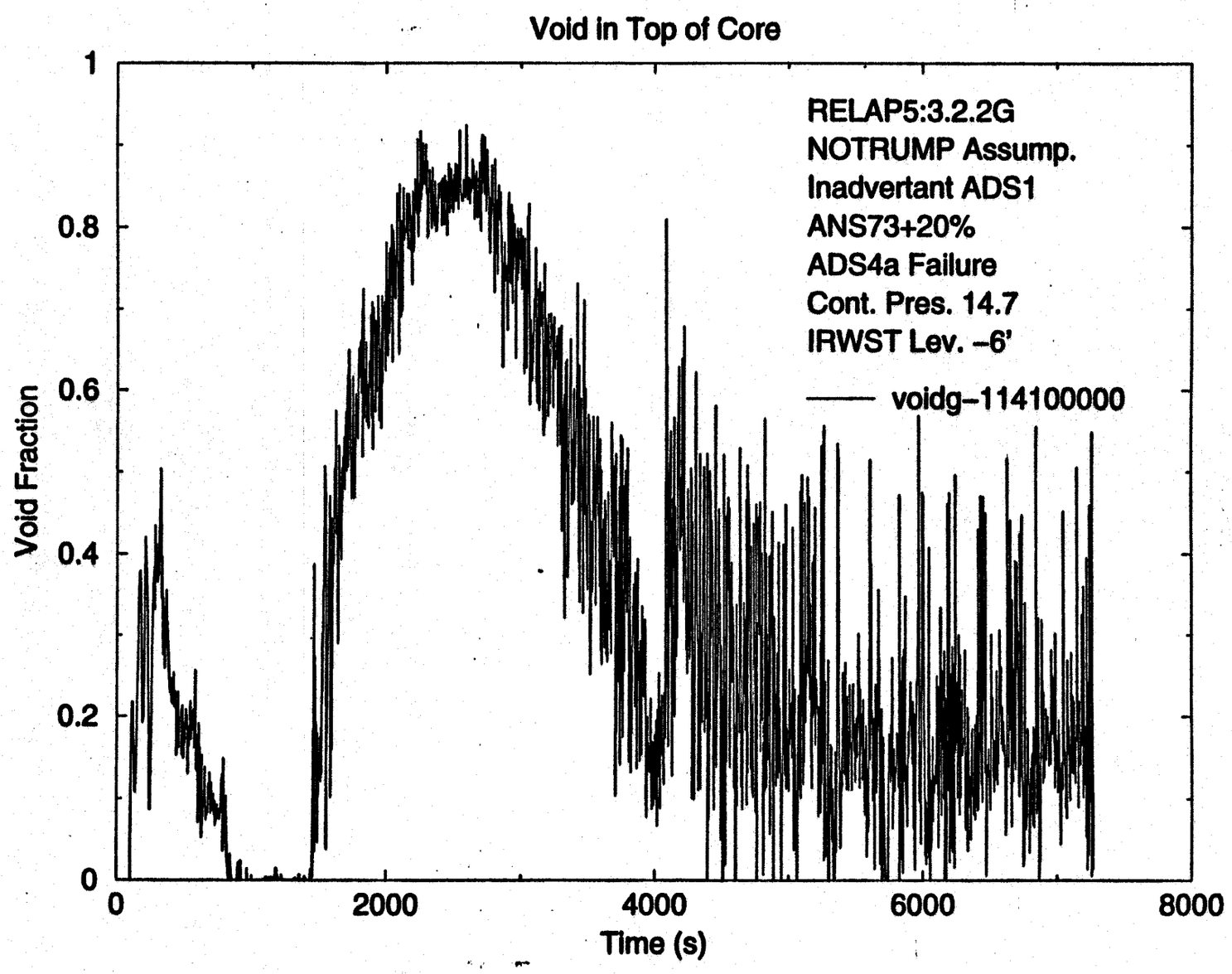
# NOTRUMP/RELAP5 Comparison

**from WCAP-12612**

**Inadvertent ADS1**
**Decay Heat ANS73+20%**
**ADS4a Failure**
**Containment Pressure - Atmospheric**
**Initial IRWST level reduced 6 feet**

