





# Hygienic Laboratory

*The University of Iowa*

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Sample Number 2010039425

### Total Alkalinity

Analyte	Concentration mg/L as CaCO <sub>3</sub>	Quantitation Limit mg/L as CaCO <sub>3</sub>
Total Alkalinity	150	1.0

Date Analyzed: 10-18-2010

Analyzed at: Ankeny

Analyst: AB

Method: SM 2320B

Verified: TAB

### Total Hardness

Analyte	Concentration mg/L as CaCO <sub>3</sub>	Quantitation Limit mg/L as CaCO <sub>3</sub>
Total Hardness	1700	1.0

Date Analyzed: 10-13-2010

Analyzed at: Ankeny

Analyst: AB

Method: SM 2340 C

Verified: TAB

### Total Dissolved Solids

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Dissolved Solids	4500	1

Comments: Dried at 180 degrees C.

Date Analyzed: 10-13-2010

Analyzed at: Ankeny

Analyst: MP/BR

Method: SM 2540 C

Verified: LF

### Total Calcium

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Calcium	580	1.0

Date Analyzed: 10-13-2010

Analyzed at: Ankeny

Analyst: MC

Method: EPA 200.7

Verified: LF

### Total Magnesium

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Magnesium	36	0.50

Date Analyzed: 10-13-2010

Analyzed at: Ankeny

Analyst: MC

Method: EPA 200.7

Verified: LF

### Total Potassium

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Potassium	28	1.0

Date Analyzed: 10-13-2010

Analyzed at: Ankeny

Analyst: MC

Method: EPA 200.7

Verified: LF

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Sample Number 2010039425

### Total Sodium

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Sodium	720	0.50
Date Analyzed: 10-13-2010	Analyzed at: Ankeny	Analyst: MC
Method: EPA 200.7		Verified: LF

### Bicarbonate Alkalinity as CaCO<sub>3</sub>

Analyte	Concentration mg/L	Quantitation Limit mg/L
Bicarbonate	150	
Date Analyzed: 10-18-2010	Analyzed at: Ankeny	Analyst: AB
Method: SM 2320B		Verified: TAB

### Chloride

Analyte	Concentration mg/L	Quantitation Limit mg/L
Chloride	390	1.0
Date Analyzed: 10-14-2010	Analyzed at: Ankeny	Analyst: LDA
Method: EPA 300.0		Verified: LF

### Fluoride by ISE

Analyte	Concentration mg/L	Quantitation Limit mg/L
Fluoride	1.76	0.10
Date Analyzed: 10-13-2010	Analyzed at: Ankeny	Analyst: BR
Method: SM 4500-F C		Verified: TAB

### Sulfate

Analyte	Concentration mg/L	Quantitation Limit mg/L
Sulfate	2600	1.0
Date Analyzed: 10-14-2010	Analyzed at: Ankeny	Analyst: LDA
Method: EPA 300.0		Verified: LF

### Total Iron

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Iron	6.7	0.02
Date Analyzed: 10-13-2010	Analyzed at: Ankeny	Analyst: MC
Method: EPA 200.7		Verified: LF

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Sample Number 2010039425

## Total Manganese

Analyte	Concentration mg/L	Quantitation Limit mg/L
Total Manganese	0.36	0.02

Date Analyzed: 10-13-2010

Analyzed at: Ankeny

Analyst: MC

Method: EPA 200.7

Verified: LF

### Description of units used within this report

mg/L - Milligrams per Liter  
umho/cm - Micromho per Centimeter  
Quant Limit - Lowest concentration reliably measured

pH Units - pH Units  
mg/L as CaCO<sub>3</sub> - Milligrams per Liter as Calcium Carbonate

The results of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.

Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City #027, Lakeside #393.

If you have any questions please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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# State Hygienic Laboratory

w72600

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## The University of Iowa

Date of report: 04-21-2011

MIKE KING  
HYDRODYNAMICS GROUP LLC  
16711 76TH AVE WEST  
EDMONDS WA 98026

Sample Number 2010039423 Revision 1  
Date Received 10-12-2010  
Project  
Date Collected 10-12-2010 11:00  
Collection Site mortimer #1  
Collection Town Dallas Center  
Description water  
Reference  
Collector LANGEL RICK  
Phone (319) 335-1575  
Purchase Order

Comments

Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

### Results of Analyses

#### Gross alpha including Uranium

Analyte	Concentration pCi/L	Uncertainty +/-	Quantitation Limit pCi/L
Gross Alpha	154.2	8.4	1.2

Date Analyzed: 10-22-2010  
Method: EERF 00-02

Analyzed at: Iowa City

Analyst: DM/MM  
Verified: MM

#### Sequential Radium 226 and 228

Analyte	Concentration pCi/L	Uncertainty +/-	Quantitation Limit pCi/L
Radium-226	20.7	1.1	0.7
Radium-228	250.1	5.5	0.7
Combined Radiums	270.8		1.0

Comments

The United States Environmental Protection Agency has designated a maximum contaminant level of 5 pCi/L for combined Radium 226 and Radium 228 in public drinking water supplies. Effective since July 9, 1976. For any Radium 226 and or 228 result less than our detection limit a value of zero is to be assumed for the purposes of combining the results. Previously reported Radium-228 result was 229.8 pCi/L. Result was revised due to a spreadsheet mis-calculation.

Date Analyzed: 11-11-2010  
Method: EPA 904.0,903.0

Analyzed at: Iowa City

Analyst: DM  
Verified: MM

#### Description of units used within this report

pCi/L - PicoCuries per Liter

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