

50-327/328



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

April 13, 2000

State of Tennessee
Department of Environment and Conservation
Division of Water Pollution Control
401 Church Street, 6th Floor Annex
Nashville, Tennessee 37243-1534

Attention: Ms. Evelyn Haskin, Enforcement & Compliance

Dear Ms. Haskin:

TENNESSEE VALLEY AUTHORITY - DISCHARGE MONITORING REPORT HARD COPIES FOR
SEQUOYAH NUCLEAR PLANT (SQN)

Please find enclosed the First Quarter 2000 DMR for SQN.

Please contact me at (423) 843-6700 or Diedre Nida at (423) 843-7748 if you have any questions
or comments.

Sincerely,

A handwritten signature in cursive script, reading "Debra J. Bodine".

Debra J. Bodine
Environmental Supervisor
Sequoyah Nuclear Plant

Enclosure

cc (Enclosure):

Chattanooga Environmental Assistance Center
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

**Sequoyah Nuclear Plant - NPDES Permit TN6026450
FEED WATER RELEASE POTENTIAL BYPASS VIA YARD DRAINAGE**

Time of Discovery of Discharge

Date: 1/18/00 **Time:** 1500

Description of Event:

This is to report a potential bypass of NPDES Outfall 103 (Low Volume Waste Treatment Pond or Turbine Building Sump). Discharges from Outfall 103 are ultimately discharged through Outfall 101, and thus this discharge was made through a permitted outfall. It is not clear how the permit definition of "bypass" applies in these circumstances. Since the ultimate discharge was through a permitted outfall, it may be that no bypass occurred. Nevertheless, we are submitting this report as a precautionary measure.

Sequoyah Nuclear Plant Unit 2 tripped off line at 1051 on 1/18/00. At approximately the same time, a feed water check valve developed a large leak. This leak was discovered at 1500 on 1/18/00. The feed water system supplies the secondary (non-radioactive) water to the steam generators. This water is ultra pure. Chemicals used for corrosion control in the feed water system were in the parts per billion range. Approximately 216,000 gallons of feed water were discharged to the floor of a room over a 24-hour period. Most of this water ran underneath a door and into a yard drain. Yard drainage is designed to flow to the Yard Drainage Pond. The Yard Drainage Pond then discharges to the Diffuser Pond and to the Tennessee River through Outfall 101. Outfall 101 is the permitted release point for all plant process waste water including feed water. However, feed water would normally be discharged to the Turbine Building Sump before discharging through Outfall 103 and ultimately through Outfall 101.

Actions Taken:

This discharge could not be isolated immediately because isolation of the leak would also isolate auxiliary feed water to the steam generators. Auxiliary feed water is required to remove decay heat from the reactor via the steam generators and is a Nuclear Regulatory Commission required safety system. Work is being planned to repair this leak today, 01/19/00.

Samples of this discharge have been taken for those parameters that would have been required for normal permitted discharge to the Turbine Building Sump. All parameters are expected to be within permit limits for Outfall 103. Additionally, quantities of hydrazine and ammonia discharged have been calculated and are far below CERCLA reportable quantities. These quantities are provided in the following table.

Pollutant	FW conc ug/l	kg/ug	l/gal	lb/kg	Specific Gravity	lb/gal	RQ	Gallons equal to RQ	Gallons released during a 24-hour period	Quantity released during a 24-hour period (lbs)
Hydrazine	30	1.00E-09	3.785	2.2	1.021	2.55E-07	1 lb	3.9207E+06	216000	0.055
Ammonia	206	1.00E-09	3.785	2.2	1.025	1.76E-06	100 lb	5.6875E+07	216000	0.380

The Diffuser Pond, DSN 101 pH was sampled on 01/18/00 at 2245. The analysis showed normal effluent pH of 7.74 pH units. Routine NPDES samples are being obtained today, 01/19/00, for pH, total suspended solids, oil and grease, and boron.

Measures Taken to Correct Problem

The check valve will be repaired as soon as possible.

Steps Taken to Eliminate and Prevent Recurrence

The Sequoyah corrective action program will evaluate this valve failure. Corrective actions will be implemented to prevent recurrence.

Certification Statement

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 gathered and evaluated 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.

Signature

Amy J. Griffin

Title

Environmental Supervisor

Distribution (1/20/2000):

Mr. Terry Whalen
Chattanooga Environmental Assistance Center
Division of Water Pollution Control
State Office Building, Suite 550
540 McCallie Avenue
Chattanooga, Tennessee 37402-2013

Debbie J. Bodine, SB 2A-SQN (E-mail)
D. Mark Hastings, ET 11A-K (E-mail)
Charles E. Kent, POB 2C-SQN (E-mail)
Jerry D. Osborne, SB 2A-SQN (E-mail)
Dennis L. Koehl, POB 2B-SQN (E-mail)
Masoud Bajestani, OPS 4A-SQN (E-mail)
EDMS, WTC A-K

Sequoyah Nuclear Plant - NPDES Permit TN0026450
FEED WATER RELEASE BYPASS OF OUTFALL 103 VIA YARD DRAINAGE

Time of Discovery of Discharge

Date: 1/18/00 **Time:** 1500

Description of Event:

This is an addendum of SQN's original report sent to you on 1/20/00. Sequoyah Nuclear Plant Unit 2 tripped off line at 1051 on 1/18/00. At approximately the same time, a small section of compressed carbon gasket blew out of a feed water check valve causing an approximately 150 gpm leak to occur. This leak was discovered at 1500 on 1/18/00.

SQN notified the Environmental Assistance Center at 1400 on 01/19/00 of the unanticipated bypass. Written notification of the event was sent to the Environmental Assistance Center by Federal Express Overnight delivery on 01/20/00. No effluent limitations contained in the NPDES Permit for the discharge through Outfall 103 were exceeded at the source of the release. The discharge rate was decreased within approximately 24 hours. No leakage from the valve was visible at 1500 on 01/20/00.

The leakage was from the Main Feedwater and Auxiliary Systems. No reportable quantities of chemicals were discharged and the discharge, at its source, was in compliance with all effluent limitations for Outfall 103. Thus, this event was a Bypass not exceeding limitations per 40CFR122.41 (m) (2). Further, we believe that the Bypass also meets the three conditions stated on page 14 of the SQN NPDES Permit.

1. It was unavoidable without causing severe property damage or risk of personal injury. The SQN Final Safety Analysis Report describes the Auxiliary Feedwater System as follows: "The Auxiliary Feedwater (AFW) System is a backup system which supplies, in the event of a loss of the main feedwater supply, sufficient feedwater to the steam generators to remove primary system stored and residual core energy. The system is designed to start automatically in the event of ... safety injection, ..., a trip of one or both main feedwater pumps, any of which will result in, may be coincident with, or may be caused by a reactor trip.... It will supply sufficient feedwater to prevent the relief of primary coolant through the pressurizer safety valves and the uncovering of the core. It has adequate capacity to maintain the reactor at hot standby and then cool the Reactor Coolant (RC) System to the temperature at which the Residual Heat Removal (RHR) System may be placed in operation, but it cannot supply sufficient feedwater for power generation." Without a supply of auxiliary feedwater, a steam generator could receive irreparable damage.
2. The Auxiliary Feedwater System is the backup system for the Main Feedwater System at SQN. There was no feasible alternative to this discharge as personnel could not enter the area for several hours due to the hazards associated with the mixture of water and electrical equipment and the potential presence of steam.
3. Notice of this discharge was provided to the Chattanooga Environmental Assistance Center within 24 hours of becoming aware of its existence.

Actions Taken:

SQN Maintenance increased the torque on the valve to the maximum torque allowed. This decreased the leak rate by 30 gpm. They increased the torque on the other three non leaking valves to the maximum as well. The valve body was peened which decreased the leak rate by another 30 gpm. Sealant was injected into the valve to fill in the space from the missing gasket on 1/20/00, decreasing the leak rate to approximately 0.25 gpm. As the new sealant took affect the leakage was stopped on the valve. As of 1500 on 1/21/00, there was no leakage from the valve.

Samples of the valve discharge were taken. Routine samples for the Diffuser Pond, DSN 101 were also taken. All results of these samples are shown in Attachment 1.

The Yard Drainage Pond and the Diffuser Pond were observed for several days following this event. No adverse conditions were observed.

Measures Taken to Correct Problem:

The check valve was repaired with a sealant. This repair should last until the next Unit 2 outage scheduled for Fall 2000. The valve will be permanently repaired at that time.

Steps Taken to Eliminate and Prevent Recurrence:

The Sequoyah Corrective Action Program will evaluate this valve failure. Corrective actions will be implemented. A copy of the Corrective Action Plan for this event will be provided to the Environmental Assistance Center when it is completed.

Certification Statement:

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 gathered and evaluated 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 violation.

Signature

Title

[Handwritten Signature]
[Handwritten Title: Environmental Supervisor]

Attachment 1:**Laboratory Results**

<u>Parameter</u>	<u>Location</u>	<u>Date</u>	<u>Time</u>	<u>Results</u>	<u>Units</u>	<u>Laboratory ID #</u>
Hydrazine	East Valve Room	01/18/2000	1530	30	ug/L	Inst. # 269
Ammonia	East Valve Room	01/19/2000	1205	206	ug/L	Inst. # 168 Cations
Boron	East Valve Room	01/18/2000	1530	<100	ug/L	Inst. # 163 Boron
pH	East Valve Room	01/18/2000	1530	9.0	pH units	Inst. # 3
O&G	East Valve Room	01/19/2000	0835	<5	mg/L	AA01561
TSS	East Valve Room	01/19/2000	0835	<1	mg/L	AA01561
pH	Diffuser	01/18/2000	2245	7.74	pH units	Inst. # 9
pH	Diffuser	01/19/2000	0907	7.77	pH units	Inst. # 9
pH	Diffuser	01/19/2000	0907	7.79	pH units	Inst. # 9
O&G*	Diffuser	01/19/2000	0902	6	mg/L	AA01563
O&G*	Diffuser	01/19/2000	0904	<5	mg/L	AA01564
O&G*	Diffuser	01/19/2000	0902	<5	mg/L	AA01563
TSS	Diffuser	01/19/2000	0902	3	mg/L	AA01566
TSS	Diffuser	01/19/2000	0904	4	mg/L	AA01567

*Analyzed back-up Diffuser O & G due to the discrepancy between the 6 mg/L and the <5 mg/L value. Historically the Diffuser Pond O & G is <5 mg/L.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name **TVA - SEQUOYAH NUCLEAR PLANT**
 Address **BOX 2000**
 (INTEROFFICE SB-2A)
SODDY - DAISY IN 37384
 Facility **TVA - SEQUOYAH NUCLEAR PLANT**
 Location **HAMILTON COUNTY**

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16) (17-19)

TN0026450	101 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

DIFFUSER DISCHARGE

EFFLUENT

Form Approved.

OMB No. 2040-0004.

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
From 00	03	01	To 00	03	31

*** NO DISCHARGE ☐ ***

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	QUANTITY OR LOADING (46-53)			QUALITY OR CONCENTRATION (46-53)			UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				
TEMPERATURE, WATER DEG. CENTIGRADE 00010 Z 0 0 INSTREAM MONITORING	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	18.5	(04)	0	31 / 31	MODEL
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	30.5 DAILY MX	DEG. C.		SEE PERMIT	CK REQ
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	29.6	(04)	0	31 / 31	MODEL
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	REPORT DAILY MX	DEG. C.		SEE PERMIT	CK REQ
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	7.5	*****	7.7	(12)	0	10 / 31	GRAB
	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		WEEKLY	GRAB
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	<2	3	(19)	0	05 / 31	GRAB
	PERMIT REQUIREMENT	*****	*****	****	*****	30 DAILY MX	100 DAILY MX	MG/L		WEEKLY	GRAB
OIL & GREASE FREON EXTR-GRAV METH 00556 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	<5	<5	(19)	0	05 / 31	GRAB
	PERMIT REQUIREMENT	*****	*****	****	*****	15 DAILY MX	20 DAILY MX	MG/L		WEEKLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT 50050 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	1673	(03)	*****	*****	*****	..	0	31 / 31	RCORDR
	PERMIT REQUIREMENT	*****	REPORT DAILY MX	MGD	*****	*****	*****	****		CONTINUOUS	RCORDR
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	<0.030	(19)	0	50 / 31	GRAB
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	0.058 INST MAX	MG/L		WEEK-DAYS	CALCTD

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	04	12
Site Vice President			SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	NUMBER	YEAR
TYPED OR PRINTED							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No closed mode operation. The following injections occurred: 1. PCL-222(max. calc. conc. was 0.029mg/L--limit 0.100mg/L) 2. CL-363(max. calc. conc. was 0.012mg/L--limit 0.100mg/L) 3. Cuprostat-PF(max. calc. conc. was 0.195mg/L--limit 0.400mg/L) 4. PCL-401(max. calc. conc. was 0.044mg/L--limit 0.100mg/L). CCW analyses results attached.

CCW CHANNEL DATA

DATE	Diesel Range Organic (mg/L)	Total Water Hydrocarbons (mg/L)	Comments
01/05/00	< 0.1	< 1	
01/12/00	< 0.1	< 1	
01/19/00	< 0.1	< 1	
01/26/00	< 0.1	< 1	
02/02/00	< 0.1	< 1	
02/09/00	< 0.1	< 1	
02/16/00	< 0.1	< 1	
02/23/00	< 0.1	< 1	
03/01/00	< 0.1	< 1	Procedural change to sample twice month
03/15/00	< 0.1	< 1	
03/29/00	< 0.1	< 1	

TRENCH DISCAHRGE EFFLUENT RESULTS

DATE	Diesel Range Organic (mg/L)	Total Water Hydrocarbons (mg/L)	Comments
01/05/00	0.5	< 1	
01/12/00	1.2	< 1	
01/19/00	0.8	< 1	
01/26/00	<0.1	< 1	
02/02/00	0.2	< 1	
02/09/00	0.6	< 1	
02/16/00	0.6	< 1	
02/23/00	0.6	< 1	
03/01/00	1.0	< 1	Procedural change to sample twice month
03/15/00	0.9	< 1	
03/29/00	3.2	< 1	

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

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 Facility **TVA - SEQUOYAH NUCLEAR PLANT**
 Location **HAMILTON COUNTY**

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450

101 G

PERMIT NUMBER

DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

DIFFUSER DISCHARGE

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004.

Approval expires 05-31-98

ATTN: Debra J. Bodine

From

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	03	01	00	03	31

To

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only (46-53))			(4 Card Only (38-45))			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)						
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM									
TEMPERATURE - C, RATE OF CHANGE 82234 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	1.4	(04)	0	31 / 31	CALCTD					
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	2.0	DEG. C.			CALCTD					
DELTA TEMPERATURE - C 00016 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	2.9	(04)	0	31 / 31	CALCTD					
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	5.0	DEG. C.			CALCTD					
	SAMPLE MEASUREMENT															
	PERMIT REQUIREMENT															
	SAMPLE MEASUREMENT															
	PERMIT REQUIREMENT															
	SAMPLE MEASUREMENT															
	PERMIT REQUIREMENT															
BORON, TOTAL 01022 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	<0.2	<0.2	<0.2	(19)	0	01 / 31	GRAB					
	PERMIT REQUIREMENT	*****	*****	****	REPORT	REPORT	REPORT	MG/L			GRAB					
	SAMPLE MEASUREMENT															
	PERMIT REQUIREMENT															
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)					TELEPHONE		DATE							
Masoud Bagestani							423	843-6700	00	04	12					
Site Vice President							AREA CODE	NUMBER	YEAR	MO	DAY					
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT														

Debra J. Bodine
 Environmental Supervisor

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

ATTN: Debra J. Bodine

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16) (17-19)

TN0026450	103 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

LOW VOL. WASTE TREATMENT POND

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

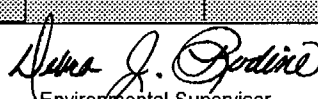
OMB No. 2040-0004

Approval expires 05-31-98

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	03	01	00	03	31

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	QUANTITY OR LOADING (3 Card Only (46-53) (54-61) (20-21) (22-23) (24-25))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61) (26-27) (28-29) (30-31))			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)	
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS
PH	SAMPLE MEASUREMENT	*****	*****	**	7.2	*****	8.8	(12)	0	16 / 31	GRAB
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	**	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		THREE/ WEEK	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	42	102	(26)	*****	7	15	(19)	0	06 / 31	GRAB
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	380 MO AVG	1250 DAILY MX	LBS/DY	*****	30 MO AVG	100 DAILY MX	MG/L		WEEKLY	GRAB
OIL & GREASE FREON EXTR-GRAV METH	SAMPLE MEASUREMENT	<50	95	(26)	*****	<6	7	(19)	0	06 / 31	GRAB
00556 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	190 MO AVG	250 DAILY MX	LBS/DY	*****	15 MO AVG	20 DAILY MX	MG/L		WEEKLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	1.265	2.071	(03)	*****	*****	*****	..	0	31 / 31	TOTAL
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	**		DAILY	TOTAL
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	04	12
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Turbine Building Sump was aligned to the Yard Drainage Pond from 1403 on 3/12/2000 to 0825 on 3/13/2000.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name **TVA - SEQUOYAH NUCLEAR PLANT**
 Address **BOX 2000**
 (INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility **TVA - SEQUOYAH NUCLEAR PLANT**
 Location **HAMILTON COUNTY**

ATTN: Debra J. Bodine

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16) (17-19)

TN0026450	107 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR
(SUBR 01)

F - FINAL

METAL CLEANING WASTE POND

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.
 OMB No. 2040-0004
 Approval expires 05-31-98

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
From 00	03	01	To 00	03	31

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PARAMETER (32-37)		(3 Card Only (46-53) QUANTITY OR LOADING (54-61)			(4 Card Only (38-45) QUALITY OR CONCENTRATION (46-53) (54-61)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
PH	SAMPLE MEASUREMENT	*****	*****	**		*****		(12)		
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU	DAILY	GRAB
PHOSPHORUS, TOTAL (AS P)	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
00665 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L	DAILY	COMP-8
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	30 DAILY MX	MG/L	DAILY	COMP-8
OIL & GREASE FREON EXTR-GRAV METH	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
00556 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	15 DAILY MX	MG/L	DAILY	GRAB
COPPER, TOTAL (AS CU)	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
01042 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L	DAILY	COMP-8
IRON, TOTAL (AS FE)	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
01045 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L	DAILY	COMP-8
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT			(03)	*****	*****	*****	..		
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	****	DAILY	CALCTD

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	04	12
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No phosphate bearing chemicals were employed. There were no releases during March 2000.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY IN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

ATTN: Debra J. Bodine

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450	110 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR
(SUBR 01)

F - FINAL

RECYCLED COOLING WATER

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.
 OMB No. 2040-0004.
 Approval expires 05-31-98

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	03	01	00	03	31

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	QUANTITY OR LOADING (3 Card Only (46-53) (54-61))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61))			UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(04)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	38.3 DAILY MX	DEG. C.		DAILY	GRAB-4
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**		*****		(12)			
	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		WEEKLY	GRAB
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	0.10 DAILY MX	MG/L		WEEKLY	GRAB-4
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE		DATE		
Masoud Baghestani			423	843-6700	00	04	12
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No Discharge this Period.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name **TVA - SEQUOYAH NUCLEAR PLANT**
 Address **BOX 2000**
 (INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility **TVA - SEQUOYAH NUCLEAR PLANT**
 Location **HAMILTON COUNTY**

ATTN: Debra J. Bodine

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450

112 G

PERMIT NUMBER

DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

SEWAGE TREATMENT PLANT

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

MONITORING PERIOD					
From			To		
YEAR	MO	DAY	YEAR	MO	DAY
00	03	01	00	03	31

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT (38-45)	QUANTITY OR LOADING (54-61)			QUALITY OR CONCENTRATION (54-61)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE (46-53)	MAXIMUM (54-61)	UNITS (54-61)	MINIMUM (38-45)	AVERAGE (46-53)	MAXIMUM (54-61)			
BOD, 5-DAY (20 DEG. C) 00310 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(19)		
	PERMIT REQUIREMENT	*****	*****	****	*****	30 MO AVG	45 DAILY MX	MG/L	TWICE/MONTH	GRAB
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(19)		
	PERMIT REQUIREMENT	*****	*****	****	*****	30 MO AVG	45 DAILY MX	MG/L	TWICE/MONTH	GRAB
SOLIDS, SETTLEABLE 00545 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(25)		
	PERMIT REQUIREMENT	*****	*****	****	*****		1.0 DAILY MX	MG/L	TWICE/WEEK	GRAB
COLIFORM, FECAL MF, M-FC BROTH, 44.5C 31616 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(13)		
	PERMIT REQUIREMENT	*****	*****	**	*****	200 ARI MEAN	1000 DAILY MX	#/100 ML	TWICE/MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT 50050 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT			(03)	*****	*****	*****	**		
	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	****	CONTINUOUS	TOTALZ
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	2.0 INST MAX	MG/L	WEEK-DAYS	GRAB
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)					TELEPHONE		DATE		
Masoud Bagestani						423 843-6700		00	04	12
Site Vice President						NUMBER		YEAR	MO	DAY
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT					AREA CODE				

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Sewage flow has been diverted from this system since January, 1998. DSN-112 is now in stand-by status. No Discharge this Period

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450	118 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR
(SUBR 01)

F - FINAL

WASTEWATER & STORM WATER

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.
 OMB No. 2040-0004
 Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	03	01	00	03	31

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		QUANTITY OR LOADING (54-61)			QUALITY OR CONCENTRATION (54-61)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE (46-53)	MAXIMUM (54-61)	UNITS (54-61)	MINIMUM (38-45)	AVERAGE (46-53)	MAXIMUM (54-61)			
OXYGEN, DISSOLVED (DO)	SAMPLE MEASUREMENT	*****	*****	**		*****	*****	(19)		
00300 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	2.0 DAILY MN	*****	*****	MG/L	TWICE/ WEEK	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	100 DAILY MX	MG/L	TWICE/ WEEK	GRAB
SOLIDS, SETTLEABLE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(25)		
00545 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L	ONCE/ MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT			(03)	*****	*****	*****	**		
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	*	ONCE/ BATCH	CALCTD
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE		
Masoud Bagestani		423	843-6700	00	04	12
Site Vice President						
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT				

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

During this reporting period, there has been no flow from the Dredge Pond other than that resulting from rainfall. No Discharge this Period

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450	101 T
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR
(SUBR 01)

F - FINAL

BI YEARLY MONITORING

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.
 OMB No. 2040-0004
 Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
From			To		
YEAR	MO	DAY	YEAR	MO	DAY
99	09	01	00	02	29

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		QUANTITY OR LOADING (3 Card Only (46-53) (54-61))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61))			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)	
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS
LC50 STATRE 96HR ACU CERIODAPHNIA	SAMPLE MEASUREMENT	*****	*****	(23)	>100	*****	*****	(23)	0	01 / 180	GRAB
TAN3B 1 0 0	PERMIT REQUIREMENT	*****	*****	PERCENT	100 MINIMUM	*****	*****	PERCENT		SEMI-ANNUAL	GRAB
LC50 STATRE 96HR ACU PIMEPHALES	SAMPLE MEASUREMENT	*****	*****	(23)	>100	*****	*****	(23)	0	01 / 180	GRAB
TAN6C 1 0 0	PERMIT REQUIREMENT	*****	*****	PERCENT	100 MINIMUM	*****	*****	PERCENT		SEMI-ANNUAL	GRAB
NOEC STATRE 4DAY CHR CERIODAPHNIA	SAMPLE MEASUREMENT	*****	*****	(23)	>100.00	*****	*****	(23)	0	01 / 180	GRAB
TBO3B 1 0 0	PERMIT REQUIREMENT	*****	*****	PERCENT	48.98 MINIMUM	*****	*****	PERCENT		SEMI-ANNUAL	GRAB
NOEC STATRE 4DAY CHR PIMEPHALES	SAMPLE MEASUREMENT	*****	*****	(23)	>100.00	*****	*****	(23)	0	01 / 180	GRAB
TBO6C 1 0 0	PERMIT REQUIREMENT	*****	*****	PERCENT	48.98 MINIMUM	*****	*****	PERCENT		SEMI-ANNUAL	GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	04	10
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT					

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 Sampling period was from 1/31/00 to 2/6/00.

