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

December 13, 2021

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 41 Follow-up Report 2021**

Attached is the Discharge Monitoring Report Quality Assurance Study 41 Follow-up Report 2021 for Sequoyah Nuclear Plant.

Respectfully,

A handwritten signature in black ink, appearing to read 'T.R. Markum', is written over a light gray horizontal line.

Travis R. Markum  
Environmental Scientist

## Markum, Travis R

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**From:** Markum, Travis R  
**Sent:** Monday, December 13, 2021 1:24 PM  
**To:** 'Barbara.loudermilk@tn.gov'  
**Subject:** TN0026450 - DMR-QA Study 41 Follow-up Test Report  
**Attachments:** SQN TN0026540 DMR-QA 41 Followup Test Report to TDEC 12.13.21.pdf

Ms. Loudermilk,

Please find attached the provider-graded test result and revised checklist for the 2021 DMR-QA Study 41 Laboratory Performance Evaluation for NPDES Permit TN0026450.

### Corrective Action

The site ordered a follow-up test kit to re-analyze for TRC as required by the DMR-QA Study. While the site was unable to identify the exact cause to the "not acceptable" result in the initial study, we believe it was due to potential errors made when preparing the known TRC sample for analysis. For the initial study, a graduated cylinder was used to dilute the known sample to 1000 mL; however, a 1L volumetric flask was used to more precisely dilute the known sample in the follow-up process. There may have been other contributing factors as well, although we believe this to be the primary difference between the initial and follow-up test result.

Please let me know if you have any questions or need additional information.

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

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## Chemistry/Microbiology Analyte Checklist

### DMR-QA Study 41

| Analyte Test                           | Test Required                       | Method Number Used (optional) | Laboratory's Graded Result          |   | Analyte determined by state-certified lab* |
|--|-------------------------------------|-------------------------------|-------------------------------------|---|--|
|  |                                     |                               | Acceptable                          | Not Acceptable (Corrective Action Required) |  |
| <b>Microbiology</b>                    |                                     |                               |                                     |   |  |
| 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"/>                   |
| <b>Trace Metals</b>                    |                                     |                               |                                     |   |  |
| 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"/>                   |
| <b>Demands</b>                         |                                     |                               |                                     |   |  |
| 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"/>                   |
| <b>Minerals</b>                        |                                     |                               |                                     |   |  |
| Alkalinity, total (CaCO <sub>3</sub> ) | <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 <sub>3</sub> )   | <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"/>                   |
| <b>Nutrients</b>                       |                                     |                               |                                     |   |  |
| 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"/>                   |
| <b>Misc. Analytes</b>                  |                                     |                               |                                     |   |  |
| 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                | <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                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input type="checkbox"/>                   |
| Total Residual Chlorine (Low Level)    | <input type="checkbox"/>            |                               | <input type="checkbox"/>            | <input checked="" 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 Tony McMutuary

Signature Tony McMutuary

Date 11/10/21

\* See Footnote on page 2.



# 1203210 Final Evaluation Report

A Waters Company

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SQN Environmental Scientist  
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EPA ID: TN00999  
ERA Customer Number: T203302

| 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 |
|------------------|---------|-------|----------------|----------------|-------------------|------------------------|--------------------|---------------|---------|------------|--------------------------|--------------|
|------------------|---------|-------|----------------|----------------|-------------------|------------------------|--------------------|---------------|---------|------------|--------------------------|--------------|

**WP Total Residual Chlorine (cat# 501, lot# 1203210) Study Dates: 12/03/2021 - 12/07/2021**

|      |                         |      |      |      |             |              |                       |           |       |      |       |  |
|------|-------------------------|------|------|------|-------------|--------------|-----------------------|-----------|-------|------|-------|--|
| 1945 | Free Residual Chlorine  | mg/L |      | 2.23 | 1.64 - 2.61 | Not Reported |                       |           |       | 2.18 | 0.161 |  |
| 1940 | Total Residual Chlorine | mg/L | 1.81 | 2.34 | 1.72 - 2.73 | Acceptable   | HACH 8167 5th ED 2008 | 12/7/2021 | -2.92 | 2.25 | 0.150 |  |



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.

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Project # : 1203210