

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

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December 16, 1983

Docket No. 50-423

A03541

Director of Nuclear Reactor Regulation  
Mr. B. J. Youngblood  
Licensing Branch No. 1  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

References: (1) B. J. Youngblood letter to W. G. Counsil, Request for  
Additional Information for Millstone Nuclear Power Station,  
Unit No. 3, dated October 3, 1983.

Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit No. 3  
Response to Question 420.06

Attached is the response to the question 420.06 contained in Reference (1).

The response contained herein is being provided as it will appear in Amendment 7  
which is scheduled to be submitted approximately by the end of February, 1984.

If you have any concerns related to commitments contained herein or any  
questions related to our responses, please contact our Licensing representative  
directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL

By NORTHEAST NUCLEAR ENERGY COMPANY, Their Agent

W. G. Counsil  
W. G. Counsil  
Senior Vice President

C. F. Sears  
By: C. F. Sears  
Vice President Nuclear and  
Environmental Engineering

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Table 420.6-1

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ACCIDENT MONITORING INSTRUMENTATION

Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication			Comments
												TSC Indica.	EOF Indica.		

REACTIVITY CONTROL (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)

## 1. Neutron Flux

NRC	1	10 <sup>-6</sup> -100% Full Power	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS		
Utility	1	10 <sup>-8</sup> -100% Full Power	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS		

## 2. Control Rod Position

NRC	3	Full In	No	No	No	FL	No	NS	NS	NS	NS	NS		See Section 7.7.1.3.2 of the FSAR
Utility	3	Full In	No	No	No	FL	No	CS	Non IE	Digital Display System	ERIS	ERIS		

## 3. RCS Soluble Boron Concentration

NRC	3	0 to 6000 PPM	No	No	No	FL	No	NS	NS	NS	NS	NS		
Utility														

See Note #3 (\*)

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
4. RCS Cold Leg Water Temp.	NRC	3	50-400°F	No	No	No	FL	No	NS	NS	NS	NS	NS	
	Utility	1	0-700°F	Yes	Yes	Yes	FL	No	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	
CORE COOLING (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)														
5. RCS Hot Leg Water Temp	NRC	1	50-750°F	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0-700°F	Yes	Yes	Yes	FL	No	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	See Note #5
6. RCS Cold Leg Water Temp.	NRC	1	50-750°F	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0-700°F	Yes	Yes	Yes	FL	No	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	See Note #6
7. RCS Pressure	NRC	1	0-3000 PSIG	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0-3000 PSIG	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	\$

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	Q <sub>0</sub>	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
8. Core Exit Temperature	NRC	3	200°F to 2300°F	No	No	No	FL	No	NS	Non IE	NS	NS	NS	
	Utility	1	200°F to 2300°F	Yes	Yes	Yes	FL	Yes	CS	IE	ICC SPDS	ERIS	ERIS	
9. Coolant Level in Reactor	NRC	1	Bottom of Core to Top of Vessel	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	2	Top of core to reactor vessel head	Yes	Yes	Yes	FL	Yes	CS	IE	ICC SPDS	ERIS	ERIS	Core Inventory Monitor CE HJTC System See Note #9
10. Degrees of Subcooling	NRC	2	200°F subcooling to 35°F superheat	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	2	200°F subcooling to 35°F superheat	Yes	Yes	Yes	FL	Yes	CS	IE	ICC SPDS	ERIS	ERIS	

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	BOF Indica.	
MAINTAINING REACTOR COOLANT SYSTEM INTEGRITY (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)														
11. RCS Pressure	NRC	1	0 to 3000 PSIG	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0 to 3000 PSIG	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. REC SPDS	ERIS	ERIS	\$
12. Containment Sump Water Level (WR)	NRC	1	0 to 600,000 GAL	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0 to 1,500,000 GAL 2 3/4 in. above bottom of sump to EL. -10'8"	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	See Note #12
13. Containment Sump Water Level (NR)	NRC	2	Sump	NS	NS	NS	FL	No	NS	NS	Yes	NS	NS	
	Utility	2	2 3/4 in. above bottom of sump to EL. -24'-0"	Yes	Yes	Yes	FL	No	CS	Non-IE	Cont.	--	--	See Note #13 (*)

