



Microbac Laboratories, Inc.
 Knoxville Division
 505 E. Broadway Avenue
 Maryville, TN 37804
 (865) 977-1200 phone
 (865) 984-8616 fax
 http://www.microbac.com
 e-mail: knoxville@microbac.com

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · CONSUMER PRODUCTS · WATER · AIR · WASTES · FOOD · PHARMACEUTICALS · NUTRACEUTICALS

CERTIFICATE OF ANALYSIS

Chuck Moore
 City of Kingston
 125 W. Cumberland St.
 Kingston, TN 37763

Date Reported: 3/17/2011
 Date Received: 3/11/2011
 Cust #: RC120
 PO#:

Workorder: 1102652 Project: Kingston WTP Raw and Finished Water Samples

Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Raw Sampled: 03/11/2011 06:30
 1102652-01 (Drinking Water)

Wet Chemistry

Total Suspended Solids	7.2	mg/L		4.0	ALB	03/14/2011 09:30	SM 2540.D.
Metals by EPA 200 Series Methods							
Aluminum	0.692	mg/L	N	0.00500	SRR	03/15/2011 16:43	EPA 200.7
Barium	0.0217	mg/L		0.00200	SRR	03/15/2011 16:43	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Boron	0.00871	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Copper	0.00265	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Hardness, Total as CaCO3	56.1	mg/L		0.0331	SRR	03/15/2011 16:43	EPA 200.7, SM 2340B
Iron	0.552	mg/L	N	0.00600	SRR	03/15/2011 16:43	EPA 200.7
Magnesium	3.87	mg/L	N	0.00500	SRR	03/15/2011 16:43	EPA 200.7
Manganese	0.0380	mg/L		0.00500	SRR	03/15/2011 16:43	EPA 200.7
Mercury	ND	mg/L	*	0.000200	SRR	03/15/2011 10:42	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Titanium	0.0192	mg/L		0.00100	SRR	03/15/2011 16:43	EPA 200.7
Zinc	0.0188	mg/L		0.00200	SRR	03/15/2011 16:43	EPA 200.7
Metals by EPA 200 Series Methods							
Antimony	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Arsenic	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8
Lead	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8
Selenium	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8
Thallium	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8

Raw Dissolved Sampled: 03/11/2011 06:30
 1102652-02 (Drinking Water)

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Workorder: 1102652 Project: Kingston WTP Raw and Finished Water Samples

Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Raw Dissolved Sampled: 03/11/2011 06:30
1102652-02 (Drinking Water)

Metals (Dissolved) by EPA 200 Series Methods

Aluminum	0.0201	mg/L		0.00500	SRR	03/15/2011 17:22	EPA 200.7
Barium	0.0253	mg/L		0.00200	SRR	03/15/2011 17:22	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Boron	0.00794	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Copper	0.00206	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Iron	0.0315	mg/L		0.00600	SRR	03/15/2011 17:22	EPA 200.7
Magnesium	3.96	mg/L		0.00500	SRR	03/15/2011 17:22	EPA 200.7
Manganese	ND	mg/L		0.00500	SRR	03/15/2011 17:22	EPA 200.7
Mercury	ND	mg/L		0.000200	SRR	03/15/2011 11:00	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
SILICA (SiO2)	4.40	mg/L		0.0107	SRR	03/15/2011 17:22	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Titanium	ND	mg/L		0.00100	SRR	03/15/2011 17:22	EPA 200.7
Zinc	0.0145	mg/L		0.00200	SRR	03/15/2011 17:22	EPA 200.7

Metals (Dissolved) by EPA 200 Series Methods

Antimony	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Arsenic	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Lead	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Selenium	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Thallium	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8

Finished Sampled: 03/11/2011 06:30
1102652-03 (Drinking Water)

Wet Chemistry

Total Suspended Solids	ND	mg/L		4.0	ALB	03/14/2011 09:30	SM 2540.D.
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Finished Sampled: 03/11/2011 06:30
1102652-03 (Drinking Water)

Metals by EPA 200 Series Methods

Aluminum	0.0186	mg/L		0.00500	SRR	03/15/2011 16:48	EPA 200.7
Barium	0.0217	mg/L		0.00200	SRR	03/15/2011 16:48	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Boron	0.0101	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Copper	0.00496	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Hardness, Total as CaCO3	72.4	mg/L		0.0331	SRR	03/15/2011 16:48	EPA 200.7, SM 2340B
Iron	ND	mg/L		0.00600	SRR	03/15/2011 16:48	EPA 200.7
Magnesium	4.93	mg/L		0.00500	SRR	03/15/2011 16:48	EPA 200.7
Manganese	ND	mg/L		0.00500	SRR	03/15/2011 16:48	EPA 200.7
Mercury	ND	mg/L	*	0.000200	SRR	03/15/2011 10:43	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Titanium	ND	mg/L		0.00100	SRR	03/15/2011 16:48	EPA 200.7
Zinc	0.00449	mg/L		0.00200	SRR	03/15/2011 16:48	EPA 200.7

