	3	0.190	2
107	1.26	4	2.90	4	5.79	4	33.5	2	0.020	3
108									0.120	4
109	1.22	4	2.93	4	6.00	4	34.1	2		
111			3.28	2	6.00	4	34.9	3	0.080	4

Table 6. -Laboratory performance ratings for standard reference water sample M-130 (major constituents)

--Continued

Analyte = F (Fluoride)			K (Potassium)		Mg (Magnesium)		Na (Sodium)		(total Phosphorus) as P	
MPV = 1.23 mg/L			3.00 mg/L		5.90 mg/L		35.8 mg/L		0.085 mg/L	
F-pseudosigma = 0.09			0.23		0.27		1.6		0.104	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
113	1.26	4	3.00	4	6.01	4	36.4	4	0.120	4
114	1.20	4	2.28	0	6.03	4	35.5	4	< 0.01	NR
116					5.91	4	35.9	4		
118									< 0.01	NR
119	1.23	4	3.00	4	6.00	4	36.0	4	0.010	3
121			3.00	4	5.90	4	36.0	4		
122	1.22	4	3.30	2	5.90	4	36.8	3		
127	1.12	2	3.13	3	5.92	4	35.6	4	< 0.2	NR
128	1.13	2	3.33	2	5.82	4	36.1	4	< 0.5	NR
129	1.19	4	5.00	0	5.76	3	37.0	3	0.000	NR
131	1.37	1								
133					5.61	2				
134	1.30	3	3.10	4	5.99	4	36.0	4	< 0.02	NR
136	< .26	NR	3.87	0	5.72	3	37.0	3		
138	1.15	3	3.07	4	6.07	3	36.9	3		
140	1.21	4	2.95	4	5.85	4	36.0	4	< 0.01	NR
141	1.26	4	3.37	1	6.39	1	37.8	2	< 0.5	NR
142	1.19	4	3.20	3	6.40	1	37.0	3	< 0.18	NR
143									0.060	4
145	1.27	4	2.63	1	5.73	3	34.7	3	< 0.2	NR
146			1.97	0	5.45	1	33.6	2		
149			3.20	3			35.0	4		
151	1.34	2	2.93	4	5.69	3	35.4	4		
153	1.20	4	2.85	3	5.80	4	53.6	0		
158									< 0.3	NR
179			3.39	1	5.60	2	37.4	3	0.290	1
180	1.40	1	2.97	4	6.08	3	34.9	3	< 0.025	NR
183										
190	0.28	0	2.90	4	6.34	1	37.9	2		
191			2.98	4	5.71	3	35.8	4	0.090	4
193										
194	1.31	3	3.57	0	5.70	3	37.6	2	< 0.1	NR
196	1.18	3	2.93	4	6.02	4	37.0	3		
203									0.019	3
204			2.62	1	6.48	0	33.5	2	0.070	4
208	1.50	0								
209			3.89	0	6.03	4	30.1	0		
210	1.27	4	2.98	4	6.39	1	3.9	0	< 0.1	NR
211	1.19	4	2.40	0	5.59	2	36.0	4	1.190	0
212										
213									< 0.2	NR
220			3.00	4	5.82	4	34.0	2		
221			3.06	4	12.40	0	34.9	3	0.010	3
224	1.31	3	1.85	0	8.77	0	16.9	0	0.180	3
225	0.90	0	4.00	0			46.0	0		
230			3.30	2	6.20	2	38.0	2		

Table 6. -Laboratory performance ratings for standard reference water sample M-130 (major 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/15, 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 = 8.02			9.20 mg/L		58.0 mg/L		335		180			
F-pseudosigma = 0.14			0.55		2.6		10		10		insufficient data	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	7.88	3	9.52	3	57.9	4	336	4	177	4	0.83	NR
3	8.06	4	8.48	2	57.2	4	339	4	183	4	< 5	NR
4			10.00	2	59.0	4			193	2	< 10	NR
5	8.03	4	9.57	3	56.4	3	37	0	193	2	< 4	NR
6	7.94	3			58.0	4	350	2				
7	6.97	0			56.5	3	329	3	186	3	< 4	NR
9			10.00	2	55.8	3	308	0				
10	8.05	4	9.20	4	59.0	4	337	4				
11	7.99	4	4.25	0	59.7	3	332	4	190	3		
12	8.00	4			60.0	3	342	3				
13	8.12	3	9.13	4	54.3	2	337	4				
15	7.39	0	8.86	3	51.0	0	346	2	171	3	< 10	NR
19	8.02	4			56.3	3	314	1				
23	8.10	3	9.34	4	57.7	4	336	4			0.84	NR
24	7.95	4	4.55	0	59.0	4	329	3	173	3		
25	7.87	2	8.90	3	68.4	0	343	3	175	4	< 4	NR
26	7.30	0			55.8	3	354	1				
30	8.02	4			57.8	4						
32	8.13	3	8.70	3	57.6	4	308	0	177	4	< 0.4	NR
33	7.90	3	9.63	3	56.0	3	318	1				
36	8.10	3	19.00	0	46.0	0	343	3				
38	8.10	3	9.31	4			343	3				
39			9.46	4					185	4	< 2	NR
40	7.93	3	9.00	4	55.0	2	338	4	170	3		
43	7.80	1	9.80	2	57.0	4	338	4				
45	8.14	3	9.66	3	59.8	3	348	2				
46	7.89	3	9.37	4	58.3	4	332	4	183	4		
48	6.80	0	3.00	0	340.0	0					< 4	NR
50	8.06	4	9.90	2	58.0	4	337	4				
51	7.82	2	9.58	3	61.7	2	327	3			0.20	NR
52	8.10	3	4.82	0	57.6	4	316	1	160	1	< 2	NR
54	8.03	4			61.0	2	328	3				
55	8.12	3	9.20	4	57.4	4	349	2	172	3		
56	7.93	3			59.8	3	328	3				
58	7.63	0	4.95	0	49.6	0	306	0				
63	8.04	4	8.88	3	43.9	0	280	0			< 10	NR
64	8.05	4	9.00	4	62.0	1	346	2				
68	8.05	4	9.39	4			336	4	170	3	< 3	NR
69	8.26	1			57.0	4	345	3				
70	7.84	2	9.11	4	58.7	4	322	2	187	3	< 50	NR
72	8.04	4			51.3	0						
75	7.96	4			55.8	3	338	4				
76	7.93	3			58.5	4	334	4				
78	8.05	4	9.20	4	46.0	0	303	0			0.70	NR
79	8.10	3					330	4				
80	7.80	1			61.0	2	333	4				
84	8.10	3					340	4				
85	8.12	3	9.20	4	55.5	3	331	4	180	4	< 20	NR
86	8.10	3			65.4	0	326	3				
87	8.02	4	10.20	1	54.0	1	317	1				
90	7.99	4					320	2				
92	8.01	4	9.01	4	60.0	3	364	0				
93	8.04	4			60.7	2	302	0				
94	7.89	3			58.0	4	336	4	178	4	< 5	NR
96	8.19	2			62.0	1	354	1				
97	8.15	3	8.83	3	30.3	0	340	4	143	0	< 2.25	NR
100	8.21	2			57.4	4	331	4				
101	6.93	0	4.51	0			323	2				
102			9.00	4	59.0	4	361	0	182	4		
103			9.20	4					185	4	< 5	NR
105	8.02	4	9.46	4	60.6	3	341	3	193	2	< 20	NR
107	7.88	3	8.72	3			338	4				
108												
109	8.07	4	9.22	4	53.9	1	337	4				
111	8.30	1	2.05	0	85.2	0	328	3				

Table 6. -Laboratory performance ratings for standard reference water sample M-130 (major constituents)

--Continued

Analyte = pH			SiO ₂ (Silica)		SO ₄ (Sulfate)		Sp Cond		Sr (Strontium)		V (Vanadium)	
MPV = 8.02			9.20 mg/L		58.0 mg/L		335 μ S/cm		180 μ g/L		μ g/L	
F-pseudosigma = 0.14			0.55		2.6		10		10		insufficient data	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
113	8.00	4	9.72	3	57.3	4	344	3	217	0		
114	8.00	4			59.1	4	340	4				
116			4.86	0	60.0	3			178	4		
118	7.70	0					326	3				
119	8.17	2	10.00	2	61.0	2	330	4				
121			9.50	3					178	4		
122	8.00	4			60.1	3	323	2				
127	8.13	3	9.59	3	58.0	4	329	3	183	4	< 4	NR
128	8.04	4	10.31	1	56.6	3	357	0			< 5	NR
129	8.04	4			58.4	4	335	4				
131					58.0	4						
133	7.77	1										
134	8.02	4	9.80	2	59.2	4	337	4	190	3	< 1	NR
136	7.80	1			56.5	3	335	4				
138	7.72	0	10.00	2	59.2	4			185	4	< 0.5	NR
140	7.90	3	9.25	4	63.0	1	261	0				
141	7.89	3	8.94	4	59.0	4	360	0			< 10	NR
142	7.90	3	9.22	4	59.0	4	332	4	192	2	2.00	NR
143	8.07	4					336	4				
145	7.90	3	8.91	3	53.8	1	334	4	169	2	< 18	NR
146	7.90	3	8.22	1			290	0	165	2	< 10	NR
149												
151	8.07	4					338	4				
153	8.10	3			57.7	4	339	4				
158	7.60	0			58.7	4	347	2				
179	7.80	1					335	4				
180	8.04	4			60.2	3	334	4			< 4.7	NR
183	7.81	2			50.6	0	325	3				
190	7.88	3			61.6	2	338	4				
191	8.06	4	9.95	2	5.9	0			167	2		
193					58.2	4	335	4				
194					57.3	4	320	2	180	4	< 10	NR
196	8.17	2			55.4	3	436	0				
203	7.30	0	9.16	4			322	2				
204	7.90	3	10.00	2	57.8	4						
208					58.1	4						
209	8.18	2	8.90	3	56.5	3						
210	8.16	3	10.30	1	58.0	4	323	2	< 500	NR	< 50	NR
211	7.85	2	6.14	0	54.3	2	335	4			< 2	NR
212												
213	7.90	3									< 0.02	NR
220	8.18	2			57.3	4	334	4				
221					62.4	1						
224	8.03	4	3.87	0	59.5	3	325	3			0.20	NR
225	7.90	3			55.0	2	330	4				
230					60.7	2						

Table 7. -Laboratory performance ratings for standard reference water sample N-42 (preserved nutrients)

(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)

Reported values, RV; Rating		Reported values, RV; Rating		Reported values, RV; Rating		Reported values, RV; Rating		Reported values, RV; Rating		Reported values, RV; Rating		Reported values, RV; Rating			
Rating		Absolute Z-value		Rating		Absolute Z-value		Rating		Absolute Z-value		Rating			
4 (Excellent)		0.00 - 0.50		1 (Questionable)		1.51 - 2.00		4 (Excellent)		0.00 - 0.50		1 (Questionable)			
3 (Good)		0.51 - 1.00		0 (Poor)		greater than 2.00		3 (Good)		0.51 - 1.00		0 (Poor)			
2 (Satisfactory)		1.01 - 1.50		NR (Not Rated)				2 (Satisfactory)		1.01 - 1.50		NR (Not Rated)			
Analyte = NH3 as N (Ammonia)				NH3 + Org N as N (Ammonia+Organic N)				NO3 + NO2 as N (Nitrate & Nitrite)				total P as P (total Phosphorus)		PO4 as P (Orthophosphate as P)	
MPV = 0.20 mg/L				1.81 mg/L				1.92 mg/L				1.15 mg/L		0.56 mg g/L	
F-pseudosigma = 0.04				0.26				0.07				0.06		0.02	
Lab	OLR	V/5	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	
1	3.6	5	0.19	4	1.70	4	1.94	4	1.15	4	0.54	2			
7	2.5	4	0.20	4			2.00	2	1.17	4	0.41	0			
11	1.0	5	0.15	2	1.53	3	1.58	0	0.60	0	1.47	0			
15	3.3	3	0.18	3	1.81	4			1.10	3					
21	3.0	1			1.90	3									
36	0.8	5	0.32	0	1.70	4	2.10	0	0.99	0	0.45	0			
43	1.0	1					2.04	1							
48	2.8	5	0.25	2	2.40	0	1.92	4	1.10	3	0.56	4			
52	3.8	5	0.23	3	1.67	4	1.91	4	1.15	4	0.57	4			
56	0.7	3			1.28	1			1.05	1	0.46	0			
63	2.8	5	1.12	0	1.57	3	1.91	4	1.20	3	0.56	4			
68	2.0	3	0.17	3	1.48	3			0.05	0					
75	4.0	4	0.21	4			1.91	4	1.14	4	0.56	4			
78	2.6	5	0.19	4	1.55	3	1.90	4	1.21	2	1.50	0			
88	0.0	3	0.11	0			2.87	0			0.66	0			
90	4.0	2	0.20	4							0.56	4			
92	1.3	3					1.76	0	0.59	0	0.56	4			
93	2.0	2	0.19	4			1.50	0							
97	2.8	5	0.20	4	1.84	4	2.09	0	1.11	3	0.58	3			
100	3.2	5	0.19	4	1.85	4	1.93	4	1.11	3	0.52	1			
105	3.4	5	0.19	4	2.00	2	1.87	3	1.16	4	0.55	4			
114	4.0	2	0.20	4					1.16	4					
118	2.6	5	0.16	2	2.26	1	1.99	2	1.15	4	0.55	4			
119	2.6	5	0.24	2	2.11	2	1.86	3	1.18	3	0.54	3			
122	3.2	5	0.22	3	1.66	4	1.97	3	1.08	2	0.55	4			
126	2.0	1					1.84	2							
129	3.4	5	0.16	2	1.78	4	1.98	3	1.14	4	0.55	4			
133	2.0	2	1.60	0	1.86	4									
134	3.8	5	0.21	4	1.70	4	1.90	4	1.20	3	0.56	4			
140	2.0	5	0.22	3	2.62	0	1.97	3	1.17	4	0.61	0			
141	3.6	5	0.17	3	1.76	4	1.88	4	1.09	3	0.56	4			
145	3.0	5	0.19	4	1.64	4	1.89	4	1.18	3	0.74	0			
179	3.2	5	0.21	4	5.62	0	1.95	4	1.14	4	0.56	4			
211	3.0	5	0.28	0	1.93	3	1.91	4	1.16	4	0.56	4			
220	2.0	4	0.16	2	0.16	0	1.90	4	1.21	2					
221	1.6	5	0.24	3	0.24	0	2.31	0	1.16	4	0.52	1			
224	0.8	5	0.84	0	0.84	0	1.92	4	1.03	0	1.09	0			

Table 7. -Laboratory performance ratings for standard reference water sample N-42 (nonpreserved nutrients)

-Continued

Lab	Analyte = NH ₃ as N (Ammonia) MPV = 0.25 mg/L F-pseudosigma = 0.44				NH ₃ + Org N as N (Ammonia+Organic N) 1.70 mg/L 0.24				NO ₃ + NO ₂ as N (Nitrate & Nitrite) 1.93 mg/L 0.08				total P as P (total Phosphorus) 1.15 mg/L 0.05				PO ₄ as P (Orthophosphate as P) 0.62 mg/L 0.34			
	OLR	V/5	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
3	3.0	5	0.41	4	2.23	0	1.99	3	1.17	4	0.63	4								
5	2.2	5	0.98	1	1.06	0	1.93	4	1.19	3	0.83	3								
6	1.5	4	0.74	2			3.16	0	1.26	0	0.58	4								
9	3.2	5	0.28	4	1.73	4	1.95	4	1.26	0	0.57	4								
10	3.6	5	0.23	4	1.77	4	1.94	4	1.20	2	0.60	4								
11	1.4	5	0.24	4	0.78	0	1.89	3	0.62	0	1.38	0								
12	3.3	4	< 0.2	NR	2.00	2	1.98	3	1.13	4	0.54	4								
13	4.0	4	0.41	4			1.93	4	1.15	4	0.70	4								
15	3.6	5	0.16	4	1.97	2	1.96	4	1.13	4	0.54	4								
19	2.8	4	0.25	4			2.06	1	1.20	2	0.55	4								
21	3.0	2			1.91	3			1.18	3										
22	4.0	1							1.15	4										
23	4.0	5	0.17	4	1.78	4	1.91	4	1.16	4	0.56	4								
25	2.5	4	0.34	4	1.66	4	2.68	0			1.04	2								
26	3.3	3	0.20	4			1.82	2			0.51	4								
32	4.0	3	0.23	4			1.96	4			0.57	4								
33	1.0	1	1.04	1																
36	2.4	5	0.36	4	2.30	0	1.90	4	1.00	0	0.46	4								
38	3.2	5	0.21	4	1.86	3	1.85	2	1.18	3	0.56	4								
45	2.8	4			1.29	1	1.99	3	1.19	3	0.56	4								
46	3.6	5	0.84	2	1.65	4	1.92	4	1.14	4	0.72	4								
51	2.8	5	0.21	4	1.66	4	2.21	0	1.10	2	0.58	4								
52	3.8	5	0.42	4	1.65	4	1.88	3	1.15	4	0.65	4								
53	2.0	2					2.21	0			0.68	4								
54	1.0	1	0.99	1																
55	3.7	3					1.96	4	1.15	4	0.67	3								
56	0.0	1					1.74	0												
58	1.8	5	0.25	4	2.64	0	1.79	1	0.82	0	0.54	4								
59	3.4	5	0.19	4	1.70	4	1.88	3	1.10	2	0.55	4								
61	2.4	5	0.22	4	3.41	0	1.95	4	0.74	0	0.55	4								
63	2.4	5	0.22	4	0.95	0	1.80	1	1.18	3	0.62	4								
64	2.0	4	0.27	4			1.97	3	0.92	0	1.16	1								
68	3.5	2	0.40	4			1.97	3												
69	3.0	1					1.88	3												
70	2.2	5	0.20	4	1.46	2	1.89	3	1.25	0	1.06	2								
72	2.2	5	0.22	4	0.86	0	2.08	1	1.08	2	0.52	4								
75	2.3	4	0.96	1			1.89	3	1.14	4	1.14	1								
76	2.5	2	0.95	1			1.90	4												
78	2.0	5	0.23	4	1.43	2	1.80	1	1.20	2	1.16	1								
79	2.5	2			1.59	4			1.07	1										
80	0.7	3	1.13	1			1.58	0			1.15	1								
81	3.8	5	0.23	4	1.60	4	1.91	4	1.18	3	0.57	4								
84	3.0	3	0.30	4			1.77	1			0.57	4								
85	2.4	5	1.00	1	1.80	4	1.90	4	1.06	1	1.06	2								
87	3.8	5	0.42	4	1.81	4	1.87	3	1.17	4	0.70	4								
88	2.7	3	0.16	4			2.81	0			0.66	4								
90	3.7	3			1.59	4	1.99	3	1.16	4										
91	2.3	3	0.19	4			1.86	3	1.28	0										
92	2.0	4	0.20	4			1.76	0	0.60	0	0.56	4								
94	2.5	4	1.03	1	1.73	4	1.85	2	1.12	3										
96	2.6	5	0.98	1	1.83	3	1.92	4	1.12	3	1.11	2								
97	3.4	5	0.21	4	1.64	4	2.08	1	1.17	4	0.80	4								
100	2.4	5	0.98	1	2.05	2	1.94	4	1.10	2	0.83	3								
102	1.8	5	1.50	0	1.56	3	1.88	3	1.07	1	1.00	2								
107	2.3	4	0.18	4			2.07	1	0.87	0	0.64	4								
108	1.5	4	0.46	4			1.73	0	1.58	0	1.10	2								
111	2.3	3	0.99	1					1.11	3	0.80	3								
113	3.3	4			1.62	4	1.81	1	1.14	4	0.62	4								
114	2.7	3	0.47	3			2.02	2	1.11	3										
118	4.0	5	0.18	4	1.61	4	1.95	4	1.13	4	0.56	4								
119	3.2	5	0.25	4	1.99	2	1.86	3	1.18	3	0.56	4								
122	3.6	5	0.18	4	1.58	3	2.00	3	1.13	4	0.59	4								
127	3.8	5	0.35	4	1.64	4	1.91	4	1.12	3	0.59	4								
128	2.0	5	1.04	1	2.79	0	1.93	4	1.19	3	1.08	2								
129	3.8	5	0.23	4	1.75	4	1.87	3	1.16	4	0.59	4								
133	3.0	3					2.08	1	1.13	4	0.59	4								
134	3.4	5	0.21	4	1.90	3	1.90	4	1.20	2	0.57	4								
136	3.0	3	0.18	4			2.08	1			0.54	4								
138	3.6	5	0.20	4	1.78	4	1.87	3	1.12	3	0.56	4								
142	2.0	5	0.24	4	2.26	0	1.40	0	1.21	2	0.63	4								
143	3.6	5	0.19	4	1.90	3	1.97	3	1.13	4	0.56	4								
145	3.0	5	0.94	1	1.57	3	1.89	3	1.15	4	0.79	4								
146	1.0	2					1.76	0			1.10	2								
158	2.8	4	0.98	1			1.95	4	1.17	4	1.12	2								
179	2.8	5	0.68	3	2.38	0	1.97	3	1.16	4	0.60	4								
180	3.8	5	0.20	4	1.66	4	1.93	4	1.11	3	0.59	4								
183	1.0	2					1.65	0			1.05	2								
190	2.7	3	0.25	4			2.24	0			0.59	4								
191	3.0	2					1.89	3			0.84	3								
193	4.0	1					1.96	4												
194	1.8	4	0.18	4	1.55	3	2.11	0	1.31	0										
196	3.0	1					1.87	3												
197	4.0	2	0.20	4			1.95	4												
203	1.3	4	0.22	4			1.65	0	4.06	0	1.20	1								
204	3.3	4	0.19	4			1.96	4	1.16	4	1.15	1								
205	0.0	1					2.62	0												
208	3.5	2					1.82	4			0.91	3								
210	3.2	5	0.20	4	0.63	0	1.94	4	1.16	4	0.59	4								
211	2.6	5	0.97	1	1.86	3	1.90	4	1.18	3	1.11	2								
213	3.0	4	0.25	4	0.80	0			1.16	4	0.65	4								
220	2.3	3	0.20	4			2.06	1	1.20	2										
224	2.8	5	0.19	4	2.02	2	1.95	4	1.02	0	0.55	4								
225	0.8	5	1.34	0	1.40	2	2.21	0	1.32	0	1.04	2								

Table 8. -Laboratory performance ratings for standard reference water sample P-22 (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 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 = Acidity as CaCO3					Ca (Calcium)		Cl (Chloride)		F (Fluoride)		K (Potassium)		Mg (Magnesium)	
MPV = 1.79 mg/L					0.725 mg/L		2.92 mg/L		0.028 mg/L		0.203 mg/L		0.098 mg/L	
F-pseudosigma = 8.68					0.065		0.28		0.015		0.027		0.006	
Lab	OLR	V/11	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	3.0	10	1.12	4	0.730	4	2.96	4	0.051	1	0.232	2	0.099	4
2	1.9	7			1.148	0					0.207	4	0.117	0
3	1.6	7	< 10	NR	0.580	0	2.16	0	< 0.1	NR	0.150	1	0.094	3
5	1.7	7			0.719	4	0.80	0			< 1	NR	0.100	4
7	3.0	4					2.50	2	< 0.5	NR				
11	2.9	9	1.26	4	0.770	3	2.62	2			0.230	3	0.100	4
15	2.5	10	1.76	4	0.802	2	3.47	1	0.029	4	0.202	4	0.098	4
23	3.1	11	1.57	4	0.767	3	3.02	4	0.021	4	0.194	4	0.096	4
25	2.8	10	2.60	4	0.636	2	2.92	4	0.026	4	< 1.21	NR	0.088	1
26	1.0	5			0.960	0	2.87	4	< 0.1	NR	0.260	0	0.110	1
33	3.4	8			0.682	3	2.87	4			0.217	3	0.092	2
36	2.2	9	1.10	4	0.672	3	4.70	0	0.020	3	0.202	4	0.160	0
38	4.0	8	1.79	4	0.730	4					0.210	4	0.101	4
39	3.3	3			0.688	3							0.099	4
44	2.8	6			0.735	4	3.43	1			0.215	4	0.097	4
46	3.4	8			0.723	4	3.51	0			0.194	4	0.096	4
48	1.8	8			0.820	2	3.00	4			0.220	3	0.060	0
52	3.0	7			0.721	4	3.11	3	< 0.05	NR	< 0.5	NR	0.112	0
58	1.5	11	10.60	2	0.500	0	2.33	0	0.007	2	0.110	0	0.093	3
61	2.6	10	0.40	4	0.626	1	3.00	4	0.030	4	0.100	0	0.093	3
62	3.5	2												
63	2.6	9	1.00	4	0.943	0	3.00	4	< 0.2	NR	0.230	3	0.163	0
64	3.6	9			0.670	3	2.97	4			0.200	4	0.100	4
78	2.8	10	2.00	4	0.750	4	2.50	2	0.041	3	0.180	3	0.100	4
92	3.0	2					3.00	4						
93	2.6	9			0.638	2	3.26	2	0.016	3	0.215	4	0.060	0
94	3.0	8	24.50	0	0.725	4	2.80	4	< 0.1	NR	< 1	NR	0.103	3
100	2.3	6					4.18	0	0.032	4				
101	2.6	7			0.747	4	1.30	0			0.210	4	0.105	2
102	1.6	5			0.710	4	< 10	NR			0.007	0	0.087	1
107	3.9	9			0.720	4	3.00	4	0.016	3	0.190	4	0.100	4
110	3.7	9			0.760	3	2.90	4	0.020	4	0.210	4	0.100	4
111	3.0	8			0.710	4	2.95	4			0.220	3	0.090	2
112	3.4	7			0.672	3	2.82	4			0.194	4	0.091	2
113	2.8	6			< 1	NR	3.19	3	0.024	4	0.280	0	< 0.2	NR
134	2.9	8			0.760	3	3.16	3	< 0.1	NR	0.203	4	0.090	2
136	1.8	9	15.20	1	0.840	1	3.53	0	< 0.26	NR	0.150	1	0.168	0
138	3.1	7			0.740	4	2.70	3			0.210	4	0.099	4
140	2.8	8			0.725	4	2.92	4	0.012	2	0.220	3	0.092	2
141	2.1	8	22.30	0	0.614	1	2.58	2	< 0.1	NR	0.211	4	0.094	3
143	3.0	4					2.45	1						
145	3.3	7	2.00	4	0.700	4	2.87	4	< 0.2	NR	< 0.707	NR	< 0.19	NR
158	2.4	8			0.950	0	3.07	3			0.080	0		
180	2.7	7	1.50	4	0.642	2	2.72	3	< 0.1	NR	< 1.2	NR	0.093	3
190	1.9	9			1.120	0	2.82	4	0.035	3	0.176	3	0.119	0
194	3.0	3			< 5	NR	2.50	2	< 0.2	NR	< 0.5	NR	< 1	NR
196	2.8	9	1.05	4	0.758	3	2.81	4	< 0.5	NR	0.190	4	0.107	2
203	2.3	4					4.10	0						
204	2.6	8			0.565	0	2.78	4			0.162	2	0.100	4
209	3.6	7			0.694	4	2.81	4			0.171	2	0.096	4
210	2.0	7	< 2	NR	0.545	0	2.58	2	0.040	3	< 1	NR	0.095	3
224	2.6	11	27.30	0	0.728	4	3.00	4	0.060	0	0.185	3	0.088	1
225	0.8	9	20.00	0	0.800	2	7.00	0	0.130	0	0.500	0		

Table 8. -Laboratory performance ratings for standard reference water sample P-22 (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		PO4 as P		SO4 (Sulfate)		Specific Conductance	
MPV = 1.70 mg/L			5.81		0.008 mg/L		0.728 mg/L		17.0 μ S/cm	
F-pseudosigma = 0.10			0.19		0.006		0.390		1.3	
Lab	RV	Rating	RV	Rating	RV	Rating	RV	Rating	RV	Rating
1	1.78	3	7.27	0	< 0.001	NR	0.688	4	17.5	4
2	1.88	1	5.89	4			0.728	4	13.5	0
3	1.10	0	5.93	3	< 0.01	NR	< 1	NR	16.7	4
5	1.82	2	6.07	2	< 0.005	NR	2.890	0	18.9	0
7			5.94	3	< 0.01	NR	0.650	4	16.1	3
11	1.73	4	7.85	0			1.030	3	16.3	3
15	1.84	2	4.85	0	< 0.02	NR	1.220	2	18.8	2
23	1.67	4	5.86	4	0.900	0	1.580	0	16.3	3
25	1.67	4	5.77	4	0.008	4	2.590	0	19.0	1
26	1.97	0			< 0.7	NR	< 0.5	NR		
33	1.76	3	5.73	4	< 0.01	NR	0.670	4	16.5	4
36	1.59	2	5.90	4	0.000	NR	0.000	NR	19.8	0
38	1.68	4	5.90	4	0.009	4			17.2	4
39	1.65	3								
44	1.49	0					0.677	4		
46	1.72	4	5.73	4			0.410	3	17.1	4
48	2.02	0	7.00	0	< 0.005	NR	0.057	1	16.5	4
52	1.67	4	5.94	3	< 0.005	NR	0.950	3	16.4	4
58	1.10	0	4.17	0	0.004	3	1.240	2	16.7	4
61	1.62	3	5.68	3	< 0.01	NR	3.000	0	17.6	4
62			5.84	4					16.0	3
63	1.65	3	5.88	4	< 0.05	NR	0.456	3	15.7	2
64	1.65	3	5.86	4	0.002	2	0.700	4	17.0	4
78	1.80	2	6.03	2	0.008	4	< 1	NR	28.0	0
92			6.04	2			< 5	NR		
93	1.69	4	5.69	3			1.180	2	15.8	3
94	1.78	3	5.70	3			1.000	3	16.8	4
100			5.96	3	0.010	4	3.000	0	18.1	3
101	1.70	4	4.64	0					17.0	4
102	1.61	3			< 0.005	NR	< 10	NR	13.0	0
107	1.70	4	5.81	4	0.010	4			16.9	4
110	1.70	4	5.60	2			0.785	4	17.0	4
111	1.71	4	6.48	0	< 0.001	NR	0.672	4	16.1	3
112	1.61	3	5.77	4			0.690	4		
113	1.80	2	5.81	4	< 0.004	NR	< 2	NR	17.4	4
134	1.80	2	5.50	1	< 0.01	NR	0.920	4	17.6	4
136	1.70	4	5.60	2			0.750	4	18.0	3
138	1.77	3	5.27	0	< 0.02	NR	0.680	4		
140	1.72	4	5.66	3	< 0.01	NR	< 2	NR	13.1	0
141	1.76	3	5.76	4	< 0.05	NR	< 10	NR	33.5	0
143			5.72	4	0.003	3			16.5	4
145	1.65	3	5.50	1	< 0.01	NR	0.600	4	18.0	3
158	1.66	4	5.72	4	0.110	0	0.600	4	17.4	4
180	1.62	3	5.81	4	< 0.025	NR	< 2.5	NR	20.0	0
190	1.83	2	5.60	2	0.000	NR	1.990	0	18.0	3
194	< 5	NR	5.86	4			< 10	NR	16.0	3
196	1.77	3	5.44	1	< 0.1	NR	0.700	4	20.8	0
203			5.60	2	0.010	4			16.1	3
204	1.53	1	5.75	4	0.002	2	0.910	4		
209	1.63	3	5.74	4			0.710	4		
210	1.98	0	5.99	3	< 0.05	NR	< 5	NR	16.2	3
224	1.69	4	5.95	3	0.005	3	0.680	4	18.0	3
225	3.50	0	6.20	1			2.000	0	17.0	4

Table 9. -Laboratory performance ratings for standard reference water sample Hg-18 (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	0 (Poor)	greater than 2.00
2 (Satisfactory)	1.01 - 1.50	NR (Not Rated)	

Analyte = Hg (Mercury)

MPV = 0.70 μ g/L

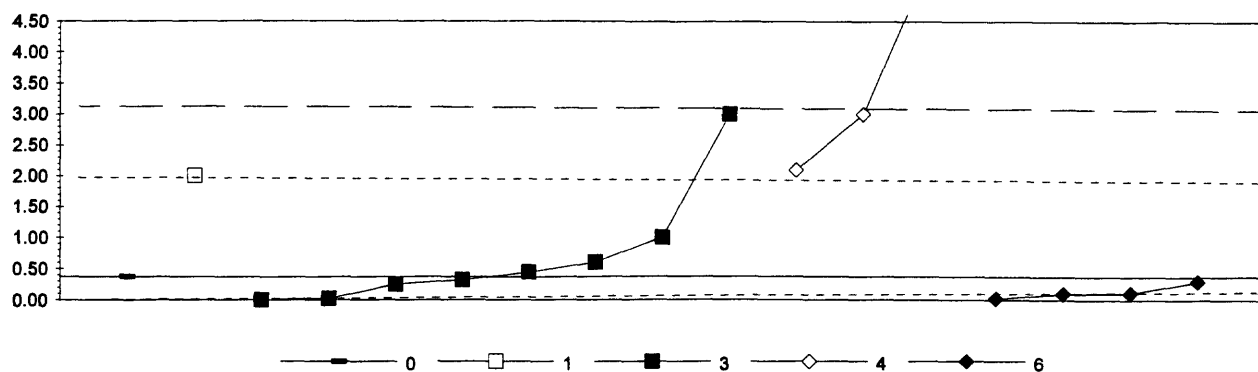
F-pseudosigma = 0.12

Lab	V/1	RV	Rating
1		0.77	3
3		0.78	3
7		0.53	2
11		0.66	4
12		0.80	3
13		1.07	0
15		0.67	4
24		0.70	4
32		0.75	4
34		0.66	4
36		0.64	3
39		1.00	0
45		0.86	2
46		0.71	4
48		0.65	4
50		0.90	1
51		0.53	2
52		0.51	1
55		0.69	4
58		0.80	3
59		0.70	4
61		0.76	3
63		0.80	3
68		0.52	1
69		0.65	4
70		0.60	3
75		0.65	4
76		0.62	3
78		0.71	4
79		0.76	3
81		0.60	3
86		0.66	4
87		0.60	3
90		0.63	3
92		3.00	0
96		0.70	4
97		0.66	4
100		1.06	0
105		1.05	0
108		0.66	4
109		0.67	4
113		1.20	0
114		1.27	0
118		1.70	0
119		0.70	4
127		0.79	3
128		1.00	0
133		0.55	2
134		0.72	4
138		0.68	4
141		0.70	4
142		0.84	2
145		0.53	2
146		0.66	4
149		0.65	4
151		0.67	4
180		0.60	3
194		0.80	3
198		0.83	2
204		0.80	3
210		0.81	3
211		< 0.3	0
220		0.57	2
221		0.90	1
225		2.00	0

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (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 ₂ O			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		
11. AA: hydride			atomic absorption: hydride [reducing agent specified]		
12. Flame emission					
22. Color			colorimetric [color reagent specified]		
Abbreviations and symbols					
			N = number of samples		
			Stdev = traditional standard deviation		
			MPV = most probable value		
			F-pseudosigma = nonparametric statistic deviation		
			Hu = upper hinge value		
			Hi = lower hinge value		
			μ g/L = micrograms per liter		
			m g/L = milligrams per liter		
			Lab = Laboratory code number		
			NR = not rated, less than value reported		
			< = less than		
Constituent		page	Constituent		page
Ag	Silver	33	Li	Lithium	46
Al	Aluminum	34	Mg	Magnesium	47
As	Arsenic	35	Mn	Manganese	48
B	Boron	36	Mo	Molybdenum	49
Ba	Barium	37	Na	Sodium	50
Be	Beryllium	38	Ni	Nickel	51
Ca	Calcium	39	Pb	Lead	52
Cd	Cadmium	40	Sb	Antimony	53
Co	Cobalt	41	Se	Selenium	54
Cr	Chromium	42	SiO ₂	Silica	55
Cu	Copper	43	Sr	Strontium	56
Fe	Iron	44	V	Vanadium	57
K	Potassium	45	Zn	Zinc	58

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Ag (Silver) $\mu\text{g/L}$



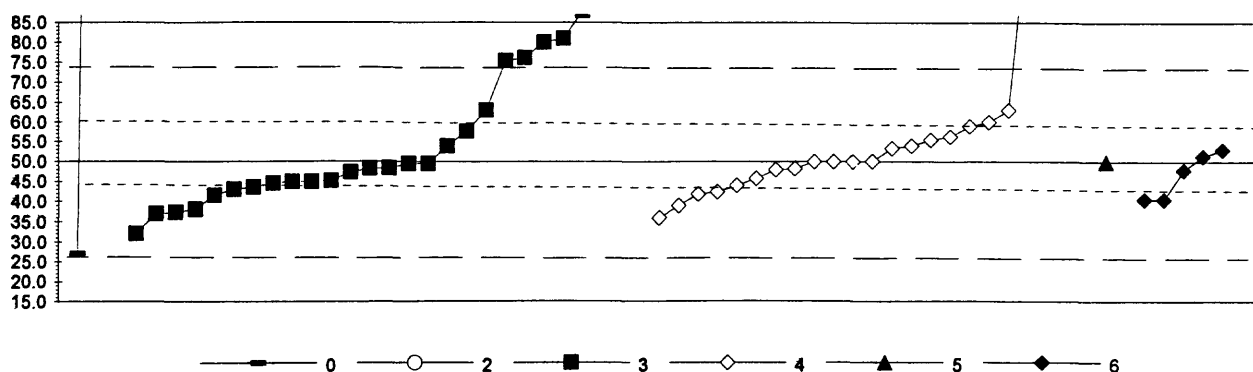
0. Other					
1. AA: direct air					
3. AA: graphite furnace					
N =	1	1	8	3	4
Minimum =			0.00	2.10	0.02
Maximum =	0.37	2.00	3.00	5.50	0.30
Median =			0.39	3.00	0.11
St Dev =			0.98	1.76	0.12