March 22, 2000

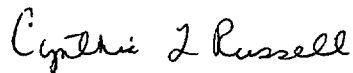
Diedre B. Nida, SB 2A-SQN

SEQUOYAH NUCLEAR PLANT (SQN) TOXICITY BIOMONITORING, NPDES PERMIT
NO. TN0026450, FEBRUARY, 2000 REPORT

Attached are two copies of the subject report for submission to the state of Tennessee with the DMR package. The report provides results of compliance tests required under the SQN NPDES permit. I have also include a copy of the report for your records.

SQN Outfall 101 samples collected January 31- February 6, were not toxic to fathead minnows or daphnids (96-h LC_{50} s > 100 percent and 7-day NOEC's, measured as IC_{25} s, >100 percent). Fathead minnows and daphnids exposed to intake and upstream samples were not significantly different from the control.

Call me at (256) 386-2755 if you have any questions or comments following your review of the report.



Cynthia L. Russell
Biologist
Environmental Engineering Services- West
CEB 3A-M

CLR
Attachment
cc (Attachment):
Files, ER&TA, CEB 1B-M

sqn-0200m.doc

**TENNESSEE VALLEY AUTHORITY
TOXICITY TEST REPORT**

INTRODUCTION/EXECUTIVE SUMMARY

- 1) Facility/Discharger: Sequoyah Nuclear Plant/TVA Report Date: March 22, 2000
- 2) County/State: Hamilton/Tennessee 3) NPDES Permit #: TN0026450
- 4) Type of Facility: Nuclear-fueled electric generating plant
- 5) Design Flow (MGD): 3,266
- 6) Receiving Stream: Tennessee River (TRM 483.6) 7) 1Q20: 2,992.4
- 8) Outfall Tested: 101 9) Dates Sampled: 01/31-02/06/00
- 10) Flow on day(s) sampled (MGD): 1591 1594 1585 1582 1600 1610 1588
- 11) Pertinent site conditions: No unusual conditions reported.*
- 12) Test Dates: 02/01-08/00 13) Test Type: Short-term Chronic-definitive
- 14) Test Species: Fathead Minnows (*Pimephales promelas*)
Daphnids (*Ceriodaphnia dubia*)
- 15) Concentrations Tested (%):
- | | | | | | |
|-------------|------------|-------------|-------------|-------------|-------------|
| Outfall 101 | <u>25</u> | <u>39.2</u> | <u>49</u> | <u>80</u> | <u>100</u> |
| Intake | <u>100</u> | <u> </u> | <u> </u> | <u> </u> | <u> </u> |
| Upstream | <u>100</u> | <u> </u> | <u> </u> | <u> </u> | <u> </u> |
- 16) Permit Limit Endpoint (%): Outfall 101 96-hr LC₅₀ = 100 NOEC = 49
- 17) Test Results (%): Outfall 101
- | | | |
|------------------------------|---------------------------------------|--|
| <i>Pimephales promelas</i> : | <u>96-hr LC₅₀ > 100</u> | <u>NOEC (IC₂₅) > 100</u> |
| <i>Ceriodaphnia dubia</i> : | <u>96-hr LC₅₀ > 100</u> | <u>NOEC (IC₂₅) > 100</u> |
- 18) Facility Contact: Debra J. Bodine 19) Phone #: (423) 843-6700
- 20) Consultant/Testing Lab Name: EnviroData Group, LLC (EDG)
- 21) Lab Contact: Paul W. Patterson 22) Phone #: (606) 276-3506
TVA Contact: Cynthia L. Russell Phone #: (256) 386-2755

*Production/operation data will be provided in the event toxicity exceeds permit limits

- 23) Notes: Samples collected from Outfall 101 exhibited no toxicity to *P. promelas* or *C. dubia* based on the applicable permit limits. Resulting IC₂₅ values for both species were > 100 percent.

Fathead minnows exposed to intake and upstream samples were not significantly different from the control based on growth analyses using homoscedastic t-Tests.

Daphnids were not significantly different from control for either intake or upstream based on reproduction analyses using Wilcoxon Two-Sample Tests.

METHODS SUMMARY

Samples

1) Sampling Point: Outfall 101

2) Sample Type: Grab

3) Sample Information:

ID	Date/Time Collected (MM-DD/Time)	Date/Time Received (MM-DD/Time)	Arrival Temp. (°C)	Initial TRC* (mg/L)	Date/Time Used (MM-DD/Time)
101 Intake Upstream	01-31/0905 ET	02-01/1030ET	1.0	< 0.02	02-01/1230 ET
	01-31/0840 ET	02-01/1030 ET	1.0	< 0.02	02-01/1230 ET
	01-31/0925 ET	02-01/1030 ET	1.0	< 0.02	02-01/1230 ET
101 Intake Upstream	02-01/0933 ET	02-02/1030 ET	1.0	< 0.02	02-02/1200 ET
	02-01/0913 ET	02-02/1030 ET	1.0	< 0.02	02-02/1200 ET
	02-01/0853 ET	02-02/1030 ET	1.0	< 0.02	02-02/1200 ET
101 Intake Upstream	02-02/0903 ET	02-03/1130 ET	1.0	< 0.02	02-03/1400 ET
	02-02/0843 ET	02-03/1130 ET	1.1	< 0.02	02-03/1400 ET
	02-02/0823 ET	02-03/1130 ET	1.0	< 0.02	02-03/1400 ET
101 Intake Upstream	02-03/0913 ET	02-04/1030 ET	1.0	< 0.02	02-04/1315 ET
	02-03/0853 ET	02-04/1030 ET	1.0	< 0.02	02-04/1315 ET
	02-03/0813 ET	02-04/1030 ET	1.0	< 0.02	02-04/1315 ET
101 Intake Upstream	02-04/0853 ET	02-05/1030 ET	1.0	< 0.02	02-05/1300 ET
	02-04/0813 ET	02-05/1030 ET	1.0	< 0.02	02-05/1300 ET
	02-04/0838 ET	02-05/1030 ET	1.1	< 0.02	02-05/1300 ET
101 Intake Upstream	02-05/0848 ET	02-05/1420 ET	1.1	< 0.02	02-06/1300 ET
	02-05/0833 ET	02-05/1420 ET	1.2	< 0.02	02-06/1300 ET
	02-05/0808 ET	02-05/1420 ET	1.1	< 0.02	02-06/1300 ET
101 Intake Upstream	02-06/0848 ET	02-06/1320 ET	1.0	< 0.02	02-07/1245 ET
	02-06/0828 ET	02-06/1320 ET	1.0	< 0.02	02-07/1245 ET
	02-06/0803 ET	02-06/1320 ET	1.0	< 0.02	02-07/1245 ET

*Total residual chlorine.

- 4) Sample manipulation: Samples were warmed to test temperature (25°C) in a warm water bath.

Test Organisms

	<i>Pimephales promelas</i>	<i>Ceriodaphnia dubia</i>
1) Source:	<u>In-house Culture</u>	<u>In-house Culture</u>
2) Age:	<u>< 24 hours</u>	<u>< 24 hours</u>

Test Method Summary (See Appendix A for additional information)

	<i>Pimephales promelas</i>	<i>Ceriodaphnia dubia</i>
1) Test Conditions	<u>Static, renewal</u>	<u>Static, renewal</u>
2) Test Duration	<u>7 days</u>	<u>Until at least 60% of control females have 3 broods</u>
3) Dilution/Control Water	<u>"9:1" Moderately Hard Reconstituted Water</u>	<u>"9:1" Moderately Hard Reconstituted Water</u>
4) Number Replicates	<u>4</u>	<u>10</u>
5) Animals per Replicate	<u>10</u>	<u>1</u>
6) Test Initiation (Date/Time)	<u>02-01-00/1130 ET</u>	<u>02-01-00/1230 ET</u>
7) Test Termination (Date/Time)	<u>02-08-00/1230 ET</u>	<u>02-08-00/1330 ET</u>
8) Test Temperature	Mean = 24.6°C <u>(24.0°C-25.0°C)</u>	Mean = 24.6°C <u>(24.0°C-25.0°C)</u>
9) Physical/Chemical Measurements:	Hardness, alkalinity, total residual chlorine, and conductivity were measured at the laboratory in each 100 percent sample. Daily temperatures were measured in one replication per test concentration. Pre- and post-exposure test solutions were analyzed daily for pH and dissolved oxygen.	
10) Statistics:	Statistics were performed according to methods prescribed by EPA using ToxCalc version 5.0 statistical software (Tidepool Scientific Software, McKinneyville, CA).	

TOXICITY TEST RESULTS (See Appendix C for Bench Sheets)

1) Results of a Pimephales promelas Chronic 7-d Toxicity Test
(Genus) (Species) (Type/Duration)

Conducted 02/01/00 - 02/08/00 Using Effluent From Outfall 101.
(mm/dd/yy) (mm/dd/yy) (number)

Test Solutions	Percent Surviving (time intervals used - days)						
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4*</u>	<u>5</u>	<u>6</u>	<u>7</u>
Control	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>98</u>	<u>95</u>
25% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
39.2% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>95</u>	<u>85</u>
49% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
80% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>95</u>	<u>95</u>
100% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>98</u>	<u>98</u>
Intake	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>98</u>	<u>98</u>
Upstream	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>98</u>	<u>73</u>
*96-Hour LC ₅₀ Value: <u>> 100%</u>				Calculated TU Estimates [†] : <u>< 1.0 TUa</u>			
95% Confidence Limits Upper Limit <u>NA</u> Lower Limit <u>NA</u>				Permit Limit: <u>1.0 TUa</u>			

Test Solutions	IC ₂₅ Mean Dry Weight (mg) (Replication)				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Mean</u>
Control	<u>0.725</u>	<u>0.578</u>	<u>0.493</u>	<u>0.686</u>	<u>0.621</u>
25% Effluent	<u>0.636</u>	<u>0.599</u>	<u>0.634</u>	<u>0.552</u>	<u>0.605</u>
39.2% Effluent	<u>0.599</u>	<u>0.572</u>	<u>0.242</u>	<u>0.481</u>	<u>0.474</u>
49% Effluent	<u>0.618</u>	<u>0.743</u>	<u>0.583</u>	<u>0.633</u>	<u>0.644</u>
80% Effluent	<u>0.671</u>	<u>0.670</u>	<u>0.667</u>	<u>0.656</u>	<u>0.666</u>
100% Effluent	<u>0.355</u>	<u>0.601</u>	<u>0.613</u>	<u>0.596</u>	<u>0.541</u>
Intake	<u>0.591</u>	<u>0.554</u>	<u>0.577</u>	<u>0.636</u>	<u>0.590</u>
Upstream	<u>0.452</u>	<u>0.490</u>	<u>0.615</u>	<u>0.267</u>	<u>0.456</u>
IC ₂₅ Value: <u>> 100%</u>			Calculated TU Estimates [†] : <u>< 1.0 TUc</u>		
95% Confidence Limits Upper Limit = <u>NA</u> Lower Limit = <u>NA</u>			Permit Limit: <u>1.0 TUc</u>		

NOTE: TUa = 100/LC₅₀; TUc = 100/IC₂₅

2) Results of a Ceriodaphnia dubia Chronic/ 7 day (3-brood) Toxicity Test

(Genus)

(Species)

(Type/Duration)

Conducted 02/01/00 - 02/08/00

Using Effluent From Outfall 101

(mm/dd/yy) (mm/dd/yy)

(number)

Test Solutions	Percent Surviving (time intervals used - days)						
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4*</u>	<u>5</u>	<u>6</u>	<u>7</u>
Control	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
25% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
39.2% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
49% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
80% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>90</u>	<u>90</u>
100% Effluent	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
Intake	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
Upstream	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>90</u>	<u>90</u>
*96-Hour LC ₅₀ Value: <u>> 100%</u>			Calculated TU Estimates [†] : <u>< 1.0 TUa</u>				
95% Confidence Limits Upper Limit <u>NA</u> Lower Limit <u>NA</u>			Permit Limit: <u>1.0 TUa</u>				

Test Solutions	Reproduction (# of young/female during test) Data Replicates										Mean
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	
Control	35	35	34	35	32	33	31	32	33	30	33.0
25% Effluent	32	28	27	27	32	29	29	33	31	32	30.0
39.2% Effluent	30	29	34	51	55	46	29	32	41	34	38.1
49% Effluent	53	54	49	56	53	43	29	31	31	54	45.3
80% Effluent	37	18	51	54	58	55	32	33	34	35	40.7
100% Effluent	46	52	54	58	57	58	35	38	36	33	46.7
Intake	26	37	37	61	47	61	34	33	32	25	39.3
Upstream	34	32	31	32	31	37	19	32	36	31	31.5
IC ₂₅ Value: <u>> 100%</u>			Calculated TU Estimates [†] : <u>< 1.0 TUc</u>								
95% Confidence Limits Upper Limit <u>NA</u> Lower Limit <u>NA</u>			Permit Limit: <u>1.0 TUc</u>								

[†]NOTE: TUa = 100/LC₅₀; TUc = 100/ IC₂₅

REFERENCE TOXICANT TEST RESULTS (See Appendixes A and D)

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ /IC ₂₅)
<i>Pimephales promelas</i>	01-03-00	1300	7-days	NaCl	2648 mg/L (IC ₂₅)
<i>Ceriodaphnia dubia</i>	01-07-00	0900	6-days	NaCl	1327 mg/L (IC ₂₅)

PHYSICAL/CHEMICAL SUMMARY

- 1) Analysis of Sequoyah Nuclear Plant Diffuser Discharge Concentrations of Total Residual Chlorine
- 2) Initial and Final Chemistry for Fathead Minnow 7-day and Daphnid 3-brood Chronic Tests.

See Summary Tables in Appendix B

SUMMARY/CONCLUSIONS

Samples collected from Outfall 101 exhibited no toxicity to *P. promelas* or *C. dubia* based on the applicable permit limits. Resulting IC₂₅ values for both species were > 100 percent.

Fathead minnows exposed to intake and upstream samples were not significantly different from the control based on growth analyses using homoscedastic t-Tests. Daphnids were not significantly different from control for either intake or upstream based on reproduction analyses using Wilcoxon Two-Sample Tests.

Appendix A

ADDITIONAL TOXICITY TEST INFORMATION

SUMMARY OF METHODS

1) *Pimephales promelas*

Tests were conducted according to EPA/600/4-91/002 (July 1994) using four replicates, each containing ten test organisms, per treatment. Test vessels consisted of 500-mL polystyrene tumblers, each containing 250 mL of test solution. [2]

2) *Ceriodaphnia dubia*

Tests were conducted according to EPA/600/4-91/002 (July 1994) using ten replicates, each containing one test organism, per treatment. Test vessels consisted of 30-mL polystyrene cups, each containing 15 mL of test solution. [2]

DEVIATIONS/MODIFICATIONS TO TEST PROTOCOL

1) *Pimephales promelas*

C. dubia laboratory culture medium ("9:1" moderately hard reconstituted water) prepared according to EDG SOP 3040 was used for control and dilution water. The water consists of 9 parts moderately hard reconstituted water and 1 part mineral water. Experience has shown that the daphnids cultured in water without the mineral water addition are stressed. This stress is eliminated through the use of mineral water. For consistency, this same water is used for control/dilution water in *P. promelas* tests. [3]

2) *Ceriodaphnia dubia*

Laboratory culture medium ("9:1" moderately hard reconstituted water) prepared according to EDG SOP 3040 was used for control and dilution water. The water consists of 9 parts moderately hard reconstituted water and 1 part mineral water. Experience has shown that the daphnids cultured in water without the mineral water addition are stressed. This stress is eliminated through the use of mineral water. [3]

DEVIATIONS/MODIFICATIONS TO PRETEST CULTURE OR HOLDING OF TEST ORGANISMS

1) *Pimephales promelas*

None

2) *Ceriodaphnia dubia*

Laboratory culture medium consisted of "9:1" moderately hard reconstituted water prepared according to EDG SOP 3040. The water consists of 9 parts moderately hard reconstituted water and 1 part mineral water. Experience has shown that the daphnids cultured in water without the mineral water addition are stressed. This stress is eliminated through the use of mineral water. [3]

PHYSICAL AND CHEMICAL METHODS

- 1) Reagents, Titrants, Buffers, etc.: All chemicals were certified products used before expiration dates (where applicable).
- 2) Instruments: All identification, service, and calibration information pertaining to EDG laboratory instruments is recorded in calibration and maintenance log books.
- 3) Temperature was measured using a Fisher Scientific digital NIST-traceable thermometer according to EDG SOP 3203. [3]
- 4) Dissolved oxygen was measured using a Jenway 3410 Electrochemistry Analyzer. The instrument was calibrated and readings were made according to EDG SOP 3187. [3]
- 5) The pH was measured using a Jenway 3410 Electrochemistry Analyzer equipped with an Orion combination electrode. The instrument was calibrated and readings were made according to EDG SOP 3195. [3]
- 6) Conductance was measured using a Jenway 3410 Electrochemistry Analyzer. The instrument was calibrated and readings were taken according to EDG SOP 3183. [3]
- 7) Alkalinity was measured using Standard Methods Titration Method 2320 B or EPA method 310.2 on a Lachat Colorimetric Autoanalyzer equipped with Quickchem AE Software. [4, 5]
- 8) Hardness was measured using Standard Methods EDTA Titrimetric Method 2340 C or EPA method 130.1 on a Lachat Colorimetric Autoanalyzer equipped with Quickchem AE Software. [4, 5]
- 9) Total residual chlorine was determined using the DPD Ferrous Titrimetric Method according to EDG SOP 3210. [3]

QUALITY ASSURANCE

Toxicity Test Methods: All phases of the study including, but not limited to, sample collection, handling and storage; glassware preparation; test organism culturing/acquisition and acclimation; test organism handling during test; and maintaining appropriate test conditions were conducted according to the protocol as described in this report and EPA/600/4-91/002. [2] Any known deviations were noted during the study and are reported herein.