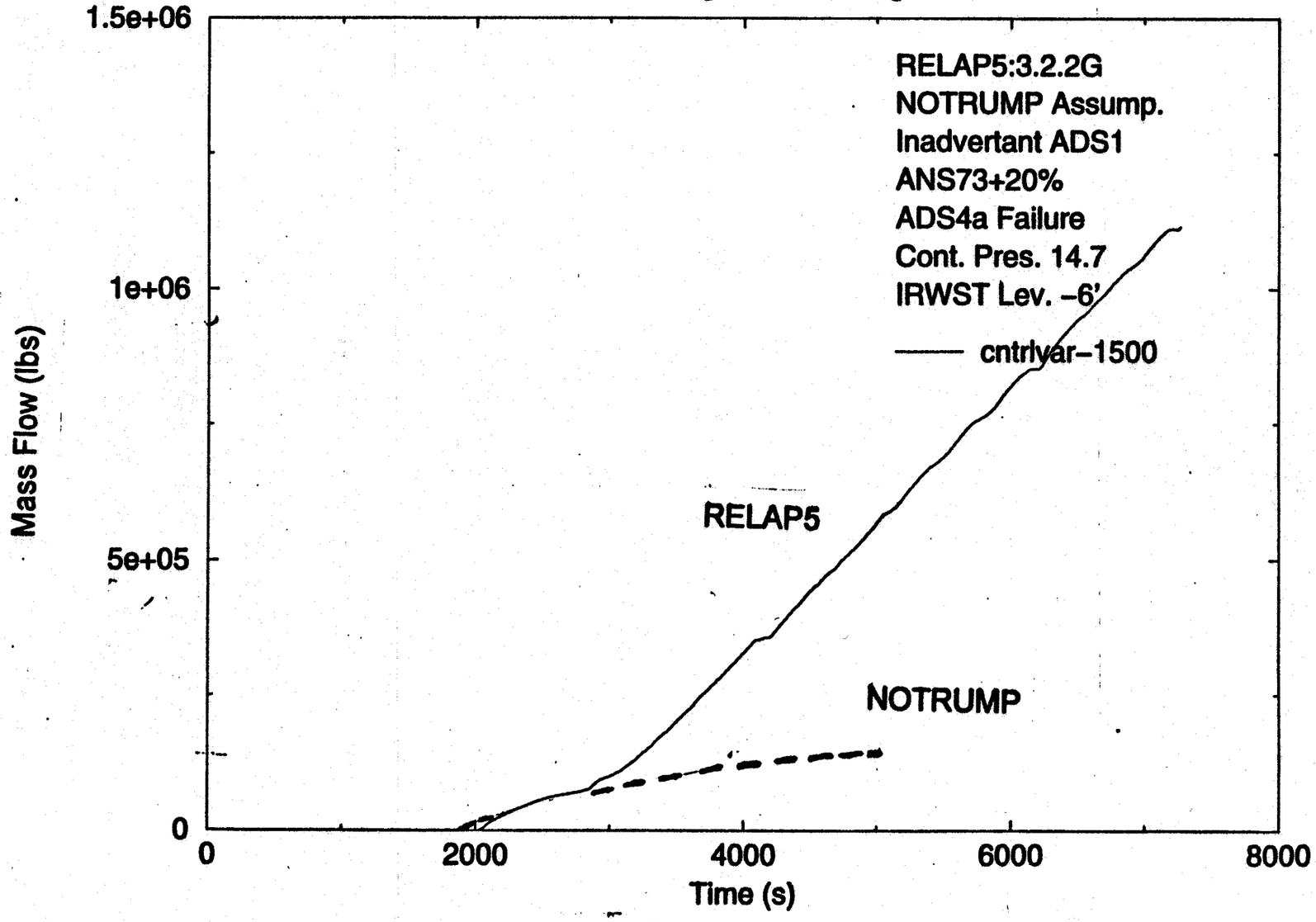
6/06/01

# AP600

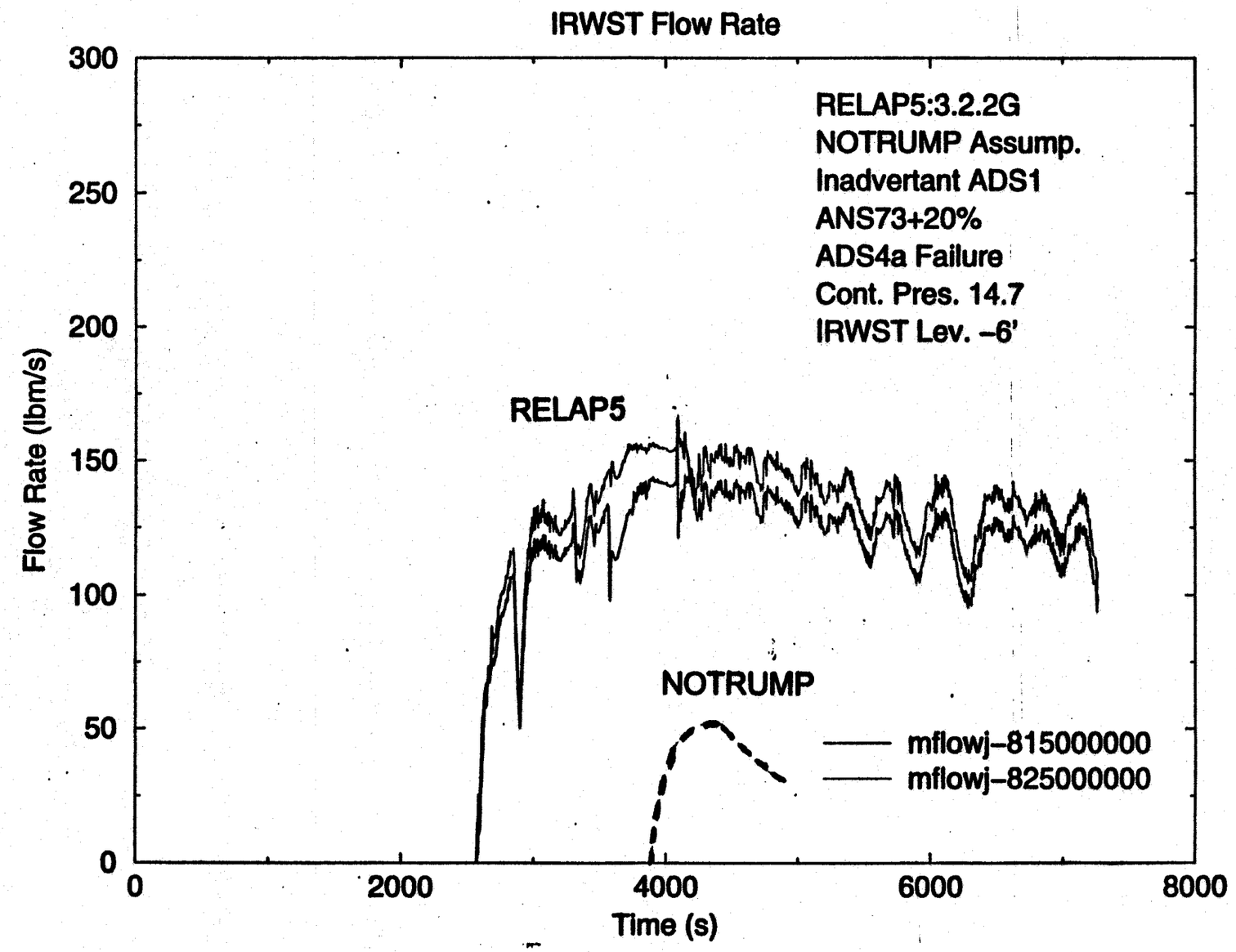

Void in Top of Core
RELAP5:3.2.2G
NOTRUMP Assump.
Inadvertant ADS1
ANS73+20%
ADS4a Failure
Cont. Pres. 14.7
IRWST Lev. -6'
voidg-114100000
Void Fraction
Time (s)
0
0.2
0.4
0.6
0.8
1
0
2000
4000
6000
8000

