



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

January 13, 2022

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

Subject: **Sequoyah Nuclear Plant, NPDES Biocide/Corrosion Treatment Plan Annual Report, CY 2021**

Attached is the NPDES Biocide/Corrosion Treatment Plan Annual Report for 2021 for Sequoyah Nuclear Plant.

Respectfully,

A handwritten signature in black ink, appearing to read 'T.R. Markum', is written above the typed name.

Travis R. Markum
Environmental Scientist

From: [Markum, Travis R](#)
To: [Sarah Terpstra](#); "Michael Bascom"
Cc: [Water Permits](#); [Pierson, Callan](#)
Subject: TN0026450 SQN BCTP Annual Report 2021
Date: Thursday, January 13, 2022 3:54:00 PM
Attachments: [BCTP Annual Report 2021 01.13.22.pdf](#)

See attached Biocide/Corrosion Treatment Plan annual report for 2021 for Sequoyah Nuclear Plant. An electronic copy was also attached to the December 2021 DMR submittal for Outfall 101.

Travis R. Markum

Env. Scientist (Compliance)
Environmental Operations

TVA Sequoyah Nuclear Plant
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Soddy Daisy, TN 37384

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Sent Via Electronic Mail

January 13, 2022

Ms. Sarah Terpstra
Division of Water Resources
Tennessee Department of Environment
and Conservation (TDEC)
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243

Dear Ms. Terpstra:

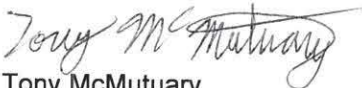
TENNESSEE VALLEY AUTHORITY (TVA) – SEQUOYAH NUCLEAR PLANT (SQN) - NPDES
PERMIT NO. TN0026450 – BIOCIDES/CORROSION TREATMENT PLAN (B/CTP) ANNUAL
REPORT 2021

Enclosed is a copy of the CY 2021 B/CTP Annual report for SQN. All treatments in 2021 were
conducted in accordance with the approved B/CTP.

If you have any questions or need additional information, please contact Travis Markum at
(423) 843-6714 or by e-mail at trmarkum@tva.gov of Sequoyah's Environmental staff.

*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.*

Sincerely,



Tony McMutuary
Senior Manager, Chemistry/Environmental
Sequoyah Nuclear Plant

Enclosures

cc (Electronic Distribution w/ Enclosures):

Mr. Michael Bascom
Chattanooga Environmental Field Office
Division of Water Resources
1301 Riverfront Parkway, Suite #206
Chattanooga, Tennessee 37402

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

Flogard MS6236

Month	Duration in Hours (hrs/day)	Quantity in Pounds (lbs/day)			Analytical Results (mass balance calculations) (mg/L)			Days of Treatment
	Maximum*	Maximum	Average (based on days in service)	Limit	Maximum	Average	Limit	
January	-	-	-	2275	-	-	0.2	-
February	-	-	-	2275	-	-	0.2	-
March	-	-	-	2275	-	-	0.2	-
April	-	-	-	2275	-	-	0.2	-
May	19.5	334	293	2275	0.0285	0.0285	0.2	5
June	24.0	418	270	2275	0.0289	0.0284	0.2	22
July	24.0	1444	552	2275	0.0309	0.0286	0.2	19
August	19.0	987	527	2275	0.0289	0.0285	0.2	22
September	19.0	708	340	2275	0.0291	0.0285	0.2	15
October	-	-	-	2275	-	-	0.2	-
November	24.0	418	279	2275	0.0287	0.0285	0.2	15
December	24.0	417	293	2275	0.0291	0.0286	0.2	16
Jan. - Dec.	24.0	1444	-	2275	0.0309	-	0.2	114

Per Part III.E of the NPDES permit: "WET testing shall be performed twice per year at Outfall 101: once per year when oxidizing biocides are being used, and once per year when non-oxidizing biocides are being used."

*Maximum treatment duration is listed individually per system: ERCW A, ERCW, B and RCW.

Spectrus BD 1500

Month	Duration in Hours (hrs/day)	Quantity in Pounds (lbs/day)			Analytical Results mass balance calculations (mg/L)			Days of Treatment
	Maximum*	Maximum	Average (based on days in service)	Limit	Maximum	Average	Limit	
January	0.4	26	26	50	0.0510	0.0478	2.0	4
February	0.5	29	25	50	0.0470	0.0470	2.0	7
March	0.5	29	23	50	0.0480	0.0473	2.0	7
April	0.3	22	17	50	0.0560	0.0529	2.0	14
May	0.3	19	12	50	0.0820	0.0577	2.0	14
June	0.3	19	14	50	0.0560	0.0474	2.0	14
July	0.3	19	19	50	0.0470	0.0468	2.0	13
August	0.3	19	16	50	0.0470	0.0470	2.0	13
September	0.3	19	16	50	0.0470	0.0468	2.0	10
October	0.3	19	19	50	0.0880	0.0848	2.0	13
November	0.4	28	21	50	0.0880	0.0531	2.0	7
December	0.5	38	31	50	0.0480	0.0472	2.0	6
Jan. - Dec.	0.5	38	-	50	0.0880	-	2.0	122

Per the B/CTP approval: Spectrus BD1500 is a surfactant that is injected into the ERCW and RCW systems for approximately 30 minutes prior initiating chlorination to enhance the effectiveness of the chlorination.

