

MEETING AGENDA  
SAN ONOFRE UNITS 2 & 3 PRESSURIZER SAFETY  
VALVE INLET PIPING MODIFICATIONS 9 - 16 - 81

INTRODUCTION	F. NANDY
EPRI TEST PROGRAM	J. BLANCO
CURRENT SCE DIRECTION	F. NANDY
SYSTEM ANALYSIS	S. WEISMANTEL
DESIGN MODIFICATIONS	J. MAHLMEISTER
IMPLEMENTATION	S. WEISMANTEL
SUMMARY	F. NANDY

SONGS 2&3 COMPLIANCE WITH NUREG 0737

1. EPRI SAFETY/RELIEF VALVE TEST PROGRAM

- OBJECTIVE - DEMONSTRATE VALVE OPERABILITY
- EPRI SCREENING CRITERIA
  - SET POINT  $\pm$  3%
  - ACCUMULATION  $\leq$  6%
  - BLOWDOWN  $\leq$  10%
  - NO CHATTERING
- SCE PARTICIPATION
  - TECHNICAL
  - LICENSING
  - FINANCIAL

2. SONGS 2&3 PLANT SPECIFIC INFORMATION

- DRESSER SAFETY VALVE DESCRIPTION
- TEST RESULTS OVERVIEW
- ASSESSMENT
- ADDITIONAL TESTS

CURRENT SONGS 2 & 3 DIRECTION

CURRENT DESIGN HAS POTENTIAL FOR VALVE CHATTER

LICENSING SCHEDULE REQUIRES TIMELY RESOLUTION

DESIGN MODIFICATIONS INCLUDE

SHORTEN INLET PIPE

ADJUST VALVE RING SETTINGS

MODIFICATIONS ARE UNDERWAY

SAN ONOFRE 2 & 3

SAFETY VALVE SYSTEM MODIFICATION

- OVERPRESSURE PROTECTION SYSTEM DESCRIPTION
- PRESSURIZER SAFETY VALVES
- TEST RESULTS
- EVALUATION OF DESIGN
- DESCRIPTION OF DESIGN CHANGE
- DESIGN CHANGE IMPACTS
- DESIGN CONTINGENCY

EQUIPMENT PROVIDING  
OVERPRESSURE PROTECTION FOR SAN ONOFRE SYSTEM

- PRIMARY SAFETY VALVES
- SECONDARY SAFETY VALVES
- REACTOR PROTECTIVE SYSTEM

SAN ONOFRE  
PRESSURIZER SAFETY VALVES

SAFETY VALVE: DRESSER MODEL 31709NA

QUANTITY:	TWO
INLET/OUTLET DIAMETER:	6 BY 8
ORIFICE:	4.34 IN <sup>2</sup>
SETPRESSURE:	2500 PSIA
ASME RATED CAPACITY:	504874 #/HR/VALVE
MINIMUM REQUIRED CAPACITY:	460,000 #/HR/VALVE
DESIGN BASIS INCIDENT:	LOSS OF LOAD WITH DELAYED REACTOR TRIP.

DRESSER 31709NA RESULTS

DATE:	JUNE 2, 1981
TEST DESCRIPTION	HIGH RAMP RATE STEAM TEST DESIGNED TO PRODUCE 2700 PSIA PEAK PRESSURE FOLLOWING VALVE LIFT.
INLET PIPING:	~ 15 FT
OPENING PRESSURE:	2488 PSIA
OPENING TIME:	0.016 SEC
PEAK PZR PRESSURE:	2680 PSIA
CLOSING PRESSURE:	2010 PSIA
POST-TEST LEAKAGE:	0.53 GPM
COMMENTS:	1) CHATTER AT 36 HZ FOR 122 SECONDS. 2) ORIGINAL RING ADJUSTMENT FOR 3% BLOWDOWN.