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Let.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	EOF Indica.	Comments
14. Containment Pressure														
	NRC	1	0 to Dgn. Press	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0 to 60 PSIA	Yes	Yes	Yes	FL	Yes	AB	IE	Cont. REC SPDS	ERIS	ERIS	Design pressure 45 PSIG
MAINTAINING CONTAINMENT INTEGRITY (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 REV. 2 for variable uses.)														
15. Containment Isolation Valve Position														
	NRC	1	Clsd.-Not Clsd.	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	2	Clsd.-Not Clsd.	Yes	Yes	Yes	FL	No	In/Out CS	IE	Cont. SPDS	ERIS	ERIS	See Note #15
16. Containment Pressure														
	NRC	1	10 PSIA to design pressure	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0 to 60 PSIA	Yes	Yes	Yes	FL	Yes	AB	IE	Cont. Rec. SPDS	ERIS	ERIS	Design pressure = 45 PSIG

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FUEL CLADDING (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)

17. Core Exit  
Temperature

NRC	1	200°F to 2300°F	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
Utility	1	200°F to 2300°F	Yes	Yes	Yes	FL	Yes	CS	IE	ICC SPDS	ERIS	ERIS	

18. Radioactivity  
Concentration  
Circulating  
Primary Coolant

NRC		$\frac{1}{2}$ Tech Spec limit to 100 x Tech Spec limit, R/hr	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
Utility													

See Note #18 (\*\*)

19. Analysis of  
Primary Coolant  
(Gamma Spectrum)

NRC	3	10 $\mu$ c to 10 Ci/gm	No	No	No	FL	No	NS	Non IE	NA	NS	NS	
Utility	3	10 $\mu$ c to 10 Ci/gm	No	No	No	FL	No	NA	NON IE	NA	No	No	



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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication			Comments
												TSC Indica.	EOF Indica.		
REACTOR COOLANT PRESSURE BOUNDARY (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)															
20. RCS Pressure	NRC	1	0 to 3000 PSIG	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS		
	Utility	1	0 to 3000 PSIG	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	\$	
21. Containment Pressure	NRC	1	5 PSIA to design pressure	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS		
	Utility	1	0 to 60 PSIA	Yes	Yes	Yes	FL	Yes	AB	IE	Cont. Rec. SPDS	ERIS	ERIS	Subatmospheric Containment Design pressure = 45 PSIG	
22. Containment Sump Water Level	NRC	1	0 to 600,000 GAL	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS		
	Utility	1	0 to 1.5 x 10 <sup>6</sup> GAL	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS		

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
23. Containment Area Radiation	NRC	3	1 to 10 <sup>4</sup> R/hr	No	No	No	FL	No	NS	Non IE	NS	NS	NS	
	Utility	1	1 to 10 <sup>7</sup> R/hr	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS RMS	ERIS	ERIS	
24. Effl. Radio- activity-Noble Gas Effl. From Condenser Air Re- moval Sys. Exhaust	NRC	3	10 <sup>-6</sup> to 10 <sup>-2</sup> μCi/cc	No	No	No	FL	No	NS	Non IE	NS	NS	NS	
	Utility	3	10 <sup>-6</sup> to 10 <sup>-1</sup> μCi/cc	No	No	No	FL	No	TB	Non IE	RMS SPDS	ERIS	ERIS	
CONTAINMENT (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)														
25. RCS Pressure	NRC	1	0 to 3000 PSIG	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0 to 3000 PSIG	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	\$

