



Carolina Power & Light Company
AUG 28 1985

SERIAL: NLS-85-276

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief ✓
Operating Reactors Branch No. 2
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
ATWS - GENERIC LETTER 83-28 SUPPLEMENTAL RESPONSE - SECTION 3.1.2

Dear Mr. Vassallo:

On July 8, 1983 Carolina Power & Light Company (CP&L) received Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events." Carolina Power & Light Company's response for the Brunswick facility was forwarded to your office on November 7, 1983. In Appendix C of that submittal, we provided action plans and schedules for the improvement programs as discussed in that response.

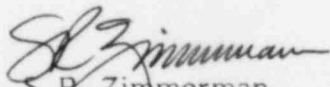
In Item 6 of Appendix C, CP&L committed to review vendor and engineering recommendations other than SILs applicable to the reactor protection systems (Section 3.1.2 of Generic Letter 83-28). The purpose of this review was to ensure that appropriate test guidance was included in periodic test and maintenance procedures or the Technical Specifications where required. This review has been completed and did not identify any vendor or engineering recommendations concerning test guidance which has not already been implemented in periodic tests, maintenance instructions, or Technical Specifications, as appropriate.

The attached report constitutes completion of Section 3.1.2 of NRC Generic Letter 83-28.

If you have any questions concerning this submittal, please contact Mr. Steve Chaplin at (919) 836-6623.

Yours very truly,

8509030383 850828
PDR ADUCK 05000324
P PDR


S. R. Zimmerman
Manager
Nuclear Licensing Section

SDC/rtj (1762SNP)

Attachments

cc: Mr. W. H. Ruland (NRC-BNP)
Dr. J. Nelson Grace (NRC-RII)
Mr. M. Grotenhuis (NRC)

A055
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PROJECT PLAN FOR IMPLEMENTATION
OF ITEM 6 OF SECTION 3.1.2 OF NRC
GENERIC LETTER 83-28

Written By	<u>W.M. Boring Jr.</u>	Date	<u>1-13-85</u>
Reviewed By	<u>J.E. Lloyd</u>	Date	<u>2/1/85</u>
Reviewed By	<u>W.H. G.</u>	Date	<u>13 Feb 85</u>
Approved By	<u>W.H. G.</u>	Date	<u>7/13/85</u>

1.0 SCOPE

The purpose of this plan is to provide project direction to the goal of identifying the Engineering and vendor recommendations on instrumentation within the RPS System. Once the recommendations have been identified, the outstanding recommendations will be evaluated and implemented as applicable.

2.0 Plan Background

The requirements for this project are a result of BSEP's commitment to the NRC as per the Salem Response Task Force Report to NRC Generic Letter 83-28. A description of NRC Generic Letter 83-28 is as follows:

2.1 NRC Generic Letter 83-28

On February 26, 1983, at the Salem Nuclear Generation Station, an alert was declared when an anticipated transient without scram (ATWS) occurred. The reason for the ATWS was determined to be a failed breaker in their RPS System. Subsequently, the NRC issued Generic Letter 83-28 which required licensees to provide information concerning conformance to position involving post-trip review, equipment classification, vendor interface, postmaintenance testing, and Reactor Trip System reliability. BSEP responded to 83-28 with a Salem Response Task Force Report which gave the status of current conformances to 83-28, action plans, and schedules for implementation for improvements.

One of the action plans in BSEP's response was to develop a plan for determining if vendor recommendations for the Reactor Protection System (RPS) have been addressed in existing plant procedures (Item 6 of Section 3.1.2 of NRC Generic Letter 83-28).

3.0 Project Plan

Implementing Section 3.1.2 will be done as per the attached outline (Attachment A).

Briefly, the instrumentation inputs to the RPS System will be identified along with the equipment manufacturer and vendor/Engineering recommendations associated with these instruments. Any recommendations not presently implemented at BSEP will be evaluated and implemented if necessary.

