ADDENDUM 1

WASTE ISOLATION PILOT PLANT
RCRA BACKGROUND GROUNDWATER QUALITY
BASELINE UPDATE REPORT

Prepared for:

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1.0 Introduction

The Waste Isolation Pilot Plant (WIPP) has been collecting groundwater quality data from a network of monitoring wells around the site for several years. These wells were installed to meet the groundwater monitoring requirements set forth by the Resource Conservation and Recovery Act (RCRA) operating permit issued by the New Mexico Environment Department (NMED). WIPP has collected 10 separate rounds of groundwater-quality data from the well network as of May, 2000. WIPP originally anticipated receiving RCRA regulated mixed waste at the facility after the initial five sampling rounds were completed. Based on the original schedule for waste receipt, WIPP completed an initial background-baseline water quality assessment in April, 1998. That document (Crawley and Nagy, 1998) statistically evaluated water chemistry from WIPP monitoring wells and defined chemical parameter distributions and basic descriptive statistics. The original background study was based on a very limited data set derived from only the first five rounds of sampling. Since that original assessment was conducted, WIPP has collected five additional rounds of water-quality samples. All 10 of these sample rounds were collected prior to the receipt of any RCRA regulated waste.

The initial five sampling rounds were analyzed by the same contract laboratory. The original laboratory, Ross Analytical, was capable of performing very accurate analyses of WIPP brine groundwater samples. That laboratory produced very consistent and representative results. Two separate contract laboratories performed analyses on WIPP groundwater during round six. The new contract analytical laboratory that began analyzing WIPP groundwater samples during the middle of round six has performed all analyses through the present round 10. As apparent from the time-trend data plots included in this addendum, the reported concentrations for many parameters became more variable with greater ranges after the latest laboratory began analysis of groundwater samples. Reported concentrations for numerous parameters during all sampling rounds subsequent to round 5 often exceeded the original baseline maximum values. Due to the more variable nature of parameter concentrations reported for the later sampling rounds, WIPP has elected to update and expand the original groundwater quality baseline to include the additional data from rounds six through 10. These additions have at least doubled the number of background observations and have more accurately defined the concentration range for each chemical parameter. The new baseline is much more representative of the background population for all constituents than the original 1998 version and includes the variability produced by different laboratories performing analyses.

2.0 Report Content and Structure

The results of the updated baseline are presented here as an addendum to the formal baseline report of 1998. The specific information describing well construction, sampling methodology, well network configuration, and analytical parameter lists are presented in detail in the main body of the original report. This addendum only presents the new recalculated descriptive statistics for all inorganic parameters and graphic representations

of the historical data with expected concentration ranges for many of the parameters. Box-whisker-time trend charts in this addendum were prepared only for those constituents that exhibited distributions that were determined to be other than nonparametric (normal or lognormal). No graphic or tabular data are presented for the manmade organic parameters, as all organic constituents were 100 percent non-detect, with no concentrations or distributions to report. The list of organic parameters and previous non-detect values and detection limits for previous rounds are available in the original baseline report.

This addendum contains individual sections for each well containing tables and graphics showing the basic descriptive summary statistics for general chemistry parameters, major cations and anions, and metals. These summary statistics presented in the tables for each well include:

- Chemical parameter
- Number of samples (N)
- Percent nondetect (ND)
- Distribution type
- Minimum
- Maximum
- Median
- Mean
- Standard Deviation
- 95^{th} Percentile-as appropriate for distribution type
- 95^{th} UTL-as appropriate for distribution type

Each individual well section also includes box-whisker type plots showing parameter concentration median, maximum and minimum concentrations, and 75% and 25% concentration margins for the full 10 sample rounds and their duplicates, as available, combined into a single data set. These plots also show the actual concentration of each sample and its' duplicate, as a historical time-trend plot along side of the box-whisker diagram. There are individual figure plots for each metal, general chemistry parameter, and major cation and anion.

In addition to creating a more representative concentration range for each parameter, the effect of the three individual laboratory analytical techniques is represented in the updated baseline. Different laboratories generally have different analytical equipment and operating techniques. Such fundamental differences routinely produce variable analytical results for the same sample, or analytical flux. This is another important aspect of updating the original baseline to include all 10 rounds. It is reasonable to expect that there will be other contracted analytical laboratories performing analyses for the WIPP Detection Monitoring Program in the future. Review of historical water-quality analytical data from the original monitoring program at WIPP clearly demonstrates that different analytical laboratories experienced individual and unique difficulties analyzing WIPP brine groundwaters. History has also shown that as any particular laboratory gains experience with these brines, the accuracy and repeatability of analyses for metals and other constituents improves. A large part of the variability in constituent concentration through time is a reflection of the different laboratories involved in the analytical program.

3.0 Suspect Data Points and Deletions

For the most part, all of the new data from rounds six through 10 were combined with the existing data and included in calculations for the new baseline. However, there were a few very obviously false data points that were excluded from the time-trend box-whisker plots so as to not completely misrepresent the real data distributions. For example, the calcium analysis for well WQSP-1, Round 8, had the main sample concentration reported as 1,770 mg/l while the sample duplicate was reported as <0.50 mg/l. Round 8 had several instances where the duplicate analyses for various cations were reported as less than the minimum detection limit for the analysis, suggesting that the laboratory analyzed a blank sample as the duplicate. No reanalysis was performed for these duplicate samples. Table 1 summarizes the specific data points that were deleted from the new baseline evaluation.

Table 1
Suspect Analytical Results Deleted from the Updated Background Baseline Analysis

Well Number	Chemical Parameter	Sampling Round
WQSP-1	Calcium (Duplicate)	Round 8
WQSP-1	Magnesium (Duplicate)	Round 8
WQSP-1	Potassium (Duplicate)	Round 8
WQSP-1	Sodium (Duplicate)	Round 8
WQSP-2	Magnesium (Duplicate)	Round 8
WQSP-2	Potassium (Duplicate)	Round 8
WQSP-2	Sodium (Duplicate)	Round 8
WQSP-6	TDS (Sample-Duplicate)	Round 1
WQSP-6A	Chloride (Sample-Duplicate)	Round 3
WQSP-1	TDS (Original Analysis)	Round 10

Table **
Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP1
concentrations in mg/L unless otherwise stated

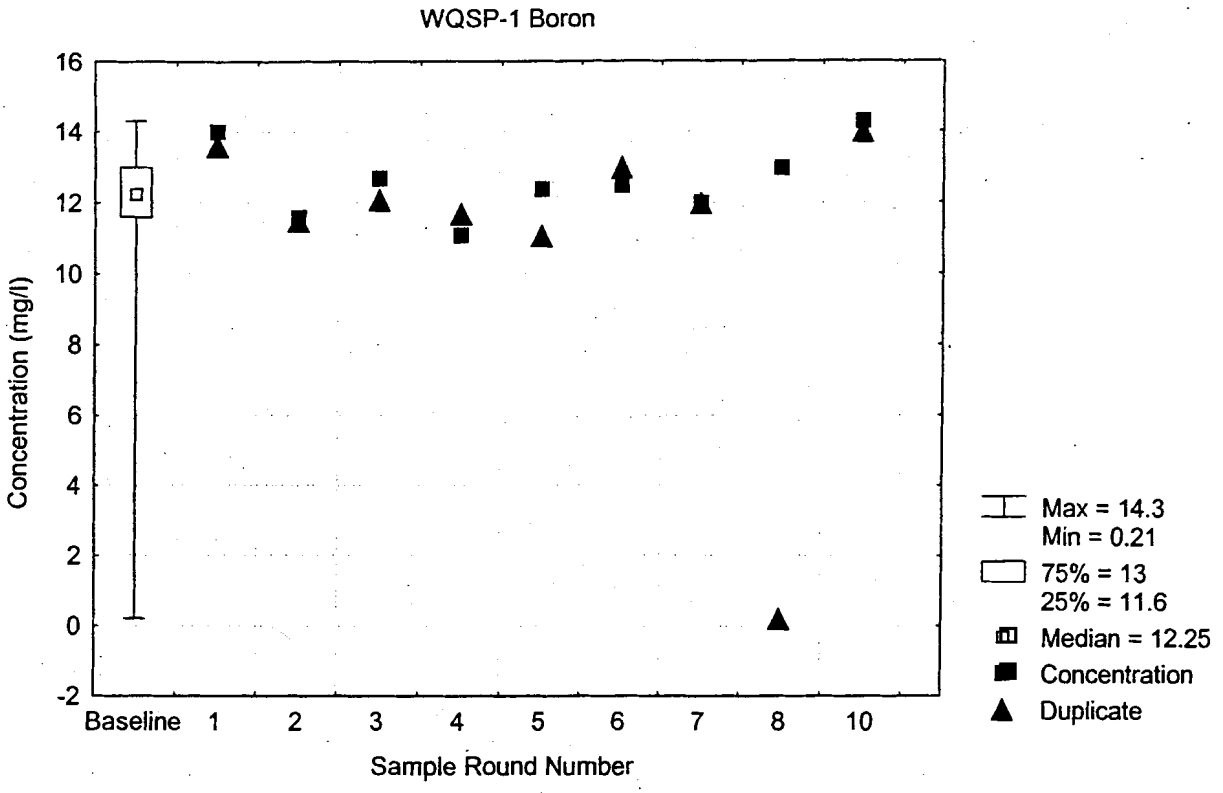
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	18	0	Lognormal	46.0	55.0	50.0	49.8	2.32	55.0	55.8
BORON	18	0	Lognormal	0.2	14.3	12.3	11.8	3.06	14.3	19.3
BROMIDE	18	0	Lognormal	29.0	45.1	41.5	40.0	4.69	45.1	54.4
CALCIUM	21	0	Normal	1410	2160	1710	1716	156	2030	2087
CHLORIDE	20	0	Normal	33000	40000	34750	35345	2140	40000	40472
CYANIDE	4	75	Nonparametric	<0.01	0.011	<0.01	<0.01	0.003	0.011	NA
DENSITY (g/mL)	18	NA	Normal	1.04	1.06	1.05	1.05	0.01	1.06	1.07
FLUORIDE	20	30	Nonparametric	<1.0	4.36	1.20	1.56	1.07	4.33	NA
IODIDE	18	89	Nonparametric	0.09	<2.0	<2.0	0.90	0.29	<2.0	NA
LITHIUM	20	0	Lognormal	0.010	0.526	0.398	0.385	0.103	0.517	2.47
NITROGEN, NO3 (AS N)	18	94	Nonparametric	<0.01	<10.0	<0.2	1.956	2.404	<10.0	NA
ORTHOPHOSPHATE (AS P)	18	94	Nonparametric	<0.01	<0.1	<0.02	0.01	0.01	<0.1	NA
pH (SU)	20	NA	Lognormal	5.40	7.44	7.22	7.07	0.52	7.43	5.6-8.8
SILICA	18	0	Lognormal	0.80	17.90	10.25	9.75	4.04	17.90	44.7
SODIUM	17	0	Lognormal	16234	20100	18500	18490	1318	20100	22090
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Lognormal	38700	130000	84900	88423	22473	130000	175000
SULFATE	20	0	Normal	4260	5600	4780	4830.00	387	5545	5757
SULFIDE	4	100	Nonparametric	<1.5	<1.5	<1.5	<1.5	--	<1.5	NA
TOTAL DISS SOLIDS	18	0	Lognormal	57000	77600	66650	66289	5466	77600	80700
TOTAL ORGANIC CARBON	20	40	Nonparametric	<0.5	<5.0	0.95	1.20	0.75	<5.0	NA
TOTAL ORGANIC HALOGENS	20	15	Nonparametric	<0.01	20.0	0.040	2.8	5.2	14.6	NA
TOTAL PHENOLS	15	100	Nonparametric	<0.01	<0.07	<0.01	0.017	0.015	<0.07	NA
TOTAL SUSP SOLIDS	20	55	Nonparametric	<1.0	33.5	<10.0	11.7	12.4	33.3	NA

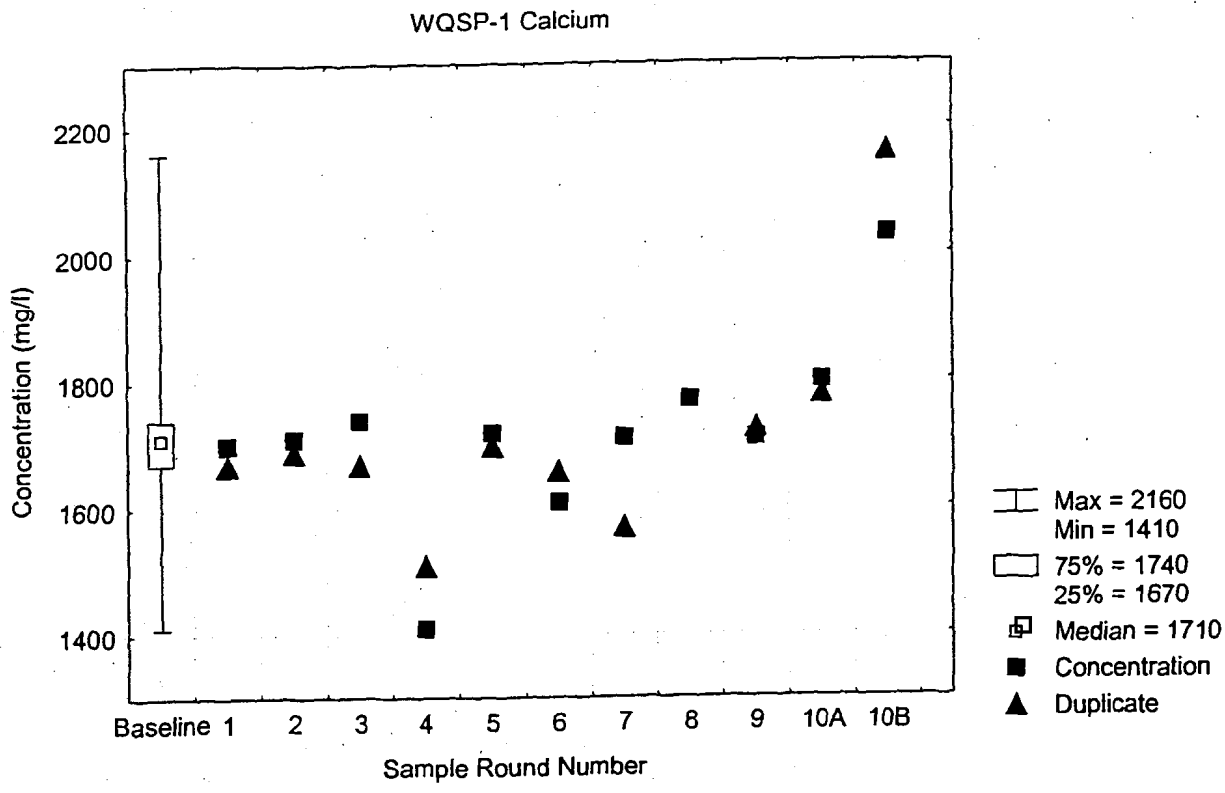
Table **

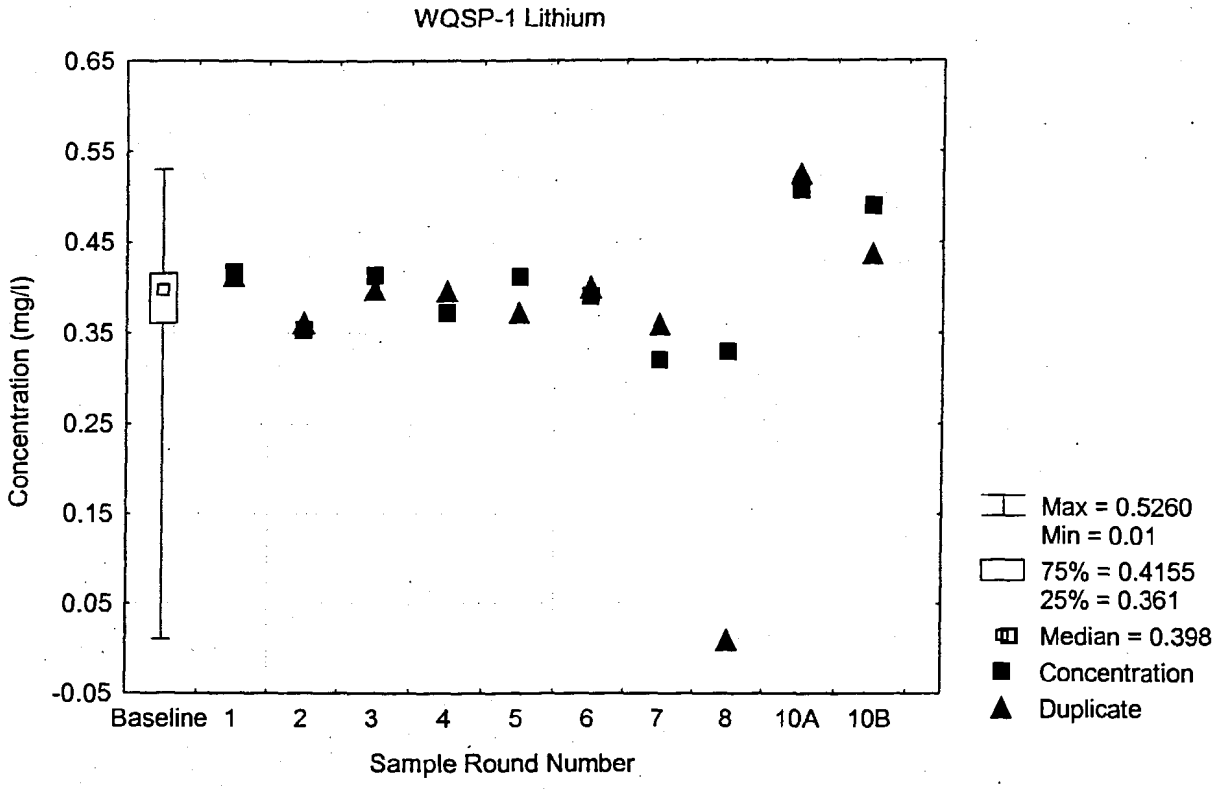
Summary Statistics for Metals at WIPP Monitoring Well WQSP1

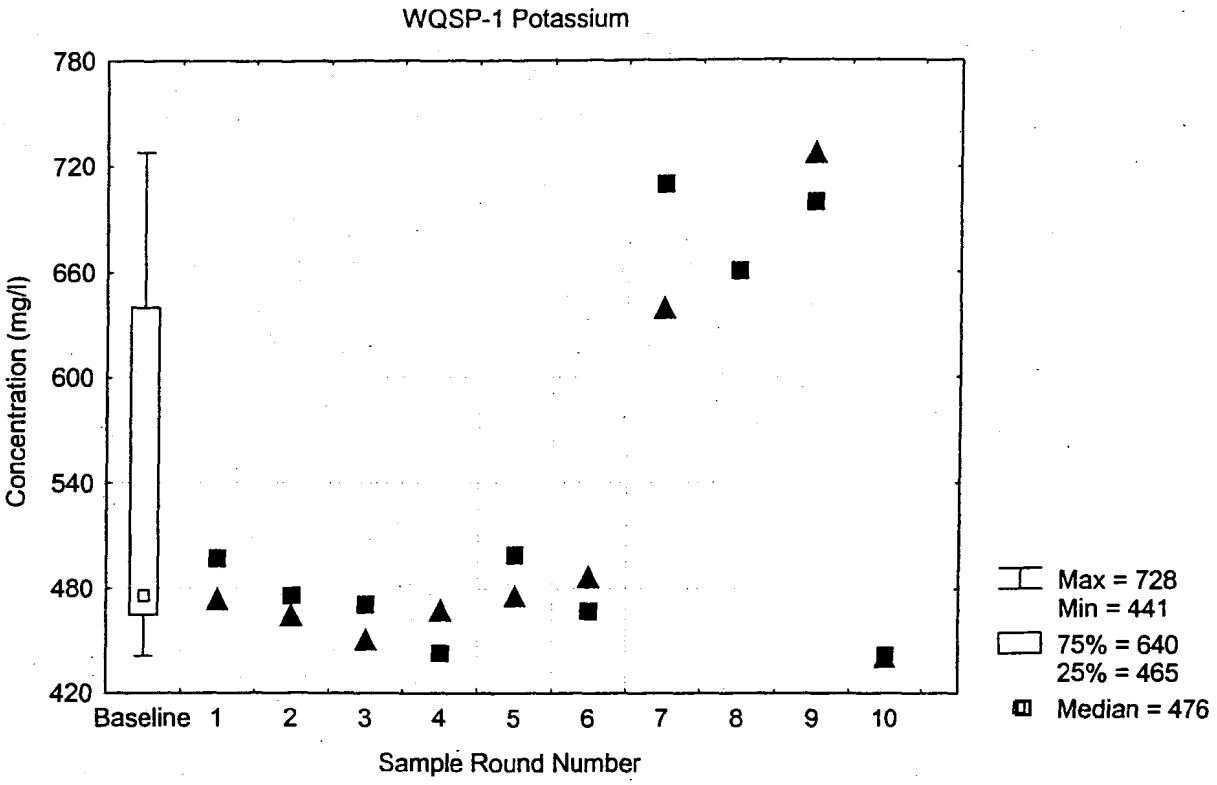
concentrations in mg/L unless otherwise stated

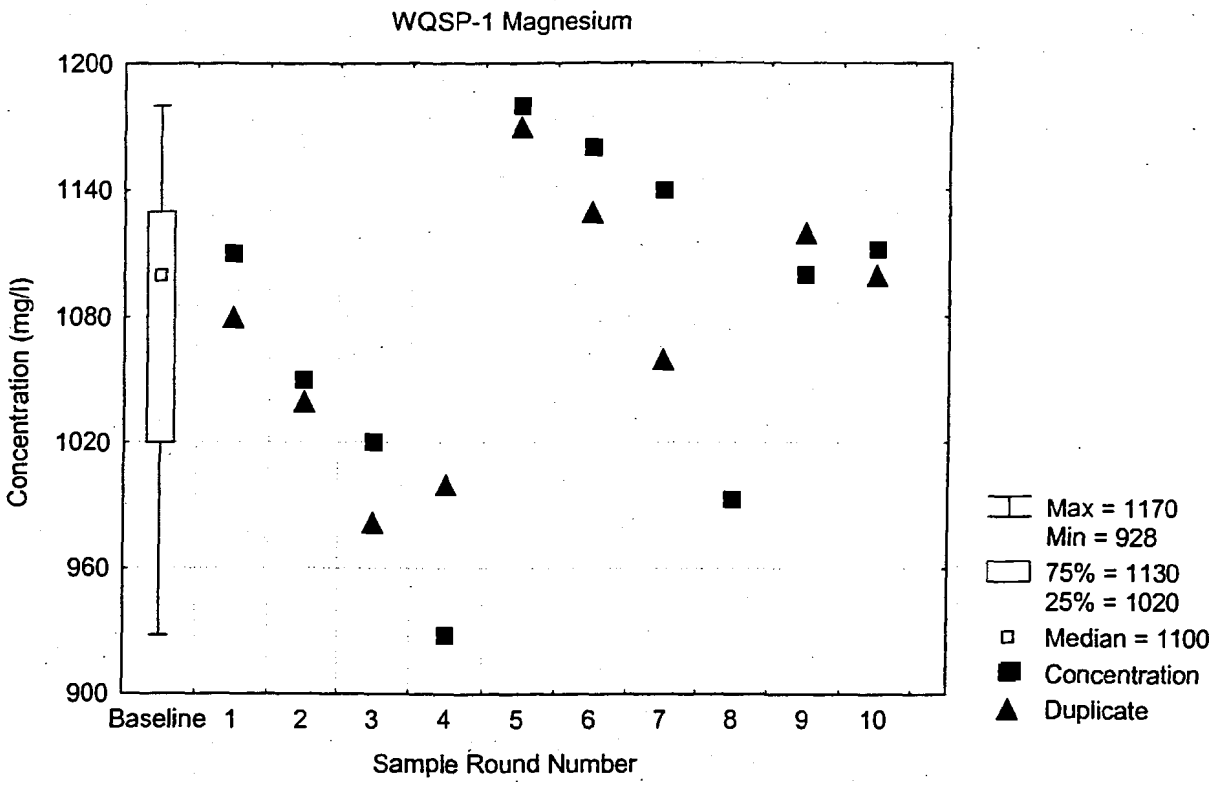
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	15	73	Nonparametric	<0.013	0.330	<0.05	0.075	0.104	0.330	NA
ARSENIC	17	100	Nonparametric	<0.001	<0.1	<0.05	0.024	0.018	<0.1	NA
BARIUM	16	56	Nonparametric	<0.02	<1.0	0.028	0.090	0.161	<1.0	NA
BERYLLIUM	16	88	Nonparametric	<0.0025	<0.02	<0.01	0.005	0.003	<0.02	NA
CADMIUM	17	100	Nonparametric	<0.0013	<0.2	<0.01	0.018	0.032	<0.2	NA
CHROMIUM	16	94	Nonparametric	<0.0025	<0.5	<0.05	0.051	0.079	<0.5	NA
COBALT	12	67	Nonparametric	<0.01	0.110	<0.05	0.032	0.032	0.110	NA
COPPER	12	75	Nonparametric	<0.013	<1.0	0.047	0.121	0.179	<1.0	NA
IRON	20	90	Nonparametric	<0.1	1.320	<0.5	0.299	0.277	0.910	NA
LEAD	18	89	Nonparametric	<0.0013	0.105	<0.05	<0.05	0.026	0.105	NA
MAGNESIUM	19	0	Normal	928	1180	1100	1078	70	1180	1247
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.0002	0.0004	0.0004	<0.002	NA
NICKEL	14	64	Nonparametric	0.004	0.490	<0.1	0.092	0.146	0.490	NA
POTASSIUM	19	0	Lognormal	441	728	476	526	102	728	799
SELENIUM	15	87	Nonparametric	<0.01	0.150	<0.013	0.026	0.038	0.150	NA
SILVER	16	94	Nonparametric	<0.0025	<0.5	<0.05	0.045	0.081	<0.5	NA
THALLIUM	16	75	Nonparametric	<0.013	0.980	<0.05	0.146	0.275	0.980	NA
TIN	12	83	Nonparametric	0.0125	0.460	<0.1	0.098	0.142	0.460	NA
VANADIUM	12	100	Nonparametric	<0.01	<0.1	<0.1	0.033	0.021	<0.1	NA
ZINC	12	100	Nonparametric	<0.05	<5.0	<0.2	0.473	0.947	<5.0	NA

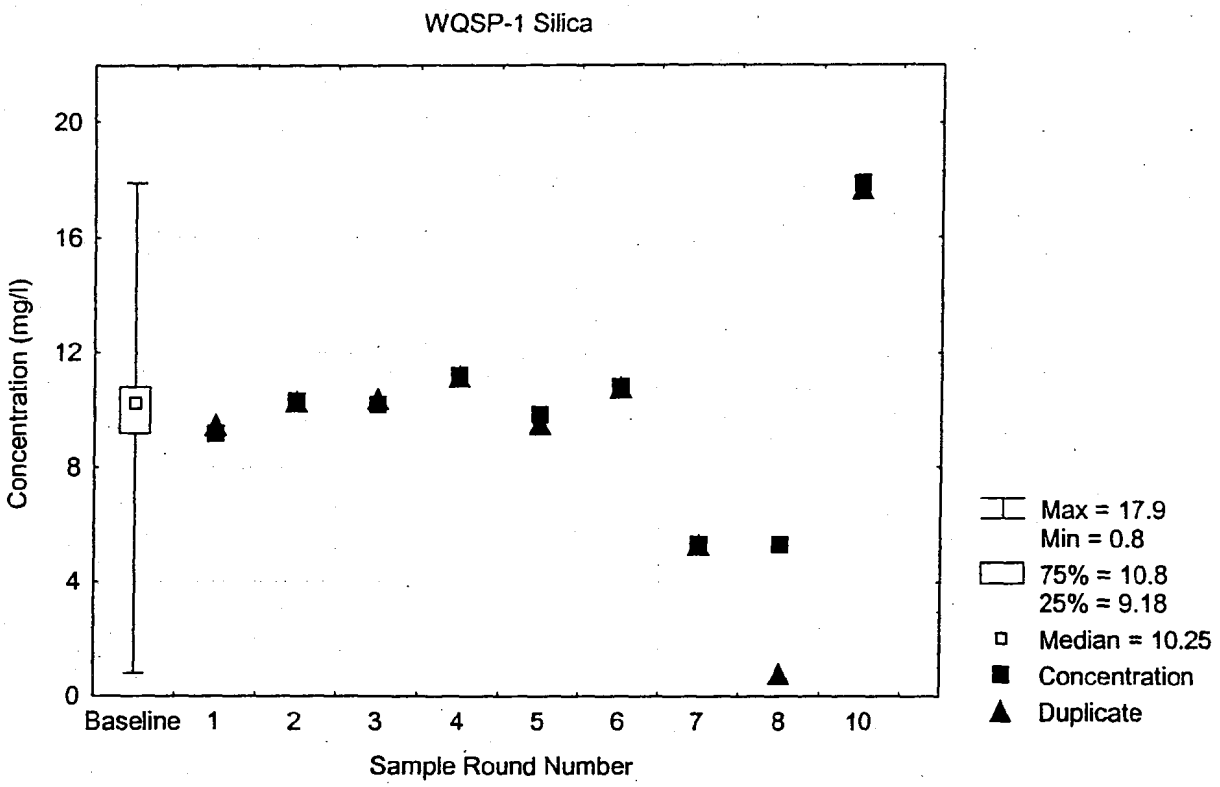

WQSP-1 Boron
Concentration (mg/l)
16
14
12
10
8
6
4
2
0
-2
Baseline
1
2
3
4
5
6
7
8
10
Sample Round Number
Max = 14.3
Min = 0.21
75% = 13
25% = 11.6
Median = 12.25
Concentration
Duplicate

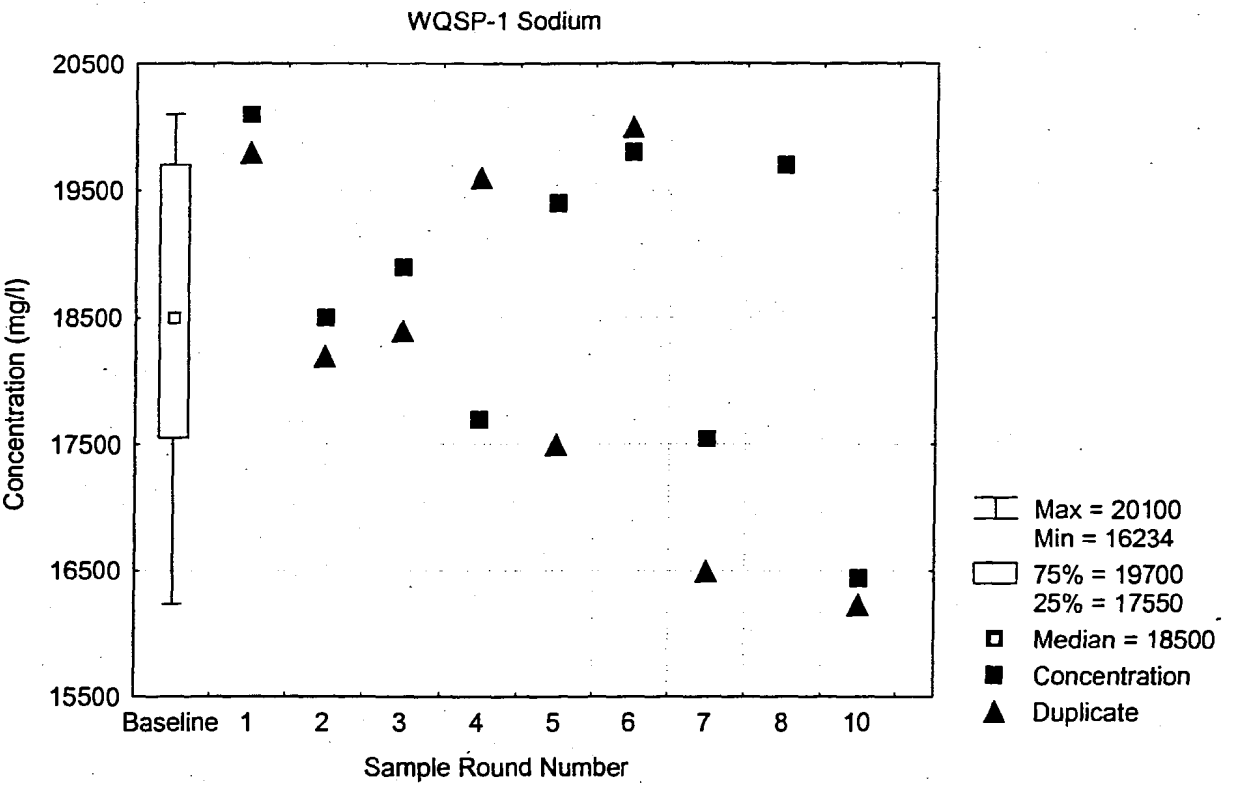

WQSP-1 Calcium
Concentration (mg/l)
2200
2000
1800
1600
1400
Baseline 1 2 3 4 5 6 7 8 9 10A 10B
Sample Round Number
Max = 2160
Min = 1410
75% = 1740
25% = 1670
Median = 1710
Concentration
Duplicate

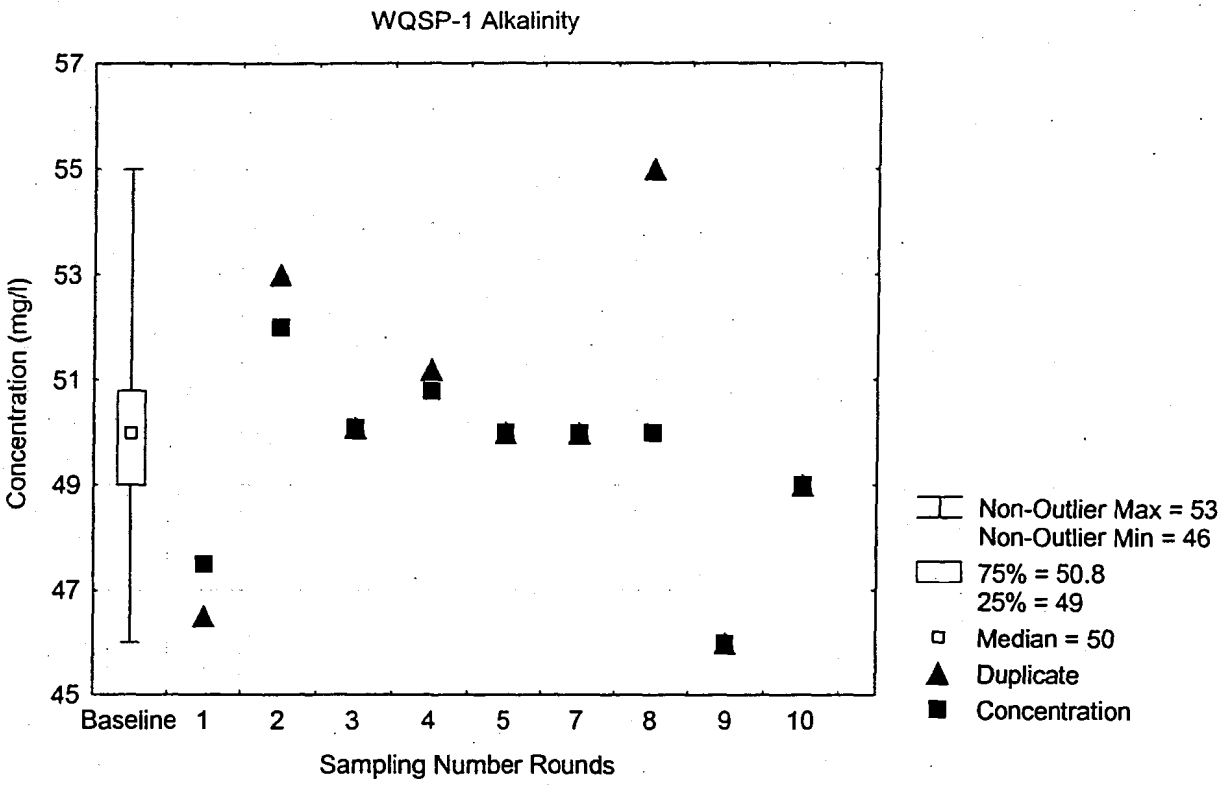

WQSP-1 Lithium
0.65
0.55
0.45
0.35
0.25
0.15
0.05
-0.05
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
10A
10B
Sample Round Number
Max = 0.5260
Min = 0.01
75% = 0.4155
25% = 0.361
Median = 0.398
Concentration
Duplicate

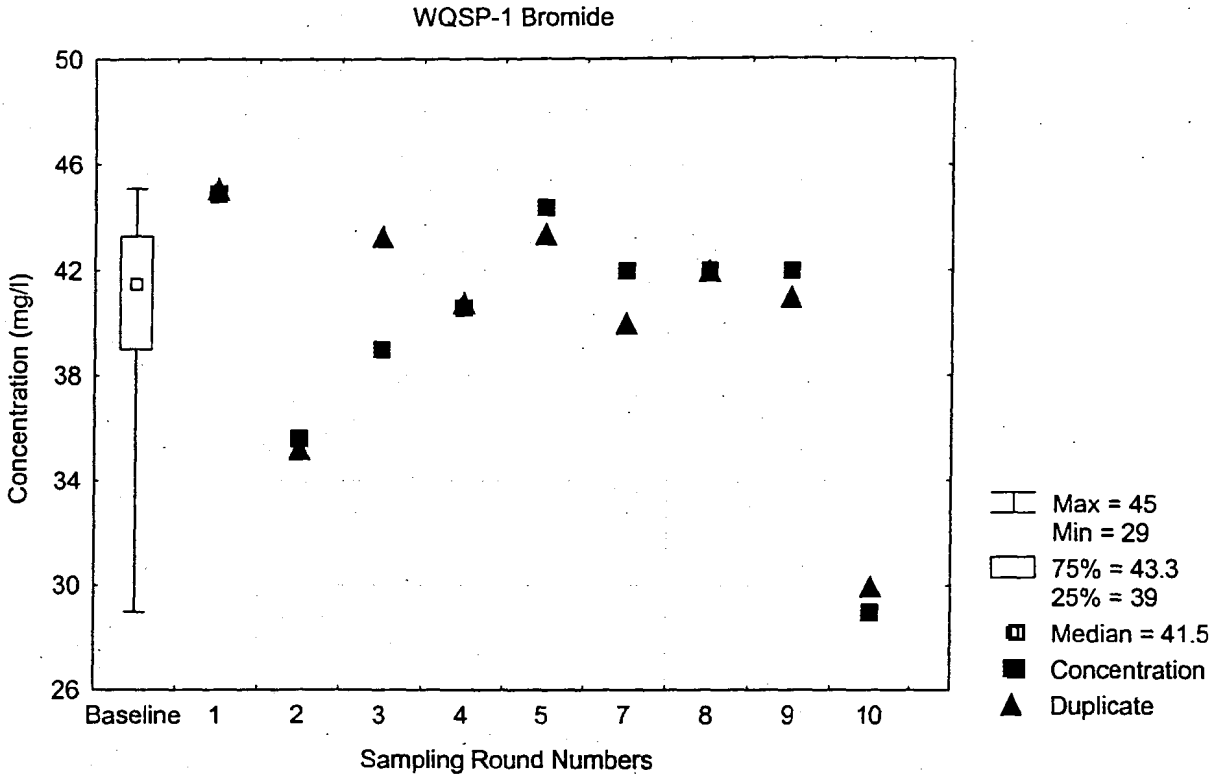

WQSP-1 Potassium
780
720
660
600
540
480
420
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 728
Min = 441
75% = 640
25% = 465
Median = 476

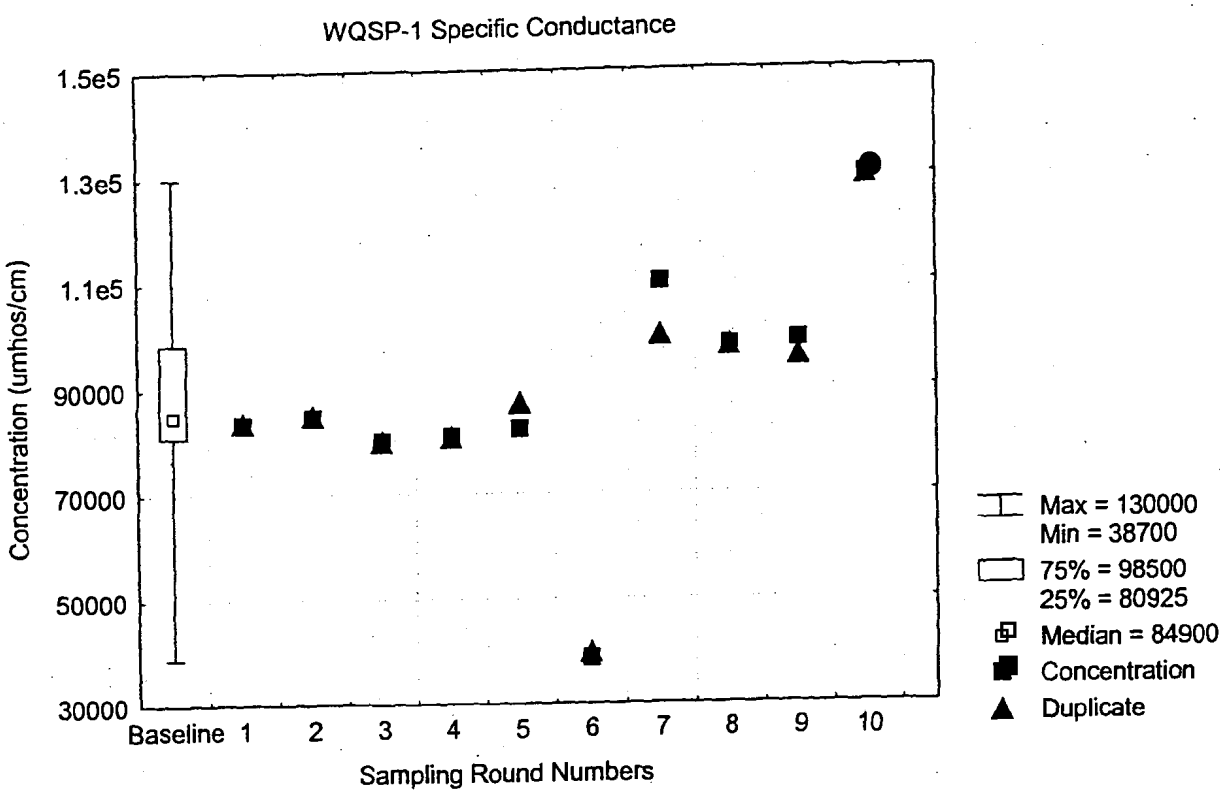

WQSP-1 Magnesium
1200
1140
1080
1020
960
900
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 1170
Min = 928
75% = 1130
25% = 1020
Median = 1100
Concentration
Duplicate

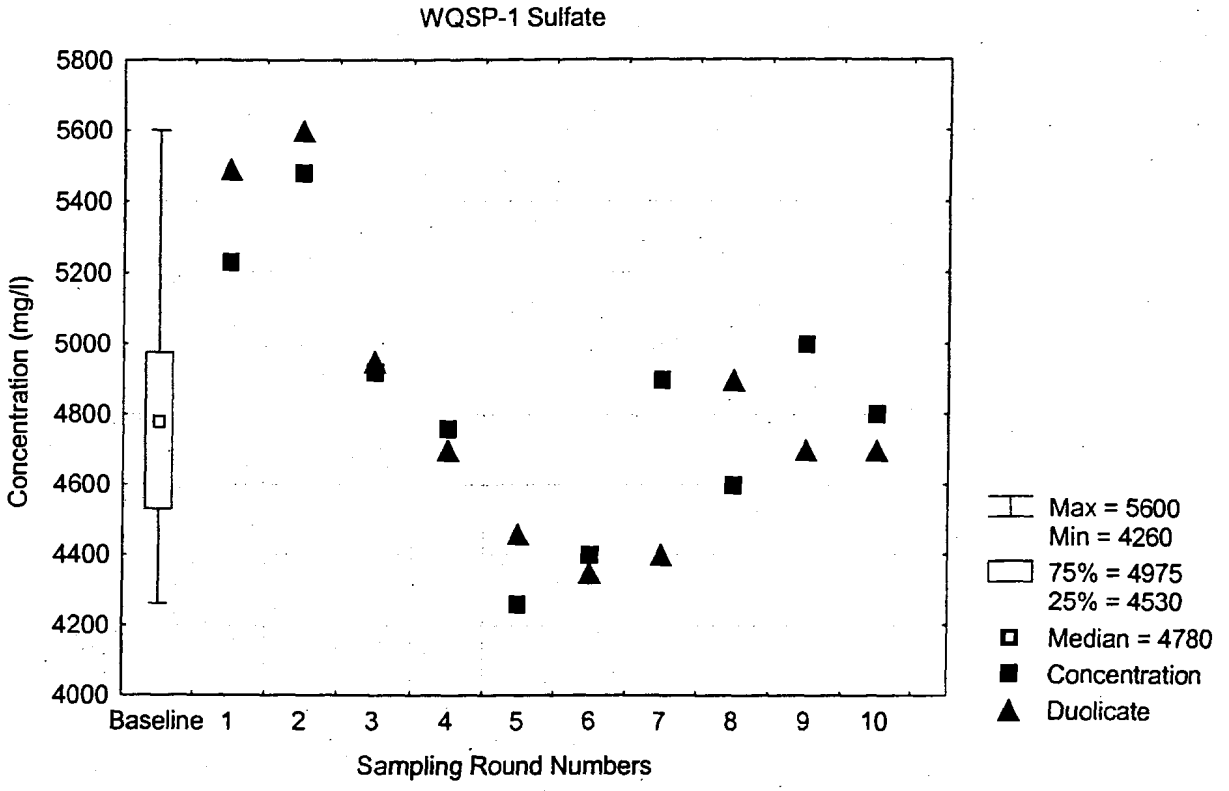

WQSP-1 Silica
Concentration (mg/l)
0
4
8
12
16
20
Baseline
1
2
3
4
5
6
7
8
10
Sample Round Number
Max = 17.9
Min = 0.8
75% = 10.8
25% = 9.18
Median = 10.25
Concentration
Duplicate

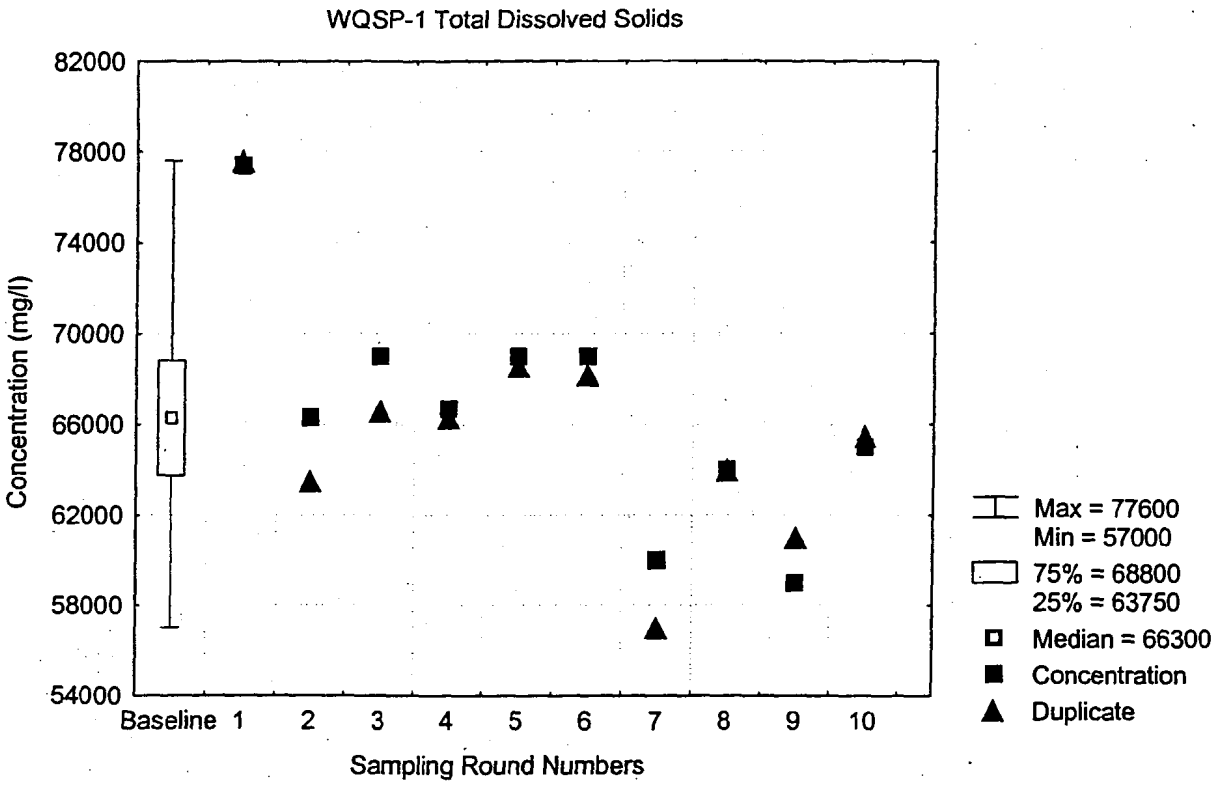

WQSP-1 Sodium
20500
19500
18500
17500
16500
15500
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
10
Sample Round Number
Max = 20100
Min = 16234
75% = 19700
25% = 17550
Median = 18500
Concentration
Duplicate

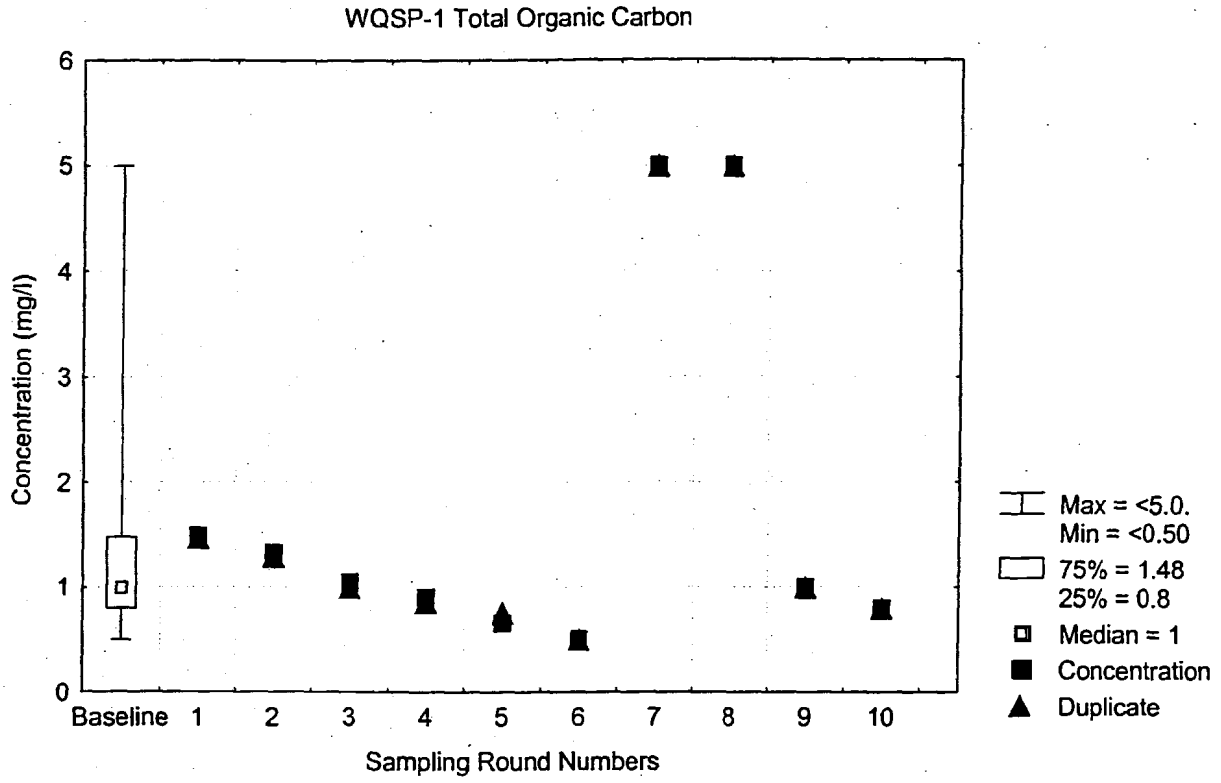

WQSP-1 Alkalinity
Concentration (mg/l)
57
55
53
51
49
47
45
Baseline
1
2
3
4
5
7
8
9
10
Sampling Number Rounds
Non-Outlier Max = 53
Non-Outlier Min = 46
75% = 50.8
25% = 49
Median = 50
Duplicate
Concentration

