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SUBJECT: Describes review of accident monitoring instrumentation per Reg Guide 1.97.Procedure developed using method in NUREG-0700.Listing of Category 1 instruments & results of qualification review encl.Summary rept expected by Oct 1985.

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WISCONSIN PUBLIC SERVICE CORPORATION
P.O. Box 19002, Green Bay, WI 54307-9002

June 28, 1985

Director of Nuclear Reactor Regulation
Attention: Mr. S. A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
TAC #M51100
Accident Monitoring Instrumentation

References: 1) Letter from C. W. Giesler to D. G. Eisenhut dated April 15, 1983

2) Letter from C. J. Paperiello to D. C. Hintz dated December 19, 1984

Reference 1 outlined Wisconsin Public Service's (WPS's) approach to Accident Monitoring Instrumentation (AMI). In that letter, WPS stated it would examine the instrumentation required by the Westinghouse Owner's Group (WOG) Emergency Response Guidelines (ERGs) and the plant specific Emergency Operating Procedures (EOPs) to determine the instrumentation necessary to monitor plant conditions during and following an accident. The procedure is reiterated in the following paragraphs.

The procedure developed to accomplish the Regulatory Guide 1.97 (RG 1.97) review is similar to that developed by the Detailed Control Room Design Review (DCRDR) group which was developed using the guidance provided by NUREG 0700.

NUREG 0700 outlines a method of choosing Selected Operating Events (SOEs) to determine the adequacy of control room instrumentation. It recommends that the events to be analyzed reflect the spectrum of plant operations with an emphasis on abnormal and emergency conditions. It is also recommended that the EOPs

A001
1/1

associated with these SOEs include all the operator functions identified in the WOG ERGs. The SOEs and EOPs chosen for this study meet these criteria and are listed below.

Reactor Trip (E-0, ES-0.1, ES-0.2)
Large Break LOCA (E-0, E-1, ES-1.1)
Loss of Secondary Coolant (E-0, E-1, ES-1.3)
SG Tube Rupture (E-0, E-3)
Loss of All AC Power (E-0, ECA-0.0, ECA-0.2)
ATWS (E-0, FR-S.1)

These SOEs and EOPs are the same as those chosen for the DCRDR. The DCRDR also includes plant startup which was not considered for this study since it is not an emergency event.

Each step of the selected EOPs which was analyzed by the DCRDR was then analyzed by the RG 1.97 group by reviewing the ERG background documentation to determine if the step controls a Critical Safety Function (CSF). If a step was determined to control a CSF, the instrumentation needed to accomplish that step was determined. The ERG System Review and Task Analysis developed by the WOG determined the necessary instrumentation on a generic basis. During development of the plant specific EOPs, an EOP step documentation form was generated where a plant specific procedure step deviated from the generic ERG step. Instruments added by the step documentation forms which fulfill a CSF, rather than an economic need, were considered within the scope the AMI study.

This plant specific instrumentation was then divided into two groups, key and backup based on RG 1.97 Rev. 3 criteria. Key instruments provide the most direct indication of the status of the CSF associated with that step. Backup instruments provide information on the status of the CSF but it may not be as direct as that provided by the key instruments. Key instruments are then the minimum instruments necessary to monitor plant conditions during and following an accident. It is this instrumentation that was ultimately compared to the instruments required by Regulatory Guide 1.97. A listing of instrumentation selected by this means is included as attachment 1.

The instruments listed in attachment 1 are considered category 1 instruments. The Regulatory Guide Typing is not considered relevant; therefore, no reference is made to it. Qualifications for this instrumentation, except for ranges which were reviewed by DCRDR study, were compared to RG 1.97 criteria to access acceptability. Attachment 2 describe the results of the qualification review.

Presently, the recommendations developed by the AMI study are being reviewed by the RG 1.97 review committee, which is comprised of members knowledgeable in plant operations and design basis. This committee will develop the final recommendations for the instruments found by the AMI study and those required by RG 1.97. This committee will develop a summary report that will be sent to the NRC during October, 1985.

Summary

The AMI instrumentation needs are defined by Kewaunee specific EOPs. Key instruments have been defined by applying RG 1.97 criteria. A review of instru-

mentation range and human factors suitability has been made during the course of the DCRDR. Other qualifications, such as EQ, seismic and QA, have been reviewed during the AMI effort. Recommendations stemming from this effort are being reviewed by the AMI review committee and a response plan will be developed. Upgrades, if necessary, will proceed on a schedule which considers other plant improvements such as those required by the DCRDR program and 10 CFR 50 Appendix R. A progress report will be sent to you during October, 1985.

Sincerely,

D. C. Hintz
Manager - Nuclear Power

TJW:jks

Attach.

cc - Mr. Robert Nelson, US NRC

50-305

REVIEW OF ACCIDENT MONITORING INSTRUMENTATION
PER REG. GUIDE 1.97.

