



Tennessee Valley Authority, Sequoyah Nuclear Plant, P.O. Box 2000, Soddy Daisy, TN 37384

November 14, 2024

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: **Sequoyah Nuclear Plant, Discharge Monitoring Report (DMR) Quality Assurance Study 44 Final Report 2024**

Attached is the Discharge Monitoring Report Quality Assurance Study 44 Final Report 2024 for Sequoyah Nuclear Plant.

Respectfully,

A handwritten signature in dark ink, appearing to read "T.R. Markum", is positioned above the printed name.

Travis R. Markum
Environmental Scientist

Markum, Travis R

From: Markum, Travis R
Sent: Thursday, November 14, 2024 3:37 PM
To: Barbara Loudermilk
Subject: TN0026450 - DMR-QA Study 44 Test Results
Attachments: TN0026450 - DMR-QA Study 44 Test Results.pdf

Ms. Loudermilk,

Please find attached the provider-graded test results and checklists for the 2024 DMR-QA Study 44 Laboratory Performance Evaluation. These results were obtained by TVA Sequoyah Nuclear Plant and supporting laboratories as required by NPDES Permit TN0026450. Also included are the remedial PT study for Oil & Grease and corrective action letter for lab NC00014. Let me know if you have any questions.

Travis R. Markum
Env. Scientist (Compliance)
Environmental Operations

TVA Sequoyah Nuclear Plant
PO Box 2000, OPS 5N
Soddy Daisy, TN 37384

☎: 423-843-6714
✉: trmarkum@tva.gov

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United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
DMR-QA Study 44

(This data is collected under the authority of Section 308 of the Clean Water Act.)

OMB Control No. 2080-0021
Approval expires 08/31/2026

2024

NPDES Permittee Data Report Form

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

Due September 27, 2024

NPDES Permit Number (State + 7-digit ID)

TN 0026450

Permit Extension

Permittee Name

TVA Sequoyah Nuclear Plant

Current Permittee Mailing Address

P.O. Box 2000, Mailstop - OPS 4A-SQN

City

Soddy-Daisy

State

TN

Zip Code

37384-2000

Phone Number

423-843-6714

Fax Number

E-mail Address

trmarkum@gmail.com

Optional: If WP Study was used, list PT Provider name(s):

Optional: IF WP Study was used, list WP Study Number(s):

For DMR-QA Study 44, conducted in 2024, the Permittee ensured that their laboratory(ies) performing the required analyses:

Received PT Samples

YES ☒ NO ☐

Submitted Complete and Accurate Data
by August 2, 2024

YES ☒ NO ☐

Received a Graded Report by
August 30, 2024

YES ☐ NO ☒

Each reported value was produced from a single analytical run using the analytical system that routinely performs these analyses to produce compliance monitoring data under our NPDES permit.

YES ☒ NO ☐

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 U.S. EPA.

YES ☒ NO ☐

Certification by Permit Holder or Authorized Representative

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. 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

Jeff Sowa

Title

Sr Manager, Chem/ENV

Signature

Date

11/14/24

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

Address

Phone Number

City

State

Zip Code

E-mail Address



United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
DMR-QA Study 44

(This data is collected under the authority of Section 308 of the Clean Water Act.)

OMB Control No. 2080-0021
Approval expires 08/31/2026

2024

Permittee Name

TVA Sequoyah Nuclear Plant

NPDES Permit Number (State + 7-digit ID)

TN 0 0 2 6 4 5 0

Permit Extension

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

Laboratory Name	Laboratory Address	U.S. EPA Lab Code	Lab Analysis Check box(es) that apply			Lab Type*	State-certified Lab**
			Chem	Micro	WET		
TVA-Sequoyah Nuclear Plant	P.O. Box 2000 Mailstop: OPS-5N Soddy-Daisy, TN 37384	T N 0 0 9 9 9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F	<input type="checkbox"/>
Pace Analytical - Asheville	2225 Riverside Drive Asheville, NC 28804	N C 0 0 0 3 0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C	<input type="checkbox"/>
Pace Analytical - Huntersville	9800 Kincey Avenue Suite 100 Huntersville, NC 28078	N C 0 0 0 1 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C	<input type="checkbox"/>
Environmental Testing Solutions	351 Depot Street Asheville, NC 28801	N C 0 1 2 3 0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	C	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

