REGULATORY FORMATION DISTRIBUTION SYSTEM (RIDS)

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FACIL:50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Ligh 05000261
AUTH.NAME AUTHOR AFFILIATION
UTLEY,E.E. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Operating Reactors Branch 1

SUBJECT: Forwards addl info re facility requested 790521.Info is to be used to prepare basis for continued plant operation in light of TMI-2 event.

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	15 CORE PERF BR	1	1	16 AD SYS/PROJ	1	1
	17 ENGR BR	1	1	18 REAC SFTY BR	1	1
	19 PLANT SYS BR	1	1	20 EEB	1	1
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JUN 21 1979

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CP&L
Carolina Power & Light Company

June 15, 1979

FILE: NG-3514(R)

GD-79-1583

Office of Nuclear Reactor Regulation
ATTENTION: Mr. Albert Schwencer, Chief
Operating Reactors Branch No. 1
United States Nuclear Regulatory Commission
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-26L
LICENSE NO. DPR-23
ADDITIONAL INFORMATION ON H. B. ROBINSON SYSTEMS

Dear Mr. Schwencer:

Please find attached additional information on H. B. Robinson Plant systems requested by your staff on May 21, 1979. In addition, you will also find enclosed copies of information that was transmitted to your staff verbally on May 10 and 21, 1979. It is our understanding that this information will be used to prepare a basis for continued plant operation in light of the Three Mile Island incident and that Carolina Power & Light Company will have the opportunity to comment on the document prior to it being formally issued.

If you have any further questions on this matter, please contact our staff.

Yours very truly,

M A McDuffie

for E. E. Utley
Executive Vice President
Power Supply and Customer Services

EEU/mf

A001
S 1/1

411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

7906200356

INFORMATION REQUESTED

May 21, 1979

1. For all lines penetrating containment that are automatically isolated in the event of an accident, identify the parameters sensed that will initiate automatic containment isolation. Also indicate the AND and OR logic associated with these parameters.

RESPONSE

The list of lines automatically isolated in the event of an accident is provided in EI-1 which was submitted to NRC by letter of May 8, 1979 (Jones for Utley to Schwencer, CP&L Serial No. GD-79-123).

Refer to Section E of the procedure (EI-1) for all automatic features.

The parameters sensed and the logic associated is in the Reactor Safeguards System Description (SD-6) submitted with the letter listed above.

2. For lines penetrating the containment that are used to transfer fluids to the waste handling systems outside containment, describe the action (automatic or manual) that is required to initiate fluid transfer. If fluid transfer occurs automatically, describe the provisions that have been made to assure that any demand for fluid transfer will be overridden and that these lines will be automatically isolated in the event of an accident. Furthermore, describe the provisions which will assure that the lines will remain isolated, even after resetting of the engineered Safety Features Actuation Signal. Identify the lines involved.

RESPONSE

The information required in this item can be found in the May 8, 1979 response and in our response to Items 4 and 9 of IE Bulletin 79-06A submitted April 23, 1979.

3. Identify the essential lines penetrating the containment; i.e., lines which do not have a post-accident safety function yet are important to plant safety. These lines typically do not receive an automatic isolation signal, or, if they do, their isolation is deferred until subsequent signals are received that confirm the existance of an accident condition. Describe and justify the isolation acutation provisions for these lines. (Exclude lines associated with the engineered safety features, and lines which are normally closed during operating modes requiring containment integrity and remain closed following an accident).

RESPONSE

See the following:

EI-1-C
EI-E and F
Reactor Safeguards (SD-6)

For additional support, the following information is provided:

