Tennessee Valley Authority
Post Office Box 2000
Soddy Daisy, Tennessee 37384-2000

Timothy P. Cleary
Site Vice President
Sequoyah Nuclear Plant

October 13, 2009

Ms. B. Paulette Barton
State of Tennessee
Department of Environment and Conservation
Division of Water Pollution Control
Enforcement & Compliance Section
6th Floor, L&C Annex
401 Church Street
Nashville, Tennessee 37243-1534

Ms. Barton:

2009 DISCHARGE MONITORING REPORT – QUALITY ASSURANCE (DMR-QA) STUDY 29 PROVIDER-GRADED TEST RESULTS - FINAL REPORT

Please find enclosed the provider-graded test results for the 2009 DMR-QA Study 29 Laboratory Performance Evaluation obtained by TVA Sequoyah Nuclear Plant (SQN) and supporting laboratories as required by NPDES Permit TN0026450. Upon review of the DMR-QA 29 final report, there were two analyte results that were evaluated as "Not Acceptable." The two "Not Acceptable" analyte results have been entered into the TVA corrective action program and investigations have been initiated to identify the problems at both laboratories in order to implement adequate corrective actions. Remedial samples have also been ordered for analysis to confirm that identified problems are corrected. A completed and signed corrective action report will be submitted by December 4, 2009. If you have any questions or need additional information, please contact Ann Hurt at (423) 843-6714 or Stephanie Howard at (423) 843-6700 of Sequoyah's Environmental staff.

Sincerely,

Timothy P. Cleary
Site Vice President
Sequoyah Nuclear Plant

Enclosure
cc (Enclosure)

Mr. Ray Terhune
US EPA Region IV
SESD/MTSB/QAS
980 College Station Road
Athens, Georgia 30605-2720

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Chattanooga Environmental Assistance Center
Division of Water Pollution Control
State Office Building, Suite 550
540 McCallie Avenue
Chattanooga, Tennessee 37402-2013

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United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

Laboratory DMR-QA Evaluation Study 29
Laboratory Performance Evaluation
Office of Enforcement and Compliance Assurance
(These data are collected under the authority of the Federal Water Pollution Control Act.)

NPDES Permittee Data Report Form

Due October 16, 2009

Attention: Follow the instructions on the previous page to complete this form and submit data for evaluation.

State: TN
NPDES Permit Number: 0026450
Permit Extension:

Permittee name: TENNESSEE VALLEY AUTHORITY- SEQUOYAH NUCLEAR PLANT

Current Permittee mailing address: P.O. BOX 2000 MAILSTOP: OPS-4A-SQN

City: SODDY-DAISY State: TN Zip Code: 37384

Phone Number: 423-843-7001 FAX Number: 423-843-7400

e-mail: TPCLEARY@TVA.GOV

For DMR-QA Study 29, conducted in 2009, the Permittee ensured that their laboratory(s) performing the required analyses:

Received PT Samples	Submitted Complete and Accurate Data by August 31,2009	Received a Graded Report by September 21, 2009
Yes [X] No [ ]	Yes [X] No [ ]	Yes [X] No [ ]

Certification by Permit Holder or Authorized Representative
(as per 40 C.F.R. Section 122.22 - see instructions.)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Each reported value was produced from a single analytical run using the analytical system that routinely performs these analyses to produce compliance monitoring data required under our National Pollutant Discharge Elimination System (NPDES) permit. Neither I nor any of my subordinates compared our results with results from independent analyses conducted by us or any other laboratory before we reported our results to the U.S.EPA. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Certifying Official: TIMOTHY P. CLEARY Title: SEQUOYAH SITE VICE PRESIDENT

Signature: Timothy P. Cleary Date: 13OCT09

Address, phone number and e-mail of certifying official are required if different from above.

Address: Phone No.:

City: State: Zip Code: e-mail:

OMB Control No. 2080-0021 Approval expires 12/31/2010

United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

EPA United States Environmental Protection Agency

Laboratory DMR-QA Evaluation Study 29
Laboratory Performance Evaluation
Office of Enforcement and Compliance Assurance
(These data are collected under the authority of the Federal Water Pollution Control Act.)

Permittee name	State	NPDES Permit No.	Permit Extension
TENNESSEE VALLEY AUTHORITY SEQUOYAH NUCLEAR PLANT	TN	0026450	

Identification of all CHEM, MICRO and WET laboratories who did analyses for this permit

Name of Laboratory	Address of Laboratory	U.S. EPA Lab Code	Lab Analysis Check box(es) that apply			Lab Type*
			CHEM	MICRO	WET	
ENVIRONMENTAL SCIENCE CORP.	12065 LEBANON ROAD MT. JULIET, TN 37122	TN00003	X			C
ENVIRONMENTAL TESTING SOLUTIONS, INC.	P.O. BOX 7565 ASHEVILLE, NC 28802-7565	NC01230			X	C
TVA - SEQUOYAH NUCLEAR PLANT	P.O. BOX 2000 MAILSTOP: OPS-4A-SQN SODDY-DAISY, TN 37384-2000	TN00999	X			F

*Lab Types: C = Commercial F = Federal G = Local Government I = Industrial O = Other S = State

If you need additional space, please make a copy of this page for additional laboratories.

EPA 6400-01 Rev. 03-09. Previous editions are obsolete.

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Permittee Name: TVA - Sequoyah Nuclear Plant **Permit Number:** TN0026450 **EPA Lab Code:** TN00003

Chemistry/Microbiology Analyte Checklist

WP Study 174

Analyte Test / Method	Test Required	Laboratory's Graded Result	
		Acceptable	Not Acceptable (Corrective Action Required)
Minerals			
Alkalinity as CaCO3			
EPA 310.1	☐	☒	☐
EPA 310.2	☐	☒	☐
SM2320B	☐	☒	☐
Chloride			
EPA 300.0	☐	☒	☐
EPA 300.1	☐	☒	☐
EPA 9056	☐	☒	☐
EPA 9056A	☐	☒	☐
SM 4110B	☐	☒	☐
Conductivity at 25°C			
EPA 120.1	☐	☒	☐
SM2510B	☐	☒	☐
Fluoride			
EPA 300.0	☐	☒	☐
EPA 300.1	☐	☒	☐
EPA 9056	☐	☒	☐
EPA 9056A	☐	☒	☐
SM 4110B	☐	☒	☐
Potassium			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Sodium			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Sulfate			
EPA 300.0	☐	☒	☐
EPA 300.1	☐	☒	☐
EPA 9056	☐	☒	☐
EPA 9056A	☐	☒	☐
SM 4110B	☐	☒	☐
Total Dissolved Solids at 180°C			
EPA 160.1	☐	☒	☐
SM2540C	☐	☒	☐
Total Solids at 105°C			
EPA 160.3	☐	☒	☐
SM 2540G	☐	☒	☐
SM2540B	☐	☒	☐