Docket # 50-305
Control # 8907020474
Date 6/28/85 of Document:
REGULATORY DOCKET FILE

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Attachment 1 to the Letter

From

D. C. Hintz (WPSC)

To

S. A. Varga (NRC)

Dated June 28, 1985

Attachment 1

STATUS INDICATIONS

AC emergency busses power indication (busses 1-5 and 1-6)
AFW MD pumps status indication
CCW pumps status indication
Containment fan coil indication
High-head SI pumps
ICS pump status indication
Low-head SI pumps status indication
Neutron flux indication
Reactor trip and bypass breaker position indications
SW pumps status indication

PRESSURE

Containment pressure indication
Pressurizer pressure indication
RCS pressure indication
SG pressure indication

FLOW

RCS loop flow indications
Steam flow indication

POSITION INDICATIONS

AFW TD pump steam supply valves position indication

SI recirculation valves:

- CC-400A(B)
- RHR-300A(B)
- SI-5A(B)
- SI-9A(B)
- SI-11A(B)
- SI-208
- SI-209
- SI-300A(B)
- SI-350A(B)
- SI-351A(B)

Containment fan coil SW valves indicating lights
Containment isolation valves position indication
Main FW isolation valves
Main steamline isolation and bypass valves

Position indications for:

CC-600
CC-601A(B)
CC-610A(B)
CC-612A(B)

ICS suction from RHR pump valve position [RHR-400A(B)]

RCS potential dilution path (MU-1022)

PRZR PORVs and block valves position indication

LEVEL

BAT level indication
PRZR level indication
RWST level indication
SG narrow range level indication

RADIATION

Aux bldg vent monitor (R-13, R-14)
Condenser air ejector radiation indication (R-15)
SG blowdown radiation indication (R-19)

TEMPERATURE

Core exit T/Cs temperature indication
RCS average temperature indication
RCS cold leg temperature indication
RCS hot leg temperature indication

Attachment 2 to the Letter

From

D. C. Hintz (WPSC)

To

S. A. Varga (NRC)

Dated June 28, 1985

Clarification for Attachment 2

1. I.D. numbers are listed for the control room indicators and their associated transmitters. In general, control room indicator I.D. numbers start with a 4, transmitter I.D. numbers start with a 2, and valve I.D. numbers start with a 3.

2. The QA type listed is the QA type assigned to the transmitter.

3. Consistent with Kewaunee's design criteria, an instrument is considered seismically qualified if the transmitter and the cabling from the transmitter to the control room indicator, but not including the control room indicator, is seismically qualified. Valve and motor indicators are considered seismically qualified if the transmitter and the cabling from the transmitter up to and including the control room indicator is seismically qualified.

4. All instruments determined to be key instruments by the AMI study require QA1 qualifications.

5. The EOF and the TSC instrumentation has been reviewed by the NRC and found to meet the requirements of Supplement 1 to NUREG-0737, see reference 2.

VARIABLE: AC Emergency Busses Power Indication

ID(S): 46636 46637 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 2 .

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: on/off

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on the Electrical Control Console
Control Room Indication - Indicating Lights
EOF and TSC Indication - None
Power Supply Drawings - E1801, E1800, E799

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Aux FW MD Pump Indication

ID(S): 46111 46112 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: .
LOWER LIMIT: 0	LOWER LIMIT: .
UNITS: on/off	UNITS:

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console A
System - 58
Power Supply Drawings - E1038, E1037, E1036, E844, E233, E1808, E798
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Component Cooling Water Pump Indication

ID(S): 46301 46302 . .

REGULATORY GUIDE CATEGORY: 4
REGULATORY GUIDE TYPE: 1
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: .
LOWER LIMIT: 0	LOWER LIMIT: .
UNITS: on/off	UNITS:

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): N	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console C
System - 31
Control Room Indication - Indicating Lights
EOF and TCS Indication - None

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Containment Fan Coil Indicating Lights

ID(S): 46539 46540 46541 46542

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: on/off

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Vertical Panel A
System - 18
Flow Diagram - M602
Power Supply Drawings - E3116, E3115, E1080, E844, E233
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: SI Pump Indication

ID(S): 46307 46308 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: on/off

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console C
System - 33
Power Supply Drawings - E1818, E798, E492, E1042, E1041, E1040, E1039, E1038, E1037, E1036, E844, E233
Control Room Indication - Indicating Lights
TCS and EOF Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Neutron Flux - Source Range

ID(S): 4122901 4122902 41229033 4122904
28043 28037 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:		REGULATORY GUIDE INSTRUMENT RANGE:	
UPPER LIMIT:	0	UPPER LIMIT:	100
LOWER LIMIT:	1.0E-09	LOWER LIMIT:	1.0E-06
UNITS:	%POWER	UNITS:	%POWER