Attachment A

1. Identify the boundaries of the RPS System.
2. Identify instrument inputs to the RPS System.
3. Identify instruments by manufacturer.
4. Identify and research vendor and Engineering recommendations on RPS instruments.
5. Research and identify PTs, MIs, and technical specifications on instruments.
6. Compare vendor and Engineering recommendations versus MIs, PTs, and technical specifications.
7. Develop a program for evaluating outstanding vendor or Engineering recommendations associated with RPS instruments.
8. Write a report concerning results of research.
9. Obtain management approval.
10. Issue report to NRC as supplement response to Generic Letter 83-28 concerning results of research.
11. Implement program to resolve any outstanding recommendations.

ITEM 6 OF SECTION 3.1.2 OF NRC GENERIC LETTER 83-28

Written By Walter B. Bailey Jr.

Date 11-12-84

Reviewed By J. E. Harrell

Date 2/11/85

Reviewed By Will H. Hylleberg

Date 11 Feb 85

Approved By Bill Hylleberg

Date 2/12/85

I. Boundaries of RPS

The boundaries of RPS are those inputs which trip (deenergize) the C71/C72-K14 A-H (auto scram) contactors and C71/C72-K15A-D (manual scram) contactors.

References: FP-9527-50015
SD-03
OP-03

II. Identify Instrument Inputs to RPS

RPS is a fail safe circuit fed from a string of normally closed contacts. The relays for these contacts and their inputs are listed below:

A. Inputs to C71/C72-K14A-H (auto scram)

1. C71/C72-K5A-D (reactor vessel high pressure)
 - a. B21-PTM-N023A1-D1
 - (1) B21-PT-N023A-D
2. C71/K72-K6A-D (reactor vessel low water level)
 - a. B21-LTM-N017A1-D1
 - (1) B21-LT-N017A1-D1
3. C71/C72-K4A-D (primary containment high pressure)
 - a. C71/C72-PTM-N002A1-D1
 - (1) C71/C72-PT-N002A-D
4. C71/C72-K7A-D (main steam line high radiation)
 - a. C51-Z2A-D
 - (1) D12-RM-K603A-D
5. C71/C72-K1A-D (CRD scram discharge volume high water level)
 - a. C12-LS-N013A-D
 - b. C12-LS-4516A-D

6. C71/C72-K3A-H (MSIV closure)
 - a. Limit switch
 - (1) B21-F022A-D
 - (2) B21-F028A-D
7. C71-K8A-D (turbine control valve fast closure) (Unit 1)
 - a. EHC-PSL-1756-1759
8. C72-K24A-D (turbine control valve fast closure) (Unit 2)
 - a. C72-TDO-K23A-D
 - (1) C72-K8A-D
 - (a) EHC-PSL-1756-1759
9. C71/C72-K10A-H (turbine stop valve closure)
 - a. EHC-SVOS-1X to 4X
10. C71/C72-K12A-H (neutron monitoring trips)
 - a. IRM A-H
 - b. APRM A-F
11. C71/C72-K9A-D (turbine stop valve, control valve trip bypass)
 - a. C71/C72-PS-N003A-D
12. C72-K2A-D (turbine control valve bypass) (Unit 2)
 - a. 2-MS-BVOS-2 to 5
13. C71/C72-K18A-D (scram discharge volume trip bypass)
 - a. Selector switches C71-S1 and S4
14. C71/C72-K11A-D (MSIV closure trip bypass)
 - a. Selector switch C71-S1 (shutdown, refuel position)
- B. Inputs to C71/C72-K15A-D (manual scram)
 1. C71/C72-K13A-D (neutron monitoring trips) (shorting links removed)
 - a. SRM A-D

- b. C71/C72-K12A-H
 - (1) APRM A-F
 - (2) IRM A-H
- 2. C71/C72-S1 (reactor mode switch)
 - a. Open in shutdown
 - (1) C71/C72-K16A-B
 - (2) C71/C72-K17A-B
- 3. C71/C72-S3A-B (manual scram push button)

III. Identify Instruments by Manufacturer

The following is a list of instruments to RPS by instrument number, type, manufacturer, and model number.

The General Electric manufactured instruments are listed by instrument number, type, and manufacturer only. The General Electric instruments have already been researched as per Section 3.1.2 of the NRC Generic Letter 83-28 response and are listed here only as a reference to ensure the RPS inputs are addressed. Therefore, the General Electric manufactured instrument model numbers will be N/A.