REFERENCE TOXICANT TESTS (See Appendix D for control chart information)

- 1) Test Type: 7-day chronic tests with results expressed as IC_{25} values in mg NaCl/L.
- 2) Standard Toxicant: Sodium Chloride (NaCl crystalline)
- 3) Dilution Water Used: "9:1" Moderately hard reconstituted water
- 4) Statistics: IC_{25} - calculated by ToxCalc version 5.0 statistical software using EPA-recommended methods

REFERENCES

- 1) NPDES Permit No. TN0026450.
- 2) Lewis, P. A., D. J. Klemm, J. M. Lazorchak, T. J. Norberg-King, W. H. Peltier, M. A. Heber. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-91/002 (July 1994).
- 3) Standard Operating Procedures, Biomonitoring Section, EnviroData Group, LLC.
- 4) Standard Methods for the Examination of Water and Wastewater, 18th Edition, American Public Health Association.
- 5) Methods for Chemical Analysis of Water and Wastes, EPA/600/4-79/020 (March 1983).

Sequoyah Nuclear Plant Biomonitoring
February 1-8, 2000

Appendix B

Diffuser Discharge Concentrations of Total Residual Chlorine
and
Initial and Final Chemistry for Fathead Minnow 7-day and
Daphnid 3-brood Chronic Tests

Table B-1. Analysis of Sequoyah Nuclear Plant Diffuser (Outfall 101) Discharge Concentrations of Total Residual Chlorine*, January 31-February 6, 2000

2000		Sample Type	Total Residual Chlorine
Month	Date		(mg/L)
January	31	Grab	<0.002
February	1	Grab	0.011
February	2	Grab	0.028
February	3	Grab	0.008
February	4	Grab	0.006
February	5	Grab	<0.002
February	6	Grab	<0.002

*Towerbrom-960 (Oxidizing Biocide) 7% Sodium Bromide, 89% Sodium Dichloroisocyanurate is utilized in the essential raw cooling water and in the raw cooling water systems at SQN to control the growth of microbiologically induced bacteria and Asiatic Clams. The treatment is necessary for adequate cooling water flow, efficient heat exchange and corrosion prevention. The injected chemical is diluted by the condenser cooling water flow as well as from the flow from other sources.

Table B-2. Water Chemistry Mean Values and Ranges for Fathead Minnow and Daphnid Tests, Sequoyah Nuclear Plant (SQN),
February 1-8, 2000.

Test/ Sample ID	Temperature	Dissolved Oxygen		pH		Conductance	Alkalinity	Hardness	Total Residual
	Final (°C)	Initial (mg/L)	Final (mg/L)	Initial S.U.	Final S.U.	Initial (µmhos)	Initial mg/L CaCO ₃	Initial mg/L CaCO ₃	Chlorine (Initial) (mg/L)
Fathead/ Control	24.5 (24.0-25.0)	7.8 (7.6-7.8)	5.7 (5.2-5.9)	7.7 (7.6-7.8)	6.9 (6.9-7.0)	348 (328-383)	77.8 (75-83)	105.6 (98-115)	-
Fathead/ 25.0 %	24.5 (24.0-25.0)	8.0 (7.9-8.1)	5.6 (5.2-5.9)	7.5 (7.4-7.6)	6.9 (6.8-7.0)	330 (286-374)	-	-	-
Fathead/ 39.2 %	24.5 (24.0-25.0)	8.0 (7.8-8.2)	5.5 (5.1-5.9)	7.4 (7.3-7.5)	6.9 (6.8-7.0)	303 (264-351)	-	-	-
Fathead/ 49.0%	24.5 (24.0-25.0)	8.1 (7.8-8.3)	5.5 (5.0-5.9)	7.4 (7.3-7.5)	6.8 (6.6-7.0)	275 (210-333)	-	-	-
Fathead/ 80.0 %	24.6 (24.0-25.0)	8.1 (7.9-8.3)	5.5 (5.0-5.8)	7.3 (7.1-7.4)	6.7 (6.6-6.9)	231 (189-263)	-	-	-
Fathead/ 100.0 %	24.6 (24.1-25.0)	8.2 (7.9-8.3)	5.5 (4.8-6.2)	7.1 (7.0-7.2)	6.7 (6.6-6.9)	191 (166-221)	40.7 (36-46)	53.9 (52-58)	<0.02 (<0.02-<0.02)
Fathead/ Intake	24.7 (24.1-25.0)	8.1 (8.0-8.3)	5.5 (4.7-6.3)	7.1 (7.0-7.2)	6.7 (6.6-6.8)	201 (165-257)	41.1 (35-46)	50.7 (48-54)	<0.02 (<0.02-<0.02)
Fathead/ Upstream	24.7 (24.2-25.0)	8.1 (8.0-8.3)	5.5 (4.8-6.4)	7.1 (7.0-7.2)	6.7 (6.6-6.8)	198 (157-254)	43.6 (35-52)	51.3 (42-59)	<0.02 (<0.02-<0.02)
Daphnid/ Control	24.5 (24.1-25.0)	7.8 (7.6-7.8)	7.9 (7.7-8.2)	7.7 (7.6-7.8)	7.7 (7.5-7.8)	348 (328-383)	77.8 (75.0-83.0)	105.6 (98-115)	-
Daphnid/ 25.0%	24.5 (24.1-25.0)	8.0 (7.9-8.1)	8.0 (7.6-8.3)	7.5 (7.4-7.6)	7.7 (7.4-7.8)	330 (286-374)	-	-	-
Daphnid/ 39.2 %	24.6 (24.0-25.0)	8.0 (7.8-8.2)	8.1 (7.6-8.3)	7.4 (7.3-7.5)	7.8 (7.4-7.8)	303 (264-351)	-	-	-
Daphnid/ 49.0 %	24.6 (24.0-25.0)	8.1 (7.8-8.3)	8.1 (7.8-8.4)	7.4 (7.3-7.5)	7.7 (7.4-7.8)	275 (210-333)	-	-	-
Daphnid/ 80.0 %	24.6 (24.1-25.0)	8.1 (7.9-8.3)	8.2 (7.8-8.4)	7.3 (7.1-7.4)	7.6 (7.3-7.8)	231 (189-263)	-	-	-
Daphnid/ 100.0 %	24.6 (24.1-25.0)	8.2 (7.9-8.3)	8.1 (7.8-8.4)	7.1 (7.0-7.2)	7.6 (7.3-7.7)	191 (166-221)	40.7 (36-46)	53.9 (52-58)	<0.02 (<0.02-<0.02)
Daphnid/ Intake	24.6 (24.1-25.0)	8.1 (8.0-8.3)	8.1 (7.9-8.2)	7.1 (7.0-7.2)	7.5 (7.3-7.6)	201 (165-257)	41.1 (35-46)	50.7 (48-54)	<0.02 (<0.02-<0.02)
Daphnid/ Upstream	24.5 (24.0-25.0)	8.1 (8.0-8.3)	8.1 (7.8-8.3)	7.1 (7.0-7.2)	7.5 (7.3-7.6)	198 (157-254)	43.6 (35-52)	51.3 (42-59)	<0.02 (<0.02-<0.02)

Sequoyah Nuclear Plant Biomonitoring
February 1-8, 2000

Appendix C

Chain of Custody Records and
Toxicity Bench Sheets

0032-0033-1

BIOMONITORING CHAIN OF CUSTODY RECORD

Page 1 of 1Client: Tennessee Valley AuthorityProject Name: Savannah Nuclear PlantP.O. Number: Saddy Daisy PO Box 2000, TN 37379Facility Sampled: Savannah Nuclear PlantNPDES Number: TN0026450

Collected By:

Commonwealth
Technology, Inc.

2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: cti@ctienv.com

Delivered By (Circle One):

☒ FedEx ☐ UPS ☐ Bus ☐ Client

Other (specify): _____

General Comments:

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Y-	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appear- ance
<u>TOX</u> SQN-DSN-101	Grab	19.5	1/31/00	0905 1/31/00	2.5 gal				✓			1°	JCF		
<u>TOX</u> SQN-INT-TOX	Grab	4.5	1/31/00	0840 1/31/00	1.0 gal				✓			1°	JCF		
<u>TOX</u> SQN-TRM-486-ups	Grab	5.0	1/31/00	0925 1/31/00	1.0 gal				✓			1°	JCF		

Sample Custody - Fill In From Top Down

Relinquished By (Signature):

Date/Time

Received By (Signature):

Date/Time

Wanda Allen1/31/00 0950Federal Express2/1/00 1030James F. J.2/1/00 1100James F. J.
SHARON & AMELIA2/1/00 10:302/1/00 10:30 11:00

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The hold time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

0032-0033-2

BIOMONITORING CHAIN OF CUSTODY RECORD

Page ____ of ____

Client: TENNESSEE VALLEY AUTHORITYProject Name: SEQUOYAH NUCLEAR PLANTP.O. Number: BOX 2000Facility Sampled: SEQUOYAH NUCLEAR PLANTNPDES Number: TN 0026450Collected By: Charles A. Farris

2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: info@envirodatagroup.com

☒ FedEx ☐ UPS ☐ Bus ☐ Client ☐ CTI.\$ ____

Other (specify): _____

General Comments:

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time (If grab, list date/time under "End")		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Yes	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appear- ance
SQN-DSN-101-TOX	GRAB	20°C	2/1/00 0930	2/1/00 0933	2.5 gal				✓			1°	JCF	1030	
SQN-INT-TOX	GRAB	6°C	2/1/00 0910	2/1/00 0913	1.0 gal				✓			1°	↓	↓	
SQN-TRM-486-TOX	GRAB	6°C	2/1/00 0850	2/1/00 0853	1.0 gal				✓			1°	↓	↓	

Sample Custody – Fill In From Top Down

Relinquished By (Signature):

Date/Time

Received By (Signature):

Date/Time

Charles A. Farris

2/1/00 0955

Federal Express
James Farris2/2/00 1030
2/2/00 1045James Farris
Pat Ramsey2/2/00 1030
2/2/00 1045

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The hold time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

0032-33-3

BIOMONITORING CHAIN OF CUSTODY RECORD

Page 1 of 1Client: TENNESSEE VALLEY AUTHORITYProject Name: SEQUOYAH NUCLEAR PLANTP.O. Number: BOX 2000Facility Sampled: SEQUOYAH NUCLEAR PLANTNPDES Number: TN 0026450

Collected By:



2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: info@envirodatagroup.com

FedEx UPS Bus Client CTI \$ _____

Other (specify): _____

General Comments:

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time (If grab, list date/time under "End")		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Yes	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appe anc
SQN-DSN-101-TOX	GRAB	19°C	2/2/00 0900	2/2/00 0903	2.5 gal				✓			1.0	SH	1130	CLEAR
SQN-INT-TOX	GRAB	4.5°C	2/2/00 0840	2/2/00 0843	1.0 gal				✓			1.1	SH	1130	CLEAR
SQN-TRM-486-TOX	GRAB	4°C	2/2/00 0820	2/2/00 0823	1.0 gal				✓			1.0	SH	1150	CLEAR

Sample Custody – Fill In From Top Down

Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time
Charles A. Davis	2/2/00 0920	SHARON HAMM	2/3/00 1130

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

0632-0033-4

BIOMONITORING CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: TENNESSEE VALLEY AUTHORITY

Project Name: SEQUOYAH NUCLEAR PLANT

P.O. Number: BOX 2000

Facility Sampled: SEQUOYAH NUCLEAR PLANT

NPDES Number: TN 0026450

Collected By:



2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: info@envirodatagroup.com

FedEx UPS Bus Client CTI \$

Other (specify):

General Comments:

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time (If grab, list date/time under "End")		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Yes	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appearance
SQN-DSN-101-TOX	GRAB	19°C	2/3/00 0910	2/3/00 0913	2.5 gal				✓			1°	Jef	1030	
SQN-INT-TOX	GRAB	5.5°C	2/3/00 0850	2/3/00 0853	1.0 gal				✓			1°	↓	↓	
SQN-TRM-486-TOX	GRAB	5°C	2/3/00 0810	2/3/00 0813	1.0 gal				✓			1°	↓	↓	

Sample Custody – Fill In From Top Down

Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time
<i>Charles G. Lewis</i>			
Federal Express	2/4/00 1030	<i>James F. Z...</i>	2/4/00 1030
<i>James F. Z...</i>	2/4/00 1040	<i>Robert Kimbly</i>	2/4/00 1040

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The hold time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

0032-33-45

BIOMONITORING CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: TENNESSEE VALLEY AUTHORITYProject Name: SEQUOYAH NUCLEAR PLANTP.O. Number: BOX 2000Facility Sampled: SEQUOYAH NUCLEAR PLANTNPDES Number: TN 0026450Collected By: Wanda Allen

2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: info@envirodatagroup.com

FedEx UPS Bus Client CTI \$

Other (specify):

General Comments:

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time (If grab, list date/time under "End")		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Yes	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appearance
IGN-DSN-101-TOX	GRAB	20	2/4/00 0850	2/4/00 0853	2.5 gal				✓			1.0	SMH	1035	CLEAR
IGN-INT-TOX	GRAB	6	2/4/00 0810	2/4/00 0813	1.0 gal				✓			1.0	SMH	1035	CLEAR
IGN-TRM-486-TOX	GRAB	6	2/4/00 0835	2/4/00 0838	1.0 gal				✓			1.1	SMH	1035	CLEAR

Sample Custody – Fill In From Top Down

Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time
Wanda Allen	2/4/00 0915	SHARON HAMILTON	2-5-00 1030

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The hold time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

0032-033-6

BIOMONITORING CHAIN OF CUSTODY RECORD

Page 1 of 1Client: TENNESSEE VALLEY AUTHORITYProject Name: SEQUOYAH NUCLEAR PLANTP.O. Number: BOX 2000Facility Sampled: SEQUOYAH NUCLEAR PLANTNPDES Number: TN 0026450

Collected By:



2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: info@envirodatagroup.com

FedEx UPS Bus Client CTI \$

Other (specify):

General Comments:

Max Coulter (Pilot)

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time (If grab, list date/time under "End")		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Yes	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appear- ance
IGN-DSN-101-TOX	GRAB	20°C	2/5/00 0845	2/5/00 0848	2.5 gal				✓			1.1	SMU	1430	CLEAR
IGN-INT-TOX	GRAB	5.5°C	2/5/00 0830	2/5/00 0833	1.0 gal				✓			1.2	SMU	1430	CLEAR
IGN-TRM-486-TOX	GRAB	4.5°C	2/5/00 0805	2/5/00 0808	1.0 gal				✓			1.1	SMU	1430	CLEAR

Sample Custody – Fill In From Top Down

Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time
Charles A. Smith	2/5/00 0930	SARON HAMIL	2-5-00 1420
Ronald W. Lamy	2/5/00 1000		

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The hold time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

0032-33-7

BIOMONITORING CHAIN OF CUSTODY RECORD

Page ____ of ____

Client: TENNESSEE VALLEY AUTHORITYProject Name: SEQUOYAH NUCLEAR PLANTP.O. Number: BOX 2000Facility Sampled: SEQUOYAH NUCLEAR PLANTNPDES Number: TN 0026450

Collected By:



2520 Regency Road, Lexington, KY 40503

Phone: 606-276-3506

Toll Free: 800-489-3506

Fax: 606-278-5665

email: info@envirodatagroup.com

FedEx UPS Bus Client CTI \$ ____Other (specify): MAX counter

General Comments:

Field Identification / Sample Description	Grab/ Comp.	Ship. Temp. (°C)	Collection Date/Time (If grab, list date/time under "End")		Container Number & Volume Collected	Flow (MGD)	Rain Event? (Mark as Appropriate)				Laboratory Use				
			Start	End			Yes	If Yes, Inches	No	Trace	CTI Log Number	Arrival Temp. (°C)	By	Time	Appear- ance
SGN-DSN-101-TOX	GRAB	19° 0845	2/6/00 0845	2/6/00 0848	2.5 gal				✓			1.0	SMH	1330	CLEAR
SGN-INT-TOX	GRAB	5°	2/6/00 0825	2/6/00 0828	1.0 gal				✓			1.0	SMH	1330	↓
SGN-TRM-486-TOX	GRAB	5°	2/6/00 0800	2/6/00 0803	1.0 gal				✓			1.0	SMH	1330	↓

Sample Custody – Fill In From Top Down

Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time
<i>Charles A. Smith</i>	2/6/00 0900	<i>SHARON HAMILTON</i>	2-6-00 1320
<i>Ronald W. Lowery</i>	2/6/00 0930		

Instructions: Clients should fill in all areas except those in the "Laboratory Use" block. Biomonitoring samples are preserved by storing them at 4°C and shipping them in ice. The hold time for each sample is 36 hours from the time of collection. Therefore, please collect and ship in such a way that the laboratory will receive the samples with ample time to initiate testing within that time frame. Samples shipped overnight on Friday via FedEx or UPS must be marked for Saturday delivery or they will not arrive until the following Monday.

FATHEAD MINNOW
LARVAL SURVIVAL AND GROWTH TEST
 EPA 600/4-91/002, METHOD 1000.0



2520 Regency Road
 Lexington, Kentucky 40503-2921

8

Discharger: TVA / Sec. on Yah

Sample Description: outfall 101

Bio. Log No: 0033

Date/Time Test Initiated: 2/1/00 1130

Dilution Water Batch Number on Day: 1: 255 2: 256

Time of Day Renewed on Day: 1: 1200 2: 1200

Date/Time Test Terminated: 2-8-00 1230

Organism Batch Number: 0131

Initial Organism Age: < 24 hrs

Dilution Water Used: 9:12W

3: 257 4: 257 5: 258 6: 258 7: 259

3: 1230 4: 1230 5: 1200 6: 1100

Test Conc.	Test Cont. No.	No. of Live Larvae (Days)							Tin No.	Wt. of Tin & Larvae (mg)	Wt. of Tin (mg)	Total Wt. of Larvae (mg)	Mean Wt. of Larvae (mg)	Mean Wt. for Treatment (mg)
		Sample Dates												
		1/31	2/1	2/2	2/3	2/4	2/5	2/6						
		1	2	3	4	5	6	7						
<u>Control</u>	1	10	10	10	10	10	10	10	1	1025.15	1017.90	7.25	0.725	
	2	10	10	10	10	10	10	9	2	1018.48	1012.62	5.78	0.578	
	3	10	10	10	10	10	9	9	3	1018.71	1014.378	4.93	0.493	
	4	10	10	10	10	10	10	10	4	1018.30	1011.44	6.86	0.686	6.621
<u>25</u>	5	10	10	10	10	10	10	10	5	1026.60	1020.24	6.36	0.636	
	6	10	10	10	10	10	10	10	6	1027.36	1021.37	5.99	0.599	
	7	10	10	10	10	10	10	10	7	1030.01	1023.67	6.34	0.634	
	8	10	10	10	10	10	10	10	8	1027.46	1022.194	5.52	0.552	0.605
<u>39.2</u>	9	10	10	10	10	10	10	10	9	1023.16	1017.17	5.99	0.599	
	10	10	10	10	10	10	10	10	10	1023.22	1017.50	5.72	0.572	
	11	10	10	10	10	10	8	*5	11	1022.34	1019.92	2.42	0.242	
	12	10	10	10	10	10	10	9	12	1024.12	1019.31	4.81	0.481	0.474
<u>49</u>	13	10	10	10	10	10	10	10	13	1020.40	1014.22	6.18	0.618	
	14	10	10	10	10	10	10	10	14	1023.21	1015.78	7.43	0.743	
	15	10	10	10	10	10	10	10	15	1028.58	1022.55	5.83	0.583	
	16	10	10	10	10	10	10	10	16	1030.26	1023.93	6.33	0.633	0.644
<u>80</u>	17	10	10	10	10	10	9	9	17	1032.88	1026.17	6.71	0.671	
	18	10	10	10	10	10	10	10	18	1029.90	1023.20	6.70	0.670	
	19	10	10	10	10	10	9	9	19	1023.37	1016.70	6.67	0.667	
	20	10	10	10	10	10	10	10	20	1024.63	1018.07	6.56	0.656	0.666
Analyst		MSH	SH	SH	SH	MM	MM	MM	SH	MM	SH	SH	SH	
Notes: * Fish in cup 11 appeared normal.														
Approved By <u>W</u>														

Notes: * Fish in cup 11 appeared normal.