MPV = 0.37
F-pseudosigma = 1.40
N = 17
Hu = 2.00
Hi = 0.11

Lab	Rating	Z-value	0	1	3	4	6
1	4	-0.19					0.11
3	2	1.23				2.10	
5	NR				< 0.1		
6	NR				< 0.5		
7	NR				< 0.3		
12	NR				< 0.2		
13	NR				< 2		
15	NR					< 10	
23	4	-0.25			0.03		
24	4	0.45			1.00		
25	NR					< 6	
26	NR				< 0.3		
32	NR					< 0.1	
36	NR	-0.26			0.00		
39	4	-0.19					0.10
45	NR				< 2		
48	NR				< 0.2		
50	NR				< 2		
52	NR				< 1		
58	1	1.88			3.00		
61	NR					< 5	
63	NR				< 0.5		
68	0	3.66				5.50	
69	NR				< 2		
70	NR				< 5		
72	NR					< 1	
75	NR				< 0.1		
78	4	0.16			0.60		
79	4	-0.05					0.30
85	NR			< 5			
87	2	1.16		2.00			
90	4	-0.04			0.32		
94	1	1.88				3.00	
96	NR				< 5		
100	NR				< 0.05		
102	NR					< 1	
103	NR					< 5	
105	NR						< 0.06
107	NR				< 1		
113	NR				< 0.5		
114	NR			< 5			
118	NR				< 0.5		
127	NR				< 1		
128	NR				< 1		
133	NR						< 6
134	NR				< 1		
141	NR				< 1		
142	4	0.06			0.45		
146	NR						< 10
151	NR			< 10			

Lab	Rating	Z-value	0	1	3	4	6
158	4	-0.09			0.25		
179	NR				< 1		
180	NR					< 6.3	
193	NR				< 1		
194	NR				< 1		
196	4	-0.25					0.02
198	NR				< 0.001		
203	NR			< 2			
204	NR				< 1		
210	NR				< 2		
211	NR				< 0.7		
213	4	0.00	0.37				
217	NR						< 1
221	NR				< 1		
225	NR			< 10			

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Al (Aluminum) $\mu\text{g/L}$ 

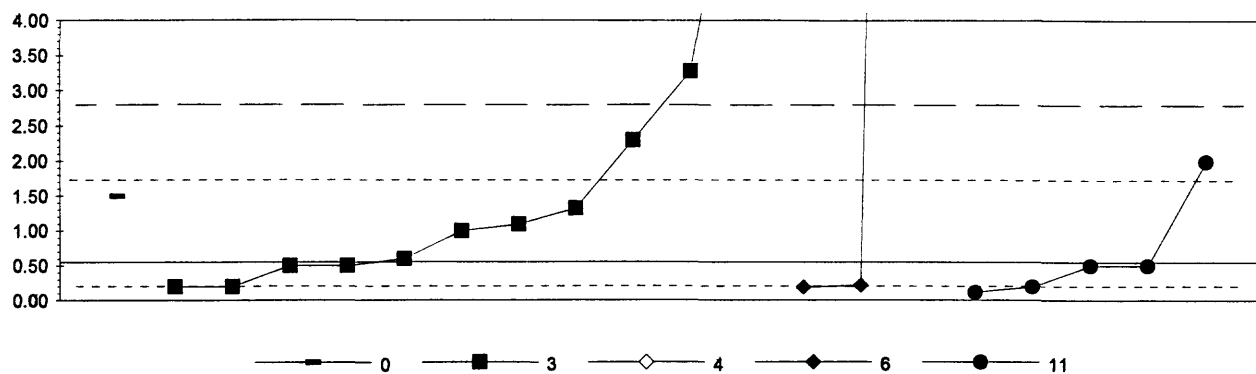
0. Other	4. ICP
2. AA: direct nitrous oxide	5. DCP
3. AA: graphite furnace	6. ICP/MS
N = 2	1 27 22 1 5
Minimum = 27.0	32.0 36.0 40.5
Maximum = 373.0	94.0 310.0 265.0 50.0 53.0
Median =	48.4 50.1 47.9
St Dev =	14.2 7.3 5.9

MPV = 50.0
 F-pseudosigma = 11.9
 N = 57
 Hu = 60.0
 Hl = 44.0

Lab	Rating	Z-value	0	2	3	4	5	6
1	4	-0.35				45.8		
3	3	0.76				59.0		
5	4	-0.17				48.0		
6	0	2.53			80.0			
7	3	0.53				56.3		
11	3	-0.51				44.0		
12	NR					< 100		
13	0	3.20			88.0			
15	0	5.23				112.0		
23	2	-1.06			37.4			
24	0	2.61			81.0			
25	0	-2.61				< 19		
32	3	-0.80					40.5	
33	4	0.00					50.0	
36	0	2.14			75.4			
45	3	-1.00			38.1			
46	4	-0.15				48.2		
48	4	-0.04			49.5			
50	2	1.10			63.0			
52	4	-0.13			48.4			
58	3	-0.59			43.0			
59	4	0.00				50.0		
61	4	0.46				55.5		
63	NR					< 100		
68	0	18.13				265.0		
69	NR				< 100			
70	NR					< 100		
73	2	-1.18				36.0		
75	3	-0.69				41.8		
78	4	-0.23			47.3			
85	NR					< 100		
86	4	0.01				50.1		
90	0	27.23	373					
94	4	0.34				54.0		
97	4	-0.04			49.5			
100	NR					< 40		
101	0	13.91				215.0		
102	3	-0.93				39.0		
103	4	0.00				50.0		
105	4	-0.18					47.9	
107	4	0.34			54.0			
111	3	-0.71			41.6			
113	4	-0.46			44.8			
114	0	3.71	94.0					
119	2	-1.10			37.0			
122	0	3.72			94.2			
127	0	2.20			76.1			
128	3	-0.80					40.5	
134	4	0.00				50.0		
136	1	-1.52			32.0			

Lab	Rating	Z-value	0	2	3	4	5	6
141	2	1.10				63.0		
142	3	-0.64				42.4		
145	NR					< 179		
146	NR					< 200		
149	4	-0.42			45.0			
151	4	-0.40			45.2			
180	4	0.28				53.3		
191	4	0.25						53.0
194	NR					< 500		
196	4	0.12						51.4
198	3	-0.54			43.6			
203	4	-0.42			45.0			
204	4	-0.14			48.3			
210	NR					< 300		
211	0	21.92			310			
217	NR					< 100		
221	3	0.65			57.7			
224	1	-1.94	27.0					
225	3	0.84				60.0		

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
As (Arsenic) μ g/L



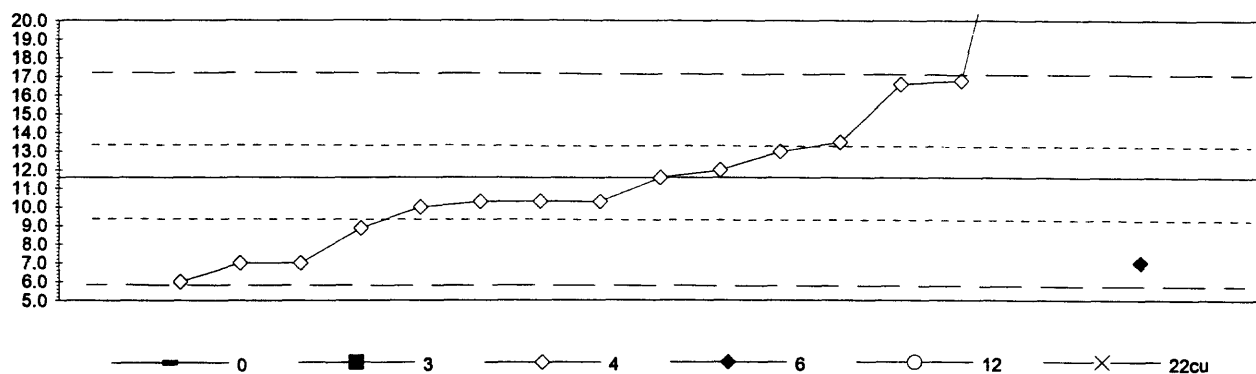
0. Other	6. ICP/MS
3. AA: graphite furnace	11. AA: hydride
4. ICP	
N =	1 11 0 3 5
Minimum =	1.50 0.20 0.19 0.12
Maximum =	7.80 82.40 2.00
Median =	1.10
St Dev =	0.99

MPV = 0.55
F-pseudosigma = 1.14
N = 20
Hu = 1.75
Hi = 0.21

Lab	Rating	Z-value	0	3	4	6	11
1	NR						< 1
3	NR			< 1			
5	NR			< 1			
6	NR						< 1
7	NR			< 1.2			
10	NR			< 2			
11	0	2.39		3.28			
12	NR			< 10			
13	NR			< 5			
15	NR			< 4			
23	NR						< 1
24	4	-0.04					0.50
25	NR				< 50		
26	NR			< 1			
32	NR					< 0.2	
34	4	-0.38					0.12
35	NR						< 1
36	4	-0.31		0.20			
39	NR						< 1
45	NR			< 3			
48	NR			< 1			
50	NR						< 1
51	4	-0.31		0.20			
52	NR			< 2			
58	1	1.53		2.30			
59	NR				< 5		
61	NR			< 5			
63	NR			< 5			
68	4	-0.04		0.50			
69	NR			< 5			
70	NR			< 5			
72	NR			< 1			
75	NR				< 50		
78	4	0.48		1.10			
85	NR						< 2
87	3	0.90					2.00
90	0	6.35		7.80			
94	NR			< 5			
96	NR			< 5			
97	NR			< 0.36			
100	NR			< 2			
102	NR				< 5		
105	4	-0.29				0.22	
107	NR			< 5			
109	4	0.04		0.60			
113	NR			< 1.5			
114	4	-0.04					0.50
118	NR			< 4			
126	NR						< 10
127	NR			< 2			

Lab	Rating	Z-value	0	3	4	6	11
128	3	0.68		1.33			
133	NR			< 5			
134	NR						< 1
136	4	0.39		1.00			
141	NR			< 10			
142	4	-0.04		0.50			
145	NR				< 39		
146	NR			< 10			
149	NR			< 1			
151	4	-0.31					0.20
179	NR			< 5			
180	NR				< 25.8		
191	0	71.65				82.40	
193	NR			< 5			
194	NR			< 10			
196	4	-0.31				0.19	
198	NR			< 0.005			
203	NR			< 5			
204	NR			< 5			
210	NR			< 5			
211	NR			< 2			
213	3	0.83	1.50				
217	NR					< 1	
220	NR			< 1			
221	NR			< 1			
224	NR		< 3				

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

B (Boron) μ g/L

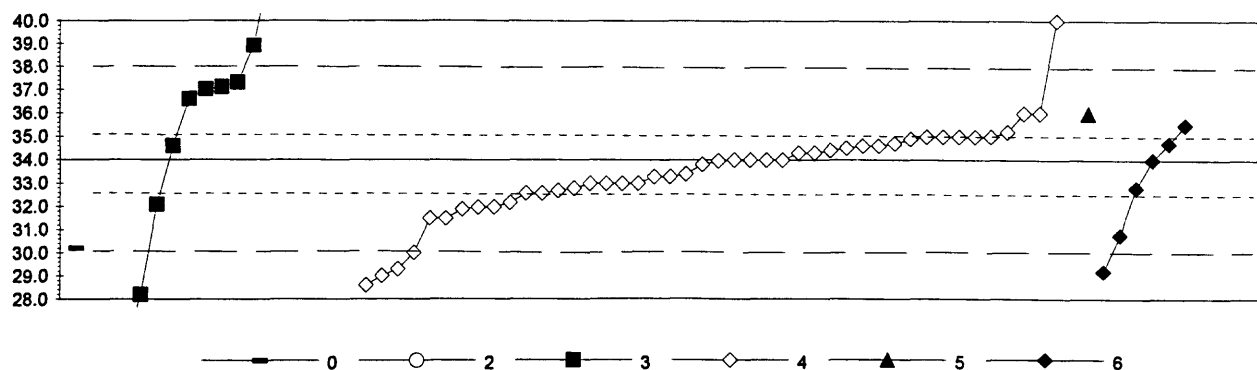
0. Other	6. ICP/MS				
3. AA: graphite furnace	12. Flame emission				
4. ICP	22cu. Color: curcumin				
N =	16	1			2
Minimum =	6.0				47.0
Maximum =	< 250	35.6	7.0	< 5	167
Median =	11.0				
St Dev =	3.3				

MPV = 11.6
 F-pseudosigma = 2.8
 N = 19
 Hu = 13.3
 HI = 9.4

Lab	Rating	Z-value	0	3	4	6	12	22cu
1	3	-0.97			8.9			
3	3	-0.57			10.0			
4	NR				< 10			
6	NR			< 250				
11	1	-1.63			7.0			
15	NR				< 20			
25	NR				< 23			
26	0						< 5	
32	1	-1.63				7.0		
36	0	54.95						167.0
39	NR				< 10			
46	4	0.00			11.6			
48	NR				< 10			
52	NR				< 100			
58	0	12.52						47.0
61	NR				< 10			
63	NR				< 100			
70	NR				< 50			
85	4	0.14			12.0			
86	3	0.67			13.5			
94	NR				< 10			
100	0	8.49			35.6			
103	1	-1.98			6.0			
109	4	-0.45			10.3			
119	1	-1.63			7.0			
121	4	0.50			13.0			
127	4	-0.46			10.3			
134	NR				< 20			
141	1	1.84			16.8			
142	4	-0.45			10.3			
145	NR				< 23			
146	NR				< 50			
180	1	1.77			16.6			
194	NR				< 100			
210	NR				< 50			
211	0	6.51			30.0			
217	NR				< 100			

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Ba (Barium)

 μ g/L

0. Other			4. ICP			
2. AA: direct nitrous oxide			5. DCP			
3. AA: graphite furnace			6. ICP/MS			
N =	1	1	15	45	1	6
Minimum =			22.5	28.6		29.2
Maximum =	30.2	112.0	69.2	74.3	36.0	35.5
Median =			37.1	34.0		33.4
St Dev =			7.8	2.0		2.4

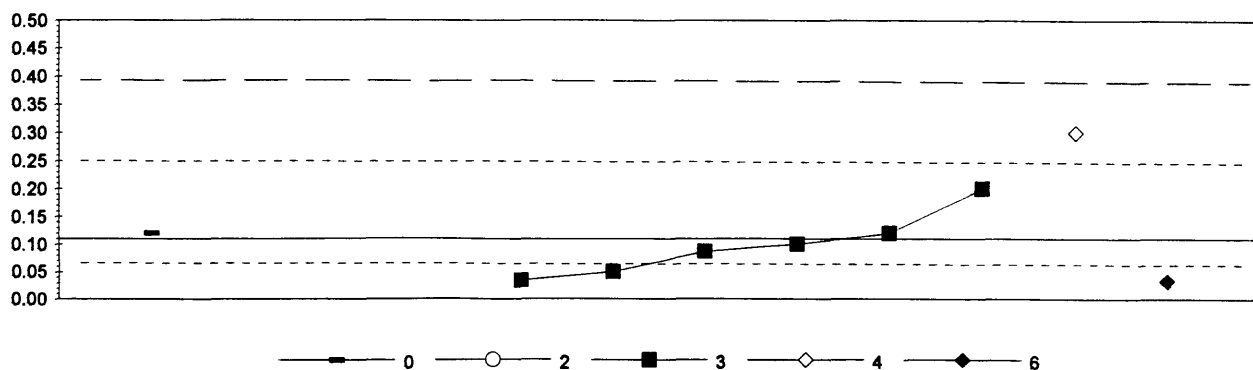
MPV = 34.0
 F-pseudosigma = 1.9
 N = 69
 Hu = 35.2
 HI = 32.6

Lab	Rating	Z-value	0	2	3	4	5	6
1	3	-0.51				33.0		
3	4	0.16				34.3		
4	2	1.04				36.0		
5	3	-0.73				32.6		
6	4	0.31			34.6			
7	4	-0.31				33.4		
11	2	1.04				36.0		
13	1	1.71			37.3			
15	4	0.47				34.9		
19	3	0.52				35.0		
23	0	18.26			69.2			
24	4	0.16				34.3		
25	0	-2.59				29.0		
30	3	0.78						35.5
32	0	-2.49						29.2
33	2	1.04					36.0	
36	3	-0.99			32.1			
39	4	0.00						34.0
45	4	0.21				34.4		
46	4	-0.03				34.0		
48	0	6.75			47.0			
50	NR				< 50			
52	2	-1.30				31.5		
55	3	-0.67				32.7		
58	0	4.67			43.0			
59	2	-1.04				32.0		
61	0	-2.80				28.6		
63	NR					< 500		
68	2	-1.30				31.5		
70	4	0.31				34.6		
72	0	20.91				74.3		
75	3	-0.93				32.2		
78	0	4.51			42.7			
85	3	-0.62				32.8		
86	4	-0.36				33.3		
87	0	40.47		112.0				
90	0	8.46			50.3			
94	4	0.00				34.0		
96	NR			< 100				
97	0	-3.01			28.2			
100	2	-1.09				31.9		
101	4	-0.36				33.3		
102	3	-0.52				33.0		
103	3	-0.52				33.0		
105	4	0.00				34.0		
107	0	-4.31			25.7			
113	1	1.56			37.0			
116	4	0.00				34.0		
119	3	0.52				35.0		
121	3	0.52				35.0		

Lab	Rating	Z-value	0	2	3	4	5	6
126	NR			< 200				
127	3	-0.73				32.6		
128	1	-1.68						30.8
133	3	-0.52				33.0		
134	3	0.52				35.0		
141	3	0.52				35.0		
142	2	-1.04				32.0		
145	4	0.00				34.0		
146	0	-2.44				29.3		
151	0	2.54			38.9			
180	4	0.26				34.5		
191	3	-0.62						32.8
193	1	1.61			37.1			
194	NR					< 100		
196	4	0.36						34.7
198	4	-0.10				33.8		
203	2	1.35			36.6			
204	3	0.62				35.2		
210	4	0.31				34.6		
211	0	-2.08				30.0		
217	4	0.36				34.7		
221	0	-5.97			22.5			
224	1	-1.97	30.2					
225	0	3.11				40.0		

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Be (Beryllium)

 μ g/L

0. Other					
2. AA: direct nitrous oxide					
3. AA: graphite furnace					
N =	1	2	6	1	1
Minimum =		0.00	0.04		
Maximum =	0.12	14.00	0.20	0.30	0.03
Median =			0.09		
St Dev =			0.06		

MPV = 0.12
 F-pseudostigma = 0.13
 N = 11
 Hu = 0.25
 HI = 0.07

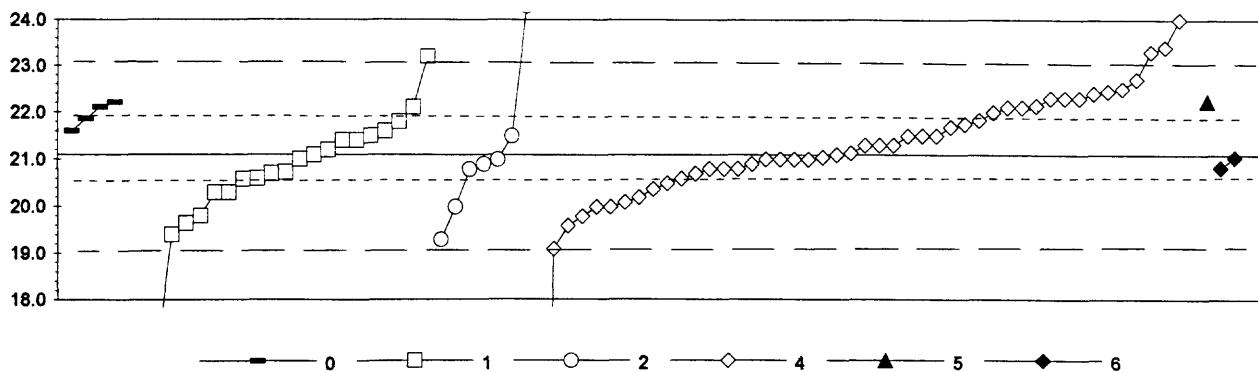
Lab	Rating	Z-value	0	2	3	4	6
1	NR					< 0.5	
3	2	1.34				0.30	
4	NR					< 5	
5	NR					< .5	
6	NR				< 0.5		
7	NR					< 1	
12	NR					< 20	
15	NR					< 1	
23	NR				< 0.1		
24	4	-0.25			0.09		
25	NR					< 2.4	
32	NR					< 0.2	
36	3	-0.63			0.04		
39	NR					< 1	
48	NR				< 0.2		
52	NR				< 0.2		
58	4	0.00			0.12		
59	NR					< 5	
61	NR					< 1	
63	NR					< 0.5	
68	NR					< 1	
69	NR				< 1		
70	NR					< 2	
72	NR					< 1	
75	NR					< 1	
78	4	-0.15			0.10		
79	NR					< 5	
85	NR					< 10	
94	NR					< 1	
97	NR				< 0.04		
100	NR					< 1	
102	NR					< 1	
103	NR					< 5	
105	NR					< 1	
113	NR				< 0.2		
114	0	10.26		1.50			
119	3	-0.52			0.05		
127	NR					< 0.5	
128	NR					< 1	
133	NR					< 0.5	
134	NR					< 0.5	
136	0	103.16		14.00			
141	NR				< 1		
142	3	0.59			0.20		
145	NR					< 2	
146	NR					< 4	
149	NR				< 0.5		
179	NR				< 0.5		
180	NR					< 0.4	
194	NR				< 0.5		

Lab	Rating	Z-value	0	2	3	4	6
196	3	-0.65					0.03
198	NR				< 0.0005		
210	NR				< 0.5		
211	NR				< 2		
213	4	0.00	0.12				
217	NR					< 2	
224	NR		< 3				

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Ca (Calcium)

mg/L



0. Other	4. ICP					
1. AA: direct air	5. DCP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	4	22	7	47	1	2
Minimum =	21.6	11.0	19.3	2.2		20.8
Maximum =	22.2	23.2	24.3	25.6	22.3	21.1
Median =	21.1	20.7	20.9	21.3		
St Dev =	0.3	1.3	1.6	1.0		

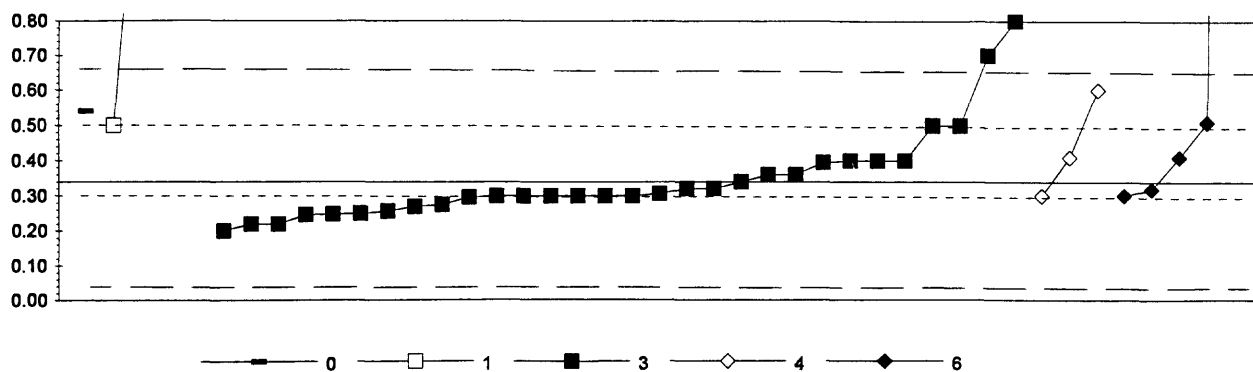
MPV =	21.1
F-pseudosigma =	1.0
N =	83
Hu =	21.9
HI =	20.6

Lab	Rating	Z-value	0	1	2	4	5	6
1	4	0.20				21.3		
3	2	1.42				22.5		
4	0	2.93				24.0		
5	4	-0.40				20.7		
7	2	1.05				22.1		
9	1	-1.72		19.4				
11	0	2.22				23.3		
12	4	-0.10				21.0		
13	3	-0.81		20.3				
15	1	1.62				22.7		
19	2	1.36				22.4		
23	3	-0.52		20.6				
24	4	-0.20				20.9		
25	2	-1.11				20.0		
32	4	-0.05						21.1
33	2	1.16					22.3	
36	1	-1.82			19.3			
39	4	0.00				21.1		
43	4	-0.10				21.0		
45	3	0.51	21.6					
46	4	-0.06				21.0		
48	2	1.31				22.4		
51	3	-0.91				20.2		
52	3	-0.61				20.5		
54	4	0.41		21.5				
55	4	0.40				21.5		
58	0	-4.25		16.9				
59	4	-0.10				21.0		
61	3	-0.73				20.4		
63	2	-1.01				20.1		
64	4	-0.30				20.8		
68	4	0.40				21.5		
69	4	-0.40		20.7				
70	2	1.21				22.3		
75	3	0.71		21.8				
78	3	-0.81		20.3				
84	4	0.10		21.2				
85	3	-0.51		20.6				
86	4	0.20				21.3		
87	2	-1.11			20.0			
92	0	-10.21		11.0				
94	2	1.01				22.1		
97	4	0.30		21.4				
100	3	-0.51				20.6		
101	4	0.00		21.1				
102	3	0.66				21.8		
103	2	-1.11				20.0		
105	2	1.21				22.3		
107	0	2.12		23.2				
109	4	-0.37		20.7				

Lab	Rating	Z-value	0	1	2	4	5	6
111	0	3.24			24.3			
113	2	-1.31		19.8				
114	4	-0.30			20.8			
116	0	-19.12				2.2		
119	4	-0.10				21.0		
121	4	-0.30				20.8		
127	0	2.33				23.4		
133	4	0.39				21.5		
134	3	0.91				22.0		
136	4	-0.20			20.9			
140	4	-0.10		21.0				
141	2	1.01				22.1		
142	3	0.74				21.8		
145	4	0.03				21.1		
146	1	-2.02				19.1		
149	0	-7.58		13.6				
151	2	1.01		22.1				
179	3	0.51		21.6				
180	2	-1.31				19.8		
190	2	1.01	22.1					
191	4	-0.27						20.8
193	4	-0.10			21.0			
194	4	-0.30				20.8		
196	2	1.11	22.2					
198	4	0.20				21.3		
203	2	-1.48		19.6				
204	1	-1.52				19.6		
210	3	0.60				21.7		
211	0	4.55				25.6		
217	2	1.21				22.3		
220	4	0.40			21.5			
221	4	0.30		21.4				
224	3	0.76	21.9					

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Cd (Cadmium)

 $\mu\text{g/L}$ 

0. Other	4. ICP
1. AA: direct air	6. ICP/MS
3. AA: graphite furnace	
N =	1 4 30 3 5
Minimum =	0.50 0.20 0.30 0.30
Maximum =	0.54 2.00 0.80 0.60 11.49
Median =	0.30
St Dev =	0.13

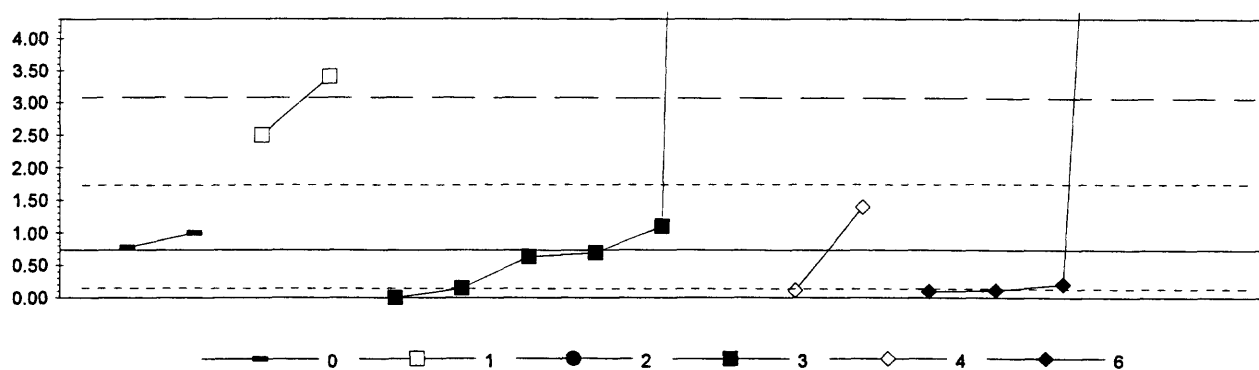
MPV = 0.34
 F-pseudosigma = 0.15
 N = 43
 Hu = 0.50
 Hi = 0.30

Lab	Rating	Z-value	0	1	3	4	6
1	4	-0.13			0.32		
3	4	0.47				0.41	
4	NR					< 10	
5	4	-0.27			0.30		
6	3	-0.63			0.25		
7	NR				< 0.1		
10	NR				< 1		
11	4	0.40			0.40		
12	4	-0.27			0.30		
13	NR				< 1		
15	NR					< 10	
23	4	-0.13			0.32		
24	2	1.08			0.50		
25	NR					< 6	
26	NR				< 0.3		
30	2	1.15					0.51
32	4	0.47					0.41
36	3	-0.81			0.22		
45	4	0.37			0.40		
46	4	0.00			0.34		
46	4	-0.27			0.30		
50	NR				< 2		
51	0	-0.26			0.30		
52	4	-0.30			0.30		
58	3	-0.94			0.20		
59	NR					< 5	
61	NR					< 4	
63	0	2.43			0.70		
68	NR					< 2	
69	NR				< 1		
70	NR				< 1		
72	NR					< 1	
75	3	-0.56			0.26		
76	4	0.40			0.40		
79	NR						< 5
85	NR			< 5			
87	0	11.20		2.00			
90	4	0.13			0.36		
92	0	7.82		1.50			
94	NR					< 3	
96	NR				< 2		
97	NR				< 0.28		
100	0	7.49		1.45			
101	1	1.75				0.60	
102	4	-0.27				0.30	
103	NR					< 5	
105	4	-0.26					0.30
107	NR				< 1		
108	4	-0.47			0.27		
113	4	0.13			0.36		

Lab	Rating	Z-value	0	1	3	4	6
114	NR			< 5			
118	NR				< 1		
119	4	0.40			0.40		
121	4	-0.27			0.30		
126	NR				< 1		
127	4	-0.23			0.31		
128	NR						< 1
133	NR					< 2	
134	NR				< 1		
136	0	3.10			0.80		
140	2	1.08		0.50			
141	NR				< 0.5		
142	2	1.08			0.50		
145						< 6	
146	NR					< 5	
158	3	-0.61			0.25		
179	NR				< .5		
180	NR					< 2.7	
191	0	75.21					11.49
193	NR				< 5		
194	NR				< 1		
196	4	-0.15					0.32
198	3	-0.62			0.25		
203	NR				< 0.5		
204	NR				< 1		
210	NR				< 0.5		
211	4	-0.27			0.30		
213	2	1.35	0.54				
217	NR					< 5	
220	3	-0.81			0.22		
221	4	-0.44			0.28		
225	NR					< 5	

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Co (Cobalt)

 μ g/L

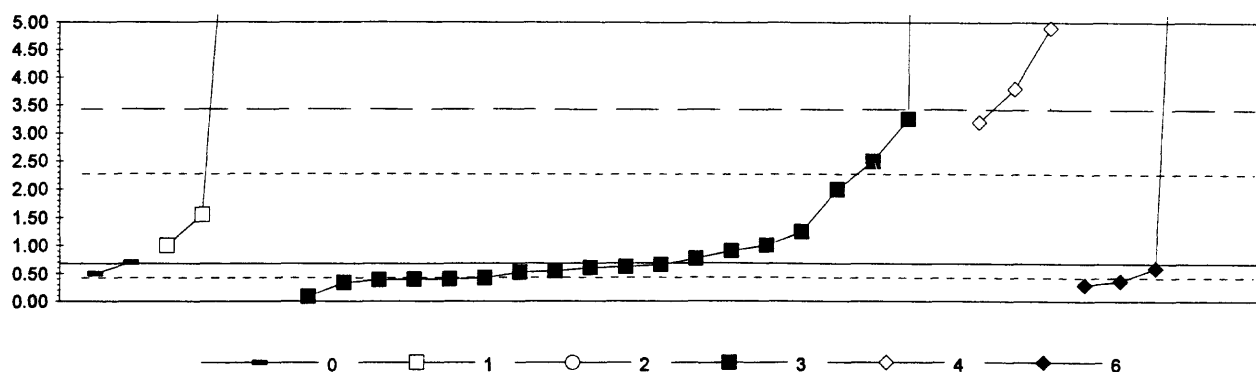
0. Other	3. AA: graphite furnace					
1. AA: direct air	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	2	2	0	6	2	4
Minimum =	0.78	2.50		0.00	0.12	0.10
Maximum =	3.40	3.40	< 50	2100	1.40	21.30
Median =				0.67		
St Dev =				0.44		

MPV =	0.74
F-pseudosigma =	1.20
N =	16
Hu =	1.75
HI =	0.14

Lab	Rating	Z-value	0	1	2	3	4	6
1	3	-0.52						0.12
3	NR						< 5	
4	NR						< 10	
5	NR						< 3	
7	NR						< 5	
15	NR						< 20	
24	4	-0.03				0.70		
25	NR						< 12	
30	4	-0.44						0.21
32	NR							< 0.1
36	NR					0.00		
39	NR							< 0.2
48	NR						< 50	
50	NR					< 2		
51	2	1.14				2.10		
52	NR					< 1		
58	4	-0.49				0.15		
61	NR						< 11	
63	NR						< 10	
68	NR						< 5	
70	NR						< 50	
72	3	0.55					1.40	
75	NR						< 5	
85	NR						< 10	
92	2	1.47		2.50				
94	NR						< 5	
97	NR					< 0.09		
100	0	2.22		3.40				
102	NR						< 1	
103	NR						< 5	
105	3	-0.52					0.12	
121	4	-0.08				0.64		
127	NR					< 1		
128	NR							< 1
134	4	0.30				1.10		
136	NR			< 50				
141	NR						< 10	
142	NR					< 0.2		
145	NR						< 12	
146	NR						< 10	
160	NR						< 3.8	
191	0	17.17						21.30
193	NR			< 25				
194	NR					< 10		
196	3	-0.53						0.10

Lab	Rating	Z-value	0	1	2	3	4	6
210	NR						< 50	
211	NR					< 50		
213	4	0.03	0.78					
217	NR						< 10	
221	NR					< 0.5		
224	4	0.22	1.00					

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Cr total (Chromium) μ g/L



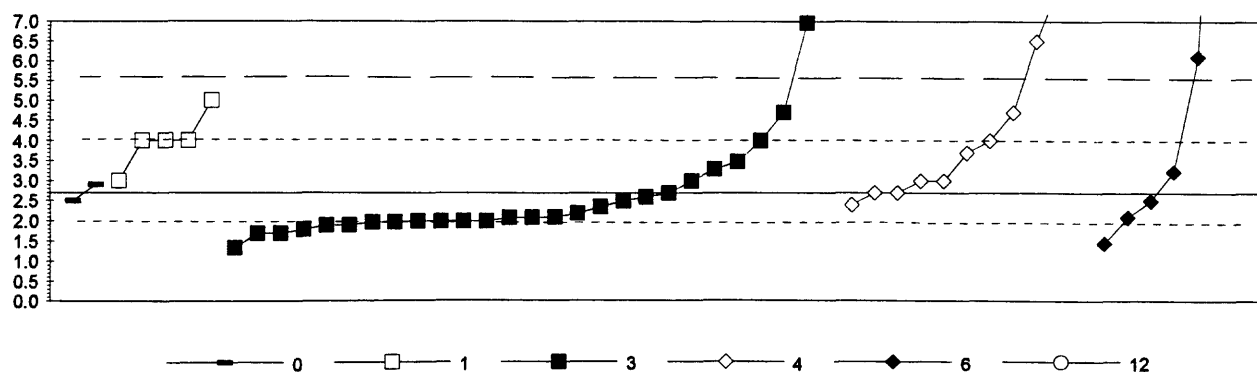
0. Other	3. AA: graphite furnace					
1. AA: direct air	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	2	3	1	19	3	4
Minimum =	0.50	1.00		0.09	3.20	0.30
Maximum =	0.70	10.00	15.00	3.25	4.90	16.96
Median =				0.62		
St Dev =				0.61		

