TENNESSEE VALLEY AUTHORITY

OFFICE OF NUCLEAR POWER
SEQUOYAH NUCLEAR PLANT

MONTHLY OPERATING REPORT

TO THE

NUCLEAR REGULATORY COMMISSION

"FEBRUARY 1986"

UNIT 1

DOCKET NUMBER 50-327

LICENSE NUMBER DPR-77

UNIT 2

DOCKET NUMBER 50-328

LICENSE NUMBER DPR-79

Submitted by: P.R. Wallace

P. R. Wallace, Plant Manager

IE24
1/1

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OPERATIONAL SUMMARY

Operations Summary

February 1986

The following summary describes the significant operational activities for the month of February. In support of this summary, a chronological log of significant events is included in this report.

The units remained in an administrative shutdown the entire month due to documentation concerns relating to the environmental qualification of various electrical equipment (10CFR50.49). Outage related maintenance and modifications are being performed. Unit 1 has been off-line 190 days. Unit 2 has been off-line 191 days.

Significant Operational Events

Unit 1

Date	Time	Event
02/01/86	0001C	The reactor was in mode #5. The administrative shutdown due to 10 CFR50.49 continues.
02/28/86	2400C	The reactor was in mode #5. The administrative shutdown due to 10 CFR50.49 continues.

Unit 2

Date	Time	Event
02/01/86	0001C	The reactor was in mode #5. The administrative shutdown due to 10 CFR50.49 continues.
02/28/86	2400C	The reactor was in mode #5. The administrative shutdown due to 10 CFR50.49 continues.

Fuel Performance

Unit 1

The core average fuel exposure accumulated during February was 0 MWD/MTU with the total accumulated core average fuel exposure of 0 MWD/MTU.

Unit 2

The core average fuel exposure accumulated during February was 0 MWD/MTU with the total accumulated core average fuel exposure of 8097.51 MWD/MTU.

There were four shipments of cycle #4 new fuel (48 bundles) received during the month. All new fuel is presently stored in the new fuel storage vault.

Spent Fuel Pit Storage Capabilities

The total storage capability in the spent fuel pit (SFP) is 1,386. However, there are five cell locations which are incapable of storing spent fuel. Four locations (A10, A11, A24, A25,) are unavailable due to a suction strainer conflict and one location (A16) is unavailable due to an instrumentation conflict. Presently, there is a total of 348 spent fuel bundles stored in the SFP. Thus, the remaining storage capacity is 1,033.

PORVs and Safety Valves Summary

No PORVs or safety valves were challenged in February 1986.

Licensee Event Reports

The following licensee event report (LER) was reported to the Nuclear Regulatory Commission in February 1986.

LER	DESCRIPTION OF EVENT
1-86001	During a review of the surveillance instruction scheduling files on January 9, 1985, it was discovered that "Control Building Emergency Air Cleanup System Filter Train Test" (SI-143) had not been performed within the allowable technical specification time limit. This performance must be done once every 18 months. The method of scheduling this test was in error.

Special Reports

The following special report has been submitted to the NRC.

REPORT #	DESCRIPTION
85-07	On September 27, 1985, at 1000 CST, fire door A-131 was opened to allow routing of an air hose for performance of surveillance instruction "Containment Spray-Spray Nozzle Test," (SI-138). Door A-131 is the door to the unit 2 vent and purge air room at auxiliary building elevation 714. This report was required per the Technical Specification 3.7.12.

Offsite Dose Calculation Manual Changes

Offsite dose calculation manual changes were finalized September 25, 1985. A copy of the changes is found in section Five (V), Attachments 1 thru 5.

OPERATING STATISTICS
(NRC REPORTS)

OPERATING DATA REPORT

DOCKET NO. 50-327
DATE MARCH 7, 1986
COMPLETED BY D.C.DUPREE
TELEPHONE (615)870-6544

OPERATING STATUS

1. UNIT NAME: SEQUOYAH NUCLEAR PLANT, UNIT 1 NOTES:
2. REPORT PERIOD: FEBRUARY 1986
3. LICENSED THERMAL POWER(MWT): 3411.0
4. NAMEPLATE RATING (GROSS MWE): 1220.6
5. DESIGN ELECTRICAL RATING (NET MWE): 1148.0
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 1183.0
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 1148.0
8. IF CHANGES OCCUR IN CAPACITY RATINGS(ITEMS NUMBERS 3 THROUGH 7)SINCE LAST REPORT, GIVE REASONS: _____
9. POWER LEVEL TO WHICH RESTRICTED, IF ANY(NET MWE): _____
10. REASONS FOR RESTRICTIONS, IF ANY: _____

	THIS MONTH	YR.-TO-DATE	CUMULATIVE
11. HOURS IN REPORTING PERIOD	672.00	1416.00	40897.00
12. NUMBER OF HOURS REACTOR WAS CRITICAL	0.00	0.00	24444.91
13. REACTOR RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
14. HOURS GENERATOR ON-LINE	0.00	0.00	23871.13
15. UNIT RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
16. GROSS THERMAL ENERGY GENERATED (MWH)	0.00	0.00	77060971.91
17. GROSS ELECTRICAL ENERGY GEN. (MWH)	0.00	0.00	25976386.00
18. NET ELECTRICAL ENERGY GENERATED (MWH)	-2959.00	-6152.00	24936585.00
19. UNIT SERVICE FACTOR	0.00	0.00	58.37
20. UNIT AVAILABILITY FACTOR	0.00	0.00	58.37
21. UNIT CAPACITY FACTOR(USING MDC NET)	0.00	0.00	53.11
22. UNIT CAPACITY FACTOR(USING DER NET)	0.00	0.00	53.11
23. UNIT FORCED OUTAGE RATE	100.00	100.00	22.05

24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH):

25. IF SHUTDOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP:
PENDING ASSESSMENT OF THE TVA NUCLEAR POWER PROGRAM BY THE MANAGER OF NUCLEAR POWER.

NOTE THAT THE THE YR.-TO-DATE AND
CUMULATIVE VALUES HAVE BEEN UPDATED.

SEQUOYAH NUCLEAR PLANT
AVERAGE DAILY POWER LEVEL

DOCKET NO. : 50-327

UNIT : ONE

DATE : MARCH 5,1986

COMPLETED BY : D. C. DUPREE

TELEPHONE :(615)870-6544

MONTH FEBRUARY 1986

DAY	AVERAGE DAILY POWER LEVEL (MWe Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe Net)
01	0	15	0
02	0	16	0
03	0	17	0
04	0	18	0
05	0	19	0
06	0	20	0
07	0	21	0
08	0	22	0
09	0	23	0
10	0	24	0
11	0	25	0
12	0	26	0
13	0	27	0
14	0	28	0

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-327
UNIT NAME Sequoyah One
DATE March 5, 1986
COMPLETED BY D. C. Dupree
TELEPHONE (615)870-6544

REPORT MONTH February 1986

No.	Date	Type[1]	Duration (Hours)	Reason[2]	Method of Shutting Down Reactor[3]	Licensee Event Report #	System Code[4]	Component Code[5]	Cause & Corrective Action to Prevent Recurrence
7	851220	F	672	F	9				10CFR50.49, Environmental Qualification of electrical equipment important to plant safety.

[1]F: Forced
S: Scheduled

[2]Reason:
A-Equipment Failure (Explain)
B-Maintenance or Test
C-Refueling
D-Regulatory Restriction
E-Operator Training & License Examination
F-Administrative
G-Operational Error (Explain)
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram.
3-Automatic Scram.
4-Cont. of Existing Outage
5-Reduction
9-Other

[4]Exhibit G-Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)

[5]Exhibit I-Same Source

OPERATING DATA REPORT

DOCKET NO. 50-328
DATE MARCH 7, 1986
COMPLETED BY D.C.DUPREE
TELEPHONE (615)870-6544

OPERATING STATUS

1. UNIT NAME: SEQUOYAH NUCLEAR PLANT, UNIT 2 NOTES:
2. REPORT PERIOD: FEBRUARY 1986
3. LICENSED THERMAL POWER(MWT): 3411.0
4. NAMEPLATE RATING (GROSS MWE): 1220.6
5. DESIGN ELECTRICAL RATING (NET MWE): 1148.0
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 1183.0
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 1148.0
8. IF CHANGES OCCUR IN CAPACITY RATINGS(ITEMS NUMBERS 3 THROUGH 7)SINCE LAST REPORT, GIVE REASONS: _____
9. POWER LEVEL TO WHICH RESTRICTED, IF ANY(NET MWE): _____
10. REASONS FOR RESTRICTIONS, IF ANY: _____

		THIS MONTH	YR.-TO-DATE	CUMULATIVE
11.	HOURS IN REPORTING PERIOD	672.00	1416.00	32857.00
12.	NUMBER OF HOURS REACTOR WAS CRITICAL	0.00	0.00	21984.54
13.	REACTOR RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
14.	HOURS GENERATOR ON-LINE	0.00	0.00	21494.42
15.	UNIT RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
16.	GROSS THERMAL ENERGY GENERATED (MWH)	0.00	0.00	69127977.22
17.	GROSS ELECTRICAL ENERGY GEN. (MWH)	0.00	0.00	23536780.00
18.	NET ELECTRICAL ENERGY GENERATED (MWH)	-3691.00	-6907.00	22625050.60
19.	UNIT SERVICE FACTOR	0.00	0.00	65.42
20.	UNIT AVAILABILITY FACTOR	0.00	0.00	65.42
21.	UNIT CAPACITY FACTOR(USING MDC NET)	0.00	0.00	59.98
22.	UNIT CAPACITY FACTOR(USING DER NET)	0.00	0.00	59.98
23.	UNIT FORCED OUTAGE RATE	100.00	100.00	23.15

24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH):

25. IF SHUTDOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP:
PENDING ASSESSMENT OF THE TVA NUCLEAR POWER PROGRAM BY THE MANAGER OF NUCLEAR POWER.

NOTE THAT THE THE YR.-TO-DATE AND
CUMULATIVE VALUES HAVE BEEN UPDATED.

SEQUOYAH NUCLEAR PLANT
AVERAGE DAILY POWER LEVEL

DOCKET NO. : 50-328

UNIT : TWO

DATE : MARCH 5,1986

COMPLETED BY : D. C. DUPREE

TELEPHONE :(615)870-6544

MONTH FEBRUARY 1986

DAY	AVERAGE DAILY POWER LEVEL (MWe Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe Net)
01	0	15	0
02	0	16	0
03	0	17	0
04	0	18	0
05	0	19	0
06	0	20	0
07	0	21	0
08	0	22	0
09	0	23	0
10	0	24	0
11	0	25	0
12	0	26	0
13	0	27	0
14	0	28	0

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-328
UNIT NAME Sequoyah Two
DATE March 5, 1986
COMPLETED BY D. C. Dupree
TELEPHONE (615)870-6544

REPORT MONTH February 1986

No.	Date	Type[1]	Duration (Hours)	Reason[2]	Method of Shutting Down Reactor[3]	Licensee Event Report #	System Code[4]	Component Code[5]	Cause & Corrective Action to Prevent Recurrence
9	850821	F	672	F	4				10CFR50.49, Environmental Qualification of electrical equipment important to plant safety.

[1]F: Forced
S: Scheduled

[2]Reason:
A-Equipment Failure (Explain)
B-Maintenance or Test
C-Refueling
D-Regulatory Restriction
E-Operator Training & License Examination
F-Administrative
G-Operational Error (Explain)
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram.
3-Automatic Scram.
4-Cont. of Existing Outage
5-Reduction
9-Other

[4]Exhibit G-Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)

[5]Exhibit I-Same Source

OPERATING STATISTICS
(TVA REPORTS)

TVA 6560C (PP-3-76)

UNIT OUTAGE AND AVAILABILITY

SEQUOYAH Nuclear Plant

Licensed Reactor Power 3411 MW(th)

Unit No. ONE

Generator Rating 1220.5 MW(e)

Month/Year February 1986

Design Gross Electrical Rating 1183 MW

Period Hours 672

Day	Time Unit Available						Time Not Available								Unit		OUTAGE CAUSE	METHOD OF SHUTTING DOWN REACTOR	UNIT STATUS DURING OUTAGE	CORRECTIVE ACTION TAKEN TO PREVENT REPETITION
	Total		Gen.		Not Used		Turbine		Gen.		Reactor		Unit		Time Out	Time In				
	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs Min	Hrs Min				
1	00	00	00	00			24	00	24	00	24	00	24	00			10CFR50.49, Nuclear Safety	N/A	Mode 5	
2	00	00	00	00			24	00	24	00	24	00	24	00						
3	00	00	00	00			24	00	24	00	24	00	24	00						
4	00	00	00	00			24	00	24	00	24	00	24	00						
5	00	00	00	00			24	00	24	00	24	00	24	00						
6	00	00	00	00			24	00	24	00	24	00	24	00						
7	00	00	00	00			24	00	24	00	24	00	24	00						
8	00	00	00	00			24	00	24	00	24	00	24	00						
9	00	00	00	00			24	00	24	00	24	00	24	00						
10	00	00	00	00			24	00	24	00	24	00	24	00						
11	00	00	00	00			24	00	24	00	24	00	24	00						
12	00	00	00	00			24	00	24	00	24	00	24	00						
13	00	00	00	00			24	00	24	00	24	00	24	00						
14	00	00	00	00			24	00	24	00	24	00	24	00						
15	00	00	00	00			24	00	24	00	24	00	24	00						
16	00	00	00	00			24	00	24	00	24	00	24	00						
17	00	00	00	00			24	00	24	00	24	00	24	00						
18	00	00	00	00			24	00	24	00	24	00	24	00						
19	00	00	00	00			24	00	24	00	24	00	24	00						
20	00	00	00	00			24	00	24	00	24	00	24	00						
21	00	00	00	00			24	00	24	00	24	00	24	00						
22	00	00	00	00			24	00	24	00	24	00	24	00						
23	00	00	00	00			24	00	24	00	24	00	24	00						
24	00	00	00	00			24	00	24	00	24	00	24	00						
25	00	00	00	00			24	00	24	00	24	00	24	00						
26	00	00	00	00			24	00	24	00	24	00	24	00						
27	00	00	00	00			24	00	24	00	24	00	24	00						
28	00	00	00	00			24	00	24	00	24	00	24	00						
29																				
30																				
31																				
Total	00	00	00	00			672	00	672	00	672	00	672	00						

TVA 6560C (PP 3-76)

UNIT OUTAGE AND AVAILABILITY

SEQUOYAH Nuclear Plant

Licensed Reactor Power 3411 MW(th)

Unit No. TWO

Generator Rating 1220.5 MW(e)

Month/Year February 1986

Design Gross Electrical Rating 1183 MW

Period Hours 672

Day	Time Unit Available						Time Not Available								Unit		OUTAGE CAUSE	METHOD OF SHUTTING DOWN REACTOR	UNIT STATUS DURING OUTAGE	CORRECTIVE ACTION TAKEN TO PREVENT REPETITION
	Total		Gen.		Not Used		Turbine		Gen.		Reactor		Unit		Time Out	Time In				
	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs Min	Hrs Min				
1	00	00	00	00			24	00	24	00	24	00	24	00			10CFR50.49, Nuclear Safety	N/A	Mode 5	
2	00	00	00	00			24	00	24	00	24	00	24	00						
3	00	00	00	00			24	00	24	00	24	00	24	00						
4	00	00	00	00			24	00	24	00	24	00	24	00						
5	00	00	00	00			24	00	24	00	24	00	24	00						
6	00	00	00	00			24	00	24	00	24	00	24	00						
7	00	00	00	00			24	00	24	00	24	00	24	00						
8	00	00	00	00			24	00	24	00	24	00	24	00						
9	00	00	00	00			24	00	24	00	24	00	24	00						
10	00	00	00	00			24	00	24	00	24	00	24	00						
11	00	00	00	00			24	00	24	00	24	00	24	00						
12	00	00	00	00			24	00	24	00	24	00	24	00						
13	00	00	00	00			24	00	24	00	24	00	24	00						
14	00	00	00	00			24	00	24	00	24	00	24	00						
15	00	00	00	00			24	00	24	00	24	00	24	00						
16	00	00	00	00			24	00	24	00	24	00	24	00						
17	00	00	00	00			24	00	24	00	24	00	24	00						
18	00	00	00	00			24	00	24	00	24	00	24	00						
19	00	00	00	00			24	00	24	00	24	00	24	00						
20	00	00	00	00			24	00	24	00	24	00	24	00						
21	00	00	00	00			24	00	24	00	24	00	24	00						
22	00	00	00	00			24	00	24	00	24	00	24	00						
23	00	00	00	00			24	00	24	00	24	00	24	00						
24	00	00	00	00			24	00	24	00	24	00	24	00						
25	00	00	00	00			24	00	24	00	24	00	24	00						
26	00	00	00	00			24	00	24	00	24	00	24	00						
27	00	00	00	00			24	00	24	00	24	00	24	00						
28	00	00	00	00			24	00	24	00	24	00	24	00						
29																				
30																				
31																				
Total	00	00	00	00			672	00	672	00	672	00	672	00						

TVA 7382A (DNP-6-81)

NUCLEAR PLANT OPERATING STATISTICS

Sequoyah Nuclear Plant

Period Hours 672 Month February 1986

	Item No.	Unit No.	UNIT ONE		UNIT TWO		PLANT
Generation	1	Average Hourly Gross Load, kW	0		0		0
	2	Maximum Hour Net Generation, MWh	0		0		0
	3	Core Thermal Energy Gen, GWD (t)[2]	0		0		0
	4	Steam Gen. Thermal Energy Gen., GWD (t)[2]	0		0		0
	5	Gross Electrical Gen., MWh	0		0		0
	6	Station Use, MWh	2,959		3,691		6,650
	7	Net Electrical Gen., MWh	-2,959		-3,691		-6,650
	8	Station Use, Percent	N/A		N/A		N/A
	9	Accum. Core Avg. Exposure, MWD/Ton[1]	0		0		0
	10	CTEG This Month, 10^6 BTU	0		0		0
	11	SGTEG This Month, 10^6 BTU	0		0		0
	12						
Factors & Use	13	Hours Reactor Was Critical	0.0		0.0		0.0
	14	Unit Use, Hours-Min.	0:00		0:00		0:00
	15	Capacity Factor, Percent	0.0		0.0		0.0
	16	Turbine Avail. Factor, Percent	0.0		0.0		0.0
	17	Generator Avail. Factor, Percent	0.0		0.0		0.0
	18	Turbogen. Avail. Factor, Percent	0.0		0.0		0.0
	19	Reactor Avail. Factor, Percent	0.0		0.0		0.0
	20	Unit Avail. Factor, Percent	0.0		0.0		0.0
	21	Turbine Startups	0		0		0
	22	Reactor Cold Startups	0		0		0
	23						
Efficiency	24	Gross Heat Rate, Btu/kWh	N/A		N/A		N/A
	25	Net Heat Rate, Btu/kWh	N/A		N/A		N/A
	26						
	27						
Temp & Press	28	Throttle Pressure, psig	N/A		N/A		N/A
	29	Throttle Temperature, °F	N/A		N/A		N/A
	30	Exhaust Pressure, InHg Abs.	N/A		N/A		N/A
	31	Intake Water Temp., °F	N/A		N/A		N/A
	32						
Flows	33	Main Feedwater, M lb/hr	N/A		N/A		N/A
	34						
	35						
	36						
Misc.	37	Full Power Capacity, EFPD	404.86		363.65		768.51
	38	Accum. Cycle Full Power Days, EFPD	0.0		210.8416		210.8416
	39	Oil Fired for Generation, Gallons					4,092
	40	Oil Heating Value, Btu/Gal.					138,000
	41	Diesel Generation, MWh					62
	42						

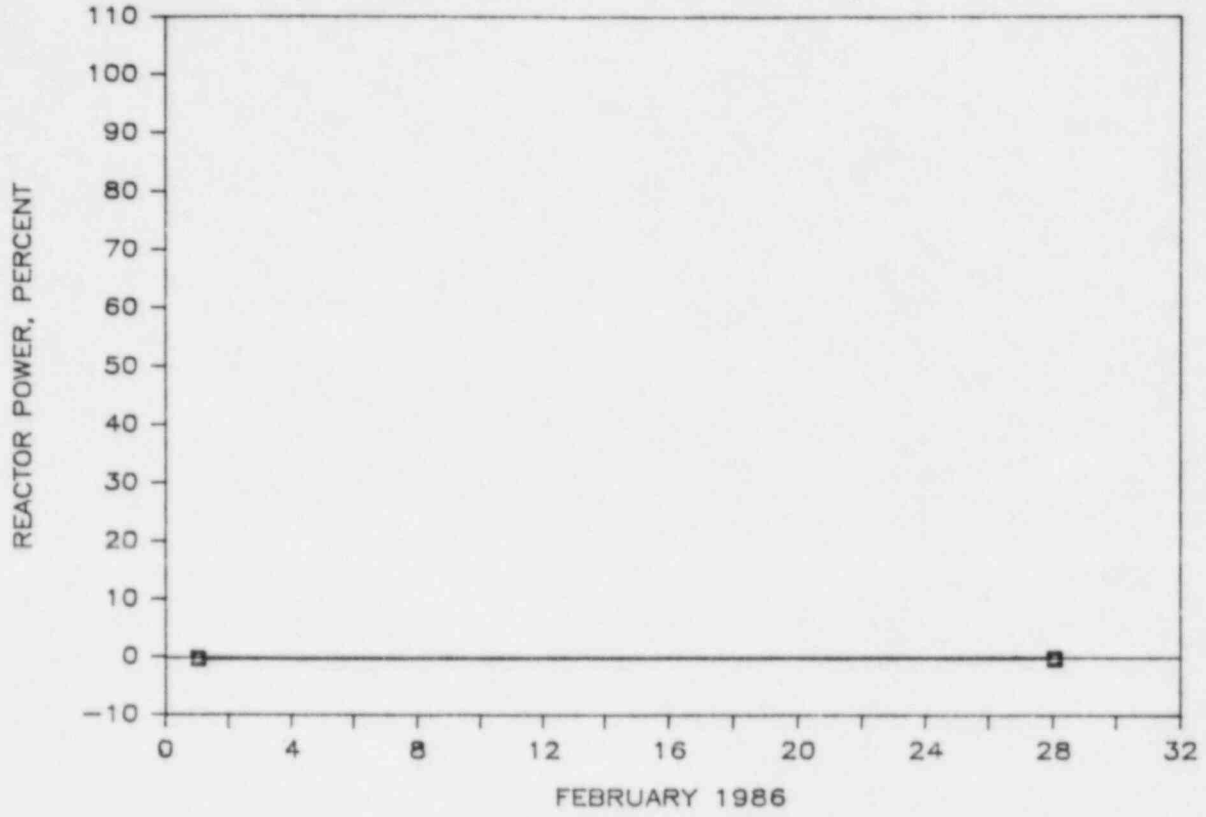
Station Data		Max. Hour Net Gen.			Max. Day Net Gen.		Load Factor, %
		MWh	Time	Date	MWh	Date	
	43	N/A	N/A	N/A	N/A	N/A	N/A

Remarks: [1]For BFNP this value is MWD/STU and for SQNP and WBNP this value is MWD/MTU.
[2](t) indicates Thermal Energy.