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Hardness			
Non-Filterable Residue (TSS)			
EPA 160.2	☐	☐	☒
SM2540D	☒	☐	☒
Calcium			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Magnesium			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Calcium Hardness as CaCO3			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
SM2340B	☐	☒	☐
Total Hardness as CaCO3			
EPA 130.1	☐	☒	☐
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
SM2340B	☐	☒	☐
SM2340C	☐	☒	☐
pH			
pH			
EPA 150.1	☐	☒	☐
EPA 9040B	☐	☒	☐
SM4500H+ B	☐	☒	☐
Settleable Solids			
Settleable Solids			
EPA 160.5	☐	☒	☐
SM2540F	☐	☒	☐
Solids Concentrate			
Non-Filterable Residue (TSS)			
Total Dissolved Solids at 180°C			
Total Solids at 105°C			
Solids			
Non-Filterable Residue (TSS)			
Total Dissolved Solids at 180°C			
Total Solids at 105°C			
Simple Nutrients			
Ammonia as N			
EPA 350.1	☐	☒	☐
SM4500NH3 G	☐	☒	☐
Nitrate + Nitrite as N			
EPA 353.2	☐	☒	☐
SM4500NO3- F	☐	☒	☐
Nitrate as N			
EPA 300.0	☐	☒	☐
EPA 300.1	☐	☒	☐
EPA 9056	☐	☒	☐
EPA 9056A	☐	☒	☐
SM 4110B	☐	☒	☐
ortho-Phosphate as P			
EPA 365.2	☐	☒	☐
SM4500P E	☐	☒	☐
Complex Nutrients			
Total Kjeldahl Nitrogen			
EPA 351.2	☐	☒	☐
SM4500Norg C	☐	☒	☐
Total phosphorus as P			
EPA 365.1	☒	☒	☐
EPA 365.2	☐	☒	☐
EPA 365.3	☐	☒	☐

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Nitrite			
Nitrite as N			
EPA 300.0	☐	☒	☐
EPA 300.1	☐	☒	☐
EPA 9056	☐	☒	☐
EPA 9056A	☐	☒	☐
SM 4110B	☐	☒	☐
Demand			
BOD			
EPA 405.1	☐	☒	☐
SM5210B	☐	☒	☐
CBOD			
SM5210B	☐	☒	☐
COD			
EPA 410.4	☐	☒	☐
SM5220D	☐	☒	☐
TOC			
EPA 415.1	☐	☒	☐
EPA 9060	☐	☒	☐
EPA 9060A	☐	☒	☐
SM5310B	☐	☒	☐
SM5310C	☐	☒	☐
Oil & Grease Concentrate			
Oil & Grease (Gravimetric)			
Oil & Grease			
Oil & Grease (Gravimetric)			
EPA 1664A SepF	☐	☒	☐
EPA 1664A SPE	☒	☒	☐
EPA 9070A SepF	☐	☒	☐
EPA 9070A SPE	☐	☒	☐
SM 5520B	☐	☒	☐
Oil & Grease (Infrared)			
Trace Metals			
Aluminum			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Antimony			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Arsenic			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Barium			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Beryllium			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐

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EPA 6010C	☐	☒	☐
Cadmium			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Chromium			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Cobalt			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Copper			
EPA 200.7	☐	☒	☐
EPA 200.8	☒	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Iron			
EPA 200.7	☒	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Lead			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Manganese			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Molybdenum			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Nickel			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Selenium			
EPA 200.7	☐	☒	☐

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EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Silver			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Strontium			
EPA 200.7	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
Thallium			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Vanadium			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Zinc			
EPA 200.7	☐	☒	☐
EPA 200.8	☐	☒	☐
EPA 6010B	☐	☒	☐
EPA 6010C	☐	☒	☐
EPA 6020	☐	☒	☐
EPA 6020A	☐	☒	☐
Mercury			
Mercury			
EPA 245.1	☐	☒	☐
EPA 7470A	☐	☒	☐
Hexavalent Chromium			
Hexavalent Chromium			
EPA 218.6	☐	☒	☐
EPA 7196A	☐	☒	☐
EPA 7199	☐	☒	☐
SM3500Cr C	☐	☒	☐
SM3500Cr D	☐	☒	☐
SM3500Cr E	☐	☒	☐
SM3500CrB 20th	☐	☒	☐
Turbidity			
Turbidity			
EPA 180.1	☐	☒	☐
SM2130B	☐	☒	☐
Total Cyanide			
Cyanide, total			
EPA 335.4	☐	☒	☐
EPA 9012B	☐	☒	☐
EPA335.2(CLP-M)	☐	☒	☐
SM4500CN E	☐	☒	☐
Total Phenolics (4-AAP)			
Phenolics, total			
EPA 420.1/420.4	☐	☒	☐
EPA 420.2	☐	☒	☐
EPA 9066	☐	☒	☐
SM5530D	☐	☒	☐

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WasteWatR™ Coliform MicrobE™			
Total Coliforms (MF)			
SM9222B	☐	☒	☐
Fecal Coliforms (MF)			
SM9222D	☐	☒	☐
E.coli (MF)			
Total Coliforms (MPN)			
Fecal Coliforms (MPN)			
SM 9221C	☐	☒	☐
SM9221E	☐	☒	☐
E.coli (MPN)			

Timothy P Cleary

Print Name

Timothy P Cleary SVP

Signature/Title

13 OCT 09

Date

Use a separate checklist for EACH lab used

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Permittee Name: TVA - Sequoyah Nuclear Plant **Permit Number:** TN0026450 **EPA Lab Code:** NC01230