### EFFECT OF CHATTER

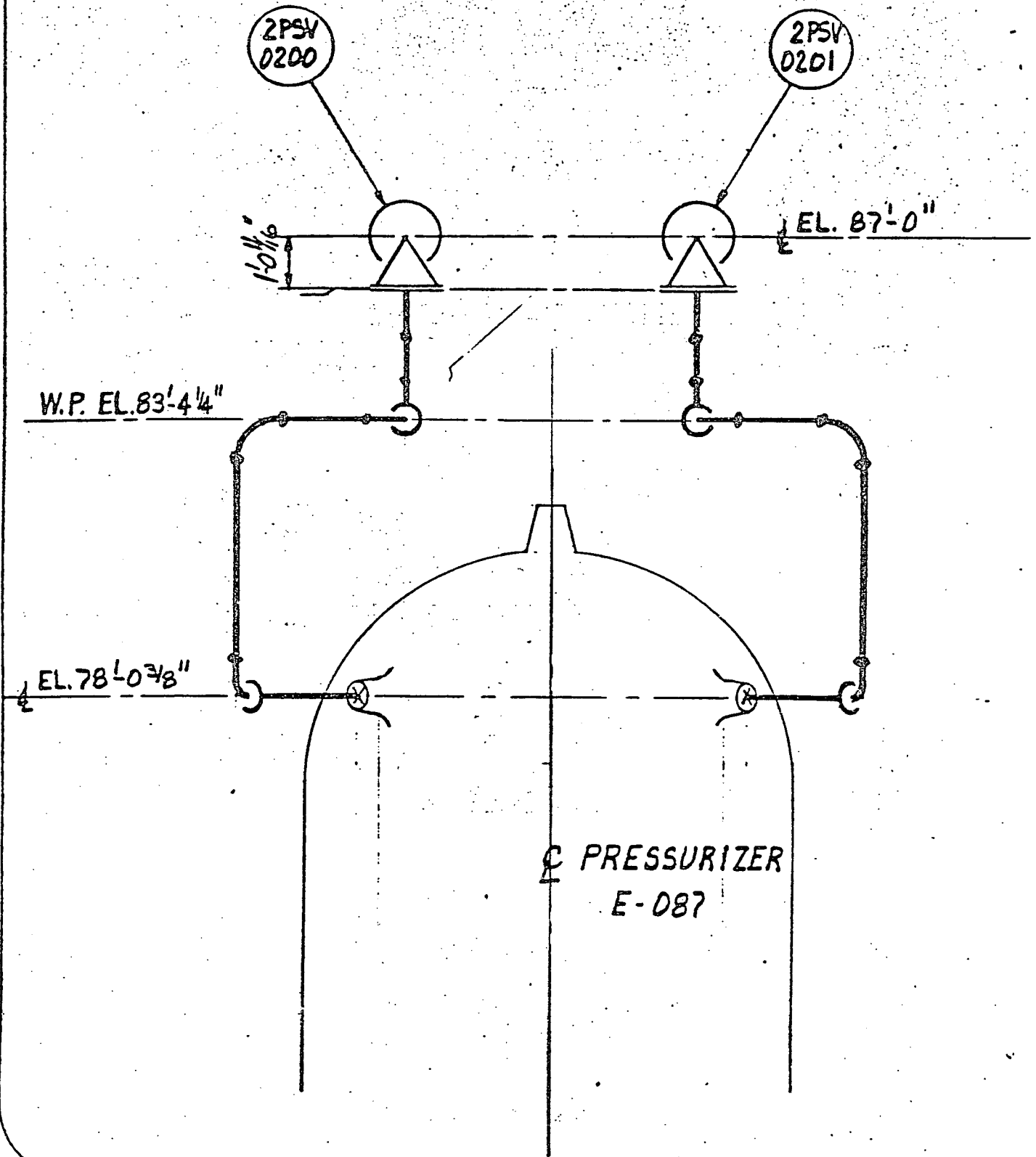
- . NON-COMPLIANCE WITH ASME CODE
- . POTENTIAL FOR VALVE DAMAGE
- . POTENTIAL FOR DECREASED RELIEVING CAPACITY