EQUIPMENT QUALIFICATION:		SEISMIC QUALIFICATION:	
EQ REQUIRED (Y/N):	Y	SEISMIC QUAL. REQUIRED (Y/N):	Y
EQ QUALIFIED (Y/N):	N	SEISMICALLY QUALIFIED (Y/N):	N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console B
P.O. - XK100-770, 901
System - 48
Control Room Indication - 0 to 1.00E06 CPS
Not A1 - Not Safety Related
Power Supply Drwings - E804, E800, E525, E845, E233
No Readout in EOF or TSC

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Neutron Flux - Intermeidate Range

ID(S): 4122801 4122802 4122803 4122804
28044 28038 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 100	UPPER LIMIT: 100
LOWER LIMIT: 1.0E-06	LOWER LIMIT: 1.0E-06
UNITS: %POWER	UNITS: %POWER

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N	SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console B
P.O. - XK100-770, 901, 1562
System - 48
Control Room Indication - 1E-11 to 1E-03 amp.
Not A1 - Not Safety Related.
Power Supply Drawings - E804, E525, E800, E845, E233
No Readout in EOF or TSC.

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Neutron Flux - Power Range

ID(S): 4122601 4122602 4122603 4122604
28041 28047 28045 28039

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 120
LOWER LIMIT: 0
UNITS: %POWER

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 1.0E-06
UNITS: %POWER

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console B
P.O. - XK100-770, 901,1562
System - 48
Not A1 - Automatic Trip on High and Low Flux Automatic
See Reactor Power Recorder 42585
Power Supply Drawings - E804, E525, E800, E845, E233
No Readout in EOF or TSC

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: ICS Pump Indication

ID(S): 46305 46306 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: .
LOWER LIMIT: 0	LOWER LIMIT: .
UNITS: on/off	UNITS:

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console C
Flow Diagram - M217
System - 23
Power Supply Drawings - E1817, E798, E548
Control Room Indication - Indicating Light
EOF and TSC Indication - None

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: RHR Pump Indication

ID(S): 46303 46304 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: .
LOWER LIMIT: 0	LOWER LIMIT: .
UNITS: on/off	UNITS:

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console C
System - 34
Power Supply Drawing - E1036, E844, E233
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Reactor Trip and Bypass Status

ID(S): 4456201 4456202 4456203 4456204

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: GL/RL

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Vertical Panel B
System - 47
Power Supply Drawings - E2499, E844, E233
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Service Water Pump Indication

ID(S): 46524 46525 46526 46527

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: on/off

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Vertical Panel A
System - 2
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Pressure (0-30)

ID(S): 4150501 4150502 4150503 21100
21101 21102 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 30
LOWER LIMIT: 0
UNITS: PSIG

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 184
LOWER LIMIT: -5.0E+00
UNITS: PSIG

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel A / System - 18
Flow Diagram - M602/ P.O. -XK100
R.G. 1.97 Required Range -5 psig - 4x (Design Pressure)
Design Pressure = 46 psig (FSAR page 5.2-1)
Transmitter and cabling to relay room seismically qualified.
Cabling from relay room to indicator is not seismically qualified.
Power Supply Drawings - E828, E673, E845, E233
Control Room Indication - Real Time Display and Computer Print Out
EOF Indication - Computer Print Out
TSC Indication - Printer and Computer Print Out

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Pressure (0-60)

ID(S): 4150504 4150505 4150506 21117
21118 21119 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 60
LOWER LIMIT: 0
UNITS: PSID

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 184
LOWER LIMIT: -5.0E+00
UNITS: PSID

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel A / System 18
Flow Diagram - M602 / P.O. - XK100 / R.G. 1.97 Required
Range = -5 psig to 4x (Design Pressure) / Design Pressure = 46 psig (FSAR pg 5.2-1) / Transmitter and cabling to relay room is seismically qualified. Cabling from relay room to indicator is not seismically qualified.
Not A1 - Automatic Autuation of ICS
Power Supply Drawings - E828, E675, E845, E233
Control Room Indication - Real Time Display and Computer Print Out
EOF Indication - Computer Print Out
TSC Indication - Printer and Computer Print Out

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Pressure Recorder (Wide Range)

ID(S): 42597 42598 21132 21133

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 200
LOWER LIMIT: -5.0E+00
UNITS: PSIG

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 184
LOWER LIMIT: -5.0E+00
UNITS: PSIG

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel A
P.O. - 15064
System - 18
R.G. 1.97 Required Range = -5 psig to 4x (Design Pressure)
Design Pressure = 46 psig (FSAR page 5.2-1)
A1 - ES-1.3.7.a Align ICS for Recirculation
Control Room Readout - Strip Chart and Computer Print Out
EOF Readout - Computer Print Out
TSC Readout - Strip Chart, Printer and Computer Print Out
Power Supply Drawings - E3025, E3024, E444, E845, E233

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE BATTERY BACKED
3 -- OFFSITE POWER

VARIABLE: RCS Pressure (Pressurizer Pressure)

ID(S): 4122201 4122202 4122301 4122302
42301 21079 21082 -

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 2500
LOWER LIMIT: 1700
UNITS: PSIG

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: -
LOWER LIMIT: -
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Mechanical Control Console B
Flow Diagram - XK100-10
P.O. - XK100
System - 36
Design Pressure - 2485 psig (S.D. 36-3 & Dwg. XK100-2)
Control Room Indication - Real Time Display and Computer Print Out.
EOF and TSC Indication - Computer Print Out.

