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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

November 22, 1978

Docket No. 50-219

LICENSEE: Jersey Central Power & Light Company

FACILITY: Oyster Creek Nuclear Generating Station

SUBJECT: SUMMARY OF NOVEMBER 3, 1978 MEETING TO DISCUSS PROPOSED REPAIR OF THE CRACKED CORE SPRAY SPARGER AT THE OYSTER CREEK NUCLEAR GENERATING STATION

On November 3, 1978, representatives of Jersey Central Power & Light Company (JCP&L) met with the NRC staff to describe the details of a crack found in the sparger of Core Spray System 2 and their proposed repair. This meeting was held at the request of JCP&L to provide the staff with JCP&L's conclusions of the significance of the crack and the repair to the sparger. Enclosure 1 is a copy of the information presented by JCP&L at the meeting. Enclosure 2 is a list of the attendees.

Significant conclusions reached by JCP&L and discussed at the meeting are summarized below:

1. Operation with the repaired Core Spray Sparger is not an unreviewed safety question.

2. The most probable cause of the crack was due to local cold work of the sparger and stresses imposed during installation and fitting of the sparger within the shroud.

3. Additional growth of the crack and the formation of additional cracks are not expected to occur because of the low forces and stresses imposed on the sparger during operation.

4. All of the assessable surfaces of the spargers (approximately 50% of the entire sparger surface) have been inspected and no other indications of cracking were found.

5. Increasing the Core Spray flow requirements from 3400 gpm to 3700 gpm in the cracked sparger will result in all of the nozzles receiving rated flow or greater during ECCS activation.

6. No attempt will be made to seal the crack. The repair will assure that the sparger does not come loose and will perform its safety function. The assumption is being made that the crack propagates all the way around the circumference. When this condition occurs the clamp will limit the widest separation of the crack in the repaired condition to an opening 1/16 inch wide.

The staff is in the process of reviewing JCP&L's conclusions and repair to the sparger.