IDENTIFICATION OF INSTRUMENTS BY MANUFACTURER

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
C71/C72-K3A	Relay	General Electric	N/A
C71/C72-K3B	Relay	General Electric	N/A
C71/C72-K3C	Relay	General Electric	N/A
C71/C72-K3D	Relay	General Electric	N/A
C71/C72-K3E	Relay	General Electric	N/A
C71/C72-K3F	Relay	General Electric	N/A
C71/C72-K3G	Relay	General Electric	N/A
C71/C72-K3H	Relay	General Electric	N/A
C71/C72-K8A	Relay	General Electric	N/A
C71/C72-K8B	Relay	General Electric	N/A
C71/C72-K8C	Relay	General Electric	N/A
C71/C72-K8D	Relay	General Electric	N/A
C72-K24A	Relay	General Electric	N/A
C72-K24B	Relay	General Electric	N/A
C72-K24C	Relay	General Electric	N/A
C72-K24D	Relay	General Electric	N/A
C71/C72-K10A	Relay	General Electric	N/A
C71/C72-K10B	Relay	General Electric	N/A
C71/C72-K10C	Relay	General Electric	N/A
C71/C72-K10D	Relay	General Electric	N/A
C71/C72-K10E	Relay	General Electric	N/A
C71/C72-K10F	Relay	General Electric	N/A
C71/C72-K10G	Relay	General Electric	N/A
C71/C72-K10H	Relay	General Electric	N/A
C71/C72-K12A	Relay	General Electric	N/A
C71/C72-K12B	Relay	General Electric	N/A
C71/C72-K12C	Relay	General Electric	N/A
C71/C72-K12D	Relay	General Electric	N/A
C71/C72-K12E	Relay	General Electric	N/A
C71/C72-K12F	Relay	General Electric	N/A
C71/C72-K12G	Relay	General Electric	N/A
C71/C72-K12H	Relay	General Electric	N/A
C71/C72-K9A	Relay	General Electric	N/A
C71/C72-K9B	Relay	General Electric	N/A
C71/C72-K9C	Relay	General Electric	N/A
C71/C72-K9D	Relay	General Electric	N/A
C72-K2A	Relay	General Electric	N/A
C72-K2B	Relay	General Electric	N/A
C72-K2C	Relay	General Electric	N/A
C72-K2D	Relay	General Electric	N/A
C71/C72-K18A	Relay	General Electric	N/A
C71/C72-K18B	Relay	General Electric	N/A
C71/C72-K18C	Relay	General Electric	N/A
C71/C72-K18D	Relay	General Electric	N/A
C71/C72-K11A	Relay	General Electric	N/A
C71/C72-K11B	Relay	General Electric	N/A

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
C71/C72-K11C	Relay	General Electric	N/A
C71/C72-K11D	Relay	General Electric	N/A
C71/C72-K15A	Contactor	General Electric	N/A
C71/C72-K15B	Contactor	General Electric	N/A
C71/C72-K15C	Contactor	General Electric	N/A
C71/C72-K15D	Contactor	General Electric	N/A
C71/C72-K13A	Relay	General Electric	N/A
C71/C72-K13B	Relay	General Electric	N/A
C71/C72-K13C	Relay	General Electric	N/A
C71/C72-K13D	Relay	General Electric	N/A
C71/C72-K14A	Contactor	General Electric	N/A
C71/C72-K14B	Contactor	General Electric	N/A
C71/C72-K14C	Contactor	General Electric	N/A
C71/C72-K14D	Contactor	General Electric	N/A
C71/C72-K14E	Contactor	General Electric	N/A
C71/C72-K14F	Contactor	General Electric	N/A
C71/C72-K14G	Contactor	General Electric	N/A
C71/C72-K14H	Contactor	General Electric	N/A
C71/C72-K5A	Relay	General Electric	N/A
C71/C72-K5B	Relay	General Electric	N/A
C71/C72-K5C	Relay	General Electric	N/A
C71/C72-K5D	Relay	General Electric	N/A
C71/C72-K6A	Relay	General Electric	N/A
C71/C72-K6B	Relay	General Electric	N/A
C71/C72-K6C	Relay	General Electric	N/A
C71/C72-K6D	Relay	General Electric	N/A
C71/C72-K4A	Relay	General Electric	N/A
C71/C72-K4B	Relay	General Electric	N/A
C71/C72-K4C	Relay	General Electric	N/A
C71/C72-K4D	Relay	General Electric	N/A
C71/C72-K7A	Relay	General Electric	N/A
C71/C72-K7B	Relay	General Electric	N/A
C71/C72-K7C	Relay	General Electric	N/A
C71/C72-K7D	Relay	General Electric	N/A
C71/C72-K1A	Relay	General Electric	N/A
C71/C72-K1B	Relay	General Electric	N/A
C71/C72-K1C	Relay	General Electric	N/A
C71/C72-K1D	Relay	General Electric	N/A
C71/C72-S1	Switch	General Electric	N/A
C71/C72-S3A	Switch	General Electric	N/A
C71/C72-S3B	Switch	General Electric	N/A

