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PREDICTION OF LOFT L1-4 EXPERIMENT
—CSNI STANDARD PROBLEM NO.5—

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Prediction of LOFT L1-4 Experiment — CSNI Standard Problem No.5 —

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LOFT L1-4 experimental results were predicted by LOFT Analysis Group and Code Development Group using RELAP-4J and ALARM-P1 respectively. The input data prepared by the former group were used in both the analyses. Thus any differences in the results should stem from the differences in code performance characteristics of the two codes.

(1) The coolant behaviors predicted by RELAP-4J and ALARM-P1 are in good agreement although some differences do exist between these two calculation models.

(2) Large difference is seen in coolant flow rate across the pump. The coast down and the flow rate by ALARM-P1 are larger and smaller respectively than by RELAP-4J.

(3) An explicit method of the ALARM-P1 leads to unstable calculation at a T shaped junction when one of the two volumes connected by the junction is filled with subcooled water.

(4) Coolant flow in the downcomer, heat transfer to and from the steam generator secondary and suppression tank behavior must be modified to better predict the experimental results.

(5) Additional instrumentation in reflood assist and ECC injection lines are necessary to better understand the coolant behavior.

Keywords: LOFT, LOCA, Reactor Safety, Blowdown, RELAP-4J Code, ALARM-P1 Code, Coolant Behavior, ECCS

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LOFT　L1－4実験の予備解析

―― CSNI標準問題　No.5 ――

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ECCをコールドレグに注入する実験であるL1－4実験をRELAP－4J及びALARM－P1を用いて予測した。この解析では，入力データの作成に，両方ともRELAP－4Jを用いるので，解析結果に表われる差異は計算コードの特性に基づくものと考えられる。

本解析の結果，LOFT　L1－4実験と，計算モデルについて，次のような結論を得た。

(1) RELAP－4JとALARM－P1により予測された冷却材挙動は，両コードの計算モデルに幾つかの差があるにもかかわらず，非常に良く一致した。

(2) 主な差異は，ポンプ流量に現われ，ALARM－P1では，ポンプコーストダウンが早く，RELAP－4Jより小さい流量を予測した。

(3) ALARM－P1では，数値解法が陽的解法であるために，T型ジャンクションで接続された2つのボリュームのうち1つが，サブクール水で満たされる時に計算上の不安定がおきた。

(4) ダウンカマの流れ，蒸気発生器2次側との熱伝達，圧力抑制容器内冷却材挙動については，実験結果をより良く予測するには，改良が必要である。

(5) 冷却材挙動をより適確に把握するには，再冠水補助系，ECC注入系に計測点を追加することが望ましい。

✝安全解析部

CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

In view of current demand on nuclear reactor safety research, to perform experiment on loss of coolant accident and related ECC (Emergency Core Cooling) water behavior by using small scale PWR (Pressurized Water Reactor) is primary objective of the LOFT (Loss Of Fluid Test) program[1]. The LOFT experiments consist of non-nuclear tests (L1 series) and nuclear tests (L2 and L3 series, and additional test series under consideration). So far five nonnuclear tests have been performed[2,5] and the results provide us valuable informations on coolant behavior during a postulated LOCA (Loss Of Coolant Accident) of a PWR.

Among the five tests, the fifth experiment, L1-4, is a double ended cold leg break experiment with ECC injection into cold leg of the operating loop[6] and it is representative break configuration condition for the design basis accident[7] in an actual reactor. Therefore the analysis of L1-4 experiment is invaluable with regard to verification of LOCA analysis code as well as better understanding of coolant behavior during LOCA.

From this point of view, CSNI has selected the LOFT L1-4 experiment as the international standard problem No.5 in that prediction of experimental results must be made on blind basis, i.e. without knowing test results.

Responding to the CSNI's request, JAERI (Japan Atomic Energy Research Institute) has dicided to participate in the standard problem No.5 and two groups at JAERI were involved in the prediction. One group is the LOFT analysis group of Reactor Safety Laboratory 1 who has been performing LOFT data analysis since JAERI is one of foreign participants in the LOFT program. The other group is the code development group of Safety Code Development Laboratory who has been developing reactor safety analysis codes.

The reason for the participation of the two groups was that the LOFT analysis group intended to analyze L1-4 experiment because behavior in L1-4 provides base line data for future nuclear test with ECC injection and the code development group aimed to better understand performance characteristics of their developed code for code verification purposes. Thus the analysis group used RELAP-4J[8] for their analysis in consistent with the previous LOFT data analysis of L1-2[9] and L1-3A while the code development group used ALARM-P1[10] for the prediction. However input data were prepared by the analysis group and provided to the code development group who then converted them to fit the ALARM-P1 input specifications. Therefore both input are consistent and any difference appeared in the results should be originated from performance characteristics of each code.

Both groups have completed their calcualtions by June 17, 1977 in order to beat the dead line set by CSNI and the results were mailed to the NRC on June 21, 1977 prior to the scheduled data release date of June 24, 1977.

The present report gives description of the two predicted results of LOFT L1-4 experiment by RELAP-4J and ALARM-P1 responding to the standard problem No.5. In addition, the two results are compared and the differences are dicussed. Although published date of the present report is later than the scheduled data release date of L1-4, only the calculated results which were sent to the NRC are contained in the present report without any alterations.

As a future study, comparison of the present analysis with L1-4 experimental results as well as post test analysis will be conducted as soon as the data become available.

2. DESCRIPTION OF L1-4 EXPERIMENT

LOFT experiment has been performed at INEL (Idaho National Engineering Laboratory) of U.S.A. with the use of LOFT reactor. Detail descriptions of LOFT experiment as well as the test facility are described in references 1) and 6). In the present chapter brief summary of L1-4 experiment is given by depicting available informations from those references for our convenience.

2.1 Objectives of L1-4 Experiment

L1-4 experiment is the fifth experiment of nonnuclear test series of the LOFT program[6]. The specific objectives are:

(1) Provide comparison of delayed HPIS (High Pressure Injection System) and LPIS (Low Pressure Injection System) injection to the cold leg and the lower plenum.

(2) Provide data reproducibility information by comparing with other related tests.

(3) Obtain data for evaluating downcomer bypass and mixing of the emergency core coolant with the primary coolant.

(4) Determine the effects of PCS (Primary Coolant System) operation and rapid depressurization with boric acid coolant.

(5) Test system performance with PPS (Primary Protection System) backup under operating procedures as similar as possible to those planned for nuclear operation.

(6) Provide system thermal hydraulic data to compare with predictions and other experimental data for code verification purposes.

Among the above objectives, item (6) is of our interest with respect to prediction of L1-4 experiment.

2.2 Experimental Procedure

L1-4 is to simulate a double ended 200% cold leg break using the LOFT reactor. In the nonnuclear test series however, a core simulator is installed in the core instead of a nuclear fuel assembly in order to simulate only hydraulic resistance of the fuel assembly. Thus the experiment is called isothermal since no heat source exists in the system.

Fig. 2.1 shows the LOFT system configuration for L1-4 experiment. Although the system configuration is the same as other L1 series tests except L1-1 (hot leg break), it should be noted that ECC inlet to cold leg of the intact loop is provided in L1-4 for ECC injection by HPIS, LPIS and accumulator.

Major events of L1-4 experiment are listed in Table 2.1. The primary system is heated up by electric heaters in pressurizer and irreversible thermal work given to coolant by the two pumps in PCS. Initial test conditions to be achieved are:

System temperature	282°C (540°F).
System pressure	15.6 MPa (2,250 psig).
PCS flow rate	1.512×10^4 kg/sec (2×10^6 lb/h).

40 hours are required to maintain the system at the initial test conditions for stabilizing the whole system at isothermal conditions.

Blowdown is initiated at time T_o by opening QOBV (Quick Opening Blowdown Valve) and emergency coolant is injected into cold leg of the intact loop by HPIS, LPIS and accumulator system at the specified timings. HPIS is set to start at 22 ± 2 sec after break with injection rate of 1.085 ± 0.126 liter/sec (17.2 ± 2 gpm) and LPIS pump is set to deliver coolant at 35.5 ± 2 sec after break. The injection rate of LPIS depends on injection line pressure. Injection from accumulator is initiated when system pressure falls below the accumulator tank pressure and the check valve opens.

Test is expected to complete 5 min after break and experimental data are recorded by DAVDS (Data Acquisition and Visual Display System) till completion of the test.

Details of L1-4 experiment are described in reference 6).

