Docket No. 50-263

April 4, 1994

LICENSEE: Northern States Power Company

FACILITY: Monticello Nuclear Generating Plant

SUBJECT: MEETING SUMMARY OF MARCH 22, 1994

On March 22, 1994, representatives from Northern States Power Company met with representatives from the NRC to discuss the licensee's plans for implementation of the reactor water level modification as required by NRC Bulletin 93-03, "Resolution of Issues Related to Reactor Water Level Instrumentation in BWRs." The meeting was held at the NRC Headquarters office in Rockville, Maryland. A list of attendees is enclosed (Enclosure 1). The meeting agenda and overhead slides used during the meeting are also enclosed (Enclosure 2).

The meeting provided an opportunity for representatives from the Monticello plant to meet with NRC technical staff and discuss details concerning Monticello's water level system backfill modification and the licensee's specific plans for testing the modification. The licensee revised a previous commitment to have the system fully operable by the completion of the first cold shutdown after December 31, 1993, in a letter dated December 29, 1993. The licensee stated in the letter that it now plans to complete the installation of the system, but inject into two of the four reference legs for a period of testing prior to fully implementing the system. The licensee stated that this period of testing may encompass up to one full operating cycle in order to test the system during various phases of plant operation.

At the meeting the NRC technical staff stated that a number of other plants have implemented the modification with much briefer testing periods and they concluded that 30 days should provide sufficient time for testing prior to full implementation of the backfill system. The licensee plans to submit a written response to the staff's position within approximately 1 week of the March 22 meeting.

Original signed by:
Beth A. Wetzel, Acting Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:
1. List of Attendees
2. Agenda and Overhead Slides

cc w/enclosures:
See next page

OFFICE	LA:PD31	PM:PD31	PD:PD31
NAME	CJamerson	BWetzel:cir	LMarsh
DATE	4/4/94	4/4/94	4/4/94

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ENCLOSURE 1

March 22, 1994

Monticello Water Level Modification Meeting

List of Attendees

Name	Organization
L. Marsh	NRC
B. Wetzel	NRC
R. Jones	NRC
T. Collins	NRC
A. Cubbage	NRC
R. Perch	NRC
P. O'Connor	NRC
W. Hill	Northern States Power
R. Anderson	Northern States Power
S. Engelke	Northern States Power

AGENDA FOR 3/22/94 MEETING ON MONTICELLO REACTOR WATER LEVEL INSTRUMENTATION

- INTRODUCTIONS
- CONFIGURATION OF WATER LEVEL INSTRUMENTATION
- PERFORMANCE OF WATER LEVEL INSTRUMENTATION
- BACKFILL MODIFICATION
- SPECIAL TESTING COMPLETED
- PREOP TESTING PLANNED
- PERFORMANCE MONITORING
- SCHEDULE
- SUMMARY

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WATER LEVEL INSTRUMENTATION - FIVE CONDENSING CHAMBERS (CC)

TWO SAFEGUARDS CCs

- SCRAM/ISOLATION TRIPS
- ECCS INITIATION
- INDICATION (+50″ to -50″)
- ATWS/TX AND RFP TRIP
- PRESSURE PERMISSIVES TO ECCS VALVES

TWO FW CONTROL/FUEL ZONE CCs

- INDICATION (-335″ to +65″)
- INDICATION (0″ to 60″)
- FW CONTROL
- PRESSURE SIGNALS TO LO-LO SET (SRVs)
- PRESSURE PERMISSIVES TO RHR LOGIC AND ECCS PUMPS

ONE VESSEL FLOOD CC

- INDICATION (-50″ to +350″)

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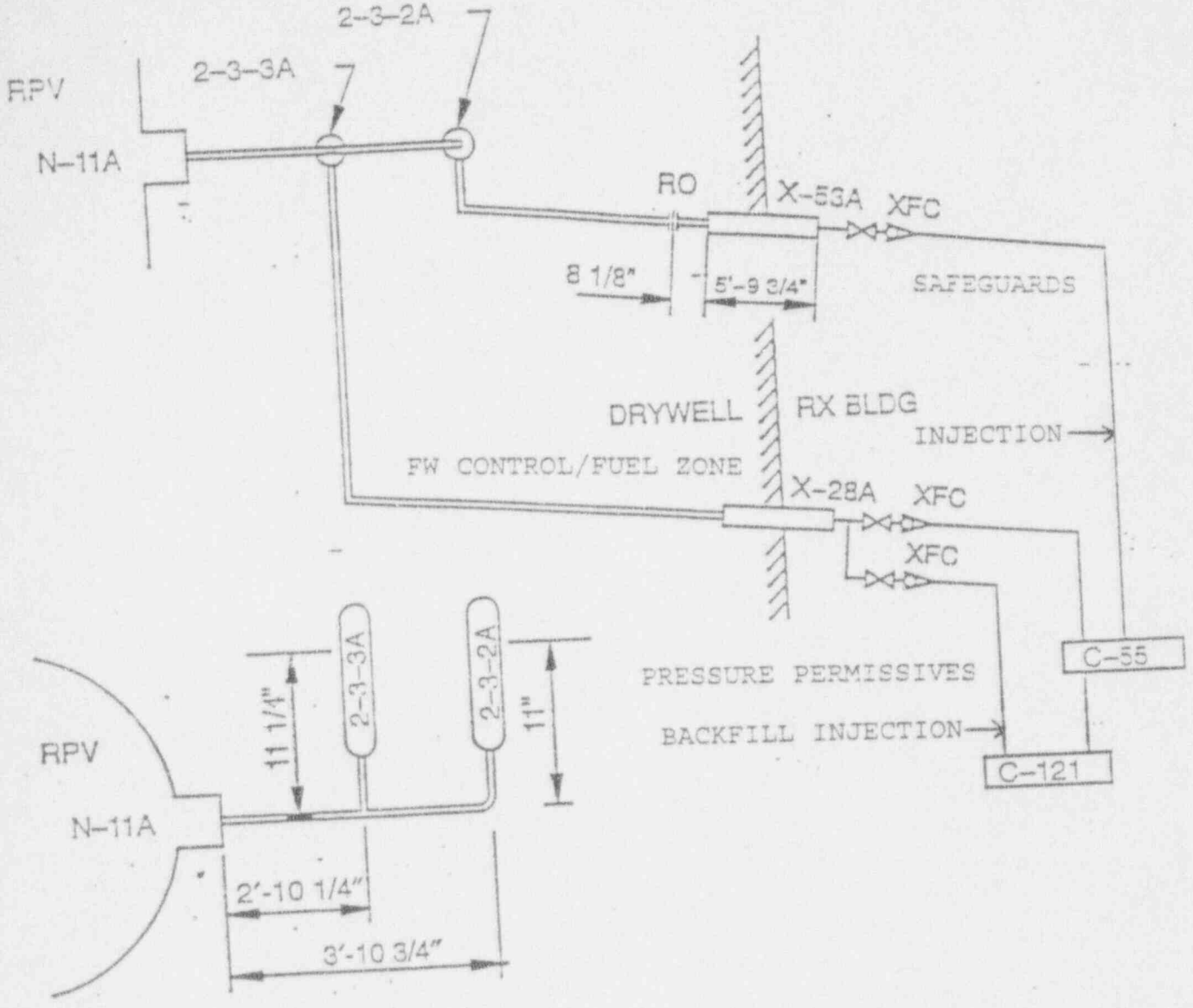