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: RCS Hot Leg Pressure

ID(S): 4130101 4130102 42556 4255601
4256602 21077 21038 .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 2

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 3000
LOWER LIMIT: 0
UNITS: PSIG

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 3000
LOWER LIMIT: 0
UNITS: PSIG

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on MVPA and MCCC / P.O. - 95543
System - 36 / Mechanical - QA = 1
RCS Design Pressure - 2485 psig (FSAR Table 4.1-1)
A1 - Natural Circulation; ES 0.2 16.a, End SI; ES 0.2 19.6
Initiate RHR
Trans. 21038 and cabling to relay room are seismically qualified; 21077 is seismically qualified but cabling to its indicator is not.
Power Supply Drawings - E829, E783, E702, E845, E233
Control Room Indication - Real Time Display (4130101 and 4130102) and Computer Link
EOF and TSC Indication - Computer Print Out

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Steam Generator Header Pressure

ID(S): 4104901 4104902 4104903 4105301
4105302 4105303 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1400
LOWER LIMIT: 0
UNITS: PSIG

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1289
LOWER LIMIT: 0
UNITS: PSIG

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
ON Mechanical Control Console A
P.O. - XK34233-1
System - 6
R.G. 1.97 Require Range - Opsig to 1.2 x (lowest safety valve setting).
Lowest Relief Valve Setting = 1074 psig (FSAR page 10.2-7).
Transmitters - 21094 21095 21096 21097 21098 21099
Transmitter & cabling to relay room is seismically qualified
Cabling from relay room to indicator is not seismically qualified.
Control Room Readout - Real Time Display and Computer Print Out
EOF READOUT - COMPUTER PRINT OUT
TSC READOUT - STRIP CHART & COMPUTER PRINT OUT
POWER SUPPLY DRAWINGS - E828, E673, E845, E233

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: RCS Loop Flow

ID(S): 4132301 4132302 4132303 4132401
4132402 4132403 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 110
LOWER LIMIT: 0
UNITS: %

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Control Console C
Transmitters - 23024, 23025, 23026, 23027, 23028, 23029
Flow Diagram - X100-10
System - 36
Control Room Indication - Real Time Display and Computer Print Out
EOF and TSC Indication - Computer Print Out

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Main Steam Flow

ID(S): 4105001 4105002 4105101 4105102
23001 23005 23002 23007

REGULATORY GUIDE CATEGORY: 2
REGULATORY GUIDE TYPE: D
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 5
LOWER LIMIT: 0
UNITS: MPPH

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 5
LOWER LIMIT: 0
UNITS: MPPH

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Control Console A
Design Flow Rate - 4.07 MPPH (FSAR p. Table 10.1-1)
Flow Diagram - M203
P.O. - XK3425
System - 6
Control Room Readout - Real Time Display, Computer Print Out
EOF and TSC Readout - Computer Print Out
Power Supply Drawings - E828, E788, E673, E845, E233

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Aux FW TD Pump Steam Supply Valve Pos.

ID(S): 46118 32040 - -

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1 -

PLANT INSTRUMENT RANGE:		REGULATORY GUIDE INSTRUMENT RANGE:	
UPPER LIMIT:	1	UPPER LIMIT:	-
LOWER LIMIT:	0	LOWER LIMIT:	-
UNITS:	op/cl	UNITS:	

EQUIPMENT QUALIFICATION:		SEISMIC QUALIFICATION:	
EQ REQUIRED (Y/N):	Y	SEISMIC QUAL. REQUIRED (Y/N):	Y
EQ QUALIFIED (Y/N):	Y	SEISMICALLY QUALIFIED (Y/N):	Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): N
REDUNDANT? (Y/N): N

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console A
Valve MS 102
System - 50
Flow Diagram - M203
Power Supply Drawings - E1486, E1986, E843, E233
Control Room Indication - Indicating Lights
EOF and TSC Indication - None
Redundancy not required at the component level. Redundancy is provided at the system level.

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: SI Recirculation Valve's Position Indication

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: op/cl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: op/cl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	PS	ID
SI 9A	1	Y	1	32094; 46381
SI 9B	1	Y	1	32095; 46382
SI 11A	1	Y	1	32092; 46383
SI 11B	1	Y	1	32097; 46384
SI 208	1	Y	1	32131; 46392
SI 209	1	Y	1	32130; 46391
SI 300A	1	Y	1	32111; 46361
SI 300B	1	Y	1	32112; 46362
SI 350A	1	Y	1	32102; 46355
SI 350B	1	Y	1	32103; 46356
SI 351A	1	Y	1	32113; 46357
SI 5A	1	Y	1	32107; 46379
SI 5B	1	Y	1	32108; 46380
RHR 300A	1	Y	1	32134; 46363
RHR 300B	1	Y	1	32135; 46364

EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Fan Coil SW Valves Position

ID(S): 46509 46510 46511 46512
32060 32061 32058 32059

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: op/cl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: -
LOWER LIMIT: -
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Vertical Panel A
Valves - SW 903A, SW 903B, SW 903C, SW 903D
Flow Diagram - M202
System - 2
Power Supply Drawings - E627, E3259
EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Containment)

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: .
TSC: .