Table 2.1 Major Events of L1-4 Experiment

Item	Time	Event
1.	T_o-60 hrs or more	Preparations
2.	T_o-60 hrs	Start heat up of PCS
3.	T_o-60 to 40 hrs	Data acquisition system check
4.	T_o-40 hrs	PCS at test temperature and pressure 282°C, 15.6 MPa (540°F, 2250 psig)
5.	T_o-3 min	Adjust PCS flow
6.	T_o	Open QOBV
7.	T_o+22±2 sec	Initiate HPIS flow
8.	T_o+35.5±2 sec	Initiate LPIS flow
9.	T_o+5 min(estimated)	Test completed

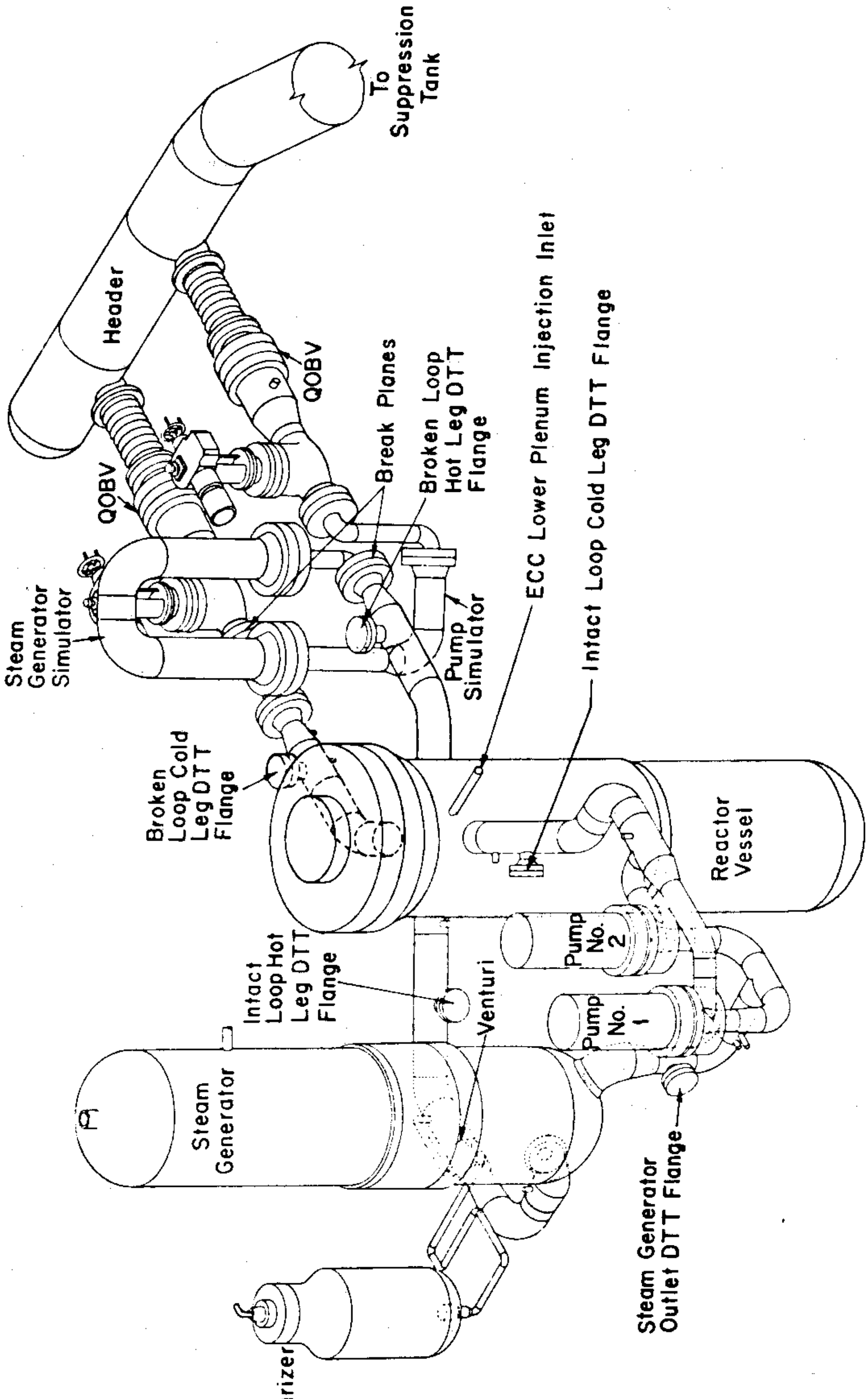


Fig. 2.1 LOFT major components

3. INPUT DATA PREPARATIONS

Input data for the present L1-4 predictions were prepared by the LOFT analysis group primarily for RELAP-4J analysis and forwarded to the code development group who converted the data to fit the ALARM-P1 input specifications. Thus both input data are essentially the same except a few modifications which were necessarily made due to difference originating from the modeling used in each codes.

In this chapter, method of input data preparations common for RELAP-4J and ALARM-P1 are described. Furthermore input data modified for ALARM-P1 are mentioned.

3.1 Nodalization

3.1.1 Primary Coolant System

Nodalization used for L1-4 experiment configuration is the same as the previous nodalization for L1-2 analysis[9] except ECC injection line. The selection of nodes and junctions are based on the following principles.

(1) Volume corresponding to horizontal section of PCS piping is selected in order that homogeneous approximation is appropriate in each volume.

(2) Vertical section of PCS with relatively large height is given single volume where approximation by simple cylindrical vessel seems adequate.

(3) No siginificant change in flow area is allowed inside of each volume, but section with such change is assigned to junction.

(4) Volume is selected such that instrument location becomes nearly at the center of the volume.

(5) T connection location such as pressurizer surge line outlet and ECC injection location is selected to be approximately at the center of the volume which the T connection belongs to.

Fig. 3.1 shows noding used for RELAP-4J analysis of L1-4 experiment. It should be noted that ECC injection line is added in accordance with L1-4 experiment specifications. Otherwise nodalization of the system is unchanged from L1-2 analysis. For ALARM-P1 analysis, the same noding is used except numbering of each volume as indicated by the volume with symbol * in Fig. 3.1.

3.1.2 ECCS

Input data used for additional volumes and junctions representing ECC injection line are summarized in Table 3.1. Since relative heights of injection line including accumulator tank were unknown at the time of the present L1-4 analysis, those data were estimated from the available data in reference 6).

Method of determining volumes and junctions for ECCS shall be described in the following.

(a) Accumulator injection system (ACC)

Fig. 3.2 shows schematic drawing of ACC injection system. The injection system was divided into 3 volumes, ACC tank, injection line between stand pipe inlet and check valve, injection line between the check valve and cold leg injection location. Volume of ACC tank excluding the stand pipe is given in reference 6) as 3.682 m^3 (130 ft^3) and liquid volume in the injection line as 0.3625 m^3 (12.8 ft^3). Since stagnant liquid at nearly PCS fluid condition exists between the check valve and cold leg injection, the stagnant region is accounted by volume 29 and the remaining volume of the injection line is given to volume 30. Junctions for accumulator injection system are junctions 31, 32 and 33, corresponding respectively to cold leg injection location, check valve and stand pipe inlet. Friction coefficients for each junctions are determined as follows.

<u>Junction 31</u>

Since ECC injection piping is much smaller (0.1524 m (6 inches)) than cold leg piping (0.3556 m (14 inches)), sudden expansion is assumed and K_F is calculated as 0.45.

<u>Junction 32</u>

In the check valve, no pressure loss is accounted for, i.e. K_F = 0.0.

<u>Junction 33</u>

In order to appropriate account for pressure drop in the ACC injection line, K_F = 38.5 based on flow area of 5.723×10^{-3} m^2(0.0616 ft^2) is used in accordance with the information supplied from NRC.

(b) LPIS

LPIS is represented by fill junction 34 with injection flow rate as the function of system pressure. Initiation of injection is made by trip signal set at 36 sec after break.

(c) HPIS

Fill junction 35 is also given to HPIS. Injection flow rate is assumed constant and injection is initiated by trip signal set at 22 sec after break.

3.2 Initial Fluid Conditions

Initial fluid conditions were determined from actual experimental conditions of L1-4 which was performed on May 4, 1977. The actual conditions as shown in Table 3.2 were informed to the standard problem participants from USNRC which is the responsible organization for performing L1-4 experiment under the guidance of CSNI and those data were used as input data. Since not all of pressure and temperature distribution in PCS were given, they were determined as described in the following.

3.2.1 Pressure Distribution

Pressure distribution in the LOFT system was determined with the help of previous LOFT experiment data of L1-2 and L1-3A. In these tests, pressure difference was measured at several locations as shown in Fig. 3.3. Since flow rate, pressure and temperature of coolant in the primary system were almost identical in L1-2 and L1-3A, the measured pressure difference must be also nearly the same. Fig. 3.4 shows differential pressure distribution in the system based on L1-2 and L1-3A data. It should be noted that smaller orifices were installed in inlet and outlet nozzles of steam generator in case of L1-2 experiment and thus differential pressure across steam generator and pump head are larger in L1-2. However pressure difference between pump outlet to steam generator inlet is nearly the same for L1-2 and L1-3A.

According to L1-4 experiment specifications, larger orifices in steam generator as used in L1-3A are installed and therefore pressure distribution in L1-4 should be similar to L1-3A. In Fig. 3.4 pressure distribution used for the present analysis is shown by solid line. Pressure distribution corresponding to each volume is summarized in Table 3.3, where reference pressure is the measured pressure in pressurizer vessel.

3.2.2 Temperature Distribution

According to measured temperature of L1-3A and L1-4, isothermal temperature distribution was not established as can be seen in Fig. 3.5.

Therefore in the present analysis, temperature distribution was assumed as shown in Fig. 3.5 so that temperature distribution in the system becomes physically realistic. Temperature corresponding to each volume is summarized also in Table 3.3.

3.3 Pump Conditions

Primary circulation pump of the LOFT reactor is a canned rotor pump and two identical pumps are used for coolant circulation. Since detailed pump data are not available other than those given in reference 6), input data were retrieved from the RELAP-4 model used in the LOFT analysis by EG&G[11]. However the retarding torque equation used in the EG&G analysis is not employed in RELAP-4J and therefore the retarding torque was assumed constant by setting pump speed ratio at initial value.

It should be noted that when actual pump speed of No.1 pump, i.e. 1647 rpm, was used, pressure balance could not be established in the calculation across the pump. Thus initial pump speed was assumed 1679 rpm instead in order to achieve the pressure balance.