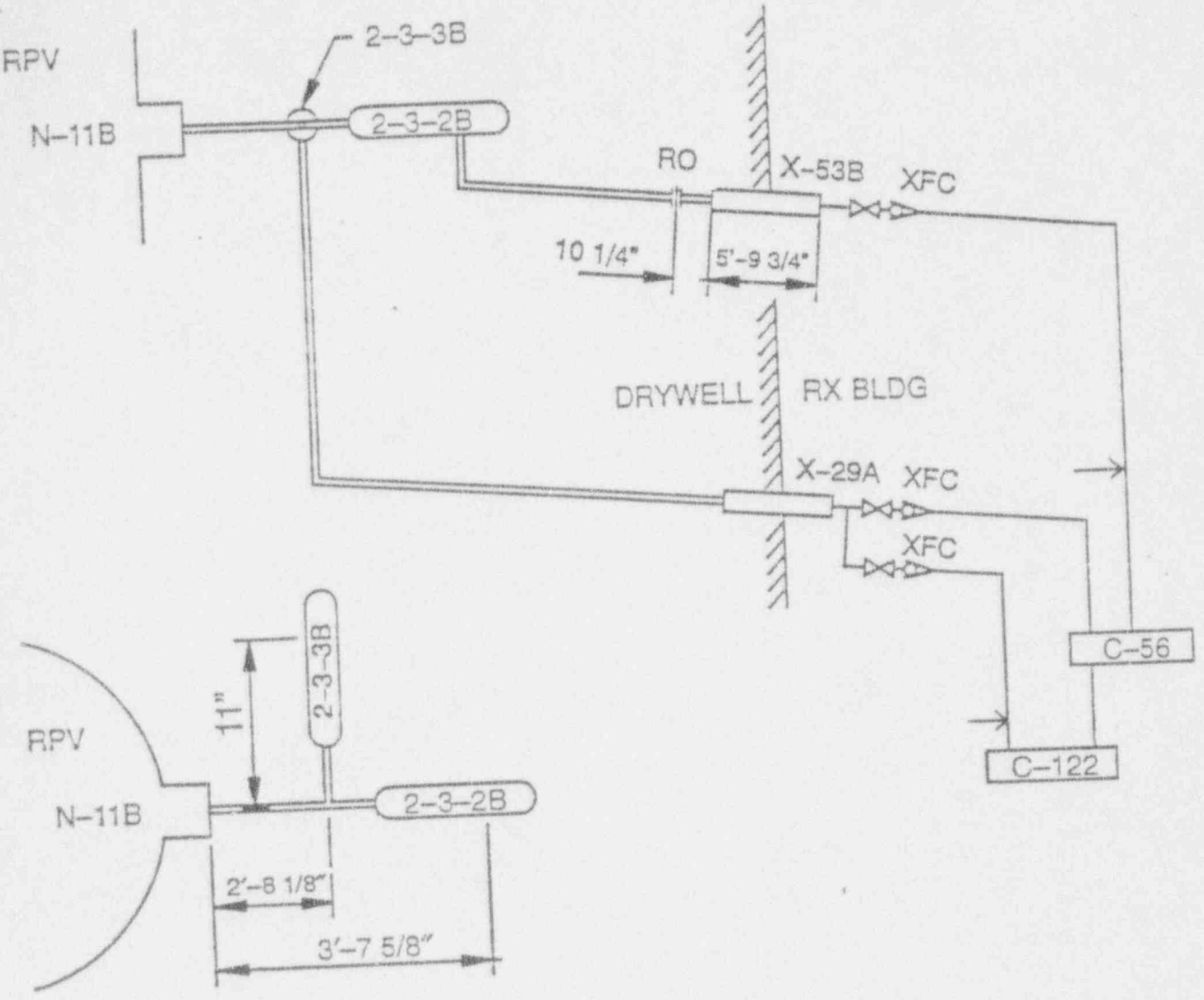
PLAN VIEW

PLANT ELEVATION

N-11A	994'-7"
2-3-2A	994'-8 7/8"
2-3-3A	994'-8 1/2"
X-53A	994'-0"
X-28A	980'-6"
C-55	965'-8 1/2"
C-121	935'-0"