MPV = 0.68
F-pseudosigma = 1.36
N = 32
Hu = 2.25
Hi = 0.41

Lab	Rating	Z-value	0	1	2	3	4	6
1	4	-0.05						0.60
3	NR						< 1	
4	NR						< 15	
5	NR						< 10	
6	4	-0.11				0.52		
7	NR						< 5	
10	NR					< 2		
12	NR						< 20	
13	NR					< 5		
15	NR					< 1		
23	4	-0.10				0.54		
24	4	0.16				0.90		
25	NR						< 8	
26	NR					< 5		
30	4	-0.27						0.30
32	NR						< 0.3	
36	4	-0.02				0.65		
45	NR					< 5		
48	NR					< 1		
50	NR					< 2		
51	4	-0.42				0.10		
52	4	0.06				0.76		
58	4	-0.20				0.40		
59	NR						< 5	
61	NR						< 9	
63	NR					< 5		
68	NR						< 5	
69	NR					< 5		
70	NR					< 1		
72	NR						< 1	
73	1	1.85					3.20	
75	NR					< 2		
78	4	-0.05				0.60		
79	NR							< 5
85	NR						< 10	
87	0	10.50			15.00			
90	4	-0.43				0.09		
92	0	6.84		10.00				
94	NR						< 5	
96	NR					< 5		
97	NR					< 0.17		
100	3	0.64		1.55				
101	0	3.10					4.90	
102	0	2.29					3.80	
103	NR						< 5	
105	4	-0.22						0.37
107	1	1.89				3.25		
108	4	0.24				1.00		
113	NR					< 0.5		
121	2	1.34				2.50		

Lab	Rating	Z-value	0	1	2	3	4	6
127	NR					< 1		
128	NR							< 1
133	NR						< 3	
134	NR						< 1	
136	3	0.97				2.00		
140	4	0.24		1.00				
141	NR					< 5		
142	4	0.42				1.25		
145	NR						< 14	
146	NR						< 10	
151	4	-0.21				0.39		
158	4	-0.20				0.40		
179	NR					< 2		
180	NR						< 4	
182	4	-0.25				0.34		
190	4	-0.04				0.62		
191	0	11.94						16.96
193	NR					< 25		
194	NR					< 10		
196	4	-0.19				0.42		
198	NR					< 0.001		
203	NR					< 2		
204	NR					< 2		
210	NR					< 5		
211	NR					< 50		
213	4	-0.13	0.50					
217	NR							< 1
220	NR					< 1		
221	NR					< 1		
224	4	0.02	0.70					
225	NR						< 10	

μ g/L



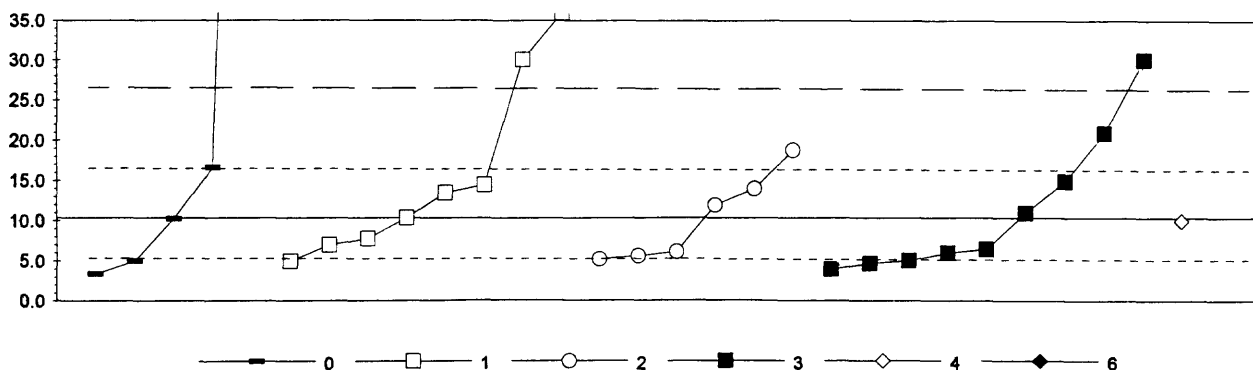
0. Other	4. ICP					
1. AA: direct air	6. ICP/MS					
3. AA: graphite furnace	12. Flame emission					
N =	2	5	27	11	6	
Minimum =	2.5	3.0	1.3	2.4	1.5	
Maximum =	2.9	5.0	7.0	20.0	18.2	< 5
Median =			2.1	3.7	2.9	
St Dev =			1.2	1.8	1.8	

MPV =	2.7
F-pseudosigma =	1.4
N =	51
Hu =	4.0
HI =	2.0

Lab	Rating	St Dev = Z-value	0	1	2	3	4	5	6	7	8	9	10	11	12
1	4	0.00				2.7									
3	NR						< 1								
4	NR						< 6								
5	NR						< 5								
6	NR			< 50											
7	4	0.21					3.0								
9	3	-0.69				1.7									
10	4	-0.48				2.0									
12	4	-0.48				2.0									
13	NR			< 20											
15	4	-0.50				2.0									
23	4	-0.42				2.1									
24	4	0.41				3.3									
25	NR						< 7								
26	NR													< 5	
30	4	-0.14							2.5						
32	3	-0.86							1.5						
36	0	2.94				7.0									
39	4	0.21					3.0								
48	4	-0.35				2.2									
50	NR					< 2									
51	4	0.00				2.7									
52	3	-0.94				1.3									
58	4	-0.48				2.0									
59	0	3.66					8.0								
61	NR						< 5								
63	NR					< 2									
68	3	0.90					4.0								
69	NR					< 50									
70	NR						< 10								
72	2	1.38					4.7								
73	4	-0.21					2.4								
75	NR					< 3									
78	4	-0.41				2.1									
79	0	2.35							6.1						
84	3	0.54				3.5									
85	NR			< 5											
87	1	1.59		5.0											
92	3	0.90		4.0											
94	NR						< 5								
96	NR					< 5									
97	3	-0.62				1.8									
100	3	0.90		4.0											
101	0	2.62					6.5								
102	4	0.00					2.7								
103	NR						< 5								
105	4	0.00					2.7								
107	4	-0.41				2.1									

Lab	Rating	Z-value	0	1	3	4	6	12
114	NR			< 5				
118	NR				< 2			
119	3	0.69				3.7		
121	2	1.38			4.7			
126	NR			< 20				
127	NR				< 3			
128	4	-0.41					2.1	
133	NR					< 2		
134	4	-0.14			2.5			
136	3	0.90			4.0			
140	3	0.90		4.0				
141	NR				< 5			
142	4	0.21			3.0			
145	NR					< 26		
146	NR					< 25		
149	NR			< 9				
151	NR			< 10				
158	4	-0.48			2.0			
179	3	-0.69			1.7			
180	NR					< 4.3		
190	4	-0.50			2.0			
191	0	10.70					18.2	
193	NR			< 25				
194	NR				< 10			
196	4	0.37					3.2	
198	NR					< 0.01		
203	NR			< 2				
204	4	-0.07			2.6			
210	NR				< 10			
211	0	11.94				20.0		
213	4	-0.14	2.5					
217	NR					< 20		
220	3	-0.55			1.9			
221	3	-0.55			1.9			
224	4	0.14	2.9					
225	NR					< 10		

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)—Continued
Fe (Iron)
μ g/L



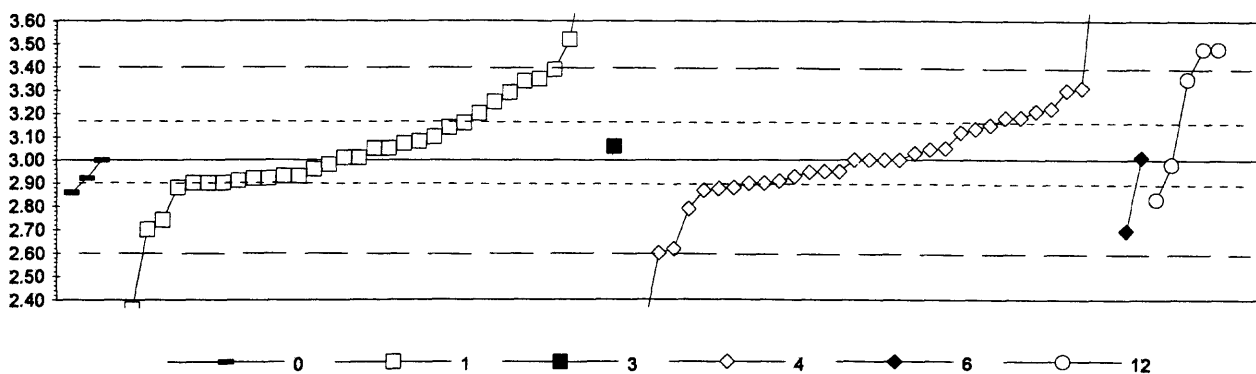
0. Other	3. AA: graphite furnace
1. AA: direct air	4. ICP
2. AA: direct nitrous oxide	6. ICP/MS
N = 5	8 6 9 1 1
Minimum = 3.4	5.0 5.2 4.0
Maximum = 155.0	36.0 18.8 30.0 10.0 60.5
Median = 12.0	9.1 6.5
St Dev = 11.4	5.6 9.0

MPV = 10.4
F-pseudosigma = 8.2
N = 30
Hu = 16.6
HI = 5.6

Lab	Rating	Z-value	0	1	2	3	4	6
1	3	-0.65				5.1		
3	NR					< 10		
4	NR					< 30		
7	3	0.56				14.9		
10	NR			< 20				
11	3	-0.53				6.0		
12	NR					< 50		
13	NR			< 20				
15	NR					< 30		
21	3	-0.66	5.0					
24	3	-0.58			5.6			
25	NR					< 6		
26	NR		< 20					
32	0	6.15						60.5
33	4	-0.04					10.0	
35	NR		< 10					
36	4	0.39		13.5				
43	NR					< 10		
48	NR					< 30		
50	NR				< 2			
52	2	1.04			18.8			
58	0	2.41		30.0				
59	NR					< 5		
61	NR					< 30		
63	NR					< 10		
68	NR					< 10		
69	NR			< 50				
70	NR					< 20		
75	NR					< 5		
78	4	-0.31		7.8				
85	NR					< 10		
86	2	1.29				20.9		
87	NR			< 40				
91	NR					< 20		
94	NR					< 30		
96	NR			< 50				
97	NR				< 1.41			
100	4	0.01		10.4				
101	4	-0.47				6.5		
102	3	-0.69				4.7		
103	3	-0.78				4.0		
105	NR					< 10		
107	NR			< 10				
109	4	-0.41		7.0				
113	0	3.15		36.0				
114	3	0.51		14.5				
116	4	0.08				11.0		
121	NR					< 5		
126	NR			< 50				
127	3	-0.63			5.2			

Lab	Rating	Z-value	0	1	2	3	4	6
129	0	17.74	155.0					
133	NR					< 5		
134	NR					< 3		
136	4	0.45			14.0			
140	3	-0.66		5.0				
141	NR					< 20		
142	3	-0.52			6.1			
145	NR					< 17		
146	NR					< 50		
149	NR			< 10				
179	NR			< 100				
180	NR					< 3.5		
190	3	0.77	16.6					
191	NR							< 0.01
193	NR			< 25				
194	NR					< 100		
198	NR					< 0.01		
203	NR		< 10					
204	NR					< 10		
210	NR					< 50		
211	0	2.41				30.0		
213	3	-0.85	3.4					
217	NR					< 100		
220	NR			< 20				
221	4	0.20			12.0			
224	4	-0.01	10.3					
225	NR					< 10		

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
K (Potassium) mg/L



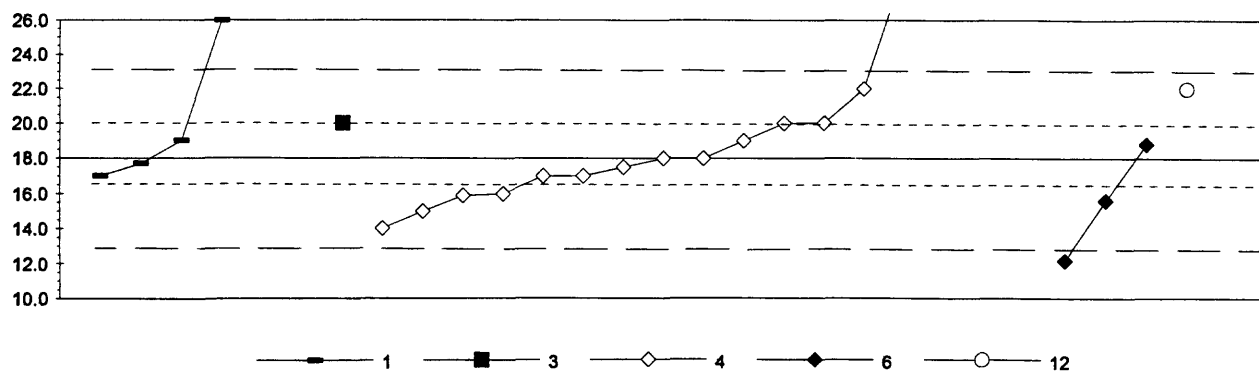
0. Other	4. ICP
1. AA: direct air	6. ICP/MS
3. AA: graphite furnace	12. Flame emission
N =	3 33 1 32 2 5
Minimum =	2.86 1.23 1.98 2.70 2.83
Maximum =	3.00 30.00 3.06 4.00 3.01 3.48
Median =	3.01 3.00
St Dev =	0.27 0.22

MPV = 3.00
F-pseudosigma = 0.20
N = 76
Hu = 3.17
HI = 2.90

Lab	Rating	Z-value	0	1	3	4	6	12
1	4	-0.40		2.92				
3	0	5.00				4.00		
5	2	1.05				3.21		
7	4	0.22				3.05		
9	3	1.00		3.20				
11	4	0.25				3.05		
12	4	0.00				3.00		
13	3	0.80		3.16				
15	4	-0.35				2.93		
19	3	-0.62				2.88		
23	2	-1.29		2.74				
24	4	-0.45				2.91		
25	2	-1.05				2.79		
32	1	-1.52					2.70	
33	3	-0.70	2.86					
36	4	-0.35		2.93				
43	4	0.00				3.00		
45	4	-0.20		2.96				
46	4	-0.26				2.95		
48	3	0.90				3.18		
51	0	2.40						3.48
52	3	-0.60				2.88		
54	0	-8.84		1.23				
58	1	1.95		3.39				
59	4	-0.25				2.95		
61	3	0.67				3.13		
63	3	0.70		3.14				
64	4	0.05		3.01				
68	4	-0.25				2.95		
69	1	1.75						3.35
70	3	0.75				3.15		
75	3	-0.60		2.88				
78	4	0.40		3.08				
85	0	2.60		3.52				
86	4	0.00				3.00		
87	4	-0.10		2.98				
92	4	-0.50		2.90				
94	4	0.00				3.00		
97	4	-0.50		2.90				
100	1	-2.00				2.60		
101	4	0.25		3.05				
102	3	0.91				3.18		
103	4	-0.50				2.90		
105	4	0.15				3.03		
107	4	-0.40		2.92				
109	4	-0.35		2.93				
111	2	1.45		3.29				
113	4	0.05		3.01				
114	0	-3.20		2.36				
119	2	1.50				3.30		

Lab	Rating	Z-value	0	1	3	4	6	12
121	4	0.25		3.05				
127	3	0.60				3.12		
134	4	0.50		3.10				
136	0	4.40		3.88				
140	2	1.25		3.25				
141	1	1.55				3.31		
142	4	-0.50				2.90		
145	1	-1.91				2.62		
146	0	-5.10				1.98		
149	2	-1.50		2.70				
151	4	-0.50		2.90				
179	1	1.70		3.34				
180	3	-0.65				2.87		
190	0	2.40						3.48
191	4	0.05					3.01	
193	0	135		30.00				
194	1	1.75		3.35				
196	4	0.30			3.06			
198	2	1.10				3.22		
203	4	-0.45		2.91				
204	3	-0.85						2.83
210	4	-0.10						2.98
211	0	-3.75				2.25		
217	NR					< 5		
220	4	0.00	3.00					
221	4	0.35		3.07				
224	4	-0.38	2.92					

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Li (Lithium) $\mu\text{g/L}$

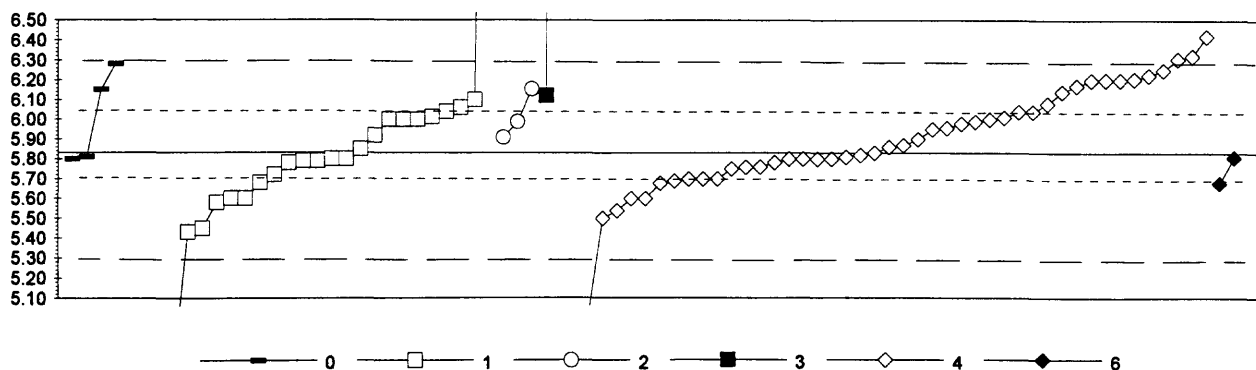


1. AA: direct air	6. ICP/MS
3. AA: graphite furnace	12. Flame emission
4. ICP	
N = 4	1 14 3 1
Minimum = 26.0	14.0 12.2
Maximum = 20.0	29.2 18.8 22.0
Median = 17.8	
St Dev = 2.2	

MPV = 18.0
F-pseudosigma = 2.6
N = 23
Hu = 20.0
HI = 16.5

Lab	Rating	Z-value	1	3	4	6	12
1	4	-0.39			17.0		
3	3	0.77			20.0		
4	1	-1.54			14.0		
5	4	-0.19			17.5		
15	0	4.32			29.2		
24	3	0.77			20.0		
25	2	-1.16			15.0		
32	3	-0.93				15.6	
39	4	0.39			19.0		
50	NR		< 50				
55	1	1.54					22.0
63	0	3.08	26.0				
68	4	-0.39			17.0		
69	NR		< 50				
75	3	-0.81			15.9		
85	4	0.39	19.0				
100	4	-0.39	17.0				
103	3	-0.77			16.0		
105	4	0.00			18.0		
109	4	-0.12	17.7				
127	4	0.00			18.0		
128	0	-2.25				12.2	
134	1	1.54			22.0		
142	3	0.77		20.0			
145	NR				< 20		
196	4	0.31				18.8	
210	NR				< 1000		
217	NR				< 50		

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Mg (Magnesium) mg/L



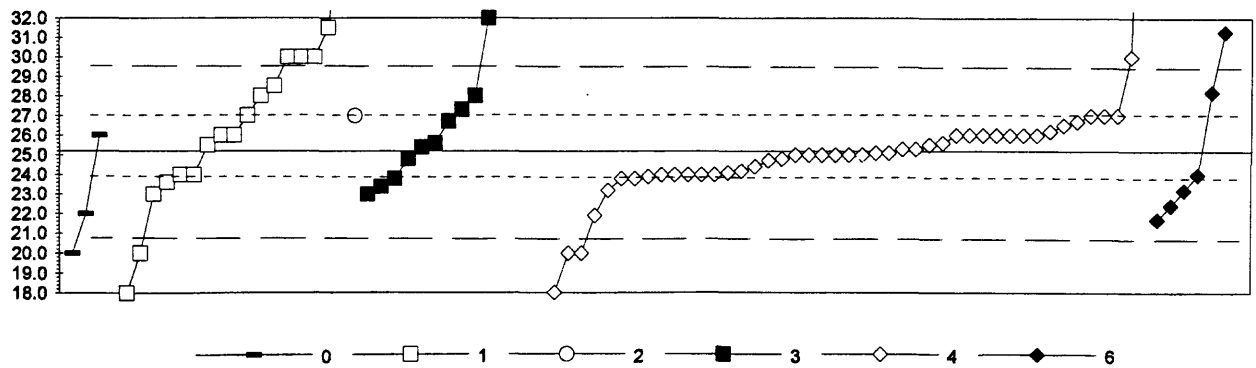
0. Other	3. AA: graphite furnace					
1. AA: direct air	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	4	26	3	2	45	2
Minimum =	5.80	2.75	5.91	6.12	4.93	5.68
Maximum =	6.28	12.30	6.16	27.00	6.42	5.81
Median =		5.79			5.86	
St Dev =		0.66			0.31	

MPV = 5.83
F-pseudosigma = 0.25
N = 82
Hu = 6.04
HI = 5.70

Lab	Rating	Z-value	0	1	2	3	4	6
1	4	0.38		5.92				
3	2	1.49					6.20	
4	2	1.49					6.20	
5	4	-0.02					5.82	
7	2	1.50					6.20	
9	3	-0.97		5.58				
11	1	1.69					6.25	
12	3	0.69					6.00	
13	0	-4.90		4.59				
15	4	0.14					5.86	
19	1	1.58					6.22	
23	0	84.01				27.00		
24	4	-0.06					5.81	
25	3	-0.89					5.60	
32	3	-0.58						5.68
33	4	-0.06	5.81					
36	3	0.93		6.06				
39	3	0.73					6.01	
43	4	-0.10					5.80	
45	4	-0.10	5.80					
46	3	0.52					5.96	
48	2	1.37					6.17	
51	3	0.69		6.00				
52	4	-0.26					5.76	
54	3	0.75		6.01				
55	3	-0.54					5.69	
58	0	-4.23		4.76				
59	4	-0.10					5.80	
61	3	-0.58					5.68	
63	2	-1.13					5.54	
68	4	-0.30					5.75	
69	2	-1.49		5.45				
70	3	0.85					6.04	
75	2	1.09		6.10				
78	0	-6.05		4.30				
84	3	-0.58		5.68				
85	4	-0.18		5.78				
86	2	1.01					6.08	
87	1	-1.57		5.43				
92	0	-12.20		2.75				
94	4	-0.50					5.70	
97	4	-0.10		5.80				
100	4	0.30					5.90	
101	3	0.69		6.00				
102	0	-3.27					5.00	
103	4	-0.50					5.70	
105	4	0.18					5.87	
107	4	-0.14		5.79				
109	3	0.69		6.00				
111	3	0.65			5.99			

Lab	Rating	Z-value	0	1	2	3	4	6
113	3	0.85		6.04				
114	2	1.31						
116	3	0.61			6.16		5.98	
119	4	-0.10					5.80	
121	4	-0.10					5.80	
127	4	0.02					5.83	
133	3	0.65					5.99	
134	4	-0.17					5.78	
136	4	-0.14		5.79				
140	4	-0.10		5.80				
141	1	1.96					6.32	
142	2	1.25					6.14	
145	4	-0.27					5.76	
146	3	-0.89					5.60	
151	4	0.10		5.85				
179	3	-0.89		5.60				
180	4	0.50					5.95	
190	2	1.29	6.15					
191	4	-0.06						5.81
193	3	-0.89		5.60				
194	2	-1.29					5.50	
196	2	1.17				6.12		
198	3	0.85					6.04	
203	4	-0.42		5.72				
204	0	2.36					6.42	
210	2	1.48					6.20	
211	4	-0.50					5.70	
217	1	1.91					6.31	
220	4	0.34			5.91			
221	0	25.69		12.30				
224	1	1.81	6.28					
225	0	-3.55					4.93	

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Mn (Manganese) $\mu\text{g/L}$



0. Other	3. AA: graphite furnace					
1. AA: direct air	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	3	18	1	14	45	6
Minimum =	20.0	10.0		23.0	18.0	21.7
Maximum =	26.0	37.2	27.0	40.0	47.6	31.3
Median =		26.0		27.0	25.0	23.6
St Dev =		3.8		3.5	2.0	3.8

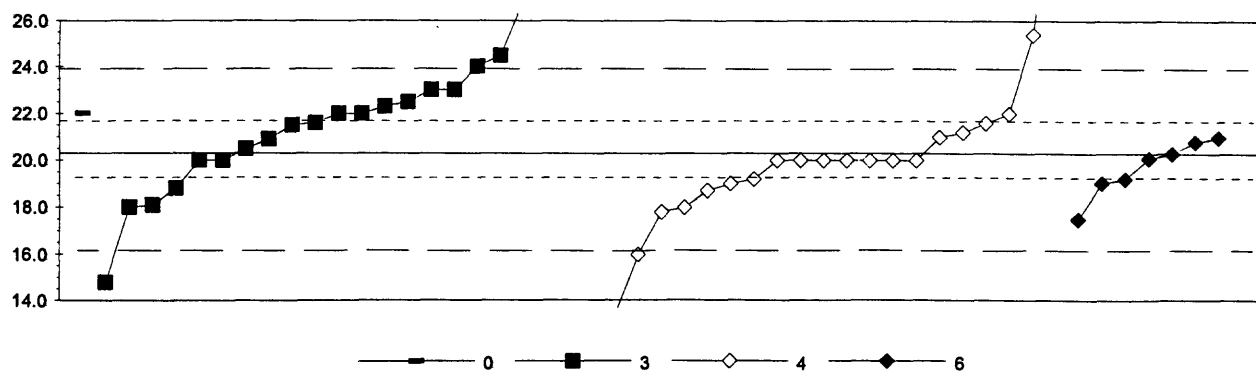
MPV = 25.2
F-pseudosigma = 2.2
N = 87
Hu = 27.0
HI = 24.0

Lab	Rating	Z-value	0	1	2	3	4	6
1	4	-0.46					24.2	
3	4	0.18					25.6	
4	3	0.81					27.0	
5	4	0.13					25.5	
6	3	0.67				26.7		
7	3	0.67					26.7	
9	3	0.94				27.3		
10	3	0.81		27.0				
11	4	-0.09					25.0	
12	0	-2.34					20.0	
13	0	3.06				32.0		
15	4	0.36					26.0	
19	4	0.36					26.0	
24	4	0.45					26.2	
25	0	-3.24					18.0	
26	4	0.36	26.0					
30	3	-0.90						23.2
32	2	-1.26						22.4
33	0	-2.34	20.0					
36	0	5.35				37.1		
39	3	-0.54					24.0	
43	4	0.36					26.0	
45	0	2.83		31.5				
46	4	-0.22					24.7	
48	0	2.16					30.0	
50	2	1.26				28.0		
51	0	5.40				37.2		
52	3	-0.58					23.9	
55	2	-1.48					21.9	
58	0	2.16		30.0				
59	3	-0.54					24.0	
61	4	-0.09					25.0	
63	4	0.36					26.0	
68	4	-0.09					25.0	
69	0	-2.34		20.0				
70	4	-0.04					25.1	
72	0	10.07					47.6	
73	4	0.36					26.0	
75	3	-0.63					23.8	
78	4	-0.18				24.8		
79	0	2.74						31.3
85	3	-0.72		23.6				
86	3	-0.54					24.0	
87	3	-0.54		24.0				
90	0	2.16		30.0				
91	4	0.04					25.3	
92	3	-0.54		24.0				
94	4	-0.09					25.0	
96	4	0.18				25.6		
97	3	-0.99				23.0		

Lab	Rating	Z-value	0	1	2	3	4	6
100	4	0.13		25.5				
101	4	-0.18					24.8	
102	3	-0.63					23.8	
103	4	0.36					26.0	
105	3	-0.54					24.0	
107	0	2.16		30.0				
109	2	1.26		28.0				
113	4	0.09				25.4		
114	2	1.48		28.5				
116	3	0.81					27.0	
119	4	-0.09					25.0	
121	4	0.36					26.0	
127	4	-0.04					25.1	
128	1	-1.58						21.7
129	0	-8.83		10.0				
134	4	-0.09					25.0	
136	0	3.96				34.0		
140	3	-0.99		23.0				
141	3	0.81					27.0	
142	4	0.04					25.3	
145	3	-0.54					24.0	
146	3	-0.90					23.2	
149	4	0.36		26.0				
151	0	5.40		37.2				
179	0	-3.24		18.0				
180	4	-0.36					24.4	
190	3	-0.81				23.4		
191	3	-0.54						24.0
194	NR						< 50	
196	2	1.35						28.2
198	4	-0.49					24.1	
203	4	0.36		26.0				
204	0						< 10	
210	NR						< 50	
211	0	6.66				40.0		
217	3	0.58					26.5	
220	3	0.81			27.0			
221	3	-0.63				23.8		
224	2	-1.44	22.0					
225	0	-2.34					20.0	

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Mo (Molybdenum)

 μ g/L

0. Other	6. ICP/MS			
3. AA: graphite furnace				
4. ICP				
N =	1	21	20	7
Minimum =		14.8	13.3	17.5
Maximum =	22.0	38.5	33.6	21.0
Median =		22.0	20.0	20.1
St Dev =		2.7	2.0	1.2

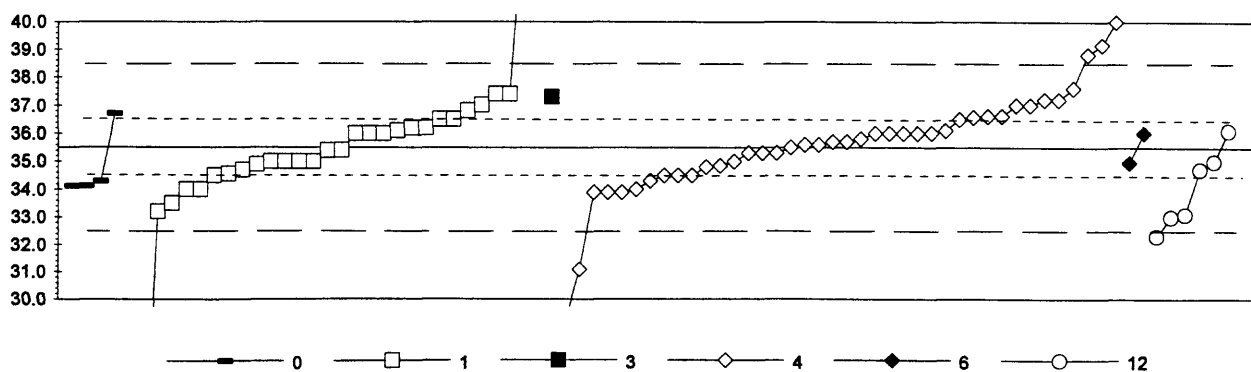
MPV = 20.3
 F-pseudosigma = 2.1
 N = 49
 Hu = 22.0
 HI = 19.2

Lab	Rating	Z-value	0	3	4	6
1	3	-0.53				19.2
3	2	-1.11			18.0	
4	NR				< 50	
5	0	-3.37			13.3	
6	1	2.02		24.5		
7	0	2.46			25.4	
11	0	-2.07			16.0	
12	NR				< 30	
15	3	0.96		22.3		
23	1	1.78		24.0		
24	4	-0.14			20.0	
30	4	0.00				20.3
32	2	-1.35				17.5
36	2	-1.06		18.1		
39	4	0.34			21.0	
45	0	3.23		27.0		
48	NR				< 100	
50	4	-0.14		20.0		
52	4	0.29		20.9		
58	4	-0.14		20.0		
61	3	-0.53			19.2	
63	3	0.82		22.0		
68	3	0.82			22.0	
70	NR				< 50	
72	0	6.41			33.6	
75	4	-0.14			20.0	
78	3	0.63		21.6		
79	4	-0.10				20.1
85	4	0.43			21.2	
86	3	0.63			21.6	
87	2	1.06		22.5		
94	2	-1.11		18.0		
97	4	0.10		20.5		
100	NR				< 50	
103	4	-0.14			20.0	
105	4	0.24				20.8
109	3	0.82		22.0		
121	4	-0.14			20.0	
127	2	1.30		23.0		
128	3	-0.61				19.0
134	4	-0.14			20.0	
141	3	-0.63			19.0	
142	0	8.77		38.5		
145	4	-0.14			20.0	
146	2	-1.20			17.8	
151	3	-0.72		18.8		
179	0	5.49		31.7		
180	3	-0.77			18.7	
182	3	0.58		21.5		
194	2	1.30		23.0		

Lab	Rating	Z-value	0	3	4	6
196	4	0.34				21.0
198	0				< 0.05	
210	NR				< 50	
211	NR			< 100		
217	4	-0.14			20.0	
221	0	-2.65		14.8		
224	3	0.82	22.0			
225	NR				< 20	

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)—Continued

Na (Sodium) mg/L



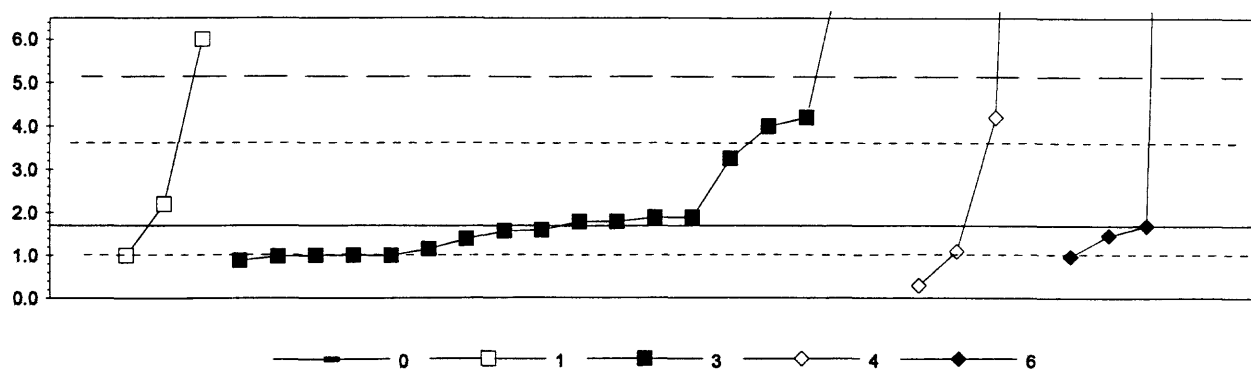
0. Other	4. ICP					
1. AA: direct air	6. ICP/MS					
3. AA: graphite furnace	12. Flame emission					
N =	4	30	1	40	2	6
Minimum =	34.1	3.6		29.2	35.0	32.3
Maximum =	36.7	70.0	37.3	40.0	36.0	36.1
Median =		35.4		35.7		33.9
St Dev =		1.1		1.5		1.5

MPV = 35.5
 F-pseudosigma = 1.5
 N = 83
 Hu = 36.5
 HI = 34.5

Lab	Rating	Z-value	0	1	3	4	6	12
1	4	-0.34		35.0				
3	0	-4.25				29.2		
4	0	3.04				40.0		
5	4	0.34				36.0		
7	2	1.42				37.6		
9	4	0.34		36.0				
11	2	1.15				37.2		
12	4	-0.34				35.0		
13	4	0.47		36.2				
15	3	0.74				36.6		
19	4	0.34				36.0		
23	3	-0.63		34.6				
24	3	-0.67				34.5		
25	2	-1.08				33.9		
32	4	-0.37					35.0	
33	3	-0.94	34.1					
36	2	1.28		37.4				
39	4	0.00				35.5		
43	4	-0.13				35.3		
45	3	0.81	36.7					
46	3	0.72				36.6		
48	4	-0.47				34.8		
51	4	-0.34					35.1	
52	2	-1.01				34.0		
54	4	-0.06		35.4				
58	0	23.27		70.0				
59	4	0.34				36.0		
61	3	-0.81				34.3		
63	2	-1.08				33.9		
64	4	0.47		36.2				
68	3	-0.67				34.5		
69	3	-0.52					34.7	
70	4	0.20				35.8		
75	3	0.88		36.8				
78	0	-9.17		21.9				
84	4	0.40					36.1	
85	4	-0.34		35.0				
86	4	0.34				36.0		
87	1	-1.55		33.2				
90	0	-2.16					32.3	
92	2	-1.01		34.0				
94	4	0.07				35.6		
97	4	-0.40		34.9				
100	4	0.07				35.6		
101	3	0.67		36.5				
102	0	2.46				39.2		
103	2	1.01				37.0		
105	2	1.01				37.0		
107	2	-1.35		33.5				
109	3	-0.67		34.5				