NOTES:

Valve	QA	EQ	SQ	PS	ID
AS 1	1	Y	Y	1	31383-01,02; 46563
AS 2	1	Y	Y	1	31384-01,02; 46564
AS 32	1	Y	Y	1	31385-01,02; 46565
CVC 32	1	Y	Y	1	33651; 46968
MD(R) 323A	1	Y	Y	1	32391; 46967
MD(R) 323B	1	Y	Y	1	32390; 46966
VB 10A	1	Y	Y	1	31337,01,02; 46828
VB 10B	1	Y	Y	1	31338; 46829
WG 311	1	Y	Y	1	33654; 46972
WG 310	1	Y	Y	1	33655; 46971

All have Control Room Indication.
NO EOF OR TSC INDICATION.

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (CVC Letdown)

ID(S): 46234 46235 46236 46233

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: E
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	ID
LD 4A	1	Y	Y	1	31231-01,02; 46234
LD 4B	1	Y	Y	1	31232-01,02; 46235
LD 4C	1	Y	Y	1	31233-01,02; 46236
LD 6	1	Y	Y	1	31234-01,02; 46233

All have Control Room Indication
No EOF or TSC Indication
System - 35

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Excess Letdown HX)

ID(S): 46338 32082 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:		REGULATORY GUIDE INSTRUMENT RANGE:	
UPPER LIMIT:	1	UPPER LIMIT:	1
LOWER LIMIT:	0	LOWER LIMIT:	0
UNITS:	cl/ncl	UNITS:	cl/ncl

EQUIPMENT QUALIFICATION:		SEISMIC QUALIFICATION:	
EQ REQUIRED (Y/N):	Y	SEISMIC QUAL. REQUIRED (Y/N):	Y
EQ QUALIFIED (Y/N):	Y	SEISMICALLY QUALIFIED (Y/N):	Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Valve - CC 653
No Indication in the EOF or TSC

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Instrument Air System)

ID(S): 46594 3130901 3130902 .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 2

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Valve IA 101
No Indication in EOF or TSC
Valve and limit switches are seismically qualified; however the cabling to the indicating lights is not.
Check valves inside and outside containment provide the containment isolation function.

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (ICS System)

ID(S): 46419 46418 31273 31272

REGULATORY GUIDE CATEGORY: 1
REGULATOBY GUIDE TYPE: E
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valves	QA	EQ	SQ	PS	IDs
ICS 201	1	Y	Y	1	31273; 46419
ICS 202	1	Y	Y	1	31272; 46418

EOP and TSC Indication - None
Flow Diagram - M217
System - 23
P.O. - K267

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Primary Sampling System)

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	ID
RC 403	1	Y	Y	1	31267-01,02; 46544-01,02
RC 402	1	Y	Y	1	31262-01,02; 46805-01,02
RC 413	1	Y	Y	1	31268-01,02; 46544-03,04
RC 412	1	Y	Y	1	31264-01,02; 46806
RC 422	1	Y	Y	1	33092; 46804,01,02
RC 423	1	Y	Y	1	33327; 46544-05,06

No EOF or TSC Indication
System - 37

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Purge and Ventilation)

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	ID
RBV 1	1	Y	Y	1	31125; 46598-01,02
RBV 2	1	Y	Y	1	31126; 46596-01,02
RBV 3	1	Y	Y	1	31124; 46595-01,02
RBV 4	1	Y	Y	1	31123,01,02; 46597
RBV 5	2	Y	Y	2	34006; 46531
TAV 12	2	Y	Y	2	34033; 46532

All have Control Room Indication.
No Indication in EOf or TSC.
Flow Diagram - M602

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (PRT)

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: E
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	ID
MG(R) 513	1	Y	Y	1	31260,01,02; 46808
MG(R) 512	1	Y	Y	1	31259,01,02; 46807
NG 302	1	Y	N	1	31298,01,02; 46365
MU 1010-1	1	Y	N	1	31261; 46801

All have Control Room Indication
No EOF or TSC Indication
System - 36
Flow Diagram - XK100-10

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (RCDT)

ID(S): 46310 46309 46330 46329
46368 46367 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	ID	
MG(R)510	1	Y	N	1	31133,01,02;	46310
MG(R)509	1	Y	N	1	31132,01,02;	46309
MG(R)504	1	Y	N	1	31217,01,02;	46330
MG(R)503	1	Y	N	1	31216,01,02;	46329
RC 508	1	Y	N	1	31135,01,02;	46368
RC 507	1	Y	N	1	31134,01,02;	46367

