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

August 11, 2011

Ms. Dana Waits
State of Tennessee
Department of Environment and Conservation
Division of Water Pollution Control
6th Floor, L&C Annex
401 Church Street
Nashville, Tennessee 37243-1534

Dear Ms. Waits:

2011 DISCHARGE MONITORING REPORT – QUALITY ASSURANCE (DMR-QA) STUDY 31 PROVIDER-GRADED TEST RESULTS FINAL REPORT

Please find enclosed the provider-graded test results of the 2011 DMR-QA Study 31 Laboratory Performance Evaluation obtained by TVA Sequoyah Nuclear Plant (SQN) and supporting Laboratories as required by NPDES Permit TN0026450.

If you have any questions or need additional information, please contact Brad Love at (423) 843-6714 or Stephanie Howard at (423) 843-6700 of Sequoyah's Environmental staff.

Sincerely,

John T. Carlin
Site Vice President
Sequoyah Nuclear Plant

Enclosure
cc (Enclosure):
Chattanooga Environmental Field Office
Division of Water Pollution Control
State Office Building, Suite 550
540 McCallie Avenue
Chattanooga, Tennessee 37402-2013

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

IE25
NRR

USEPA
DMR-QA 31

NPDES PERMITTEE DATA REPORT FORM

ERA
A Waters Company

USEPA NPDES Permit #: TN0026450

Permit Ext:

Permittee Name: TVA - Sequoyah Nuclear Plant

Facility Address: P.O. Box 2000

Mailstop: OPS-4A-SQN

City: Soddy-Daisy State: TN Postal Code: 37384-2000

Phone Number: 423-843-7001 Fax Number:

E-mail address: jtcarlin@tva.gov

For DMR-QA Study 31, conducted in 2011, the Permittee ensured that their laboratory(s) performing the required analyses:

Received PT Samples	Submitted Complete and Accurate Data by July 1, 2011	Received a Graded Report by July 22, 2011
Yes [X] No [ ]	Yes [X] No [ ]	Yes [ ] No [X]

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

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 rountinely 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 from independent analyses conducted by us or any other laboratory before we reported our results to the USEPA. 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: John T. Carlin

Title: Sequoyah Site Vice President

Signature:

Date Signed: 8 / 11 / 2011

Mailing Address: P.O. Box 2000

(enter only if different from address above)

Mailstop: OPS-4A-SQN

City: Soddy-Daisy State: TN Postal Code: 37384-2000

Phone Number: 423-843-7001 E-mail address: jtcarlin@tva.gov

Please make corrections in boxes above

United States

ENVIRONMENTAL PROTECTION AGENCY

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Laboratory Performance Evaluation

Laboratory DMR-QA Evaluation Study 31

USEPA NPDES Permit #: TN0026450 **Permit Ext:**

Identification of all CHEM, MICRO and TOX 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	TOX	
Environmental Science Corp	12065 Lebanon Rd. Mt Juliet,TN 37122	TN00003	☒	☐	☐	C
Environmental Testing Solutions, Inc.	PO Box 7565 Asheville,NC 28802-7565	NC01230	☐	☐	☒	C
TVA - Sequoyah Nuclear Plant	P.O. Box 2000 Mailstop: OPS-5N-SQN Soddy-Daisy,TN 37384-2000	TN00999	☒	☐	☐	F

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

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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 31

Analyte Number	Organisms / Conditions	End Points	Test Required	Laboratory's Graded Result	
				Acceptable	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	☐	☐	☐

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A Waters Company

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

WET Organisms/Test Conditions/End Points Checklist

DMRQA Study 31

Analyte Number	Organisms / Conditions	End Points	Test Required	Laboratory's Graded Result	
				Acceptable	Not Acceptable (Corrective Action Required)
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	☐	☐	☐

JOHN T. CARLIN

Print Name

SEQUOYAH SITE VICE PRESIDENT

Signature/Title

8/11/2011

Date

Use a separate checklist for EACH lab used

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

Chemistry/Microbiology Analyte Checklist

WP Study 192

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) SM2540D Calcium Magnesium Calcium Hardness as CaCO3 Total Hardness as CaCO3	☒	☒	☐
pH pH			
Settleable Solids Settleable Solids 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 Nitrate + Nitrite as N Nitrate as N ortho-Phosphate as P			
Complex Nutrients Total Kjeldahl Nitrogen Total phosphorus as P			
Nitrite Nitrite as N			