Lab	Rating	Z-value	0	1	3	4	6	12
111	3	-0.54		34.7				
113	0	-21.49		3.6				
114	0	6.21		44.7				
116	4	0.34				36.0		
119	4	-0.13				35.3		
121	4	0.13				35.7		
126	4	-0.07		35.4				
127	3	0.67				36.5		
134	4	0.34		36.0				
136	2	1.01		37.0				
140	3	0.67		36.5				
141	2	1.15				37.2		
142	4	-0.13				35.3		
145	4	-0.44				34.8		
146	3	-0.67				34.5		
149	4	-0.34		35.0				
151	4	-0.34		35.0				
179	2	1.28		37.4				
180	2	-1.08				33.9		
190	1	-1.62						33.1
191	4	0.34					36.0	
193	2	-1.01		34.0				
194	4	0.13				35.7		
196	2	1.21			37.3			
198	4	0.40				36.1		
203	4	0.40		36.1				
204	1	-1.69						33.0
210	0	2.23				38.8		
211	0	-2.97				31.1		
217	3	0.75				36.6		
220	3	-0.94	34.1					
221	4	0.34		36.0				
224	3	-0.82	34.3					

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Ni (Nickel) $\mu\text{g/L}$



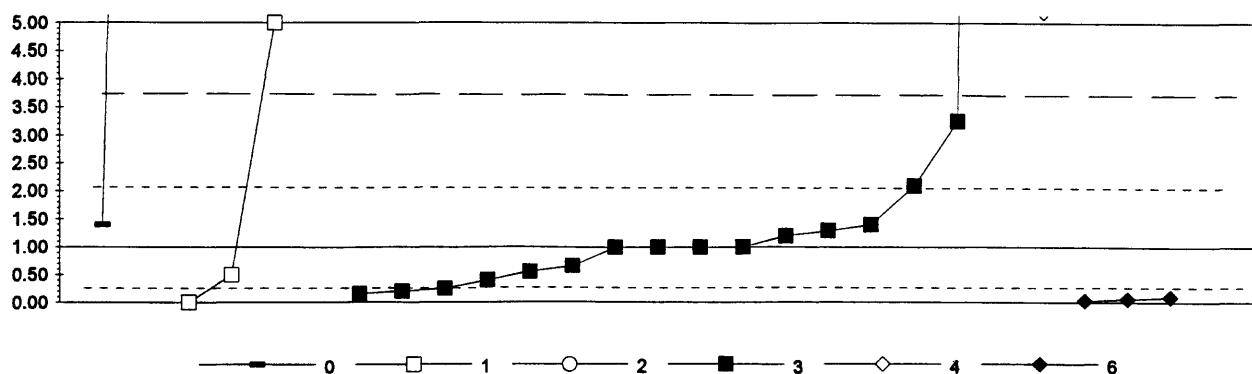
0. Other	4. ICP
1. AA: direct air	6. ICP/MS
3. AA: graphite furnace	
N =	0 3 18 4 4
Minimum =	< 2 1.0 0.9 0.3 1.0
Maximum =	6.0 8.1 30.0 56.2
Median =	1.7
St Dev =	1.8

MPV = 1.7
F-pseudosigma = 1.7
N = 29
Hu = 3.3
Hi = 1.0

Lab	Rating	Z-value	0	1	3	4	6
1	4	-0.08			1.6		
3	NR					< 5	
4	NR					< 30	
6	4	-0.49			0.9		
7	NR					< 15	
12	NR					< 20	
13	NR			< 20			
15	NR				< 5		
24	2	1.49			4.2		
25	NR					< 49	
26	NR				< 5		
30	4	0.00					1.7
32	NR						< 0.8
36	3	0.93			3.3		
48	4	-0.06			1.6		
50	NR				< 2		
51	3	0.54			2.6		
52	0	3.84			8.1		
58	4	-0.43			1.0		
59	NR					< 5	
61	NR					< 23	
63	NR				< 5		
68	NR					< 7	
69	NR			< 50			
70	NR					< 20	
72	2	1.49				4.2	
75	NR				< 5		
78	4	0.06			1.8		
79	NR						< 5
85	NR					< 10	
87	NR			< 10			
90	4	0.12			1.9		
92	0	2.57		6.0			
94	NR					< 15	
97	NR				< 0.44		
100	4	0.30		2.2			
101	3	-0.84				0.3	
102	NR					< 1	
103	NR					< 5	
105	4	-0.36				1.1	
107	4	0.12			1.9		
108	4	-0.42			1.0		
113	4	-0.32			1.2		
118	NR				< 8		
121	2	1.37			4.0		
127	NR				< 3		
128	4	-0.43					1.0
133	NR					< 5	
134	4	-0.18			1.4		
136	4	-0.42			1.0		

Lab	Rating	Z-value	0	1	3	4	6
140	4	-0.31		1.0			
141	NR					< 10	
142	4	-0.31			1.0		
145	NR					< 22	
146	NR					< 40	
149	NR				< 1		
151	4	0.04			1.8		
179	NR				< 3		
180	NR					< 7.3	
191	0	24.51					56.2
193	NR			< 25			
194	NR					< 100	
196	4	-0.10					1.5
198	NR					< 0.02	
203	NR			< 20			
210	NR				< 10		
211	0	12.73				30.0	
213	NR		< 2				
217	NR					< 40	
221	NR				< 2		
225	NR					< 20	

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
Pb (Lead) $\mu\text{g/L}$



0. Other	3. AA: graphite furnace					
1. AA: direct air	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	2	4	0	16	1	3
Minimum =	1.40	0.00		0.15		0.03
Maximum =	30.70	6.50	< 2	3.26	5.20	0.10
Median =				1.00		
St Dev =				0.81		

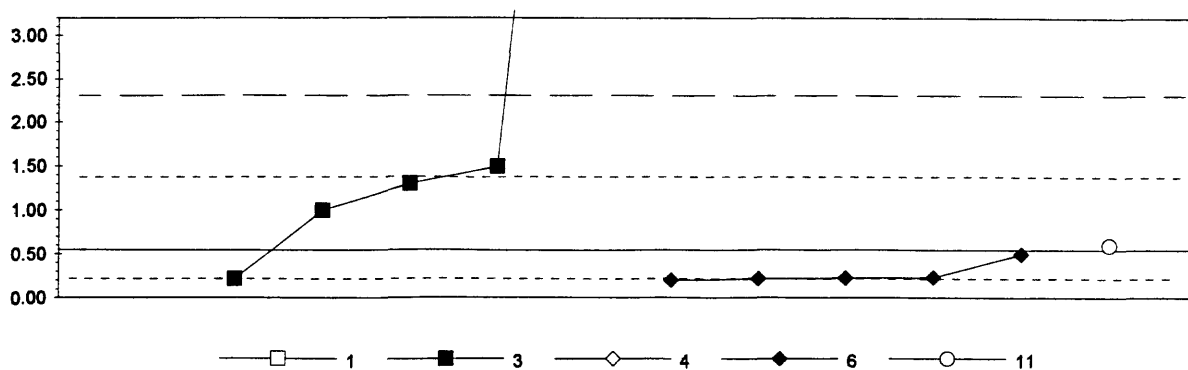
MPV = 1.00
F-pseudosigma = 1.37
N = 26
Hu = 2.10
Hi = 0.25

Lab	Rating	Z-value	0	1	2	3	4	6
1	3	-0.71						0.03
3	NR					< 1		
4	NR						< 60	
5	NR					< 1		
6	NR					< 1		
7	NR					< 1		
10	NR					< 2		
11	4	-0.44				0.40		
12	NR					< 10		
13	NR					< 5		
15	NR					< 1		
23	NR					< 0.5		
24	3	-0.58				0.20		
25	NR						< 71	
26	NR					< 5		
32	NR							< 0.1
36	4	-0.33				0.55		
45	NR					< 2		
48	NR					< 1		
50	NR					< 2		
51	3	0.73				2.00		
52	NR					< 2		
55	4	0.22				1.30		
58	4	0.00				1.00		
59	NR						< 5	
61	NR					< 5		
63	NR					< 5		
68	4	0.29				1.40		
69	NR					< 5		
70	NR					< 1		
72	NR					< 2		
75	NR					< 3		
78	3	0.80				2.10		
85	NR					< 50		
87	NR					< 20		
90	1	1.65				3.26		
92	0	4.01				6.50		
94	NR					< 2		
96	NR					< 5		
97	4	-0.25				0.66		
100	NR					< 2		
101	0	3.06					5.20	
102	NR						< 3	
103	NR						< 20	
105	3	-0.66						0.10
107	NR					< 2		
108	3	-0.55				0.25		
109	NR	-0.73			0.00			
113	NR					< 0.5		
114	0	2.92			5.00			

Lab	Rating	Z-value	0	1	2	3	4	6
118	NR					< 4		
121	4	0.15				1.20		
127	NR					< 1		
128	NR							< 1
133	NR					< 20		
134	NR					< 1		
140	4	-0.36		0.50				
141	NR					< 5		
142	4	0.00				1.00		
145	NR						< 84	
146	NR					< 5		
149	NR					< 2		
158	NR				< 2			
179	NR					< 5		
180	NR						< 32.7	
190	3	-0.62				0.15		
191	0	21.66	30.70					
193	NR			< 5				
194	NR					< 5		
196	3	-0.68						0.06
198	NR					< 0.005		
203	NR					< 2		
204	NR					< 5		
210	NR					< 2		
211	4	0.00				1.00		
213	4	0.29	1.40					
217	NR							< 1
221	4	0.00				1.00		
224	NR		< 3					
225	NR						< 20	

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Sb (Antimony)

 μ g/L

1. AA: direct air

3. AA: graphite furnace

4. ICP

6. ICP/MS

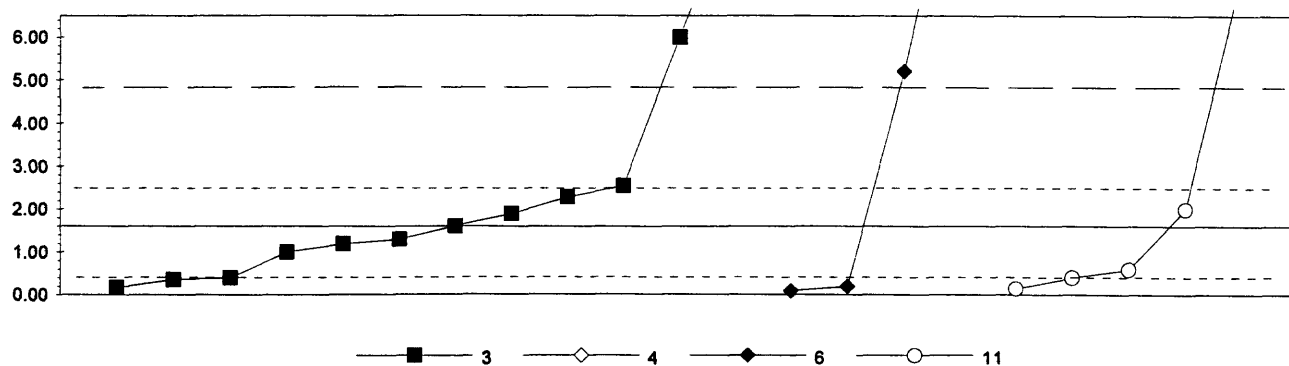
11. AA: hydride

MPV = 0.55
 F-pseudosigma = 0.87
 N = 12
 Hu = 1.40
 Hi = 0.22

	N = 1	5	0	5	1
Minimum =	0.22	< 1	0.20		
Maximum =	180	11.00	< 100	0.50	0.60
Median =		1.30		0.23	
St Dev =		0.56		0.13	

Lab	Rating	Z-value	1	3	4	6	11
1	4	-0.38					
3	NR			< 2			
6	NR			< 3			
7	NR				< 26		
12	NR				< 100		
15	NR				< 50		
23	NR			< 2			
24	3	0.52		1.00			
25	NR				< 51		
30	4	-0.06					
32	NR						
36	4	-0.38		0.22			
39	4	-0.40					
45	NR			< 5			
48	NR			< 3			
52	NR			< 6			
58	0	11.99		11.00			
61	NR				< 26		
63	NR			< 5			
68	NR			< 0.5			
69	NR			< 5			
70	NR			< 5			
75	NR				< 50		
78	3	0.86		1.30			
85	NR				< 100		
100	NR			< 2			
102	NR				< 1		
105	4	-0.36					
113	NR			< 2.2			
114	0	205	180				
119	4	0.06					
127	NR			< 2			
128	NR						
141	NR			< 3			
142	2	1.09		1.50			
146	NR				< 50		
149	NR			< 3			
179	NR			< 5			
180	NR				< 27.1		
194	NR			< 5			
196	4	-0.37					
198	NR			< 0.01			
210	NR			< 5			
211	NR			< 2			
217	NR						

Table 10. Statistical summary of reported data for standard reference water sample T-129 (trace constituents)—Continued
Se (Selenium) $\mu\text{ g/L}$



3. AA: graphite furnace	11. AA: hydride
4. ICP	
6. ICP/MS	
N = 12	0 4 5
Minimum = 0.36	0.09 0.15
Maximum = 9.45	11.20 7.65
Median = 1.65	2.70 0.60
St Dev = 2.64	

MPV = 1.60
 F-pseudosigma = 1.59
 N = 21
 Hu = 2.55
 HI = 0.40

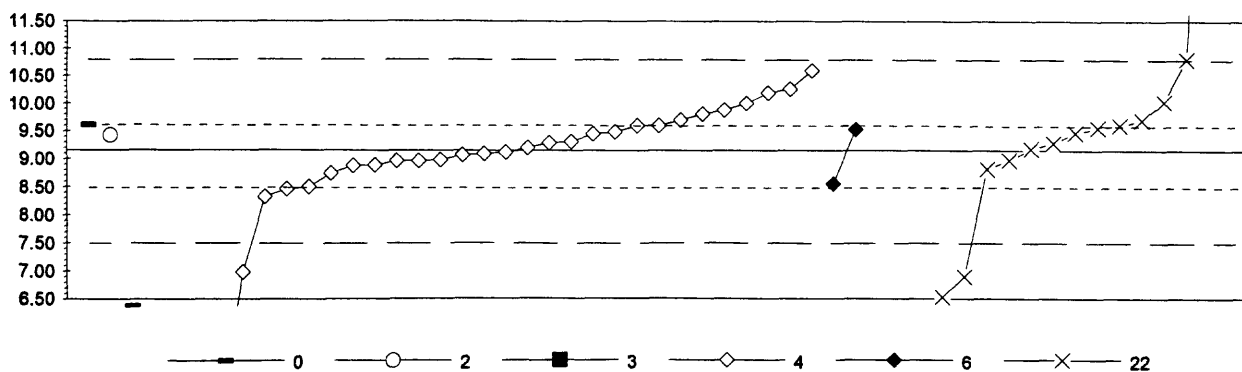
Lab	Rating	Z-value	3	4	6	11
1	NR					< 1
3	NR	< 1				
5	NR	< 2				
6	0	3.80				7.65
7	4	0.19	1.90			
10	NR		< 2			
11	4	0.43	2.29			
12	NR	< 2				
13	NR	< 5				
15	NR					< 1
23	NR	< 1				
24	3	-0.75				0.40
25	NR		< 129			
26	NR	< 1				
32	NR			< 10		
34	3	-0.91				0.15
35	NR					< 1
36	4	0.06	1.70			
45	3	-0.78	0.36			
48	NR	< 2				
50	NR					< 1
52	NR					< 5
58	0	2.76	6.00			
61	NR	< 5				
63	NR	< 5				
68	4	-0.25	1.20			
69	NR	< 5				
70	NR	< 5				
75	NR					< 1
78	4	-0.19	1.30			
79	0	2.26			5.20	
85	NR					< 2
87	4	0.25				2.00
90	0	4.93	9.45			
94	NR	< 5				
96	NR	< 5				
97	NR	< 0.23				
100	NR	< 2				
102	NR		< 1			
105	3	-0.95			0.09	
107	NR	< 5				
109	3	-0.75	0.40			
113	NR	< 1				
118	NR	< 5				
119	3	-0.63				0.60
126	NR					< 1
127	NR	< 3				
128	3	0.60	2.55			
133	NR	< 5				
134	NR					< 1

Lab	Rating	Z-value	3	4	6	11
136	NR		< 10			
141	NR					< 2
142	4	0.00	1.60			
146	NR	< 10				
149	NR	< 2				
151	NR					< 1
179	NR	< 5				
180	NR			< 45		
191	0	6.02			11.20	
193	NR	< 5				
194	NR	< 5				
196	3	-0.88			0.20	
198	NR	< 0.01				
203	NR	< 5				
204	NR	< 5				
210	NR	< 5				
211	NR	< 2				
217	NR					< 1
220	4	-0.38	1.00			
221	NR	< 1				

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

SiO₂ (Silica)

m g/L



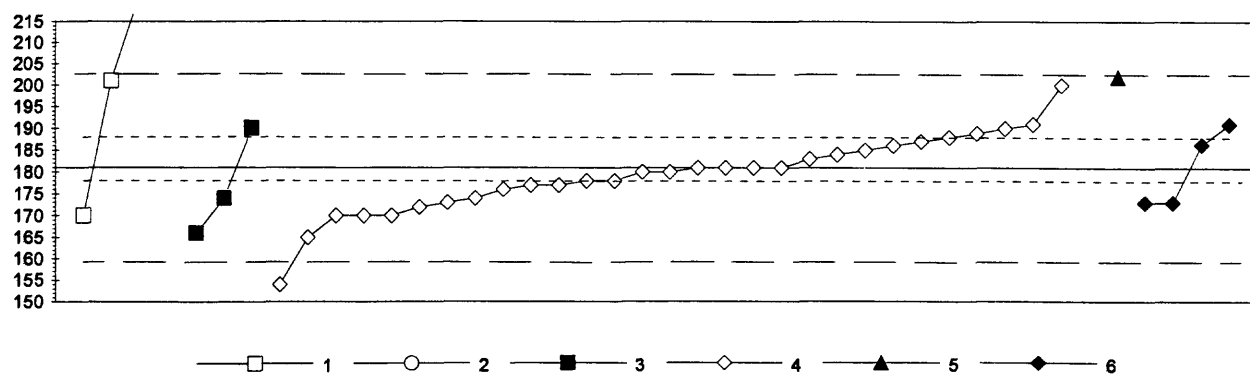
0. Other	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
3. AA: graphite furnace	22. Color: molybdate blue					
N =	1	1	1	31	2	16
Minimum =				4.18	8.56	2.12
Maximum =	9.61	9.42	6.28	10.60	9.53	18.00
Median =				9.09		9.23
St Dev =				1.60		1.59

MPV = 9.15
 F-pseudsigma = 0.83
 N = 52
 Hu = 9.60
 HI = 8.48

Lab	Rating	Z-value	0	2	3	4	6	22
1	4	0.19				9.31		
3	4	-0.49				8.74		
4	2	1.02				10.00		
5	3	0.54				9.60		
7	2	1.33				10.26		
11	0	-5.96				4.18		
13	4	0.04						9.18
15	3	-0.83				8.46		
23	3	0.55						9.61
24	0	-5.50				4.57		
25	4	-0.10				9.07		
32	3	-0.71					8.56	
33	3	0.55	9.61					
36	0	10.62						18.00
39	4	-0.04				9.12		
43	3	0.66				9.70		
45	4	0.36				9.45		
51	0	-2.70						6.90
52	0	-3.14						6.53
55	4	0.17				9.29		
58	0	-4.76						5.18
61	0	-5.66				4.44		
63	4	-0.31				8.89		
64	3	-0.78				8.50		
70	4	0.38						9.47
78	4	0.32		9.42				
87	3	0.66						9.70
92	4	-0.20						8.98
97	1	1.98						10.80
100	1	1.74				10.60		
101	0	-5.54				4.53		
102	0	-2.60				6.98		
103	4	0.06				9.20		
105	2	1.25				10.19		
107	4	0.16						9.28
109	4	-0.22				8.97		
111	0	-8.44						2.12
113	2	1.06						10.03
116	4	-0.32				8.88		
119	3	0.79				9.81		
121	3	0.54				9.60		
127	4	-0.07				9.09		
134	4	0.41				9.49		
140	4	0.49						9.56
141	4	-0.40						8.82
142	4	-0.22				8.97		
145	4	-0.20				8.99		
146	3	-1.00				8.32		
191	4	0.46					9.53	
210	3	0.88				9.88		

Lab	Rating	Z-value	0	2	3	4	6	22
211	0	-3.44			6.28			
224	0	-6.74						3.54

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

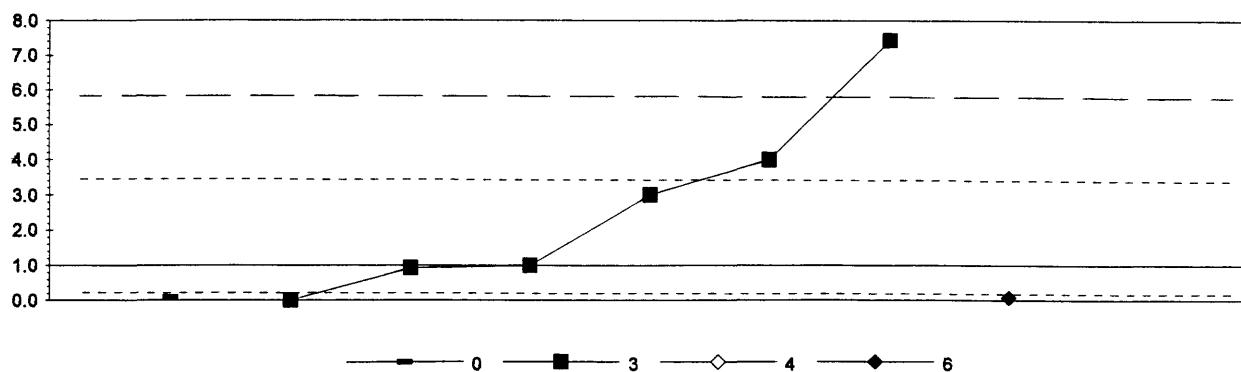
Sr (Strontium) $\mu\text{g/L}$ 

1. AA: direct air	4. ICP
2. AA: direct nitrous oxide	5. DCP
3. AA: graphite furnace	6. ICP/MS
N = 3	1
Minimum = 170	166
Maximum = 222	190
Median =	200
St Dev =	180
	9

MPV = 181
 F-pseudsigma = 11
 N = 41
 Hu = 188
 HI = 173

Lab	Rating	Z-value	1	2	3	4	5	6
1	4	-0.36				177		
3	3	0.63				188		
4	1	1.71				200		
5	4	0.36				185		
7	4	0.27				184		
9	0	3.69	222					
11	3	0.81				190		
15	3	-0.72				173		
24	4	-0.27				178		
25	4	-0.45				176		
32	3	-0.72						173
33	1	1.89					202	
39	4	0.00				181		
46	3	0.90				191		
52	3	-0.63			174			
55	3	-0.81				172		
59	4	-0.27				178		
68	3	-0.99				170		
70	4	0.18				183		
85	3	-0.63				174		
94	4	-0.36				177		
97	2	-1.35			166			
100	2	-1.44				165		
102	4	0.00				181		
103	4	0.45				186		
105	4	-0.09				180		
109	1	1.80	201					
113	0	3.96		225				
116	4	0.00				181		
121	4	0.00				181		
127	3	0.54				187		
128	4	0.48						186
134	3	0.81			190			
142	3	0.71				189		
145	3	-0.99				170		
146	3	-0.99				170		
149	3	-0.99	170					
191	3	-0.72						173
194	4	-0.09				180		
196	3	0.90						191
210	NR					< 500		
225	0	-2.43				154		

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued
V (Vanadium) $\mu\text{ g/L}$

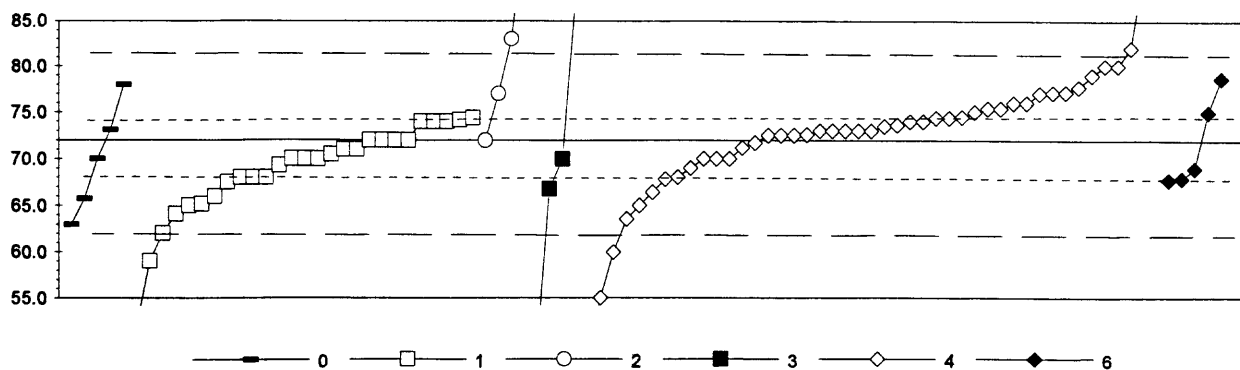


0. Other	6. ICP/MS
3. AA: graphite furnace	
4. ICP	
N =	1 6 0 1
Minimum =	0.1 0.9 < 1
Maximum =	0.1 7.4 < 50 0.1
Median =	3.5
St Dev =	2.7

MPV = 1.0
F-pseudosigma = 2.4
N = 8
Hu = 3.5
Hl = 0.2

Lab	Rating	Z-value	0	3	4	6
1	NR				< 6	
3	NR				< 5	
4	NR				< 10	
7	NR				< 4	
15	NR				< 10	
23	4	-0.03		0.9		
25	NR				< 3	
32	NR					< 0.2
39	NR				< 1	
48	2	1.25		4.0		
50	NR			< 5		
51	4	-0.29		0.3		
52	NR	-0.42			< 2	
58	3	0.83		3.0		
61	NR				< 9.1	
63	NR				< 10	
68	NR				< 3	
70	NR				< 50	
75	NR				< 5	
78	NR			< 1		
85	NR				< 20	
94	NR				< 5	
97	0	2.68		7.4		
100	NR				< 10	
102	NR				< 2	
103	NR				< 5	
105	NR				< 20	
127	NR				< 4	
128	NR					< 1
134	NR			< 1		
136	NR			< 10		
141	NR				< 10	
142	4	0.00		1.0		
145	NR				< 18	
146	NR				< 10	
180	NR				< 4.7	
194	NR			< 10		
196	4	-0.39				0.1
210	NR				< 50	
211	NR			< 2		
217	NR				< 10	
224	4	-0.38	0.1			

Table 10. -Statistical summary of reported data for standard reference water sample T-129 (trace constituents)--Continued

Zn (Zinc) μ g/L

0. Other	3. AA: graphite furnace					
1. AA: direct air	4. ICP					
2. AA: direct nitrous oxide	6. ICP/MS					
N =	5	27	4	4	45	5
Minimum =	63.0	52.0	72.0	48.0	49.0	67.7
Maximum =	78.0	74.4	96.0	88.0	142.0	78.7
Median =		70.0			73.0	
St Dev =		4.0			5.2	

MPV = 72.0
 F-pseudostigma = 4.8
 N = 90
 Hu = 74.5
 HI = 68.0

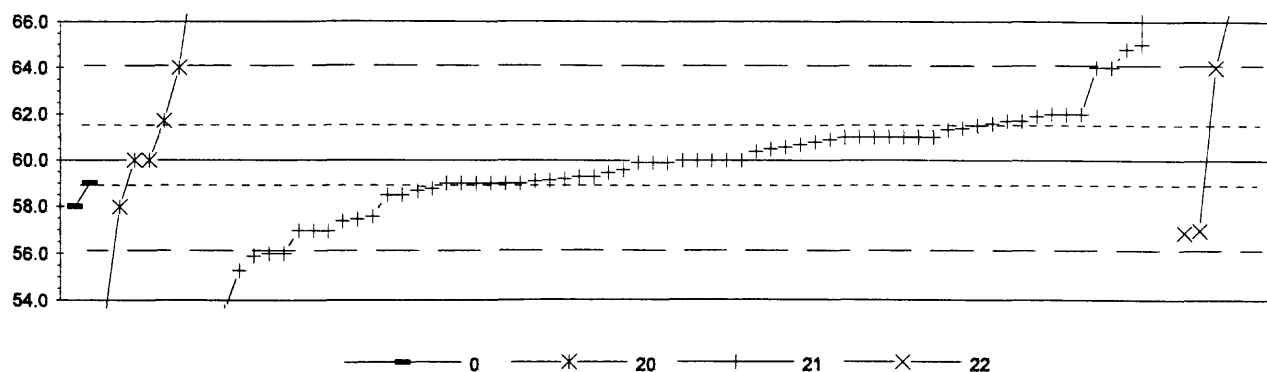
Lab	Rating	Z-value	0	1	2	3	4	6
1	3	-0.89					82.0	
3	2	1.18					77.0	
4	0	-3.53				70.0		
5	4	0.12					72.5	
6	3	-0.83	65.2					
7	2	1.06					76.0	
9	4	-0.42	68.0					
10	4	-0.42	68.0					
11	3	0.62					74.4	
12	4	-0.42					87.8	
13	4	0.00	70.5					
15	3	0.71					74.4	
19	2	1.04					75.4	
23	4	-0.31	70.0					
24	4	0.10					70.0	
25	0	-4.77				66.8		
26	2	1.25						78.7
32	3	-0.85					91.0	
36	1	-1.64	52.0					
39	3	0.83					75.0	
45	2	-1.41	82.0					
46	4	0.10					71.2	
48	4	-0.42					68.0	
50	0	3.32				48.0		
51	0	-2.70	59.0					
52	2	-1.08			83.0			
55	0	2.08					79.0	
58	4	-0.42		69.3				
59	2	-1.45					55.0	
61	4	0.10					71.7	
63	2	-1.25		64.1				
68	0	3.94					80.0	
69	4	-0.42			96.0			
70	3	0.52					74.0	
72	0	14.53					80.0	
73	4	0.21					72.5	
75	4	-0.06					70.0	
78	4	-0.21		70.0				
79	2	1.39						67.9
85	4	0.46		74.0				
86	4	-0.17					70.0	
87	4	0.00		71.0				
90	0	-2.08	78.0					
92	3	-0.83		66.0				
94	1	1.66					77.1	
96	2	1.04		74.2				
97	0	-4.98			77.0			
100	4	0.50		74.0				
101	3	0.83					75.4	
102	3	-0.87					63.6	

Lab	Rating	Z-value	0	1	2	3	4	6
114	3	-0.93		65.0				
116	2	1.45					77.1	
118	1	-1.87						69.0
119	4	0.21					72.6	
121	4	0.21					73.0	
126	4	-0.21		70.0				
127	3	0.71					74.5	
128	3	0.62						67.7
133	2	-1.16					60.0	
134	4	0.21					73.0	
136	0	4.98			72.0			
140	4	0.00		71.0				
141	3	-0.83					65.0	
142	4	0.34					73.0	
145	4	0.42					73.5	
146	1	-1.74					49.0	
151	3	-0.56		68.0				
158	2	-1.45		59.0				
179	0	-4.15	70.0					
180	4	0.31					73.0	
190	4	0.23						75.0
191	3	-0.62					142.0	
193	4	0.00		72.0				
194	1	1.66					77.7	
198	4	0.50					73.8	
203	3	-0.83		67.5				
204	3	-0.62					68.4	
210	4	0.50					74.0	
211	4	-0.42					69.0	
213	4	-0.42	65.7					
217	2	1.07					76.0	
220	4	0.00		74.0				
221	4	0.42		72.0				
224	2	-1.31	63.0					
225	0	-2.49				88.0		

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituent

Definition of analytical methods, abbreviations, and symbols.		
Analytical methods		
0. Other/Not reported		
1. AA: direct air	atomic absorption: direct, air	
2. AA: direct N2O	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	
12. Flame emission		
20. Titrate: color	titration: colorimetric [color reagent specified]	
21. Titrate: electro	titration: electrometric	
22. Color	colorimetric [color reagent specified]	
40. Ion selective electrode		
41. Electro	electrometric [direct reading instrument]	
50. Gravimetric	gravimetric [precipitate specified]	
51. Turbidimetric		
Abbreviations and symbols		
	N = number of samples	
	Stdev = traditional standard deviation	
	MPV = most probable value	
	F-pseudosigma = nonparametric statistic deviation	
	Hu = upper hinge value	
	Hi = lower hinge value	
	μ g/L = micrograms per liter	
	m g/L = milligrams par liter	
	μ cm = microsiemens per centimeter at 25 degrees C	
	Lab = Laboratory code number	
	NR = not rated, less than value reported	
	< = less than	
Constituent		
Alk	Acidity as CaCO3	60
B	Boron	61
Ca	Calcium	62
Cl	Chloride	63
DSRD	Dissolved solids	64
F	Fluoride	65
K	Potassium	66
Mg	Magnesium	67
Na	Sodium	68
total P	Phosphorus	69
pH		70
SiO2	Silica	71
SO4	Sulfate	72
SpCond	Specific Conductance	73
Sr	Strontium	74
V	Vanadium	75

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
Alk (Alkalinity as calcium carbonate) m g/L



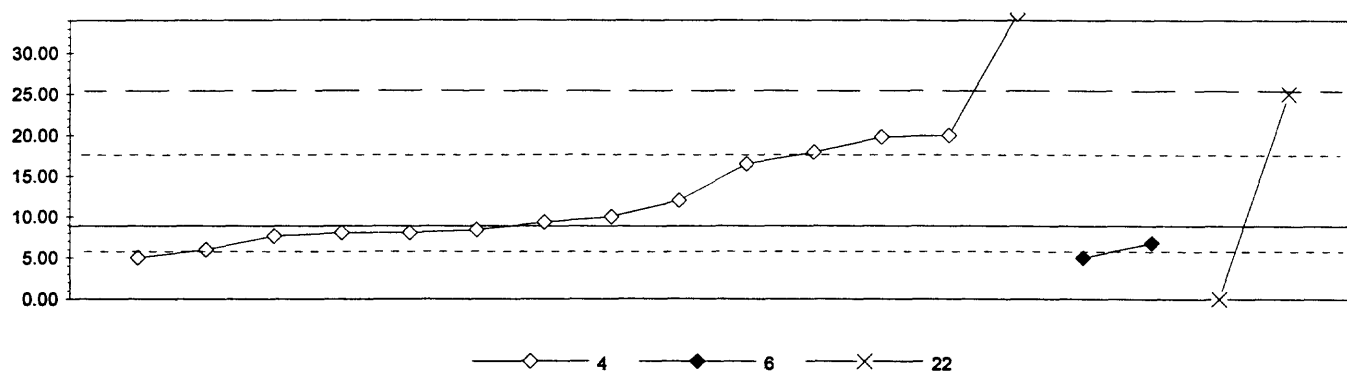
0. Other		22. Colorimetric			
20. Titrate: colorimetric					
21. Titrate: electrometric					
N =	2	8	65	6	
Minimum =	58.0	53.3	53.5	56.9	
Maximum =	59.0	71.1	285.0	480.0	
Median =		60.9	60.0		
St Dev =		5.8	2.2		

MPV = 60.0
F-pseudosigma = 1.9
N = 82
Hu = 61.6
Hi = 59.0

Lab	Rating	Z-value	0	20	21	22
1	4	-0.05			59.9	
3	2	1.04			62.0	
5	0	32.17			122.0	
6	0	2.08		64.0		
9	4	0.00			60.0	
10	4	0.26			60.5	
11	0	2.49			64.8	
12	0	2.59			65.0	
13	2	-1.25			57.6	
15	1	-1.56			57.0	
19	3	0.88			61.7	
23	4	-0.42			59.2	
24	3	-0.52			59.0	
25	0	116.74			285.0	
26	3	-0.52	59.0			
32	4	0.47			60.9	
33	4	-0.45			59.1	
36	3	-0.52			59.0	
38	4	0.30			60.6	
40	0	-2.07			56.0	
43	3	-0.52			59.0	
45	3	-0.78			58.5	
46	4	-0.21			59.6	
48	0	2.08				64.0
50	4	0.00			60.0	
51	0	2.08			64.0	
52	0	217.92				480.0
54	4	0.00			60.0	
55	2	1.04			62.0	
56	3	0.99			61.9	
58	1	-1.56			57.0	
63	3	-0.62			58.8	
68	0	40.99				139.0
69	0	3.48				66.7
70	3	-0.67			58.7	
72	3	0.52			61.0	
75	2	-1.30			57.5	
78	3	-0.78			58.5	
79	3	0.52			61.0	
80	0	4.57		68.8		
84	4	0.00			60.0	
85	4	-0.47			59.1	
87	2	1.04			62.0	
90	3	0.88			61.7	
92	3	0.52			61.0	
94	4	0.00		60.0		
96	4	-0.26			59.5	
97	4	-0.36			59.3	
100	4	-0.05			59.9	
105	3	0.73			61.4	