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												TSC Indica.	EOF Indica.	
26. Containment Hydrogen Concentration	NRC	1	0-10% (capable of operating from 10 PSIA to max. design pressure)	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0-10% (.8 to 5 atm sensor pressure)	Yes	Yes	Yes	FL	Yes	HRB	IE	Cont. Rec. SPDS	ERIS	ERIS	
27. Containment Pressure	NRC	1	10 PSIA to 3 x design pressure	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	1	0 to 200 PSIA	Yes	Yes	Yes	FL	Yes	AB	IE	Cont. SPDS	ERIS	ERIS	Design pressure = 45 PSIG
28. Containment Effl. Radioactivity- Noble Gases from -Ventilation Vent (including cont. purge)	NRC	2	10 <sup>-6</sup> to 10 <sup>3</sup> μCi/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	10 <sup>-7</sup> to 10 <sup>5</sup> μCi/cc	Yes	Yes	Yes	FL	No	AB	IE	Cont. Rec. SPDS	ERIS	ERIS	

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication			Comments
												TSC Indica.	EOF Indica.	Indica.	
29. Radiation Exposure Rate (Inside bldgs or areas which are in direct contact with containment where penetrations and hatches are located.)	NRC	2	10 <sup>-1</sup> to 10 <sup>4</sup> R/hr	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility														See Note #29 (*)
30. Effluent Radioactivity Supplementary Leak Collection and Release System	NRC	2	10 <sup>-6</sup> to 10 <sup>3</sup> μCi/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility	2	10 <sup>-7</sup> to 10 <sup>5</sup> μCi/cc	Yes	Yes	Yes	FL	No	AB	IE	Cont. Rec. SPDS	ERIS	ERIS		
RESIDUAL HEAT REMOVAL SYSTEM (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)															
31. RHR System Flow	NRC	2	0 to 110% design flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility	2	0 to 5000 gpm	Yes	Yes	Yes	FL	No	ESFB	Highly Reliable	Cont. SPDS	ERIS	ERIS	Design flow = 4000 gpm	

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
32. RHR Heat Exchang. Outlet Temp.	NRC	2	32 to 350°F	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	50 to 400°F	Yes	Yes	Yes	FL	No	ESFB	Highly Reliable	Cont. Rec. SPDS	ERIS	ERIS	

SAFETY INJECTION SYSTEMS (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)

33. Accumulator Tank Level	NRC	2	10% to 90% volume	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility													See Note #33 (*)
34. Accumulator Tank Pressure	NRC	2	0 to 750 psig	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	0 to 700 psia	Yes	Yes	Yes	FL	No	CS	Highly Reliable	Cont. SPDS	ERIS	ERIS	Normal pressure = 650 PSIG

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
35. Accumulator Isolation Valve Position	NRC	2	Closed or Open	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	Closed or Open	Yes	Yes	Yes	FL	No	CS	Highly Reliable	Cont.	No	No	
36. Boric Acid Charging Flow	NRC	2	0 to 110% design flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility													See Note #36 (**)
37. Flow in HPI System	NRC	2	0 to 110% design flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	0 to 1000 gpm	Yes	Yes	Yes	FL	No	AB	Highly Reliable	Cont. SPDS	ERIS	ERIS	Design flow = 800 gpm

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Let.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
38. Flow in LPI System	NRC	2	0 to 110% design flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	0 to 800 gpm	Yes	Yes	Yes	FL	No	AB	Highly Reliable	Cont. SPDS	ERIS	ERIS	Design flow = 650 gpm
39. Refueling Water Storage Tank Level	NRC	2	Top to Bottom	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	Top to Bottom 0 to 100% of span	Yes	Yes	Yes	FL	Yes	ESFB	IE	Cont. Rec. SPDS	ERIS	ERIS	
PRIMARY COOLANT SYSTEM (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)														
40. Reactor Coolant Pump Status	NRC	3	Motor Current	No	No	No	FL	No	FL	Non IE	NS	NS	NS	
	Utility													See Note #40 (*)
41. Primary System Safety Relief Valve	NRC	2	Closed - Not closed	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	flow/no flow	Yes	Yes	Yes	FL	No	CS	Highly Reliable	SPDS Cont.	ERIS	ERIS	

