



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37384-2000

February 28, 2003

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

Gentlemen:

In the Matter of) Docket Nos. 50-327
Tennessee Valley Authority) 50-328

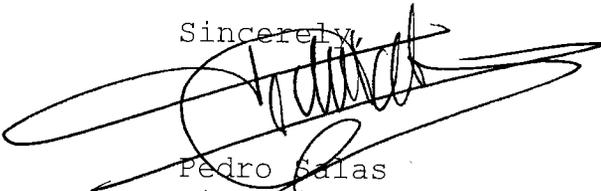
SEQUOYAH NUCLEAR PLANT - 2002 ANNUAL REPORTS

Enclosed are the 2002 Annual Reports for Sequoyah. These reports contain a summary of the occupational exposure data and the reactor coolant system specific activity analysis.

These reports are being submitted to satisfy the requirements of Technical Specifications 6.9.1.4 and 6.9.1.5.

This letter is being sent in accordance with NRC RIS 2001-05. Please direct questions concerning this submittal to me at (423) 843-7170 or J. D. Smith at (423) 843-6672.

Sincerely,



Pedro Galas
Licensing and Industry Affairs Manager

Enclosure
cc: See page 2

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Enclosure

cc (Enclosure):

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TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

UNITS 1 AND 2

ANNUAL REPORTS TO THE

NUCLEAR REGULATORY COMMISSION

JANUARY 1, 2002 - DECEMBER 31, 2002

DOCKET NUMBERS 50-327 AND 50-328

LICENSE NUMBERS DPR-77 AND DPR-79

SEQUOYAH NUCLEAR PLANT
2002 ANNUAL REPORTS

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**SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2
2002 ANNUAL REPORTS**

OVERVIEW

Occupational Exposure Data

Attached is the exposure data for personnel at SQN that received greater than 100 millirem (mrem) between January 1 and December 31, 2002. The numbers of personnel listed in the attached report are calculated fractions based on personnel and Radiation Work Permits code classifications. Exposure data for special maintenance is based on the following activities:

- Mechanical and Electrical Valve Modifications
- Walkdowns for Unit 1 Steam Generator Replacement
- Scaffolding Preparations for Steam Generator Replacement
- Miscellaneous Preparations for Steam Generator Replacement
- Auxiliary Building Thermolag Insulation Upgrade
- Modify Auxiliary Building Crane to Single Failure Proof Criteria
- Install Units 1 and 2 Zinc Injection Equipment
- Modify/Remove Remote Valve Operators (Reach Rods) on Various Systems
- Replace Unit 2 Upper Internals Guide Tube Support Pins (Split Pins)
- Modify Upper Internals Lift Rig Personnel Platforms Units 1 and 2
- Add Piping for Unit 2 Remote Reactor Coolant Pump (RCP) Oil Fill
- Replace Unit 2 RCP Number 1 Impeller Assembly
- Replace Various Piping with Stainless Steel for Flow Accelerated Corrosion
- Seal Weld Unit 2 Refueling Water Storage Tank Threaded Temperature Element Penetrations

The cumulative external radiation exposure for calendar year 2002 for persons receiving more than 100 mrem/year is 77.402 rem. The total whole body exposure received from external sources for calendar year 2002, as measured by TLD, is 105.449 rem. As required by the respective units' Technical Specifications, at least 80% of the total site exposure for persons receiving more than 100 mrem has been assigned to specific major work activities.

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

During 2002, there were no specific iodine activity results of the Unit 1 reactor coolant system (RCS) exceeding the limits of Technical Specification (TS) 3.4.8.a (0.35 $\mu\text{Ci/gm}$) during either power operation or reactor shutdown and/or start-up.

During 2002, there was one occurrence where the dose equivalent iodine activity results of the Unit 2 RCS exceeded the limits of TS 3.4.8.a (0.35 $\mu\text{Ci/gm}$) during either power operation or reactor shutdown and/or start-up. This event was associated with the reactor trip of Unit 2 on December 26, 2002. Unit 2 was known to have leaking fuel rods and the iodine spike seen during the trip was expected. The following discussions provide the five items of information required by TS 6.9.1.5 for instances where the specific activity of the RCS exceeds the limit for dose equivalent I-131:

1. Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded

For the 48 hours prior to the reactor trip and subsequent spike of the dose equivalent I-131 activity above the TS limit, the reactor was operating at approximately 100 percent power. The reactor power varied from 99.804 percent reactor power to 100.134 percent reactor power over the prior 48 hour period.