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

** See Footnotes 2, 3, and 4 on page 5 (Frequently Asked Questions) for the current list of states with lab accreditation programs

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



Chemistry/Microbiology Analyte Checklist

DMR-QA Study 44

2024

Analyte Test	Test Required	Method Number Used (Optional)	Laboratory's Graded Result		Analyte determined by state-certified lab*
			Acceptable	Not Acceptable (Corrective Action Required)	
Microbiology					
E. coli, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal Coliform, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Coliform, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trace Metals					
Aluminum	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antimony	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arsenic	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beryllium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cadmium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium, total	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium, hexavalent	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cobalt	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Copper	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iron	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manganese	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury (Low-Level)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Molybdenum	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nickel	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selenium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Silver	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thallium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vanadium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zinc	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demands					
5-day BOD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-day Carbonaceous BOD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TOC	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minerals					
Alkalinity, total (CaCO ₃)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chloride	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluoride	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hardness, total (CaCO ₃)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specific conductance (25°C)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulfate	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Dissolved Solids (180°C)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrients					
Ammonia as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrate as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrite as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orthophosphate as P	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Kjeldahl-Nitrogen as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Phosphorus as P	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Misc. Analytes					
Non-Filterable Residue (TSS)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil and Grease	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH	<input checked="" type="checkbox"/>	USGS I-1586-85 (1985)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Cyanide	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Phenolics (4-AAP)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Residual Chlorine	<input checked="" type="checkbox"/>	HACH 8167 5th ED 2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Residual Chlorine (Low-Level)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Settleable Solids	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turbidity	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name Jeff Sowa, Sr Manager Chem/ENV Signature Date 6/14/24

* See Footnotes 2 through 4 on page 5



Chemistry/Microbiology Analyte Checklist

DMR-QA Study 44

2024

Analyte Test	Test Required	Method Number Used (Optional)	Laboratory's Graded Result		Analyte determined by state-certified lab*
			Acceptable	Not Acceptable (Corrective Action Required)	
Microbiology					
E. coli, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal Coliform, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Coliform, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trace Metals					
Aluminum	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antimony	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arsenic	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beryllium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cadmium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium, total	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium, hexavalent	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cobalt	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Copper	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iron	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manganese	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury (Low-Level)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Molybdenum	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nickel	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selenium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Silver	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thallium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vanadium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zinc	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demands					
5-day BOD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-day Carbonaceous BOD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TOC	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minerals					
Alkalinity, total (CaCO ₃)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chloride	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluoride	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hardness, total (CaCO ₃)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specific conductance (25°C)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulfate	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Dissolved Solids (180°C)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrients					
Ammonia as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrate as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrite as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orthophosphate as P	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Kjeldahl-Nitrogen as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Phosphorus as P	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Misc. Analytes					
Non-Filterable Residue (TSS)	<input checked="" type="checkbox"/>	SM 2540 D-2015 2015	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil and Grease	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Cyanide	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Phenolics (4-AAP)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Residual Chlorine	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Residual Chlorine (Low-Level)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Settleable Solids	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turbidity	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name Jeff Sowa, Sr Manager Chem/ENV

Signature

Date

11/14/24

* See Footnotes 2 through 4 on page 5



Chemistry/Microbiology Analyte Checklist

DMR-QA Study 44

2024

Analyte Test	Test Required	Method Number Used (Optional)	Laboratory's Graded Result		Analyte determined by state-certified lab*
			Acceptable	Not Acceptable (Corrective Action Required)	
Microbiology					
E. coli, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fecal Coliform, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Coliform, MF or MPN	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trace Metals					
Aluminum	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antimony	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arsenic	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beryllium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cadmium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium, total	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium, hexavalent	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cobalt	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Copper	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iron	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manganese	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury (Low-Level)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Molybdenum	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nickel	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selenium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Silver	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thallium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vanadium	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zinc	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demands					
5-day BOD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-day Carbonaceous BOD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COD	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TOC	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minerals					
Alkalinity, total (CaCO ₃)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chloride	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluoride	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hardness, total (CaCO ₃)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specific conductance (25°C)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulfate	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Dissolved Solids (180°C)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrients					
Ammonia as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrate as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrite as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orthophosphate as P	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Kjeldahl-Nitrogen as N	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Phosphorus as P	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Misc. Analytes					
Non-Filterable Residue (TSS)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>	EPA 1664B (HEM) 2010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Cyanide	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Phenolics (4-AAP)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Residual Chlorine	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Residual Chlorine (Low-Level)	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Settleable Solids	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turbidity	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 Name Jeff Sowa, Sr Manager Chem/ENV