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	EOF Indica.	Comments
42. Pressurizer Level														
	NRC	1	Bottom to Top	Yes	Yes	Yes	FL	Yes	NS	IE	Yes	NS	NS	
	Utility	1	Bottom to Top 0 to 100% of span	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	
43. Pressurizer Heater Status														
	NRC	2	Electric Current	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	Breaker Position	Yes	No	Yes	FL	No	CB	Highly Reliable	Cont. SPDS	ERIS	ERIS	See Note #43
44. Quench Tank (PRT) Level														
	NRC	3	Top to Bottom	No	No	NS	FL	No	NS	Non IE	NS	NS	NS	
	Utility													See Note #44 (■)



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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication		Comments
												TSC Indica.	EOF Indica.	
45. Quench Tank (PRT) Temperature	NRC	3	50°F to 750°F	No	No	NS	FL	No	NS	Non IE	NS	NS	NS	
	Utility													See Note #45 (*)
46. Quench Tank (PRT) Pressure	NRC	3	0 to design pressure	No	No	NS	FL	No	NS	Non IE	NS	NS	NS	
	Utility													See Note #46 (*)
SECONDARY SYSTEM (STEAM GENERATOR) (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)														
47. Steam Generator Level	NRC	1	From tube sheet to separators	Yes	Yes	NS	FL	Yes	NS	IE	Yes	NS	NS	
	Utility	1	0-100% of span From tube sheet to separators	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	EOF Indica.	Comments
48. Steam Generator Pressure	NRC	2	From atmos. Press. to 20% above the lowest sfty. valve set.	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	1	0 to 1300 psig	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS	See Note #48
49. Main Steam Flow or Safety/Relief Valve Positions	NRC	2	Closed - Not closed	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	Closed - Not closed or flow/no-flow	Yes	Yes	Yes	FL	No	MSVB	Highly Reliable	Cont. SPDS	ERIS	ERIS	
50. Main Feedwater Flow	NRC	3	0 to 110% Design Flow	No	No	NS	FL	No	NS	Non IE	NS	NS	NS	
	Utility	2	0 to 5 MPPH	Yes	Yes	Yes	FL	Yes	TB	Non IE	Cont. SPDS	ERIS	ERIS	Design flow = 4.5 MPPH

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												TSC Indica.	EOF Indica.	
AUXILIARY FEEDWATER OR EMERGENCY FEEDWATER SYSTEM (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97, Rev. 2 for variable use.)														
51. Auxiliary Feedwater Flow														
	NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	1	0 to 350 gpm	Yes	Yes	Yes	FL	Yes	ESFB	IE	Cont. SPDS	ERIS	ERIS	Design flow = 264 gpm
52. Demineralized Water Storage Tank Level														
	NRC	1	Plant Spec.	Yes	Yes	Yes	FL	Yes	NS	IE	Cont.	NS	NS	
	Utility	2	Top to Bottom 0 to 100%	Yes	Yes	Yes	FL	Yes	ESFB	IE	Cont. Rec. SPDS	ERIS	ERIS	
53. Containment Spray Flow														
	NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	3	0 to 5000 gpm	No	Yes	Yes	FL	No	ESFB	Non IE	Cont. SPDS	ERIS	ERIS	Design flow = 4000 gpm

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												TSC Indica.	EOF Indica.		
54. Heat Removal By Containment Fan Heat Removal System	NRC	2	Plant Spec.	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility														See Note #54 (**)
55. Containment Atmosphere Temperature	NRC	2	400F to 4000F	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility	2	0 to 4000F	Yes	Yes	Yes	FL	Yes	CS	IE	Cont. Rec. SPDS	ERIS	ERIS		
56. Containment Sump Water Temperature	NRC	2	500F to 2500F	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility														See Note #56 (**)

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lct.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	EOF Indica.	Comments
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CHEMICAL AND VOLUME CONTROL SYSTEM (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97, Rev. 2 for variable use.)

