



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

February 22, 1995

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

Gentlemen:

In the Matter of
Tennessee Valley Authority

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)

Docket Nos. 50-327
50-328

SEQUOYAH NUCLEAR PLANT (SQN) - 1994 ANNUAL REPORTS

Enclosed are the 1994 Annual Reports for SQN. These reports contain a summary of the following items: occupational exposure data, reactor coolant system specific activity analysis, and diesel generator reliability data.

This report is being submitted to satisfy the requirements of Technical Specifications 6.9.1.4, 6.9.1.5, and 6.9.2.2.

Please direct questions concerning this submittal to Keith Weller at (615) 843-7527.

Sincerely,

R. H. Shell
Manager
Site Licensing Manager

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission
Page 2
February 22, 1995

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TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

UNITS 1 AND 2

ANNUAL REPORTS TO THE
NUCLEAR REGULATORY COMMISSION

JANUARY 1 - DECEMBER 31, 1994

DOCKET NUMBERS 50-327 AND 50-328
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SEQUOYAH NUCLEAR PLANT
ANNUAL REPORTS
1994

TABLE OF CONTENTS

	Page
Preface	1
Occupational Exposure Data	2
Diesel Generator Reliability Data	6

SEQUOYAH NUCLEAR PLANT (SQN)
ANNUAL REPORTS
1994

The following are descriptions of the items contained in this report.

Occupational Exposure Data

Enclosed is the exposure data for personnel at SQN that received greater than 100 millirem between January 1 and December 31, 1994. Exposure data for special maintenance is based on the following activities:

- Spent Fuel Pool Rerack
- Relocation of the Unit 1 Reactor Coolant Drain Tank Level Transmitter
- Modification of the Unit 1 Reactor Coolant Pump Oil Drain System
- Splicing of Cables in Unit 1 Penetrations 34, 28, 18, 50, and 33
- Modification of Hangers, Supports, and Clamps
- Valve Maintenance in the Unit 1 Excess Letdown Heat Exchanger Room
- Cleaning/Measuring of Unit 1 Reactor Coolant Pump No. 1 Flange Bolt Holes
- Replacement of the Unit 2 Control Rod Drive Mechanism Cooler Coils
- Change out of the Unit 2 Reactor Coolant Drain Tank Level Transmitter
- Relocation of the Unit 2 Reactor Coolant System Temperature Modifier
- Change out of the Unit 2 Lower Compartment Cooler Coils
- Repair of the Unit 2 Containment Floor Coatings
- Gamma Scan Analysis for Unit 2

Reactor Coolant System Specific Activity Analysis (Specific Iodine Isotopic Activity Concentration and/or DEI-131 Determination)

During 1994, there were no specific iodine activity results of Unit 1 or Unit 2 reactor coolant systems exceeding the limits of Technical Specification (TS) 3.4.8.a (1.0 $\mu\text{Ci/gm}$) during either power operation or reactor shutdown and/or start-up.

Diesel Generator (D/G) Reliability Data

The reliability data for the SQN 6900-volt emergency D/Gs is enclosed in accordance with TS 6.9.2.2.

REXPR219
 RUN DATE: 01-11-95
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TENNESSEE VALLEY AUTHORITY
 SQN RADIATION EXPOSURE SYSTEM

NUMBER OF PERSONNEL AND MAN-REM BY WORK JOB FUNCTION
 TOTAL NUMBER OF INDIVIDUALS

NUMBER OF PERSONNEL (> 100 M-REM)

TOTAL MAN-REM

MO=REACTOR OPS SURVEILLANCE

GROUP	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	64	2	98	164	1.331	0.007	3.330	4.668
OPERATING PERSONNEL	37	6	1	44	3.978	0.996	0.025	4.999
HEALTH PHYSICS PERSONNEL	43	7	43	93	3.889	0.454	2.337	6.680
SUPERVISORY PERSONNEL	23	2	0	25	0.610	0.002	0.000	0.612
ENGINEERING PERSONNEL	24	8	6	38	0.877	0.033	0.713	1.623
MO	191	25	148	364	10.685	1.492	6.405	18.582

MO-ROUTINE MAINTENANCE

GROUP	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	120	7	402	529	26.104	1.903	76.424	104.431
OPERATING PERSONNEL	48	8	13	69	3.453	0.766	2.311	6.530
HEALTH PHYSICS PERSONNEL	65	7	59	131	8.735	0.754	14.628	24.117
SUPERVISORY PERSONNEL	30	3	0	33	1.802	0.044	0.000	1.846
ENGINEERING PERSONNEL	34	19	41	94	2.006	0.251	1.182	3.439
MO	297	44	515	856	42.100	3.718	94.545	140.363

