Process Research Solutions, LLC

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Monitoring Project Summary

Water Utility: North Shore Water Commission

Project Title: Corrosion Control Chemical Comparison Tests

Description: The effects and some side-effects of corrosion control chemicals were compared against each other using a PRS Monitoring Station as an off-line test apparatus. The leaching of lead in untreated chloraminated water was compared to that in the same water with the addition of a 50/50 polyphosphate/orthophosphate blend product already in use in the distribution system. Two other chemicals were also tested and compared: a newly formulated 70/30 poly/ortho blend and a 100% orthophosphate. Four modules of lead plates were used in the monitoring station, one per test water stream.

Goals: The main goal of the test was to determine which chemical scenario leached the least lead into the water. Also studied were the possible effects of the phosphate chemicals on the growth of microorganisms and on the release of particulate lead.

Date Range: April 2008 to September 2008

Sampling Sites: A PRS Monitoring Station, designated as Monitoring Station #2, was used. The station included four lead modules labeled as:

Module ID	Metal Plates	Chemical added to chloraminated water	Installation Date
2-Pb-1	lead	none	4/8/08
2-Pb-2	lead	0/100 poly/ortho	4/8/08
2-Pb-3	lead	50/50 poly/ortho	4/8/08
2-Pb-4	lead	70/30 poly/ortho	4/8/08

Water System Description

Water Source: Lake Michigan

Water Treatment: Water treatment includes:

- Addition of potassium permanganate to control zebra mussels
- Addition of alum for coagulation
- Addition of activated carbon for adsorption of compounds causing taste and odor
- Sedimentation
- Rapid sand filtration using carbon, sand, and gravel
- Addition of chlorine for disinfection
- UV disinfection
- Addition of 50/50 polyphosphate/orthophosphate blend for corrosion control
- Fluoridation

Water System Configuration: North Shore Water Commission treats water for three water systems serving three suburban Milwaukee entities – Whitefish Bay, Glendale, and Fox Point. The population served is around 34,000.

Summary of Results

Influent Water Quality

This test was performed at a time when North Shore Water Commission was using free chlorine as a disinfectant in the distribution system and also using a 50/50 poly/ortho blend for corrosion control. The test required water without either chemical added. The water fed to the monitoring station was filtered water from the North Shore Water Commission treatment plant mixed in a batch tank with chlorine and ammonia to simulate the future chloraminated water to be used in the system.

From April through the beginning of June, problems were experienced with the influent feed pump from the batch tank. It was found that the pump was throwing its own corrosion debris into the influent water. The debris was measured in the form of influent iron, manganese, and lead particulates. The presence of microorganisms was also elevated during the pump problem.

The feed water, itself, was found to have insignificant levels of iron, lead, manganese, and microbiological activity. The test operation ran smoothly from June through August.

Operating Parameters

The feed water was chloraminated at a dosage of about 2 mg/L total chlorine where the dosage fluctuated between 1.5 and 2.5 mg/L total chlorine. Most of the total chlorine was in the form of monochloramine as it entered the test modules.

Insignificant concentrations of free ammonia were found. Other nitrogen compounds, nitrite and nitrate, were also insignificant.

The temperature averaged 21 deg. C which was a function of holding water in a batch tank in a chemical feed room of the treatment plant. The pH of the water averaged 8.1 with little variance.

Measurements of total phosphorus and orthophosphate at the influent to each module reflected the intended dosages of chemicals. Module 2-Pb-1 was not treated with a phosphate chemical and displayed insignificant concentrations of phosphorus. The goal of dosage in the other modules was to achieve 1 mg/L total phosphorus. The orthophosphate measurements show the intended 100%, 30%, and 50% orthophosphate as phosphorus in the other modules. There was slightly elevated phosphorus in the influent water initially. Check valves were installed for each line to the individual modules to prevent water from the separate chemical feed systems from mixing together.

Reactions

There was an initial slightly elevated level of microbiological activity measured from the modules, probably from the initial problem with the feed pump. As the influent activity decreased, so did the activity in the modules. However, activity did again increase in the modules. The untreated water had a slightly higher level of microbiological activity than the modules with phosphorus added. This is opposite of what one would expect for the addition of a major microbiological nutrient such as phosphorus. However, in looking at the average and range graph, it appears that the influent water inoculated the modules during the operational problem with the feed pump. The module closest to the influent, which happens to be the untreated water, has the highest microbiological count. The count decreases in the modules corresponding to their distance from the influent flow. Therefore, the microbiological response observed in the experiment may be one of physical location instead of chemical environment.

The formation of nitrites and nitrates by nitrifying bacteria was insignificant during the test. Therefore, the microbiological activity involved other categories of microorganisms.

The transfer of lead from the lead plates into the water was the main parameter of study. There was influent lead and iron at the beginning of the test which appeared to be accompanied by greatly variable lead measurements, especially particulate lead, from the modules.

After the influent water quality was stabilized, distinct patterns of lead release became apparent for each chemical. The untreated water remained with the highest and most variable lead concentration and with a high percentage of lead in particulate form. The two chemicals with polyphosphates lowered the lead concentration below that of the untreated water; in these cases, the lead was mostly in dissolved form. However, neither chemical gave the performance of 100% orthophosphate which greatly lowered the lead concentration in the water compared to untreated water. It appeared to keep the lead in a dissolved form and also greatly decreased the variability of the lead concentration, even during the operational disturbance. The test ended just as all concentrations had leveled off and seemed to be at a steady state.

Conclusions

Goals Addressed

The tests pointed to orthophosphate as the corrosion control chemical which could quickly bring lead levels below that of untreated water. It also appeared to quickly decrease the variability of the lead concentration in the water. It appeared that chemicals with polyphosphate lagged behind these abilities in the short amount of time allotted for the test.

Debris

The initial influx of iron particulates and other debris from the water feed pumps displayed an interesting effect of increased release of lead particulates from the lead plates. A similar response to influent iron particulates has previously been seen in data from a monitoring station in Waukesha Water Utility. This phenomenon needs further exploration.

Of interest after the influent water quality was under control was that the untreated water displayed lead release in particulate form while water with any type of phosphate, not just polyphosphate, displayed lead release in soluble form.

It also appears that when lead is in particulate form, the concentration is more likely to spike and vary greatly. This observation is not only a function of lead release but also one of sample capture and measurement. That is, it is difficult to capture a representative sample with lead particulates because of the heterogeneity of the water sample. The particulates can also be lost to the sample bottle walls or go back into solution after capture.

Biostability

Biostability is difficult to assess in a short amount of time and with limited budget. The use of heterotrophic plate count as an indicator of microbiological activity is difficult because it is ambiguous as to the type of microorganisms and environmental conditions that are actually affecting water quality outcomes. Nevertheless, it is the only approach that can fit into a routine sampling budget. It seems to indicate where microbiological activity is occurring relative to other areas. In this test, all modules exhibited activity and it appeared to be influenced by an operational problem instead of giving a good assessment of the chemical environment in which microorganisms may be more conducive to grow. There were also other nutrients and environmental conditions that were not or could not be measured. For instance, besides the nutrient, phosphorus in the water, it was known that the nutrient, assimilable organic carbon (AOC), was about 150 µg/L as acetate in the source water, which is considered high. More data were not obtained because of the prohibitive cost of AOC analyses. The test did show that nitrification was not a factor during this time period.

The tests leave one on-guard for microbiological activity in the water distribution system given the source water characteristics and the chemical treatment.

Recommendations

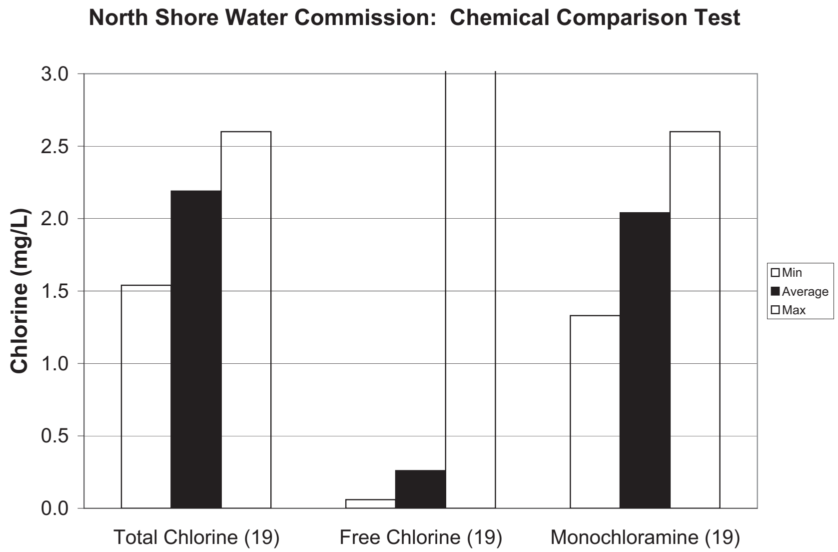
The use of a corrosion control chemical in the North Shore Water Commission systems was desired for two reasons. First, a corrosion control chemical was already in use in the North Shore water distribution systems. Because of regulatory restrictions, a corrosion control chemical cannot be removed without approval of the regulatory agency and increased Lead and Copper Rule residential testing.

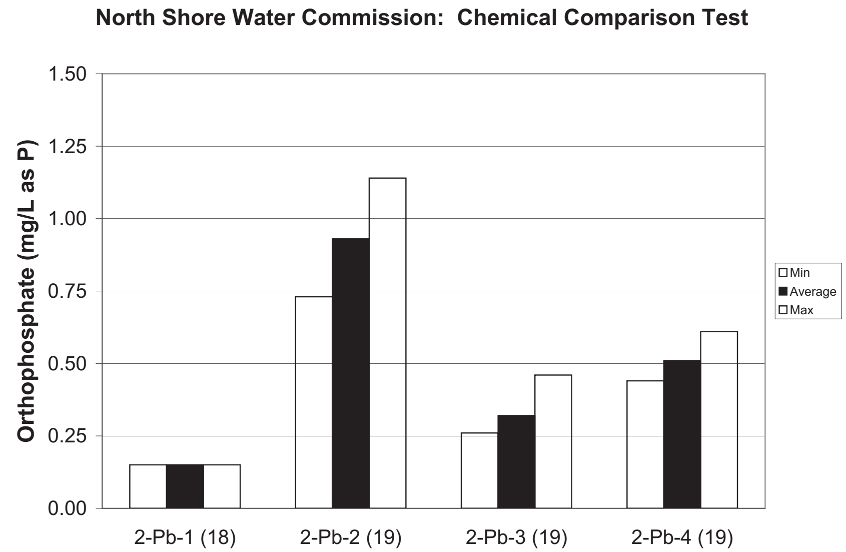
Secondly, the future plan of North Shore at the time of testing was to change the disinfection from free chlorine to chloramine. Experience in Washington, D.C.'s water system showed that such a switch can increase the lead concentration in the water. This was thought to occur because the lower oxidation-reduction potential of chloramine from that of free chlorine caused a change in solubility of a protective, insoluble barrier of lead dioxide that had formed on the pipe walls. In North Shore's case, it was hoped that the addition of a phosphate compound would form an alternate protective barrier as any previous barrier dissolved during the transition.