## 57. Makeup Flow-In

NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
Utility													See Note #57

## 58. Letdown Flow-Out

NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
Utility	2	0 to 200 gpm	Yes	Yes	Yes	FL	No	AB	Highly Reliable	Cont. SPDS	ERIS	ERIS	Design flow = 160 gpm

59. Volume Control  
Tank Level

NRC	2	Top to Bottom	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
Utility	2	Top to Bottom (bend line to bend line) 0 to 100% of span	Yes	Yes	Yes	FL	Yes	AB	Highly Reliable	Cont. SPDS	ERIS	ERIS	

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Lot.	Power Supply	Ctr. Rm. Indica.	Indication			Comments
												TSC Indica.	EOF Indica.		
COOLING WATER SYSTEM (Listed variables are not necessarily used for this purpose, see FSAR Design Basis Response to R.G. 1.97 Rev. 2 for variable use.)															
60. CCW Temp. to ESF System	NRC	2	32°F to 200°F	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility													See Note #60 (	
61. CCW Flow to ESF System	NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS		
	Utility	2	0 to 8000 gpm	Yes	Yes	Yes	FL	Yes	AB	IE	Cont. SPDS	ERIS	ERIS	Design flow = 6600 gpm	
RADWASTE SYSTEMS															
62. High Level Radio- active Liquid Tank Level	NRC	3	Top to Bottom	No	No	No	FL	No	NS	Non IE	NS	NS	NS		
	Utility													See Note #62 (	

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63. Radioactive Gas Holdup Tank Pressure	NRC	3	0 to 150% Design Pressure	No	No	No	FL	No	NS	Non IE	NS	NS	NS	
	Utility													See Note #63 (**)

## VENTILATION SYSTEMS

64. Emergency  
Ventilation  
Damper Pos.

NRC	2	Open - Closed Status	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
Utility	2	Open - Closed Status	Yes	Yes	Yes	FL	No	Various Locations	IE	Cont.	--	--	

## POWER SUPPLIES

65. Status of Standby  
Power and Other  
Energy Sources

NRC	2	Voltages, currents, pressures	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
Utility	2	Voltage - Bus Specific	Yes	Yes	Yes	FL	No	NA	Highly Reliable	Cont. SPDS	ERIS	ERIS	

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												TSC Indica.	EOF Indica.		

## CONTAINMENT RADIATION

66. Containment Radiation (See Item 23)

## AREA RADIATION

67. Radiation Exposure Rate (Inside bldgs. or areas where access is required to service safety related equipment.)

See Note #67 (\*)

## AIRBORNE RADIOACTIVE MATERIALS RELEASED FROM PLANT

68. Noble Gases and Vent Flow Rate

Containment or Purge Effluent  
 Reactor Shield Building Annulus  
 Auxiliary Building  
 Condenser Air Removal System Exhaust

Common plant vent or multipurpose vent discharging  
 any of above

Ventilation Vent  
 Noble Gas Effluent  
 Radioactivity

NRC	2	10 <sup>-6</sup> to 10 <sup>3</sup> μCi/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
Utility	2	10 <sup>-7</sup> to 10 <sup>5</sup> μCi/cc	Yes	Yes	Yes	FL	No	AB	IE	Cont. Rec. RMS SPDS	ERIS	ERIS	



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Ventilation Vent Flow Rate	NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	10,000 to 260,000 CFM	Yes	Yes	Yes	FL	No	AB	IE	RMS SPDS	ERIS	ERIS	Design flow = 230,000
Supplementary Leak Collection and Release System Effluent Radioactivity	NRC	2	10 <sup>-6</sup> to 10 <sup>4</sup> Ci/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	10 <sup>-7</sup> to 10 <sup>5</sup> Ci/cc	Yes	Yes	Yes	FL	No	AB	IE	Cont. Rec. RMS SPDS	ERIS	ERIS	
Supplementary Leak Collection and Release System Flow Rate	NRC	2	0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	0 to 21,340 CFM	Yes	Yes	Yes	FL	No	AB	IE	RMS SPDS	ERIS	ERIS	Design flow = 19,400 CFM