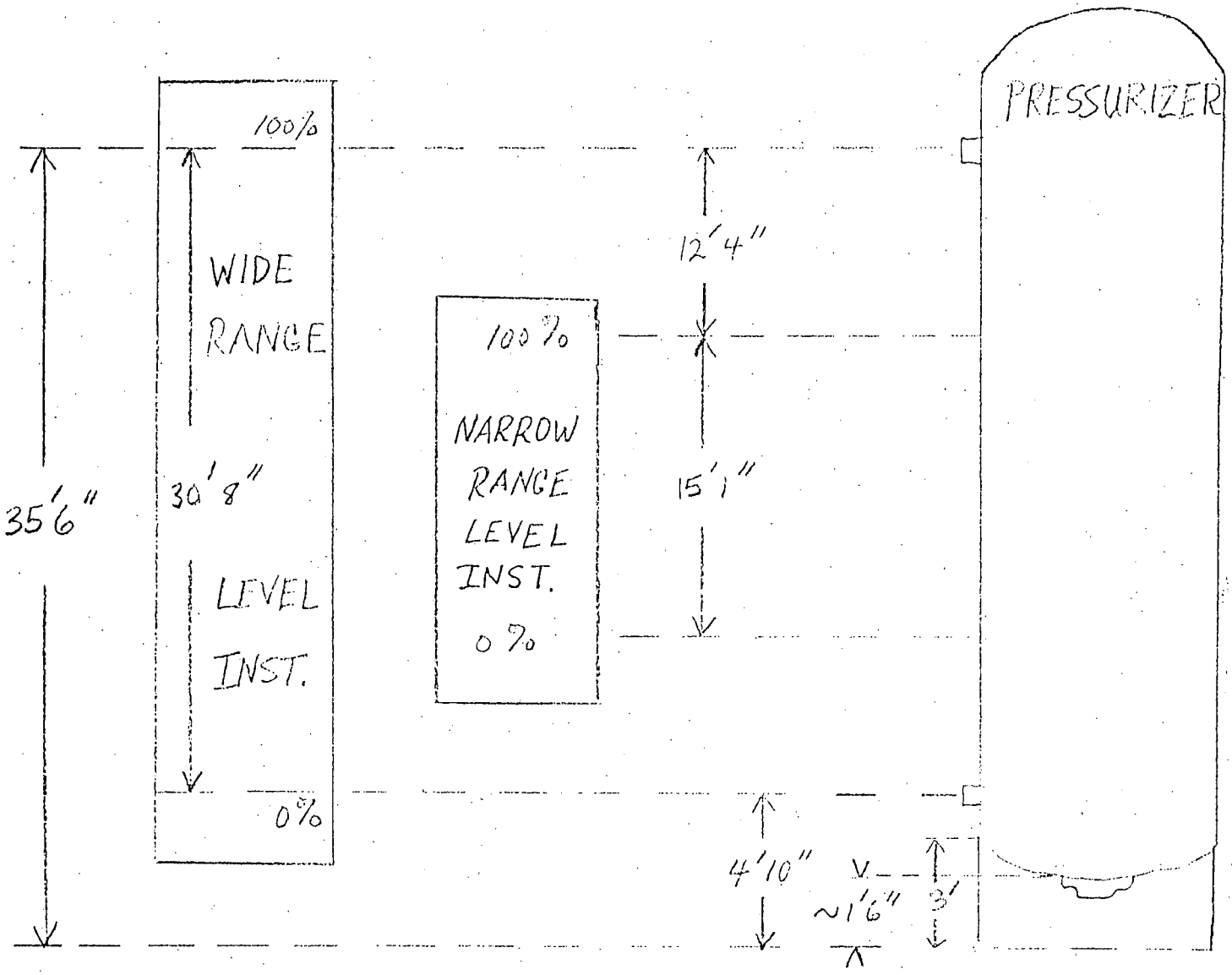
Automatic isolation is not provided for some lines that are connected to non-radioactive systems outside the containment and in which a pressure gradient exists which opposes leakage from the containment.

These lines include the N_2 supply to the RCDT and to the PRT. These lines are manually operated, (see EI-1), after an accident.