WET Organisms/Test Conditions/End Points Checklist

DMRQA Study 29

Analyte Number	Organisms / Conditions	End Points	Test Required	Laboratory's Graded Result: Acceptable	Laboratory's Graded Result: Not Acceptable (Corrective Action Required)
Fathead minnow (Test Code 13)					
0754	48Hr., Acute, Non-Renewal, 25°C, MHSF	LC50	☐	☐	☐
Fathead minnow (Test Code 14)					
0755	48Hr., Acute, Non-Renewal, 25°C, 20% DMW	LC50	☐	☐	☐
Fathead minnow (Test Code 15)					
0808	7-day Short term Chronic, Daily Renewal, MHSF	IC25 (ON) Growth	☐	☐	☐
0808	7-day Short term Chronic, Daily Renewal, MHSF	IC25 (ON) Growth	☒	☒	☐
0810	7-day Short term Chronic, Daily Renewal, MHSF	NOEC (ON) Growth	☐	☐	☐
0756	7-day Short term Chronic, Daily Renewal, MHSF	NOEC Survival	☐	☐	☐
Fathead minnow (Test Code 16)					
0812	7-day Short term Chronic, Daily Renewal, 20% DMW	IC25 (ON) Growth	☐	☐	☐
0814	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC (ON) Growth	☐	☐	☐
0759	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC Survival	☐	☐	☐
Ceriodaphnia dubia (Test Code 19)					
0764	48Hr., Acute Renewal, 25°C, MHSF	LC50	☐	☐	☐
Ceriodaphnia dubia (Test Code 20)					
0765	48Hr., Acute Renewal, 25°C, 20% DMW	LC50	☐	☐	☐
Ceriodaphnia dubia (Test Code 21)					
0767	7-day Short term Chronic, Daily Renewal, MHSF	IC25 Reproduction	☐	☐	☐
0767	7-day Short term Chronic, Daily Renewal, MHSF	IC25 Reproduction	☒	☒	☐
0768	7-day Short term Chronic, Daily Renewal, MHSF	NOEC Reproduction	☐	☐	☐
0766	7-day Short term Chronic, Daily Renewal, MHSF	NOEC Survival	☐	☐	☐
Ceriodaphnia dubia (Test Code 22)					
0770	7-day Short term Chronic, Daily Renewal, 20% DMW	IC25 Reproduction	☐	☐	☐
0771	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC Reproduction	☐	☐	☐
0769	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC Survival	☐	☐	☐
Daphnia magna (Test Code 32)					
0788	48Hr., Acute, Non-Renewal, 25°C, MHSF	LC50	☐	☐	☐
Daphnia pulex (Test Code 38)					
0794	48Hr., Acute, Non-Renewal, 25°C, MHSF	LC50	☐	☐	☐
Mysid (Test Code 42)					
0798	48Hr., Acute, Non-Renewal, 25°C, 40 FSW	LC50	☐	☐	☐
Inland Silverside (Test Code 45)					
0825	7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (ON) Growth	☐	☐	☐
0826	7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (ON) Growth	☐	☐	☐
0824	7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC Survival	☐	☐	☐
Mysid (Test Code 43)					
0816	7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (ON) Growth	☐	☐	☐
0818	7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (ON) Growth	☐	☐	☐
0799	7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC Survival	☐	☐	☐
Inland silverside (Test Code 44)					
0803	48Hr., Acute, Non-Renewal, 25°C, 40 FSW	LC50	☐	☐	☐
Sheepshead minnow (Test Code 46)					
0804	48Hr., Acute, Non-Renewal, 25°C, 40 FSW	LC50	☐	☐	☐
Sheepshead minnow (Test Code 47)					
0820	7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (ON) Growth	☐	☐	☐
0822	7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (ON) Growth	☐	☐	☐
0805	7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC Survival	☐	☐	☐

Timothy P Cleary
Print Name

Timothy P. Cleary

13OCT09
Date

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A Waters Company

Permittee Name: TVA - Sequoyah Nuclear Plant **Permit Number:** TN0026450 **EPA Lab Code:** TN00999

Chemistry/Microbiology Analyte Checklist

DMRQA Study 29

Analyte Test / Method	Test Required	Laboratory's Graded Result	
		Acceptable	Not Acceptable (Corrective Action Required)
Minerals			
Alkalinity as CaCO3			
Chloride			
Conductivity at 25°C			
Fluoride			
Potassium			
Sodium			
Sulfate			
Total Dissolved Solids at 180°C			
Total Solids at 105°C			
Hardness			
Non-Filterable Residue (TSS)			
Calcium			
Magnesium			
Calcium Hardness as CaCO3			
Total Hardness as CaCO3			
pH			
pH			
SM4500H+ B	☒	☒	☐
Settleable Solids			
Settleable Solids			
Solids Concentrate			
Non-Filterable Residue (TSS)			
Total Dissolved Solids at 180°C			
Total Solids at 105°C			
Solids			
Non-Filterable Residue (TSS)			
Total Dissolved Solids at 180°C			
Total Solids at 105°C			
Simple Nutrients			
Ammonia as N			
Nitrate + Nitrite as N			
Nitrate as N			
ortho-Phosphate as P			
Complex Nutrients			
Total Kjeldahl Nitrogen			
Total phosphorus as P			
Nitrite			
Nitrite as N			
Demand			
BOD			
CBOD			
COD			
TOC			
Oil & Grease Concentrate			
Oil & Grease (Gravimetric)			
Oil & Grease			
Oil & Grease (Gravimetric)			
Oil & Grease (Infrared)			

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Trace Metals Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Manganese Molybdenum Nickel Selenium Silver Strontium Thallium Vanadium Zinc			
Mercury Mercury			
Hexavalent Chromium Hexavalent Chromium			
Turbidity Turbidity			
Total Cyanide Cyanide, total			
Total Phenolics (4-AAP) Phenolics, total			
Total Residual Chlorine Total Residual Chlorine SM4500Cl G	☒	☐	☒
WasteWatR™ Coliform MicrobE™ Total Coliforms (MF) Fecal Coliforms (MF) E.coli (MF) Total Coliforms (MPN) Fecal Coliforms (MPN) E.coli (MPN)			

Timothy P Cleary
Print Name

Timothy P Cleary SVP
Signature/Title

13OCT09
Date

Use a separate checklist for EACH lab used

ERA

A Waters Company

Stephanie A Howard
TVA - Sequoyah Nuclear Plant
PO Box 2000
Mailstop: SB-2A-SQN
Soddy-Daisy, TN 37384-2000

DMR-QA 29 Final Report

DMR-QA Proficiency Testing

DMR-QA Study

Open Date: 05/04/09

Close Date: 08/31/09

Report Issued Date: 09/20/09

ERA

A Waters Company

September 21, 2009

Stephanie A Howard
TVA - Sequoyah Nuclear Plant
PO Box 2000
Mailstop: SB-2A-SQN
Soddy-Daisy, TN 37384-2000

Enclosed is your final report for ERA's DMR-QA 29 Proficiency Testing study. Your final report includes an evaluation of every result submitted to your NPDES permit number by your contract laboratory(ies). Your report also contains the USEPA checklists for all of the laboratories that have reported data to your NPDES permit number. Please note that reports were sent as required to both the USEPA DMR-QA office and your state or regional DMR-QA coordinator.

If your contract laboratory(ies) have any "Not Acceptable" evaluations for the DMR-QA 29 study a letter of corrective action listing the required remedial samples is attached for your convenience. If you have a "Not Acceptable" evaluation on your report, ERA recommends that you contact your DMR-QA coordinator for their corrective action requirements.

Thank you for your participation in ERA's DMR-QA 29 Proficiency Testing study. If you have any questions, please contact myself or ERA's Proficiency Testing Group, at 1-800-372-0122.

Sincerely,

Shawn Kassner

Jay R McBurney

Shawn Kassner
Proficiency Testing Manager

Jay R. McBurney
Quality Program Manager

attachments
smk

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DMRQA-29 Definitions & Study Discussion

Study Dates: 05/04/09 - 08/31/09

Report Issued: 09/20/09

DMRQA Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values are compliant with the most current USEPA/NELAC FoPT tables. A parameter not added to the standard is given an Assigned Value of "0" per the guidelines contained in the USEPA's Criteria Document and NELAC standards.

The Acceptance Limits are established per the criteria contained in the most current USEPA/NELAC FoPT tables, or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable.

The Performance Evaluation:

Acceptable	= Reported Value falls within the Acceptance Limits.
Not Acceptable	= Reported Value falls outside the Acceptance Limits.
No Evaluation	= Reported Value cannot be evaluated.
Not Reported	= No Value reported.