Pump data actually used in the present analysis are summarized in Table 4.2 and compared with the data used in the EG&G LOFT analysis.

3.4 Steam Generator Conditions

Steam generator secondary was kept hot standby conditions during experiment. In the present analysis however, steam generator is not considered as a heat source since the effect of steam generator is not significant during blowdown process as discussed in L1-2 analysis[9].

3.5 ECCS Injection Conditions

3.5.1 Accumulator

As shown in Table 3.2, accumulator was pressurized at 4.3 MPa (613.4 psig) by nitrogen gas and coolant temperature was maintained at 33.3°C (92°F) till injection initiates. These conditions were used as the input data.

3.5.2 HPIS

HPIS initiated coolant injection at 22 sec after break. Injection flow rate and coolant temperature were assumed 1.072 liter/sec (17 gpm) and 33.3°C (92°F), respectively, in accordance with L1-4 experiment specifications.

3.5.3 LPIS

Actual starting time of LPIS pump was 36 sec after break. Injection flow rate depends on injection line pressure as shown in Fig. 3.6. Thus the pressure-flow rate relation was used in the analysis in the form of fill table. Coolant temperature was assumed 33.3°C (92°F) same as HPIS.

Note: * indicates node used in ALARM-P1.

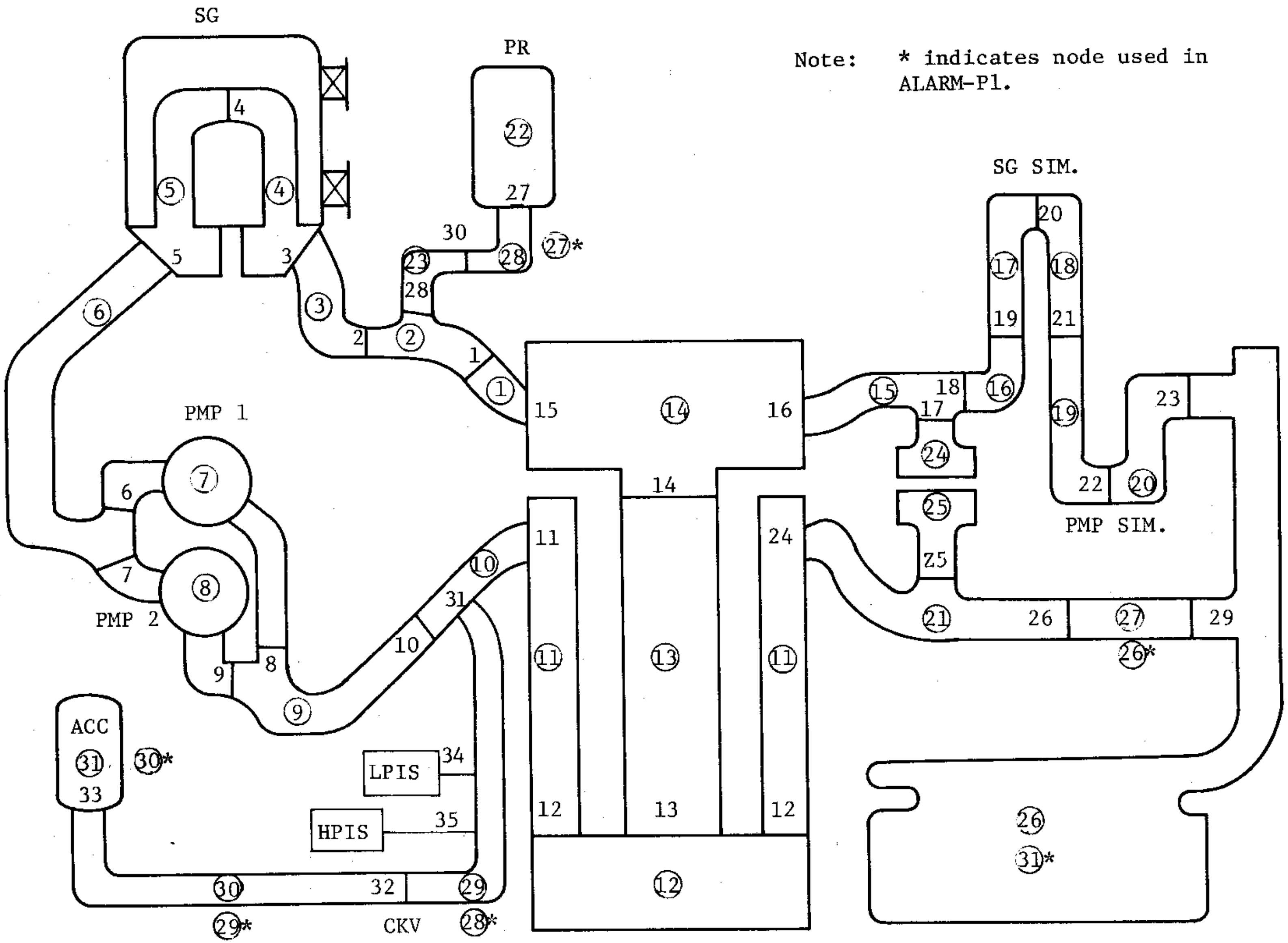


Fig. 3.1 LOFT Noding for L1-4 Analysis

Table 3.1 Volume and Junction Data of ECC Injection Line

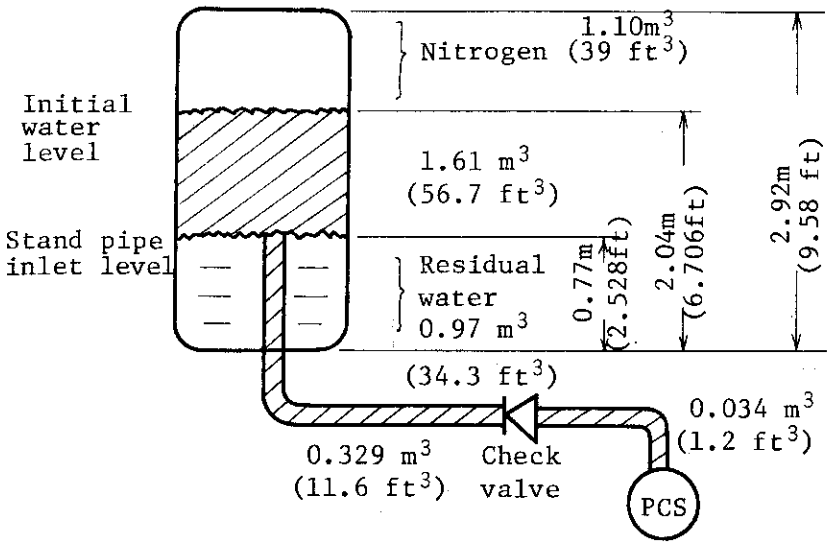
(1) Volume data

Volume No.	Description	Volume $m^3 (ft^3)$	Flow Area $m^2 (ft^2)$	Height m (ft)	Elevation m (ft)	Notes on volume data
29	Injection line between check valve to cold leg of the intact loop	0.034 (1.2)	0.0062 (0.06681)	0.044 (0.1458)	0.142 (0.466)	Estimated from fluid volume
30	Injection line between the check valve and stand pipe inlet	0.329 (11.6)	0.0062 (0.06681)	0.77 (2.528)	0.186 (0.6118)	Estimated from fluid volume
31	Accumulator vessel	3.68 (130.0)	1.26 (13.57)	2.92 (9.58)	0.186 (0.6118)	

(2) Junction Data

Junction No.	Location	Connecting Volumes		Flow Area $m^2 (ft^2)$	Elevation m (ft)	Configuration	Form Loss Coefficients		
		From	To				K_F	K_R	$K_{RES.}$
31	Injection point at cold leg	29	10	0.006 (0.0645)	0.142 (0.466)	Vertical junction	1.0	1.0	0.0
32	Check valve	30	29	0.006 (0.0645)	0.186 (0.6118)	Vertical junction	0.0	0.0	0.0
33	Stand pipe inlet	31	30	0.0062 (0.06681)	0.957 (3.1398)	Vertical junction	38.5	38.5	0.0
34	LPIS injection point	0	29	0.006 (0.0645)	0.164 (0.5389)	Vertical junction	0.0	0.0	0.0
35	HPIS injection point	0	29	0.006 (0.0645)	0.164 (0.5389)	Vertical junction	0.0	0.0	0.0

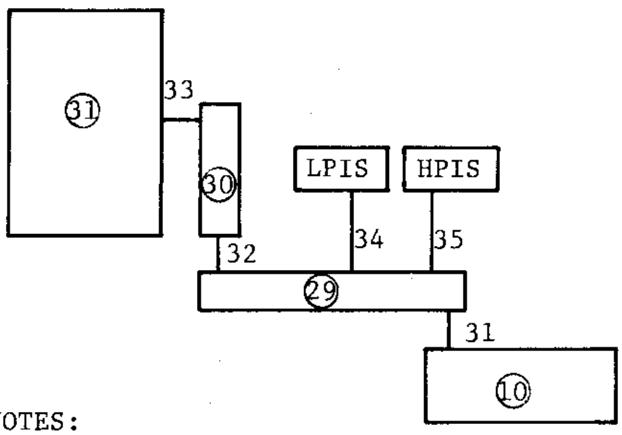
(1) Schematic drawing of ACC injection system



NOTES:

1. Shaded portion of water can be injected.
2. Relative elevation of ACC tank with respect to PCS is unknown.
3. Injection line consists of 4" and 6" pipes.