Lab	Rating	Z-value	0	20	21	22
107	0	-2.44			55.3	
109	3	0.78			61.5	
113	0	-2.13			55.9	
114	0	2.08			64.0	
116	4	-0.05			59.9	
118	3	0.88		61.7		
119	2	-1.04		58.0		
122	3	0.83			61.6	
127	4	0.36			60.7	
128	1	-1.61				56.9
129	3	0.52	61.0			
133	1	-1.56			57.0	
134	3	0.69			61.3	
136	4	0.00			60.0	
138	0	-3.37			53.5	
141	2	-1.35			57.4	
142	3	0.52			61.0	
145	1	-1.56				57.0
146	3	-0.52			59.0	
151	3	0.52			61.0	
153	4	0.21			60.4	
158	3	-0.52			59.0	
180	3	0.52			61.0	
190	4	-0.36			59.3	
191	0	5.76		71.1		
203	0	-3.49		53.3		
204	0	-2.08			56.0	
210	3	0.52			61.0	
211	4	0.42			60.8	
213	3	-0.52			59.0	
224	4	0.00		60.0		
225	2	-1.04	58.0			

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)—Continued
B (Boron) μ g/L



4. ICP
 6. ICP/MS
 22. Colorimetric

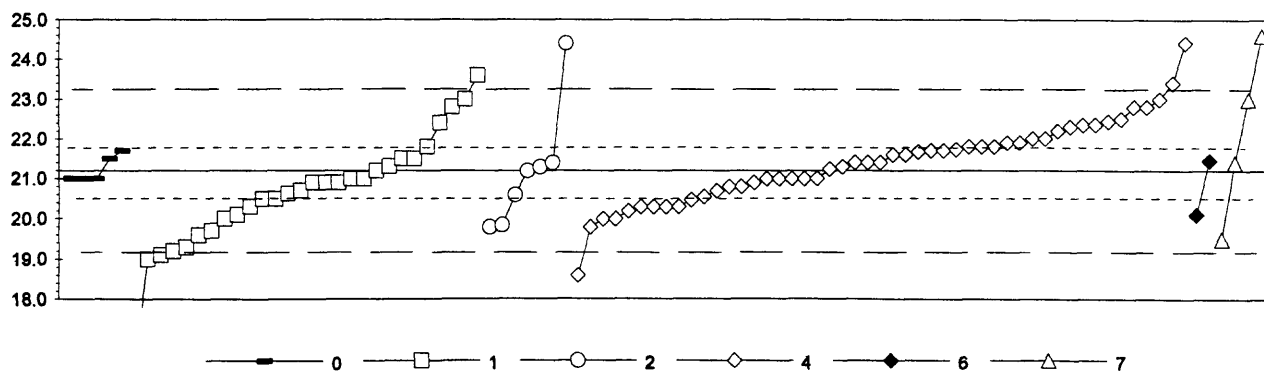
	N = 14	2	2
Minimum =	5.00	5.00	0.00
Maximum =	34.80	6.80	25.00
Median =	9.67		
St Dev =	8.05		

MPV = 8.87
 F-pseudosigma = 8.23
 N = 18
 Hu = 17.90
 Hi = 6.80

Lab	Rating	Z-value	4	6	22
1	4	-0.15	7.66		
3	4	-0.06	8.40		
4	NR		< 5		
10	NR				< 50
11	4	-0.47	5.00		
15	2	1.10	17.80		
25	NR		< 23		
32	4	-0.47		5.00	
36	NR	-1.08			0.00
39	NR		< 10		
46	NR		< 10		
50	NR				< 100
52	NR		< 100		
58	1	1.96			25.00
63	NR		< 100		
70	NR		< 50		
85	4	0.38	12.00		
86	3	0.93	16.50		
94	NR		< 10		
103	4	-0.35	6.00		
109	4	-0.10	8.05		
119	4	0.14	10.00		
121	2	1.35	20.00		
127	4	0.06	9.34		
126	0	3.15	34.80		
134	NR		< 20		
138	4	-0.25		6.80	
141	2	1.33	19.80		
142	4	-0.10	8.05		
145	NR		< 23		
146	NR		< 50		
180	NR		< 11.8		
194	NR		< 100		
210	NR		< 50		
211	NR		< 40		

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)—Continued

Ca (Calcium) m g/L



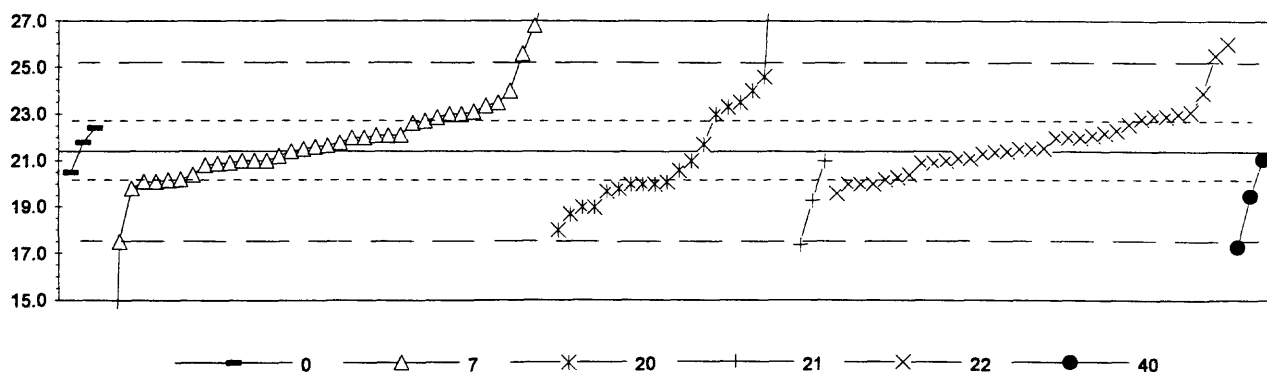
0. Other	4. ICP					
1. AA: direct air	6. ICP/MS					
2. AA: direct nitrous oxide	7. IC					
N =	5	28	7	49	2	4
Minimum =	21.0	16.4	19.8	18.6	20.1	19.5
Maximum =	21.7	23.6	24.4	24.4	21.5	24.6
Median =		20.8	21.2	21.4		
St Dev =		1.4	1.6	1.0		

MPV = 21.2
 F-pseudsigma = 1.0
 N = 95
 Hu = 21.8
 Hl = 20.5

Lab	Rating	Z-value	0	1	2	4	6	7
1	4	0.31	21.5					
3	3	0.62				21.8		
4	1	1.85				23.0		
5	3	-0.51				20.7		
7	2	1.27				22.4		
10	4	-0.31	20.9					
11	0	2.26				23.4		
12	4	-0.21				21.0		
13	2	-1.13	20.1					
15	0	3.28				24.4		
19	2	1.19				22.4		
23	4	-0.21	21.0					
24	3	-0.92				20.3		
25	2	-1.44				19.8		
26	1	-1.74						19.5
30	2	-1.23	20.0					
32	4	0.26					21.5	
33	4	-0.21	21.0					
36	2	-1.44			19.8			
38	4	0.21			21.4			
39	4	0.21				21.4		
40	4	0.41				21.6		
43	4	0.21				21.4		
45	4	0.31	21.5					
46	3	-0.67				20.6		
48	2	1.13				22.3		
50	0	-2.26	19.0					
51	2	-1.23				20.0		
52	3	-0.92				20.3		
54	4	0.11	21.3					
55	3	0.62				21.8		
56	1	-1.64	19.6					
58	0	-4.92	16.4					
63	2	-1.03				20.2		
64	3	0.62				21.8		
68	4	-0.21				21.0		
69	3	-0.92	20.3					
70	2	1.33				22.5		
72	4	-0.31				20.9		
75	4	-0.31	20.9					
76	2	1.23	22.4					
78	0	-2.15	19.1					
80	1	1.85	23.0					
84	4	0.00		21.2				
85	3	-0.72	20.5					
86	3	0.51				21.7		
87	4	0.10			21.3			
90	4	-0.21	21.0					
92	3	-0.72	20.5					
93	4	0.04				21.2		

Lab	Rating	Z-value	0	1	2	4	6	7
94	3	0.55				21.7		
97	4	-0.31		20.9				
101	3	0.62		21.8				
102	4	-0.41				20.8		
103	2	-1.23				20.0		
105	3	0.51				21.7		
107	1	-1.95		19.3				
109	3	-0.58		20.6				
111	0	3.28			24.4			
113	1	-1.54		19.7				
114	2	-1.38			19.9			
116	4	0.21				21.4		
119	4	-0.21				21.0		
121	4	-0.41				20.8		
122	3	-0.51		20.7				
127	1	1.64				22.8		
128	2	1.03				22.2		
129	0	-2.05		19.2				
133	3	-0.75				20.5		
134	3	0.82				22.0		
136	3	-0.62			20.6			
138	1	1.64				22.8		
140	4	-0.21		21.0				
141	3	0.72				21.9		
142	2	1.18				22.4		
145	4	-0.20				21.0		
146	0	-2.67				18.6		
149	0	2.46		23.6				
151	4	-0.21	21.0					
153	1	1.85						23.0
179	1	1.64		22.8				
180	3	-0.92				20.3		
190	0	3.49						24.6
191	2	-1.13					20.1	
194	4	0.41				21.6		
196	3	0.51	21.7					
204	3	0.72				21.9		
209	4	0.48				21.7		
210	3	0.82				22.0		
211	3	-0.92				20.3		
220	4	0.00		21.2				
221	4	0.31		21.5				
224	4	0.10				21.3		
225	4	-0.21				21.0		
230	4	0.21						21.4

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
Cl (Chloride) **m g/L**



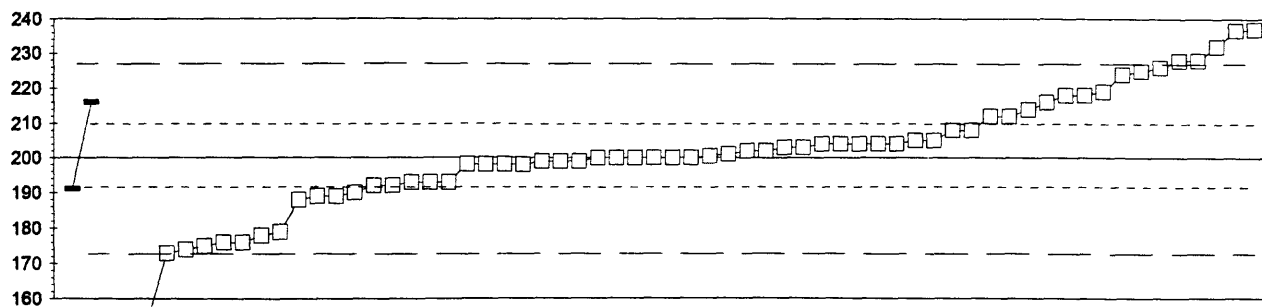
0. Other	21. Titrate: electrometric					
7. Ion chromatography	22. Colorimetric					
20. Titrate: colorimetric	40. Ion selective electrode					
N =	3	37	20	3	33	3
Minimum =	20.5	0.0	18.0	17.4	19.6	17.3
Maximum =	22.4	28.4	36.2	21.0	26.0	21.1
Median =		21.7	20.4		21.5	
St Dev =		4.1	4.7		1.5	

MPV = 21.4
 F-pseudosigma = 1.9
 N = 99
 Hu = 22.8
 Hl = 20.2

Lab	Rating	Z-value	0	7	20	21	22	40
1	4	0.11		21.6				
3	3	-0.58					20.3	
4	3	0.85		23.0				
5	4	-0.32		20.8				
6	3	-0.95					19.6	
7	4	-0.26		20.9				
9	3	0.79					22.9	
10	3	-0.53					20.4	
11	4	0.00					21.4	
12	0	2.43					28.0	
13	3	0.85					23.0	
15	0	2.22		25.6				
19	3	-0.74					20.0	
23	0	-2.17						17.3
24	4	0.05					21.5	
25	3	0.77		22.9				
26	3	-0.63		20.2				
30	3	0.65		22.6				
32	2	1.38		24.0				
33	4	0.14		21.7				
36	4	-0.21					21.0	
40	4	0.37					22.1	
43	2	-1.01						19.5
45	4	-0.26					20.9	
46	4	0.07					21.5	
48	3	-0.74			20.0			
50	4	0.32					22.0	
51	0	2.86		26.8				
52	4	0.48					22.3	
55	3	0.79					22.9	
56	0	7.81			36.2			
58	0	6.51			33.7			
63	4	-0.21				21.0		
64	4	0.05		21.5				
68	4	-0.16					21.1	
69	4	0.32					22.0	
70	3	0.85			23.0			
72	1	-1.80			18.0			
75	4	0.32		22.0				
76	4	-0.11		21.2				
78	3	-0.74					20.0	
79	4	-0.21			21.0			
80	2	-1.27			19.0			
84	1	1.69			24.6			
85	4	-0.05					21.3	
86	3	0.90		23.1				
87	4	0.32					22.0	
92	3	-0.69			20.1			
93	2	1.04		23.4				
94	3	0.90					23.1	

Lab	Rating	Z-value	0	7	20	21	22	40
96	4	0.05					21.5	
97	2	1.32					23.9	
100	3	-0.65		20.2				
101	2	-1.27			19.0			
102	3	-0.74					20.0	
105	4	-0.21		21.0				
107	3	-0.90			19.7			
109	0	-2.12				17.4		
111	0	3.70		28.4				
113	3	-0.53		20.4				
114	4	-0.16						21.1
116	4	-0.21		21.0				
119	3	-0.74			20.0			
122	2	-1.43			18.7			
127	4	-0.21		21.0				
128	4	-0.02					21.4	
129	3	0.69		22.7				
131	3	-0.69		20.1				
134	4	0.20		21.8				
136	3	0.85		23.0				
138	4	0.00		21.4				
140	4	0.42					22.2	
141	4	-0.26					20.9	
142	3	0.74					22.8	
143	3	0.62					22.6	
145	2	1.11		23.5				
146	0	2.17					25.5	
153	3	-0.85		19.8				
158	4	-0.16					21.1	
179	3	-0.74			20.0			
180	3	-0.63					20.2	
183	2	1.11			23.5			
190	4	0.37		22.1				
191	4	0.32		22.0				
193	0	-11.31		0.0				
194	4	-0.48	20.5					
196	3	0.53	22.4					
203	4	-0.42			20.6			
204	2	-1.11				19.3		
208	3	-0.69		20.1				
209	4	-0.28		20.9				
210	4	0.20	21.8					
211	4	0.16				21.7		
213	0	-2.06			17.5			
220	2	1.01					23.3	
221	3	-0.85					19.8	
224	4	0.38		22.1				
225	2	1.38					24.0	
230	4	0.37		22.1				

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
DSRD (Dissolved solids) **m g/L**



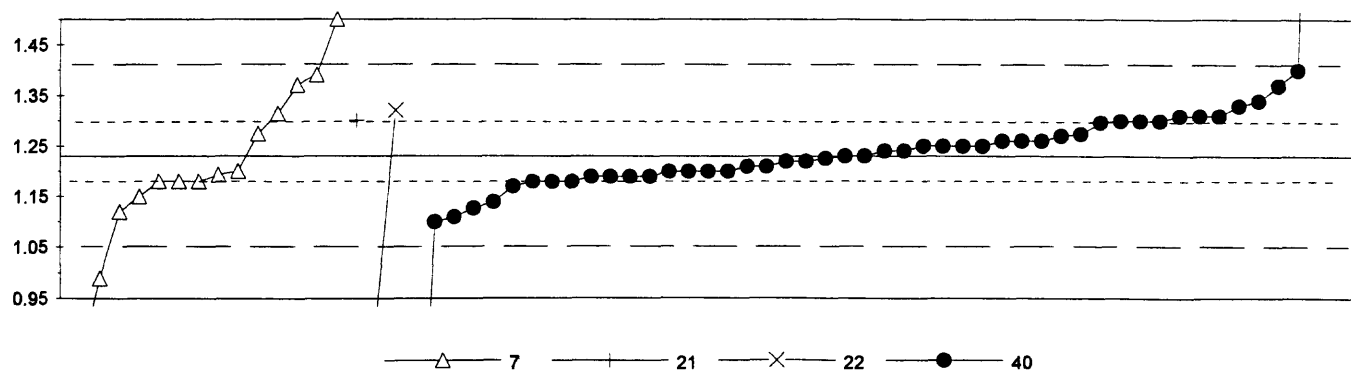
0. Other			
50. Gravimetric			
N =	2	62	
Minimum =	191	135	
Maximum =	216	237	
Median =		200	
St Dev =		19	

MPV = 200
 F-pseudosigma = 13
 N = 64
 Hu = 210
 Hl = 192

Lab	Rating	Z-value	0	50
1	3	-0.52		193
3	1	1.80		224
5	0	-4.87		135
6	1	-1.80		176
9	4	0.15		202
10	4	0.22		203
11	3	-0.90		188
12	4	-0.07		199
13	4	0.30		204
15	4	0.30		204
19	2	1.05		214
23	1	-1.80		176
25	1	1.95		226
26	2	1.20	216	
32	0	-3.45		154
36	4	0.00		200
38	4	-0.15		198
40	3	-0.52		193
43	4	0.30		204
45	2	1.35		218
46	4	0.00		200
48	3	-0.52		193
50	4	-0.15		198
51	4	0.30		204
52	4	0.00		200
54	4	0.04		201
55	4	0.00		200
63	4	0.22		203
69	4	0.00		200
70	4	0.15		202
72	3	0.90		212
75	4	0.30		204
76	4	-0.15		198
78	3	-0.67	191	
80	1	-1.95		174
85	3	-0.82		189
87	0	-3.60		152
90	3	-0.80		192
92	3	-0.82		189
94	1	-1.57		179
96	3	0.60		208
97	2	1.20		216
100	1	-1.65		178
105	0	2.40		232
109	2	1.42		219
113	3	0.60		208
114	0	2.77		237
118	0	2.10		228
119	4	0.00		200
122	1	-1.87		175

Lab	Rating	Z-value	0	50
127	3	-0.60		192
129	1	1.87		225
134	4	0.07		201
138	4	0.37		205
140	4	-0.07		199
141	1	-2.02		173
142	4	-0.15		198
146	3	-0.75		190
158	2	1.35		218
190	4	0.37		205
194	4	-0.07		199
211	3	0.90		212
221	0	2.10		228
224	0	2.75		237

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
F (Fluoride) m g/L



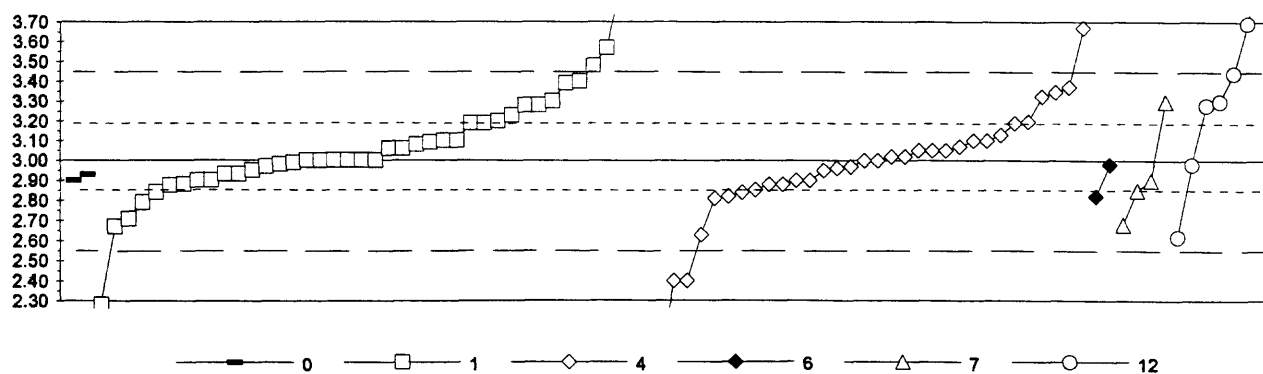
7. Ion chromatography		40. Ion selective electrode			
21. Titrate: electrometric					
22. Colorimetric					
N =	14	1	2	48	
Minimum =	0.83	1.30	0.90	0.28	
Maximum =	1.50		1.32	148.9	
Median =	1.19			1.23	
St Dev =	0.17			0.07	

MPV = 1.23
F-pseudosigma = 0.09
N = 65
Hu = 1.30
HI = 1.18

Lab	Rating	Z-value	7	21	22	40
1	1	1.57				1.37
3	2	1.01			1.32	
4	4	-0.34	1.20			
6	4	0.00				1.23
7	3	-0.56	1.18			
9	0	3.02				1.49
10	4	0.22				1.25
11	3	-0.56				1.18
12	3	0.79				1.30
13	4	0.11				1.24
15	3	-0.56				1.18
23	3	-0.67				1.17
24	4	0.11				1.24
25	3	0.79				1.30
26	0	-2.70	0.99			
32	3	0.90				1.31
36	2	-1.46				1.10
40	4	0.22				1.25
46	3	0.75				1.30
50	3	0.79				1.30
52	3	0.90				1.31
54	4	-0.04				1.23
55	4	0.22				1.25
58	3	-0.56				1.18
63	2	1.12				1.33
69	4	-0.45				1.19
70	4	-0.34				1.20
72	4	0.22				1.25
76	1	1.80	1.39			
78	2	-1.35				1.11
85	4	-0.34				1.20
86	0	-4.55	0.83			
93	0	27.88				3.71
94	4	-0.45				1.19
96	4	-0.22				1.21
97	2	-1.01				1.14
100	4	0.45				1.27
105	3	-0.56	1.18			
107	4	0.34				1.26
109	4	-0.11				1.22
113	4	0.34				1.26
114	4	-0.34				1.20
119	4	0.00				1.23
122	4	-0.11				1.22
127	2	-1.24	1.12			
128	2	-1.16				1.13
129	4	-0.42	1.19			
131	1	1.57	1.37			
134	3	0.79		1.30		
136	0	< 0.26				

Lab	Rating	Z-value	7	21	22	40
138	3	-0.90	1.15			
140	4	-0.22				1.21
141	4	0.34				1.26
142	4	-0.45				1.19
145	4	0.49	1.27			
151	2	1.24				1.34
153	4	-0.34				1.20
180	1	1.91				1.40
190	0	-10.65				0.28
194	3	0.90				1.31
196	3	-0.56	1.18			
208	0	3.04	1.50			
210	4	0.49				1.27
211	4	-0.45				1.19
224	3	0.94	1.31			
225	0	-3.71			0.90	

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)-Continued
K (Potassium) m g/L



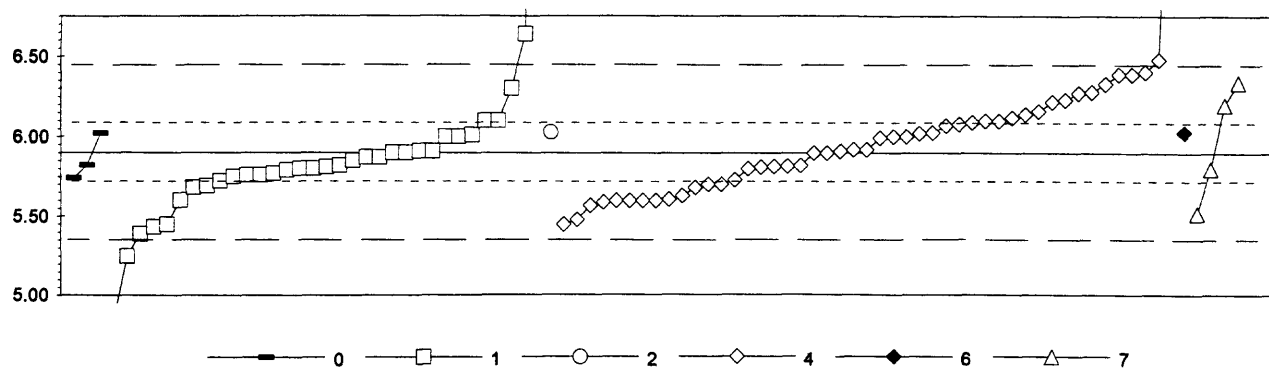
0. Other	6. ICP/MS
1. AA: direct air	7. Ion chromatography
4. ICP	12. Flame emission
N =	2 40 33 2 4 7
Minimum =	2.90 2.28 1.85 2.82 2.68 2.62
Maximum =	2.93 5.00 3.67 2.98 3.30 4.00
Median =	3.00 3.00 3.00 3.30
St Dev =	0.41 0.36 0.45

MPV = 3.00
F-pseudsigma = 0.23
N = 88
Hu = 3.19
Hi = 2.89

Lab	Rating	Z-value	0	1	4	6	7	12
1	3	-0.53		2.88				
3	0	2.97			3.67			
5	4	-0.22			2.95			
7	1	1.54			3.35			
9	4	0.44		3.10				
10	4	-0.13		2.97				
11	4	0.22			3.05			
12	4	0.00			3.00			
13	3	-0.55		2.88				
15	4	0.09			3.02			
19	0	-2.66			2.40			
23	2	-1.30		2.71				
24	3	-0.80			2.82			
25	3	-0.71			2.84			
26	2	-1.42					2.68	
32	3	-0.80				2.82		
33	4	-0.44	2.90					
36	3	-0.93		2.79				
38	4	0.40		3.09				
40	4	0.22			3.05			
43	4	0.44			3.10			
45	4	0.27		3.06				
46	3	-0.53			2.88			
48	3	-0.53			2.88			
50	4	0.00		3.00				
51	1	1.95						3.44
52	3	-0.84			2.81			
54	4	-0.05		2.99				
56	3	0.84		3.19				
58	2	1.24		3.28				
63	4	0.36		3.08				
64	2	1.02		3.23				
68	4	0.22			3.05			
69	2	1.33						3.30
70	3	0.84			3.19			
72	4	-0.44			2.90			
75	3	-0.71		2.84				
76	1	1.78		3.40				
78	3	0.84		3.19				
80	4	0.00		3.00				
85	0	2.13		3.48				
86	4	0.44			3.10			
87	4	-0.09		2.98				
92	4	0.00		3.00				
93	2	1.24						3.28
94	3	-0.66			2.85			
97	2	-1.46		2.67				
101	4	-0.44		2.90				
102	4	-0.17			2.96			
103	4	-0.44			2.90			

Lab	Rating	Z-value	0	1	4	6	7	12
105	4	0.09			3.02			
107	4	-0.44		2.90				
109	4	-0.31		2.93				
111	2	1.24		3.28				
113	4	0.00		3.00				
114	0	-3.20		2.28				
119	4	0.00			3.00			
121	4	0.00		3.00				
122	2	1.33		3.30				
127	3	0.58			3.13			
128	2	1.44			3.33			
129	0	8.87		5.00				
134	4	0.44		3.10				
136	0	3.86		3.87				
138	4	0.31			3.07			
140	4	-0.22		2.95				
141	1	1.64			3.37			
142	3	0.88			3.20			
145	1	-1.64			2.63			
146	0	-4.57			1.97			
149	3	0.89		3.20				
151	4	-0.31		2.93				
153	3	-0.67					2.85	
179	1	1.73		3.39				
180	4	-0.13			2.97			
190	4	-0.44					2.90	
191	4	-0.09				2.98		
194	0	2.53		3.57				
196	4	-0.31	2.93					
204	1	-1.69						2.62
209	0	3.08						3.69
210	4	-0.09						2.98
211	0	-2.66			2.40			
220	4	0.00		3.00				
221	4	0.27		3.06				
224	0	-5.11			1.85			
225	0	4.44						4.00
230	2	1.33					3.30	

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
Mg (Magnesium) m g/L



0. Other	4. ICP					
1. AA: direct air	6. ICP/MS					
2. AA: direct nitrous oxide	7. IC					
N =	3	33	2	47	1	5
Minimum =	5.74	4.84	6.00	5.45	6.03	5.52
Maximum =	6.02	12.40	6.03	8.77		6.34
Median =		5.81		5.92		
St Dev =		0.31		0.49		

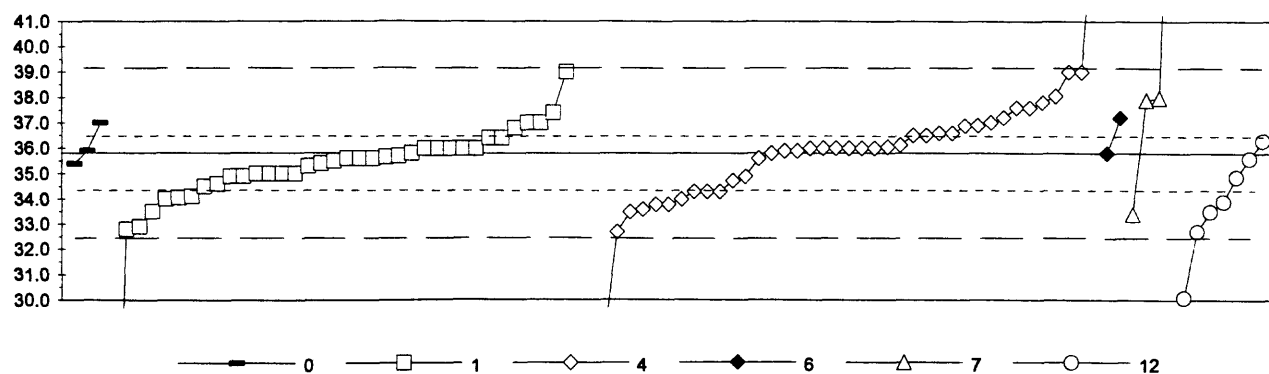
MPV = 5.90
F-pseudosigma = 0.27
N = 91
Hu = 6.09
HI = 5.72

Lab	Rating	Z-value	0	1	2	4	6	7
1	4	-0.32				5.81		
3	4	0.44				6.02		
4	3	0.73				6.10		
5	4	-0.36				5.80		
7	2	1.37				6.27		
10	4	-0.36		5.80				
11	1	1.57				6.33		
12	4	0.37				6.00		
13	4	0.04		5.91				
15	2	1.39				6.28		
19	2	1.21				6.23		
23	1	-1.70		5.43				
24	3	-0.98				5.63		
25	2	-1.09				5.60		
26	2	-1.38						5.52
30	0	2.70		6.64				
32	4	0.48					6.03	
33	3	-0.58	5.74					
36	4	-0.32		5.81				
38	4	0.04		5.91				
39	3	0.81				6.12		
40	4	0.08				5.92		
43	4	0.00				5.90		
45	4	-0.29	5.82					
46	4	-0.31				5.82		
48	3	0.95				6.16		
50	3	0.73		6.10				
51	3	0.73		6.10				
52	3	-0.80				5.68		
54	4	0.00		5.90				
55	2	-1.09				5.60		
56	0	-2.37		5.25				
58	0	-3.86		4.84				
63	1	-1.53				5.48		
68	2	-1.09				5.60		
69	1	-1.64		5.45				
70	3	0.88				6.14		
72	2	-1.09				5.60		
75	4	-0.11		5.87				
76	4	-0.11		5.87				
78	2	1.46		6.30				
80	4	0.37		6.00				
84	3	-0.51		5.76				
85	4	-0.47		5.77				
86	2	1.17				6.22		
87	1	-1.86		5.39				
92	3	-0.54		5.75				
93	3	0.70				6.09		
94	4	-0.28				5.82		
97	3	-0.80		5.68				

Lab	Rating	Z-value	0	1	2	4	6	7
101	4	-0.36		5.80				
102	2	-1.20				5.57		
103	3	-0.73				5.70		
105	3	0.73				6.10		
107	4	-0.40		5.79				
109	4	0.37		6.00				
111	4	0.37			6.00			
113	4	0.40		6.01				
114	4	0.48			6.03			
116	4	0.04				5.91		
119	4	0.37				6.00		
121	4	0.00				5.90		
122	4	0.00		5.90				
127	4	0.08				5.92		
128	4	-0.30				5.82		
129	3	-0.51		5.76				
133	2	-1.06				5.61		
134	4	0.34				5.99		
136	3	-0.65		5.72				
138	3	0.62				6.07		
140	4	-0.18		5.85				
141	1	1.79				6.39		
142	1	1.83				6.40		
145	3	-0.62				5.73		
146	1	-1.64				5.45		
151	3	-0.76		5.69				
153	4	-0.36						5.80
179	2	-1.09		5.60				
180	3	0.66				6.08		
190	1	1.61						6.34
191	3	-0.69						5.71
194	3	-0.73				5.70		
196	4	0.44	6.02					
204	0	2.12				6.48		
209	4	0.46				6.03		
210	1	1.79				6.39		
211	2	-1.13				5.59		
220	4	-0.29		5.82				
221	0	23.70		12.40				
224	0	10.47				8.77		
230	2	1.10						6.20

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued

Na (Sodium) m g/L



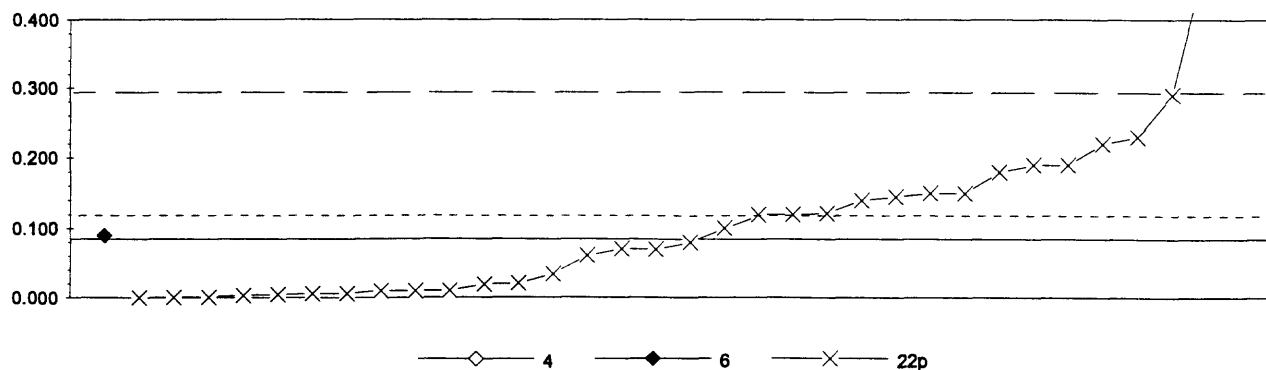
0. Other	6. ICP/MS					
1. AA: direct air	7. Ion chromatography					
4. ICP	12. Flame emission					
N =	3	36	41	2	4	7
Minimum =	35.4	18.0	3.9	35.8	33.4	30.1
Maximum =	37.0	39.0	46.0	37.2	53.6	36.3
Median =		35.6	36.0			33.9
St Dev =		3.2	2.0			2.1

MPV = 35.8
 F-pseudosigma = 1.6
 N = 93
 Hu = 36.5
 HI = 34.3

Lab	Rating	Z-value	0	1	4	6	7	12
1	3	-0.74		34.6				
3	0	-4.66			28.2			
4	1	1.96			39.0			
5	4	0.43			36.5			
7	2	1.39			38.1			
9	4	0.12		36.0				
10	4	-0.12		35.6				
11	2	1.10			37.6			
12	4	0.12			36.0			
13	4	0.00		35.8				
15	1	1.96			39.0			
19	3	0.66			36.9			
23	2	-1.04		34.1				
24	2	-1.41			33.5			
25	3	-0.92			34.3			
26	2	-1.47					33.4	
32	3	0.86				37.2		
33	4	-0.25	35.4					
36	4	-0.12		35.6				
38	1	-1.84		32.8				
39	4	0.43			36.5			
40	4	0.12			36.0			
43	4	0.06			35.9			
45	4	0.06	35.9					
46	4	0.01			35.8			
48	3	-0.92			34.3			
50	4	-0.31		35.3				
51	4	-0.12					35.6	
52	2	-1.23			33.8			
54	4	-0.06		35.7				
56	4	-0.09		35.7				
58	1	1.96		39.0				
63	2	-1.23			33.8			
64	4	-0.12		35.6				
68	2	-1.10			34.0			
69	3	-0.57					34.9	
70	4	0.49			36.6			
72	3	-0.92			34.3			
75	4	0.12		36.0				
76	4	0.37		36.4				
78	0	-10.91		18.0				
80	4	-0.49		35.0				
84	4	0.31					36.3	
85	4	-0.49		35.0				
86	4	0.49			36.6			
87	1	-1.78		32.9				
90	1	-1.90					32.7	
92	4	-0.49		35.0				
93	2	-1.17					33.9	
94	4	0.15			36.1			

Lab	Rating	Z-value	0	1	4	6	7	12
97	3	-0.80		34.5				
101	4	0.12		36.0				
102	1	-1.90			32.7			
103	4	0.12			36.0			
105	3	0.86			37.2			
107	2	-1.41		33.5				
109	2	-1.07		34.1				
111	3	-0.55		34.9				
113	4	0.37		36.4				
114	4	-0.18		35.5				
116	4	0.06			35.9			
119	4	0.12			36.0			
121	4	0.12			36.0			
122	3	0.61		36.8				
127	4	-0.12			35.6			
128	4	0.20			36.1			
129	3	0.74		37.0				
134	4	0.12		36.0				
136	3	0.74		37.0				
138	3	0.67			36.9			
140	4	0.12		36.0				
141	2	1.23			37.8			
142	3	0.74			37.0			
145	3	-0.65			34.7			
146	2	-1.35			33.6			
149	4	-0.49		35.0				
151	4	-0.25		35.4				
153	0	10.91					53.6	
179	3	0.98		37.4				
180	3	-0.55			34.9			
190	2	1.29					37.9	
191	4	0.00				35.8		
194	2	1.10			37.6			
196	3	0.74	37.0					
204	2	-1.41						33.5
209	0	-3.50						30.1
210	0	-19.54			3.9			
211	4	0.12			36.0			
220	2	-1.10		34.0				
221	3	-0.55		34.9				
224	0	-11.56			16.9			
225	0	6.25			46.0			
230	2	1.35					38.0	