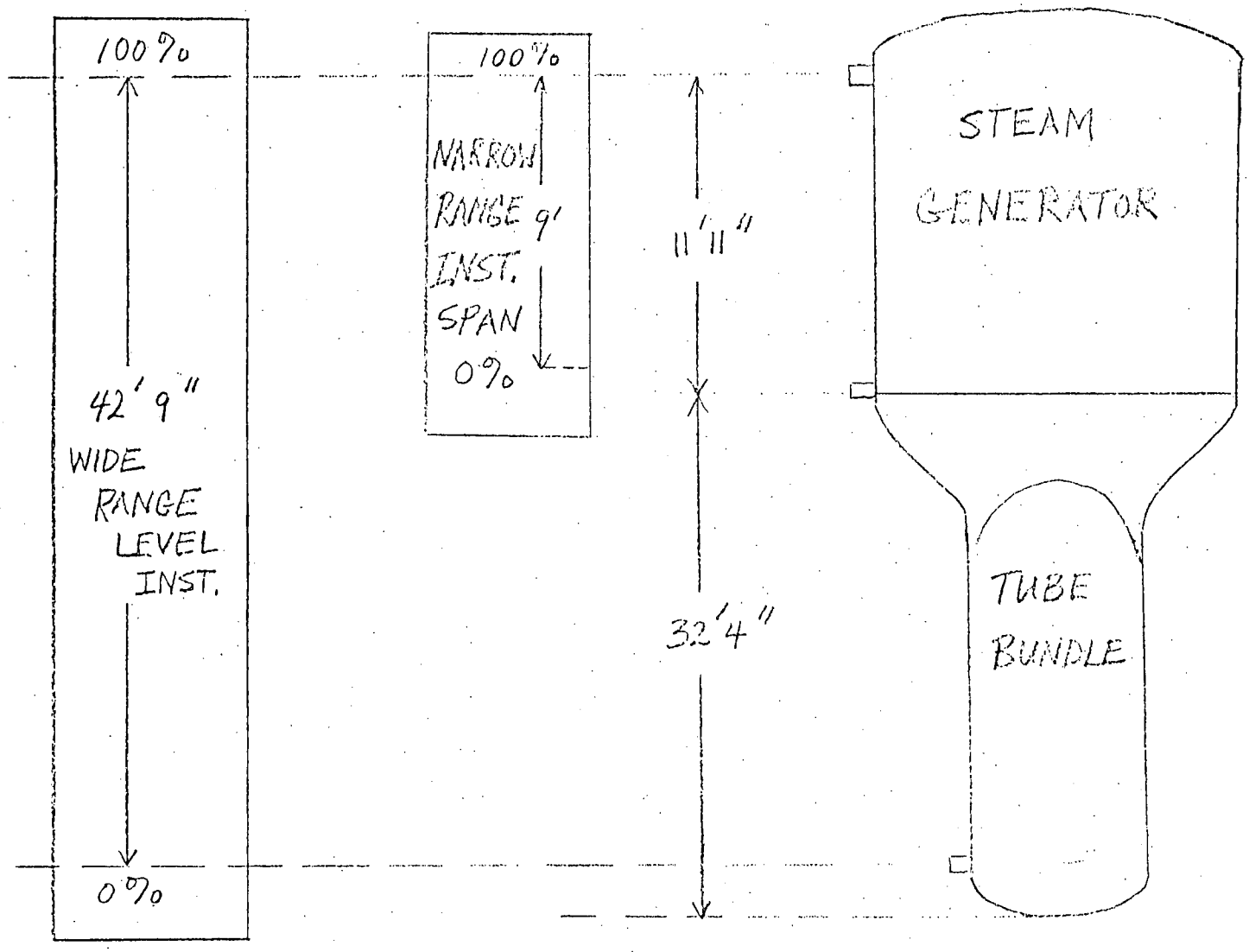
Phase B isolation generated by a "P" signal isolates certain essential lines as listed in EI-1 and in the Reactor Safeguards System description.

Manual containment isolation is provided for certain essential lines which are normally filled with water and will remain filled following an accident. Isolation valve seal water is also suppled to these valves. These lines will remain in service until such time that they are no longer required. These lines include the Reactor Coolant pump seal water supply lines and the RCS charging line.

HBR


PRESSURIZER
100%
WIDE
RANGE
30'8"
LEVEL
INST.
0%
35'6"
100%
NARROW
RANGE
LEVEL
INST.
0%
12'4"
15'1"
4'10"
~1'6"
3'

HBR



Narrow Range

52% of Inst. Span = Normal Operating Level 78,500 lb. Mass H_2O

30% Low Level Setpoint 66,200 lb mass H_2O

15% Low Low Level Setpoint

Reference letter CP&L 79-17 dated 5-17-79

INFORMATION PROVIDED

May 21, 1979

I. 1. Pressurizer Heaters

Balance of Plant Instrument Power Source
(Class IE or Non-Class IE)
Backup Heater Power Source

RESPONSE

= BOP Instrumentation Power Source is from the two motor control centers, MCC 5 and 6, and the station batteries.

Instrument Bus #1 and 6	MCC #5 (E1)
Instrument Bus #2 and 7	A Battery
Instrument Bus #3 and 8	B Battery
Instrument Bus #4 and 9	MCC #6 (E2)

= Backup Heater

A. From 480V Bus #1 from 4160V Bus #2 via SST 2-A.

B. From 480V Bus #2A from 4160V Bus #1 via SST 2-B.

2. Backup Heaters On Setpoints
Off Setpoints

RESPONSE

On: 2210 psig - 2.750V
Off: 2218 psig - 2.830V

3. Variable Heater XFR Function

See Attached

4. Spray Valve Transfer Function

See Attached

5. Power Operated Relief Valve #2

Open setpoints -
Close setpoints -

Describe controller XFR Function $\frac{(\text{Output})}{\text{PSIA}}$ including, Proportional Gain, Integral Gain and Derivative Gain.