 Signature

 Date 11/14/24

* See Footnotes 2 through 4 on page 5


Whole Effluent Toxicity (WET) Analyte Checklist

DMR-QA Study 44

2024

Analyte Number	Organism / Conditions	Endpoint	Test Required	Laboratory's Graded Result		Analyte determined by state-certified lab*
				Acceptable	Not Acceptable (Corrective Action Required)	
Test Code 13 (refer to EPA Method 2000.0)						
754	Fathead minnow (<i>Pimephales promelas</i>) - MHSF 25°C	LC50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 14 (refer to EPA Method 2000.0)						
755	Fathead minnow (<i>Pimephales promelas</i>) - 20% DMW	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 15 (refer to EPA Method 1000.0)						
756	Fathead minnow (<i>Pimephales promelas</i>) - MHSF	NOEC SURVIVAL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
808	Fathead minnow (<i>Pimephales promelas</i>) - MHSF	IC25** (ON) GROWTH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
810	Fathead minnow (<i>Pimephales promelas</i>) - MHSF	NOEC (ON) GROWTH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 16 (refer to EPA Method 1000.0)						
759	Fathead minnow (<i>Pimephales promelas</i>) - 20% DMW	NOEC SURVIVAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
812	Fathead minnow (<i>Pimephales promelas</i>) - 20% DMW	IC25** (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
814	Fathead minnow (<i>Pimephales promelas</i>) - 20% DMW	NOEC (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 19 (refer to EPA Method 2002.0)						
764	<i>Ceriodaphnia dubia</i> - MHSF 25°C	LC50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 20 (refer to EPA Method 2002.0)						
765	<i>Ceriodaphnia dubia</i> - 20% DMW 25°C	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 21 (refer to EPA Method 1002.0)						
766	<i>Ceriodaphnia dubia</i> – MHSF	NOEC SURVIVAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
767	<i>Ceriodaphnia dubia</i> – MHSF	IC25** REPRODUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
768	<i>Ceriodaphnia dubia</i> – MHSF	NOEC REPRODUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 22 (refer to EPA Method 1002.0)						
769	<i>Ceriodaphnia dubia</i> - 20% DMW	NOEC SURVIVAL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
770	<i>Ceriodaphnia dubia</i> - 20% DMW	IC25** REPRODUCTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
771	<i>Ceriodaphnia dubia</i> - 20% DMW	NOEC REPRODUCTION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 32 (refer to EPA Method 2021.0)						
788	<i>Daphnia magna</i> - MHSF 25°C	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 38 (refer to EPA Method 2021.0)						
794	<i>Daphnia pulex</i> - MHSF 25°C	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 42 (refer to EPA Method 2007.0)						
798	Mysid (<i>Americamysis bahia</i> , <i>Mysidopsis bahia</i>) 25°C	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 43 (refer to EPA Method 1007.0)						
799	Mysid (<i>Americamysis bahia</i> , <i>Mysidopsis bahia</i>)	NOEC SURVIVAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
816	Mysid (<i>Americamysis bahia</i> , <i>Mysidopsis bahia</i>)	IC25** (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
818	Mysid (<i>Americamysis bahia</i> , <i>Mysidopsis bahia</i>)	NOEC (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 44 (refer to EPA Method 2006.0)						
803	Inland silverside (<i>Menidia beryllina</i>) 25°C	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 45 (refer to EPA Method 1006.0)						
824	Inland silverside (<i>Menidia beryllina</i>)	NOEC SURVIVAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
825	Inland silverside (<i>Menidia beryllina</i>)	IC25** (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
826	Inland silverside (<i>Menidia beryllina</i>)	NOEC (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 46 (refer to EPA Method 2004.0)						
804	Sheepshead minnow (<i>Cyprinodon variegatus</i>) 25°C	LC50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test Code 47 (refer to EPA Method 1004.0)						
805	Sheepshead minnow (<i>Cyprinodon variegatus</i>)	NOEC SURVIVAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
820	Sheepshead minnow (<i>Cyprinodon variegatus</i>)	IC25** (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
822	Sheepshead minnow (<i>Cyprinodon variegatus</i>)	NOEC (ON) GROWTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 Name Jeff Sowa, Sr Manager Chem/ENV

 Signature

 Date 11/14/24

* See Footnotes 2 through 4 on page 5

** Preferred endpoint for DMR-QA performance test reporting

Complete a separate checklist for EACH lab.