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
total P (total Phosphorus) m g/L



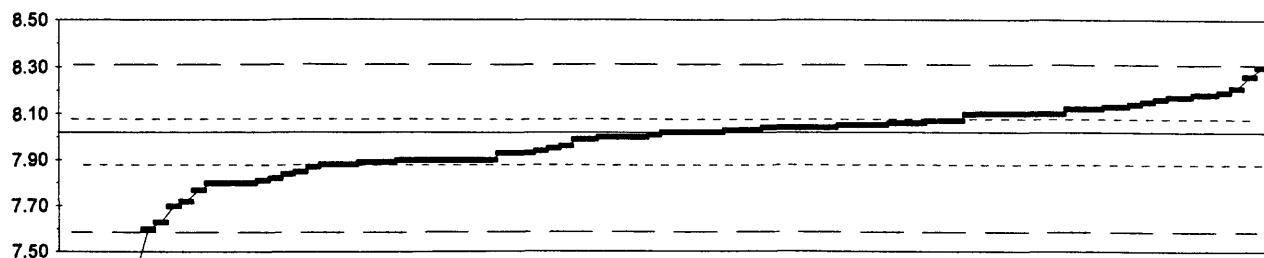
4. ICP
6. ICP/MS
22p. Color: phosphomolybdate
N = 0 1 33
Minimum = 0.090 0.000
Maximum = 1.190
Median = 0.080
St Dev = 0.110

MPV = 0.085
F-pseudosigma = 0.104
N = 34
Hu = 0.150
HI = 0.010

Lab	Rating	Z-value	4	6	22p
1	3	-0.76			0.006
3	3	-0.72			0.010
5	3	-0.76			0.006
6	NR				< 0.5
7	4	0.14			0.100
11	3	0.53			0.140
12	NR				< 0.2
13	0	4.00			0.500
15	NR				< 0.2
19	NR				< 0.5
23	3	0.63			0.150
36	3	-0.77			0.005
38	2	1.40			0.230
48	NR				< 0.1
52	NR				< 0.1
55	2	1.01			0.190
58	2	1.30			0.220
63	NR				< 0.5
68	3	-0.81			0.001
70	4	0.36			0.122
72	NR				< 0.02
78	3	0.58			0.145
85	NR				< 0.1
87	3	-0.81			0.001
92	4	-0.49			0.034
94	3	-0.78			0.004
97	4	-0.14			0.070
100	3	0.63			0.150
102	NR				< 0.01
103	NR		< 0.01		
105	2	1.01			0.190
107	3	-0.63			0.020
108	4	0.34			0.120
111	4	-0.05			0.080
113	4	0.34			0.120
114	NR				< 0.01
118	NR				< 0.01
119	3	-0.72			0.010
127	NR				< 0.2
128	NR				< 0.5
129	NR	-0.82			0.000
134	NR				< 0.02
140	NR				< 0.01
141	NR				< 0.5
142	NR				< 0.18
143	4	-0.24			0.060
145	NR				< 0.2
158	NR				< 0.3
179	1	1.98			0.290
180	NR				< 0.025

Lab	Rating	Z-value	4	6	22p
191	4	0.05		0.090	
194	NR				< 0.1
203	3	-0.64			0.019
204	4	-0.14			0.070
210	NR				< 0.1
211	0	10.65			1.190
213	NR				< 0.2
221	3	-0.72			0.010
224	3	0.92			0.180

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
pH



41

41. Direct reading

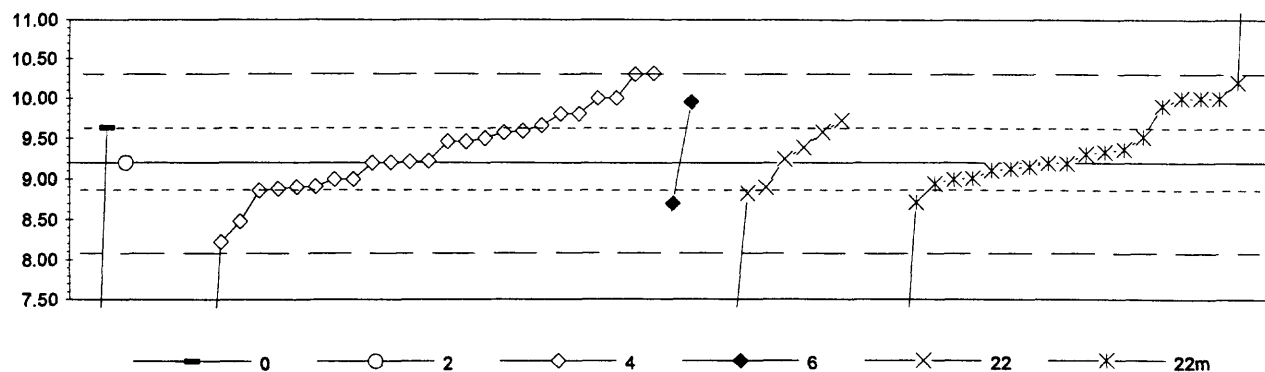
N = 95
Minimum = 6.80
Maximum = 8.30
Median = 8.02
St Dev = 0.26

MPV = 8.02
F-pseudosigma = 0.14
N = 95
Hu = 8.08
HI = 7.89

Lab	Rating	Z-value	41
1	3	-0.97	7.88
3	4	0.28	8.06
5	4	0.07	8.03
6	3	-0.56	7.94
7	0	-7.30	6.97
10	4	0.21	8.05
11	4	-0.21	7.99
12	4	-0.14	8.00
13	3	0.70	8.12
15	0	-4.38	7.39
19	4	0.00	8.02
23	3	0.56	8.10
24	4	-0.49	7.95
25	2	-1.04	7.87
26	0	-5.01	7.30
30	4	0.00	8.02
32	3	0.76	8.13
33	3	-0.83	7.90
36	3	0.56	8.10
38	3	0.56	8.10
40	3	-0.63	7.93
43	1	-1.53	7.80
45	3	0.83	8.14
46	3	-0.90	7.89
48	0	-8.48	6.80
50	4	0.28	8.06
51	2	-1.39	7.82
52	3	0.56	8.10
54	4	0.07	8.03
55	3	0.70	8.12
56	3	-0.63	7.93
58	0	-2.71	7.63
63	4	0.14	8.04
64	4	0.21	8.05
68	4	0.21	8.05
69	1	1.67	8.26
70	2	-1.25	7.84
72	4	0.14	8.04
75	4	-0.42	7.96
76	3	-0.63	7.93
78	4	0.21	8.05
79	3	0.54	8.10
80	1	-1.53	7.80
84	3	0.56	8.10
85	3	0.70	8.12
86	3	0.56	8.10
87	4	0.00	8.02
90	4	-0.21	7.99
92	4	-0.07	8.01
93	4	0.14	8.04

Lab	Rating	Z-value	41
94	3	-0.90	7.89
96	2	1.18	8.19
97	3	0.90	8.15
100	2	1.32	8.21
101	0	-7.58	6.93
105	4	0.00	8.02
107	3	-0.97	7.88
109	4	0.35	8.07
111	1	1.95	8.30
113	4	-0.14	8.00
114	4	-0.14	8.00
118	0	-2.23	7.70
119	2	1.04	8.17
122	4	-0.14	8.00
127	3	0.76	8.13
128	4	0.14	8.04
129	4	0.14	8.04
133	1	-1.74	7.77
134	4	0.00	8.02
136	1	-1.53	7.80
138	0	-2.09	7.72
140	3	-0.83	7.90
141	3	-0.90	7.89
142	3	-0.83	7.90
143	4	0.35	8.07
145	3	-0.83	7.90
146	3	-0.83	7.90
151	4	0.35	8.07
153	3	0.56	8.10
158	0	-2.92	7.60
179	1	-1.53	7.80
180	4	0.14	8.04
183	2	-1.46	7.81
190	3	-0.97	7.88
191	4	0.28	8.06
196	2	1.04	8.17
203	0	-5.01	7.30
204	3	-0.83	7.90
209	2	1.11	8.18
210	3	0.97	8.16
211	2	-1.18	7.85
213	3	-0.83	7.90
220	2	1.11	8.18
224	4	0.07	8.03
225	3	-0.83	7.90

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)--Continued
SiO₂ (Silica) m g/L



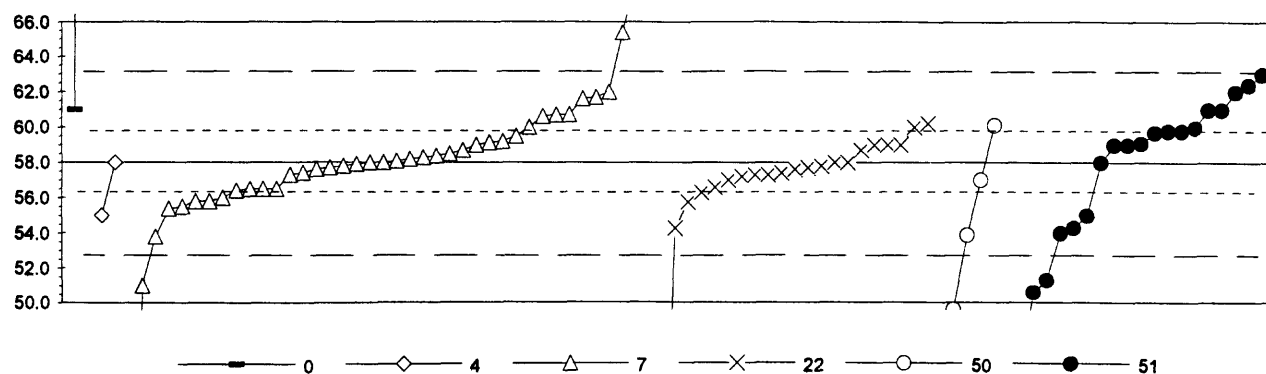
0. Other	6. ICP/MS
2. AA: direct nitrous oxide	22. Colorimetric
4. ICP	22m. Color: molybdate blue
N = 2	1 28 2 8 22
Minimum = 3.00	9.20 4.25 8.70 4.95 2.05
Maximum = 9.63	10.31 9.95 9.72 19.00
Median = 9.21	9.21 9.08 9.20
St Dev = 1.786	1.783 1.133

MPV = 9.20
F-pseudosigma = 0.55
N = 63
Hu = 9.61
Hi = 8.87

Lab	Rating	Z-value	0	2	4	6	22	22m
1	3	0.58						9.52
3	2	-1.31			8.48			
4	2	1.46			10.00			
5	3	0.67			9.57			
9	2	1.46						10.00
10	4	0.00						9.20
11	0	-9.02			4.25			
13	4	-0.13						9.13
15	3	-0.62			8.86			
23	4	0.26						9.34
24	0	-8.48			4.55			
25	3	-0.55			8.90			
32	3	-0.91				8.70		
33	3	0.78	9.63					
36	0	17.87						19.00
38	4	0.20						9.31
39	4	0.47			9.46			
40	4	-0.36			9.00			
43	2	1.09			9.80			
45	3	0.84			9.66			
46	4	0.31						9.37
48	0	-11.30	3.00					
50	2	1.28						9.90
51	3	0.69					9.56	
52	0	-7.98						4.82
55	4	0.01			9.20			
58	0	-7.75						4.95
63	3	-0.58			8.88			
64	4	-0.36			9.00			
68	4	0.35						9.39
70	4	-0.16						9.11
78	4	0.00		9.20				
85	4	0.00						9.20
87	1	1.82						10.20
92	4	-0.35						9.01
97	3	-0.67					8.83	
101	0	-8.55			4.51			
102	4	-0.36						9.00
103	4	0.00			9.20			
105	4	0.47			9.46			
107	3	-0.88						8.72
109	4	0.04			9.22			
111	0	-13.03						2.05
113	3	0.95					9.72	
116	0	-7.91			4.86			
119	2	1.46			10.00			
121	3	0.55			9.50			
127	3	0.71			9.59			
128	1	2.02			10.31			
134	2	1.09			9.80			

Lab	Rating	Z-value	0	2	4	6	22	22m
138	2	1.46						10.00
140	4	0.09					9.25	
141	4	-0.47						8.94
142	4	0.03			9.22			
145	3	-0.53			8.91			
146	1	-1.79			8.22			
191	2	1.37				9.95		
203	4	-0.07						9.16
204	2	1.46						10.00
209	3	-0.55					8.90	
210	1	2.01		10.30				
211	0	-5.58					6.14	
224	0	-9.72						3.87

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)-Continued
SO4 (Sulfate)
m g/L



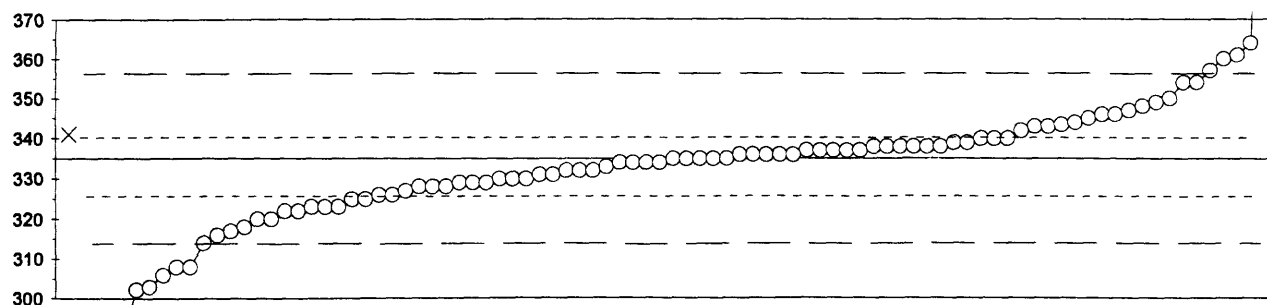
0. Other						22. Colorimetric
4. ICP						50. Gravimetric
7. Ion chromatography						51. Turbidimetric
N =	2	2	40	21	5	20
Minimum =	61.0	55.0	5.9	30.3	43.9	46.0
Maximum =	340.0	58.0	85.2	60.2	60.1	63.0
Median =			58.1	57.6		59.1
St Dev =			5.2	6.1		5.1

MPV = 58.0
F-pseudsigma = 2.6
N = 90
Hu = 59.8
Hi = 56.3

Lab	Rating	Z-value	0	4	7	22	50	51
1	4	-0.04			57.9			
3	4	-0.31				57.2		
4	4	0.39			59.0			
5	3	-0.62			56.4			
6	4	0.00						58.0
7	3	-0.58			56.5			
9	3	-0.85				55.8		
10	4	0.39						59.0
11	3	0.66						59.7
12	3	0.77				60.0		
13	2	-1.43				54.3		
15	0	-2.70			51.0			
19	3	-0.66				56.3		
23	4	-0.12				57.7		
24	4	0.39				59.0		
25	0	4.01			68.4			
26	3	-0.85			55.8			
30	4	-0.08			57.8			
32	4	-0.15			57.6			
33	3	-0.77			56.0			
36	0	-4.63						46.0
40	2	-1.16		55.0				
43	4	-0.39					57.0	
45	3	0.69						59.8
46	4	0.12			58.3			
48	0	108.69	340.0					
50	4	0.00				58.0		
51	2	1.43			61.7			
52	4	-0.15				57.6		
54	2	1.16						61.0
55	4	-0.23				57.4		
56	3	0.69						59.8
58	0	-3.24					49.6	
63	0	-5.43					43.9	
64	1	1.54			62.0			
69	4	-0.39				57.0		
70	4	0.27			58.7			
72	0	-2.58						51.3
75	3	-0.85			55.8			
76	4	0.19			58.5			
78	0	-4.63						46.0
80	2	1.16		61.0				
85	3	-0.96			55.5			
86	0	2.85			65.4			
87	1	-1.54						54.0
92	3	0.77						60.0
93	2	1.04			60.7			
94	4	0.00				58.0		
96	1	1.54						62.0
97	0	-10.68				30.3		

Lab	Rating	Z-value	0	4	7	22	50	51
100	4	-0.23			57.4			
102	4	0.39					59.0	
105	3	1.00			60.6			
109	1	-1.57						53.9
111	0	10.48			85.2			
113	4	-0.27			57.3			
114	4	0.42						59.1
116	3	0.77			60.0			
119	2	1.16						61.0
122	3	0.81					60.1	
127	4	0.00			58.0			
128	3	-0.54					56.6	
129	4	0.15			58.4			
131	4	0.00			58.0			
134	4	0.44			59.2			
136	3	-0.58			56.5			
138	4	0.46			59.2			
140	1	1.93						63.0
141	4	0.39						59.0
142	4	0.39					59.0	
145	1	-1.62			53.8			
153	4	-0.12			57.7			
158	4	0.27					58.7	
180	3	0.85					60.2	
183	0	-2.85						50.6
190	2	1.39			61.6			
191	0	-20.10			5.9			
193	4	0.08			58.2			
194	4	-0.27					57.3	
196	3	-1.00			55.4			
204	4	-0.08					57.8	
208	4	0.04			58.1			
209	3	-0.57			56.5			
210	4	0.00		58.0				
211	2	-1.43						54.3
220	4	-0.27					57.3	
221	1	1.70						62.4
224	3	0.57			59.5			
225	2	-1.16						55.0
230	2	1.04			60.7			

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)—Continued
Sp Cond (Specific Conductance) μ S/cm



—x— 21 —o— 41

21. Titrate: electrometric

41. Direct reading

N = 1 89
Minimum = 341 37
Maximum = 436
Median = 335
St Dev = 20

MPV = 335

F-pseudosigma = 10

N = 90

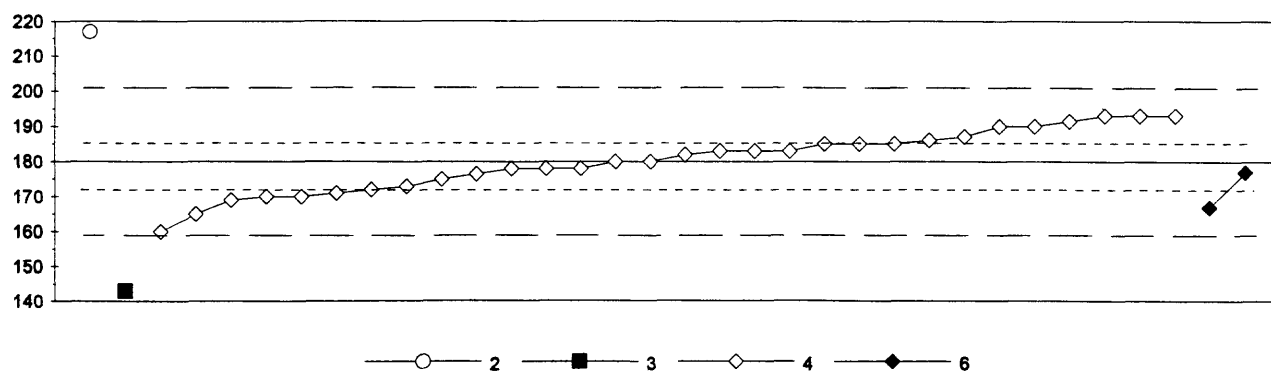
Hu = 340

HI = 326

Lab	Rating	Z-value	21	41
1	4	0.10		336
3	4	0.39		339
5	0	-28.69		37
6	2	1.45		350
7	3	-0.58		329
9	0	-2.60		308
10	4	0.19		337
11	4	-0.29		332
12	3	0.67		342
13	4	0.19		337
15	2	1.06		346
19	1	-2.02		314
23	4	0.10		336
24	3	-0.58		329
25	3	0.77		343
26	1	1.83		354
32	0	-2.60		308
33	1	-1.64		318
36	3	0.77		343
38	3	0.81		343
40	4	0.29		338
43	4	0.29		338
45	2	1.25		348
46	4	-0.29		332
50	4	0.19		337
51	3	-0.77		327
52	1	-1.83		316
54	3	-0.67		328
55	2	1.35		349
56	3	-0.67		328
58	0	-2.79		306
63	0	-5.32		280
64	2	1.06		346
68	4	0.10		336
69	3	0.96		345
70	2	-1.25		322
75	4	0.29		338
76	4	-0.10		334
78	0	-3.08		303
79	4	-0.48		330
80	4	-0.19		333
84	4	0.48		340
85	4	-0.39		331
86	3	-0.87		326
87	1	-1.73		317
90	2	-1.45		320
92	0	2.79		364
93	0	-3.16		302
94	4	0.10		336
96	1	1.83		354

Lab	Rating	Z-value	21	41
97	4	0.48		340
100	4	-0.39		331
101	2	-1.16		323
102	0	2.51		361
105	3	0.58	341	
107	4	0.29		338
109	4	0.19		337
111	3	-0.67		328
113	3	0.87		344
114	4	0.48		340
118	3	-0.87		326
119	4	-0.48		330
122	2	-1.16		323
127	3	-0.58		329
128	0	2.12		357
129	4	0.00		335
134	4	0.19		337
136	4	0.00		335
140	0	-7.13		261
141	0	2.41		360
142	4	-0.29		332
143	4	0.10		336
145	4	-0.10		334
146	0	-4.34		290
151	4	0.29		338
153	4	0.39		339
158	2	1.16		347
179	4	0.00		335
180	4	-0.10		334
183	3	-0.96		325
190	4	0.29		336
193	4	0.00		335
194	2	-1.45		320
196	0	9.73		436
203	2	-1.25		322
210	2	-1.16		323
211	4	0.00		335
220	4	-0.10		334
224	3	-0.96		325
225	4	-0.48		330

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)—Continued
Sr (Strontium) μ g/L

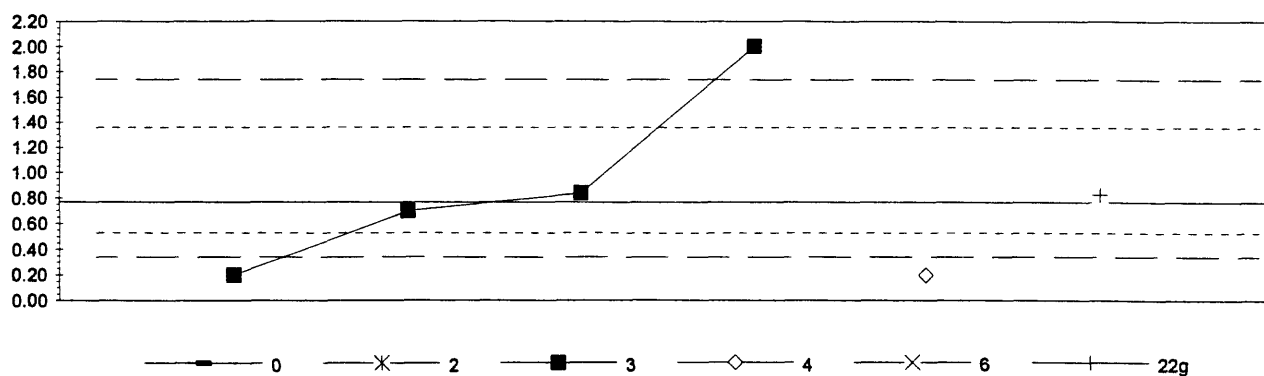


2. AA: direct nitrous oxide	6. ICP/MS
3. AA: graphite furnace	
4. ICP	
N =	1 1 30 2
Minimum =	217 143 160 167
Maximum =	193 177
Median =	181
St Dev =	8.7

MPV = 180
F-pseudosigma = 10
N = 34
Hu = 186
HI = 172

Lab	Rating	Z-value	2	3	4	6
1	4	-0.34			177	
3	4	0.29			183	
4	2	1.25			193	
5	2	1.25			193	
7	3	0.58			186	
11	3	0.96			190	
15	3	-0.87			171	
24	3	-0.67			173	
25	4	-0.48			175	
32	4	-0.29				177
39	4	0.48			185	
40	3	-0.96			170	
46	4	0.29			183	
52	1	-1.93			160	
55	3	-0.77			172	
68	3	-0.96			170	
70	3	0.67			187	
85	4	0.00			180	
94	4	-0.19			178	
97	0	-3.57		143		
102	4	0.19			182	
103	4	0.48			185	
105	2	1.25			193	
113	0	3.57	217			
116	4	-0.19			178	
121	4	-0.19			178	
127	4	0.29			183	
134	3	0.96			190	
138	4	0.48			185	
142	2	1.11			192	
145	2	-1.06			169	
146	2	-1.45			165	
191	2	-1.25				167
194	4	0.00			180	
210	NR				< 500	

Table 11. -Statistical summary of reported data for standard reference water sample M-130 (major constituents)—Continued
V (Vanadium) μ g/L



0. Other	4. ICP
2. AA: direct nitrous oxide	6. ICP/MS
3. AA: graphite furnace	22g. Color: Gallic acid
N = 0	0 4 1 0 1
Minimum =	0.20 0.20 0.83
Maximum =	2.00
Median =	
St Dev =	

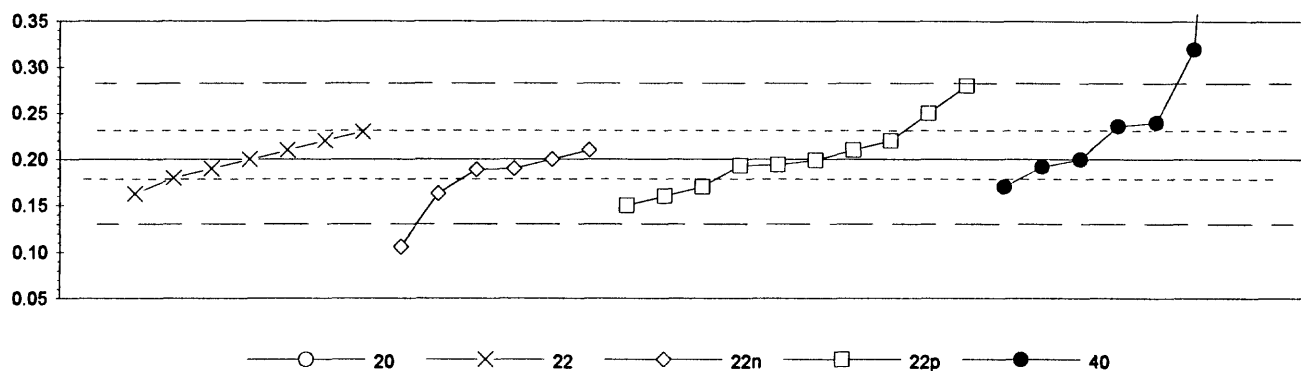
MPV = insufficient data
F-pseudosigma =
N =
Hu =
Hi =

Lab	Rating	Z-value	0	2	3	4	6	22g
1	NR							0.83
3	NR					< 5		
4	NR					< 10		
5	NR					< 4		
7	NR					< 4		
15	NR					< 10		
23	NR			0.84				
25	NR					< 4		
32	NR					< 0.4		
39	NR					< 2		
48	NR				< 4			
51	NR				0.20			
52	NR			< 2				
63	NR					< 10		
68	NR					< 3		
70	NR					< 50		
78	NR				0.70			
85	NR					< 20		
94	NR					< 5		
97	NR				< 2.25			
103	NR					< 5		
105	NR					< 20		
127	NR					< 4		
128	NR					< 5		
134	NR				< 1			
138	NR					< 0.5		
141	NR					< 10		
142	NR				2.00			
145	NR					< 18		
146	NR					< 10		
180	NR					< 4.7		
194	NR				< 10			
210	NR					< 50		
211	NR				< 2			
213	NR		< 0.02					
224	NR					0.20		

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (nutrients)

Definition of analytical methods, abbreviations, and symbols.		
Analytical methods		
0. Other/Not reported		
4. ICP	inductively coupled plasma	
5. DCP	direct current plasma	
7. IC	ion chromatography	
20. Titrate: color	titration: colorimetric [color reagent specified]	
22: Color	colorimetric [color reagent specified]	
40. Ion selective electrode		
Abbreviations and symbols		
	N = number of samples	
	Stdev = traditional standard deviation	
	MPV = most probable value	
	F-pseudosigma = nonparametric statistic deviation	
	Hu = upper hinge value	
	Hi = lower hinge value	
	mg/L = milligrams per liter	
	Lab = Laboratory code number	
	NR = not rated, less than value reported	
	< = less than	
Constituent		
NH3 as N	Ammonia as nitrogen	77
NH3+Org N as N	Ammonia plus organic nitrogen as nitroge	79
NO3+NO2 as N	Nitrate plus nitrite as nitrogen	81
total P as P	total phosphorus as phosphorus	83
PO4 as P	orthophosphate as phosphorus	85

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (preserved nutrient)--Continued
NH3 as N (Ammonia) m g/L

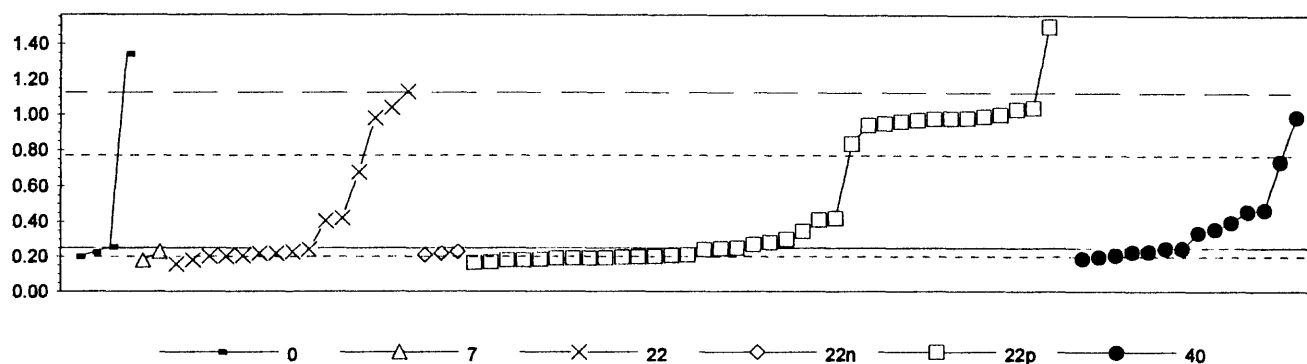


20. Titrate: colorimetric	22p. Color: phenate
22. Colorimetric	40. Ion selective electrode
22n. Color: Nesslerization	
N =	1 7 6 10 8
Minimum =	1.12 0.16 0.11 0.15 0.17
Maximum =	0.23 0.21 0.28 1.60
Median =	0.20 0.20 0.20
St Dev =	0.02 0.04 0.03

MPV = 0.20
F-pseudosigma = 0.04
N = 32
Hu = 0.23
HI = 0.18

Lab	Rating	Z-value	20	22	22n	22p	40
1	4	-0.31			0.19		
7	4	0.00		0.20			
11	2	-1.39				0.15	
15	3	-0.56		0.18			
36	0	3.34					0.32
48	2	1.39				0.25	
52	3	0.83		0.23			
63	0	25.56	1.12				
68	3	-0.83					0.17
75	4	0.28				0.21	
78	4	-0.22					0.19
88	0	-2.61			0.11		
90	4	-0.03				0.20	
93	4	-0.19				0.19	
97	4	0.00			0.20		
100	4	-0.17				0.19	
105	4	-0.28		0.19			
114	4	0.00					0.20
118	2	-1.11				0.16	
119	2	1.11					0.24
122	3	0.56				0.22	
129	2	-1.03			0.16		
133	0	38.94					1.60
134	4	0.28			0.21		
140	3	0.56		0.22			
141	3	-0.83				0.17	
145	4	-0.28			0.19		
179	4	0.28		0.21			
211	0	2.23				0.28	
220	2	-1.03		0.16			
221	3	1.00					0.24
224	0	17.80					0.84

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (nonpreserved nutrient)--Continued
NH₃ as N (Ammonia) m g/L



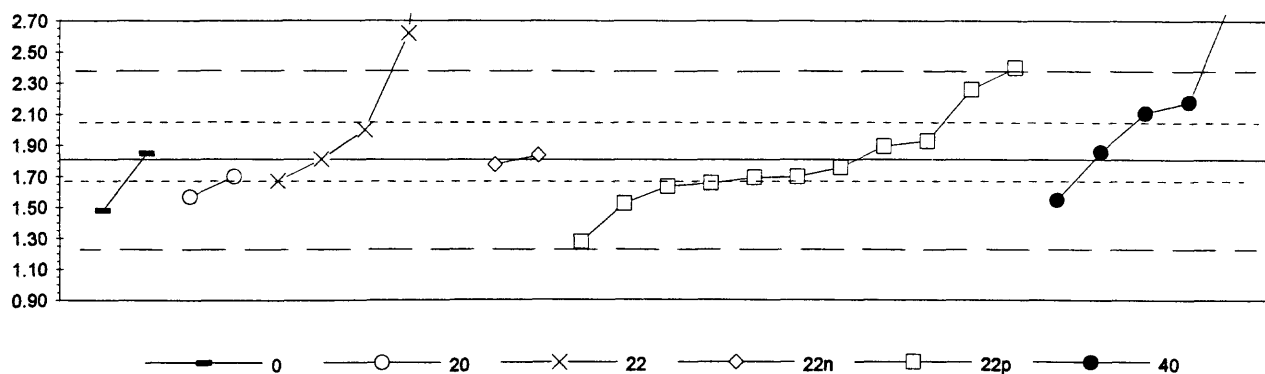
0. Other	22n. Color: Nesslerization					
7. Ion chromatography	22p. Color: phenate					
22. Colorimetric	40. Ion selective electrode					
N =	4	2	15	3	36	14
Minimum =	0.20	0.18	0.16	0.21	0.16	0.19
Maximum =	1.34	0.23	1.13	0.23	1.50	0.99
Median =			0.23		0.27	0.30
St Dev =			0.35		0.36	0.23

MPV = 0.25
F-pseudosigma = 0.44
N = 74
Hu = 0.79
HI = 0.20

Lab	Rating	Z-value	0	7	22	22n	22p	40
3	4	0.36			0.41			
5	1	1.67					0.98	
6	2	1.13						0.74
9	4	0.07					0.28	
10	4	-0.04						0.23
11	4	-0.02					0.24	
12	NR						< 0.2	
13	4	0.37					0.41	
15	4	-0.21			0.16			
19	4	0.00					0.25	
23	4	-0.18					0.17	
25	4	0.21						0.34
26	4	-0.11			0.20			
32	4	-0.04	0.20					
33	1	1.81			1.04			
36	4	0.26						0.36
38	4	-0.10					0.21	
46	2	1.35					0.84	
51	4	-0.09						0.21
52	4	0.39			0.42			
54	1	1.70						0.99
58	4	0.00						0.25
59	4	-0.13					0.19	
61	4	-0.07			0.22			
63	4	-0.06		0.18				
64	4	0.05					0.27	
68	4	0.35						0.40
70	4	-0.11			0.20			
72	4	-0.07			0.22			
75	1	1.63					0.96	
76	1	1.61					0.95	
78	4	-0.04						0.23
60	1	2.02			1.13			
61	4	-0.04			0.23			
84	4	0.12					0.30	
85	1	1.72					1.00	
67	4	0.39					0.42	
86	4	-0.19					0.16	
91	4	-0.13					0.19	
92	4	-0.11						0.20
94	1	1.79					1.03	
96	1	1.68			0.98			
97	4	-0.09				0.21		
100	1	1.67					0.98	
102	0	2.87					1.50	
107	4	-0.15					0.18	
108	4	0.48						0.46
111	1	1.70					0.99	
114	3	0.51						0.47
116	4	-0.16					0.18	

Lab	Rating	Z-value	0	7	22	22n	22p	40
119	4	0.00						0.25
122	4	-0.16						0.18
127	4	0.22						0.35
128	1	1.81						1.04
129	4	-0.04				0.23		
134	4	-0.09						0.21
136	4	-0.16	0.18					
138	4	-0.11						0.20
142	4	-0.01			0.24			
143	4	-0.13						0.19
145	1	1.59						0.94
158	1	1.68						0.98
179	3	0.99			0.68			
180	4	-0.12						0.20
190	4	0.00						0.25
194	4	-0.16			0.18			
197	4	-0.12						0.20
203	4	-0.07				0.22		
204	4	-0.13						0.19
210	4	-0.11	0.20					
211	1	1.65						0.97
213	4	0.01	0.25					
220	4	-0.10			0.20			
224	4	-0.13						0.19
225	0	2.50		1.34				

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (preserved nutrient)—Continued
NH3 + Org N as N (Ammonia + Organic N) m g/L