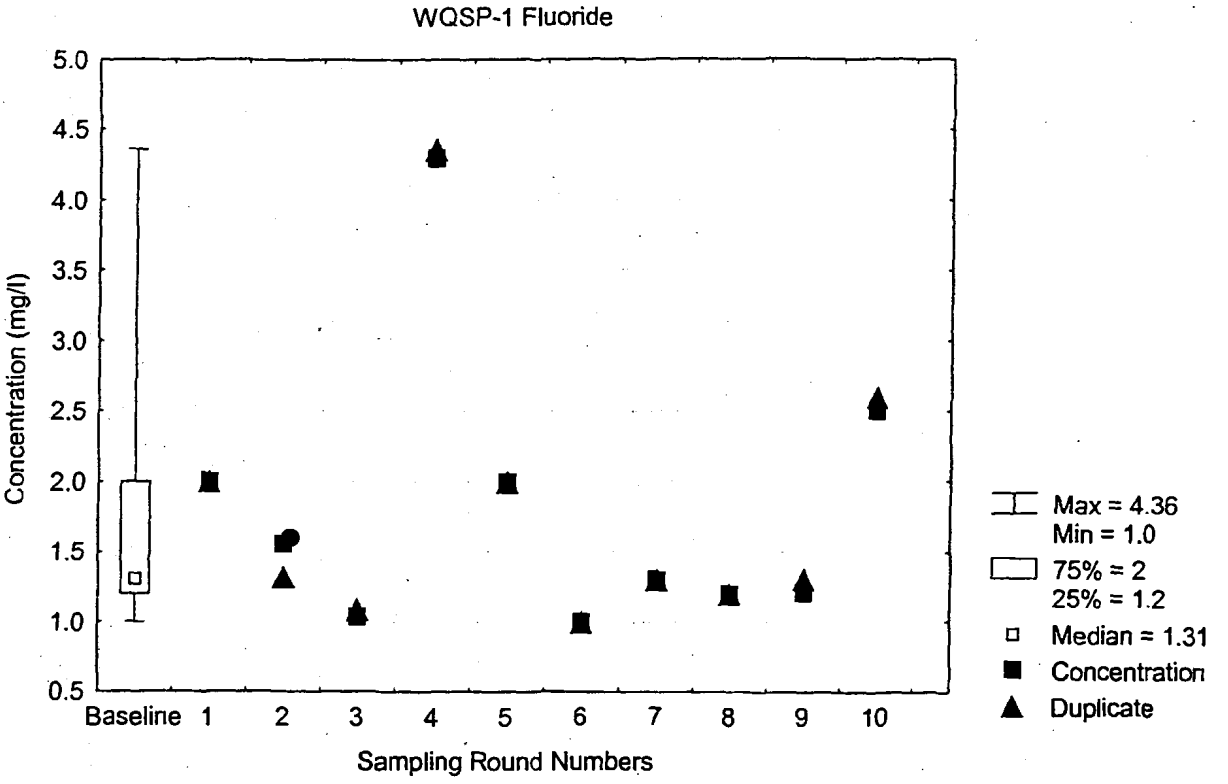

WQSP-1 Bromide
Concentration (mg/l)
50
46
42
38
34
30
26
Baseline
1
2
3
4
5
7
8
9
10
Sampling Round Numbers
Max = 45
Min = 29
75% = 43.3
25% = 39
Median = 41.5
Concentration
Duplicate

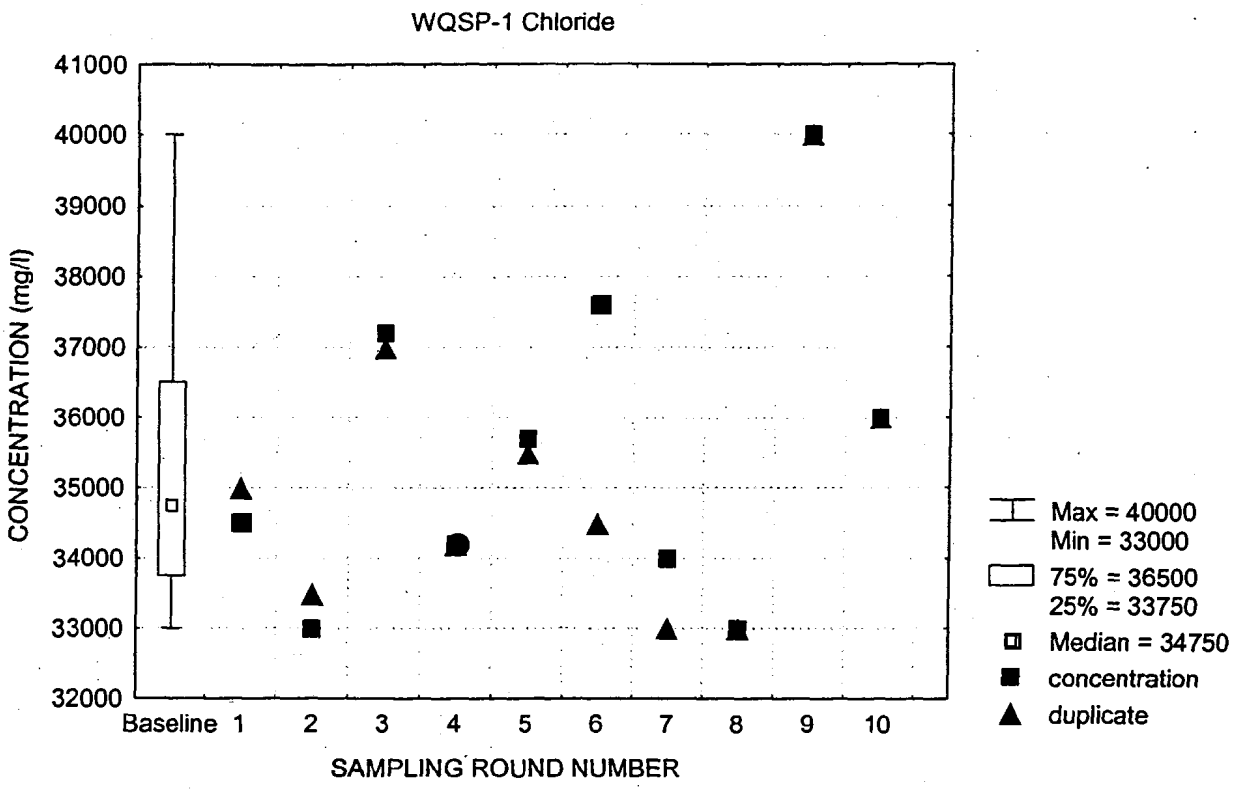

WQSP-1 Specific Conductance
1.5e5
1.3e5
1.1e5
90000
70000
50000
30000
Concentration (umhos/cm)
Baseline 1 2 3 4 5 6 7 8 9 10
Sampling Round Numbers
Max = 130000
Min = 38700
75% = 98500
25% = 80925
Median = 84900
Concentration
Duplicate

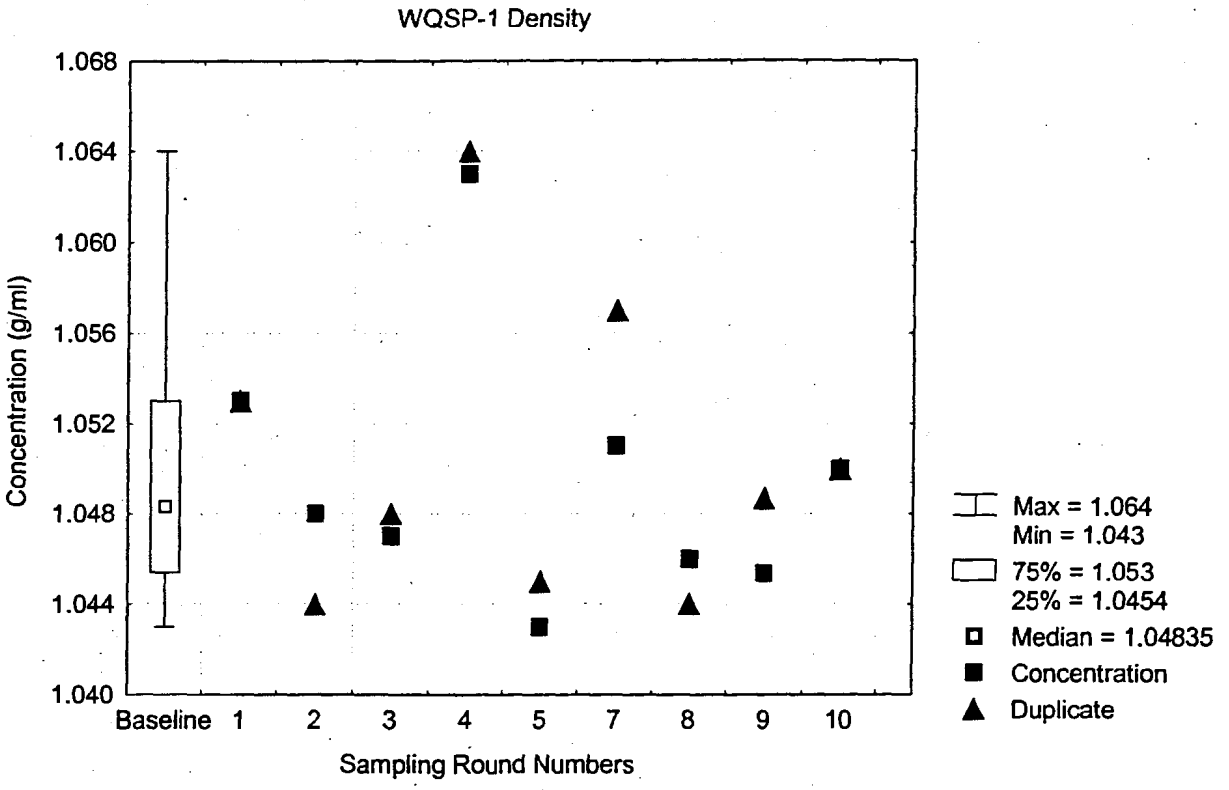

WQSP-1 Sulfate
Concentration (mg/l)
5800
5600
5400
5200
5000
4800
4600
4400
4200
4000
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Numbers
Max = 5600
Min = 4260
75% = 4975
25% = 4530
Median = 4780
Concentration
Duolicate

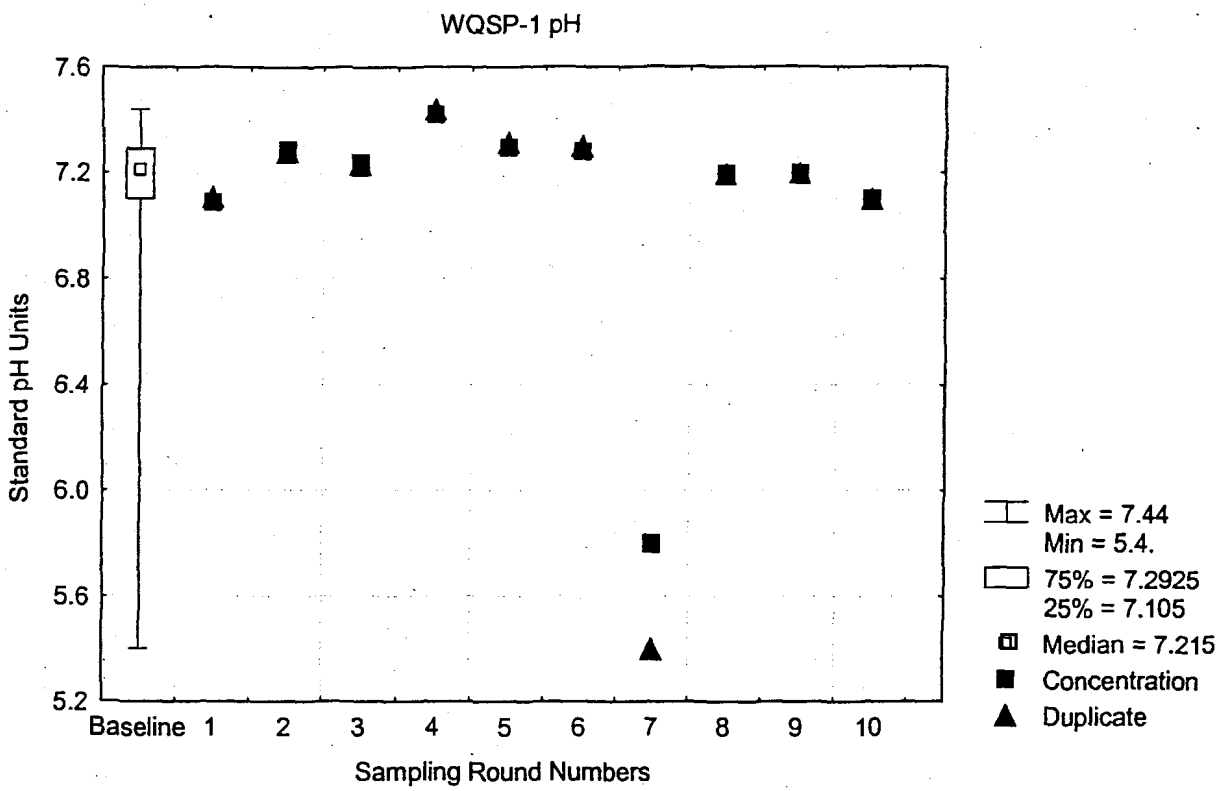

WQSP-1 Total Dissolved Solids
82000
78000
74000
70000
66000
62000
58000
54000
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
Sampling Round Numbers
Max = 77600
Min = 57000
75% = 68800
25% = 63750
Median = 66300
Concentration
Duplicate


WQSP-1 Total Organic Carbon
Concentration (mg/l)
0
1
2
3
4
5
6
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Numbers
Max = <5.0.
Min = <0.50
75% = 1.48
25% = 0.8
Median = 1
Concentration
Duplicate


WQSP-1 Fluoride
Concentration (mg/l)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Numbers
Max = 4.36
Min = 1.0
75% = 2
25% = 1.2
Median = 1.31
Concentration
Duplicate


WQSP-1 Chloride
41000
40000
39000
38000
37000
36000
35000
34000
33000
32000
CONCENTRATION (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
SAMPLING ROUND NUMBER
Max = 40000
Min = 33000
75% = 36500
25% = 33750
Median = 34750
concentration
duplicate


WQSP-1 Density
1.068
1.064
1.060
1.056
1.052
1.048
1.044
1.040
Concentration (g/ml)
Baseline
1
2
3
4
5
7
8
9
10
Sampling Round Numbers
Max = 1.064
Min = 1.043
75% = 1.053
25% = 1.0454
Median = 1.04835
Concentration
Duplicate


WQSP-1 pH
7.6
7.2
6.8
6.4
6.0
5.6
5.2
Standard pH Units
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Numbers
Max = 7.44
Min = 5.4.
75% = 7.2925
25% = 7.105
Median = 7.215
Concentration
Duplicate

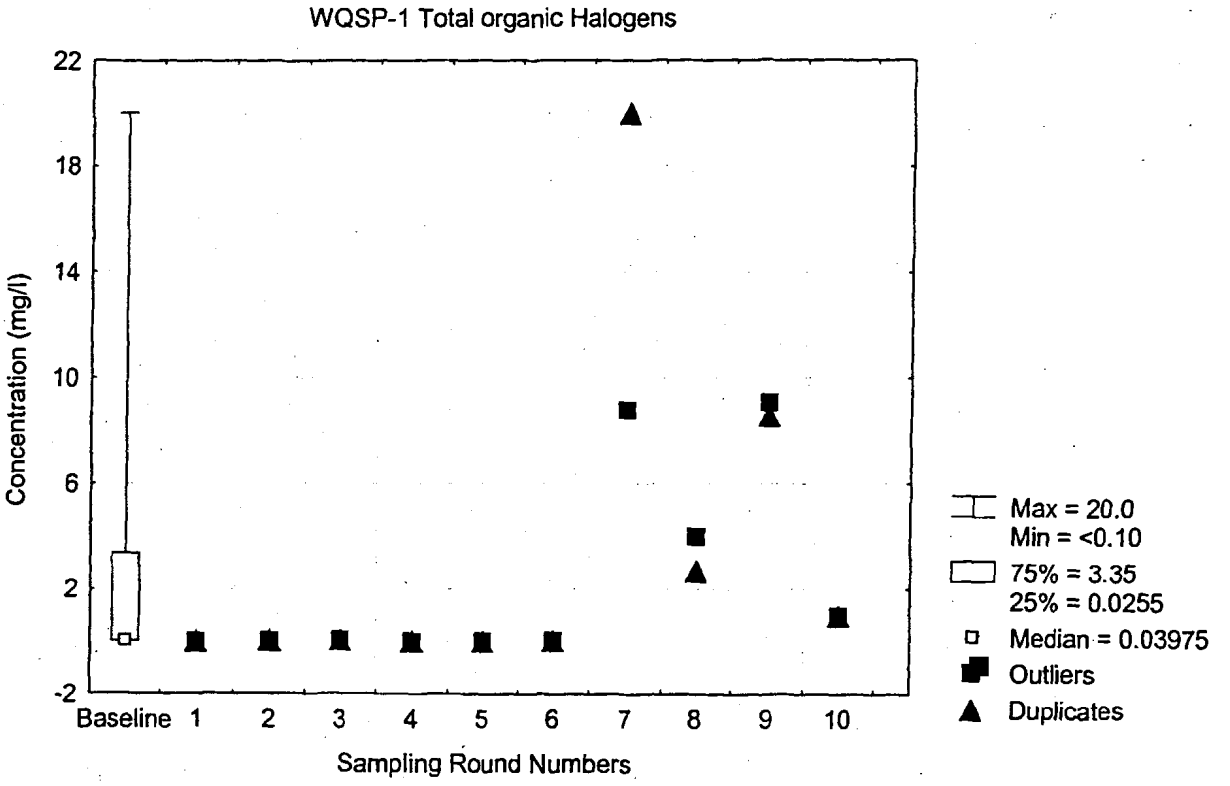

WQSP-1 Total organic Halogens
Concentration (mg/l)
22
18
14
10
6
2
-2
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Numbers
Max = 20.0
Min = <0.10
75% = 3.35
25% = 0.0255
Median = 0.03975
Outliers
Duplicates

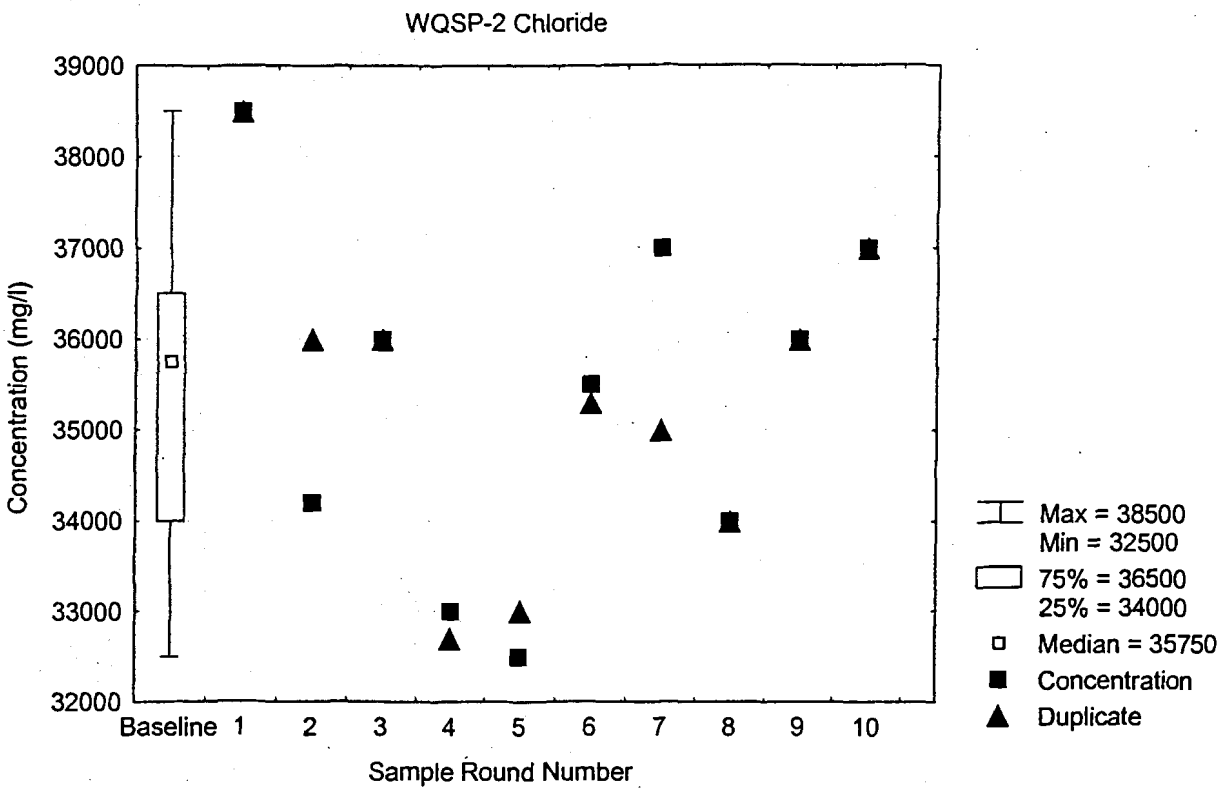
Table 4
Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP2
concentrations in mg/L unless otherwise stated

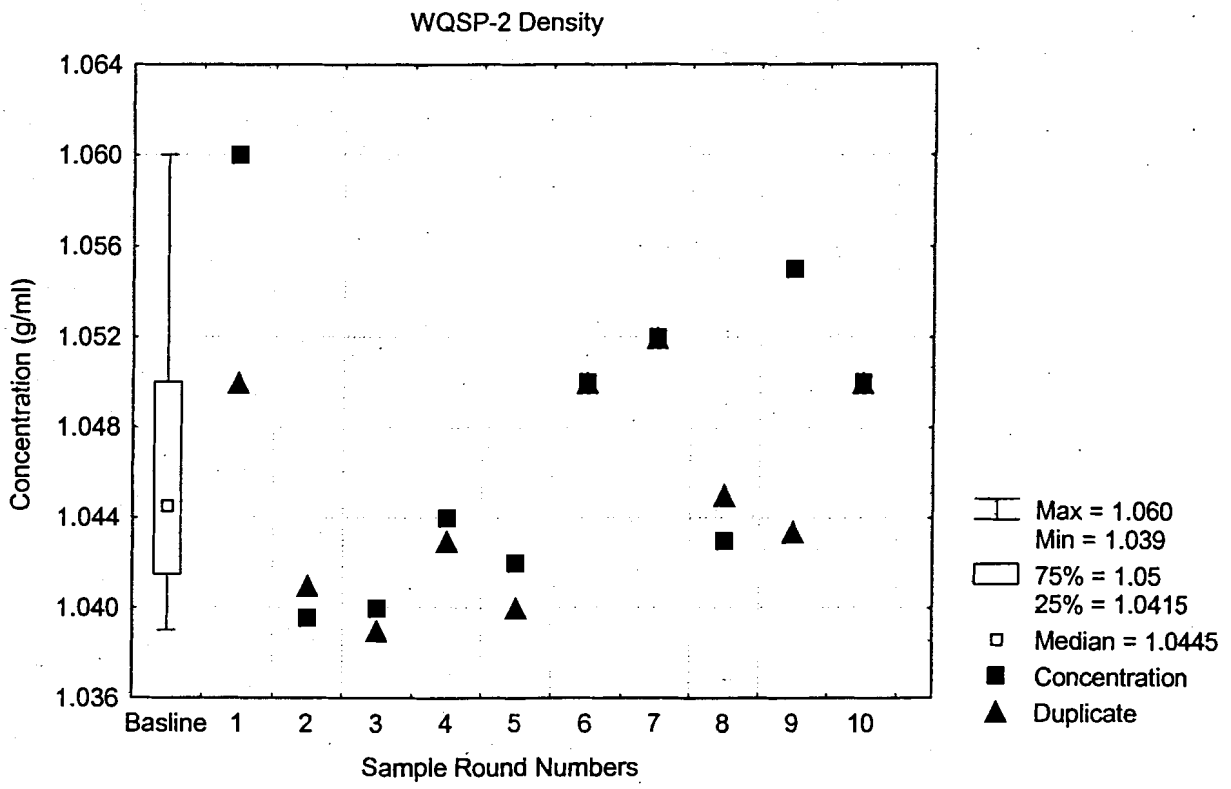
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	18	0	Normal	5.3	52.5	48.0	45.2	10.22	52.5	70.3
BORON	18	0	Normal	13.5	18.0	16.3	16.0	1.38	18.0	19.4
BROMIDE	18	0	Lognormal	28.0	61.3	36.1	37.9	9.48	61.3	63.7
CALCIUM	22 ✓	0	Lognormal	1290	1840	1465	1499	133	1742	1827
CHLORIDE	20	0	Normal	32500	38500	35750	35360	1798	38500	39670
CYANIDE	4	100	Nonparametric	<0.01	<0.01	<0.01	<0.01	--	<0.01	NA
DENSITY (g/mL)	20	NA	Lognormal	1.04	1.06	1.04	1.05	0.01	1.06	1.06
FLUORIDE	18	33	Nonparametric	<1.0	20.00	1.15	3.15	5.82	20.00	NA
IODIDE	18	78	Nonparametric	0.12	1.70	<2.0	0.95	0.34	1.70	NA
LITHIUM	20	0	Nonparametric	0.010	0.494	0.398	0.384	0.102	0.493	NA
NITROGEN, NO3 (AS N)	18	89	Nonparametric	<0.04	<10.0	<0.2	0.782	1.566	<10.0	NA
ORTHOPHOSPHATE (AS P)	16	75	Nonparametric	<0.01	0.33	<0.02	0.04	0.08	0.33	NA
pH (SU)	20	NA	Normal	7.10	7.43	7.30	7.27	0.10	7.42	7.0-7.6
SILICA	20	0	Normal	0.80	23.00	10.30	10.96	5.45	23.00	24.0
SODIUM	17, 19	0	Normal	15374	20100	18500	18436	1427	20100	21900
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Lognormal	77600	110000	81650	89789	13018	110000	124000
SULFATE	18	0	Normal	4600	6360	5505	5466	458	6360	6590
SULFIDE	4	100	Nonparametric	<1.5	<1.5	<1.5	<1.5	--	<1.5	NA
TOTAL DISS SOLIDS	20	0	Normal	38000	70600	63400	61710	7858	70500	80500
TOTAL ORGANIC CARBON	20	50	Nonparametric	<0.7	8.15	1.34	1.96	2.18	7.97	NA
TOTAL ORGANIC HALOGENS	19	11	Lognormal	0.013	63.8	0.790	5.9	15.2	63.8	? 202
TOTAL PHENOLS	13	92	Nonparametric	<0.01	0.160	<0.07	0.033	0.042	0.160	/ NA
TOTAL SUSP SOLIDS	20	80	Nonparametric	<1.0	44.0	<10.0	10.4	15.8	43.0	/ NA

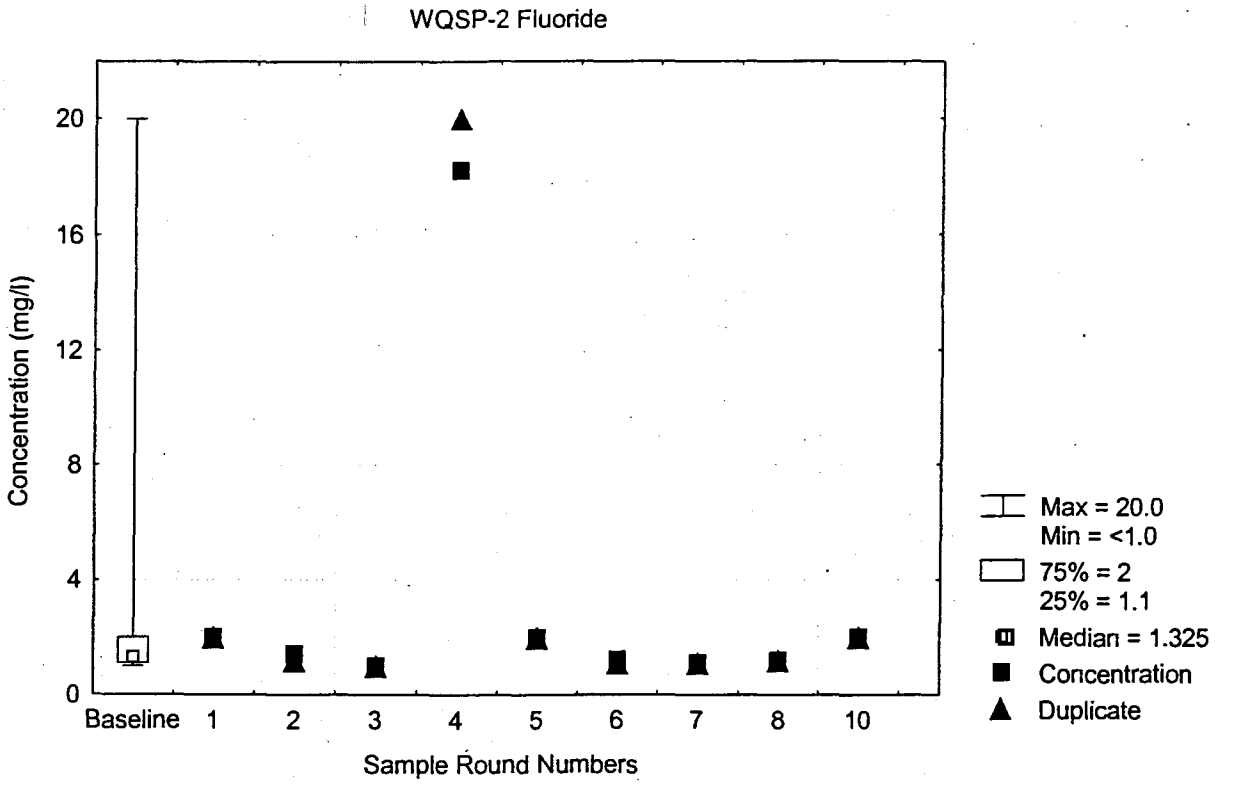
Don't believe

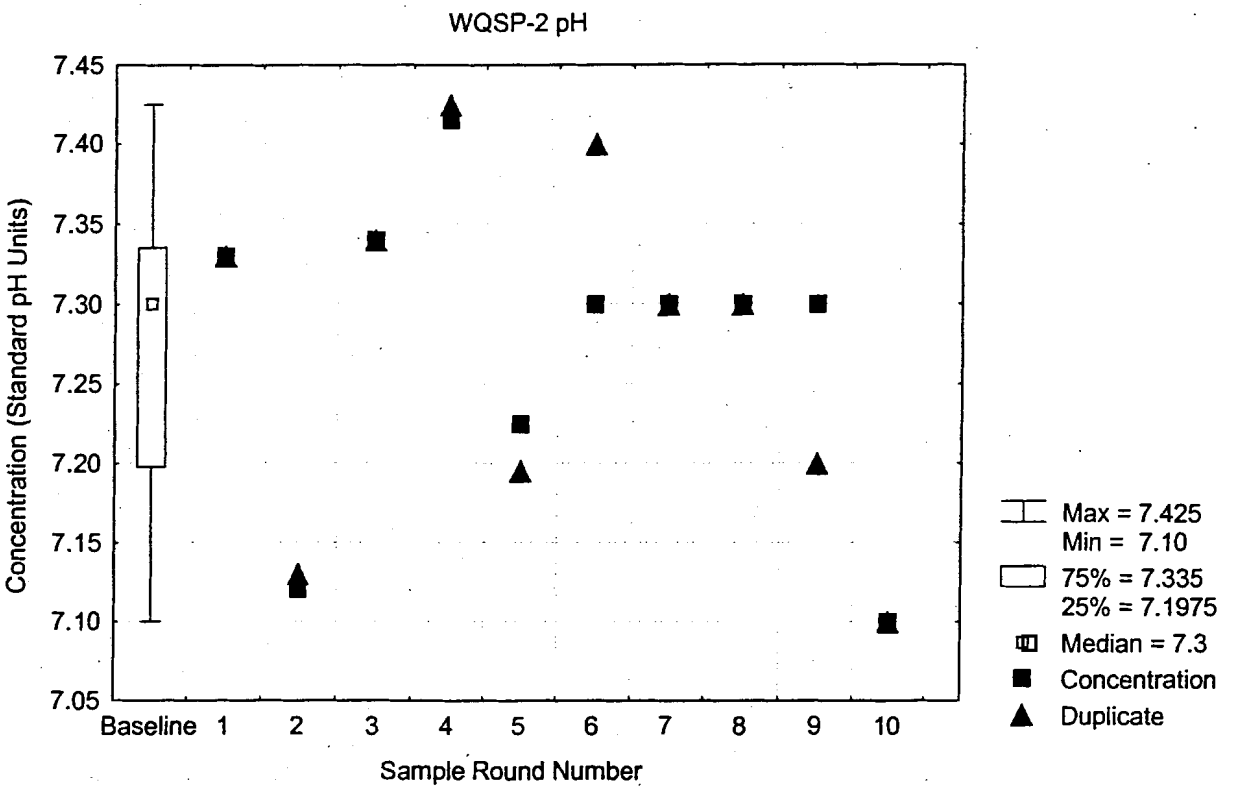
Table 5
Summary Statistics for Metals at WIPP Monitoring Well WQSP2
concentrations in mg/L unless otherwise stated

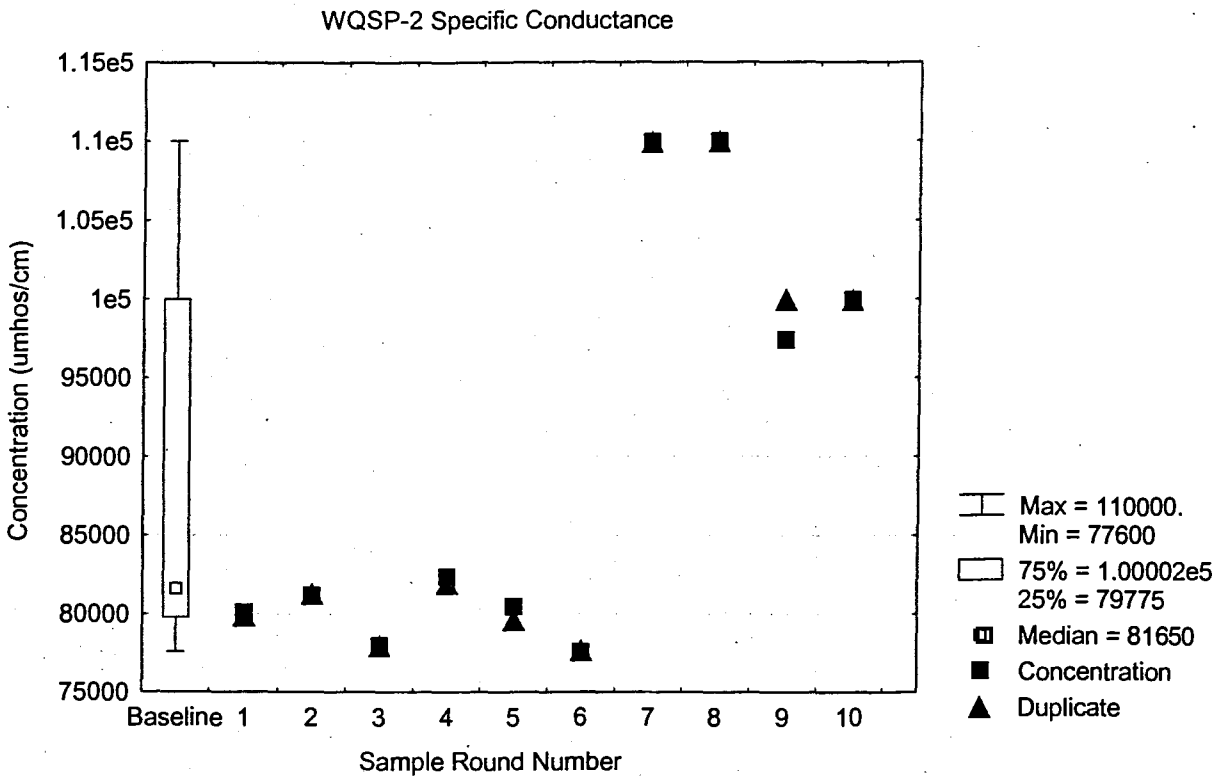
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	16	80	Nonparametric	<0.05	<0.5	<0.05	0.046	0.080	<0.5	NA
ARSENIC	16	94	Nonparametric	<0.005	0.062	<0.05	0.022	0.018	0.062	NA
BARIUM	12	42	Nonparametric	<0.02	<1.0	0.049	0.116	0.180	<1.0	NA
BERYLLIUM	14	86	Nonparametric	<0.001	<1.0	<0.008	0.075	0.180	<1.0	NA
CADMIUM	14	100	Nonparametric	<0.0025	<0.5	<0.01	0.040	0.089	<0.5	NA
CHROMIUM	16	88	Nonparametric	<0.0025	<0.5	<0.03	0.049	0.080	<0.5	NA
COBALT	12	75	Nonparametric	<0.013	0.110	<0.05	0.031	0.031	0.110	NA
COPPER	12	75	Nonparametric	<0.013	<1.0	0.038	0.118	0.181	<1.0	NA
IRON	20	90	Nonparametric	<0.1	1.320	<0.5	0.299	0.277	0.910	NA
LEAD	18	89	Nonparametric	<0.013	0.163	<0.05	0.026	0.035	0.163	NA
MAGNESIUM	19	0	Normal	928	1180	1080	1074	70	1180	1244
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.0002	0.0004	0.0004	<0.002	NA
NICKEL	14	64	Nonparametric	<0.025	0.370	<0.1	0.089	0.101	0.370	NA
POTASSIUM	19	0	Lognormal	333	728	476	517	113	728	845
SELENIUM	15	87	Nonparametric	<0.01	0.150	<0.013	0.026	0.038	0.150	NA
SILVER	16	94	Nonparametric	<0.0025	<0.5	<0.05	0.044	0.081	<0.5	NA
THALLIUM	16	75	Nonparametric	<0.013	0.980	<0.05	0.154	0.278	0.980	NA
TIN	12	83	Nonparametric	<0.025	0.460	<0.1	0.098	0.142	0.460	NA
VANADIUM	12	100	Nonparametric	<0.01	<0.1	<0.1	0.033	0.021	<0.1	NA
ZINC	12	100	Nonparametric	<0.05	<5.0	<0.2	0.473	0.947	<5.0	NA

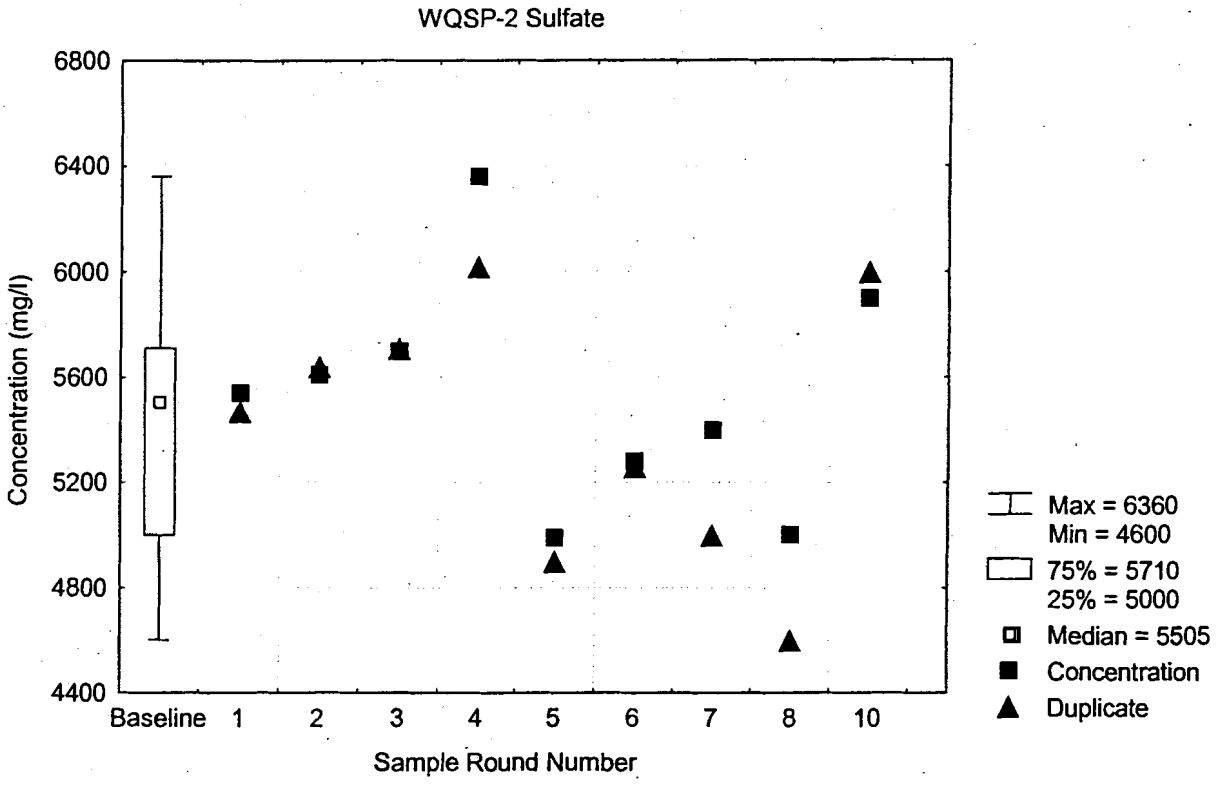

WQSP-2 Chloride
39000
38000
37000
36000
35000
34000
33000
32000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 38500
Min = 32500
75% = 36500
25% = 34000
Median = 35750
Concentration
Duplicate

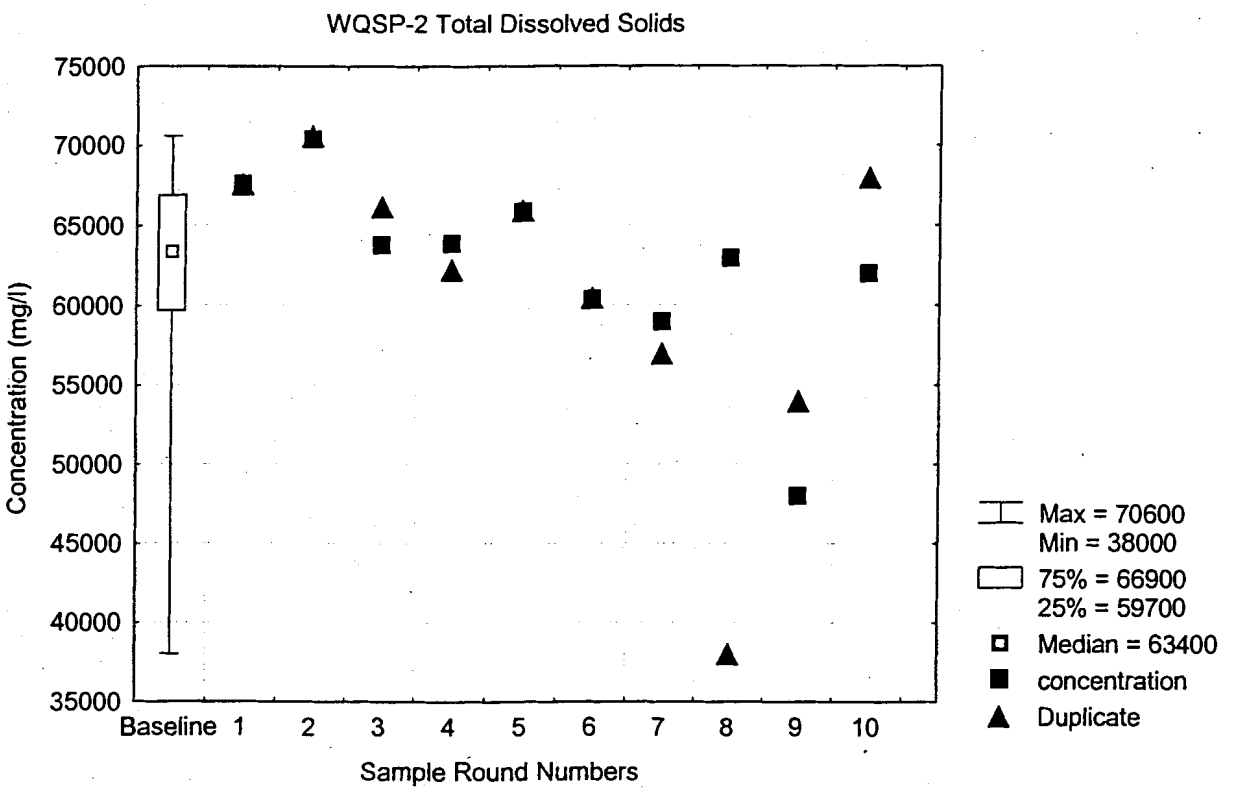

WQSP-2 Density
1.064
1.060
1.056
1.052
1.048
1.044
1.040
1.036
Concentration (g/ml)
Basline
1
2
3
4
5
6
7
8
9
10
Sample Round Numbers
Max = 1.060
Min = 1.039
75% = 1.05
25% = 1.0415
Median = 1.0445
Concentration
Duplicate

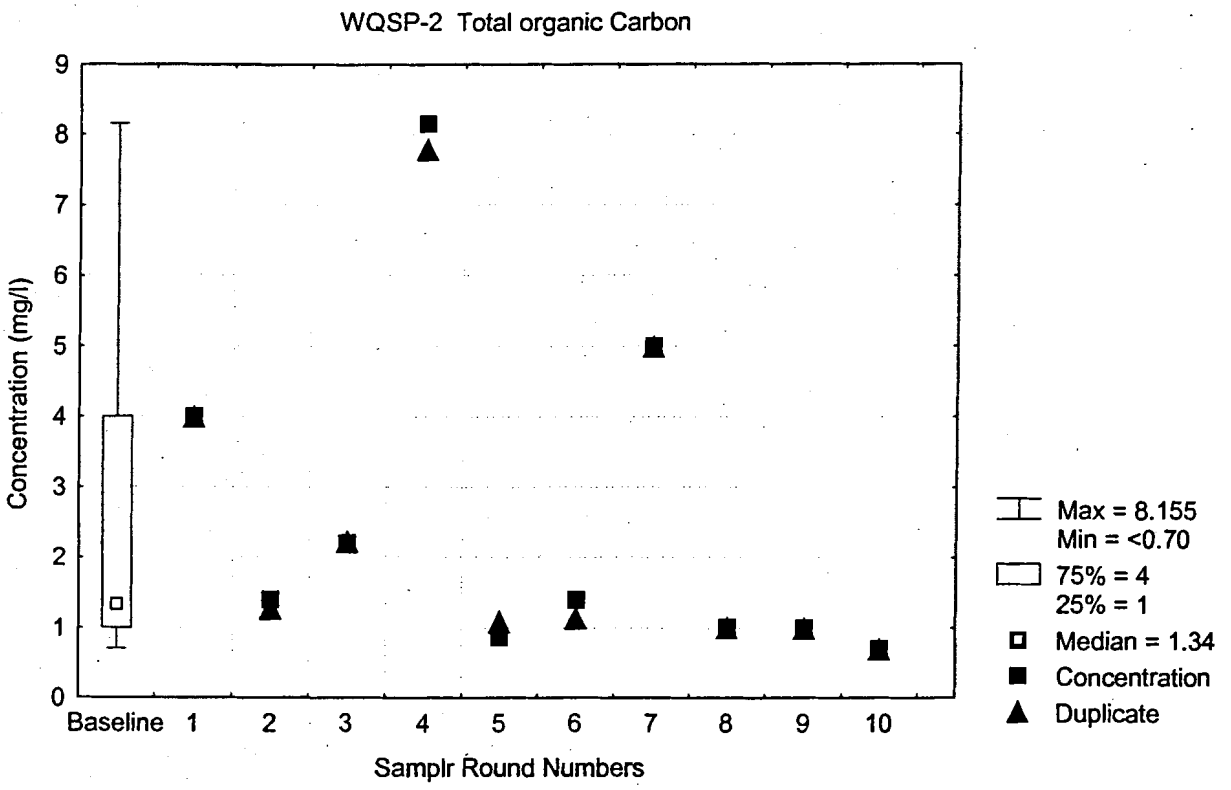

WQSP-2 Fluoride
Concentration (mg/l)
0
4
8
12
16
20
Baseline
1
2
3
4
5
6
7
8
10
Sample Round Numbers
Max = 20.0
Min = <1.0
75% = 2
25% = 1.1
Median = 1.325
Concentration
Duplicate


WQSP-2 pH
Concentration (Standard pH Units)
7.45
7.40
7.35
7.30
7.25
7.20
7.15
7.10
7.05
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 7.425
Min = 7.10
75% = 7.335
25% = 7.1975
Median = 7.3
Concentration
Duplicate


WQSP-2 Specific Conductance
Concentration (umhos/cm)
1.15e5
1.1e5
1.05e5
1e5
95000
90000
85000
80000
75000
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Number
Max = 110000.
Min = 77600
75% = 1.00002e5
25% = 79775
Median = 81650
Concentration
Duplicate


WQSP-2 Sulfate
6800
6400
6000
5600
5200
4800
4400
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
10
Sample Round Number
Max = 6360
Min = 4600
75% = 5710
25% = 5000
Median = 5505
Concentration
Duplicate


WQSP-2 Total Dissolved Solids
75000
70000
65000
60000
55000
50000
45000
40000
35000
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Numbers
Max = 70600
Min = 38000
75% = 66900
25% = 59700
Median = 63400
concentration
Duplicate


WQSP-2 Total organic Carbon
Concentration (mg/l)
0
1
2
3
4
5
6
7
8
9
Baseline
1
2
3
4
5
6
7
8
9
10
Samplr Round Numbers
Max = 8.155
Min = <0.70
75% = 4
25% = 1
Median = 1.34
Concentration
Duplicate

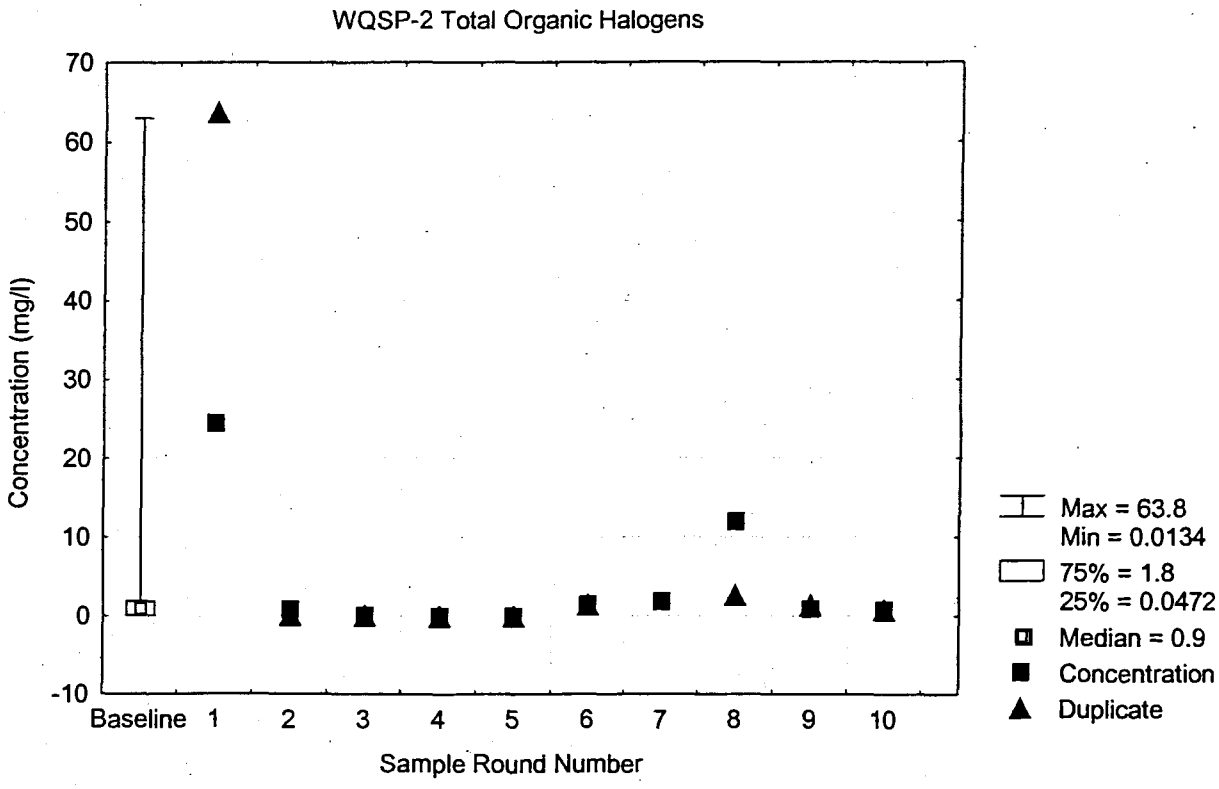

WQSP-2 Total Organic Halogens
Concentration (mg/l)
70
60
50
40
30
20
10
0
-10
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 63.8
Min = 0.0134
75% = 1.8
25% = 0.0472
Median = 0.9
Concentration
Duplicate