A Waters Company

DMR-QA 44 Final Report

NPDES Permit #: TN0026450
Permit Holder: Travis Markum
SQN Environmental Scientist
TVA - Sequoyah Nuclear Plant
P.O. Box 2000
Mailstop: OPS-4A-SQN
Soddy-Daisy, TN 37384-2000
423-843-6714

ERA Customer Number: T203302
Report Issued: 09/27/2024
Study Dates: 05/17/2024 - 08/30/2024

TNI Analyte Code	Analyte	Units	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Method Description	Study Mean	Study Standard Deviation	USEPA Lab Code	Study
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WP pH (cat# 577, lot# P348-977)

1900	pH	S.U.	Acceptable	6.3	6.30	6.10 - 6.50	EPA 9040C 2004	6.30	0.0428	NC00030	WP348
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DMRQA pH (cat# 577, lot# Q044-977)

1900	pH	S.U.	Acceptable	6.47	6.49	6.29 - 6.69	USGS I-1586-85 1985	6.52	0.0593	TN00999	DMRQA44
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WP Settleable Solids (cat# 883, lot# P348-911)

1965	Settleable Solids	mL/L	Acceptable	11	10.1	7.36 - 13.7	SM 2540 F-2015 2015	10.5	0.00	NC00030	WP348
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WP Solids (cat# 241, lot# P348-499)

1960	Total Suspended Solids	mg/L	Acceptable	64.3	62.0	49.4 - 70.0	SM 2540 D-2015 2015	62.6	2.77	NC00030	WP348
1955	Total Dissolved Solids at 180°C	mg/L	Acceptable	490	484	436 - 532	SM 2540 C-2015 2015	484	22.0	NC00030	WP348
1950	Total Solids at 105°C	mg/L	Acceptable	579	562	506 - 618	SM 2540 B-2015 2015	554	19.2	NC00030	WP348

WP Simple Nutrients (cat# 584, lot# P348-505)

1515	Ammonia as N	mg/L	Acceptable	17.5	17.4	14.0 - 20.6	EPA 350.1 2 1993	17.4	1.00	NC00030	WP348
1820	Nitrate + Nitrite as N	mg/L	Acceptable	16.1	15.6	13.0 - 18.0	EPA 300.0 2.1 1993	15.7	0.798	NC00030	WP348
1810	Nitrate as N	mg/L	Acceptable	16.1	15.6	13.0 - 18.1	EPA 300.0 2.1 1993	15.6	0.814	NC00030	WP348
1870	ortho-Phosphate as P	mg/L	Acceptable	3.6	3.73	3.17 - 4.29	SM 4500-P E-2011 2011	3.77	0.201	NC00030	WP348

WP Simple Nutrients (cat# 584, lot# P348-505)

1820	Nitrate + Nitrite as N	mg/L	Acceptable	15.1	15.6	13.0 - 18.0	EPA 353.2 2 1993	15.7	0.798	NC00030	WP348
1810	Nitrate as N	mg/L	Acceptable	15.9	15.6	13.0 - 18.1	EPA 9056A 2007	15.6	0.814	NC00030	WP348



DMR-QA 44 Final Report

NPDES Permit #: TN0026450
Permit Holder: Travis Markum
 SQN Environmental Scientist
 TVA - Sequoyah Nuclear Plant
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 Soddy-Daisy, TN 37384-2000
 423-843-6714

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TNI Analyte Code	Analyte	Units	Performance Evaluation	Reported Value	Assigned Value	Acceptance Limits	Method Description	Study Mean	Study Standard Deviation	USEPA Lab Code	Study
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WP Simple Nutrients (cat# 584, lot# P348-505)