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Enclosures:
As stated

cc:
See next page

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ENCLOSURE 1

CORE SPRAY PERFORMANCE

STEPS TO ASSURE MINIMUM FLOW FROM NOZZLES

1. CALCULATE WATER LOSS THROUGH MAXIMUM CRACK

2. DETERMINE EFFECT ON NOZZLE FLOWS

3. DETERMINE CORE SPRAY SYSTEM FLOW REQUIRED TO MAINTAIN MINIMUM NOZZLE FLOWS

4. DEMONSTRATE REQUIRED CORE SPRAY PUMP PERFORMANCE

CORE SPRAY PERFORMANCE

A. THE ASSEMBLY SHALL NOT INTERFERE WITH THE CORE SPRAY PATTERN.

B. THE ASSEMBLY SHALL NOT ALLOW WATER DISCHARGING FROM THE CRACK TO INTERFERE WITH THE CORE SPRAY PATTERN.

C. A MINIMUM FLOW FROM EACH NOZZLE EQUIVALENT TO THAT OBTAINED FROM AN UNCRACKED SPARGER SHALL BE MAINTAINED.

STRUCTUPAL PERFORMANCE

C. ACCEPTANCE CRITERIA

1. NO LOOSE PARTS

2. MINIMIZE PROBABILITY OF TOTAL SPARGER SEVERENCE