(2) Node and Junction Representation of ECC Injection System



NOTES:

- ⑩ PCS cold leg
- ㉙ Cold leg to check valve
- ㉚ Check valve to stand pipe inlet
- ㉛ Accumulator tank

Fig. 3.2 Accumulator Injection Line

Table 3.2 Initial and Other Conditions from the LOFT L1-4 Test

(1) Initial Conditions

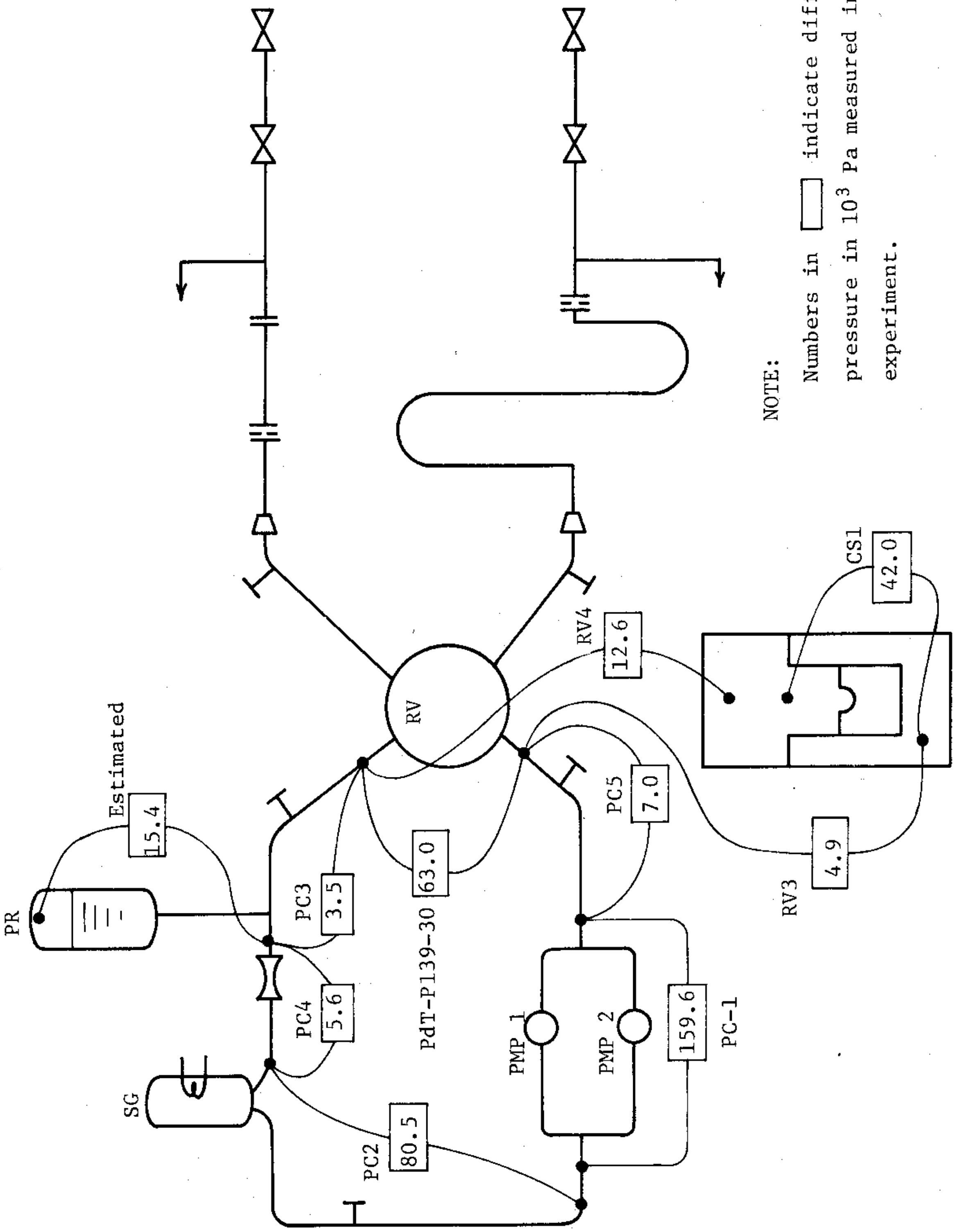
Item	Instrument Designations	Initial Conditions
Intact Loop		
Average Mass Flow Rate	FT-P139-27-1,2 & 3	268.4 kg/s (2.13×10^6 lbm/hr)
Pump Speed (each primary coolant pump)	RPE-PC-1 RPE-PC-2	1647 RPM 1787 RPM
Temperature		
Hot leg near vessel	TE-PC-2	279°C (535°F)
Steam generator inlet	TE-SG-1	281°C (537°F)
Steam generator outlet	TE-SG-2	279°C (534°F)
Cold leg near vessel	TE-PC-1	279°C (535°F)
Vessel		
Temperature		
Downcomer-Instrument stalk 1	TE-1ST-2	282°C (539°F)
Downcomer-Instrument stalk 2	TE-2ST-2	279°C (535°F)
Lower Plenum-Instrument stalk 1	TE-1ST-9	282°C (540°F)
Lower Plenum-Instrument stalk 2	TE-2ST-14	279°C (535°F)
Core Simulator	TE-CS-1	279°C (535°F)
Broken Loop		
Temperature		
Cold leg near vessel	TE-BL-1	279°C (535°F)
Cold leg near break plane	TE-P138-170	272°C (522°F)
Hot leg near vessel	TE-BL-2	281°C (537°F)
Hot leg near break plane	TE-P138-171	272°C (522°F)
Pressurizer		
Pressure	Several Measurements	15.65 MPa gauge (2270 psig)
Liquid Volume	LT-P139-6,7 & 8	0.66 m^3 (23.3 ft^3)
Gas Volume	LT-P139-6,7 & 8	0.30 m^3 (10.7 ft^3)
Steam Generator Secondary		
Pressure	PT-P4-10A	6.55 MPa gauge (950 psig)
Liquid Volume	LT-P4-8B	3.46 m^3 (122 ft^3)

Table 3.2 Continued

Item	Instrument Designations	Initial Conditions	
Emergency Core Cooling System			
Accumulator			
Pressure	PT-P120-43	4.14 MPa gauge	(601 psig)
Temperature	TE-P120-41	33°C	(92°F)
Gas Volume	L1T-P120-44	1.16 m^3	(41 ft^3)
Injected Liquid Volume	L1T-P120-44	2.05 m^3	(72.3 ft^3)
Pumped ECC			
Temperature of Borated Water Storage Tank (BWST)	TE-P120-1	26°C	(78°F)

(2) Other Conditions

Time of primary coolant pump trip	T = 0 sec
Time of HPIS initiation	To + 22 sec
Time of LPIS valved in	To + 36 sec



NOTE:
Numbers in ☐ indicate differential pressure in 10^3 Pa measured in L1-3A experiment.

