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: N00005403
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 pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

Lab-Sample Number:	N00005403001	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	KINGSTON WTP	**Chlorine, residual:**	
Sampler Project Name:	RAW	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 08:35	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Digestion Metals — **METHOD: EPA 200.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/01/2009				A Wilson	12/1/2009

TEST: ICP-MS — **METHOD: EPA 200.8**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/1/2009
Barium	29	µg/L	2.5	5	M Pattanayek	12/1/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/1/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/1/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/1/2009
Cobalt	0.27J	µg/L	0.04	1	M Pattanayek	12/1/2009
Lead	0.48J	µg/L	0.10	1	M Pattanayek	12/1/2009
Manganese	52	µg/L	0.42	1	M Pattanayek	12/1/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/1/2009
Thallium	0.078J	µg/L	0.03	1	M Pattanayek	12/1/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/1/2009

TEST: Mercury — **METHOD: EPA 245.1**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Wilson	12/1/2009

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

Lab-Sample Number:	N00005403002	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	KINGSTON WTP	**Chlorine, residual:**	
Sampler Project Name:	FINISH	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 08:40	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Digestion Metals **METHOD: EPA 200.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/01/2009				A Wilson	12/1/2009

TEST: ICP-MS **METHOD: EPA 200.8**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/1/2009
Barium	25	µg/L	2.5	5	M Pattanayek	12/1/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/1/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/1/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/1/2009
Cobalt	0.083J	µg/L	0.04	1	M Pattanayek	12/1/2009
Lead	U	µg/L	0.10	1	M Pattanayek	12/1/2009
Manganese	U	µg/L	0.42	1	M Pattanayek	12/1/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/1/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	12/1/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/1/2009

TEST: Mercury **METHOD: EPA 245.1**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Wilson	12/1/2009

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

Lab-Sample Number:	N00005403003	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	ROCKWOOD WTP	**Chlorine, residual:**	
Sampler Project Name:	RAW	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 09:35	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Digestion Metals **METHOD: EPA 200.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/01/2009				A Wilson	12/1/2009

TEST: ICP-MS **METHOD: EPA 200.8**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/1/2009
Barium	29	µg/L	2.5	5	M Pattanayek	12/1/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/1/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/1/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/1/2009
Cobalt	0.10J	µg/L	0.04	1	M Pattanayek	12/1/2009
Lead	0.13J	µg/L	0.10	1	M Pattanayek	12/1/2009
Manganese	9.5	µg/L	0.42	1	M Pattanayek	12/1/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/1/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	12/1/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/1/2009

TEST: Mercury **METHOD: EPA 245.1**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Wilson	12/1/2009

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

Lab-Sample Number:	N00005403004	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	ROCKWOOD WTP	**Chlorine, residual:**	
Sampler Project Name:	FINISH	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 09:40	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Digestion Metals **METHOD: EPA 200.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/01/2009				A Wilson	12/1/2009

TEST: ICP-MS **METHOD: EPA 200.8**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	12/1/2009
Barium	28	µg/L	2.5	5	M Pattanayek	12/1/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	12/1/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	12/1/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	12/1/2009
Cobalt	0.072J	µg/L	0.04	1	M Pattanayek	12/1/2009
Lead	U	µg/L	0.10	1	M Pattanayek	12/1/2009
Manganese	0.91J	µg/L	0.42	1	M Pattanayek	12/1/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	12/1/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	12/1/2009
Vanadium	U	µg/L	3.4	5	M Pattanayek	12/1/2009

TEST: Mercury **METHOD: EPA 245.1**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	A Wilson	12/1/2009

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

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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: N00005403
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 pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

Lab-Sample Number:	N00005403001	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	KINGSTON WTP	**Chlorine, residual:**	
Sampler Project Name:	RAW	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 08:35	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Alkalinity, Total **METHOD: EPA 310.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	66	mg/L	3.8	10	M Chen	12/1/2009

TEST: Hardness, Calcium **METHOD: SM 3500-Ca D**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	47	mg/L	0.7	1	M Chen	11/30/2009

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

Lab-Sample Number:	N00005403002	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	KINGSTON WTP	**Chlorine, residual:**	
Sampler Project Name:	FINISH	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 08:40	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Alkalinity, Total **METHOD: EPA 310.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	66	mg/L	3.8	10	M Chen	12/1/2009

TEST: Hardness, Calcium **METHOD: SM 3500-Ca D**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	48	mg/L	0.7	1	M Chen	11/30/2009

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

Lab-Sample Number:	N00005403003	**Field Determinations**	
Project Name:		**pH:**	
Sample Description:	ROCKWOOD WTP	**Chlorine, residual:**	
Sampler Project Name:	RAW	**Conductivity:**	
Project Site No.:		**Temperature:**	
Station No.:		**Dissolved Oxygen:**	
Date/Time Collected:	11/30/2009 09:35	**Other:**	
Sampler's Name:	GEOFF KLEIN	**Flow:**	CFS
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:	11/30/2009 11:32		
Received By:	P D Wilson		

TEST: Alkalinity, Total **METHOD: EPA 310.2**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	73	mg/L	3.8	10	M Chen	12/1/2009

TEST: Hardness, Calcium **METHOD: SM 3500-Ca D**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	52	mg/L	0.7	1	M Chen	11/30/2009

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

Lab-Sample Number:	N00005403004
Project Name:	
Sample Description:	ROCKWOOD WTP
Sampler Project Name:	FINISH
Project Site No.:	
Station No.:	
Date/Time Collected:	11/30/2009 09:40
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:	11/30/2009 11:32
Received By:	P D Wilson

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	64	mg/L	3.8	10	M Chen	12/1/2009

TEST: Hardness, Calcium **METHOD: SM 3500-Ca D**

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	53	mg/L	0.7	1	M Chen	11/30/2009

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