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
1-B21-PTM-N023A-1	Trip Module	Rosemount	510DU224022A010
1-B21-PTM-N023B-1	Trip Module	Rosemount	510DU224022A010
1-B21-PTM-N023C-1	Trip Module	Rosemount	510DU224022A010
1-B21-PTM-N023D-1	Trip Module	Rosemount	510DU224022A010
1-B21-PT-N023A	Transmitter	Rosemount	1152GP9E22TO280PB
1-B21-PT-N023B	Transmitter	Rosemount	1152GP9E22TO280PB
1-B21-PT-N023C	Transmitter	Rosemount	1152GP9E22TO280PB
1-B21-PT-N023D	Transmitter	Rosemount	1152GP9E22TO280PB
1-B21-LTM-N017A-1	Trip Module	Rosemount	510DU244022A010
1-B21-LTM-N017B-1	Trip Module	Rosemount	510DU244022A010
1-B21-LTM-N017C-1	Trip Module	Rosemount	510DU244022A010
1-B21-LTM-N017D-1	Trip Module	Rosemount	510DU244022A010
1-B21-LT-N017A-1	Transmitter	Rosemount	1152DP4E22TO280PB
1-B21-LT-N017B-1	Transmitter	Rosemount	1152DP4E22TO280PB
1-B21-LT-N017C-1	Transmitter	Rosemount	1152DP4E22TO280PB
1-B21-LT-N017D-1	Transmitter	Rosemount	1152DP4E22TO280PB
1-C71-PTM-N002A-1	Trip Module	Rosemount	510DU244022A010
1-C71-PTM-N002B-1	Trip Module	Rosemount	510DU244022A010
1-C71-PTM-N002C-1	Trip Module	Rosemount	510DU244022A010
1-C71-PTM-N002D-1	Trip Module	Rosemount	510DU244022A010
1-C71-PT-N002A	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
1-C71-PT-N002B	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
1-C71-PT-N002C	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
1-C71-PT-N002D	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
1-C51-Z2A	Selector Switch	General Electric	N/A
1-C51-Z2B	Selector Switch	General Electric	N/A
1-C51-Z2C	Selector Switch	General Electric	N/A
1-C51-Z2D	Selector Switch	General Electric	N/A
1-D12-RM-K603A	Rad Monitor	General Electric	N/A
1-D12-RM-K603B	Rad Monitor	General Electric	N/A
1-D12-RM-K603C	Rad Monitor	General Electric	N/A
1-D12-RM-K603D	Rad Monitor	General Electric	N/A
1-C12-LS-N013A	Level Switch	Magnetrol	5-0-751-0.75-1X-MPG-M13HY
1-C12-LS-N013B	Level Switch	Magnetrol	5-0-751-0.75-1X-MPG-M13HY
1-C12-LS-N013C	Level Switch	Magnetrol	5-0-751-0.75-1X-MPG-M13HY
1-C12-LS-N013D	Level Switch	Magnetrol	5-0-751-0.75-1X-MPG-M13HY