*Maximum treatment duration is listed individually per system: ERCW A, ERCW, B and RCW.

2021 Biocide/Corrosion Treatment Plan Annual Report

Spectrus CT1300

Month	Duration in Hours (hrs/day)	Quantity in Pounds (lbs/day)			Analytical Results mass balance calculations (mg/L)			Days of Treatment
	Maximum*	Maximum	Average (based on days in service)	Limit	Maximum	Average	Limit	
January	-	-	-	855	-	-	0.1	-
February	15.0	300	240	855	0.0334	0.0333	0.1	4
March	14.8	297	253	855	0.0336	0.0335	0.1	4
April	15.0	240	192	855	0.0477	0.0473	0.1	4
May	21.8	438	281	855	0.0332	0.0331	0.05	6
June	21.8	438	299	855	0.0331	0.0330	0.05	6
July	14.8	295	220	855	0.0367	0.0348	0.05	2
August	24.0	483	263	855	0.0331	0.0330	0.05	6
September	24.0	483	298	855	0.0334	0.0330	0.05	8
October	22.3	230	164	855	0.0467	0.0467	0.1	3
November	24.0	406	258	855	0.0330	0.0299	0.05	5
December	-	-	-	855	-	-	0.05	-
Jan. - Dec.	24.0	483	-	855	0.0477	-	0.05	48

Per Part III.E of the NPDES permit: "WET testing shall be performed twice per year at Outfall 101: once per year when oxidizing biocides are being used, and once per year when non-oxidizing biocides are being used."

Outfall 101: Toxicity was sampled September 12-17, 2021 during Spectrus CT 1300 treatment
 Test Results: *Pimephales promelas*: IC25 >100%
Ceriodaphnia dubia: IC25 > 100%

Outfall 110: There has been no discharge from Outfall 110 January - December 2021.

*Maximum treatment duration is listed individually per system: ERCW A, ERCW, B and RCW.

2021 Biocide/Corrosion Treatment Plan Annual Report

Towerbrom 960

Month	Duration in Hours (hrs/day)	Quantity in Pounds (lbs/day)			Analytical Results mass balance calculation (mg/L)			Days of Treatment
	Maximum*	Maximum	Average (based on days in service)	Limit	Maximum (see Note)	Average (see Note)	Limit (daily max)	
January	4.0	150	84	1425	<0.05	<0.05	0.047	8
February	4.0	125	97	1425	<0.05	<0.05	0.047	8
March	4.0	125	100	1425	<0.05	<0.05	0.047	9
April	4.0	125	108	1425	<0.05	<0.05	0.047	15
May	4.0	150	84	1425	<0.05	<0.05	0.047	14
June	4.0	150	123	1425	<0.05	<0.05	0.047	20
July	4.0	175	158	1425	<0.05	<0.05	0.047	21
August	4.0	175	148	1425	<0.05	<0.05	0.047	22
September	4.0	225	154	1425	<0.05	<0.05	0.047	21
October	4.0	175	151	1425	<0.05	<0.05	0.047	18
November	4.0	250	108	1425	<0.05	<0.05	0.047	13
December	4.0	125	111	1425	<0.05	<0.05	0.047	11
Jan. - Dec.	4.0	250	-	1425	<0.05	-	0.047	180

Per Part III.E of the NPDES permit: "WET testing shall be performed twice per year at Outfall 101: once per year when oxidizing biocides are being used, and once per year when non-oxidizing biocides are being used."

Outfall 101: Toxicity was sampled June 6-11, 2021 during Towerbrom 960 treatment.

Test Results: *Pimephales promelas*: IC25 >100%

Ceriodaphnia dubia: IC25 > 100%

Outfall 110: There has been no discharge from Outfall 110 January - December 2021.

*Maximum treatment duration is listed individually per system: ERCW A, ERCW, B and RCW.

NOTE: Per Part I.3.b.3) of the NPDES permit effective August 1, 2020: "The method detection level (MDL) for TRC shall not exceed 0.05 mg/L unless the permittee demonstrates that its MDL is higher."