Metals by EPA 200 Series Methods

Antimony	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Arsenic	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8
Lead	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8
Selenium	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8
Thallium	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8

Finished Dissolved Sampled: 03/11/2011 06:30
1102652-04 (Drinking Water)

Metals (Dissolved) by EPA 200 Series Methods

Aluminum	0.0176	mg/L		0.00500	SRR	03/15/2011 17:28	EPA 200.7
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Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Finished Dissolved Sampled: 03/11/2011 06:30
 1102652-04 (Drinking Water)

Metals (Dissolved) by EPA 200 Series Methods

Barium	0.0257	mg/L		0.00200	SRR	03/15/2011 17:28	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Boron	0.00970	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Copper	0.00514	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Iron	0.00612	mg/L		0.00600	SRR	03/15/2011 17:28	EPA 200.7
Magnesium	5.11	mg/L		0.00500	SRR	03/15/2011 17:28	EPA 200.7
Manganese	ND	mg/L		0.00500	SRR	03/15/2011 17:28	EPA 200.7
Mercury	ND	mg/L		0.000200	SRR	03/15/2011 11:02	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
SILICA (SiO2)	4.85	mg/L		0.0107	SRR	03/15/2011 17:28	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Titanium	ND	mg/L		0.00100	SRR	03/15/2011 17:28	EPA 200.7
Zinc	0.00696	mg/L		0.00200	SRR	03/15/2011 17:28	EPA 200.7

Metals (Dissolved) by EPA 200 Series Methods

Antimony	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Arsenic	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Lead	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Selenium	ND	mg/L		0.00500	AM	03/16/2011 16:00	EPA 200.8
Thallium	ND	mg/L		0.00100	AM	03/16/2011 16:00	EPA 200.8

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Certifications

Code	Description	Number	Expires
EPA	Environmental Protection Agency	TN00020	
IN_DW	Indiana State Department of Health	C-TN-03	04/30/2011
NELAP	Florida Department of Health	E87978	06/30/2011
PA	Commonwealth of Pennsylvania	68-00725 (003)	03/31/2011
TN_DW	State of Tennessee	TN02003	03/12/2011
TN_DW	State of Tennessee	TN02017	04/30/2011
USDA	US Department of Agriculture		11/30/2011
VA_DW	Commonwealth of Virginia	00335	06/30/2011

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Workorder: 1102652 **Project:** Kingston WTP Raw and Finished Water Samples

Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Notes and Definitions

- N Analyte acceptable but matrix spike/matrix spike duplicate outside accepted recovery criteria
- J+ The result is an estimated quantity, but the result may be biased high
- J- The result is an estimated quantity, but the result may be biased low
- * Relative Percent Duplicate (RPD) outside accepted recovery limits.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

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Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Microbac Knoxville

JOE SLOAN, LAB MANAGER

Thank you for your business. We invite your feedback on our level of service to you. Please contact the Laboratory Director, Ashley Morris, at 865-977-1200, the COO, Robert Morgan, at rmorgan@microbac.com or the President, James Nokes, at jnokes@microbac.com with any comments or suggestions.

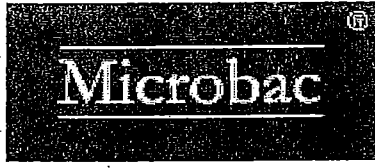
As regulatory limits change frequently, Microbac advises the recipient of this report to confirm such limits with the appropriate Federal, state, or local authorities before acting in reliance on the regulatory limits provided.

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Cooler Inspection Form

Client Name: City of Kingston

Date/Time Received: 3/11/11 / 7:58

Work Order: 1102652

No. of Samples: 2

Received By: [Signature]

Checklist Completed By: [Signature]

Carrier: FedEx() UPS() Client() Field Services() Other(): _____

- After-Hours Receipt? Yes No
- Shipping container in good condition? Yes No Not Present
- Custody seals intact on cooler? Yes No Not Present
- Custody seals intact on samples? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody includes proper client information? Yes No
- Chain of custody includes proper collection information and signatures? Yes No
- Chain of custody includes dates and times of sample collection? Yes No
- Chain of custody includes proper sample descriptions? Yes No
- Chain of custody agrees with sample labels? Yes No
- Chain of custody identifies proper sample matrix? Yes No
- Chain of custody identifies proper number of samples? Yes No
- Chain of custody includes required analysis? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Samples are in proper containers/bottles? Yes No
- Sample containers are intact? Yes No
- Sufficient sample volume collected for requested analysis? Yes No
- VOA vials for aqueous samples have zero headspace? Yes No Not Present
- Samples received within holding times? Yes No
- Samples received on ice? Yes No
- Sample properly preserved? Yes No

If No, adjusted by? _____ Date/Time: _____

Remarks: _____

ANY "NO" EVALUATION REQUIRES CLIENT NOTIFICATION (excluding After-Hours Receipt).

Comments: _____