



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

October 24, 2006

Mr. Mark McAdoo
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

Mr. McAdoo:

2006 DISCHARGE MONITORING REPORT – QUALITY ASSURANCE (DMR-QA) STUDY 26
PROVIDER-GRADED TEST RESULTS - FINAL REPORT

Please find enclosed the provider-graded test results of the 2006 DMR-QA Study 26 Laboratory Performance Evaluation obtained by TVA Sequoyah Nuclear Plant (SQN) and supporting Laboratories as required by NPDES Permit TN0026450.

Please contact me at (423) 843-6700 if you have any questions or comments.

Sincerely,

Stephanie A. Howard
Principal Environmental Engineer
Signatory Authority for
J. Randy Douet
Site Vice President
Sequoyah Nuclear Plant

Enclosure

cc (Enclosure)

Mr. Wayne Turnbull
EPA Region IV
SESD/MTSB/QAS
980 College Station Road
Athens, Georgia 30605-2720

Chattanooga Environmental Assistance Center
Division of Water Pollution Control
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Chattanooga, Tennessee 37402-2013

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

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The Industry Standard™

October 17, 2006

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 Proficiency Testing Study, DMR-QA 26. 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 26 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 Proficiency Testing Study, DMR-QA 26. If you have any questions, please contact myself or Curtis Wood, Quality Assurance Director, at 1-800-372-0122.

Sincerely,

A handwritten signature in black ink that reads "Shawn Kassner".

Shawn Kassner
Proficiency Testing Manager

attachments
smk



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October 17, 2006

Stephanie A. Howard
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In my role as ERA's Quality Assurance Director, I have ensured that all aspects of ERA's Proficiency Testing Study, DMR-QA 26, have been reviewed for compliance with all USEPA technical and program requirements in effect during this study.

All aspects of ERA's DMR-QA 26 Study, from standard manufacture to final report generation, were completed by ERA in accordance with the USEPA's "National Standards for Water Proficiency Testing Studies Criteria Document", December 30, 1998, and the criteria contained in the NELAC FoPT Tables, June 2005. ERA has reviewed all of the data that is contained in this report and has made every possible effort to make it complete, accurate and compliant. However, if you find anything in your report that you feel is incomplete or inaccurate or have any quality related issues, please call me directly at 1-800-372-0122. As required by ERA Standard Operating Procedure for Handling Product and Service Problems (SOP 0150, Rev.7.0), we will initiate an internal investigation and take corrective action as appropriate.

Sincerely,

Curtis J. Wood
Quality Assurance Director



ERA Study: **DMR-QA 26**

Permittee Name:

TVA - Sequoyah Nuclear Plant

NPDES Permit Number: **TN0026450**

Customer Code: **T2033-02**

Report Prepared by:
Environmental Resource Associates
Arvada, Colorado

October 17, 2006





NPDES Permit Number: TN0026450

Report Issued: 10/17/06

Study Dates: 06/02/06 - 09/01/06

DMR-QA Study Definitions:

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

The ERA Assigned Values were established per the USEPA/NELAC FoPT Tables, June 2005.

The Acceptance Limits and Warning Limits are established per the criteria contained in the USEPA/NELAC FoPT Tables, June 2005.

The Performance Evaluation:

Acceptable = Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the Acceptance Limits.

Check for Error = Reported Value falls within the Acceptance Limits and outside of the Warning Limits.

No Evaluation = Reported Value cannot be evaluated.

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

Any Performance Evaluation left blank indicates results were evaluated as 'Not Reported'.

DMR-QA Study Discussion:

ERA's DMR-QA 26 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 EPA/NELAC FoPT Tables, June 2005.

ERA's DMR-QA 26 Study standards were examined for any study anomalies. A full review of all homogeneity, stability, and accuracy verification data was completed. All analytical verification data for all analytes in ERA's DMR-QA 26 standards 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 NELAC FoPT Tables, June 2005.

The data submitted by participating laboratories was also examined for study anomalies. There were no anomalies observed during the statistical review of the study data.

The DMR-QA 26 Study report shall not be reproduced except in its entirety and not without the permission of the participating laboratory. The report must not be used by the participating laboratory to claim product endorsement by NVLAP or any agency of the U. S. government.

If you have any questions regarding ERA's DMR-QA 26 Study, please contact Shawn Kassner, Proficiency Testing Manager, or Curtis Wood, Quality Assurance Director, at 1-800-372-0122.