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
1-C12-LS-4516A	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
1-C12-LS-4516B	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
1-C12-LS-4516C	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
1-C12-LS-4516D	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
1-B21-F022A	Limit Switch	NAMCO	EA-740-80100
1-B21-F022B	Limit Switch	NAMCO	EA-740-80100
1-B21-F022C	Limit Switch	NAMCO	EA-740-80100
1-B21-F022D	Limit Switch	NAMCO	EA-740-80100
1-B21-F028A	Limit Switch	NAMCO	EA-740-80100
1-B21-F028B	Limit Switch	NAMCO	EA-740-80100
1-B21-F028C	Limit Switch	NAMCO	EA-740-80100
1-B21-F028D	Limit Switch	NAMCO	EA-740-80100
1-EHC-PSL-1756	Pressure Switch	Barksdale	C9622-3
1-EHC-PSL-1757	Pressure Switch	Barksdale	C9622-3
1-EHC-PSL-1758	Pressure Switch	Barksdale	C9622-3
1-EHC-PSL-1759	Pressure Switch	Barksdale	C9622-3
1-EHC-SVOS-1X	Limit Switch	NAMCO	EA-170-51100
1-EHC-SVOS-2X	Limit Switch	NAMCO	EA-170-51100
1-EHC-SVOS-3X	Limit Switch	NAMCO	EA-170-51100
1-EHC-SVOS-4X	Limit Switch	NAMCO	EA-170-51100
IRM A	Neutron Monitor	General Electric	N/A
IRM B	Neutron Monitor	General Electric	N/A
IRM C	Neutron Monitor	General Electric	N/A
IRM D	Neutron Monitor	General Electric	N/A
IRM E	Neutron Monitor	General Electric	N/A
IRM F	Neutron Monitor	General Electric	N/A
IRM G	Neutron Monitor	General Electric	N/A
IRM H	Neutron Monitor	General Electric	N/A
APRM A	Neutron Monitor	General Electric	N/A
APRM B	Neutron Monitor	General Electric	N/A
APRM C	Neutron Monitor	General Electric	N/A
APRM D	Neutron Monitor	General Electric	N/A
APRM E	Neutron Monitor	General Electric	N/A
APRM F	Neutron Monitor	General Electric	N/A
C71-PS-N003A	Pressure Switch	Barksdale	PIH-M340SS
C71-PS-N003B	Pressure Switch	Barksdale	PIH-M340SS
C71-PS-N003C	Pressure Switch	Barksdale	PIH-M340SS
C71-PS-N003D	Pressure Switch	Barksdale	PIH-M340SS

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
C71-S4	Selector Switch	General Electric	N/A
SRM A	Neutron Monitor	General Electric	N/A
SRM B	Neutron Monitor	General Electric	N/A
SRM C	Neutron Monitor	General Electric	N/A
SRM D	Neutron Monitor	General Electric	N/A
C71-K16A	Relay	General Electric	N/A
C71-K16B	Relay	General Electric	N/A
C71-K17A	Relay	General Electric	N/A
C71-K17B	Relay	General Electric	N/A
2-B21-PTM-N023A-1	Trip Module	Rosemount	510DU224022A010
2-B21-PTM-N023B-1	Trip Module	Rosemount	510DU224022A010
2-B21-PTM-N023C-1	Trip Module	Rosemount	510DU224022A010
2-B21-PTM-N023D-1	Trip Module	Rosemount	510DU224022A010
2-B21-PT-N023A	Transmitter	Rosemount	1152GP9E22TO280PB
2-B21-PT-N023B	Transmitter	Rosemount	1152GP9E22TO280PB
2-B21-PT-N023C	Transmitter	Rosemount	1152GP9E22TO280PB
2-B21-PT-N023D	Transmitter	Rosemount	1152GP9E22TO280PB
2-B21-LTM-N017A-1	Trip Module	Rosemount	510DU244022A010
2-B21-LTM-N017B-1	Trip Module	Rosemount	510DU244022A010
2-B21-LTM-N017C-1	Trip Module	Rosemount	510DU244022A010
2-B21-LTM-N017D-1	Trip Module	Rosemount	510DU244022A010
2-B21-LT-N017A-1	Transmitter	Rosemount	1152DP4E22TO280PB
2-B21-LT-N017B-1	Transmitter	Rosemount	1152DP4E22TO280PB
2-B21-LT-N017C-1	Transmitter	Rosemount	1152DP4E22TO280PB
2-B21-LT-N017D-1	Transmitter	Rosemount	1152DP4E22TO280PB
2-C32-PTM-N002A-1	Trip Module	Rosemount	510DU244022A010
2-C32-PTM-N002B-1	Trip Module	Rosemount	510DU244022A010
2-C32-PTM-N002C-1	Trip Module	Rosemount	510DU244022A010
2-C32-PTM-N002D-1	Trip Module	Rosemount	510DU244022A010
2-C32-PT-N002A	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
2-C32-PT-N002B	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
2-C32-PT-N002C	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
2-C32-PT-N002D	Pressure Transmitter	Rosemount	1152DP4E22TO280PB
2-C51-Z2A	Selector Switch	General Electric	N/A
2-C51-Z2B	Selector Switch	General Electric	N/A
2-C51-Z2C	Selector Switch	General Electric	N/A
2-C51-Z2D	Selector Switch	General Electric	N/A
2-D12-RM-K603A	Radiation Monitor	General Electric	N/A
2-D12-RM-K603B	Radiation Monitor	General Electric	N/A
2-D12-RM-K603C	Radiation Monitor	General Electric	N/A
2-D12-RM-K603D	Radiation Monitor	General Electric	N/A
2-C12-LS-N013A	Level Switch	Magnetrol	5-0-751-0.75-1X- MPG-M13HY
2-C12-LS-N013B	Level Switch	Magnetrol	5-0-751-0.75-1X- MPG-M13HY