Fig. 3.3 L1-3A Initial Differential Pressure

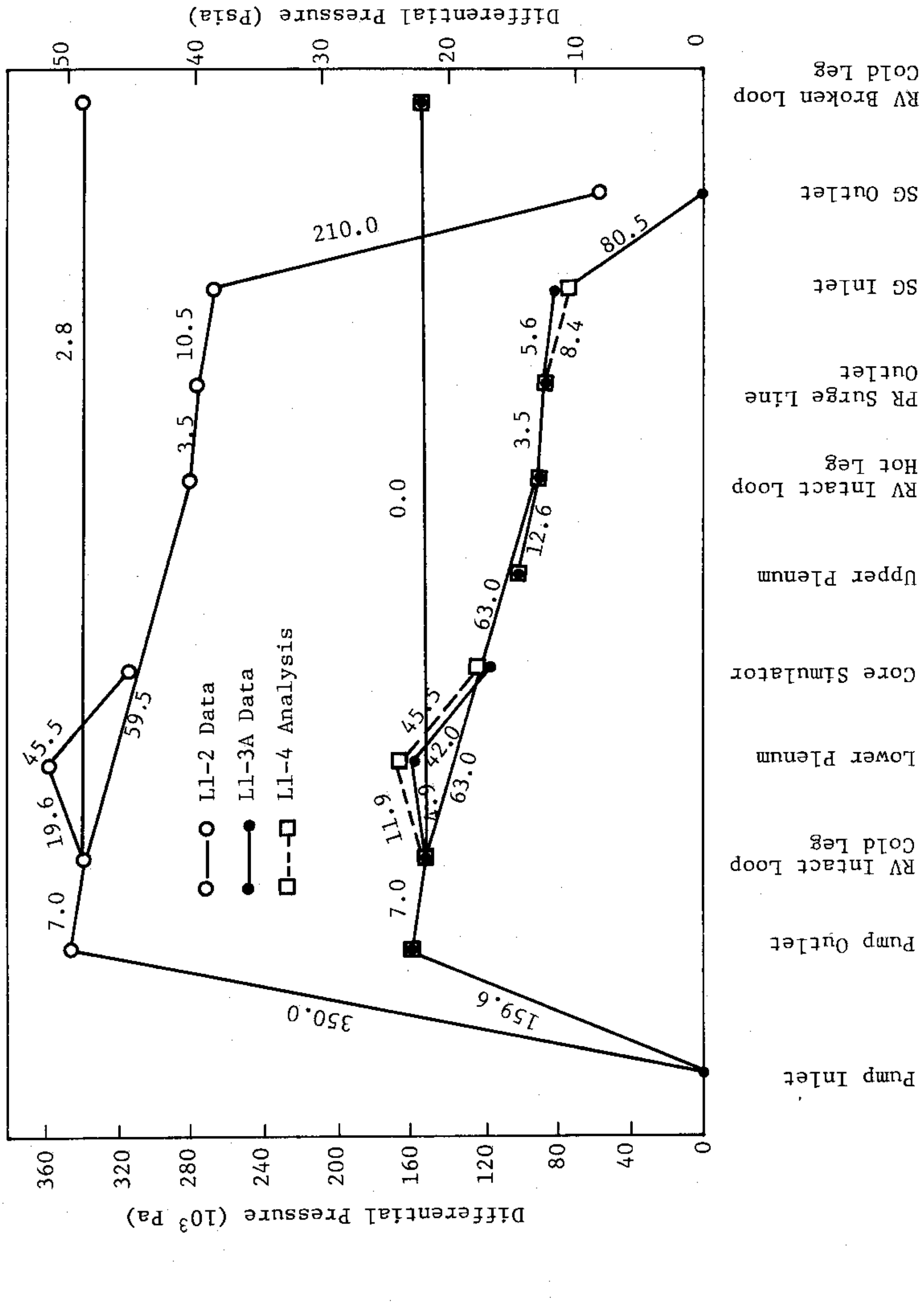


Fig. 3.4 Differential Pressure Distribution in PCS

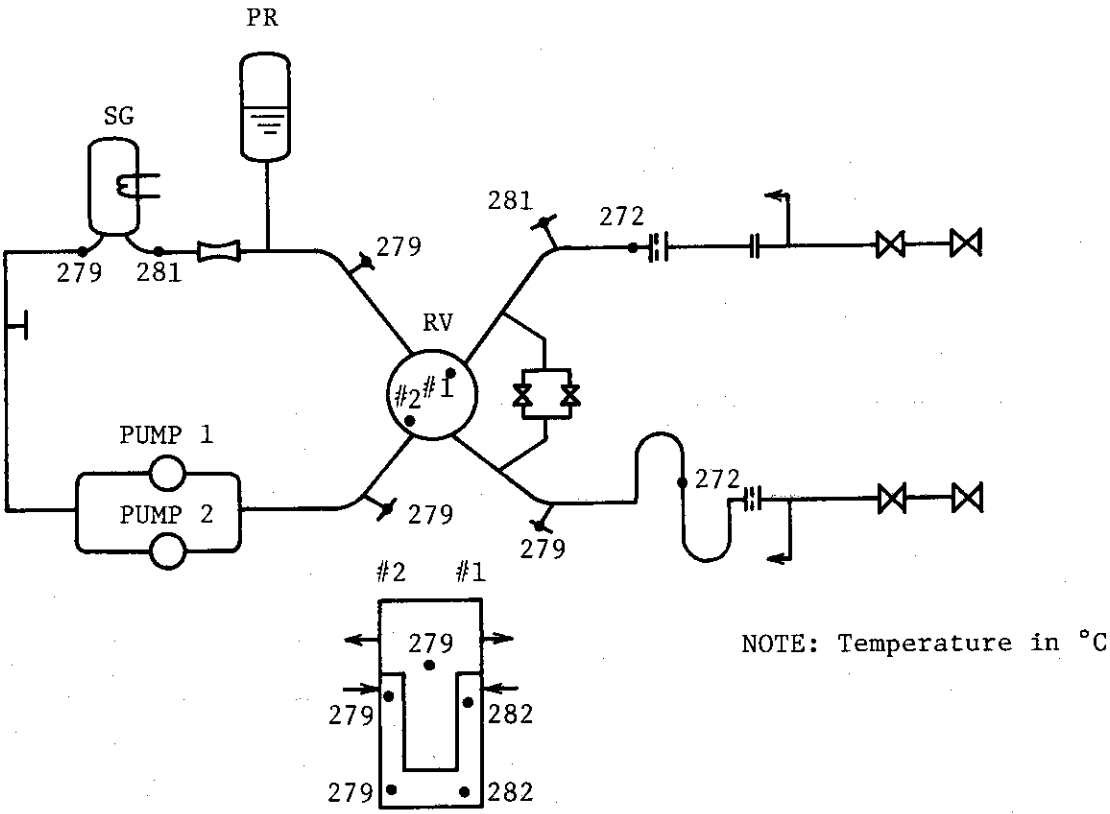


Fig. 3.5 Initial Temperature Distribution in PCS

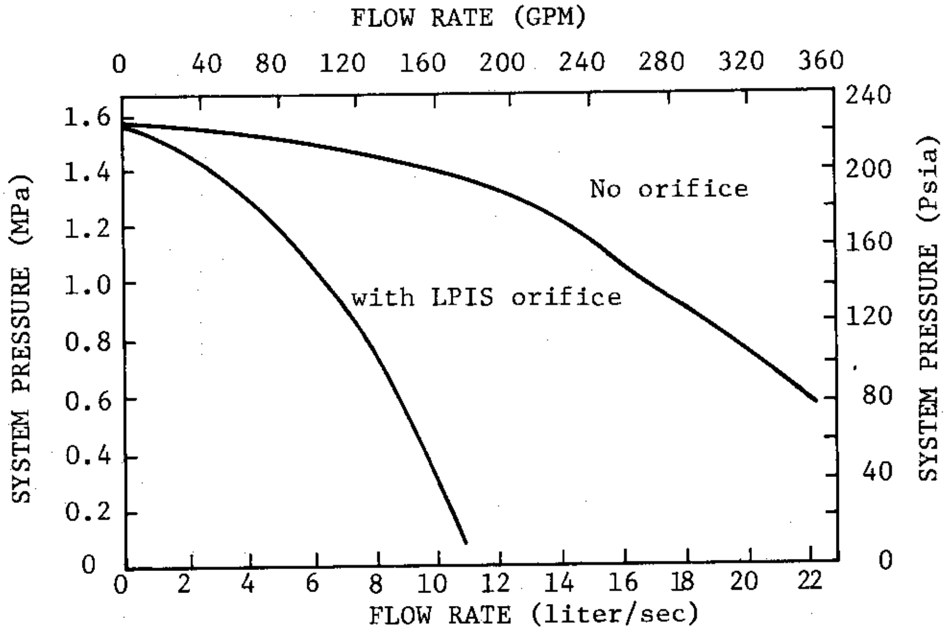


Fig. 3.6 LPIS Injection Flow Rate

Table 3.3 Initial Pressure & Temperature Distribution for L1-4

Components	ΔP	Psia	°F	Vol.#	Notes
Pressurizer (Vapor)		2282.4			See note below (1)
	+1.4				
PR surge line center		2283.2			See note below (1)
	+1.1				
PR inlet downstream		2284.9	536	②	
	-1.2				
SG inlet after reducer		2283.7	537	③	
	-3.5				
SG riser center		2280.2	536	④	
	-3.5				
SG Top		2276.7			
	-3.5				
SG downcomer center		2273.2	535	⑤	
	-3.5				
SG outlet		2269.7			
	+1.3				
SG outlet piping ℄		2271.0	534	⑥	
	+1.3				
SG outlet at loop seal		2272.3			
Pump No.1 & No.2	+23.1	2285.1	535	⑦, ⑧	
Pump outlet		2295.4			
	-0.5				
Cold leg center		2294.9	535	⑨	
	-0.5				
Cold leg near RV		2294.4	535	⑩	
	+0.8				
Downcomer center		2295.2	537	⑪	
	+0.9				
Lower plenum 24" above		2296.1			
	+0.4				
Lower plenum center		2296.5	537	⑫	
	-3.4				
Core center		2293.1	536	⑬	
	-3.5				
Core simulator center		2289.6			
	-2.4				
Upper plenum center		2287.2	535	⑭	
	-1.8				
RV outlet (intact) hot leg		2285.4	535	①	
	0.0				
Blowdown loop hot leg		2285.4	535	⑮	
	-1.5				
SG simulator (riser)		2283.9	535	⑯	
	-1.5				
SG simulator (Top)		2282.4	530	⑰	
	+3.0				
SG simulator to pump simulator		2285.4	530	⑱	
	+3.1				
Pump simulator		2288.5	525	⑲	
	-3.1				

Table 3.3 Continued

Components	ΔP	Psia	°F	Vol.#	Notes
	-3.1				
Discharge pipe		2285.4	522	⑳	
	-0.9 from BL HL				
Reflood assist line hot leg side		2284.5	530	㉔	
	-0.9 from BL CL				
Reflood assist line cold leg side		2293.5	530	㉕	
Blowdown loop cold leg		2294.4	537	㉑	
	0.0				
Blowdown nozzle		2266.4	522	㉗	
Suppression tank		13.8	183	㉖	

Note: (1) PR surge line is divided into two volumes:

Components	ΔP	Psia	°F	Vol. #	Notes
PR : top		2282.4	654		
	+0.4				
Center		2282.8	649	㉒	
	+0.5				
Bottom		2283.3	644		
	+0.5	(2283.6)	(608)	㉘	
Surge line center		2283.8			
	+1.1	(2284.4)	(572)	㉓	
Surge line outlet					

(2) Gauge pressure based on 12.4 psia at atmospheric pressure

(3) ECC injection line

	Psia	°F	Vol. #	Notes
ECC Injection line (Same as vol. ⑩ operating loop cold leg)	2294.4	490	㉙	

4. COMPARISON OF MODELS USED FOR L1-4 ANALYSIS BY RELAP-4J AND ALARM-P1

For the present L1-4 prediction, two codes are used, namely RELAP-4J and ALARM-P1. RELAP-4J[8] is a JAERI's modified version of RELAP-4 Mod 2[12] and ALARM-P1[10] is an EM based PWR-LOCA analysis code developed at JAERI by the code development group. Both codes are basically of similar type, i.e. a one dimensional node junction type loop code. However physical models used in RELAP-4J and ALARM-P1 are slightly different and those difference would lead to different performance characteristics of each codes. Major differences in physical models used for L1-4 analysis are summarized in Table 4.1 and are compared in the following.