COLD LEG CONDENSING CHAMBER

TOTAL LENGTH DRYWELL	8'-1 1/2"
TOTAL LENGTH RX BLDG (INCLUDING PENETRATION)	71'-1 1/4"



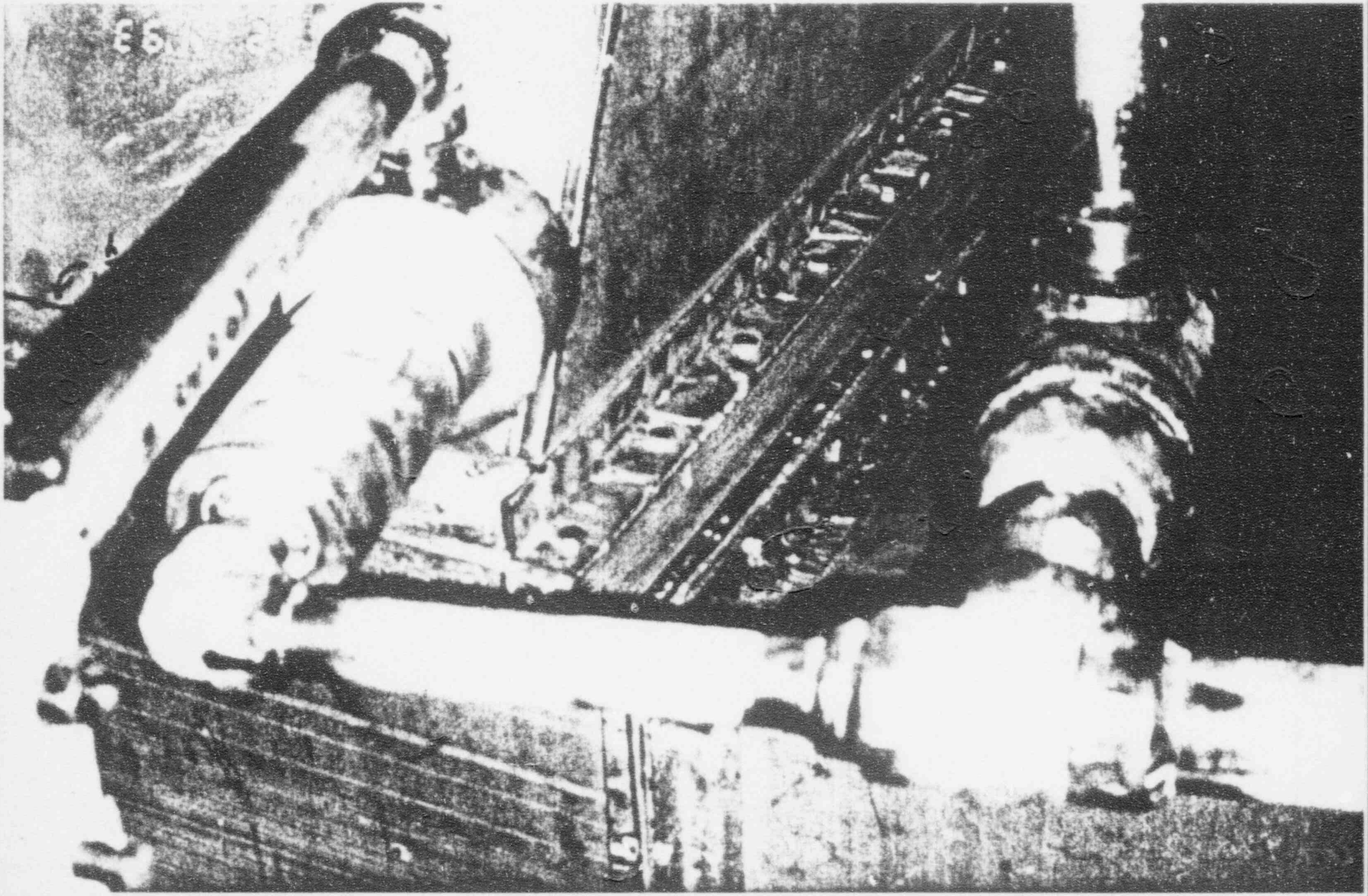
PLAN VIEW

PLANT ELEVATION

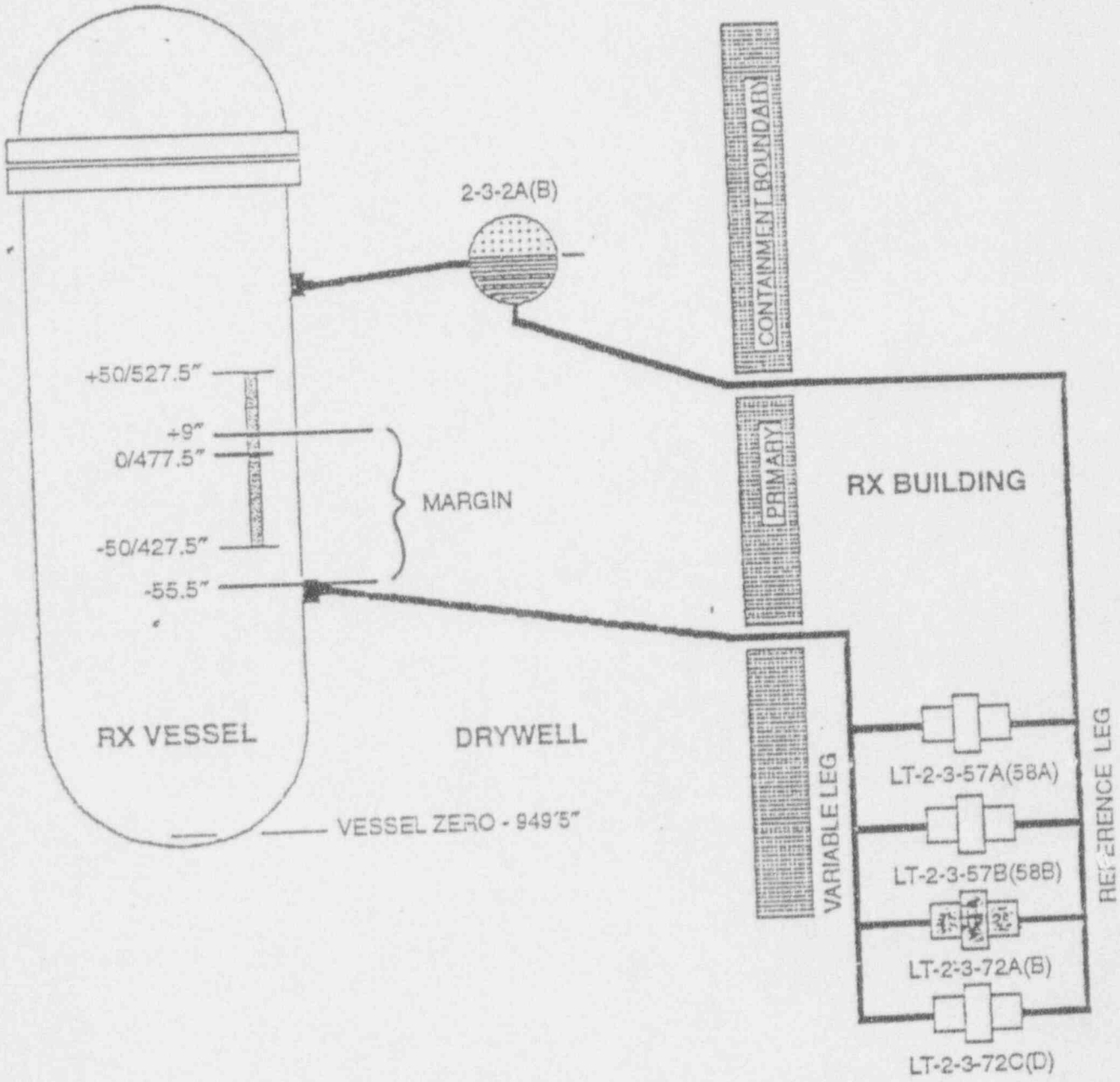
N-11B	994'-7"
2-3-2B	994'-7 15/16"
2-3-3B	994'-7 1/2"
X-53B	994'-0"
X-29A	980'-6"
C-56	965'-8 1/2"
C-122	935'-0"

COLD LEG CONDENSING CHAMBER

TOTAL LENGTH DRYWELL	8'-6 5/8"
TOTAL LENGTH RX BLDG (INCLUDING PENETRATION)	108'-10 3/4"



REACTOR SAFEGUARDS INSTRUMENTS
SKETCH OF INSTRUMENT LINES



MONITORING OF SYSTEM PERFORMANCE

- DURING COOLDOWN RPV LEVEL COMPUTER POINTS WERE MONITORED FOR ANY INDICATION OF NOTCHING (January 27, 1993)
- OPERATIONS MAINTAINED A RAPID COOLDOWN RATE TO ACCOMMODATE THE MONITORING
- THE PLANT HAD BEEN RUNNING FOR 275 DAYS
- THE NOTCHING FIRST OCCURRED AT APPROXIMATELY 23 PSIG
- THE LOW PRESSURE NOTCHING WAS SMALL AND MOMENTARY

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NOTCHING SUMMARY
(NO NOTCHING ABOVE 23 PSIG)

SAFEGUARDS "A"

- ONE INCH NOTCHING (20 SECONDS)

SAFEGUARDS "B"

- NO NOTCHING

FW CONTROL/FUEL ZONE "A"

- TWO INCH NOTCHING (20 SECONDS)
- AT 5 PSIG, 9 INCH NOTCH OCCURRED FOR 45 SECONDS

FW CONTROL/FUEL ZONE "B"

- TWO INCH NOTCHING (20 SECONDS)
- AT 5 PSIG, 11 INCH NOTCH OCCURRED FOR 15 SECONDS

VESSEL FLOOD

- NO NOTCHING

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DESIGN FEATURES

- WATER SUPPLIED FROM CRD
- SLOPED TUBING
- FILTERS
- FLOW METERS WITH ESSENTIAL POWER SUPPLY
- DUAL METERING VALVES
- CHECK VALVES
- INJECTION POINT IS INTO 1" PIPE AWAY FROM INSTRUMENT RACK
- LOCKING OF SAFEGUARDS REFERENCE LEG ISOLATION VALVES IN THE OPEN POSITION