Table **

Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP3

concentrations in mg/L unless otherwise stated

Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	20	0	Lognormal	31.0	55.0	34.0	36.7	7.08	54.5	54.4
BORON	20	0	Normal	39.0	53.0	44.8	45.4	4.41	52.2	55.9
BROMIDE	20	10	Lognormal	70.1	127.0	88.4	91.3	16.41	124.5	137
CALCIUM	20	0	Normal	1100	1530	1395	1357	133	1515	1680
CHLORIDE	20	0	Lognormal	120000	145000	128500	129550	7844	144500	149100
CYANIDE	4	100	Nonparametric	<0.01	<0.01	<0.01	<0.01	--	<0.01	NA
DENSITY (g/mL)	20	NA	Normal	1.10	1.16	1.14	1.14	0.02	1.16	1.17
FLUORIDE	20	70	Nonparametric	<.22	<10.0	<2.0	1.30	1.39	<10.0	NA
IODIDE	20	90	Nonparametric	<0.5	2.22	<2.0	1.04	0.45	2.18	NA
LITHIUM	22	9	Normal	0.010	2.830	0.969	1.157	0.682	2.770	2.76
NITROGEN, NO3 (AS N)	20	90	Nonparametric	<0.08	<14.0	0.116	2.144	2.638	<12.0	NA
ORTHOPHOSPHATE (AS P)	20	80	Nonparametric	<0.01	0.55	<0.02	0.07	0.14	0.41	NA
pH (SU)	20	NA	Lognormal	6.73	7.12	6.86	6.90	0.12	7.12	6.6-7.2
SILICA	20	0	Normal	2.04	6.90	3.98	4.16	1.30	6.35	7.2
SODIUM	20	0	Nonparametric	58000	146800	74550	79458	21476	140400	NA
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Normal	118000	420000	253250	275000	100904	420000	517000
SULFATE	20	0	Normal	6400	7650	7245	7147	363	7650	8015
SULFIDE	4	75	Nonparametric	<1.5	5.60	<1.5	<1.5	2.43	5.60	NA
TOTAL DISS SOLIDS	20	0	Lognormal	190000	281000	217205	215351	18735	252000	261000
TOTAL ORGANIC CARBON	20	35	Nonparametric	<0.7	<5.0	1.27	1.19	0.65	<5.0	NA
TOTAL ORGANIC HALOGENS	20	10	Nonparametric	0.005	56.4	1.300	7.6	16.4	55.0	NA
TOTAL PHENOLS	14	93	Nonparametric	<0.01	0.260	<0.07	0.043	0.065	0.260	NA
TOTAL SUSP SOLIDS	20	55	Nonparametric	<1.0	113.0	<10.0	22.5	35.8	107.0	NA

Table 7
Summary Statistics for Metals at WIPP Monitoring Well WQSP3
concentrations in mg/L unless otherwise stated

Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	14	79	Nonparametric	<0.0130	<1.0	0.059	0.137	0.174	<1.0	NA
ARSENIC	14	79	Nonparametric	<0.0130	<1.0	0.059	0.137	0.174	.20<1.0??	NA
BARIUM	16	56	Nonparametric	0.006	<1.0	<0.13	0.160	0.205	<1.0	NA
BERYLLIUM	16	81	Nonparametric	0.0011	<0.1	<0.01	0.016	0.018	<0.1	NA
CADMIUM	17	94	Nonparametric	<0.00130	<0.5	<0.02	0.044	0.083	<0.5	NA
CHROMIUM	16	69	Nonparametric	<0.0025	<2.0	<0.05	0.158	0.331	<2.0	NA
COBALT	14	100	Nonparametric	<0.01	<5.0	<0.13	0.417	0.886	<5.0	NA
COPPER	14	86	Nonparametric	<0.02	<1.0	<0.1	0.132	0.175	<1.0	NA
IRON	20	90	Nonparametric	<0.1	<4.0	<0.5	0.542	0.640	<4.0	NA
LEAD	16	81	Nonparametric	<0.01	0.800	0.019	0.096	0.200	0.800	NA
MAGNESIUM	20	0	Lognormal	1770	2500	2105	2116	194	2452	2625
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.0002	0.0004	0.0004	<0.002	NA
NICKEL	16	88	Nonparametric	<0.025	<5.0	<0.1	0.464	0.844	<5.0	NA
POTASSIUM	20	0	Lognormal	1300	2870	1516	1811	564	2835	3438
SELENIUM	16	81	Nonparametric	0.0023	<2.0	<0.05	0.158	0.332	<2.0	NA
SILVER	16	94	Nonparametric	<0.0025	0.310	<0.05	0.057	0.091	0.310	NA
THALLIUM	14	79	Nonparametric	<0.01	5.800	<0.1	0.669	1.616	5.800	NA
TIN	14	86	Nonparametric	<0.025	<5.0	<0.1	0.406	0.888	<5.0	NA
VANADIUM	14	93	Nonparametric	0.0003	<5.0	<0.1	0.316	0.719	<5.0	NA
ZINC	14	50	Nonparametric	<0.05	2.7	0.106	0.791	1.157	2.7	NA

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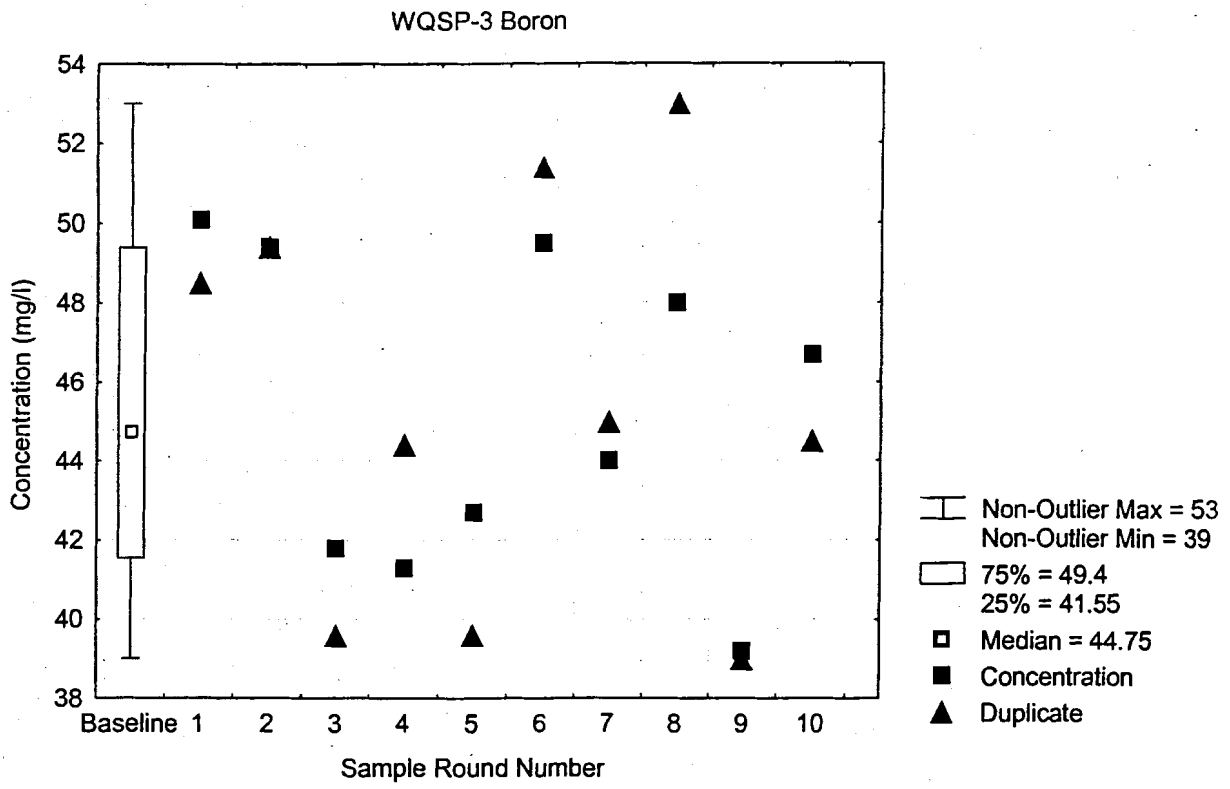
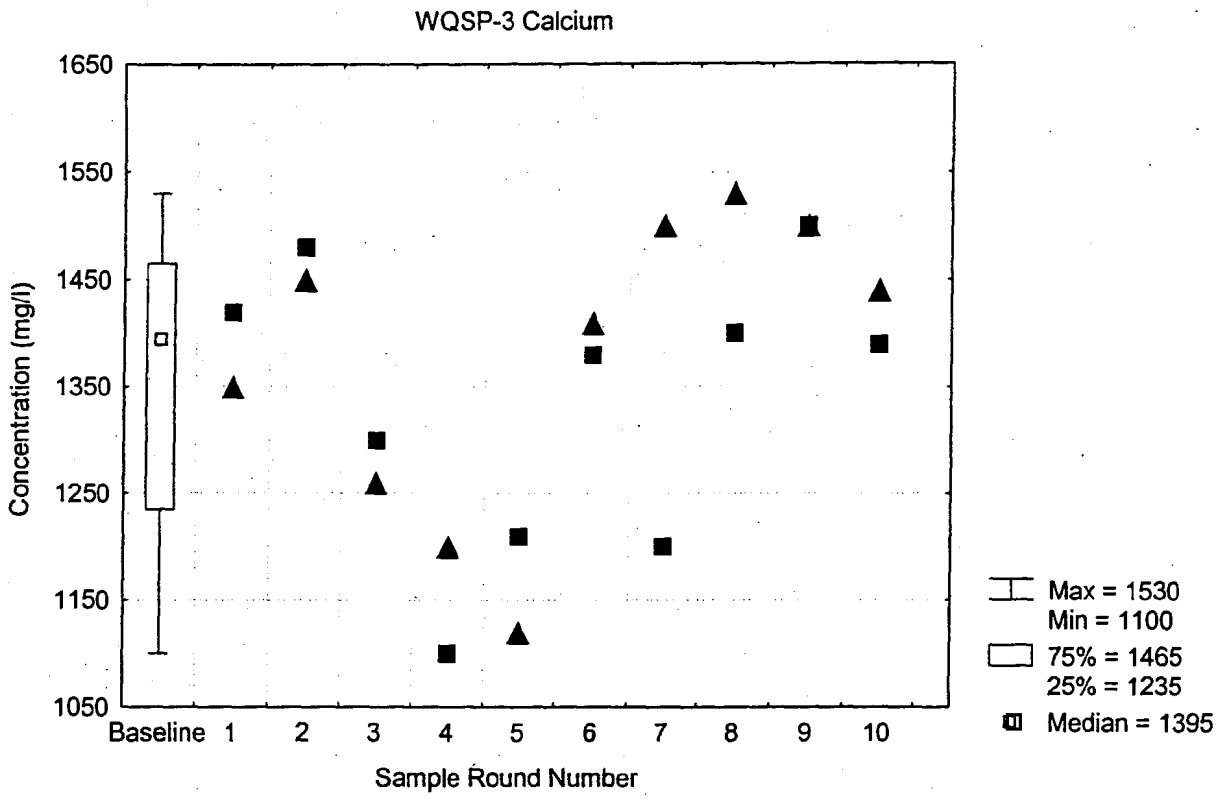
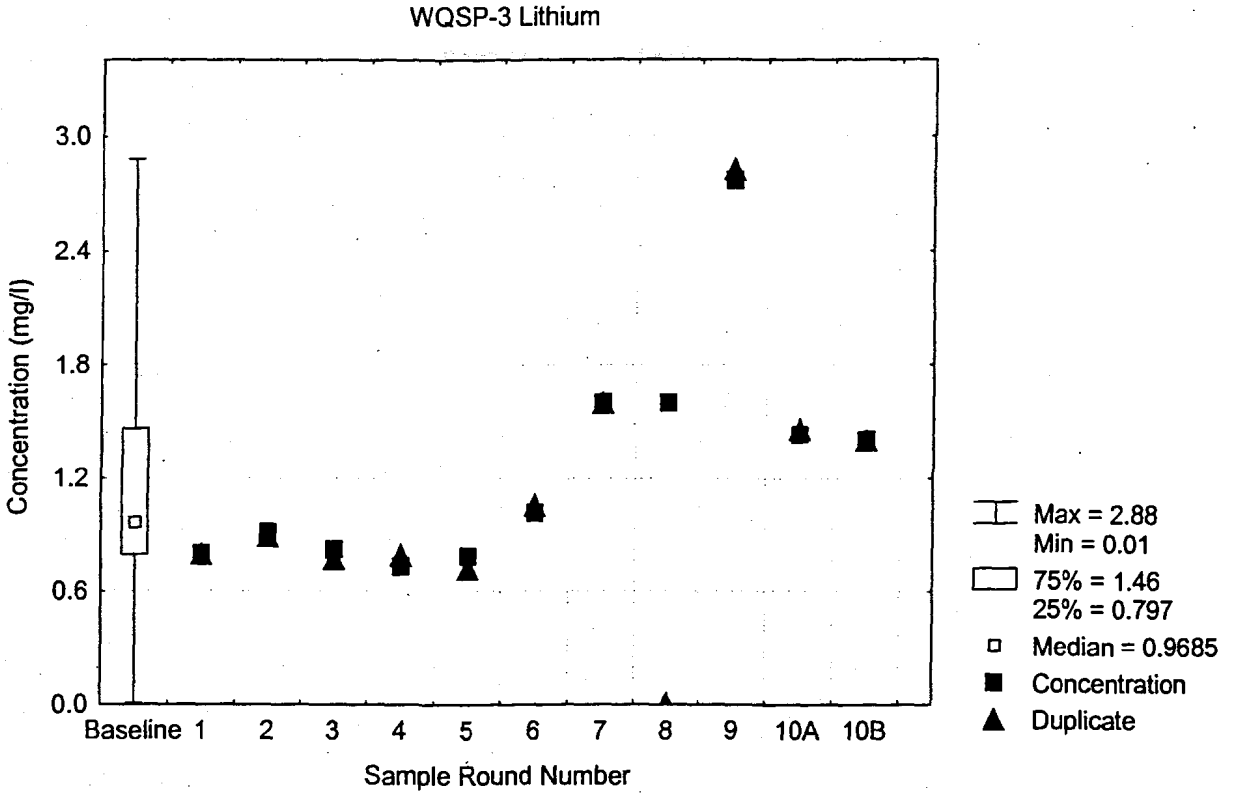
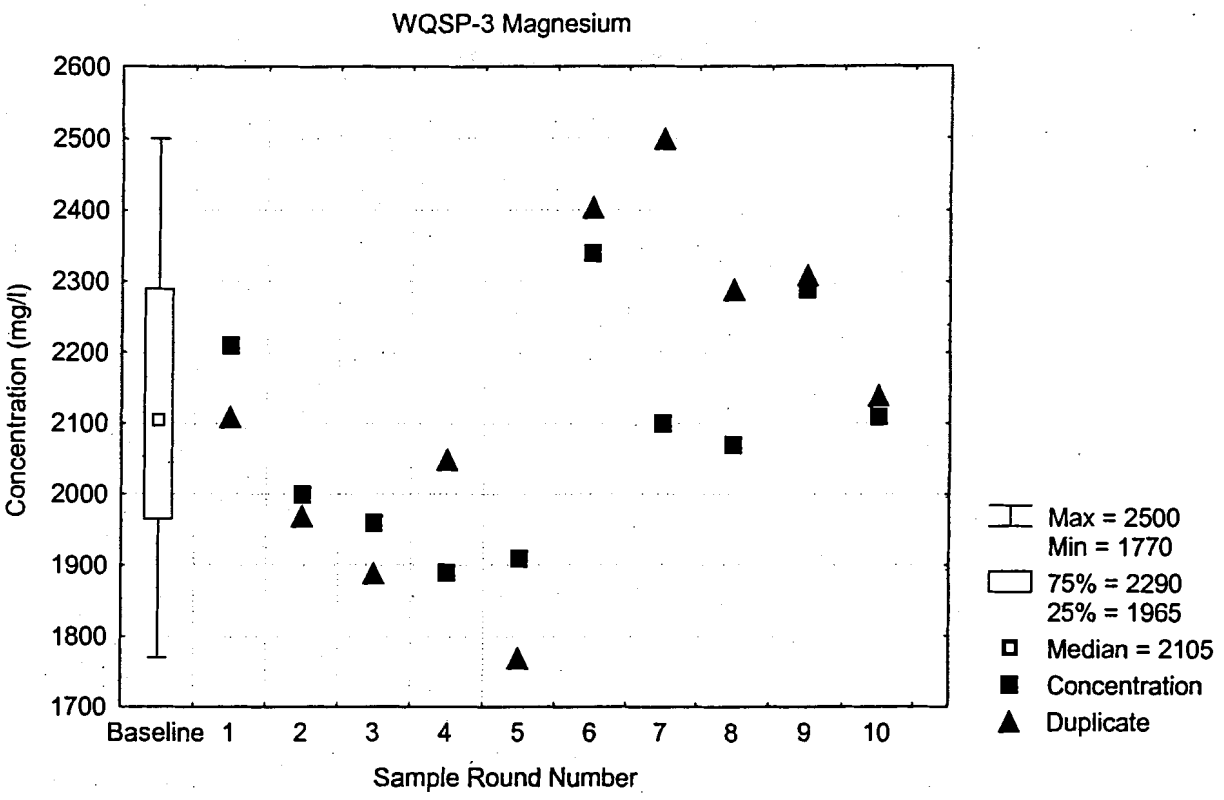
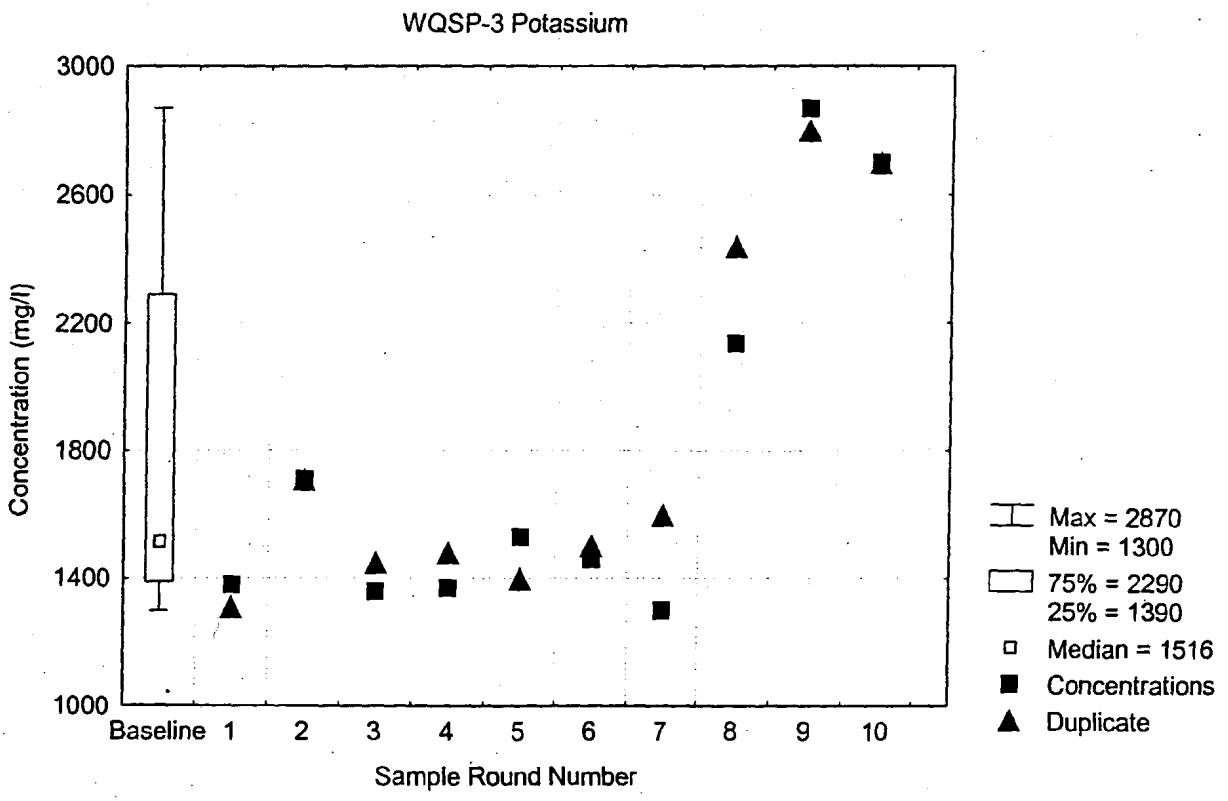
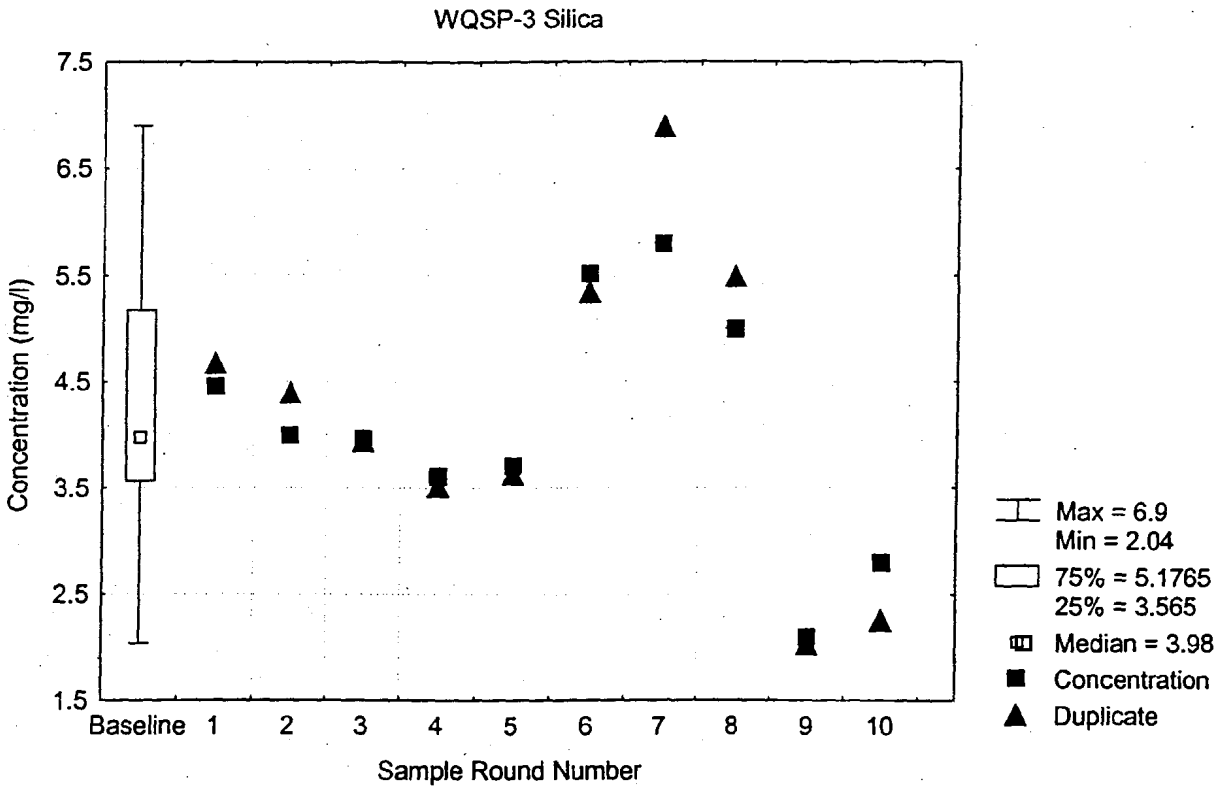

WQSP-3 Boron
Concentration (mg/l)
54
52
50
48
46
44
42
40
38
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Number
Non-Outlier Max = 53
Non-Outlier Min = 39
75% = 49.4
25% = 41.55
Median = 44.75
Concentration
Duplicate

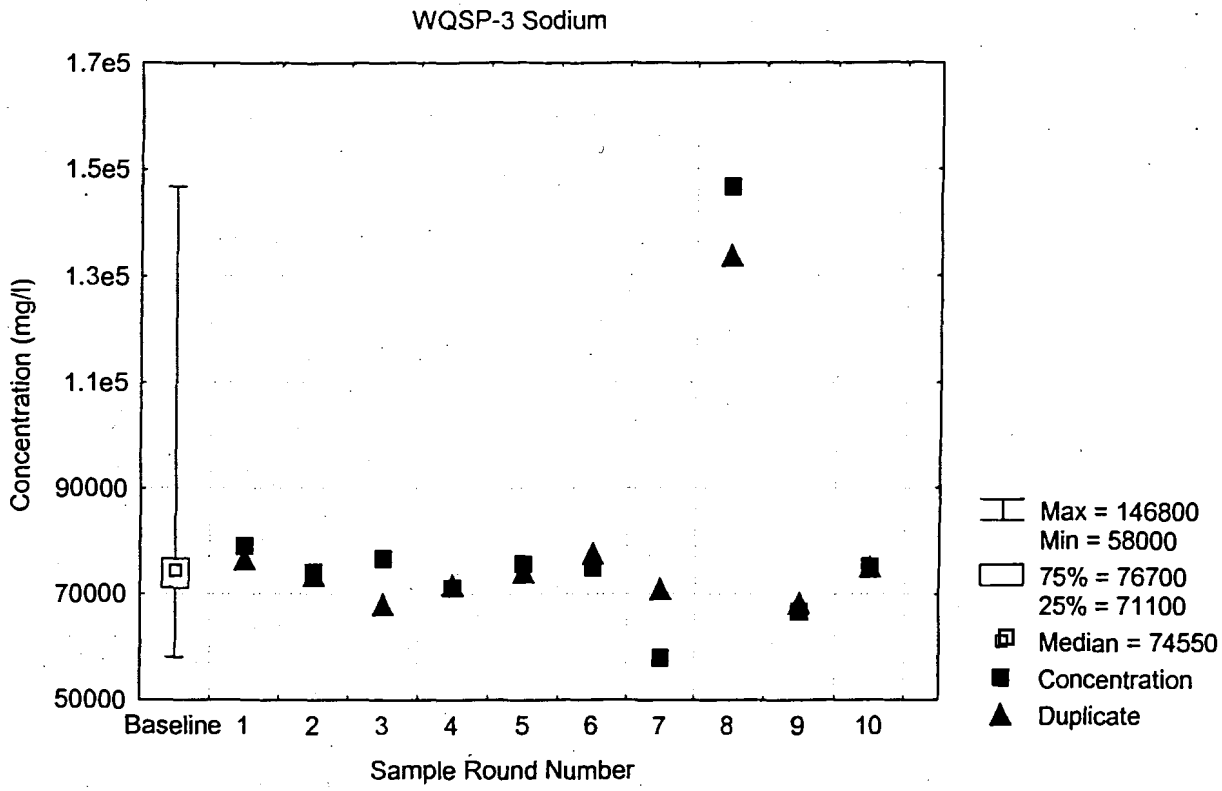

WQSP-3 Calcium
1650
1550
1450
1350
1250
1150
1050
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 1530
Min = 1100
75% = 1465
25% = 1235
Median = 1395

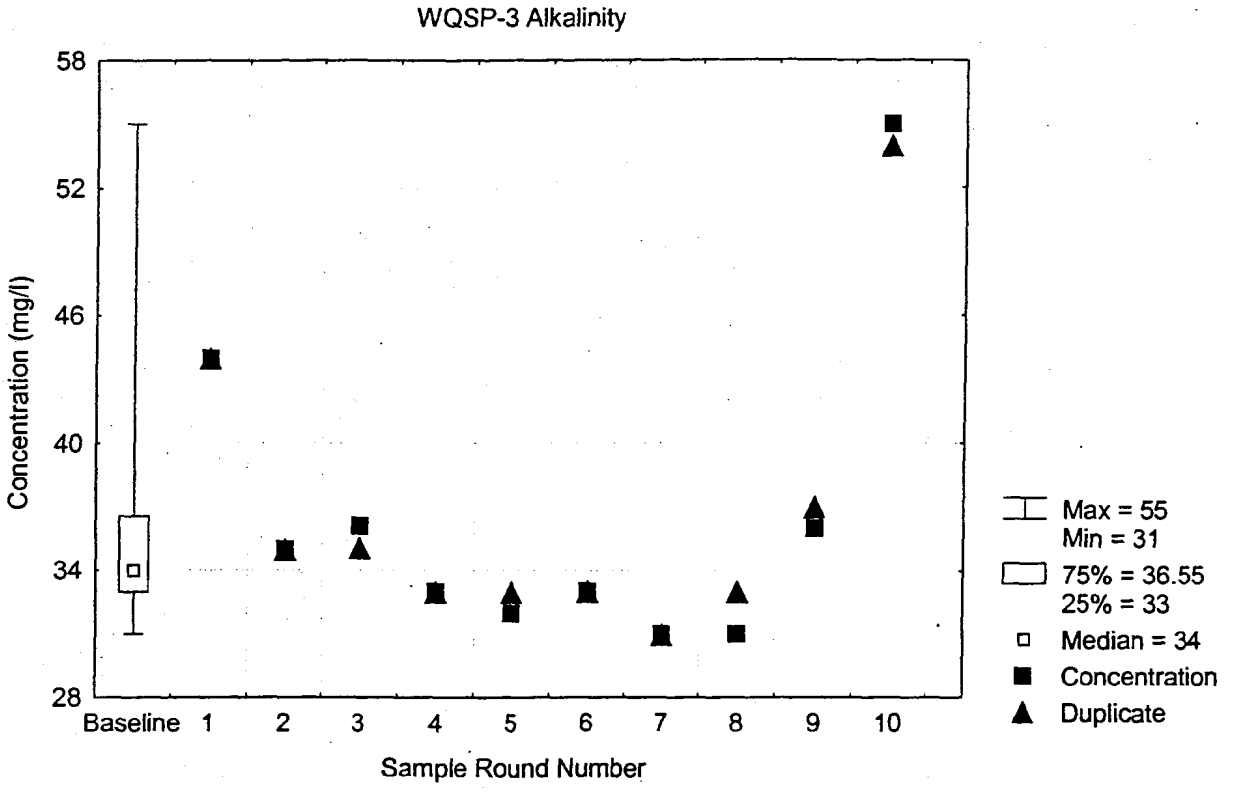

WQSP-3 Lithium
Concentration (mg/l)
3.0
2.4
1.8
1.2
0.6
0.0
Baseline 1 2 3 4 5 6 7 8 9 10A 10B
Sample Round Number
Max = 2.88
Min = 0.01
75% = 1.46
25% = 0.797
Median = 0.9685
Concentration
Duplicate

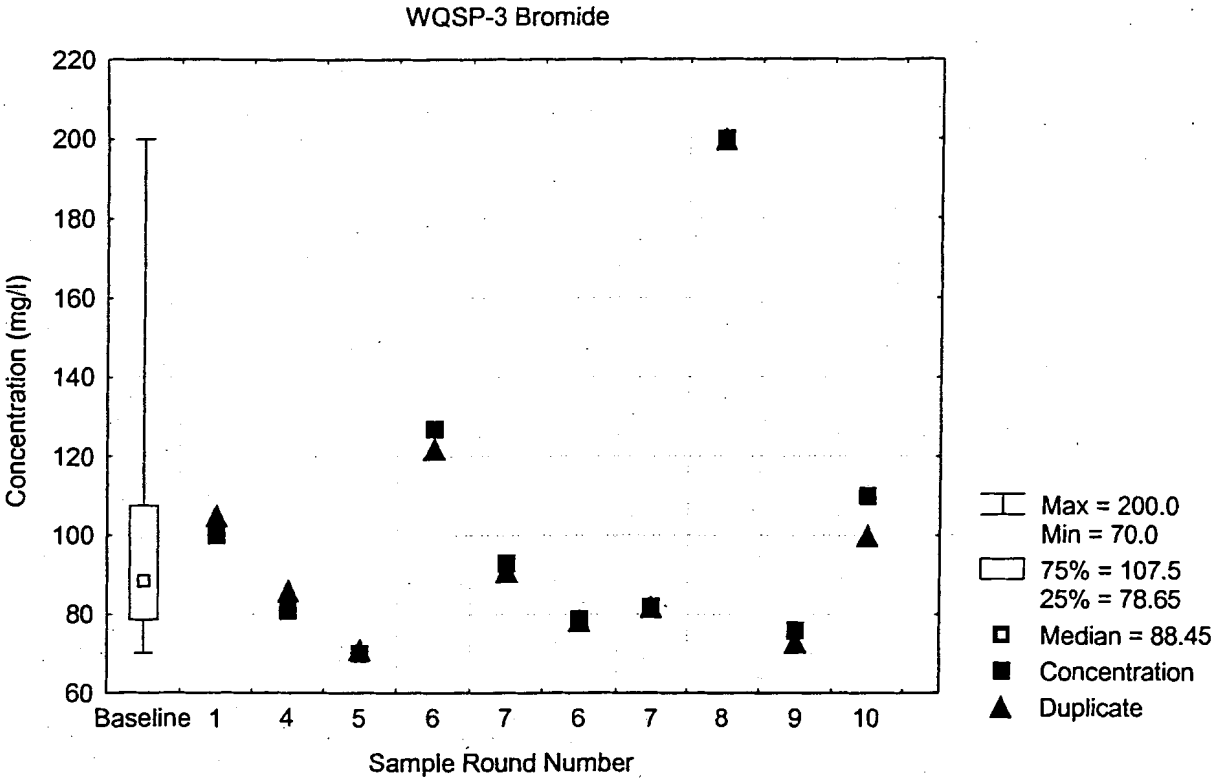

WQSP-3 Magnesium
Concentration (mg/l)
2600
2500
2400
2300
2200
2100
2000
1900
1800
1700
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 2500
Min = 1770
75% = 2290
25% = 1965
Median = 2105
Concentration
Duplicate

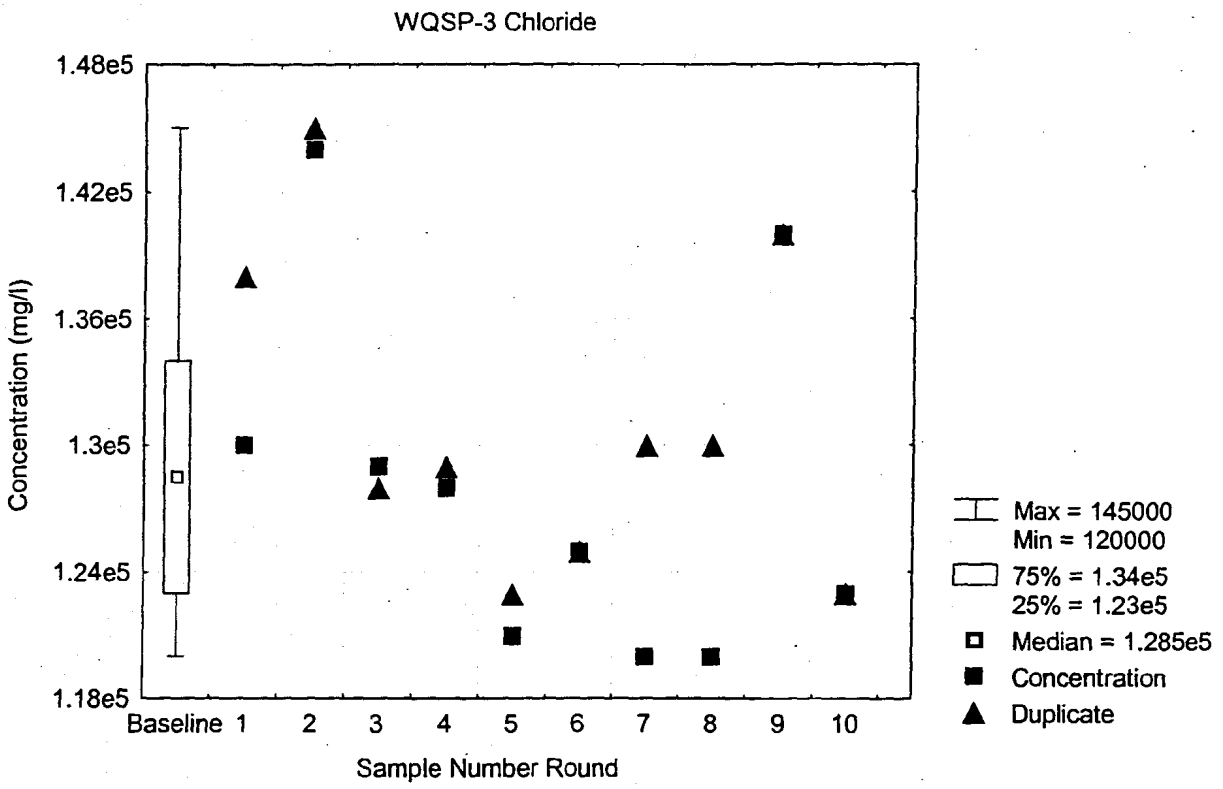

WQSP-3 Potassium
3000
2600
2200
1800
1400
1000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 2870
Min = 1300
75% = 2290
25% = 1390
Median = 1516
Concentrations
Duplicate

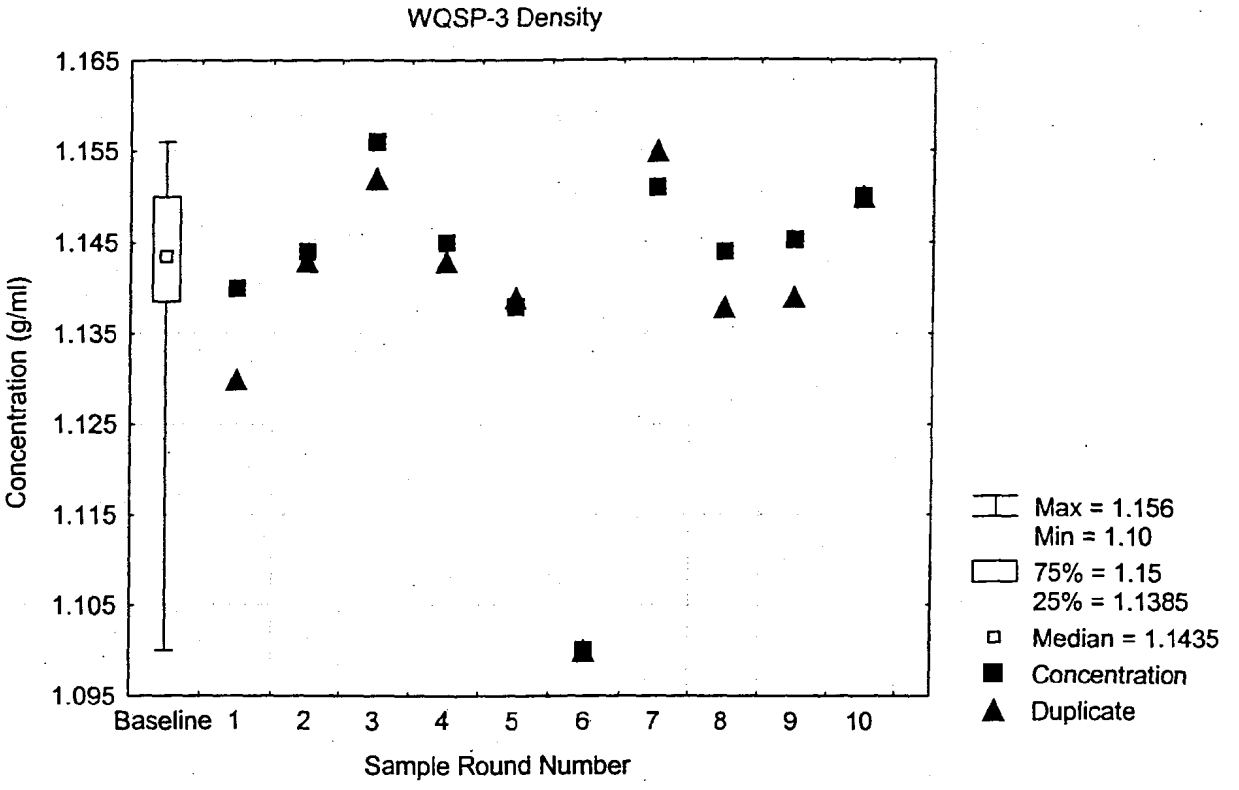

WQSP-3 Silica
Concentration (mg/l)
7.5
6.5
5.5
4.5
3.5
2.5
1.5
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 6.9
Min = 2.04
75% = 5.1765
25% = 3.565
Median = 3.98
Concentration
Duplicate

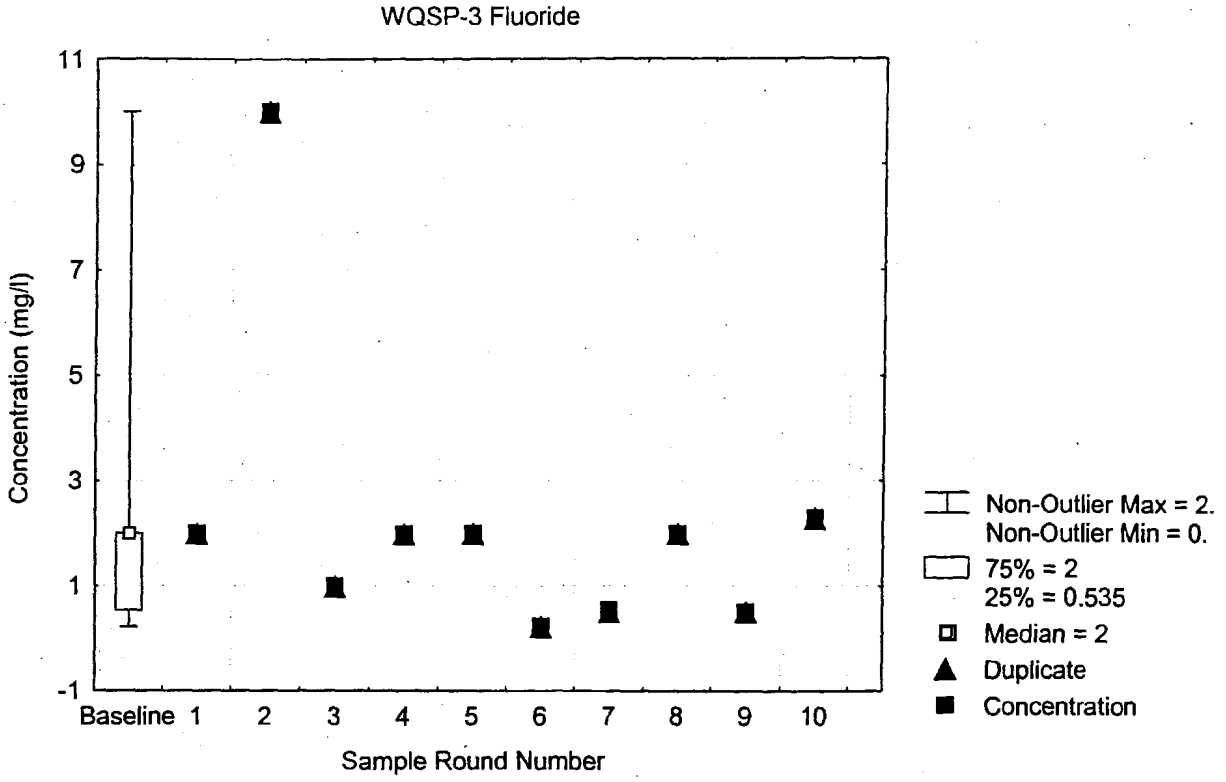

WQSP-3 Sodium
1.7e5
1.5e5
1.3e5
1.1e5
90000
70000
50000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 146800
Min = 58000
75% = 76700
25% = 71100
Median = 74550
Concentration
Duplicate

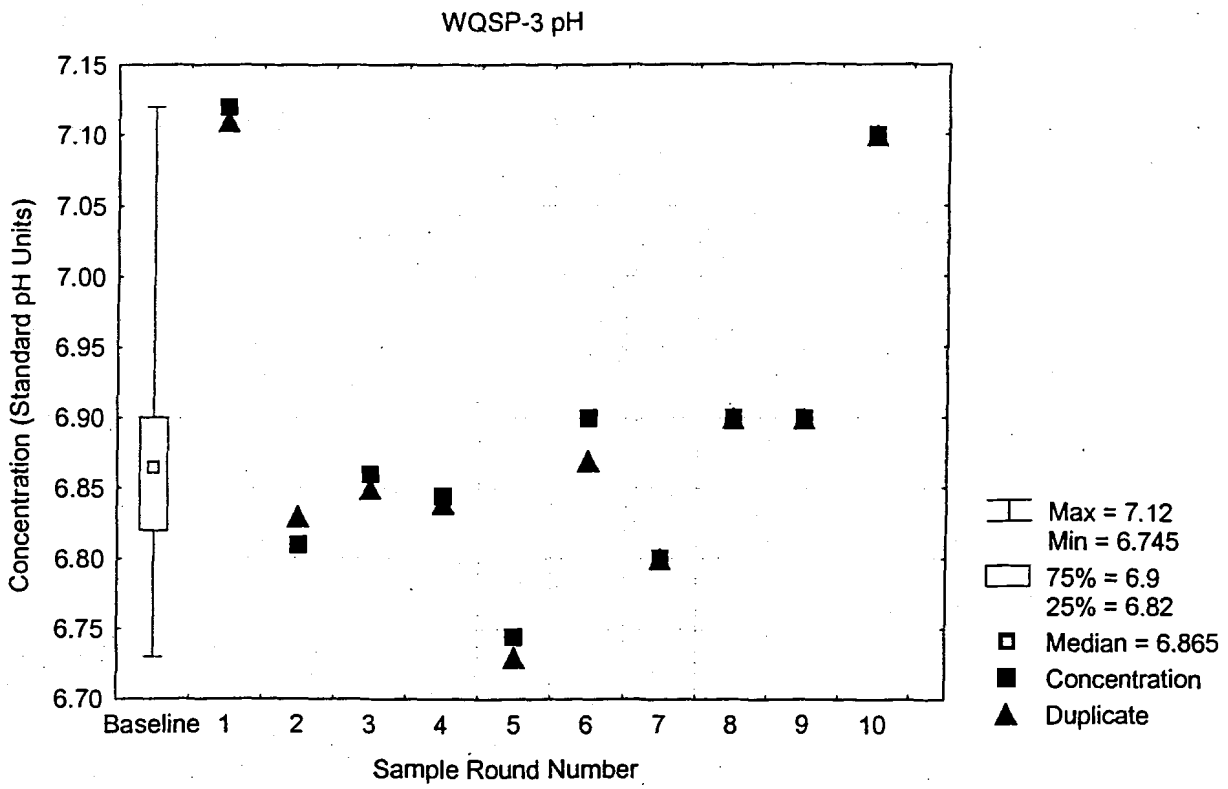

WQSP-3 Alkalinity
58
52
46
40
34
28
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 55
Min = 31
75% = 36.55
25% = 33
Median = 34
Concentration
Duplicate

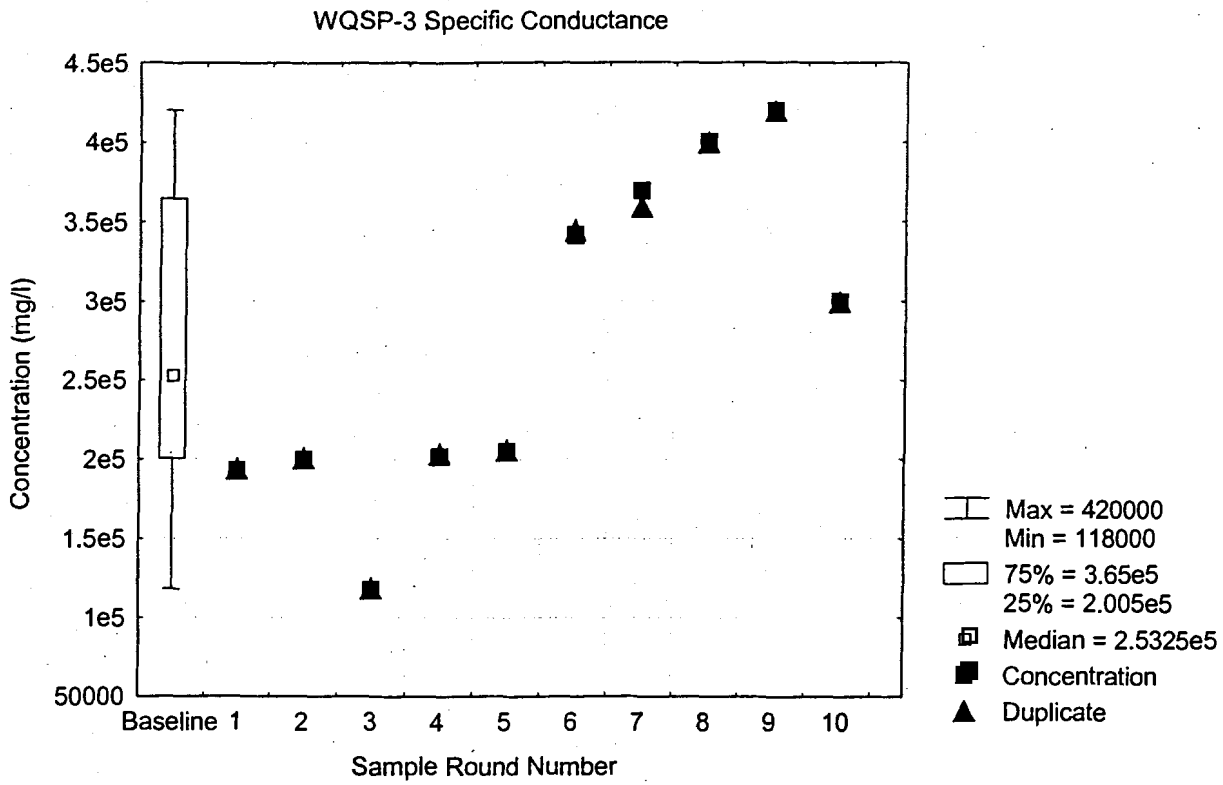

WQSP-3 Bromide
Concentration (mg/l)
220
200
180
160
140
120
100
80
60
Baseline
1
4
5
6
7
6
7
8
9
10
Sample Round Number
Max = 200.0
Min = 70.0
75% = 107.5
25% = 78.65
Median = 88.45
Concentration
Duplicate

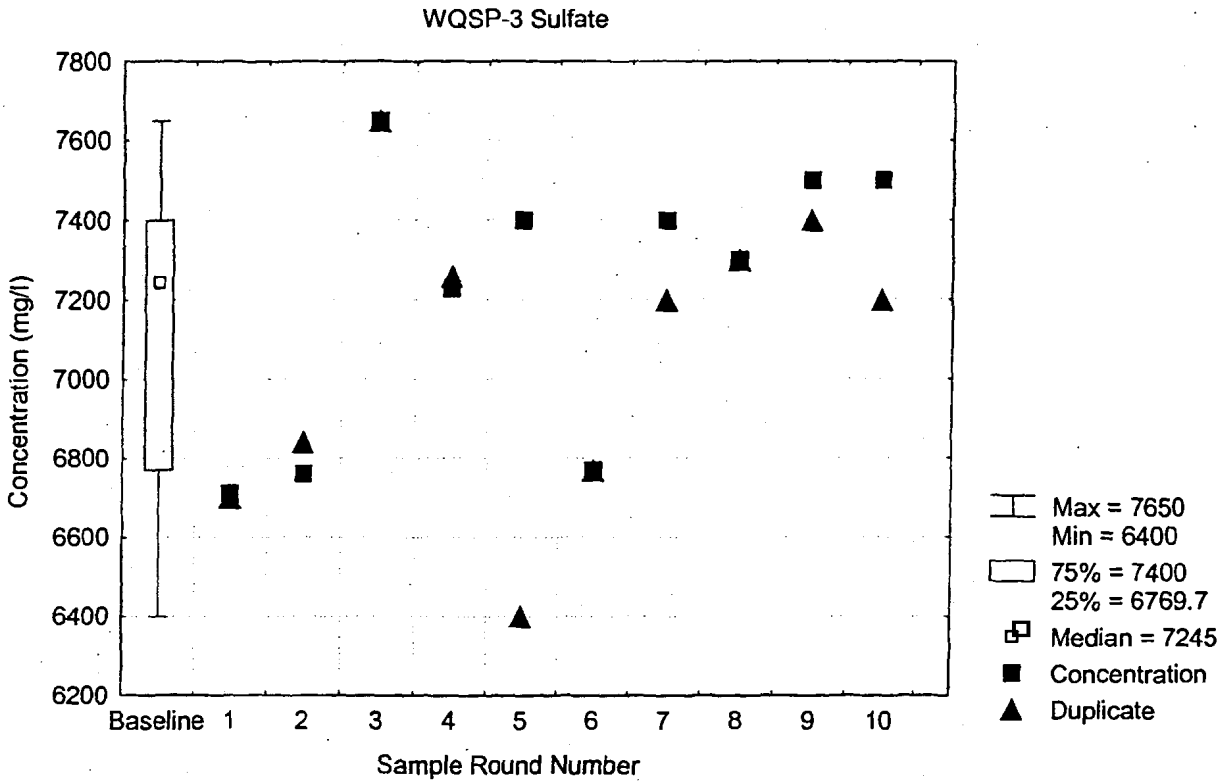

WQSP-3 Chloride
1.48e5
1.42e5
1.36e5
1.3e5
1.24e5
1.18e5
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Number Round
Max = 145000
Min = 120000
75% = 1.34e5
25% = 1.23e5
Median = 1.285e5
Concentration
Duplicate