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
2-C12-LS-N013C	Level Switch	Magnetrol	5-0-751-0.75-1X- MPG-M13HY
2-C12-LS-N013D	Level Switch	Magnetrol	5-0-751-0.75-1X- MPG-M13HY
2-C12-LS-4516A	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
2-C12-LS-4516B	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
2-C12-LS-4516C	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
2-C12-LS-4516D	Level Switch	Fluid Components Incorporated	FR72-4 HTRDLL
2-B21-F022A	Limit Switch	NAMCO	EA740-80100
2-B21-F022B	Limit Switch	NAMCO	EA740-80100
2-B21-F022C	Limit Switch	NAMCO	EA740-80100
2-B21-F022D	Limit Switch	NAMCO	EA740-80100
2-B21-F028A	Limit Switch	NAMCO	EA740-80100
2-B21-F028B	Limit Switch	NAMCO	EA740-80100
2-B21-F028C	Limit Switch	NAMCO	EA740-80100
2-B21-F028D	Limit Switch	NAMCO	EA740-80100
2-C72-TDO-K23A	Time Delay Relay	AGASTAT	212AH25B
2-C72-TDO-K23B	Time Delay Relay	AGASTAT	212AH25B
2-C72-TDO-K23C	Time Delay Relay	AGASTAT	212AH25B
2-C72-TDO-K23D	Time Delay Relay	AGASTAT	212AH25B
2-EHC-PSL-1756	Pressure Switch	Barksdale	C9622-3
2-EHC-PSL-1757	Pressure Switch	Barksdale	C9622-3
2-EHC-PSL-1758	Pressure Switch	Barksdale	C9622-3
2-EHC-PSL-1759	Pressure Switch	Barksdale	C9622-3
2-EHC-SVOS-1X	Limit Switch	NAMCO	EA-170-51100
2-EHC-SVOS-2X	Limit Switch	NAMCO	EA-170-51100
2-EHC-SVOS-3X	Limit Switch	NAMCO	EA-170-51100
2-EHC-SVOS-4X	Limit Switch	NAMCO	EA-170-51100
IRM A	Neutron Monitor	General Electric	N/A
IRM B	Neutron Monitor	General Electric	N/A
IRM C	Neutron Monitor	General Electric	N/A
IRM D	Neutron Monitor	General Electric	N/A
IRM E	Neutron Monitor	General Electric	N/A
IRM F	Neutron Monitor	General Electric	N/A
IRM G	Neutron Monitor	General Electric	N/A
IRM H	Neutron Monitor	General Electric	N/A
APRM A	Neutron Monitor	General Electric	N/A
APRM B	Neutron Monitor	General Electric	N/A
APRM C	Neutron Monitor	General Electric	N/A
APRM D	Neutron Monitor	General Electric	N/A
APRM E	Neutron Monitor	General Electric	N/A
APRM F	Neutron Monitor	General Electric	N/A
2-C72-PS-N003A	Pressure Switch	Barksdale	PIH-M340SS
2-C72-PS-N003B	Pressure Switch	Barksdale	PIH-M340SS
2-C72-PS-N003C	Pressure Switch	Barksdale	PIH-M340SS