RESPONSE

There are two power operated relief valves. PCV-456 opens from signal from pressure transmitted through a comparator.

Open: 2335 PSIG = 4.180V
Close: 2327 PSIG - 4.140V

PCV-455C opens from a compensated pressure signal through RC-444A to PC-4448.

Open: 2335 PSIG = 4.000 volts
Close: 2331 PSIG = 3.960 volts

=See Attachments for XFR Function Information=

II. Describe all events that resulted in a complete loss of main feedwater over the last three years of operation. Include as a minimum the following information: date, initiating event, power level, consequences (one paragraph description), and safety significance of event.

RESPONSE

Review of the plant records has indicated that since January 1, 1976, there have been no reactor trips due to a complete loss of main feedwater. During plant shutdowns the main feedwater pumps are shutdown manually, however, this is a normal occurrence and there is no safety significance associated with it. Our review of the plant records to date has revealed no instance over the past three years which resulted in complete loss of main feedwater. Main feedwater interruptions were provided earlier.

III. Pressurizer Pressure Control

A. Pressurizer pressure controller (PC-444A)	
proportional gain	1 psi/psi
reset time constant	180 sec.
rate time constant	10 sec.
pressure setpoint, Pref	2235 psig
B. Spray valve controllers (PC-444C, PC-444D)	
proportional gain in percent spray valve lift per psi	2%/psi
setpoint where spray is initiated on compensated pressure signal from PC-444A	2260 psig
C. Variable heater controller	
proportional gain in percent heating power per psi	-3.33%/psi
setpoint where proportional heating is full on, on signal from PC-444A	2220 psig
D. Power relief valve (PCV-455C) operated on compensated pressure signal from PC-444A to PC-444B	2335 psig
E. Back-up heaters turned on, on compensated pressure signal from PC-444A to PC-444F	2210 psig

F. Power relief valve (PCV-456)
operated on actual pressure
(PC-445A) 2335 psig

IV. General Notes

1. Setpoints for proportional-rate-reset controllers are specified for transfer function of the form:

output = input x $\frac{1}{PB}$ (1 + $\frac{1}{T_1 S}$) + $T_2 S$), where PB is proportional band

T_1 is reset time constant, and T_2 is rate time constant.

Note: Where practical, the proportional band is specified in terms of the parameter being measured.

2. Setpoints for lead/lag controllers are specified for transfer functions of the form:

output = input x $\frac{1 + T_1 S}{(1+T_2 S)\ (1+T_3 5)}$, where T_1 is lead time constant and

T_2, T_3... are lag time constants.

INFORMATION PROVIDED

May 10, 1979

PRESSURIZER SAFETY VALVES

I. Number - 3.

II. Capacity - Relief capacity each at 3% accumulation - 288,000 lb/hr.

III. Set Points - Open 2,522.5 $\pm$ 37.5 psig
Back pressure, normal -3 psig
Relieving (max) -350 psig

IV. Manufacturer - Crosby Valve Co.
Style - HB-86-BP

V. Resistance temperature detectors in each discharge line. Will give high temperature indication and alarm for open or leaky safety.
TC-454, 467, 469
Window No. -A3-46
Set Points: 20° above ambient in pressurizer cubicle at hot condition.
All set at 225° F.

VI. None. Tested during each shutdown.

VII. None.

CONDENSATE PUMPS

Type:	Byron Jackson (2)
Dimineralizers:	None
Booster Pumps:	None
Control Valves:	Copes-Vulcan (3)

One per discharge line into S/G equipped with low flow bypass valves. Can be isolated by closing block valves.

Pressurizer PORV:	(2)/Copes-Vulcan Air Diaphragm Capacity: 210,000 lb/hr per valve Set Pressure: 2,335 psig Position Indication: Open-Closed (RTGB) Refer to May 8, 1979 report
Feedwater Heaters:	(2)/6A and 6B Bypass (yes)

MAIN FEEDWATER SYSTEM

Pumps:	Type	Centrifugal (2)
	Capacity	12,690 GPM
	Shut-off Head	App. 2,400 ft.

Drive:	Type	Westinghouse Motor, 4160 volt
Trips:	Electrical Overload BUS Undervoltage Minimum Flow - Blocked for 30 sec. after start Loss of condensate pump Low lube oil pressure Low suction pressure Safeguards actuation (SI signal) Hi S/G level	
Block Valve:	Chapman (3) As is (failed position)	