# AP600

## ADS4 Integrated Discharge

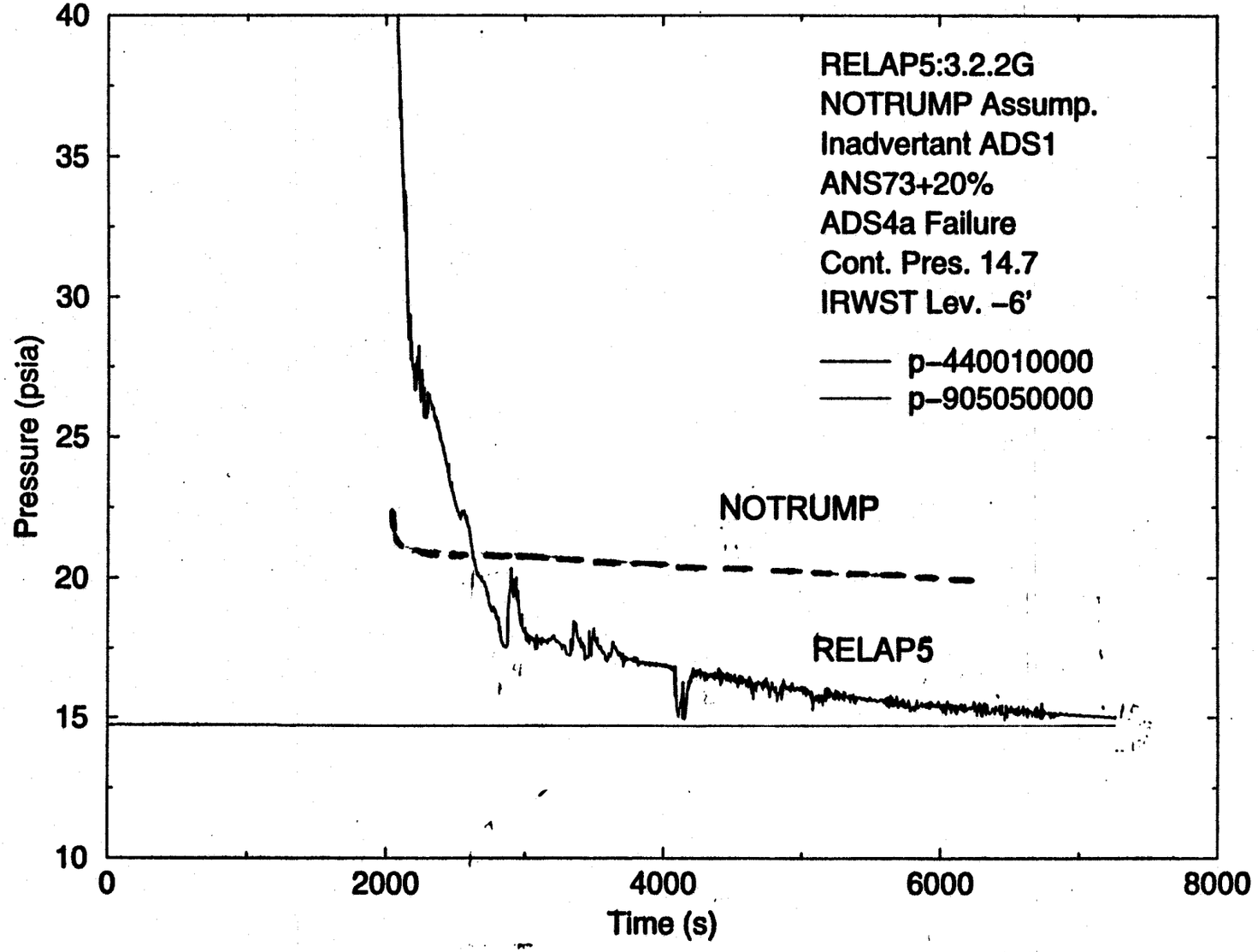


# AP600


IRWST Flow Rate
RELAP5:3.2.2G
NOTRUMP Assump.
Inadvertant ADS1
ANS73+20%
ADS4a Failure
Cont. Pres. 14.7
IRWST Lev. –6'
RELAP5
NOTRUMP
mflowj–815000000
mflowj–825000000
Flow Rate (lbm/s)
Time (s)
0
50
100
150
200
250
300
0
2000
4000
6000
8000

