

REPORT OF
ANALYTICAL EVALUATION PROGRAM
STANDARD REFERENCE WATER SAMPLES NUMBERS 32 AND 33

U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
Denver, Colorado
July 1971

STANDARD REFERENCE WATER SAMPLES NUMBERS 32 AND 33

PURPOSE AND PLAN

As a means of providing an independent and objective evaluation of the water-quality data published by the U.S. Geological Survey and other cooperating laboratories, standard reference water samples are prepared and distributed at regular intervals. This report summarizes the analytical results submitted by 29 laboratories for Standard Reference Water Samples numbers 32 and 33 distributed on May 20, 1971.

The "Instructions for Analysis and Reporting Results" specified only that the pH and/or alkalinity determinations be performed first. No other required order of performing the determinations, nor restriction on methods and equipment was given. This program operates as a quality-control tool to enable each laboratory to detect deficiencies. Participating laboratories are identified in this report by a pre-assigned code number.

PREPARATION OF SAMPLES

Approximately 150 gallons of each sample was collected. The samples were acidified to a pH of about 1.5 with nitric acid and then 10 minor elements were added. Thymol was added to both samples and each sample was then filtered through a 0.45- μ m membrane filter into a large polyethylene drum. Each sample was stirred manually with a motor-driven stirrer, pumped through an ultrafilter with a sterilizer and packaged in sterile teflon bottles under ultraviolet radiation.

DETERMINATIONS

Aluminum (Al)
Iron (Fe)
Manganese (Mn)
Cadmium (Cd)
Chromium (Cr)

Copper (Cu)
Lead (Pb)
Mercury (ng)
Nickel (Ni)
Zinc (Zn)

PARTICIPATING LABORATORIES

U.S. Geological Survey

Alabama, Tuscaloosa	North Carolina, Raleigh
Alaska, Anchorage	Ohio, Columbus
Arkansas, Little Rock	Oklahoma, Oklahoma City
California, Menlo Park	Pennsylvania, Harrisburg
Dist. Columbia, Washington	Puerto Rico, Fort Buchanan
Florida, Ocala	Texas, Austin
Hawaii, Honolulu	Utah, Salt Lake City
Louisiana, Baton Rouge	Virginia, Charlottesville
New York, Albany	

Other

Alabama, Tuscaloosa: State Geological Survey.
Colorado, Denver: Board of Water Commissioners, WQ Lab.
Georgia, Atlanta: State Water-Quality Control Board.
Kansas, Lawrence: State Geological Survey.
Kansas, Topeka: State Department of Health.
New Zealand, Petone: Department of Sci. & Indus. Research.
North Dakota, Bismarck: State Water Conservation Comm.
Ohio, Cincinnati: Environmental Protection Agency, AQC Lab.
South Dakota, Brookings: State University.
Tennessee, Chattanooga: Tennessee Valley Authority.
Wyoming, Laramie: State Department of Agriculture.
Montana, Butte: Montana Bureau of Mines and Geology.

STATISTICAL EVALUATION

A statistical analysis of the data has established the most reliable estimate of the true value for each of the various determinations reported. Mathematical calculations are the same as those used previously.

The mean, average deviation, percent deviation from the mean, standard deviation, and total range were calculated for each determination. Confidence limits about the mean were also calculated in order to define the concentration range within which the true value may be expected to fall with a confidence level of 95 percent. Outlying values were rejected on the basis of statistical tests as outlined in the 1964 Book of ASTM Standards, Part 30, p. 512.

REPORTED VALUES

The following section shows the reported value for each determination by each participating laboratory, and a graphical presentation of each reported value and the frequency of its occurrence. Each reported value has been rounded off, when necessary, to conform to official USGS policy on reporting analytical data. A few extreme values are not shown on the scale.

A summary shows the number of laboratories reporting values for each determination and the percentage of values rejected. The percentages of unrejected values falling within the 95 percent confidence interval, within one standard deviation ($\bar{X} \pm \text{STD}$), and within two standard deviation ($\bar{X} \pm 2 \text{ STD}$) are also given.

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	200	24.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	3	400	51.4	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	4	200	24.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	5			NOT DETERMINED
6-71	6	200	24.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	8	-200	24.3	OTHER
6-71	9			NOT DETERMINED
6-71	10	-400	51.4	OTHER
6-71	11	300	13.5	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	12			NOT DETERMINED
6-71	13			NOT DETERMINED
6-71	14	400	51.4	OTHER
6-71	15			NOT DETERMINED
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	200 <i>212</i>	24.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	19	300	13.5	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
7-71	20	600	127.0	REJECT FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	21	200	24.3	OTHER
6-71	22			NOT DETERMINED
6-71	23	200	24.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26			NOT DETERMINED
6-71	27	300	13.5	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	28			NOT DETERMINED
6-71	29			NOT DETERMINED
6-71	30	200	24.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1

TOTAL RANGE 200 - 600

MEAN

264.2854

AVERAGE DEVIATION

73.4692

SAMPLE 32

STANDARD DEVIATION

84.1895

95 PCT.CONF.INTVL OF MEAN

264.2854 +OR-

48.6012

AL

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1	830	0.2	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	2	910	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	860	3.8	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	4	840	1.4	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	5	830	0.2	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	6	800	3.4	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	8	830	0.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	900	8.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	640	22.8	OTHER
6-71	11	840	1.4	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	12	880	6.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13	990	19.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	14	560	32.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	820	1.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	830	0.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17	110	86.7	OTHER
6-71	18	960	15.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	870	5.0	OTHER
7-71	20	1100	32.8	OTHER
6-71	21	740	10.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22	610	26.4	OTHER
6-71	23	800	3.4	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	24	820	1.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	25	830	0.2	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	26	840	1.4	OTHER
6-71	27	850	2.6	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	28	750	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	820	1.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	850	2.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

REJECT

TOTAL RANGE 110 - 1100

MEAN 828.5679

STANDARD DEVIATION 106.5872

AVERAGE DEVIATION

95 PCT.CONF.INTVL OF MEAN

66.1234

828.5679 +OR-

41.3336

SAMPLE 32

FE

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	2	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	4	110	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	110	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	6	90	17.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	8	100	8.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	-80	26.8	OTHER
6-71	11	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	12	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13	-110	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	14	100	8.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	-110	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	130	19.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17	100	8.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	18	110	90.8	REJECT ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
7-71	20	140	28.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	21	110	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
5-71	22	80	17.6	OTHER
6-71	23	100	8.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25	140	28.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	26	80	26.8	OTHER
6-71	27	70	35.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	100	8.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	120	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 10 - 140
MEAN 109.2590
STANDARD DEVIATION 17.3040