4.1 Numerical Method

Fully implicit method was used in the present RELAP-4J analysis although RELAP-4J is capable of performing fully explicit method as well. ALARM-P1 on the other hand employs fully explicit method to solve the set of governing equations because of its unmatured stage of development. Therefore computational time of ALARM-P1 is approximately 3 times longer than that of RELAP-4J in the present case mainly due to smaller time steps associated with explicit method.

4.2 Discharge Model

RELAP-4J allows the use of C_D correlation[8] in the form of

$$C_D = 0.57 + \frac{0.002}{\text{Junction Quality}}$$

for the discharge coefficient associated with the Moody model when critical flow is detected. Use of the C_D correlation results in larger flow in the range of smaller junction quality in consistence with experimental results.

ALARM-P1 employs the Zaloudex equation[13] and the Moody model for discharge flow calculation. The Zaloudek equation is used when stagnation quality is less than 2% and smoothly connected to the Moody model which is used in quality range above 2%. The following modification of the Zaloudek equation is made for the smooth transition.

$$G = C_1 \sqrt{2 g_c \rho (P - C_2 P_{sat})}$$

where $$C_1 = \frac{G_{Moody}}{\sqrt{2 g_c \rho P_{sat} (1 - C_2)}}$$

C_2 : input constant ($0.5 < C_2 < 1.0$)

$C_2 = 0.85$ in the present analysis

G_{Moody}: Critical mass velocity calculated from the Moody model corresponding to $x = 0.0$ and P_{sat}

ρ : Density

P_{sat} : Saturation pressure

P : Pressure

g_c : gravitational constant

In the present analysis, the discharge coefficient for the Moody model was chosen as 0.6.

The above discharge models were applied to those junctions where two phase critical flow is expected to occur, i.e. pressurizer surge line outlet and break planes.

4.3 Phase Separation Model

According to L1-2 analysis, results were sensitive to phase separation in volume having relatively large height such as steam generator, downcomer, upper plenum and pressurizer. Therefore phase separation was assumed in the volumes corresponding to those components.

Phase separation in RELAP-4J can be calculated by using either constant bubble rise velocity with gradient of bubble density or bubble rise velocity determined by the Wilson model. The Wilson model was used in the present analysis in pressurizer and accumulator vessel and constant bubble rise velocity of 0.9 m/sec (3 ft/sec) with gradient of 0.8 was assumed in downcomer, upper plenum, steam generator inlet side and suppression tank.

Since the Wilson model is not used in ALARM-P1, constant bubble rise velocity of 0.9 m/sec with density gradient of 0.8 was employed in those volumes where phase separation was assumed in RELAP-4J.

4.4 Pump Model

Pump model used in RELAP-4J is the standard pump model employed in RELAP-4 and based on pump performance characteristics curve which is given as input data table. Two-phase effects on a pump can be considered by the use of two-phase option.

In ALARM-P1, pump behavior is solved by the homologous law and a set of input characteristic curves. Required curves are Q-H, n-H, n-τ and Q-τ

relations at the rating and the reversal flow and rotation conditions. When cavitation is expected, the pump head and hydraulic torque are modified as follows;

$$\Delta P' = \Delta P - \sigma X_e,$$

$$T_h = T_h - \sigma X_e W/\omega\rho$$

where

ΔP = Uncavitated pump pressure rise

T_h = Uncavitated hydraulic torque

$\Delta P'$= Cavitated pump pressure rise

T_h'= Cavitated hydraulic torque

σ = Cavitation constant (input data)

X_e = Quality at impeller eye

W = Mass flow rate

ω = Angular velocity

The frictional torque is neglected during coast down.

In the present ALARM-P1 calculation, the cavitation constant σ of 10^{-3} kg/m^2 was used because data of the pump behavior used in the LOFT L1-4 experiment was not clear. Therefore in the ALARM-P1 calculation, the cavitation was actually neglected.

It should be noted that the ALARM-P1 pump model is not provided with two phase option such as that used in RELAP-4J. Thus the result of ALARM-P1 is always based on single phase pump characteristics.

4.5 Heat Slab

Heat slab was considered in RELAP-4J and ALARM-P1 only in downcomer where hot wall effect may become significant during later portion of blowdown. However the L1-2 analysis indicated that effect of heat slab is not significant and addition of heat slab to downcomer volume did not alter the results. Hence heat transfer to steam generator secondary was neglected in the present analysis.

4.6 Momentum Flux Option

Momentum flux was taken into account for all junctions in RELAP-4J analysis although one dimensional momentum flux calculation seems unreasonable for a T shaped connections such as ACC injection location. Thus

ALARM-P1 analysis did not employ one dimensional momentum flux option to ACC injection location, Junction 31, and for all other junctions including pressurizer surge line, one dimensional momentum flux option was used as trial basis.

4.7 Two Phase Friction Multiplier

Two phase friction multiplier is calculated in RELAP-4J by the use of the Baroczy correlation[14] while the Thom[15] and the Martinelli-Nelson[16] correlation are used in ALARM-P1 in the form of a built-in table.

Table 4.1 Comparison of Models Used in RELAP-4J and ALARM-P1

Items	RELAP-4J	ALARM-P1
Numerical Method	Fully implicit method (also capable of explicit method)	Fully explicit method
Discharge Model	$x > 0.0$ Moody with C_D correlation, i.e. $C_D = 0.57 + \frac{0.002}{\text{Junction Quality}}$	$x > 0.02$ Moody $x \leq 0.02$ Zaloudek
Phase Separation Model	Bubble rise velocity Wilson correlation or $V_B = 3.0$ ft/sec Bubble density gradient $C = 0.8$	Bubble rise velocity $V_B = 0.9$ m/sec Bubble density gradient $C = 0.8$
Pump Model	RELAP-4 Model in INEL L1-4 Analysis	ALARM-P1 standard pump model, No Two Phase Option
Heat Slab	Considered only in downcomer	Same as RELAP-4J Analysis
Two Phase Friction Multiplier	Baroczy	Thom and Martinelli-Nelson

Table 4.2 Comparison of Pump Data

		RELAP-4J	L1-2	L1-3	L1-4
Speed ratio	Pump 1	0.48	0.6324	0.5584	0.488993
	Pump 2	0.506	0.6324	0.5584	0.5
Rated Speed (RPM)		3530	3530	3530	3530
Rated Head (ft)		408.95	350.0	306.0	408.95
Rated torque($ft \cdot lb_f$)		465.0	465.0	465.0	465.0
Mom of Inertia ($lb_m \cdot ft^2$)		340.0	521.0	294.0	340.0
Rated Density (lb_m/ft^3)		38.75	38.75	38.75	38.75
Initial Fric. Torque	Pump 1	40.0522	65.10	75.96	40.0522
	Pump 2	46.529	65.10	75.96	46.529
Pressure (psia)	Pump 1	2286.0	2254.8	2263.98	2265.47
	Pump 2	2285.1	2256.0	2265.33	2266.98
Rated Flow (GPM)		5000	5000	5000	5000
Mass flow (lb_m/hr)	Pump 1	295.9	307.722	307.722	300.657
	Pump 2	295.8	289.5	289.5	296.565

5. RESULTS AND DISCUSSIONS OF RELAP-4J AND ALARM-P1 CALCULATIONS

LOFT L1-4 experimental results were predicted by using RELAP-4J and ALARM-P1 with input data described in the previous chapter. Those input data including initial conditions for L1-4 are listed Appendices 1 and 2 as exactly the same format as those sent to USNRC.

In the present chapter, results of both analyses shall be discussed in terms of coolant behavior and ECC water in each component of the LOFT reactor and comparison of the two results shall be presented with emphasis on the difference in the models used in each computer codes. Results of the calculations are listed in Appendices 3 and 4 at selected time steps in compliance with the standard problem specifications.

5.1 Broken Loop Cold Leg

Fig. 5.1 shows calculated discharge flow rates through the break by RELAP-4J and ALARM-P1 and it is apparent that both results are in good agreement although different models were used in low quality range, i.e. the Moody model with the C_D correlation in RELAP-4J and the Zaloudek equation in ALARM-P1. In the figure, as well as all other figures, A stands for ALARM-P1 results and R for RELAP-4J. In the quality range above 0.02 the Moody model was used in ALARM-P1 with C_D = 0.60 while the C_D correlation in RELAP-4J yields 0.58 at quality of 0.02. This difference is not significant and both calculations should give nearly identical flow rate when input value for the Moody model are consistent. It should be noticed in Fig. 5.1 that slight flow rate recovery is calculated at 6.5 sec and 7.5 sec respectively in RELAP-4J and in ALARM-P1. The recovery corresponds to mixture level rise in downcomer. Fig. 5.2 shows junction flow from reflood assist line to broken loop cold leg and it indicates that calculated flow in ALARM-P1 shows oscillatory behavior with decreasing amplitude for initial 8 sec until initiation of the inflow from the reflood assist line. Oscillatory flow is also seen in RELAP-4J calculation. However the oscillation is observed only during the period of coolant inflow from reflood assist line into cold leg. The oscillation observed during initial 8 sec in ALARM-P1 calculation is associated with numerical technique used in ALARM-P1. It is usually true that explicit method often results in unstable calculation. It can be seen in Fig. 5.2 that the oscillation is symmetrical with medium value at zero flow. The fluctuation disappears at 8 sec after break corresponding to initiation of flashing in reflood assist line.