Approved By W

FATHEAD MINNOW

LARVAL SURVIVAL AND GROWTH TEST

EPA 600/4-91/002, METHOD 1000.0



2520 Regency Road

Lexington, Kentucky 40503-2921

Discharger: TVA / Seconyah

Sample Description: 04TF-2(1 10)

Bio. Log No: 0033

Date/Time Test Initiated: 2/1/00 1130

Dilution Water Batch Number on Day: 1: 255 2: 256

Time of Day Renewed on Day: 1: 1200 2: 1200

Date/Time Test Terminated: 2-8-00 1230

Organism Batch Number: 0131

Initial Organism Age: < 24 hrs

Dilution Water Used: 9:1 RW

3: 257 4: 257 5: 258 6: 258 7: 259

3: 1230 4: 1230 5: 1200 6: 1100

Test Conc.	Test Cont. No.	No. of Live Larvae (Days)							Tin No.	Wt. of Tin & Larvae (mg)	Wt. of Tin (mg)	Total Wt. of Larvae (mg)	Mean Wt. of Larvae (mg)	Mean Wt. for Treatment (mg)
		Sample Dates												
		1/31	2/1	2/2	2/3	2/4	2/5	2/6						
		1	2	3	4	5	6	7						
100	21	10	10	10	10	10	9	9	21	1024.02	1020.47	3.55	0.355	
	22	10	10	10	10	10	10	10	22	1022.86	1016.85	6.01	0.601	
	23	10	10	10	10	10	10	10	23	1029.13	1023.00	6.13	0.613	
	24	10	10	10	10	10	10	10	24	1026.77	1020.81	5.96	0.596	0.541
Intake	25	10	10	10	10	10	10	10	25	1027.65	1021.74	5.91	0.591	
	26	10	10	10	10	10	9	9	26	1028.86	1023.32	5.54	0.554	
	27	10	10	10	10	10	10	10	27	1027.94	1022.17	5.77	0.577	
	28	10	10	10	10	10	10	10	28	1030.22	1023.26	6.36	0.636	0.590
Upstream	29	10	10	10	10	10	10	7	29	1029.47	1024.95	4.52	0.452	
	30	10	10	10	10	10	10	8	30	1024.39	1019.49	4.90	0.490	
	31	10	10	10	10	10	10	10	31	1025.65	1019.50	6.15	0.615	
	32	10	10	10	10	10	9	4	32	1026.46	1023.79	2.67	0.267	0.456
Analyst		M	SH	SH	SH	SH	SH	MN		SH	MN	SH	SH	SH
Notes:												Approved By		RP

Larval Fish Survival and Growth Test-Start Growth

Start Date: 2/1/00 11:30 Test ID: 33 Sample ID: TV-TVA
End Date: 2/8/00 12:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF3-Power Plant
Sample Date: 1/31/00 Protocol: EF-EPA/600/4-91/002 Test Species: PP-Pimephales promelas
Comments:

Conc-%	1	2	3	4
control	0.7250	0.5780	0.4930	0.6860
25	0.6360	0.5990	0.6340	0.5520
39.2	0.5990	0.5720	0.2420	0.4810
49	0.6180	0.7430	0.5830	0.6330
80	0.6710	0.6700	0.6670	0.6560
100	0.3550	0.6010	0.6130	0.5960

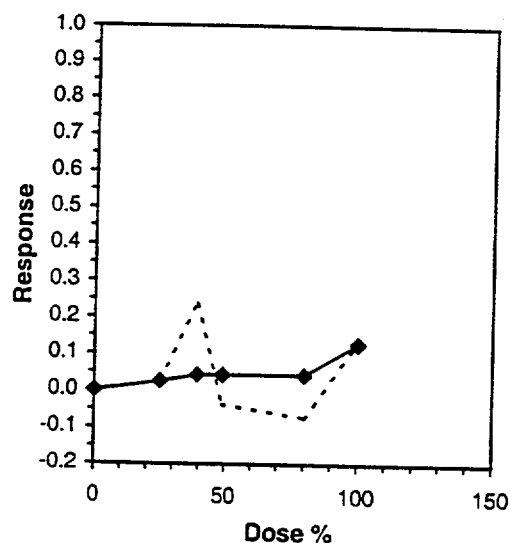
Conc-%	Mean	N-Mean	Transform: Untransformed					Isotonic	
			Mean	Min	Max	CV%	N	Mean	N-Mean
control	0.6205	1.0000	0.6205	0.4930	0.7250	16.972	4	0.6205	1.0000
25	0.6053	0.9754	0.6053	0.5520	0.6360	6.502	4	0.6053	0.9754
39.2	0.4735	0.7631	0.4735	0.2420	0.5990	34.293	4	0.5946	0.9582
49	0.6443	1.0383	0.6443	0.5830	0.7430	10.724	4	0.5946	0.9582
80	0.6660	1.0733	0.6660	0.6560	0.6710	1.033	4	0.5946	0.9582
100	0.5413	0.8723	0.5413	0.3550	0.6130	22.979	4	0.5946	0.9582
								0.5413	0.8723

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.9173	0.884	-1.067	1.27564
Bartlett's Test indicates unequal variances ($p = 4.62E-03$)	16.9373	15.0863		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05	81.916			
IC10	93.550			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



Larval Fish Survival and Growth Test-Survival

Start Date: 2/1/00 11:30 Test ID: 00331 Sample ID: TV-TVA
End Date: 2/8/00 12:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF3-Power Plant
Sample Date: 1/31/00 Protocol: EF-EPA/600/4-91/002 Test Species: PP-Pimephales promelas
Comments: Intake

Conc-%	1	2	3	4
Control	1.0000	0.9000	0.9000	1.0000
100	1.0000	0.9000	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%	N			
Control	0.9500	1.0000	1.3305	1.2490	1.4120	7.072	4			
100	0.9750	1.0263	1.3713	1.2490	1.4120	5.942	4	-0.655	1.943	0.1209

Auxiliary Tests

Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	Statistic	Critical	Skew	Kurt		
F-Test indicates equal variances (p = 0.82)	0.82784	0.749	-0.5714	-1.7286		
Hypothesis Test (1-tail, 0.05)	1.33333	47.4683				
Homoscedastic t Test indicates no significant differences	MSDu	MSDp	MSB	MSE	F-Prob	df
	0.06826	0.07236	0.00332	0.00775	0.53696	1, 6

Larval Fish Survival and Growth Test-Start Growth

Start Date: 2/1/00 11:30	Test ID: 00331	Sample ID: TV-TVA
End Date: 2/8/00 12:30	Lab ID: EDG-Toxicology Laboratory	Sample Type: EFF3-Power Plant
Sample Date: 1/31/00	Protocol: EF-EPA/600/4-91/002	Test Species: PP-Pimephales promelas
Comments: Intake		

Conc-%	1	2	3	4
Control	0.7250	0.5780	0.4930	0.6860
100	0.5910	0.5540	0.5770	0.6360

Conc-%	Mean	N-Mean	Transform: Untransformed					t-Stat	1-Tailed	
			Mean	Min	Max	CV%	N		Critical	MSD
Control	0.6205	1.0000	0.6205	0.4930	0.7250	16.972	4			
100	0.5895	0.9500	0.5895	0.5540	0.6360	5.861	4	0.559	1.943	0.1077

Auxiliary Tests

Primary Tests		Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)		0.97599	0.749	-0.3358	0.18959		
F-Test indicates equal variances ($p = 0.10$)		9.29154	47.4683				
Hypothesis Test (1-tail, 0.05)		MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences		0.10769	0.17355	0.00192	0.00614	0.59615	1, 6

Larval Fish Survival and Growth Test-Survival					
Start Date:	2/1/00 11:30	Test ID:	0033-U	Sample ID:	TV-TVA
End Date:	2/8/00 12:30	Lab ID:	EDG-Toxicology Laboratory	Sample Type:	EFF3-Power Plant
Sample Date:	1/31/00	Protocol:	EF-EPA/600/4-91/002	Test Species:	PP-Pimephales promelas
Comments:	Upstream				
Conc-%	1	2	3	4	
control	1.0000	0.9000	0.9000	1.0000	
100	0.7000	0.8000	1.0000	0.4000	

Transform: Arcsin Square Root										
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	1-Tailed Critical	MSD
control	0.9500	1.0000	1.3305	1.2490	1.4120	7.072	4			
100	0.7250	0.7632	1.0488	0.6847	1.4120	28.669	4	1.789	1.943	0.3061

Auxiliary Tests					
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	Statistic	Critical	Skew	Kurt	
F-Test indicates equal variances ($p = 0.09$)	0.93142	0.749	-0.0066	1.76467	
Hypothesis Test (1-tail, 0.05)	10.2114	47.4683			
Homoscedastic t Test indicates no significant differences	MSDu	MSDp	MSB	MSE	F-Prob
	0.21334	0.22615	0.15879	0.04963	0.12387
					1, 6

Larval Fish Survival and Growth Test-Start Growth

Start Date: 2/1/00 11:30	Test ID: 0033-U	Sample ID: TV-TVA
End Date: 2/8/00 12:30	Lab ID: EDG-Toxicology Laboratory	Sample Type: EFF3-Power Plant
Sample Date: 1/31/00	Protocol: EF-EPA/600/4-91/002	Test Species: PP-Pimephales promelas
Comments: Upstream		

Conc-%	1	2	3	4
control	0.7250	0.5780	0.4930	0.6860
100	0.4520	0.4900	0.6150	0.2670

Conc-%	Mean	N-Mean	Transform: Untransformed					t-Stat	1-Tailed	
			Mean	Min	Max	CV%	N		Critical	MSD
control	0.6205	1.0000	0.6205	0.4930	0.7250	16.972	4			
100	0.4560	0.7349	0.4560	0.2670	0.6150	31.570	4	1.844	1.943	0.1733

Auxiliary Tests

	Statistic	Critical	Skew	Kurt		
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97444	0.749	-0.4091	-0.6187		
F-Test indicates equal variances (p = 0.62)	1.8686	47.4683				
Hypothesis Test (1-tail, 0.05)						
	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.1733	0.27929	0.05412	0.01591	0.11466	1, 6

22

**Ceriodaphnia dubia SURVIVAL AND
REPRODUCTION TEST DATA SHEET**
EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Discharger: TVA / Sequoyah
Location: 101
Bio. No.: 0032
Date/Time Initial Sample Collected: 1/31/00 0905
Time Renewed on Day: 1: 1200 2: 1400 3: 1315

Date/Time Test Initiated: 2/1/00 1230
Date/Time Test Terminated: 2/8/00 1330
Dilution Water Used: 9:1 RW
Source Culture Date: 0120
4: 1300 5: 1300 6: 1245 7: 1330

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		255	256	257	257	258	258	259			
		1	2	3	4	5	6	7*	8*		
Control	1	0	0	0	6	12	0	17		35	
	2	0	0	0	6	14	0	15		35	
	3	0	0	0	4	14	15	1		34	
	4	0	0	0	5	15	17	0		35	
	5	0	0	0	3	11	18	0		32	
	6	0	0	0	5	11	17	0		33	
	7	0	0	0	5	10	0	16		31	
	8	0	0	0	4	11	1	16		32	
	9	0	0	0	5	10	0	18		33	
	10	0	0	0	5	10	1	14		30	330
No. of Live Adults		10	10	10	10	10	10	10			

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
25	11	0	0	0	6	10	16	0		32	
	12	0	0	0	4	8	16	0		28	
	13	0	0	0	3	11	13	0		27	
	14	0	0	0	4	8	15	0		27	
	15	0	0	0	6	9	17	0		32	
	16	0	0	0	3	10	16	0		29	
	17	0	0	0	3	11	0	15		29	
	18	0	0	0	3	12	0	18		33	
	19	0	0	0	5	10	0	16		31	
	20	0	0	0	4	10	18	0		32	
No. of Live Adults		10	10	10	10	34	10	10			
Analyst		WH	WH	WH	SH	SH	WH	WH		WH	

Comments:

* If necessary

Approved By:

PH

**Ceriodaphnia dubia SURVIVAL AND
REPRODUCTION TEST DATA SHEET**
EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Discharger: TVA / Sequoyah
Location: 101
Bio. No.: 0032
Date/Time Initial Sample Collected: 1/31/00 0905

Date/Time Test Initiated: 2/1/00 1230
Date/Time Test Terminated: 2/8/00 1330
Dilution Water Used: 9:12W
Source Culture Date: 0120

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
34.2	21	0	0	0	4	10	16	0		30	
	22	0	0	0	5	9	15	0		30.29	
	23	0	0	0	5	12	17	0		34	
	24	0	0	0	3	12	18	18		51	
	25	0	0	6	0	13	17	19		55	
	26	0	0	5	0	11	11	19		46	
	27	0	0	0	3	10	0	16		29	
	28	0	0	0	4	12	0	16		32	
	29	0	0	0	5	0	17	19		41	
	30	0	0	5	0	10	19	0		34	
No. of Live Adults		10	10	10	10	10	10	10			3821

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
49	31	0	0	5	0	11	19	18		53	
	32	0	0	6	0	11	19	18		54	
	33	0	0	4	0	10	20	15		49	
	34	0	0	6	0	9	21	20		56	
	35	0	0	5	0	9	20	19		53	
	36	0	0	5	0	12	11	15		43	
	37	0	0	0	4	10	15	0		29	
	38	0	0	0	5	10	16	0		31	
	39	0	0	0	5	12	14	0		31	
	40	0	0	7	0	12	18	17		54	
No. of Live Adults		10	10	10	10	10	10	10			
Analyst		10H	10H	12	5H	5H	10H	10H		10H	10H

Comments: _____

Approved By: PP

**Ceriodaphnia dubia SURVIVAL AND
REPRODUCTION TEST DATA SHEET**
EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Discharger: TVA/Sequoyah
Location: 101
Bio. No.: 0032
Date/Time Initial Sample Collected: 1/31/00 0905

Date/Time Test Initiated: 2/1/00 1230
Date/Time Test Terminated: 2/8/00 1330
Dilution Water Used: 9:1 RW
Source Culture Date: 0120

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
80	41	0	0	5	0	14	18	0		37	
	42	0	0	6	0	12	X ₀	—		18	
	43	0	0	6	0	10	18	17		51	
	44	0	0	7	0	11	16	20		54	
	45	0	0	6	0	10	20	22		58	
	46	0	0	7	0	10	18	20		55	
	47	0	0	0	5	12	15	0		32	
	48	0	0	0	5	11	0	17		33	
	49	0	0	0	4	12	18	0		34	
	50	0	0	0	6	13	0	110		35	407
No. of Live Adults		10	10	10	10	10	9	9			

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
100	51	0	0	5	0	10	19	12		46	
	52	0	0	0	6	9	18	19		52	
	53	0	0	5	0	10	19	20		54	
	54	0	0	0	5	10	21	22		58	
	55	0	0	6	0	12	19	20		57	
	56	0	0	7	0	12	19	20		58	
	57	0	0	3	5	10	1	19		35	
	58	0	0	5	5	9	19	0		38	
	59	0	0	0	6	11	19	0		36	
	60	0	0	0	4	10	0	19		33	407
No. of Live Adults		10	10	10	10	10	10	10			
Analyst		ASH	ASH	mm	SVL	SVL	ASH	ASH		ASH	ASH

Comments: _____

Approved By: _____

PP

Ceriodaphnia dubia SURVIVAL AND REPRODUCTION TEST DATA SHEET

EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Discharger: TVA/Sequoyah

Location: 101

Bio No.: 0032

Date/Time Initial Sample Collected: 01/31/00 0905

Date/Time Test Initiated: 2/1/00 1230

Date/Time Test Terminated: 2/8/00 1330

Dilution Water Used: 9:1 RW

Source Culture Date: 0120

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
<u>Intake</u>	61	0	0	0	5	1	20	0		26	
	62	0	0	0	6	10	21	0		37	
	63	0	0	5	0	12	20	0		37	
	64	0	0	5	0	11	23	22		61	
	65	0	0	5	0	10	13	19		47	
	66	0	0	6	0	10	21	24		61	
	67	0	0	0	5	10	0	19		34	
	68	0	0	0	4	10	19	0		33	
	69	0	0	0	4	8	20	0		32	
	70	0	0	0	0	9	16	0		25	
No. of Live Adults		10	10	10	10	10	10	10			393

Effluent Conc. (%)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/31	2/1	2/2	2/3	2/4	2/5	2/6			
		1	2	3	4	5	6	7	8		
Upstream	71	0	0	0	6	11	17	0		34	
	72	0	0	0	6	11	15	0		32	
	73	0	0	0	3	9	19	0		31	
	74	0	0	4	1	9	18	0		32	
	75	0	0	5	0	10	16	0		31	
	76	0	0	8	0	10	19	0		37	
	77	0	0	0	6	13	X0	-		19	
	78	0	0	0	6	11	15	0		32	
	79	0	0	0	5	11	26	0		36	
	80	0	0	0	4	10	17	0		31	
No. of Live Adults		10	10	10	10	10	9	9			315
Analyst		ALH	ALH	M	SL	SL	ALH	ALH		ALH	ALH
Comments: _____										Approved By: TP	

* If necessary

Daphnid Survival and Reproduction Test-Reproduction

Start Date: 2/1/00 12:30 Test ID: 32 Sample ID: TV-TVA
End Date: 2/8/00 13:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF3-Power Plant
Sample Date: 1/31/00 09:03 Protocol: EF-EPA/600/4-91/002 Test Species: CD-Ceriodaphnia dubia
Comments:

Conc-%	1	2	3	4	5	6	7	8	9	10
control	35.000	35.000	34.000	35.000	32.000	33.000	31.000	32.000	33.000	30.000
25	32.000	28.000	27.000	27.000	32.000	29.000	29.000	33.000	31.000	32.000
39.2	30.000	29.000	34.000	51.000	55.000	46.000	29.000	32.000	41.000	34.000
49	53.000	54.000	49.000	56.000	53.000	43.000	29.000	31.000	31.000	54.000
80	37.000	18.000	51.000	54.000	58.000	55.000	32.000	33.000	34.000	35.000
100	46.000	52.000	54.000	58.000	57.000	58.000	35.000	38.000	36.000	33.000

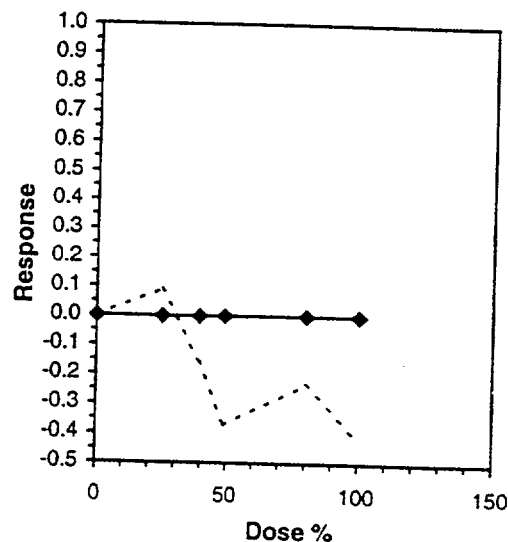
Conc-%	Mean	N-Mean	Transform: Untransformed					Isotonic	
			Mean	Min	Max	CV%	N	Mean	N-Mean
control	33.000	1.0000	33.000	30.000	35.000	5.345	10	38.967	1.0000
25	30.000	0.9091	30.000	27.000	33.000	7.536	10	38.967	1.0000
39.2	38.100	1.1545	38.100	29.000	55.000	25.128	10	38.967	1.0000
49	45.300	1.3727	45.300	29.000	56.000	24.161	10	38.967	1.0000
80	40.700	1.2333	40.700	18.000	58.000	32.015	10	38.967	1.0000
100	46.700	1.4152	46.700	33.000	58.000	22.094	10	38.967	1.0000

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution ($p > 0.01$)	0.59417	1.035	-0.1323	-0.2341
Bartlett's Test indicates unequal variances ($p = 1.63E-07$)	39.8178	15.0863		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



Daphnid Survival and Reproduction Test-Survival

Start Date: 2/1/00 12:30 Test ID: 00321 Sample ID: TV-TVA
End Date: 2/8/00 13:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF3-Power Plant
Sample Date: 1/31/00 Protocol: EF-EPA/600/4-91/002 Test Species: CD-Ceriodaphnia dubia
Comments: Intake

Conc-%	1	2	3	4	5	6	7	8	9	10
Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
Control	1.0000	1.0000	0	10	10	10		
100	1.0000	1.0000	0	10	10	10	1.0000	0.0500

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	>100	>100		<1

Daphnid Survival and Reproduction Test-Reproduction

Start Date: 2/1/00 12:30 Test ID: 00321 Sample ID: TV-TVA
End Date: 2/8/00 13:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF3-Power Plant
Sample Date: 1/31/00 Protocol: EF-EPA/600/4-91/002 Test Species: CD-Ceriodaphnia dubia
Comments: Intake

Conc-%	1	2	3	4	5	6	7	8	9	10
Control	35.000	35.000	34.000	35.000	32.000	33.000	31.000	32.000	33.000	30.000
100	26.000	37.000	37.000	61.000	47.000	61.000	34.000	33.000	32.000	25.000

Conc-%	Mean	N-Mean	Transform: Untransformed					Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%	N		
Control	33.000	1.0000	33.000	30.000	35.000	5.345	10		
100	39.300	1.1909	39.300	25.000	61.000	33.004	10	119.50	82.00

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.85631	0.868	1.18302	2.22357
F-Test indicates unequal variances ($p = 1.84E-06$)	54.075	6.54109		
Hypothesis Test (1-tail, 0.05)				
Wilcoxon Two-Sample Test indicates no significant differences				

Daphnid Survival and Reproduction Test-Survival

Start Date: 2/1/00 12:30 Test ID: 0032-U Sample ID: TV-TVA
End Date: 2/8/00 13:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF1-POTW
Sample Date: 1/31/00 Protocol: EF-EPA/600/4-91/002 Test Species: CD-Ceriodaphnia dubia
Comments: Upstream

Conc-%	1	2	3	4	5	6	7	8	9	10
Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
Control	1.0000	1.0000	0	10	10	10		
100	0.9000	0.9000	1	9	10	10	0.5000	0.0500