AVERAGE DEVIATION
95 PCT.CONF.INTVL OF MEAN

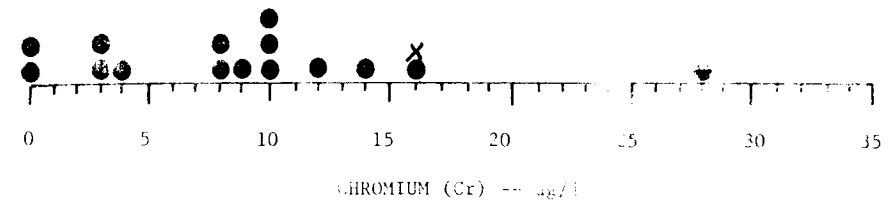
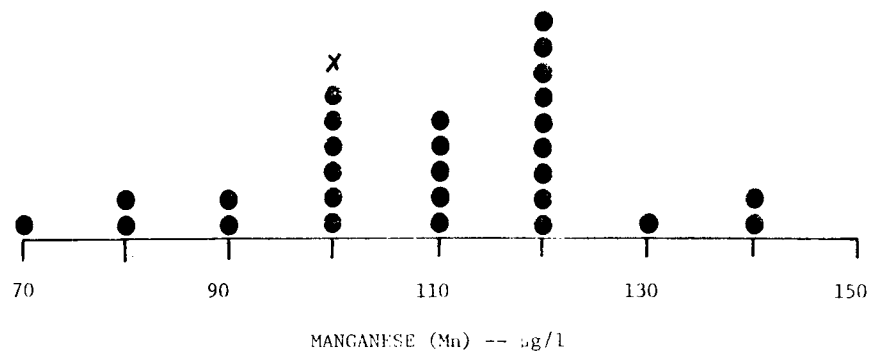
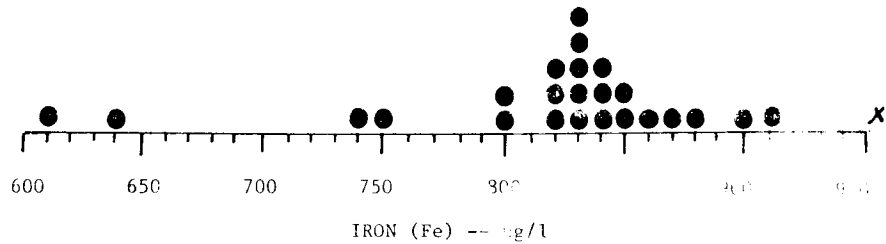
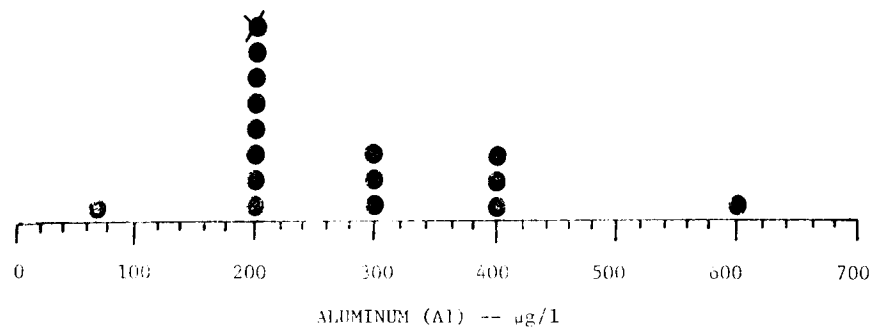
13.5254
109.2590 FOR - 6.8468

SAMPLE 32
MN

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	3	76.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	10	22.7	DIPHENYLCARBAZIDE-PERMANGANATE-AZIDE, USGS TWRI BK5 CH A1
6-71	4	14	8.2	OTHER
6-71	5	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	6	8	38.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	10	22.7	OTHER
6-71	9			NOT DETERMINED
6-71	10	28	116.4	OTHER
6-71	11			NOT DETERMINED
6-71	12			NOT DETERMINED
6-71	13			NOT DETERMINED
6-71	14	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15			NOT DETERMINED
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	16	23.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	10	22.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	9	30.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	8	38.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	4	69.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	3	76.8	DIPHENYLCARBAZIDE-PERMANGANATE-AZIDE, USGS TWRI BK5 CH A1
6-71	27	40	209.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	28	45	247.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	29	12	7.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

7.4 ± 3

TOTAL RANGE	0	-	45				SAMPLE 32
MEAN		12.9412	AVERAGE DEVIATION	9.2111			
STANDARD DEVIATION		12.9926	95 PCT.CONF.INTVL OF MEAN	12.9412 FOR-	6.6805		CR



SAMPLE NO. 32

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	26	12.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	26	12.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	4	25	7.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	5			NOT DETERMINED
6-71	6	17	26.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	-17	26.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	9			NOT DETERMINED
6-71	10	-23	0.9	OTHER
6-71	11	30	29.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	12			NOT DETERMINED
6-71	13			NOT DETERMINED
6-71	14	20	13.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15			NOT DETERMINED
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	27	16.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	34	46.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	22	5.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	16	31.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23			NOT DETERMINED
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	80	244.6	REJECT ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	27	20	13.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	28			NOT DETERMINED
6-71	29	22	5.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

TOTAL RANGE	16	-	80				
MEAN		23.2142		AVERAGE DEVIATION	4.1020		SAMPLE 32
STANDARD DEVIATION		5.1765		95 PCT.CONF.INTVL OF MEAN	23.2142 +OR-	2.9883	NI

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	530	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	580	1.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	4	610	3.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	580	1.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	6	510	13.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	580	1.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	630	7.3	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	450	23.4	OTHER
6-71	11	590	0.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	12	530	9.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13			NOT DETERMINED
6-71	14	610	3.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	580	1.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	640	9.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17	700	19.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	18	640	9.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	560	4.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
7-71	20	620	5.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	580	1.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	580	1.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	24	480	18.3	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	25	560	4.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	26	620	5.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	27	730	24.3	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	600	2.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	590	0.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	590	0.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 450 - 730
MEAN 587.3047
STANDARD DEVIATION 59.5017