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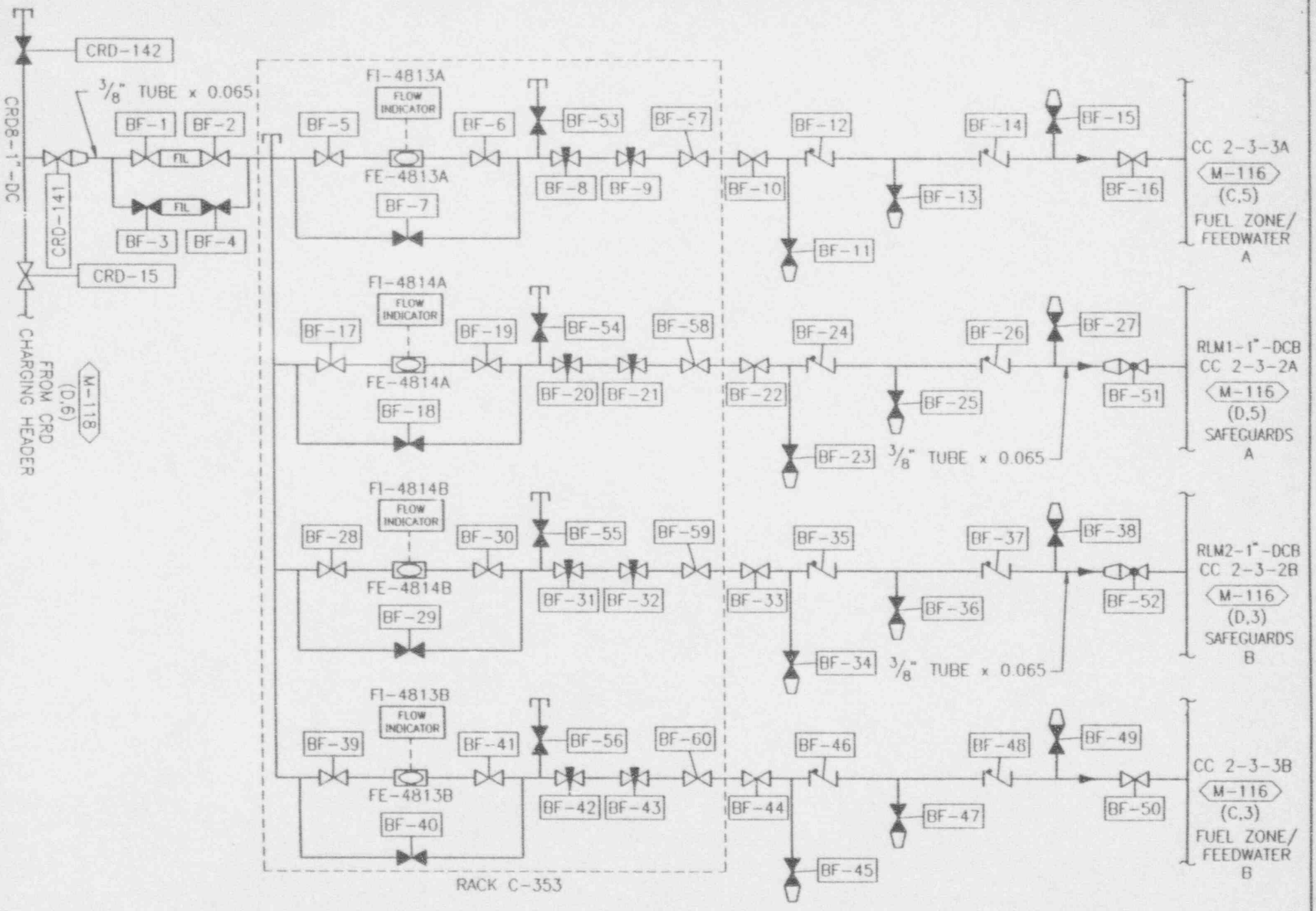
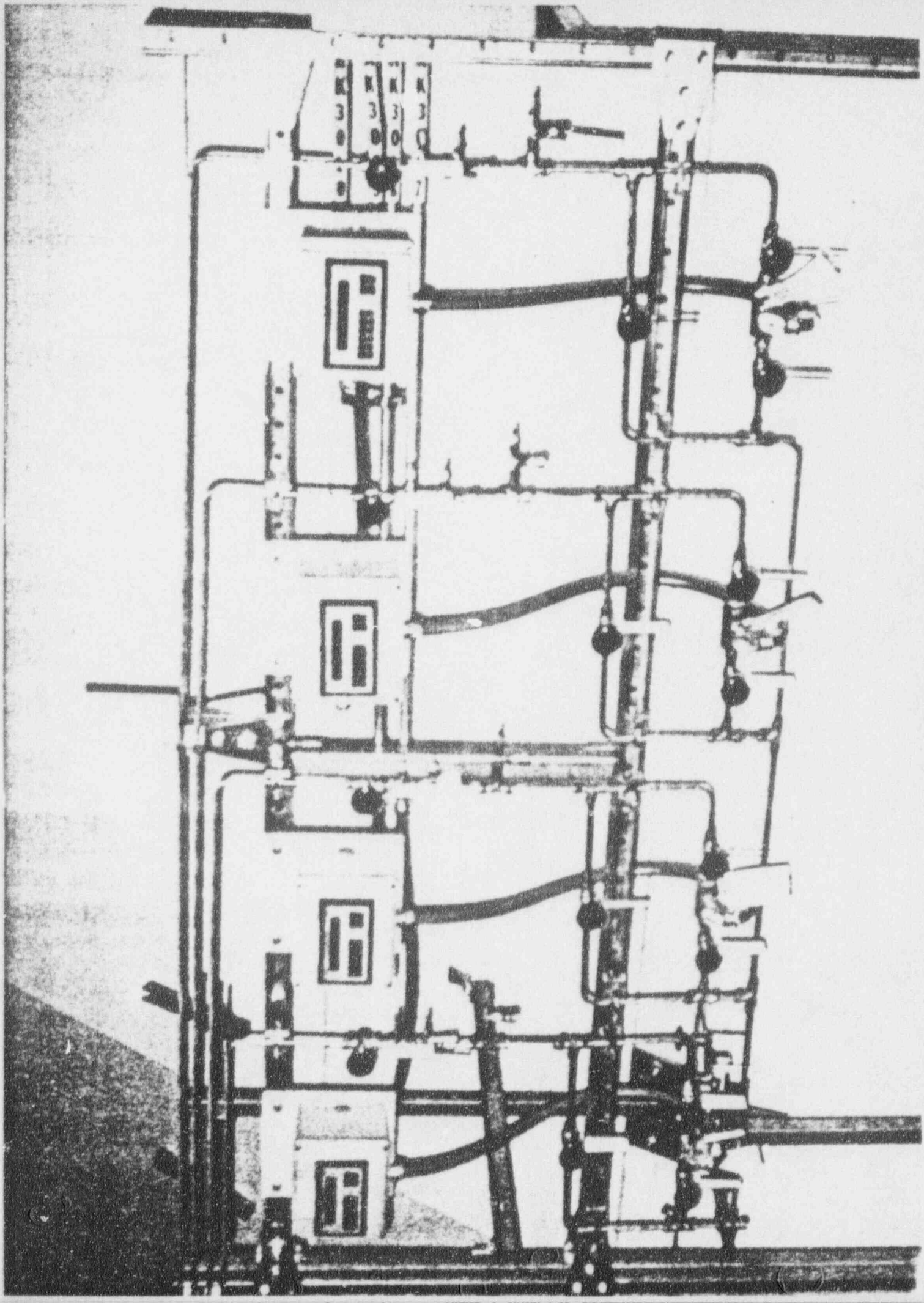