All have Control Room Indication
No EOF or TSC Indication
System - 32
Flow Diagram - XK100-131

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (RCP)

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: E
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	IDs
CVC 211	1	Y	Y	1	32124; 46211
CVC 212	1	Y	Y	1	32115; 46214

Both have control room indication. No EOF or TSC indication.
System - 35
Flow Diagram - XK100-35

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Steam Generator)

ID(S): . . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	ID
BT 2A	1	Y	N	1	32077; 46131
BT 2B	1	Y	N	1	32079; 46133
BT 3A	1	Y	N	1	32078; 46132
BT 3B	1	Y	N	1	32080; 46134
BT 31A	1	Y	Y	1	31334; 46135
BT 31B	1	Y	Y	1	31270; 46135
BT 32A	1	Y	Y	1	31335; 46140
BT 32B	1	Y	Y	1	31271; 46140

EOF and TCS Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (Sump A)

ID(S): 46811 46812 31136 31137

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: E
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	SQ	PS	IDs
MD(R) 134	1	Y	N	1	31136; 46811
MD(R) 135	1	Y	N	1	31137; 46812

Both have Control Room indication.
System - 32A
Flow Diagram - XK100-131

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Containment Isolation (SI Accumulators N2 Supply)

ID(S): 46376 31253 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: cl/ncl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Valve NG 107
No EOF or TSC Indication
System - 33
Flow Diagram - XK100-28

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Feedwater Isolation Valve Position

ID(S): 46119 46120 32015 32016

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: op/cl

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS: op/cl

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	PS	ID
FW 12A	1	Y	1	32015; 46119
FW 12B	1	Y	1	32016; 46120

System - 5A
Flow Diagram - M205
Control Room Indication - Indicating Lights
EOF and TSC Indication - None
Power Supply Drawings - E627, E3081, E3077

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: MS and Bypass Isolation Valve Position

ID(S): 46136 46137 46107 46108

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1 .

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: 1
LOWER LIMIT: 0	LOWER LIMIT: 0
UNITS: op/cl	UNITS: op/cl

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N):	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: .

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	PS	ID
MS 1A	1	Y	2	31015; 46136
MS 1B	1	Y	2	31016; 46137
MS 2A	1	N	1	32007; 46107
MS 2B	1	N	1	32008; 46108

The selinoid valves that control MS 1A(B) have Type 1 power supply.
Control Room Indication - Indicating Lights
EOF and TSC Indication - None
Flow Diagram = M203

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Component Cooling Valves

ID(S): 46337 46334 46336 46331
46332 46333 46335 .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS:

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1
LOWER LIMIT: 0
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:

Valve	QA	EQ	PS	IDs
CC 600	1	Y	1	32088; 46337
CC 601A	1	Y	1	32084; 46334
CC 601B	1	Y	1	32085; 46336
CC 610A	1	N	1	31127; 46331
CC 610B	1	N	1	31128; 4633201,02
CC 612A	1	Y	1	32086; 46333
CC 612B	1	Y	1	32087; 46335
CC 400A	1	Y	1	32119; 46343
CC 400B	1	Y	1	32120; 46344

Control Room Indication - Indication Lights
EOF and TSC Indication - None
Flow Diagram XK100-20

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: ICS Suction from RHR Pump Valve Position

ID(S): 46322 46323 32125 32126

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: 1
LOWER LIMIT: 0	LOWER LIMIT: 0
UNITS: op/cl	UNITS: op/cl

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
RHR 400A (B)
Located on Mechanical Control Console C
Flow Diagram - M217
System - 23
Power Supply Drawings - E1374
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: RCS Potential Dilution Path

ID(S): 46222 31095 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 3

PLANT INSTRUMENT RANGE:		REGULATORY GUIDE INSTRUMENT RANGE:	
UPPER LIMIT:	1	UPPER LIMIT:	.
LOWER LIMIT:	0	LOWER LIMIT:	.
UNITS:	op/cl	UNITS:	

EQUIPMENT QUALIFICATION:		SEISMIC QUALIFICATION:	
EQ REQUIRED (Y/N):	Y	SEISMIC QUAL. REQUIRED (Y/N):	Y
EQ QUALIFIED (Y/N):	N	SEISMICALLY QUALIFIED (Y/N):	N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): N

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Valve MU 1022
Located on Mechanical Control Console B
Flow Diagram - XK100-36
System - 35
Power Supply Drawings - E1518, E2320, E843, E233
Control Room Indication - Indicating Lights
EOF and TSC Indication - None
Redundancy not required since valve is a fails closed valve.