The Method Description is the method the laboratory reported to ERA.

DMRQA Study Discussion

ERA's DMR-QA 29 Proficiency Testing study has been reviewed by ERA senior management and certified compliant with the requirements of the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document (December 1998), and the criteria contained in the most current NELAC FoPT tables.

ERA's DMR-QA-29 study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes met the acceptance criteria contained in the USEPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, and the criteria contained in the most current NELAC FoPT tables.

The data submitted by participating laboratories was also examined for study anomalies. There were three anomalies observed during the statistical review of the data. If your laboratory received the Solids Concentrate sample, catalog #4030, the Inland Silverside (Test Code 44), catalog #WET018, or the Inland Silverside (Test Code 45) sample, catalog #WET013, these anomalies are addressed on the following page.

ERA's DMR-QA 29 study reports shall not be reproduced except in their entirety and not without the permission of the participating laboratories. The report must not be used by the participating laboratories to claim product endorsement by any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's DMRQA Proficiency Testing program, please contact Shawn Kassner, Proficiency Testing Manager, or Curtis Wood, Director of Regulatory Affairs and Business Development, at 1-800-372-0122.

ACCREDITED

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A Waters Company

Study: **DMRQA-29**

NPDES Permit #: **TN0026450**

Laboratory Name: **TVA - Sequoyah Nuclear Plant**

Inorganic Results

ACCREDITED

DMRQA-29 Final Complete Report

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P.O. Box 2000
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Soddy-Daisy, TN 37384-2000
423-843-6700

ERA Customer Number: T203302
Report Issued: 09/20/09
Study Dates: 05/04/09 - 08/31/09

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Minerals								
Alkalinity as CaCO3	Acceptable	34.7	36.1	30.5 - 42.5	mg/L	EPA 310.1	TN00003	WP174
Alkalinity as CaCO3	Acceptable	32.6	36.1	30.5 - 42.5	mg/L	EPA 310.2	TN00003	WP174
Alkalinity as CaCO3	Acceptable	34.7	36.1	30.5 - 42.5	mg/L	SM2320B	TN00003	WP174
Chloride	Acceptable	118.	116	99.8 - 132	mg/L	EPA 300.0	TN00003	WP174
Chloride	Acceptable	118.	116	99.8 - 132	mg/L	EPA 300.1	TN00003	WP174
Chloride	Acceptable	118.	116	99.8 - 132	mg/L	EPA 9056	TN00003	WP174
Chloride	Acceptable	118.	116	99.8 - 132	mg/L	EPA 9056A	TN00003	WP174
Chloride	Acceptable	118.	116	99.8 - 132	mg/L	SM 4110B	TN00003	WP174
Conductivity at 25°C	Acceptable	511.	508	457 - 559	µmhos/cm	EPA 120.1	TN00003	WP174
Conductivity at 25°C	Acceptable	511.	508	457 - 559	µmhos/cm	EPA 120.1	TN00003	WP174
Conductivity at 25°C	Acceptable	511.	508	457 - 559	µmhos/cm	SM2510B	TN00003	WP174
Fluoride	Acceptable	3.24	3.45	2.90 - 4.01	mg/L	EPA 300.0	TN00003	WP174
Fluoride	Acceptable	3.24	3.45	2.90 - 4.01	mg/L	EPA 300.1	TN00003	WP174
Fluoride	Acceptable	3.24	3.45	2.90 - 4.01	mg/L	EPA 9056	TN00003	WP174
Fluoride	Acceptable	3.24	3.45	2.90 - 4.01	mg/L	EPA 9056A	TN00003	WP174
Fluoride	Acceptable	3.24	3.45	2.90 - 4.01	mg/L	SM 4110B	TN00003	WP174
Potassium	Acceptable	17.8	17.9	14.6 - 21.4	mg/L	EPA 200.7	TN00003	WP174
Potassium	Acceptable	17.2	17.9	14.6 - 21.4	mg/L	EPA 6010B	TN00003	WP174
Potassium	Acceptable	17.2	17.9	14.6 - 21.4	mg/L	EPA 6010C	TN00003	WP174
Sodium	Acceptable	89.6	90.0	76.4 - 103	mg/L	EPA 200.7	TN00003	WP174
Sodium	Acceptable	85.6	90.0	76.4 - 103	mg/L	EPA 6010B	TN00003	WP174
Sodium	Acceptable	85.6	90.0	76.4 - 103	mg/L	EPA 6010C	TN00003	WP174
Sulfate	Acceptable	12.1	13.3	9.89 - 16.4	mg/L	EPA 300.0	TN00003	WP174
Sulfate	Acceptable	12.1	13.3	9.89 - 16.4	mg/L	EPA 300.1	TN00003	WP174
Sulfate	Acceptable	12.1	13.3	9.89 - 16.4	mg/L	EPA 9056	TN00003	WP174
Sulfate	Acceptable	12.1	13.3	9.89 - 16.4	mg/L	EPA 9056A	TN00003	WP174
Sulfate	Acceptable	12.1	13.3	9.89 - 16.4	mg/L	SM 4110B	TN00003	WP174
Total Dissolved Solids at 180°C	Acceptable	308.	290	217 - 363	mg/L	EPA 160.1	TN00003	WP174
Total Dissolved Solids at 180°C	Acceptable	308.	290	217 - 363	mg/L	SM2540C	TN00003	WP174
Total Solids at 105°C	Acceptable	337.	302	262 - 338	mg/L	EPA 160.3	TN00003	WP174
Total Solids at 105°C	Acceptable	337.	302	262 - 338	mg/L	SM 2540G	TN00003	WP174
Total Solids at 105°C	Acceptable	337.	302	262 - 338	mg/L	SM2540B	TN00003	WP174

ACCREDITED
All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

DMRQA-29 Final Complete Report

ERA
A Waters Company

NPDES Permit #: TN0026450
Permit Holder: Stephanie A Howard
Principal Environmental Engineer
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: SB-2A-SQN
Soddy-Daisy, TN 37384-2000
423-843-6700

ERA Customer Number: T203302
Report Issued: 09/20/09
Study Dates: 05/04/09 - 08/31/09