AVERAGE DEVIATION
95 PCT.CONF.INTVL OF MEAN

41.1538
587.3047 +OR- 24.0386

SAMPLE 32
CU

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	30	29.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	26	11.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	4	23	1.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	5	17	26.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	6	36	54.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	21	9.6	OTHER
6-71	9			NOT DETERMINED
6-71	10	53	128.1	REJECT OTHER
6-71	11	12	48.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	12	26	11.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	13			NOT DETERMINED
6-71	14	15	35.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15			NOT DETERMINED
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	34	46.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	12	48.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	28	20.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	22	5.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	21	9.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	60	158.2	REJECT ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	27	20	13.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	28	28	20.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	29	24	3.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

TOTAL RANGE 12 - 60
MEAN 23.2352
STANDARD DEVIATION 6.9239

AVERAGE DEVIATION 5.4256
95 PCT.CONF.INTVL OF MEAN 23.2352 +0R-

3.5601

SAMPLE 32

PB

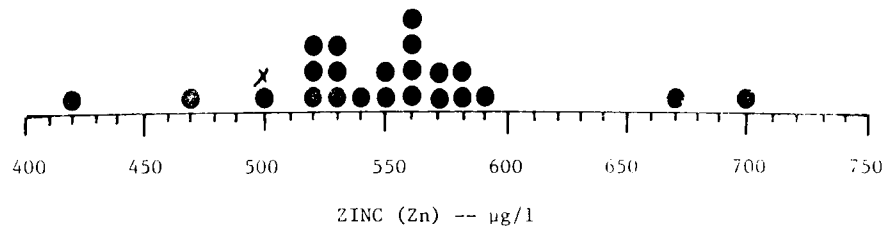
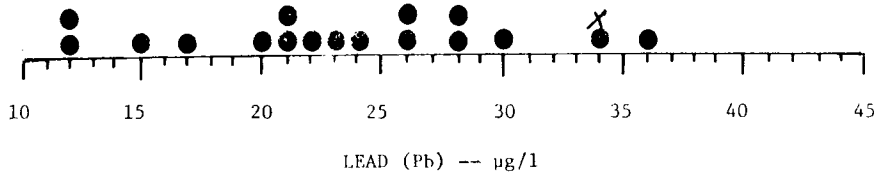
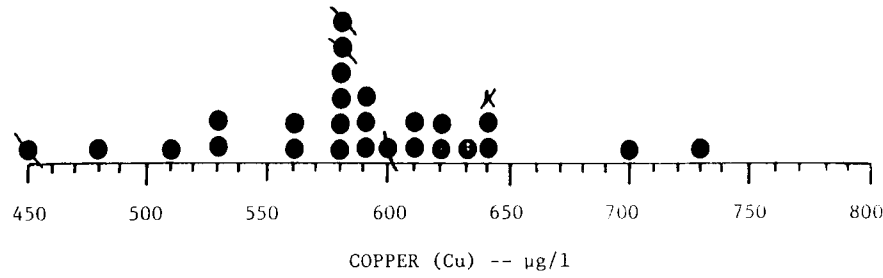
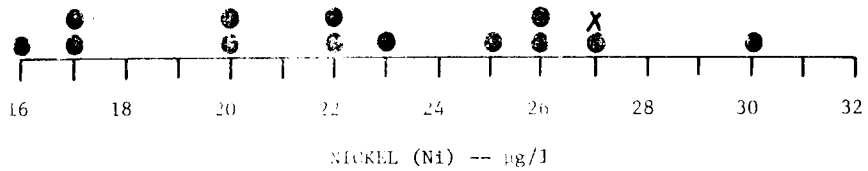
DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	570	3.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	560	1.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	4	540	2.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	530	3.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	6	520	5.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	8	520	5.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	560	1.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	420	23.8	OTHER
6-71	11	530	3.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	12	550	0.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13			NOT DETERMINED
6-71	14	590	7.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	530	3.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	670	21.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17			NOT DETERMINED
6-71	18	500	9.3	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	560	1.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
7-71	20	2400	335.3	REJECT
6-71	21	570	3.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	560	1.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25	520	5.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	26	550	0.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	27	700	27.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	580	5.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	580	5.2	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	470	14.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 420 - 2400
MEAN 551.3015
STANDARD DEVIATION 56.9133

AVERAGE DEVIATION 37.8827
95 PCT.CONF.INTVL OF MEAN 551.3015 +OR- 24.6127

SAMPLE 32

24



SAMPLE NO. 32

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	11	10.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	9	10.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	4	10	0.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	5			NOT DETERMINED
6-71	6	6	40.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	9	10.0	OTHER
6-71	9	8	20.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10			NOT DETERMINED
6-71	11	15	50.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	12	8	20.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	13	20	100.0	REJECT ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	14	10	0.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15	9	10.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	9	10.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	10	0.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	8	20.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	9	10.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	8	20.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	16	60.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	27	40	300.0	REJECT ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	15	50.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	10	0.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

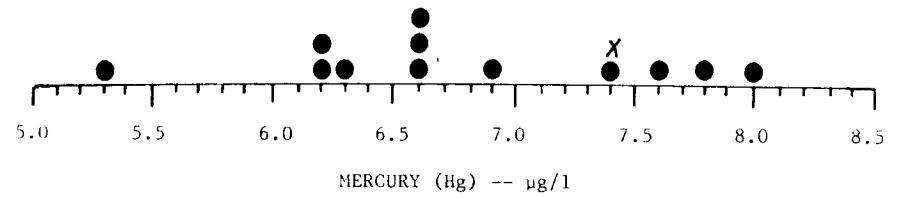
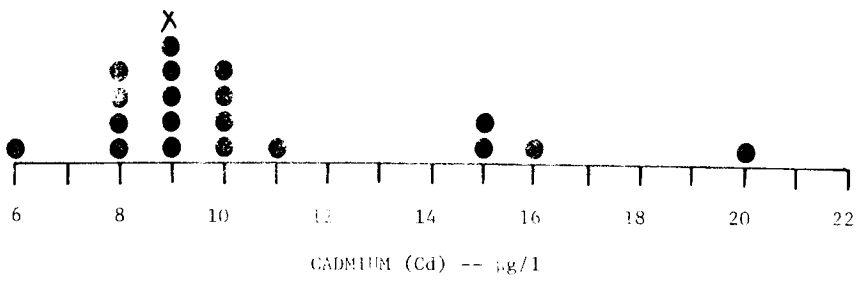
TOTAL RANGE	6	-	40			
MEAN		10.0000		AVERAGE DEVIATION	1.8889	SAMPLE 32
STANDARD DEVIATION		2.7006		95 PCT.CONF.INTVL OF MEAN	10.0000 +OR- 1.3432	CD

