



KNOXVILLE DIVISION
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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 8/5/2009
Date Received 7/29/2009
Cust P.O.
Invoice No. 70920
Cust # C120
Sample Date 7/29/2009
Permit No. 0000360

Work Order Number: 0907-01086

Subject: KINGSTON WTP RAW AND FINISHED WATER SAMPLES

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

002 RAW 7/29/09 0630 DISSOLVED METALS





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Test Method Result Qual Date Time Tech

002 RAW 7/29/09 0630 DISSOLVED METALS

.....continued

[TAL METALS]

Table with 7 columns: Test, Method, Result, Qual, Date, Time, Tech. Rows include ALUMINUM, ANTIMONY, ARSENIC, BARIUM, BERYLLIUM, CADMIUM, CHROMIUM, COBALT, COPPER, IRON, LEAD, MAGNESIUM, MANGANESE, MOLYBDENUM, MERCURY, NICKEL, SELENIUM, SILVER, TIN, TITANIUM, THALLIUM, ZINC, BORON, SILICA (SiO2).

003 FINISHED 7/29/09 0630





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Test	Method	Result	Qual	Date	Time	Tech
003 FINISHED 7/29/09 0630						
.....continued						
[TAL METALS]				08/05/2009	11:26	JKD
ALUMINUM	EPA 200.7	0.0232 MG/L	J-,N	07/31/2009	14:38	JKD
ANTIMONY	EPA 200.8	<0.005 MG/L		08/05/2009	11:26	MCD
ARSENIC	EPA 200.8	<0.005 MG/L		08/05/2009	11:26	MCD
BARIUM	EPA 200.7	0.0138 MG/L		07/31/2009	14:38	JKD
BERYLLIUM	EPA 200.7	<0.0010 MG/L	J-	07/31/2009	14:38	JKD
CADMIUM	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
CHROMIUM	EPA 200.7	<0.0010 MG/L	J-	07/31/2009	14:38	JKD
COBALT	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
COPPER	EPA 200.7	0.0032 MG/L	J-	07/31/2009	14:38	JKD
IRON	EPA 200.7	<0.0060 MG/L	N	07/31/2009	14:38	JKD
LEAD	EPA 200.8	<0.005 MG/L		08/05/2009	11:26	MCD
MAGNESIUM	EPA 200.7	4.43 MG/L		07/30/2009	16:49	JKD
MANGANESE	EPA 200.7	<0.0050 MG/L		07/31/2009	14:38	JKD
MOLYBDENUM	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
MERCURY	EPA 245.1	<0.0002 MG/L		07/30/2009	12:37	SRR
NICKEL	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
SELENIUM	EPA 200.8	<0.005 MG/L		08/05/2009	11:26	MCD
SILVER	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
TIN	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
TITANIUM	EPA 200.7	<0.0010 MG/L		07/31/2009	14:38	JKD
THALLIUM	EPA 200.8	<0.002 MG/L		08/05/2009	11:26	MCD
ZINC	EPA 200.7	0.0028 MG/L		07/31/2009	14:38	JKD
BORON	EPA 200.7	0.0067 MG/L	J-	07/31/2009	14:38	JKD
SOLIDS, TOTAL SUSPENDED	SM 2540,D.	<4.00 MG/L		07/29/2009	09:35	KDW
HARDNESS, TOTAL AS CaCO3	EPA 200.7;2340,B.	66.3 MG/L		07/30/2009	16:49	JKD

004 FINISHED 7/29/09 0630 DISSOLVED METALS





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Table with 7 columns: Test, Method, Result, Qual, Date, Time, Tech. Row 1: 004 FINISHED 7/29/09 0630 DISSOLVED METALS. Rows 2-31: Various metals (ALUMINUM, ANTIMONY, ARSENIC, etc.) with corresponding test methods, results, and dates.

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). AG 8-5-09.





® **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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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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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