<u>INSTRUMENT</u>	<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
2-C72-PS-N003D	Pressure Switch	Barksdale	PIH-M340SS
2-MS-BVOS-2	Limit Switch	National ACME	SL-3
2-MS-BVOS-3	Limit Switch	National ACME	SL-3
2-MS-BVOS-4	Limit Switch	National ACME	SL-3
2-MS-BVOS-5	Limit Switch	National ACME	SL-3
C72-S4	Selector Switch	General Electric	N/A
2-C72-K16A	Relay	General Electric	N/A
2-C72-K16B	Relay	General Electric	N/A
2-C72-K17A	Relay	General Electric	N/A
2-C72-K17B	Relay	General Electric	N/A
SRM A	Neutron Monitor	General Electric	N/A
SRM B	Neutron Monitor	General Electric	N/A
SRM C	Neutron Monitor	General Electric	N/A
SRM D	Neutron Monitor	General Electric	N/A

III. Identify Instruments by Manufacturer (Cont'd)

The preceding list of RPS instruments can be condensed as follows to show only the different manufacturers and model numbers:

<u>TYPE</u>	<u>MANUFACTURER</u>	<u>MODEL</u>
Level Switch	Magnetrol	5-0-751-0.75-1X-MPG-M13HY
Level Switch	Fluid Components Inc.	FR72-4HTRDLL
Limit Switch	NAMCO	EA-740-80100
Limit Switch	NAMCO	EA-170-51100
Trip Module	Rosemount	510DU224022A010
Transmitter	Rosemount	1152GP9E22TO280PB
Transmitter	Rosemount	1152DPHE22TO280PB
Pressure Switch	Barksdale	C9622-3
Pressure Switch	Barksdale	PIHM340SS
Time Delay Relay	AGASTAT	212AH25B
Limit Switch	National ACME	SL-3

IV. Research and Identify Vendor and Engineering Recommendations

- A. Three methods were used to identify vendor and engineering recommendations:
1. Use of the Nuclear Plant Reliability Data System (NPRDS) to identify failure history.
 2. Input from the Brunswick Performance group concerning vendor recommendations and a review of vendor manuals.
 3. A computer, manual search of outstanding Engineering Work Requests (EWRs).
- B. The NPRD System gave the following information on the instruments listed in Section III.
1. Magnetrol (Model 5-0-751-0.75-1X-MPG-M13HY) - no history of failure against this model.
 2. Fluid Components Inc. (Model FR72-4HTRDLL) - no history of failure against this model.
 3. NAMCO (Model EA740-80100) - six entries logged in NPRDS.
 - a. Millstone 1 - logged four events with switch out of adjustment.
 - b. Vermont Yankee - logged two events. One bad return spring and one broken roller arm.

4. NAMCO (Model EA-170-51100 - no history of failure against this model.
5. Rosemount (Model 510DU224022A010) - three entries logged in NPRDS.
 - a. Grand Gulf 1 - logged the three entries - two instrument drifts and one power supply failure.
6. Rosemount (1152GP9E22TO280PB) - fifteen entries logged in NPRDS against this model number.
 - a. H. B. Robinson 2 - logged two entries - both entries listed as instrument drift.
 - b. Palisades 1 - logged one entry - instrument drift.
 - c. Davis - Besse 1 - logged ten entries - six buffer card failures, one failure due to boric acid leakage on transmitter, two power supply failures, and one failure due to a steam leak on transmitter.
 - d. Grand Gulf 1 - one failure due to instrument drift.
 - e. VC Summer 1 - one failure do to defective amplifier board.
7. Barksdale (C9622-3) - no history of failure against this model.
8. Barksdale (PIH-M340SS) - twelve entries logged in NPRDS against this model number.
 - a. Brunswick 1 - three entries logged - all three due to water corrosion.
 - b. Brunswick 2 - nine entries logged - failures due to water corrosion.
9. AGASTAT (212AH25B) - no entries logged against this model number.
10. National ACME (SL-3) - seven entires logged in NPRDS against this model number.
 - a. J. A. Fitzpatrick 1 - six entries logged - two failures due to drift, two due to defective striker plate, two failures due to defective switch.
 - b. Monticello 1 - one entry logged - failure due to misadjustment (human error).