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2			NOT DETERMINED
6-71	3			NOT DETERMINED
6-71	4			NOT DETERMINED
6-71	5			NOT DETERMINED
6-71	6	6.3	7.2	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	8	8.0	17.8	OTHER
6-71	9			NOT DETERMINED
6-71	10			NOT DETERMINED
6-71	11	6.6	2.8	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	12	6.6	2.8	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	13	6.2	8.7	OTHER
6-71	14	7.8	14.8	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	15	5.3	22.0	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	7.4	9.0	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	19	7.6	11.9	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
7-71	20	6.6	2.8	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	21	6.9	1.6	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	22			NOT DETERMINED
6-71	23			NOT DETERMINED
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26			NOT DETERMINED
6-71	27			NOT DETERMINED
6-71	28	0.5	92.6	REJECT ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	29	6.2	8.7	ATOMIC ABS-FLAMELESS PERMANGANATE-PERSULFATE OXIDATION
6-71	30			NOT DETERMINED

TOTAL RANGE	0.5	-	8.0		
MEAN	6.7917		AVERAGE DEVIATION	0.6236	
STANDARD DEVIATION	0.7856		95 PCT.CONF.INTVL OF MEAN	5.7917 +OR-	0.4992

SAMPLE 32

HG



SAMPLE NO. 32

DETERMINATION	NO. LABS REPORTING	PCT. OF VALUES REJECTED	PCT. OF UNREJECTED VALUES WITHIN		
			95 PCT. CI	X +OR- STD	X +OR- 2STD
AL	16	0	19	69	94
FE	29	3	57	79	89
MN	28	4	19	70	96
CR	17	0	53	82	88
NI	15	7	43	64	93
CU	26	0	46	81	92
PB	19	11	47	71	100
ZN	24	4	52	83	87
CO	20	10	56	78	94
HG	13	8	42	67	100

SAMPLE NO. 32

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	700	13.1	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	3	500	19.2	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	4	600	3.0	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	5			NOT DETERMINED
6-71	6	700	13.1	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	8	600	3.0	OTHER
6-71	9			NOT DETERMINED
6-71	10	-600	3.0	OTHER
6-71	11	700	13.1	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	12			NOT DETERMINED
6-71	13			NOT DETERMINED
6-71	14	700	13.1	OTHER
6-71	15	600	3.0	OTHER
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	600	3.0	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	19	600	3.0	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
7-71	20	700	13.1	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	21	600	3.0	OTHER
6-71	22			NOT DETERMINED
6-71	23	600	3.0	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26			NOT DETERMINED
6-71	27	500	19.2	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	28			NOT DETERMINED
6-71	29			NOT DETERMINED
6-71	30	600	3.0	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1

TOTAL RANGE 500 - 700

MEAN 618.7476

STANDARD DEVIATION 65.5108

AVERAGE DEVIATION

95 PCT.CONF.INTVL OF MEAN

50.7804

618.7476 +OR- 34.9008

SAMPLE 33

AL

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1	120	0.3	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	2	130	8.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	120	0.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	4	120	0.3	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	130	8.6	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	6	90	24.8	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	8	130	8.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	100	16.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	240	100.6	OTHER
6-71	11	120	0.3	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	12	130	8.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13	110	8.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	14	90	24.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	80	33.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	100	16.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17	40	66.6	OTHER
6-71	18	180	50.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	140	17.0	OTHER
7-71	20	200	67.1	OTHER
6-71	21	120	0.3	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22	20	83.3	OTHER
6-71	23	120	0.3	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	24	150	25.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	25	130	8.6	BIPYRIDINE, USGS TWRI BK5 CH A1
6-71	26	150	25.4	OTHER
6-71	27	120	0.3	FERRON-ORTHOPHENANTHROLINE, USGS TWRI BK5 CH A1
6-71	28	80	33.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	100	16.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	110	8.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 20 - 240

MEAN 119.6549

STANDARD DEVIATION 42.2140

AVERAGE DEVIATION

95 PCT.CONF.INTVL OF MEAN

27.3246

119.6549 FOR-

16.0541

SAMPLE 33

FE

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	2	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	4	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	6	20	68.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	8	50	21.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	40	37.4	OTHER
6-71	11	80	25.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	12	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	14	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17	50	21.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	18	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
7-71	20	100	56.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	21	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22	100	56.4	OTHER
6-71	23	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25	90	40.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	26	50	21.8	OTHER
6-71	27	40	37.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	60	6.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	70	9.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 20 - 100