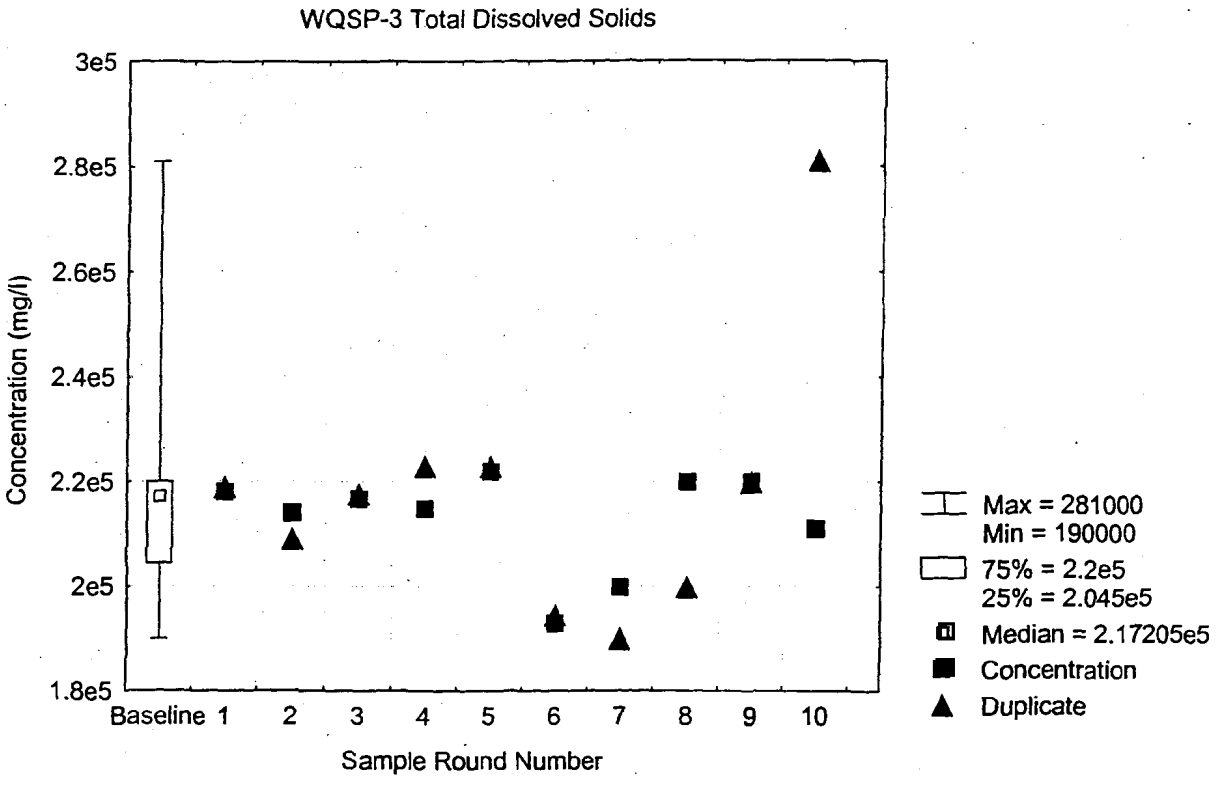

WQSP-3 Density
1.165
1.155
1.145
1.135
1.125
1.115
1.105
1.095
Concentration (g/ml)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 1.156
Min = 1.10
75% = 1.15
25% = 1.1385
Median = 1.1435
Concentration
Duplicate

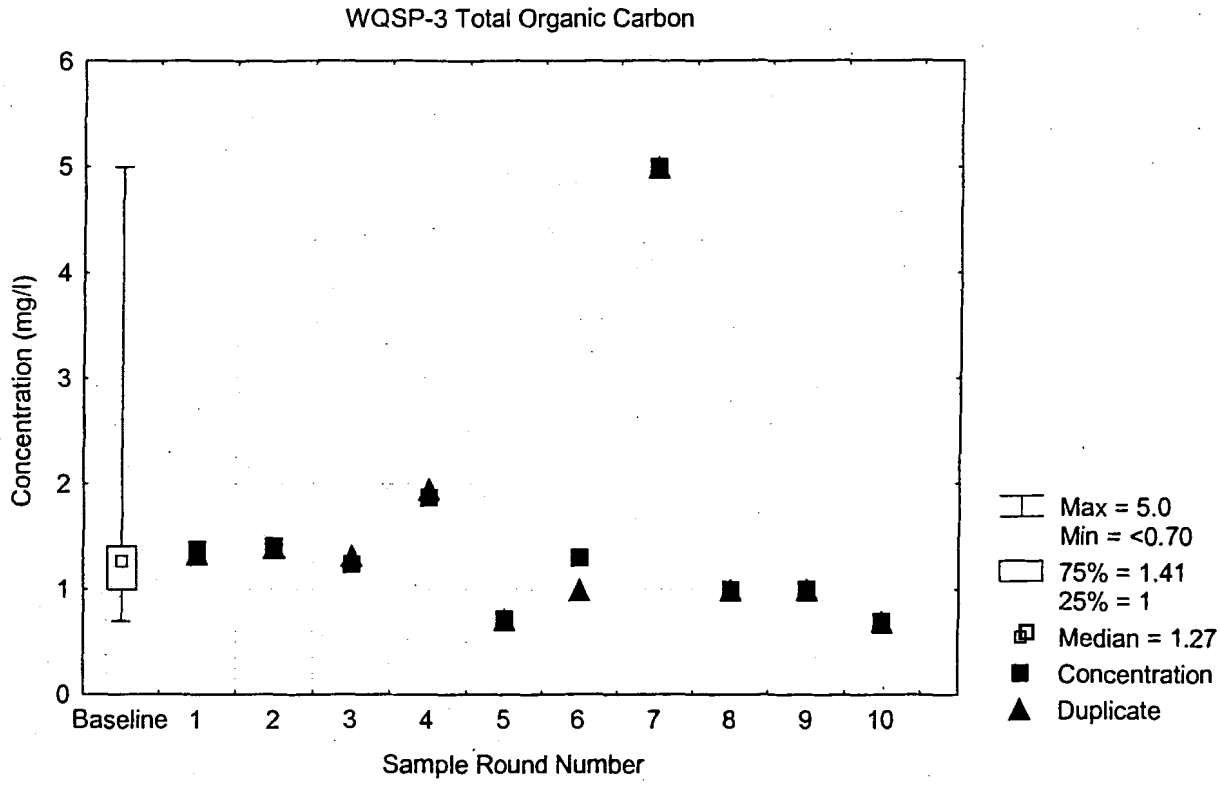

WQSP-3 Fluoride
Concentration (mg/l)
11
9
7
5
3
1
-1
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Non-Outlier Max = 2.
Non-Outlier Min = 0.
75% = 2
25% = 0.535
Median = 2
Duplicate
Concentration


WQSP-3 pH
Concentration (Standard pH Units)
7.15
7.10
7.05
7.00
6.95
6.90
6.85
6.80
6.75
6.70
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 7.12
Min = 6.745
75% = 6.9
25% = 6.82
Median = 6.865
Concentration
Duplicate


WQSP-3 Specific Conductance
4.5e5
4e5
3.5e5
3e5
2.5e5
2e5
1.5e5
1e5
50000
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Number
Max = 420000
Min = 118000
75% = 3.65e5
25% = 2.005e5
Median = 2.5325e5
Concentration
Duplicate


WQSP-3 Sulfate
7800
7600
7400
7200
7000
6800
6600
6400
6200
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 7650
Min = 6400
75% = 7400
25% = 6769.7
Median = 7245
Concentration
Duplicate


WQSP-3 Total Dissolved Solids
3e5
2.8e5
2.6e5
2.4e5
2.2e5
2e5
1.8e5
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 281000
Min = 190000
75% = 2.2e5
25% = 2.045e5
Median = 2.17205e5
Concentration
Duplicate


WQSP-3 Total Organic Carbon
Concentration (mg/l)
0
1
2
3
4
5
6
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 5.0
Min = <0.70
75% = 1.41
25% = 1
Median = 1.27
Concentration
Duplicate

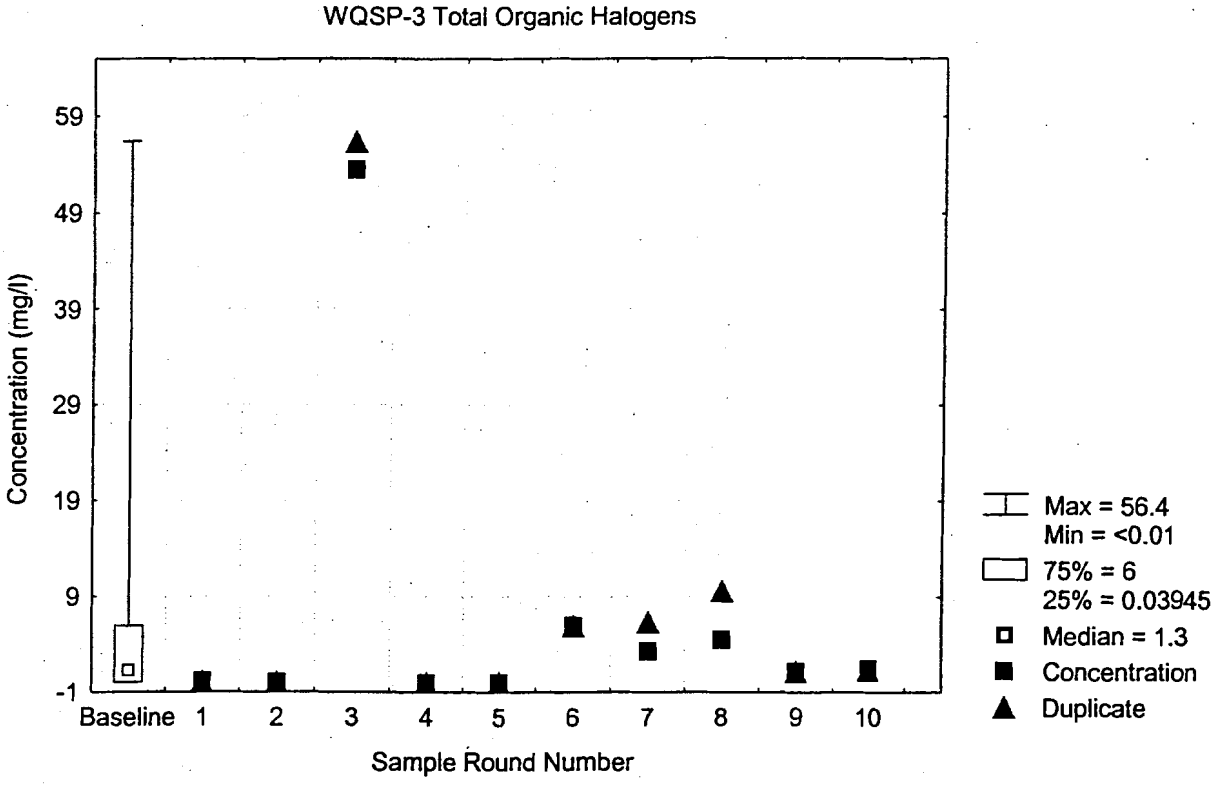

WQSP-3 Total Organic Halogens
Concentration (mg/l)
59
49
39
29
19
9
-1
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 56.4
Min = <0.01
75% = 6
25% = 0.03945
Median = 1.3
Concentration
Duplicate

Table **

Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP4

concentrations in mg/L unless otherwise stated

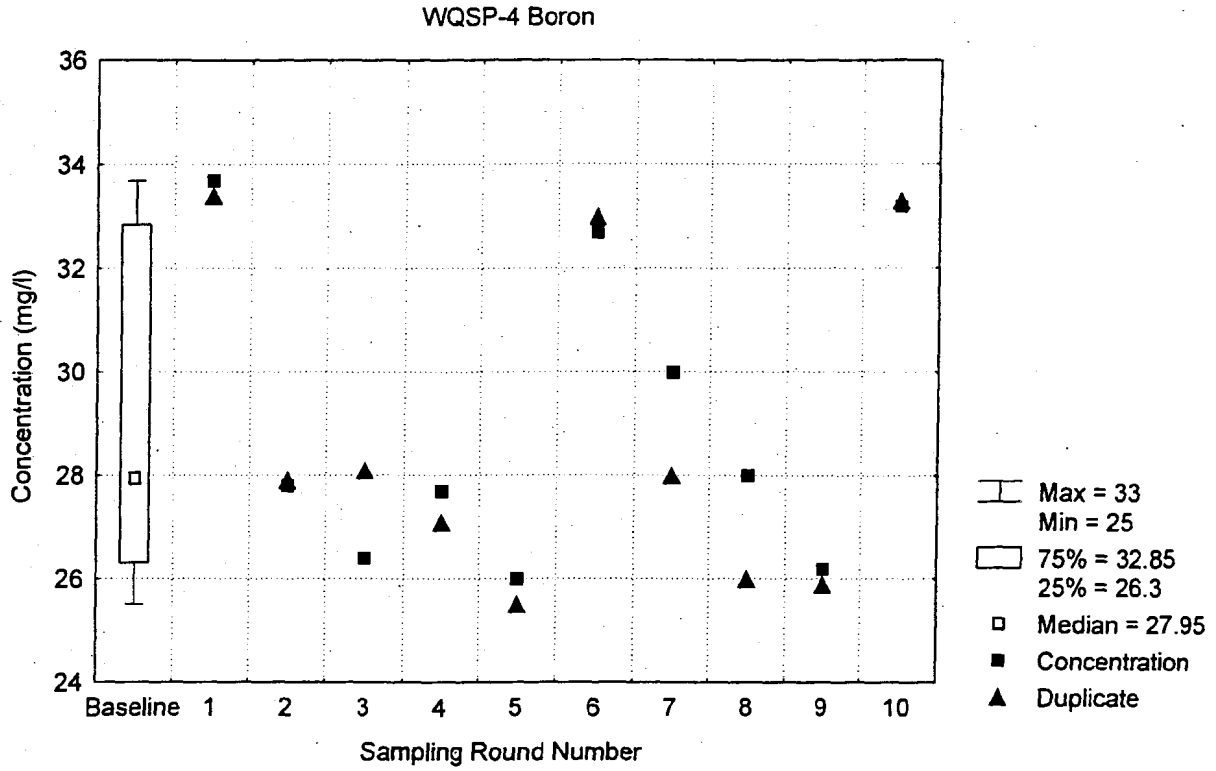
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	20	0	Normal	29.0	44.0	39.0	38.5	3.64	43.0	47.1
BORON	20	0	Lognormal	25.5	33.7	28.0	29.0	3.02	33.6	36.8
BROMIDE	20	10	Nonparametric	42.0	<200	52.0	55.7	15.93	<200	NA
CALCIUM	20	0	Lognormal	1470	1824	1600	1603	92	1782	1834
CHLORIDE	20	0	Normal	53000	61500	58450	58205	2403	61350	63960
CYANIDE	4	100	Nonparametric	<0.01	<0.01	<0.01	<0.01	--	<0.01	NA
DENSITY (g/mL)	20	NA	Lognormal	1.07	1.10	1.07	1.07	0.01	1.10	1.09
FLUORIDE	20	30	Nonparametric	<2.0	2.76	1.10	1.50	0.66	2.73	NA
IODIDE	20	95	Nonparametric	<1.0	2.00	1.00	1.00	0.28	<2.0	NA
LITHIUM	22	10	Lognormal	0.340	1.300	0.553	0.630	0.253	1.100	1.38
NITROGEN, NO3 (AS N)	20	100	Nonparametric	<0.01	<10.0	<0.1	1.532	2.329	<10.0	NA
ORTHOPHOSPHATE (AS P)	20	60	Nonparametric	<0.02	0.54	<0.02	0.07	0.16	0.54	NA
pH (SU)	20	NA	Lognormal	7.00	7.61	7.17	7.19	0.15	7.58	6.8-7.6
SILICA	20	10	Normal	2.00	10.00	5.95	5.64	2.41	9.85	11.4
SODIUM	20	0	Normal	26900	37300	32900	32988	2424	37300	38790
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Lognormal	106000	320000	126000	153725	62888	315000	319800
SULFATE	20	0	Normal	5820	7660	6750	6672	524	7520	7927
SULFIDE	4	100	Nonparametric	<1.5	<1.5	<1.5	<1.5	--	<1.5	NA
TOTAL DISS SOLIDS	20	0	Normal	97900	125000	107000	106360	7137	122500	123500
TOTAL ORGANIC CARBON	20	50	Nonparametric	<0.7	<5.0	1.08	1.19	0.70	<5.0	NA
TOTAL ORGANIC HALOGENS	18	6	Lognormal	<0.02	17.0	0.093	2.1	4.2	17.0	84.1
TOTAL PHENOLS	15	100	Nonparametric	<0.01	<0.27	<0.07	0.035	0.041	<0.27	NA
TOTAL SUSP SOLIDS	20	65	Nonparametric	<1.0	59.0	<10.0	12.8	19.3	57.0	NA

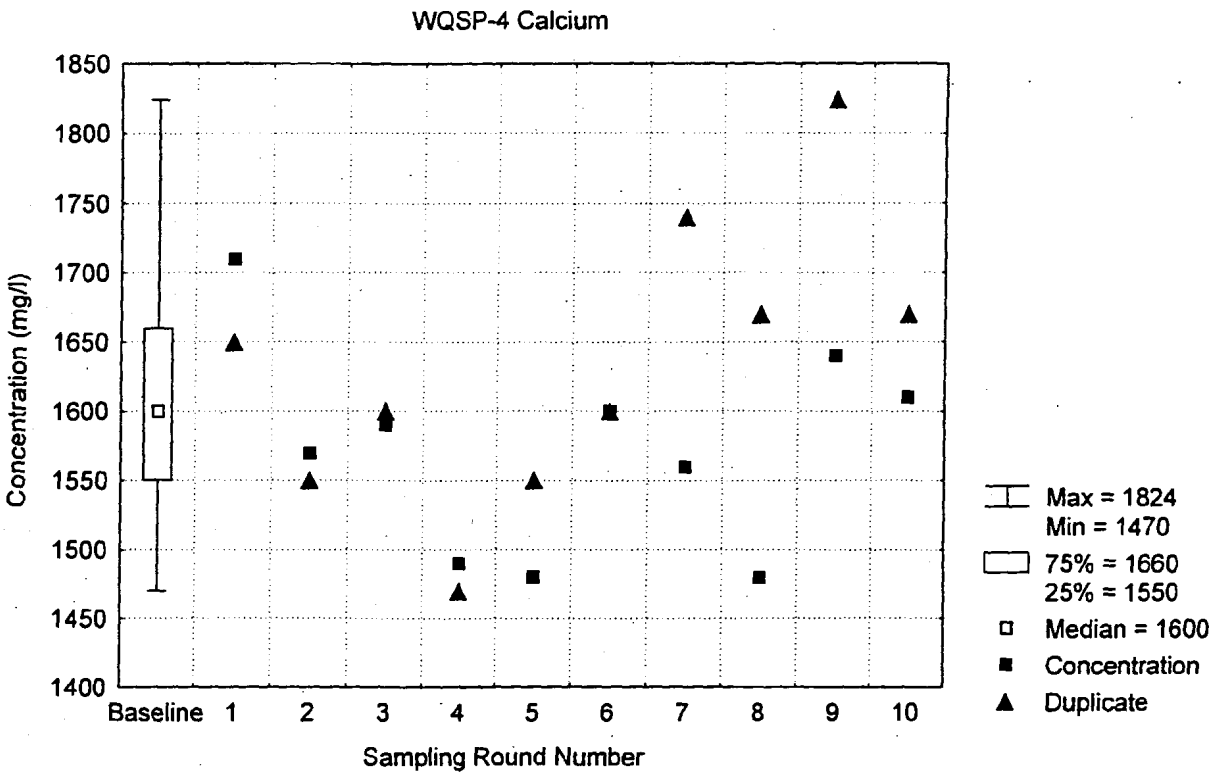
Table **

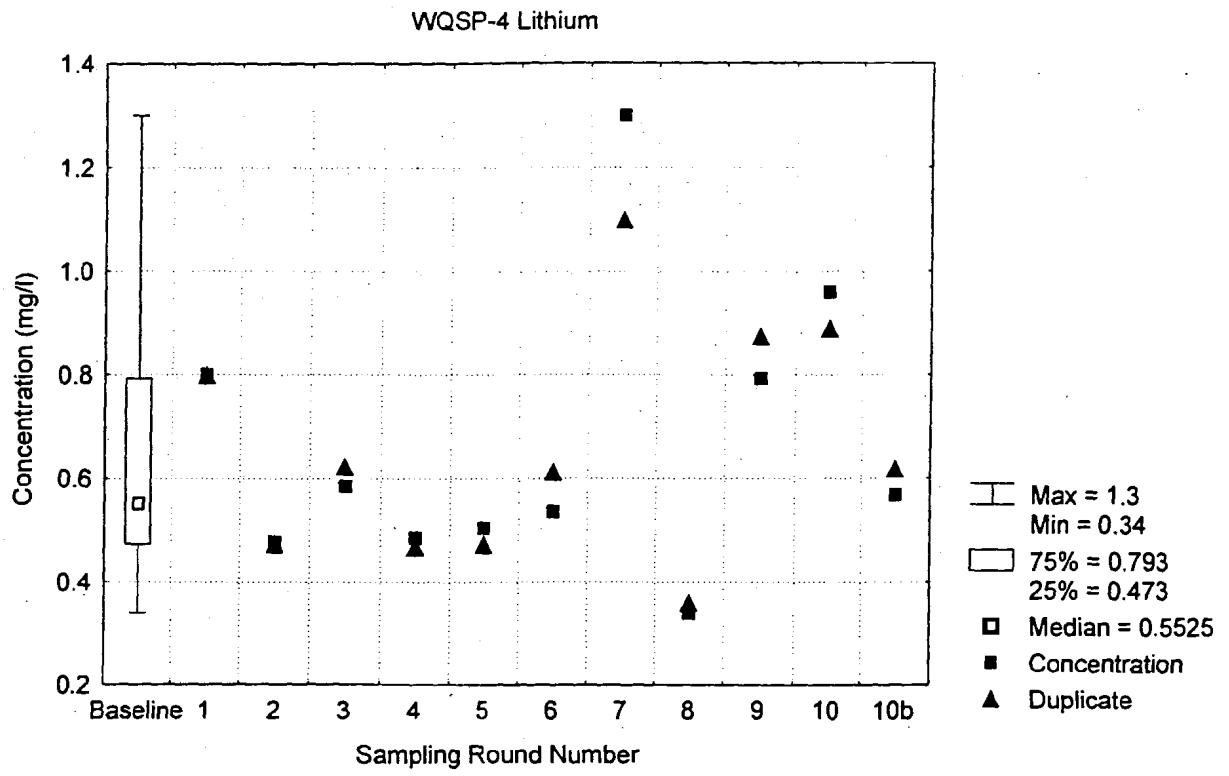
Summary Statistics for Metals at WIPP Monitoring Well WQSP4

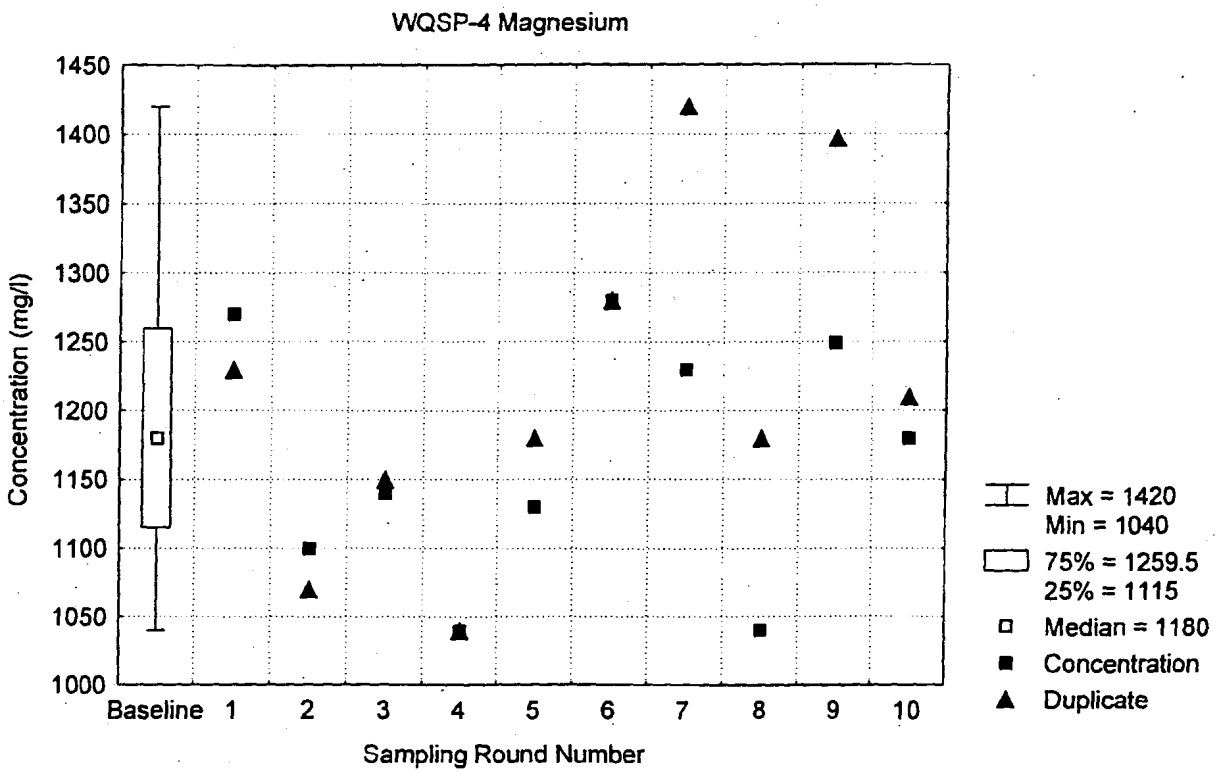
concentrations in mg/L unless otherwise stated

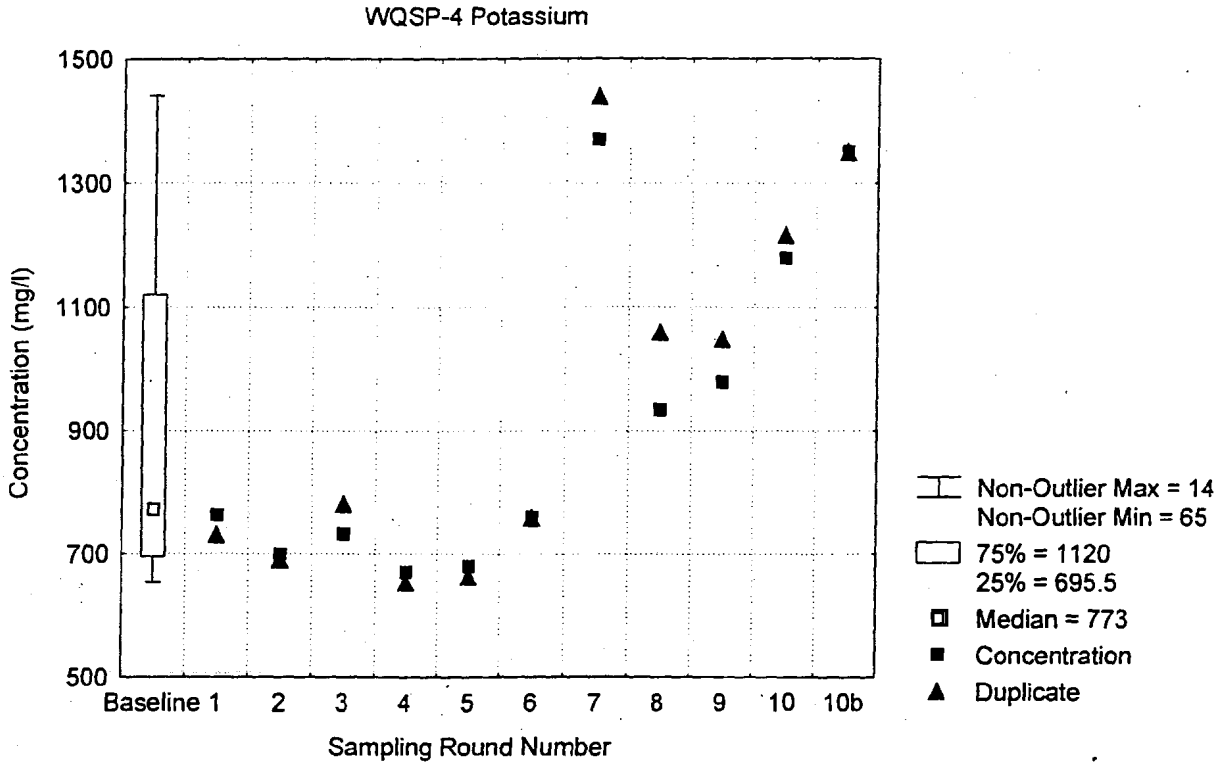
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	16	69	Nonparametric	0.0043	<10.0	<0.05	0.464	1.234	<10.0	NA
ARSENIC	16	100	Nonparametric	<0.008	<0.5	<0.05	0.074	0.105	<0.5	NA
BARIUM	16	56	Nonparametric	<0.02	1.000	0.051	0.188	0.284	1.000	NA
BERYLLIUM	16	88	Nonparametric	0.0012	0.250	0.009	0.033	0.062	0.250	NA
CADMIUM	16	81	Nonparametric	<0.0013	<0.5	<0.02	0.044	0.082	<0.5	NA
CHROMIUM	16	88	Nonparametric	0.0012	<2.0	<0.1	0.181	0.329	<2.0	NA
COBALT	14	86	Nonparametric	<0.01	<5.0	<0.05	0.405	0.892	<5.0	NA
COPPER	14	93	Nonparametric	<0.01	<5.0	<0.05	0.405	0.891	<5.0	NA
IRON	20	70	Nonparametric	0.148	2.490	<0.5	0.687	0.758	2.245	NA
LEAD	16	81	Nonparametric	<0.01	0.525	<0.05	0.079	0.143	0.525	NA
MAGNESIUM	20	0	Lognormal	1040	1420	1180	1191	108	1409	1472
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.001	0.0005	0.0004	<0.002	NA
NICKEL	14	100	Nonparametric	<0.02	<5.0	<0.09	0.387	0.895	<5.0	NA
POTASSIUM	19	0	Lognormal	654	1440	760	890	264	1440	1648
SELENIUM	16	81	Nonparametric	<0.01	2.009	<0.05	0.218	0.536	2.009	NA
SILVER	15	87	Nonparametric	<0.0025	0.519	<0.05	0.094	0.153	0.519	NA
THALLIUM	14	93	Nonparametric	<0.01	1.000	<0.05	0.130	0.281	1.000	NA
TIN	14	100	Nonparametric	<0.01	<5.0	<0.1	0.388	0.895	<5.0	NA
VANADIUM	14	100	Nonparametric	<0.025	<5.0	<0.1	0.391	0.894	<5.0	NA
ZINC	14	100	Nonparametric	<0.0236	<5.0	<0.15	0.749	1.149	<5.0	NA

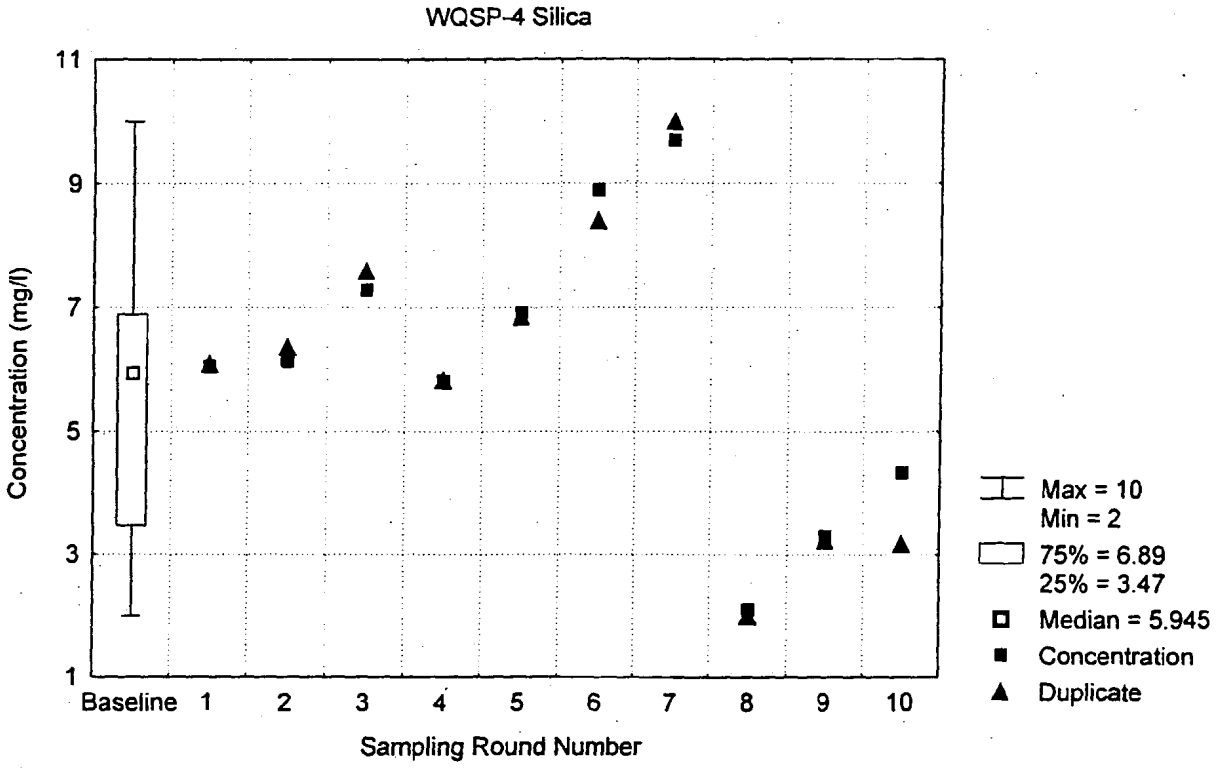

WQSP-4 Boron
Concentration (mg/l)
36
34
32
30
28
26
24
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 33
Min = 25
75% = 32.85
25% = 26.3
Median = 27.95
Concentration
Duplicate

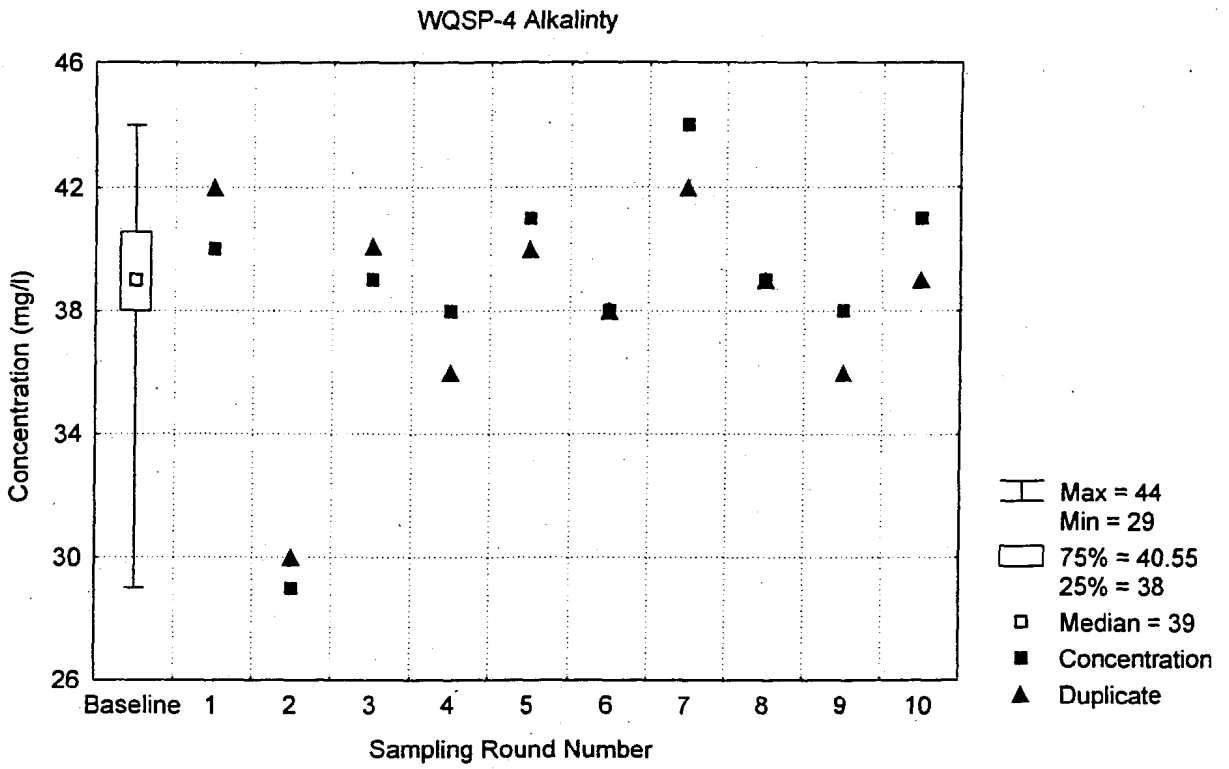

WQSP-4 Calcium
Concentration (mg/l)
1850
1800
1750
1700
1650
1600
1550
1500
1450
1400
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 1824
Min = 1470
75% = 1660
25% = 1550
Median = 1600
Concentration
Duplicate

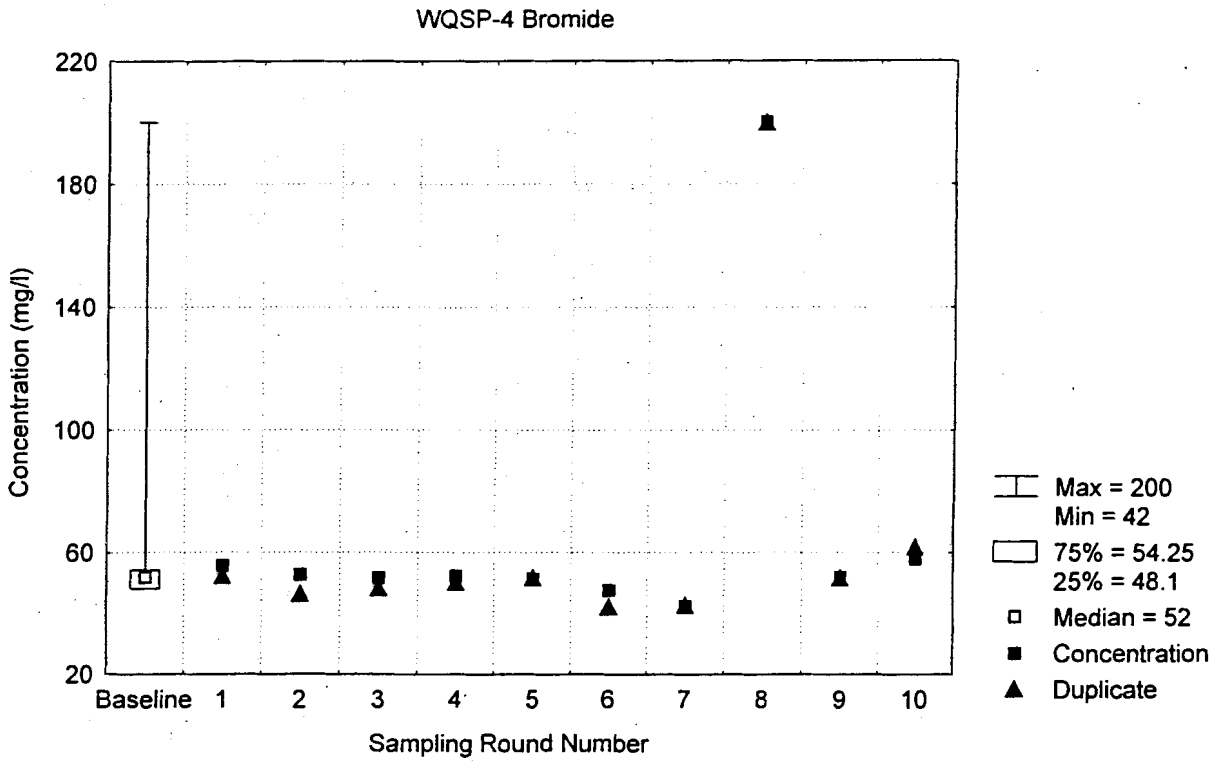

WQSP-4 Lithium
Concentration (mg/l)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Baseline
1
2
3
4
5
6
7
8
9
10
10b
Sampling Round Number
Max = 1.3
Min = 0.34
75% = 0.793
25% = 0.473
Median = 0.5525
Concentration
Duplicate

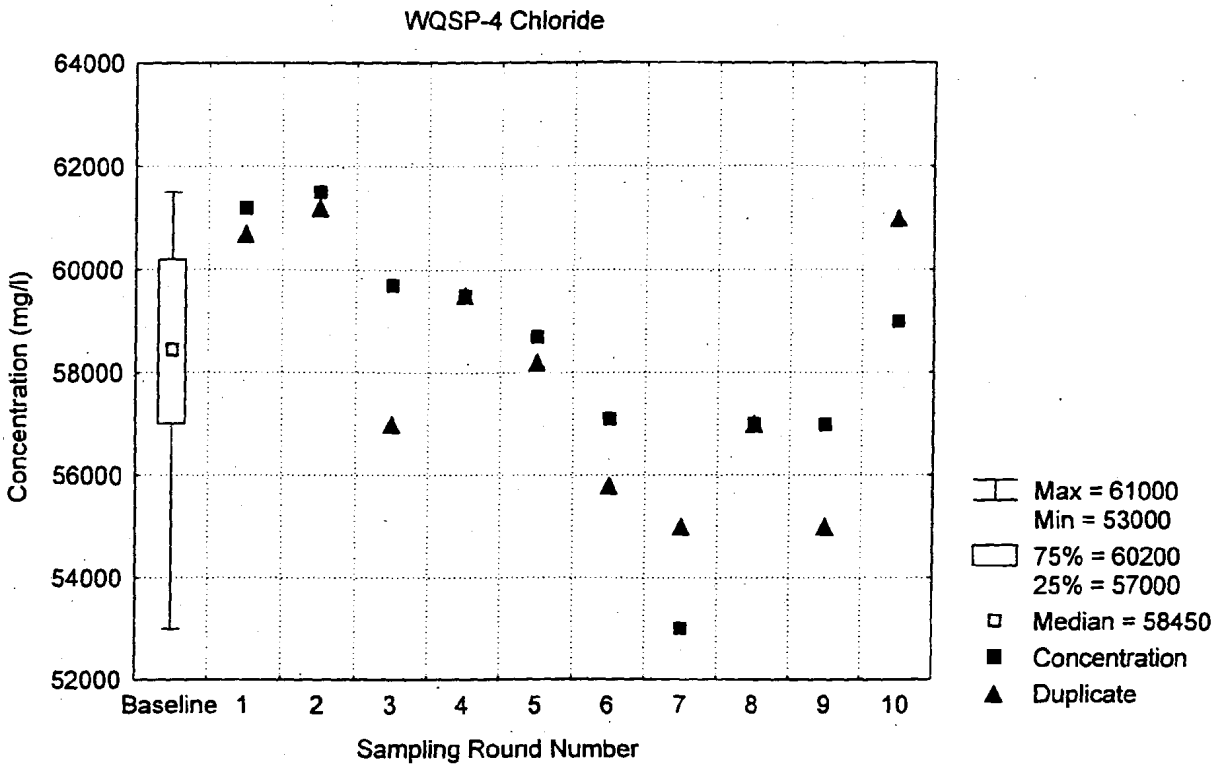

WQSP-4 Magnesium
Concentration (mg/l)
1450
1400
1350
1300
1250
1200
1150
1100
1050
1000
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 1420
Min = 1040
75% = 1259.5
25% = 1115
Median = 1180
Concentration
Duplicate

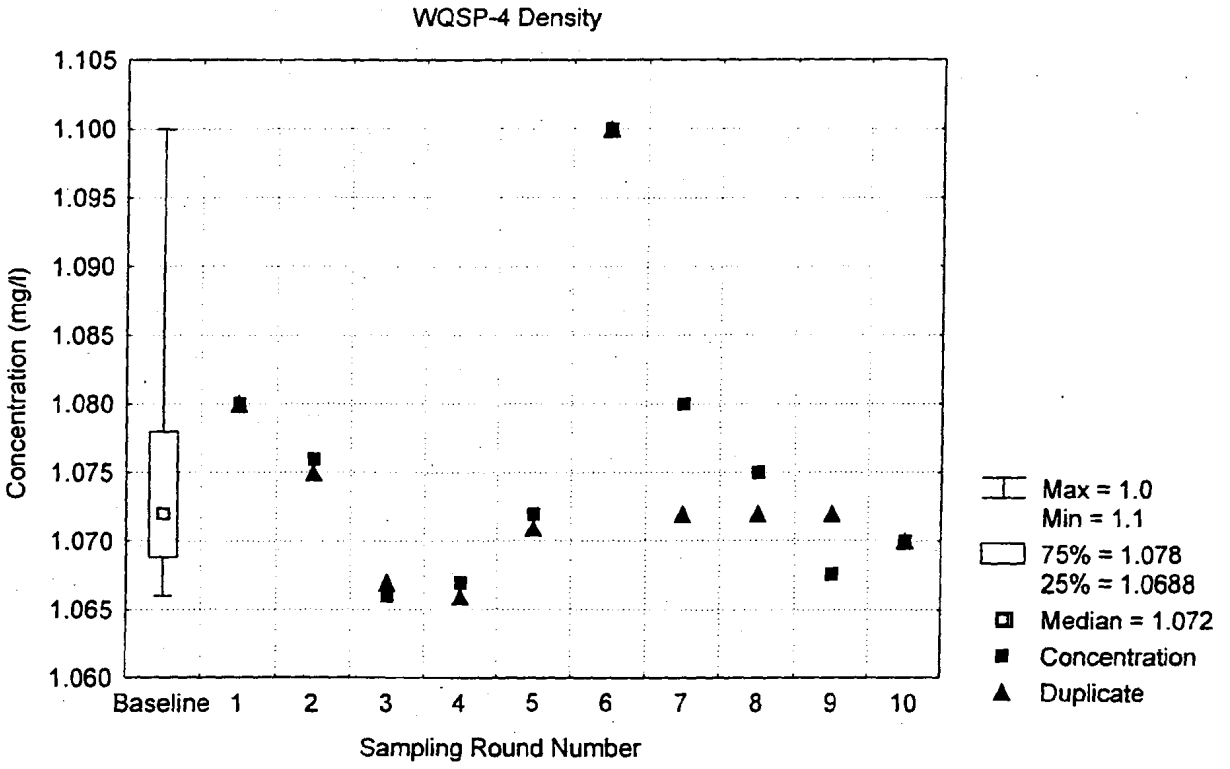

WQSP-4 Potassium
1500
1300
1100
900
700
500
Concentration (mg/l)
Baseline 1
2
3
4
5
6
7
8
9
10
10b
Sampling Round Number
Non-Outlier Max = 14
Non-Outlier Min = 65
75% = 1120
25% = 695.5
Median = 773
Concentration
Duplicate

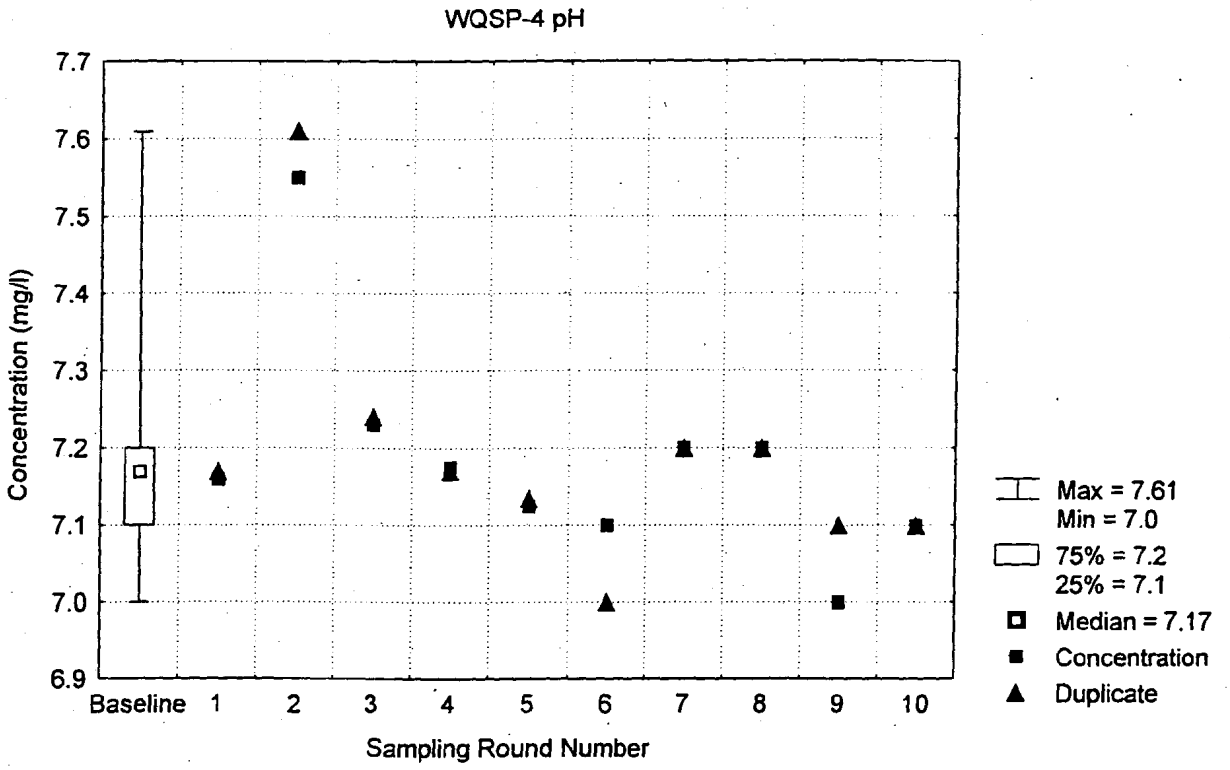

WQSP-4 Silica
Concentration (mg/l)
11
9
7
5
3
1
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 10
Min = 2
75% = 6.89
25% = 3.47
Median = 5.945
Concentration
Duplicate