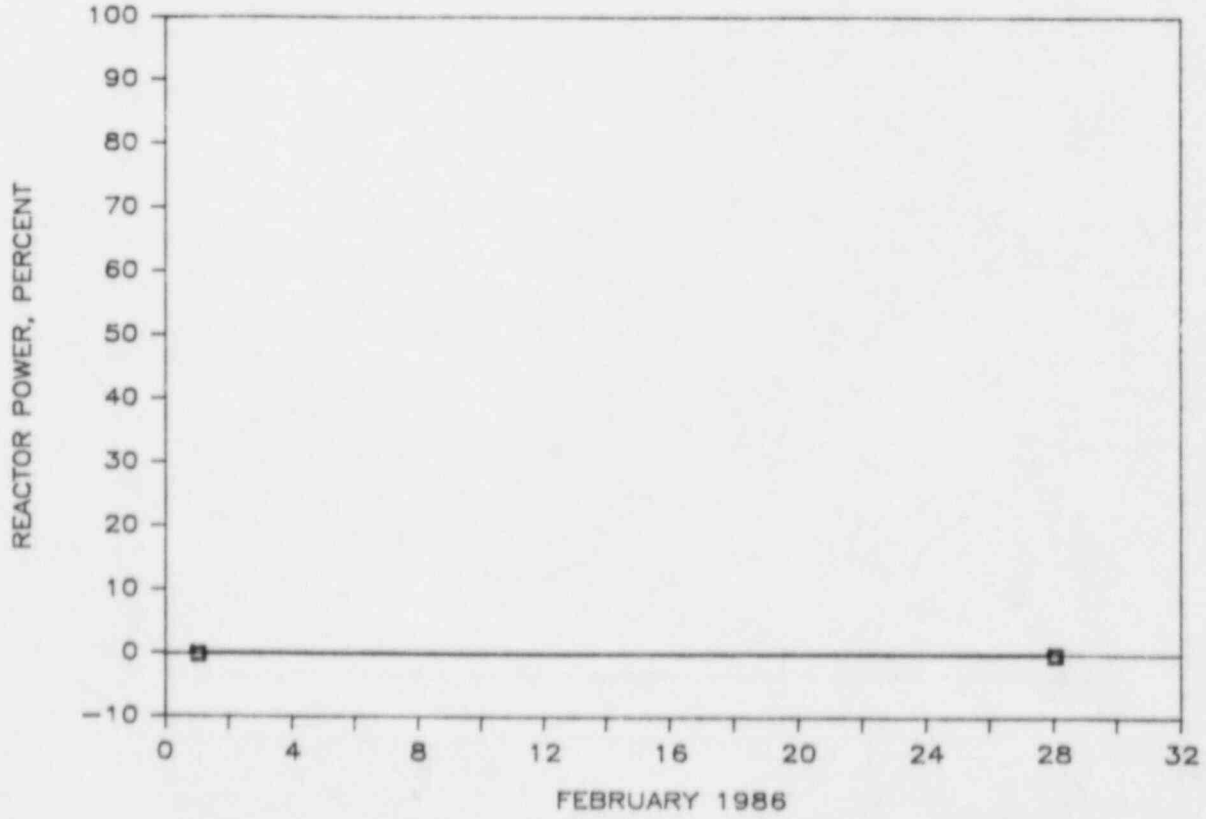
Date Submitted MAR. 13 1986 Date Revised

P.R. Wall
Plant Superintendent

SEQUOYAH ONE REACTOR HISTOGRAM



SEQUOYAH TWO REACTOR HISTOGRAM



MAINTENANCE SUMMARY

MAINTENANCE SUMMARY
(ELECTRICAL)

DATE....	COMPONENT.....	FAILURE DESCRIPTION.....	CAUSE OF FAILURE.....	CORRECTIVE ACTION.....	MR NO..
86-01-07	2-MVOP-063-007 2-A	LIMIT SWITCH INTERLOCK ON 2-MVOP-63-72 IS NOT ADJUSTED PROPERLY TO ALLOW 2-MVOP-63-8 TO OPEN.	LIMITS WERE OUT OF ADJUSTMENT.	ADJUSTED LIMITS AND CHECKED FOR PROPER OPERATION OF 63-8 AND 63-72.	B112522
86-01-09	1-GENB-082-000 1B-B	DIESEL GEN. 1B-B DID NOT MEET TECH. SPEC. CRITERIA OF REACHING 60HZ +- 1.2 IN 10 SECONDS.	IDLE SPEED SETTING WAS SET TOO LOW TO MEET TEST CRITERIA.	ADJUSTED PNEUMATIC BOOSTER AND IDLE SPEED SETTING PER VENDORS INSTRUCTIONS, ALSO ADJUSTED MINIMUM-MAXIMUM EXCITATION CURRENT LEVEL POINT PER VENDORS MANUAL.	B105193
86-01-10	0-XA-013-0614	ZONE 160 HAD A MALFUNCTION ALARM IN.	BAD CARD	REPLACED ZA-30 MODULE FOR ZONES 160 AND 157.	B105923
86-01-15	2-HS-070-0207A -B	THE FLOW CONTROL VALVE WOULD NOT GO FULLY OPEN WHEN HANDSWITCH IS PLACED IN OPEN POSITION. HANDSWITCH ON 0-M-27B WAS ABOUT TO FALL OUT.	2-HS-70-207A MOUNTING SCREWS WERE LOOSE AND INDICATING LAMP WAS BAD.	TIGHTENED MOUNTING SCREWS ON 2-HS-70-207A. VALVE INDICATING LAMP WAS REPLACED BY OPERATIONS.	B104538
86-01-19	0-VLV-318-0572 -2B-B	SUPPLY GENERATOR 2B VALVE LIMIT SWITCH WAS NOT WORKING.	LIMIT SWITCH WOULD NOT OPERATED PUMP DUE TO NORMAL WEAR OF ACTUATOR ARM.	REPLACED LIMITSWITCH ACTUATOR ARM AND CHECKED FOR OPERATION OF PUMP.	Y109411
86-01-23	0-MTRB-061-008 6	MOTOR HAD BEARINGS REPLACED BUT STILL HAS EXCESSIVE VIBRATION.	BAD MOTOR.	REPLACED MOTOR.	B112526
86-01-28	2-BCTD-201-FV/ 17A-B	THE 480V TERMINAL BLOCK HAS A STRIPPED OUT TERMINAL POINT.	DUE TO NORMAL WEAR.	REPLACED THE TERMINAL BLOCK AND ROLLED T1 AND T2 OF CABLE #2V30A0 FOR	B104855

DATE....	COMPONENT.....	FAILURE DESCRIPTION.....	CAUSE OF FAILURE.....	CORRECTIVE ACTION.....	MR.NO..
				PROPER MOTOR ROTATION.	
86-01-31	1-GENB-082-000 1A-A	DIESEL GEN. 1A-A VOLTAGE AND FREQUENCY WAS NOT WITHIN TECH. SPEC.	EXCITATION CONTROL TIME DELAY TRIP CURRENT LEVEL WAS OUT OF ADJUSTMENT.	ADJUSTED MINIMUM-MAXIMUM EXCITATION CONTROL TIME DELAY TRIP CURRENT LEVEL TO MINIMUM SET POINT PER VALIDATED VENDOR MANUAL.	B105470
86-01-31	1-GENB-082-000 1A-A	VOLTAGE DID NOT FALL WITHIN RANGE OF 10 SECONDS.	REGULATOR TRIMMIT POTENTIOMETER WAS OUT OF ADJUSTMENT.	ADJUSTED THE REGULATOR TRIMMIT POTENTIOMETER 1/4 TURN.	B100409
86-02-04	0-HS-082-0165-A	ACTUATOR ENGINES LOWER-RAISE-NORMAL HANDSWITCH INDICATED CONTACTS MAKING UP INTERMITTENTLY.	HANDSWITCH WAS BAD DUE TO AGE OR CYCLIC FATIGUE.	REPLACED HANDSWITCH AND CHECKED FOR PROPER OPERATION.	B111744
86-02-04	0-HS-082-0225-A	ACTUATOR ENGINES 1&2 BY 2A-A LOWER-RAISE-NORMAL HANDSWITCH INDICATED CONTACTS MAKING UP INTERMITTENTLY.	HANDSWITCH WAS BAD DUE TO AGE AND CYCLIC FATIGUE.	REPLACED HANDSWITCH AND CHECKED FOR PROPER OPERATION.	B111745
86-02-07	2-GENB-082-000 2B-B	THE DIESEL WAS GIVEN A BLACK OUT START SIGNAL ON SI-7. THE GENERATOR ONLY WENT TO A LITTLE OVER 500 RPM THEN STOPPED. WHEN STOP SIGNAL WAS GIVEN, THE D/G WENT TO IDLE SPEED THEN SHUT DOWN AFTER 10 MINUTES.	BAD RELAY CONTACT	REMOVED RELAY R3 AND CHECKED CONTINUITY ACROSS CONTACTS ON PINS 8 AND 11. CHECKED CONTINUITY ACROSS CONTACT #4 ON RELAY R1X. OPERATIONS STARTED DIESEL AND RAN UP TO SPEED AND LOADED UP.	B100862
86-02-10	1-ZS-063-0071	LEAK TEST ISOLATION VALVE	LIMITSWITCH MOUNTING	STRAIGHTENED LIMIT SWITCH	B105202

DATE....	COMPONENT.....	FAILURE DESCRIPTION.....	CAUSE OF FAILURE.....	CORRECTIVE ACTION.....	MR.NO..
	2-A	INDICATOR LIGHT WAS SHOWING FALSE RESPONSE TO VALVE POSITION.	BRACKET WAS BENT PREVENTING LIMITS FROM MAKING UP.	MOUNTING BRACKET AND CHECKED FOR PROPER LIGHT INDICATION.	
86-02-11	2-ZS-032-0103 1-B	SET OPEN/CLOSE LIMITS. VALVE WOULD NOT STAY OPEN	ACTUATING ARM WAS OUT OF ADJUSTMENT.	ADJUSTED ACTUATING ARM ON OPEN LIMIT SWITCH TO OBTAIN PROPER OPERATION OF VALVE.	B104070
86-02-11	2-HS-003-0164A -A	THE CONTROLLER/TRANSFER SWITCH WOULD NOT TRANSFER TO MANUAL CONTROL FROM HANDSWITCH.	THE HANDSWITCH WAS BAD.	REPLACED HANDSWITCH	B103105
86-02-11	2-BCTC-313-JM	SET TIME DELAY RELAY 62A AT 10 SECONDS. DURING THE PERFORMANCE OF WP-11921, THE RELAY ACTUATED AT 30 SECONDS.	SET POINT DRIFT.	SET TIME DELAY RELAY 62A TO 10 SECONDS.	B104353
86-02-13	0-XA-013-0612A	ZONE 121 HAD DETECTOR MALFUNCTION ALARM IN.	BAD 2A-30 POINT CARD	REPLACED 2A-30 CARD	B109693
86-02-13	0-XS-013-0160D	DETECTOR 160D DID NOT BRING IN ALARM.	BAD SMOKE DETECTOR	REPLACED DETECTOR	B100787
86-02-13	0-XS-013-0161	DETECTOR DID NOT ILLUMINATE DURING PERFORMANCE OF SI-234.2	BAD DETECTOR	REPLACED DETECTOR	B100788
86-02-13	0-CHR-313-0303 -A	CHILLER WOULD NOT START. LO PRESSURE ALARM WILL NOT CLEAR.	MECHANICAL SEAL AND O-RINGS WERE BAD DUE TO NORMAL WEAR.	REPLACED MECHANICAL SEAL AND O-RINGS. CHARGED UNIT.	B108297
86-02-13	2-ZS-043-0022 1-B	THE RED LIGHT FAILED TO OPERATE DURING THE	ACTUATING ARM AND LIMIT SWITCH MOUNTING WAS OUT	ADJUSTED ACTUATING ARM AND LIMIT SWITCH MOUNTS.	B109726

DATE....	COMPONENT.....	FAILURE DESCRIPTION.....	CAUSE OF FAILURE.....	CORRECTIVE ACTION.....	MR.NO..
		FUNCTIONAL TEST.	OF ADJUSTMENT.		
86-02-13	2-GENB-082-00 02B-B	DIESEL GEN. 2B-B ENGINE #1 IMMERSION HEATER CONTACTOR CONTACTS WERE FOUND BURNED AND PITTED.	CONTACTS WERE BURNED AND PITTED DUE TO AGE.	REPLACED CONTACTS IN HEATER CONTROLLER CONTACTOR.	B113221
86-02-13	2-GEN-082-0002 B-B	DIESEL GEN 2B-B ENGINE #2 IMMERSION HEATER CONTACTOR CONTACTS WERE BURNED AND PITTED.	CONTACTS WERE BURNED AND PITTED DUE TO AGE.	REPLACED CONTACTS IN HEATER CONTROLLER CONTACTOR.	B113222
86-02-16	1-ZS-043-0023-A	THE FLEX CONDUIT TO LIMIT SWITCH IS BROKEN AND BURNED.	UNKNOWN	REPLACED SEALTITE FLEX.	A550346
86-02-16	1-ZS-003-0171-B	THE VALVE HAD BOTH RED AND GREEN LIGHTS ON WHILE THE VALVE WAS IN CLOSED POSITION.	ACTUATOR ARM WAS OUT OF ADJUSTMENT.	ADJUSTED ACTUATOR ARM AND CHECKED FOR PROPER OPERATION.	B103128
86-02-18	1-ZS-063-0084 2-B	BOTH RED AND GREEN POSITION INDICATOR LIGHTS ARE ON WHEN VALVE IS CLOSED AND ONLY RED INDICATOR LIGHT WHEN VALVE IS OPEN.	LIMIT SWITCH WAS OUT OF ADJUSTMENT.	ADJUSTED LIMIT SWITCH AND CHECKED FOR PROPER OPERATION.	B105245
86-02-18	0-XS-013-0203U	SMOKE DETECTOR 2-XS-13-203U WOULD NOT RESET.	SMOKE DETECTOR HAD DIRT IN IT, PREVENTING IT FROM RESETTING.	REPLACED DETECTOR HEAD.	B104086
86-02-18	0-CHR-313-0303 A	CHILLER PACKAGE TRIPS OFF ON OIL FAILURE AFTER RUNNING FOR APPROXIMATELY 5 MINUTES.	OIL PRESSURE WAS OUT OF ADJUSTMENT CAUSING OIL PRESSURE FAILURE LIGHT TO COME ON.	ADJUSTED OIL PRESSURE AND UNIT OPERATED PROPERLY.	B104555

DATE....	COMPONENT.....	FAILURE DESCRIPTION.....	CAUSE OF FAILURE.....	CORRECTIVE ACTION.....	WR.NO..
86-02-18	0-MTRB-061-008 6	GLYCOL CIRC PUMP 'D' MOTOR WAS ROTATING BACKWARDS.	PHASES IN BREAKER COMPARTMENT WERE REVERSED.	SWAPPED PHASES IN BREAKER COMPARTMENT.	B104585
86-02-20	1-CRN-303-DM/4 C	POLAR CRANE TROLLY DID NOT OPERATE.	TROLLY OVERLOADS HAD TRIPPED.	RESET TROLLY OVERLOADS.	B103637
86-02-23	0-BDG-250-KH-G	125V VITAL BATTERY BOARD IV HAD A 130V GROUND.	GROUND LOCATED ON FUSE COLUMN B. FUSE SET #33.	PERFORMED MI-10.13 AND INITIATED WR-B115031 TO CLEAR GROUND.	B104524
86-02-24	1-ZS-313-0224 2B	CHECK LIMIT SWITCH ADJUSTMENT. GREEN INDICATOR LIGHT WOULD NOT CLEAR WHEN VALVE WAS OPEN.	LIMIT WAS OUT OF ADJUSTMENT.	ADJUSTED GREEN LIGHT LIMIT.	B110370
86-02-24	1-RLY-99-K647	RELAY WAS ENERGIZED DURING THE PERFORMANCE OF SI-26.1A BUT APPEARED TO STICK WHEN SYSTEM WAS RESET.	DIRTY RELAY	REMOVED LATCHING RELAY, DISASSEMBLED AND CLEANED ALL COMPONENTS.	A560179
86-02-26	1-BCTD-067-029 5-A	THE OPEN MOTOR STARTER CONTACTOR CHATTERS WHEN THE MOTOR IS DRIVING THE VALVE TO THE OPEN POSITION.	SHADED POLE BAR ON THE STATOR WAS LOOSE.	REMOVED FRONT COVER FROM THE OPEN MAIN CONTACTOR AND TIGHTENED THE SHADED POLE BAR ON THE STATOR.	B105472

34 records listed.

MAINTENANCE SUMMARY
(INSTRUMENTATION)

INSTRUMENT MAINTENANCE

UNIT 1

Completed Workplan 11726 which finishes the CVI modification to the SSPS logic and adds annunciation to the radiation monitoring block switches in the main control room.

During performance of SI-298.1, condensate storage tank header pressure switch 1-PS-3-121A was found out of tech. spec. tolerance. No apparent cause could be detected other than instrument drift. PRO 1-86-022 was initiated and the switch was recalibrated and returned to service.

During performance of SI-197, a train B control building vent isolation occurred. Instrument mechanics were calibrating TS-311-5B in place. When the switch contacts closed, the isolation logic completed (PRO 1-86-024). Investigation and determination of corrective action is continuing.

Completed the replacement of all reactor coolant system narrow range RTDs. This work was performed on SMI-0-68-28 for qualified life replacement as required by 10CFR50.49.

During performance of workplan 11896, an inadvertent cold overpressure mitigation system (COMS) actuation occurred. When power is removed from the RCS temperature loops, the COMS setpoint module was driven low enough to cause the associated bistables to actuate. PRO 1-86-029 was initiated and instruments were recalibrated to include low limit provisions. This corrected the problem, and the unit 2 COMS will be recalibrated in a similar manner.

UNIT 2

Completed rework of unit 2 A PIDG lugs. This involved the replacement or over-solder of all PIDG lugs used on solid wire in CSSC circuits. This work was performed on SMI-2-317-25 to address the concerns of NSRS Report No. I-85-101-WBN (SQN).

Completed replacement of steam generator level transmitter 2-LT-3-174. This work was performed on IMI-145.7 and was necessary to satisfy 10CFR50.49 requirements for environmental qualification.