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	>100	>100		<1

Daphnid Survival and Reproduction Test-Reproduction

Start Date: 2/1/00 12:30 Test ID: 0032-U Sample ID: TV-TVA
End Date: 2/8/00 13:30 Lab ID: EDG-Toxicology Laboratory Sample Type: EFF1-POTW
Sample Date: 1/31/00 Protocol: EF-EPA/600/4-91/002 Test Species: CD-Ceriodaphnia dubia
Comments: Upstream

Conc-%	1	2	3	4	5	6	7	8	9	10
Control	35.000	35.000	34.000	35.000	32.000	33.000	31.000	32.000	33.000	30.000
100	34.000	32.000	31.000	32.000	31.000	37.000	19.000	32.000	36.000	31.000

Conc-%	Mean	N-Mean	Transform: Untransformed					Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%	N		
Control	33.000	1.0000	33.000	30.000	35.000	5.345	10		
100	31.500	0.9545	31.500	19.000	37.000	15.498	10	95.00	82.00

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.78528	0.868	-2.17	7.9583
F-Test indicates unequal variances ($p = 5.66E-03$)	7.66071	6.54109		
Hypothesis Test (1-tail, 0.05)				
Wilcoxon Two-Sample Test indicates no significant differences				

CHEMICAL AND PHYSICAL ANALYSIS DATA SHEET / FRESH WATER

DISCHARGER/LOCATION: TVA / Sequoyah Outfall 101
 BIOLOGY LOG NUMBER: 0035 TEST INITIATION DATE/TIME: 2/1/06 1130
 TEST ORGANISM (Check one): Ceriodaphnia dubia (Method 1002.0) ☒ Pimephales promelas (Method 1000.0)
 SAMPLE DATE: Day 1 1-2-06 Day 2 2-1 Day 3 2-2 Day 4 2-3 Day 5 2-4 Day 6 2-5 Day 7 2-6
 PR 1-25-00 1-31



2520 Regency Road
 Lexington, Kentucky 40503-2921
 (606) 276-3506

EFFLUENT CONC. (%)	pH (Standard Units)														DISSOLVED OXYGEN (mg/L)													
	TEST DAY														TEST DAY													
	1		2		3		4		5		6		7		1		2		3		4		5		6		7	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Control	7.7	7.0	7.6	6.9	7.6	6.9	7.7	6.9	7.7	6.9	7.8	6.9	7.8	6.9	7.8	5.8	7.7	5.8	7.8	5.6	7.6	5.8	7.8	5.9	7.8	5.2	7.8	5.3
25	7.4	7.0	7.5	7.0	7.4	7.0	7.4	6.9	7.4	7.0	7.6	6.9	7.6	6.8	7.9	5.3	8.1	5.9	7.9	5.7	8.0	5.7	8.0	5.8	7.9	5.2	8.0	5.3
37.2	7.3	7.0	7.5	6.8	7.4	6.9	7.4	6.9	7.3	7.0	7.5	6.9	7.5	6.8	8.1	5.3	8.2	5.9	8.2	5.7	7.8	5.7	8.0	5.9	7.9	5.2	7.8	5.1
49	7.3	7.0	7.5	6.8	7.4	6.9	7.4	6.9	7.3	6.9	7.4	6.8	7.5	6.6	8.1	5.2	8.3	5.9	8.2	5.8	8.1	5.6	8.1	5.8	7.9	5.2	7.8	5.0
80	7.2	6.8	7.3	6.8	7.4	6.6	7.2	6.8	7.3	6.9	7.1	6.7	7.3	6.6	8.2	5.3	8.1	5.8	8.3	5.7	8.3	5.6	8.1	5.8	8.0	5.3	7.9	5.0
100	7.0	6.8	7.2	6.8	7.0	6.7	7.2	6.6	7.2	6.9	7.1	6.6	7.2	6.8	7.9	5.4	8.3	5.6	8.3	6.2	8.3	5.6	8.1	5.8	8.0	5.3	7.9	5.0
Intake	7.0	6.8	7.2	6.7	7.0	6.7	7.0	6.6	7.0	6.8	7.1	6.6	7.2	6.7	8.0	5.6	8.1	5.6	8.3	6.3	8.1	5.7	8.0	5.7	8.2	5.0	8.2	4.8
Upstream	7.0	6.8	7.2	6.8	7.0	6.7	7.0	6.6	7.0	6.8	7.1	6.7	7.1	6.6	8.0	5.6	8.3	5.6	8.3	6.4	8.1	5.7	8.0	5.7	8.2	5.0	8.2	4.8
Analyst	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH	SH

EFFLUENT CONC. (%)	SPECIFIC CONDUCTANCE (µmhos/cm)							TEMPERATURE (°C)							EFFLUENT CONC. (%)	TOTAL ALKALINITY (mg/L CaCO ₃)							
	TEST DAY							TEST DAY								TEST DAY							
	1	2	3	4	5	6	7	INIT.	1	2	3	4	5	6		7	1	2	3	4	5	6	7
Control	348	328	365	336	341	333	383	24.2	24.3	24.3	24.4	24.6	24.9	24.0	25.0	Control	79	83	75		75		77
25	334	300	344	373	286	299	374	24.2	24.5	24.3	24.4	24.6	25.0	24.0	25.0	100% EFF	46	41	38	36	42	37	45
37.2	307	276	307	310	264	275	351	24.1	24.5	24.4	24.4	24.6	25.0	24.0	25.0	Intake	45	46	35	44	36	41	41
49	289	210	289	301	248	257	333	24.0	24.2	24.5	24.4	24.6	25.0	24.0	25.0	UPSTREAM	47	52	46	43	38	35	44
80	234	189	231	244	208	205	263	24.0	24.5	24.5	24.4	24.6	25.0	24.0	25.0	Analyst	SH	SH	SH	SH	SH	SH	SH
100	196	172	188	197	196	166	221	24.4	24.5	24.6	24.4	24.6	25.0	24.1	25.0	TOTAL HARDNESS (mg/L CaCO ₃)							
Intake	209	170	191	196	257	165	221	25.0	24.7	24.8	24.4	24.7	25.0	24.1	25.0	Control	115	107	106		98		102
Upstream	200	174	186	196	254	157	219	25.0	25.0	24.6	24.4	24.7	25.0	24.2	25.0	100% EFF	53	56	52	52	52	58	54
																Intake	51	49	48	51	49	53	54
																UPSTREAM	54	53	47	53	59	51	42
																Analyst	SH	SH	SH	SH	SH	SH	SH
																TOTAL RESIDUAL CHLORINE (mg/L)							
																100% EFF	LO.02	LO.02	LO.02	LO.02	LO.02	LO.02	LO.02
																Intake	LO.02	LO.02	LO.02	LO.02	LO.02	LO.02	LO.02
																UPSTREAM	LO.02	LO.02	LO.02	LO.02	LO.02	LO.02	LO.02
Analyst	SH	ML	SH	SH	SH	SH	ML	SH	ML	SH	SH	SH	SH	ML	MN	Analyst	BR	ML	SH	BR	SH	SH	ML

Test Method Manual: EPA 600/4-91/002; Method numbers for chemical parameters are listed on appropriate chemical bench sheets.

Sample treatment with Sodium Thiosulfate? ☐ Yes ☒ No

* 248

Temperature mean (range) = 24.6 (24.0-25.0)

Approved by: RP

CHEMICAL AND PHYSICAL ANALYSIS DATA SHEET / FRESH WATER

DISCHARGER/LOCATION: TVA/Sequoyah outfall 101
BIOLOGY LOG NUMBER: 0032 TEST INITIATION DATE/TIME: 2/1/00 1230
TEST ORGANISM (Check one): ☒ Ceriodaphnia dubia (Method 1002.0) ☐ Pimephales promelas (Method 1000.0)
SAMPLE DATE: Day 1 1/31 Day 2 2/1 Day 3 2/2 Day 4 2/3 Day 5 2/4 Day 6 2/5 Day 7 2/6



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

EFFLUENT CONC. (%)	pH (Standard Units)														DISSOLVED OXYGEN (mg/L)													
	TEST DAY														TEST DAY													
	1		2		3		4		5		6		7		1		2		3		4		5		6		7	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Control	7.7	7.7	7.6	7.7	7.6	7.6	7.7	7.8	7.7	7.5	7.8	7.7	7.8	7.7	7.8	8.2	7.7	8.0	7.8	7.7	7.6	8.1	7.8	7.7	7.8	7.9	7.8	8.0
25	7.4	7.7	7.5	7.7	7.4	7.8	7.4	7.8	7.4	7.4	7.6	7.7	7.6	7.7	7.9	8.3	8.1	8.1	7.9	7.9	8.0	8.1	8.6	7.6	7.9	8.0	8.0	8.1
39.2	7.3	7.7	7.5	7.7	7.4	7.8	7.4	7.8	7.3	7.4	7.5	7.7	7.5	7.7	8.1	8.3	8.2	8.1	8.2	8.0	7.8	8.2	8.0	7.6	7.9	8.0	8.0	8.1
49	7.3	7.8	7.5	7.8	7.4	7.8	7.4	7.7	7.3	7.4	7.4	7.7	7.5	7.7	8.1	8.4	8.3	8.2	8.3	8.1	8.1	8.2	8.1	7.8	8.0	8.0	7.8	8.2
80	7.2	7.8	7.3	7.7	7.4	7.8	7.2	7.7	7.3	7.3	7.1	7.6	7.3	7.6	8.2	8.4	8.1	8.2	8.3	8.2	8.3	8.2	8.1	7.8	8.0	8.0	7.8	8.2
100	7.0	7.7	7.2	7.6	7.0	7.7	7.2	7.7	7.2	7.3	7.1	7.6	7.2	7.5	7.9	8.4	8.3	8.1	8.3	8.2	8.3	8.2	8.1	7.8	8.0	8.1	7.9	8.2
Intake	7.0	7.6	7.2	7.5	7.0	7.6	7.0	7.6	7.0	7.3	7.1	7.5	7.2	7.5	8.0	8.2	8.1	7.9	8.3	8.2	8.1	8.2	8.1	7.8	8.1	8.1	8.1	8.1
upstream	7.0	7.6	7.2	7.5	7.0	7.5	7.0	7.6	7.0	7.3	7.1	7.5	7.1	7.5	8.0	8.3	8.3	7.8	8.3	8.2	8.1	8.2	8.0	8.0	8.2	8.1	8.2	8.1
Analyst	SH	ML	ML	ML	SH	ML	SH	SH	SH	SH	ML	ML	SH	SH	SH	SH	ML	ML	SH	SH	SH	SH	SH	SH	SH	SH	ML	ML

EFFLUENT CONC. (%)	SPECIFIC CONDUCTANCE (µmhos/cm)							TEMPERATURE (°C)							EFFLUENT CONC. (%)	TOTAL ALKALINITY (mg/L CaCO ₃)							
	TEST DAY							TEST DAY								TEST DAY							
	1	2	3	4	5	6	7	INIT.	1	2	3	4	5	6		7	1	2	3	4	5	6	7
Control	348	328	365	336	341	333	383	24.2	24.1	24.6	24.2	24.8	25.0	24.1	24.6	Control	79	83	75		75		77
25	334	300	344	373	286	299	374	24.2	24.1	24.8	24.1	24.8	25.0	24.2	24.7	100% EFF	46	41	38	36	42	37	45
39.2	307	276	307	340	264	275	351	24.1	24.1	24.8	24.6	24.8	25.0	24.5	24.8	Intake	45	42	35	44	36	41	41
49	289	210	289	301	248	257	333	24.0	24.2	24.9	24.0	24.8	25.0	24.5	24.8	upstream	47	52	46	43	38	35	44
80	234	189	231	244	248	205	326	24.0	24.1	24.9	24.1	24.8	25.0	24.5	24.8	Analyst	SH	SH	SH	SH	SH	SH	SH
100	196	172	188	197	196	166	221	24.4	24.1	24.9	24.2	24.8	25.0	24.6	24.8	TOTAL HARDNESS (mg/L CaCO ₃)							
Intake	209	170	191	196	257	165	221	25.0	24.1	24.7	24.2	24.8	25.0	24.5	24.7	Control	115	107	106		98		102
upstream	200	174	186	196	254	157	219	25.0	24.6	24.3	24.3	24.8	25.0	24.3	24.5	100% EFF	53	56	52	52	52	58	54
																Intake	51	49	48	51	49	53	54
																upstream	54	53	47	53	59	51	42
																Analyst	SH	SH	SH	SH	SH	SH	SH
																TOTAL RESIDUAL CHLORINE (mg/L)							
																100% EFF	20.02	20.02	20.02	20.02	20.02	20.02	20.02
																Intake	20.02	20.02	20.02	20.02	20.02	20.02	20.02
																upstream	20.02	20.02	20.02	20.02	20.02	20.02	20.02
Analyst	SH	ML	SH	SH	SH	SH	ML	SH	ML	ML	SH	SH	ML	ML	Intake	ML	ML	SH	SH	SH	SH	ML	

City Test Method Manual: EPA 600/4-91/002; Method numbers for chemical parameters are listed on appropriate chemical bench sheets.

Sample treatment with Sodium Hydroxide

Test Method Manual: EPA 600/4-91/002; Method numbers for chemical parameters are listed on appropriate chemical bench sheets.

Temperature mean (range) = 24.5 (24.0 - 25.0)

Sample treatment with Sodium Thiosulfate? ☐ Yes ☒ No

Approved by: PD

Fish Water Chemistry

SEQ 0033 February 1-8, 2000 INITIAL AND FINAL WATER CHEMISTRY (FATHEAD)

Initial Chemistry

Fish - Control	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.2							24.2	24.2	24.2
DO	7.8	7.7	7.8	7.6	7.8	7.8	7.8	7.6	7.8	7.8
pH	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.6	7.8	7.7
Cond	348	328	365	336	341	333	383	328	383	348
Hard	115.0	107.0	106.0		98.0		102.0	98	115	105.6
Alk	79.0	83.0	75.0		75.0		77.0	75	83	77.8

Concentration 25%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.2							24.2	24.2	24.2
DO	7.9	8.1	7.9	8.0	8.0	7.9	8.0	7.9	8.1	8.0
pH	7.4	7.5	7.4	7.4	7.4	7.6	7.6	7.4	7.6	7.5
Cond	334	300	344	373	286	299	374	286	374	330

Concentration 39.2%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.1							24.1	24.1	24.1
DO	8.1	8.2	8.2	7.8	8.0	7.9	7.8	7.8	8.2	8.0
pH	7.3	7.5	7.4	7.4	7.3	7.5	7.5	7.3	7.5	7.4
Cond	307	276	307	340	264	275	351	264	351	303

Concentration 49%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.0							24.0	24.0	24.0
DO	8.1	8.3	8.2	8.1	8.1	7.9	7.8	7.8	8.3	8.1
pH	7.3	7.5	7.4	7.4	7.3	7.4	7.5	7.3	7.5	7.4
Cond	289	210	289	301	248	257	333	210	333	275

Concentration 80%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.0							24.0	24.0	24.0
DO	8.2	8.1	8.3	8.3	8.1	8.0	7.9	7.9	8.3	8.1
pH	7.2	7.3	7.4	7.2	7.3	7.1	7.3	7.1	7.4	7.3
Cond	234	189	231	244	248	205	263	189	263	231

Concentration 100%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.4							24.4	24.4	24.4
DO	7.9	8.3	8.3	8.3	8.1	8.1	8.1	7.9	8.3	8.2
pH	7.0	7.2	7.0	7.2	7.2	7.1	7.2	7.0	7.2	7.1
Cond	196	172	188	197	196	166	221	166	221	191
Hard	53.0	56.0	52.0	52.0	52.0	58.0	54.0	52	58	53.9
Alk	46.0	41.0	38.0	36.0	42.0	37.0	45.0	36	46	40.7
TRC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Fish Water Chemistry

Intake	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	25.0							25.0	25.0	25.0
DO	8.0	8.1	8.3	8.1	8.0	8.2	8.2	8.0	8.3	8.1
pH	7.0	7.2	7.0	7.0	7.0	7.1	7.2	7.0	7.2	7.1
Cond	209	170	191	196	257	165	221	165	257	201
Hard	51.0	49.0	48.0	51.0	49.0	53.0	54.0	48	54	50.7
Alk	45.0	46.0	35.0	44.0	36.0	41.0	41.0	35	46	41.1
TRC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Upstream	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	25.0							25.0	25.0	25.0
DO	8.0	8.3	8.3	8.1	8.0	8.3	8.0	8.0	8.3	8.1
pH	7.0	7.2	7.0	7.0	7.0	7.1	7.1	7.0	7.2	7.1
Cond	200	174	186	196	254	157	219	157	254	198
Hard	54.0	53.0	47.0	53.0	59.0	51.0	42.0	42	59	51.3
Alk	47.0	52.0	46.0	43.0	38.0	35.0	44.0	35	52	43.6
TRC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Final Chemistry

FISH

Fish - Medium	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.3	24.3	24.4	24.6	24.9	24.0	25.0	24.0	25.0	24.5
DO	5.8	5.8	5.6	5.8	5.9	5.2	5.5	5.2	5.9	5.7
pH	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9	7.0	6.9

Concentration 25%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.5	24.3	24.4	24.6	25.0	24.0	25.0	24.0	25.0	24.5
DO	5.3	5.9	5.7	5.7	5.8	5.2	5.3	5.2	5.9	5.6
pH	7.0	7.0	7.0	6.9	7.0	6.9	6.8	6.8	7.0	6.9

Concentration 39.2%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.5	24.4	24.4	24.6	25.0	24.0	25.0	24.0	25.0	24.5
DO	5.3	5.9	5.7	5.7	5.9	5.2	5.1	5.1	5.9	5.5
pH	7.0	6.8	6.9	6.9	7.0	6.9	6.8	6.8	7.0	6.9

Concentration 49%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.2	24.5	24.4	24.6	25.0	24.0	25.0	24.0	25.0	24.5
DO	5.2	5.9	5.8	5.6	5.8	5.2	5.0	5.0	5.9	5.5
pH	7.0	6.8	6.9	6.9	6.9	6.8	6.6	6.6	7.0	6.8

Concentration 80%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.5	24.5	24.4	24.6	25.0	24.0	25.0	24.0	25.0	24.6
DO	5.3	5.8	5.7	5.6	5.8	5.2	5.0	5.0	5.8	5.5

Fish Water Chemistry

pH	6.8	6.8	6.6	6.8	6.9	6.7	6.6	6.6	6.9	6.7
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Concentration 100%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.5	24.6	24.4	24.6	25.0	24.1	25.0	24.1	25.0	24.6
DO	5.4	5.6	6.2	5.6	5.8	5.1	4.8	4.8	6.2	5.5
pH	6.8	6.8	6.7	6.6	6.9	6.6	6.8	6.6	6.9	6.7

Intake	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.7	24.6	24.4	24.7	25.0	24.1	25.0	24.1	25.0	24.6
DO	5.6	5.6	6.3	5.7	5.7	5.0	4.7	4.7	6.3	5.5
pH	6.8	6.7	6.7	6.6	6.8	6.6	6.7	6.6	6.8	6.7

Upstream	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	25.0	24.6	24.4	24.7	25.0	24.2	25.0	24.2	25.0	24.7
DO	5.6	5.6	6.4	5.7	5.7	5.0	4.8	4.8	6.4	5.5
pH	6.8	6.8	6.7	6.6	6.8	6.7	6.6	6.6	6.8	6.7

Test Temperature Mean 24.6

Minimum 24.0

Maximum 25.0

Word Review by: Cul 03-06 2000

Excel Reviewed by: Cul 03-06 2000

Cerio Water Chemistry

SEQ 0033 February 1-8, 2000 INITIAL AND FINAL WATER CHEMISTRY (CERIO)

Initial Chemistry

CERIO

Control	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.2							24.2	24.2	24.2
DO	7.8	7.7	7.8	7.6	7.8	7.8	7.8	7.6	7.8	7.8
pH	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.6	7.8	7.7
Cond	348	328	365	336	341	333	383	328	383	348
Hard	115.0	107.0	106.0		98.0		102.0	98.0	115.0	105.6
Alk	79.0	83.0	75.0		75.0		77.0	75.0	83.0	77.8

Concentration 25%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.2							24.2	24.2	24.2
DO	7.9	8.1	7.9	8.0	8.0	7.9	8.0	7.9	8.1	8.0
pH	7.4	7.5	7.4	7.4	7.4	7.6	7.6	7.4	7.6	7.5
Cond	334	300	344	373	286	299	374	286	374	330

Concentration 39.2%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.1							24.1	24.1	24.1
DO	8.1	8.2	8.2	7.8	8.0	7.9	7.8	7.8	8.2	8.0
pH	7.3	7.5	7.4	7.4	7.3	7.5	7.5	7.3	7.5	7.4
Cond	307	276	307	340	264	275	351	264	351	303

Concentration 49%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.0							24.0	24.0	24.0
DO	8.1	8.3	8.3	8.1	8.1	8.0	7.8	7.8	8.3	8.1
pH	7.3	7.5	7.4	7.4	7.3	7.4	7.5	7.3	7.5	7.4
Cond	289	210	289	301	248	257	333	210	333	275