MEAN 63.9283

STANDARD DEVIATION 16.8521

AVERAGE DEVIATION

95 PCT.CONF.INTVL OF MEAN

12.0663

63.9283 +OR-

6.5351

SAMPLE 33

MN

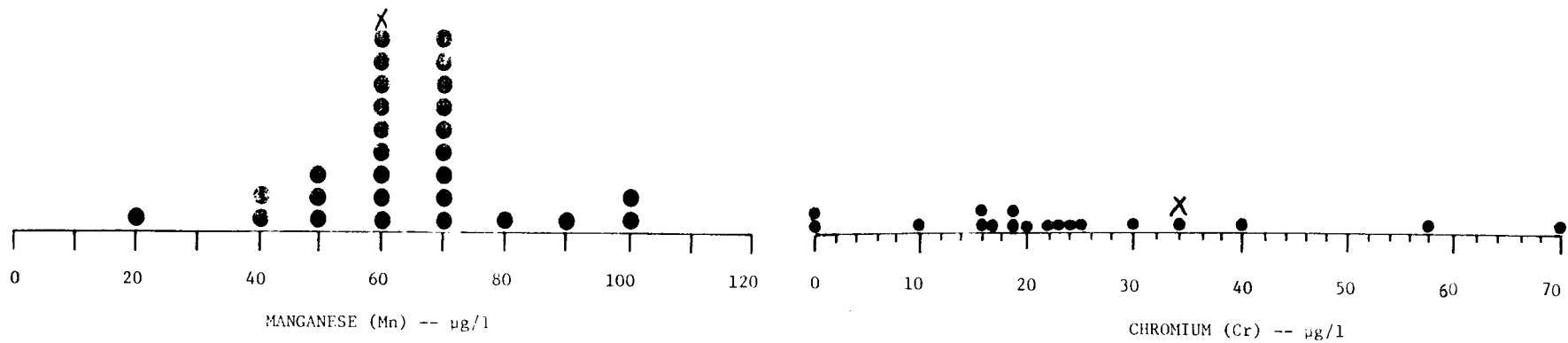
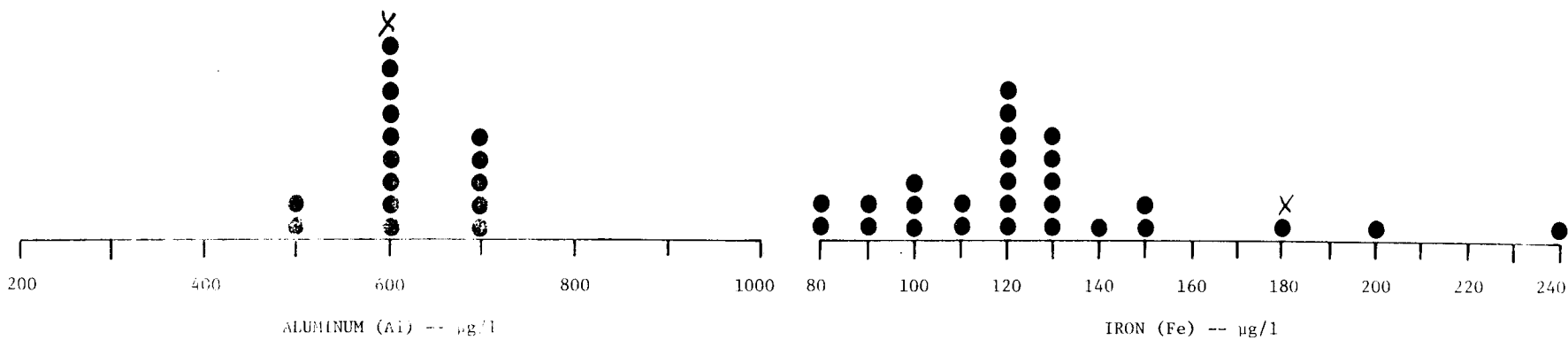
DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	16	35.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	22	10.6	DIPHENYLCARBAZIDE-PERMANGANATE-AZIDE, USGS TWRI BK5 CH A1
6-71	4	30	21.9	OTHER
6-71	5	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	6	19	22.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	24	2.5	OTHER
6-71	9			NOT DETERMINED
6-71	10	58	135.7	OTHER
6-71	11			NOT DETERMINED
6-71	12			NOT DETERMINED
6-71	13			NOT DETERMINED
6-71	14	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15	17	30.9	OTHER
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	34	38.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	20	18.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	23	6.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	10	59.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	19	22.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	16	35.0	DIPHENYLCARBAZIDE-PERMANGANATE-AZIDE, USGS TWRI BK5 CH A1
6-71	27	70	184.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	28	40	62.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	29	25	1.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

TOTAL RANGE 0 - 70

MEAN 24.6110 AVERAGE DEVIATION 12.1481
STANDARD DEVIATION 17.5805 95 PCT.CONF.INTVL OF MEAN 24.6110 +OR- 8.7433

SAMPLE 33

CR



SAMPLE NO. 33

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	4	40.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	10	48.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	4	8	18.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	5	4	40.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	6	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	-3	55.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	9			NOT DETERMINED
6-71	10	-18	166.7	OTHER
6-71	11	8	18.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	12			NOT DETERMINED
6-71	13			NOT DETERMINED
6-71	14	5	25.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15			NOT DETERMINED
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	6	11.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	17	151.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	1	85.2	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23			NOT DETERMINED
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	0	100.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	27	20	196.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	28			NOT DETERMINED
6-71	29	4	40.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

TOTAL RANGE 0 - 20
MEAN 6.7500
STANDARD DEVIATION 6.4859

AVERAGE DEVIATION 5.0625
95 PCT.CONF.INTVL OF MEAN 6.7500 +OR- 3.4553

SAMPLE 33

NI

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	210	11.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	280	17.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	4	250	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	210	11.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	6	160	32.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	-210	11.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	260	9.1	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	-450	88.8	REJECT OTHER
6-71	11	220	7.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	12	210	11.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13			NOT DETERMINED
6-71	14	240	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	-240	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	250	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17	300	25.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	18	300	25.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	280	17.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
7-71	20	240	0.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	250	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	240	0.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	24	170	28.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	25	250	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	26	250	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	27	250	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	230	3.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	230	3.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	230	3.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 160 - 450

MEAN 238.3984

STANDARD DEVIATION 33.5011

AVERAGE DEVIATION

95 PCT.CONF.INTVL OF MEAN

24.3202

238.3984 +OR-

13.8293

SAMPLE 33

CU

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	70	1.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	52	27.0	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	4	72	1.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	5	80	12.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	6	88	23.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	-60	15.7	OTHER
6-71	9			NOT DETERMINED
6-71	10	-53	25.6	OTHER
6-71	11	110	54.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	12	80	12.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	13			NOT DETERMINED
6-71	14	41	42.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15			NOT DETERMINED
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	88	23.6	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	59	17.1	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	100	40.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	74	3.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	65	8.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	80	12.3	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	27	30	57.9	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	28	-65	8.7	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	29	86	20.8	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

TOTAL RANGE 30 - 110
MEAN 71.2103
STANDARD DEVIATION 19.7500

AVERAGE DEVIATION 15.3573
95 PCT.CONF.INTVL OF MEAN 71.2103 +OR- 9.5196

SAMPLE 33
PB

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	550	6.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	3	510	0.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	4	520	1.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	5	500	2.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	6	530	3.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	8	490	4.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	9	530	3.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10	420	18.4	OTHER
6-71	11	490	4.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	12	520	1.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	13			NOT DETERMINED
6-71	14	540	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	15	500	2.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16	580	12.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	17			NOT DETERMINED
6-71	18	460	10.6	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	19	520	1.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
7-71	20	2200	327.4	REJECT
6-71	21	530	3.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	530	3.0	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25	490	4.8	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	26	540	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	27	540	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	540	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	540	4.9	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	30	470	8.7	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1