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Hardness								
Non-Filterable Residue (TSS)	Not Acceptable	65.0	43.3	32.8 - 50.1	mg/L	EPA 160.2	TN00003	WP174
Non-Filterable Residue (TSS)	Not Acceptable	65.0	43.3	32.8 - 50.1	mg/L	SM2540D	TN00003	WP174
Calcium	Acceptable	64.5	66.0	59.0 - 74.8	mg/L	EPA 200.7	TN00003	WP174
Calcium	Acceptable	64.3	66.0	59.0 - 74.8	mg/L	EPA 6010B	TN00003	WP174
Calcium	Acceptable	64.3	66.0	59.0 - 74.8	mg/L	EPA 6010C	TN00003	WP174
Magnesium	Acceptable	21.7	21.7	18.6 - 24.9	mg/L	EPA 200.7	TN00003	WP174
Magnesium	Acceptable	22.2	21.7	18.6 - 24.9	mg/L	EPA 6010B	TN00003	WP174
Magnesium	Acceptable	22.2	21.7	18.6 - 24.9	mg/L	EPA 6010C	TN00003	WP174
Calcium Hardness as CaCO3	Acceptable	161.	165	148 - 187	mg/L	EPA 200.7	TN00003	WP174
Calcium Hardness as CaCO3	Acceptable	160.	165	148 - 187	mg/L	EPA 6010B	TN00003	WP174
Calcium Hardness as CaCO3	Acceptable	160.	165	148 - 187	mg/L	EPA 6010C	TN00003	WP174
Calcium Hardness as CaCO3	Acceptable	161.	165	148 - 187	mg/L	SM2340B	TN00003	WP174
Total Hardness as CaCO3	Acceptable	255.	254	224 - 289	mg/L	EPA 130.1	TN00003	WP174
Total Hardness as CaCO3	Acceptable	250.	254	224 - 289	mg/L	EPA 200.7	TN00003	WP174
Total Hardness as CaCO3	Acceptable	252.	254	224 - 289	mg/L	EPA 6010B	TN00003	WP174
Total Hardness as CaCO3	Acceptable	252.	254	224 - 289	mg/L	EPA 6010C	TN00003	WP174
Total Hardness as CaCO3	Acceptable	250.	254	224 - 289	mg/L	SM2340B	TN00003	WP174
Total Hardness as CaCO3	Acceptable	256.	254	224 - 289	mg/L	SM2340C	TN00003	WP174
pH								
pH	Acceptable	7.59	7.53	7.33 - 7.73	S.U.	EPA 150.1	TN00003	WP174
pH	Acceptable	7.59	7.53	7.33 - 7.73	S.U.	EPA 9040B	TN00003	WP174
pH	Acceptable	7.59	7.53	7.33 - 7.73	S.U.	SM4500H+ B	TN00003	WP174
pH	Acceptable	8.51	8.53	8.33 - 8.73	S.U.	SM4500H+ B	TN00999	DMRQA29
Settleable Solids								
Settleable Solids	Acceptable	35.0	36.0	28.7 - 46.1	mL/L	EPA 160.5	TN00003	WP174
Settleable Solids	Acceptable	35.0	36.0	28.7 - 46.1	mL/L	SM2540F	TN00003	WP174
Simple Nutrients								
Ammonia as N	Acceptable	11.3	11.0	8.15 - 13.7	mg/L	EPA 350.1	TN00003	WP174
Ammonia as N	Acceptable	11.3	11.0	8.15 - 13.7	mg/L	SM4500NH3 G	TN00003	WP174
Nitrate + Nitrite as N	Acceptable	11.7	13.5	11.0 - 15.7	mg/L	EPA 353.2	TN00003	WP174
Nitrate + Nitrite as N	Acceptable	11.7	13.5	11.0 - 15.7	mg/L	SM4500NO3- F	TN00003	WP174
Nitrate as N	Acceptable	13.7	13.5	10.5 - 16.3	mg/L	EPA 300.0	TN00003	WP174
Nitrate as N	Acceptable	13.7	13.5	10.5 - 16.3	mg/L	EPA 300.1	TN00003	WP174
Nitrate as N	Acceptable	13.7	13.5	10.5 - 16.3	mg/L	EPA 9056	TN00003	WP174
Nitrate as N	Acceptable	13.7	13.5	10.5 - 16.3	mg/L	EPA 9056A	TN00003	WP174
Nitrate as N	Acceptable	13.7	13.5	10.5 - 16.3	mg/L	SM 4110B	TN00003	WP174
ortho-Phosphate as P	Acceptable	2.2	2.10	1.69 - 2.53	mg/L	EPA 365.2	TN00003	WP174
ortho-Phosphate as P	Acceptable	2.2	2.10	1.69 - 2.53	mg/L	SM4500P E	TN00003	WP174

A2LA ACCREDITED
All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

DMRQA-29 Final Complete Report

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ERA Customer Number: T203302
Report Issued: 09/20/09
Study Dates: 05/04/09 - 08/31/09

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Complex Nutrients								
Total Kjeldahl Nitrogen	Acceptable	9.16	9.03	6.03 - 11.8	mg/L	EPA 351.2	TN00003	WP174
Total Kjeldahl Nitrogen	Acceptable	9.16	9.03	6.03 - 11.8	mg/L	SM4500Norg C	TN00003	WP174
Total phosphorus as P	Acceptable	2.38	2.08	1.66 - 2.55	mg/L	EPA 365.1	TN00003	WP174
Total phosphorus as P	Acceptable	2.38	2.08	1.66 - 2.55	mg/L	EPA 365.2	TN00003	WP174
Total phosphorus as P	Acceptable	2.38	2.08	1.66 - 2.55	mg/L	EPA 365.3	TN00003	WP174
Total phosphorus as P	Acceptable	2.38	2.08	1.66 - 2.55	mg/L	SM4500P E	TN00003	WP174
Total phosphorus as P	Acceptable	2.38	2.08	1.66 - 2.55	mg/L	SM4500P F	TN00003	WP174
Nitrite								
Nitrite as N	Acceptable	1.44	1.41	1.16 - 1.65	mg/L	EPA 300.0	TN00003	WP174
Nitrite as N	Acceptable	1.44	1.41	1.16 - 1.65	mg/L	EPA 300.1	TN00003	WP174
Nitrite as N	Acceptable	1.44	1.41	1.16 - 1.65	mg/L	EPA 9056	TN00003	WP174
Nitrite as N	Acceptable	1.44	1.41	1.16 - 1.65	mg/L	EPA 9056A	TN00003	WP174
Nitrite as N	Acceptable	1.44	1.41	1.16 - 1.65	mg/L	SM 4110B	TN00003	WP174
Demand								
BOD	Acceptable	68.	70.2	35.4 - 105	mg/L	EPA 405.1	TN00003	WP174
BOD	Acceptable	68.	70.2	35.4 - 105	mg/L	SM5210B	TN00003	WP174
CBOD	Acceptable	63.	60.5	27.1 - 93.9	mg/L	SM5210B	TN00003	WP174
COD	Acceptable	113.	113	84.7 - 131	mg/L	EPA 410.4	TN00003	WP174
COD	Acceptable	113.	113	84.7 - 131	mg/L	SM5220D	TN00003	WP174
TOC	Acceptable	49.2	44.7	37.3 - 51.6	mg/L	EPA 415.1	TN00003	WP174
TOC	Acceptable	49.2	44.7	37.3 - 51.6	mg/L	EPA 9060	TN00003	WP174
TOC	Acceptable	49.2	44.7	37.3 - 51.6	mg/L	EPA 9060A	TN00003	WP174
TOC	Acceptable	49.2	44.7	37.3 - 51.6	mg/L	SM5310B	TN00003	WP174
TOC	Acceptable	49.2	44.7	37.3 - 51.6	mg/L	SM5310C	TN00003	WP174
Oil & Grease								
Oil & Grease (Gravimetric)	Acceptable	39.	32.0	18.2 - 41.1	mg/L	EPA 1664A SepF	TN00003	WP174
Oil & Grease (Gravimetric)	Acceptable	38.	32.0	18.2 - 41.1	mg/L	EPA 1664A SPE	TN00003	WP174
Oil & Grease (Gravimetric)	Acceptable	39.	32.0	18.2 - 41.1	mg/L	EPA 9070A SepF	TN00003	WP174
Oil & Grease (Gravimetric)	Acceptable	38.	32.0	18.2 - 41.1	mg/L	EPA 9070A SPE	TN00003	WP174
Oil & Grease (Gravimetric)	Acceptable	39.	32.0	18.2 - 41.1	mg/L	SM 5520B	TN00003	WP174