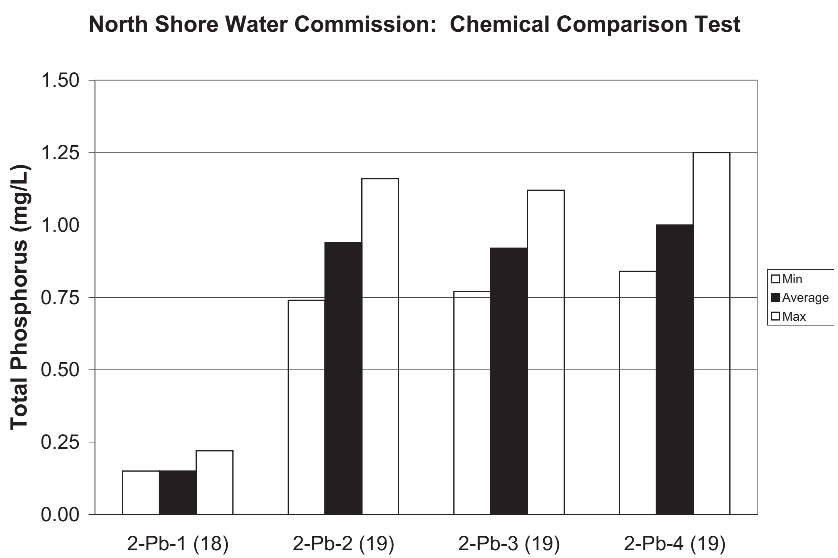
Given that some kind of corrosion control chemical was desired, the tests showed that 100% orthophosphate may give further advantage over a poly/ortho blend to controlling lead during the disinfection transition period. Therefore, North Shore switched the corrosion control chemical from a 50/50 poly/ortho blend to 100% orthophosphate in September 2008.

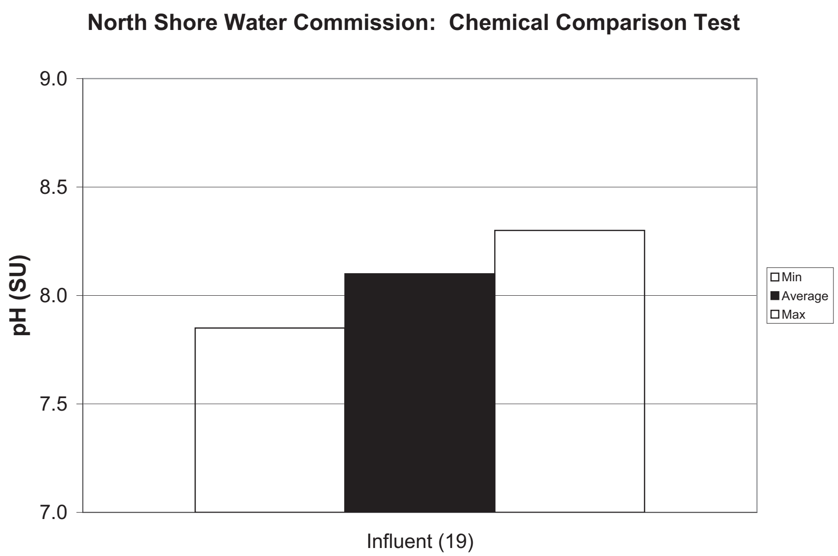
About two and a half months of orthophosphate feed occurred before the disinfection was switched. Monitoring of effects and side effects of the corrosion control chemical change and the following disinfection change was performed using two PRS Monitoring Stations, one at the entry point to the distribution system and one at an area of high water age. Data from the monitoring are discussed in a separate report.

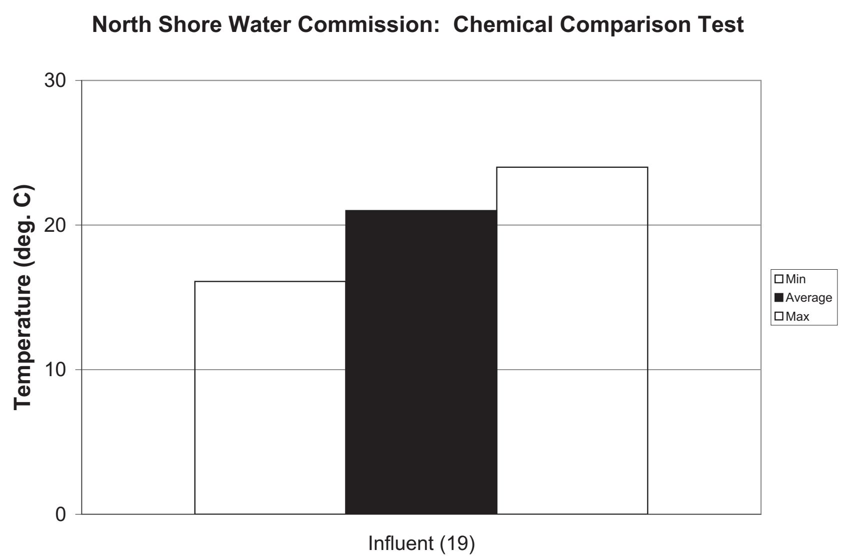
Appendix A: Average and Range Graphs

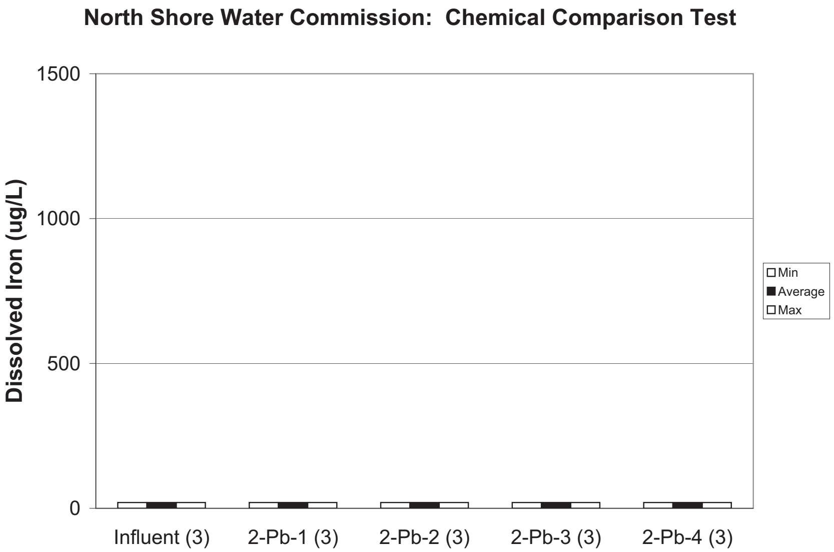

North Shore Water Commission: Chemical Comparison Test
Chlorine (mg/L)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Total Chlorine (19)
Free Chlorine (19)
Monochloramine (19)
Min
Average
Max

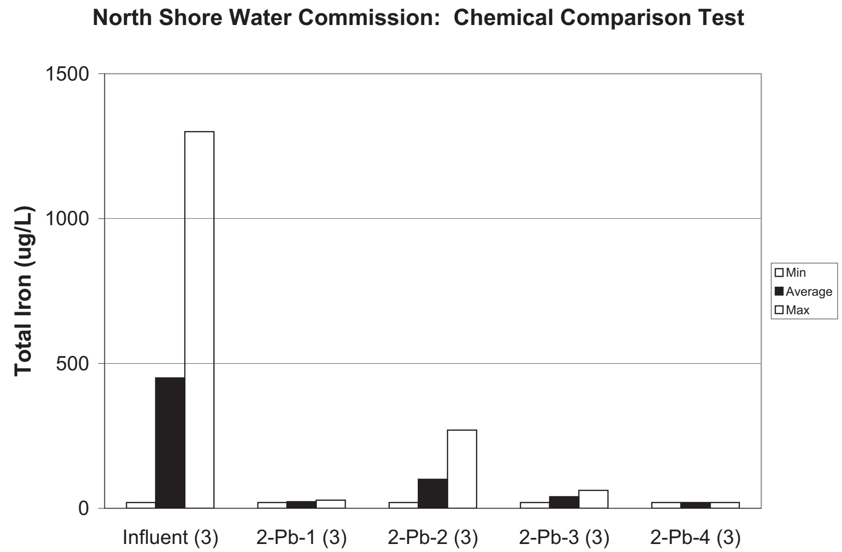

North Shore Water Commission: Chemical Comparison Test
Orthophosphate (mg/L as P)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
2-Pb-1 (18)
2-Pb-2 (19)
2-Pb-3 (19)
2-Pb-4 (19)
Min
Average
Max

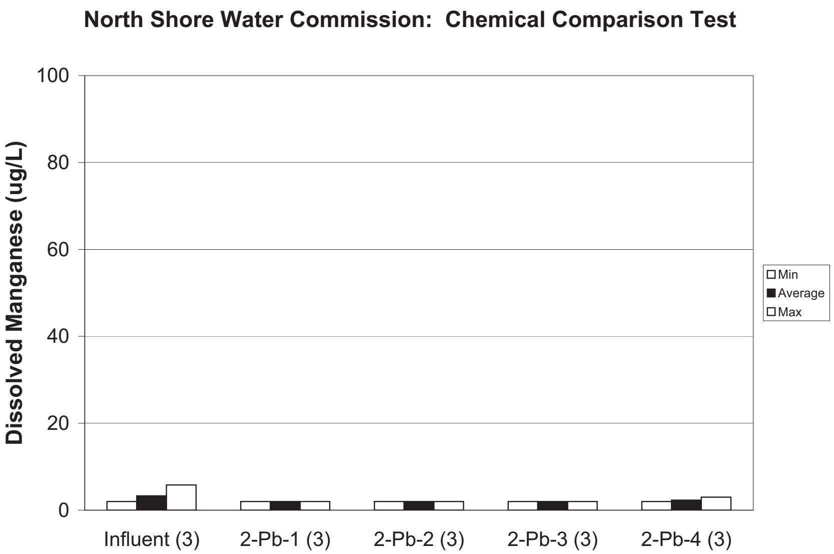

North Shore Water Commission: Chemical Comparison Test
Total Phosphorus (mg/L)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
2-Pb-1 (18)
2-Pb-2 (19)
2-Pb-3 (19)
2-Pb-4 (19)
Min
Average
Max