CRD-142
3/8" TUBE x 0.065
CRD8-1"-DC
CRD-141
CRD-15
FROM CRD CHARGING HEADER
M-118 (D,6)
BF-1
BF-2
FIL
FIL
BF-3
BF-4
FI-4813A
FLOW INDICATOR
FE-4813A
BF-5
BF-6
BF-7
BF-53
BF-57
BF-8
BF-9
BF-10
BF-11
BF-12
BF-13
BF-14
BF-15
BF-16
CC 2-3-3A
M-116 (C,5)
FUEL ZONE/ FEEDWATER A
FI-4814A
FLOW INDICATOR
FE-4814A
BF-17
BF-19
BF-18
BF-54
BF-58
BF-20
BF-21
BF-22
BF-23
BF-24
BF-25
BF-26
BF-27
BF-51
3/8" TUBE x 0.065
RLM1-1"-DCB
CC 2-3-2A
M-116 (D,5)
SAFEGUARDS A
FI-4814B
FLOW INDICATOR
FE-4814B
BF-28
BF-30
BF-29
BF-55
BF-59
BF-31
BF-32
BF-33
BF-34
BF-35
BF-36
BF-37
BF-38
BF-52
3/8" TUBE x 0.065
RLM2-1"-DCB
CC 2-3-2B
M-116 (D,3)
SAFEGUARDS B
FI-4813B
FLOW INDICATOR
FE-4813B
BF-39
BF-41
BF-40
BF-56
BF-60
BF-42
BF-43
BF-44
BF-45
BF-46
BF-47
BF-48
BF-49
BF-50
CC 2-3-3B
M-116 (C,3)
FUEL ZONE/ FEEDWATER B
RACK C-353
M00681
MONTI CAD



BACKFILL SPECIAL TEST
12/1/93

- CONNECTED BACKFILL INJECTION LINE TO VESSEL FLOOD (-50″ to +350″) LEG
- MONITORED LEVEL INSTRUMENTATION AND CRD CHARGING PRESSURE
- VARIED BACKFILL INJECTION FLOW
- PERFORMED CRD CHARGING PRESSURE TRANSIENTS
  1. NOTCH CONTROL ROD
  2. START/STOP STANDBY CRD PUMP
  3. SINGLE ROD SCRAM
  4. BACKWASH CRD DISCHARGE FILTER
- RESULTS
  1. NO WATER LEVEL DISTURBANCES FROM CRD CHARGING PRESSURE TRANSIENTS NOR FROM VALVING OPERATIONS
  2. ACCEPTABLE FLOW CONTROL OBTAINED
  3. UP TO TWO INCH LEVEL BIAS (NEGATIVE) AT 12 LB/HR INJECTION RATE