MO-IN-SERVICE INSPECTION

GROUP	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	21	0	93	114	2.194	0.000	9.894	12.088
OPERATING PERSONNEL	4	1	19	24	0.058	0.026	3.708	3.792
HEALTH PHYSICS PERSONNEL	32	5	35	72	0.994	0.411	5.557	6.962
SUPERVISORY PERSONNEL	8	1	0	9	0.159	0.043	0.000	0.202
ENGINEERING PERSONNEL	8	24	71	103	0.967	6.518	39.338	46.823
MO	73	31	218	322	4.372	6.998	58.497	69.867

MO-SPECIAL MAINTENANCE

GROUP	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	51	3	270	324	4.748	.009	34.498	39.255

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 RUN DATE: 01-11-95
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TENNESSEE VALLEY AUTHORITY
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 TOTAL NUMBER OF INDIVIDUALS

	NUMBER OF PERSONNEL (> 100 M-REM)				TOTAL MAN-REM			
OPERATING PERSONNEL	21	2	5	28	0.147	0.028	0.332	0.507
HEALTH PHYSICS PERSONNEL	29	3	25	57	0.699	0.011	0.369	1.079
SUPERVISORY PERSONNEL	12	0	0	12	0.113	0.000	0.000	0.113
ENGINEERING PERSONNEL	6	2	7	15	0.089	0.020	0.299	0.408
MO	119	10	307	436	5.796	0.068	35.498	41.362

MO-WASTE PROCESSING

GROUP	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	13	0	22	35	0.237	0.000	0.466	0.703
OPERATING PERSONNEL	2	0	1	3	0.149	0.000	0.893	1.042
HEALTH PHYSICS PERSONNEL	23	0	13	36	2.276	0.000	1.098	3.374
SUPERVISORY PERSONNEL	2	0	0	2	0.038	0.000	0.000	0.038
ENGINEERING PERSONNEL	2	0	1	3	0.326	0.000	1.385	1.711
MO	42	0	37	79	3.026	0.000	3.842	6.868

MO-REFUEL

GROUP	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	33	3	75	111	3.803	0.060	12.932	16.795
OPERATING PERSONNEL	21	3	8	32	1.035	1.044	0.156	2.235
HEALTH PHYSICS PERSONNEL	21	4	16	41	0.917	0.429	0.170	1.516
SUPERVISORY PERSONNEL	6	1	1	8	0.630	0.326	0.002	0.958
ENGINEERING PERSONNEL	12	5	28	45	0.106	0.509	10.104	10.719
MO	93	16	128	237	6.491	2.368	23.364	32.223

*****	*****	*****	*****	*****	*****	*****	*****
815	126	1353	2294	72.470	14.644	222.151	309.265

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TENNESSEE VALLEY AUTHORITY
 SQN RADIATION EXPOSURE SYSTEM

NUMBER OF PERSONNEL AND MAN-REM BY WORK JOB FUNCTION
 TOTAL NUMBER OF INDIVIDUALS

GROUP	NUMBER OF PERSONNEL (> 100 M-REM)				TOTAL MAN-REM			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT AND OTHERS	TOTAL M-REMS
MAINTENANCE PERSONNEL	302	15	960	1277	38.417	1.979	137.544	177.940
OPERATING PERSONNEL	133	20	47	200	8.820	2.860	7.425	19.105
HEALTH PHYSICS PERSONNEL	213	26	191	430	17.510	2.059	24.159	43.728
SUPERVISORY PERSONNEL	81	7	1	89	3.352	0.415	0.002	3.769
ENGINEERING PERSONNEL	86	58	154	298	4.371	7.331	53.021	64.723
	=====	=====	=====	=====	=====	=====	=====	=====
	815	126	1353	2294	72.470	14.644	222.151	309.265

REXPR219
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TENNESSEE VALLEY AUTHORITY
SQN RADIATION EXPOSURE SYSTEM

NUMBER OF PERSONNEL AND MAN-REM BY WORK JOB FUNCTION
TOTAL NUMBER OF INDIVIDUALS

GROUP	STATION	UTILITY	CONTRACT	TOTAL
MAINTENANCE PERSONNEL	111	6	403	520
OPERATING PERSONNEL	37	7	24	68
HEALTH PHYSICS PERSONNEL	37	9	60	106
SUPERVISORY PERSONNEL	32	1	1	34
ENGINEERING PERSONNEL	29	19	92	140
	*****	*****	*****	*****
	246	42	580	868