3. IF SPARGER WERE SEVERED -

   A. MAINTAIN SEVERED ENDS JUXTAPOSED

   B. LIMIT WIDTH OF OPENING TO 1/16 INCH.

STRUCTURAL PERFORMANCE

A. NORMAL OPERATION

1. WATER/STEAM FLOW

2. THERMAL CYCLING

3. VIBRATION

B. ACCIDENT CONDITIONS

1. CORE SPRAY OPERATION HYDRAULIC FORCES

2. THERMAL CONTRACTION

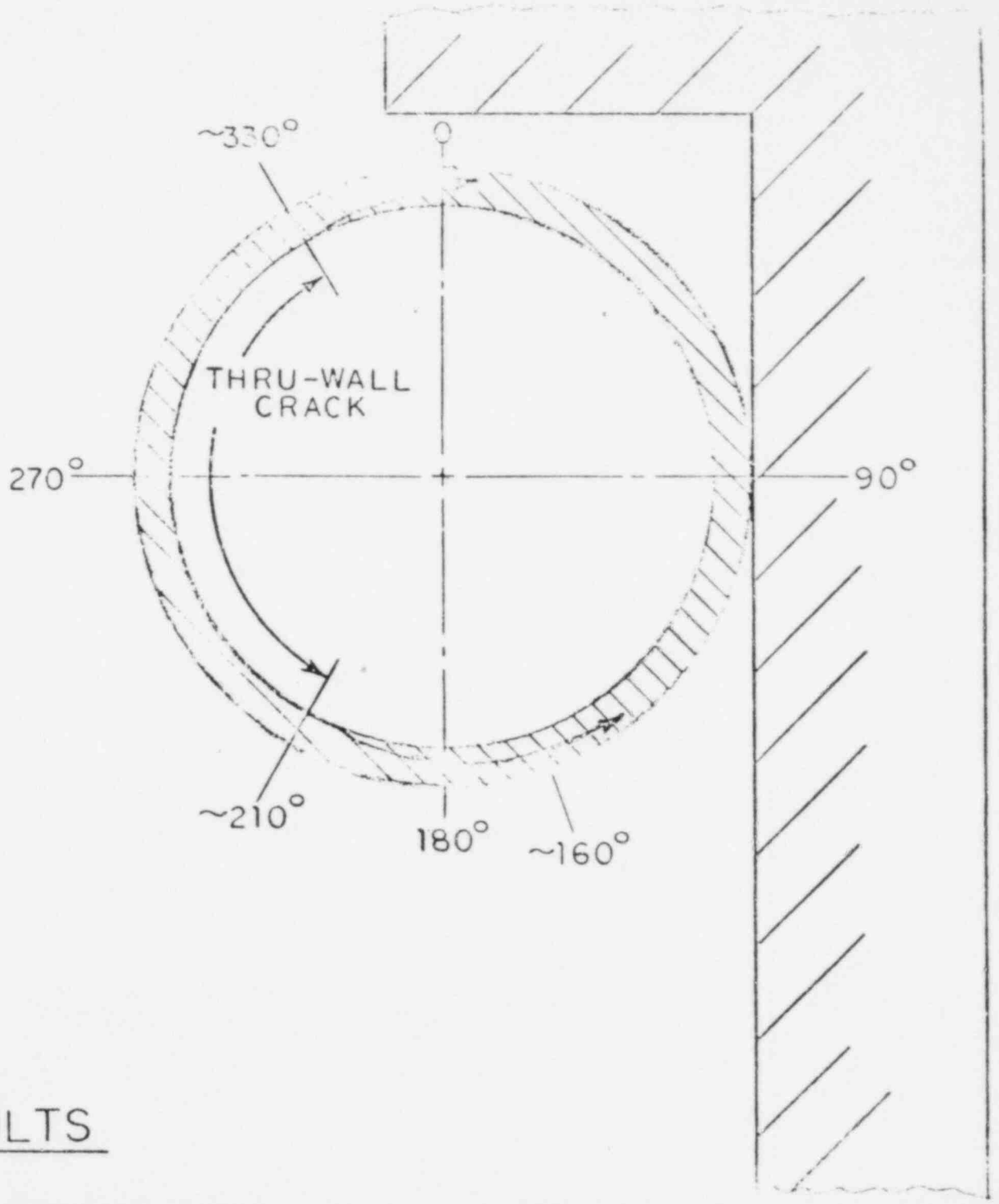
3. SEISMIC

CORE SPRAY SPARGER CRACK REPAIR

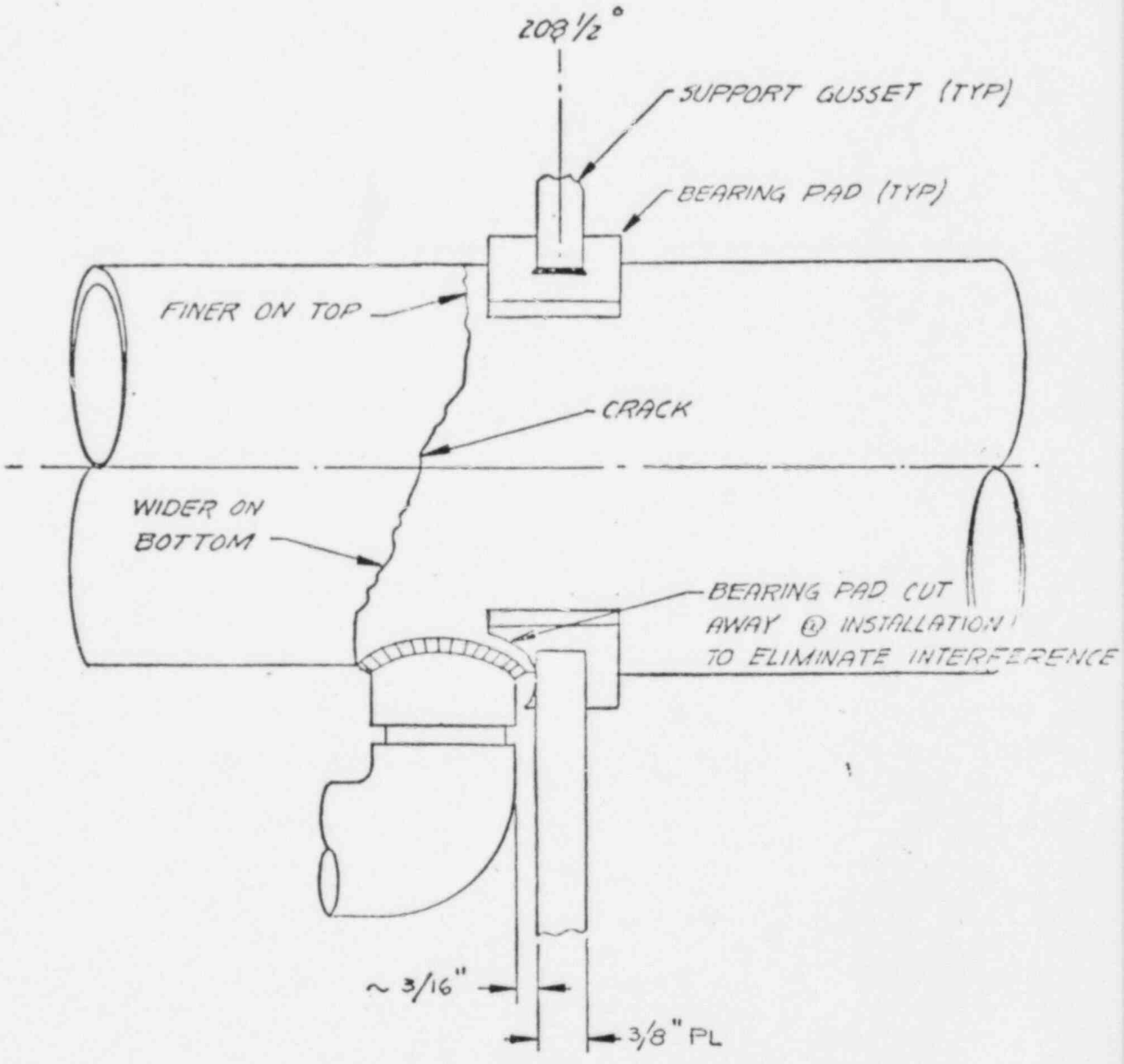
SAFETY CONSIDERATIONS