TOTAL RANGE 420 - 2200

MEAN 514.7800

STANDARD DEVIATION 34.3803

AVERAGE DEVIATION

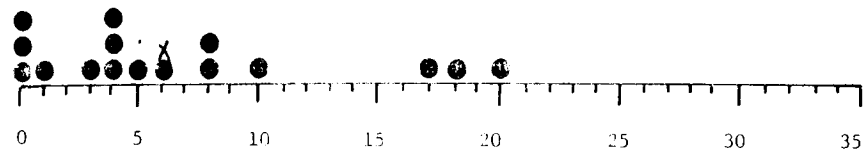
95 PCT.CONF.INTVL OF MEAN

26.3521

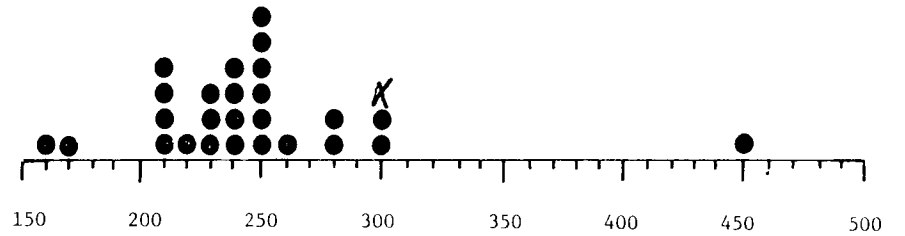
514.7800 +OR- 14.8594

SAMPLE 33

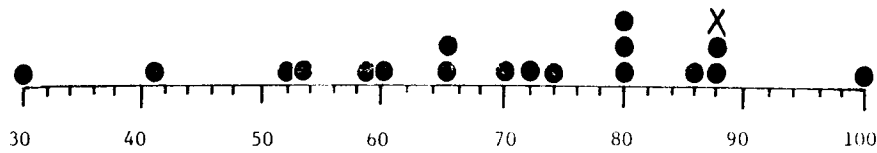
2N



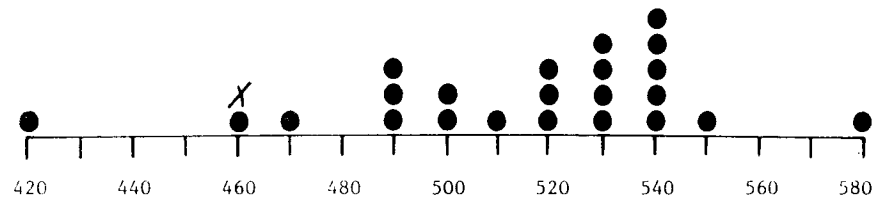
NICKEL (Ni) -- µg/l



COPPER (Cu) -- µg/l



LEAD (Pb) -- µg/l

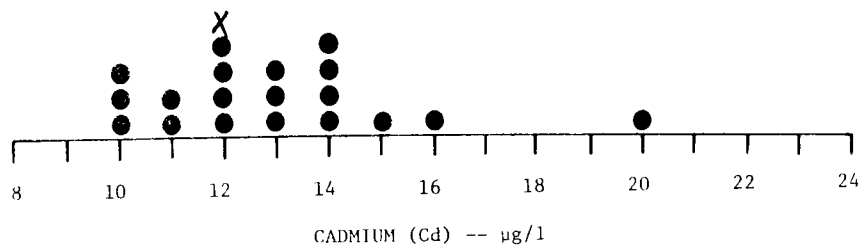


ZINC (Zn) -- µg/l

SAMPLE NO. 33

DATE MO-YR	CODE	REPORTED VALUE	PCT.DEV. FROM MEAN	METHOD
6-71	1			NOT DETERMINED
6-71	2	15	19.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	3	13	3.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	4	14	11.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	5			NOT DETERMINED
6-71	6	12	4.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	8	11	12.4	OTHER
6-71	9	14	11.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	10			NOT DETERMINED
6-71	11	16	27.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	12	11	12.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	13	-10	20.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	14	12	4.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	15	-14	11.5	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	16			NOT DETERMINED
6-71	17			NOT DETERMINED
6-71	18	12	4.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	19	13	3.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
7-71	20	10	20.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	21	13	3.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	22			NOT DETERMINED
6-71	23	10	20.4	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	24			NOT DETERMINED
6-71	25			NOT DETERMINED
6-71	26	20	59.3	REJECT ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	27	40	218.6	REJECT ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	28	-12	4.4	ATOMIC ABS-DIRECT, USGS TWRI BK5 CH A1
6-71	29	14	11.5	ATOMIC ABS-CHELATION-EXTRACTION, USGS TWRI BK5 CH A1
6-71	30			NOT DETERMINED

TOTAL RANGE	10	-	40			SAMPLE 33
MEAN		12.5555	AVERAGE DEVIATION	1.4444		
STANDARD DEVIATION		1.7564	95 PCT.CONF.INTVL OF MEAN	12.5555 +OR-	0.8735	CD



SAMPLE NO. 33

DETERMINATION	NO. LABS REPORTING	PCT. OF VALUES REJECTED	PCT. OF UNREJECTED VALUES WITHIN		
			95 PCT. CI	X +OR- STD	X +OR- 2STD
AL	17	6	56	56	100
FE	29	0	48	83	93
MN	28	0	64	79	89
CR	18	0	61	78	94
NI	16	0	50	63	94
CU	26	4	52	76	92
PB	19	0	42	79	95
ZN	24	4	26	78	96
CD	21	14	39	72	100

SAMPLE NO. 33

STANDARD REFERENCE WATER SAMPLES NOS. 34 AND 35

Overall Laboratory Performance--Thirty-one Determinations

January 1972

PARTICIPATING LABORATORIES

U.S. Geological Survey

Alabama, Tuscaloosa	North Carolina, Raleigh
Alaska, Anchorage	Ohio, Columbus
Arkansas, Little Rock	Oklahoma, Oklahoma City
California, Menlo Park	Pennsylvania, Harrisburg
Dist. of Columbia, Washington	Puerto Rico, San Juan
Florida, Miami	Texas, Austin
Florida, Ocala	Texas, Fort Worth
Florida, Tampa	Texas, Houston
Hawaii, Honolulu	Utah, Salt Lake City
Louisiana, Baton Rouge	Virginia, Charlottesville
New York, Albany	

Other

Alabama, Tuscaloosa: State Geological Survey
 Arizona, Tucson: University of Arizona, Agri. Science
 Colorado, Denver: Board of Water Commissioners, WQ Lab.
 Georgia, Atlanta: State Water-Quality Control Board
 Kansas, Lawrence: State Geological Survey
 Kansas, Topeka: State Department of Health
 Montana, Butte: State Bureau of Mines and Geology
 New Zealand, Petone: Department of Sci. & Indus. Research
 North Dakota, Bismarck: State Water Conservation Comm.
 Pennsylvania, West Chester: County Health Department
 South Dakota, Brookings: State University, WQ Laboratory
 Tennessee, Chattanooga: Tennessee Valley Authority
 Wyoming, Laramie: State Department of Agriculture

STATISTICAL EVALUATION

A statistical analysis of the data has established the most reliable estimate of the true value for each of the various determinations reported. Mathematical calculations are the same as those used previously.