Concentration 80%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.0							24.0	24.0	24.0
DO	8.2	8.1	8.3	8.3	8.1	8.0	7.9	7.9	8.3	8.1
pH	7.2	7.3	7.4	7.2	7.3	7.1	7.3	7.1	7.4	7.3
Cond	234	189	231	244	248	205	263	189	263	231

Cerio Water Chemistry

Concentration 100%	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	24.4							24.4	24.4	24.4
DO	7.9	8.3	8.3	8.3	8.1	8.1	8.1	7.9	8.3	8.2
pH	7.0	7.2	7.0	7.2	7.2	7.1	7.2	7.0	7.2	7.1
Cond	196	172	188	197	196	166	221	166	221	191
Hard	53.0	56.0	52.0	52.0	52.0	58.0	54.0	52	58	53.9
Alk	46.0	41.0	38.0	36.0	42.0	37.0	45.0	36	46	40.7
TRC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Intake	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	25.0							25.0	25.0	25.0
DO	8.0	8.1	8.3	8.1	8.0	8.2	8.2	8.0	8.3	8.1
pH	7.0	7.2	7.0	7.0	7.0	7.1	7.2	7.0	7.2	7.1
Cond	209	170	191	196	257	165	221	165	257	201
Hard	51.0	49.0	48.0	51.0	49.0	53.0	54.0	48	54	50.7
Alk	45.0	46.0	35.0	44.0	36.0	41.0	41.0	35	46	41.1
TRC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Upstream	0	1	2	3	4	5	6	MIN	MAX	MEAN
Temp	25.0							25.0	25.0	25.0
DO	8.0	8.3	8.3	8.1	8.0	8.3	8.0	8.0	8.3	8.1
pH	7.0	7.2	7.0	7.0	7.0	7.1	7.1	7.0	7.2	7.1
Cond	200	174	186	196	254	157	219	157	254	198
Hard	54.0	53.0	47.0	53.0	59.0	51.0	42.0	42	59	51.3
Alk	47.0	52.0	46.0	43.0	38.0	35.0	44.0	35	52	43.6
TRC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Final Chemistry

CERIO

Cerio - Medium	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.1	24.6	24.2	24.8	25.0	24.1	24.6	24.1	25.0	24.5
DO	8.2	8.0	7.7	8.1	7.7	7.9	8.0	7.7	8.2	7.9
pH	7.7	7.7	7.8	7.8	7.5	7.7	7.7	7.5	7.8	7.7

Concentration 25%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.1	24.8	24.1	24.8	25.0	24.2	24.7	24.1	25.0	24.5
DO	8.3	8.1	7.9	8.1	7.6	8.0	8.1	7.6	8.3	8.0
pH	7.7	7.7	7.8	7.8	7.4	7.7	7.7	7.4	7.8	7.7

Concentration 39.2%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.1	24.8	24.0	24.8	25.0	24.5	24.8	24.0	25.0	24.6
DO	8.3	8.1	8.0	8.2	7.6	8.0	8.2	7.6	8.3	8.1
pH	7.7	7.7	7.8	7.8	7.4	7.7	7.7	7.4	7.8	7.8

Cerio Water Chemistry

Concentration 49%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.2	24.9	24.0	24.8	25.0	24.5	24.8	24.0	25.0	24.6
DO	8.4	8.2	8.1	8.2	7.8	8.0	8.2	7.8	8.4	8.1
pH	7.8	7.8	7.8	7.7	7.4	7.7	7.7	7.4	7.8	7.7

Concentration 80%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.1	24.9	24.1	24.8	25.0	24.6	24.8	24.1	25.0	24.6
DO	8.4	8.2	8.2	8.2	7.8	8.1	8.2	7.8	8.4	8.2
pH	7.8	7.7	7.8	7.7	7.3	7.6	7.6	7.3	7.8	7.6

Concentration 100%	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.1	24.9	24.2	24.8	25.0	24.6	24.8	24.1	25.0	24.6
DO	8.4	8.1	8.2	8.3	7.8	8.1	8.1	7.8	8.4	8.1
pH	7.7	7.6	7.7	7.7	7.3	7.6	7.5	7.3	7.7	7.6

Intake	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.1	24.7	24.2	24.8	25.0	24.5	24.7	24.1	25.0	24.6
DO	8.2	7.9	8.2	8.2	8.0	8.1	8.1	7.9	8.2	8.1
pH	7.6	7.5	7.6	7.6	7.3	7.5	7.5	7.3	7.6	7.5

Upstream	1	2	3	4	5	6	7	MIN	MAX	MEAN
Temp	24.0	24.3	24.3	24.8	25.0	24.3	24.5	24.0	25.0	24.5
DO	8.3	7.8	8.2	8.2	8.1	8.1	8.1	7.8	8.3	8.1
pH	7.6	7.5	7.5	7.6	7.3	7.5	7.5	7.3	7.6	7.5

Test temperature Mean: 24.6
 Min: 24.0
 Max: 25.0

Word Review by: Cue 03-06-2000

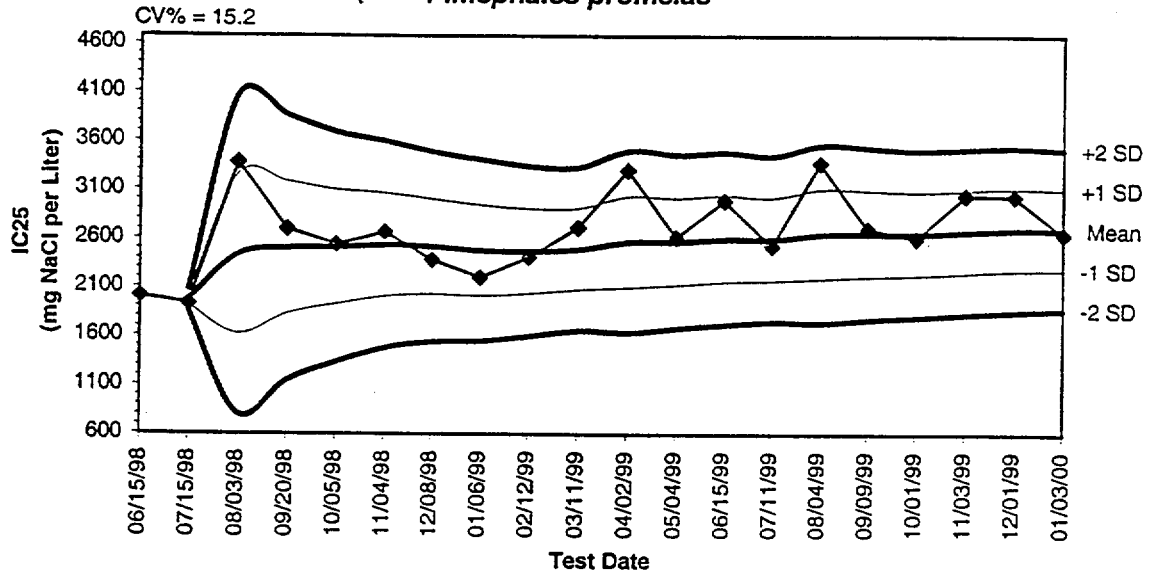
Excel Reviewed by: Cue 03-06-2000

Sequoyah Nuclear Plant Biomonitoring
February 1-8, 2000

Appendix D

Reference Toxicant Tests and
Control Chart Information

CHRONIC REFERENCE TOXICANT TEST DATA
Pimephales promelas



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
06/15/98	2007.0000					
07/15/98	1928.0000	1967.5000	1911.6386	1855.7771	2023.3614	2079.2229
08/03/98	3380.0000	2438.3333	1621.8700	805.4067	3254.7966	4071.2599
09/20/98	2699.0000	2503.5000	1824.2394	1144.9787	3182.7606	3862.0213
10/05/98	2543.0000	2511.4000	1922.8779	1334.3557	3099.9221	3688.4443
11/04/98	2669.0000	2537.6667	2007.3590	1477.0512	3067.9744	3598.2821
12/08/98	2382.0000	2515.4286	2027.7638	1540.0990	3003.0934	3490.7582
01/06/99	2199.0000	2475.8750	2010.7310	1545.5869	2941.0190	3406.1631
02/12/99	2411.0000	2468.6667	2033.0272	1597.3877	2904.3061	3339.9456
03/11/99	2717.0000	2493.5000	2075.3352	1657.1703	2911.6648	3329.8297
04/02/99	3303.0000	2567.0909	2101.3147	1635.5385	3032.8671	3498.6434
05/04/99	2615.0000	2571.0833	2126.7678	1682.4523	3015.3988	3459.7143
06/15/99	2994.0000	2603.6154	2162.3408	1721.0662	3044.8900	3486.1645
07/11/99	2529.0000	2598.2857	2173.8541	1749.4224	3022.7174	3447.1490
08/04/99	3379.0000	2650.3333	2194.3627	1738.3920	3106.3040	3562.2746
09/09/99	2704.0000	2653.6875	2212.9737	1772.2600	3094.4013	3535.1150
10/01/99	2606.0000	2650.8824	2224.0064	1797.1304	3077.7583	3504.6343
11/03/99	3045.0000	2672.7778	2248.3564	1823.9351	3097.1991	3521.6205
12/01/99	3037.0000	2691.9474	2271.1053	1850.2632	3112.7894	3533.6315
01/03/00	2648.0000	2689.7500	2280.0145	1870.2791	3099.4855	3509.2209

FATHEAD MINNOW
LARVAL SURVIVAL AND GROWTH TEST
 EPA 600/4-91/002, METHOD 1000.0

Test Type: Reference Toxicant Date/Time Test Terminated: 1-10-00 1400
 Toxicant: Sodium Chloride Organism Batch Number: 1231 0102 RP 2-14-00
 Bio. Log No: 1100 Initial Organism Age: < 24hrs
 Date/Time Test Initiated: 1-3-00 1300 Dilution Water Used: 9:1 RW
 Dilution Water Batch Number on Day: 1: 241 2: 241 3: 241 4: 241 5: 244 6: 244 7: 244
 Time of Day Renewed on Day: 1: 1130 2: 1145 3: 1100 4: 1500 5: 1000 6: 1000

Test Conc. (mg/L)	Test Cont. No.	No. of Live Larvae (Days)							Tin No.	Wt. of Tin & Larvae (mg)	Wt. of Tin (mg)	Total Wt. of Larvae (mg)	Mean Wt. of Larvae Using Start Number (mg)	Mean Wt. of Larvae Using End Number (mg)	Average Wt. for Treatment (mg)
		Sample Dates													
		1	2	3	4	5	6	7							
Control	1	10	10	10	10	10	10	10	1	1021.90	1016.94	4.96	0.496	0.496	Start No. 0.421
	2	10	10	10	10	10	10	10	2	1021.66	1016.70	4.96	0.496	0.496	
	3	10	10	10	9	9	9	9	3	1021.73	1017.65	4.08	0.408	0.453	End No. 0.507
	4	10	10	10	9	9	9	9	4	1007.61	1002.45	5.24	0.524	0.582	
1000	5	10	10	10	9	9	9	9	5	1027.12	1020.75	6.37	0.637	0.708	Start No. 0.620
	6	10	10	10	10	10	10	10	6	1005.00	998.50	6.50	0.650	0.650	
	7	10	10	10	10	9	9	9	7	1038.26	1032.44	5.82	0.582	0.647	End No. 0.654
	8	10	10	10	10	10	10	10	8	1033.40	1027.30	6.10	0.610	0.610	
2000	9	10	10	10	10	10	10	10	9	1023.95	1018.50	5.45	0.545	0.545	Start No. 0.473
	10	10	10	10	9	9	8	8	10	1006.30	1000.80	5.50	0.550	0.688	
	11	10	10	10	10	10	9	9	11	1003.54	999.46	4.08	0.408	0.453	End No. 0.544
	12	10	10	10	10	10	9	8	12	1029.65	1025.75	3.90	0.390	0.488	
4000	13	10	10	10	9	9	9	9	13	1011.59	1007.38	4.21	0.421	0.468	Start No. 0.286
	14	10	10	10	10	9	8	6	14	1015.23	1011.77	3.45	0.345	0.575	
	15	10	10	10	7	7	6	3	15	1024.36	1023.24	1.12	0.112	0.373	End No. 0.488
	16	10	10	10	10	9	9	5	16	1020.23	1017.55	2.68	0.268	0.536	
7000	17	6	5	3	3	3	3	3	17	999.76	998.90	0.860	0.0860	0.287	Start No. 0.075
	18	10	9	7	4	5	4	4	18	1021.56	1020.50	1.06	0.106	0.265	
	19	10	9	5	1	1	1	1	19	1025.15	1025.00	0.15	0.015	0.15	End No. 0.253
	20	9	9	6	3	3	3	3	20	1014.10	1013.17	0.93	0.093	0.31	
Analyst		SH	TF	SH	HN	JW	JW	HN		HN	HN	MN	HN	HN	MN

Notes: _____ Approved By RP

FATHEAD MINNOW
LARVAL SURVIVAL AND GROWTH TEST
 EPA 600/4-91/002, METHOD 1000.0

Test Type: Reference Toxicant Date/Time Test Terminated: 1-10-00 1400
 Toxicant: Sodium Chloride Organism Batch Number: 1231
 Bio. Log No: 1100 Initial Organism Age: < 24hrs
 Date/Time Test Initiated: 1-3-99 00 1300 Dilution Water Used: 9:1 RW
 Dilution Water Batch Number on Day: 1: 241 2: 241 3: 241 4: 241 5: 6: 7:
 Time of Day Renewed on Day: 1: 1130 2: 1145 3: 1100 4: 5: 6:

Test Conc. (mg/L)	Test Cont. No.	No. of Live Larvae (Days)							Tin No.	Wt. of Tin & Larvae (mg)	Wt. of Tin (mg)	Total Wt. of Larvae (mg)	Mean Wt. of Larvae Using Start Number (mg)	Mean Wt. of Larvae Using End Number (mg)	Average Wt. for Treatment (mg)
		Sample Dates													
		1-3	1-3	1-3											
		1	2	3	4	5	6	7							
10,000	21	0													Start No.
	22	2	0												
	23	0													End No.
	24	0													
															Start No.
															End No.
															Start No.
															End No.
															Start No.
															End No.
Analyst	SH TF														
Notes:											Approved By <u>RP</u>				

CHEMICAL AND PHYSICAL ANALYSIS DATA SHEET / FRESH WATER

DISCHARGER/LOCATION: Reference Toxicant NACL
 BIOLOGY LOG NUMBER: 1100 TEST INITIATION DATE/TIME: 1-3-9900 1300
 TEST ORGANISM (Check one): Ceriodaphnia dubia (Method 1002.0) ☒ Pimephales promelas (Method 1000.0)
 SAMPLE DATE: Day 1 1-3 Day 2 1-3 Day 3 1-3 Day 4 1-3 Day 5 1-7 Day 6 1-7 Day 7 1-7



2520 Regency Road
 Lexington, Kentucky 40503-2921
 (606) 276-3506

EFFLUENT CONC. (%)	pH (Standard Units)														DISSOLVED OXYGEN (mg/L)													
	TEST DAY														TEST DAY													
	1		2		3		4		5		6		7		1		2		3		4		5		6		7	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Control	7.6	6.9	7.8	7.2	7.9	6.8	7.8	7.9	6.8	6.6	7.6	6.8	7.5	7.0	7.6	5.8	7.6	6.0	7.7	5.2	7.8	4.0	7.5	5.5	8.0	6.2	7.9	6.1
1000	7.7	6.9	7.8	7.1	7.9	6.8	7.8	7.9	6.8	6.7	7.6	6.8	7.6	7.0	7.6	5.8	7.9	6.0	7.8	4.7	7.8	4.0	7.7	5.5	8.0	6.1	8.0	6.0
2000	7.7	7.1	7.8	7.2	7.9	6.9	7.9	7.9	6.9	6.8	7.7	7.0	7.6	7.0	7.7	5.8	7.8	6.1	7.8	4.6	7.7	4.0	7.8	5.4	8.1	6.1	8.0	6.0
4000	7.7	7.2	7.8	7.2	7.9	7.2	7.9	7.9	7.1	6.9	7.7	7.1	7.7	7.0	7.7	5.9	7.7	5.9	7.8	4.6	7.8	4.4	7.8	5.4	8.1	6.0	8.0	6.2
7000	7.7	7.3	7.8	7.3	7.9	7.2	7.9	7.9	7.2	6.9	7.7	7.1	7.7	7.0	7.7	6.1	7.7	5.9	7.8	4.6	7.8	4.4	7.8	5.4	8.1	6.0	8.0	6.2
10000	7.8	7.3	7.8	7.4	7.9										7.8	6.2	7.4	6.0	7.8	5.0	7.8	4.6	7.8	5.4	8.1	5.8	8.1	6.3
Analyst	HN	SH	SH	TF	TF	SH	SH	HN	HN	JW	JW	JW	JW	HN	HN	SH	SH	TF	TF	SH	SH	HN	HN	JW	JW	JW	JW	HN

EFFLUENT CONC. (%)	SPECIFIC CONDUCTANCE (µmhos/cm)							TEMPERATURE (°C)							EFFLUENT CONC. (%)	TOTAL ALKALINITY (mg/L CaCO ₃)							
	TEST DAY							TEST DAY								TEST DAY							
	1	2	3	4	5	6	7	INIT.	1	2	3	4	5	6		7	1	2	3	4	5	6	7
Control	346	352	343	347	340	356	366	24.9	24.4	24.5	24.3	24.0	24.4	24.8	24.5	Control	83	83	83	83	71	71	71
1000	2560	2500	2430	2490	2610	2380	2660	24.9	24.2	24.4	24.3	24.0	24.5	25.0	24.5	7000					69	69	69
2000	4190	4350	4140	4160	5450	4180	4690	24.9	24.2	24.3	24.2	24.0	24.5	25.0	24.5	10,000	70	70	70	70			
4000	7700	8200	7730	8000	7890	7700	8220	24.9	24.2	24.3	24.3	24.0	24.5	25.1	24.5	Analyst	SH	SH	SH	SH	SH	SH	SH
7000	12600	13440	12670	12980	13410	12630	13010	24.9	24.2	24.3	24.3	24.0	24.6	25.1	24.5	TOTAL HARDNESS (mg/L CaCO ₃)							
10000	17600	17860	17310					24.9	24.3	24.1					24.5	Control	90	90	90	90	100	100	100
																7000					92	92	92
																10,000	91	91	91	91			
																Analyst	SH	SH	SH	SH	SH	SH	SH
																TOTAL RESIDUAL CHLORINE (mg/L)							
																NA							
Analyst	MN	SH	TF	SH	MN	JW	JW	MN	SH	TF	SH	MN	JW	JW	MN								

City Test Method Manual: EPA 600/4-91/002; Method numbers for chemical parameters are listed on appropriate chemical bench sheet.

Sample # _____

City Test Method Manual: EPA 600/4-91/002; Method numbers for chemical parameters are listed on appropriate chemical bench sheets.