I. STRUCTURAL PERFORMANCE

II. CORE SPRAY PERFORMANCE



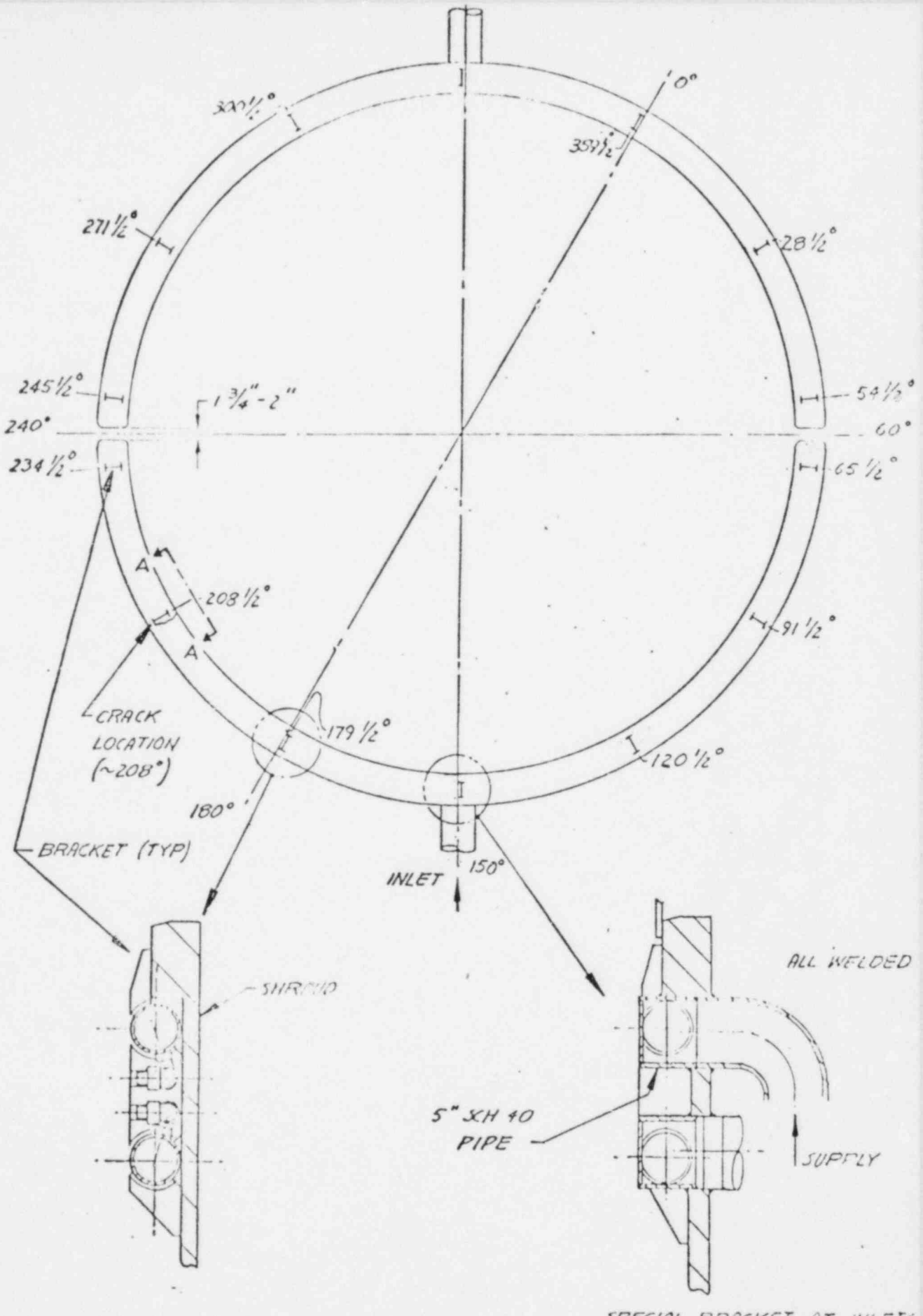
SPARGER
AIR TEST RESULTS



VIEW A-A

APPEARANCE OF CRACK

FIGURE 3



PLAN VIEW LOWER CORE
SPRAY SPARGER
FIGURE 2

PROBABLE CAUSE OF CRACK

I. INITIATION - STRESS CORROSION CRACKING

- o WELD HEAT AFFECTED MATERIAL
- o LOCALIZED COLD WORK

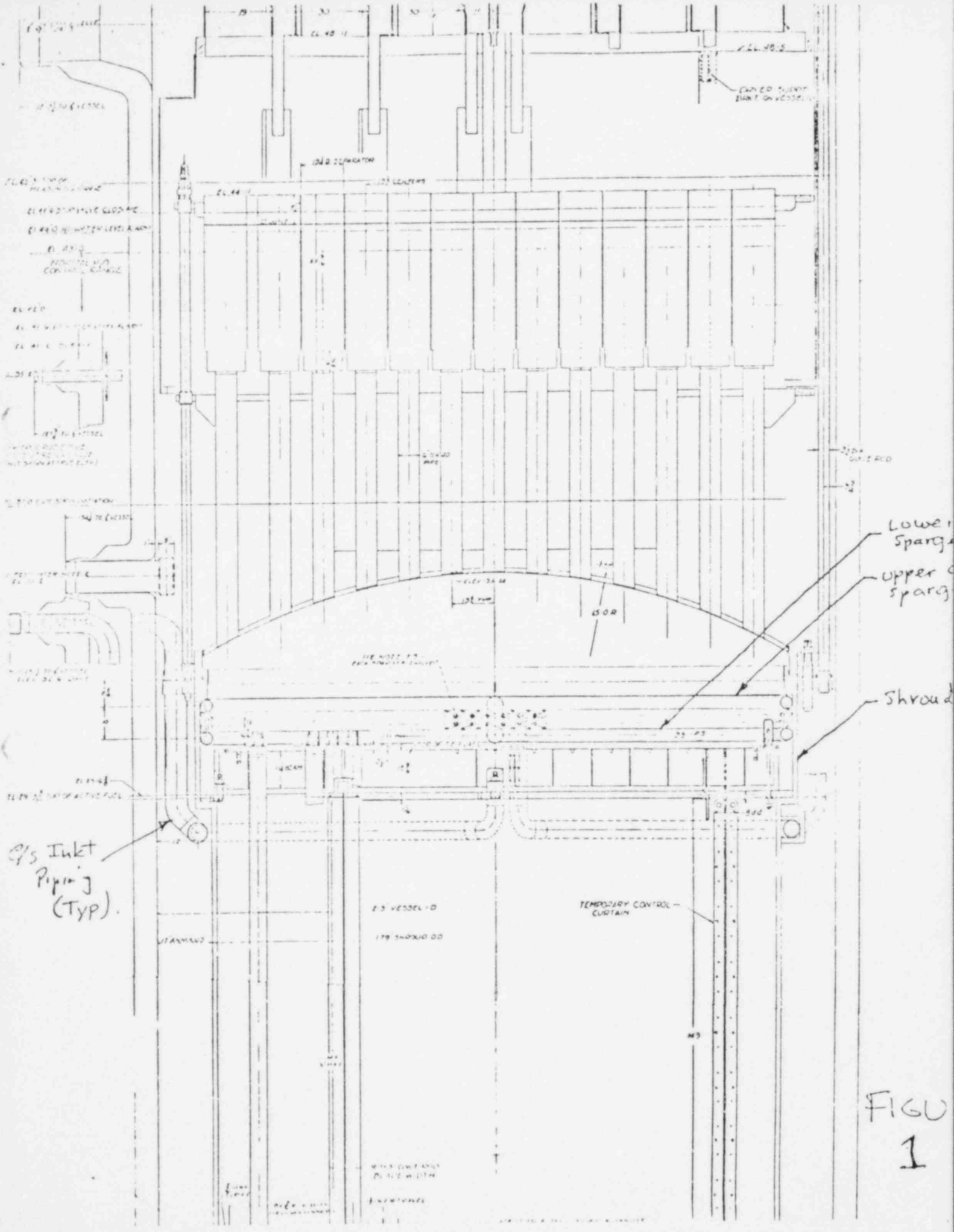
II. PROPAGATION - BENDING MOMENT LOAD

POSSIBLE SOURCES:

- o NORMAL OPERATION
- o C/S ACTUATION
- o INSTALLATION OF SPARGER

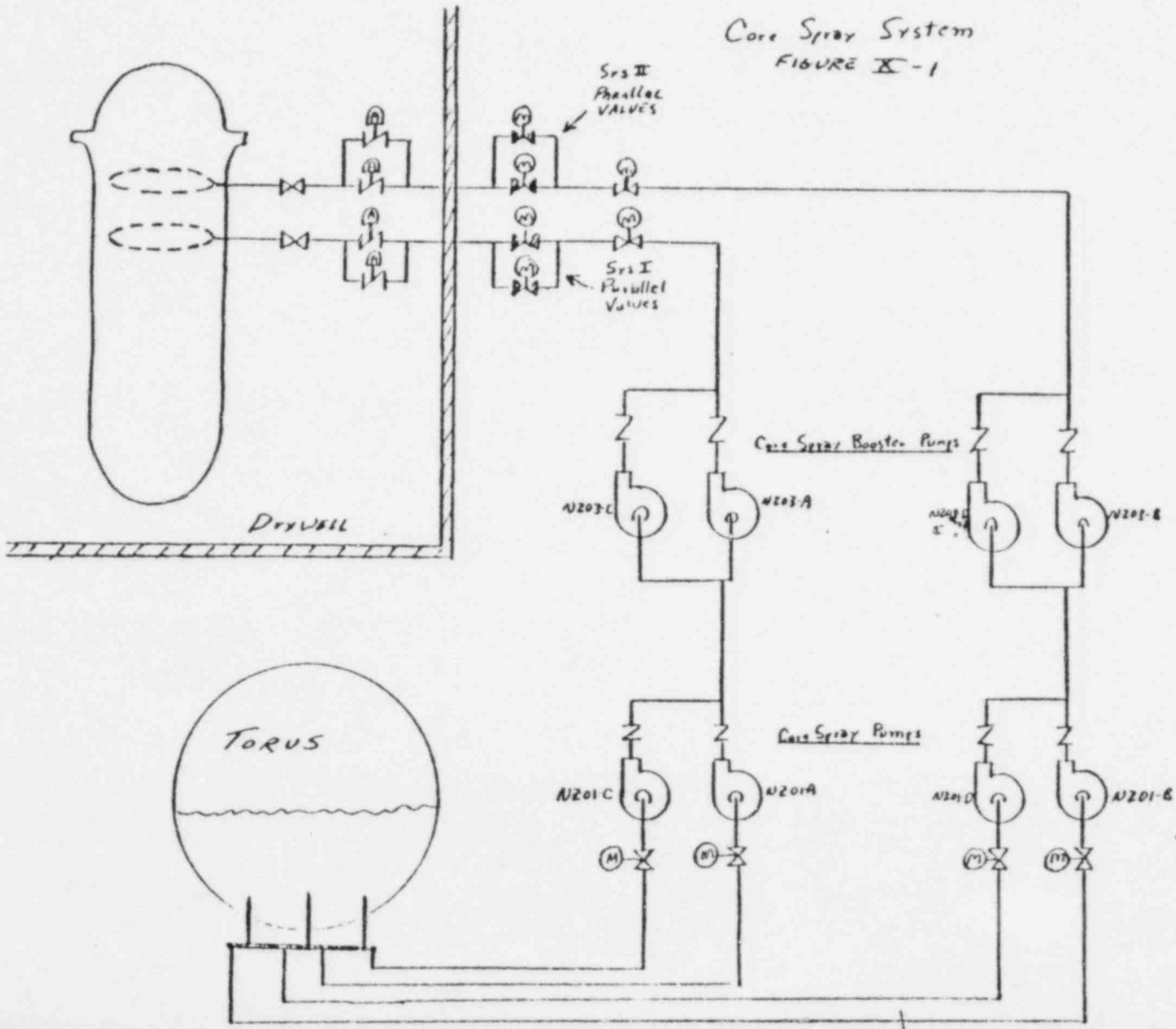
III. POTENTIAL FOR ADDITIONAL GROWTH

- o EXISTING CRACK
- o OTHER LOCATIONS


Lower Sparg
Upper Sparg
Shroud
R3 Inlet Piping (Typ).
TEMPORARY CONTROL CURTAIN

FIGU
1

Core Spray System
FIGURE X-1



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1) The priority core spray pump in each core spray system starts (NZ01A and NZ01B). Should either pump fail to start the alternate pump in that system will receive a start signal within 10 seconds of the initial signal.

2) Both diesel generators start immediately.

3) Upon sensing both a system start signal and a discharge pressure of its associated core spray pump the priority core spray booster pump will start (NZ03A and NZ03B). If the priority pump in either loop fails to start within 5-seconds of sensing both conditions a start signal is sent to the alternate core spray booster pump in that system.

In figure X-1 all motor operated valves in each core spray system are open with the exception of the parallel valves. Since the combined output pressure of the core spray pump and its booster pump is in the vicinity of 300 psig these valves will not open until reactor pressure is below this level. This prevents a possible further loss of reactor water through the core spray piping should the check valves leak. Once reactor pressure falls below 285 psig, and a start signal to the core spray system is present, both of the parallel valves in each system open. Each valve has a 100% flow capability so a failure of one of the parallel valves in each loop will not reduce flow.