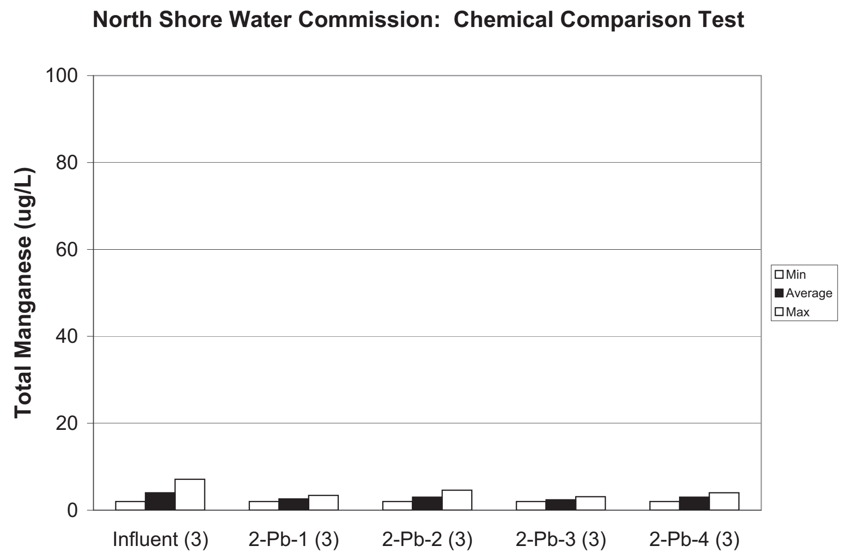

North Shore Water Commission: Chemical Comparison Test
pH (SU)
9.0
8.5
8.0
7.5
7.0
Influent (19)
Min
Average
Max

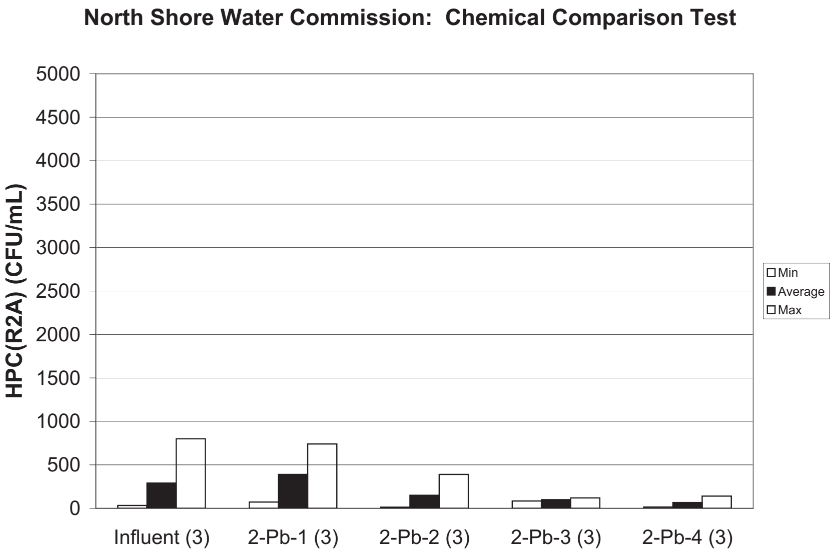

North Shore Water Commission: Chemical Comparison Test
Temperature (deg. C)
30
20
10
0
Influent (19)
Min
Average
Max

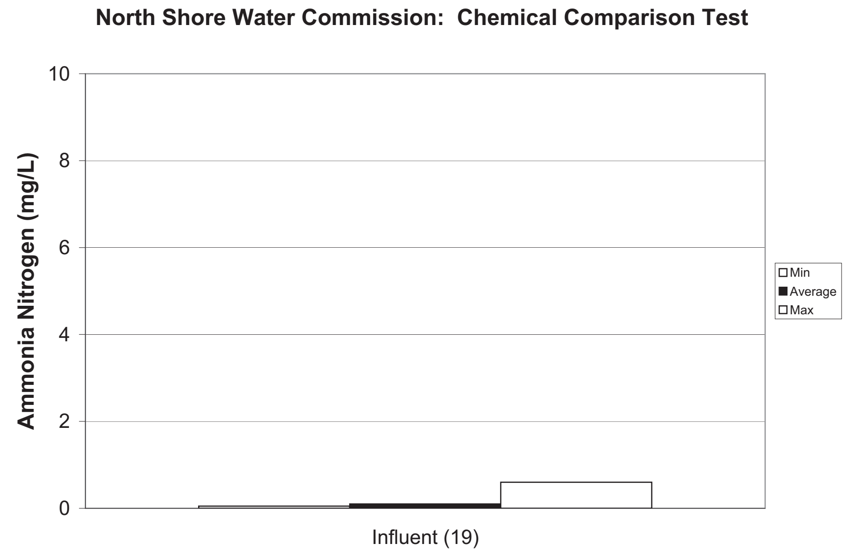

North Shore Water Commission: Chemical Comparison Test
Dissolved Iron (ug/L)
1500
1000
500
0
Influent (3)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

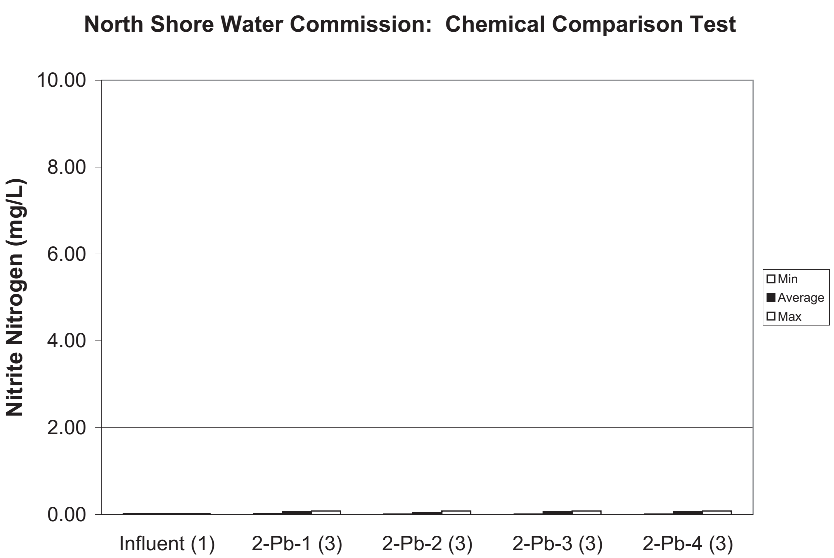

North Shore Water Commission: Chemical Comparison Test
Total Iron (ug/L)
1500
1000
500
0
Influent (3)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

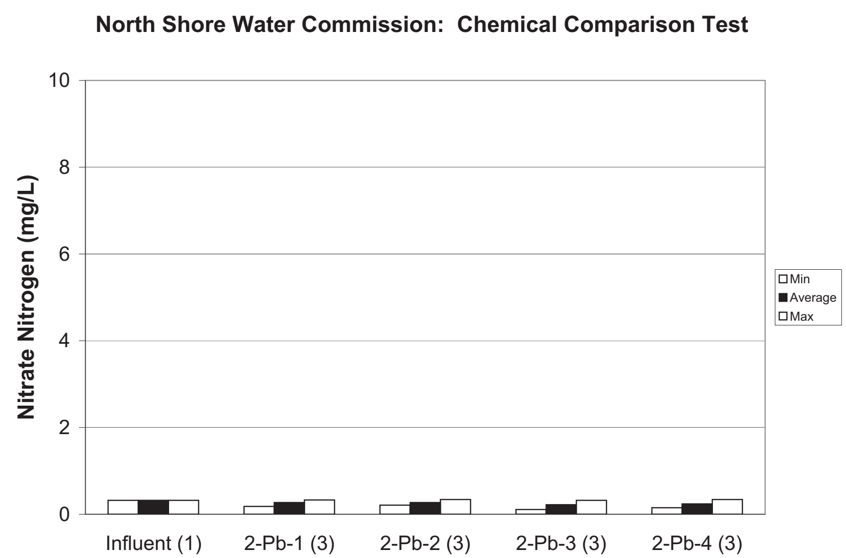

North Shore Water Commission: Chemical Comparison Test
Dissolved Manganese (ug/L)
100
80
60
40
20
0
Influent (3)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

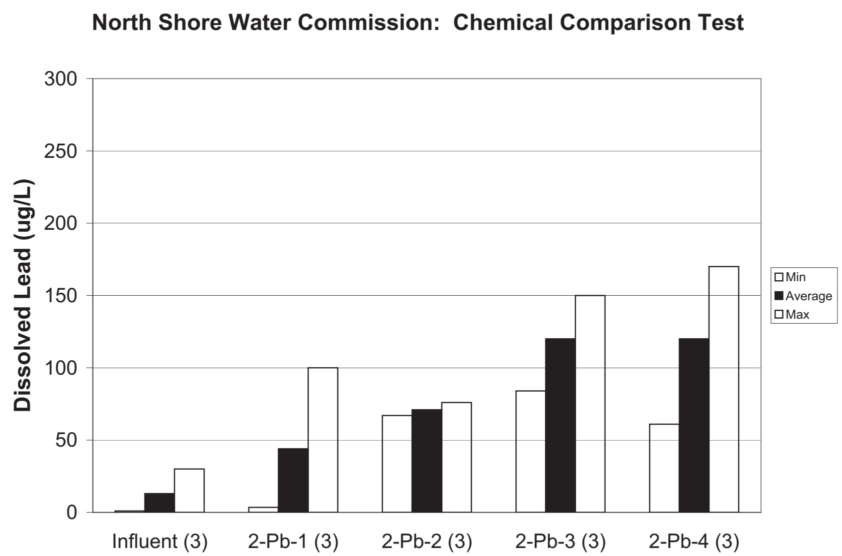

North Shore Water Commission: Chemical Comparison Test
Total Manganese (ug/L)
100
80
60
40
20
0
Influent (3)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

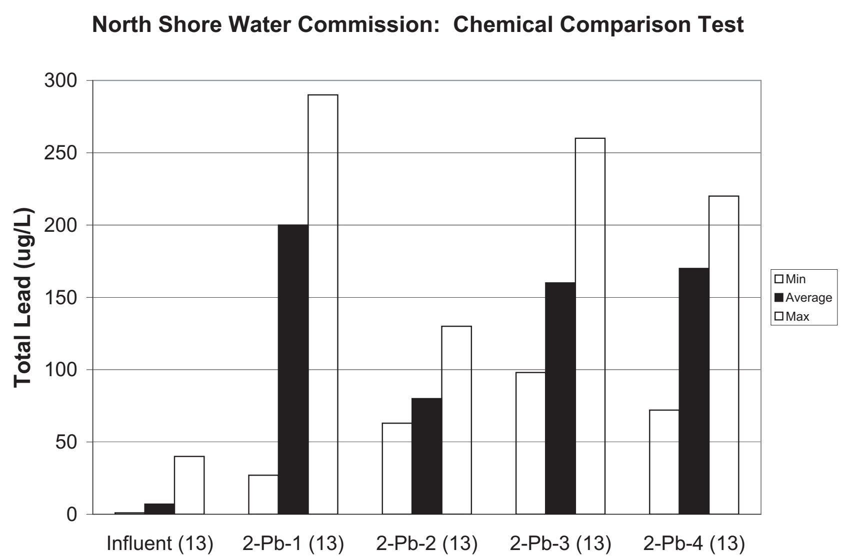

North Shore Water Commission: Chemical Comparison Test
HPC(R2A) (CFU/mL)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Influent (3)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max