The mean, average deviation, percent deviation from the mean, standard deviation, and total range were calculated for each determination. Confidence limits about the mean were also calculated in order to define the concentration range within which the true value may be expected to fall with a confidence level of 95 percent. Outlying values were rejected on the basis of statistical tests as outlined in ASTM Recommended Practice for Dealing with Outlying Observations (1969 Book of ASTM Standards, Part 30, p. 429-445).

REPORTED VALUES

The following section shows the reported value for each determination by each participating laboratory, and a graphical presentation of each reported value and the frequency of its occurrence. Each reported value has been rounded off, when necessary, to conform to official USGS policy on reporting analytical data. A few extreme values are not shown on the scale.

A summary shows the number of laboratories reporting values for each determination and the percentage of values rejected. The percentages of unrejected values falling within the 95-percent confidence interval, within one standard deviation ($\bar{X} \pm \text{STD}$), and within two standard deviations ($\bar{X} \pm 2 \text{STD}$) are also given.

STANDARD REFERENCE WATER SAMPLES NOS. 34 AND 35

Laboratory Code Numbers

ACR:	Albany, NY	028 -	RMR:	Austin, TX	026 -
	Atlanta, GA (State)	022 -		Bismarck, ND (State)	018 -
	Charlottesville, VA	030 -		Brookings, SD (State)	012 -
	Fort Buchanan, PR	013 -		Butte, MT (State)	023 -
	Harrisburg, PA	019 -		Fort Worth, TX (Subdistrict)	015 -
	Miami, FL (Subdistrict)	032 -		Houston, TX (Subdistrict)	009 -
	Ocala, FL	034 -		Laramie, WY (State)	005 -
	Raleigh, NC	024 -		Oklahoma City, OK	021 -
	Tampa, FL (Subdistrict)	007 -		Salt Lake City, UT	001 -
	Washington, DC	035 -		Topeka, KS (State Health)	027 -
MCR:	Baton Rouge, LA	014 -	PCR:	Anchorage, AK	016 -
	Columbus, OH	008 -		Honolulu, HI	002 -
	Little Rock, AR	020 -		Menlo Park, CA	010 -
	Tuscaloosa, AL	025 -			

STANDARD REFERENCE WATER SAMPLES NOS. 34 AND 35

Overall Laboratory Performance--Thirty-one Determinations

Rating: 3 (highest) $D_i \leq 0.76 D_a$ 1 (satisfactory) $1.60 D_a < D_i \leq 3.05 D_a$
 2 (satisfactory) $0.76 D_a < D_i \leq 1.60 D_a$ 0 (unacceptable) $D_i > 3.05 D_a$
 where, D_i =individual % deviation of lab i, and D_a =average % deviation of all labs

ND = Not Determined

Laboratory	Sample No. 34															Sample No. 35															Overall Average		
	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss. Solids	Spec. Cond.	pH	Sr	As	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss. Solids	Spec. Cond.	pH		Sr	
ATLANTIC COAST REGION																																	
Albany	2	2	3	2	3	2	3	3	3	2	3	2	3	3	3	1	2	1	3	2	3	2	3	3	3	1	3	3	2	1	1	2.35	
Atlanta (State)	ND	2	3	0	3	0	0	0	2	3	2	2	2	2	ND	1	ND	2	2	1	3	2	2	0	1	3	3	2	3	2	ND	1.78	
Charlottesville	2	3	3	3	3	3	3	3	3	3	2	3	1	3	ND	3	3	3	2	2	3	2	2	3	3	2	2	3	2	ND	2.62		
Fort Buchanan	2	3	2	3	0	0	0	3	3	3	2	ND	3	2	1	2	3	3	2	1	3	1	2	1	2	2	2	ND	3	2	1	1.97	
Harrisburg	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	2.94	
Miami (Subdist.)	ND	ND	ND	ND	ND	0	3	ND	2	ND	ND	ND	2	2	ND	ND	ND	ND	ND	ND	ND	2	1	ND	3	ND	ND	ND	3	1	ND	1.90	
Ocala	2	1	2	3	3	3	3	3	3	1	3	1	2	3	1	3	3	3	3	2	3	3	3	3	3	2	2	0	3	3	3	2.45	
Raleigh	3	3	3	3	0	3	3	3	1	3	3	2	1	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3	2	3	2.61	
Tampa (Subdist.)	ND	3	ND	ND	ND	3	0	0	2	3	ND	ND	2	2	ND	ND	ND	3	ND	ND	ND	3	2	0	1	3	ND	ND	2	1	ND	1.88	
Washington, DC	3	3	3	3	3	3	3	3	1	3	2	2	2	2	3	1	3	3	2	3	3	3	3	3	2	3	3	2	2	2	3	2.58	

OVERALL RATING

Laboratory	Number of determinations	Outstanding (>2.30)	Satisfactory (1.80 to 2.30)	Unsatisfactory (<1.80)
Albany	31	X		
Atlanta (State)	27			X
Charlottesville	29	X		
Fort Buchanan	29		X	
Harrisburg	31	X		
Miami (Subdist.)	10		X	
Ocala	31	X		
Raleigh	31	X		
Tampa (Subdist.)	16		X	
Washington, DC	31	X		

STANDARD REFERENCE WATER SAMPLES NOS. 34 AND 35

Overall Laboratory Performance--Thirty-one Determinations

Rating: 3 (highest) $D_i \leq 0.76 D_a$ 1 (satisfactory) $1.60 D_a < D_i \leq 3.05 D_a$
 2 (satisfactory) $0.76 D_a < D_i \leq 1.60 D_a$ 0 (unacceptable) $D_i > 3.05 D_a$
 where, D_i =individual % deviation of lab i, and D_a =average % deviation of all labs

ND = Not Determined

Laboratory	Sample No. 34														Sample No. 35														Overall Average			
	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss.Solids	Spec.Cond.	pH	Sr	As	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss.Solids		Spec.Cond.	pH	Sr
Baton Rouge	3	2	1	2	2	1	3	3	3	3	2	3	3	3	ND	ND	2	2	3	2	2	3	3	3	3	2	3	2	3	3	ND	2.50
Columbus	2	2	0	3	3	2	3	3	2	3	1	2	2	3	3	3	3	3	2	3	3	3	1	3	3	3	2	1	1	3	3	2.39
Little Rock	0	3	3	3	1	3	3	3	3	0	2	1	3	2	1	2	1	3	3	3	1	3	3	3	1	1	3	2	2	2	1	2.10
Tuscaloosa	2	3	1	3	3	3	3	2	1	2	1	3	2	2	ND	ND	2	3	0	3	1	3	3	3	3	3	3	2	3	2	ND	2.32