1820	Nitrate + Nitrite as N	mg/L	Acceptable	15.9	15.6	13.0 - 18.0	EPA 9056A 2007	15.7	0.798	NC00030	WP348
1810	Nitrate as N	mg/L	Acceptable	15.1	15.6	13.0 - 18.1	EPA 353.2 2 1993	15.6	0.814	NC00030	WP348

WP Complex Nutrients (cat# 579, lot# P348-525)

1795	Total Kjeldahl Nitrogen	mg/L	Acceptable	26.5	28.8	21.7 - 34.6	EPA 351.2 2 1993	28.9	1.99	NC00030	WP348
1910	Total phosphorus as P	mg/L	Acceptable	7.2	7.43	6.18 - 8.59	EPA 365.1 2 1993	7.42	0.416	NC00030	WP348

WP Nitrite (cat# 888, lot# P348-770)

1840	Nitrite as N	mg/L	Acceptable	1.55	1.59	1.33 - 1.84	EPA 300.0 2.1 1993	1.58	0.0770	NC00030	WP348
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WP Nitrite (cat# 888, lot# P348-770)

1840	Nitrite as N	mg/L	Acceptable	1.57	1.59	1.33 - 1.84	EPA 9056A 2007	1.58	0.0770	NC00030	WP348
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WP Nitrite (cat# 888, lot# P348-770)

1840	Nitrite as N	mg/L	Acceptable	1.51	1.59	1.33 - 1.84	EPA 353.2 2 1993	1.58	0.0770	NC00030	WP348
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WP Demand (cat# 578, lot# P348-516)

1530	BOD	mg/L	Acceptable	80.7	72.4	38.4 - 106	SM 5210 B-2016 2016	70.1	13.4	NC00030	WP348
1555	CBOD	mg/L	Acceptable	79.5	65.6	29.9 - 101	SM 5210 B-2016 2016	68.8	13.4	NC00030	WP348
1565	COD	mg/L	Acceptable	118	118	91.5 - 140	SM 5220 D-2011 2011	116	8.70	NC00030	WP348
2040	TOC	mg/L	Acceptable	42.7	46.6	38.7 - 54.1	SM 5310 B-2014 2014	46.8	2.25	NC00030	WP348

WP Oil & Grease (cat# 582, lot# P348-518)

1803	n-Hexane Extractable Material(O&G)(Grav)	mg/L	Not Acceptable	37.1	123	88.9 - 142	EPA 1664B (HEM) 2010	109	15.2	NC00014	WP348
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A Waters Company

101124T Final Evaluation Report

Kyle Henderson
Quality Manager
Pace Analytical Services LLC - Huntersville
9800 Kinney Ave, Suite #100
Huntersville, NC 28078
(704) 526-7835

EPA ID:
ERA Customer Number:

NC00014
P041103

TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name
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WP Oil & Grease Concentrate (cat# 4122, lot# 101124T) Study Dates: 10/11/2024 - 10/15/2024

1803	n-Hexane Extractable Material(O&G)(Grav)	mg/L	130	146	107 - 167	Acceptable	EPA 1664B (HEM) 2010	10/15/2024	0.267	124	21.1	DVR
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All analytes except for 1,1-Biphenyl, 1,2-Diphenylhydrazine, 1,3-Dinitrobenzene, 2,3-Dichloroaniline, Acetophenone, Atrazine, Azobenzene, Benzaldehyde, Caprolactam, n-Decane and n-Octadecane in the Base/Neutrals, catalog # 833, are included in ERA's A2LA accreditation. Lab Code 1539.01.

16341 Table Mountain Pkwy • Golden, CO 80403 • 800.372.0122 • 303.431.8454 • fax 303.421.0159 • www.eraqc.com

Project # : 101124T



6390 Joyce Drive Phone 303-940-0033
100 Fax 866-283-0269
Golden, CO 80403 www.phenova.com

DMRQA44 Graded Results Report

Study: DMRQA44-WET

Opening Date: May 17, 2024 - Closing Date: August 30, 2024

EPA Lab ID: NC01230 NPDES Permit ID: TN0026450
Laboratory: Environmental Testing Solutions, Inc. Permittee Name: TVA / Sequoyah Nuclear Plant
351 Depot Street
Asheville, NC 28801
USA
Ms. Kelley Keenan, President
828-350-9364

Fathead Minnow Method 13 (PT-13-WET)