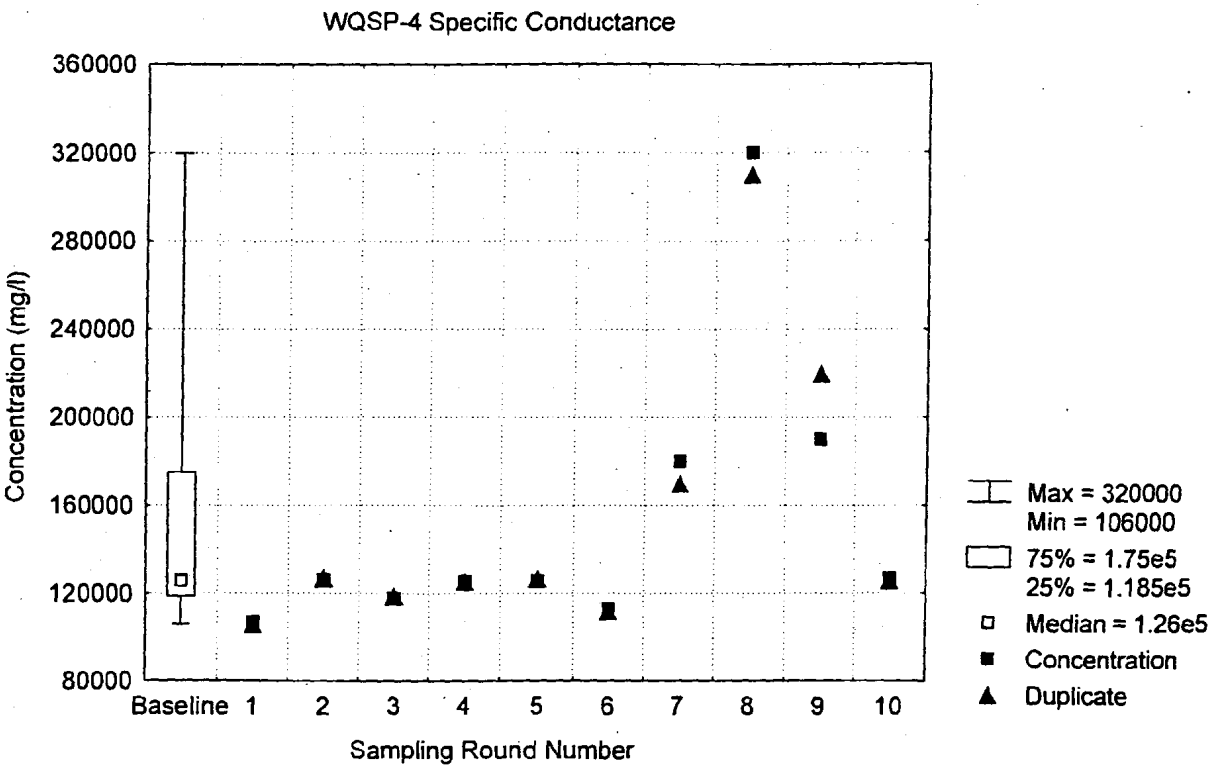

WQSP-4 Alkalinty
Concentration (mg/l)
46
42
38
34
30
26
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 44
Min = 29
75% = 40.55
25% = 38
Median = 39
Concentration
Duplicate

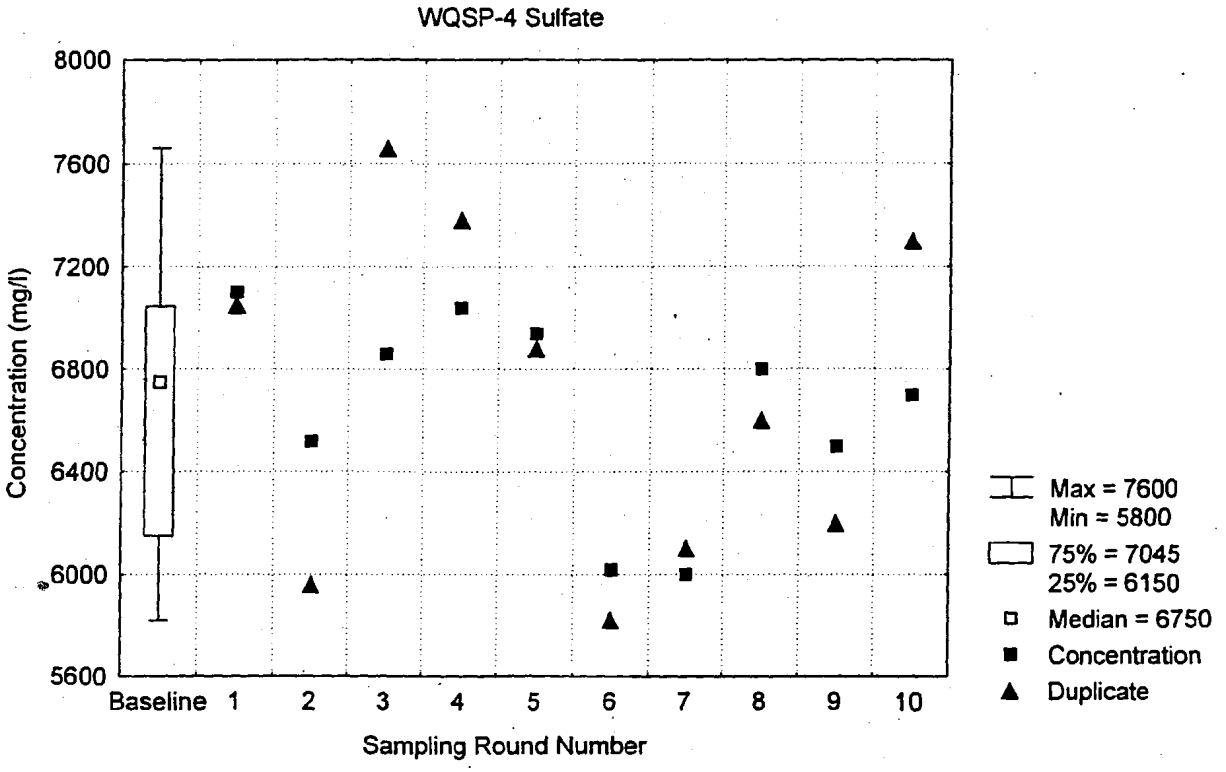

WQSP-4 Bromide
220
180
140
100
60
20
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 200
Min = 42
75% = 54.25
25% = 48.1
Median = 52
Concentration
Duplicate

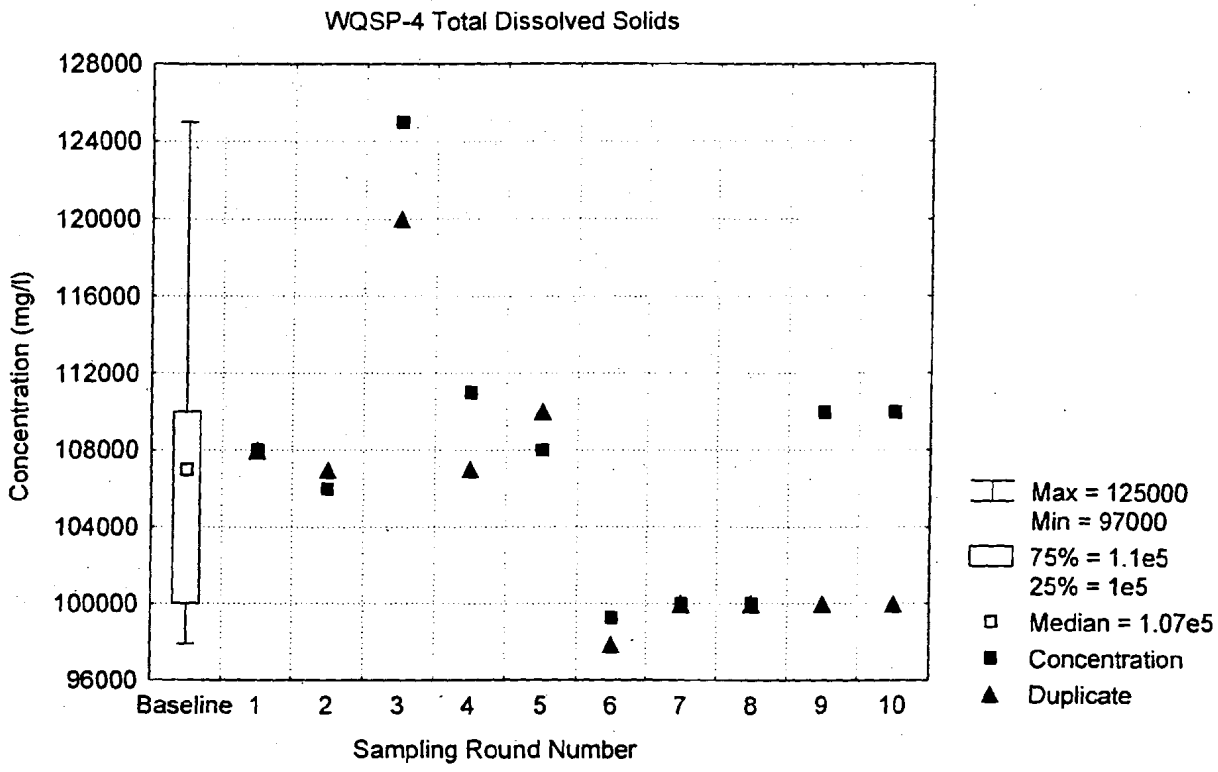

WQSP-4 Chloride
64000
62000
60000
58000
56000
54000
52000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 61000
Min = 53000
75% = 60200
25% = 57000
Median = 58450
Concentration
Duplicate

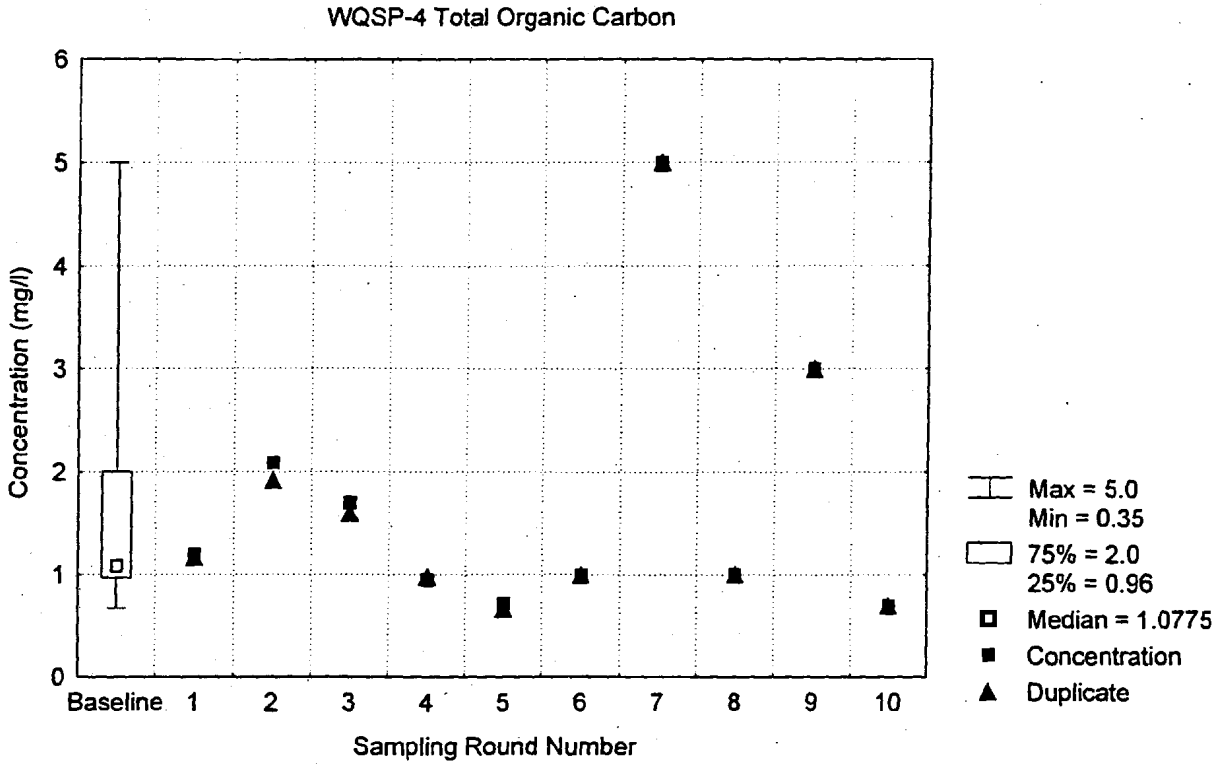

WQSP-4 Density
1.105
1.100
1.095
1.090
1.085
1.080
1.075
1.070
1.065
1.060
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 1.0
Min = 1.1
75% = 1.078
25% = 1.0688
Median = 1.072
Concentration
Duplicate


WQSP-4 pH
Concentration (mg/l)
7.7
7.6
7.5
7.4
7.3
7.2
7.1
7.0
6.9
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 7.61
Min = 7.0
75% = 7.2
25% = 7.1
Median = 7.17
Concentration
Duplicate


WQSP-4 Specific Conductance
360000
320000
280000
240000
200000
160000
120000
80000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 320000
Min = 106000
75% = 1.75e5
25% = 1.185e5
Median = 1.26e5
Concentration
Duplicate


WQSP-4 Sulfate
8000
7600
7200
6800
6400
6000
5600
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 7600
Min = 5800
75% = 7045
25% = 6150
Median = 6750
Concentration
Duplicate


WQSP-4 Total Dissolved Solids
128000
124000
120000
116000
112000
108000
104000
100000
96000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 125000
Min = 97000
75% = 1.1e5
25% = 1e5
Median = 1.07e5
Concentration
Duplicate


WQSP-4 Total Organic Carbon
Concentration (mg/l)
0
1
2
3
4
5
6
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 5.0
Min = 0.35
75% = 2.0
25% = 0.96
Median = 1.0775
Concentration
Duplicate

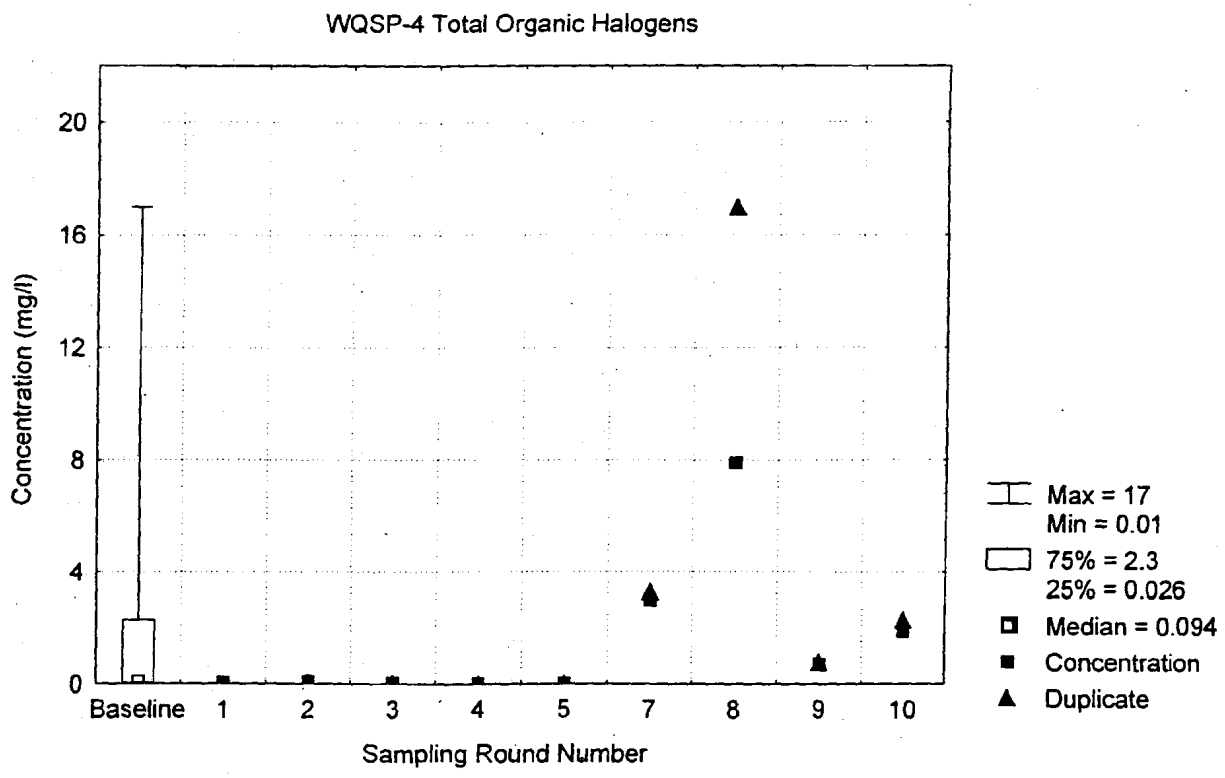

WQSP-4 Total Organic Halogens
Concentration (mg/l)
20
16
12
8
4
0
Baseline
1
2
3
4
5
7
8
9
10
Sampling Round Number
Max = 17
Min = 0.01
75% = 2.3
25% = 0.026
Median = 0.094
Concentration
Duplicate

Table **

Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP5

concentrations in mg/L unless otherwise stated

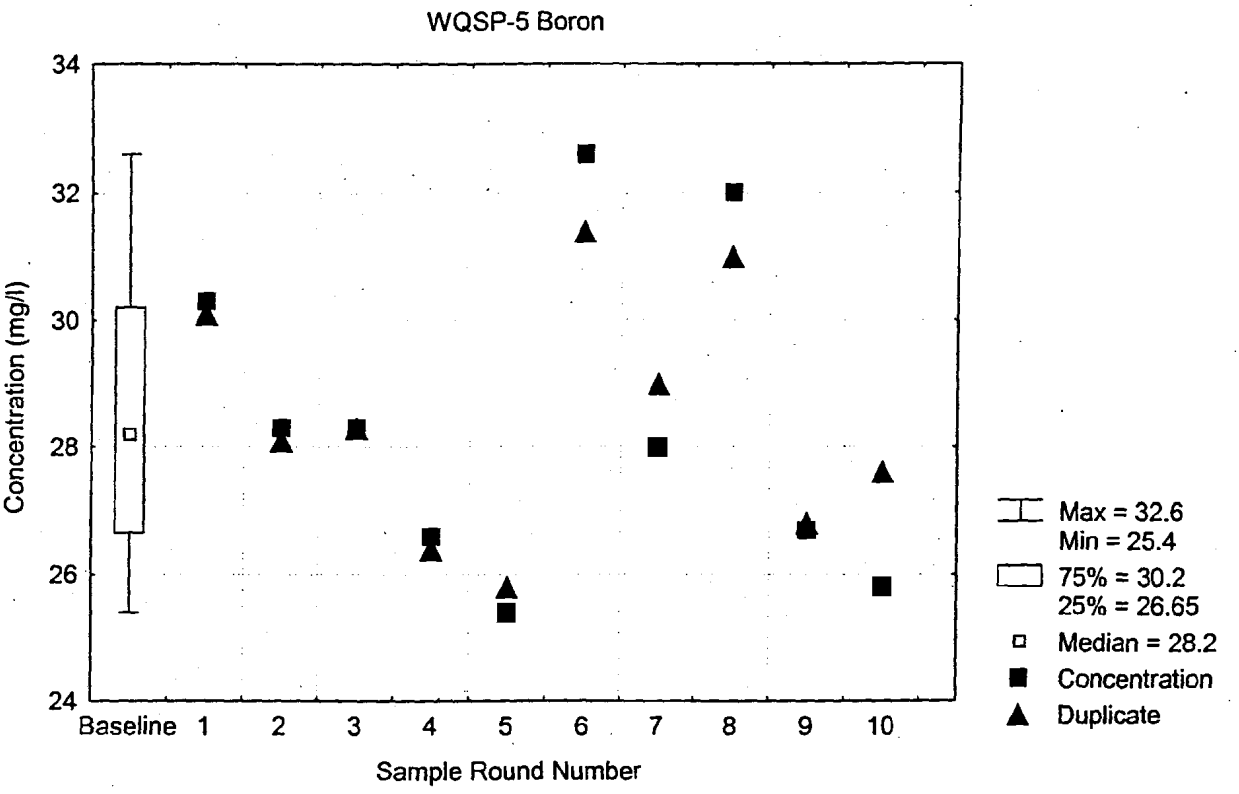
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	20	0	Lognormal	41.1	52.0	48.5	48.0	3.05	52.0	56
BORON	20	0	Lognormal	25.4	32.6	28.2	28.4	2.17	32.3	40
BROMIDE	20	10	Lognormal	18.2	50.0	24.9	28.7	10.62	50.0	59.4
CALCIUM	22	0	Lognormal	945	1410	1025	1057	104	1220	1303
CHLORIDE	20	0	Lognormal	13591	19000	15300	15485	1062	17600	18100
CYANIDE	4	100	Nonparametric	<0.01	<0.01	<0.01	<0.01	--	<0.01	NA
DENSITY (g/mL)	20	NA	Normal	1.00	1.03	1.02	1.02	0.01	1.03	1.04
FLUORIDE	20	30	Nonparametric	<2.0	3.08	2.25	2.11	0.72	3.00	NA
IODIDE	20	95	Nonparametric	<1.0	2.00	<2.0	1.00	0.28	1.50	NA
LITHIUM	22	0	Lognormal	0.306	0.874	0.370	0.427	0.128	0.625	0.74
NITROGEN, NO3 (AS N)	20	80	Nonparametric	<0.1	<10.0	0.285	1.720	2.234	<10.0	NA
ORTHOPHOSPHATE (AS P)	18	67	Nonparametric	<0.02	<5.0	<0.02	0.35	0.80	<5.0	NA
pH (SU)	20	NA	Normal	7.50	7.80	7.65	7.64	0.10	7.80	7.4-7.9
SILICA	20	0	Normal	3.87	11.50	10.55	8.33	3.34	11.50	16.3
SODIUM	20	0	Normal	6230	10500	9190	9050	891	10289	11190
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Lognormal	42200	66000	44850	48448	7572	65500	67700
SULFATE	20	0	Normal	4300	5900	4985	5003	470	5815	6129
SULFIDE	4	75	Nonparametric	<1.5	3.80	<1.5	<1.5	1.53	3.80	NA
TOTAL DISS SOLIDS	20	0	Nonparametric	31000	44100	33100	34043	3572	43950	NA
TOTAL ORGANIC CARBON	20	40	Nonparametric	<0.7	<5.0	1.02	1.22	0.64	<5.0	NA
TOTAL ORGANIC HALOGENS	18	0	Lognormal	0.010	1.2	0.064	0.4	0.5	1.2	8.37
TOTAL PHENOLS	15	100	Nonparametric	<0.01	<0.1	<0.07	0.025	0.018	<0.1	NA
TOTAL SUSP SOLIDS	20	100	Nonparametric	<1.0	<10.0	<10.0	3.2	2.3	<10.0	NA

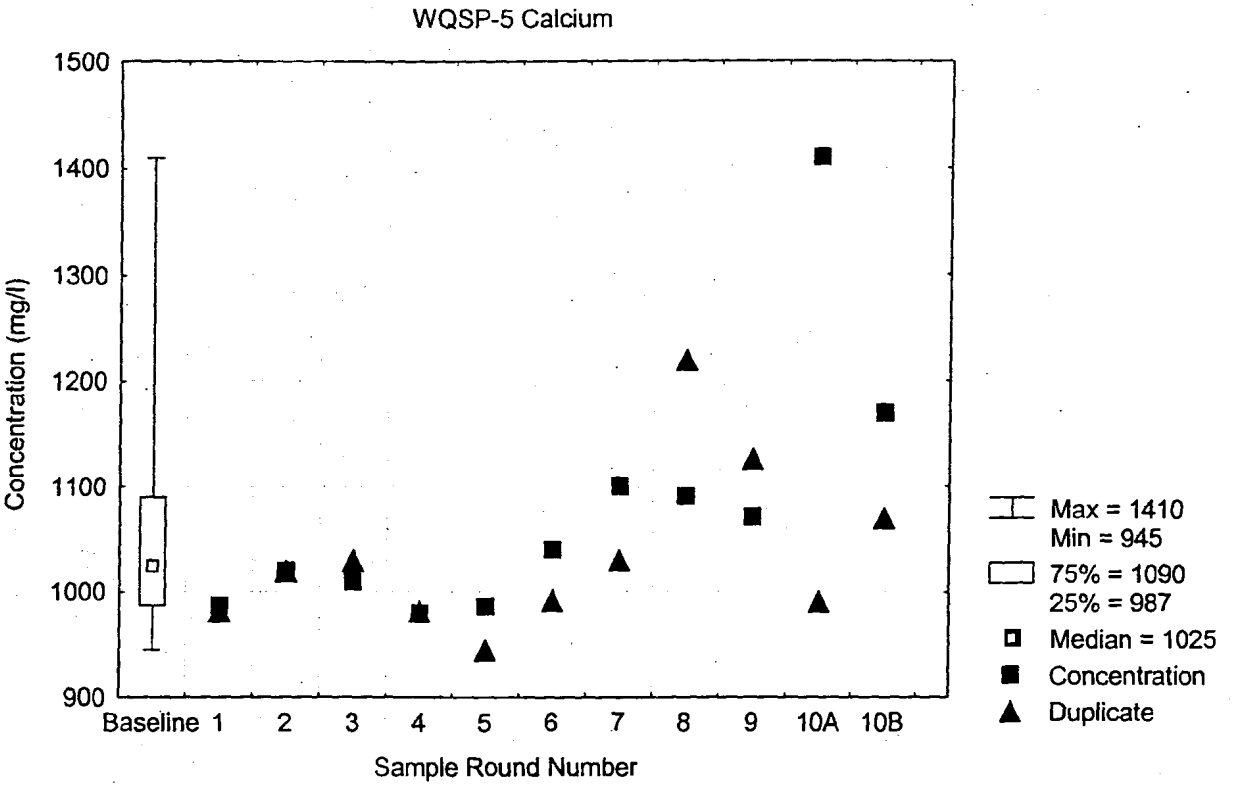
Table **

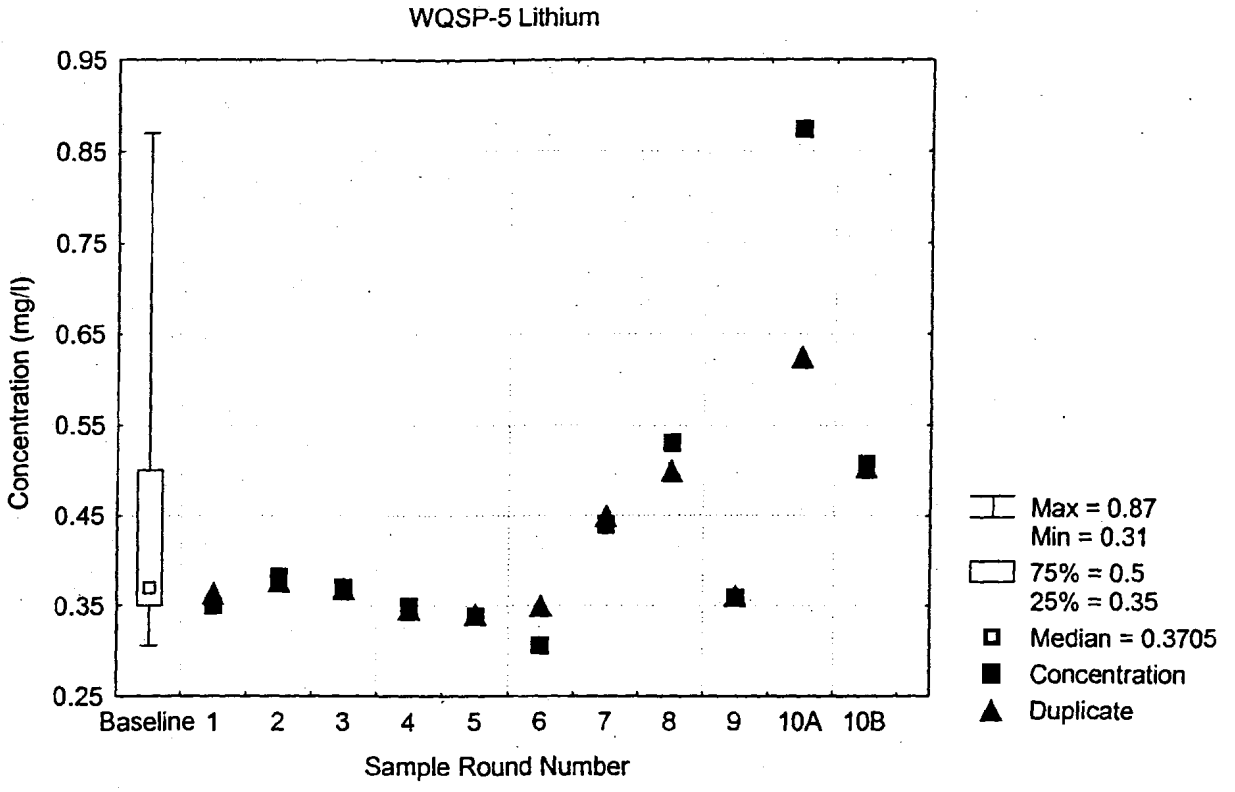
Summary Statistics for Metals at WIPP Monitoring Well WQSP5

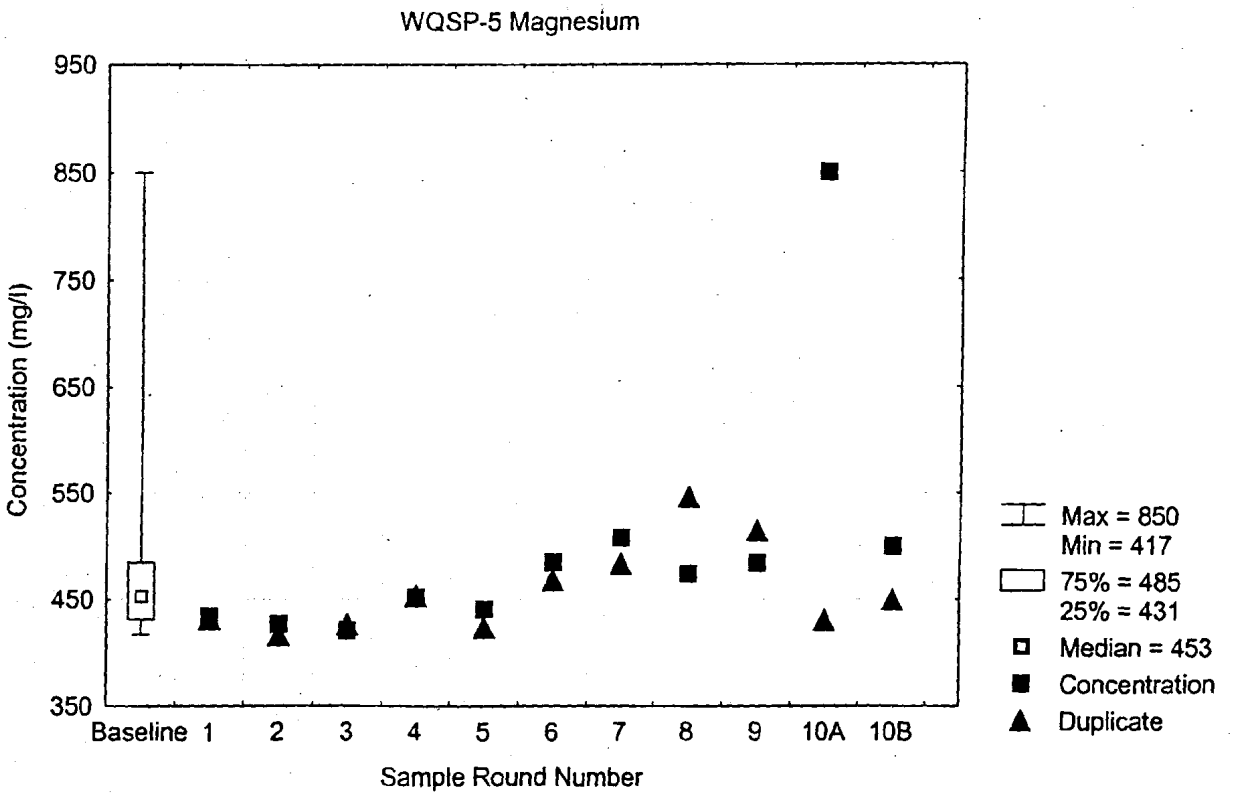
concentrations in mg/L unless otherwise stated

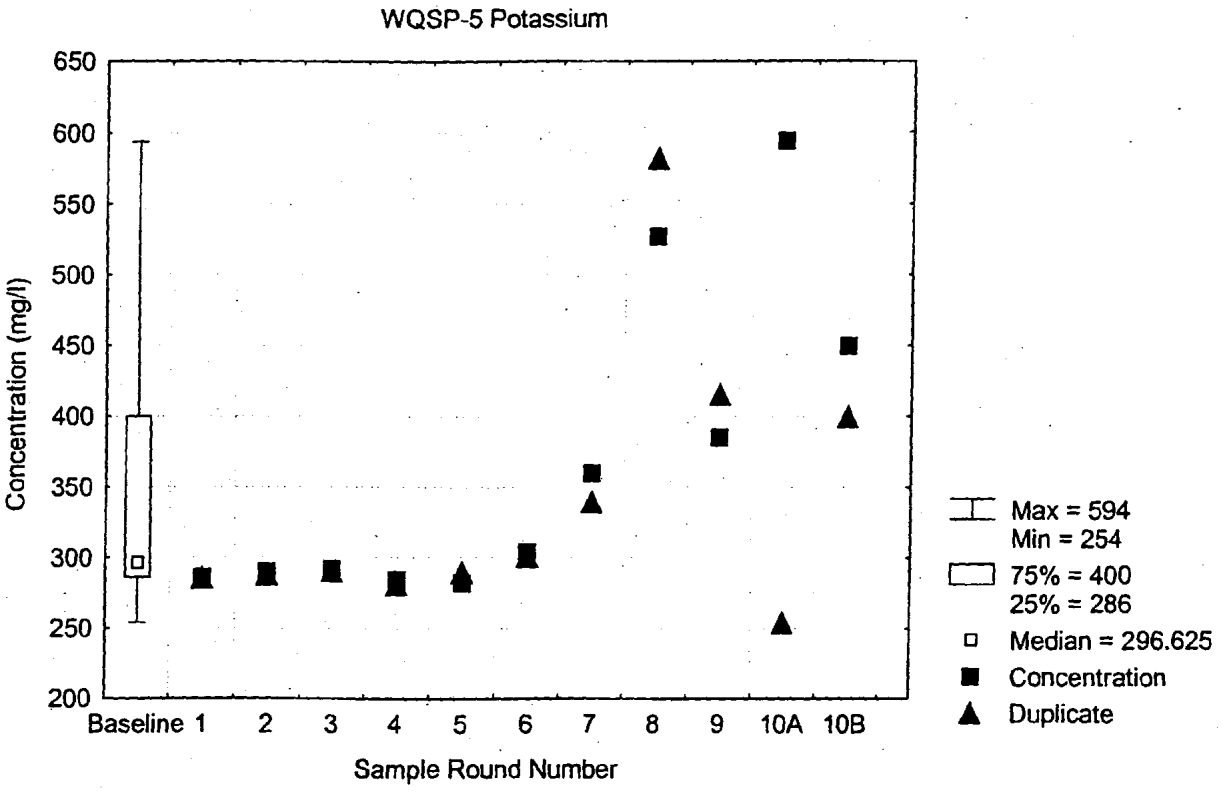
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	14	86	Nonparametric	<0.01	0.073	<0.05	0.022	0.017	0.073	NA
ARSENIC	16	94	Nonparametric	<0.013	<0.5	<0.05	0.079	0.104	<0.5	NA
BARIUM	16	75	Nonparametric	<0.02	<1.0	0.021	0.144	0.213	<1.0	NA
BERYLLIUM	16	88	Nonparametric	0.0009	<0.02	<0.01	0.005	0.003	<0.02	NA
CADMIUM	16	94	Nonparametric	0.000	<0.05	<0.1	0.009	0.010	<0.05	NA
CHROMIUM	16	75	Nonparametric	0.0026	<0.5	<0.05	0.078	0.104	<0.5	NA
COBALT	14	79	Nonparametric	<0.01	<0.5	<0.05	0.086	0.108	<0.5	NA
COPPER	14	79	Nonparametric	<0.013	<1.0	0.029	0.180	0.227	<1.0	NA
IRON	20	75	Nonparametric	0.032	1.090	<0.5	0.263	0.228	0.795	NA
LEAD	16	88	Nonparametric	<0.01	<0.05	<0.02	0.014	0.009	<0.05	NA
MAGNESIUM	22	0	Nonparametric	417	850	453	478	90	547	NA
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.0002	0.0004	0.0004	<0.002	NA
NICKEL	14	93	Nonparametric	<0.002	<0.1	<0.08	0.032	0.019	<0.1	NA
POTASSIUM	22	0	Lognormal	254	594	297	354	101	582	622
SELENIUM	16	100	Nonparametric	<0.014	<0.1	<0.05	0.025	0.017	<0.1	NA
SILVER	16	88	Nonparametric	<0.013	<0.5	<0.05	0.075	0.105	<0.5	NA
THALLIUM	16	88	Nonparametric	<0.01	0.209	<0.05	0.033	0.051	0.209	NA
TIN	14	100	Nonparametric	<0.01	<0.1	<0.1	0.038	0.019	<0.1	NA
VANADIUM	14	71	Nonparametric	<0.025	2.700	<0.1	0.371	0.850	2.700	NA
ZINC	14	100	Nonparametric	<0.05	<5.0	0.081	0.469	0.885	<5.0	NA

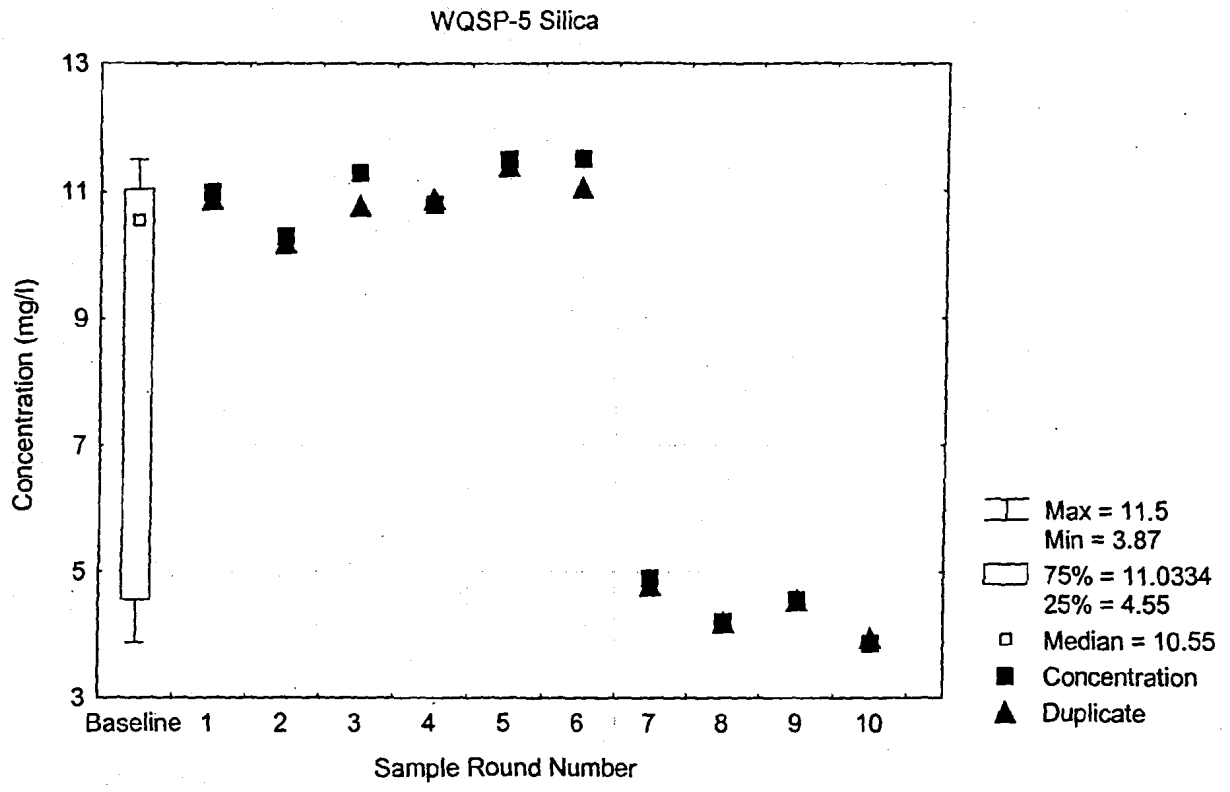

WQSP-5 Boron
Concentration (mg/l)
34
32
30
28
26
24
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 32.6
Min = 25.4
75% = 30.2
25% = 26.65
Median = 28.2
Concentration
Duplicate

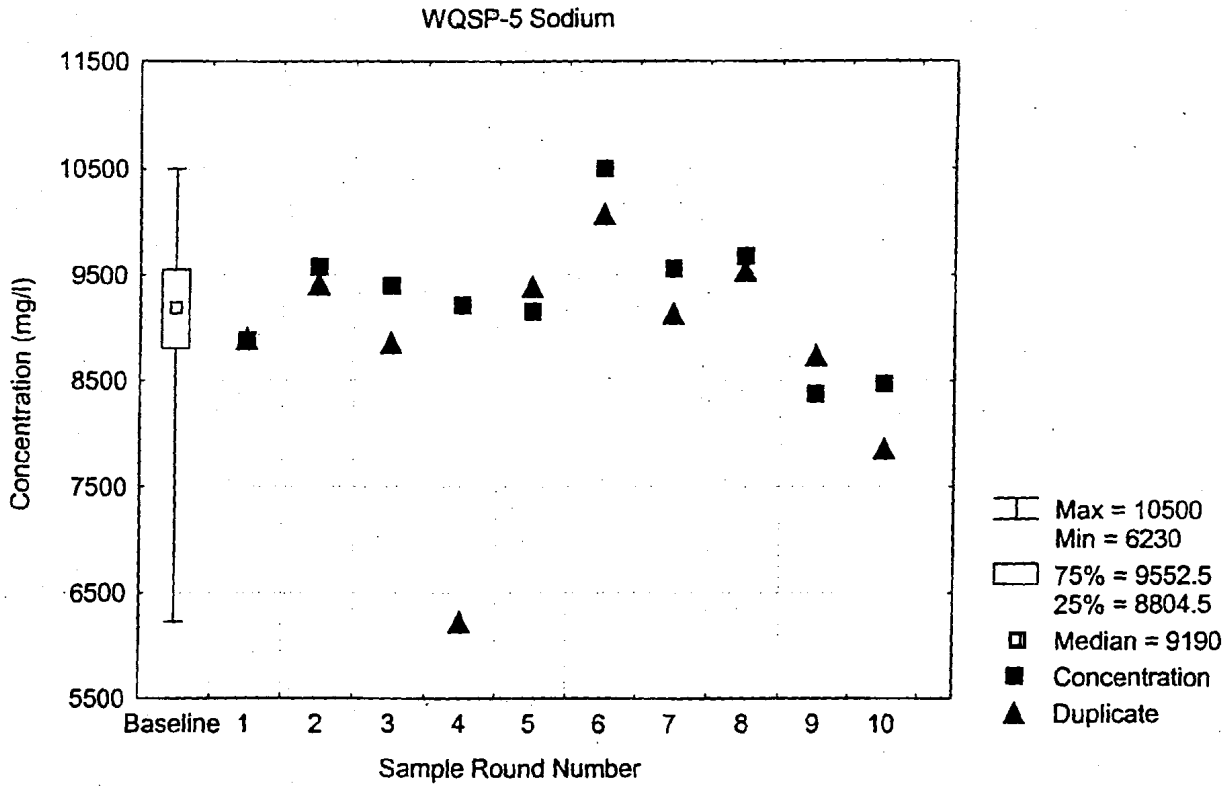

WQSP-5 Calcium
1500
1400
1300
1200
1100
1000
900
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10A 10B
Sample Round Number
Max = 1410
Min = 945
75% = 1090
25% = 987
Median = 1025
Concentration
Duplicate

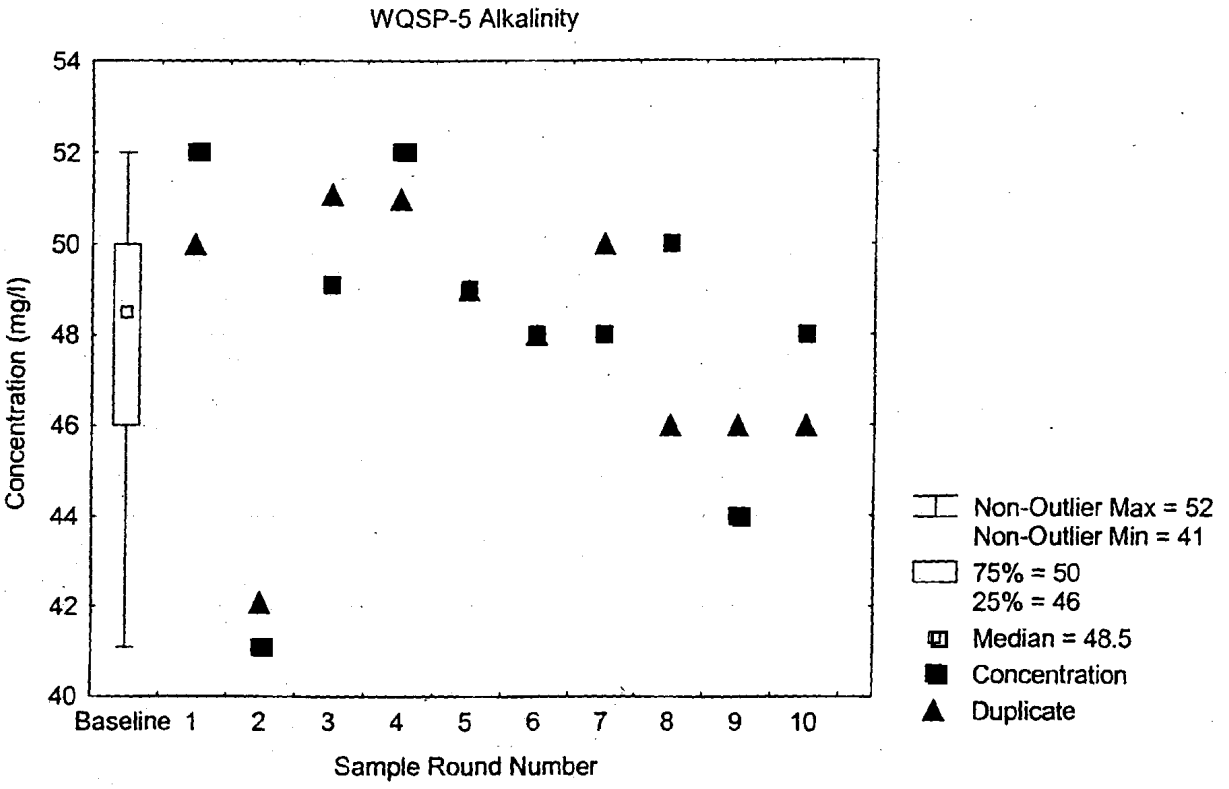

WQSP-5 Lithium
0.95
0.85
0.75
0.65
0.55
0.45
0.35
0.25
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10A 10B
Sample Round Number
Max = 0.87
Min = 0.31
75% = 0.5
25% = 0.35
Median = 0.3705
Concentration
Duplicate

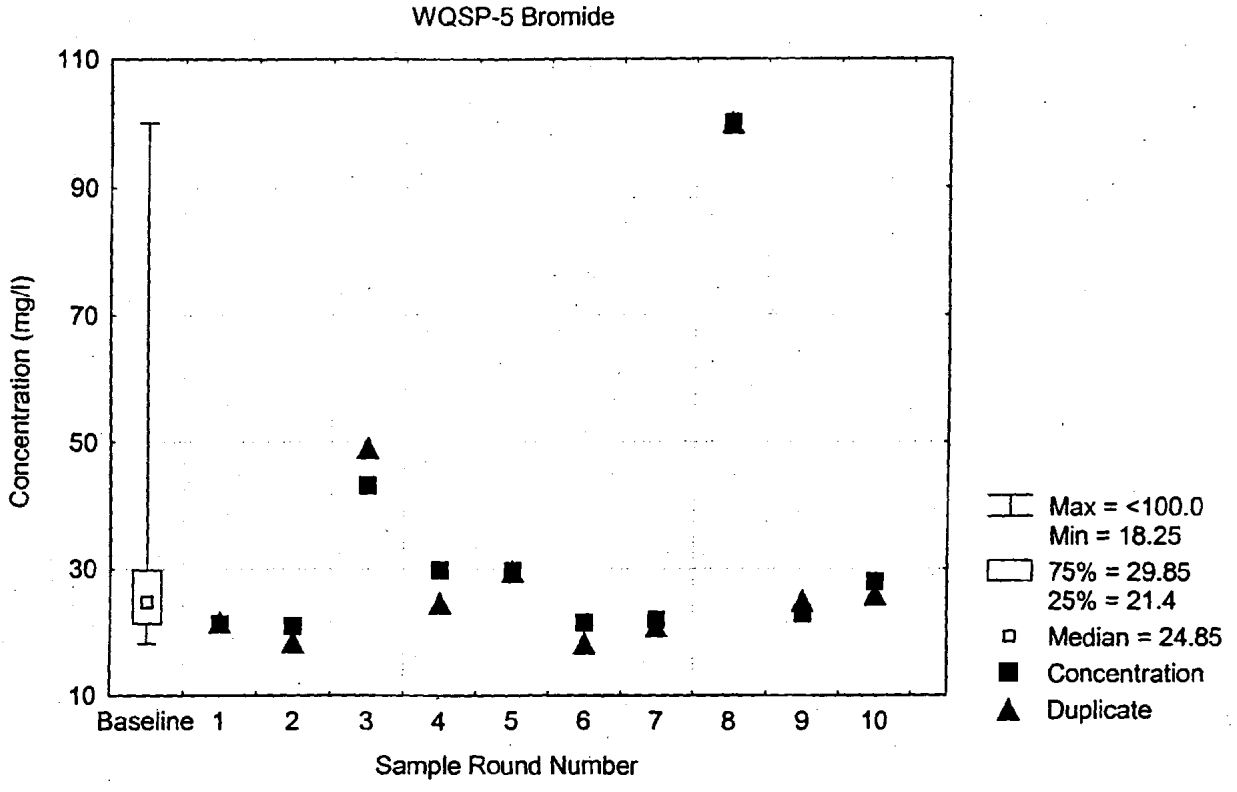

WQSP-5 Magnesium
950
850
750
650
550
450
350
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10A 10B
Sample Round Number
Max = 850
Min = 417
75% = 485
25% = 431
Median = 453
Concentration
Duplicate

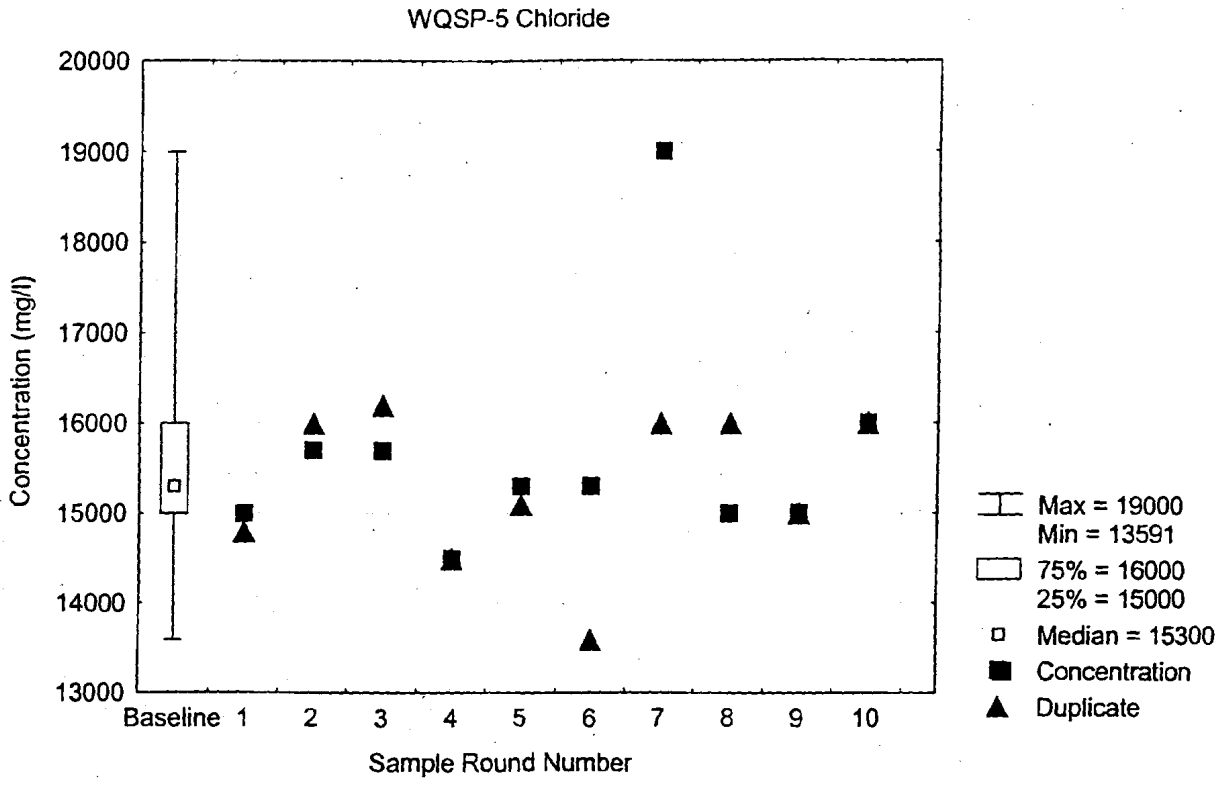

WQSP-5 Potassium
650
600
550
500
450
400
350
300
250
200
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10A 10B
Sample Round Number
Max = 594
Min = 254
75% = 400
25% = 286
Median = 296.625
Concentration
Duplicate