COMMON

Performed reliability evaluation of Barton model 288A differential pressure switches used in CSSC applications. This was in response to NRC inspector followup item no. 85-45-01. The evaluation detected several switches as being unreliable and will result in eventual replacement.

Continued support for the environmental qualification (EQ) program. Major work items included resolution of equipment deficiencies and verification of QMDS requirements for new EQ binders. Experienced considerable rework because of inadequate documentation on past maintenance activities and because new binders have entered the program. Current status on EQ verification indicates approximately 66 percent complete on unit 1 and 68 percent complete on unit 2 and common.

INSTRUMENT MAINTENANCE MONTHLY SUMMARY 03-05-86 PAGE 1

MR.COMP	U	FUNC	SYS	ADDRESS.	COMP DATE....	DESCRIPTION.....	CORRECTIVE ACTION.....
A298565	1	RM	090	271	02/08/86	1-RM-090-271-,HIGH VOLTAGE FAILED ON RP-2C MODULE WHEN PERFORMING SMI-0-90-1 & SI 686	BAD RP 2. REPLACED RP 2 AND PERFORMED SI 686
A300844	2	XX	092	5002	02/18/86	2-XX-092-5002-,CHANNEL DOES NOT INDICATE PROPERLY WHEN PLACED IN SERVICE	HIGH VOLTAGE AND SIGNAL CONN OXIDIZED. CLEANED CONN
A534076	2	HIC	062	93C	02/03/86	2-HIC-062-93C-,VLV POSITION IND IS IRRADIC	DEFECTIVE SETPOINT POTENTIOMETER. REPLACE SETPOINT POTENTIOMETER MR A534076
A542436	2	TM	068	324	02/24/86	2-TM-068-324-,*NPRD* OUTPUT FLUCTUATES W/AC PWR FLUCTUATION	DEFECTIVE INTERNAL COMPONENTS. INSTLD NEW MODIFIER.IT WOULD NOT WORK.REPLACED IC TYPE LM308AG TRANSISTOR TYPE 2N657.DEVICE OPER PROPERLY.MR A542436
A546270	1		092	43A&B	02/14/86	1--092-43A&B-,*IN* PULL FUSES AND DISCONNECT CABLES ON PR NI 43 FOR HO 1228. RETURN TO NORMAL WHEN HO 1228 IS RELEASED	NONE. NONE;PULLED FOR FIELD SERV. GROUP TO PERFORM PEMET WORK
A548580	1	TE	068	[illegible]	[illegible]	1-TE-068-378-,*NPRD* DURING PERFORM OF SMI06828 ON MR A301673.APPEND D;TERMINAL 8 READ 2 OHMS GREATER THAN OTHER TERMINALS.TAG HUNG ON TERM 8 IN 1 R 6.INSTR PMT IS SMI0682	BAD CONNECTION UNDER THE SCREWS. RETERMINATE TERMINAL.
A548797	1	RE	090	271	02/07/86	1-RE-090-271-,REMOVE THE RADIATION ELEMENT FROM 1-RM-90-271	NONE. REINSTL ELEMENT
A548799	1	RE	090	272	02/20/86	1-RE-090-272-,REMOVE THE RAD ELEMENT FROM 1 RM 90 272	BAD ELEMENT. REPLACED ELEMENT AND PERFORMED SI 686
A548871	1	LOCL	500	381	02/25/86	1-LOCL-500-381-,CLEAN INTERIOR OF PANEL 1-L-381 RE-ATTATCH SEALS BETWEEN COMPARTMENTS ON FRONT SIDE	DIRTY PNL AND BAD SEALS. REPLACED SEALS AND CLEAN PNL
A564848	1	RM	090	210	02/18/86	1-RM-090-210-,TEST CABLE INM 1321 AND RETERMINATE CONNECTORS 1 85 050 90	BAD CONN. REPLACE CONN
A564939	1	XX	092	5002	02/13/86	1-XX-092-5002-,BYPASS CHANNEL AND DISCONNECT SIGNAL & HIGH VOLT.CABLES F/DRAWER.THIS IS IN SUPPORT OF WP11810.THIS WR WILL RECONNECT CABLES WHEN MOD COMPLETES HEAT	NONE. PERFORMED IMI 92 SRM CAL
B100401	1	FCV	001	0147	02/11/86	1-FCV-001-0147-A,*NPRD* REPAIR OR REPLACE SUP AIR PRESS REGULATOR FOR VLV AND GAUGE FACE	GAUGE AND GAUGE FACE BROKEN. REPLACED GAUGE
B100402	1	FCV	001	0150	02/11/86	1-FCV-001-0150-B,*NPRD* REPAIR OR REPLACE GAUGE FOR AIR PRESS REGULATOR	BAD GAUGE AND BROKEN LENS. REPLACED GAUGE
B100403	2	PCV	001	23	02/24/86	2-PCV-001-23-A,*NPRD* REPAIR OR REPLACE	DEFECTIVE DIAPHRAGM IN REGULATOR.

WR.	COMP	U	FUNC	SYS	ADDRESS.	COMP DATE....	DESCRIPTION.....	CORRECTIVE ACTION.....
							AIR PRESS REGULATOR. CONSTANT AIR LEAK FROM HOLE ON UPPER HOUSING	REPLACE REGULATOR. WR B100403
B100863	2	FT	068		71B	02/06/86	2-FT-068-71B-,*NPRDS* FLOW TRANMITTE HAS A LEAK	VENT VLV WAS LOOSE CAUSING LEAK DOWN OF REFER LEG. TIGHTEN VENT VLV BACKFILL SENSING LINES. WR B100863
B100885	2	FC	062		142	02/18/86	2-FC-062-142-,CONTROLLER WON'T CONTROL IN AUTO.	NO PROB FND. NONE.
B100886	2	FC	062		139	02/18/86	2-FC-062-139-,WITH MODE SELECTOR SW 2 HS 62 140B IS MAN. OR AUTO THE FLOW CONTROLLER WON'T CLOSE THE FCV	NO PROB FND. NONE.
B100888	2	LR	003		98	02/18/86	2-LR-003-98-,RECORDER IS INDICATING 0% LVLS IN S/G'S 3 AND 4 AND SHOULD BE >100% WIDE RANGE INDICATION	PWR TURNED OFF ON LOOP. NONE.
B100894	2	H2AN	043		200	02/13/86	2-H2AN-043-200-,LOW GAS PRESSURE INVESTIGATE AND REPAIR	NONE COULD BE FND. NONE.
B102468	2	H2AN	043		200	02/20/86	2-H2AN-043-200-,[*10CFR50.49*],LOW GAS PRESS ALARM IS, REPAIR AS NEEDED	PRESS SW OUT OF CALIB.LOSS OF ESSENTIAL CONTROL AIR COULD HAVE CAUSED TO ACTUATE. CALIB SW.
B102511	1	TM	068		43F	02/21/86	1-TM-068-43F-,*NPRD* *I* REMOVE MODULE & ENSURE THAT IT WILL CALIB TO A GIVEN CURVE	NONE SPECIAL TESTING. RECAL TO ORIGINAL SPECIFICATION
B102717	2	H2AN	043		210	02/03/86	2-H2AN-043-210-,*I* CLEAN H2AN-TIGHTEN BOLTS ON COVER OF HOT BOX IF REQ'D	COVER REMOVED. CLEAN HOT BOX REINSTL COVER
B102948	2	LT	003		VARIOUS	02/06/86	2-LT-003-VARIOUS-,*NPRD* BACKFILL LVL XMTRS	REFER. LEG OF XMTR NEEDED BACKFILLING. BACKFILLED REFER LEG VERIFY OUTPUT RETURN TO SERV. WR B102948
B103340	2	LIC	003		174	02/10/86	2-LIC-003-174-,*NPRD* IND DRIVE MTR NOT OPER PROPERLY	INDICATOR DRIVE MTR STICKING DUE TO LACK OF USE. ALSO RIBBON CABLE HAD A BROKEN PEN. FREE MTR AND REPLACE CABLE. WR 103340
B103341	2	LIC	003		175	02/05/86	2-LIC-003-175-,*NPRD* POINTER BROKEN ON LVL IND RED POINTER	ABNORMAL STRESS ON POINTER. INSTL NEW POINTER. WR B103341
B103343	2	HC	003		172	02/07/86	2-HC-003-172-,V/I BOARD NOT OPERATING PROPERLY LIMIT BOARD WILL NOT ADJUST PROPERLY	DEFECTIVE V/IBRD SEQUENCE BRD AND ALGORITHM BRD. REPLACE OP AMPS ON V/I BRD.INSTL NEW SEQUENCER AND ALGORITHM BRDS. WR B103343
B103344	2	PCV	001		12	02/24/86	2-PCV-001-12-,*NPRDS* REPLACE AIR SUPPLY REGULATOR	DEFECTIVE DIAPHRAGM. REPLACE REGULATOR. WR B103344
B103385	1	LT	063		0178	02/07/86	1-LT-063-0178-,VERIFY BOLT SIZE FOR BOLTS WHICH SECURE XMTR TO THE WALK	UNKNOW. NONE;CORRECT BOLTS INSTLD
B104091	0		311		43	02/05/86	0--311-43-,CONTROLLER READING 0 OUTPUT	CONTROLLER OUT OF CALIB. RECALIB OF

MR.	COMP	U	FUNC	SYS	ADDRESS.	COMP DATE....	DESCRIPTION.....	CORRECTIVE ACTION.....
							KEEP CHILLER START CIRC FROM MAKING UP	CONTROLLER
B104517		1	RM	090	274	02/22/86	1-RM-090-274-,RM 90-274 HAS LOST POWER	BAD TRANSISTOR AND DIODE. REPLACED TRANSISTOR AND DIODE
B104534		2	RM	090	292	02/26/86	2-RM-090-292-,MONITOR WILL NOT SOURCE CHECK AND IS READING LOW	BAD DETECTOR. REPLACED RD 1 DETECTOR
B104539		2	RM	090	112A	02/08/86	2-RM-090-112A-,UPPER COMP PARTICULANT MON WON'T SOURCE CHECK WHEN PLACED IN THE SOURCE CHECK POSITION	CHECK SOURCE MECH LOOSE TUBE BENT AND SOURCE BROKEN. REPAIRED TUBE AND CHECKED SOURCE MECH AND REPLACED CHECK SOURCE
B104542		2	RR	090	254	02/13/86	2-RR-090-254-,RECORDER IS STRAIGHT LINING	BAD SERVO MTR. REPLACED SERVO MTR
B104597		1	RM	090	100B	02/15/86	1-RM-090-100B-,BLUE PEN IS SPIKING EVERY 5 MIN	BAD PREAMP. REPLACED PREAMPLIFIER
B104606		0	PX	052	85	02/18/86	0-PX-052-85-,EVENT IND SHOULD BE READING BLACK. IT INDICATES WHITE	UNKNOWN. RESET MON RANCAL RECORD ON TAPES
B104624		2	RM	090	100A	02/15/86	2-RM-090-100A-,RED PEN IS OSCILLATING CONTINUOUSLY.	BAD 1 SEC. TIMER. REPLACED TIMER
B104653		2	LT	003	156	02/18/86	2-LT-003-156-,[**NPRD**],VERIFY THE TORQUE ON THE ABOVE INSTRUMENT. TORQUE WITH M&TE #E00333 WHICH WAS FOUND OUT OF TOLERANCE	TEST EQ OUT OF TOLERANCE. RETORQUE USING ACCEPTABLE TST EQ
B104657		1	TM	068	374F	02/11/86	1-TM-068-374F-,ASCERTAIN WHETHER WP 11841 MODIFICATION TO REPLACE RESISTOR RBE (10K) WAS ACCOMPLISHED ON SUBJECT CARD. IF SO SIGN OFF STEP 4.0 ON WP 11841	NONE. NONE VERIFIED THAT RBE RESISTOR WAS 10K OHM VLU
B104661		1	PDT	030	42	02/14/86	1-PDT-030-42-,NEW TRANSMITTER HAS INCORRECT TVA ID NUMBER STAMPED ON PLATE ON SIDE OF TRANSMITTER. CORRECT, SHOULD READ PDT-30-42	MANUFACTURER ERROR. X OUT INCORRECT NO. AND STAMP NEW CORRECT UNID ON PLATE. WR B104661
B104678		2	H2AN	043	210	02/01/86	2-H2AN-043-210-*,CLEAN CHECK VLVS-3-LOCATED @ LOCAL PNL;IF ANY DEFECTS NOTED;REPAIR OR REPLACE.CIRCLE SEAL MODEL 562TI-2MP & COMSIP DELPHI P/N 91451	UNKNOWN. CLEAN CHECK VLVS
B104679		1	H2AN	043	210	02/07/86	1-H2AN-043-210-,REPLACE 1% H2 BOTTLE 33-379. CALIB EXPIRED 1/4/86.CALIB OF ANAL IS NOT REC	1% H2 GAS BOTTLE EMPTY. INSTL FULL BOTTLE
B104680		2	H2AN	043	200	02/07/86	2-H2AN-043-200-,REPLACE 100% D2 BOTTLE 33-391.CALIB EXPIRED 1/4/86 CALIB OF ANAL IS NOT REC	GAS BOTTLE EMPTY. INSTL FULL BOTTLE
B104681		2	H2AN	043	210	02/07/86	2-H2AN-043-210-,REPLACE 1% H2 BOTTLE	EMTPTY 1% H2 GAS BOTTLE. INSTL FULL

MR.	COMP	U	FUNC	SYS	ADDRESS.	COMP DATE....	DESCRIPTION.....	CORRECTIVE ACTION.....
							FF21625. CALIB WILL EXPIRE 2/13/86.CALIB OF ANAL IS NOT NEC	BOTTLE
B105242		0	RM	090	212	02/06/86	0-RM-090-212-,INST MALFUNCTION LOW FLOW WILL NOT CLEAR INVESTIGATE AND REPAIR	FLOW SW LINE AND CHAMBER FULL OF TRASH. CLEANED OUT FLOW SW
B107004		1	RM	090	255	02/04/86	1-RM-090-255-,DURING THE PERFORMANCE OF S1685 THE TXC WAS OUT OF SERVICES	NONE. TAKE TSC READING WHEN IN SERVICE
B107005		1	RM	090	260	02/04/86	1-RM-090-260-,DURING THE PERFORMANCE OF S1685 THE TSC WAS OUT OF SERVICE	NONE. TAKE READINGS
B107032		2	XX	092	5003	02/03/86	2-XX-092-5003-,REMOVE PWR FROM DRAWER TO SEE IF ITS CAUSING NOISE ON N31 SOURCE RANGE DRAWER	NONE. FND. NONE.
B107040		1	PT	068	69	02/03/86	1-PT-068-69-,COVER WARPED STRAIGHTEN OR REPLACE AS NECESSARY	INCORRECT COVER INSTALLATION. INSTLD COVER REMOVED F/AN EQUIVALENT SPARE XMTR. WR B107040
B111128		2	SSPS	099		02/28/86	2-SSPS-099--,BISTABLE CYCLING FROM 48V TO 0V	NONE. NONE NO PROB FND
B111815		1	PS	003	121A	02/10/86	1-PS-003-121A-,ALARM IS IN AND THERE ARE NO CONDITIONS PRESENT TO CAUSE IT SEE 45N657-5. RELAYS ERCA & ERCB ARE NOT PICKED UP SUSPECT 1-PS-3-121A CAUSE TD1 IS NOT PI	PRESS SW OUT OF CALIB. RECALIB PRESS SW WR B111815
B113656		2		099	S/N0721S	02/14/86	2--099-S/N0721S-,VERIFY PROPER OPER AND RETURN TO STORAGE BOX	NO PROB FND. NONE.
B113662		1	RM	090	100B	02/11/86	1-RM-090-100B-,MONITOR WILL NOT SOURCE CHECK	BAD CHECK SOURCE SCINTILLATOR. REPLACED CHECK SOURCE SCINTILLATOR
B113663		1	RM	090	100C	02/10/86	1-RM-090-100C-,MONITOR WILL NOT SOURCE CHECK	SOURCE WAS OUT OF WIND. READJUSTED AND PERFORMED SI 205
B113691		2	TM	068	331	02/21/86	2-TM-068-331-,[*NPRD*],MODULE HAS BAD BOW FOUND DURING SI-70.2	THE OUTPUT CAPACITOR C11;FDBACK CAPACITOR C5 AND RESISTOR R33 VLUS HAD CHANGED DUE TO OLD AGE.REPLACE CAPACITORS AND THE RESISTOR.CALIB AND RETURN TO SERV. MR B113691
B113841		1	FT	003	0147/015	02/19/86	1-FT-003-0147/015-,*NPRDS* SEAL FLEX CONDUIT AT JB	CONDUIT WAS NEVER SEALED. SEAL CONDUIT
B113842		1	FT	003	0163-017	02/20/86	1-FT-003-0163-017-,*NPRDS* SEAL FLEX CONDUIT AT JB	CONDUIT WAS NEVER SEALED. SEAL CONDUIT.
B113843		1	LM	003	0156A	02/11/86	1-LM-003-0156A-,*NPRDS* VERIFY PRESS TO BE 23 PSI FOR BINDER # SQMEQILM-001	REGULATOR OUT OF ADJUSTMENT. ADJUST REGULATOR TO 23PSI
B113844		1	LM	003	0164A	02/11/86	1-LM-003-0164A-,*NPRDS* VERIFY PRESS TO I/P TO BE 23 PSI FOR BINDER #SQMEQILM-001	OUT OF ADJUSTMENT. ADJUST REGULATOR TO 23PSI

MR.	COMP	U	FUNC	SYS	ADDRESS.	COMP DATE....	DESCRIPTION.....	CORRECTIVE ACTION.....
B113845	2	FT	003	VARIOUS	02/22/86	2-FT-003-VARIOUS-,[*10CFR50.49*],INSPECT VITON JB GASKET OF EACH TRANSMITTER LISTED IN BINDER #SQNEQ-IFT-001	PROBLEMS FND.	NONE. NONE.
B113846	1	PT	001	VARIOUS	02/19/86	1-PT-001-VARIOUS-,[*10CFR50.49*],DETERMI NE CABLE LENGTH OF CABLE GOING TO TRANSMITTERS	NONE.	NONE.

60 records listed.

MAINTENANCE SUMMARY
(MECHANICAL)

MONTHLY REPORT

FEBRUARY 1986

MECHANICAL MAINTENANCE

COMMON

1. COMPLETED WORK ON 1B CONTAINMENT SPRAY HTX.
2. COMPLETED WORK ON AUX. BOILER B, PLUGGED 6 TUBES.
3. WORK ON 0-FCO-31-488 AND 499 COMPLETE.
4. WORK ON 0-FCO-31-404 COMPLETE.
5. COMPLETED WORK ON 0-RM-0-206B.
6. COMPLETED WORK ON 0-FCO-31-493.
7. REBUILT ACTUATOR ON 0-FCV-65-47A.
8. WORK COMPLETE ON 2-STN-26-1063.
9. COMPLETED MONTHLY AND QUARTERLY INSPECTION ON 2AA D/G.
10. PERFORMED MONTHLY PM ON SECURITY DIESEL.
11. REPLACED DIAPHRAGM IN 0-VLV-12-32.

MONTHLY REPORT

FEBRUARY 1986

MECHANICAL MAINTENANCE

UNIT 1

1. COMPLETED WORK ON NOZZLE COVERS.
2. REPLACED VANES IN 90-100 RAD. MONITOR PUMP.
3. RAN SI-107 ON ICE CONDENSER.
4. COMPLETED WORK ON 1-FCV-1-181.
5. COMPLETED WORK ON 1-MVOP-67-131.
6. VERIFIED TORQUE ON 1-VLV-62-1053.
7. COMPLETED WORK ON LOOP 4 RTD MANIFOLD.
8. COMPLETED WORK ON 1-MVOP-67-133.
9. REPACKED 1-FCV-62-74.
10. RETORQUED REACTOR COOLANT PUMP FLANGE.
11. REPLACED DIAPHRAGM IN 1-FCV-1-7.
12. COMPLETED WORK ON LOOP 3 RTD MANIFOLD.
13. REPLACED SOLENOID ON 1-FCV-62-69.
14. WORK COMPLETE ON 1-MVOP-67-142.
15. REPACKED VALVES 1-PCV-1-5, 12, 23, 30.
16. WORK COMPLETE ON 1-MVOP-62-9.
17. INSPECTION COMPLETE ON 210 OF 264 SNUBBERS.
18. STROKED STEAM DUMP VALVES.