North Shore Water Commission: Chemical Comparison Test
Ammonia Nitrogen (mg/L)
10
8
6
4
2
0
Influent (19)
Min
Average
Max

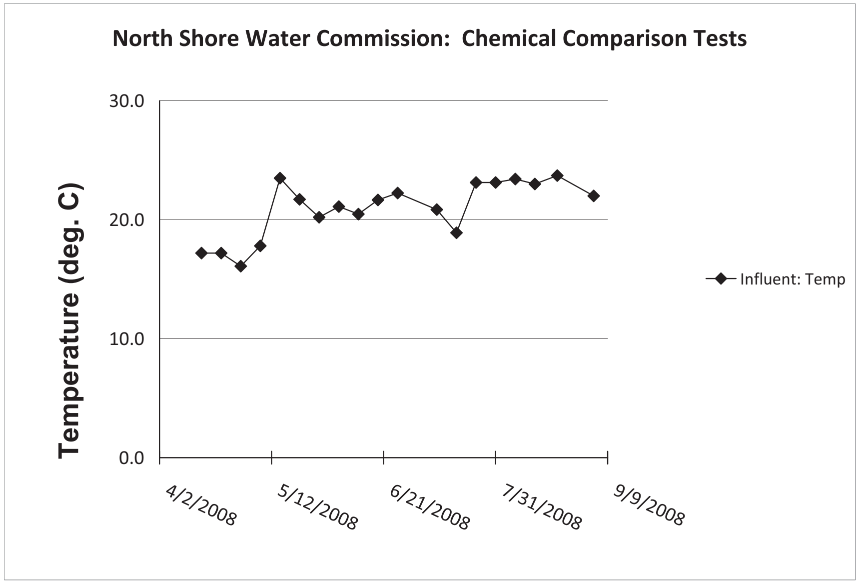

North Shore Water Commission: Chemical Comparison Test
Nitrite Nitrogen (mg/L)
10.00
8.00
6.00
4.00
2.00
0.00
Influent (1)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

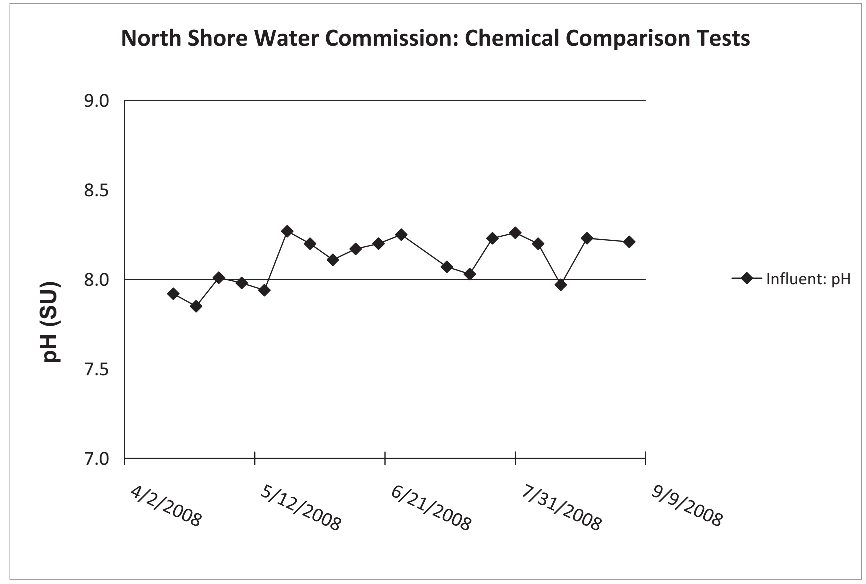

North Shore Water Commission: Chemical Comparison Test
Nitrate Nitrogen (mg/L)
10
8
6
4
2
0
Influent (1)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

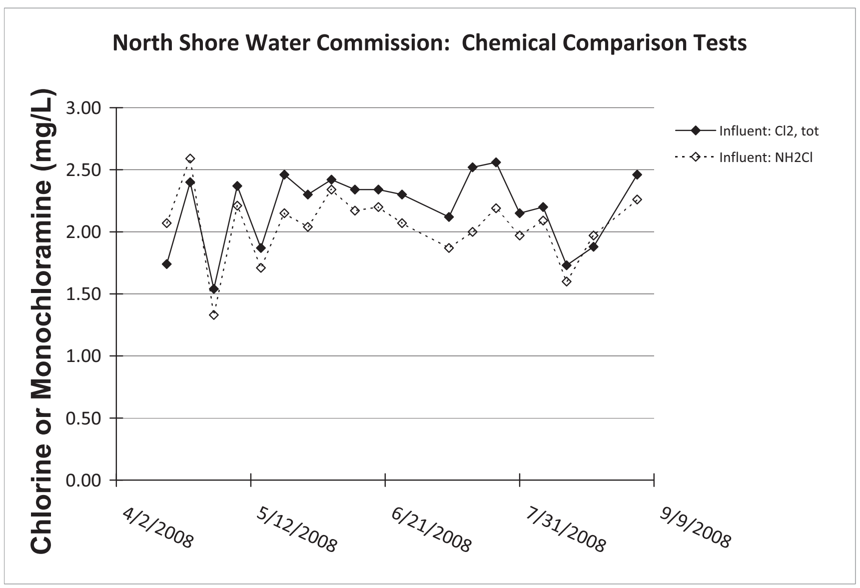

North Shore Water Commission: Chemical Comparison Test
Dissolved Lead (ug/L)
300
250
200
150
100
50
0
Influent (3)
2-Pb-1 (3)
2-Pb-2 (3)
2-Pb-3 (3)
2-Pb-4 (3)
Min
Average
Max

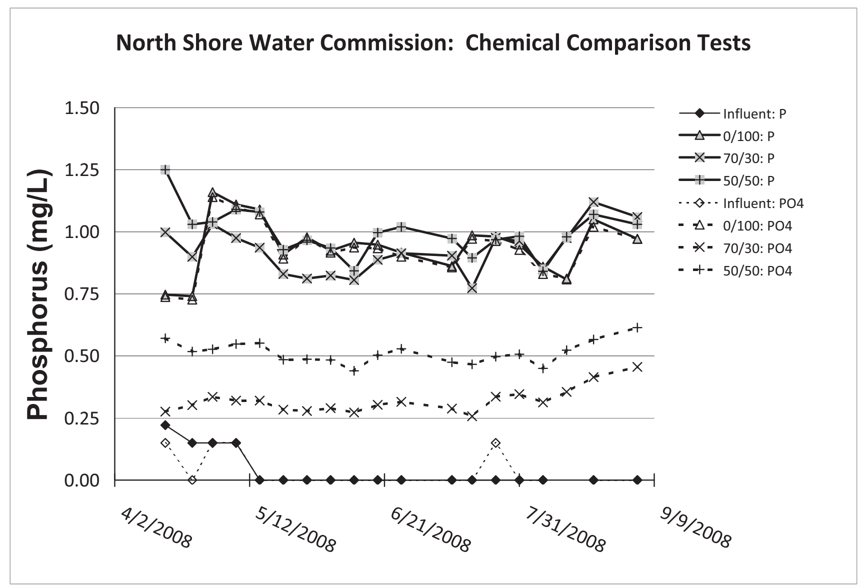

North Shore Water Commission: Chemical Comparison Test
Total Lead (ug/L)
300
250
200
150
100
50
0
Influent (13)
2-Pb-1 (13)
2-Pb-2 (13)
2-Pb-3 (13)
2-Pb-4 (13)
Min
Average
Max

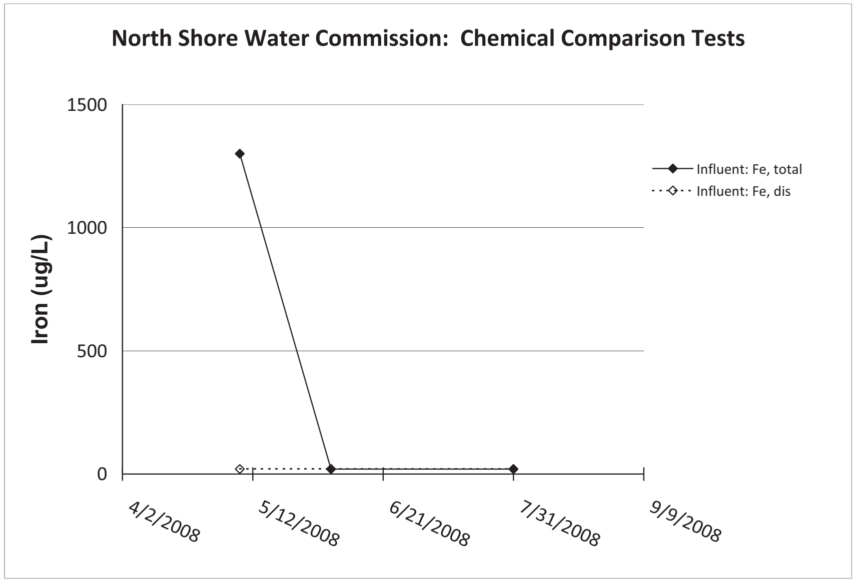
Appendix B: Time-series Graphs

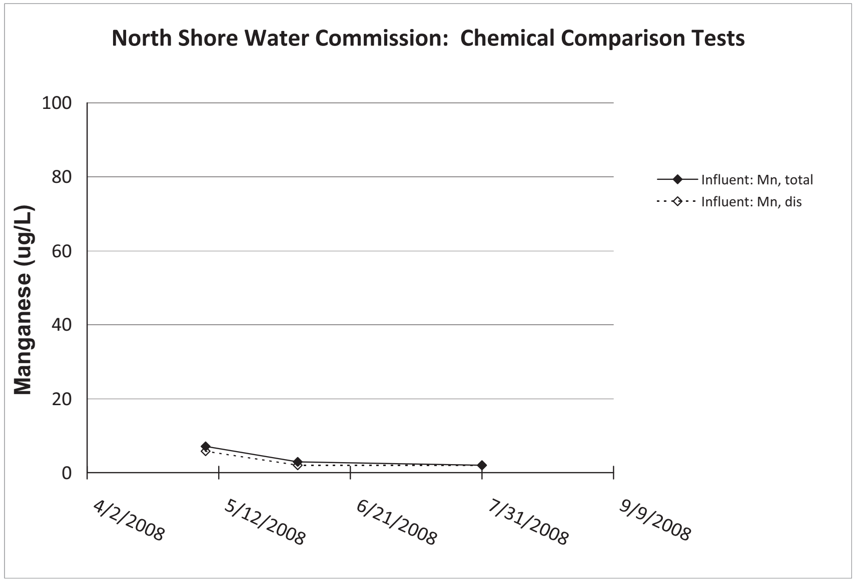

North Shore Water Commission: Chemical Comparison Tests
Temperature (deg. C)
30.0
20.0
10.0
0.0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: Temp