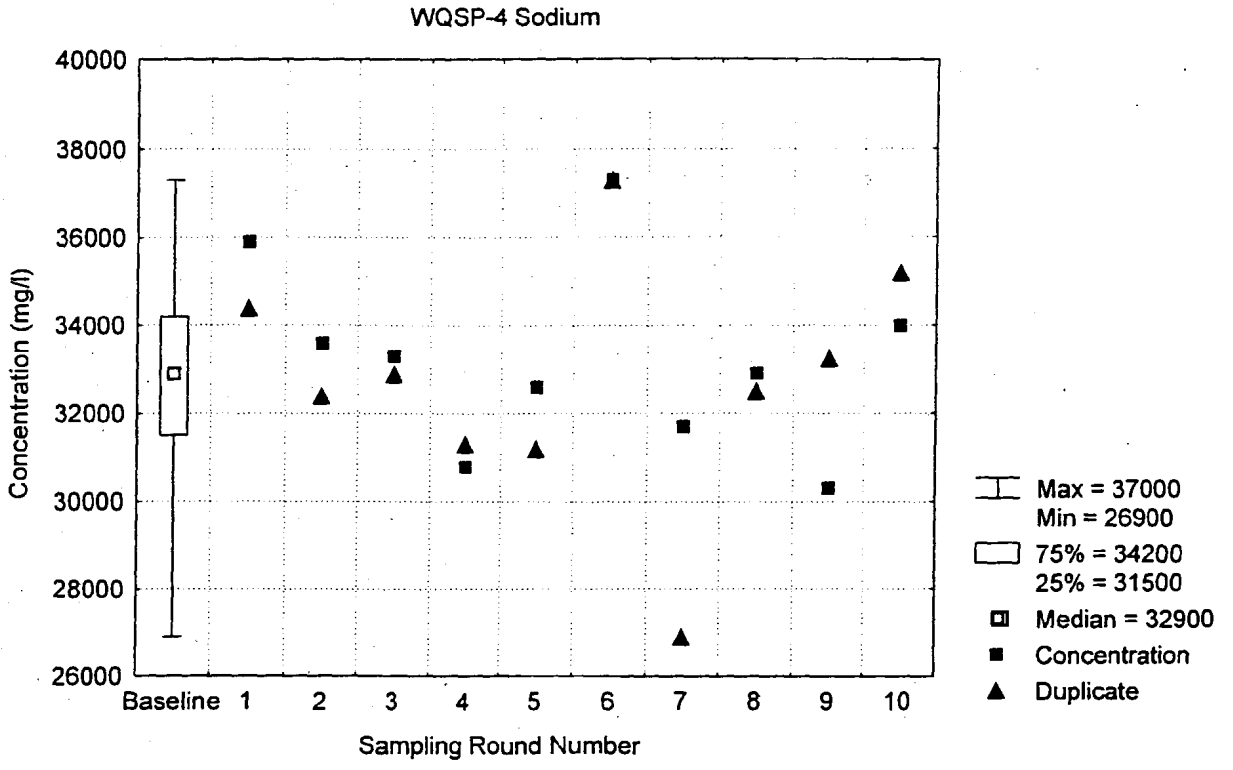

WQSP-5 Silica
Concentration (mg/l)
13
11
9
7
5
3
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 11.5
Min = 3.87
75% = 11.0334
25% = 4.55
Median = 10.55
Concentration
Duplicate

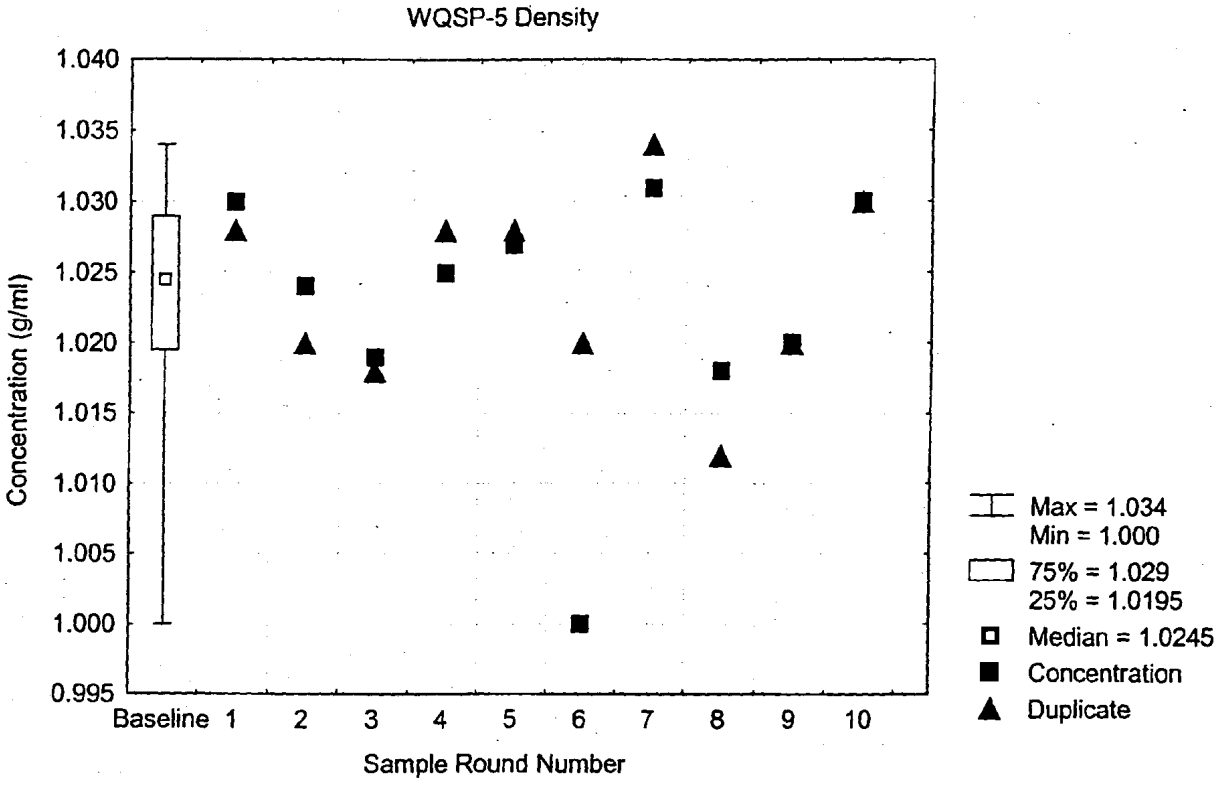

WQSP-5 Sodium
11500
10500
9500
8500
7500
6500
5500
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 10500
Min = 6230
75% = 9552.5
25% = 8804.5
Median = 9190
Concentration
Duplicate

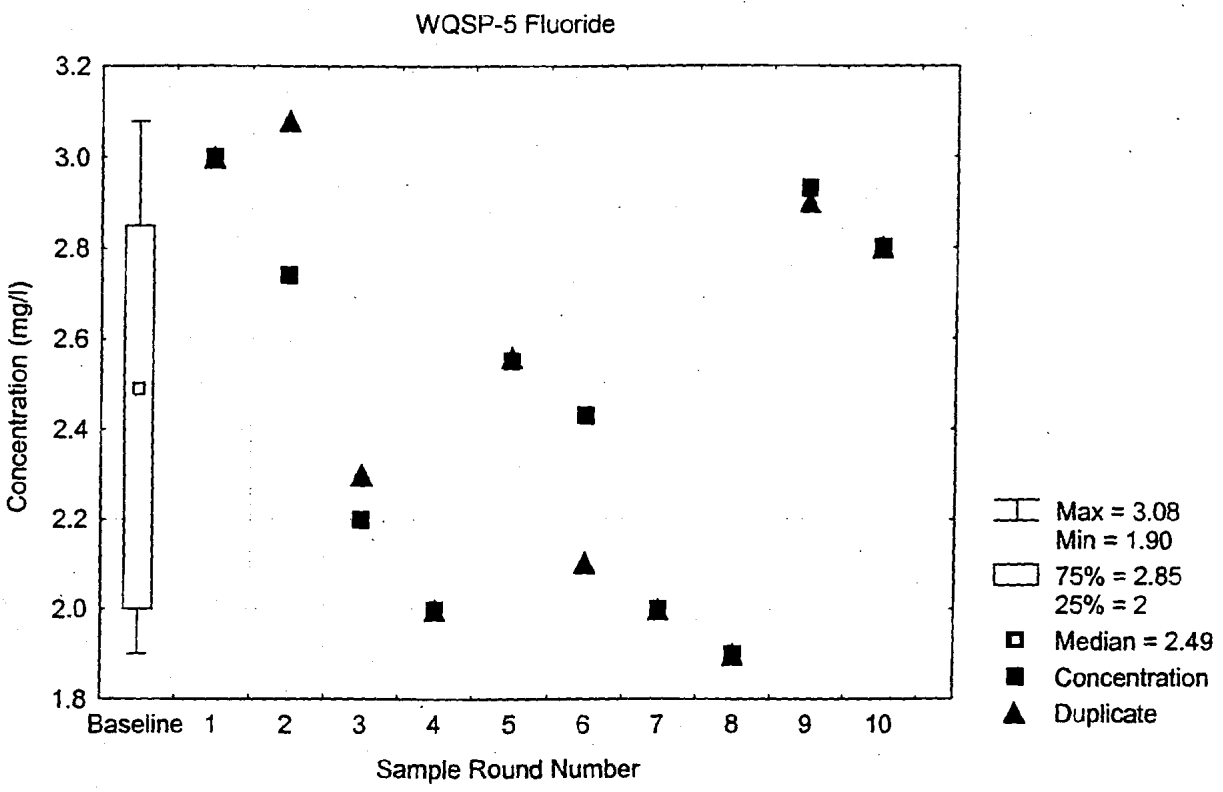

WQSP-5 Alkalinity
Concentration (mg/l)
54
52
50
48
46
44
42
40
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Non-Outlier Max = 52
Non-Outlier Min = 41
75% = 50
25% = 46
Median = 48.5
Concentration
Duplicate

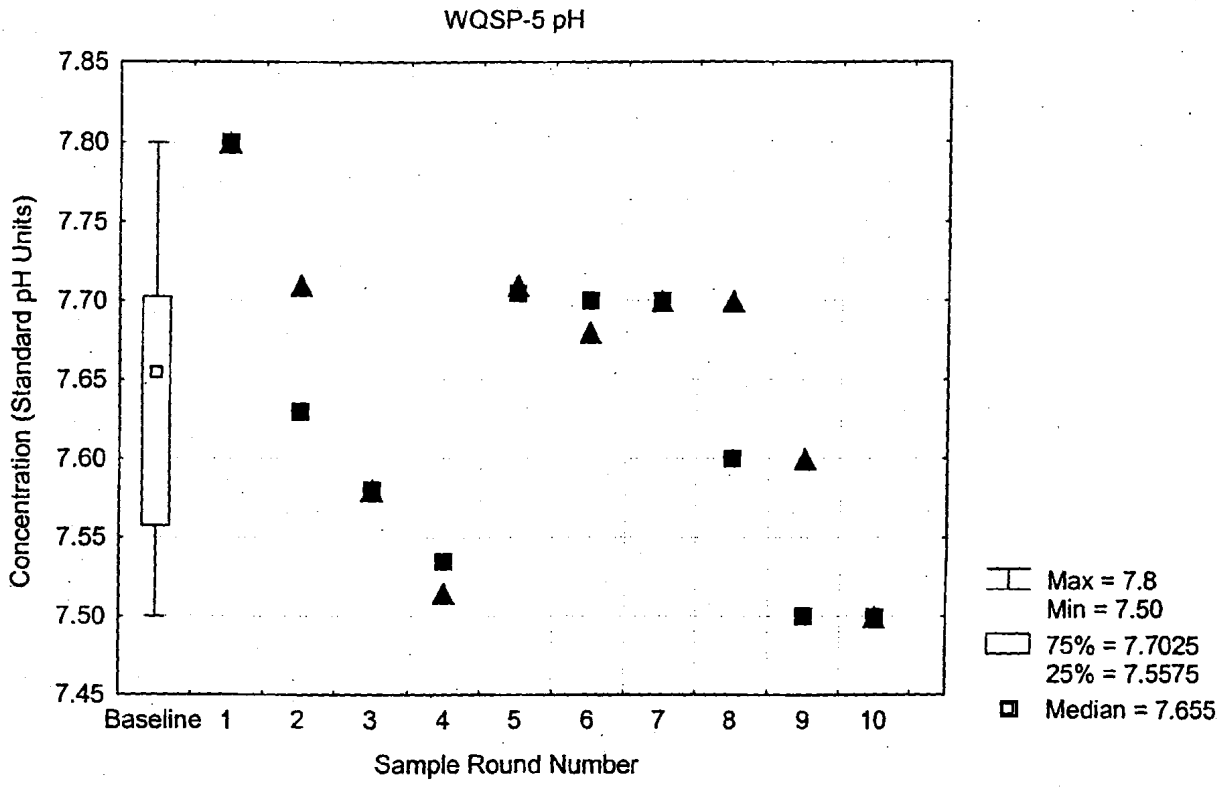

WQSP-5 Bromide
110
90
70
50
30
10
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = <100.0
Min = 18.25
75% = 29.85
25% = 21.4
Median = 24.85
Concentration
Duplicate

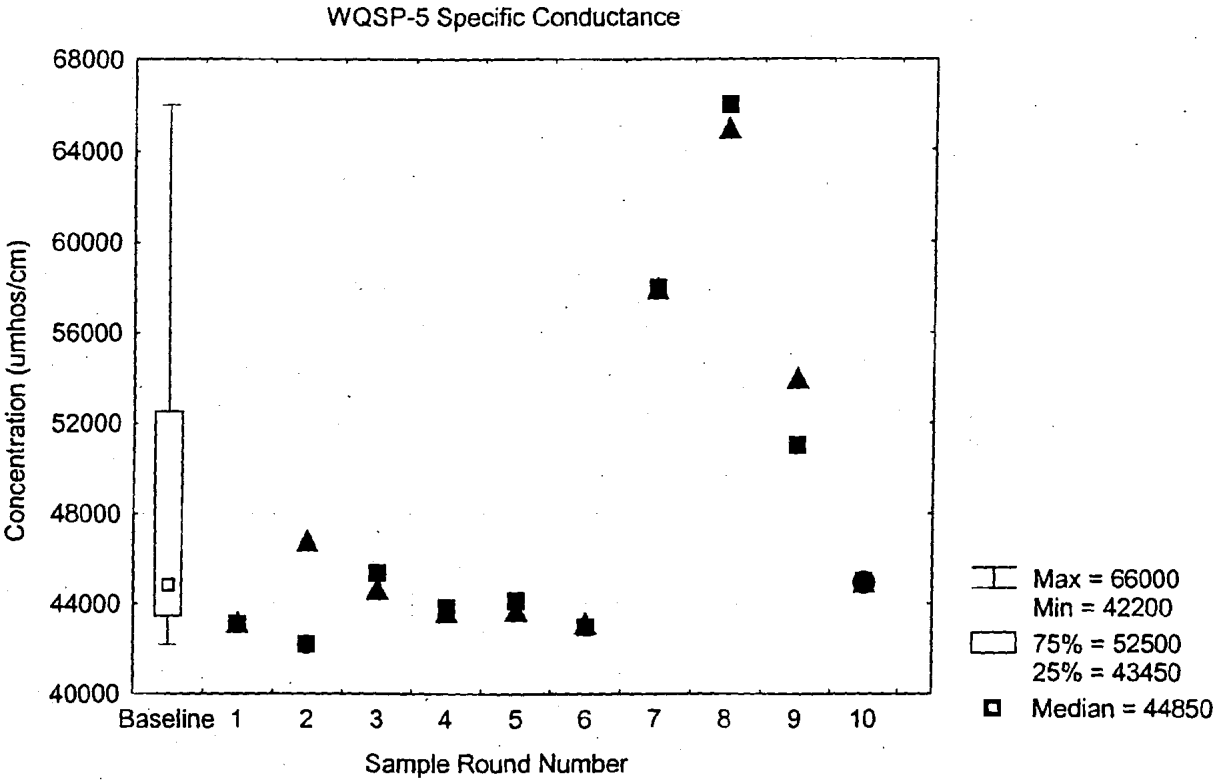

WQSP-5 Chloride
20000
19000
18000
17000
16000
15000
14000
13000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 19000
Min = 13591
75% = 16000
25% = 15000
Median = 15300
Concentration
Duplicate

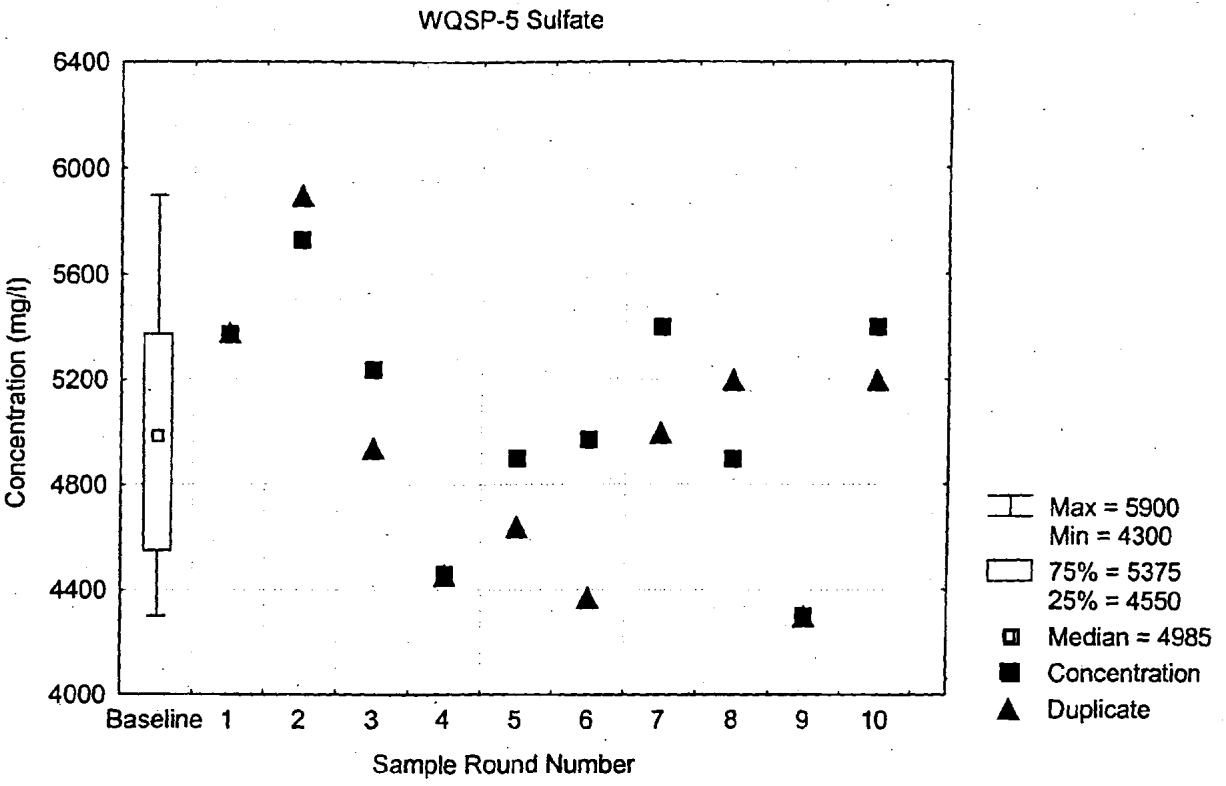

WQSP-4 Sodium
40000
38000
36000
34000
32000
30000
28000
26000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sampling Round Number
Max = 37000
Min = 26900
75% = 34200
25% = 31500
Median = 32900
Concentration
Duplicate

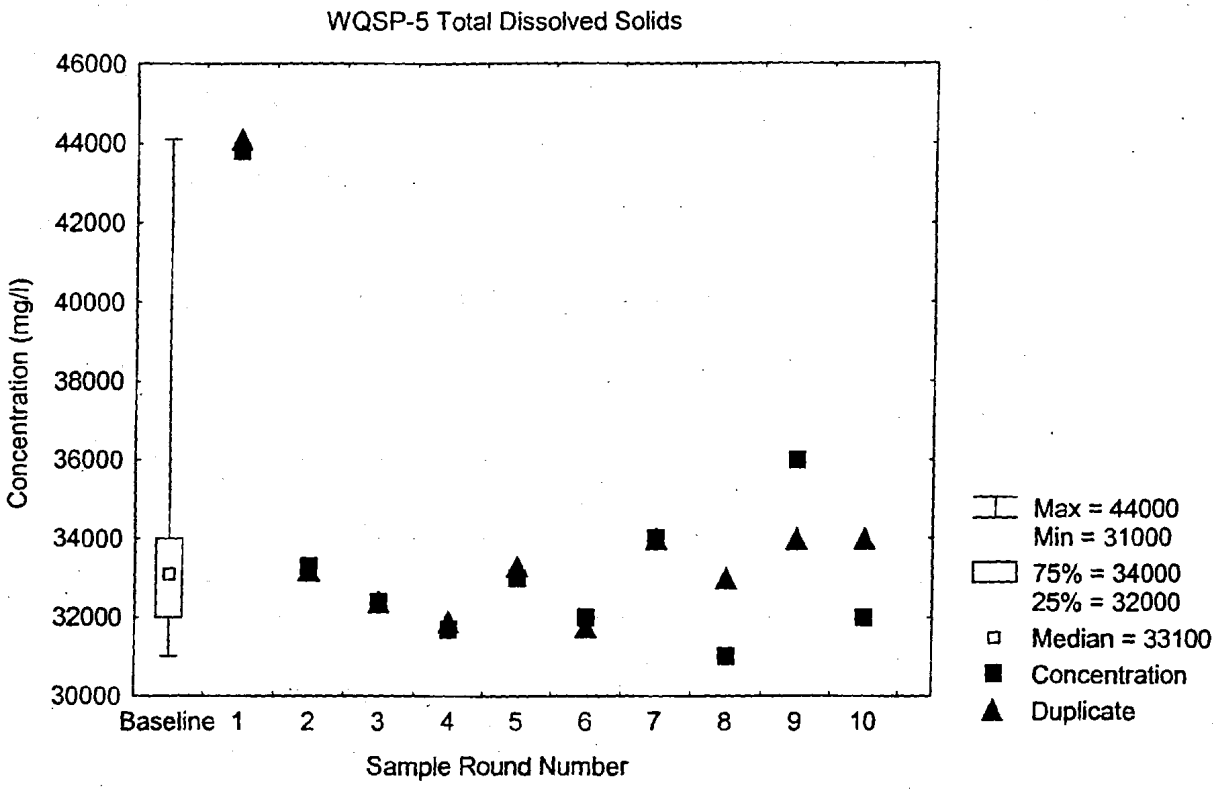

WQSP-5 Density
Concentration (g/ml)
1.040
1.035
1.030
1.025
1.020
1.015
1.010
1.005
1.000
0.995
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 1.034
Min = 1.000
75% = 1.029
25% = 1.0195
Median = 1.0245
Concentration
Duplicate

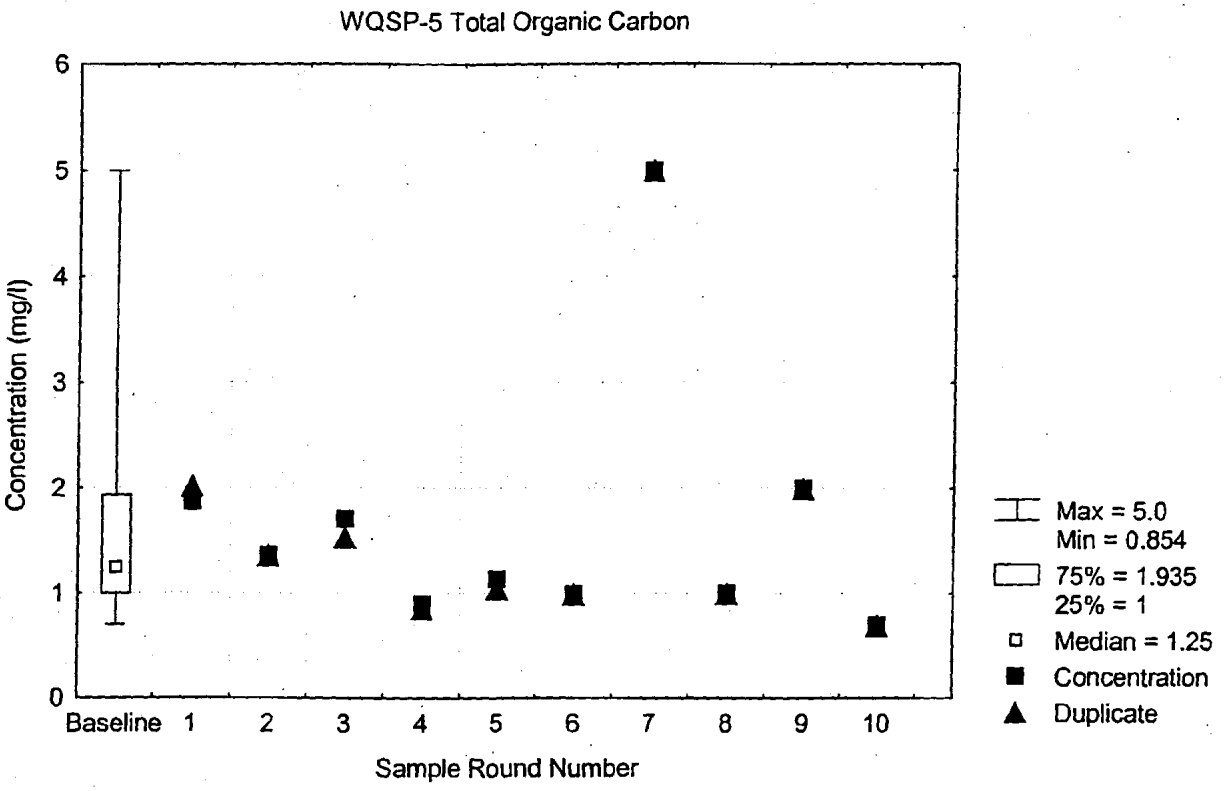

WQSP-5 Fluoride
Concentration (mg/l)
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 3.08
Min = 1.90
75% = 2.85
25% = 2
Median = 2.49
Concentration
Duplicate


WQSP-5 pH
Concentration (Standard pH Units)
7.85
7.80
7.75
7.70
7.65
7.60
7.55
7.50
7.45
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 7.8
Min = 7.50
75% = 7.7025
25% = 7.5575
Median = 7.655


WQSP-5 Specific Conductance
Concentration (umhos/cm)
68000
64000
60000
56000
52000
48000
44000
40000
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 66000
Min = 42200
75% = 52500
25% = 43450
Median = 44850


WQSP-5 Sulfate
6400
6000
5600
5200
4800
4400
4000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 5900
Min = 4300
75% = 5375
25% = 4550
Median = 4985
Concentration
Duplicate


WQSP-5 Total Dissolved Solids
46000
44000
42000
40000
38000
36000
34000
32000
30000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 44000
Min = 31000
75% = 34000
25% = 32000
Median = 33100
Concentration
Duplicate


WQSP-5 Total Organic Carbon
Concentration (mg/l)
0
1
2
3
4
5
6
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 5.0
Min = 0.854
75% = 1.935
25% = 1
Median = 1.25
Concentration
Duplicate

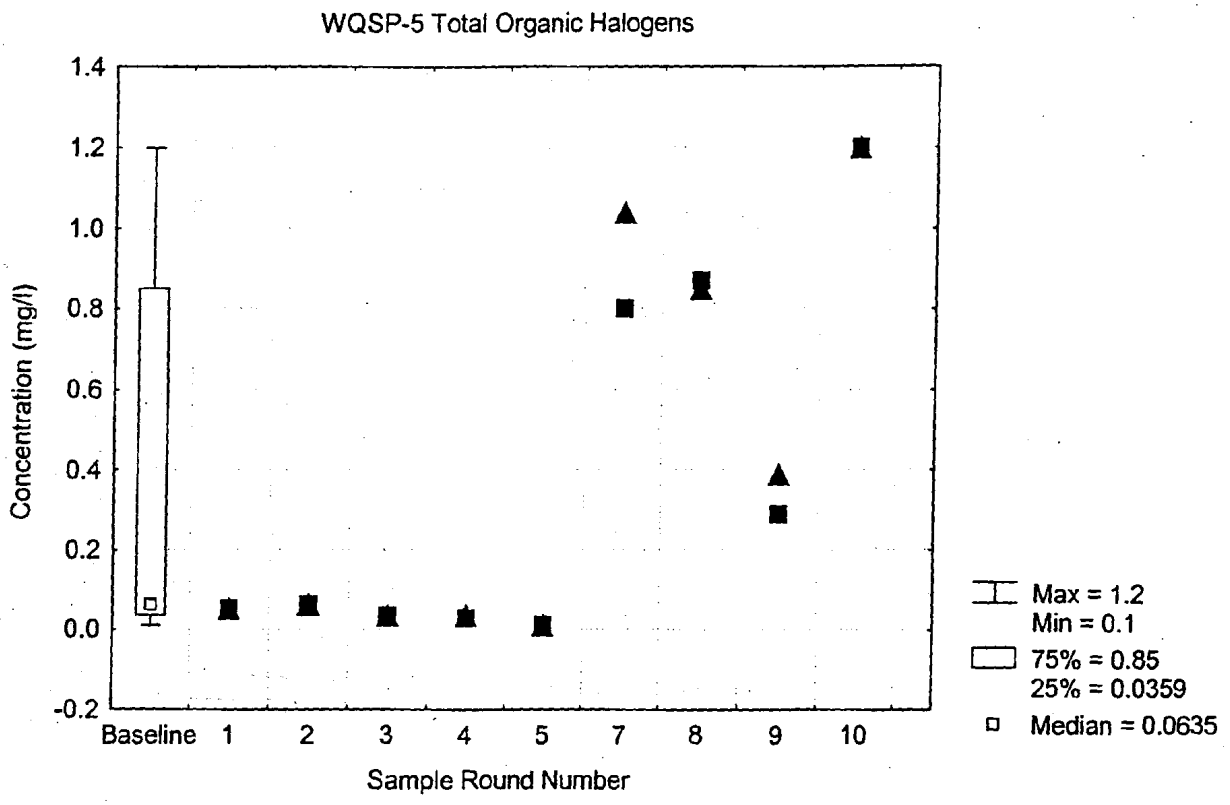

WQSP-5 Total Organic Halogens
Concentration (mg/l)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
Baseline
1
2
3
4
5
7
8
9
10
Sample Round Number
Max = 1.2
Min = 0.1
75% = 0.85
25% = 0.0359
Median = 0.0635

Table **

Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP6

concentrations in mg/L unless otherwise stated

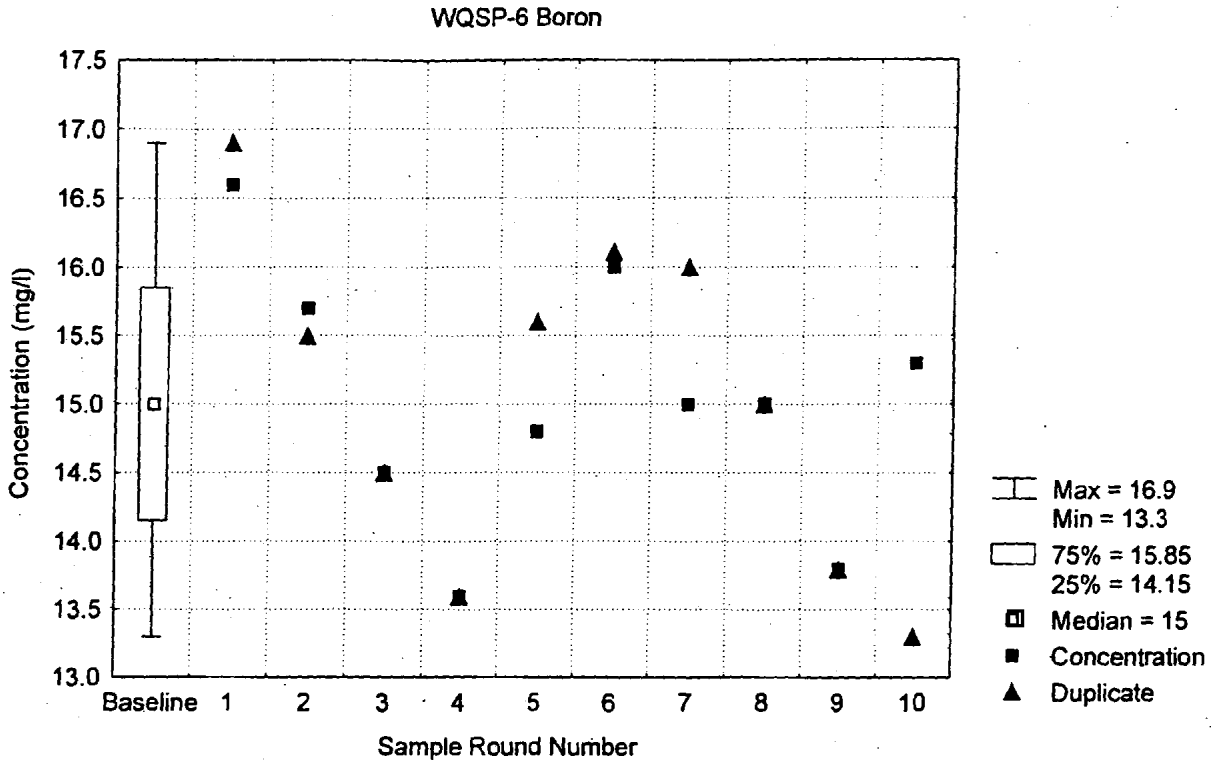
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	20	0	Normal	43.0	54.0	47.5	48.2	3.21	53.6	55.8
BORON	20	0	Normal	13.3	16.9	15.0	15.0	1.05	16.8	17.5
BROMIDE	20	20	Nonparametric	<2.0	14.4	9.5	9.0	3.84	14.1	NA
CALCIUM	20	0	Normal	572	774	685	682	48	753	796
CHLORIDE	20	0	Nonparametric	5500	15800	6000	6913	3047	15800	NA
CYANIDE	4	100	Nonparametric	<0.01	<0.01	<0.01	<0.01	--	<0.01	NA
DENSITY (g/mL)	20	NA	Normal	1.00	1.02	1.01	1.01	0.01	1.02	1.02
FLUORIDE	20	20	Nonparametric	<2.0	4.90	2.35	2.38	1.05	4.85	NA
IODIDE	20	95	Nonparametric	<0.5	1.59	<2.0	0.98	0.29	1.51	NA
LITHIUM	20	10	Lognormal	0.219	0.426	0.250	0.288	0.064	0.404	0.468
NITROGEN, NO3 (AS N)	20	95	Nonparametric	<0.05	9.900	<0.1	1.653	2.807	7.450	NA
ORTHOPHOSPHATE (AS P)	20	90	Nonparametric	<0.01	<0.34	<0.02	0.03	0.05	<0.34	NA
pH (SU)	20	NA	Normal	7.62	7.83	7.70	7.72	0.07	7.82	7.5-7.9
SILICA	20	0	Normal	4.30	17.40	10.65	10.16	3.37	16.60	18.2
SODIUM	20	0	Lognormal	3800	6070	4455	4653	637	6060	6290
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Lognormal	18700	27200	22000	22177	2146	27150	27660
SULFATE	20	0	Lognormal	4200	5590	4670	4748	324	5465	5557
SULFIDE	4	100	Nonparametric	<1.5	<1.5	<1.5	<1.5	--	<1.5	NA
TOTAL DISS SOLIDS	20	0	Lognormal	12000	21600	16300	16243	2340	21600	22500
TOTAL ORGANIC CARBON	20	25	Nonparametric	0.27	10.22	1.18	2.12	2.84	10.14	NA
TOTAL ORGANIC HALOGENS	18	0	Lognormal	0.013	0.6	0.062	0.2	0.2	0.6	1.54
TOTAL PHENOLS	15	100	Nonparametric	<0.01	<0.10	<0.07	0.023	0.018	<0.10	NA
TOTAL SUSP SOLIDS	20	90	Nonparametric	<0.1	15.0	<10.0	4.2	4.2	14.8	NA

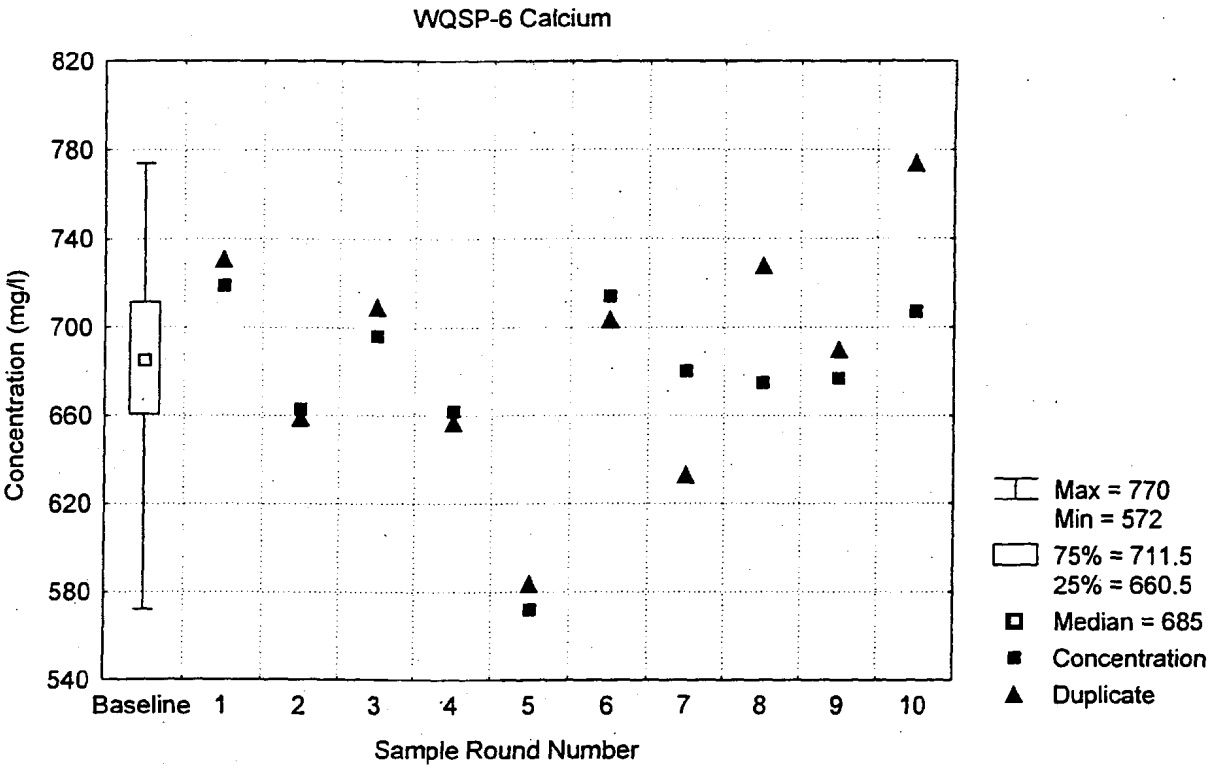
Table **

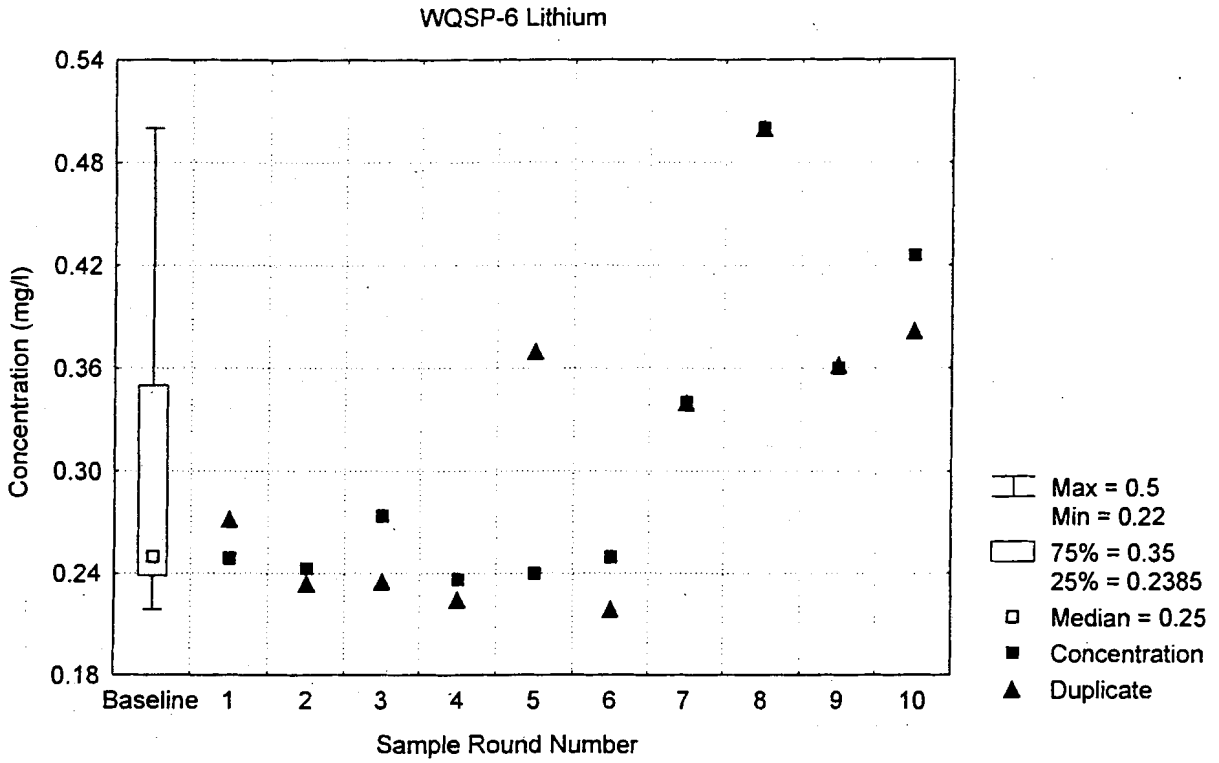
Summary Statistics for Metals at WIPP Monitoring Well WQSP6

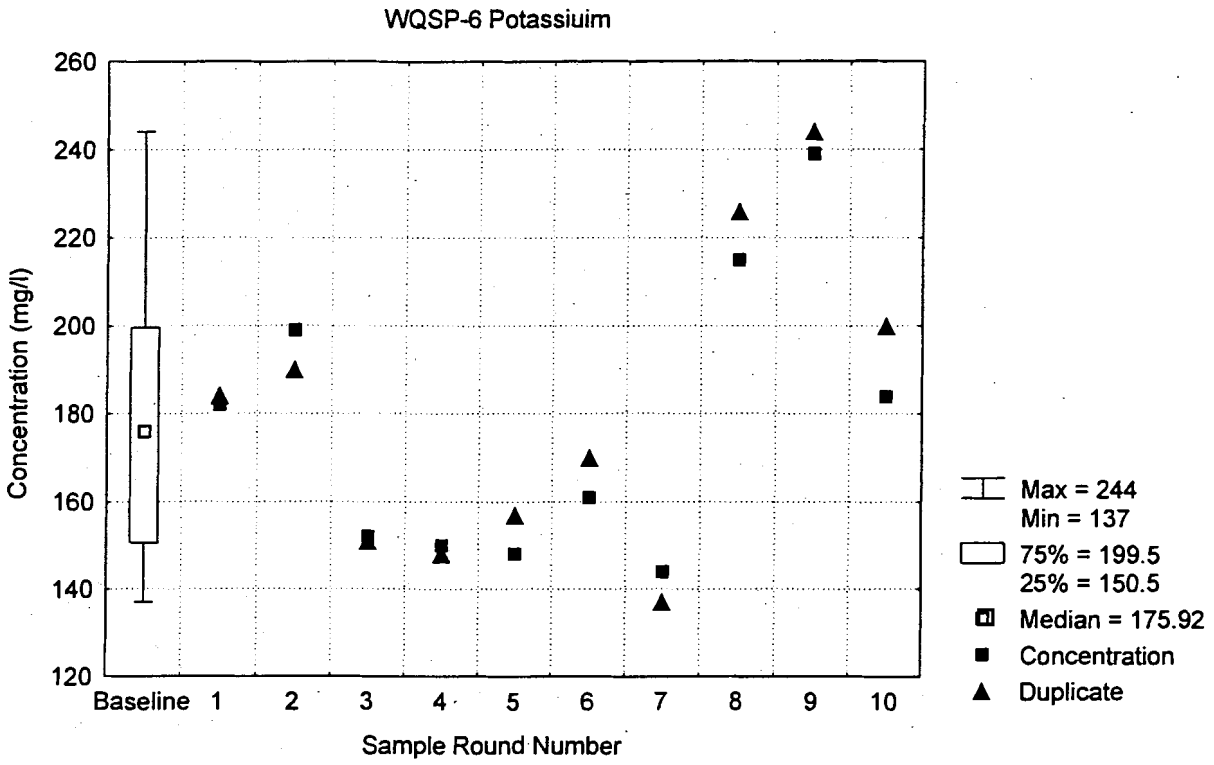
concentrations in mg/L unless otherwise stated

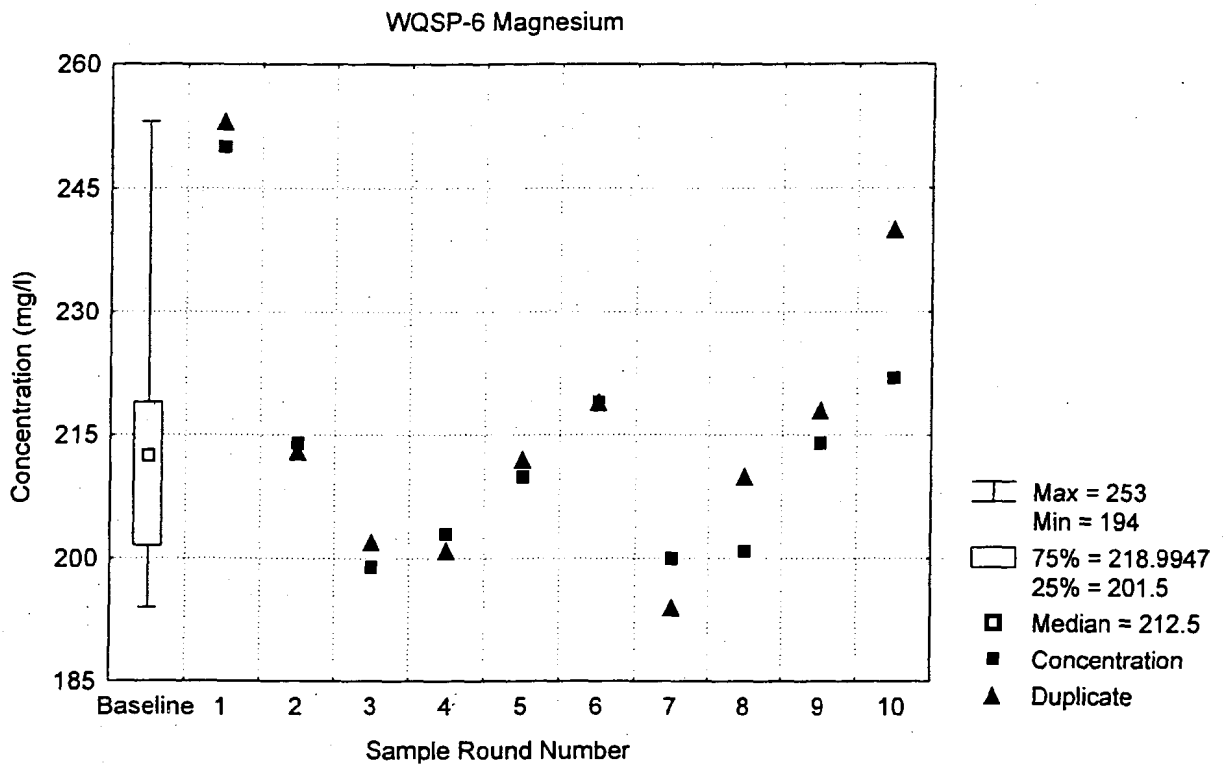
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	14	86	Nonparametric	<0.01	0.140	<0.05	0.032	0.039	0.140	NA
ARSENIC	16	75	Nonparametric	<0.004	<0.5	0.018	0.052	0.082	<0.5	NA
BARIUM	16	81	Nonparametric	0.007	<1.0	<0.04	0.197	0.242	<1.0	NA
BERYLLIUM	16	100	Nonparametric	<0.0025	<0.02	<0.01	0.006	0.003	<0.02	NA
CADMIUM	16	100	Nonparametric	<0.0013	<0.05	<0.01	0.009	0.010	<0.05	NA
CHROMIUM	16	88	Nonparametric	<0.0025	<0.5	<0.05	0.065	0.093	<0.5	NA
COBALT	14	100	Nonparametric	<0.01	<0.5	<0.05	0.066	0.100	<0.5	NA
COPPER	14	86	Nonparametric	<0.013	<1.0	<0.05	0.160	0.224	<1.0	NA
IRON	20	65	Nonparametric	<0.13	4.770	<1.0	0.712	0.993	3.105	NA
LEAD	16	88	Nonparametric	<0.01	0.150	<0.05	0.030	0.042	0.150	NA
MAGNESIUM	20	0	Lognormal	194	253	213	215	16	252	255
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.0002	0.0004	0.0004	<0.002	NA
NICKEL	14	100	Nonparametric	<0.025	<0.5	<0.1	0.098	0.101	<0.5	NA
POTASSIUM	20	0	Lognormal	137	244	176	179	33	242	270
SELENIUM	16	94	Nonparametric	<0.004	0.100	<0.05	0.029	0.027	0.100	NA
SILVER	16	94	Nonparametric	<0.0025	<0.5	<0.05	0.044	0.081	<0.5	NA
THALLIUM	14	79	Nonparametric	<0.01	0.560	0.016	0.094	0.177	0.560	NA
TIN	14	100	Nonparametric	<0.01	<0.1	<0.025	0.023	0.021	<0.1	NA
VANADIUM	14	93	Nonparametric	<0.01	0.070	<0.05	0.027	0.021	0.070	NA
ZINC	14	86	Nonparametric	<0.03	<5.0	0.075	0.426	0.882	<5.0	NA

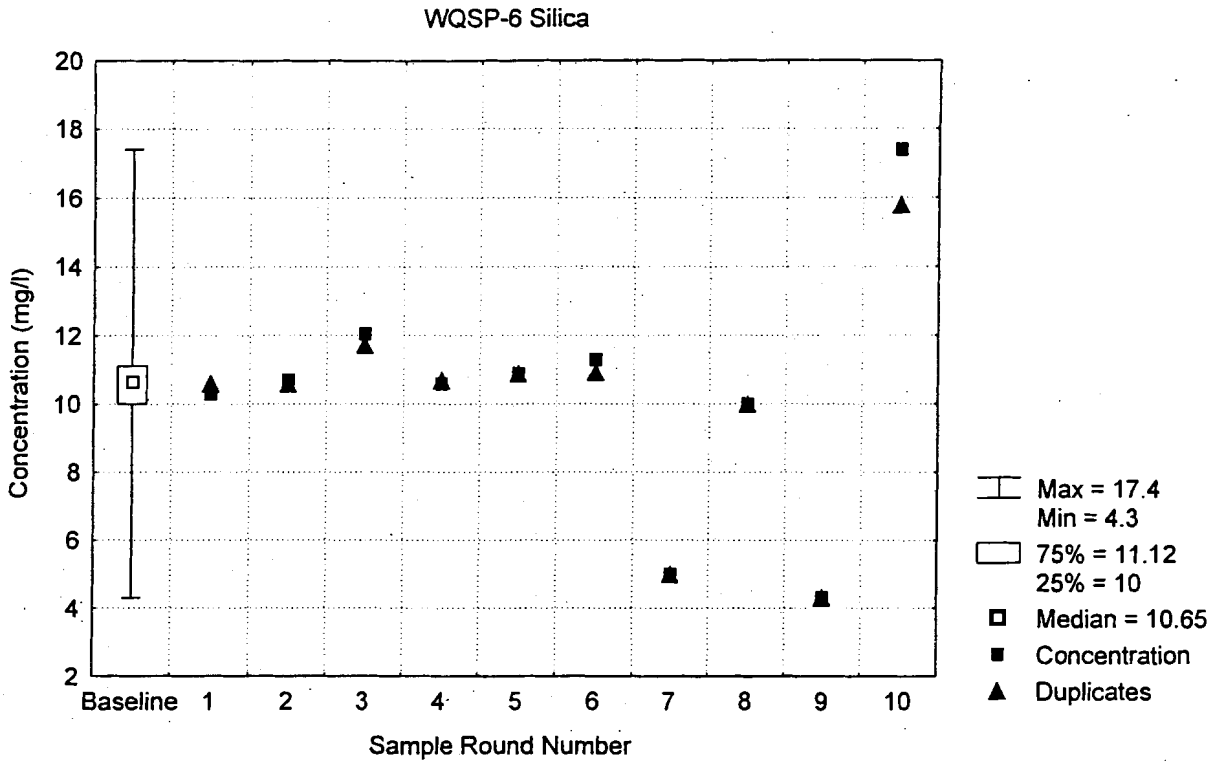

WQSP-6 Boron
Concentration (mg/l)
17.5
17.0
16.5
16.0
15.5
15.0
14.5
14.0
13.5
13.0
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 16.9
Min = 13.3
75% = 15.85
25% = 14.15
Median = 15
Concentration
Duplicate