2. Results of the last isotopic analysis for radio-iodine performed prior to exceeding the limit, results of analysis while the limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than the limit. Each result should include date and time of sampling and the radioiodine concentrations

The following table shows the analysis results for the dose equivalent I-131 just prior to, during, and just after exceeding the activity TS limit:

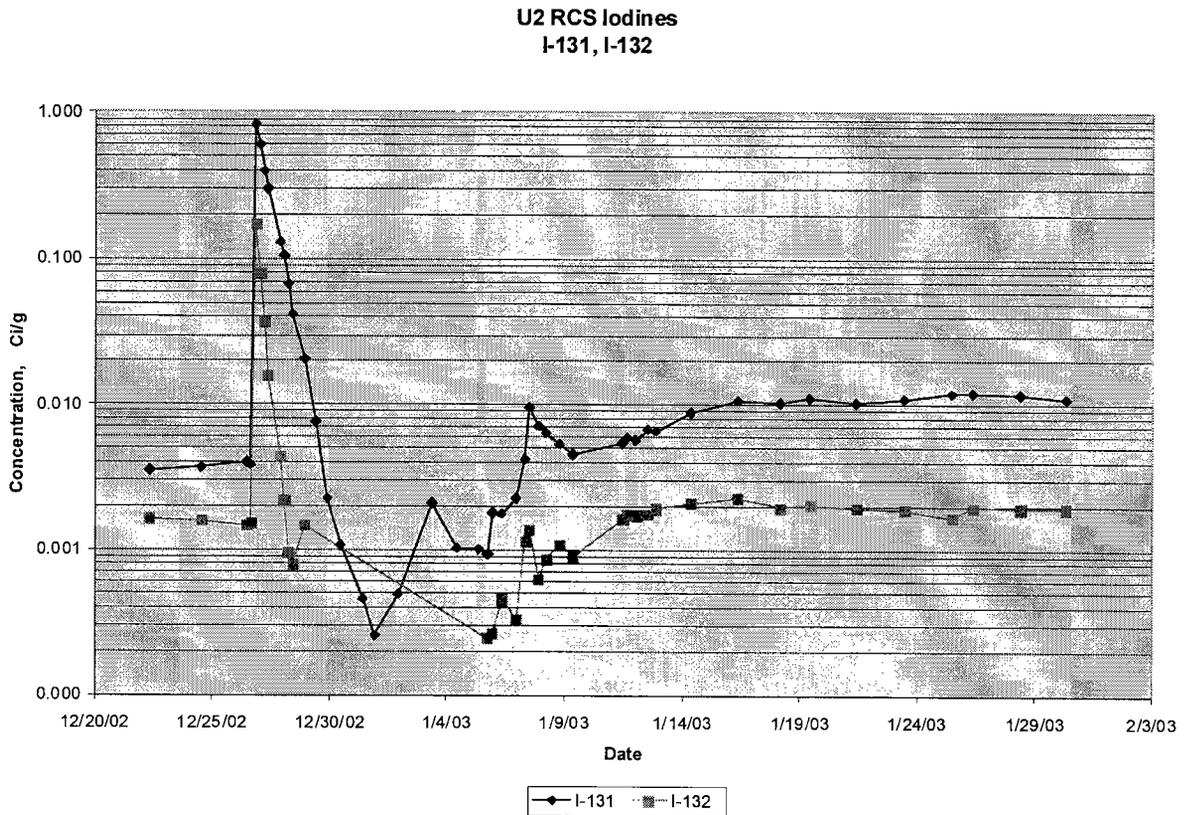
Date	Time	Dose Equivalent I-131 ($\mu\text{Ci/gm}$)
December 26, 2002	14:46 (2:46 p.m.)	4.50 E-03
December 26, 2002	17:20 (5:20 p.m.)	1.26 E+00
December 26, 2002	20:25 (8:25 p.m.)	1.01 E+00
December 27, 2002	00:30 (12:30 a.m.)	7.23 E-01
December 27, 2002	04:26 (4:26 a.m.)	4.74 E-01
December 27, 2002	08:30 (8:30 a.m.)	3.54 E-01
December 27, 2002	12:30 (12:30 p.m.)	2.47 E-01
December 27, 2002	16:30 (4:30 p.m.)	1.77 E-01

3. Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded

For the 48 hours prior to the reactor trip and subsequent spike of the dose equivalent I-131 activity above the TS limit, the clean-up system (chemical volume control system) was operating at approximately 75 gallons per minute (gpm). The flow varied from 73.186 gpm to 76.608 gpm over the prior 48 hour period.

4. Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above the steady-state level

The following graph shows the response of I-131 and I-132 activity during the period of time the activity was above the steady state level:



5. The time duration when the specific activity of the primary coolant exceeded the radioiodine limit

The dose equivalent I-131 exceeded the limits of TS 3.4.8.a for a period of 19 hours and 17 minutes.