MONTHLY REPORT

FEBRUARY 1986

MECHANICAL MAINTENANCE

UNIT 2

1. RETORQUED BONNET ON 2-VLV-063-641.
2. RAN SI-158 ON 2-VLV-70-92.
3. COMPLETED WORK ON 2-FCV-65-52, 105B.
4. COMPLETED MONTHLY INSPECTION ON 2BB D/G.
5. COMPLETED WORK ON 2-FCV-65-5.
6. REPACKED VALVES 2-PCV-1-5 AND 2-VLV-72-502.
7. ALIGNED 2B RFP.
8. REPACKED 2-PCV-1-5.
9. WORK ON 2A CONTAINMENT SPRAY HTX COMPLETE.
10. STROKED ALL STEAM DUMP VALVES.
11. WORK ON 2AA BAT PUMP COMPLETE.
12. REPLACED O-RINGS IN 4A AND 29A MSIV SOLENOID VALVES.
13. COMPLETED WORK ON 2A RFP.
14. COMPLETED WORK ON 2-FSV-1-4A.
15. REPLACED SOLENOID ON 2-FSV-77-9.
16. REPLACED O-RINGS IN 2-FSV-1-22.
17. INSPECTION COMPLETE ON 688 OF 695 SNUBBERS.
18. REPACKED 2-PCV-1-12.

MAINTENANCE SUMMARY
(MODIFICATIONS)

SUMMARY OF WORK COMPLETED

MODIFICATIONS

FEBRUARY 1986

NUREG 0588

ECN 6032 - H_2 Analyzer Relocation

Work was completed. The final calibration will be done by Instrument Maintenance during startup.

ECN 6231 - Remove Interferences

Work is in progress on the unit 1 west valve room hanger. The Office of Engineering (OE) is continuing their reanalysis of unit 2 upper compartment cooler ERCW piping. The preliminary indication is that one support may be deleted.

ECN 6552 - 0588 Solenoids

All solenoids have been replaced. Some hanger work, painting, and functional testing remain.

ECN 6561 - Modify Valve Room Doors and HVAC for Flood Protection

The receipt of material has delayed the completion of this activity. The doors have been fabricated and are ready for installation.

ECN 6632 - Restrict Valve Room Flow Drains (Supersedes ECN 6609)

Preliminary work was begun to prevent the flooding of the auxiliary building because of water flowing into the building through the valve room floor drains. OE has not completed the ECN and USQD.

APPENDIX R

ECNs 5265, 5435, and 6343 - Fire Doors

Work was completed on the first group of doors. The second workplan was placed in the approval cycle. The replacement of weather stripping continues.

ECN 6235 - Reroute Various Cables

Seven workplans are in work on conduit/cable reroute. Two workplans are in the approval cycle. Insulation is in progress at various locations.

ECN 6305 - Elevation 714 Fire Barrier

All identified work has been completed.

APPENDIX R (continued)

ECN 6311 - Operator Extension on PORV

During postmodification testing (PMT), it was decided to add another U-joint. This is on order and is scheduled to be delivered in early March.

ECN 6315 - Replace Fuses

Fuse installation has been resumed.

ECN 6319 - Fire Protection Piping

Final tie-ins and hydros are in work status. Tie-ins have been completed for elevation 734 and above. Work is now in progress on elevation 714. Work on elevations 690 and 669 will be completed in March. The installation of conduit and cable has begun.

Additional work has been identified in the annulus that will require additional sprinklers and inside containment that will require sealing penetrations.

OTHER ITEMS

ECN 2768 - REVLIS

Work has been completed.

ECN 2783 - Installation of Fifth Diesel

Six electrical related workplans for the fifth diesel installation have been placed in the workplan closing cycle.

ECN 5009 - ERCW Piping Changeout From Carbon Steel to Stainless Steel

Additional work involving the replacement of several small isolation valves has been added. The workplan was written and placed in the approval cycle. Some insulation activities remain incomplete.

ECNs 5034, 5713, 5743, and 6064 - Various Platforms in Lower Containment

Paint work continues. When this work has been completed, the grating will be installed.

ECN 5202 - Interface of Fifth Diesel With Other Diesels

Workplans for the interface of the fifth diesel with other diesels for train 1A-A and 1B-B are in the approval cycle.

ECN 5252 - Label Node Voltages in Manholes

No progress was made on this job this period; four manholes remain.

OTHER ITEMS (continued)

ECN 5347 - Replace Doors C-49 and C-50 (Electrical Portion)

This work is complete.

ECN 5373 - Condensate Demineralizer Air Compressor

Final PMT is in progress.

ECN 5620 - Add Instrumentation for Auxiliary Feedwater Pump

Work is on hold.

ECN 5645 - Replacement of Flow-Control Valve 2-329

Insulation installation was completed. This completes all identified mechanical activities.

ECN 5657 - Installation of MSR Drain Valves

Reinsulation remains incomplete. Caps are being installed on the valve nipples.

ECN 5667 - Double Isolation Valves for Flow Orifices (Unit 2)

Work was started on the remaining eight flow elements.

ECN 5703 - Reinforcement of Block Walls

The current need for the wall was questioned by PORC. OE reviewed and determined that one wall could be removed and the second wall could be left as is if isolation valves were tagged closed. OE is rewriting the ECN and USQD to address these changes.

ECN 5795 - Field Services Building

Fire detection system work is on hold for materials.

ECN 5914 - Improve Reliability of Steam Dump

Conduit is complete; one valve remains to be wired in.

ECNs 5938, 6305, and 6571 - Replace Feedwater Heater and Eroded Pipe

The installation of insulation continues with emphasis on unit 2. Craft support for the PMT setup is continuing. Insulation for ECNs 6305 and 6571 is complete. Operations has begun flushing to clean up the unit 2 condensate system. All wiring is complete. Functional testing is in progress.

ECN 6057 - Cable Tray Covers

Approximately 240 out of 290 cable tray covers have been remanufactured or replaced.

OTHER ITEMS (continued)

ECN 6147 - Airlock Packing Nut

Final testing of the airlocks on unit 2 remains incomplete.

ECN 6196 - Pressurizer Hangers and Valves

Work on unit 2 is complete for this time period. Unit 1 lacks cleanup, PMT work, and one support to complete. The three rebuilt pressurizer safety valves with water trim valves have been returned from Wyle Laboratories where they tested satisfactory.

ECN 6204 - Electrical Penetration Overcurrent Protection

Fuse replacement and fuse block installation are complete. We are awaiting a technical specification change to place the circuits in operation.

ECN 6259 - Moisture Separator Reheater Tube Bundle Replacement

Flushing activities are complete; insulation activities are incomplete. All conduit and cable installation has been completed.

ECNs 6402 and 6439 - Pressurizer Instrumentation Relocation

All work is complete except seal welding fill tees. This will be completed after Instrument Maintenance completes fill and calibration.

ECN 6417 - Install Alternate Seal Water for Pumps, CDWE

Electrical drawings remain to be issued.

ECNs 6491 and 6534 - ERCW Supports

Work remains for one support. Paint work has not been started.

ECN 6548 - Additional Support for Incore Drive Cart

Work has been completed.

ECN 6599 - Unit 2 Shield Building Anchor Problem

The ECN and USQD were received; the workplan has been written and placed in the approval cycle.

ECN 6601 - Removal of EGTS Backdraft Dampers

We are awaiting the ECN and USQD from OE.

Dry Active Waste Building (DCR 1898)

Approximately 60 percent of the concrete foundation work has been completed. The remaining concrete foundation work will be done as weather permits.

OTHER ITEMS (continued)

Weld Project

Support was provided for the weld project, Bechtel, and NRC inspectors reinspecting welds.

MODIFICATIONS

ECN	DCR	WI	SYS	SEQUENCE	DESCRIPTION
	D1405 L	X	036	12116	Remove existing pumps and install Milton Roy Milroyal Model DMRI-52-14 2SM pumps. Calibration chamber, and recirculation lines back to chemical tanks.
	D2024 L	X	027	12914	Add permanent ladders to coolings to WER lift pump motors.
	D2108L	X	317	13070	Provide labor and materials to construct a flammable liquids storage facility to be located north of the new yard storage area on the north side of the Office and Power Stores Building.
L5690	D1247 S	X	001	11869	Modify balance arms on check valves to be done as needed.
L6136	D19242 S	X	061	12794	Fabricate and install ice condenser storage box at upper ice condenser landing el. 780.
L6227	D0602	X	014	13351	SQ-DCR-602 MEB840821001, MED830902524, Modify the underdrains on the CPDS external regeneration tanks (AVION Tank AT), storage tank (ST) receiving tank (RT) MOD52.
L6496	D0972	X	000	13518	Provide seismic mounting for limit switches on FCV-63-71 and FCV-68-308.
L6504	D0972	X	000	13531	Replace limit switches for vlvs. 2-FCV-64-4 & 5 with environmental qualified switches.
L6515	F3817	H	002	13523	Repair and modify CST per the attached sketches.
L6522	F3851	H	001	13532	Replace the existing soft iron bonnett gasket with and new flexatallic gasket in vlv. 1-511, 612 to reused furmantic leaks.

MODIFICATIONS

ECN	DCR	WI	SYS	SEQUENCE	DESCRIPTION
L6523	D0972 S	H	000	13584	Drill 1/4" weep holes in junction boxes containing 1E equipment located in the main steam vlv. vault rooms and inside containment.
L6525	D0972 S	X	077	13546	Replace presently installed limit switches for the 77 system with qualified switches.
L6547	D0972 S	H	000	13576	Drill 1/4" weep holes in junction boxes located in areas subject to condensation formation following an HELB (High Energy Line Break).
L6562	F3933	H	000	13562	DOC change only clear DWG. Discrepancies 1-MSH-3891-UNIH-140, 1-FDH-327
L6565	D0972 S	H	000	13626	Drill two 1/4 inch weep holes in junction boxes located in areas subject to condensation formation following an HELB (High Energy Line Break).
L6567	F3965	H	079	13583	Remove the underwater light tracks from the reactor cavity and equipment pit.
L6586	F4053 S	H	400	13623	Allow 1/13 inch grinding on seal bar rather than 1/16 inch that is allowed. Now change detail on 3&4 cold leg to show actual configuration.
L6594	F4054 S	H	317	13624	Correct wiring error in JB 1414, JB 1407 and JB 2795
L5194	D0781 S	X	090	9282	Add wide range gaseous effluent monitors to monitor radioactive particles, iodines, and noble gases from the shield building vent stack.
L6171	F2469 S	H	410	13096	Document on TVA drawings to clarify those doors that require lock guards under the new power block concept per NRC requirements.

ENVIRONMENTAL QUALIFICATION
(E.Q.) SUMMARY

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	U-2	Comments
EQP 8501	Disconnect 1- and 2-HS-62-61	6524	Peters	11901	C	C	U-2 QIR submitted.
EQP 8502	Replace penetrations 23 and 48	6490	Peters	11801, 11802, 11810, 11811	C	C	Complete QIR submitted.
EQP 8503	Relocate RE-90, 273, -274	6500	Peters	11810, 11811	C	N/A	Complete field verification sheets are in binder. No QIR needed.
EQP 8504	Splice methods not correct	N/A	Stockton	80 MRs	C	C	Complete QIR submitted.
EQP 8505	Drawing	N/A	N/A	N/A	N/A	N/A	
EQP 8506	Seal containment isolation valve	6514	Kimsey	11880	C	C	Seals installed, new gaskets, top hat arrived 2/7, will install 2/9.
EQP 8507	Rewire MOV	N/A	Rutledge	11866, 11853	3/7	C	On U-1, all have been rewired; 114 of 115 have been functionally tested.
EQP 8508	JB weepholes (press)	6523	Alas	11898	C	C	Complete QIR submitted.
EQP 8509R1	Conduit seals	6529	Kimsey	11903, 11904	C	C	
EQP 8509R2	Conduit seals	6615	N/A				No field work remaining.
EQP 8510	Disconnect local handswitches	6527	Peters	11901	C	C	
EQP 8511	Submerged JB inside containment	6549	Peters	11901	C	N/A	

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	U-2	Comments
EQP 8512R2	Rewire JB	N/A	Amburn	11855, 11856	3/10	C	On U-1, 119 of 128 rewired, including EQP 8543.
EQP 8513	Weep holes (moisture)	6547	Alas	11898	C	C	Complete QIR submitted.
EQP 8513R2	Weep holes (moisture)	6565	Alas	11937	C	C	Complete QIR submitted.
EQP 8514	Motor insulation 74-1, -2	6540	Branham	11906	N/A	C	Complete QIR submitted.
EQP 8515	Replace 2-PDT-30-43	6554	Legg	11912	C	C	Instrument Maintenance is calibrating.
EQP 8516	Replace 2-LT-3-174	N/A	Instrument Maint.	N/A	N/A	3/5	Need to FCR 47W880-28 to delete Conax.
EQP 8517	ABGTS humidity control	6578	Gonzales		N/A	C	ABGTS B-B complete.
EQP 8518	Submerged cables	6533	Various/6	Various	3/15	C	
EQP 8519	Tee drains	N/A	Electrical Maint.	N/A	C	C	Complete QIR submitted.
EQP 8520	Expired cables	6553	Gonzalez	11902	C	C	
EQP 8521	Delete TG and rework splices	6550	Stockton	11914, 11915	3/8	C	
EQP 8522	Rewire local panels	N/A	Stockton	11914, 11915	3/8	C	
EQP 8522R2	Rewire local panels	N/A	Instrument Maint.			3/22	

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	Estimated Date of Completion U-2	Comments
EQP 8523	Missing bolts and washers and misplaced brackets	N/A	Stockton	11914, 11915	3/8	C	
EQP 8524	Change setpoints	6551	Instrument Maint.	11916	C	3/7	IM to transfer temperature switch from Watts Bar Nuclear Plant.
EQP 8525	Reterminate hydrogen recombiner	N/A (MR)	Electrical Maint.	N/A	C	C	Completed by Electrical Maint.
EQP 8526	Replace FSVs, U-1 1, U-2 11	6552	Mechanical Mods.	11897	C	C	
EQP 8527	Coat TB, U-1 3, U-2 8	N/A (MR)	Stockton	11914, 11915	C	C	
EQP 8528	Solder strain gauge Barton transmitters	IMI	Instrument Maint.	N/A	C	C	QIR submitted 1/24.
EQP 8529	PDT-30-42, -43	6554	Legg	11912	C	C	
EQP 8530	Gasket, Namco L/S	N/A (MR)	Electrical Maint.	N/A	1/31*	1/24*	2 gasket and 2 mounting problems to resolve. *Reviewing all paperwork; will declare completion at end of review.
EQP 8531	Delete MOV heaters	6544	Rutledge	11866, 11853	C	C	
EQP 8532	Delete L/S 1-, 2-43-201, -202, -207, and -208	6630	Alas				OE revising ECN to reflect new proposal.

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	Estimated Date of Completion U-2	Comments
EQP 8533	Delete dual voltage splice	N/A	Rutledge	11866, 11853	C	C	
EQP 8534	Resplice valve positioner 3-174 and -175	N/A	Maxwell	MR	C	C	Complete QIR submitted.
EQP 8535	Replace limit switches, U-1 10, U-2 12	6556	Stockton	11927, U-2 11928, U-1	3/12	C	
EQP 8536	Valve room submergence	6561	Mechanical	11939	3/6	C	
	Cap drains	6632	Mods.		3/31	3/28	OE to redo ECN to orifice drains.
EQP 8536R1	Valve room submergence	6612	Electrical Mods.		4/15	4/1	Cable will need rerouting.
EQP 8537	Rebuild or replace JB 3078	6579	Amburn		N/A	3/12	Found another junction box; initiated Category D FCR. When ECN is out, will write workplan to accomplish repair of both boxes.
EQP 8538	Replace capacitors FCO-31-475, -476	N/A	Maxwell	11977	N/A	3/12	Capacitors delivered. Part number discrepancy exists. Should be resolved by 3/8.
EQP 8539	Replace capacitors	N/A	Instrument Maint.		3/14	3/14	In work.
EQP 8540	Replace pigtails to Target Rock solenoid valves	6581	Maxwell		3/20	3/18	Material delivery to be 3/10; purchase request 838756.

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	U-2	Comments
EQP 8541	Delete brakes	6582	Branham	11980	3/28	N/A	1-FCV-63-93, -94. Brake issue resolved.
EQP 8542	Replace unqualified cables	N/A	Hall	Various	3/15	N/A	Cables will be replaced in accordance with EQP 8518.
EQP 8543	Replace JB wire	N/A	Amburn	11855, 11856	3/10	C	U-1 status in EQP 8512R2.
EQP 8601	Replace 1-, 2-PT-1-2A, -27A; upgrade 2-PT-1-2B, -27B	6588	Elkins			3/22	Will require replacement. Transfer from WBN in progress. Material delivery set for 3/15. Upgrade kits have 5- to 7-week delivery. OE is pursuing alternates.
EQP 8602	Reroute control cables for 1-, 2-FCV-70-87, -89	**********					No longer an issue.
EQP 8603	Replace portion of PP711B	6627	Kimsey		N/A	3/25	Will splice in Additional Equipment Building and Elevation 759 Transformer Room.
EQP 8604	Cable 1PL3241A not qualified	**********					No longer an issue.
EQP 8605	1-, 2-TS-74-43, -44, -45, -46 not qualified	6589	Stockton			3/15	Replacement required. Material delivery due 2/24.
EQP 8606	Undervoltage concern on feedwater isolation valve brakes	6611	Rutledge			4/15	Delivery of solenoids expected 4/4.

Date: 3/5/86 0041E

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	Estimated Date of Completion U-2	Comments
EQP 8607	Delete TB for 1-, 2-PT-1-2A,, -27A	6626	Instrument Maint.			3/22	Will work same time as EQP 8601.
EQP 8608	Enable/disable MOV brakes	6621 6622	Rutledge				New item. Disable 8; enable 20.
EQP 8609	Replace cable 1V7973B					N/A	New item.
EQP 8611	JB has weephole in top	N/A	Amburn			3/6	WR written to repair.
EQP 8612	Replace zone switches	**********					No longer an issue.
EQP 8613	Not yet received						
EQP 8614	Weep holes in JB						

Date: 3/5/86 0041E

SCR No.	Description	ECN	Engineer	Workplan No.	Estimated Date of Completion U-1	U-2	Comments
N/A	Move surge suppression network for PORV	5773	Kimsey	11883	C	C	U-2 complete. On U-1, 1-PCV-68-340 in hold. Holding for maintenance to complete.
EEB 8523	Penetration overcurrent	6606	Legg				During closure process, it was found that 6 circuits had not been addressed by ECNs. ECN 6606 addresses this.
N/A	Work FCR to delete 1-, 2-PS-3-160A, -160B, -165A, and -165B	5883	Hall		C	C	Need SI-166.
N/A	Replace 1-FT-1-3A, -3B, -10A, -10B, -21A, -21B, -28A, -28B	6347	Instrument Maint.	N/A	3/21	N/A	
NEB 8510	Relocate LT-68-320, PT-68-323, -320	6439	Carrasquillo Peters	Various	C	C	
	Remount 63-71, 68-308	6496	Legg	11865	C	C	
	Replace LS-65-4, -5	6504	Legg	11865	N/A	C	
MEB 8410R3	Replace LS-77-127	6525	Legg	11865	N/A	C	
	Delete brakes FCV-62-61	6521	Branham	11905	C	C	
EEB 8517	Replace pressure transmitter PDT-65-80, -82, -90, and -97	6488	Branham	11931	C	C	

OFFSITE DOSE CALCULATION MANUAL CHANGES

Attachment 1

CHANGES TO RADIOLOGICAL ASSESSMENT PROCEDURES (RAPs)
FOR RARC APPROVAL

RAP 1.1.1 IMPLEMENTATION OF RETS SURVEILLANCE REQUIREMENT 4.8.B.1 (PARTIAL) FOR BROWNS FERRY NUCLEAR PLANT

1. Organizational changes implemented.

2. Format made to conform with RH/QA-3.1.

RAP 1.2 IMPLEMENTATION OF RETS SURVEILLANCE REQUIREMENTS 4.11.2.2, 4.11.2.3, 4.11.2.4.1 AND 4.11.4 FOR SEQUOYAH NUCLEAR PLANT

1. Section 4.4 was added and reads, "It is the responsibility of the Air Quality Branch to provide TAS with meteorological data for the Sequoyah area."

2. A sentence was added to Section 5.3 which states that if doses exceed 50 percent of the limit, TAS will obtain actual meteorological data (within 30 days after the end of the month) and recalculate the doses.

3. Section 5.3 was changed to read that if limits are exceeded, RH will contact the SQN shift engineer by phone within one working day. A followup memorandum will be sent to the Plant Manager (with a copy to the Engineering Section Supervisor) within three working days. If the doses exceed twice the limit, the Plant Manager will be notified within three days so that doses specified in 40 CFR 190 are not exceeded.