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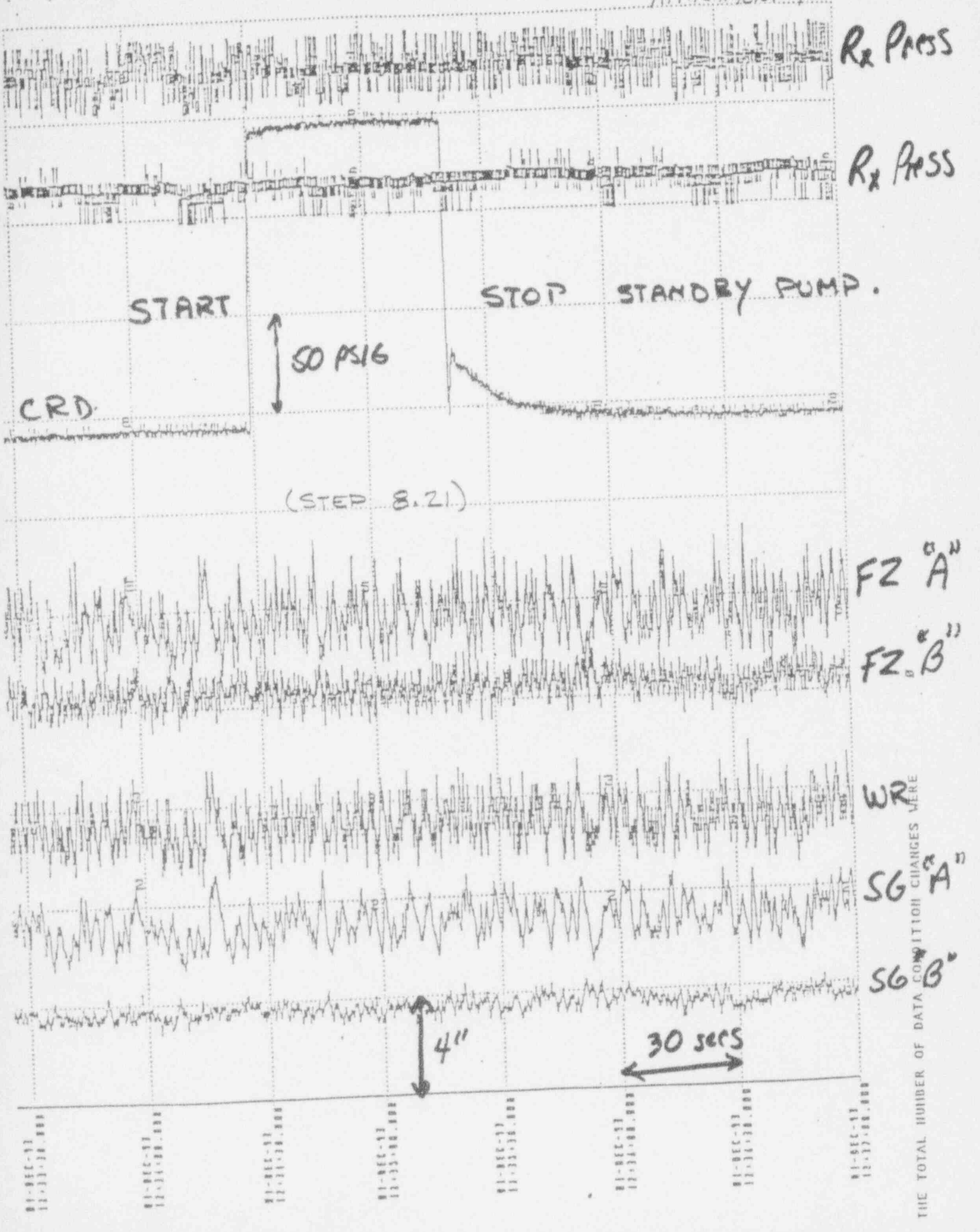
Attachment 4



THE TOTAL NUMBER OF DATA COMPUTATION CHANGES WERE

PRE-OP TESTING PLANNED

- ALL TESTING DONE WITH COMPUTER MONITORING OF ALL WATER LEVEL INDICATIONS

- ALL TESTS PERFORMED AT BOTH COLD SHUTDOWN AND POWER OPERATION

- TESTS PERFORMED

  1. VALVING IN AND OUT OF SERVICE

  2. LEVEL BIAS VERSUS INJECTION RATE

  3. CRD DISCHARGE PRESSURE TRANSIENTS

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WATER LEVEL CONFIGURATION AFTER NEXT COLD SHUTDOWN

- INSTALLATION OF BACKFILL HARDWARE COMPLETE
- PRE-OP TESTING COMPLETE ON BOTH DIVISIONS
- BACKFILL INJECTING INTO "A" DIVISION (MOST NOTCHING)
- MANUAL BACKFILL AVAILABLE TO "B" DIVISION (NO NOTCHING ON SAFEGUARDS)
- PERFORMANCE MONITORING TO BE ACCOMPLISHED BY COMPARING DIVISIONS

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BACKFILL PERFORMANCE MONITORING (One Division of Backfill In Service)

1. LEVEL BIAS
   - Accurate determination of level bias over varying plant conditions.
   - Bias affected by flow, Drywell Temperature and Reactor Building Temperature.

2. SYSTEM PERFORMANCE
   - Performance of Equipment (Flow Control)
   - Monitor for level transients for various plant evolutions.
   - Ensure testing bounded all plant evolutions such as rod movements, SCRAM, power changes, CRD operation, etc.