Sample treatment with Sodium Thiosulfate? ☐ Yes ☒ No

Approved by: PO

Temperature Mean (range) = 24.5 (24.0 - 25.1)

Larval Fish Survival and Growth Test-Start Growth

Start Date: 1/3/00 13:00 Test ID: 1100 Sample ID: REF-Ref Toxicant
End Date: 1/10/00 14:00 Lab ID: EDG-Toxicology Laboratory Sample Type: NACL-Sodium chloride
Sample Date: 1/3/00 12:00 Protocol: EF-EPA/600/4-91/002 Test Species: PP-Pimephales promelas
Comments:

Conc-mg/L	1	2	3	4
control	0.4960	0.4960	0.4080	0.5240
1000	0.6370	0.6500	0.5820	0.6100
2000	0.5450	0.5500	0.4080	0.3900
4000	0.4210	0.3450	0.1120	0.2680
7000	0.0860	0.1060	0.0150	0.0930
10000	0.0000	0.0000	0.0000	0.0000

Conc-mg/L	Transform: Untransformed							Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
control	0.4810	1.0000	0.4810	0.4080	0.5240	10.483	4	0.5504	1.0000
1000	0.6198	1.2885	0.6198	0.5820	0.6500	4.870	4	0.5504	1.0000
2000	0.4733	0.9839	0.4733	0.3900	0.5500	18.188	4	0.4733	0.8599
4000	0.2865	0.5956	0.2865	0.1120	0.4210	46.088	4	0.2865	0.5206
7000	0.0750	0.1559	0.0750	0.0150	0.1060	54.466	4	0.0750	0.1363
10000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	4	0.0000	0.0000

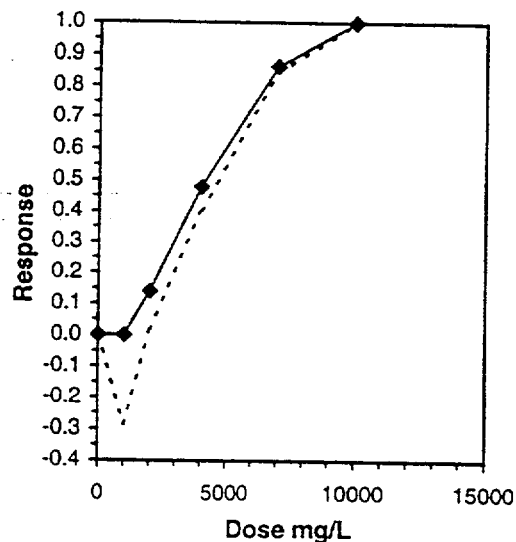
Auxiliary Tests

Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)
Equality of variance cannot be confirmed

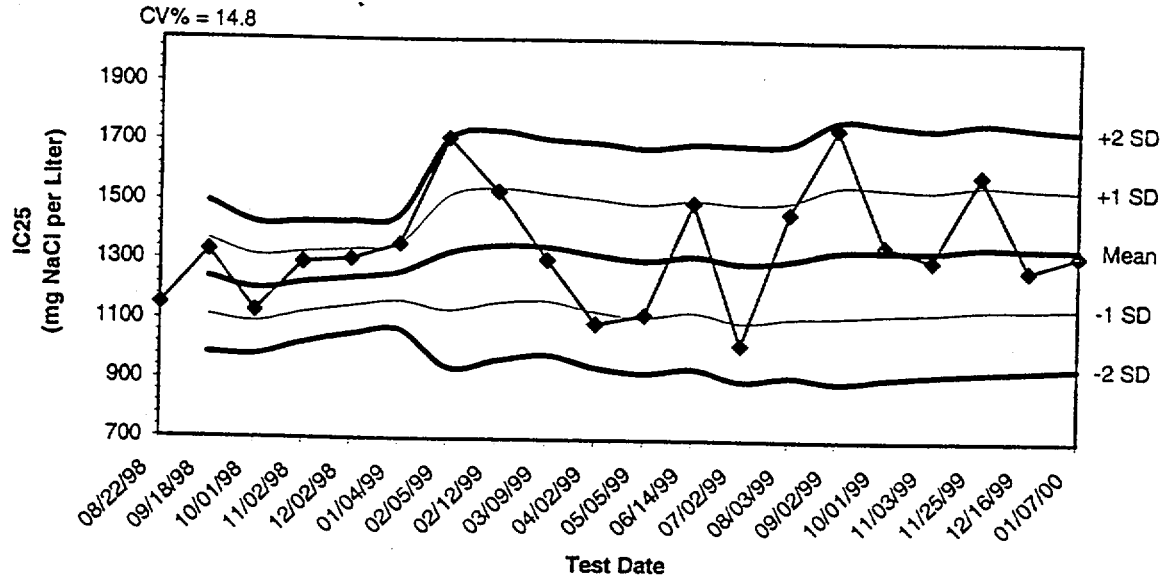
Statistic	Critical	Skew	Kurt
0.95159	0.884	-0.6257	1.89661

Linear Interpolation (200 Resamples)

Point	mg/L	SD	95% CL(Exp)	Skew
IC05	1356.81	292.526	1068.26 2673.12	1.2549
IC10	1713.61	320.428	1136.51 2810.86	0.4710
IC15	2058.17	332.294	1212.13 3000.72	0.2073
IC20	2352.88	362.494	1317.64 3364.95	0.1688
IC25	2647.59	409.69	1423.15 4134.64	0.3847
IC40	3531.73	489.906	2491.31 5277.73	0.4217
IC50	4160.46	542.928	2702.47 5707.35	0.0740



CHRONIC REFERENCE TOXICANT TEST DATA
Ceriodaphnia dubia



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
08/22/98	1151.0000					
09/18/98	1331.0000	1241.0000	1113.7208	986.4416	1368.2792	1495.5584
10/01/98	1129.0000	1203.6667	1092.8455	982.0243	1314.4878	1425.3090
11/02/98	1295.0000	1226.5000	1125.1442	1023.7884	1327.8558	1429.2116
12/02/98	1306.0000	1242.4000	1147.6963	1052.9925	1337.1037	1431.8075
01/04/99	1356.0000	1261.3333	1164.7628	1068.1923	1357.9039	1454.4744
02/05/99	1713.0000	1325.8571	1133.7249	941.5926	1517.9894	1710.1217
02/12/99	1533.0000	1351.7500	1159.3837	967.0174	1544.1163	1736.4826
03/09/99	1306.0000	1346.6667	1166.0794	985.4922	1527.2539	1707.8411
04/02/99	1093.0000	1321.3000	1133.0903	944.8806	1509.5097	1697.7194
05/05/99	1122.0000	1303.1818	1114.7898	926.3977	1491.5739	1679.9659
06/14/99	1500.0000	1319.5833	1131.1870	942.7907	1507.9797	1696.3760
07/02/99	1023.0000	1296.7692	1098.5227	900.2761	1495.0158	1693.2623
08/03/99	1467.0000	1308.9286	1113.1011	917.2737	1504.7560	1700.5834
09/02/99	1751.0000	1338.4000	1117.8605	897.3209	1558.9395	1779.4791
10/01/99	1358.0000	1339.6250	1126.5072	913.3895	1552.7428	1765.8605
11/03/99	1308.0000	1337.7647	1131.2718	924.7789	1544.2576	1750.7505
11/25/99	1596.0000	1352.1111	1142.7409	933.3708	1561.4813	1770.8515
12/16/99	1277.0000	1348.1579	1143.9583	939.7587	1552.3575	1756.5571
01/07/00	1327.0000	1347.1000	1148.2904	949.4808	1545.9096	1744.7192

**Ceriodaphnia dubia SURVIVAL AND
REPRODUCTION TEST DATA SHEET**
EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Test Type: Reference Toxicant
Toxicant: Sodium Chloride
Bio. No.: 1104
Date/Time Initial Sample Collected: 1-6-00
Time Renewed on Day: 1: 0900 2: 0900 3: 1000

Date/Time Test Initiated: 1-7-00 / 0900
Date/Time Test Terminated: 1-13-00 / 0900
Dilution Water Used: 9:1 RW
Source Culture Date: 1230
4: 1000 5: 0930 6: 1000 7: ---

NaCl Conc. (mg/L)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		243	243	243	243	243	243				
		1	2	3	4	5	6	7*	8*		
<u>Control (0)</u>	1	0	0	6	0	11	22			39	
	2	0	0	6	0	10	22			38	
	3	0	0	7	12	2	22			43	
	4	0	0	6	5	1	20			32	
	5	0	0	7	13	0	21			41	
	6	0	0	6	11	0	18			35	
	7	0	0	6	9	12	19			46	
	8	0	0	6	11	0	20			37	
	9	0	0	6	0	11	15			32	
	10	0	0	7	0	13	17			37	
No. of Live Adults		10	10	10	10	10	10				380

NaCl Conc. (mg/L)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/7	1/7	1/7	1/7	1/7	1/7				
		1	2	3	4	5	6	7	8		
600	11	0	0	6	0	12	22			40	
	12	0	0	6	0	12	19			37	
	13	0	0	6	13	0	22			41	
	14	0	0	6	11	0	17			34	
	15	0	0	6	13	0	21			40	
	16	0	0	6	13	0	22			41	
	17	0	0	6	13	0	18			37	
	18	0	0	5	11	0	19			35	
	19	0	0	7	0	12	18			37	
	20	0	0	6	0	11	22			39	
No. of Live Adults		10	10	10	10	10	10				
Analyst		JW	JW	MN	MN	TF	QH			104	104
Comments:										Approved By: BP	

**Ceriodaphnia dubia SURVIVAL AND
REPRODUCTION TEST DATA SHEET**
EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Test Type: Reference Toxicant
Toxicant: Sodium Chloride
Bio. No.: 1104
Date/Time Initial Sample Collected: 1-6-00

Date/Time Test Initiated: 1-7-00/0900
Date/Time Test Terminated: 1-13-00/0900
Dilution Water Used: 9:1 RW
Source Culture Date: 1230

NaCl Conc. (mg/l)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/7	1/7	1/7	1/7	1/7	1/7				
		1	2	3	4	5	6	7	8		
900	21	0	0	6	0	12	18			36	
	22	0	0	5	0	12	18			35	
	23	0	0	6	16	0	20			42	
	24	0	0	5	12	0	17			34	
	25	0	0	7	11	0	22			40	
	26	0	0	4	8	0	20			32	
	27	0	0	5	14	0	22			41	
	28	0	0	6	11	0	17			34	
	29	0	0	4	0	9	18			31	
	30	0	0	5	0	11	16			32	357
No. of Live Adults		10	10	10	10	10	10				

NaCl Conc. (mg/L)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/7	1/7	1/7	1/7	1/7	1/7	1/7			
		1	2	3	4	5	6	7	8		
1300	31	0	0	5	14	0	16			35	
	32	0	0	5	0	3	0			8	
	33	0	0	6	12	0	15			33	
	34	0	0	4	11	0	15			30	
	35	0	0	5	X*	-	-			5*	
	36	0	0	4	11	3	10			28	
	37	0	0	6	13	0	16			35	
	38	0	0	8	12	0	17			35	
	39	0	0	6	0	12	16			34	
	40	0	0	6	0	8	X*			14*	
No. of Live Adults		10	10	10	9	9	8				
Analyst		JW	JW	KN	KN	TF	10H			10H	10H

Comments: * lost in transfer - not included in statistical
started w/ 15 animals initially analysis

Approved By: W

**Ceriodaphnia dubia SURVIVAL AND
REPRODUCTION TEST DATA SHEET**
EPA 600/4-91/002, Method 1002.0



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Test Type: Reference Toxicant
Toxicant: Sodium Chloride
Bio. No.: 1104
Date/Time Initial Sample Collected: 1-6-00

Date/Time Test Initiated: 1-7-00 / 0900
Date/Time Test Terminated: 1-13-00 / 0900
Dilution Water Used: 9.1 RW
Source Culture Date: 1230

NaCl Conc. (mg/L)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1/7	1/7	1/7	1/7	1/7	1/7				
		1	2	3	4	5	6	7	8		
1800	41	0	0	4	0	2	8			14	
	42	0	0	3	5	0	0			8	
	43	0	0	0	0	1	14			15	
	44	0	0	1	0	0	0			1	
	45	0	0	6	10	0	0			6	
	46	0	0	1	8	0	0			9	
	47	0	0	5	0	0	0			5	
	48	0	0	5	0	0	0			5	
	49	0	0	0	6	0	3			9	
	50	0	0	5	0	0	0			5	77
No. of Live Adults		10	10	10	10	10	10				

NaCl Conc. (mg/L)	Test Container No.	Number of Live Young For Each Test Day (X denotes dead adult)								Total No. of Live Young Per Rep.	Total No. of Live Young Per Conc.
		Sample Date or Dilution Water Batch Number									
		1	2	3	4	5	6	7	8		
2600	51	X									
	52	X									
	53	X									
	54	X									
	55	X									
	56	X									
	57	X									
	58	X									
	59	X									
	60	X									
No. of Live Adults		0									
Analyst		JW	JW	MN	MN	TE	ADH			ADH	ADH

Comments: _____

Approved By: PW

Daphnid Survival and Reproduction Test-Reproduction

Start Date: 1/7/00 09:00 Test ID: 1104 Sample ID: REF-Ref Toxicant
End Date: 1/13/00 09:00 Lab ID: EDG-Toxicology Laboratory Sample Type: NACL-Sodium chloride
Sample Date: 1/6/00 12:00 Protocol: EF-EPA/600/4-91/002 Test Species: CD-Ceriodaphnia dubia
Comments:

Conc-mg/L	1	2	3	4	5	6	7	8	9	10
control	39.000	38.000	43.000	32.000	41.000	35.000	46.000	37.000	32.000	37.000
600	40.000	37.000	41.000	34.000	40.000	41.000	37.000	35.000	37.000	39.000
900	36.000	35.000	42.000	34.000	40.000	32.000	41.000	34.000	31.000	32.000
1300	35.000	8.000	33.000	30.000	28.000	35.000	35.000	34.000		
1800	14.000	8.000	15.000	1.000	6.000	9.000	5.000	5.000	9.000	5.000
2600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

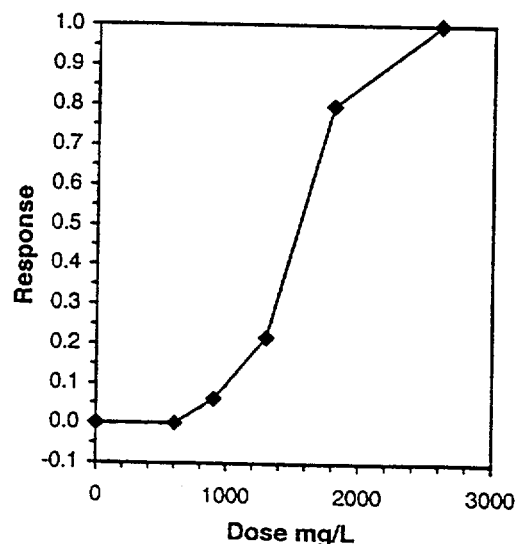
Conc-mg/L	Mean	N-Mean	Transform: Untransformed					Isotonic	
			Mean	Min	Max	CV%	N	Mean	N-Mean
control	38.000	1.0000	38.000	32.000	46.000	11.834	10	38.050	1.0000
600	38.100	1.0026	38.100	34.000	41.000	6.482	10	38.050	1.0000
900	35.700	0.9395	35.700	31.000	42.000	11.130	10	35.700	0.9382
1300	29.750	0.7829	29.750	8.000	35.000	30.794	8	29.750	0.7819
1800	7.700	0.2026	7.700	1.000	15.000	55.792	10	7.700	0.2024
2600	0.000	0.0000	0.000	0.000	0.000	0.000	10	0.000	0.0000

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.8854	0.929	-1.6972	6.98677
Bartlett's Test indicates unequal variances ($p = 5.72E-03$)	14.5545	13.2767		

Linear Interpolation (200 Resamples)

Point	mg/L	SD	95% CL	Skew
IC05	842.872	146.657	510.409 1024.91	-0.5879
IC10	997.815	127.585	744.494 1303.4	0.1811
IC15	1125.71	129.539	921.38 1340.05	0.0084
IC20	1253.61	110.163	1007.73 1376.83	-0.5694
IC25	1327.49	93.0073	1079.05 1413.84	-1.1236
IC40	1456.92	66.9518	1268.74 1522.47	-1.5037
IC50	1543.2	54.7646	1396.41 1600.03	-1.7030



HEMICAL AND PHYSICAL ANALYSIS DATA SHEET / FRESH WATER

ISCHARGER/LOCATION: Reference Toxicant
OLOGY LOG NUMBER: 1104 TEST INITIATION DATE/TIME: 1-7-00/0900
EST ORGANISM (Check one): ☒ Ceriodaphnia dubia (Method 1002.0)' ☐ Pimephales promelas (Method 1000.0)'
AMPLE DATE: Day 1 1-6-7 Day 2 1-6-7 Day 3 1-6-7 Day 4 1-6-7 Day 5 1-6-7 Day 6 1-6-7 Day 7 1-6-7



2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

EFFLUENT CONC. (mg/L)	pH (Standard Units)														DISSOLVED OXYGEN (mg/L)													
	TEST DAY														TEST DAY													
	1		2		3		4		5		6		7		1		2		3		4		5		6		7	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Control	7.7	7.3	7.6	7.3	7.7	7.4	7.8	7.6	7.8	7.5	7.6	7.9			7.9	7.7	7.8	7.6	7.7	7.4	7.8	7.4	7.8	7.5	7.7	8.0		
200	7.9	7.4	7.7	7.6	7.9	7.5	7.8	7.8	7.8	7.5	7.5	8.0			7.9	7.8	7.8	7.7	7.8	7.5	7.9	7.7	7.9	7.5	7.7	8.0		
700	8.0	7.6	7.9	7.7	8.0	7.6	7.9	7.7	7.9	7.6	7.6	8.0			7.9	7.8	7.9	7.7	7.8	7.6	7.9	7.9	7.9	7.6	7.7	8.0		
1300	8.0	7.7	7.9	7.7	8.0	7.7	7.9	7.7	7.9	7.7	7.7	8.0			7.9	7.8	7.9	7.8	7.9	7.6	7.9	7.9	7.9	7.7	7.9	8.1		
1800	8.0	7.7	7.9	7.8	8.0	7.8	7.9	7.7	7.9	7.7	7.7	8.1			7.9	7.9	8.0	7.9	8.0	7.8	7.9	7.9	7.9	7.7	7.9	8.0		
2600	8.0	7.7	7.9												7.9	7.9	8.0	7.9	8.0	7.8	7.9	8.0	7.9	7.9	8.0	8.1		
Analyst	TF	JW	JW	JW	JW	MN	MN	MN	MN	TF	TF	NA			TF	JW	JW	JW	JW	MN	MN	MN	MN	TF	TF	NA		

EFFLUENT CONC. (%)	TEST DAY							TEMPERATURE (°C)							TOTAL ALKALINITY (mg/L CaCO ₃)								
	TEST DAY							TEST DAY							TEST DAY								
	1	2	3	4	5	6	7	INIT.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
Control	350	348	358	350	332	351		24.5	24.3	24.1	24.4	24.8	24.6	24.4		74	74	74	74	74	74	74	
00	1534	1358	1569	1506	1401	1541		24.6	24.5	24.1	24.4	24.8	24.6	24.3									
100	2230	1890	2430	2540	1986	2840		24.8	24.5	24.0	24.4	24.8	24.7	24.2									
300	3000	2760	3360	3250	310	3380		24.8	24.4	24.0	24.5	24.8	24.6	24.3		2600	78	78	78	78	78	78	
800	3980	3530	4290	4140	4050	4290		24.8	24.3	24.1	24.5	24.8	24.6	24.3		Analyst	SH	SH	SH	SH	SH	SH	
2600	5510	4620						24.8	24.3								TOTAL HARDNESS (mg/L CaCO ₃)						
																Control	98	98	98	98	98	98	
																2600	90	90	90	90	90	90	
																Analyst	SH	SH	SH	SH	SH	SH	
																	TOTAL RESIDUAL CHLORINE (mg/L)						
																NA							
Analyst	TF	JW	JW	MN	MN	TF		TF	JW	JW	MN	MN	TF	NA									

Test Method Manual: EPA 600/4-91/002; Method numbers for chemical parameters are listed on appropriate chemical bench sheets.

Sample treatment with Sodium Thiosulfate? ☒ Yes ☐ No

Temperature mean (range) = 24.5 (24.0 - 24.8)

Approved by: PA

md\groups\biology\forms\chemical-sheet

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-18)

(17-19)

TN0026450	101 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

DIFFUSER DISCHARGE

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	02	01	00	02	29

From (20-21) (22-23) (24-25) To (26-27) (28-29) (30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		QUANTITY OR LOADING (3 Card Only (46-53) (54-61))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61))			UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)	
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM					
TEMPERATURE, WATER DEG. CENTIGRADE 00010 Z 0 0 INSTREAM MONITORING	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	13.3	(04)	0	29 / 29	MODEL	
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	30.5 DAILY MX	DEG. C.		SEE PERMIT	CK REQ	
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	24.8	(04)	0	29 / 29	MODEL	
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	REPORT DAILY MX	DEG. C.		SEE PERMIT	CK REQ	
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	7.7	*****	8.1	(12)	0	08 / 29	GRAB	
	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		WEEKLY	GRAB	
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	4	4	(19)	0	04 / 29	GRAB	
	PERMIT REQUIREMENT	*****	*****	****	*****	30 DAILY MX	100 DAILY MX	MG/L		WEEKLY	GRAB	
OIL & GREASE FREON EXTR-GRAV METH 00556 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	<5	<5	(19)	0	04 / 29	GRAB	
	PERMIT REQUIREMENT	*****	*****	****	*****	15 DAILY MX	20 DAILY MX	MG/L		WEEKLY	GRAB	
FLOW, IN CONDUIT OR THRU TREATMENT PLANT 50050 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	1610	(03)	*****	*****	*****	..	0	29 / 29	RCORDR	
	PERMIT REQUIREMENT	*****	REPORT DAILY MX	MGD	*****	*****	*****	****		CONTINUOUS	RCORDR	
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	0.028	(19)	0	47 / 29	GRAB	
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	0.058 INST MAX	MG/L		WEEK-DAYS	CALCTD	
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)							TELEPHONE		DATE		
Masoud Bagestani								423 843-6700		00	04	11
Site Vice President								AREA CODE NUMBER		YEAR	MO	DAY
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT  Environmental Supervisor											

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No closed mode operation. The following injection occurred: 1. PCL-222(max. calc. conc. was 0.036mg/L--limit 0.100mg/L) 2. CL-363(max. calc. conc. was 0.011 mg/L--limit 0.100mg/L) 3. Cuprostat-PF(max. calc. conc. was 0.124mg/L--limit 0.400mg/L) 4. PCL-401(max. calc. conc. was 0.059mg/L--limit 0.100mg/L) Toxicity was sampled from 1/31-2/6, results will be submitted with the quarterly DMR.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450	101 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

DIFFUSER DISCHARGE

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	02	01	00	02	29
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only (46-53) QUANTITY OR LOADING (54-61)			(4 Card Only (38-45) QUALITY OR CONCENTRATION (46-53)				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
TEMPERATURE - C, RATE OF CHANGE 82234 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	1.6	(04)	0	29 / 29	CALCTD
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	2.0	DEG. C.			CALCTD
DELTA TEMPERATURE - C 00016 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	3.4	(04)	0	29 / 29	CALCTD
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	5.0	DEG. C.			CALCTD
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
BORON, TOTAL 01022 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	<0.2	<0.2	<0.2	(19)	0	01 / 29	GRAB
	PERMIT REQUIREMENT	*****	*****	****	REPORT	REPORT	REPORT	MG/L			GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	03	13
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450 PERMIT NUMBER	103 G DISCHARGE NUMBER
----------------------------	---------------------------