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A Waters Company

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

Chemistry/Microbiology Analyte Checklist

WP Study 192

Analyte Test / Method	Test Required	Laboratory's Graded Result	
		Acceptable	Not Acceptable (Corrective Action Required)
Demand BOD CBOD COD TOC			
Oil & Grease Concentrate Oil & Grease (Gravimetric) EPA 1664A/SPE	☒	☒	☐
Oil & Grease Oil & Grease (Gravimetric) Oil & Grease (Infrared)			
Trace Metals Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron EPA 200.7 Lead Manganese Molybdenum Nickel Selenium Silver Strontium Thallium Vanadium Zinc	☒	☒	☐
Mercury Mercury			
Low-Level Mercury Low Level Mercury			
Hexavalent Chromium Hexavalent Chromium			
Turbidity Turbidity			

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

Chemistry/Microbiology Analyte Checklist

WP Study 192

Analyte Test / Method	Test Required	Laboratory's Graded Result	
		Acceptable	Not Acceptable (Corrective Action Required)
Total Cyanide Cyanide, total			
Total Phenolics (4-AAP) Phenolics, total			
Total Residual Chlorine Total Residual Chlorine			
Low-Level Total Residual Chlorine Low Level Total Residual Chlorine			
WasteWatR™ Coliform MicrobE™ Total Coliforms (MF) Fecal Coliforms (MF) E.coli (MF) Total Coliforms (MPN) Fecal Coliforms (MPN) E.coli (MPN)			

JOHN T. CARLIN
SEQUOYAH SITE VICE PRESIDENT
Print Name

Signature/Title

8/11/2011
Date

Use a separate checklist for EACH lab used

ERA
A Waters Company

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

Chemistry/Microbiology Analyte Checklist

DMRQA Study 31

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 USGS I-1586-85	☒	☒	☐
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			

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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 31

Analyte Test / Method	Test Required	Laboratory's Graded Result	
		Acceptable	Not Acceptable (Corrective Action Required)
Demand BOD CBOD COD TOC			
Oil & Grease Concentrate Oil & Grease (Gravimetric)			
Oil & Grease Oil & Grease (Gravimetric) Oil & Grease (Infrared)			
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			
Low-Level Mercury Low Level Mercury			
Hexavalent Chromium Hexavalent Chromium			
Turbidity Turbidity			
Total Cyanide Cyanide, total			

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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 31

Analyte Test / Method	Test Required	Laboratory's Graded Result	
		Acceptable	Not Acceptable (Corrective Action Required)
Total Phenolics (4-AAP) **Phenolics, total**			
Total Residual Chlorine **Total Residual Chlorine** SM4500Cl G	☒	☒	☐
Low-Level Total Residual Chlorine **Low Level Total Residual Chlorine**			
WasteWatR™ Coliform MicrobE™ **Total Coliforms (MF)** **Fecal Coliforms (MF)** **E.coli (MF)** **Total Coliforms (MPN)** **Fecal Coliforms (MPN)** **E.coli (MPN)**			

John T Carlin
Print Name

Signature/Title SITE VICE PRESIDENT SEQUOYAH

8/11/2011
Date

Use a separate checklist for EACH lab used

ERA
A Waters Company

John T. Carlin
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: OPS-4A-SQN
Soddy-Daisy, TN 37384-2000

DMR-QA 31 Final Report

DMR-QA Proficiency Testing

DMR-QA Study

Open Date: 03/14/11

Close Date: 07/01/11

Report Issued Date: 07/22/11

ERA

A Waters Company

August 9, 2011

John T. Carlin
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: OPS-4A-SQN
Soddy-Daisy, TN 37384-2000

Enclosed is your final report for ERA's DMR-QA 31 Proficiency Testing study. Your final report includes an evaluation of every result submitted by your facility to ERA. Please note that reports were sent on your behalf to both the USEPA DMR-QA office and your state or regional DMR-QA Coordinator.

If you have any "Not Acceptable" evaluations for the DMR-QA 31 study, a letter of corrective action and an order form for the required remedial samples are attached for your convenience. If you have a "Not Acceptable" evaluation, but there is not an order form or a list of standards for your in-house or outside laboratories, ERA recommends that you contact your DMR-QA Coordinator for their corrective action requirements, if any.

