



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: 8/9/2010
 Date Received: 8/2/2010
 Cust #: RC120
 PO#:

Workorder: 1005907 Project: Kingston WTP Raw and Finished Water Samples

Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Raw Sampled: 08/02/2010 06:30
 1005907-01 (Water)

Wet Chemistry

Total Suspended Solids	4.4	mg/L		4.0	KDW	08/02/2010 12:25	SM 2540.D.
Metals by EPA 200 Series Methods							
Aluminum	0.130	mg/L	N	0.00500	SRR	08/09/2010 17:12	EPA 200.7
Barium	0.0236	mg/L		0.00200	SRR	08/09/2010 17:12	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Boron	0.0121	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Copper	0.00279	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Hardness, Total as CaCO3	63.0	mg/L		0.0331	SRR	08/09/2010 17:12	EPA 200.7, SM 2340B
Iron	0.0921	mg/L		0.00600	SRR	08/09/2010 17:12	EPA 200.7
Magnesium	4.42	mg/L	B	0.00500	SRR	08/09/2010 17:12	EPA 200.7
Manganese	0.0361	mg/L		0.00500	SRR	08/09/2010 17:12	EPA 200.7
Mercury	ND	mg/L		0.000200	SRR	08/05/2010 12:03	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Titanium	0.00261	mg/L		0.00100	SRR	08/09/2010 17:12	EPA 200.7
Zinc	0.0263	mg/L	B	0.00200	SRR	08/09/2010 17:12	EPA 200.7
Subcontracted Analyses							
Antimony	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Arsenic	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Lead	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Selenium	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Thallium	ND	mg/L		0.00100	MTC	08/05/2010 11:40	EPA 200.8

Raw Dissolved Sampled: 08/02/2010 06:30
 1005907-02 (Water)

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Analyte	Result	Units	Qualifier	Reporting Limit	Analyst	Analyzed	Method
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Raw Dissolved Sampled: 08/02/2010 06:30
 1005907-02 (Water)

Metals (Dissolved) by EPA 200 Series Methods

Aluminum	0.0497	mg/L	B	0.00500	SRR	08/09/2010 17:23	EPA 200.7
Barium	0.0211	mg/L		0.00200	SRR	08/09/2010 17:23	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Boron	0.0154	mg/L	B	0.00100	SRR	08/09/2010 17:23	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Copper	0.00195	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Iron	0.0119	mg/L		0.00600	SRR	08/09/2010 17:23	EPA 200.7
Magnesium	4.13	mg/L		0.00500	SRR	08/09/2010 17:23	EPA 200.7
Manganese	ND	mg/L		0.00500	SRR	08/09/2010 17:23	EPA 200.7
Mercury	ND	mg/L		0.000200	SRR	08/05/2010 12:41	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
SILICA (SiO2)	4.31	mg/L		0.0107	SRR	08/09/2010 17:23	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Titanium	ND	mg/L		0.00100	SRR	08/09/2010 17:23	EPA 200.7
Zinc	0.0167	mg/L	B	0.00200	SRR	08/09/2010 17:23	EPA 200.7

Subcontracted Analyses

Antimony	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Arsenic	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Lead	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Selenium	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Thallium	ND	mg/L		0.00100	MTC	08/05/2010 11:40	EPA 200.8

Finished Sampled: 08/02/2010 06:30
 1005907-03 (Water)

Wet Chemistry

Total Suspended Solids	ND	mg/L		4.0	KDW	08/02/2010 12:25	SM 2540,D.
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Finished Sampled: 08/02/2010 06:30
 1005907-03 (Water)

Metals by EPA 200 Series Methods

Aluminum	0.0482	mg/L	N	0.00500	SRR	08/09/2010 17:17	EPA 200.7
Barium	0.0258	mg/L		0.00200	SRR	08/09/2010 17:17	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Boron	0.0154	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Copper	0.00733	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Hardness, Total as CaCO3	66.6	mg/L		0.0331	SRR	08/09/2010 17:17	EPA 200.7, SM 2340B
Iron	ND	mg/L		0.00600	SRR	08/09/2010 17:17	EPA 200.7
Magnesium	4.74	mg/L	B	0.00500	SRR	08/09/2010 17:17	EPA 200.7
Manganese	ND	mg/L		0.00500	SRR	08/09/2010 17:17	EPA 200.7
Mercury	ND	mg/L		0.000200	SRR	08/05/2010 12:16	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Titanium	ND	mg/L		0.00100	SRR	08/09/2010 17:17	EPA 200.7
Zinc	0.0112	mg/L	B	0.00200	SRR	08/09/2010 17:17	EPA 200.7