#### NOTE:

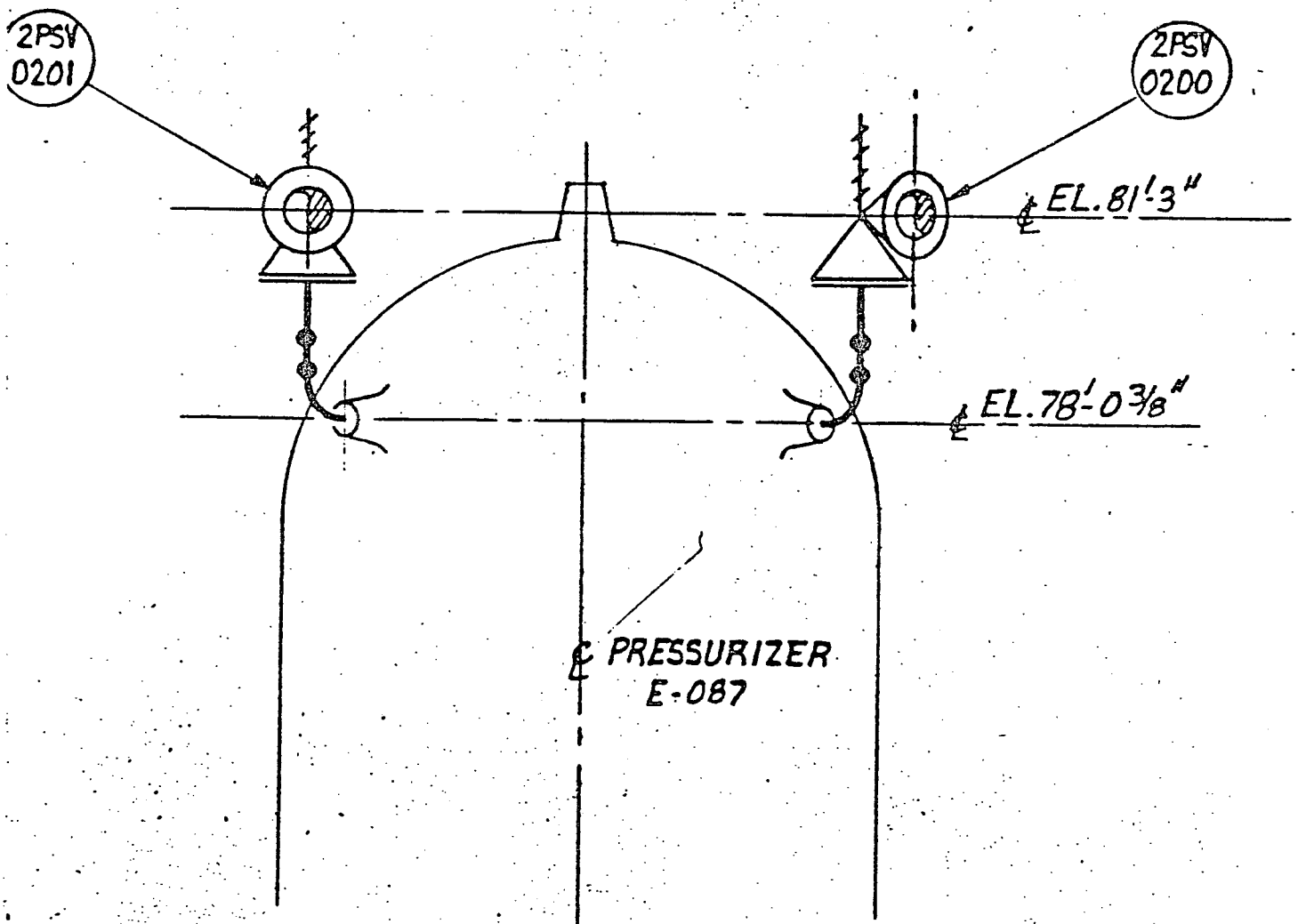
EPRI TEST ON 6/2/81 RESULTED IN VERY LONG CHATTER (TWO MINUTES). VALVE CLOSED WITH MINIMAL LEAKAGE (<1GPM).



# EXISTING ARRANGEMENT



# NEW ARRANGEMENT



## DESIGN CHANGE IMPACTS

- SVs BUILT TO 1974 ASME CODE
- 1975 ADDENDA ALLOWS BLOWDOWN > 5%
  - NOTE IN DESIGN SPEC
  - JUSTIFY IN OVERPRESSURE PROTECTION REPORT
- REVISION TO SV DOCUMENTATION
  - DRAWINGS
  - TECH MANUALS
  - NAMEPLATES
  - DESIGN REPORT RECERTIFICATION

## DESIGN CHANGE CONTINGENCY

DESIGN CHANGE:

SHORTEN INLET PIPING

INCREASE BLOWDOWN SETTING

CONTINGENCY #1:

INCREASE BLOWDOWN FURTHER

CONTINGENCY #2:

CHANGE INTERNALS TO LOWER  
CAPACITY

CONTINGENCY #3:

REPLACE SVs WITH THREE  
SMALLER VALVES

## SUMMARY

BASED UPON CAREFUL EVALUATION OF ALTERNATIVES, SCE IS SHORTENING THE PRESSURIZER SAFETY VALVE INLET PIPING IN ORDER TO FACILITATE SATISFACTORY SAFETY VALVE OPERATION

EPRI IS CURRENTLY CONDUCTING TESTS UTILIZING A SHORT PIPING CONFIGURATION WITH DRESSER 31709NA VALVES. THE TEST CONFIGURATION ENVELOPS THE MODIFIED SAN ONOFRE 2 & 3 DESIGN AND THE RESULTS OF THE TESTING ARE BEING SCHEDULED FOR PRESENTATION TO THE NRC STAFF BY EPRI ON APPROXIMATELY OCTOBER 2, 1981

THE MODIFIED SAN ONOFRE UNITS 2 & 3 SAFETY VALVE INLET PIPING AND THE RESULTS OF THE EPRI TEST PROGRAM WILL BE UTILIZED TO DEMONSTRATE ACCEPTABLE SAFETY VALVE OPERATION