RAP 1.2.1 IMPLEMENTATION OF RETS SURVEILLANCE REQUIREMENTS 4.11.2.1.1. and 4.11.2.1.2 FOR SEQUOYAH NUCLEAR PLANT

1. Organizational changes implemented.

2. Format made to conform with RH-QA-3.1.

3. Added section 6.0 to provide assurance of QA provisions.

RAP 1.3.1 IMPLEMENTATION OF RETS SURVEILLANCE REQUIREMENTS 4.11.2.1.1 and 4.11.2.1.2 FOR WATTS BAR NUCLEAR PLANT

1. Organizational changes implemented.

2. Format made to conform with RH/QA-3.1.

RAP 1.5 LAND USE SURVEYS

1. Organizational changes implemented.

2. Format made to conform with RH/QA-3.1.

3. Due to the move of the environmental monitoring function out of the Technical Assistance Section (Assessment Unit), all references to functions performed in relation to environmental monitoring were removed. This includes sections 4.1, 4.3, 5.1, 5.2, 5.7, 5.8, 5.9, and 8.2.

4. The end of section 4.1.1 was changed to read "those previously calculated following other surveys, and reporting results to the Supervisor of the Environmental Monitoring Section."

5. Section 5.3 was changed to read "Within 5 working days of the receipt of the formal land use survey from ERMI, the lead health physicist for assessing impacts due to releases of radioactivity to the atmosphere will be provided with copies of these formal survey results."

6. In section 5.4, the clause "and any need to prepare a Special Report to the NRC" was deleted.

7. In section 5.4.1, the time limit is changed from 20 days to 15 days.

8. In section 5.5, first sentence changed to read "The lead health physicist for atmoshperic-pathway assessments will provide any necessary assistance to the lead health physicist for environmental monitoring of ERMI in preparing any Special Report required by Technical Specifications controlling formal land use surveys.

9. In section 5.5, the time requirement is changed from 26 to 21 days.

RAP 2.2 IMPLEMENTATION OF RETS SURVEILLANCE REQUIREMENTS 4.11.1.2, 4.11.1.3.1 AND 4.11.4 FOR SQN

1. Section 5.3 was changed to read that if limits are exceeded, RH will contact the SQN Shift engineer by phone within one working day. A followup memorandum will be sent to the Plant Manager (with a copy to the Engineering Section Supervisor) within three working days. If the doses exceed twice the limit, the Plant Manager will be notified within three days so that doses specified in 40 CFR 190 are not exceeded.

RAP 3.3 IMPLEMENTATION OF RETS ADMINISTRATIVE CONTROL 6.7.3.A FOR BROWNS FERRY NUCLEAR PLANT

1. Organizational changes implemented.

2. Section 5.1 changed to read:

   Within 30 days after the end of each calendar quarter, Radiological Health Technical Assistance Section should receive information regarding BFN plant operation for the preceding calendar quarter. The information should contain the following data:

   (a) Activity (Curies) released of each radionuclide via liquid and gaseous pathways.

   NOTE: Any activity reported as a less-than value should be considered to be zero for input to dose calculations. For those nuclides considered as parent-daughter pairs in the dose calculation, the maximum release will be selected from each of the pairs and entered. If the parent-daughter combinations are reported as a pair, the reported value will be entered into the dose calculation as the activity of the parent and of the daughter.

   If the above information is not received within the prescribed time, or if incomplete, the Engineering Section (Chemical Unit) Supervisor at BFN will be contacted directly for the information.

3. Section 5.2, sentence added "This information will be provided by Data Services Branch."

4. Section 5.3, sentence added "This information will be provided by the Air Quality Branch."

RAP 3.4 IMPLEMENTATION OF RETS ADMINISTRATIVE CONTROL 6.9.1.9 FOR SEQUOYAH NUCLEAR PLANT

1. Organizational changes implemented.

2. Format changed to conform with RH/QA-3.1.

3. Section 6.1 changed to read:

   Within 30 days after the end of each calendar quarter, Radiological Health Technical Assistance Section should receive information (SQN Surveillance Instructions 422.2 and 423.2) regarding SQN plant operation for the preceding calendar quarter. The information should contain the following data:

   (a) Activity (Curies) released of each radionuclide via liquid and gaseous pathways.

NOTE: Any activity reported as a less-than value should be considered to be zero for input to dose calculations. For those nuclides considered as parent-daughter pairs in the dose calculation, the maximum release will be selected from each of the pairs and entered. If the parent-daughter combinations are reported as a pair, the reported value will be entered into the dose calculation as the activity of the parent and of the duaghter.

If the above information is not received within the prescribed time, or if incomplete, the Engineering Section (Chemical Unit) Supervisor at SQN will be contacted directly for the information.

4. Section 6.2, sentence added "This information will be provided by Data Services Branch."

5. Section 6.3, sentence added "This information will be provided by the Air Quality Branch."

6. Section 6.4, the last sentence was deleted and a section added which reads:

   The total doses will be entered on SQN Surveillance Instructions 422.2 and 423.2. If the calculated doses exceed the quarterly or annual limits specified in Appendix I to 10 CFR 50 and RETS 3.11.1.2, 3.11.2.2, 3.11.2.3, or 3.11.4, the shift engineer will be telephoned (within one working day) with a written followup to the Plant Manager (within three working days) as to the level of the doses.

   The results (SQN Surveillance Instructions 422.2 and 423.3) will then be placed in a TVA interoffice envelope and sent to the Engineering Section Supervisor at SQN within 45 days after the end of the calendar quarter.

7. Section 6.7, changed to read: "A copy of the distribution correspondence, along with a copy of the assessment report, is sent to NUC PR RIMS as a QA record in accord with RAP 6.3."

RAP 3.5 IMPLEMENTATION OF RETS ADMINISTRATIVE CONTROL 6.9.1.9 FOR WATTS BAR NUCLEAR PLANT

1. Organizational changes implemented.

2. Format changed to conform with RH/QA-3.1.

3. Section 5.1 changed to read:

Within 30 days after the end of each calendar quarter, Radiological Health Technical Assistance Section should receive information (WBN Surveillance Instruction 11.16) regarding WBN plant operation for the preceding calendar quarter. The information should contain the following data:

(a) Activity (Curies) released of each radionuclide via liquid and gaseous pathways.

NOTE: Any activity reported as a less-than value should be considered to be zero for input to dose calculations. For those nuclides considered as parent-daughter pairs in the dose calculation, the maximum release will be selected from each of the pairs and entered. If the parent-daughter combinations are reported as a pair, the reported value will be entered into the dose calculation as the activity of the parent and of the daughter.

If the above information is not received within the prescribed time, or if incomplete, the Engineering Section (Chemical Unit) Supervisor at WBN will be contacted directly for the information.

4. Section 5.2, sentence added "This information will be provided by Data Services Branch."

5. Section 5.3, sentence added "This information will be provided by the Air Quality Branch."

6. Section 5.4, the last sentence was deleted and a section added which reads:

The total doses will be entered on WBN Surveillance Instruction 11.16. If the calculated doses exceed the quarterly or annual limits specified in Appendix I to 10 CFR 50 and RETS 3.11.1.2, 3.11.2.2, 3.11.2.3, or 3.11.4, the Engineering Section (Chemical Unit) Supervisor will be telephoned (within one working day) with a written followup to the Plant Manager (within three working days) as to the level of the doses.

The results (WBN Surveillance Instruction 11.16) will then be placed in a TVA interoffice envelope and sent to the Engineering Section Supervisor at WBN within 45 days after the end of the calendar quarter.

7. Section 5.9, added to read: "A copy of the distribution correspondence, along with a copy of the assessment report, is sent to NUC PR RIMS as a QA record in accord with RAP 6.3."

RAP 4.1 GENERAL DESIGN CRITERIA FOR ENVIRONMENTAL MONITORING PROGRAMS

Deleted due to move of environmental monitoring to ERMI.

RAP 6.2 ROUTINE ENVIRONMENTAL RADIOACTIVITY MONITORING REPORTS

Deleted due to move of environmental monitoring to ERMI.

RAP 6.5 COOPERATIVE ENVIRONMENTAL DATA EXCHANGE PROGRAM

Deleted due to move of environmental monitoring to ERMI.

Attachment 2

PROCEDURE FOR PROVISION OF METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION OUTPUTS FOR LICENSED TVA NUCLEAR PLANTS TO THE TECHNICAL ASSISTANCE SECTION OF RADIOLOGICAL HEALTH

1. Purpose

To describe the actions taken by the Assessment Section (AS) of the Air Quality Branch for the quality control and preparation of quarterly Joint Frequency Distribution (JFD) data for access by the Technical Assistance Section (TAS) of Radiological Health. This procedure will also be used for provision of monthly JFD data whenever requested by TAS.

2. Scope

2.1 General

This procedure specifies the steps that need to be taken between the deadline for validation of onsite meteorological data by the Data Management Section (DMS) of the Data Services Branch for each quarter to the approval of Gaseous Effluent Licensing Code (GELC) JFD output results by the AS for inclusion in the semiannual reports to the Nuclear Regulatory Commission (NRC). The steps to be taken pertain mainly to the AS but also reflect interfacing with the DMS, the Muscle Shoals Section (MSS) of the Computer Systems Development Branch, and the TAS.

This procedure is reviewed and approved by the Radiological Assessment Review Committee (RARC).

2.2 Plant Specific

When following this procedure, it includes two types of joint frequency distribution computer programs, the JFD and the Split JFD. The use of these two programs and their inputs differ by plant. The Split JFD program is used when both elevated and ground level releases are assumed, while the JFD program is used when only an elevated or a ground level release is assumed.

The Split JFD program is run for Browns Ferry (and eventually Bellefonte) using:

a. low level wind and low and intermediate level temperature data.

b. intermediate level wind and intermediate and upper level temperature data.

c. an effluent exit velocity of 12.6 m/s.

The JFD program is run for:

a. Browns Ferry (and eventually Bellefonte) using low level wind and low and intermediate level temperature data.

b. Browns Ferry using upper level wind and intermediate and upper level temperature data. The disregarding stability class part of this JFD product is the only part of interest. This product is used in the GELC program as "D" stability class input.

c. Sequoyah (and eventually Watts Bar) using low level wind and low and intermediate level temperature data.

3. References

3.1 "Procedure for Implementation of RETS Administrative Control 6.7.3.A for Browns Ferry Nuclear Plant," Revision 3.3, TVA.

3.2 Regulatory Guide 1.111 (Revision 1), "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," U.S. Nuclear Regulatory Commission, Washington, D.C.

3.3 Regulatory Guide 1.21 (Revision 1), "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," U.S. Nuclear Regulatory Commission, Washington, D.C.

3.4 Offsite Dose Calculation Manual (for each TVA nuclear plant), Radiological Health, TVA.

4. Procedure

4.1 DMS notifies the AS that the quarterly meteorological data have been validated and are accessible. This step is scheduled to be accomplished within 25 days after the end of each calendar quarter. In addition, when monthly JFDs are requested, this step will be scheduled to be accomplished within 25 days after the end of each specified calendar month.

4.2 AS requests that the MSS prepare JFDs of wind speed and wind direction by stability class in the form of computer summary printouts, disk files of JFD output data, and hard copy of the data in the disk files. These are requested for each licensed nuclear plant.

4.3 When the printed outputs are received from MSS, AS reviews both the JFD printouts and the hard copy of the JFD programs output data stored on the disk files for accuracy and reasonableness.

4.4 AS notifies TAS that the JFD output data disk files are ready to be accessed for input to the GELC computer program and provides a copy of the JFD products of step 4.3 to TAS, normally via remote printer in Chattanooga. This step is scheduled to be accomplished within 30 days after the end of each calendar quarter.

4.5 AS files original JFD printouts and the hard copy of data from the JFD output data disk files.

4.6 TAS generates JFD sections as part of the GELC output and checks these for consistency with the AS JFD printouts. TAS then provides the GELC output to AS for consistency for review of the JFD sections.

4.7 Upon verification of consistency, AS approves the GELC JFDs for inclusion in the smiannual report.

4.8 TAS is responsible for final disposition of the computer files of the JFD output data because the disk files will be overwritten with data from each succeeding quarter.

Attachment 3

QUALITY ASSURANCE PROCEDURES FOR RADIOLOGICA', ENVIRONMENTAL MONITORING

PRESENTED TO THE
RADIOLOGICAL ASSESSMENT
REVIEW COMMITTEES
FOR
BROWNS FERRY,
SEQUOYAH,
AND
WATTS BAR

SEPTEMBER 25, 1985

INTRODUCTION

In order to fulfill the nuclear plant technical specification requirements concerning the responsibilities of the Radiological Assessment Review Committee (RARC), a review of the Quality Assurance program procedures related to radiological environmental monitoring has been conducted. The review was tailored to the description of written procedures as it appears in Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment," Revision 1. Paragraph C.3 reads, in part:

> "Written procedures should be prepared, reviewed, and approved for activities involved in carrying out the monitoring program, including sample collection; packaging, shipment, and receipt of samples for offsite analysis; preparation and analysis of samples; maintenance, storage, and use of radioactivity reference standards; calibration and checks of radiation and radioactivity measurement systems; and reduction, evaluation, and reporting of data."

Additionally, the content of the procedures was evaluated against the criteria for procedures contained in ANSI N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," to which TVA is committed. Specifically, the standard requires "Each procedure shall be sufficiently detailed for a qualified individual to perform the required function without direct supervision." The standard also states that "These procedures shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished." No effort was made during this review to critique the technical content of the procedures since this was determined to be outside the scope of this review. Each procedure was evaluated against the above criteria to ensure that quantitative and qualitative limits are prescribed where needed and that the required subject matter is covered to the extent necessary.

PROCEDURES AND MANUALS REVIEWED

In order to accomplish this review and to provide a basis for future reviews, it was necessary to identify those activities that must be controlled by written procedures, and to identify the manuals and procedures that implement these requirements. Because this review is designed to correct a deficiency identified by a quality assurance audit, those procedures that have been previously reviewed by RARC, i.e., those related to offsite dose calculations have been omitted.

The Sequoyah (SQN) and Browns Ferry (BFN) Technical Specifications, and the referenced Offsite Dose Calculation Manual, require that procedures exist for the following analyses on the listed samples.

Gamma Scan:	Particulates, rainwater, soil, surface water, ground water, drinking water, sediment, clams, plankton, milk, fish, vegetation, fruit, vegetables.
Gross Beta:	Particulates, fallout, drinking water, plankton.
^{89}Sr, ^{90}Sr:	Particulate, soil, surface water, drinking water, sediment, clams, plankton, milk.
^{131}I:	Charcoal, milk.
^{3}H:	Surface water, ground water, drinking water.
Direct:	Environmental TLDs.

The quoted description in Regulatory Guide 4.15 requires the following procedures:

> Sample collection, including scheduling, packaging, shipment, and receipt; sample preparation and analyses; maintenance, storage, and use of laboratory standards; calibration and routine checks for the measurement systems; data reporting, and evaluation.

TVA's radiological environmental monitoring program is described in the Environmental Radiological Monitoring Manual (ERMM), which requires sampling and analyses in addition to those necessary for compliance with plant technical specifications. The ERMM also describes the responsibilities of the organizations involved in radiological environmental monitoring. Specifically, the ERMM indicates that Field Operations (FO) should have procedures governing sample collection and preparation, and monitor calibration, maintenance, and repair.

In order to review the procedures described by all of the foregoing, the following manuals, with the listed procedures, were examined. A set of tables cross-referencing required procedures to their designations and source manuals is contained in Attachment A.

Radiation Dosimetry Procedures Manual

ENVIR, R2	Environmental Dosimetry Procedures

Radiological Laboratory Procedures Manual

Fe-01, R0	Radiochemical Determination of 55-Iron in Environmental Samples
G-01, R1	Gross Alpha and Gross Beta Activity Determination
G-03, R1	Gamma Analysis of Environmental Samples
I-01, R1	Radiochemical Determination of 131-Iodine in Milk and Water

I-02, R0	Radiochemical Determination of 131-Iodine in Charcoal Filters
I-03, R0	Iodine-131 Activity Determination in Vegetation
OP-01, R1	Operation of Low-Background Alpha/Beta Counting Instruments
OP-02, R0	Sodium Iodide Single-channel Analyzer Operating Procedure
OP-03, R0	Alpha Spectrometer Operating Procedure
OP-05, R1	Germanium Spectroscopy System Operating Procedure
OP-06, R0	Operation of Liquid Scintillation Counting Instruments
OP-08, R1	Beta/Gamma Coincidence Operating Procedure
QASTD-0006, R0	Instrument Logbook and Control Chart Maintenance
QC-01 R0	Germanium Spectroscopy System Energy Calibration and Count Reproducibility Check
QC-02, R0	Germanium Detector System Background Check
QC-03, R0	Germanium Detector Photopeak Resolution and Peak-to-Compton Ratio Checks
QC-04, R2	Gamma Efficiency Calibration of Germanium Detectors
QC-05, R0	System Linearity Check
QC-07, R0	Multichannel Analyzer Live-Time Clock Check
QC-08, R0	Pole/Zero Cancellation and DC Level Adjustments
QC-09, R0	System Noise Check
QC-10, R1	Alpha and Beta Background and Count Reproducibility Checks
QC-11, R0	131-Iodine Single Channel Analyzer Counting System Energy-Calibration, Count-Reproducibility and Background Level Checks
QC-12, R0	Beta-Gamma Coincidence Counting System Energy-Calibration, Count-Reproducibility and Background Level Checks
QC-13, R1	Alpha/Beta Crossover Checks
QC-14, R0	Determination of Beta and Alpha Counting Plateaus

QC-16, R0 Sodium Iodide Photopeak Resolution Checks

QC-18, R0 Liquid Scintillation Background and Count Reproducibility Check

QC-20, R0 Alpha Spectrometer Energy Calibration and Count Reproducibility Check

QC-21, R0 Alpha Spectrometer Background Check

QC-25, R1 Quality Control of Measuring and Test Equipment

QC-100, R0 Calculation of Lower Levels of Detection for Environmental Analysis

SC-01, R0 Collection of Environmental Monitoring Samples

SP-01, R0 Sample Preparation

Sr-01, R0 Radiochemical Determination of 89, 90-Strontium in Environmental Samples

STD-01, R1 Standardization of Carriers

STD-02, R1 Beta-Gamma Coincidence Standardization for Iodine-131

STD-03, R0 Iodine-131 Single Channel Analyzer Counting System Standardization

STD-04, R1 Handling of Radioactive Sources and Solutions

STD-05, R0 Alpha, Beta, and Strontium Weight-Efficiency Curve Standardization

T-01, R1 Tritium Activity Determination in Urine, Atmospheric Moisture, and Environmental Aqueous Samples

Environmental Radiological Monitoring Manual

Chapter 1, R3 Environmental Radiological Monitoring Programs for TVA Nuclear Power PLants

Chapter 2, R3 Routine Environmental Radioactivity Monitoring Reports

Chapter 3, R3 Source Response Tests of Environmental Radiation Monitors

Chapter 4, R3 Identification of Anomalous Measurements

Chapter 5, R0 Quality Assurance Provisions

ENVR-2, R4 Source Response Tests of Environmental Radiation Monitors

ENVR-3, R4 Sampling Environmental Media

ENVR-4, R4 Identification of Anomalous Measurements

Field Operations NRE Procedures Manual

S&F OPS-FO-NRE-41.1, R2 Collection and Handling of Samples

S&F OPS-FO-NRE-41.2, R2 Water Sample Collection Techniques

S&F OPS-FO-NRE-41.3, R0 Sediment Sample Collection Techniques

Field Operations Instrumentation Manual, Volume 1

NR OPS-FO-NRE-61.1, R0 Servicing and Preventive Maintenance of Meteorological Equipment at Environmental Data Stations

NR OPS-FO-NRE-61.2, R0 Calibration of Wind Direction Sensor Climet Model 012-10

NR OPS-FO-NRE-61.3, R0 Azimuth Alignment of Wind Direction Sensors

NR OPS-FO-NRE-61.4, R0 Calibration of Dewpoint Monitor EG&G Model 220

NR OPS-FO-NRE-61.5, R0 Calibration of Dewpoint Monitor EG&G Model 440

NR OPS-FO-NRE-61.6, R0 Calibration of Raingauge Belfort Model 5915-12

NR OPS-FO-NRE-61.11, R0 Calibration of EDS Data Logger Air Temperature Channel

NR OPS-FO-NRE-61.12, R0 Calibration of EDS Data Logger Wind Speed Channel

NR OPS-FO-NRE-61.13, R0 Calibration of EDS Data Logger Solar Radiation Channels

NR OPS-FO-NRE-61.14, R0 Calibration of EDS Data Logger Wind Direction Channel

NR OPS-FO-NRE-62.1, R0 Servicing and Preventive Maintenance of Radiation Monitors

NR OPS-FO-NRE-62.2, R0 Calibration of ORNL Radiation Monitors, BFNP Only

NR OPS-FO-NRE-62.3, R0 Calibration of ORNL Radiation Monitors, SQNP Only

NR OPS-FO-NRE-62.4, R0	Calibration of Tennelec Radiation Monitors, WBNP Only
NR OPS-FO-NRE-64.41, R0	Servicing of Water Samplers - Radiological Field Operations Biological Resources Procedures Manual
NR OPS-FO-BR-21.6, R0	Sample Collection - Zooplankton
NR OPS-FO-BR-21.11, R0	Qualitative Sample Collection - Benthic Macroinvertibrates
NR OPS-FO-BR-22.1, R0	Receipt and Handling of Biological Samples
NR OPS-FO-BR-22.7, R0	Preparation of Asiatic Clams, Sediment, and Plankton Samples for Radiological Analysis
NR OPS-FO-BR-22.8, R0	Preparation of Fish Samples for Radiological Analysis
NR OPS-FO-BR-23.1, R0	Sampling with Gill Nets
NR OPS-FO-BR-23.3, R0	Sampling with Fyke, Hoop, and Trap Nets
NR OPS-FO-BR-23.9, R0	Electrofishing - Boat Mounted Unit

DETERMINATIONS

All aspects of the radiological environmental monitoring program, from sample collection by various organizations to review of the final analytical results and reporting to the NRC, are well documented by the procedures presently in place. Written procedures exist in the appropriate organizations for each required topical area. Further, errors or omissions, other than typographical, were not found, except for minor program description deficiencies in ENVR-3, R4. This problem had been previously identified by the responsible organization, and the procedure is presently in revision, with the final draft scheduled for review by the RARC at the same time as this review.

