



KNOXVILLE DIVISION
505 EAST BROADWAY AVE.
MARYVILLE, TN 37804
(865) 977-1200 FAX (865) 984-8616
http://www.microbac.com
E-Mail: knoxville@microbac.com

STATE CERT ID.
TN 02017

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

CERTIFICATE OF ANALYSIS

CITY OF KINGSTON
CHUCK MOORE
125 W. CUMBERLAND ST.
KINGSTON, TN 37763

Date Reported 4/14/2009
Date Received 4/4/2009
Cust P.O.
Invoice No. 66445
Cust # C120
Sample Date 4/4/2009
Permit No. 0000360

Work Order Number: 0904-00200

Subject: KINGSTON WTP RAW AND FINISHED WATER SAMPLES

Table with 7 columns: Test, Method, Result, Qual, Date, Time, Tech. Includes test results for various metals like ALUMINUM, ANTIMONY, ARSENIC, etc.

002 RAW 4/4/09 0630 DISSOLVED METALS





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Test	Method	Result	Qual	Date	Time	Tech
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002 **RAW 4/4/09 0630 DISSOLVED METALS**  
 .....continued

[ TAL METALS ]				04/10/2009	13:36	JKD
ALUMINUM	EPA 200.7	0.0124 MG/L	N	04/06/2009	17:03	JKD
ANTIMONY	EPA 200.8	<0.005 MG/L		04/10/2009	13:36	MCD
ARSENIC	EPA 200.8	<0.005 MG/L		04/13/2009	14:45	MCD
BARIUM	EPA 200.7	0.0202 MG/L		04/06/2009	17:03	JKD
BERYLLIUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
CADMIUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
CHROMIUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
COBALT	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
COPPER	EPA 200.7	0.0020 MG/L		04/06/2009	17:03	JKD
IRON	EPA 200.7	<0.0060 MG/L		04/06/2009	17:03	JKD
LEAD	EPA 200.8	<0.005 MG/L		04/10/2009	13:36	MCD
MAGNESIUM	EPA 200.7	5.09 MG/L		04/05/2009	23:50	JKD
MANGANESE	EPA 200.7	<0.0050 MG/L		04/06/2009	17:03	JKD
MOLYBDENUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
MERCURY	EPA 245.1	<0.0002 MG/L		04/07/2009	11:22	LL
NICKEL	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
SELENIUM	EPA 200.8	<0.005 MG/L		04/10/2009	13:36	MCD
SILVER	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
TIN	EPA 200.7	<0.0010 MG/L		04/06/2009	17:03	JKD
TITANIUM	EPA 200.7	<0.0010 MG/L	J	04/06/2009	17:03	JKD
THALLIUM	EPA 200.8	<0.002 MG/L		04/10/2009	13:36	MCD
ZINC	EPA 200.7	0.0071 MG/L		04/06/2009	17:03	JKD
BORON	EPA 200.7	0.0118 MG/L		04/06/2009	17:03	JKD
SILICA (SiO2)	EPA 200.7	2.74 MG/L		04/05/2009	23:50	JKD

003 **FINISHED 4/4/09 0630**





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003 **FINISHED 4/4/09 0630**  
 .....continued

[ TAL METALS ]				04/10/2009	13:56	JKD
ALUMINUM	EPA 200.7	0.154 MG/L	N	04/06/2009	17:35	JKD
ANTIMONY	EPA 200.8	<0.005 MG/L		04/10/2009	13:56	MCD
ARSENIC	EPA 200.8	<0.005 MG/L		04/13/2009	14:48	MCD
BARIUM	EPA 200.7	0.0190 MG/L		04/06/2009	17:35	JKD
BERYLLIUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
CADMIUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
CHROMIUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
COBALT	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
COPPER	EPA 200.7	0.0035 MG/L		04/06/2009	17:35	JKD
IRON	EPA 200.7	0.0146 MG/L		04/06/2009	17:35	JKD
LEAD	EPA 200.8	<0.005 MG/L		04/10/2009	13:56	MCD
MAGNESIUM	EPA 200.7	4.92 MG/L		04/05/2009	22:46	JKD
MANGANESE	EPA 200.7	<0.0050 MG/L		04/06/2009	17:35	JKD
MOLYBDENUM	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
MERCURY	EPA 245.1	<0.0002 MG/L		04/06/2009	19:17	LL
NICKEL	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
SELENIUM	EPA 200.8	<0.005 MG/L		04/10/2009	13:56	MCD
SILVER	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
TIN	EPA 200.7	<0.0010 MG/L		04/06/2009	17:35	JKD
TITANIUM	EPA 200.7	<0.0010 MG/L	J	04/06/2009	17:35	JKD
THALLIUM	EPA 200.8	<0.002 MG/L		04/10/2009	13:56	MCD
ZINC	EPA 200.7	0.0029 MG/L		04/06/2009	17:35	JKD
BORON	EPA 200.7	0.0112 MG/L		04/06/2009	17:35	JKD
SOLIDS, TOTAL SUSPENDED	SM 2540,D.	<1.00 MG/L		04/06/2009	09:15	KDW
HARDNESS, TOTAL AS CaCO3	EPA 200.7;2340,B.	69.8 MG/L	J+	04/05/2009	22:46	JKD

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REVISED REPORT TO CONTAIN BACK-UP STATE CERTIFIED DATA FOR SB, AS, PB, SE AND
TL. ANALYSIS SUBCONTRACTED TO MICROBAC LABORATORIES CHICAGOLAND DIVISION (TN
LAB ID#04017). JN 4-14-09.





® **Microbac Laboratories, Inc.**

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RESPECTFULLY SUBMITTED: \_\_\_\_\_  
MICROBAC LABORATORIES, INC.

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





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QUALIFIER DEFINITIONS:

- B = Detected in the associated Method Blank
C = As Tons CaCO3, equivalent per 1,000 tons material
D = Surrogate recoveries not calculated due to matrix interference and resulting sample dilution
E1 = Elevated detection limits due to sample matrix interference
E2 = Elevated detection limits due to high analyte concentration
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Spike recovery outside control limits due to sample matrix interference or high analyte concentration
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample
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
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise
K = Inter-element correction applied due to high concentration of non-target analyte
L1 = Liquid portion of dual phase sample analyzed only
L2 = Solid portion of dual phase sample analyzed only
M = Miscellaneous (see entry below analytical results)
N = Analyte acceptable but matrix spike/matrix spike duplicate outside accepted recovery criteria
\* = Matrix Spike/Matrix Spike Duplicate RPD is outside acceptable limits
P = Sample received improperly preserved
R = Relative Percent Duplicate (RPD) outside accepted recovery limits
S1 = Spike recovery outside recovery limits
S2 = Surrogate recovery outside of control limits. The data was accepted based on the valid recovery of remaining surrogate.
U = Undetected
V = Elevated reporting limits due to insufficient sample volume
W = Results reports on dry weight basis

ABBREVIATIONS:

- TNTC = Too Numerous To Count
UG/L = Micrograms per Liter (PPB)
UG/KG = Micrograms per Kilogram (PPB)
MG/L = Milligrams per Liter (PPM)
MG/KG = Milligrams per Kilogram (PPM)
CFU = Colony Forming Unit
ND = Not Detected at or below the reporting limit
TIC = Tentatively Identified Compound