A2LA ACCREDITED
All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Trace Metals								
Aluminum	Acceptable	419.	355	265 - 448	µg/L	EPA 200.7	TN00003	WP174
Aluminum	Acceptable	375.	355	265 - 448	µg/L	EPA 6010B	TN00003	WP174
Aluminum	Acceptable	375.	355	265 - 448	µg/L	EPA 6010C	TN00003	WP174
Antimony	Acceptable	216.	208	138 - 254	µg/L	EPA 200.7	TN00003	WP174
Antimony	Acceptable	202.	208	138 - 254	µg/L	EPA 200.8	TN00003	WP174
Antimony	Acceptable	203.	208	138 - 254	µg/L	EPA 6010B	TN00003	WP174
Antimony	Acceptable	203.	208	138 - 254	µg/L	EPA 6010C	TN00003	WP174
Antimony	Acceptable	197.	208	138 - 254	µg/L	EPA 6020	TN00003	WP174
Antimony	Acceptable	197.	208	138 - 254	µg/L	EPA 6020A	TN00003	WP174
Arsenic	Acceptable	708.	723	608 - 846	µg/L	EPA 200.7	TN00003	WP174
Arsenic	Acceptable	745.	723	608 - 846	µg/L	EPA 200.8	TN00003	WP174
Arsenic	Acceptable	688.	723	608 - 846	µg/L	EPA 6010B	TN00003	WP174
Arsenic	Acceptable	688.	723	608 - 846	µg/L	EPA 6010C	TN00003	WP174
Arsenic	Acceptable	699.	723	608 - 846	µg/L	EPA 6020	TN00003	WP174
Arsenic	Acceptable	699.	723	608 - 846	µg/L	EPA 6020A	TN00003	WP174
Barium	Acceptable	150.	145	125 - 163	µg/L	EPA 200.7	TN00003	WP174
Barium	Acceptable	157.	145	125 - 163	µg/L	EPA 200.8	TN00003	WP174
Barium	Acceptable	150.	145	125 - 163	µg/L	EPA 6010B	TN00003	WP174
Barium	Acceptable	150.	145	125 - 163	µg/L	EPA 6010C	TN00003	WP174
Barium	Acceptable	143.	145	125 - 163	µg/L	EPA 6020	TN00003	WP174
Barium	Acceptable	143.	145	125 - 163	µg/L	EPA 6020A	TN00003	WP174
Beryllium	Acceptable	463.	466	396 - 526	µg/L	EPA 200.7	TN00003	WP174
Beryllium	Acceptable	470.	466	396 - 526	µg/L	EPA 200.8	TN00003	WP174
Beryllium	Acceptable	453.	466	396 - 526	µg/L	EPA 6010B	TN00003	WP174
Beryllium	Acceptable	453.	466	396 - 526	µg/L	EPA 6010C	TN00003	WP174
Beryllium	Acceptable	493.	466	396 - 526	µg/L	EPA 6020	TN00003	WP174
Beryllium	Acceptable	493.	466	396 - 526	µg/L	EPA 6020A	TN00003	WP174
Boron	Acceptable	804.	836	694 - 975	µg/L	EPA 200.7	TN00003	WP174
Boron	Acceptable	826.	836	694 - 975	µg/L	EPA 6010B	TN00003	WP174
Boron	Acceptable	826.	836	694 - 975	µg/L	EPA 6010C	TN00003	WP174
Cadmium	Acceptable	602.	613	523 - 696	µg/L	EPA 200.7	TN00003	WP174
Cadmium	Acceptable	618.	613	523 - 696	µg/L	EPA 200.8	TN00003	WP174

A2LA ACCREDITED
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Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Trace Metals (Continued)								
Cadmium	Acceptable	620.	613	523 - 696	µg/L	EPA 6010B	TN00003	WP174
Cadmium	Acceptable	620.	613	523 - 696	µg/L	EPA 6010C	TN00003	WP174
Cadmium	Acceptable	590.	613	523 - 696	µg/L	EPA 6020	TN00003	WP174
Cadmium	Acceptable	590.	613	523 - 696	µg/L	EPA 6020A	TN00003	WP174
Chromium	Acceptable	968.	947	826 - 1070	µg/L	EPA 200.7	TN00003	WP174
Chromium	Acceptable	944.	947	826 - 1070	µg/L	EPA 200.8	TN00003	WP174
Chromium	Acceptable	971.	947	826 - 1070	µg/L	EPA 6010B	TN00003	WP174
Chromium	Acceptable	971.	947	826 - 1070	µg/L	EPA 6010C	TN00003	WP174
Chromium	Acceptable	926.	947	826 - 1070	µg/L	EPA 6020	TN00003	WP174
Chromium	Acceptable	926.	947	826 - 1070	µg/L	EPA 6020A	TN00003	WP174
Cobalt	Acceptable	802.	787	692 - 882	µg/L	EPA 200.7	TN00003	WP174
Cobalt	Acceptable	792.	787	692 - 882	µg/L	EPA 200.8	TN00003	WP174
Cobalt	Acceptable	848.	787	692 - 882	µg/L	EPA 6010B	TN00003	WP174
Cobalt	Acceptable	848.	787	692 - 882	µg/L	EPA 6010C	TN00003	WP174
Cobalt	Acceptable	778.	787	692 - 882	µg/L	EPA 6020	TN00003	WP174
Cobalt	Acceptable	778.	787	692 - 882	µg/L	EPA 6020A	TN00003	WP174
Copper	Acceptable	275.	262	236 - 290	µg/L	EPA 200.7	TN00003	WP174
Copper	Acceptable	275.	262	236 - 290	µg/L	EPA 200.8	TN00003	WP174
Copper	Acceptable	265.	262	236 - 290	µg/L	EPA 6010B	TN00003	WP174
Copper	Acceptable	265.	262	236 - 290	µg/L	EPA 6010C	TN00003	WP174
Copper	Acceptable	265.	262	236 - 290	µg/L	EPA 6020	TN00003	WP174
Copper	Acceptable	265.	262	236 - 290	µg/L	EPA 6020A	TN00003	WP174
Iron	Acceptable	1490.	1440	1270 - 1620	µg/L	EPA 200.7	TN00003	WP174
Iron	Acceptable	1500.	1440	1270 - 1620	µg/L	EPA 6010B	TN00003	WP174
Iron	Acceptable	1500.	1440	1270 - 1620	µg/L	EPA 6010C	TN00003	WP174
Lead	Acceptable	612.	594	518 - 668	µg/L	EPA 200.7	TN00003	WP174
Lead	Acceptable	587.	594	518 - 668	µg/L	EPA 200.8	TN00003	WP174
Lead	Acceptable	598.	594	518 - 668	µg/L	EPA 6010B	TN00003	WP174
Lead	Acceptable	598.	594	518 - 668	µg/L	EPA 6010C	TN00003	WP174
Lead	Acceptable	565.	594	518 - 668	µg/L	EPA 6020	TN00003	WP174
Lead	Acceptable	565.	594	518 - 668	µg/L	EPA 6020A	TN00003	WP174
Manganese	Acceptable	1134.	1100	988 - 1220	µg/L	EPA 200.7	TN00003	WP174