Flow rate at the reflood assist line outlet calculated by RELAP-4J becomes extremely unstable after 52 sec as can be seen in Fig. 5.2. This unstable fluctuation is also observed in calculated density in Fig. 5.3. This oscillatory flow corresponds to the mixture level in downcomer. The downcomer mixture level increases as injected ECC water accumulates in lower plenum and downcomer. Calculated mixture level shows that the mixture level reaches to the top of cold leg nozzle at 52 sec after break and the nozzle is covered by two phase mixture. Thus coolant flow from downcomer to broken loop cold leg becomes extremely low quality flow resulting in sudden increase of coolant density in the cold leg. Calculated results then becomes unstable.

Pressure transients in cold leg of the broken loop agree reasonably well between the two calculations except in the later period of blowdown as can be seen in Fig. 5.4. Pressure in RELAP-4J decreases slightly faster than ALARM-P1 due to larger discharge flow rate at the break plane defined as the exit of discharge nozzle.

Calculated temperature is also presented in Fig. 5.4. Since temperature shows saturation temperature corresponding to system pressure, lower temperature is predicted in RELAP-4J in accordance with lower predicted pressure.

Density in cold leg is shown in Fig. 5.3. It can be seen that density in ALARM-P1 stays nearly the same until 6.5 sec and then suddenly drops while density calculated by RELAP-4 smoothly decreases and at 6.5 sec it becomes almost same density calculated by ALARM-P1. Higher density calculated by ALARM-P1 during initial 6.5 sec is due to early flow reversal in intact loop hot leg. The reverse flow causes decrease in positive flow at core inlet and it leads to increase in flow rate at downcomer outlet to broken loop cold leg. The difference is originated in smaller flow rate calculated in ALARM-P1. The density recovery calculated around 6∿7 sec is due to mixture level rise in downcomer. Following ECC injection, density in RELAP-4J decreases slower than ALARM-P1. The slower decrease corresponds to larger amount of coolant inflow from downcomer into broken loop cold leg.

Slight difference between RELAP and ALARM calculation is observed in differential pressure across break planes in Fig. 5.5. The difference arises from definition of total differential pressure at junction, i.e. total differential pressure in ALARM-P1 is defined as difference between pressures in adjacent volumes while total differential pressure includes pressure loss due to momentum flux change in RELAP-4J. Thus the difference between two calculations indicates magnitude of momentum flux term.

5.2 Broken Loop Hot Leg

Discharge flow rate from hot leg of the broken loop shows excellent agreement between RELAP-4J and ALARM-P1 as can be seen in Fig. 5.6. Agreement in calculated pressure is also satisfactory as shown in Fig. 5.7. Slight difference in calculated temperature is noticed in Fig. 5.7 corresponding to difference in calculated pressure in later portion of blowdown as discussed in the previous section.

Calculated density is presented in Fig. 5.8 and good agreement is noticed. Density recovery at 15 sec after break corresponds to the end of coolant discharge from pressurizer. As soon as pressurizing effect is stopped reverse flow from steam generator inlet in intact loop hot leg occurs and large amount of coolant trapped in the steam generator flows into the upper plenum. At the same time, core flow becomes positive flow. The positive flow results in increase of mixture level in the upper plenum to reach the hot leg nozzle and thus density in the hot leg increases.

Fig. 5.9 shows coolant flow from reflood assist line. The initiation of coolant inflow to hot leg calculated by RELAP-4J is slightly earlier than ALARM-P1. However difference is not significant. Prior to the initiation of inflow, oscillation is observed in ALARM-P1 result as also seen in broken loop cold leg. The oscillation is due to numerical method used in ALARM-P1. Differential pressure across steam generator simulator and pump simulator are in good agreement as shown in Fig. 5.10.

5.3 Intact Loop Cold Leg

Junction flow at the downcomer inlet from intact loop cold leg is shown in Fig. 5.11. Agreement between RELAP-4J and ALARM-P1 is satisfactory except initial few seconds during which junction flow at the downcomer inlet calculated by RELAP-4J is larger than that of ALARM-P1. The reason is that lower flow rate is predicted during this period in ALARM-P1. The junction flow starts decreasing at 22 sec corresponding to coolant injection into cold leg. It should be noticed that effect of coolant injection is not predicted immediately following ACC injection initiation, but there is delay of a few seconds due to the existence of small volume

(volume 29). The volume represents small region between cold leg injection location and check valve where coolant initial condition is approximately same as primary system coolant. Thus injected coolant from ECCS first fills the small volume and then flows into cold leg. It takes a few seconds to fill the volume by injected coolant.

Sudden flow recovery at 25 sec corresponds to sharp temperature drop in cold leg as shown in Fig. 5.12, indicating that coolant in cold leg is all condensed and it becomes subcooled single phase liquid.

Junction flow at junction 10 represents flow rate between ECC injection location and pump discharge outlet, and the result is shown in Fig. 5.13. It should be noticed in Fig. 5.13 that noticeable oscillation appears in ALARM-P1 calculation between 25 sec and 36 sec. The oscillation corresponds to the period in which coolant temperature sharply drops to subcooled temperature indicating that cold leg is being filled by injected water. Presence of subcooled water in the system seems to result in unstable calculation in case of ALARM-P1.

The oscillation is also observed in pressure transient in Fig. 5.12. Except the oscillatory behavior between 26 sec and 38 sec, calculated results agree extremely well.

Fig. 5.14 shows average density and quality in intact loop cold leg. It can be seen that average density of ALARM-P1 is higher than that of RELAP-4J indicating effect of difference in calculated pump flow. During initial 3 sec, ALARM-P1 predicts constant density corresponding to single phase flow while RELAP-4J predicts two phase mixture after 2 sec. Faster costdown predicted by ALARM-P1 results in smaller flow rate than RELAP-4J. Therefore coolant in volume 10 stays larger in ALARM-P1 to result in higher density.

5.4 Intact Loop Hot Leg

Junction flow at junction 1 shows different behavior between RELAP-4J and ALARM-P1 as can be seen in Fig. 5.15. During initial 3 seconds, RELAP-4J result indicates relatively large positive flow while ALARM-P1 result shows flow reversal at 1.5 sec. From 3 to 12 seconds, both flow rates are almost identical. Larger negative flow with the peak at 16 sec is noticed in ALARM-P1 while no such flow is observed in RELAP-4J.

Fig. 5.16 shows junction flow at junction 2 representing coolant flow between pressurizer surge line outlet and steam generator inlet. It is noticed that flow direction calculated by both codes is positive until 12 sec corresponding to the end of coolant discharge from pressurizer. Coolant flow is reversed after 12 sec and the flow again becomes positive after 30 sec due to condensation effect propagating through steam generator where no heat slab is considered. In experimental situation, steam generator would act as heat source and condensation effect may not be present in hot leg in later portion of blowdown. By comparing junction flows at junctions 1 and 2, it is apparent that coolant from pressurizer flows into two directions, i.e. toward steam generator and upper plenum after 1.5 sec in ALARM-P1 and after 3 sec in RELAP-4J. Positive flow toward steam generator inlet disappears when coolant discharge from pressurizer is discontinued at 12 sec after break. Then reverse flow takes place as indicated by junction flow at junction 2. It is noticed that the reverse flow calculated by ALARM-P1 has peak at 15 sec while RELAP-4J result shows smooth curve. The reason is that negative flow calculated by ALARM-P1 is much larger than RELAP-4J due to earlier occurrence of flow reversal which leads to larger accumulated coolant in steam generator inlet.

Junction flow at junction 3 (SG inlet) in Fig. 5.17 is similar to junction flow at junction 2. Both results indicate that positive flow is maintained until the end of coolant discharge from pressurizer. Junction flow at junction 5 (SG outlet) is presented in Fig. 5.18 and reasonably good agreement is observed. It can be seen that steam generator outlet flow is positive throughout transient. Therefore flow direction is separated inside the steam generator as indicated by junction flow rate at steam generator top in Fig. 5.19.

Junction flow at upper plenum inlet from intact loop hot leg is shown in Fig. 5.20. Positive flow lasts for 3.5 sec after break in RELAP-4J calculation while flow reversal occurs at 1.5 sec after break in ALARM-P1. The negative peak at 16 sec observed in ALARM-P1 result is moderated at junction 15.

Discharge flow from pressurizer surge line to hot leg is shown in Fig. 5.21. Both flow rates are nearly the same throughout transient. It should be noticed that sudden drop in flow rate observed at 10.6 second in ALARM-P1 result indicates rapid transition corresponding to the end of two phase discharge. On the other hand RELAP-4J calculation shows relatively smooth transition. The sudden change is also observed in ALARM-P1 result at 20 sec corresponding to transition to steam flow and the result is questionable as compared to RELAP-4J result.

Density in hot leg is shown in Fig. 5.22. During initial 3∿4 sec, RELAP-4J predicts higher density than ALARM-P1 in accordance with large positive flow. Further decrease at 12 sec is direct result of the end of coolant discharge from pressurizer and the recovery is due to reverse flow from steam generator. The timing of the recovery is earlier in ALARM-P1 as also noticed by flow rates at junction 2.

Pressure and temperature in hot leg are in good agreement as shown in Fig. 5.23.