NPDES Permit #: TN0026450

Customer Code: T2033-02

Permit Holder: **Stephanie A. Howard**
Principal Environmental Engineer
TVA - Sequoyah Nuclear Plant
PO Box 2000
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Soddy-Daisy, TN 37384-2000
423-843-6700

Report Issued: 10/17/06
Study Dates: 06/02/06 - 09/01/06

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Units	Method Description	USEPA Lab Code	Study
pH									
pH	Acceptable	7.44	7.45	7.25 - 7.65		S.U.	EPA 150.1	TN00999	DMRQA026
Hardness									
Non-Filterable Residue (TSS)	Acceptable	49	50.9	39.6 - 58.2	42.7 - 55.1	mg/L	EPA 160.2	TN00016	DMRQA026
Complex Nutrients									
Total phosphorus as P	Acceptable	1.54	1.50	1.18 - 1.87	1.29 - 1.75	mg/L	EPA 365.4	TN00016	DMRQA026
Oil & Grease									
Oil & Grease (Gravimetric)	Acceptable	57	57.5	38.0 - 69.3	43.2 - 64.1	mg/L	EPA 1664	TN00016	DMRQA026

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Report Issued: 10/17/06
 Study Dates: 06/02/06 - 09/01/06

Analyte	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Units	Method Description	USEPA Lab Code	Study
Total Residual Chlorine									
Total Residual Chlorine	Acceptable	1.06	1.05	0.756 - 1.31	0.848 - 1.21	mg/L	EPA 330.4	TN00999	DMRQA026
Trace Metals									
Copper	Check for Error	498	463	417 - 509	434 - 494	µg/L	EPA 220.2	TN00016	DMRQA026
Iron	Acceptable	455	440	386 - 501	405 - 482	µg/L	EPA 200.7	TN00016	DMRQA026



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**Report Issued: 10/17/2006
Study Dates: 06/02/06 - 09/01/06**

Anal. Test Conditions No.	Test Endpoint	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code
Fathead minnow (Test Code 15)								
0756	7-day Short term Chronic, Daily Renewal, MHSF	NOEC Survival		25.0	12.5 - 50.0	%		
0808	7-day Short term Chronic, Daily Renewal, MHSF	IC25 (ON) Growth	Acceptable	29.5	34.9	18.4 - 51.4	%	EPA 1000.0 NC01230
0809	7-day Short term Chronic, Daily Renewal, MHSF	IC25 (SN) Growth		52.1	25.3 - 78.9	%		
0810	7-day Short term Chronic, Daily Renewal, MHSF	NOEC (ON) Growth		25.0	12.5 - 50.0	%		
0811	7-day Short term Chronic, Daily Renewal, MHSF	NOEC (SN) Growth		25.0	12.5 - 50.0	%		
Ceriodaphnia dubia (Test Code 21)								
0766	7-day Short term Chronic, Daily Renewal, MHSF	NOEC Survival		50.0	25.0 - 100	%		
0767	7-day Short term Chronic, Daily Renewal, MHSF	IC25 Reproduction	Acceptable	47.1	42.0	6.60 - 77.4	%	EPA 1002.0 NC01230
0768	7-day Short term Chronic, Daily Renewal, MHSF	NOEC Reproduction		25.0	12.5 - 50.0	%		

All analytes are included in ERA's A2LA (1539-01) accreditation.

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 Study Dates: 06/02/06 - 09/01/06

Anal. Test Conditions No.	Test Endpoint	Reference Toxicant Code	Reference Toxicant Name	Total # Reported	Total # Acceptable	Total # Not Acceptable	Total # No. Eval.	Study Failure Rate
Fathead minnow (Test Code 11)								
0752 48Hr., Acute, Non-Renewal, 20° C, MHSF	LC50	001	KCI	48	46	2	0	4.17 %
Fathead minnow (Test Code 13)								
0754 48Hr., Acute, Non-Renewal, 25° C, MHSF	LC50	001	KCI	60	57	3	0	5.00 %
Fathead minnow (Test Code 14)								
0755 48Hr., Acute, Non-Renewal, 25° C, 20% DMW	LC50	001	KCI	17	16	1	0	5.88 %
Fathead minnow (Test Code 15)								
0756 7-day Short term Chronic, Daily Renewal, MHSF	NOEC Survival	001	KCI	65	65	0	0	0.00 %
0808 7-day Short term Chronic, Daily Renewal, MHSF	IC25 (ON) Growth	001	KCI	60	55	5	0	8.33 %
0809 7-day Short term Chronic, Daily Renewal, MHSF	IC25 (SN) Growth	001	KCI	27	23	3	1	11.1 %
0810 7-day Short term Chronic, Daily Renewal, MHSF	NOEC (ON) Growth	001	KCI	62	61	1	0	1.61 %
0811 7-day Short term Chronic, Daily Renewal, MHSF	NOEC (SN) Growth	001	KCI	29	29	0	0	0.00 %