Subcontracted Analyses

Antimony	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Arsenic	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Lead	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Selenium	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Thallium	ND	mg/L		0.00100	MTC	08/05/2010 11:40	EPA 200.8

Finished Dissolved Sampled: 08/02/2010 06:30
 1005907-04 (Water)

Metals (Dissolved) by EPA 200 Series Methods

Aluminum	0.0659	mg/L	B	0.00500	SRR	08/09/2010 17:40	EPA 200.7
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Finished Dissolved Sampled: 08/02/2010 06:30
 1005907-04 (Water)

Metals (Dissolved) by EPA 200 Series Methods

Barium	0.0240	mg/L		0.00200	SRR	08/09/2010 17:40	EPA 200.7
Beryllium	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Boron	0.0183	mg/L	B	0.00100	SRR	08/09/2010 17:40	EPA 200.7
Cadmium	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Chromium	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Cobalt	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Copper	0.00690	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Iron	0.00741	mg/L		0.00600	SRR	08/09/2010 17:40	EPA 200.7
Magnesium	4.32	mg/L		0.00500	SRR	08/09/2010 17:40	EPA 200.7
Manganese	ND	mg/L		0.00500	SRR	08/09/2010 17:40	EPA 200.7
Mercury	ND	mg/L		0.000200	SRR	08/05/2010 12:45	EPA 245.1
Molybdenum	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Nickel	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
SILICA (SiO2)	4.46	mg/L		0.0107	SRR	08/09/2010 17:40	EPA 200.7
Silver	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Tin	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Titanium	ND	mg/L		0.00100	SRR	08/09/2010 17:40	EPA 200.7
Zinc	0.0130	mg/L	B	0.00200	SRR	08/09/2010 17:40	EPA 200.7

Subcontracted Analyses

Antimony	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Arsenic	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Lead	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Selenium	ND	mg/L		0.00500	MTC	08/05/2010 11:40	EPA 200.8
Thallium	ND	mg/L		0.00100	MTC	08/05/2010 11:40	EPA 200.8

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Certifications

Code	Description	Number	Expires
IN_DW	Indiana State Department of Health	C-TN-03	04/30/2011
PA	Commonwealth of Pennsylvania	68-00725 (003)	03/31/2011
TN_DW	State of Tennessee	TN02017	04/30/2011
USDA	US Department of Agriculture		11/30/2010

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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
- B Detected in the associated Method Blank
- 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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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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1005907-01 A Raw

City of Kingston
Sampled: 08/02/2010 06:30
Water-B-1000ml Plastic HNO3 to pH <2



MICROBAC LABORATORIES, INC
KNOXVILLE DIVISION
505 EAST BROADWAY
MARYVILLE, TN 37804
PHONE: (865) 977-1200 FAX: (865) 984-8616

Water System Name: KINGSTON WATER

PWSID: 0000360
County: ROANE
State (of sample origin): TN
Compliance Monitoring: Yes No
State Reported: Yes No
Chlorinated: Yes No
Report to: Chuck Moore
Address: 125 W. CUMBERLAND ST.
KINGSTON, TN 37763
Phone: 865-376-7187 Fax: 865-376-1654
E-mail: kingstonwater@bellsouth.net
P.O. #:
Quote #:

Invoice to: James Pinkerton
Address: Same

FOR LAB CHECK-IN ONLY
Temp Rec'd: 2.0 °C
Properly Preserved: Yes No
Remarks: PH < 2 for METALS CONTAINERS

Sample Matrix	Sample Type	# of Containers	ANALYSIS REQUIRED				Sample #
			Dissolved Metals	TSS	Hardness	Dissolved Silica	
(1) DW	(2)	4	X	X	X	X	
(1) DW	(2)	4	X	X	X	X	

Sample Identification	Sample Date	Sample Time	Priority	Collected By:	Initial
Raw	8/02/10	0630	Standard	Ed Roberts	ER
Finished	8/02/10	0630	Next Day	Chuck Moore	CM

Special Instructions / Comments...
* All are grab samples.
* Placed immediately on ice.
* Finish samples are Chlorinated.
Special Instructions / Comments...
- 5907 -
Customer #: C120
Project: C120-COK01
Job Temp.:

Relinquished By:	Date:	Time:	Relinquished By:	Date:	Time:
Ed Roberts	8/2/10	7:57	Chuck Moore		
Steve McKeethan					

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Cooler Inspection Form

Client Name: Kingston Water

Date/Time Received: 8/2/10 7:57

Work Order: 1005907

No. of Samples: 2

Received By: ALB

Checklist Completed By: ALB

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: _____