



**STATE OF TENNESSEE  
DEPARTMENT OF HEALTH  
ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL  
Lab Services - Jackson Regional Lab  
Jackson, TN 38301  
731-426-0686

TDH: Lab Services KRL  
Lab Services - Knoxville Regional Lab  
Knoxville, TN 37920  
865-549-5201

TDH: Lab Services NCL  
Lab Services - Nashville Central Lab  
Nashville, TN 37243  
615-262-6300


**Sent To:** Geoff Klein  
TDEC-DWS  
200 East Race St  
Knoxville, TN 37763

**Lab ID:** N00004670  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using good laboratory practices and in accordance with federal or state approved methodologies.

  
Analytical Supervisor

**Lab-Sample Number:** N00004670001  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 09:50  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**  
**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	63	mg/L	3.8	10	M Chen	6/16/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	50	mg/L	0.7	1	P Leathers	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00004670002  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 09:55  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	63	mg/L	3.8	10	M Chen	6/16/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	51	mg/L	0.7	1	P Leathers	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00004670003  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 10:00  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**  
**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	65	mg/L	3.8	10	M Chen	6/16/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	57	mg/L	0.7	1	P Leathers	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00004670004  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 10:05  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**  
**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	71	mg/L	3.8	10	M Chen	6/16/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	56	mg/L	0.7	1	P Leathers	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**



**STATE OF TENNESSEE  
DEPARTMENT OF HEALTH  
ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL  
Lab Services - Jackson Regional Lab  
Jackson, TN 38301  
731-426-0686

TDH: Lab Services KRL  
Lab Services - Knoxville Regional Lab  
Knoxville, TN 37920  
865-549-5201

TDH: Lab Services NCL  
Lab Services - Nashville Central Lab  
Nashville, TN 37243  
615-262-6300

**Sent To:** Geoff Klein  
TDEC-DWS  
200 East Race St  
Knoxville, TN 37763

**Lab ID:** N00004670  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using good laboratory practices and in accordance with federal or state approved methodologies.

\_\_\_\_\_  
Analytical Supervisor

**Lab-Sample Number:** N00004670001  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 09:50  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**  
**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	06/16/2009				S Ufegbu	6/16/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	A Wilson	6/16/2009
Barium	26	µg/L	2.5	5	A Wilson	6/16/2009
Beryllium	U	µg/L	0.11	1	A Wilson	6/16/2009
Cadmium	U	µg/L	0.41	1	A Wilson	6/16/2009
Chromium	U	µg/L	2.0	5	A Wilson	6/17/2009
Cobalt	0.33J	µg/L	0.04	1	A Wilson	6/16/2009
Lead	0.64J	µg/L	0.10	1	A Wilson	6/16/2009
Manganese	53	µg/L	0.42	1	A Wilson	6/16/2009
Selenium	U	µg/L	1.3	5	A Wilson	6/17/2009
Thallium	1.2	µg/L	0.03	1	A Wilson	6/16/2009
Vanadium	U	µg/L	3.4	5	A Wilson	6/16/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00004670002  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 09:55  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	06/16/2009				S Ufegbu	6/16/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	A Wilson	6/16/2009
Barium	22	µg/L	2.5	5	A Wilson	6/16/2009
Beryllium	U	µg/L	0.11	1	A Wilson	6/16/2009
Cadmium	U	µg/L	0.41	1	A Wilson	6/16/2009
Chromium	U	µg/L	2.0	5	A Wilson	6/17/2009
Cobalt	0.092J	µg/L	0.04	1	A Wilson	6/16/2009
Lead	U	µg/L	0.10	1	A Wilson	6/16/2009
Manganese	1.8	µg/L	0.42	1	A Wilson	6/16/2009
Selenium	U	µg/L	1.3	5	A Wilson	6/17/2009
Thallium	0.29J	µg/L	0.03	1	A Wilson	6/16/2009
Vanadium	U	µg/L	3.4	5	A Wilson	6/16/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00004670003  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** FINISH  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 10:00  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**  
**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	06/16/2009				DC0245	6/16/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	A Wilson	6/16/2009
Barium	22	µg/L	2.5	5	A Wilson	6/16/2009
Beryllium	U	µg/L	0.11	1	A Wilson	6/16/2009
Cadmium	U	µg/L	0.41	1	A Wilson	6/16/2009
Chromium	U	µg/L	2.0	5	A Wilson	6/17/2009
Cobalt	0.096J	µg/L	0.04	1	A Wilson	6/16/2009
Lead	U	µg/L	0.10	1	A Wilson	6/16/2009
Manganese	3.2	µg/L	0.42	1	A Wilson	6/16/2009
Selenium	U	µg/L	1.3	5	A Wilson	6/17/2009
Thallium	0.17J	µg/L	0.03	1	A Wilson	6/16/2009
Vanadium	U	µg/L	3.4	5	A Wilson	6/16/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bass	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**

**Lab-Sample Number:** N00004670004  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:** RAW  
**Project Site No.:**  
**Station No.:**  
**Date/Time Collected:** 06/15/2009 10:05  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 06/15/2009 12:40  
**Received By:** P Singh

**Field Determinations**  
**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	06/16/2009				S Ufegbu	6/16/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	A Wilson	6/16/2009
Barium	22	µg/L	2.5	5	A Wilson	6/16/2009
Beryllium	0.15J	µg/L	0.11	1	A Wilson	6/16/2009
Cadmium	U	µg/L	0.41	1	A Wilson	6/16/2009
Chromium	U	µg/L	0.93	5	A Wilson	6/17/2009
Cobalt	0.27J	µg/L	0.04	1	A Wilson	6/16/2009
Lead	1.6	µg/L	0.10	1	A Wilson	6/16/2009
Manganese	49	µg/L	0.42	1	A Wilson	6/16/2009
Selenium	U	µg/L	1.3	5	A Wilson	6/17/2009
Thallium	0.13J	µg/L	0.03	1	A Wilson	6/16/2009
Vanadium	U	µg/L	3.4	5	A Wilson	6/16/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Bäss	6/16/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**