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Let.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	EOF Indica.	Comments
Vent From Steam Generator Safety Relief Valves or Atmospheric Dump Valves														
	NRC	2	10 <sup>-1</sup> to 10 <sup>3</sup> μCi/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	10 <sup>-1</sup> to 10 <sup>3</sup> μCi/cc	Yes	Yes	Yes	FL	No	MSV Bldg.	Highly Reliable	Cont. Rec. RMS SPDS	ERIS	ERIS	
All other identified release points														
Turbine Driven Aux. Feedwater Pump Steam Exhaust														
	NRC	2	10 <sup>-1</sup> to 10 <sup>3</sup> μCi/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	Same range as above for steam atmospheric dump valves
	Utility	2	10 <sup>-1</sup> to 10 <sup>3</sup> μCi/cc	Yes	Yes	Yes	FL	No	ESFB	Highly Reliable	Cont. Rec. RMS SPDS	ERIS	ERIS	

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Variable	Position	Cat.	Instr. Rang'	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Let.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	EOF Indica.	Comments
Hydrogen Recombiner Cubicle Ventilation														
	NRC	2	10 <sup>-6</sup> to 10 <sup>2</sup> μCi/cc	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility	2	7.1 x 10 <sup>-4</sup> to 6 μCi/cc	Yes	Yes	Yes	FL	No	HRB	Highly Reliable	Cont. Rec. RMS SPDS	ERIS	ERIS	See Note #68
69. Particulates and Halogens Sampling with Onsite Analysis Capability														
	NRC	2	10 <sup>-3</sup> to 10 <sup>2</sup> μCi/cc 0 to 110% Design Flow	NS	NS	NS	FL	No	NS	Highly Reliable	Yes	NS	NS	
	Utility													See Note #69

## ENVIRONS RADIATION AND RADIOACTIVITY

70. Radiation Exposure  
Meters (Continuous  
indication at fixed  
locations)

NRC

See Note 70

71. Airborne Radio-  
halogens and  
Particulates  
(portable with  
onsite analysis)

NRC

Utility

10<sup>-9</sup> to 10<sup>-3</sup>  
μCi/cc

10<sup>-9</sup> to 10<sup>-3</sup>  
μCi/cc

No

No

No

FL

No

No

No

No

NS

NS

No

No

No

FL

No

-

-

No

No

No

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Variable	Position	Cat.	Instr. Range	Env. Qual.	Seis. Qual.	QA	Sched.	Redun- dant	Sensor Let.	Power Supply	Ctr. Rm. Indica.	Indication TSC Indica.	ECF Indica.	Comments
72. Plant and Enviorns Radiation (Portable Instrumentation)														
	NRC	3	Per R.G. 1.97	No	No	No	FL	No	NS	NS	No	NS	NS	
	Utility	3	Per R.G. 1.97	No	No	No	FL	No	-	-	No	No	No	
73. Plant and Enviorns Radioactivity (Portable Instrumentation)														
	NRC	3	Multichannel gamma-ray Spectrometer	No	No	No	FL	No	NS	NS	No	NS	NS	
	Utility	3	Multichannel gamma-ray Spectrometer	No	No	No	FL	No	-	-	No	No	No	
74. METEOROLOGY Wind Speed Wind Direction Estimation of Atmos. Stability														
	NRC	3	Per R.G. 1.97	No	No	No	FL	No	NS	NS	No	NS	NS	
	Utility	3	Per R.G. 1.97	No	No	No	FL	No	-	-	SPDS	ERIS	ERIS	

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												TSC Indica.	EOF Indica.	Indica.	
75. ACCIDENT SAMPLING CAPABILITY															
Primary Coolant and Sump Containment Air															
	NRC	3	Per R.G. 1.97	No	No	No	FL	No	Onsite	NS	No	NS		NS	
	Utility	3	Per R.G. 1.97	No	No	No	FL	No	Onsite	-	No	No		No	