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Pressurizer Block Valves

ID(S): 46414 46415 31110 31109

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: 1
LOWER LIMIT: 0	LOWER LIMIT: 0
UNITS: cl/ncl	UNITS: cl/ncl

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Valves PR-2A and PR-2B
Flow Diagram - XK100-10
System - 36
Power Supply Drawings - E1523, E2301, E2301, E2300, E843, E233
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Pressurizer PORV

ID(S): 46412 46413 32089 32090

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1/2

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1	UPPER LIMIT: .
LOWER LIMIT: 0	LOWER LIMIT: .
UNITS: cl/ncl	UNITS:

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y	SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Valves PR-1A and PR-1B
Flow Diagram - XK100-10
System - 36
Power Supply Drawings - E622, E796, E567
Control Room Indication - Indicating Lights
EOF and TSC Indication - None

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Boric Acid Tank Level

ID(S): 4120501 4120502 4120503 4120504
4120601 4120602 4120603 4120604

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 4
EOF: 7
TSC: 7

NOTES:
Located on Mechanical Control Console B
Transmitters - 24023, 24024, 24025, 24026, 24027, 24028, 24029
Flow Diagram - XK100-38
System - 35
Control Room Indication - Real Time Display
EOF and TSC Indication - None

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Pressurizer Level

ID(S): 4122001 4122002 4122101 4230201
24032 24031 24030 .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: D
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Control Console B
System - 36
Flow Diagram - XK100-10
P.O. - XK43901-2
Required Range - Top to Bottom
Instrument Range corresponds to a 269.5" W.C.
Pressurizer Length 356.83".
Transmitter & cabling to relay room is seismically qualified
Cabling from the relay room to the indicator is not
seismically qualified.
Control Room Readout - Real Time Display, Strip Chart, and
Computer Print Out.
EOF AND TSC READOUT - COMPUTER PRINT OUT.
POWER SUPPLY DRAWINGS - E828, E788, E845, E233

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Refueling Water Storage Tank Level

ID(S): 4131101 4131102 24040 24062

REGULATORY GUIDE CATEGORY: 2
REGULATORY GUIDE TYPE: D
QA TYPE: 2

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): *

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Console C
Flow Diagram - XK100-27
P.O. - XK34233-1, XL100-1425
System - 33
Level Tap is 6 inches off the bottom, this gives a volume range of approximately 1% to 100%.
* 24040 Seismically Qualified; 24062 is not Seismically Qualified.
Control Room Readout - Real Time Display, Computer Print Out
EOF and TSC Readouts - Computer Print Out
Power Supply Drawings - E829, E700, E845, E233, E1722, E846

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Steam Generator Level (Narrow Range)

ID(S): 4104801 4104802 4104803 4105201
4105202 4105203 42560 .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: D
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 75
UNITS: %

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 100
LOWER LIMIT: 0
UNITS: %

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
On Mechanical Control Console A
Flow Diagram - M203
P.O. - XK34233-1
System - 5
R.G. 1.97 required Range from Tube Sheet to Separator.
Transmitter - 24042 24043 24044 24046 24047 24048
Transmitter and cabling to relay room are seismically qualified.
Cabling from relay room to indicator is not seismically qualified.
Control Room Readout - Real Time Display, Computer Print Out and Strip Chart
EOF READOUT - COMPUTER PRINT OUT.
TSC READOUT - STRIP CHART AND COMPUTER PRINT OUT.
POWER SUPPLY DRAWINGS - E788, E763, E845, E233

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Aux Bldg Airborne Releases R-13 and R-14

ID(S): 81019 81008 29010 29007

REGULATORY GUIDE CATEGORY: 2
REGULATORY GUIDE TYPE: E
QA TYPE: 1

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 0	UPPER LIMIT: 1000
LOWER LIMIT: 5.0E-07	LOWER LIMIT: 1.0E-06
UNITS: uCI/CC	UNITS: uCI/CC

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N	SEISMICALLY QUALIFIED (Y/N): Y

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 7
TSC: 7

NOTES:
R-13 and R-14: Aux Bldg Vent Monitor
P.O. - XK426-27, 16; XK100-1318
System - 45
Flow Diagram - M601
Power Supply Drawings - E2422, E845, E233
Control Room Indication - Real Time Display & Strip Chart.
TSC and EOF have no indication.
Flow indication not available; however, the flow thru the vent has been calculated for different conditions. These pre-determined flow rates are then used for release assessment.

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: Condenser Airborne Releases R-15

ID(S): 81009 29004 . .

REGULATORY GUIDE CATEGORY: 2
REGULATORY GUIDE TYPE: E
QA TYPE: 3

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 0
LOWER LIMIT: 1.0E-06
UNITS: uCI/CC

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 1.0E+06
LOWER LIMIT: 0
UNITS: uCI/CC

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): N

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel C
R-15: Condenser Air Ejector Gas Monitor
System - 45
P.O. - XK100-1305, 1306
Control Room Indication - Real Time Display, Strip Chart, and Computer Print Out.
EOF and TSC Indication - Computer Print Out.
Power Supply Drawings - E2426, E2425, E2424, E845, E233

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Steam Generator Blowdown Radiation Monitor (R-19)

ID(S): 81013 29005 . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 3 .