Regulatory Guide 1.16 information
 End of Year Report 2002

Work and Job Function	Number of Personnel			Station	Contractor	Station	Total man-rem * Utility	Contractor
	Station	> 100 mrem Utility	Contractor					
ROUTINE OPERATIONS AND SURVEILLANCE								
MAINTENANCE PERSONNEL	0.080	0.000	0.013	0.013	0.005	0.013	0.000	0.005
OPERATIONS PERSONNEL	11.153	0.000	0.000	1.366	0.000	1.366	0.000	0.000
HEALTH PHYSICS PERSONNEL	3.053	0.018	0.536	0.476	0.110	0.476	0.002	0.110
SUPERVISORY PERSONNEL	0.216	0.000	0.000	0.029	0.000	0.029	0.000	0.000
ENGINEERING PERSONNEL	0.007	0.000	0.000	0.002	0.000	0.002	0.000	0.000
ROUTINE PLANT MAINTENANCE								
MAINTENANCE PERSONNEL	25.058	11.460	112.520	4.862	23.830	4.862	1.598	23.830
OPERATIONS PERSONNEL	0.588	0.000	1.000	0.077	0.109	0.077	0.000	0.109
HEALTH PHYSICS PERSONNEL	11.264	2.696	11.166	2.452	1.952	2.452	0.369	1.952
SUPERVISORY PERSONNEL	1.105	0.019	0.000	0.266	0.004	0.266	0.004	0.004
ENGINEERING PERSONNEL	3.131	4.098	1.484	0.512	0.372	0.512	0.685	0.372
INSERVICE INSPECTION								
MAINTENANCE PERSONNEL	1.856	3.662	68.250	0.434	13.504	0.434	0.821	13.504
OPERATIONS PERSONNEL	0.957	0.000	0.000	0.192	0.000	0.192	0.000	0.000
HEALTH PHYSICS PERSONNEL	0.595	0.286	4.721	0.265	0.835	0.265	0.058	0.835
SUPERVISORY PERSONNEL	2.915	0.981	0.000	0.412	0.000	0.412	0.208	0.000
ENGINEERING PERSONNEL	1.731	3.699	4.718	0.361	0.682	0.361	0.662	0.682
SPECIAL PLANT MAINTENANCE								
MAINTENANCE PERSONNEL	9.434	1.018	27.702	2.033	5.541	2.033	0.199	5.541
OPERATIONS PERSONNEL	0.100	0.000	0.000	0.024	0.000	0.024	0.000	0.000
HEALTH PHYSICS PERSONNEL	1.070	0.000	1.269	0.209	0.217	0.209	0.000	0.217
SUPERVISORY PERSONNEL	0.253	0.000	0.000	0.027	0.000	0.027	0.000	0.000
ENGINEERING PERSONNEL	0.131	0.291	0.506	0.022	0.108	0.022	0.049	0.108
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0.221	0.012	0.156	0.040	0.029	0.040	0.002	0.029
OPERATIONS PERSONNEL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HEALTH PHYSICS PERSONNEL	1.692	0.000	0.916	0.233	0.296	0.233	0.000	0.296
SUPERVISORY PERSONNEL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENGINEERING PERSONNEL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REFUELING								
MAINTENANCE PERSONNEL	1.747	0.622	35.252	0.296	9.409	0.296	0.104	9.409
OPERATIONS PERSONNEL	1.202	0.000	0.000	0.423	0.000	0.423	0.000	0.000
HEALTH PHYSICS PERSONNEL	0.325	0.000	0.393	0.054	0.106	0.054	0.000	0.106
SUPERVISORY PERSONNEL	1.511	0.000	0.000	0.177	0.000	0.177	0.000	0.000
ENGINEERING PERSONNEL	0.000	0.912	0.291	0.000	0.083	0.000	0.196	0.083
Totals								
MAINTENANCE PERSONNEL	38.397	16.773	243.892	7.678	52.318	7.678	2.724	52.318
OPERATIONS PERSONNEL	14.000	0.000	1.000	2.082	0.109	2.082	0.000	0.109
HEALTH PHYSICS PERSONNEL	18.000	3.000	19.000	3.689	3.516	3.689	0.429	3.516
SUPERVISORY PERSONNEL	6.000	1.000	0.000	0.911	0.000	0.911	0.212	0.000
ENGINEERING PERSONNEL	5.000	9.000	7.000	0.897	1.245	0.897	1.592	1.245
Grand Totals	81.397	29.773	270.892	15.257	57.188	15.257	4.957	57.188

* The man-rem totals include dose only from individuals receiving more than 100 mrem throughout the year at the site.