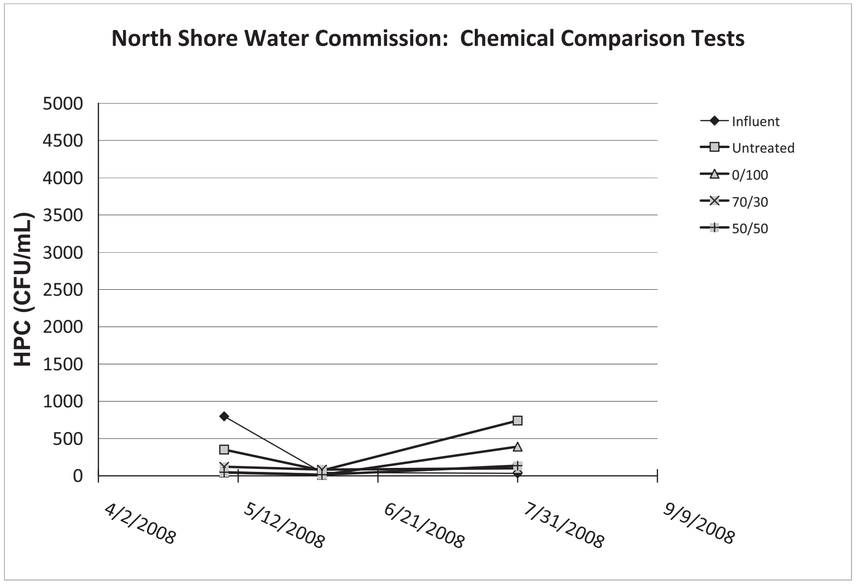

North Shore Water Commission: Chemical Comparison Tests
pH (SU)
9.0
8.5
8.0
7.5
7.0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: pH

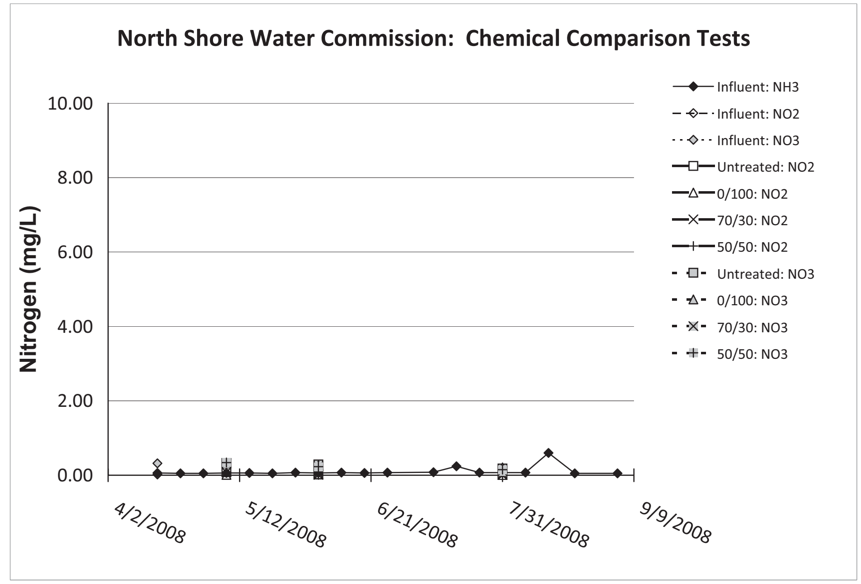

North Shore Water Commission: Chemical Comparison Tests
Chlorine or Monochloramine (mg/L)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: Cl2, tot
Influent: NH2Cl

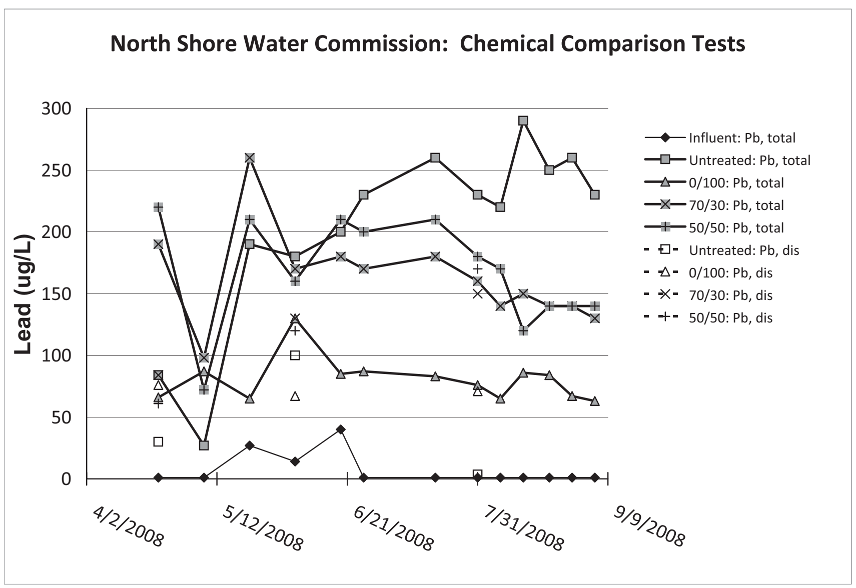

North Shore Water Commission: Chemical Comparison Tests
Phosphorus (mg/L)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: P
0/100: P
70/30: P
50/50: P
Influent: PO4
0/100: PO4
70/30: PO4
50/50: PO4

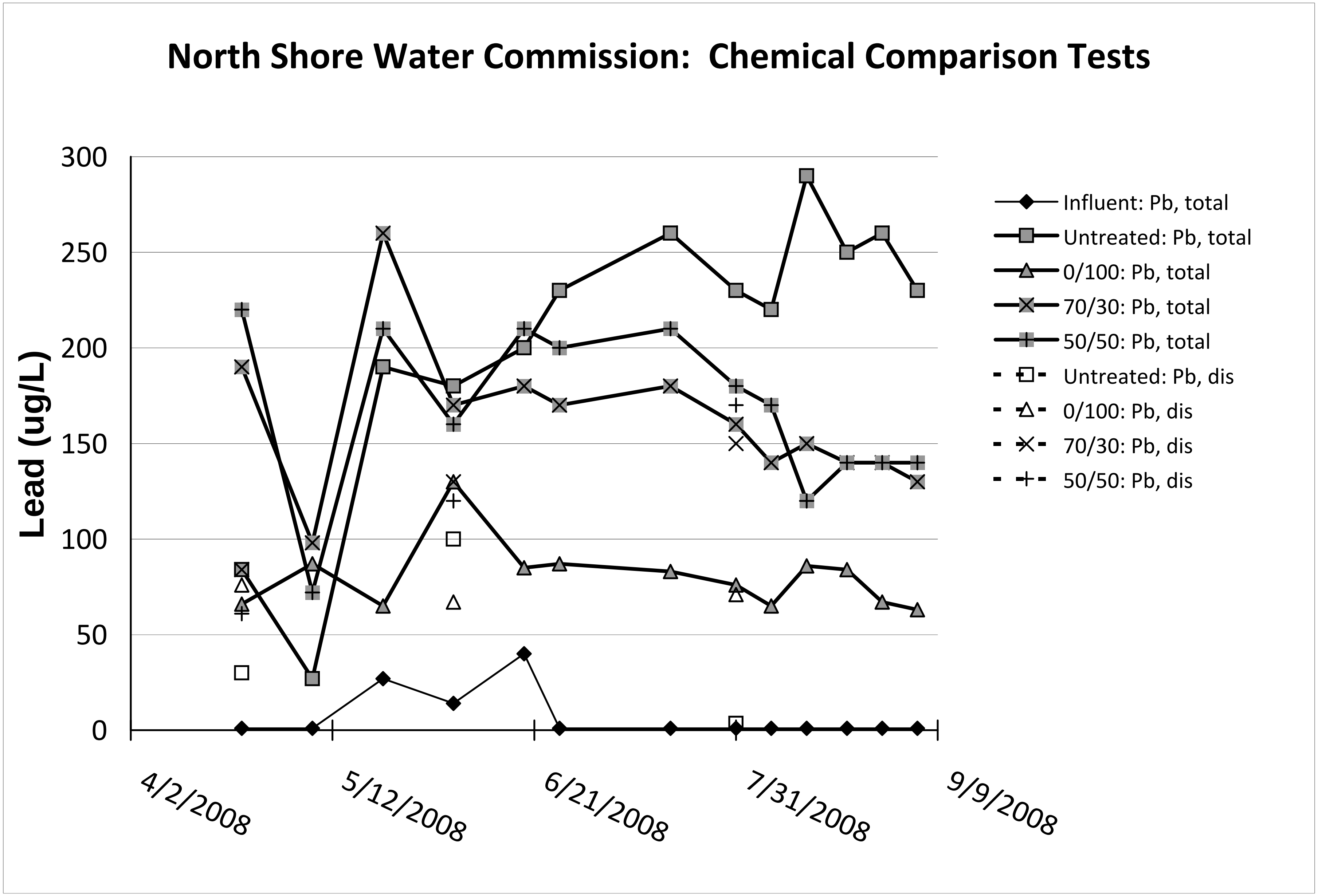

North Shore Water Commission: Chemical Comparison Tests
Iron (ug/L)
1500
1000
500
0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: Fe, total
Influent: Fe, dis


North Shore Water Commission: Chemical Comparison Tests
Manganese (ug/L)
100
80
60
40
20
0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: Mn, total
Influent: Mn, dis


North Shore Water Commission: Chemical Comparison Tests
HPC (CFU/mL)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent
Untreated
0/100
70/30
50/50


North Shore Water Commission: Chemical Comparison Tests
Nitrogen (mg/L)
10.00
8.00
6.00
4.00
2.00
0.00
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: NH3
Influent: NO2
Influent: NO3
Untreated: NO2
0/100: NO2
70/30: NO2
50/50: NO2
Untreated: NO3
0/100: NO3
70/30: NO3
50/50: NO3


North Shore Water Commission: Chemical Comparison Tests
Lead (ug/L)
300
250
200
150
100
50
0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: Pb, total
Untreated: Pb, total
0/100: Pb, total
70/30: Pb, total
50/50: Pb, total
Untreated: Pb, dis
0/100: Pb, dis
70/30: Pb, dis
50/50: Pb, dis


North Shore Water Commission: Chemical Comparison Tests
Lead (ug/L)
300
250
200
150
100
50
0
4/2/2008
5/12/2008
6/21/2008
7/31/2008
9/9/2008
Influent: Pb, total
Untreated: Pb, total
0/100: Pb, total
70/30: Pb, total
50/50: Pb, total
Untreated: Pb, dis
0/100: Pb, dis
70/30: Pb, dis
50/50: Pb, dis

Appendix C: Raw Data

North Shore Water Commission
Monitoring Data for Chemical Comparison Tests
April 2008 to September 2008