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Anal. Test Conditions No.	Test Endpoint	Reference Toxicant Code	Reference Toxicant Name	Total # Reported	Total # Acceptable	Total # Not Acceptable	Total # No. Eval.	Study Failure Rate
Fathead minnow (Test Code 16)								
0759	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC Survival	KCI	19	18	1	0	5.26 %
0812	7-day Short term Chronic, Daily Renewal, 20% DMW	IC25 (ON) Growth	KCI	18	16	2	0	11.1 %
0813	7-day Short term Chronic, Daily Renewal, 20% DMW	IC25 (SN) Growth	KCI	8	8	0	0	0.00 %
0814	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC (ON) Growth	KCI	17	15	2	0	11.8 %
0815	7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC (SN) Growth	KCI	9	8	1	0	11.1 %
Ceriodaphnia dubia (Test Code 17)								
0762	48Hr., Acute Renewal, 20° C, MHSF	LC50	KCI	11	11	0	0	0.00 %
Ceriodaphnia dubia (Test Code 18)								
0763	48Hr., Acute Renewal, 20° C, 20% DMW	LC50	KCI	6	5	1	0	16.7 %
Ceriodaphnia dubia (Test Code 19)								
0764	48Hr., Acute Renewal, 25° C, MHSF	LC50	KCI	54	52	2	0	3.70 %

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Anal. Test Conditions No.	Test Endpoint	Reference Toxicant Code	Reference Toxicant Name	Total # Reported	Total # Acceptable	Total # Not Acceptable	Total # No. Eval.	Study Failure Rate
Ceriodaphnia dubia (Test Code 20)								
0765 48Hr., Acute Renewal, 25° C, 20% DMW	LC50	001	KCI	20	17	3	0	15.0 %
Ceriodaphnia dubia (Test Code 21)								
0766 7-day Short term Chronic, Daily Renewal, MHSF	NOEC Survival	001	KCI	61	57	4	0	6.56 %
0767 7-day Short term Chronic, Daily Renewal, MHSF	IC25 Reproduction	001	KCI	61	58	3	0	4.92 %
0768 7-day Short term Chronic, Daily Renewal, MHSF	NOEC Reproduction	001	KCI	61	57	4	0	6.56 %
Ceriodaphnia dubia (Test Code 22)								
0769 7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC Survival	001	KCI	28	28	0	0	0.00 %
0770 7-day Short term Chronic, Daily Renewal, 20% DMW	IC25 Reproduction	001	KCI	30	24	6	0	20.0 %
0771 7-day Short term Chronic, Daily Renewal, 20% DMW	NOEC Reproduction	001	KCI	28	26	2	0	7.14 %
Daphnia magna (Test Code 32)								
0788 48Hr., Acute, Non-Renewal, 20° C, MHSF	LC50	001	KCI	20	20	0	0	0.00 %



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Anal. Test Conditions No.	Test Endpoint	Reference Toxicant Code	Reference Toxicant Name	Total # Reported	Total # Acceptable	Total # Not Acceptable	Total # No. Eval.	Study Failure Rate
Daphnia pulex (Test Code 36)								
0792 48Hr., Acute, Non-Renewal, 20° C, MHSF	LC50	001	KCI	13	13	0	0	0.00 %
Daphnia pulex (Test Code 38)								
0794 48Hr., Acute, Non-Renewal, 25° C, MHSF	LC50	001	KCI	20	19	1	0	5.00 %
Mysid (Test Code 42)								
0798 48Hr., Acute, Non-Renewal, 20° C, 40 FSW	LC50	001	KCI	36	30	6	0	16.7 %
Mysid (Test Code 43)								
0799 7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC Survival	001	KCI	30	30	0	0	0.00 %
0816 7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (ON) Growth	001	KCI	26	24	2	0	7.69 %
0817 7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (SN) Growth	001	KCI	14	10	4	0	28.6 %
0818 7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (ON) Growth	001	KCI	28	27	1	0	3.57 %
0819 7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (SN) Growth	001	KCI	16	14	2	0	12.5 %



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Anal. Test Conditions No.	Test Endpoint	Reference Toxicant Code	Reference Toxicant Name	Total # Reported	Total # Acceptable	Total # Not Acceptable	Total # Eval.	Study Failure Rate
Inland silverside (Test Code 44)								
0803 48Hr., Acute, Non-Renewal, 20° C, 40 FSW	LC50	003	Phenol	29	27	2	0	6.90 %
Sheepshead minnow (Test Code 46)								
0804 48Hr., Acute, Non-Renewal, 20° C, 40 FSW	LC50	001	KCl	12	9	3	0	25.0 %
Sheepshead minnow (Test Code 47)								
0805 7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC Survival	001	KCl	11	11	0	0	0.00 %
0820 7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (ON) Growth	001	KCl	9	8	1	0	11.1 %
0821 7-day Short term Chronic, Daily Renewal, 40 FSW	IC25 (SN) Growth	001	KCl	5	4	1	0	20.0 %
0822 7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (ON) Growth	001	KCl	11	11	0	0	0.00 %
0823 7-day Short term Chronic, Daily Renewal, 40 FSW	NOEC (SN) Growth	001	KCl	5	4	1	0	20.0 %