NELAC Code	Analyte	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
3410	Fathead Minnow Acute MHSF, 25° - LC50	10213602	EPA 2000.0 - Pimephales promelas, 48-hr Acute, nonrenewal, MHSF, 25°C (2002)	S.U.	34.9	35.4	25.7 - 44.2	Acceptable

Fathead Minnow Method 15 (PT-15-WET)

NELAC Code	Analyte	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
Lot #: 8561-15								
3410	Fathead Minnow Chronic MHSF - Survival NOEC	10214207	EPA 1000.0 - Pimephales promelas, 7-day Chronic, daily renewal, MHSF, 25°C (2002)	S.U.	50	50	25 - 100	Acceptable
3410	Fathead Minnow Chronic MHSF - Growth IC25 (ON)	10214207	EPA 1000.0 - Pimephales promelas, 7-day Chronic, daily renewal, MHSF, 25°C (2002)	S.U.	49.4	42.4	31.0 - 67.8	Acceptable
3410	Fathead Minnow Chronic MHSF - Growth NOEC (ON)	10214207	EPA 1000.0 - Pimephales promelas, 7-day Chronic, daily renewal, MHSF, 25°C (2002)	S.U.	25	25	12.5 - 50	Acceptable

6390 Joyce Drive Phone 303-940-0033
100 Fax 866-283-0269
Golden, CO 80403 www.phenova.com



DMRQA44 Graded Results Report

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Opening Date: May 17, 2024 - Closing Date: August 30, 2024

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Laboratory: Environmental Testing Solutions, Inc. Permittee Name: TVA / Sequoyah Nuclear Plant
351 Depot Street
Asheville, NC 28801
USA
Ms. Kelley Keenan, President
828-350-9364

Ceriodaphnia Method 19 (PT-19-WET)

Lot #: 8561-19

NE/LAC Code	Analyte	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
3315	Ceriodaphnia Acute MHSF, 25° - LC50	10213646	EPA 2002.0 - Ceriodaphnia dubia, 48-hr Acute, nonrenewal, MHSF, 25°C (2002)	S.U.	37.0	35.4	23.6 - 50.4	Acceptable

Ceriodaphnia Method 21 (PT-21-WET)

Lot #: 8561-21

NE/LAC Code	Analyte	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
3315	Ceriodaphnia Chronic MHSF - Survival NOEC	10253040	EPA 1002.0 - Ceriodaphnia dubia, 3-Brood Chronic, daily renewal, MHSF, 25°C (2002)	S.U.	25	25	12.5 - 50	Acceptable
3315	Ceriodaphnia Chronic MHSF - Reproduction IC25	10253040	EPA 1002.0 - Ceriodaphnia dubia, 3-Brood Chronic, daily renewal, MHSF, 25°C (2002)	S.U.	27.6	29.8	16.8 - 38.4	Acceptable
3315	Ceriodaphnia Chronic MHSF - Reproduction NOEC	10253040	EPA 1002.0 - Ceriodaphnia dubia, 3-Brood Chronic, daily renewal, MHSF, 25°C (2002)	S.U.	25	25	12.5 - 50	Acceptable

15 October, 2024

DMR QA Corrective Action
Pace Analytical – Huntersville
Oil and Grease PT Corrective Action

Dear Recipient,

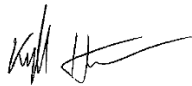
This letter serves to notify of corrective action taken for unacceptable PT results obtained during the laboratory's participation in ERA PT study WP-348. The laboratory has completed an investigation to determine the cause of the failure and has implemented corrective action in response. Participation in another PT study has been completed with acceptable results.

Details regarding the unacceptable result and actions taken in response are provided below.

Analyte:	n-Hexane Extractable Material (O&G)
Test Method:	EPA 1664B
Reported Result:	37.1 mg/L
Assigned Value:	123 mg/L
Acceptance Limits:	88.9-142 mg/L
Root Cause:	Inappropriate PT selection. The PT was received in a bottle type that required special adapters that introduced technique variations leading to inconsistent PT results.
Corrective Action:	A concentrated PT option has been utilized so these PT samples may be prepped in the same bottle types and allow for identical processing as client samples.

If you have any further questions, please feel free to contact me at (704) 526-7835 or you can e-mail me at kyle.henderson@pacelabs.com.

Sincerely,



Kyle Henderson
Quality Manager