The auto depressurization system, discussed in the next chapter, stands ready to lower the pressure in the reactor vessel in the event that the leak requiring core spray is not large enough to reduce pressure to below 285 psig for parallel valve operation. The auto-depressurization system will open all five electromatic relief valves (Chapter II-C-10) should reactor pressure remain high and reactor level continue to fall.

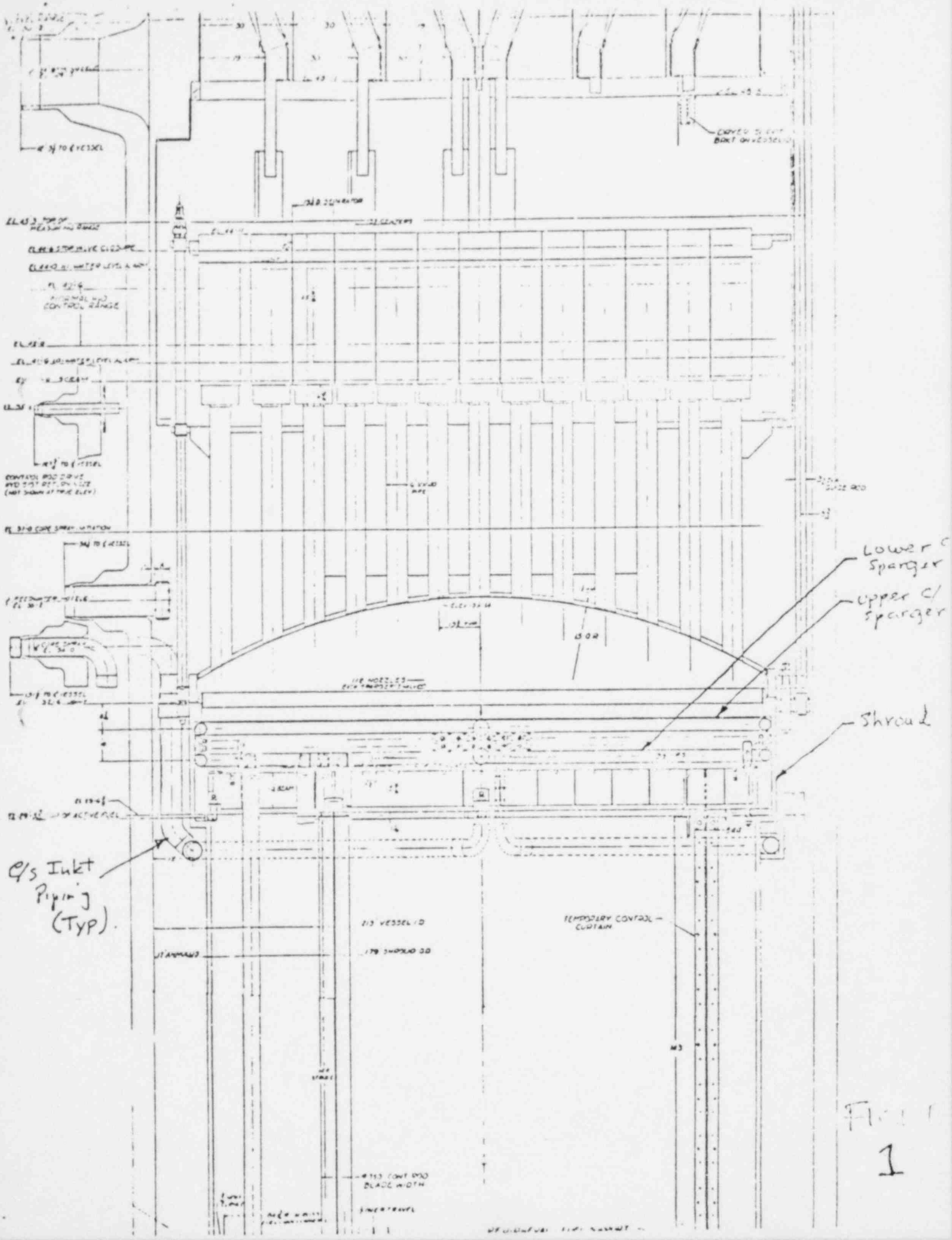
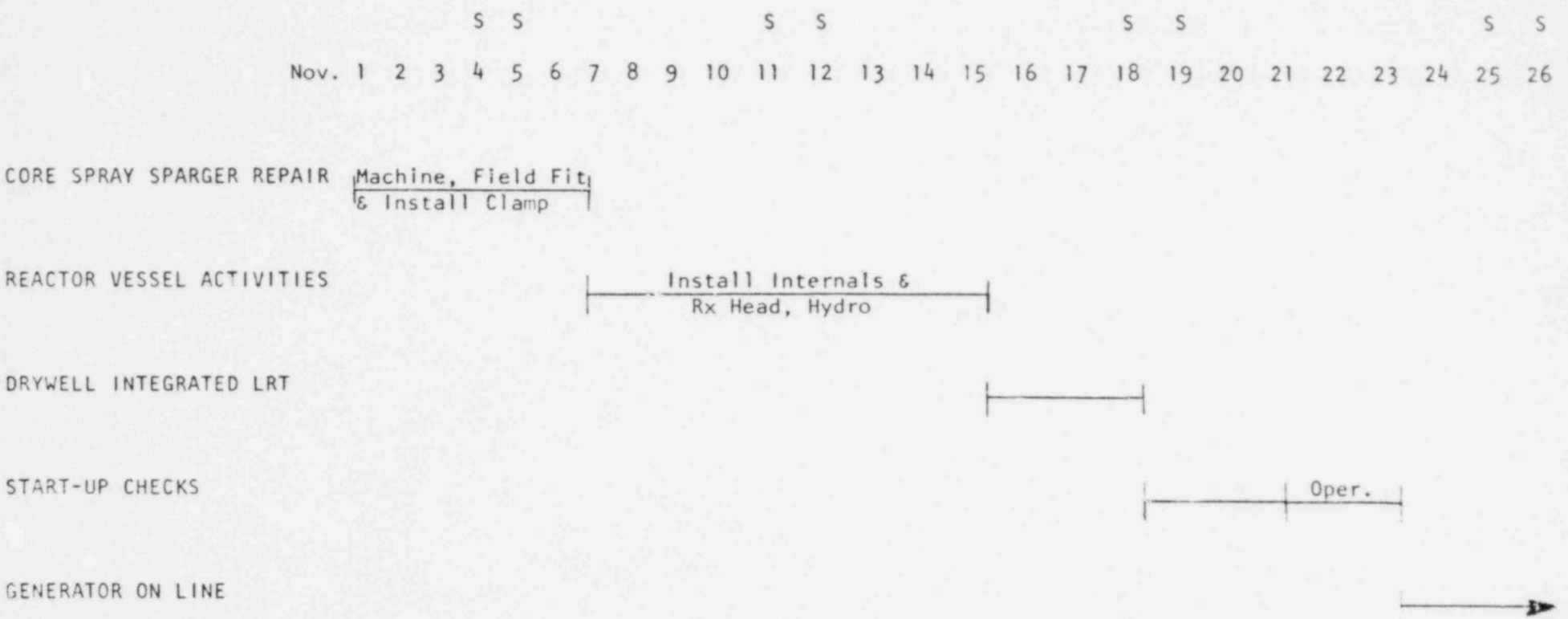

Lower C
Sparger
upper C/
Sparger
Shroud
C/S Inlet
Piping
(Typ).
TEMPORARY CONTROL
CURTAIN

Figure 1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Nov. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
CORE SPRAY SPARGER REPAIR
Machine, Field Fit & Install Clamp
REACTOR VESSEL ACTIVITIES
Install Internals & Rx Head, Hydro
DRYWELL INTEGRATED LRT
START-UP CHECKS
Oper.
GENERATOR ON LINE

ENCLOSURE 2

LIST OF ATTENDEES

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J. Knubel
D. A. Ross
K. R. Goddard
T. Tipton
P. O. Moor
T. Crimmins

MPR Assoc.

W. R. Schmidt
J. Johnson

Region I

E. Jernigan

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P. J. Polk
R. Riggs
R. P. Snaider
R. Woods

MEETING SUMMARY DISTRIBUTION:

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V. Stello
B. Grimes
D. Eisenhut
D. Davis
D. Ziemann
P. Check
G. Lainus
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R. Reid
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