MAJOR
(SUBR 01)

F - FINAL

LOW VOL. WASTE TREATMENT POND

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
From 00	02	01	To 00	02	29

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	QUANTITY OR LOADING (3 Card Only (46-53) (54-61))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61))				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
PH	SAMPLE MEASUREMENT	*****	*****	**	7.2	*****	8.9	(12)	0	12 / 29	GRAB
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	**	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		THREE/ WEEK	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	50	84	(26)	*****	8	12	(19)	0	04 / 29	GRAB
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	380 MO AVG	1250 DAILY MX	LBS/DY	*****	30 MO AVG	100 DAILY MX	MG/L		WEEKLY	GRAB
OIL & GREASE FREON EXTR-GRAV METH	SAMPLE MEASUREMENT	<35	<66	(26)	*****	<5	<5	(19)	0	04 / 29	GRAB
00556 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	190 MO AVG	250 DAILY MX	LBS/DY	*****	15 MO AVG	20 DAILY MX	MG/L		WEEKLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	1.067	1.785	(03)	*****	*****	*****	**	0	29 / 29	TOTAL
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	**		DAILY	TOTAL
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE		
Masoud Bagestani		423	843-6700	00	03	13
Site Vice President		AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT				

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450	107 G
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR
(SUBR 01)

F - FINAL

METAL CLEANING WASTE POND

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.
 OMB No. 2040-0004
 Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD							
From	YEAR	MO	DAY	To	YEAR	MO	DAY
	00	02	01		00	02	29
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	(3 Card Only (46-53)) QUANTITY OR LOADING (54-61)			(4 Card Only (38-45)) QUALITY OR CONCENTRATION (46-53)				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
PH		*****	*****	**		*****		(12)			
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		DAILY	GRAB
PHOSPHORUS, TOTAL (AS P)		*****	*****	**	*****	*****		(19)			
00665 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		DAILY	COMP-8
SOLIDS, TOTAL SUSPENDED		*****	*****	**	*****	*****		(19)			
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	30 DAILY MX	MG/L		DAILY	COMP-8
OIL & GREASE FREON EXTR-GRAV METH		*****	*****	**	*****	*****		(19)			
00556 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	15 DAILY MX	MG/L		DAILY	GRAB
COPPER, TOTAL (AS CU)		*****	*****	**	*****	*****		(19)			
01042 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		DAILY	COMP-8
IRON, TOTAL (AS FE)		*****	*****	**	*****	*****		(19)			
01045 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		DAILY	COMP-8
FLOW, IN CONDUIT OR THRU TREATMENT PLANT				(03)	*****	*****	*****	**			
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	****		DAILY	CALCTD

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE				
Masoud Bagestani		423	843-6700	00	03	13		
Site Vice President								
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No phosphate bearing chemicals were employed. There were no releases during February 2000.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450

110 G

PERMIT NUMBER

DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

RECYCLED COOLING WATER

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.

OMB No. 2040-0004

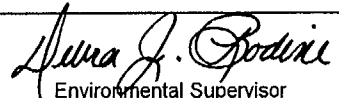
Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD							
From	YEAR	MO	DAY	To	YEAR	MO	DAY
	00	02	01		00	02	29
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	QUANTITY OR LOADING (3 Card Only (46-53) (54-61))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61))				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(04)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	38.3 DAILY MX	DEG. C.		DAILY	GRAB-4
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**		*****		(12)			
	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		WEEKLY	GRAB
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	0.10 DAILY MX	MG/L		WEEKLY	GRAB-4
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE			
Masoud Bagestani		 Environmental Supervisor	423	843-6700	00	03	13
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT						

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No Discharge this Period

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY IN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450 PERMIT NUMBER	112 G DISCHARGE NUMBER
----------------------------	---------------------------

MAJOR

(SUBR 01)

F - FINAL

SEWAGE TREATMENT PLANT

EFFLUENT

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

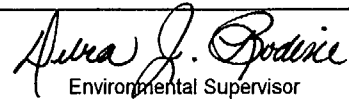
ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
From 00	02	01	To 00	02	29

*** NO DISCHARGE ☒ ***

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only (46-53)) QUANTITY OR LOADING (54-61)			(4 Card Only (38-45)) QUALITY OR CONCENTRATION (46-53) (54-61)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
BOD, 5-DAY (20 DEG. C)	SAMPLE MEASUREMENT	*****	*****	**	*****			(19)		
00310 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	30 MO AVG	45 DAILY MX	MG/L	TWICE/ MONTH	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****	**	*****			(19)		
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	30 MO AVG	45 DAILY MX	MG/L	TWICE/ MONTH	GRAB
SOLIDS, SETTLEABLE	SAMPLE MEASUREMENT	*****	*****	**	*****			(25)		
00545 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****		1.0 DAILY MX	MG/L	TWICE/ WEEK	GRAB
COLIFORM, FECAL MF, M-FC BROTH, 44.5C	SAMPLE MEASUREMENT	*****	*****	**	*****			(13)		
31616 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	**	*****	200 ARI MEAN	1000 DAILY MX	#/100 ML	TWICE/ MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT			(03)	*****	*****	*****	**		
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	****	CONTIN UOUS	TOTALZ
CHLORINE, TOTAL RESIDUAL	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
50060 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	2.0 INST MAX	MG/L	WEEK- DAYS	GRAB
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	03	13
Site Vice President			SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	NUMBER	YEAR
TYPED OR PRINTED							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Sewage flow has been diverted from this system since January, 1998. DSN-112 is now in stand-by status. No Discharge this Period

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY IN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450 PERMIT NUMBER	118 G DISCHARGE NUMBER
----------------------------	---------------------------

MAJOR

(SUBR 01)

F - FINAL

WASTEWATER & STORM WATER

EFFLUENT

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	02	01	00	02	29
(20-21)		(22-23)	(24-25)		(26-27)
			(28-29)		(30-31)

*** NO DISCHARGE ☒ ***

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		QUANTITY OR LOADING (3 Card Only (46-53) (54-61))			QUALITY OR CONCENTRATION (4 Card Only (38-45) (46-53) (54-61))			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
OXYGEN, DISSOLVED (DO)	SAMPLE MEASUREMENT	*****	*****	**		*****	*****	(19)		
00300 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	***	2.0 DAILY MN	*****	*****	MG/L	TWICE/ WEEK	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)		
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	***	*****	*****	100 DAILY MX	MG/L	TWICE/ WEEK	GRAB
SOLIDS, SETTLEABLE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(25)		
00545 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	***	*****	*****	1.0 DAILY MX	MG/L	ONCE/ MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT			(03)	*****	*****	*****	**		
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	*	ONCE/ BATCH	CALCTD
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE		
Masoud Bagestani		423	843-6700	00	03	13
Site Vice President						
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT  Environmental Supervisor				

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

During this reporting period, there has been no flow from the Dredge Pond other than that resulting from rainfall. No Discharge this Period

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450 PERMIT NUMBER	101 G DISCHARGE NUMBER
----------------------------	---------------------------

MAJOR

(SUBR 01)

F - FINAL

DIFFUSER DISCHARGE

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
00	01	01	00	01	31

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only (46-53))			(4 Card Only (38-45))				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
TEMPERATURE, WATER DEG. CENTIGRADE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	13.4	(04)	0	31 / 31	MODEL
00010 Z 0 0	PERMIT REQUIREMENT	*****	*****	****	*****	*****	30.5 DAILY MX	DEG. C.		SEE PERMIT	CK REQ
INSTREAM MONITORING											
TEMPERATURE, WATER DEG. CENTIGRADE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	24.7	(04)	0	31 / 31	MODEL
00010 1 0 0	PERMIT REQUIREMENT	*****	*****	****	*****	*****	REPORT DAILY MX	DEG. C.		SEE PERMIT	CK REQ
EFFLUENT GROSS VALUE											
PH	SAMPLE MEASUREMENT	*****	*****	**	7.7	*****	7.9	(12)	0	09 / 31	GRAB
00400 1 0 0	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		WEEKLY	GRAB
EFFLUENT GROSS VALUE											
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****	**	*****	<2	4	(19)	0	04 / 31	GRAB
00530 1 0 0	PERMIT REQUIREMENT	*****	*****	****	*****	30 DAILY MX	100 DAILY MX	MG/L		WEEKLY	GRAB
EFFLUENT GROSS VALUE											
OIL & GREASE FREON EXTR-GRAV METH	SAMPLE MEASUREMENT	*****	*****	**	*****	<5	<6	(19)	0	04 / 31	GRAB
00556 1 0 0	PERMIT REQUIREMENT	*****	*****	****	*****	15 DAILY MX	20 DAILY MX	MG/L		WEEKLY	GRAB
EFFLUENT GROSS VALUE											
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	*****	1620	(03)	*****	*****	*****	..	0	31 / 31	RCORDR
50050 1 0 0	PERMIT REQUIREMENT	*****	REPORT DAILY MX	MGD	*****	*****	*****	****		CONTIN UOUS	RCORDR
EFFLUENT GROSS VALUE											
CHLORINE, TOTAL RESIDUAL	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	0.026	(19)	0	43 / 31	GRAB
50060 1 0 0	PERMIT REQUIREMENT	*****	*****	****	*****	*****	0.058 INST MAX	MG/L		WEEK- DAYS	CALCTD
EFFLUENT GROSS VALUE											

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE				
Masoud Bagestani		423	843-6700	00	04	10		
Site Vice President								
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Debra J. Bodine</i> Environmental Supervisor		AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No closed mode operation. The following injections occurred: 1. PCL-222(max. calc. conc. was 0.034mg/L--limit 0.100mg/L) 2. CL-363(max. calc. conc. was 0.0063mg/L--limit 0.100mg/L) 3. Cuprostat-PF(max. calc. conc. was 0.123mg/L--limit 0.400mg/L) 4. PCL-401(max. calc. conc. was 0.034mg/L--limit 0.100mg/L) Toxicity was sampled from 1/31-2/6, results will be submitted with the quarterly DMR.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450
 PERMIT NUMBER

101 G
 DISCHARGE NUMBER

MAJOR

(SUBR 01)

F - FINAL

DIFFUSER DISCHARGE

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD						
From				To		
YEAR	MO	DAY		YEAR	MO	DAY
00	01	01		00	01	31
(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only QUANTITY OR LOADING (46-53)			(4 Card Only QUALITY OR CONCENTRATION (38-45)				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
TEMPERATURE - C, RATE OF CHANGE 82234 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	1.6	(04)	0	31 / 31	CALCTD
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	2.0	DEG. C.			CALCTD
DELTA TEMPERATURE - C 00016 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****	3.4	(04)	0	31 / 31	CALCTD
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	5.0	DEG. C.			CALCTD
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
BORON, TOTAL 01022 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	<0.2	<0.2	<0.2	(19)	0	01 / 31	GRAB
	PERMIT REQUIREMENT	*****	*****	****	REPORT	REPORT	REPORT	MG/L			GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE		
		AREA CODE	NUMBER	YEAR	MO	DAY
Masoud Bagestani Site Vice President TYPED OR PRINTED		423	843-6700	00	02	11
	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT					

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

See attached explanation for SQN thermal compliance regarding the dates 1/18 - 1/28.

January 18 to January 28, 2000 SQN Thermal Compliance

During the period from January 18 to January 28, 2000, the method of flow measurement for releases from Watts Bar Hydro was varied from normal procedures. This measurement is required by the numerical model that computes the NPDES parameters for SQN thermal compliance. The flow usually is determined based on the output from the Hagan flowmeters at Watts Bar Hydro, which use a mercury-filled sensor for measuring a pressure differential in the hydroturbines. During this period, the Hagan flowmeters were replaced and upgraded with a flow measurement system that uses mercury-free, strain-gage pressure cells. In the absence of the pressure-differential measurements, the releases from Watts Bar Hydro were determined based on the hydraulic characteristic curves and megawatt generation for each hydro unit. This method of flow measurement has an accuracy of the same order of magnitude as the pressure differential method.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name **TVA - SEQUOYAH NUCLEAR PLANT**
 Address **BOX 2000**
 (INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility **TVA - SEQUOYAH NUCLEAR PLANT**
 Location **HAMILTON COUNTY**

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450
 PERMIT NUMBER

103 G
 DISCHARGE NUMBER

MAJOR
 (SUBR 01)

F - FINAL

LOW VOL. WASTE TREATMENT POND

EFFLUENT

*** NO DISCHARGE ☐ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
From 00	01	01	To 00	01	31
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only (46-53))			(4 Card Only (38-45))				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
PH	SAMPLE MEASUREMENT	*****	*****	**	7.3	*****	8.6	(12)	0	12 / 31	GRAB
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	**	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		THREE/ WEEK	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	73	112	(26)	*****	8	10	(19)	0	04 / 31	GRAB
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	380 MO AVG	1250 DAILY MX	LBS/DY	*****	30 MO AVG	100 DAILY MX	MG/L		WEEKLY	GRAB
OIL & GREASE FREON EXTR-GRAV METH	SAMPLE MEASUREMENT	<52	<71	(26)	*****	<5	<6	(19)	0	04 / 31	GRAB
00556 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	190 MO AVG	250 DAILY MX	LBS/DY	*****	15 MO AVG	20 DAILY MX	MG/L		WEEKLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	1.021	1.902	(03)	*****	*****	*****	**	0	31 / 31	TOTAL
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	**		DAILY	TOTAL
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE		
		423	843-6700	00	02	11
Masoud Bagestani Site Vice President		Environmental Supervisor		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		
TYPED OR PRINTED		AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

Name TVA - SEQUOYAH NUCLEAR PLANT
 Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility TVA - SEQUOYAH NUCLEAR PLANT
 Location HAMILTON COUNTY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450 PERMIT NUMBER	107 G DISCHARGE NUMBER
----------------------------	---------------------------

MAJOR

(SUBR 01)

F - FINAL

METAL CLEANING WASTE POND

EFFLUENT

*** NO DISCHARGE ☒ ***

Form Approved.

OMB No. 2040-0004

Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD							
From	YEAR	MO	DAY	To	YEAR	MO	DAY
	00	01	01		00	01	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	(3 Card Only (46-53) QUANTITY OR LOADING (54-61))			(4 Card Only (38-45) QUALITY OR CONCENTRATION (46-53) (54-61))				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
PH		*****	*****	**		*****		(12)			
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		DAILY	GRAB
PHOSPHORUS, TOTAL (AS P)		*****	*****	**	*****	*****		(19)			
00665 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		DAILY	COMP-8
SOLIDS, TOTAL SUSPENDED		*****	*****	**	*****	*****		(19)			
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	30 DAILY MX	MG/L		DAILY	COMP-8
OIL & GREASE FREON EXTR-GRAV METH		*****	*****	**	*****	*****		(19)			
00556 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	15 DAILY MX	MG/L		DAILY	GRAB
COPPER, TOTAL (AS CU)		*****	*****	**	*****	*****		(19)			
01042 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		DAILY	COMP-8
IRON, TOTAL (AS FE)		*****	*****	**	*****	*****		(19)			
01045 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		DAILY	COMP-8
FLOW, IN CONDUIT OR THRU TREATMENT PLANT				(03)	*****	*****	*****	**			
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	****		DAILY	CALCTD

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor	TELEPHONE		DATE			
Masoud Bagestani			423	843-6700	00	02	11	
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY	
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT							

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No phosphate bearing chemicals were employed. There were no releases during January 2000.

Name TVA - SEQUOYAH NUCLEAR PLANT
Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
Facility TVA - SEQUOYAH NUCLEAR PLANT
Location HAMILTON COUNTY

DISCHARGE MONITORING REPORT (DMR)
(2-16) (17-19)

TN0026450	110 G
PERMIT NUMBER	DISCHARGE NUMBER

(SUBR 01)

F - FINAL

RECYCLED COOLING WATER

EFFLUENT

*** NO DISCHARGE ☒ ***

NOTE: Read instructions before completing this form.

ATTN: Debra J. Bodine

MONITORING PERIOD					
From			To		
YEAR	MO	DAY	YEAR	MO	DAY
00	01	01	00	01	31
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

PARAMETER (32-37)	SAMPLE MEASUREMENT	(3 Card Only (46-53) QUANTITY OR LOADING (54-61)			(4 Card Only (38-45) QUALITY OR CONCENTRATION (54-61)				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
TEMPERATURE, WATER DEG. CENTIGRADE 00010 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(04)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	38.3 DAILY MX	DEG. C.		DAILY	GRAB-4
PH 00400 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**		*****		(12)			
	PERMIT REQUIREMENT	*****	*****	****	6.0 MINIMUM	*****	9.0 MAXIMUM	SU		WEEKLY	GRAB
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	0.10 DAILY MX	MG/L		WEEKLY	GRAB-4
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	02	11
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT					

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

No Discharge this Period

Name TVA - SEQUOYAH NUCLEAR PLANT
Address BOX 2000
(INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
Facility TVA - SEQUOYAH NUCLEAR PLANT
Location HAMILTON COUNTY

DISCHARGE MONITORING REPORT (DMR)
(2-16) (17-19)

TN0026450	112 G
PERMIT NUMBER	DISCHARGE NUMBER

(SUBR 01)
F - FINAL
SEWAGE TREATMENT PLANT
EFFLUENT

OMB No. 2040-0004
Approval expires 05-31-98

ATTN: Debra J. Bodine

MONITORING PERIOD						
YEAR	MO	DAY	To	YEAR	MO	DAY
00	01	01		00	01	31
(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

*** NO DISCHARGE ☒ ***

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	SAMPLE MEASUREMENT	(3 Card Only (46-53) QUANTITY OR LOADING (54-61))			(4 Card Only (38-45) QUALITY OR CONCENTRATION (54-61))				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
BOD, 5-DAY (20 DEG. C) 00310 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	30 MO AVG	45 DAILY MX	MG/L		TWICE/MONTH	GRAB
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	30 MO AVG	45 DAILY MX	MG/L		TWICE/MONTH	GRAB
SOLIDS, SETTLEABLE 00545 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(25)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		TWICE/WEEK	GRAB
COLIFORM, FECAL MF, M-FC BROTH, 44.5C 31616 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****			(13)			
	PERMIT REQUIREMENT	*****	*****	**	*****	200 ARI MEAN	1000 DAILY MX	#/100 ML		TWICE/MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT 50050 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT			(03)	*****	*****	*****	**			
	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	****		CONTINUOUS	TOTALZ
CHLORINE, TOTAL RESIDUAL 50060 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	2.0 INST MAX	MG/L		WEEK-DAYS	GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	 Environmental Supervisor	TELEPHONE		DATE		
Masoud Bagestani			423	843-6700	00	02	11
Site Vice President			AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT						

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Sewage flow has been diverted from this system since January, 1998. DSN-112 is now in stand-by status. No Discharge this Period

PERMITTEE NAME/ADDRESS (provide Facility Name/Location if Differing)

Name **TVA - SEQUOYAH NUCLEAR PLANT**
 Address **BOX 2000**
 (INTEROFFICE SB-2A)
SODDY - DAISY TN 37384
 Facility **TVA - SEQUOYAH NUCLEAR PLANT**
 Location **HAMILTON COUNTY**

DISCHARGE MONITORING REPORT (DMR)

(2-16)

(17-19)

TN0026450

118 G

PERMIT NUMBER

DISCHARGE NUMBER

(SUBR 01)

OMB No. 2040-0004

Approval expires 05-31-98

F - FINAL

WASTEWATER & STORM WATER

EFFLUENT

*** NO DISCHARGE ☒ ***

NOTE: Read instructions before completing this form.

ATTN: Debra J. Bodine

MONITORING PERIOD					
From			To		
YEAR	MO	DAY	YEAR	MO	DAY
00	01	01	00	01	31
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

PARAMETER (32-37)		(3 Card Only (46-53) QUANTITY OR LOADING (54-61)			(4 Card Only (38-45) QUALITY OR CONCENTRATION (46-53) (54-61)				NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
OXYGEN, DISSOLVED (DO) 00300 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**		*****	*****	(19)			
	PERMIT REQUIREMENT	*****	*****	****	2.0 DAILY MN	*****	*****	MG/L		TWICE/ WEEK	GRAB
SOLIDS, TOTAL SUSPENDED 00530 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(19)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	100 DAILY MX	MG/L		TWICE/ WEEK	GRAB
SOLIDS, SETTLEABLE 00545 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****	**	*****	*****		(25)			
	PERMIT REQUIREMENT	*****	*****	****	*****	*****	1.0 DAILY MX	MG/L		ONCE/ MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT 50050 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT			(03)	*****	*****	*****	**			
	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	*****	*****	*****	*		ONCE/ BATCH	CALCTD
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. §1001 AND 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)	TELEPHONE		DATE				
Masoud Bagestani		423	843-6700	00	02	11		
Site Vice President								
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

During this reporting period, there has been no flow from the Dredge Pond other than that resulting from rainfall. No Discharge this Period