Sample Date	Site	Item Measured	Units	Result	Sample Date	Site	Item Measured	Units	Result	Sample Date	Site	Item Measured	Units	Result	Sample Date	Site	Item Measured	Units	Result	Sample Date	Site	Item Measured	Units	Result
4/17/2008	Inf 2	Cl2, tot	mg/L	1.7400	4/24/2008	Inf 2	Cl2, free	mg/L	0.1200	4/24/2008	Inf 2	Monochloramine	mg/L	2.0700										
4/24/2008	Inf 2	Cl2, tot	mg/L	2.4000	4/24/2008	Inf 2	Cl2, free	mg/L	3.1400	4/24/2008	Inf 2	Monochloramine	mg/L	2.5900										
5/1/2008	Inf 2	Cl2, tot	mg/L	1.5400	5/1/2008	Inf 2	Cl2, free	mg/L	0.2400	5/1/2008	Inf 2	Monochloramine	mg/L	1.3300										
5/8/2008	Inf 2	Cl2, tot	mg/L	2.3700	5/8/2008	Inf 2	Cl2, free	mg/L	0.1700	5/8/2008	Inf 2	Monochloramine	mg/L	2.2100										
5/15/2008	Inf 2	Cl2, tot	mg/L	1.8700	5/15/2008	Inf 2	Cl2, free	mg/L	0.1100	5/15/2008	Inf 2	Monochloramine	mg/L	1.7100										
5/22/2008	Inf 2	Cl2, tot	mg/L	2.4600	5/22/2008	Inf 2	Cl2, free	mg/L	0.0800	5/22/2008	Inf 2	Monochloramine	mg/L	2.1500										
5/29/2008	Inf 2	Cl2, tot	mg/L	2.3000	5/29/2008	Inf 2	Cl2, free	mg/L	0.0700	5/29/2008	Inf 2	Monochloramine	mg/L	2.0400										
6/5/2008	Inf 2	Cl2, tot	mg/L	2.4200	6/5/2008	Inf 2	Cl2, free	mg/L	0.1000	6/5/2008	Inf 2	Monochloramine	mg/L	2.3400										
6/12/2008	Inf 2	Cl2, tot	mg/L	2.3400	6/12/2008	Inf 2	Cl2, free	mg/L	0.0900	6/12/2008	Inf 2	Monochloramine	mg/L	2.1700										
6/19/2008	Inf 2	Cl2, tot	mg/L	2.3400	6/19/2008	Inf 2	Cl2, free	mg/L	0.0800	6/19/2008	Inf 2	Monochloramine	mg/L	2.2000										
6/26/2008	Inf 2	Cl2, tot	mg/L	2.3000	6/26/2008	Inf 2	Cl2, free	mg/L	0.0800	6/26/2008	Inf 2	Monochloramine	mg/L	2.0700										
7/10/2008	Inf 2	Cl2, tot	mg/L	2.1200	7/10/2008	Inf 2	Cl2, free	mg/L	0.0700	7/10/2008	Inf 2	Monochloramine	mg/L	1.8700										
7/17/2008	Inf 2	Cl2, tot	mg/L	2.5200	7/17/2008	Inf 2	Cl2, free	mg/L	0.0700	7/17/2008	Inf 2	Monochloramine	mg/L	2.0000										
7/24/2008	Inf 2	Cl2, tot	mg/L	2.5600	7/24/2008	Inf 2	Cl2, free	mg/L	0.1200	7/24/2008	Inf 2	Monochloramine	mg/L	2.1900										
7/31/2008	Inf 2	Cl2, tot	mg/L	2.1500	7/31/2008	Inf 2	Cl2, free	mg/L	0.0600	7/31/2008	Inf 2	Monochloramine	mg/L	1.9700										
8/7/2008	Inf 2	Cl2, tot	mg/L	2.2000	8/7/2008	Inf 2	Cl2, free	mg/L	0.0600	8/7/2008	Inf 2	Monochloramine	mg/L	2.0900										
8/14/2008	Inf 2	Cl2, tot	mg/L	1.7300	8/14/2008	Inf 2	Cl2, free	mg/L	0.0900	8/14/2008	Inf 2	Monochloramine	mg/L	1.6000										
8/22/2008	Inf 2	Cl2, tot	mg/L	1.8800	8/22/2008	Inf 2	Cl2, free	mg/L	0.0700	8/22/2008	Inf 2	Monochloramine	mg/L	1.9700										
9/4/2008	Inf 2	Cl2, tot	mg/L	2.4600	9/4/2008	Inf 2	Cl2, free	mg/L	0.0700	9/4/2008	Inf 2	Monochloramine	mg/L	2.2600										
5/8/2008	Inf 2	Fe, dis	ug/L	20.0000	5/8/2008	2-Pb-1	Fe, dis	ug/L	20.0000	5/8/2008	2-Pb-2	Fe, dis	ug/L	20.0000	5/8/2008	2-Pb-3	Fe, dis	ug/L	20.0000	5/8/2008	2-Pb-4	Fe, dis	ug/L	20.0000
6/5/2008	Inf 2	Fe, dis	ug/L	20.0000	6/5/2008	2-Pb-1	Fe, dis	ug/L	20.0000	6/5/2008	2-Pb-2	Fe, dis	ug/L	20.0000	6/5/2008	2-Pb-3	Fe, dis	ug/L	20.0000	6/5/2008	2-Pb-4	Fe, dis	ug/L	20.0000
7/31/2008	Inf 2	Fe, dis	ug/L	20.0000	7/31/2008	2-Pb-1	Fe, dis	ug/L	20.0000	7/31/2008	2-Pb-2	Fe, dis	ug/L	20.0000	7/31/2008	2-Pb-3	Fe, dis	ug/L	20.0000	7/31/2008	2-Pb-4	Fe, dis	ug/L	20.0000
5/8/2008	Inf 2	Fe, tot	ug/L	1300.0000	5/8/2008	2-Pb-1	Fe, tot	ug/L	28.0000	5/8/2008	2-Pb-2	Fe, tot	ug/L	20.0000	5/8/2008	2-Pb-3	Fe, tot	ug/L	38.0000	5/8/2008	2-Pb-4	Fe, tot	ug/L	20.0000
6/5/2008	Inf 2	Fe, tot	ug/L	20.0000	6/5/2008	2-Pb-1	Fe, tot	ug/L	20.0000	6/5/2008	2-Pb-2	Fe, tot	ug/L	270.0000	6/5/2008	2-Pb-3	Fe, tot	ug/L	62.0000	6/5/2008	2-Pb-4	Fe, tot	ug/L	20.0000
7/31/2008	Inf 2	Fe, tot	ug/L	20.0000	7/31/2008	2-Pb-1	Fe, tot	ug/L	20.0000	7/31/2008	2-Pb-2	Fe, tot	ug/L	20.0000	7/31/2008	2-Pb-3	Fe, tot	ug/L	20.0000	7/31/2008	2-Pb-4	Fe, tot	ug/L	20.0000
5/8/2008	Inf 2	HPC(R2A)	CFU/mL	798.0000	5/8/2008	2-Pb-1	HPC(R2A)	CFU/mL	352.0000	5/8/2008	2-Pb-2	HPC(R2A)	CFU/mL	44.0000	5/8/2008	2-Pb-3	HPC(R2A)	CFU/mL	122.0000	5/8/2008	2-Pb-4	HPC(R2A)	CFU/mL	49.0000
6/5/2008	Inf 2	HPC(R2A)	CFU/mL	45.0000	6/5/2008	2-Pb-1	HPC(R2A)	CFU/mL	72.0000	6/5/2008	2-Pb-2	HPC(R2A)	CFU/mL	13.0000	6/5/2008	2-Pb-3	HPC(R2A)	CFU/mL	84.0000	6/5/2008	2-Pb-4	HPC(R2A)	CFU/mL	15.0000
7/31/2008	Inf 2	HPC(R2A)	CFU/mL	33.0000	7/31/2008	2-Pb-1	HPC(R2A)	CFU/mL	741.0000	7/31/2008	2-Pb-2	HPC(R2A)	CFU/mL	392.0000	7/31/2008	2-Pb-3	HPC(R2A)	CFU/mL	101.0000	7/31/2008	2-Pb-4	HPC(R2A)	CFU/mL	136.0000
5/8/2008	Inf 2	Mn, dis	ug/L	5.8000	5/8/2008	2-Pb-1	Mn, dis	ug/L	2.0000	5/8/2008	2-Pb-2	Mn, dis	ug/L	2.0000	5/8/2008	2-Pb-3	Mn, dis	ug/L	2.0000	5/8/2008	2-Pb-4	Mn, dis	ug/L	3.0000
6/5/2008	Inf 2	Mn, dis	ug/L	2.0000	6/5/2008	2-Pb-1	Mn, dis	ug/L	2.0000	6/5/2008	2-Pb-2	Mn, dis	ug/L	2.0000	6/5/2008	2-Pb-3	Mn, dis	ug/L	2.0000	6/5/2008	2-Pb-4	Mn, dis	ug/L	2.0000
7/31/2008	Inf 2	Mn, dis	ug/L	2.0000	7/31/2008	2-Pb-1	Mn, dis	ug/L	2.0000	7/31/2008	2-Pb-2	Mn, dis	ug/L	2.0000	7/31/2008	2-Pb-3	Mn, dis	ug/L	2.0000	7/31/2008	2-Pb-4	Mn, dis	ug/L	2.0000
5/8/2008	Inf 2	Mn, tot	ug/L	7.1000	5/8/2008	2-Pb-1	Mn, tot	ug/L	2.0000	5/8/2008	2-Pb-2	Mn, tot	ug/L	2.0000	5/8/2008	2-Pb-3	Mn, tot	ug/L	2.0000	5/8/2008	2-Pb-4	Mn, tot	ug/L	2.0000
6/5/2008	Inf 2	Mn, tot	ug/L	2.9000	6/5/2008	2-Pb-1	Mn, tot	ug/L	3.4000	6/5/2008	2-Pb-2	Mn, tot	ug/L	4.6000	6/5/2008	2-Pb-3	Mn, tot	ug/L	3.1000	6/5/2008	2-Pb-4	Mn, tot	ug/L	4.0000
7/31/2008	Inf 2	Mn, tot	ug/L	2.0000	7/31/2008	2-Pb-1	Mn, tot	ug/L	2.3000	7/31/2008	2-Pb-2	Mn, tot	ug/L	2.3000	7/31/2008	2-Pb-3	Mn, tot	ug/L	2.1000	7/31/2008	2-Pb-4	Mn, tot	ug/L	2.9000
4/24/2008	Inf 2	NH3-N	mg/L	0.0600																				
4/24/2008	Inf 2	NH3-N	mg/L	0.0500																				
5/1/2008	Inf 2	NH3-N	mg/L	0.0500																				
5/8/2008	Inf 2	NH3-N	mg/L	0.0600																				
5/15/2008	Inf 2	NH3-N	mg/L	0.0600																				
5/22/2008	Inf 2	NH3-N	mg/L	0.0500																				
5/29/2008	Inf 2	NH3-N	mg/L	0.0700																				
6/5/2008	Inf 2	NH3-N	mg/L	0.0600																				
6/12/2008	Inf 2	NH3-N	mg/L	0.0700																				
6/19/2008	Inf 2	NH3-N	mg/L	0.0600																				
6/26/2008	Inf 2	NH3-N	mg/L	0.0700																				
7/10/2008	Inf 2	NH3-N	mg/L	0.0800																				
7/17/2008	Inf 2	NH3-N	mg/L	0.2400																				
7/24/2008	Inf 2	NH3-N	mg/L	0.0700																				
7/31/2008	Inf 2	NH3-N	mg/L	0.0700																				
8/7/2008	Inf 2	NH3-N	mg/L	0.0700																				
8/14/2008	Inf 2	NH3-N	mg/L	0.6000																				
8/22/2008	Inf 2	NH3-N	mg/L	0.0500																				
9/4/2008	Inf 2	NH3-N	mg/L	0.0500																				
4/11/2008	Inf 2	NO2-N	mg/L	0.0200																				
					5/8/2008	2-Pb-1	NO2-N	mg/L	0.0800	5/8/2008	2-Pb-2	NO2-N	mg/L	0.0100	5/8/2008	2-Pb-3	NO2-N	mg/L	0.0800	5/8/2008	2-Pb-4	NO2-N	mg/L	0.0800
					6/5/2008	2-Pb-1	NO2-N	mg/L	0.0200	6/5/2008	2-Pb-2	NO2-N	mg/L	0.0200	6/5/2008	2-Pb-3	NO2-N	mg/L	0.0100	6/5/2008	2-Pb-4	NO2-N	mg/L	0.0100
					7/31/2008	2-Pb-1	NO2-N	mg/L	0.0800	7/31/2008	2-Pb-2	NO2-N	mg/L	0.0800	7/31/2008	2-Pb-3	NO2-N	mg/L	0.0800	7/31/2008	2-Pb-4	NO2-N	mg/L	0.0800
4/11/2008	Inf 2	NO3-N	mg/L	0.3200																				
					5/8/2008	2-Pb-1	NO3-N	mg/L	0.3300	5/8/2008	2-Pb-2	NO3-N	mg/L	0.3400	5/8/2008	2-Pb-3	NO3-N	mg/L	0.3200	5/8/2008	2-Pb-4	NO3-N	mg/L	0.3400