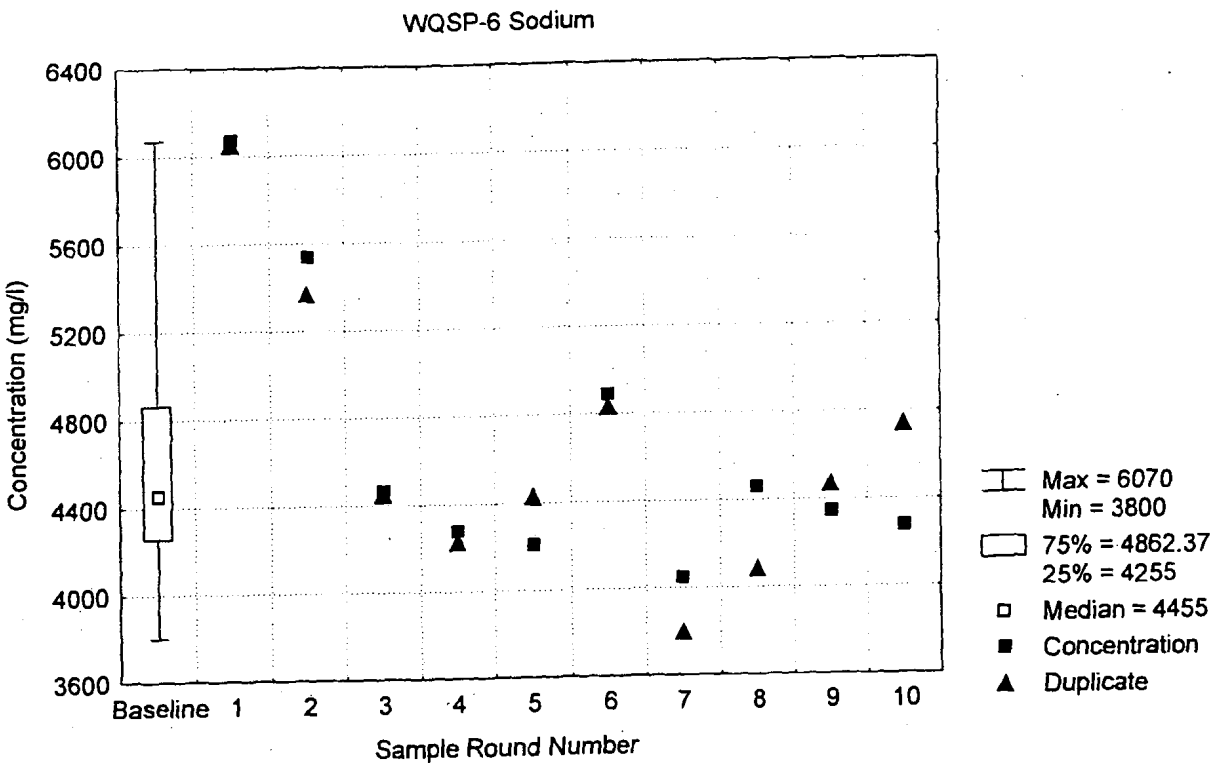

WQSP-6 Calcium
820
780
740
700
660
620
580
540
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 770
Min = 572
75% = 711.5
25% = 660.5
Median = 685
Concentration
Duplicate

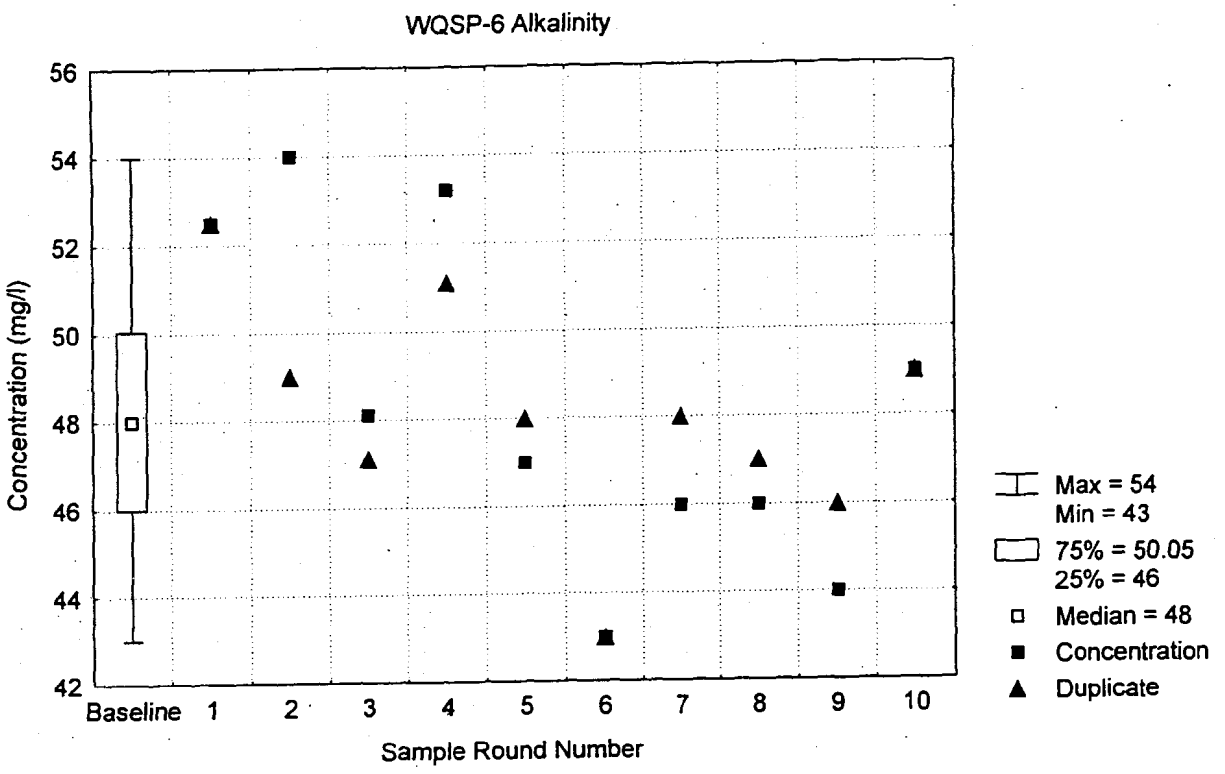

WQSP-6 Lithium
0.54
0.48
0.42
0.36
0.30
0.24
0.18
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 0.5
Min = 0.22
75% = 0.35
25% = 0.2385
Median = 0.25
Concentration
Duplicate

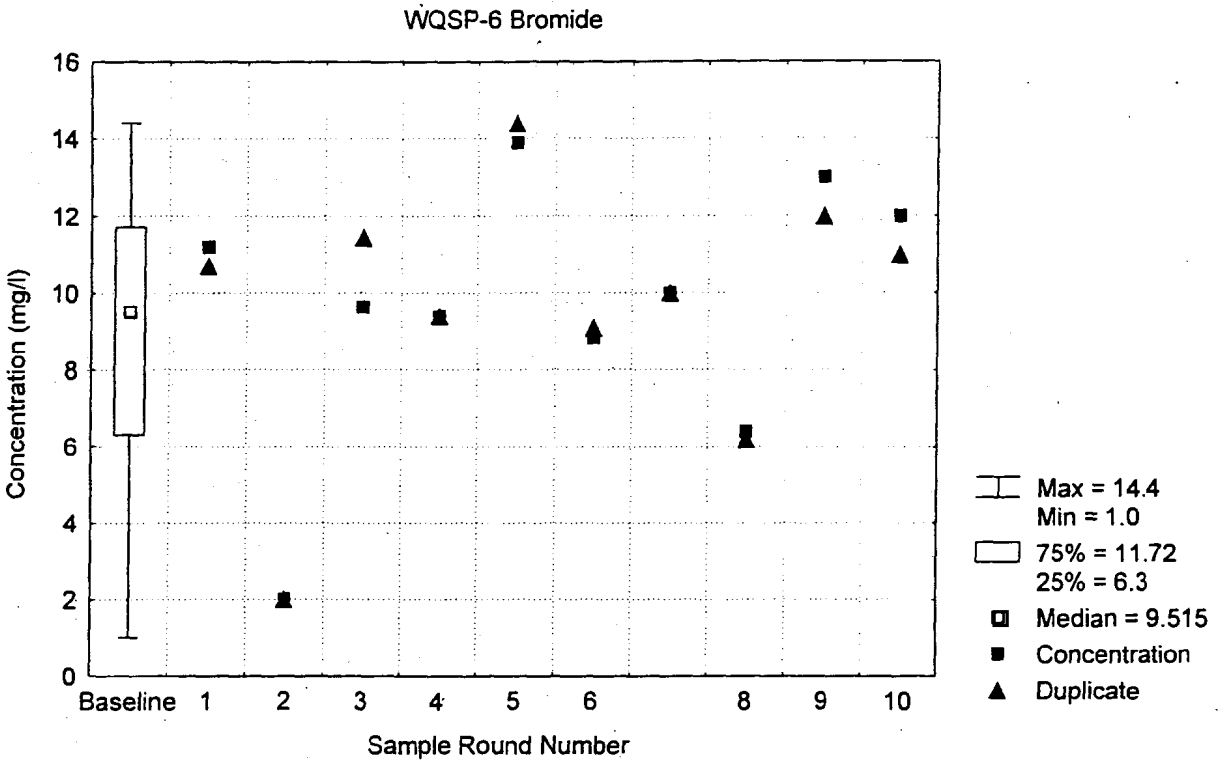

WQSP-6 Potassiuim
Concentration (mg/l)
260
240
220
200
180
160
140
120
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 244
Min = 137
75% = 199.5
25% = 150.5
Median = 175.92
Concentration
Duplicate

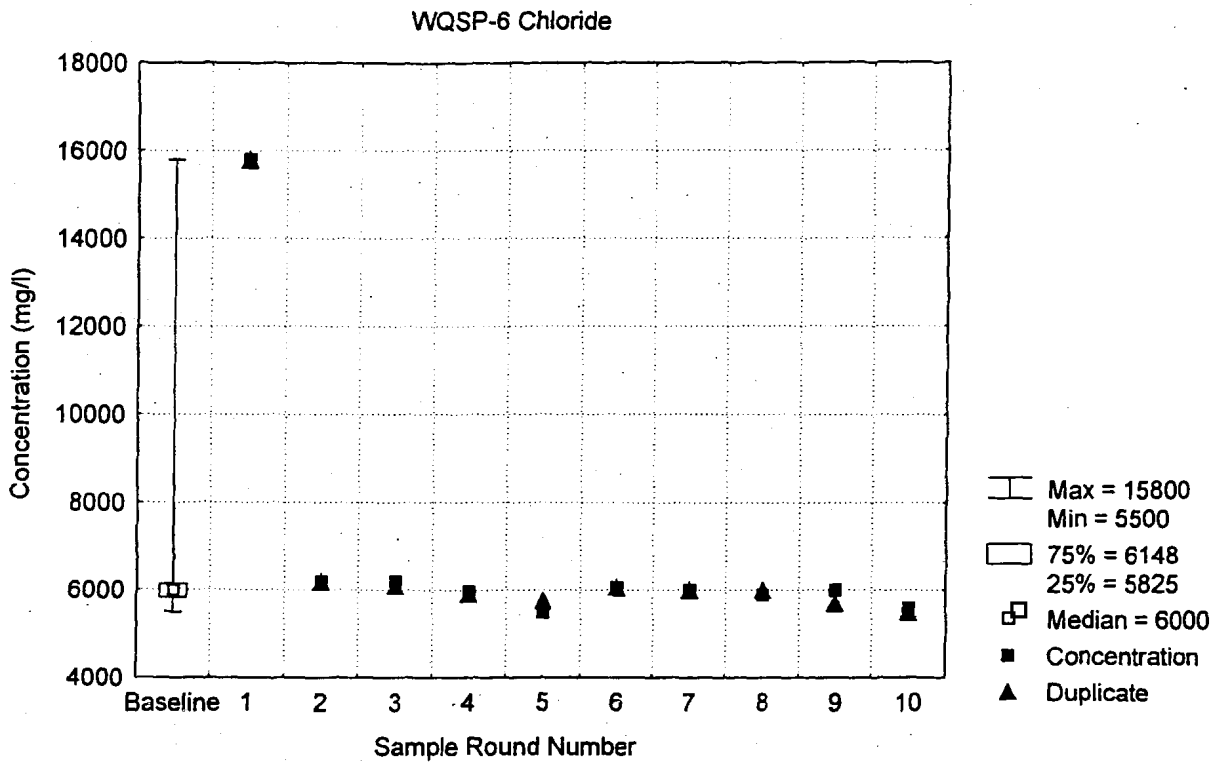

WQSP-6 Magnesium
260
245
230
215
200
185
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 253
Min = 194
75% = 218.9947
25% = 201.5
Median = 212.5
Concentration
Duplicate

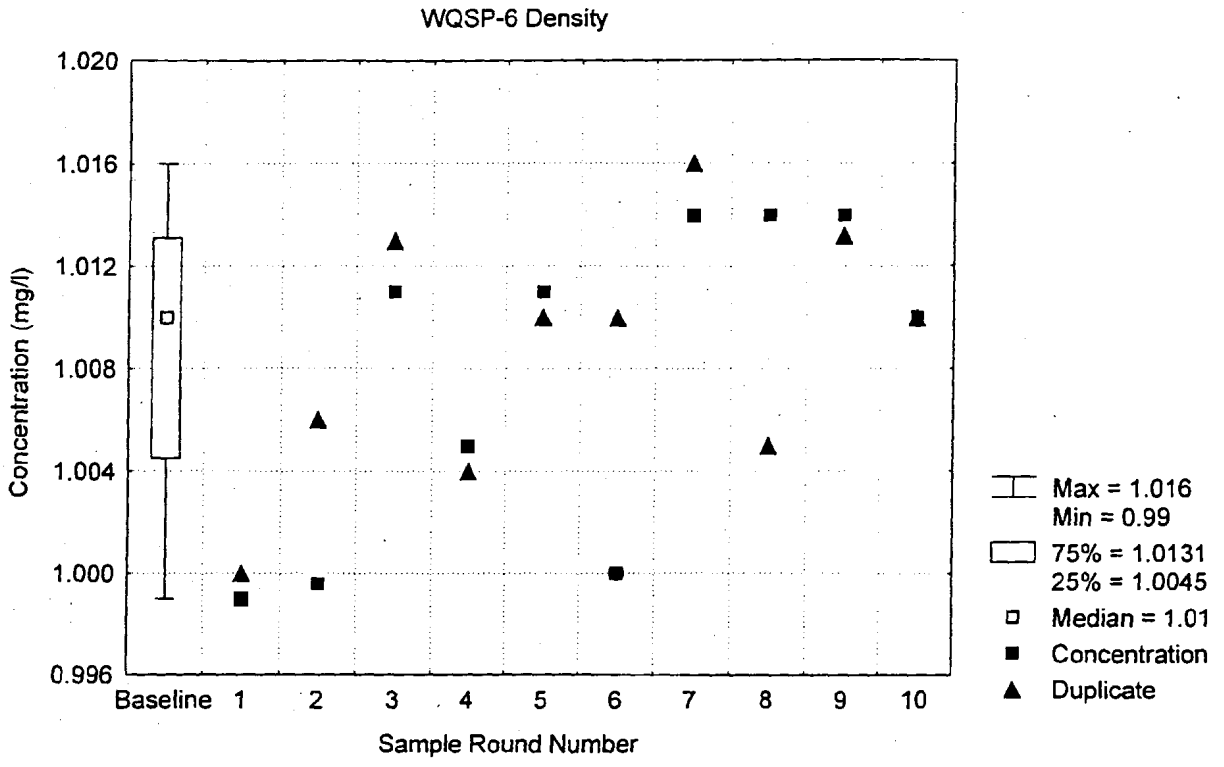

WQSP-6 Silica
Concentration (mg/l)
20
18
16
14
12
10
8
6
4
2
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 17.4
Min = 4.3
75% = 11.12
25% = 10
Median = 10.65
Concentration
Duplicates

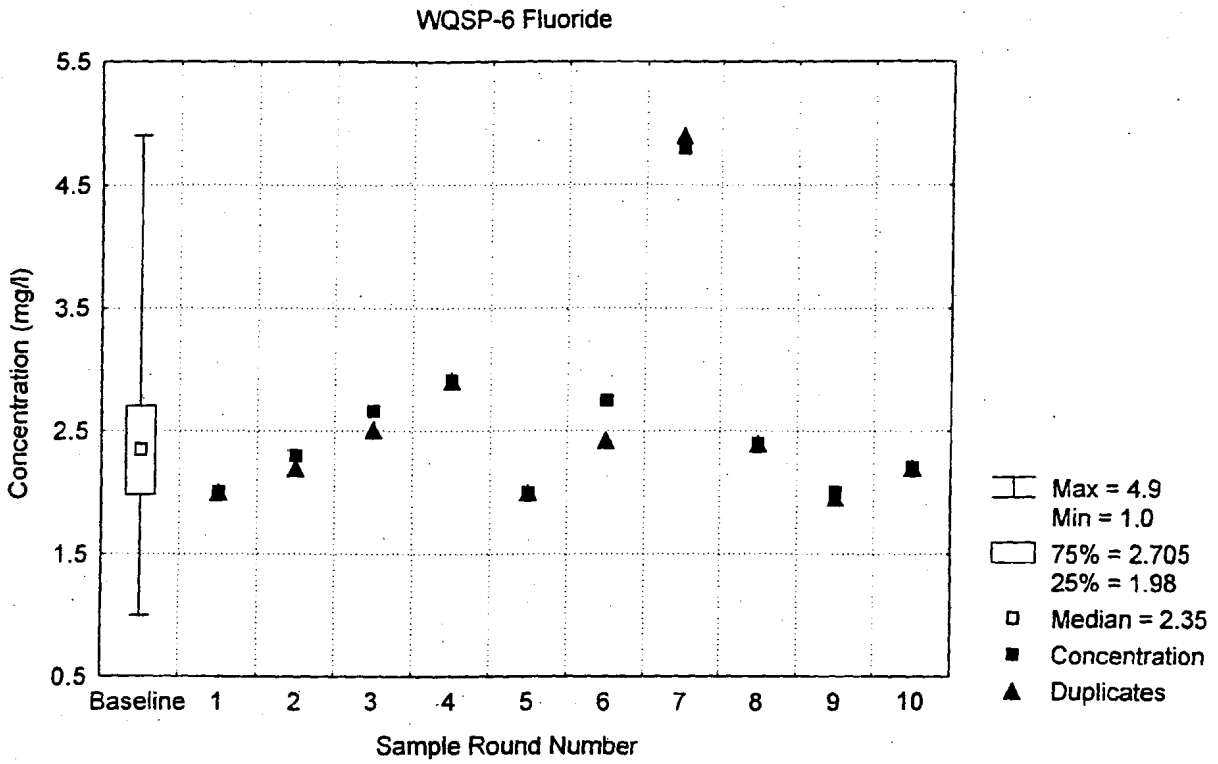

WQSP-6 Sodium
6400
6000
5600
5200
4800
4400
4000
3600
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 6070
Min = 3800
75% = 4862.37
25% = 4255
Median = 4455
Concentration
Duplicate

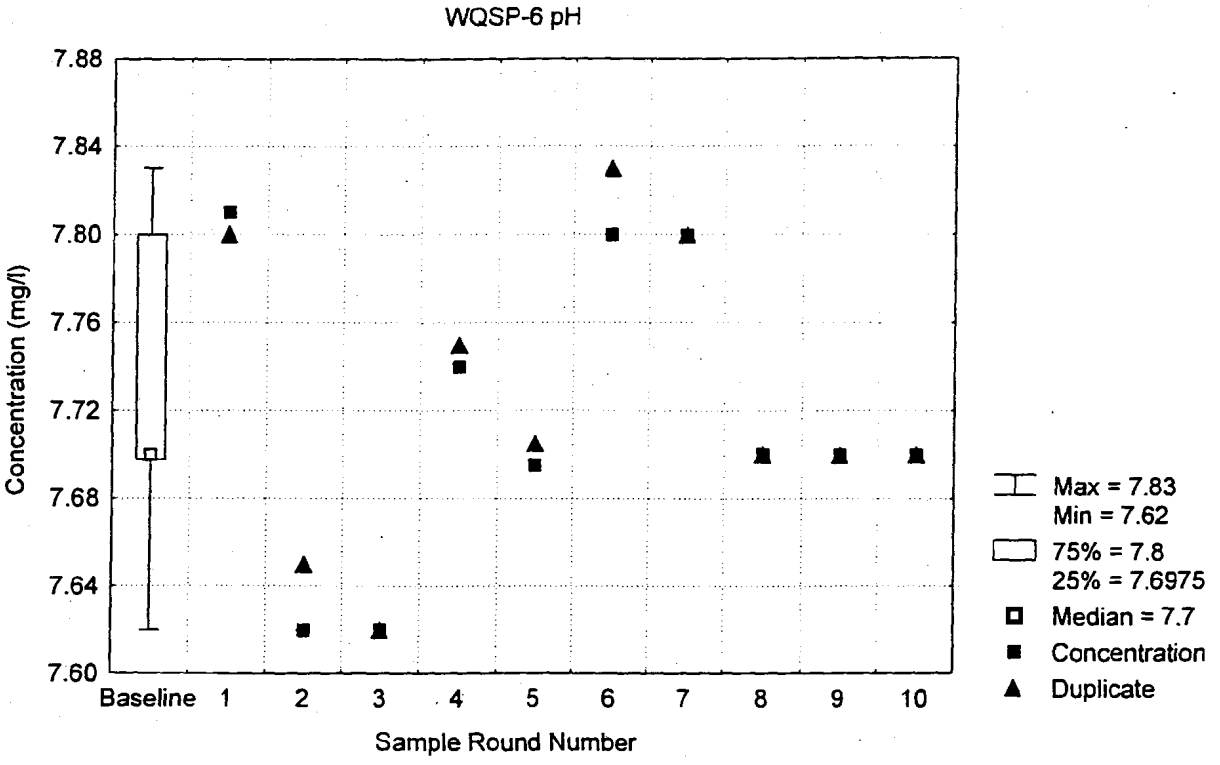

WQSP-6 Alkalinity
Concentration (mg/l)
56
54
52
50
48
46
44
42
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 54
Min = 43
75% = 50.05
25% = 46
Median = 48
Concentration
Duplicate

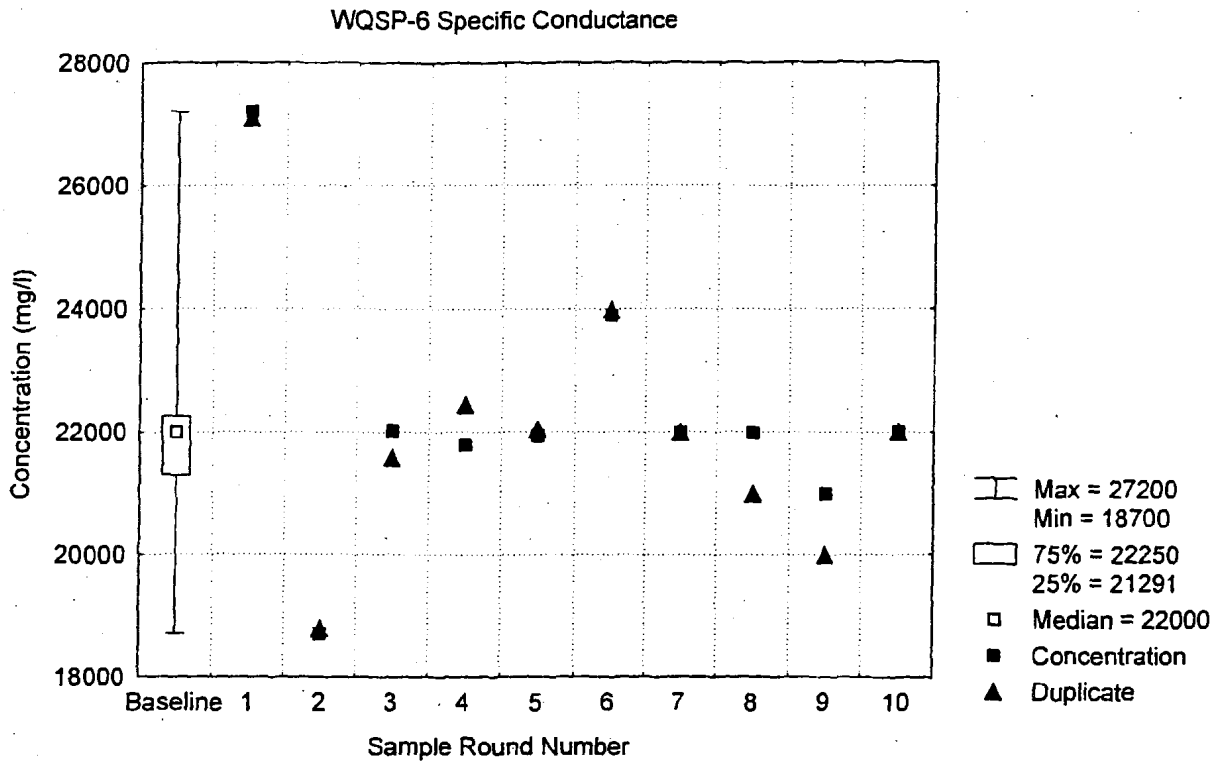

WQSP-6 Bromide
Concentration (mg/l)
16
14
12
10
8
6
4
2
0
Baseline
1
2
3
4
5
6
8
9
10
Sample Round Number
Max = 14.4
Min = 1.0
75% = 11.72
25% = 6.3
Median = 9.515
Concentration
Duplicate

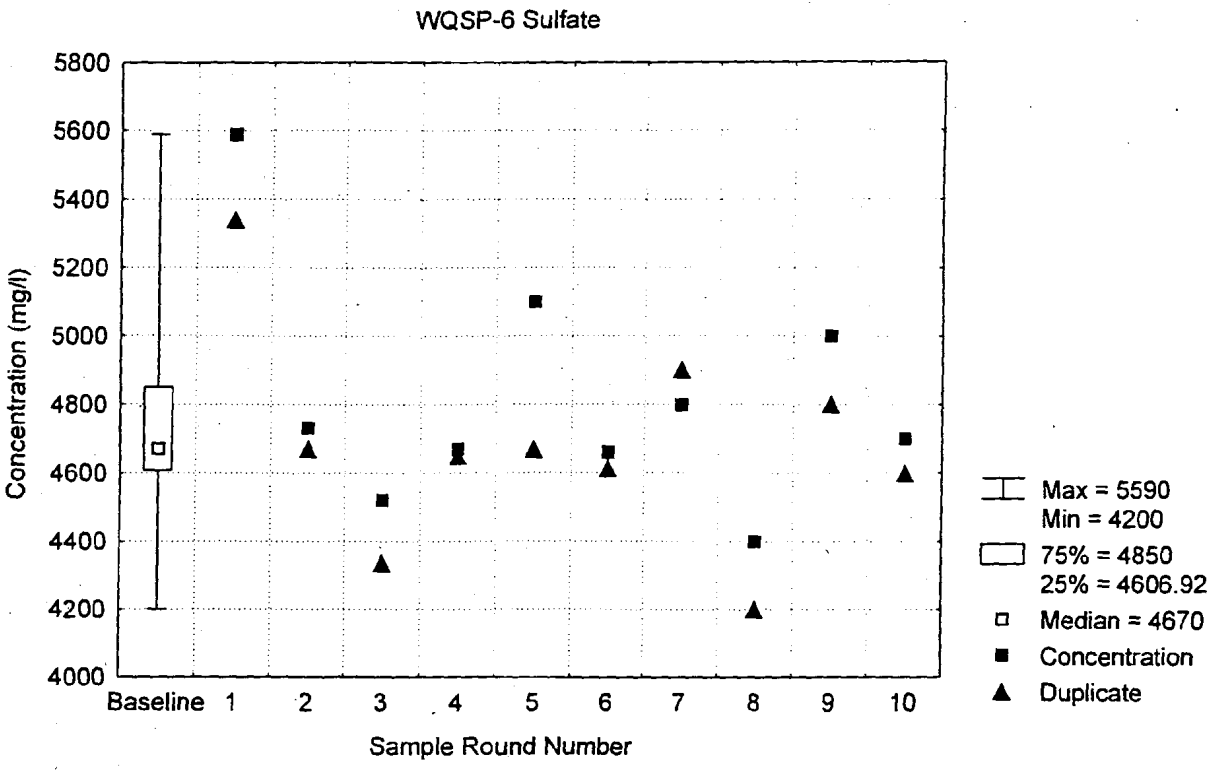

WQSP-6 Chloride
18000
16000
14000
12000
10000
8000
6000
4000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 15800
Min = 5500
75% = 6148
25% = 5825
Median = 6000
Concentration
Duplicate

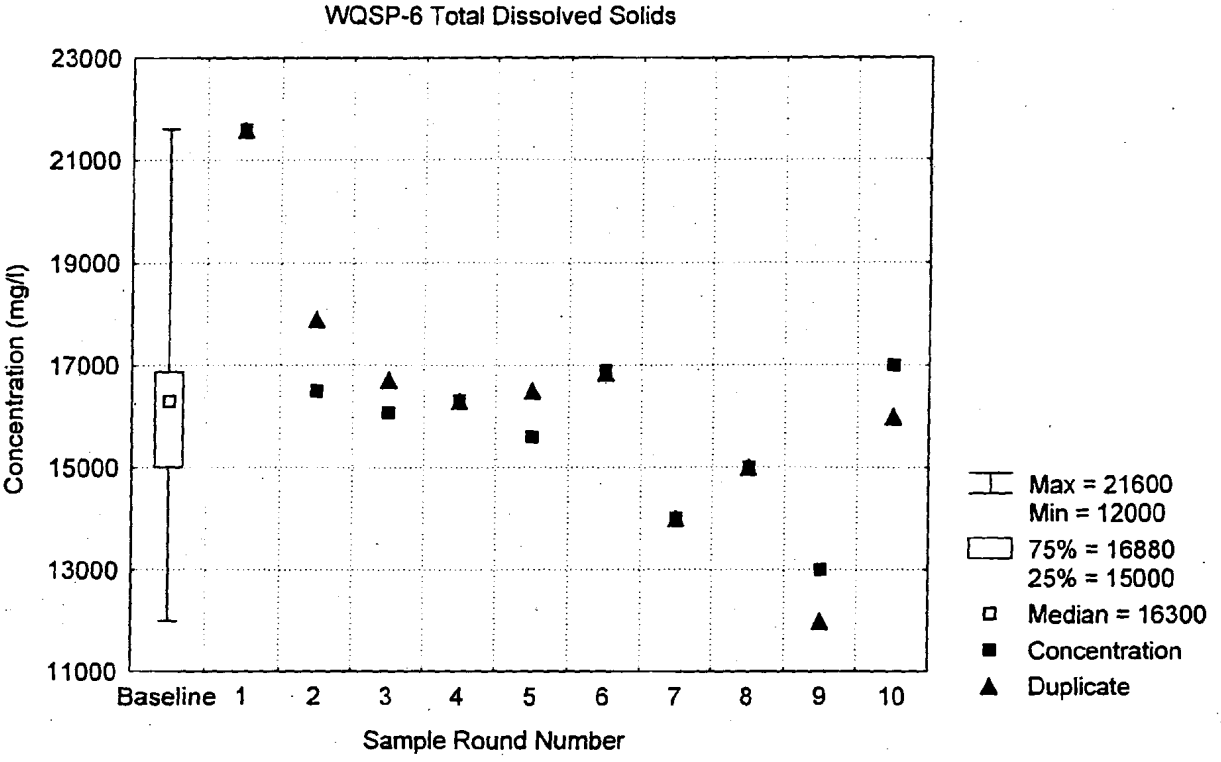

WQSP-6 Density
1.020
1.016
1.012
1.008
1.004
1.000
0.996
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 1.016
Min = 0.99
75% = 1.0131
25% = 1.0045
Median = 1.01
Concentration
Duplicate

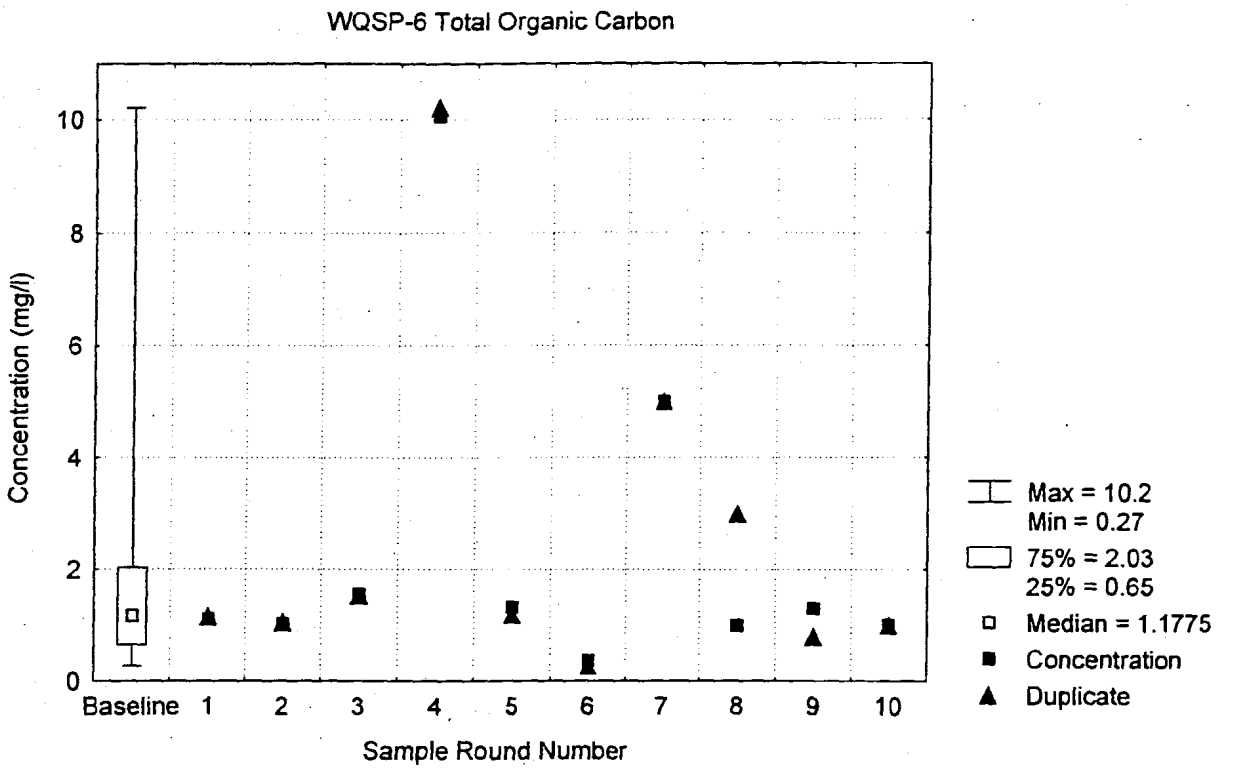

WQSP-6 Fluoride
Concentration (mg/l)
5.5
4.5
3.5
2.5
1.5
0.5
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 4.9
Min = 1.0
75% = 2.705
25% = 1.98
Median = 2.35
Concentration
Duplicates


WQSP-6 pH
7.88
7.84
7.80
7.76
7.72
7.68
7.64
7.60
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 7.83
Min = 7.62
75% = 7.8
25% = 7.6975
Median = 7.7
Concentration
Duplicate


WQSP-6 Specific Conductance
28000
26000
24000
22000
20000
18000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 27200
Min = 18700
75% = 22250
25% = 21291
Median = 22000
Concentration
Duplicate


WQSP-6 Sulfate
Concentration (mg/l)
5800
5600
5400
5200
5000
4800
4600
4400
4200
4000
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 5590
Min = 4200
75% = 4850
25% = 4606.92
Median = 4670
Concentration
Duplicate


WQSP-6 Total Dissolved Solids
23000
21000
19000
17000
15000
13000
11000
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 21600
Min = 12000
75% = 16880
25% = 15000
Median = 16300
Concentration
Duplicate


WQSP-6 Total Organic Carbon
Concentration (mg/l)
0
2
4
6
8
10
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 10.2
Min = 0.27
75% = 2.03
25% = 0.65
Median = 1.1775
Concentration
Duplicate

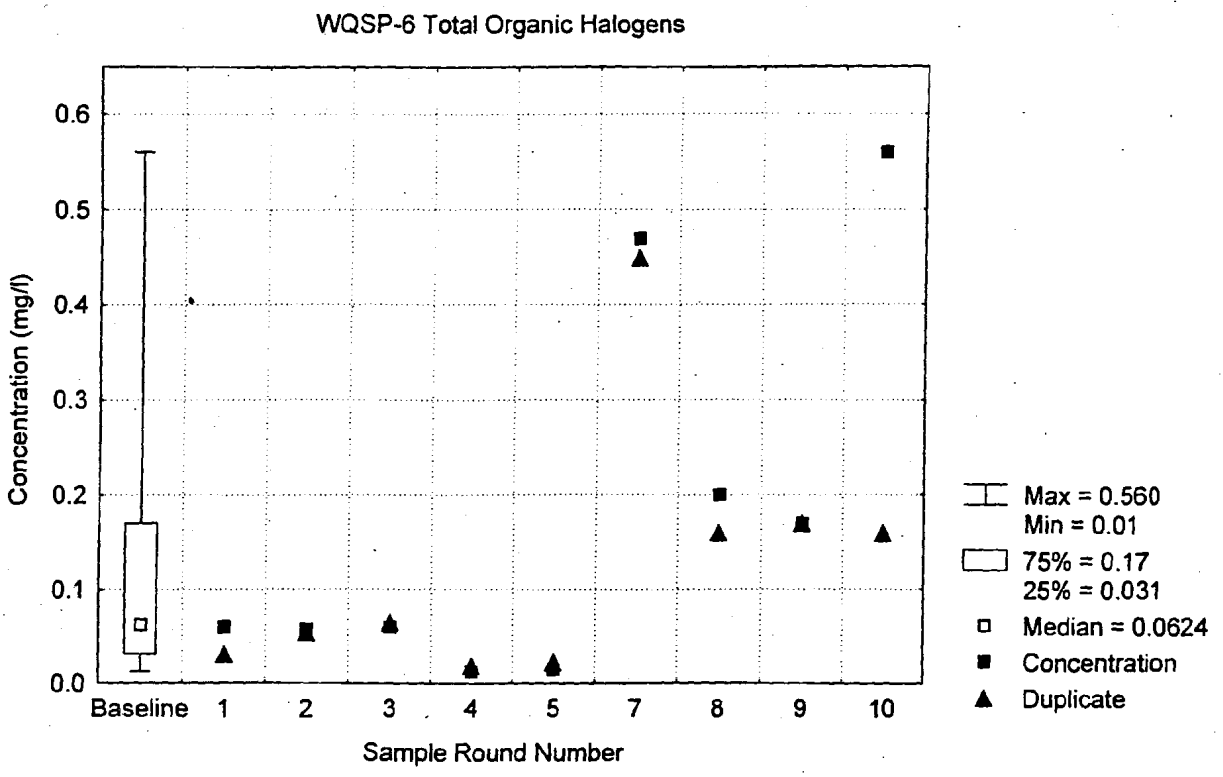

WQSP-6 Total Organic Halogens
Concentration (mg/l)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Baseline
1
2
3
4
5
7
8
9
10
Sample Round Number
Max = 0.560
Min = 0.01
75% = 0.17
25% = 0.031
Median = 0.0624
Concentration
Duplicate

Table **

Summary Statistics for General Chemistry at WIPP Monitoring Well WQSP6a

concentrations in mg/L unless otherwise stated

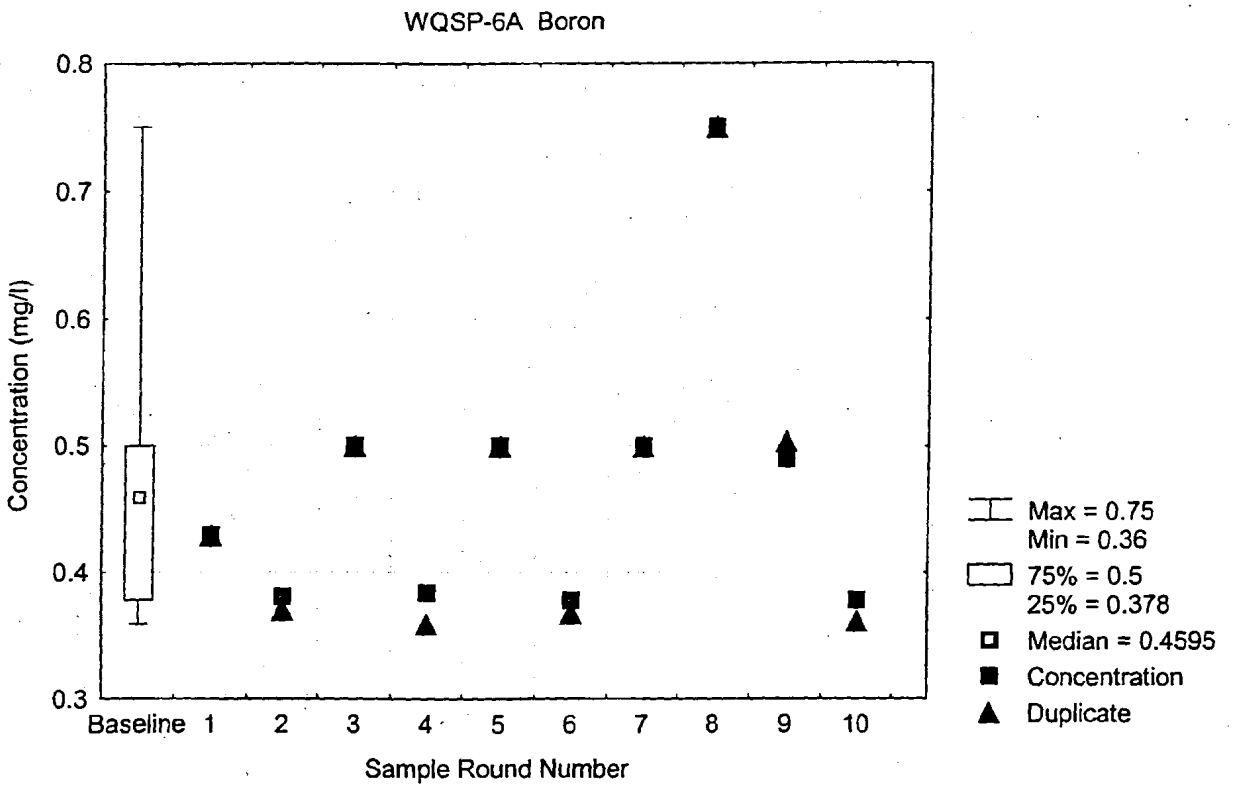
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ALKALINITY	20	0	Lognormal	100.0	111.0	103.0	104.0	3.47	111.0	113
BORON	20	35	Nonparametric	<0.50	0.5	0.4	0.4	0.08	0.5	NA
BROMIDE	20	55	Nonparametric	0.9	14.5	<2.0	2.4	4.13	14.5	NA
CALCIUM	20	0	Normal	563	681	647	636	41	681	733
CHLORIDE	20	0	Nonparametric	507	6748	652	1255	1876	6723	NA
CYANIDE	4	100	Nonparametric	<0.01	<0.01	<0.01	<0.01	--	<0.01	NA
DENSITY (g/mL)	20	NA	Nonparametric	0.98	1.01	1.00	1.00	0.01	1.01	NA
FLUORIDE	20	20	Nonparametric	1.00	<6.0	1.48	1.71	0.63	2.95	NA
IODIDE	20	100	Nonparametric	<0.5	<2.0	<2.0	0.93	0.23	<2.0	NA
LITHIUM	20	40	Nonparametric	0.083	<0.5	<0.2	0.133	0.063	<0.5	NA
NITROGEN, NO3 (AS N)	20	0	Normal	2.750	11.000	6.595	6.372	2.424	10.450	12.2
ORTHOPHOSPHATE (AS P)	20	80	Nonparametric	<0.01	0.11	<0.02	0.03	0.03	0.11	NA
pH (SU)	20	NA	Normal	7.20	7.92	7.36	7.44	0.22	7.88	6.8-8.0
SILICA	20	0	Normal	0.34	28.10	23.94	17.88	9.28	28.05	40.1
SODIUM	20	0	Lognormal	267	347	296	304	25	347	369
SPECIFIC CONDUCTANCE (umhos/cm)	20	0	Lognormal	4300	5000	4564	4614	231	5000	5192
SULFATE	20	0	Lognormal	1790	2560	1960	2027	208	2520	2543
SULFIDE	4	75	Nonparametric	<1.5	5.38	<1.5	<1.5	2.32	5.38	NA
TOTAL DISS SOLIDS	20	0	Nonparametric	3800	11000	3960	4673	2170	11000	NA
TOTAL ORGANIC CARBON	20	35	Nonparametric	<0.1	15.60	1.14	2.76	4.43	15.45	NA
TOTAL ORGANIC HALOGENS	18	11	Normal	<0.01	0.2	0.066	0.1	0.048	0.2	0.19
TOTAL PHENOLS	15	100	Nonparametric	<0.01	<0.28	<0.07	0.032	0.035	<0.28	NA
TOTAL SUSP SOLIDS	20	95	Nonparametric	<1.0	91.0	<10.0	11.8	27.2	91.0	NA

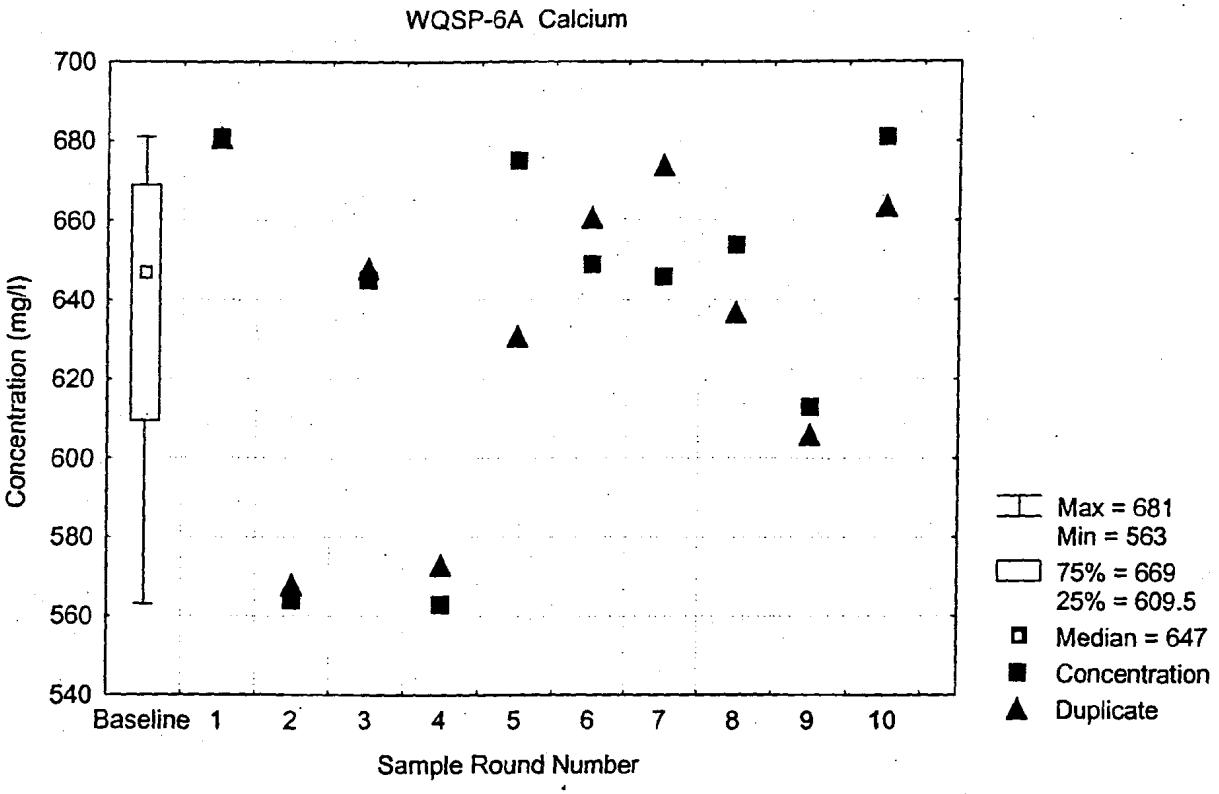
Table **

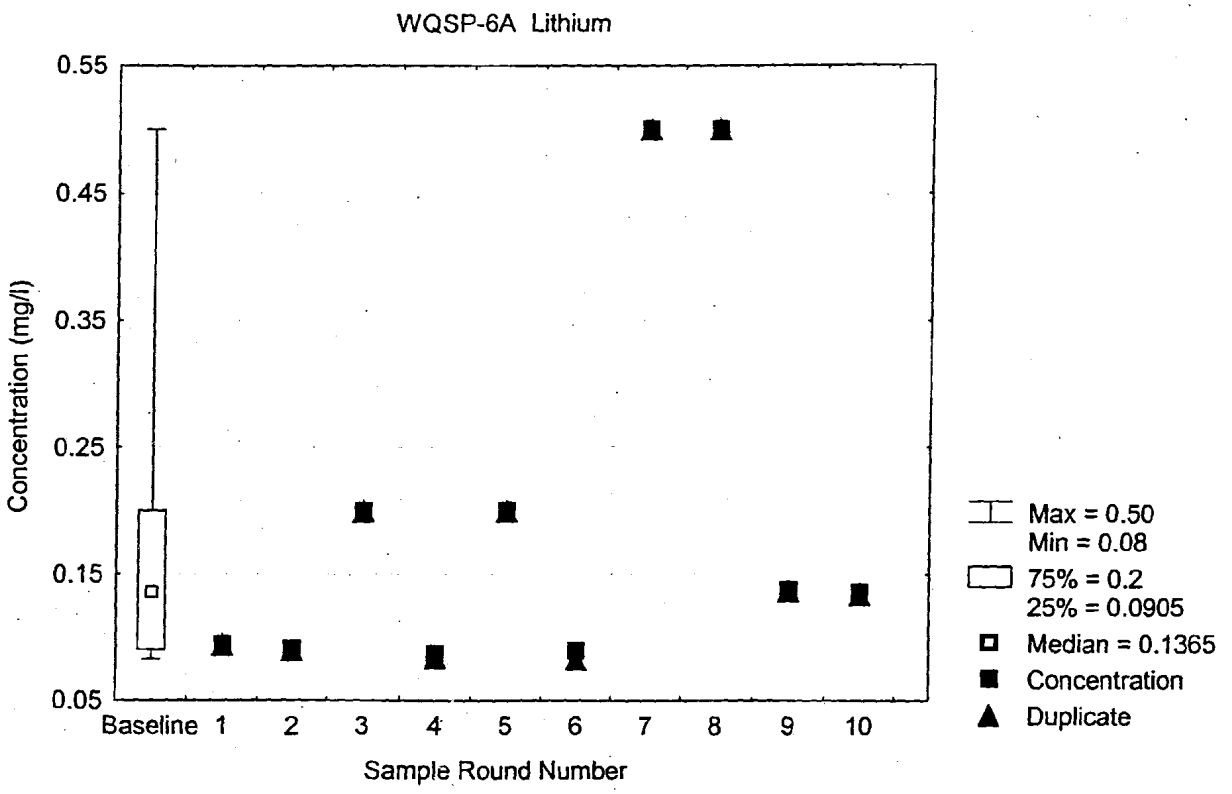
Summary Statistics for Metals at WIPP Monitoring Well WQSP6a