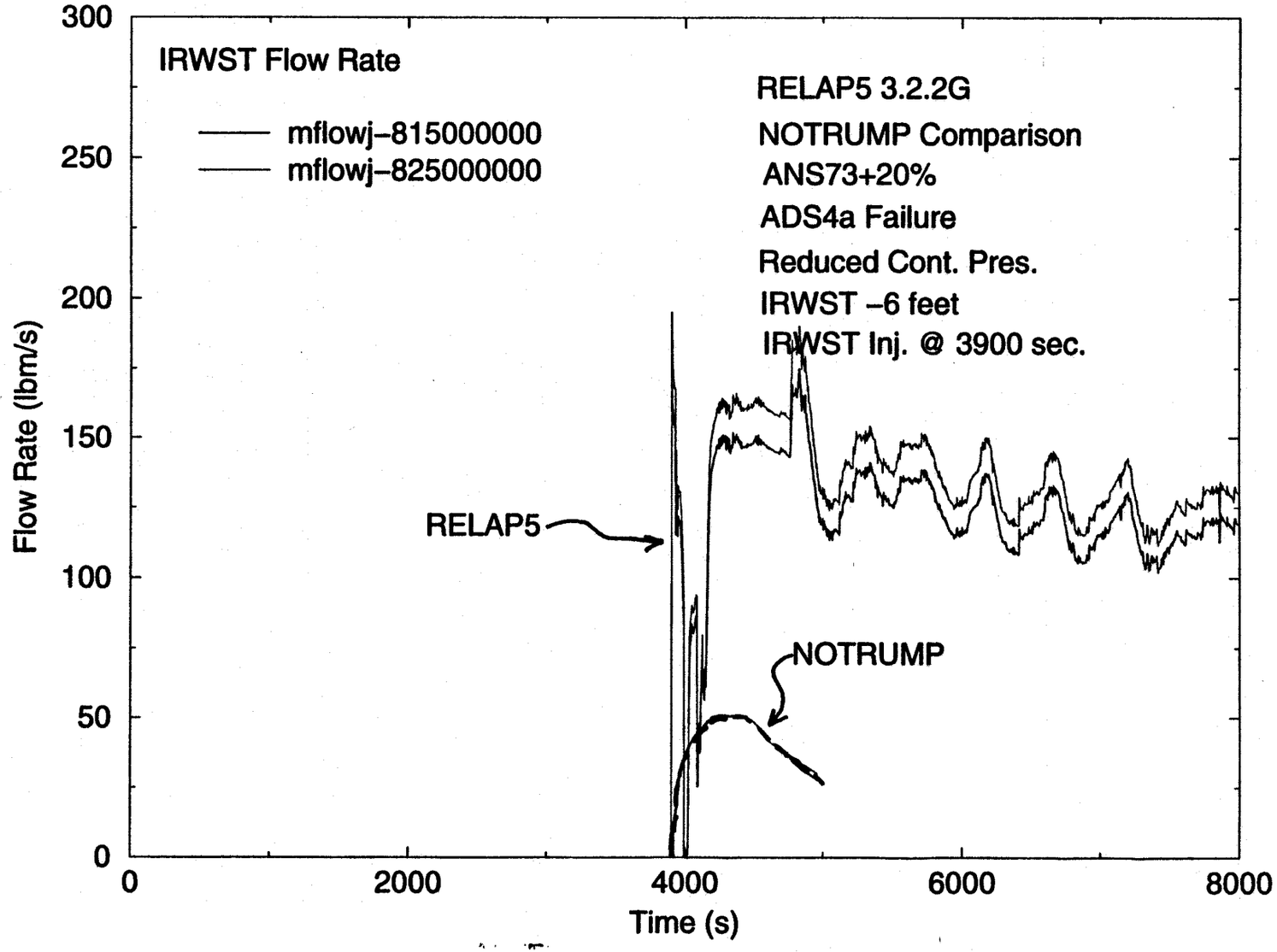
# AP600

System Pressure



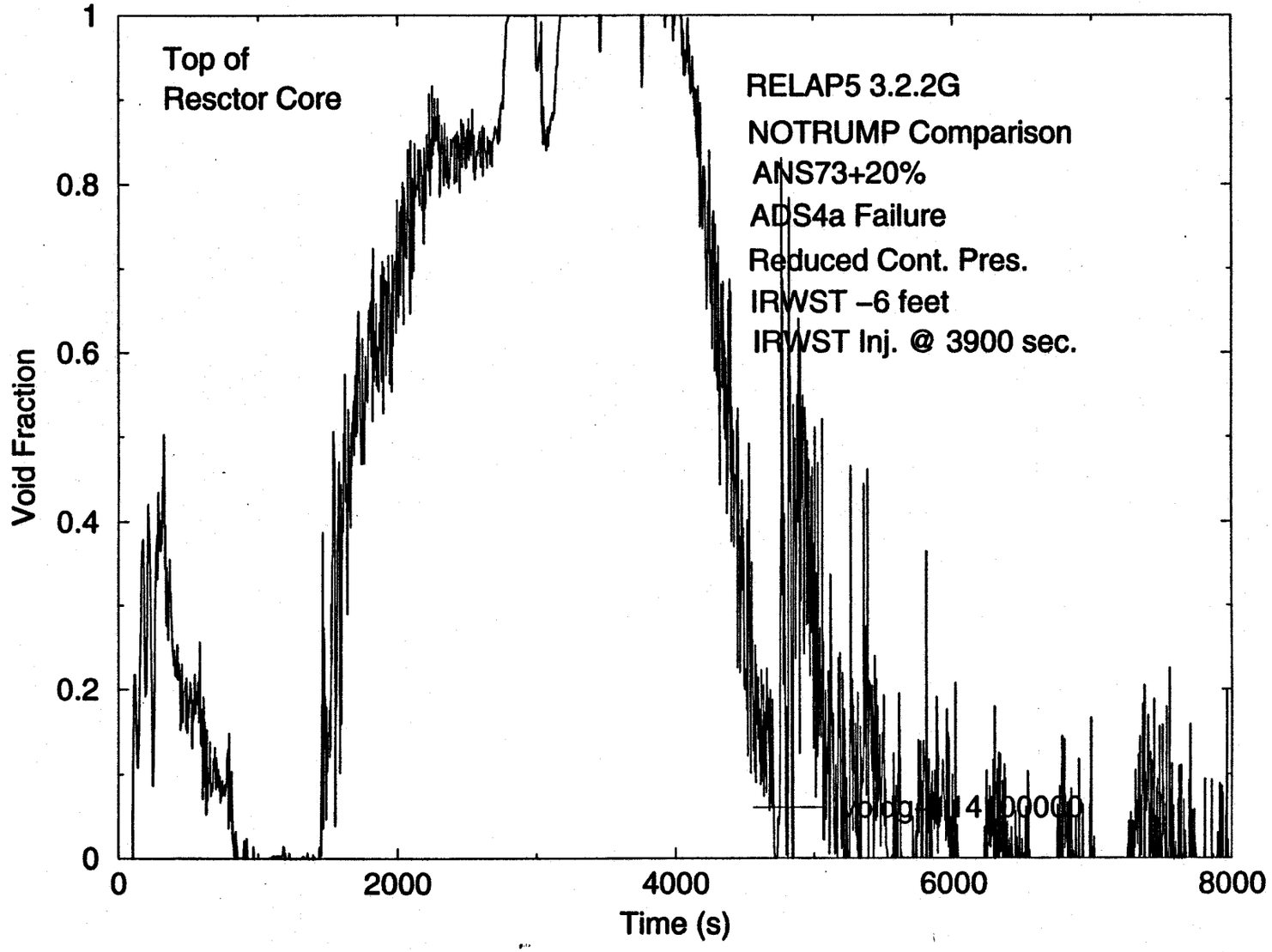
# AP600

Inadvertent ADS 1



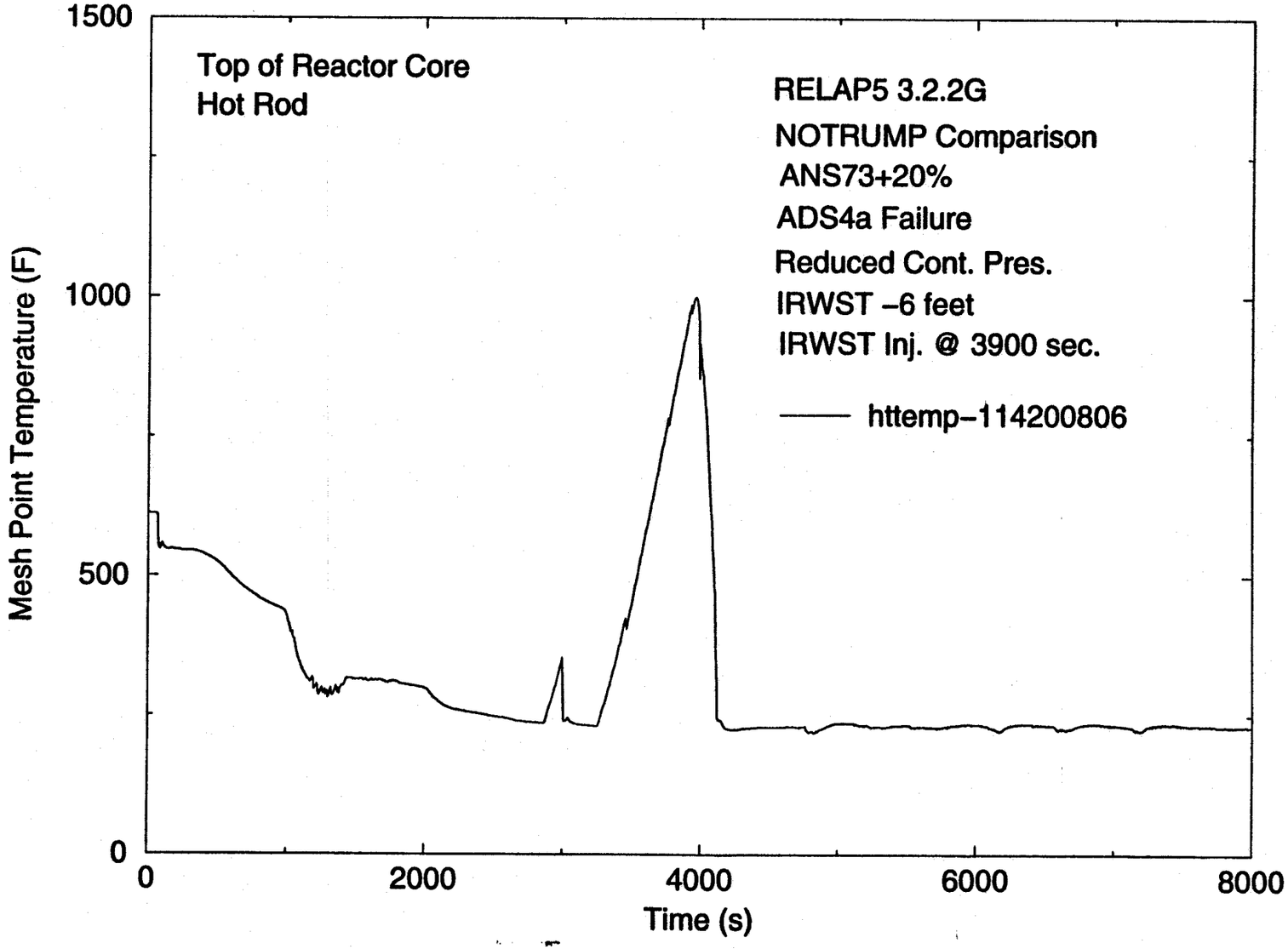
# AP600

Inadvertent ADS 1



# AP600

Inadvertent ADS 1



## Possible Conclusions

NOTRUMP is conservative in comparison to RELAP5 in calculating flow from the IRWST. This may be a result of the lack on momentum flux in calculation of ADS4 flow rate which may result in a higher reactor system pressure during IRWST injection.

NOTRUMP is non-conservative in comparison to RELAP5 for calculating the distribution of coolant within the reactor system during small break LOCA.

Because NOTRUMP is non-conservative in calculating the distribution of coolant before stable IRWST injection it would be non-conservative to extend use of WCOBRA/TRAC to earlier periods of small break LOCA analysis if the code is initialized using NOTRUMP predictions as proposed by Westinghouse in WCAP-15644.