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					6/5/2008	2-Pb-1	NO3-N	mg/L	0.2900	6/5/2008	2-Pb-2	NO3-N	mg/L	0.2700	6/5/2008	2-Pb-3	NO3-N	mg/L	0.2400	6/5/2008	2-Pb-4	NO3-N	mg/L	0.2300
					7/31/2008	2-Pb-1	NO3-N	mg/L	0.1800	7/31/2008	2-Pb-2	NO3-N	mg/L	0.2100	7/31/2008	2-Pb-3	NO3-N	mg/L	0.1100	7/31/2008	2-Pb-4	NO3-N	mg/L	0.1500
5/8/2008	Inf 2	Pb, dis	ug/L	**1.0000**	5/8/2008	2-Pb-1	Pb, dis	ug/L	30.0000	5/8/2008	2-Pb-2	Pb, dis	ug/L	76.0000	5/8/2008	2-Pb-3	Pb, dis	ug/L	84.0000	5/8/2008	2-Pb-4	Pb, dis	ug/L	61.0000
6/5/2008	Inf 2	Pb, dis	ug/L	30.0000	6/5/2008	2-Pb-1	Pb, dis	ug/L	100.0000	6/5/2008	2-Pb-2	Pb, dis	ug/L	67.0000	6/5/2008	2-Pb-3	Pb, dis	ug/L	130.0000	6/5/2008	2-Pb-4	Pb, dis	ug/L	120.0000
7/31/2008	Inf 2	Pb, dis	ug/L	9.0000	7/31/2008	2-Pb-1	Pb, dis	ug/L	3.5000	7/31/2008	2-Pb-2	Pb, dis	ug/L	71.0000	7/31/2008	2-Pb-3	Pb, dis	ug/L	150.0000	7/31/2008	2-Pb-4	Pb, dis	ug/L	170.0000
4/24/2008	Inf 2	Pb, tot	ug/L	**1.0000**	4/24/2008	2-Pb-1	Pb, tot	ug/L	84.0000	4/24/2008	2-Pb-2	Pb, tot	ug/L	66.0000	4/24/2008	2-Pb-3	Pb, tot	ug/L	190.0000	4/24/2008	2-Pb-4	Pb, tot	ug/L	220.0000
5/8/2008	Inf 2	Pb, tot	ug/L	**1.0000**	5/8/2008	2-Pb-1	Pb, tot	ug/L	27.0000	5/8/2008	2-Pb-2	Pb, tot	ug/L	87.0000	5/8/2008	2-Pb-3	Pb, tot	ug/L	98.0000	5/8/2008	2-Pb-4	Pb, tot	ug/L	72.0000
5/22/2008	Inf 2	Pb, tot	ug/L	27.0000	5/22/2008	2-Pb-1	Pb, tot	ug/L	190.0000	5/22/2008	2-Pb-2	Pb, tot	ug/L	65.0000	5/22/2008	2-Pb-3	Pb, tot	ug/L	260.0000	5/22/2008	2-Pb-4	Pb, tot	ug/L	210.0000
6/5/2008	Inf 2	Pb, tot	ug/L	14.0000	6/5/2008	2-Pb-1	Pb, tot	ug/L	180.0000	6/5/2008	2-Pb-2	Pb, tot	ug/L	130.0000	6/5/2008	2-Pb-3	Pb, tot	ug/L	170.0000	6/5/2008	2-Pb-4	Pb, tot	ug/L	160.0000
6/19/2008	Inf 2	Pb, tot	ug/L	40.0000	6/19/2008	2-Pb-1	Pb, tot	ug/L	200.0000	6/19/2008	2-Pb-2	Pb, tot	ug/L	85.0000	6/19/2008	2-Pb-3	Pb, tot	ug/L	180.0000	6/19/2008	2-Pb-4	Pb, tot	ug/L	210.0000
6/26/2008	Inf 2	Pb, tot	ug/L	**1.0000**	6/26/2008	2-Pb-1	Pb, tot	ug/L	230.0000	6/26/2008	2-Pb-2	Pb, tot	ug/L	87.0000	6/26/2008	2-Pb-3	Pb, tot	ug/L	170.0000	6/26/2008	2-Pb-4	Pb, tot	ug/L	200.0000
7/18/2008	Inf 2	Pb, tot	ug/L	**1.0000**	7/18/2008	2-Pb-1	Pb, tot	ug/L	260.0000	7/18/2008	2-Pb-2	Pb, tot	ug/L	83.0000	7/18/2008	2-Pb-3	Pb, tot	ug/L	180.0000	7/18/2008	2-Pb-4	Pb, tot	ug/L	210.0000
7/31/2008	Inf 2	Pb, tot	ug/L	**1.0000**	7/31/2008	2-Pb-1	Pb, tot	ug/L	230.0000	7/31/2008	2-Pb-2	Pb, tot	ug/L	76.0000	7/31/2008	2-Pb-3	Pb, tot	ug/L	160.0000	7/31/2008	2-Pb-4	Pb, tot	ug/L	180.0000
8/7/2008	Inf 2	Pb, tot	ug/L	**1.0000**	8/7/2008	2-Pb-1	Pb, tot	ug/L	220.0000	8/7/2008	2-Pb-2	Pb, tot	ug/L	65.0000	8/7/2008	2-Pb-3	Pb, tot	ug/L	140.0000	8/7/2008	2-Pb-4	Pb, tot	ug/L	170.0000
8/14/2008	Inf 2	Pb, tot	ug/L	**1.0000**	8/14/2008	2-Pb-1	Pb, tot	ug/L	290.0000	8/14/2008	2-Pb-2	Pb, tot	ug/L	86.0000	8/14/2008	2-Pb-3	Pb, tot	ug/L	150.0000	8/14/2008	2-Pb-4	Pb, tot	ug/L	120.0000
8/22/2008	Inf 2	Pb, tot	ug/L	**1.0000**	8/22/2008	2-Pb-1	Pb, tot	ug/L	250.0000	8/22/2008	2-Pb-2	Pb, tot	ug/L	84.0000	8/22/2008	2-Pb-3	Pb, tot	ug/L	140.0000	8/22/2008	2-Pb-4	Pb, tot	ug/L	140.0000
8/29/2008	Inf 2	Pb, tot	ug/L	**1.0000**	8/29/2008	2-Pb-1	Pb, tot	ug/L	260.0000	8/29/2008	2-Pb-2	Pb, tot	ug/L	67.0000	8/29/2008	2-Pb-3	Pb, tot	ug/L	140.0000	8/29/2008	2-Pb-4	Pb, tot	ug/L	140.0000
9/5/2008	Inf 2	Pb, tot	ug/L	**1.0000**	9/5/2008	2-Pb-1	Pb, tot	ug/L	230.0000	9/5/2008	2-Pb-2	Pb, tot	ug/L	63.0000	9/5/2008	2-Pb-3	Pb, tot	ug/L	130.0000	9/5/2008	2-Pb-4	Pb, tot	ug/L	140.0000
4/18/2008	Inf 2	pH	SU	7.9200	4/17/2008	Inf 2	Temp	deg C	17.2000															
4/24/2008	Inf 2	pH	SU	7.8500	4/24/2008	Inf 2	Temp	deg C	17.2000															
5/1/2008	Inf 2	pH	SU	8.0100	5/1/2008	Inf 2	Temp	deg C	16.1000															
5/8/2008	Inf 2	pH	SU	7.9800	5/8/2008	Inf 2	Temp	deg C	17.8000															
5/15/2008	Inf 2	pH	SU	7.9400	5/15/2008	Inf 2	Temp	deg C	23.5000															
5/22/2008	Inf 2	pH	SU	8.2700	5/22/2008	Inf 2	Temp	deg C	21.7100															
5/29/2008	Inf 2	pH	SU	8.2000	5/29/2008	Inf 2	Temp	deg C	20.2100															
6/5/2008	Inf 2	pH	SU	8.1100	6/5/2008	Inf 2	Temp	deg C	21.1100															
6/12/2008	Inf 2	pH	SU	8.1700	6/12/2008	Inf 2	Temp	deg C	20.4700															
6/19/2008	Inf 2	pH	SU	8.2000	6/19/2008	Inf 2	Temp	deg C	21.6600															
6/26/2008	Inf 2	pH	SU	8.2500	6/26/2008	Inf 2	Temp	deg C	22.2500															
7/10/2008	Inf 2	pH	SU	8.0700	7/10/2008	Inf 2	Temp	deg C	20.8500															
7/17/2008	Inf 2	pH	SU	8.0300	7/17/2008	Inf 2	Temp	deg C	18.9000															
7/24/2008	Inf 2	pH	SU	8.2300	7/24/2008	Inf 2	Temp	deg C	23.1300															
7/31/2008	Inf 2	pH	SU	8.2600	7/31/2008	Inf 2	Temp	deg C	23.1300															
8/7/2008	Inf 2	pH	SU	8.2000	8/7/2008	Inf 2	Temp	deg C	23.4200															
8/14/2008	Inf 2	pH	SU	7.9700	8/14/2008	Inf 2	Temp	deg C	23.0000															
8/22/2008	Inf 2	pH	SU	8.2300	8/22/2008	Inf 2	Temp	deg C	23.7100															
9/4/2008	Inf 2	pH	SU	8.2100	9/4/2008	Inf 2	Temp	deg C	22.0000															
4/17/2008	Inf 2	P, tot	mg/L as P	0.2210						4/17/2008	2-CF-2	P, tot	mg/L as P	0.7470	4/17/2008	2-CF-3	P, tot	mg/L as P	0.9980	4/17/2008	2-CF-4	P, tot	mg/L as P	1.2500
4/24/2008	Inf 2	P, tot	mg/L as P	**0.1500**						4/25/2008	2-CF-2	P, tot	mg/L as P	0.7410	4/25/2008	2-CF-3	P, tot	mg/L as P	0.8990	4/25/2008	2-CF-4	P, tot	mg/L as P	1.0300
5/1/2008	Inf 2	P, tot	mg/L as P	**0.1500**						5/1/2008	2-CF-2	P, tot	mg/L as P	1.1600	5/1/2008	2-CF-3	P, tot	mg/L as P	1.0300	5/1/2008	2-CF-4	P, tot	mg/L as P	1.0400
5/8/2008	Inf 2	P, tot	mg/L as P	**0.1500**						5/8/2008	2-CF-2	P, tot	mg/L as P	1.1100	5/8/2008	2-CF-3	P, tot	mg/L as P	0.9750	5/8/2008	2-CF-4	P, tot	mg/L as P	1.0900
5/15/2008	Inf 2	P, tot	mg/L as P	**0.1500**						5/15/2008	2-CF-2	P, tot	mg/L as P	1.0900	5/15/2008	2-CF-3	P, tot	mg/L as P	0.9360	5/15/2008	2-CF-4	P, tot	mg/L as P	1.0800
5/22/2008	Inf 2	P, tot	mg/L as P	**0.1500**						5/22/2008	2-CF-2	P, tot	mg/L as P	0.9080	5/22/2008	2-CF-3	P, tot	mg/L as P	0.8300	5/22/2008	2-CF-4	P, tot	mg/L as P	0.9280
5/29/2008	Inf 2	P, tot	mg/L as P	**0.1500**						5/29/2008	2-CF-2	P, tot	mg/L as P	0.9780	5/29/2008	2-CF-3	P, tot	mg/L as P	0.8120	5/29/2008	2-CF-4	P, tot	mg/L as P	0.9660
6/5/2008	Inf 2	P, tot	mg/L as P	**0.1500**						6/5/2008	2-CF-2	P, tot	mg/L as P	0.9240	6/5/2008	2-CF-3	P, tot	mg/L as P	0.8240	6/5/2008	2-CF-4	P, tot	mg/L as P	0.9350
6/12/2008	Inf 2	P, tot	mg/L as P	**0.1500**						6/12/2008	2-CF-2	P, tot	mg/L as P	0.9560	6/12/2008	2-CF-3	P, tot	mg/L as P	0.8060	6/12/2008	2-CF-4	P, tot	mg/L as P	0.8430
6/19/2008	Inf 2	P, tot	mg/L as P	**0.1500**						6/19/2008	2-CF-2	P, tot	mg/L as P	0.9480	6/19/2008	2-CF-3	P, tot	mg/L as P	0.8870	6/19/2008	2-CF-4	P, tot	mg/L as P	0.9970
6/26/2008	Inf 2	P, tot	mg/L as P	**0.1500**						6/26/2008	2-CF-2	P, tot	mg/L as P	0.9160	6/26/2008	2-CF-3	P, tot	mg/L as P	0.9140	6/26/2008	2-CF-4	P, tot	mg/L as P	1.0200
7/11/2008	Inf 2	P, tot	mg/L as P	**0.1500**						7/11/2008	2-CF-2	P, tot	mg/L as P	0.8620	7/11/2008	2-CF-3	P, tot	mg/L as P	0.9040	7/11/2008	2-CF-4	P, tot	mg/L as P	0.9730
7/17/2008	Inf 2	P, tot	mg/L as P	**0.1500**						7/17/2008	2-CF-2	P, tot	mg/L as P	0.9860	7/17/2008	2-CF-3	P, tot	mg/L as P	0.7730	7/17/2008	2-CF-4	P, tot	mg/L as P	0.8950
7/24/2008	Inf 2	P, tot	mg/L as P	**0.1500**						7/24/2008	2-CF-2	P, tot	mg/L as P	0.9810	7/24/2008	2-CF-3	P, tot	mg/L as P	0.9760	7/24/2008	2-CF-4	P, tot	mg/L as P	0.9680
7/31/2008	Inf 2	P, tot	mg/L as P	**0.1500**						7/31/2008	2-CF-2	P, tot	mg/L as P	0.9490	7/31/2008	2-CF-3	P, tot	mg/L as P	0.9620	7/31/2008	2-CF-4	P, tot	mg/L as P	0.9820
8/7/2008	Inf 2	P, tot	mg/L as P	**0.1500**						8/7/2008	2-CF-2	P, tot	mg/L as P	0.8600	8/7/2008	2-CF-3	P, tot	mg/L as P	0.8500	8/7/2008	2-CF-4	P, tot	mg/L as P	0.8410
8/14/2008	Inf 2	P, tot	mg/L as P							8/14/2008	2-CF-2	P, tot	mg/L as P	0.8080	8/14/2008	2-CF-3	P, tot	mg/L as P	0.9750	8/14/2008	2-CF-4	P, tot	mg/L as P	0.9800
8/22/2008	Inf 2	P, tot	mg/L as P	**0.1500**						8/22/2008	2-CF-2	P, tot	mg/L as P	1.0500	8/22/2008	2-CF-3	P, tot	mg/L as P	1.1200	8/22/2008	2-CF-4	P, tot	mg/L as P	1.0700
9/4/2008	Inf 2	P, tot	mg/L as P	**0.1500**						9/4/2008	2-CF-2	P, tot	mg/L as P	0.9720	9/4/2008	2-CF-3	P, tot	mg/L as P	1.0600	9/4/2008	2-CF-4	P, tot	mg/L as P	1.0300
4/17/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						4/17/2008	2-CF-2	PO4-P	mg/L as P	0.7370	4/17/2008	2-CF-3	PO4-P	mg/L as P	0.2760	4/17/2008	2-CF-4	PO4-P	mg/L as P	0.5710
4/24/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						4/25/2008	2-CF-2	PO4-P	mg/L as P	0.7270	4/25/2008	2-CF-3	PO4-P	mg/L as P	0.3020	4/25/2008	2-CF-4	PO4-P	mg/L as P	0.5180
5/1/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						5/1/2008	2-CF-2	PO4-P	mg/L as P	1.1400	5/1/2008	2-CF-3	PO4-P	mg/L as P	0.3350	5/1/2008	2-CF-4	PO4-P	mg/L as P	0.5270
5/8/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						5/8/2008	2-CF-2	PO4-P	mg/L as P	1.1000	5/8/2008	2-CF-3	PO4-P	mg/L as P	0.3200	5/8/2008	2-CF-4	PO4-P	mg/L as P	0.5480
5/15/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						5/15/2008	2-CF-2	PO4-P	mg/L as P	1.0700	5/15/2008	2-CF-3	PO4-P	mg/L as P	0.3200	5/15/2008	2-CF-4	PO4-P	mg/L as P	0.5520
5/22/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						5/22/2008	2-CF-2	PO4-P	mg/L as P	0.8920	5/22/2008	2-CF-3	PO4-P	mg/L as P	0.2840	5/22/2008	2-CF-4	PO4-P	mg/L as P	0.4850
5/29/2008	Inf 2	PO4-P	mg/L as P	**0.1500**						5/29/2008	2-CF-2	PO4-P	mg/L as P	0.9760	5/29/2008	2-CF-3	PO4-P	mg/L as P	0.2780	5/29/2008	2-CF-4	PO4-P	mg/L as P	0.4870