ACCREDITED
All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

DMRQA-29 Final Complete Report

ERA
A Waters Company

NPDES Permit #: TN0026450
Permit Holder: Stephanie A Howard
Principal Environmental Engineer
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: SB-2A-SQN
Soddy-Daisy, TN 37384-2000
423-843-6700

ERA Customer Number: T203302
Report Issued: 09/20/09
Study Dates: 05/04/09 - 08/31/09

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Trace Metals (Continued)								
Manganese	Acceptable	1100.	1100	988 - 1220	µg/L	EPA 200.8	TN00003	WP174
Manganese	Acceptable	1130.	1100	988 - 1220	µg/L	EPA 6010B	TN00003	WP174
Manganese	Acceptable	1130.	1100	988 - 1220	µg/L	EPA 6010C	TN00003	WP174
Manganese	Acceptable	1120.	1100	988 - 1220	µg/L	EPA 6020	TN00003	WP174
Manganese	Acceptable	1120.	1100	988 - 1220	µg/L	EPA 6020A	TN00003	WP174
Molybdenum	Acceptable	195.	193	160 - 224	µg/L	EPA 200.7	TN00003	WP174
Molybdenum	Acceptable	199.	193	160 - 224	µg/L	EPA 200.8	TN00003	WP174
Molybdenum	Acceptable	190.	193	160 - 224	µg/L	EPA 6010B	TN00003	WP174
Molybdenum	Acceptable	190.	193	160 - 224	µg/L	EPA 6010C	TN00003	WP174
Molybdenum	Acceptable	197.	193	160 - 224	µg/L	EPA 6020	TN00003	WP174
Molybdenum	Acceptable	197.	193	160 - 224	µg/L	EPA 6020A	TN00003	WP174
Nickel	Acceptable	386.	371	331 - 417	µg/L	EPA 200.7	TN00003	WP174
Nickel	Acceptable	391.	371	331 - 417	µg/L	EPA 200.8	TN00003	WP174
Nickel	Acceptable	378.	371	331 - 417	µg/L	EPA 6010B	TN00003	WP174
Nickel	Acceptable	378.	371	331 - 417	µg/L	EPA 6010C	TN00003	WP174
Nickel	Acceptable	376.	371	331 - 417	µg/L	EPA 6020	TN00003	WP174
Nickel	Acceptable	376.	371	331 - 417	µg/L	EPA 6020A	TN00003	WP174
Selenium	Acceptable	1131.	1150	915 - 1330	µg/L	EPA 200.7	TN00003	WP174
Selenium	Acceptable	1100.	1150	915 - 1330	µg/L	EPA 200.8	TN00003	WP174
Selenium	Acceptable	1030.	1150	915 - 1330	µg/L	EPA 6010B	TN00003	WP174
Selenium	Acceptable	1030.	1150	915 - 1330	µg/L	EPA 6010C	TN00003	WP174
Selenium	Acceptable	1070.	1150	915 - 1330	µg/L	EPA 6020	TN00003	WP174
Selenium	Acceptable	1070.	1150	915 - 1330	µg/L	EPA 6020A	TN00003	WP174
Silver	Acceptable	155.	156	133 - 179	µg/L	EPA 200.7	TN00003	WP174
Silver	Acceptable	161.	156	133 - 179	µg/L	EPA 200.8	TN00003	WP174
Silver	Acceptable	150.	156	133 - 179	µg/L	EPA 6010B	TN00003	WP174
Silver	Acceptable	150.	156	133 - 179	µg/L	EPA 6010C	TN00003	WP174
Silver	Acceptable	150.	156	133 - 179	µg/L	EPA 6020	TN00003	WP174
Silver	Acceptable	150.	156	133 - 179	µg/L	EPA 6020A	TN00003	WP174
Strontium	Acceptable	124.	131	112 - 150	µg/L	EPA 200.7	TN00003	WP174
Strontium	Acceptable	117.	131	112 - 150	µg/L	EPA 6010B	TN00003	WP174
Strontium	Acceptable	117.	131	112 - 150	µg/L	EPA 6010C	TN00003	WP174

A2LA ACCREDITED
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DMRQA-29 Final Complete Report

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423-843-6700

ERA Customer Number: T203302
Report Issued: 09/20/09
Study Dates: 05/04/09 - 08/31/09