No actions by the RARC are recommended as a result of this review.

ATTACHMENT A

BFN Technical Specifications
Sample Analysis Procedures

Sample Type	Analysis	Procedure
Particulate	Gamma	G-03, R1
Particulate	Gross Beta	G-01, R1
Particulate	Sr-89, -90	Sr-01, R0
Charcoal	I-131	I-02, R0
Fallout	Gross Beta	G-01, R1
Rainwater	Gamma	G-03, R1
Soil	Gamma	G-03, R1
Soil	Sr-89, -90	Sr-01, R0
Surface Water	Gamma	G-03, R1
Surface Water	Sr-89, -90	Sr-01, R0
Surface Water	Tritium	T-01, R1
Ground Water	Gamma	G-03, R1
Ground Water	Tritium	T-01, R1
Drinking Water	Gamma	G-03, R1
Drinking Water	Gross Beta	G-01, R1
Drinking Water	Sr-89, -90	Sr-01, R0
Drinking Water	Tritium	T-01, R1
Sediment	Gamma	G-03, R1
Sediment	Sr-89, -90	Sr-01, R0
Clams	Gamma	G-03, R1
Clams	Sr-89, -90	Sr-01, R0
Plankton	Gamma	G-03, R1
Plankton	Gross Beta	G-01, R1
Plankton	Sr-89, -90	Sr-01, R0
Milk	Gamma	G-03, R1
Milk	I-131	I-01, R1
Milk	Sr-89, -90	Sr-01, R0
Fish	Gamma	G-03, R1
Vegetation	Gamma	G-03, R1
Fruit	Gamma	G-03, R1
Vegetables	Gamma	G-03, R1
TLD	N/A	ENVIR, R2 (DOS-3)

NOTE:
All of these procedures are located in the Radiological Laboratory Procedures Manual

SQN Technical Specifications
Sample Analysis Procedures

Sample Type	Analysis	Procedure
Particulate	Gamma	G-03, R1
Particulate	Gross Beta	G-01, R1
Charcoal	I-131	I-02, R0
Surface Water	Gamma	G-03, R1
Surface Water	Tritium	T-01, R1
Ground Water	Gamma	G-03, R1
Ground Water	Tritium	T-01, R1
Drinking Water	Gamma	G-03, R1
Drinking Water	Gross Beta	G-01, R1
Drinking Water	Tritium	T-01, R1
Sediment	Gamma	G-03, R1
Clams	Gamma	G-03, R1
Milk	Gamma	G-03, R1
Milk	I-131	I-01, R1
Fish	Gamma	G-03, R1
Fruit	Gamma	G-03, R1
Vegetables	Gamma	G-03, R1
TLD	N/A	ENVIR, R2 (DOS-3)

NOTE:
All of these procedures are located in the Radiological Laboratory Procedures Manual

Sample Analysis Procedures
Required by
Environmental Radiological Monitoring Manual
(but not plant Technical Specifications)

Sample Type	Analysis	Procedure	Plant
Particulate	Gross Alpha	G-01, R1	BFN
Rainwater	Tritium	T-01, R1	
Rainwater	Sr-89, -90	Sr-01, R0	SQN
Rainwater	Gross Beta	G-01, R1	SQN
Soil	Gross Beta	G-01, R1	SQN
Surface Water	Gross Alpha	G-01, R1	SQN
Surface Water	Gross Beta	G-01, R1	SQN
Ground Water	Gross Beta	G-01, R1	SQN
Sediment	Gross Alpha	G-01, R1	SQN
Sediment	Gross Beta	G-01, R1	SQN
Clams	Gross Alpha	G-01, R1	SQN
Clams	Gross Beta	G-01, R1	SQN
Fish	Gross Alpha	G-01, R1	SQN
Fish	Gross Beta	G-01, R1	SQN
Fish	Sr-89, -90	Sr-01, R0	SQN
Vegetation	Sr-89, -90	Sr-01, R0	
Vegetation	I-131	I-03, R0	BFN
Fruit	Gross Beta	G-01, R1	
Vegetables	Gross Beta	G-01, R1	
Meat/Poultry	Gamma	G-03, R1	
Meat/Poultry	Gross Beta	G-01, R1	
Atmospheric Moisture	Tritium	T-01, R1	SQN

NOTE:
All of these procedures are located in the Radiological Laboratory Procedures Manual

Regulatory Guide 4.15
Recommended Procedures

Abbreviations:		
	RLPM	Radiological Laboratory Procedures Manual
	ERMM	Environmental Radiological Monitoring Manual
	FONRE	Fld Ops NRE Procedures Manual
	FOIM	Fld Ops Instrumentation Manual
	FOBRPM	Fld Ops Biological Resources Procedures Manual
	RDPM	Radiation Dosimetry Procedures Manual

Function	Manual	Procedure
Sample collection	ERMM	Chapter 1, R3
		ENVR-3, R4
	RLPM	SC-01, R0
	FONRE	S&F OPS-FO-NRE-41.1, R2
		S&F OPS-FO-NRE-41.2, R2
		S&F OPS-FO-NRE-41.3, R2
	FOBRPM	NR OPS-FO-BR-21.6, R0
		NR OPS-FO-BR-21.11, R0
		NR OPS-FO-BR-23.1, R0
		NR OPS-FO-BR-23.3, R0
		NR OPS-FO-BR-23.9, R0
Sample packaging, shipment, & receipt	RLPM	SC-01, R0
	FONRE	S&F OPS-FO-NRE-41.1, R2
		S&F OPS-FO-NRE-41.2, R2
		S&F OPS-FO-NRE-41.3, R2
	FOBRPM	NR OPS-FO-BR-22.1, R0
Sample preparation	RLPM	SP-01, R0
	FOBRPM	NR OPS-FO-BR-22.7, R0
		NR OPS-FO-BR-22.8, R0
Laboratory standards: maintenance, storage, & use	RLPM	STD-01, R1
		STD-02, R1
		STD-03, R0
		STD-04, R1
		STD-05, R0

Regulatory Guide 4.15 (con't)
Recommended Procedures

Abbreviations:

RLPM	Radiological Laboratory Procedures Manual
ERMM	Environmental Radiological Monitoring Manual
FONRE	Fld Ops NRE Procedures Manual
FOIM	Fld Ops Instrumentation Manual
FOBRPM	Fld Ops Biological Resources Procedures Manual
RDPM	Radiation Dosimetry Procedures Manual

Function	Manual	Procedure
Equipment calibration & routine operation	RLPM	OP-01, R1
		OP-02, R0
		OP-03, R0
		OP-05, R1
		OP-06, R0
		OP-08, R1
		QASTD-0006, R0
		QC-01, R0
		QC-02, R0
		QC-03, R0
		QC-04, R2
		QC-05, R0
		QC-07, R0
		QC-08, R0
		QC-09, R0
		QC-10, R1
		QC-11, R0
		QC-12, R0
		QC-13, R1
		QC-14, R0
		QC-16, R0
		QC-18, R0
		QC-20, R0
		QC-21, R0
		QC-25, R1
		QC-100, R0
	RDPM	ENVIR, R2
	FOIM	NR OPS-FO-NRE-62.1, R0
		NR OPS-FO-NRE-62.2, R0
		NR OPS-FO-NRE-62.3, R0
		NR OPS-FO-NRE-62.4, R0
		NR OPS-FO-NRE-64.41, R0
Data reduction, evaluation, & reporting	ERMM	Chapter 2, R3
		Chapter 4, R3
		ENVR-4, R4

Regulatory Guide 4.15 (con't)
Recommended Procedures

Abbreviations:

RLPM	Radiological Laboratory Procedures Manual
ERMM	Environmental Radiological Monitoring Manual
FONRE	Fld Ops NRE Procedures Manual
FOIM	Fld Ops Instrumentation Manual
FOBRPM	Fld Ops Biological Resources Procedures Manual
RDPM	Radiation Dosimetry Procedures Manual

Function	Manual	Procedure
Meteorlogical equipment calibration		NR OPS-FO-NRE-61.1, R0
		NR OPS-FO-NRE-61.2, R0
		NR OPS-FO-NRE-61.3, R0
		NR OPS-FO-NRE-61.4, R0
		NR OPS-FO-NRE-61.5, R0
		NR OPS-FO-NRE-61.6, R0
		NR OPS-FO-NRE-61.11, R0
		NR OPS-FO-NRE-61.12, R0
		NR OPS-FO-NRE-61.13, R0
		NR OPS-FO-NRE-61.14, R0

Attachment 4

SEQUOYAH NUCLEAR PLANT OFFSITE DOSE CALCULATION MANUAL (ODCM)

Change 1

DESCRIPTION OF CHANGE:

Sections 3.3 and 3.4 added.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

These sections are added to define the requirements for an interlaboratory comparison program and a land use survey. They are added to the ODCM to document these requirements which appear in the Technical Specifications. This will ensure that all Technical Specification requirements appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 2

DESCRIPTION OF CHANGE:

Table 3.1-1, Section 1.a., under Sampling and Collection Frequency, the phrase is added "(more frequently if required by dust loading)".

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

This change is made to the ODCM to document requirements which appear in the Technical Specifications. This will ensure that all Technical Specification requirements appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 3

DESCRIPTION OF CHANGE:

Table 3.1-1, Section 1.a., under Type and Frequency of Analysis, the first two sentences are changed to read, "Analyze for gross beta radioactivity 24 hours following filter change. Perform gamma isotopic analysis on each sample if gross beta 10 times the yearly mean of control sample."

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

This change is made to the ODCM to document requirements which appear in the Technical Specifications. This will ensure that all Tech Spec requirements appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 4

DESCRIPTION OF CHANGE:

Table 3.1-1, Section, 4.a., under Type and Frequency of Analysis, the requirement now reads "Gamma isotopic and I-131 analysis of each sample. SR-89, 90 once per quarter."

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

This change is made to the ODCM to document requirements which appear in the Technical Specifications. This will ensure that all Technical Specification requirements appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint methodology, and therefore no evaluation of accuracy is necessary.

Change 5

DESCRIPTION OF CHANGE:

Table 3.1-1, Section 4.a., under Sample Locations change "If samples are not available from an area" to "If samples are not available from a milk animal location."

ANALYSIS OR EVLAUATION JUSTIFYING CHANGE:

This change is made to clarify at which locations the vegetation samples are to be collected. These samples are to be obtained at those locations designated as milk animal locations when a milk sample is not available.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 6

DESCRIPTION OF CHANGE:

Table 3.1-1, Section 4, add a section c. Invertebrates (Asiatic clams).

Sample Locations: TRM 496.5
TRM 483.4
TRM 480.8
Sampling and Collection Frequency: At least once per 184 days.
Type and Frequency of Analysis: Gamma scan on edible portion.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

This change is made to the ODCM to document requirements which appear in the Technical Specifications. This will ensure that all Technical Specifications requirements appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 7

DESCRIPTION OF CHANGE:

Table 3.1-1, Section 4.c., changed to Section 4.d. Last sentence under Sample Locations is deleted.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

This change is made to make the ODCM more compatible with the Technical Specifications. The requirement for changing sampling locations based on the land use survey is too time constraining to be accomplished.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETEMRINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 8

DESCRIPTION OF CHANGE:

Table 3.1-1, Section 4.d. changed to 4.e., under Sample Locations, first sentence changed to read "one sample from up to three locations."

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

This change is a clarification of the requirement.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation of setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 9

DESCRIPTION OF CHANGE:

Table 3.1-2 and 3.1-3, reference numbers are added for each sample station and each water supply respectively.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

These reference numbers are added to provide a cross-reference between the Tables and the Figures which appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 10

DESCRIPTION OF CHANGE:

Table 3.2-1 is replaced.

ANALYSIS OR EVALAUTION JUSTIFYING CHANGE:

This change is made to the ODCM to document requirements which appear in the Technical Specifications. This will ensure that all Technical Specification requirements appear in the ODCM.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 11

DESCRIPTION OF CHANGE:

Figures 3.1-1, 3.1-2, 3.1-3, 3.1-4, 3.1-5, 3.11-6, and 3.1-7 are replaced.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

These figures are replaced with figures showing the locations indicated by the reference numbers to be used in the tables. This will allow an easier cross reference between the tables and figures.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodlogy, and therefore, no evaluation of accuracy is necessary.

Change 12

DESCRIPTION OF CHANGE:

Figures 3.1-6 and 3.1-7 have one milk sampling location deleted.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

These milk sampling locations have been deleted due to one dairy going out of business and the relocation of several goats to a location outside the 5-mile range.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change reflects no change to the dose calculation or setpoint determination methodology, and therefore, no evaluation of accuracy is necessary.

Change 13

DESCRIPTION OF CHANGE:

SQN ODCM pages 11, 13, 14, and 16 and RAP 1.2 sections 4.0 and 5.3 have been changed to reduce the action level (by a factor of 2) for which Step 2 is used to calculate monthly gaseous doses. Further, RAP 5.3 has also been revised to include an action level for which the Air Quality Branch will be requested to provide actual monthly meteorological data to Radiological Health for use in the monthly gaseous dose calculations.

ANALYSIS OR EVALUATION JUSTIFYING CHANGE:

A review of SQN monthly versus quarterly doses for 1984 indicated that the monthly methodology was less conservative than the quarterly methodology for three quarters out of the year. This condition was due to the fact that the actual quarterly Chi/Qs were larger (by up to 68 percent) than the historical Chi/Qs used for the monthly calculations. To compensate for this apparent lack of conservatism in the monthly methodology, the action level for performing the Step 2 methodology (specified in the ODCM) was reduced by a factor of 2. Further, an action level has been introduced into the RAP 1.2 for which AQB will be requested to provide Radiological Health with actual monthly meteorological data.

EVALUATION OF ACCURACY OF DOSE CALCULATION OR SETPOINT DETERMINATION:

This change will not affect setpoint determinations. This change will help ensure that the monthly methodology is at least as conservative as the quarterly methodology in estimating gaseous pathway doses.

This section of the ODCM describes the methodology that will be used to perform these monthly calculations.

Doses will first be calculated by a simplified conservative approach (step 1). If these exceed the specification limits, a more realistic calculation will be performed (step 2).

I.2.1 Noble Gases

Step 1

Doses will be calculated using the methodology described in this step. If ~~any~~ limits are exceeded, step 2 will be performed.
50 percent of the applicable
Equations and assumptions for calculating doses from releases of noble gases are as follows:

Assumptions

1. Doses to be calculated are gamma and beta air doses.
2. The highest annual-average X/Q based on licensing meteorology for ground level releases for any offsite location will be used.
3. No credit is taken for radioactive decay.
4. For gamma doses, releases of Xe-131m, Xe-133, Xe-135, Ar-41, and Kr-88 are considered.
5. For beta doses, releases of Xe-131m, Xe-133, Xe-135, Kr-85, and Ar-41 are considered.
6. Dose factors are calculated using data from TVA's nuclide library.
7. The calculations extrapolate doses assuming that only 90 percent of total dose was contributed.
8. A semi-infinite cloud model is used.
9. Building wake effects on effluent dispersion are considered.

3

Equations

For determining the gamma dose to air:

$$D_\gamma = \frac{(X/Q)}{0.9} \quad \frac{10^6}{3.15 \times 10^7} \sum_i Q_i \; DF\gamma_i \qquad (1.12)$$

1 15

Step 2

This methodology is to be used if the calculations in Step 1 yield doses that exceed applicable limits. (50 percent of the)

Equations and assumptions for calculating doses to air from releases of noble gases are as follows:

Assumptions

1. Doses to be calculated are gamma and beta air doses.
2. Dose is to be evaluated at the nearest site boundary point in each sector.
3. Historical onsite meteorological data from the period 1972-1975 will be used. | 9
4. All measured radionuclide releases are considered.
5. A semi-infinite cloud model is used.
6. Radioactive decay is considered.
7. Building wake effects on effluent dispersion are considered.
8. Dose factors are calculated using data from TVA's radionuclide library.

Equations

Equations for calculating air concentration, X, is the same as in Section 1.1.1, step 1, part A. Air concentrations are calculated for the site boundary in each sector.

For determining the gamma dose to air

$$D_{\gamma n} = t_m \sum_i X_{ni} \, DF\gamma_i \qquad (1.16)$$ | 5

where:

$D_{\gamma n}$ = gamma dose to air for sector n, mrad.

X_{ni} = air concentration of radionuclide i in sector n, $\mu Ci/m^3$

$DF_{\gamma i}$ = gamma-to-air dose factor for radionuclide i, mrad/yr per $\mu Ci/m^3$ (Table 1.5). | 1

t_m = time period considered, yr

For determining the beta dose to air:

$$D\beta_n = t_m \sum_i x_{ni} \cdot DF\beta_i \qquad (1.17)$$

where:

$D\beta_n$ = beta dose to air for sector n, mrad.

X_{ni} = air concentration of radionuclide i in sector n, $\mu Ci/m^3$

$DF\beta_i$ = beta to air dose factor for radionuclide i, mrad/yr per $\mu Ci/m^3$

t_m = time period considered, yr

The sector having the highest total dose is then used to check compliance with specification 3.11.2.2.

1.2.2 Iodines and Particulates

Step 1

Doses will be calculated using the methodology described in this step. If any limits are exceeded, step 2 will be performed.

Equations and assumptions for calculating doses from releases of iodines and particulates are as follows:

Assumptions

1. Doses are to be calculated for the infant thyroid from milk ingestion and for the child bone and teen g.i. tract from vegetable ingestion. | 7

2. Real cow locations are considered for the milk pathway and nearest resident-locations with home-use gardens are considered for the vegetable pathway.

3. The highest annual-average D/Q based on 1972 to 1975 meteorological data for ground level releases will be used for ingestion pathway doses. | 6 | 7

4. No credit is taken for radioactive decay.

5. Releases of I-131 are considered for the milk pathway.
   Sr-90 releases are considered for the vegetable pathway to the child bone.
   Co-58 releases are considered for the vegetable pathway to the teen g.i. tract. | 7

6. The calculations extrapolate doses assuming that only 90 percent of the total dose was contributed.

7. The cow is assumed to graze on pasture grass for the whole year.

(If 90 percent of the applicable)

Step 2

This methodology is to be used if the calculations in step 1 yield doses that exceed 50 percent of the applicable limits.

Doses for releases of iodines and particulates shall be calculated using the methodology in Section 1.1.1, step 1, part B, with the following exceptions:

1. All measured radionuclide releases will be used.

2. Dose will be evaluated at real cow locations and will consider actual grazing information.

The receptor having the highest total dose is then used to check compliance with specification 3.11.2.3.

Calendar quarter doses are first estimated by summing the doses calculated for each month in that quarter. Calendar year doses are first estimated by summing the doses calculated for each month in that year. However, if the annual doses determined in this manner exceed or approach the specification limits, doses calculated for previous quarters with the methodology of section 1.4 will be used instead of the doses estimated by summing monthly results. 8

1.3 Dose Projections

In accordance with specification 3.11.2.4, dose projections will be performed. This will be done by averaging the calculated dose for the most recent month and the calculated dose for the previous month and assigning that average dose as the projection for the current month.