OVERALL RATING

Laboratory	Number of determinations	Outstanding (>2.30)	Satisfactory (1.80 to 2.30)	Unsatisfactory (<1.80)
Baton Rouge	28	X		
Columbus	31	X		
Little Rock	31		X	
Tuscaloosa	28	X		

STANDARD REFERENCE WATER SAMPLES NOS. 34 AND 35

Overall Laboratory Performance--Thirty-one Determinations

Rating: 3 (highest) $D_i \leq 0.76 D_a$ 1 (satisfactory) $1.60 D_a < D_i \leq 3.05 D_a$
 2 (satisfactory) $0.76 D_a < D_i \leq 1.60 D_a$ 0 (unacceptable) $D_i > 3.05 D_a$
 where, D_i =individual % deviation of lab i, and D_a =average % deviation of all labs

ND = Not Determined

Laboratory	Sample No. 34														Sample No. 35														Overall Average					
	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss.Solids	Spec.Cond.	pH	Sr	As	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss.Solids		Spec.Cond.	pH	Sr		
ROCKY MOUNTAIN REGION																																		
Austin	3	3	3	2	3	3	3	3	3	2	3	3	3	1	3	3	3	2	3	3	2	3	2	3	3	3	3	3	2	3	3	2	3	2.71
Bismarck (State)	2	1	1	2	2	1	3	0	3	1	1	3	3	3	ND	ND	2	1	3	3	2	3	2	1	3	1	2	2	2	3	2	ND	2.00	
Brookings (State)	0	0	1	0	2	0	0	1	1	2	1	2	2	3	ND	ND	1	0	0	1	1	0	0	0	1	3	3	2	1	3	ND	1.11		
Butte (State)	0	2	3	3	1	3	0	3	3	3	2	3	2	2	ND	0	2	3	1	2	0	2	3	2	2	1	2	2	1	2	1.90			
Ft. Worth (Subdist.)	2	1	1	ND	ND	1	3	3	2	2	2	ND	3	3	ND	ND	2	2	3	ND	ND	1	3	3	3	2	2	ND	3	2	ND	2.23		
Houston (Subdist.)	1	2	2	ND	ND	2	3	3	3	3	3	1	1	1	ND	ND	3	2	3	ND	ND	3	1	3	2	3	2	ND	1	1	ND	2.13		
Laramie (State)	2	1	3	2	3	3	3	2	0	3	2	2	3	3	3	ND	0	2	3	3	1	2	2	3	1	3	1	3	0	2	3	2.13		
Oklahoma City	2	2	1	3	1	3	3	2	3	2	2	3	3	3	2	ND	3	1	2	2	3	1	1	3	2	3	2	3	3	1	2	2.23		
Salt Lake City	1	3	3	3	3	2	3	0	3	2	2	3	3	3	3	2	3	1	2	2	2	2	0	1	3	2	0	3	3	1	3	2.16		
Topeka (St. Health)	1	3	2	2	3	3	3	2	1	3	2	1	3	3	1	2	3	2	3	2	1	3	3	3	1	2	2	1	2	2	2	2.16		

OVERALL RATING

Laboratory	Number of determinations	Outstanding (>2.30)	Satisfactory (1.80 to 2.30)	Unsatisfactory (<1.80)
Austin	31	X		
Bismarck (State)	28		X	
Brookings (State)	28			X
Butte (State)	30		X	
Ft. Worth (Subdist.)	22		X	
Houston (Subdist.)	23		X	
Laramie (State)	30		X	
Oklahoma City	30		X	
Salt Lake City	31		X	
Topeka (St. Health)	31		X	

STANDARD REFERENCE WATER SAMPLES NOS. 34 AND 35

Overall Laboratory Performance--Thirty-one Determinations

Rating: 3 (highest) $D_i \leq 0.76 D_a$ 1 (satisfactory) $1.60 D_a < D_i \leq 3.05 D_a$
 2 (satisfactory) $0.76 D_a < D_i \leq 1.60 D_a$ 0 (unacceptable) $D_i > 3.05 D_a$
 where, D_i =individual % deviation of lab i, and D_a =average % deviation of all labs

ND = Not Determined

Laboratory	Sample No. 34															Sample No. 35															Overall Average		
	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss.Solids	Spec.Cond.	pH	Sr	As	SiO ₂	Ca	Mg	Na	K	HCO ₃	CO ₃	SO ₄	Cl	F	NO ₃ -N	Diss.Solids	Spec.Cond.	pH		Sr	
PACIFIC COAST REGION																																	
Anchorage	1	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	2	0	3	3	3	1	2	1	3	1	3	3	1	2	3	2.39	
Honolulu	3	1	3	2	3	3	3	3	1	2	3	2	3	0	0	ND	2	1	2	3	3	2	2	3	1	2	1	3	0	2	0	1.97	
Menlo Park	3	1	3	0	3	3	0	2	3	3	1	2	2	2	ND	ND	2	3	1	3	2	3	3	1	3	2	2	3	2	1	ND	2.11	

OVERALL RATING

Laboratory	Number of determinations	Outstanding (>2.30)	Satisfactory (1.80 to 2.30)	Unsatisfactory (<1.80)
Anchorage	31	X		
Honolulu	30		X	
Menlo Park	28		X	



United States Department of the Interior

GEOLOGICAL SURVEY
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:

FEB 3 1972

Water Resources Division
Building 25, Room 2433

MEMORANDUM

To: Chief, Quality of Water Branch, WRD
Washington, DC Code: 4300 6016

Subject: WATER ANALYSIS: Standard reference water samples
Numbers 34 and 35

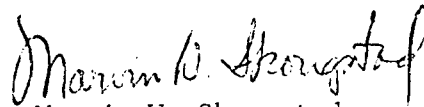
This memorandum serves to transmit a report on the subject samples which were analyzed last month by 21 participating Division laboratories and by 13 non-Survey laboratories.

A copy of the report is being sent to the following:

1. District Chief of each District in which a participating laboratory or laboratories are located (22)
2. Chief Chemist or Chemist-in-Charge of each participating Division laboratory (21)
3. Regional Hydrologists (4)
4. Chief Hydrologist
5. Assistant Chief Hydrologist for Research and Technical Coordination
6. Each participating non-Survey laboratory (13)
7. QW Advisory Committee members

A limited supply of extra copies is available.

A summary evaluation of comparative laboratory performance will be prepared and submitted for your information and consideration.


Marvin W. Skougstad
Research Hydrologist

Enclosure