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Trace Metals (Continued)								
Thallium	Acceptable	700.	711	583 - 846	µg/L	EPA 200.7	TN00003	WP174
Thallium	Acceptable	707.	711	583 - 846	µg/L	EPA 200.8	TN00003	WP174
Thallium	Acceptable	689.	711	583 - 846	µg/L	EPA 6010B	TN00003	WP174
Thallium	Acceptable	689.	711	583 - 846	µg/L	EPA 6010C	TN00003	WP174
Thallium	Acceptable	683.	711	583 - 846	µg/L	EPA 6020	TN00003	WP174
Thallium	Acceptable	683.	711	583 - 846	µg/L	EPA 6020A	TN00003	WP174
Vanadium	Acceptable	959.	961	842 - 1070	µg/L	EPA 200.7	TN00003	WP174
Vanadium	Acceptable	963.	961	842 - 1070	µg/L	EPA 200.8	TN00003	WP174
Vanadium	Acceptable	955.	961	842 - 1070	µg/L	EPA 6010B	TN00003	WP174
Vanadium	Acceptable	955.	961	842 - 1070	µg/L	EPA 6010C	TN00003	WP174
Vanadium	Acceptable	913.	961	842 - 1070	µg/L	EPA 6020	TN00003	WP174
Vanadium	Acceptable	913.	961	842 - 1070	µg/L	EPA 6020A	TN00003	WP174
Zinc	Acceptable	587.	619	531 - 713	µg/L	EPA 200.7	TN00003	WP174
Zinc	Acceptable	591.	619	531 - 713	µg/L	EPA 200.8	TN00003	WP174
Zinc	Acceptable	591.	619	531 - 713	µg/L	EPA 6010B	TN00003	WP174
Zinc	Acceptable	591.	619	531 - 713	µg/L	EPA 6010C	TN00003	WP174
Zinc	Acceptable	641.	619	531 - 713	µg/L	EPA 6020	TN00003	WP174
Zinc	Acceptable	641.	619	531 - 713	µg/L	EPA 6020A	TN00003	WP174
Mercury								
Mercury	Acceptable	17.3	13.7	8.43 - 18.5	µg/L	EPA 245.1	TN00003	WP174
Mercury	Acceptable	17.2	13.7	8.43 - 18.5	µg/L	EPA 7470A	TN00003	WP174
Hexavalent Chromium								
Hexavalent Chromium	Acceptable	392.	386	312 - 455	µg/L	EPA 218.6	TN00003	WP174
Hexavalent Chromium	Acceptable	376.	386	312 - 455	µg/L	EPA 7196A	TN00003	WP174
Hexavalent Chromium	Acceptable	392.	386	312 - 455	µg/L	EPA 7199	TN00003	WP174
Hexavalent Chromium	Acceptable	392.	386	312 - 455	µg/L	SM3500Cr C	TN00003	WP174
Hexavalent Chromium	Acceptable	376.	386	312 - 455	µg/L	SM3500Cr D	TN00003	WP174
Hexavalent Chromium	Acceptable	392.	386	312 - 455	µg/L	SM3500Cr E	TN00003	WP174
Hexavalent Chromium	Acceptable	376.	386	312 - 455	µg/L	SM3500CrB 20th	TN00003	WP174
Turbidity								
Turbidity	Acceptable	8.30	8.24	6.93 - 9.37	NTU	EPA 180.1	TN00003	WP174
Turbidity	Acceptable	8.30	8.24	6.93 - 9.37	NTU	SM2130B	TN00003	WP174
Total Cyanide								
Cyanide, total	Acceptable	0.846	0.719	0.450 - 0.988	mg/L	EPA 335.4	TN00003	WP174
Cyanide, total	Acceptable	0.846	0.719	0.450 - 0.988	mg/L	EPA 9012B	TN00003	WP174
Cyanide, total	Acceptable	0.846	0.719	0.450 - 0.988	mg/L	EPA335.2(CLP-M)	TN00003	WP174
Cyanide, total	Acceptable	0.846	0.719	0.450 - 0.988	mg/L	SM4500CN E	TN00003	WP174

A2LA ACCREDITED
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DMRQA-29 Final Complete Report

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423-843-6700

ERA Customer Number: T203302
Report Issued: 09/20/09
Study Dates: 05/04/09 - 08/31/09

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Total Phenolics (4-AAP)								
Phenolics, total	Acceptable	2.08	1.78	0.985 - 2.58	mg/L	EPA 420.1/420.4	TN00003	WP174
Phenolics, total	Acceptable	2.08	1.78	0.985 - 2.58	mg/L	EPA 420.2	TN00003	WP174
Phenolics, total	Acceptable	2.08	1.78	0.985 - 2.58	mg/L	EPA 9066	TN00003	WP174
Phenolics, total	Acceptable	2.08	1.78	0.985 - 2.58	mg/L	SM5530D	TN00003	WP174
Total Residual Chlorine								
Total Residual Chlorine	Acceptable	0.85	0.922	0.665 - 1.15	mg/L	EPA 330.5	TN00003	WP174
Total Residual Chlorine	Acceptable	0.85	0.922	0.665 - 1.15	mg/L	SM4500Cl G	TN00003	WP174
Total Residual Chlorine	Not Acceptable	1.30	1.99	1.43 - 2.46	mg/L	SM4500Cl G	TN00999	DMRQA29

ACCREDITED
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ERA

A Waters Company

Study: **DMRQA-29**

NPDES Permit #: **TN0026450**

Laboratory Name: **TVA - Sequoyah Nuclear Plant**

Microbiology Results

ACCREDITED

DMRQA-29 Final Complete Report

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Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
WasteWatR™ Coliform MicrobE™								
Total Coliforms (MF)	Acceptable	230.	402	153 - 1050	CFU/100mL	SM9222B	TN00003	WP174
Fecal Coliforms (MF)	Acceptable	170.	180	28.0 - 1170	CFU/100mL	SM9222D	TN00003	WP174
Fecal Coliforms (MPN)	Acceptable	500.	406	70.1 - 2350	MPN/100mL	SM 9221C	TN00003	WP174
Fecal Coliforms (MPN)	Acceptable	500.	406	70.1 - 2350	MPN/100mL	SM9221E	TN00003	WP174

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ERA

A Waters Company

Study: **DMRQA-29**

NPDES Permit #: **TN0026450**

Laboratory Name: **TVA - Sequoyah Nuclear Plant**

WET Results

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DMRQA-29 Final Complete Report

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Test End Point	Performance Evaluation	Reported Value %	Assigned Value %	Acceptance Limits %	Method Description	USEPA Lab Code	Study
Fathead minnow (Test Code 14)							
48Hr., Acute, Non-Renewal, 25° C, 20% DMW							
Potassium chloride							
LC50	Acceptable	46.7	52.5	26.0 - 79.0	EPA 2000	TN00003	DMRQA29
Fathead minnow (Test Code 15)							
7-day Short term Chronic, Daily Renewal, MHSF							
Ammonium phosphate dibasic							
IC25 (ON) Growth	Acceptable	51.0	45.0	15.1 - 74.8	EPA 1000	NC01230	DMRQA29
Fathead minnow (Test Code 16)							
7-day Short term Chronic, Daily Renewal, 20% DMW							
Potassium chloride							
IC25 (ON) Growth	Acceptable	29.3	36.3	12.4 - 60.1	EPA 1000	TN00003	DMRQA29
NOEC (ON) Growth	Acceptable	25.0	25.0	12.5 - 50.0	EPA 1000	TN00003	DMRQA29
NOEC Survival	Acceptable	25.0	25.0	12.5 - 50.0	EPA 1000	TN00003	DMRQA29
Ceriodaphnia dubia (Test Code 20)							
48Hr., Acute Renewal, 25° C, 20% DMW							
Potassium chloride							
LC50	Acceptable	17.7	28.1	< 6.25 - 61.3	EPA 2002	TN00003	DMRQA29
Ceriodaphnia dubia (Test Code 21)							
7-day Short term Chronic, Daily Renewal, MHSF							
Potassium chloride							
IC25 Reproduction	Acceptable	31.4	30.2	12.4 - 48.1	EPA 1002	NC01230	DMRQA29
Ceriodaphnia dubia (Test Code 22)							
7-day Short term Chronic, Daily Renewal, 20% DMW							
Potassium chloride							
IC25 Reproduction	Acceptable	19.9	16.3	< 6.25 - 26.9	EPA 1002	TN00003	DMRQA29
NOEC Reproduction	Acceptable	12.5	12.5	6.25 - 25.0	EPA 1002	TN00003	DMRQA29
NOEC Survival	Acceptable	12.5	12.5	6.25 - 25.0	EPA 1002	TN00003	DMRQA29

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