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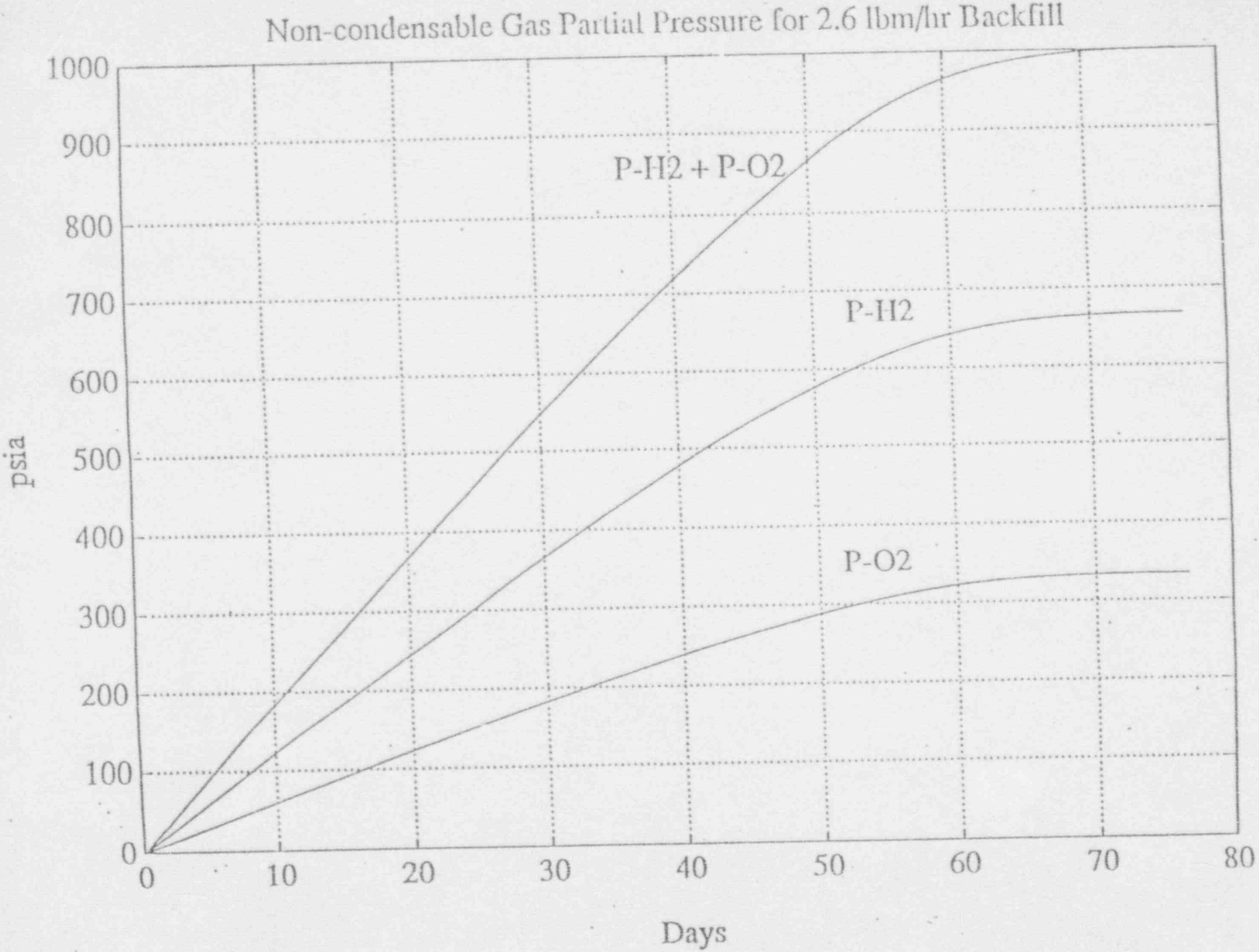
BACKFILL PERFORMANCE MONITORING (CONT.)

3. ELIMINATION OF NOTCHING
   - After extended period of back fill operation, monitor for notching during depressurization.
   - Verify backfill successfully eliminates level notching.

4. EFFECTS OF LOSING BACKFILL SYSTEM
   - After extended period of backfill operation, monitor reference leg performance on loss of backfill.
   - Monitor condensing chamber performance when potentially bound with non-condensible gases.


Non-condensable Gas Partial Pressure for 2.6 lbm/hr Backfill
1000
900
800
700
600
500
400
300
200
100
0
psia
P-H2 + P-O2
P-H2
P-O2
0
10
20
30
40
50
60
70
80
Days

SCHEDULE

1993 REFUELING OUTAGE

January 27 to March 25

LAST COLD SHUTDOWN

March 25, 1993

1994 REFUELING OUTAGE

Sept. 15 (39 day outage goal)

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NRC BULLETIN 93-03

"... IMPLEMENT HARDWARE MODS NECESSARY TO ENSURE THE LEVEL INSTRUMENTATION SYSTEM DESIGN IS OF HIGH FUNCTIONAL RELIABILITY FOR LONG-TERM OPERATION."

AFTER NEXT COLD SHUTDOWN, COMPLIANCE ACHIEVED:

- HARDWARE MODS INSTALLED AND TESTED
- BACKFILL INJECTING INTO "A" DIVISION (MOST NOTCHING)
- MANUAL INJECTION AVAILABLE ON "B" DIVISION

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COMPLIANCE ACHIEVED (CONT.)

- CONTINUOUS COMPUTER MONITORING AND ALARMING FOR 6" DEVIATION
- ABNORMAL PROCEDURES IN PLACE
- OPERATORS TRAINED
- PERIODIC INSPECTIONS FOR LEAKAGE
- AUTOMATIC RHR VALVE INTERLOCKS MINIMIZE PROBABILITY OF DRAINDOWN EVENT

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SUMMARY

AFTER NEXT COLD SHUTDOWN

- HARDWARE INSTALLATION AND TESTING WILL BE COMPLETED
- ABNORMAL PROCEDURES WILL BE ISSUED AND TRAINED ON
- HIGH FUNCTIONAL RELIABILITY OF WATER LEVEL INSTRUMENTATION WILL BE OBTAINED IN COMPLIANCE WITH BULLETIN 93-03

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DISTRIBUTION FOR MEETING SUMMARY FOR 3/22/94 MEETING DATED: April 4, 1994

w/enclosures 1&2:
Docket File
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M. Phillips, Region III

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