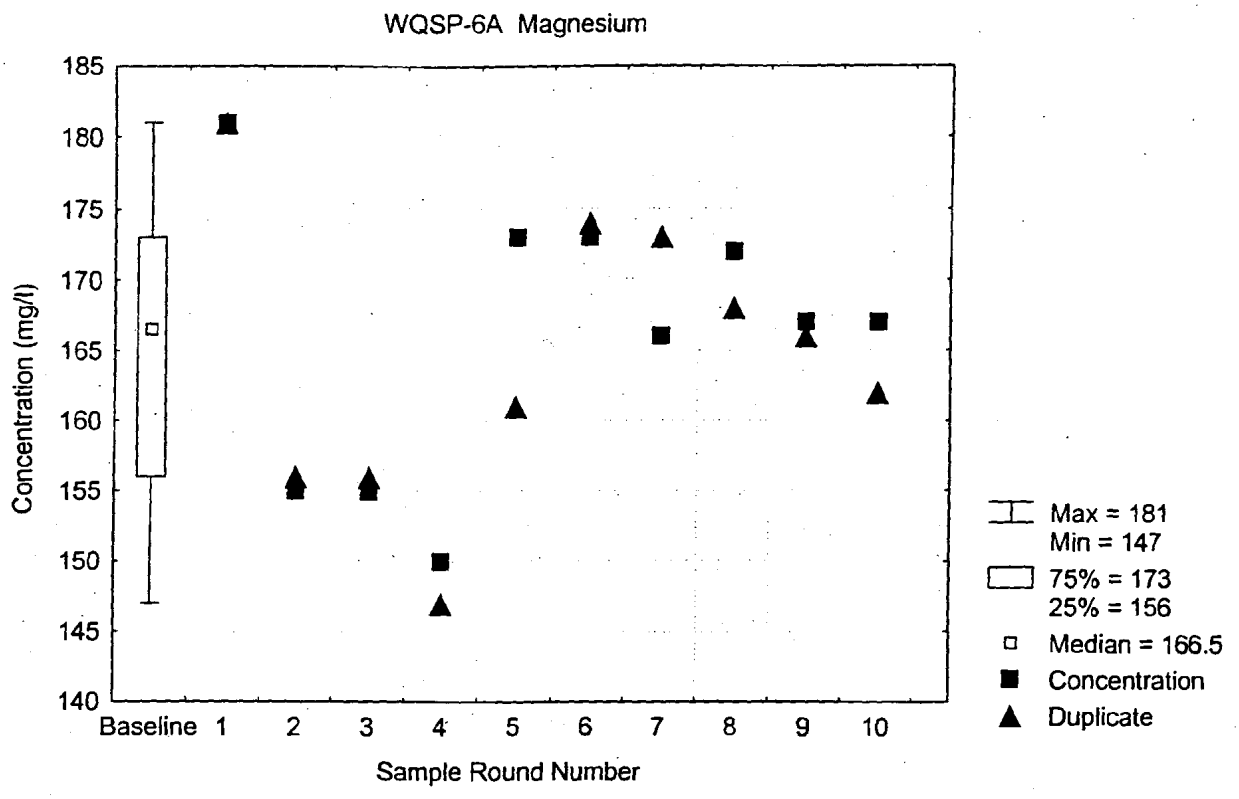
concentrations in mg/L unless otherwise stated

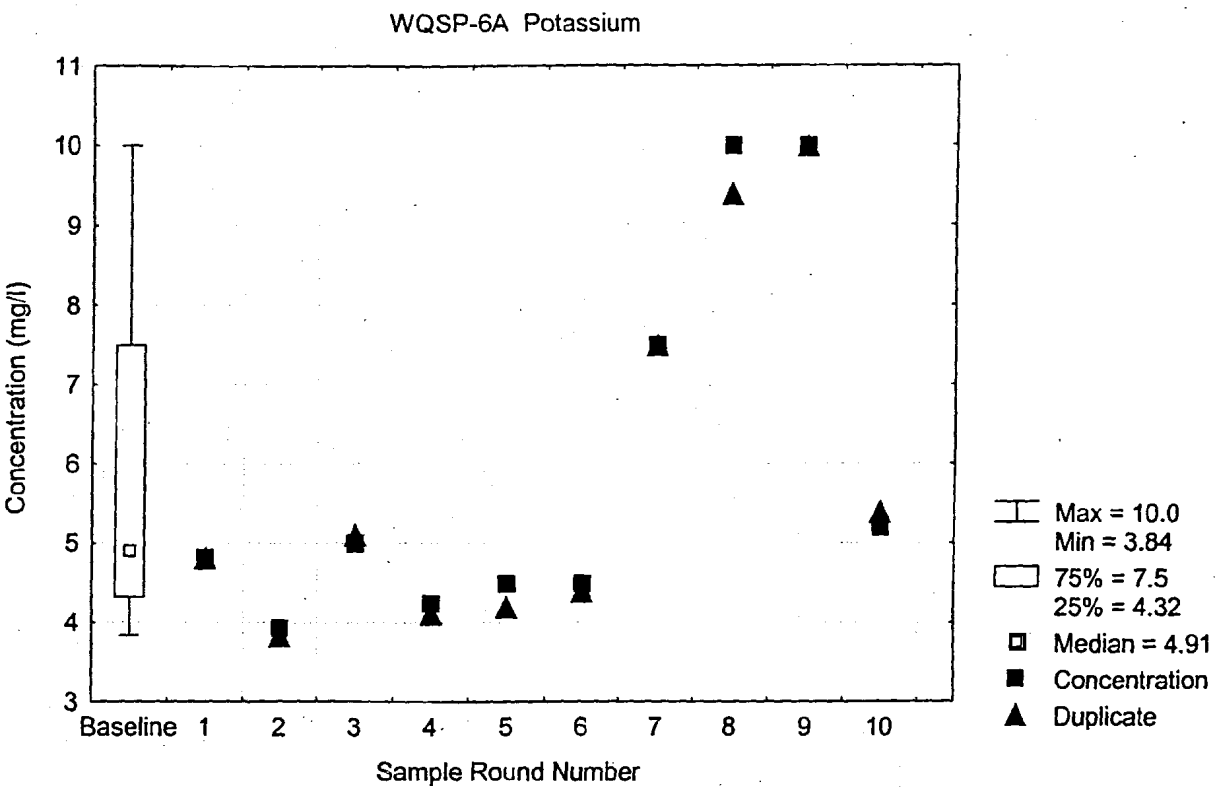
Chemical	N	Percent ND	Distribution Type	Minimum	Maximum	Median	Mean	Standard Deviation	95th Percentile	95th UTL
ANTIMONY	14	79	Nonparametric	<0.001	0.480	0.016	0.061	0.127	0.480	NA
ARSENIC	16	81	Nonparametric	<0.001	<0.5	0.007	0.058	0.089	<0.5	NA
BARIUM	16	81	Nonparametric	<0.004	<0.1	<0.02	0.136	0.218	<0.1	NA
BERYLLIUM	16	100	Nonparametric	<0.001	<0.01	<0.01	0.003	0.002	<0.01	NA
CADMIUM	16	100	Nonparametric	<0.001	<0.5	<0.004	0.022	0.062	<0.5	NA
CHROMIUM	16	88	Nonparametric	<0.0025	<0.5	<0.025	0.059	0.096	<0.5	NA
COBALT	14	100	Nonparametric	<0.001	<0.5	<0.032	0.079	0.113	<0.5	NA
COPPER	14	93	Nonparametric	0.0007	<1.0	0.019	0.154	0.227	<1.0	NA
IRON	20	65	Nonparametric	0.0037	0.511	<0.4	0.234	0.176	0.505	NA
LEAD	16	94	Nonparametric	<0.001	<0.05	<0.016	0.012	0.010	<0.05	NA
MAGNESIUM	20	0	Normal	147	181	167	165	10	181	188
MERCURY	16	100	Nonparametric	<0.0002	<0.002	<0.0002	0.0004	0.0004	<0.002	NA
NICKEL	13	85	Nonparametric	<0.019	0.284	<0.1	0.097	0.116	0.284	NA
POTASSIUM	20	10	Lognormal	3.8	10.0	4.9	5.4	1.8	9.7	10.1
SELENIUM	16	50	Nonparametric	<0.006	0.220	0.0185	0.034	0.052	0.220	NA
SILVER	16	88	Nonparametric	<0.001	<0.5	<0.013	0.073	0.107	<0.5	NA
THALLIUM	14	86	Nonparametric	<0.001	0.058	<0.013	0.017	0.018	0.058	NA
TIN	14	86	Nonparametric	<0.001	0.230	<0.025	0.038	0.069	0.230	NA
VANADIUM	14	50	Nonparametric	<0.01	<0.5	0.050	0.072	0.077	<0.5	NA
ZINC	14	100	Nonparametric	<0.007	<5.0	<0.075	0.416	0.887	<5.0	NA

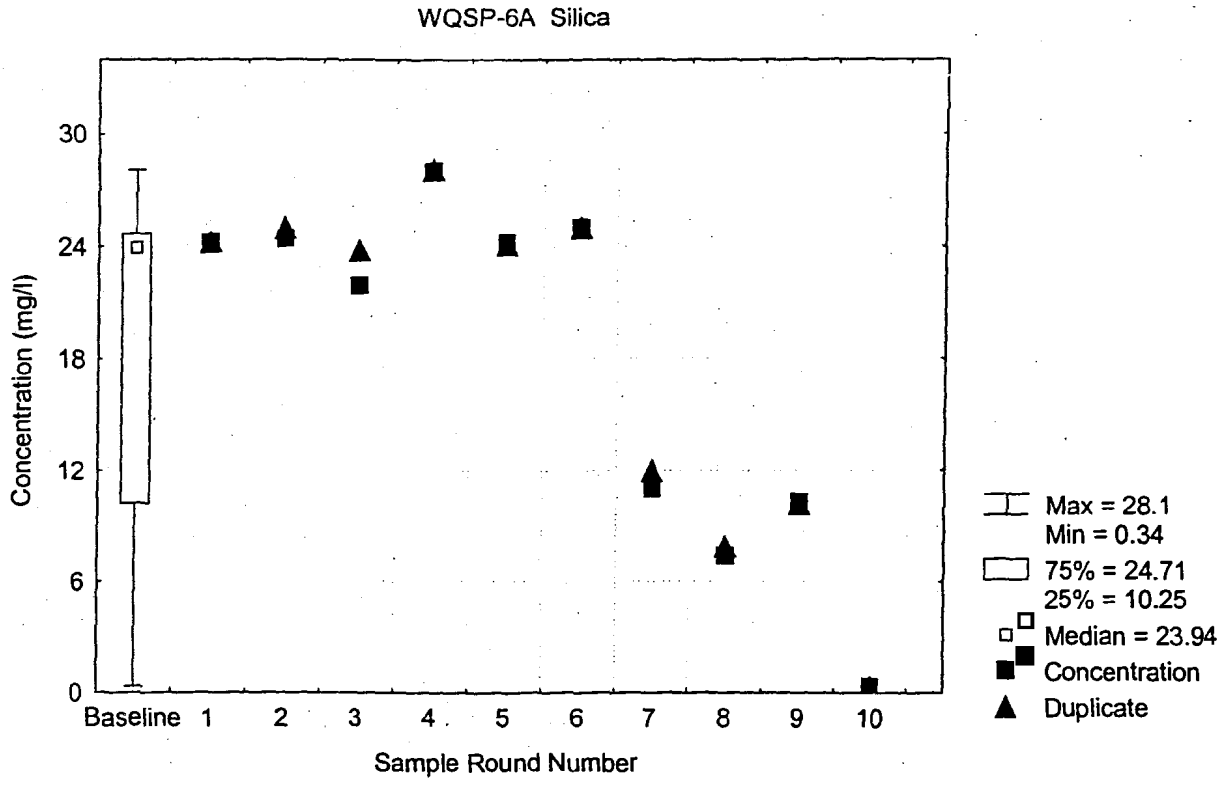

WQSP-6A Boron
Concentration (mg/l)
0.8
0.7
0.6
0.5
0.4
0.3
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 0.75
Min = 0.36
75% = 0.5
25% = 0.378
Median = 0.4595
Concentration
Duplicate

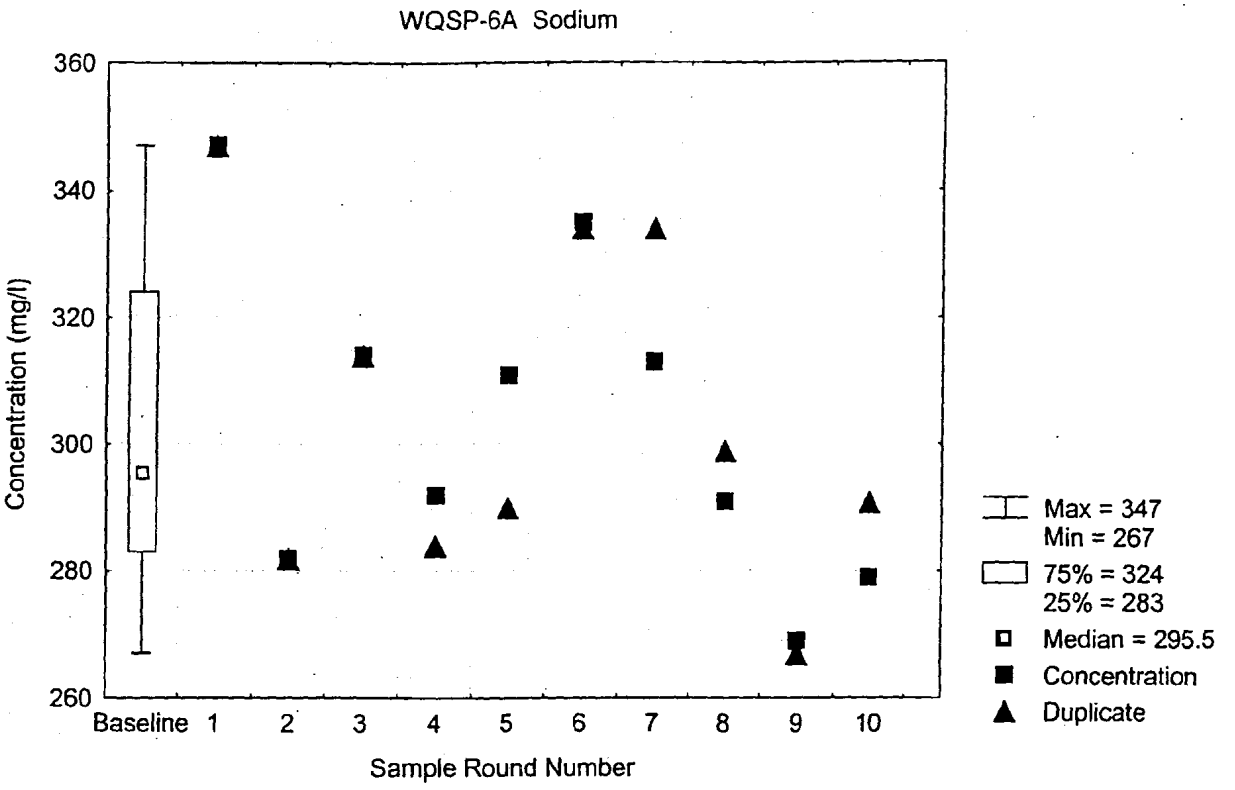

WQSP-6A Calcium
Concentration (mg/l)
700
680
660
640
620
600
580
560
540
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 681
Min = 563
75% = 669
25% = 609.5
Median = 647
Concentration
Duplicate

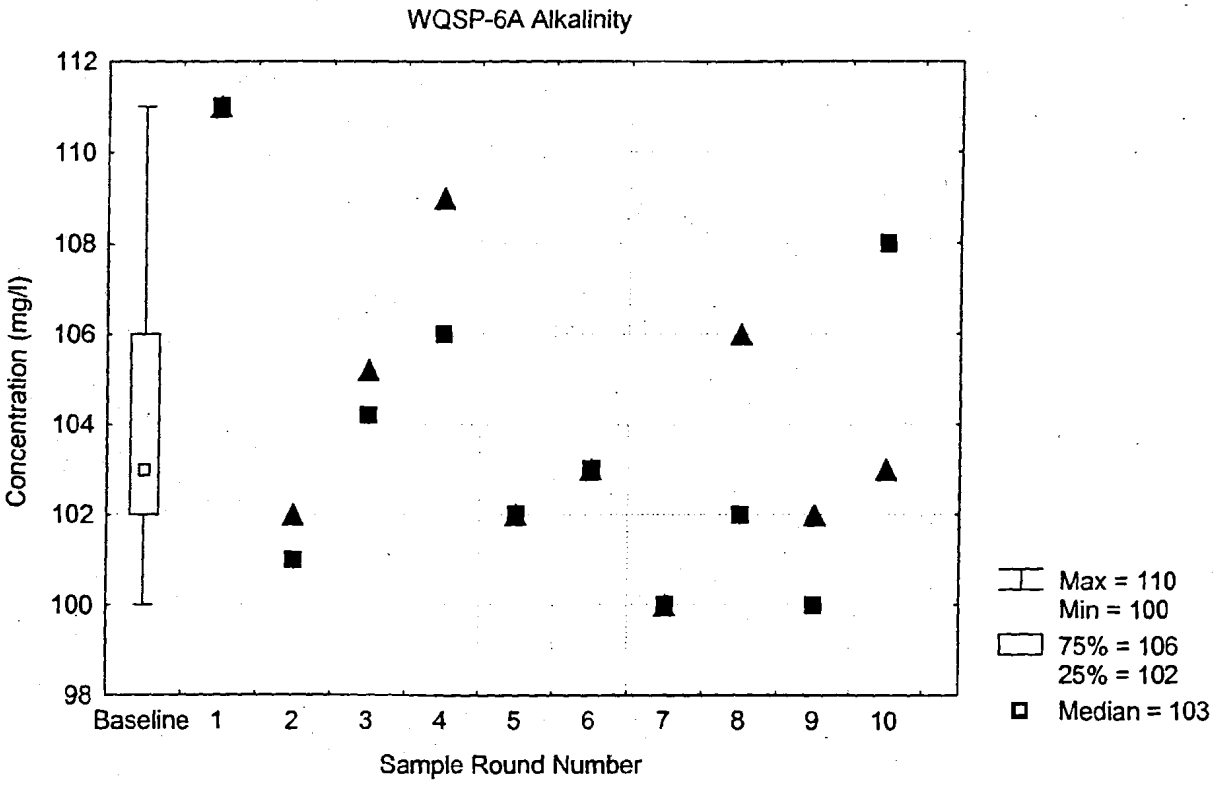

WQSP-6A Lithium
0.55
0.45
0.35
0.25
0.15
0.05
Concentration (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Number
Max = 0.50
Min = 0.08
75% = 0.2
25% = 0.0905
Median = 0.1365
Concentration
Duplicate

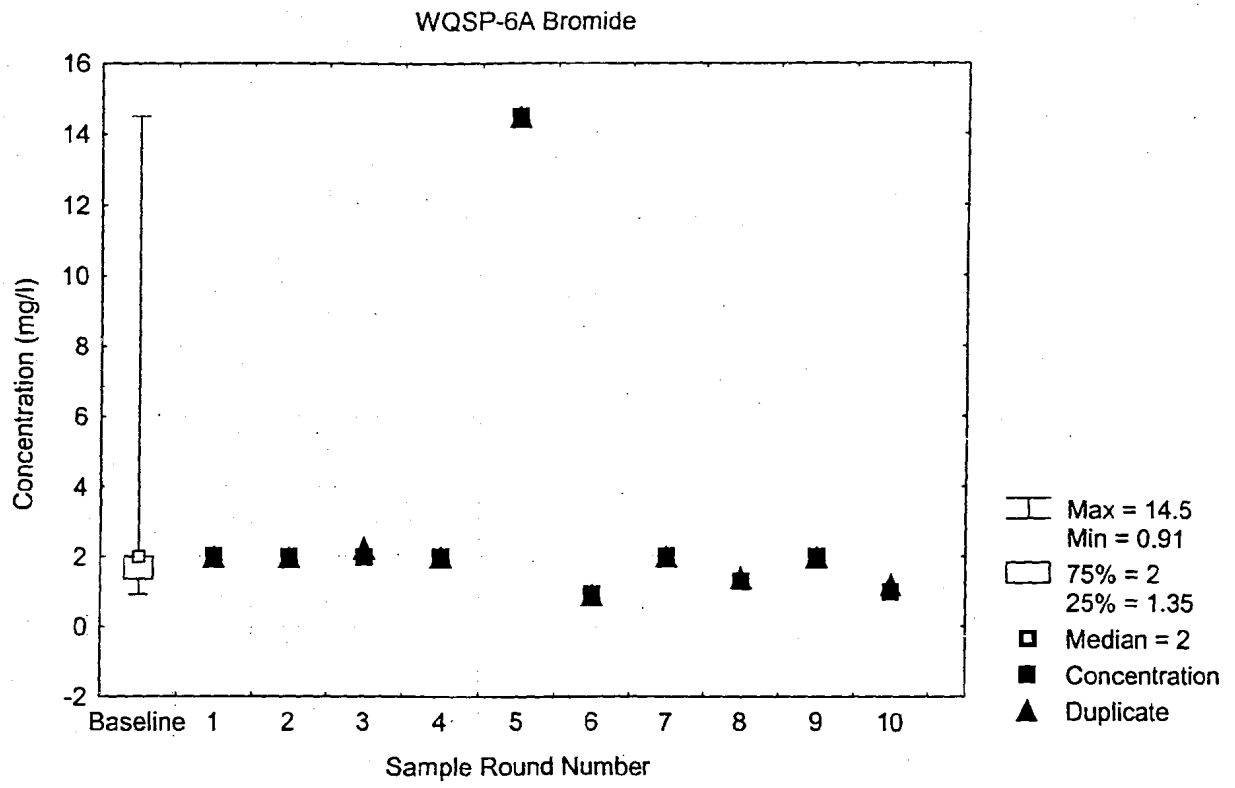

WQSP-6A Magnesium
185
180
175
170
165
160
155
150
145
140
Concentration (mg/l)
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 181
Min = 147
75% = 173
25% = 156
Median = 166.5
Concentration
Duplicate

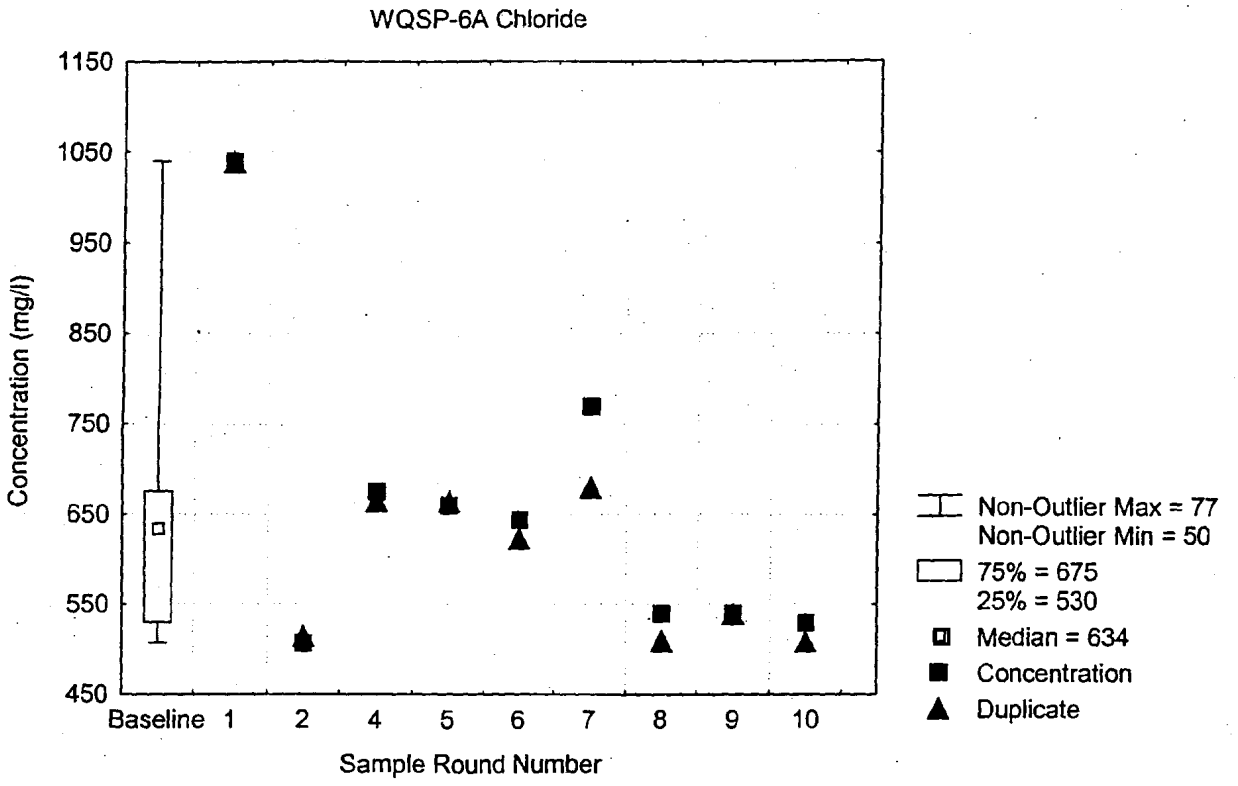

WQSP-6A Potassium
Concentration (mg/l)
11
10
9
8
7
6
5
4
3
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 10.0
Min = 3.84
75% = 7.5
25% = 4.32
Median = 4.91
Concentration
Duplicate

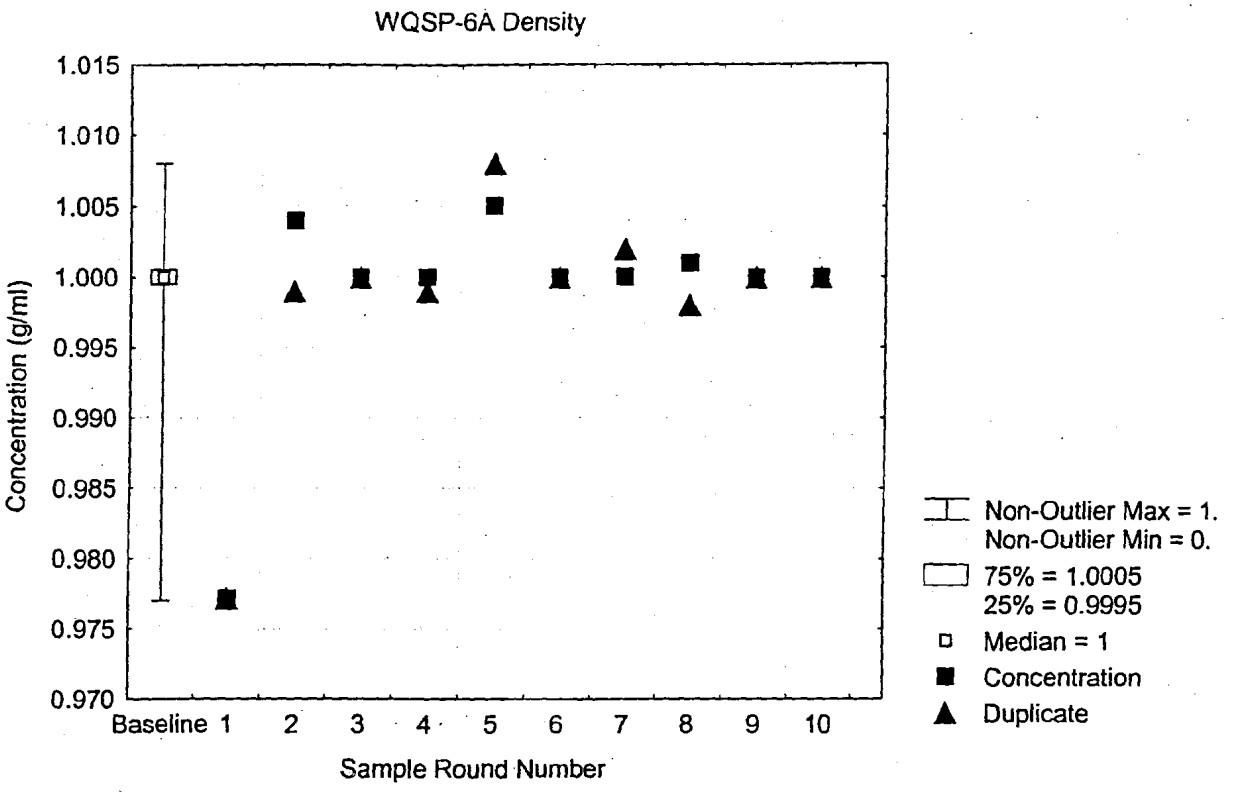

WQSP-6A Silica
Concentration (mg/l)
30
24
18
12
6
0
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 28.1
Min = 0.34
75% = 24.71
25% = 10.25
Median = 23.94
Concentration
Duplicate

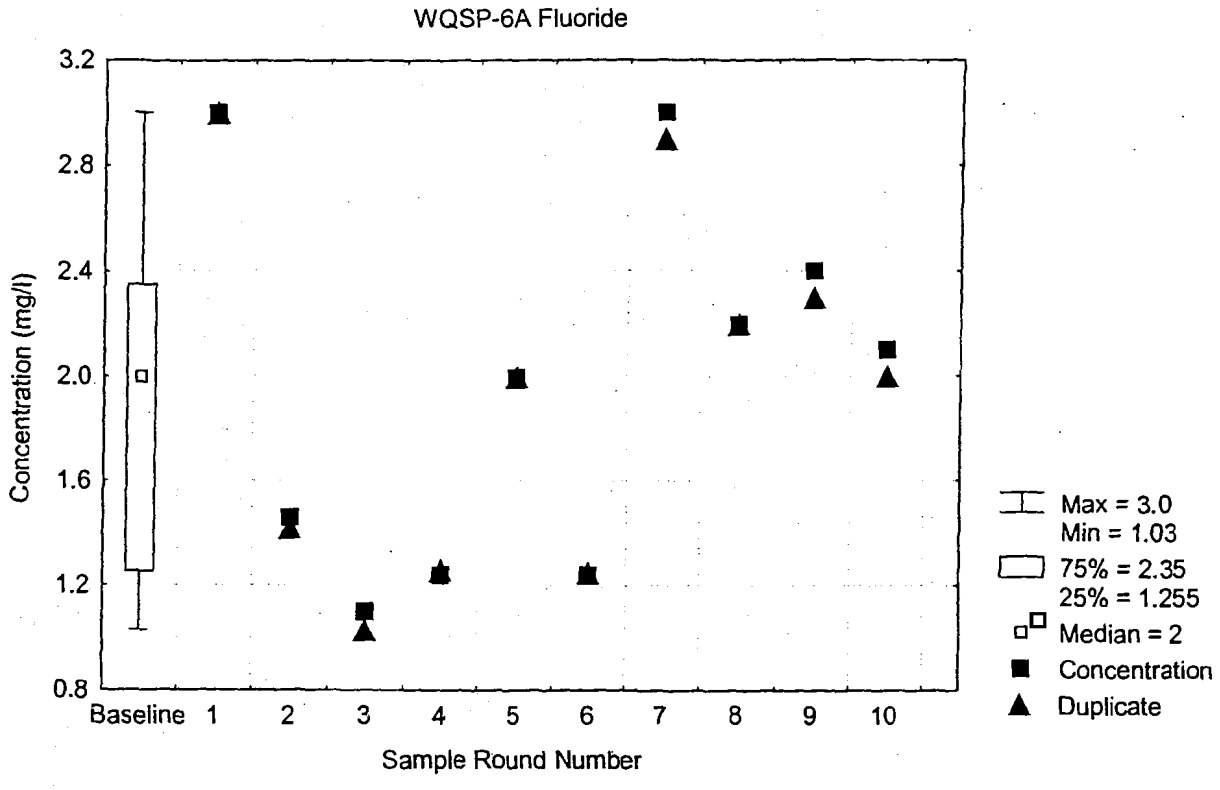

WQSP-6A Sodium
Concentration (mg/l)
360
340
320
300
280
260
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 347
Min = 267
75% = 324
25% = 283
Median = 295.5
Concentration
Duplicate

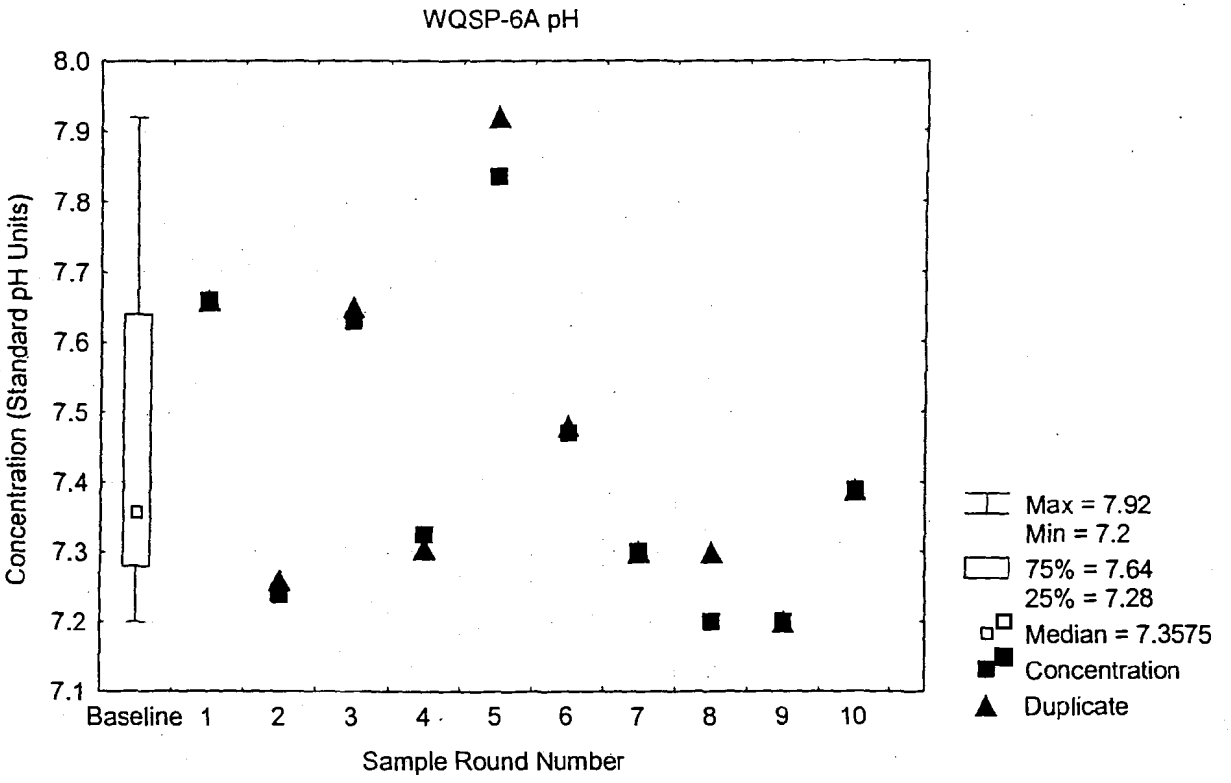

WQSP-6A Alkalinity
Concentration (mg/l)
112
110
108
106
104
102
100
98
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 110
Min = 100
75% = 106
25% = 102
Median = 103

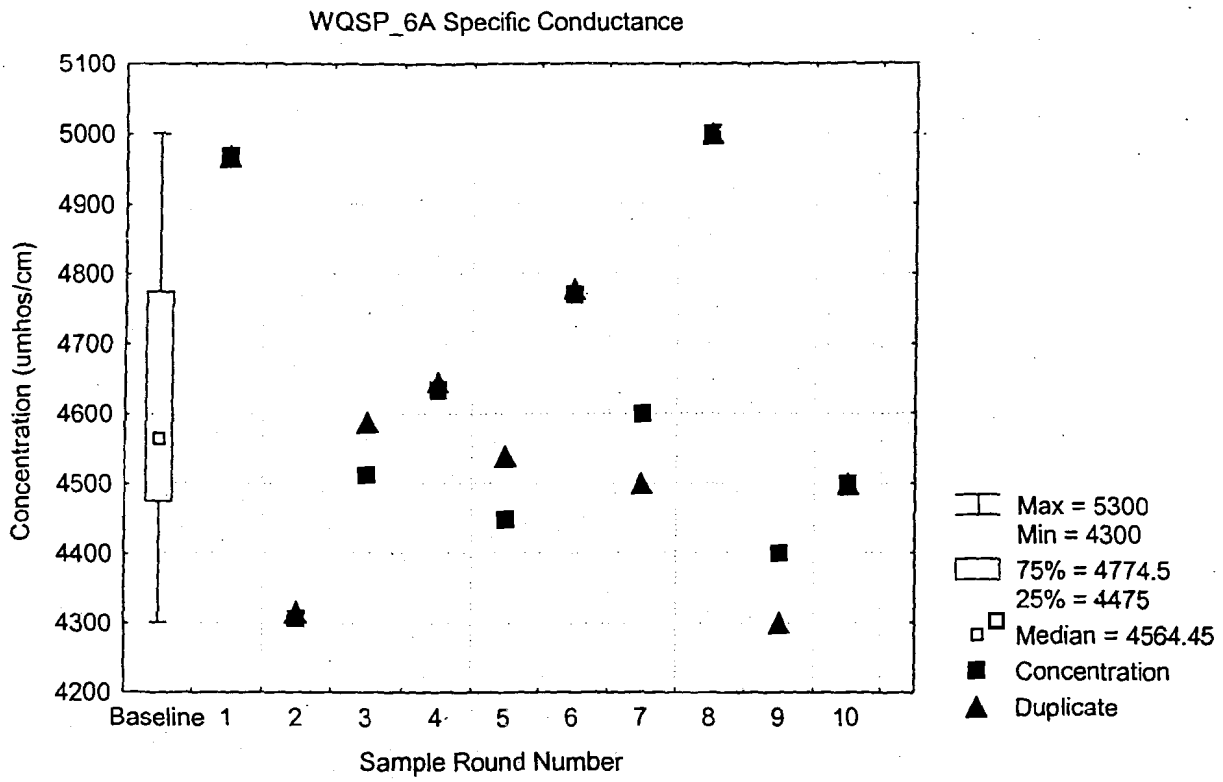

WQSP-6A Bromide
Concentration (mg/l)
16
14
12
10
8
6
4
2
0
-2
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 14.5
Min = 0.91
75% = 2
25% = 1.35
Median = 2
Concentration
Duplicate

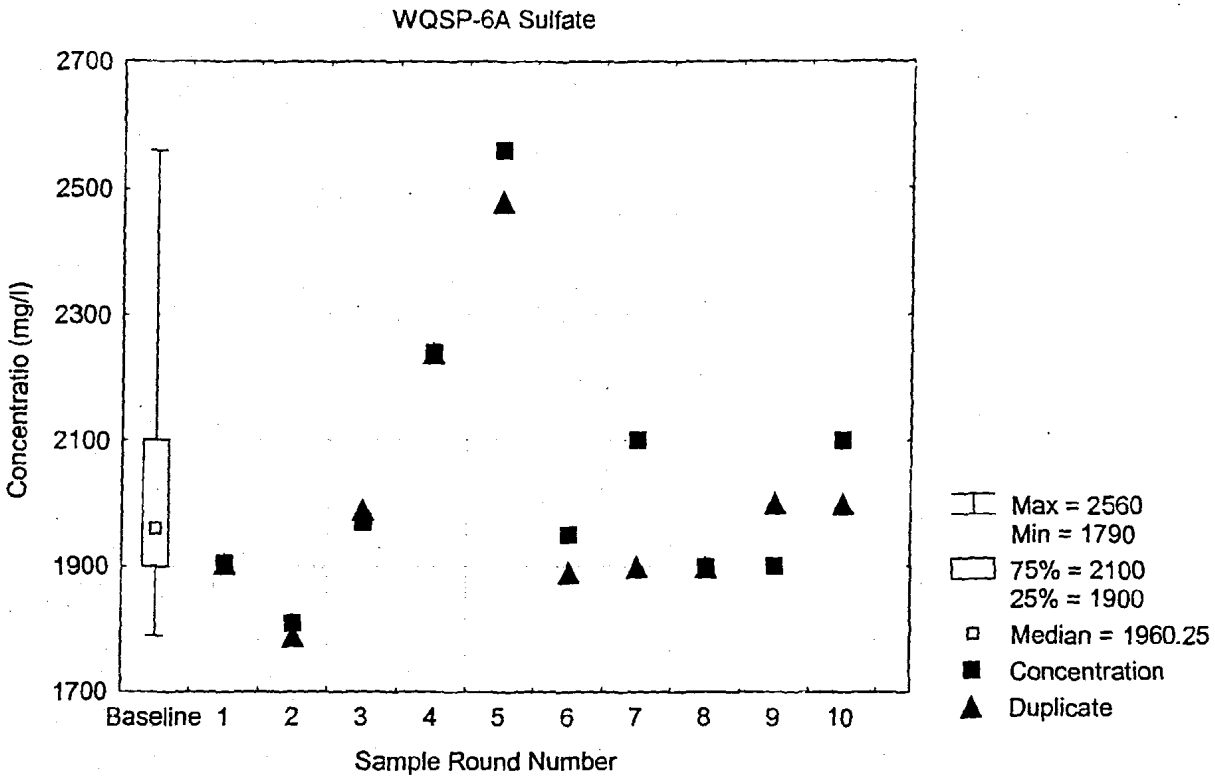

WQSP-6A Chloride
1150
1050
950
850
750
650
550
450
Concentration (mg/l)
Baseline
1
2
4
5
6
7
8
9
10
Sample Round Number
Non-Outlier Max = 77
Non-Outlier Min = 50
75% = 675
25% = 530
Median = 634
Concentration
Duplicate

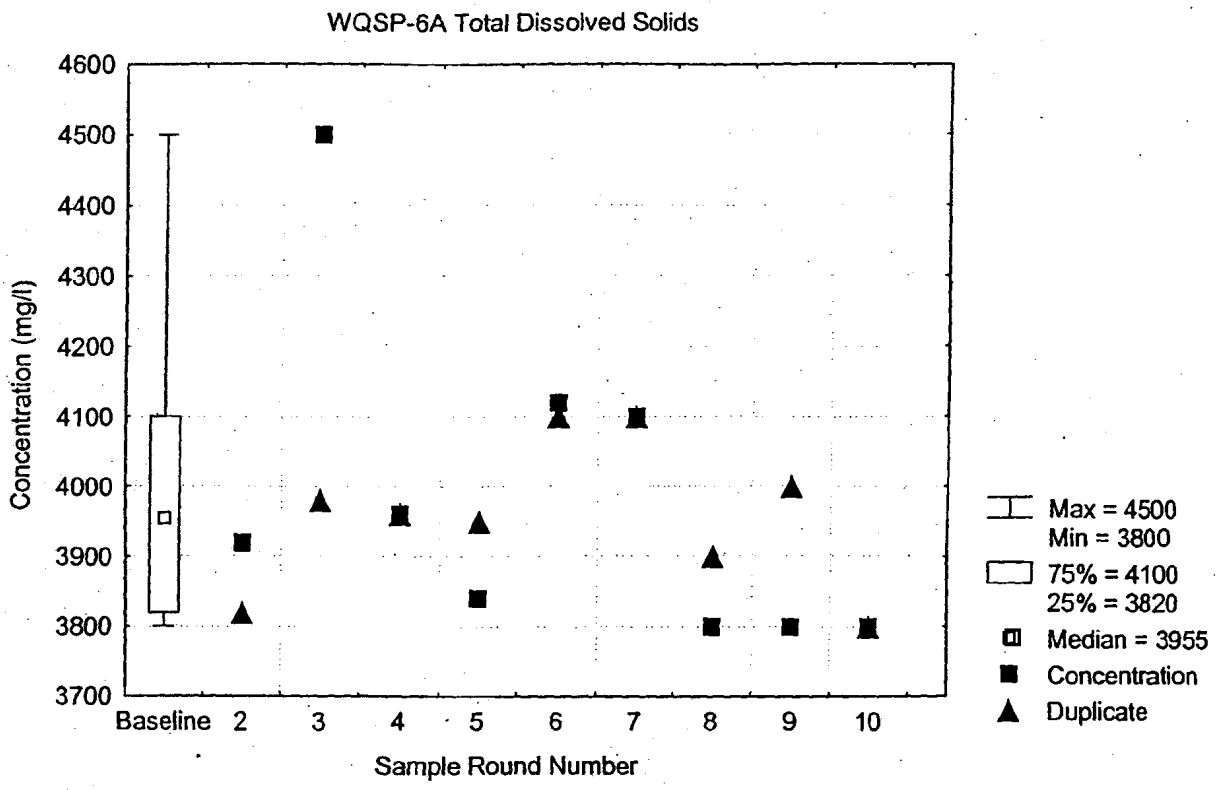

WQSP-6A Density
Concentration (g/ml)
1.015
1.010
1.005
1.000
0.995
0.990
0.985
0.980
0.975
0.970
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Number
Non-Outlier Max = 1.
Non-Outlier Min = 0.
75% = 1.0005
25% = 0.9995
Median = 1
Concentration
Duplicate

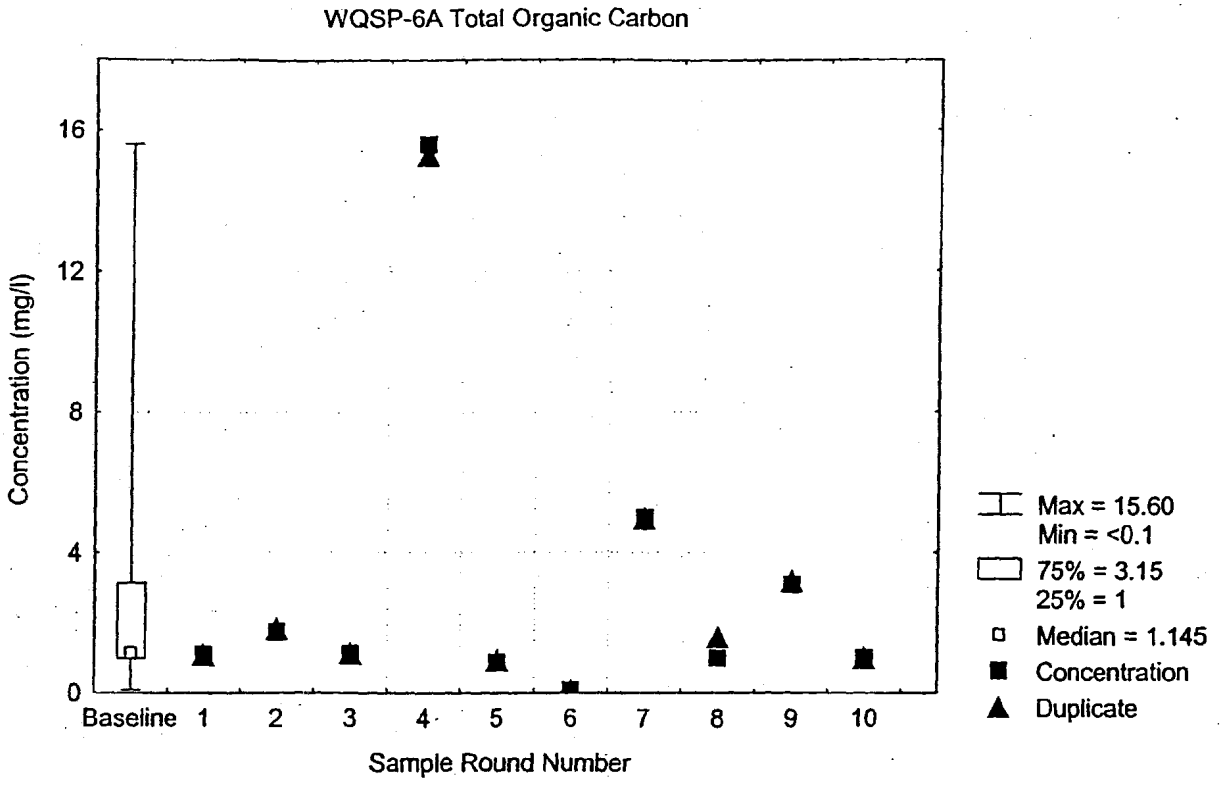

WQSP-6A Fluoride
Concentration (mg/l)
3.2
2.8
2.4
2.0
1.6
1.2
0.8
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 3.0
Min = 1.03
75% = 2.35
25% = 1.255
Median = 2
Concentration
Duplicate

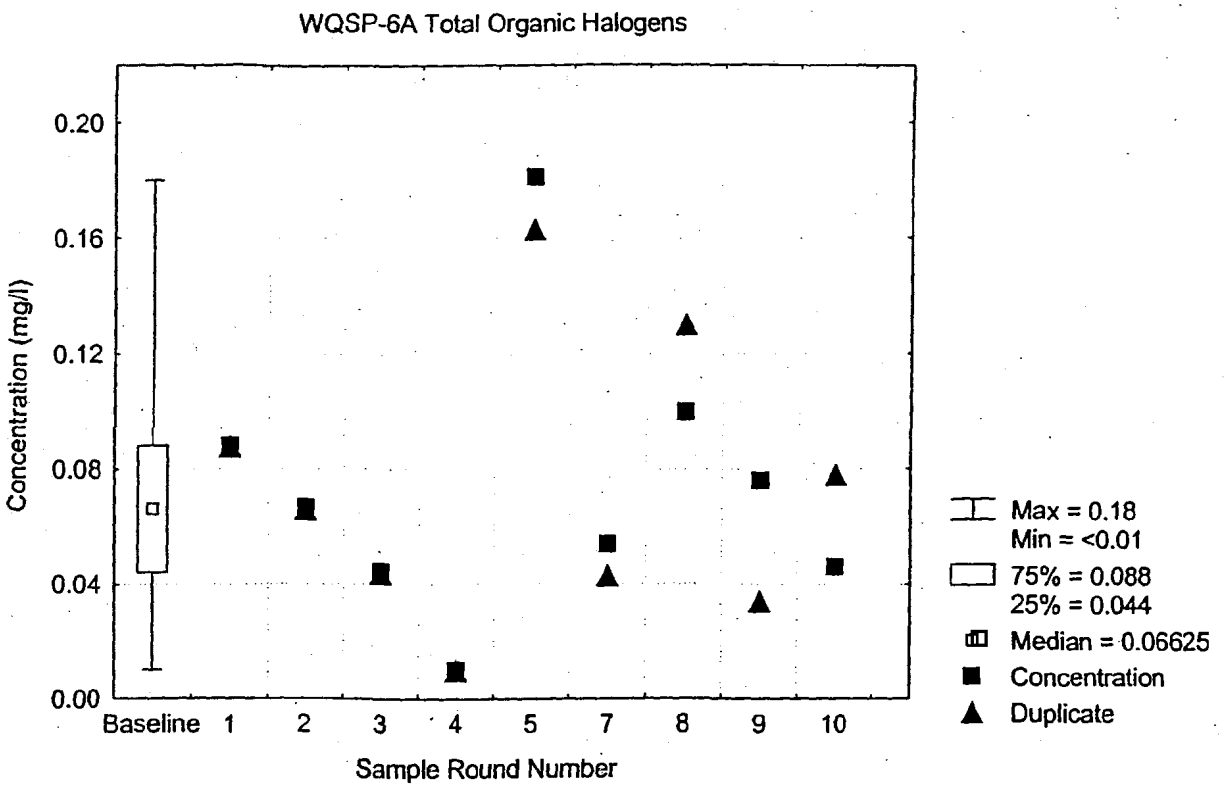

WQSP-6A pH
Concentration (Standard pH Units)
8.0
7.9
7.8
7.7
7.6
7.5
7.4
7.3
7.2
7.1
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 7.92
Min = 7.2
75% = 7.64
25% = 7.28
Median = 7.3575
Concentration
Duplicate


WQSP_6A Specific Conductance
Concentration (umhos/cm)
5100
5000
4900
4800
4700
4600
4500
4400
4300
4200
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 5300
Min = 4300
75% = 4774.5
25% = 4475
Median = 4564.45
Concentration
Duplicate


WQSP-6A Sulfate
2700
2500
2300
2100
1900
1700
Concentratio (mg/l)
Baseline 1 2 3 4 5 6 7 8 9 10
Sample Round Number
Max = 2560
Min = 1790
75% = 2100
25% = 1900
Median = 1960.25
Concentration
Duplicate


WQSP-6A Total Dissolved Solids
Concentration (mg/l)
4600
4500
4400
4300
4200
4100
4000
3900
3800
3700
Baseline
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 4500
Min = 3800
75% = 4100
25% = 3820
Median = 3955
Concentration
Duplicate


WQSP-6A Total Organic Carbon
Concentration (mg/l)
16
12
8
4
0
Baseline
1
2
3
4
5
6
7
8
9
10
Sample Round Number
Max = 15.60
Min = <0.1
75% = 3.15
25% = 1
Median = 1.145
Concentration
Duplicate


WQSP-6A Total Organic Halogens
Concentration (mg/l)
0.20
0.16
0.12
0.08
0.04
0.00
Baseline
1
2
3
4
5
7
8
9
10
Sample Round Number
Max = 0.18
Min = <0.01
75% = 0.088
25% = 0.044
Median = 0.06625
Concentration
Duplicate