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6/5/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								6/5/2008	2-CF-2	PO4-P	mg/L as P	0.9160	6/5/2008	2-CF-3	PO4-P	mg/L as P	0.2900	6/5/2008	2-CF-4	PO4-P	mg/L as P	0.4840
6/12/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								6/12/2008	2-CF-2	PO4-P	mg/L as P	0.9370	6/12/2008	2-CF-3	PO4-P	mg/L as P	0.2720	6/12/2008	2-CF-4	PO4-P	mg/L as P	0.4400
6/19/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								6/19/2008	2-CF-2	PO4-P	mg/L as P	0.9340	6/19/2008	2-CF-3	PO4-P	mg/L as P	0.3030	6/19/2008	2-CF-4	PO4-P	mg/L as P	0.5030
6/26/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								6/26/2008	2-CF-2	PO4-P	mg/L as P	0.9000	6/26/2008	2-CF-3	PO4-P	mg/L as P	0.3150	6/26/2008	2-CF-4	PO4-P	mg/L as P	0.5290
7/11/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								7/11/2008	2-CF-2	PO4-P	mg/L as P	0.8570	7/11/2008	2-CF-3	PO4-P	mg/L as P	0.2880	7/11/2008	2-CF-4	PO4-P	mg/L as P	0.4750
7/17/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								7/17/2008	2-CF-2	PO4-P	mg/L as P	0.9720	7/17/2008	2-CF-3	PO4-P	mg/L as P	0.2570	7/17/2008	2-CF-4	PO4-P	mg/L as P	0.4660
7/24/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								7/24/2008	2-CF-2	PO4-P	mg/L as P	0.9630	7/24/2008	2-CF-3	PO4-P	mg/L as P	0.3360	7/24/2008	2-CF-4	PO4-P	mg/L as P	0.4970
7/31/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								7/31/2008	2-CF-2	PO4-P	mg/L as P	0.9270	7/31/2008	2-CF-3	PO4-P	mg/L as P	0.3460	7/31/2008	2-CF-4	PO4-P	mg/L as P	0.5070
8/7/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								8/7/2008	2-CF-2	PO4-P	mg/L as P	0.8300	8/7/2008	2-CF-3	PO4-P	mg/L as P	0.3130	8/7/2008	2-CF-4	PO4-P	mg/L as P	0.4500
8/14/2008	Inf 2	PO4-P	mg/L as P									8/14/2008	2-CF-2	PO4-P	mg/L as P	0.8120	8/14/2008	2-CF-3	PO4-P	mg/L as P	0.3550	8/14/2008	2-CF-4	PO4-P	mg/L as P	0.5230
8/22/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								8/22/2008	2-CF-2	PO4-P	mg/L as P	1.0200	8/22/2008	2-CF-3	PO4-P	mg/L as P	0.4150	8/22/2008	2-CF-4	PO4-P	mg/L as P	0.5660
9/4/2008	Inf 2	PO4-P	mg/L as P	**0.1500**								9/4/2008	2-CF-2	PO4-P	mg/L as P	0.9710	9/4/2008	2-CF-3	PO4-P	mg/L as P	0.4560	9/4/2008	2-CF-4	PO4-P	mg/L as P	0.6140