SEQUOYAH NUCLEAR PLANT
UNITS 1 AND 2
DIESEL GENERATOR (D/G) RELIABILITY DATA REPORT FOR 1994

This report is submitted to comply with Technical Specification (TS) 6.9.2.2 for an annual data report for D/G reliability. The 6.9 kilovolt D/Gs at SQN serve as the onsite Class 1E power source. Surveillance requirements of the TSs that demonstrate operability of the DGs are accomplished by the routine performance of the following surveillance instructions (SI):

- 1-SI-OPS-082-007.A, "Electrical Power System - D/G 1A-A"
- 1-SI-OPS-082-007.B, "Electrical Power System - D/G 1B-B"
- 2-SI-OPS-082-007.A, "Electrical Power System - D/G 2A-A"
- 2-SI-OPS-082-007.B, "Electrical Power System - D/G 2B-B"
- 0-SI-OPS-082-007.O, "Diesel Generator Operability Verification"
- 1-SI-OPS-082-026.A, "Loss of Offsite Power with Safety Injection-
D/G 1A-A Containment Isolation Test"
- 2-SI-OPS-082-026.A, "Loss of Offsite Power with Safety Injection-
D/G 2A-A Containment Isolation Test"
- 1-SI-OPS-082-026.B, "Loss of Offsite Power with Safety Injection-
D/G 1B-B Containment Isolation Test"
- 2-SI-OPS-082-026.B, "Loss of Offsite Power with Safety Injection-
D/G 2B-B Containment Isolation Test"

SI-102 series documents the performance of vendor recommended maintenance.

The information listed below is a tabulation of D/G testing data taken from 0-SI-OPS-082-007.M, "Diesel Generator Surveillance Frequency." The data was taken from testing performed during the period of January 1 through December 31, 1994. "Valid Test" and "Invalid Test" are defined in accordance with the criteria established in Regulatory Guide 1.108, Revision 1, August 1977.

D/G	D/G STARTS	VALID TESTS	VALID TESTS FAILURES	INVALID TESTS	INVALID FAILURES
1A-A	40	15	0	25	1
1B-B	39	15	0	24	0
2A-A	60	20	2	40	1
2B-B	51	14	0	37	0
TOTALS	190	64	2	126	2

Both valid failures occurred on D/G 2A-A and are discussed below:

The first valid failure resulted from D/G 2A-A only achieving and maintaining a frequency of 59.98 Hertz during a monthly surveillance test. This fails to meet the SQN TSs surveillance requirements. The D/G was fully capable of meeting its design function and no malfunction had occurred. The possibility of this occurring was identified in reviewing the postmaintenance test results of the D/G 2A-A electric governor upgrade and a TS change, TS 94-16, was in process. Approval of the TS change will allow removing this event as a valid failure.

The second valid failure resulted from D/G 2A-A's speed being erratic. The D/G did not achieve the minimum required frequency and was emergency stopped within minutes of the diesel start. The problem was identified to be a loose connection of the speed reference resistors on the electric governor controller card.

There were two invalid failures that occurred in 1994 and are described below:

At the operator's discretion, the D/G 2A-A valid test was stopped prior to reaching full load because of a fuel oil leak at the duplex oil filters. The fuel oil leak would not have prevented the D/G from performing its design function. The filters can be isolated and replaced with the diesel in operation.

The D/G 1A-A valid test was stopped because of the inability to reset the emergency start signal from the under voltage relay. The D/G could not be paralleled and loaded due to the standing emergency start signal. The relay malfunction was inadvertently caused during the manual actuation of the relay for the surveillance. The relay was recalibrated and SI-7 was performed before returning the D/G to service.

The above data indicates an average of 47.50 starts per D/G for the year with only two failures. Two failures out of 190 valid and invalid tests support a reasonable confidence level that the D/Gs will perform when required.

SNQ recognizes the importance of reducing the number of D/G starts. As shown below, for the operating years 1988 through 1992, a downward trend for D/G starts was established. Due to air start modifications installed during 1993, six-year required maintenance activities, and accelerated testing for the 2A-A D/G, additional starts per D/G set were accumulated during calendar year 1993. However, as revealed by the data below, the number of D/G starts has again been reduced, but were not as low as 1992 due to the speed controller modification and accelerated testing on D/G 2A-A.

APPROXIMATE NUMBER OF TOTAL D/G STARTS PER YEAR

1988: approximately 170 starts per D/G per year
1989: approximately 55 starts per D/G per year
1990: approximately 36 starts per D/G per year
1991: approximately 36 starts per D/G per year
1992: approximately 35 starts per D/G per year
1993: approximately 69 starts per D/G per year
1994: approximately 47 starts per D/G per year

SNQ will continue efforts to keep D/G starts as low as possible to enhance engine life and D/G reliability.