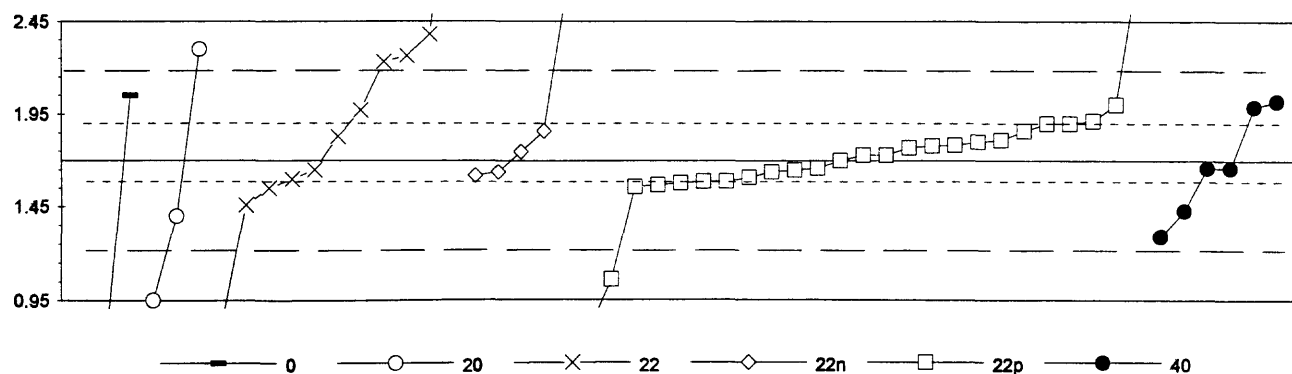


0. Other	22n. Color: Nesslerization					
20. Titrate: colorimetric	22p. Color: phenate					
22. Colorimetric	40. Ion selective electrode					
N =	2	2	5	2	11	5
Minimum =	1.48	1.57	1.67	1.78	1.28	1.55
Maximum =	1.85	1.70	5.62	1.84	2.40	2.87
Median =					1.70	
St Dev =					0.32	

MPV = 1.81
F-pseudosigma = 0.29
N = 27
Hu = 2.06
HI = 1.67

Lab	Rating	Z-value	0	20	22	22n	22p	40
1	4	-0.39					1.53	
11	3	-0.97					1.70	
15	4	0.00			1.81			
21	4	0.30					1.90	
36	4	-0.38		1.70				
48	1	2.04					2.40	
52	4	-0.48			1.67			
56	1	-1.83					1.66	
63	3	-0.83		1.57				
68	2	-1.14	1.48					
78	3	-0.90						1.55
97	4	0.10				1.84		
100	4	0.14	1.85					
105	3	0.66			2.00			
118	1	1.56					2.26	
119	2	1.04						2.11
122	3	-0.52					1.70	
129	4	-0.10				1.78		
133	4	0.17						1.86
134	4	-0.38					1.64	
140	0	2.80			2.62			
141	4	-0.17					1.76	
145	3	-0.59					1.28	
179	0	13.18			5.62			
211	4	0.42					1.93	
221	2	1.28						2.18
224	0	3.67						2.87

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (nonpreserved nutrient)--Continued
 NH3 + Org N as N (Ammonia + Organic N) m g/L



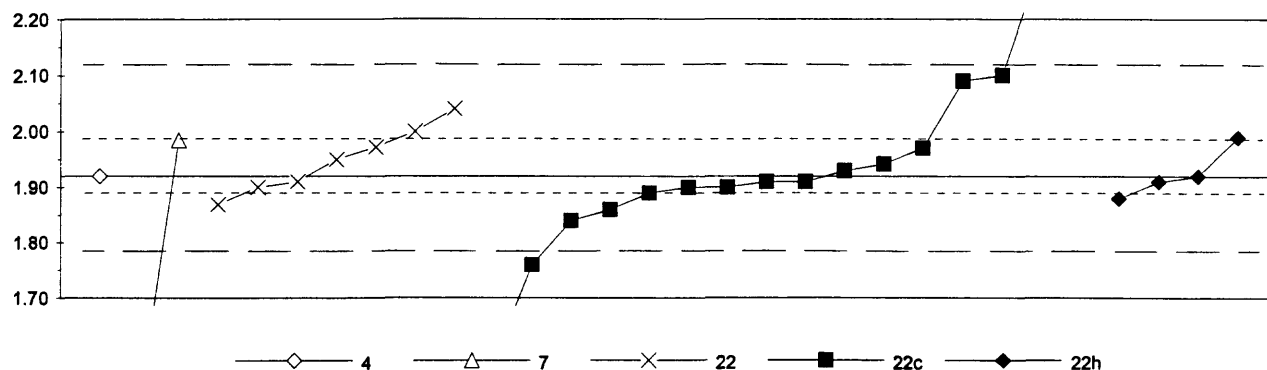
0. Other	22n. Color: Nesslerization					
20. Titrate: colorimetric	22p. Color: phenate					
22. Colorimetric	40. Ion selective electrode					
N =	3	3	11	5	25	6
Minimum =	0.63	0.95	0.86	1.62	0.78	1.29
Maximum =	2.05	2.30	3.41	2.64	2.79	2.02
Median =			1.83		1.73	
St Dev =			0.34		0.34	

MPV = 1.70
 F-pseudosigma = 0.24
 N = 53
 Hu = 1.90
 HI = 1.58

Lab	Rating	Z-value	0	20	22	22n	22p	40
3	0	2.23			2.23			
5	0	-2.70					1.06	
9	4	0.13					1.73	
10	4	0.30					1.77	
11	0	-3.88					0.78	
12	2	1.26					2.00	
15	2	1.14			1.97			
21	3	0.90					1.91	
23	4	0.35					1.78	
25	4	-0.17						1.68
36	0	2.53		2.30				
38	3	0.67				1.86		
45	1	-1.73						1.29
46	4	-0.21					1.65	
51	4	-0.17						1.66
52	4	-0.21			1.65			
58	0	3.96				2.64		
59	4	0.00					1.70	
61	0	7.21			3.41			
63	0	-3.15		0.95				
70	2	-1.01			1.46			
72	0	-3.54			0.86			
78	2	-1.14						1.43
79	4	-0.46					1.59	
81	4	-0.42			1.60			
85	4	0.42					1.80	
87	4	0.46					1.81	
90	4	-0.46					1.59	
94	4	0.13					1.73	
96	3	0.55			1.83			
97	4	-0.25				1.64		
100	2	1.48	2.05					
102	3	-0.59					1.56	
113	4	-0.34				1.62		
118	4	-0.38					1.61	
119	2	1.22						1.99
122	3	-0.51					1.58	
127	4	-0.25					1.64	
128	0	4.60					2.79	
129	4	0.20				1.75		
134	3	0.84					1.90	
138	4	0.34					1.78	
142	0	2.38			2.26			
143	3	0.84					1.90	
145	3	-0.55					1.57	
179	0	2.87			2.38			
180	4	-0.17					1.66	
194	3	-0.63			1.55			
210	0	-4.51	0.63					
211	3	0.67					1.86	

Lab	Rating	Z-value	0	20	22	22n	22p	40
213	0	-3.78	0.80					
224	2	1.35						2.02
225	2	-1.26		1.40				

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (preserved nutrient)--Continued
NO3 + NO2 as N (Nitrate + Nitrite) m g/L

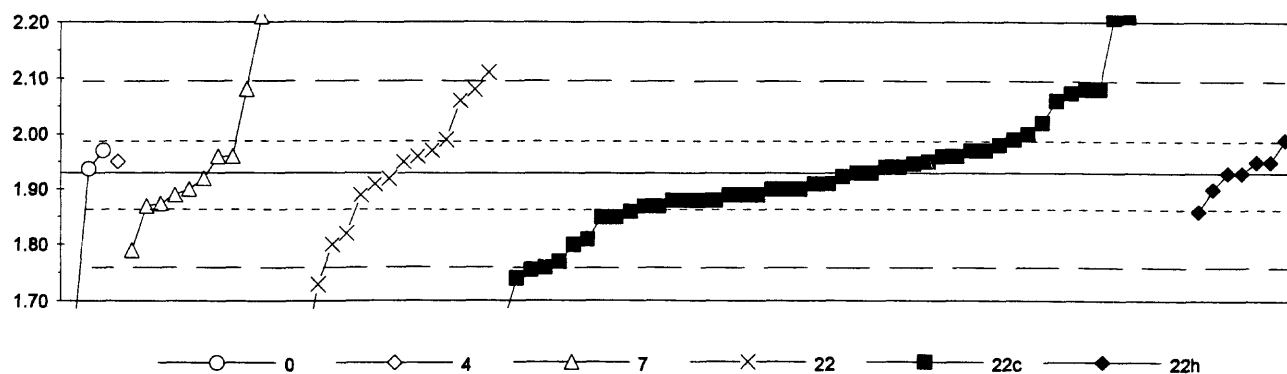


4. ICP	22c. Color: Cd diazotization				
7. Ion chromatography	22h. Color: hydrazine diazo				
22. Colorimetric					
N =	1	2	7	16	4
Minimum =	1.92	1.50	1.87	1.58	1.88
Maximum =	1.92	1.98	2.04	2.87	1.99
Median =			1.95	1.91	
St Dev =			0.06	0.09	

MPV = 1.92
F-pseudosigma = 0.07
N = 30
Hu = 1.98
Hi = 1.89

Lab	Rating	Z-value	4	7	22	22c	22h
1	4	0.39				1.94	
7	2	1.22			2.00		
11	0	-4.81				1.58	
36	0	2.65				2.10	
43	1	1.79			2.04		
48	4	0.07					1.92
52	4	-0.07				1.91	
63	4	-0.07			1.91		
75	4	-0.07				1.91	
78	4	-0.22				1.90	
88	0	13.69				2.87	
92	0	-2.22				1.76	
93	0	-5.96		1.50			
97	0	2.51				2.09	
100	4	0.22				1.93	
105	3	-0.65			1.87		
118	2	1.08					1.99
119	3	-0.79				1.86	
122	3	0.79				1.97	
126	2	-1.08				1.84	
129	3	0.99		1.98			
134	4	-0.22				1.90	
140	3	0.82			1.97		
141	4	-0.50					1.88
145	4	-0.36				1.89	
179	4	0.50			1.95		
211	4	-0.07					1.91
220	4	-0.22			1.90		
221	0	5.63				2.31	
224	4	0.07	1.92				

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (nonpreserved nutrient)—Continued
NO₃ + NO₂ as N (Nitrate + Nitrite) **m g/L**



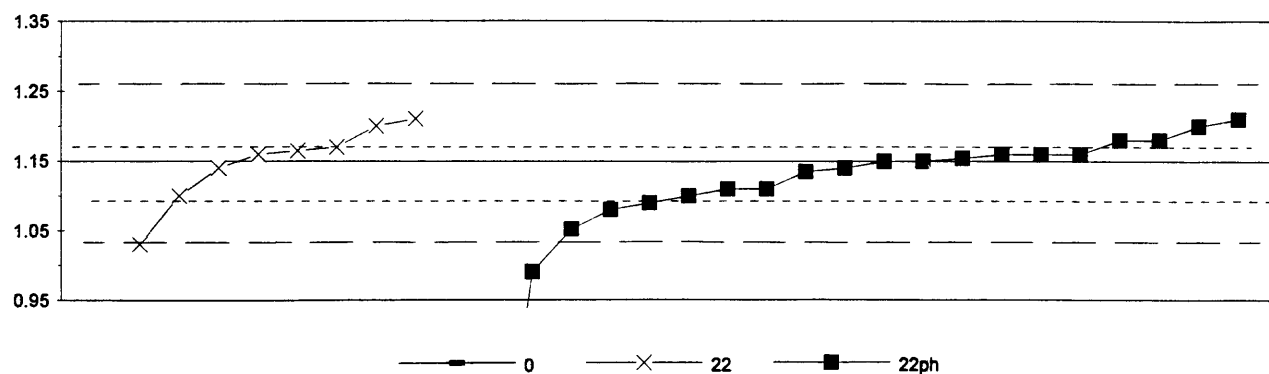
0. Other	22. Colorimetric					
4. ICP	22c. Color: Cd diazotization					
7. Ion chromatography	22h. Color: hydrazine diazo					
N =	3	1	11	15	49	7
Minimum =	1.65	1.95	1.79	1.40	1.65	1.86
Maximum =	1.97	1.95	2.68	2.11	3.16	1.99
Median =			1.90	1.95	1.91	1.93
St Dev =			0.08	0.10	0.08	0.04

MPV = 1.93
F-pseudosigma = 0.08
N = 86
Hu = 1.98
Hl = 1.87

Lab	Rating	Z-value	0	4	7	22	22c	22h
3	3	0.76				1.99		
5	4	0.00						1.93
6	0	15.65					3.16	
9	4	0.25					1.95	
10	4	0.13					1.94	
11	3	-0.51					1.89	
12	3	0.64					1.98	
13	4	0.00					1.93	
15	4	0.38				1.96		
19	1	1.65					2.06	
23	4	-0.25					1.91	
25	0	9.54			2.68			
26	2	-1.40				1.82		
32	4	0.38			1.96			
36	4	-0.38					1.90	
38	2	-1.02					1.85	
45	3	0.76					1.99	
46	4	-0.09					1.92	
51	0	3.56			2.21			
52	3	-0.64					1.88	
53	0	3.53					2.21	
55	4	0.38					1.96	
56	0	-2.42					1.74	
58	1	-1.78			1.79			
59	3	-0.64					1.88	
61	4	0.25				1.95		
63	1	-1.65				1.80		
64	3	0.51					1.97	
68	3	0.51	1.97					
69	3	-0.64					1.88	
70	3	-0.51				1.89		
72	1	1.91				2.08		
75	3	-0.51					1.89	
76	4	-0.38			1.90			
78	1	-1.65					1.80	
80	0	-4.45				1.58		
81	4	-0.25				1.91		
84	1	-2.04					1.77	
85	4	-0.38					1.90	
87	3	-0.76					1.87	
88	0	11.21					2.81	
90	3	0.76						1.99
91	3	-0.89						1.86
92	0	-2.23					1.76	
94	2	-1.02					1.85	
96	4	-0.13				1.92		
97	1	1.91					2.08	
100	4	0.13					1.94	
102	3	-0.64					1.88	
107	1	1.82					2.07	

Lab	Rating	Z-value	0	4	7	22	22c	22h
108	0	-2.55				1.73		
113	1	-1.53						
114	2	1.15						
118	4	0.25						1.95
119	3	-0.89						1.86
122	3	0.89						2.00
127	4	-0.25						1.91
128	4	0.00						1.93
129	3	-0.71			1.87			
133	1	1.91						2.08
134	4	-0.38						1.90
136	1	1.91			2.08			1.87
138	3	-0.76						1.95
142	0	-6.75				1.40		
143	3	0.51						1.97
145	3	-0.51						1.89
146	0	-2.16						1.76
158	4	0.25						1.95
179	3	0.51				1.97		
180	4	0.00						1.93
183	0	-3.56	1.65					2.24
190	0	3.92						
191	3	-0.51			1.89			
193	4	0.38			1.96			
194	0	2.29				2.11		
196	3	-0.76			1.87			1.95
197	4	0.20						1.65
203	0	-3.56						1.96
204	4	0.38						2.62
205	0	8.78						
208	4	-0.13			1.92			1.90
210	4	0.09	1.94					
211	4	-0.38						
220	1	1.65				2.06		
224	4	0.25		1.95				
225	0	3.56						2.21

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (preserved nutrient)—Continued
total P as P (total Phosphorus) m g/L



0. Other

22. Colorimetric

22ph. Color: phosphomolybdate

	N = 1	8	21
Minimum =	0.05	1.03	0.59
Maximum =		1.21	1.21
Median =		1.16	1.15
St Dev =		0.06	0.05

MPV = 1.15

F-pseudosigma = 0.06

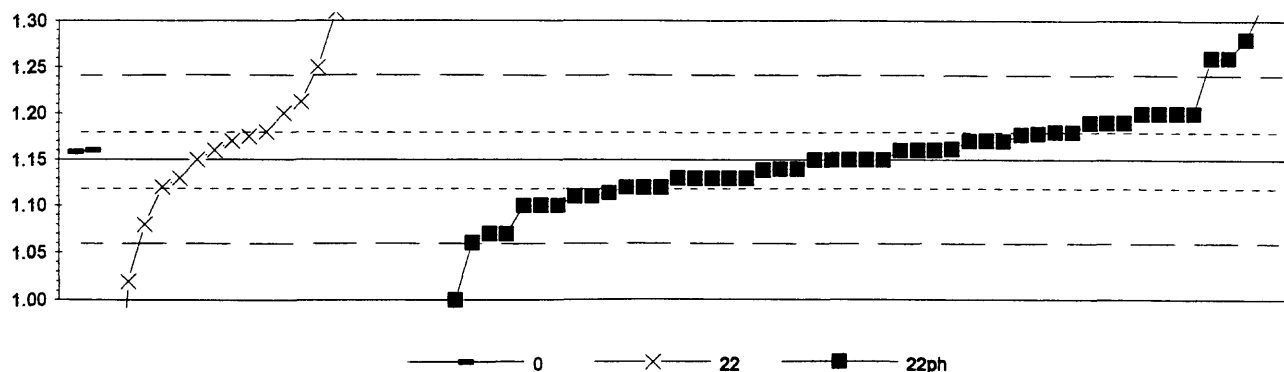
N = 30

Hu = 1.17

HI = 1.09

Lab	Rating	Z-value	0	22	22ph
1	4	0.16			1.15
7	4	0.45		1.17	
11	0	-9.80			0.60
15	3	-0.81		1.10	
36	0	-2.79			0.99
48	3	-0.81			1.10
52	4	0.09			1.15
56	1	-1.67			1.05
63	3	0.99		1.20	
68	0	-19.73	0.05		
75	4	-0.09			1.14
78	2	1.17			1.21
92	0	-9.96			0.59
97	3	-0.63			1.11
100	3	-0.63			1.11
105	4	0.27		1.16	
114	4	0.27			1.16
118	4	0.09			1.15
119	3	0.63			1.18
122	2	-1.17			1.08
129	4	-0.18			1.14
134	3	0.99			1.20
140	4	0.36		1.17	
141	3	-0.99			1.09
145	3	0.63			1.18
179	4	-0.09		1.14	
211	4	0.27			1.16
220	2	1.17		1.21	
221	4	0.27			1.16
224	0	-2.07		1.03	

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (nonpreserved nutrient)--Continued
total P as P (total Phosphorus) m g/L



0. Other

22. Colorimetric

22ph. Color: phosphomolybdate

N =	2	15	54
Minimum =	1	0.74	0.60
Maximum =	1	1.58	4.06
Median =		1.17	1.15
St Dev =		0.06	0.05

MPV = 1.15

F-pseudosigma = 0.05

N = 71

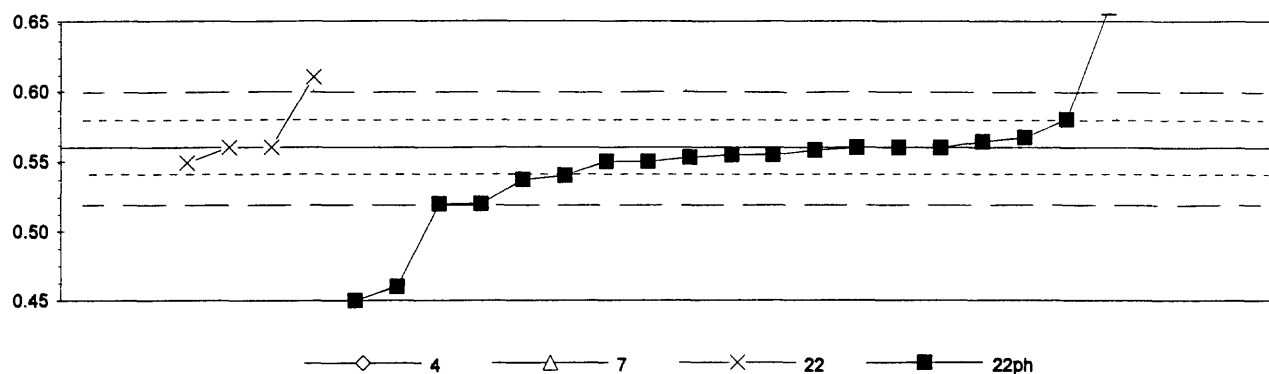
Hu = 1.18

Hi = 1.12

Lab	Rating	Z-value	0	22	22ph
3	4	0.43		1.17	
5	3	0.86			1.19
6	0	2.36			1.26
9	0	2.36			1.26
10	2	1.07			1.20
11	0	-11.35			0.62
12	4	-0.43			1.13
13	4	0.00			1.15
15	4	-0.43	1.13		
19	2	1.07			1.20
21	3	0.60			1.18
22	4	0.00	1.15		
23	4	0.21			1.16
36	0	-3.21			1.00
38	3	0.58			1.16
45	3	0.86			1.19
46	4	-0.24			1.14
51	2	-1.07			1.10
52	4	0.00			1.15
55	4	0.00			1.15
58	0	-7.07			0.82
59	2	-1.07			1.10
61	0	-8.78	0.74		
63	3	0.54	1.16		
64	0	-5.01			0.92
70	0	2.14		1.25	
72	2	-1.50		1.08	
75	4	-0.21			1.14
78	2	1.07			1.20
79	1	-1.71			1.07
81	3	0.64		1.18	
85	1	-1.93			1.06
87	4	0.43			1.17
90	4	0.21			1.16
91	0	2.78			1.28
92	0	-11.78			0.60
94	3	-0.64			1.12
96	3	-0.64	1.12		
97	4	0.43			1.17
100	2	-1.07			1.10
102	1	-1.71			1.07
107	0	-6.06			0.87
108	0	9.21	1.58		
111	3	-0.77			1.11
113	4	-0.21			1.14
114	3	-0.86			1.11
118	4	-0.43			1.13
119	3	0.64			1.18
122	4	-0.43			1.13
127	3	-0.64			1.12

Lab	Rating	Z-value	0	22	22ph
128	3	0.86			1.19
129	4	0.24			1.16
133	4	-0.43			1.13
134	2	1.07			1.20
138	3	-0.64			1.12
142	2	1.33		1.21	
143	4	-0.43			1.13
145	4	0.00			1.15
158	4	0.43			1.17
179	4	0.21		1.16	
180	3	-0.86			1.11
194	0	3.43		1.31	
203	0	62.31			4.06
204	4	0.21			1.16
210	4	0.17	1.16		
211	3	0.64			1.18
213	4	0.21	1.16		
220	2	1.07		1.20	
224	0	-2.78		1.02	
225	0	3.64			1.32
227	4	0.00			1.15

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (preserved nutrient)-Continued
PO4 as P (Orthophosphate) m g/L

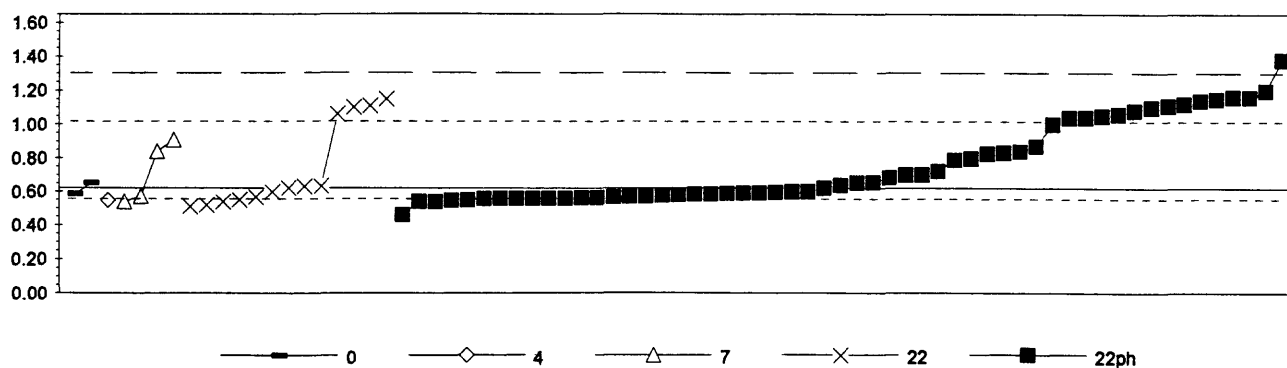


4. ICP	22ph. Color: phosphomolybdate			
7. Ion chromatography				
22. Colorimetric				
N =	1	1	4	22
Minimum =	1.09	0.41	0.55	0.45
Maximum =			0.61	1.50
Median =				0.56
St Dev =				0.03

MPV = 0.56
F-pseudosigma = 0.02
N = 28
Hu = 0.57
HI = 0.54

Lab	Rating	Z-value	4	7	22	22ph
1	2	-1.02				0.54
7	0	-6.93		0.41		
11	0	42.38				1.47
36	0	-5.07				0.45
48	4	-0.19				0.56
52	4	0.37				0.57
56	0	-4.61				0.46
63	4	0.05			0.56	
75	4	0.05				0.56
78	0	43.77				1.50
88	0	4.70				0.66
90	4	-0.19				0.56
92	4	-0.05				0.56
97	3	0.98				0.58
100	1	-1.81				0.52
105	4	-0.47			0.55	
118	4	-0.42				0.55
119	3	-0.88				0.54
122	4	-0.42				0.55
129	4	-0.28				0.55
134	4	0.05				0.56
140	0	2.37			0.61	
141	4	0.23				0.56
145	0	8.42				0.74
179	4	0.05			0.56	
211	4	0.05				0.56
221	1	-1.81				0.52
224	0	24.70	1.09			

Table 12. -Statistical summary of reported data for standard reference water sample N-42 (nonpreserved nutrient)--Continued
PO₄ as P (Orthophosphate) m g/L



0. Other	22. Colorimetric				
4. ICP	22ph. Color: phosphomolybdate				
7. Ion chromatography					
N =	2	1	4	13	55
Minimum =	0.59	0.55	0.54	0.51	0.46
Maximum =	0.65	0.55	0.91	1.15	1.38
Median =				0.62	0.64
St Dev =				0.26	0.24

MPV = 0.62
F-pseudosigma = 0.34
N = 75
Hu = 1.02
HI = 0.56

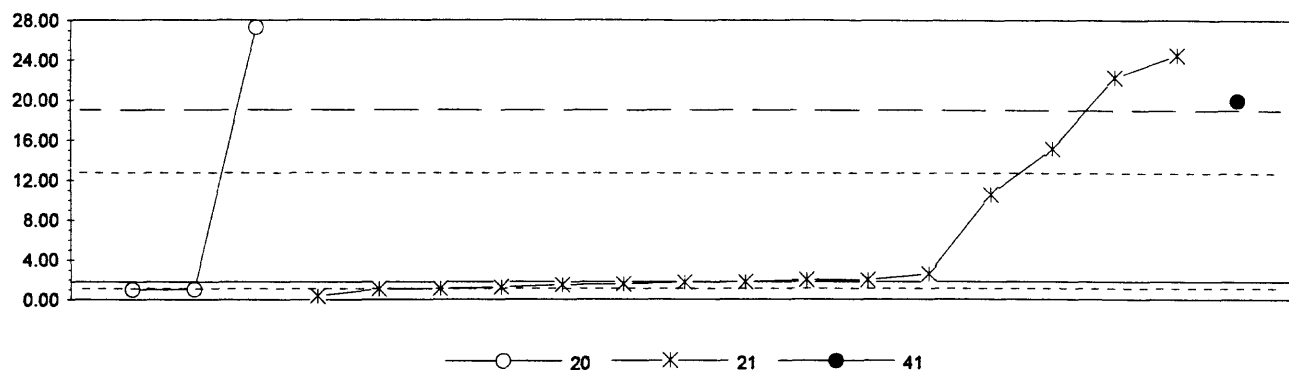
Lab	Rating	Z-value	0	4	7	22	22ph
3	4	0.03				0.63	
5	3	0.60					0.83
6	4	-0.14					0.58
9	4	-0.16					0.57
10	4	-0.06					0.60
11	0	2.25					1.38
12	4	-0.24					0.54
13	4	0.23					0.70
15	4	-0.24				0.54	
19	4	-0.21					0.55
23	4	-0.16					0.56
25	2	1.24					1.04
26	4	-0.33				0.51	
32	4	-0.15			0.57		
36	4	-0.48					0.46
38	4	-0.18					0.56
45	4	-0.17					0.56
46	4	0.30					0.72
51	4	-0.13					0.58
52	4	0.10					0.65
53	4	0.19					0.68
55	3	0.74					0.87
58	4	-0.24					0.54
59	4	-0.21					0.55
61	4	-0.21				0.55	
63	4	0.00				0.62	
64	1	1.59					1.16
70	2	1.30				1.06	
72	4	-0.30				0.52	
75	1	1.54					1.14
78	1	1.59					1.16
80	1	1.58				1.15	
81	4	-0.16				0.57	
84	4	-0.14					0.57
85	2	1.30					1.06
87	4	0.23					0.70
88	4	0.10					0.66
92	4	-0.19					0.56
96	2	1.45				1.11	
97	4	-0.06					0.60
100	3	0.62					0.83
102	2	1.12					1.00
107	4	0.05					0.64
108	2	1.42				1.10	
111	3	0.52					0.80
113	4	0.00					0.62
118	4	-0.18					0.56
119	4	-0.18					0.56
122	4	-0.09					0.59
127	4	-0.11					0.59

Lab	Rating	Z-value	0	4	7	22	22ph
128	2	1.36					1.08
129	4	-0.09					0.59
133	4	-0.09					0.59
134	4	-0.15					0.57
136	4	-0.24			0.54		
138	4	-0.18					0.56
142	4	0.03				0.63	
143	4	-0.17					0.56
145	4	0.50					0.79
146	2	1.42					1.10
158	2	1.48					1.12
179	4	-0.07				0.60	
180	4	-0.11					0.59
183	2	1.27					1.05
190	4	-0.08					0.59
191	3	0.65			0.84		
203	1	1.71					1.20
204	1	1.56					1.15
208	3	0.85			0.91		
210	4	-0.10	0.59				
211	2	1.45					1.11
213	4	0.09	0.65				
224	4	-0.21		0.55			
225	2	1.24					1.04
227	3	0.65					0.84

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)

Definition of analytical methods, abbreviations, and symbols.		
Analytical methods		
0. Other/Not reported		
1. AA: direct air	atomic absorption: direct, air	
2. AA: direct N2O	atomic absorption: direct, nitrous oxide	
4. ICP	inductively coupled plasma	
5. DCP	direct current plasma	
6. ICP/MS	inductively coupled plasma/mass spectrometry	
7. IC	ion chromatography	
12. Flame emission		
20. Titrate: color	titration: colorimetric [color reagent specified]	
21. Titrate: electro	titration: electrometric	
22: Color	colorimetric [color reagent specified]	
40. Ion selective electrode		
41. Electro	electrometric [direct reading instrument]	
50. Gravimetric	gravimetric [precipitate specified]	
51. Turbidimetric		
Abbreviations and symbols		
	N = number of samples	
	Stdev = traditional standard deviation	
	MPV = most probable value	
	F-pseudosigma = nonparametric statistic deviation	
	Hu = upper hinge value	
	Hi = lower hinge value	
	μ S/cm = microsiemens per centimeter at 25 degrees C	
	mg/L = milligrams per liter	
	Lab = Laboratory code number	
	NR = not rated, less than value reported	
	< = less than	
Constituent		
	Acidity as CaCO ₃	88
Ca	Calcium	89
Cl	Chloride	90
F	Fluoride	91
K	Potassium	92
Mg	Magnesium	93
Na	Sodium	94
pH		95
PO ₄ as P	Orthophosphate	96
SO ₄	Sulfate	97
SpCond	Specific Conductance	98

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)—Continued
Acid as CaCO₃ (Acidity) m g/L



20. Titrate: colorimetric

21. Titrate: electrometric

41. Direct reading

N =	3	15	1
Minimum =	1.00	0.40	20.00
Maximum =	27.30	24.50	
Median =		1.79	
St Dev =		8.17	

MPV = 1.79

F-pseudosigma = 8.68

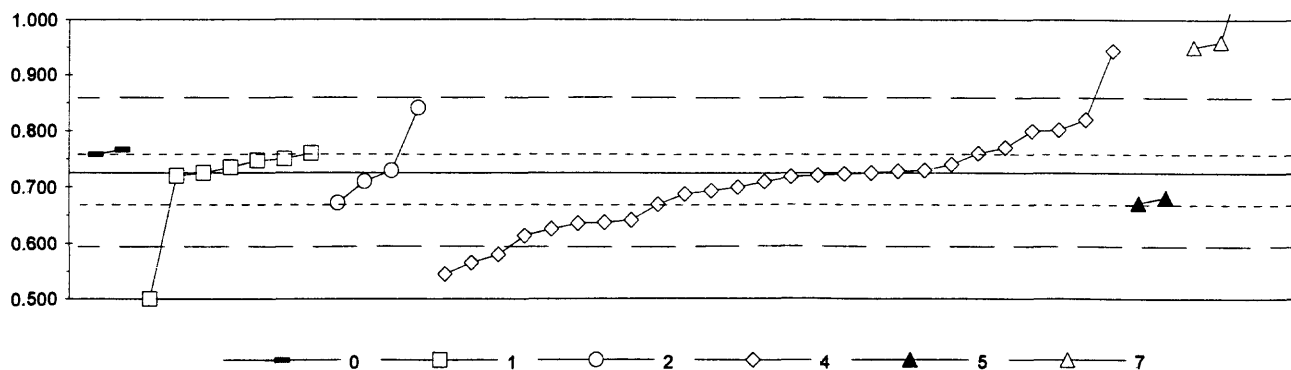
N = 19

Hu = 12.90

Hi = 1.19

Lab	Rating	Z-value	20	21	41
1	4	-0.08		1.12	
3	NR			< 10	
11	4	-0.06		1.26	
15	4	0.00		1.76	
23	4	-0.03		1.57	
25	4	0.09		2.60	
36	4	-0.08		1.10	
38	4	0.00		1.79	
58	2	1.02		10.60	
61	4	-0.16		0.40	
63	4	-0.09	1.00		
78	4	0.02		2.00	
94	0	2.62		24.50	
136	1	1.55		15.20	
141	0	2.36		22.30	
145	4	0.02		2.00	
180	4	-0.03		1.50	
196	4	-0.09	1.05		
210	NR			< 2	
224	0	2.94	27.30		
225	0	2.10			20.00

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
Ca (Calcium) m g/L

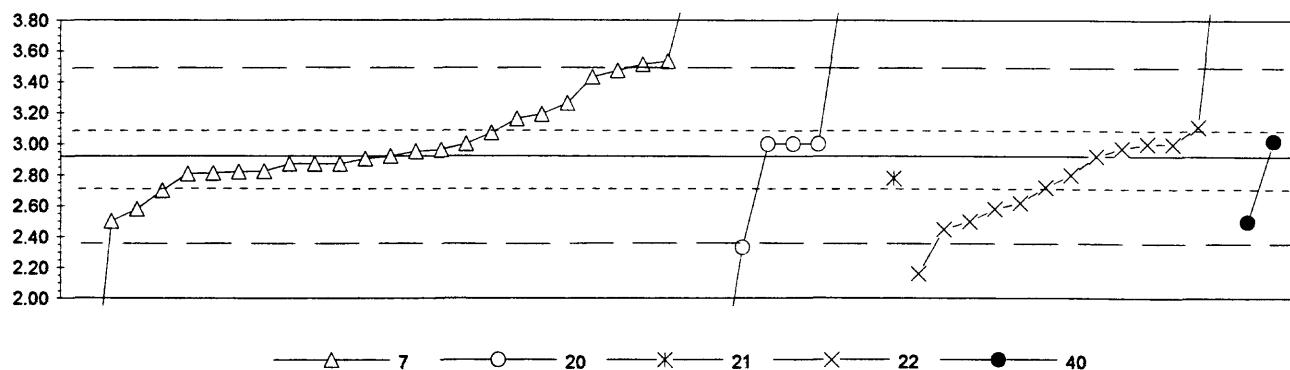


0. Other	4. ICP					
1. AA: direct air	5. DCP					
2. AA: direct nitrous oxide	7. IC					
N =	2	7	4	26	2	4
Minimum =	0.758	0.500	0.672	0.545	0.672	0.950
Maximum =	0.767	0.760	0.840	0.943	0.682	1.148
Median =		0.735		0.715		
St Dev =		0.092		0.087		

MPV = 0.725
F-pseudosigma = 0.065
N = 45
Hu = 0.760
Hi = 0.672

Lab	Rating	Z-value	0	1	2	4	5	7
1	4	0.08				0.730		
2	0	6.48						1.148
3	0	-2.22				0.580		
5	4	-0.09				0.719		
11	3	0.69				0.770		
15	2	1.18				0.802		
23	3	0.64	0.767					
25	2	-1.36				0.636		
26	0	3.60						0.960
33	3	-0.66					0.682	
36	3	-0.81			0.672			
38	4	0.08			0.730			
39	3	-0.57				0.688		
44	4	0.15		0.735				
46	4	-0.03				0.723		
48	2	1.46				0.820		
52	4	-0.06				0.721		
58	0	-3.45		0.500				
61	1	-1.52				0.626		
63	0	3.34				0.943		
64	3	-0.84				0.670		
78	4	0.38		0.750				
93	2	-1.33				0.638		
94	4	0.00				0.725		
101	4	0.34		0.747				
102	4	-0.23				0.710		
107	4	-0.08		0.720				
110	3	0.54		0.760				
111	4	-0.23			0.710			
112	3	-0.81					0.672	
113	NR			< 1				
134	3	0.54				0.760		
136	1	1.76			0.840			
138	4	0.23				0.740		
140	4	0.00		0.725				
141	1	-1.70				0.614		
145	4	-0.38				0.700		
158	0	3.45						0.950
180	2	-1.27				0.642		
190	0	6.06						1.120
194	NR					< 5		
196	3	0.51	0.758					
204	0	-2.45				0.565		
209	4	-0.48				0.694		
210	0	-2.76				0.545		
224	4	0.05				0.728		
225	2	1.15				0.800		