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 0
LOWER LIMIT: 0
UNITS: uCi/cc

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel C
System - 45
Flow Diagram - M219
Control Room Indication - Real Time Display, Computer Print Out and Strip Chart.
EOF and TSC Indication - Computer Print Out.

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: Core Exit Thermocouples

ID(S): 42595 13115 13153 .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: C
QA TYPE: 3

PLANT INSTRUMENT RANGE:	REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 700	UPPER LIMIT: 700
LOWER LIMIT: 100	LOWER LIMIT: 50
UNITS: DEG F	UNITS: DEG F

EQUIPMENT QUALIFICATION:	SEISMIC QUALIFICATION:
EQ REQUIRED (Y/N): Y	SEISMIC QUAL. REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N	SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel C
P.O. - XK100-1918
System - 55
Transmitter's ID - 13115 thru 13151 (39 transmitters)
Not A1 - Not Safety Related
Control Room Readout - Strip Chart and Computer Print Out
EOF Readout - Computer Print Out
TSC Readout - Strip Chart, Printer and Computer Print Out
Power Supply Drawings - E665, E780, E845, E233
System to be upgraded during 1986 refueling.

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	

VARIABLE: RCS Loop Tave.

ID(S): 4122401 4122402 4122501 4122502
15061 15062 15071 15072

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: A
QA TYPE: 1

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 629
LOWER LIMIT: 520
UNITS: DEG F

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: .
LOWER LIMIT: .
UNITS:

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): N

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 1

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Control Console B
Flow Diagram - XK100-10
P.O. - XK100
System - 47
Power Supply Drawings - E789, E678, E845, E233
Control Room Indication - Real Time Display and Computer Print Out
EOF and TSC Indications - Computer Print Out

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: RCS Cold Leg Water Temperature

ID(S): 42555 4255501 4255502 15124
15126 . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 3

PLANT INSTRUMENT RANGE:
UPPER LIMIT: 650
LOWER LIMIT: 50
UNITS: DEG F

REGULATORY GUIDE INSTRUMENT RANGE:
UPPER LIMIT: 700
LOWER LIMIT: 50
UNITS: DEG F

EQUIPMENT QUALIFICATION:
EQ REQUIRED (Y/N): Y
EQ QUALIFIED (Y/N): Y

SEISMIC QUALIFICATION:
SEISMIC QUAL. REQUIRED (Y/N): Y
SEISMICALLY QUALIFIED (Y/N): N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel A
Flow Diagram - XK100-10
P.O. - XK100-1026, 1027
System - 36
Mechanical; QA = 1
EOF and TSC Readouts via Computer Link
Power Supply Drawings - E2562, E701

INDICATION TYPES
1 -- LOCAL READOUT
2 -- LOCAL RECORDER
3 -- BOTH 1 & 2
4 -- REMOTE READOUT
5 -- REMOTE RECORDER
6 -- BOTH 4 & 5
7 -- SEE NOTES

POWER SUPPLY TYPES
1 -- SAFETY GRADE
2 -- HIGHLY RELIABLE
3 -- OFFSITE POWER

VARIABLE: RCS Hot Leg Water Temperature

ID(S): 42501 4250101 4250102 15123
15125 . . .

REGULATORY GUIDE CATEGORY: 1
REGULATORY GUIDE TYPE: B
QA TYPE: 3

PLANT INSTRUMENT RANGE:		REGULATORY GUIDE INSTRUMENT RANGE:	
UPPER LIMIT:	650	UPPER LIMIT:	700
LOWER LIMIT:	50	LOWER LIMIT:	50
UNITS:	Deg. F	UNITS:	DEG. F

EQUIPMENT QUALIFICATION:		SEISMIC QUALIFICATION:	
EQ REQUIRED (Y/N):	Y	SEISMIC QUAL. REQUIRED (Y/N):	Y
EQ QUALIFIED (Y/N):	Y	SEISMICALLY QUALIFIED (Y/N):	N

REDUNDANCY:
REDUNDANCY REQUIRED (Y/N): Y
REDUNDANT? (Y/N): Y

POWER SUPPLY TYPE: 2

INDICATION:
CONTROL ROOM: 6
EOF: 6
TSC: 6

NOTES:
Located on Mechanical Vertical Panel A
Flow Diagram - XK100-10
P.O. - XK390-140
System - 54
RCS system design temperature - 650F (FSAR Table 4.1-6)
Mechanical; QA1
Power Supply Drawings - E829, E782, E702, E845, E233, E785, E3326
Control Room Indication - Strip Chart and Computer Print Out
EOF and TSC Indications - Computer Print Out

INDICATION TYPES	POWER SUPPLY TYPES
1 -- LOCAL READOUT	1 -- SAFETY GRADE
2 -- LOCAL RECORDER	2 -- HIGHLY RELIABLE
3 -- BOTH 1 & 2	3 -- OFFSITE POWER
4 -- REMOTE READOUT	
5 -- REMOTE RECORDER	
6 -- BOTH 4 & 5	
7 -- SEE NOTES	