1.4 Quarterly and Annual Dose Calculations

A complete dose analysis utilizing the total estimated gaseous releases for each calendar quarter will be performed and reported as required in Specifications 6.9.1.8 and 6.9.1.9. Methodology for this analysis is the same as that described in Section 1.1.1, except that real pathways and receptor locations (Table 1.4) are considered. In addition, meteorological data representative of a ground level release for each corresponding calendar quarter will be used. This analysis will replace the estimates in Section 1.2. 9

At the end of the year an annual dose analysis will be performed by calculating the sum of the quarterly doses to the critical receptors.

1.5 Gaseous Radwaste Treatment System Operation

The gaseous radwaste treatment system (GRTS) described below shall be maintained and operated to keep releases ALARA.

1.5.1 System Description

A flow diagram for the GRTS is given in Figure 1.3. The system consists of two waste-gas compressor packages, nine gas decay tanks, and the associated piping, valves, and instrumentation. Gaseous

SQN ODCM

3.0 Radiological Environmental Monitoring

3.1 Monitoring Program

An environmental radiological monitoring program shall be conducted in accordance with Technical Specification 3.12.1. The monitoring program described in Tables 3.1-1, 3.1-2, and 3.1-3, and in Figures 3.1-1, 3.1-2, 3.1-3, 3.1-4, 3.1-5, and 3.1-6 shall be conducted. Results of this program shall be reported in accordance with Technical Specifications 6.9.1.6 and 6.9.1.7. 12

The atmospheric environmental radiological monitoring program shall consist of 11 monitoring stations from which samples of air particulates and atmospheric radioiodine shall be collected. 12

The terrestrial monitoring program shall consist of the collection of milk, soil, ground water, drinking water, and food crops. In addition, direct gamma radiation levels will be measured in the vicinity of the plant.

The reservoir sampling program shall consist of the collection of samples of surface water, sediment, and fish.

Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, sample unavailability, or to malfunction of sampling equipment. If the latter, every effort shall be made to complete corrective action prior to the end of the next sampling period.

3.2 Detection Capabilities

Analytical techniques shall be such that the detection capabilities listed in Table 3.2-1 are achieved.

3.3 Interlaboratory Comparison Program

Analyses shall be performed on radioactive materials supplied as part of the Interlaboratory Comparison Program which has been approved by the NRC. A summary with the results obtained ~~[illegible]~~ in the interval shall be included in the Annual Radiological Environmental Operating Report for the same period of time.

If analyses are not performed as required, corrective actions taken to prevent a recurrence shall be reported in the Annual Radiological Environmental Operating Rep

3.4 Land Use Census

A land use survey shall be conducted in accordance with the SQN Technical Specification 3/4.12.2. The results of the survey shall be reported in the Annual Radiological Environmental Operating Report.

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TABLE 3.1-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Sample Locations*	Sampling and Collection Frequency	Type and Frequency of Analysis
1. AIRBORNE			
a. Particulates	4 samples from locations (in different sectors) at or near the site boundary (LM 2, 3, 4 and 5)	Continuous sampler operation with sample collection once per 7 days (more frequently if required by dust loading).	Analyze for gross beta radioactivity ≥ 24 hours following filter change. Gross beta at least once per 7 days, gamma isotopic analysis if gross beta 10 times mean of control sample. Composite at least once per 92 days (by location for gamma scan.
	4 samples from communities approximately 6-10 miles distance from the plant (PM 2, 3, 8, and 9)		
	3 samples from control locations greater than 10 miles from the plant (RM 1, 3, and 4)		
b. Radioiodine	Samples from same locations as Local (LM) and Remote (RM) air particulates	Continuous sampler operation with filter collection once per 7 days	^{131}I at least once per 7 days

*Sample locations are shown on Figures 3.1-1, 3.1-2, 3.1-3, 3.1-4, 3.1-5, and 3.1-6.
**Samples shall be collected by collecting an aliquot at intervals not exceeding 2 hours.

TABLE 3.1-1 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Sample Locations*	Sampling and Collection Frequency	Type and Frequency of Analysis
c. Soil	Samples from same locations as air particulates	Once per 3 years	Gamma scan, $^{80,90}Sr$ once each 3 years
2. DIRECT RADIATION	2 or more dosimeters placed at 10 of the air particulate sampling stations (LM-3, LM-4, LM-5, PM-2, PM-3, PM-8, PM-9, RM-1, RM-3, and RM-4)	Once per 92 days	Gamma dose at least once per 92 days
	2 or more dosimeters placed at each of at least 30 other locations. (Figures 3.1-2 and 3.1-5)		
3. WATERBORNE			
a. Surface (Figure 3.1-4)	TRM 497.0 TRM 483.4 TRM 473.2	Collected by automatic sequential-type sampler** with composite samples collected over a period of ≤ 31 days	Gamma scan of each composite sample. Composite for tritium analysis at least once per 92 days
b. Ground (Figure 3.1-2)	1 sample adjacent to plant (location W-6)	At least once per 92 days	Gross beta, gamma scan and tritium analysis at least once per 92 days
	1 sample from ground water source upgradient		

TABLE 3.1-1 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Sample Locations*	Sampling and Collection Frequency	Type and Frequency of Analysis
c. Drinking (Table 3.1-3) (Figure 3.1-4)	1 sample at the first potable surface water supply downstream from the plant (TRM 473.0)	Collected by automatic sequential-type sampler** with composite sample collected over a period of ≤ 31 days	Gross beta and gamma scan of each composite sample. Composite for tritium, $^{80,90}Sr$ at least once per 92 days
	1 sample at the next 2 downstream potable surface water suppliers (greater than 10 miles downstream) (TRM 470.5 and 466.3)	Grab sample once per 31 days	
	2 samples at control locations (TRM 497.0 and TRM 503.8)	Samples collected by automatic sequential-type sampler with composite sample collected over a period of ≤ 31 days	
d. Sediment	TRM 496.3 TRM 483.4 TRM 480.~~8~~8 TRM 472.6	At least once per 184 days	Gamma scan of each sample
e. Shoreline Sediment (Figure 3.1-4)	TRM 485 TRM 478 TRM 477	At least once per 184 days	Gamma scan of each sample
4. INGESTION			Gamma isotopic and ^{131}I analysis of each sample.
a. Milk (Figure 3.1-6)	1 sample from milk producing animals in each of 1-3 areas indicated by the cow census where doses are calculated to be highest. If samples	At least once per 15 days	~~^{131}I~~ analysis semi-monthly on collection. Gamma scan at least once per 31 days $^{89,90}Sr$ once per quarter.

TABLE 3.1-1 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Sample Locations*	Sampling and Collection Frequency	Type and Frequency of Analysis
	are not available from an area, doses to that area will be estimated by projecting the doses from concentrations detected in milk from other sectors or by sampling vegetation where milk is not available (Table 3.1-1, 4.d) At least 1 sample from a control location.		once per quarter
b. Fish	1 sample each from Nickajack, Chickamauga, and Watts Bar Reservoirs	At least once per 184 days. One sample of each of the following species: Channel Cattish White Crappie Smallmouth Buffalo	Gamma scan on edible portion
d. Food Products	1 sample each of principal food products grown at private gardens and/or farms in the immediate vicinity of the plant. Selection of locations to be based on the land use census.	At least once per 365 days at time of harvest. The types of foods available for sampling will vary. Following is a list of typical foods which may be available:	Gamma scan on edible portion

TABLE 3.1-1 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Sample Locations*	Sampling and Collection Frequency	Type and Frequency of Analysis
		Cabbage and/or Lettuce Corn Green beans Potatoes Tomatoes	
d. Vegetation (Figure 3.1-6)	1 sample from ~~each~~ of three locations of milk-producing animals where a sample of milk is not available and at each air particulate station	At least once per 31 days	Gamma scan at least once per 31 days. ^{89}Sr and ^{90}Sr analysis at least once per 92 days

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TABLE 3.1-2

ATMOSPHERIC AND TERRESTRIAL MONITORING STATION LOCATIONS

SEQUOYAH NUCLEAR PLANT

Reference Number	Sample Station	Location Approximate Distance and Direction from Plant
2.	LM-2 SQ	0.8 mile N
3.	LM-3 SQ	1.3 mile SSW
4.	LM-4 SQ	1.5 miles NE
5.	LM-5 SQ	1.7 miles NNE
7	PM-2 SQ (Chester Frost Park)	3.8 miles SW
8	PM-3 SQ (Daisy)	5.6 miles W
9	PM-8 SQ (Harrison)	8.7 miles SSW
10	PM-9 SQ (Lakeside)	2.7 miles WSW
11	RM-1 SQ (Chattanooga, Riverside)	16.7 miles SW
13	RM-3 (Cleveland)	11.3 miles ESE
14	RM-4 (Dunlap)	19.5 miles WNW
16	Farm L	2.8 miles NNE
17	Farm M	3.5 miles NNE
18	Farm J	1.3 miles W
19	Farm HW	1.3 miles NW
20	Farm EM	2.5 miles N
21	Farm BR	2.3 miles SSW
22	Farm LE	3.5 miles S
23	Farm GO	1.7 miles E
24	Farm SU	3.3 miles SSE
25	Farm C (control)	16.0 miles NE
26	Farm B (control)	43.0 miles NE
27	Farm S (control)	12.0 miles NNE

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TABLE 3.1-3

PUBLIC WATER SUPPLIES SAMPLED IN ENVIRONMENTAL MONITORING PROGRAM

Reference Number	Water Supply	Distance from Site	Source	Sampling Frequency
31	Chattanooga (C. F. Industries)	11.5	Tennessee River (mile 473.0)	Monthly[a]
32	Chattanooga (E. I. DuPont and Company)	14.0	Tennessee River (mile 470.5)	Monthly
33	Chattanooga	19.0	Tennessee River (mile 465.3)	Monthly
34	b	12.5	Tennessee River (mile 497.0)	Monthly
35	Dayton	19.3	Tennessee River (mile 503.8)	Monthly[a]

a. Sample collected by an automatic sequential-type water sampler with composite sample taken monthly.

b. Sample collected at 473.0 is taken from raw water supply; therefore, the upstream surface water sample at 497.0 will be considered a control sample for drinking water.

TABLE 3.2-1

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS

A. Specific Analyses[a]

NOMINAL LOWER LIMIT OF DETECTION (LLD)

	Air Particulates pCi/m^3	Charcoal pCi/m^3	Fallout mCi/km^2	Water pCi/l	Vegetation and grain pCi/g, dry
Gross α	0.005		0.05	2.0	0.05
Gross β	0.01			2.3	0.20
^{3}H				330	
^{131}I		0.01			
^{89}Sr	0.005			10	0.25
^{90}Sr	0.001			2	0.05

	Soil and Sediment pCi/g, dry	Fish clam flesh, plankton, pCi/g, dry	Clam shells pCi/g, dry	Foods, meat, poultry pCi/kg, wet	Milk pCi/l
Gross α	0.35	0.1	0.7		
Gross β	0.70	0.1	0.7	25	
^{3}H					
^{131}I					0.5
^{89}Sr	1.5	0.5	5.0	40	10
^{90}Sr	0.3	0.1	1.0	8	2

Replace with attached Table

TABLE 3.2-1 (Continued)

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS

B. Gamma Analyses[b]

NOMINAL LOWER LIMIT OF DETECTION (LLD)

	Air particulates pCi/m^3	Water and milk pCi/l	Vegetation and grain pCi/g, dry	Soil and sediment pCi/g, dry	Fish pCi/g, dry
^{141,144}Ce					
^{144}Ce	0.02	33	0.22	0.06	0.06
^{51}Cr	0.03	44	0.47	0.10	0.10
^{131}I	0.01	8	0.09	0.02	0.02
^{103,105}Ru					
^{106}Ru	0.03	40	0.51	0.11	0.11
^{134}Cs	0.02	26	0.33	0.08	0.08
^{137}Cs	0.01	5	0.06	0.02	0.02
^{95}Zr-Nb					
^{95}Zr	0.01	10	0.11	0.03	0.03
^{95}Nb	0.01	5	0.05	0.01	0.01
^{58}Co	0.01	5	0.05	0.01	0.01
^{54}Mn	0.01	5	0.05	0.01	0.01
^{65}Zn	0.01	9	0.11	0.02	0.02
^{60}Co	0.01	5	0.06	0.01	0.01
^{40}K					
^{140}Ba-La					
^{140}Ba	0.02	25	0.34	0.07	0.07
^{140}La	0.01	7	0.08	0.02	0.02

	Clam Flesh and plankton pCi/g, dry	Clam shells pCi/g, dry	Foods, tomatoes potatoes, etc. pCi/kgm, wet	Meat and poultry pCi/kgm, wet
^{141,144}Ce				
^{144}Ce	0.35	0.06		
^{51}Cr	0.56	0.10	33	40
^{131}I	0.07	0.02	44	90
^{103,105}Ru			8	20
^{106}Ru	0.74	0.11		
^{134}Cs	0.48	0.08	40	90
^{137}Cs	0.08	0.02	26	50
^{95}Zr-Nb			5	15
^{95}Zr	0.15	0.03		
^{95}Nb	0.07	0.01	10	20
^{58}Co	0.07	0.01	5	15
^{54}Mn	0.08	0.01	5	15
^{65}Zn	0.17	0.02	5	15
^{60}Co	0.08	0.01	9	20
^{40}K			5	15
^{140}Ba-La				
^{140}Ba	0.30	0.07	25	50
^{140}La	0.10	0.02	7	15

TABLE 3.2-1 (Continued)

TABLE NOTATIONS

a. All LLD values for isotopic separations are calculated by the method developed by Pasternak and Harley as described in HASL-300. Factors such as sample size, decay times, chemical yield, and counting efficiency may vary for a given sample; these variations may change the LLD value for the given sample. The assumption is made that all samples are analyzed within one week of the collection date.

The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66\ s_b}{E\ V\ 2.22\ y\ \exp(-\lambda\ \Delta\ t)}$$

where

LLD is the lower limit of detection as defined above (as pCi per unit mass or volume)

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute)

E is the counting efficiency (as counts per transformation)

V is the sample size (in units of mass or volume)

2.22 is the number of transformation per minute per picocurie

Y is the fractional radiochemical yield (when applicable)

λ is the radioactive decay constant for the particular radionuclide

t is the elapsed time between sample collection (or end of the sample collection period) and time of counting

The value of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance.

TABLE 3.2-1 (Continued)

TABLE NOTATIONS

b. The Ge(Li) LLD values are calculated by the methods developed by Pasternak and Harley as described in HASL-300. These LLD values are expected to vary depending on the activities of the components in the samples. These figures do not represent the LLD values achievable on given samples. Water is counted in either a 0.5-L or 3.5-L Marinelli beaker. Solid samples such as soil, sediment, vegetation and clam shells are counted in a 0.5-L Marinelli beaker as dry weight.. The average dry weight is 400-500 grams (125g for vegetation). Air filters and very small volume samples are counted in petrie dishes centered in the detector endcap. The counting system consists of a ND-6620 multichannel analyzer and a germanium detector having an efficiency of at least 20 percent. The counting time is normally 4-8 hours. All spectral analysis is performed using the software provided with the ND-6620 or the computer program HYPERMET. The assumption is made that all samples are analyzed within one week of the collection date.

c. The LLD values listed in this table may change slightly after routine evaluation of background, sample size, counting times, etc.. The most recently calculated values will be included in the Annual Radiological Environmental Operating Report.

(sheet 1 of 3)

3.2-1

TABLE ~~4.12-1~~

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION (LLD)[a,c]

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg,wet)	Milk (pCi/l)	Food Products (pCi/kg,wet)	Sediment (pCi/kg, dry)
gross beta	4	1×10^{-2}	N.A.	N.A.	N.A.	N.A.
H-3	2000	N.A.	N.A.	N.A.	N.A.	N.A.
Mn-54	15	N.A.	130	N.A.	N.A.	N.A.
Fe-59	30	N.A.	260	N.A.	N.A.	N.A.
Co-58,60	15	N.A.	130	N.A.	N.A.	N.A.
Zn-65	30	N.A.	260	N.A.	N.A.	N.A.
Zr-95	30	N.A.	N.A.	N.A	N.A.	N.A.
Nb-95	15	N.A.	N.A.	N.A.	N.A.	N.A.
I-131	1[b]	7×10^{-2}	N.A.	1	60	N.A.
Cs-134	15	5×10^{-2}	130	15	60	150
Cs-137	18	6×10^{-2}	150	18	80	180
Ba-140	60	N.A.	N.A.	60	N.A.	N.A.
La-140	15	N.A.	N.A.	15	N.A.	N.A.

SEQUOYAH—UNIT—2.

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TABLE 4.12-1 (Continued)

TABLE NOTATION

a. The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66 \cdot s_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

Where:

LLD is the "a priori" lower limit of detection as defined above (as picocurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per transformation),

V is the sample size (in units of mass or volume),

2.22 is the number of transformation per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt is the elapsed time between sample collection (or end of the sample collection period) and time of counting (for environmental samples, not plant effluent samples).

The value of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples (e.g., potassium-40 in milk samples). Typical values of E, V, Y and Δt shall be used in the calculations.

3, 2-1

TABLE 4.12-1 (Continued)