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
 Cl (Chloride) m g/L

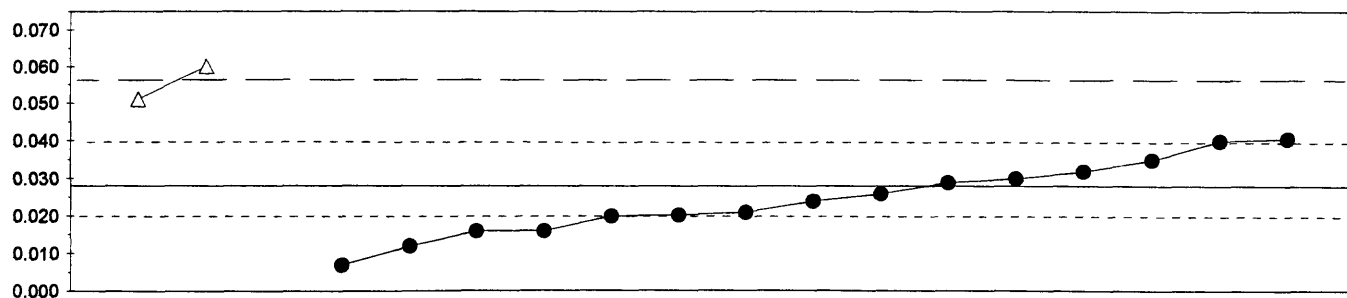


7. Ion chromatography	22. Colorimetric
20. Titrate: colorimetric	40. Ion selective electrode
21. Titrate: electrometric	
N = 25	7 1 13 2
Minimum = 0.80	1.30 2.78 2.16 2.50
Maximum = 4.18	7.00 4.70 3.02
Median = 2.92	3.00 2.80
St Dev = 0.58	0.93 0.61

MPV = 2.92
 F-pseudosigma = 0.28
 N = 48
 Hu = 3.09
 Hi = 2.71

Lab	Rating	Z-value	7	20	21	22	40
1	4	0.14	2.96				
3	0	-2.70				2.16	
5	0	-7.53	0.80				
7	2	-1.49	2.50				
11	2	-1.07				2.62	
15	1	1.95	3.47				
23	4	0.36					3.02
25	4	0.00	2.92				
26	4	-0.18	2.87				
33	4	-0.18	2.87				
36	0	6.32				4.70	
44	1	1.80	3.43				
46	0	2.09	3.51				
48	4	0.28		3.00			
52	3	0.67				3.11	
58	0	-2.09		2.33			
61	4	0.28				3.00	
63	4	0.28				3.00	
64	4	0.18				2.97	
78	2	-1.49				2.50	
92	4	0.28		3.00			
93	2	1.21	3.26				
94	4	-0.43				2.80	
100	0	4.48	4.18				
101	0	-5.75		1.30			
102	NR					< 10	
107	4	0.28		3.00			
110	4	-0.06	2.90				
111	4	0.11	2.95				
112	4	-0.35	2.82				
113	3	0.96	3.19				
134	3	0.85	3.16				
136	0	2.17	3.53				
138	3	-0.78	2.70				
140	4	0.00				2.92	
141	2	-1.21				2.58	
143	1	-1.67				2.45	
145	4	-0.18	2.87				
158	3	0.53	3.07				
180	3	-0.71				2.72	
190	4	-0.36	2.82				
194	2	-1.49					2.50
196	4	-0.39	2.81				
203	0	4.19		4.10			
204	4	-0.50			2.78		
209	4	-0.40	2.81				
210	2	-1.21	2.58				
224	4	0.28	3.00				
225	0	14.48		7.00			

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
F (Fluoride) m g/L



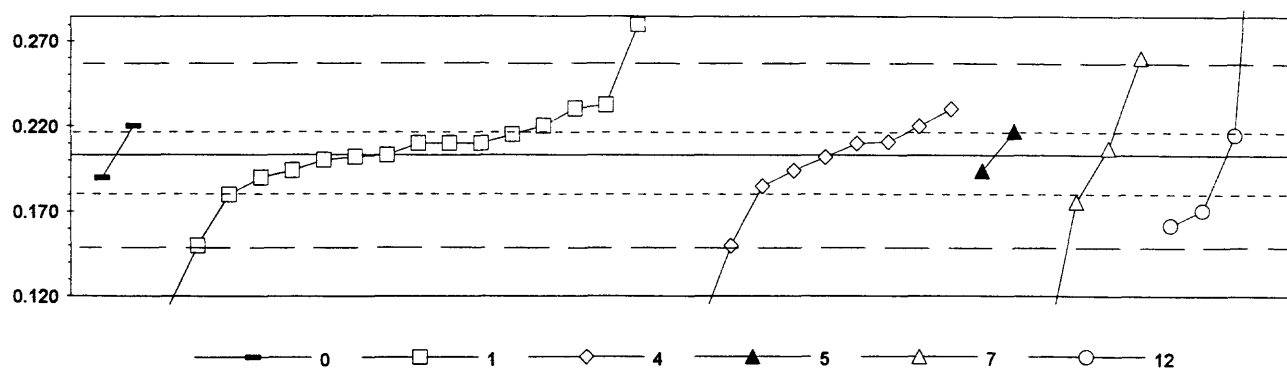
—△— 7 —×— 21 —+— 22 —●— 40

7. Ion chromatography		40. Ion selective electrode			
21. Titrate: electrometric					
22. Colorimetric					
N =	2	0	1	15	
Minimum =	0.051		0.130	0.007	
Maximum =	0.060			0.041	
Median =				0.024	
St Dev =				0.010	

MPV = 0.028
F-pseudosigma = 0.015
N = 18
Hu = 0.040
HI = 0.020

Lab	Rating	Z-value	7	21	22	40
1	1	1.59	0.051			
3	NR				< 0.1	
7	NR		< 0.5			
15	4	0.10				0.029
23	4	-0.44				0.021
25	4	-0.10				0.026
26	NR		< 0.1			
36	3	-0.51				0.020
52	NR					< 0.05
58	2	-1.38				0.007
61	4	0.17				0.030
63	NR					< 0.2
78	3	0.88				0.041
93	3	-0.78				0.016
94	NR					< 0.1
100	4	0.30				0.032
107	3	-0.78				0.016
110	4	-0.49				0.020
113	4	-0.24				0.024
134	NR			< 0.1		
136	NR		< 0.26			
140	2	-1.05				0.012
141	NR					< 0.1
145	NR		< 0.2			
180	NR					< 0.1
190	3	0.51				0.035
194	NR					< 0.2
196	NR		< 0.5			
210	3	0.84				0.040
224	0	2.19	0.060			
225	0	6.91			0.130	

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
K (Potassium) m g/L

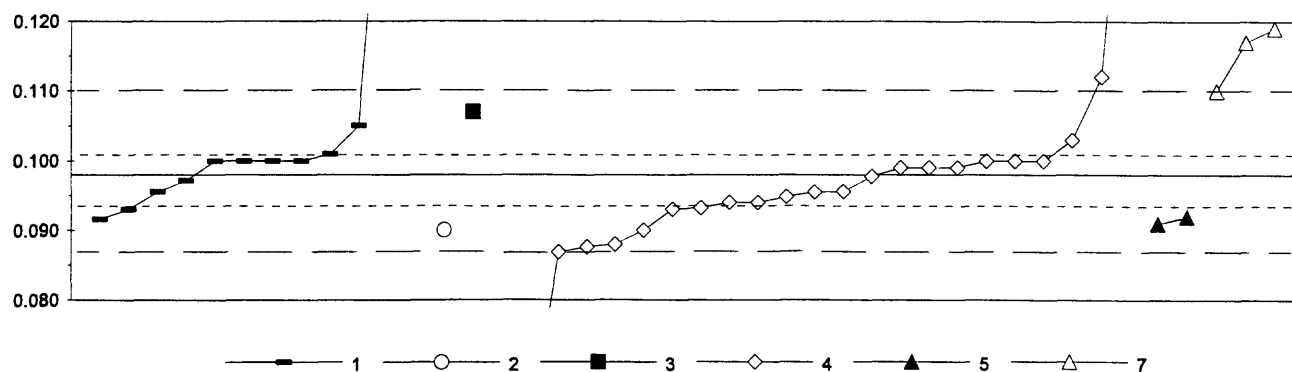


0. Other		5. DCP				
1. AA: direct air		7. Ion chromatography				
4. ICP		12. Flame emission				
N =	2	16	10	2	4	4
Minimum =	0.190	0.110	0.007	0.194	0.080	0.162
Maximum =	0.220	0.280	0.230	0.217	0.260	0.500
Median =		0.207	0.206			
St Dev =		0.037	0.025			

MPV = 0.203
F-pseudsigma = 0.027
N = 38
Hu = 0.217
Hi = 0.180

Lab	Rating	Z-value	0	1	4	5	7	12
1	2	1.08		0.232				
2	4	0.16				0.207		
3	1	-1.91			0.150			
5	NR				< 1			
11	3	1.00			0.230			
15	4	-0.02			0.202			
23	4	-0.31		0.194				
25	NR				< 1.21			
26	0	2.10				0.260		
33	3	0.53				0.217		
36	4	-0.02		0.202				
38	4	0.27		0.210				
44	4	0.46		0.215				
46	4	-0.31			0.194			
48	3	0.64			0.220			
52	NR				< 0.5			
56	0	-3.37		0.110				
61	0	-3.74			0.100			
63	3	1.00		0.230				
64	4	-0.09		0.200				
78	3	-0.82		0.180				
93	4	0.46						0.215
94	NR				< 1			
101	4	0.27		0.210				
102	0	-7.13			0.007			
107	4	-0.46		0.190				
110	4	0.27		0.210				
111	3	0.64	0.220					
112	4	-0.31				0.194		
113	0	2.83		0.280				
134	4	0.02		0.203				
136	1	-1.91		0.150				
138	4	0.27			0.210			
140	3	0.64		0.220				
141	4	0.31			0.211			
145	NR				< 0.707			
158	0	-4.47				0.080		
180	NR				< 1.2			
190	3	-0.97				0.176		
194	NR				< 0.5			
196	4	-0.46	0.190					
204	2	-1.48						0.162
209	2	-1.16						0.171
210	NR							< 1
224	3	-0.64			0.185			
225	0	10.85						0.500

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
Mg (Magnesium) m g/L



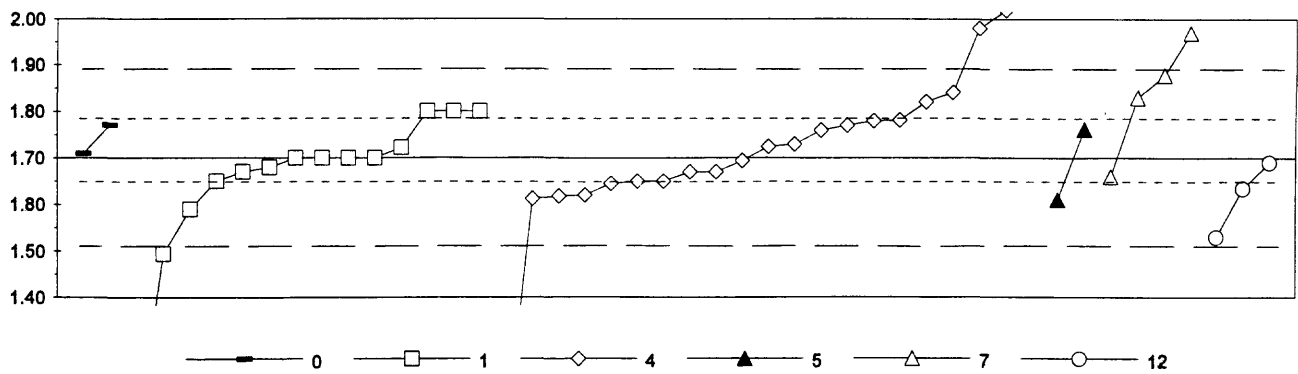
1. AA: direct air	4. ICP
2. AA: direct nitrous oxide	5. DCP
3. AA: graphite furnace	7. IC
N = 12	1 1 23 2 3
Minimum = 0.092	0.090 0.107 0.060 0.091 0.110
Maximum = 0.168	0.163 0.092 0.119
Median = 0.100	0.096
St Dev = 0.004	0.006

MPV = 0.098
F-pseudsigma = 0.006
N = 42
Hu = 0.101
HI = 0.093

Lab	Rating	Z-value	1	2	3	4	5	7
1	4	0.10				0.099		
2	0	3.14					0.117	
3	3	-0.74				0.094		
5	4	0.27				0.100		
11	4	0.27				0.100		
15	4	-0.10				0.098		
23	4	-0.49	0.096					
25	1	-1.75				0.088		
26	1	1.96						0.110
33	2	-1.08				0.092		
36	0	10.39	0.160					
38	4	0.44	0.101					
39	4	0.10				0.099		
44	4	-0.20	0.097					
46	4	-0.49				0.096		
48	0	-6.48				0.060		
52	0	2.29				0.112		
58	3	-0.91	0.093					
61	3	-0.88				0.093		
63	0	10.89				0.163		
64	4	0.27	0.100					
78	4	0.27	0.100					
93	0	-6.48				0.060		
94	3	0.78				0.103		
101	2	1.11	0.105					
102	1	-1.92				0.087		
107	4	0.27	0.100					
110	4	0.27	0.100					
111	2	-1.42		0.090				
112	2	-1.25					0.091	
113	NR	< 0.2						
134	2	-1.42				0.090		
136	0	11.74	0.168					
138	4	0.10				0.099		
140	2	-1.15	0.092					
141	3	-0.74				0.094		
145	NR					< 0.19		
180	3	-0.91				0.093		
190	0	3.47						0.119
194	NR					< 1		
196	2	1.45		0.107				
204	4	0.27				0.100		
209	4	-0.47				0.096		
210	3	-0.61				0.095		
224	1	-1.80				0.088		

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued

Na (Sodium) m g/L

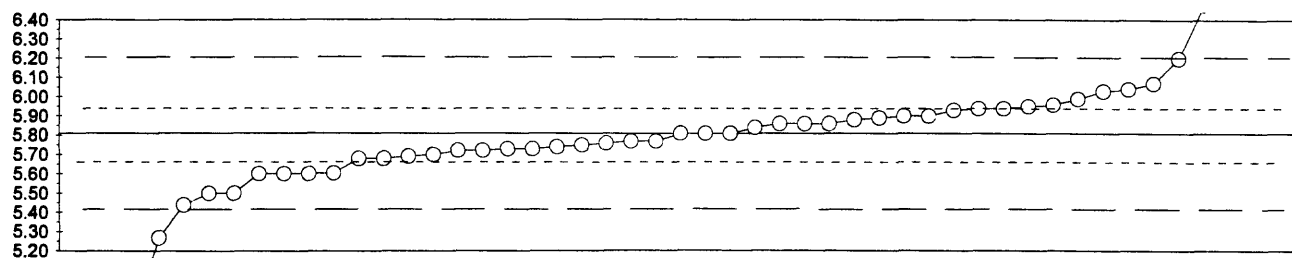


0. Other	5. DCP
1. AA: direct air	7. Ion chromatography
4. ICP	12. Flame emission
N =	2 14 21 2 4 3
Minimum =	1.71 1.10 1.10 1.61 1.66 1.53
Maximum =	1.77 1.80 3.50 1.76 1.97 1.69
Median =	1.70 1.71
St Dev =	0.09 0.10

MPV = 1.70
 F-pseudosigma = 0.10
 N = 46
 Hu = 1.78
 Hi = 1.65

Lab	Rating	Z-value	0	1	4	5	7	12
1	3	0.82			1.78			
2	1	1.83					1.88	
3	0	-6.18			1.10			
5	2	1.24			1.82			
11	4	0.31			1.73			
15	2	1.44			1.84			
23	4	-0.31	1.67					
25	4	-0.31			1.67			
26	0	2.78					1.97	
33	3	0.64				1.76		
36	2	-1.13		1.59				
38	4	-0.21		1.68				
39	3	-0.51			1.65			
44	0	-2.12		1.49				
46	4	0.25			1.72			
48	0	3.30			2.02			
52	4	-0.31			1.67			
58	0	-6.18		1.10				
61	3	-0.84			1.62			
63	3	-0.51			1.65			
64	3	-0.51		1.65				
78	2	1.03		1.80				
93	4	-0.10						1.69
94	3	0.83			1.78			
101	4	0.00		1.70				
102	3	-0.90			1.61			
107	4	0.00		1.70				
110	4	0.00		1.70				
111	4	0.10	1.71					
112	3	-0.93				1.61		
113	2	1.03		1.80				
134	2	1.03		1.80				
136	4	0.00		1.70				
138	3	0.72			1.77			
140	4	0.23		1.72				
141	3	0.62			1.76			
145	3	-0.57			1.65			
158	4	-0.41					1.66	
180	3	-0.82			1.62			
190	2	1.34					1.83	
194	NR				< 5			
196	3	0.72	1.77					
204	1	-1.75						1.53
209	3	-0.68						1.63
210	0	2.88			1.98			
224	4	-0.06			1.69			
225	0	18.54			3.50			

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)—Continued
pH



—○— 41

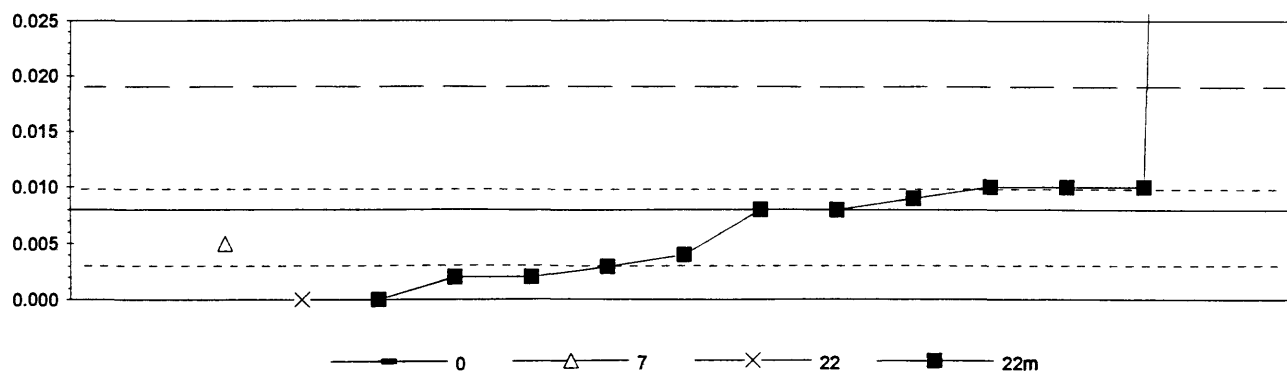
41. Direct reading

N = 49
Minimum = 4.17
Maximum = 7.85
Median = 5.81
St Dev = 0.18

MPV = 5.81
F-pseudosigma = 0.19
N = 49
Hu = 5.94
HI = 5.68

Lab	Rating	Z-value	41
1	0	7.58	7.27
2	4	0.42	5.89
3	3	0.62	5.93
5	2	1.35	6.07
7	3	0.67	5.94
11	0	10.58	7.85
15	0	-4.98	4.85
23	4	0.26	5.86
25	4	-0.21	5.77
33	4	-0.42	5.73
36	4	0.47	5.90
38	4	0.47	5.90
46	4	-0.42	5.73
48	0	6.17	7.00
52	3	0.67	5.94
58	0	-8.51	4.17
61	3	-0.67	5.68
62	4	0.16	5.84
63	4	0.36	5.88
64	4	0.26	5.86
78	2	1.14	6.03
92	2	1.19	6.04
93	3	-0.62	5.69
94	3	-0.57	5.70
100	3	0.78	5.96
101	0	-6.07	4.64
107	4	0.00	5.81
110	2	-1.07	5.60
111	0	3.48	6.48
112	4	-0.21	5.77
113	4	0.00	5.81
134	1	-1.61	5.50
136	2	-1.09	5.60
138	0	-2.80	5.27
140	3	-0.67	5.68
141	4	-0.26	5.76
143	4	-0.47	5.72
145	1	-1.61	5.50
158	4	-0.47	5.72
180	4	0.00	5.81
190	2	-1.09	5.60
194	4	0.26	5.86
196	1	-1.92	5.44
203	2	-1.09	5.60
204	4	-0.31	5.75
209	4	-0.36	5.74
210	3	0.93	5.99
224	3	0.73	5.95
225	1	2.02	6.20

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
PO4 as P (Orthophosphate) m g/L

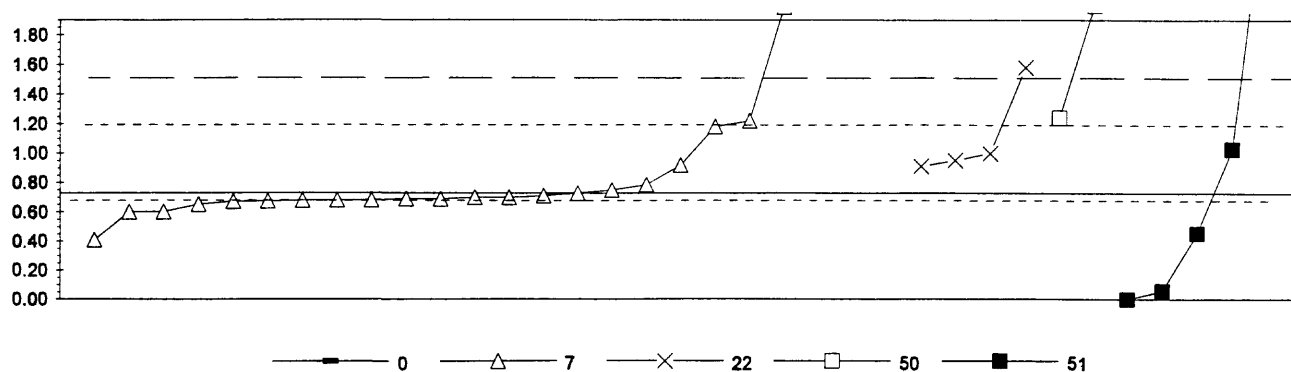


0. Other	22m. Color: molybdate blue			
7. Ion chromatography				
22. Colorimetric				
N =	1	1	1	12
Minimum =	0.110	0.005	0.000	0.000
Maximum =				0.900
Median =				0.008
St Dev =				0.003

MPV = 0.008
F-pseudosigma = 0.006
N = 15
Hu = 0.010
HI = 0.003

Lab	Rating	Z-value	0	7	22	22m
1	NR					< 0.001
3	NR				< 0.01	
5	NR					< 0.005
7	NR					< 0.01
15	NR				< 0.02	
23	0	160.44				0.900
25	4	0.00				0.008
26	NR			< 0.7		
33	NR			< 0.01		
36	NR	-1.44				0.000
38	4	0.18				0.009
48	NR					< 0.005
52	NR					< 0.005
58	3	-0.72				0.004
61	NR				< 0.01	
63	NR					< 0.05
64	2	-1.08				0.002
78	4	0.00				0.008
100	4	0.36				0.010
102	NR					< 0.005
107	4	0.36				0.010
111	NR					< 0.001
113	NR					< 0.004
134	NR					< 0.01
138	NR					< 0.02
140	NR				< 0.01	
141	NR					< 0.05
143	3	-0.90				0.003
145	NR					< 0.01
158	0	18.35	0.110			
180	NR					< 0.025
190	NR	-1.44			0.000	
196	NR			< 0.1		
203	4	0.36				0.010
204	2	-1.08				0.002
210	NR					< 0.05
224	3	-0.54		0.005		

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)--Continued
SO₄ (Sulfate) m g/L

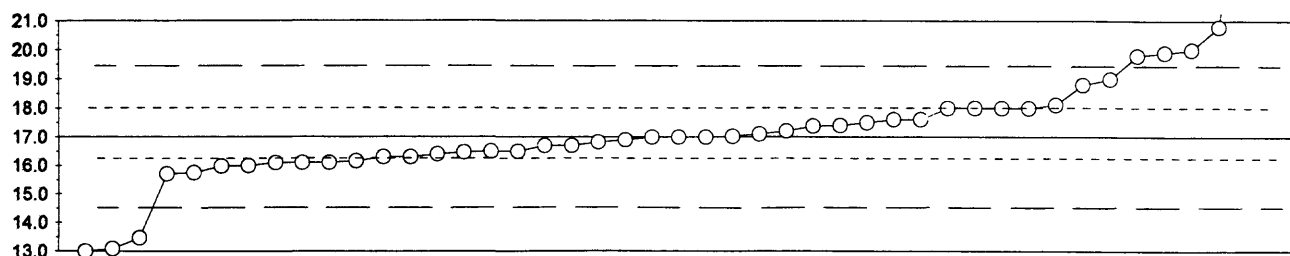


0. Other	50. Gravimetric
7. Ion chromatography	51. Turbidimetric
22. Colorimetric	
N =	0 24 4 2 5
Minimum =	0.410 0.910 1.240 0.000
Maximum =	3.000 1.580 2.000 3.000
Median =	0.689
St Dev =	0.184

MPV = 0.728
F-pseudosigma = 0.390
N = 35
Hu = 1.200
Hi = 0.675

Lab	Rating	Z-value	0	7	22	50	51
1	4	-0.10	0.688				
2	4	0.00	0.728				
3	NR		< 1				
5	0	5.55	2.890				
7	4	-0.20	0.650				
11	3	0.78					1.030
15	2	1.26	1.220				
23	0	2.19		1.580			
25	0	4.78	2.590				
26	NR		< 0.5				
33	4	-0.15	0.670				
36	NR	-1.87					0.000
44	4	-0.13	0.677				
46	3	-0.82	0.410				
48	1	-1.72					0.057
52	3	0.57		0.950			
58	2	1.31			1.240		
61	0	5.83				3.000	
63	3	-0.70				0.456	
64	4	-0.07	0.700				
78	NR						< 1
92	NR						< 5
93	2	1.16	1.180				
94	3	0.70		1.000			
100	0	5.83	3.000				
102	NR			< 10			
110	4	0.15	0.785				
111	4	-0.14	0.672				
112	4	-0.10	0.690				
113	NR		< 2				
134	4	0.49	0.920				
136	4	0.06	0.750				
138	4	-0.12	0.680				
140	NR						< 2
141	NR			< 10			
145	4	-0.33	0.600				
158	4	-0.33	0.600				
180	NR			< 2.5			
190	0	3.24	1.990				
194	NR			< 10			
196	4	-0.07	0.700				
204	4	0.47		0.910			
209	4	-0.05	0.710				
210	NR		< 5				
224	4	-0.12	0.680				
225	0	3.27			2.000		

Table 13. -Statistical summary of reported data for standard reference water sample P-22 (low ionic strength)—Continued
Sp Cond (Specific Conductance) μ S/cm



41. Direct reading

N = 45
Minimum = 13.0
Maximum = 33.5
Median = 17.0
St Dev = 1.3

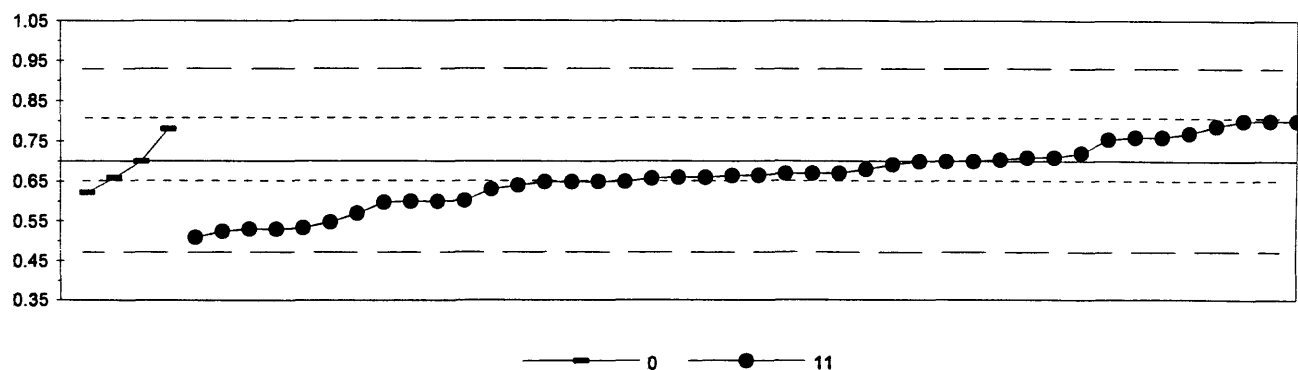
MPV = 17.0
F-pseudosigma = 1.3
N = 45
Hu = 18.0
HI = 16.3

Lab	Rating	Z-value	41
1	4	0.40	17.5
2	0	-2.80	13.5
3	4	-0.24	16.7
5	0	2.30	19.9
7	3	-0.71	16.1
11	3	-0.56	16.3
15	2	1.43	18.8
23	3	-0.56	16.3
25	1	1.59	19.0
33	4	-0.40	16.5
36	0	2.22	19.8
38	4	0.16	17.2
46	4	0.08	17.1
48	4	-0.43	16.5
52	4	-0.48	16.4
58	4	-0.24	16.7
61	4	0.48	17.6
62	3	-0.81	16.0
63	2	-1.02	15.7
64	4	0.02	17.0
78	0	8.73	28.0
93	3	-0.99	15.8
94	4	-0.14	16.8
100	3	0.87	18.1
101	4	0.00	17.0
102	0	-3.17	13.0
107	4	-0.08	16.9
110	4	0.00	17.0
111	3	-0.71	16.1
113	4	0.32	17.4
134	4	0.48	17.6
136	3	0.79	18.0
140	0	-3.09	13.1
141	0	13.09	33.5
143	4	-0.40	16.5
145	3	0.79	18.0
158	4	0.30	17.4
180	0	2.38	20.0
190	3	0.79	18.0
194	3	-0.79	16.0
196	0	3.02	20.8
203	3	-0.71	16.1
210	3	-0.67	16.2
224	3	0.79	18.0
225	4	0.00	17.0

Table 14. -Statistical summary of reported data for standard reference water sample Hg-18 (mercury)

Definition of analytical methods, abbreviations, and symbols.		
Analytical methods		
0. Other/Not reported		
3. AA: graphite furnace		atomic absorption: graphite furnace
11. AA: cold vapor		atomic absorption: cold vapor
Abbreviations and symbols		
		N = number of samples
		Stdev = traditional standard deviation
		MPV = most probable value
		F-pseudostandard deviation = nonparametric statistic deviation
		Hu = upper hinge value
		Hi = lower hinge value
		μ g/L = milligrams per liter
		Lab = Laboratory code number
		NR = not rated, less than value reported
		< = less than
Constituent		page
Hg	Mercury	100

Table 14. -Statistical summary of reported data for standard reference water sample Hg-18 (mercury)—Continued
Hg (Mercury)
μ g/L



0. Other

11. AA: hydride

N = 4 60
Minimum = 0.62 0.51
Maximum = 0.78 3.00
Median = 0.70
St Dev = 0.14

MPV = 0.70

F-pseudosigma = 0.12

N = 64

Hu = 0.81

HI = 0.65

Lab	Rating	Z-value	0	11
1	3	0.61	0.78	0.77
3	3	0.69		
7	2	-1.47		0.53
11	4	-0.36	0.66	
12	3	0.87		0.80
13	0	3.21		1.07
15	4	-0.26		0.67
24	4	0.00		0.70
32	4	0.47		0.75
34	4	-0.31		0.66
36	3	-0.52		0.64
39	0	2.60		1.00
45	2	1.41		0.86
46	4	0.09		0.71
48	4	-0.43		0.65
50	1	1.74		0.90
51	2	-1.45		0.53
52	1	-1.65		0.51
55	4	-0.07		0.69
58	3	0.87		0.80
59	4	0.00		0.70
61	3	0.52		0.76
63	3	0.87		0.80
68	1	-1.53		0.52
69	4	-0.43		0.65
70	3	-0.89		0.60
75	4	-0.44		0.65
76	3	-0.68	0.62	
78	4	0.09		0.71
79	3	0.52		0.76
81	3	-0.87		0.60
86	4	-0.36		0.66
87	3	-0.87		0.60
90	3	-0.61		0.63
92	0	19.95		3.00
96	4	0.00	0.70	
97	4	-0.35		0.66
100	0	3.12		1.06
105	0	3.04		1.05
108	4	-0.35		0.66
109	4	-0.27		0.67
113	0	4.34		1.20
114	0	4.94		1.27
118	0	8.68		1.70
119	4	0.00		0.70
127	3	0.75		0.79
128	0	2.60		1.00
133	2	-1.32		0.55
134	4	0.17		0.72
138	4	-0.17		0.68

Lab	Rating	Z-value	0	11
141	4	0.03		0.70
142	2	1.23		0.84
145	2	-1.47		0.53
146	4	-0.31		0.66
149	4	-0.44		0.65
151	4	-0.26		0.67
180	3	-0.85		0.60
194	3	0.87		0.80
198	2	1.13		0.83
204	3	0.87		0.80
210	3	0.95		0.81
211	0	< 0.3		< 0.3
220	2	-1.13		0.57
221	1	1.74		0.90
225	0	11.28		2.00

Table 15. -Most probable values for constituents and properties in standard reference samples distributed in April 1994

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

T-129 (trace constituents)						
Analyte	MPV	F-pseudosigma	Analyte	MPV	F-pseudosigma	
Ag	0.37 µ g/L	1.40	Li	18.0 µ g/L	2.6	
Al	50.0 µ g/L	11.9	Mg	5.83 m g/L	0.25	
As	0.55 µ g/L	1.14	Mn	25.2 µ g/L	2.2	
B	11.6 µ g/L	2.8	Mo	20.3 µ g/L	2.1	
Ba	34.0 µ g/L	1.9	Na	35.5 m g/L	1.5	
Be	0.12 µ g/L	0.13	Ni	1.7 µ g/L	1.7	
Ca	21.1 m g/L	1.0	Pb	1.00 µ g/L	1.37	
Cd	0.34 µ g/L	0.15	Sb	0.55 µ g/L	0.87	
Co	0.74 µ g/L	1.20	Se	1.60 µ g/L	1.59	
Cr	0.68 µ g/L	1.36	SiO2	9.15 m g/L	0.83	
Cu	2.7 µ g/L	1.4	Sr	181 µ g/L	11	
Fe	10.4 µ g/L	8.2	V	1.0 µ g/L	2.4	
K	3.00 m g/L	0.20	Zn	72.0 µ g/L	4.8	
M-130 (major constituents)						
Analyte	MPV	F-pseudosigma	Analyte	MPV	F-pseudosigma	
Alkalinity	60.0 m g/L	1.9	Na	35.8 m g/L	1.6	
B	8.87 µ g/L	8.23	total P	0.085 m g/L	0.104	
Ca	21.2 m g/L	1.0	pH	8.02	0.14	
Cl	21.4 m g/L	1.9	SiO2	9.20 m g/L	0.55	
DSRD	200 m g/L	13	SO4	58.0 m g/L	2.6	
F	1.23 m g/L	0.09	SpCond	335 µ S/cm	10	
K	3.00 m g/L	0.23	Sr	180 µ g/L	10	
Mg	5.90 m g/L	0.27	V	insufficient data		
N-42 (preserved nutrients)			N-42 (nonpreserved nutrients)			
Analyte	MPV	F-pseudosigma	Analyte	MPV	F-pseudosigma	
NH3 as N	0.20 m g/L	0.04	NH3 as N	0.25 m g/L	0.44	
NH3 + Org N as N	1.81 m g/L	0.26	NH3 + Org N as N	1.70 m g/L	0.24	
NO3 + NO2 as N	1.92 m g/L	0.07	NO3 + NO2 as N	1.93 m g/L	0.08	
total P as P	1.15 m g/L	0.06	total P as P	1.15 m g/L	0.05	
PO4 as P	0.56 m g/L	0.02	PO4 as P	0.62 m g/L	0.34	
P-22 (low ionic strength)						
Analyte	MPV	F-pseudosigma	Analyte	MPV	F-pseudosigma	
Acidity	1.79 m g/L	8.68	Na	1.70 m g/L	0.10	
Ca	0.725 m g/L	0.065	pH	5.81	0.19	
Cl	2.92 m g/L	0.28	PO4 as P	0.008 m g/L	0.006	
F	0.028 m g/L	0.015	SO4	0.728 m g/L	0.390	
K	0.203 m g/L	0.027	SpCond	17.0 µ S/cm	1.3	
Mg	0.098 m g/L	0.006				
Hg-18 (mercury)						
Analyte	MPV	F-pseudosigma				
Hg	0.70 µ g/L	0.12				