Thank you for your participation in ERA's DMR-QA 31 Proficiency Testing study. If you have any questions, please contact the proficiency testing department or me at 1-800-372-0122.

Your DMR-QA coordinator is:

Tennessee Department of Environment & Conservation
Dana Waits
Division of Water Pollution Control
401 Church Street
6th Floor, L&C Annex
Nashville, TN 37243-1534
Phone: 615-532-1171
Fax: 615-532-0686 or 0647
dana.waits@tn.gov

Sincerely,

Jay R. McBurney
Quality Program Manager

attachments
jrm

ERA

A Waters Company

DMRQA-31 Definitions & Study Discussion

Study Dates: 03/14/11 - 07/01/11

Report Issued: 07/22/11

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. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards. 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 31 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 31 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 no anomalies observed during the statistical review of the data.

ERA's DMR-QA 31 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 Jay McBurney, Quality Program Manager, or the proficiency testing department at 1-800-372-0122.

ACCREDITED

ERA
A Waters Company

Study: **DMRQA-31**

NPDES Permit #: **TN0026450**

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

Inorganic Results

ERA
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DMRQA-31 Final Complete Report

NPDES Permit #: TN0026450
Permit Holder: John T. Carlin
Sequoyah Site Vice President
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: OPS-4A-SQN
Soddy-Daisy, TN 37384-2000
423-843-7001

ERA Customer Number: T203302
Report Issued: 07/22/11
Study Dates: 03/14/11 - 07/01/11

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Hardness								
Non-Filterable Residue (TSS)	Acceptable	85.0	87.4	71.8 - 97.0	mg/L	SM2540D	TN00003	WP192
pH								
pH	Acceptable	7.62	7.65	7.45 - 7.85	S.U.	USGS I-1586-85	TN00999	DMRQA31
Settleable Solids								
Settleable Solids	Acceptable	25.0	23.0	17.8 - 29.6	mL/L	SM2540F	TN00003	WP192
Oil & Grease Concentrate								
Oil & Grease (Gravimetric)	Acceptable	76.2	90.7	63.8 - 106	mg/L	EPA 1664A/SPE	TN00003	WP192
Trace Metals								
Iron	Acceptable	601.	596	525 - 676	µg/L	EPA 200.7	TN00003	WP192
Total Residual Chlorine								
Total Residual Chlorine	Acceptable	0.87	0.898	0.648 - 1.12	mg/L	SM4500Cl G	TN00999	DMRQA31

ACCREDITED Lab Code 1539-01

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

ERA

A Waters Company

Study: **DMRQA-31**

NPDES Permit #: **TN0026450**

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

WET Results

ERA
A Waters Company

DMRQA-31 Final Complete Report

NPDES Permit #: TN0026450
Permit Holder: John T. Carlin
Sequoyah Site Vice President
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: OPS-4A-SQN
Soddy-Daisy, TN 37384-2000
423-843-7001

ERA Customer Number: T203302
Report Issued: 07/22/11
Study Dates: 03/14/11 - 07/01/11

Test End Point	Performance Evaluation	Reported Value %	Assigned Value %	Acceptance Limits %	Method Description	USEPA Lab Code	Study
Fathead minnow (Test Code 15)							
7-day Short term Chronic, Daily Renewal, MHSF							
Potassium chloride							
IC25 (ON) Growth	Acceptable	33.9	31.7	25.2 - 38.2	EPA 1000	NC01230	DMRQA31
Ceriodaphnia dubia (Test Code 21)							
7-day Short term Chronic, Daily Renewal, MHSF							
Potassium chloride							
IC25 Reproduction	Acceptable	30.3	25.2	12.2 - 38.1	EPA 1002	NC01230	DMRQA31

ACCREDITED Lab Code: 1539-01

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

CERTIFICATE OF RECOGNITION

ERA congratulates
TVA - SEQUOYAH NUCLEAR PLANT
for your participation and successful evaluation in DMRQA-31. We recognize the performance of this laboratory for achieving acceptable evaluations for the following analytes.

pH

Total Residual Chlorine

Jay R. McBurney
Quality Program Manager

T203302