11. Input from the Brunswick Performance Group and a review of vendor manuals did not identify vendor concerns on instruments listed in Section III.
12. A computer and manual search of outstanding EWRs resulted in two outstanding items:
 - a. EWR 79-448 - install analog instrumentation. This EWR is active and presently being worked.
 - b. EWR 84-864 - Rosemount 1152 transmitter has component failure and parts availability problem. This EWR is now being researched to changeout the 1152 Rosemount with the 1153 model.

Conclusion

The results of the previous research indicate that of the eleven instruments listed in Section III, only the Rosemount 1152 transmitters and the Barksdale PIH-340SS pressure switches have an indication of high failure rate. The other eight instruments show no indication of a generic failure rate.

The 1152 Rosemount transmitters are being evaluated for replacement as per EWR 84-864.

The Barksdale PIH-340SS pressure switch failures occurred, in cases logged, in the -17' elevation of the Brunswick plant where water corrosion is a concern. The RPS Barksdale switches are not located in this area; therefore, corrosion is not a concern. The Barksdale failures logged indicate no generic concerns against the Barksdale PIH-340SS pressure switch.

This research was concluded on 9-28-84.

V. Research and Identify PTs, MIs, and Technical Specifications on Instruments

Instruments	MIs	PTs	Tech. Specs.	Table
C11/C12-LS-N013A-D	MI-03-3IA	1.1.2PC	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
C11/C12-LS-4516A-D	None	1.1.2PC	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
B21-LS-F022A-D	MI-16-29	1.3.1PC	2.2.1 2-3 3.3.1 3/4 3-1	3.2.1-1 3.3.1-1
B21-LS-F028A-D	MI-16-29	1.3.1PC	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
EHC-PSL-1756 to 1759	MI-03-3A30	1.3.2PC	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
EHC-SVOS-1X to 4X	None	1.3.2PC	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
B21-PTM-N023A1 to D1	MI-03-9A13	A26.1	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
B21-PT-N023A-D	MI-03-1BX14	A26.1	3.3.1 3/4 3-1	3.3.1-1
B21-LTM-N017A1 to D1	MI-03-9A1	A25.1	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
B21-LT-N017A1 to D1	MI-03-1BX4	A25.1	3.3.1 3/4 3-1	3.3.1-1
C71/C72-PTM-N002A1 to D1	None	A24.1	2.2.1 2-3 3.3.1 3/4 3-1	2.2.1-1 3.3.1-1
C71/C72-PT-N002A-D	None	A24.1	3.3.1 3/4 3-1	3.3.1-1
*C71/C72-PS-N003A-D	MI-03-3A29	None	None	None
(Unit 2 only) ***MS-BVOS-2 to 5	None	None	None	None
(Unit 2 only) ***C72-TDO-K23A-D	None	None	None	None

*C71/C72-PS-N003A-D is a BYPASS for stop valve/control valve SCRAM and has no technical specification requirements.

**These instruments were supplied by General Electric for a select rod insert feature. This feature is not used at BSEP.

VI. Identify Vendor and Engineering Recommendations Versus MIs, PTs, and Technical Specifications.

A review of MIs, PTs, and technical specifications listed in Section VII and a review of vendor manuals revealed no outstanding recommendations not already being implemented at BSEP.

VII. Evaluate Outstanding Vendor or Engineering Recommendations

Two outstanding Engineering recommendations are outstanding on the RPS System. These are EWR 79-448 and EWR 84-864. Both of these EWRs are actively being worked, as discussed in Section IV of this report.

VIII. Results of Research

The results of this research revealed no outstanding problems or generic concerns not already being worked by BSEP. The review did not identify vendor or Engineering recommendations concerning test guidance not already implemented in PTs, MIs, or technical specifications. An ongoing program is in place at BSEP to identify any future vendor recommendations.

This report constitutes completion of Section 3.1.2 of NRC Generic Letter 83-28.