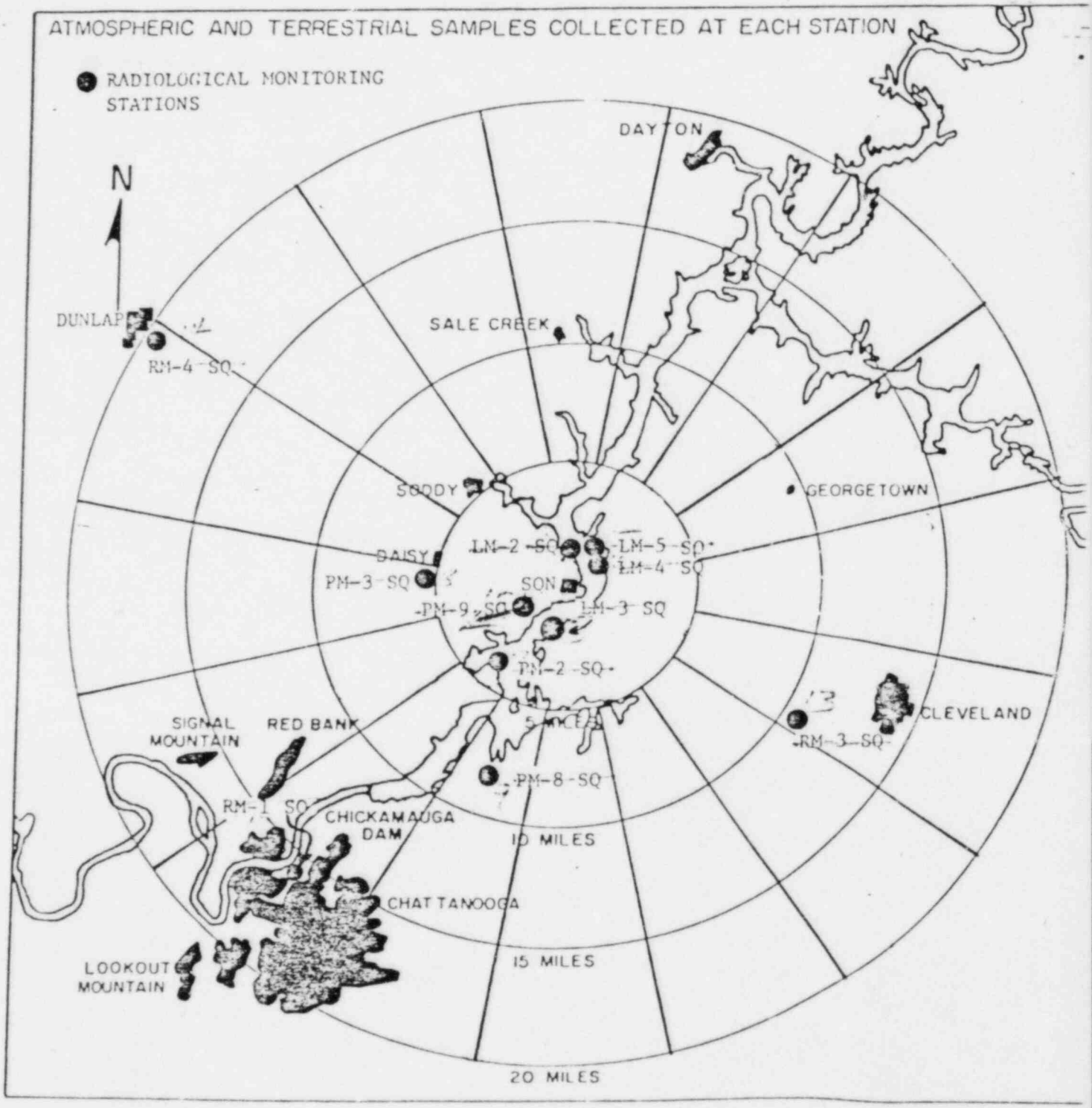
TABLE NOTATION

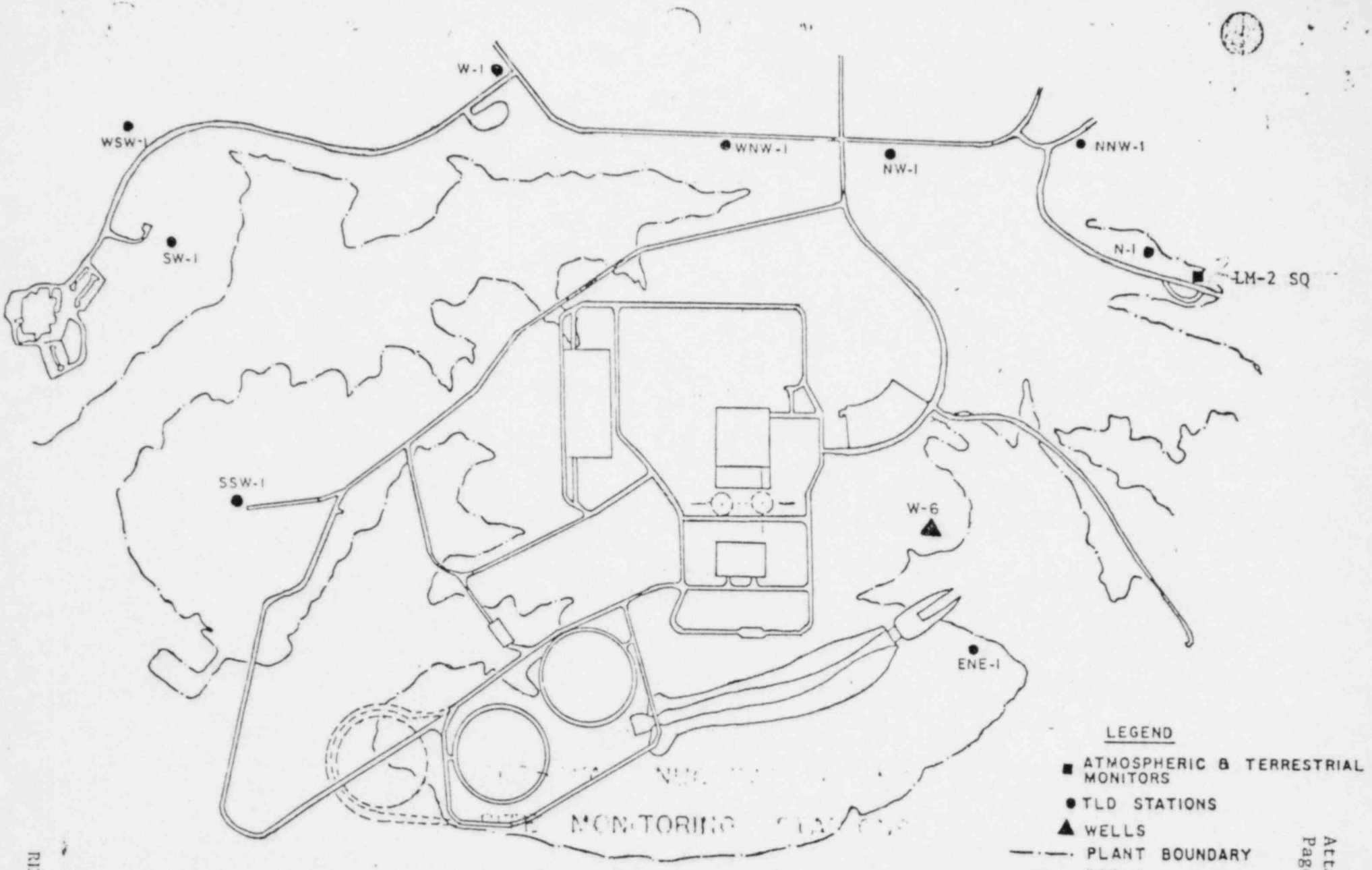
b. The LLD for analysis of drinking water and surface water samples shall be performed by gamma spectroscopy at approximately 15 pCi/ℓ. If levels greater than 15 pCi/ℓ are identified in surface water samples downstream from the plant, or in the event of an unanticipated release of I-131, drinking water samples will be analyzed at a LLD of 1.0 pCi/ℓ for I-131.

c. Other peaks which are measurable and identifiable, together with the radionuclides in Table 4.12-1, shall be identified and reported.

Figure 3.1-1

ATMOSPHERIC AND TERRESTRIAL MONITORING NETWORK





SEQUOYAH NUCLEAR PLANT
SITE MONITORING STATIONS

Figure 3. 1 - 2

RIV 12

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Figure 3.1-3

LOCAL MONITORING STATIONS
SEQUOYAH NUCLEAR PLANT

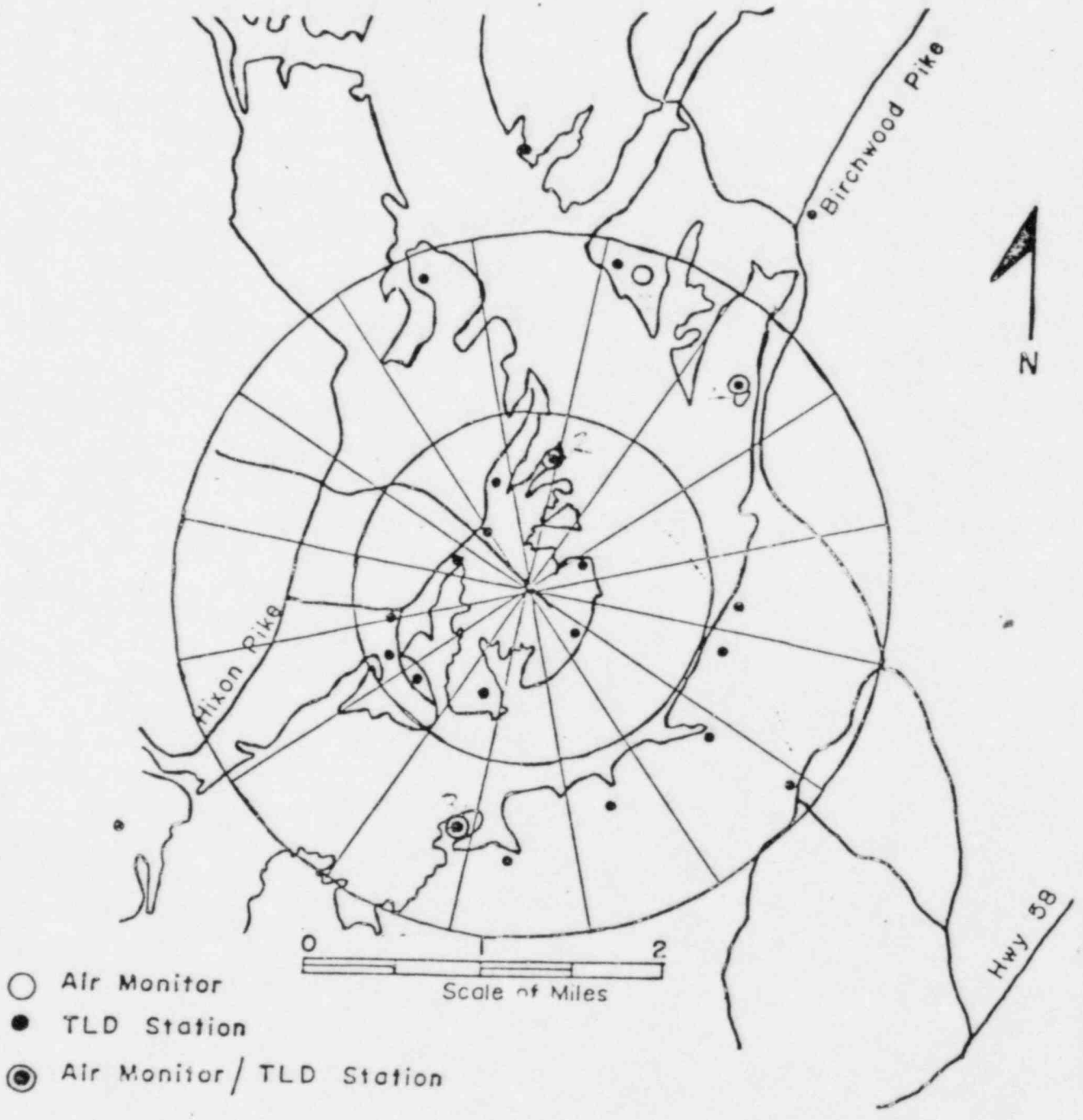


Figure 3.1-4

RESERVOIR MONITORING NETWORK
SEQUOYAH NUCLEAR PLANT

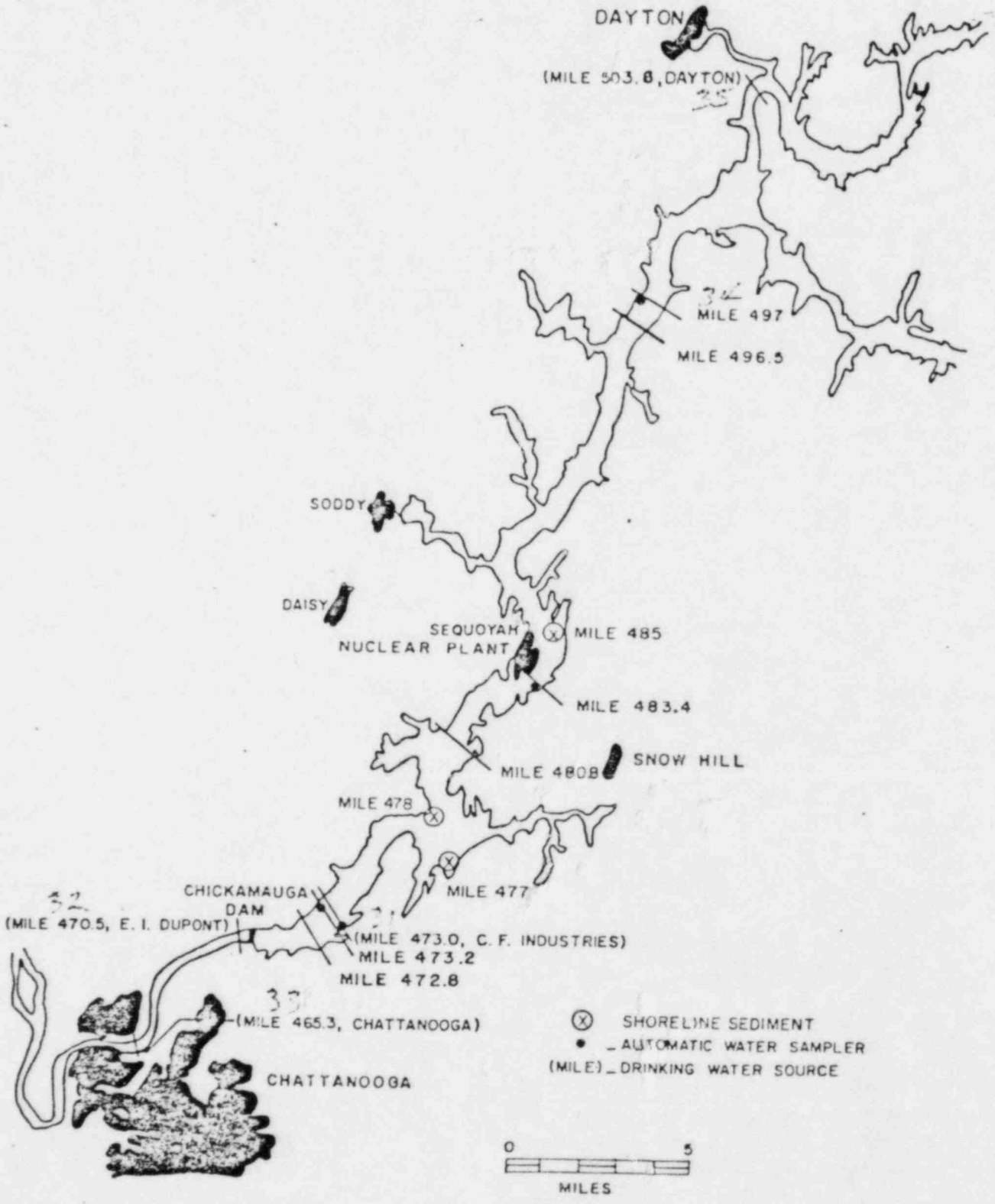
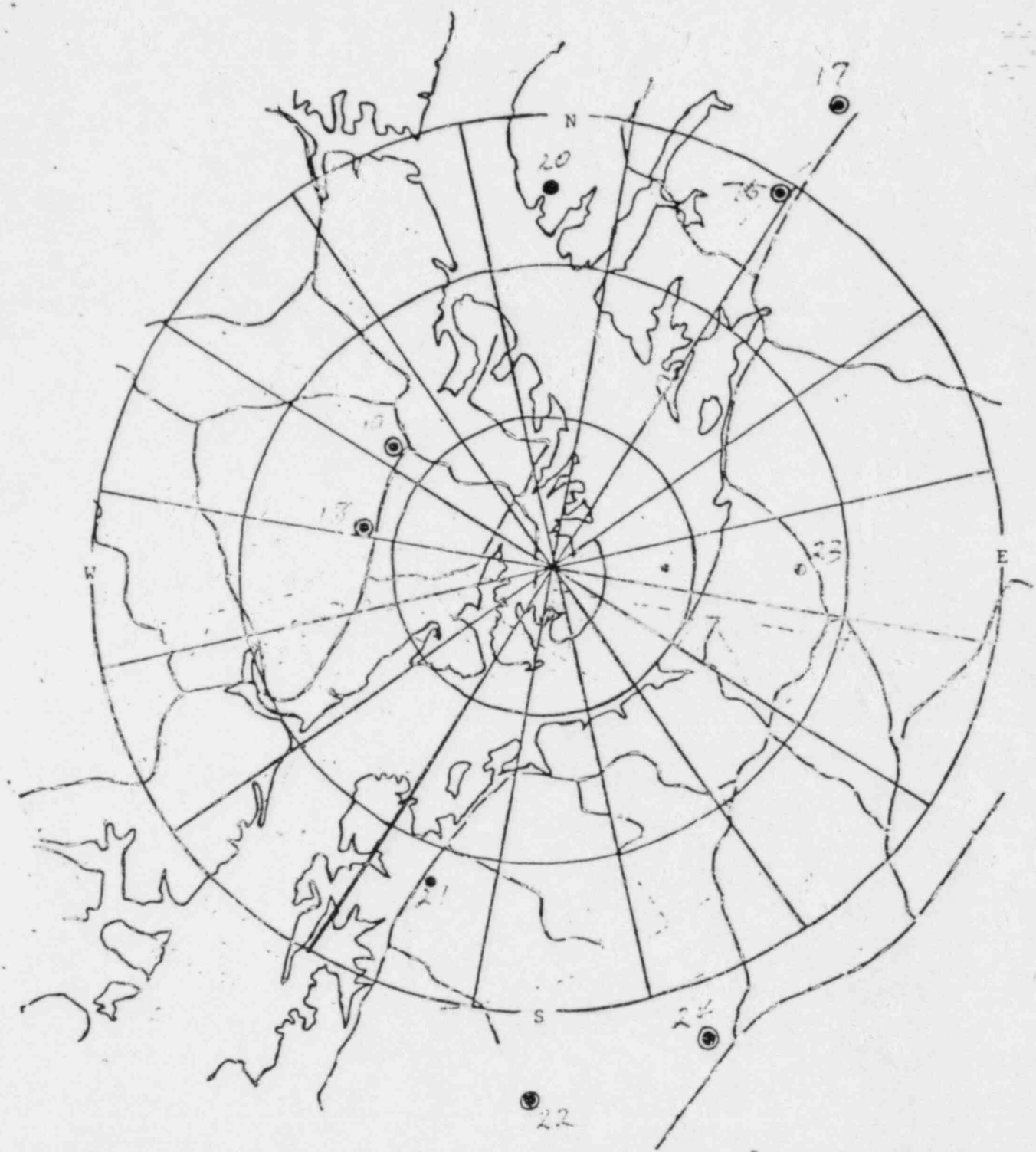


FIGURE 3.1-5

SQN TLD STATIONS

Figure 3.1-6

MILK AND VEGETATION SAMPLING LOCATIONS



● Milk and vegetation collected

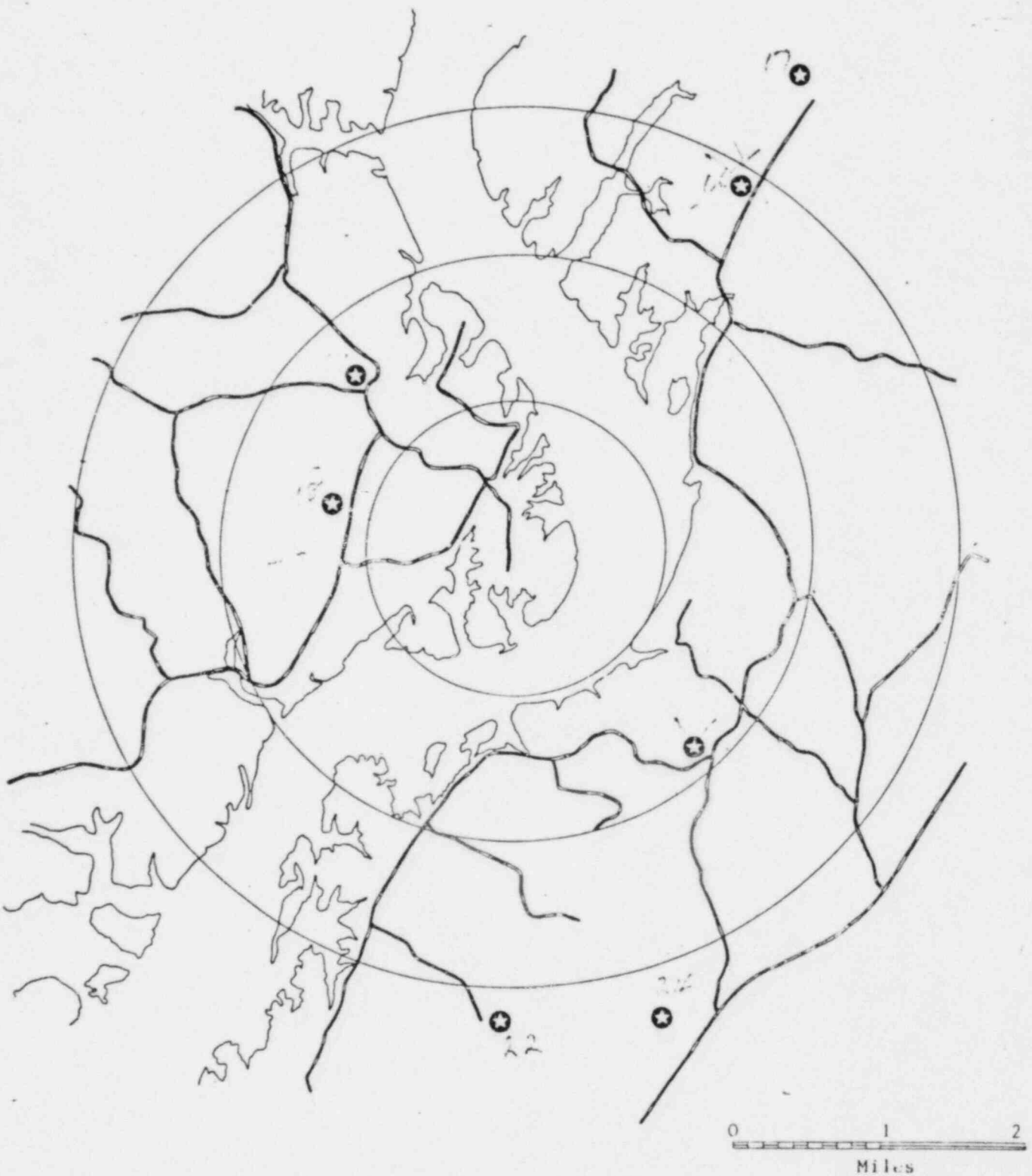
● Vegetation only collected

Note: Vegetation is also collected at each air monitoring station. See Figure 3.1-1.

REV 12

Figure 3.1 - 7

MILK SAMPLING LOCATIONS



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TENNESSEE VALLEY AUTHORITY
Sequoyah Nuclear Plant
P. O. Box 2000
Soddy-Daisy, Tennessee 37379

March 12, 1986

Nuclear Regulatory Commission
Office of Management Information
and Program Control
Washington, DC 20555

Gentlemen:

SEQUOYAH NUCLEAR PLANT - MONTHLY OPERATING REPORT - FEBRUARY 1986

Enclosed is the February 1986 Monthly Operating Report to NRC for Sequoyah Nuclear Plant.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

P. R. Wallace

P. R. Wallace
Plant Manager

Enclosure
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