5.5 Reactor Vessel

5.5.1 Upper Plenum

Junction flow at junction 15 represents coolant flow out of upper plenum to intact loop hot leg as shown in Fig. 5.24. It can be seen that in RELAP-4J calculation, coolant flow is positive during first 3.5 sec indicating coolant outflow from upper plenum to hot leg. In ALARM-P1 calculation on the other hand, positive flow lasts only 1.5 sec and the flow is reversed. The difference in the timing of flow reversal is due to the difference in the pump flow rate as discussed in 5.4. Positive flow after 36 sec in both calculations corresponds to mixture level rise in upper plenum indicating positive core flow.

Fig. 5.25 represents junction flow at junction 16 corresponding to coolant discharge out of upper plenum to broken loop hot leg. Both flow rates agree quite well with exception that noticeable oscillatory behavior is observed in RELAP-4J calculation. Extremely low flow rate between 6.5 sec and 15 sec corresponds to the period during which the mixture level in upper plenum drops below the hot leg nozzle level due to reverse core flow as can be seen in Fig. 5.26. The mixture level recovers when coolant discharge from pressurizer surge line terminates at 12 sec after break and trapped coolant in steam generator inlet-side flows into upper plenum. At the same time, core flow becomes positive again. It should be noticed that the mixture level calculated by ALARM-P1 drops much lower than the hot leg nozzle while RELAP-4J prediction shows the mixture level stays within the nozzle inlet region. The difference is due to large negative flow at junction 15 calculated by ALARM-P1 so that flow at the core outlet to upper plenum becomes negative flow in order to balance coolant flow in upper plenum.

Junction flow at junction 14 is shown in Fig. 5.27 representing coolant flow from core simulator into upper plenum. Negative flow between 5∿12 sec corresponds to period during which the mixture level drops below the hot leg nozzle in ALARM-P1 or near the bottom of the hot leg nozzle in RELAP-4J. The junction flow shows almost stagnant flow from 8 to 10 sec in RELAP-4J calculation while ALARM-P1 result indicates that negative flow is maintained. Junction flow recovers at 12 sec corresponding to the end of coolant discharge from pressurizer. Flow rates are in good agreement after 12 sec.

Good agreement is observed in pressure and temperature claculation as shown in Fig. 5.28.

5.5.2 Core Simulator

Fig. 5.29 shows junction flow at junction 13 representing coolant flow into the core simulator from lower plenum. Both calculations are in good agreement except during early 3 sec in which RELAP-4J results in larger flow rate in consistent with the fact that positive flow is maintained in this duration. After 3 sec, junction flow at core simulator inlet becomes negative and negative flow lasts a little after the end of coolant discharge from pressurizer. As soon as pressurizer becomes empty, coolant flow from upper plenum to lower plenum through core simulator is weakened and at the core simulator inlet flow becomes stagnant.

Coolant flow out of core simulator into upper plenum is presented in Fig. 5.30. As discussed in the previous section, large negative coolant flow is seen in ALARM-P1 calculation during 5∿12 sec while RELAP-4J indicates stagnant flow.

By comparing junction flows at junctions 13 and 14, coolant flow is initially positive in the core simulator during first 2∿3 seconds and then flow is reversed. The reverse flow is maintained until the end of coolant discharge from pressurizer at 12 sec. Then coolant flows out of core simulator through junction 13 as well as junction 14 indicating existence of stagnant region in the core simulator.

Pressure and temperature in the core simulator is shown Fig. 5.31 and calculated pressure is slightly lower in RELAP-4J and so is calculated temperature.

5.5.3 Lower Plenum

Lower plenum has two junctions, connecting to either downcomer or core simulator. Junction 12 represents flow from downcomer to lower plenum and the result is shown in Fig. 5.32. It should be noticed that oscillatory behavior is significant in both calculations especially in RELAP-4J calculation. During initial 3 seconds, junction flow is positive and then both flow becomes negative in both cases. The junction starts oscillating at 25 sec lasting up to 38 sec in ALARM-P1 calculation while RELAP-4J calculation shows no such oscillation. After 43 sec, however, RELAP-4J calculation shows large oscillation indicating flow oscillation in the downcomer indirectly receiving injection effect. The effect of the oscillatory behavior is not seen in the junction flow from lower plenum to core because, due to the assumption of phase separation in downcomer, junction flow at the bottom of downcomer to lower plenum is based on properties of two phase mixture below the mixture level and the properties of the two phase mixture is relatively unaffected by the large oscillation of mixture level.

Pressure and temperature are in good agreement, as shown in Fig. 5.33.

5.5.4 Downcomer

Downcomer outlet flow into lower plenum is shown in Fig. 5.32 in the previous section. It can be seen that the outlet flow into lower plenum is in fairly good agreement except oscillatory behavior observed in ALARM-P1 calculation around 30 sec and also appeared in RELAP-4J calculation at 42 sec as discussed in the previous section.

The inlet flow from cold leg of the intact loop into downcomer is shown in Fig. 5.34. It should be noticed that during initial 2-3 sec, flow rate is larger in RELAP-4J calculation while ALARM-P1 result shows slightly smaller flow rate. At 23 sec after break, both flow rates rapidly decrease and suddenly recover at 25 sec. The recovery corresponds to the end of condensation in volume 10 as discussed in 5.3.

Flow rate from the downcomer to the broken loop cold leg is represented by junction flow at junction 24 and the result is shown in Fig. 5.35. The flow is always positive throughout the transient and it should be noticed that RELAP-4J calculation shows oscillatory behavior with considerably large magnitude during 5 to 15 seconds after break. It may be the direct effect of level rise in the downcomer.

The downcomer mixture level is shown in Fig. 5.36 and the mixture level calculated by the RELAP-4J model rises between 5 and 10 sec and becomes stable at 10 second and after. The level rise is also calculated by RELAP-4J after 50 sec. The second level rise is however a questionable prediction since unreasonable flow oscillation is calculated in this period in broken loop cold leg.

Pressure and temperature in the downcomer are in good agreement as similar to other calculated results as shown in Fig. 5.37.

5.6 Pressurizer

Pressurizer pressure is shown in Fig. 5.38 and it can be seen that pressure transient during early period agrees well between the two calculations. However after 20 sec, pressure calculated by ALARM-P1 is higher than that of RELAP-4J. Bent appeared at 12 sec corresponds to the end of coolant discharge from pressurizer due to the fact that mixture level in pressurizer reaches to the bottom of the pressurizer vessel and the discharge flow becomes simply single phase flow of steam. A sharp change in flow rate is observed at 20 sec after break for the ALARM calculation and it is associated with calculation model at junction as discussed in 5.3.

The mixture level in the pressurizer vessel is shown in Fig. 5.39. As can be seen in the figure, mixture level decreases with almost the same rate in both RELAP and ALARM calculations. It seems that effect of difference in modeling is not significant with respect to the mixture level calculation in this case. The discharge flow from the pressurizer surge line outlet to hot leg is shown in Fig. 5.40 and flow at pressurizer surge line inlet is shown in Fig. 5.41. Both flow rates are nearly identical except that sharp change in the flow rate is observed in ALARM-P1 calculation at 10.6 sec as discussed in 5.3. Junction flow at surge line inlet shows unstable flow at 10.6 sec corresponding to the end of coolant discharge. It is due to the ALARM-P1 model to calculate junction flow at junction connected to volume where phase separation model is assumed as also discussed in 5.3.

5.7 Pump

Pump coastdown curve is presented in Fig. 5.42. It can be clearly seen that pump coastdown predicted by ALARM-P1 is much faster than that of RELAP-4J corresponding to smaller flow rate calculated in ALARM-P1. Corresponding pump head is shown in Fig. 5.43 and Fig. 5.44 and ALARM-P1 predicts lower pump head during initial transient.

As mentioned in 3.3, input data for RELAP-4J is by no means satisfactory and reliable pump data for the LOFT calculation is still lacked. However comparison of RELAP-4J result with other LOFT experimental data reveals that pump coastdown predicted by RELAP-4J is still faster than actual pump coastdown. It suggests that ALARM-P1 prediction would be much faster than actual.

5.8 Suppression Tank

Suppression tank is represented by one volume in RELAP-4J and ALARM-P1 analysis. Calculated pressure and temperature are shown in Fig. 5.45. It is noticed that initial pressure employed in RELAP-4J is slightly less than 14.7 psia, ordinary atmospheric pressure, considering elevation of the LOFT site from sea level while ALARM-P1 does not allow to use lower pressure than 14.7 psia in calculation of two phase multiplier. However the results are not sensitive to the initial pressure as can be seen in the figure.

Increase rate of the suppression tank pressure is almost identical. The mixture level is calculated in RELAP-4J and the result is shown in Fig. 5.46. It is found that assumption of mixture level in suppression tank does not result in significant effect on the result. It is because the model used in RELAP-4J is not adequate to account for initially presented air volume in suppression header which plays an important role in pressure rise during early phase of blowdown. Thus present analysis would lead to lower predicted suppression tank pressure if compared to experimental data.

5.9 ECC System

5.9.1 HPIS

HPIS is initiated at 22 sec with injection flow rate of 1.072 liter/sec (17 gpm) at 33.3°C (92°F) and these data are used as an input to both calculations as shown in Fig. 5.47.

5.9.2 LPIS

LPIS injection flow rate is shown in Fig. 5.48. Injection initiates at 36 sec and coolant temperature is 33.3°C (92°F). Calculated flow rate is however different between the two calculations since injection flow rate depends on system pressure. Flow rate calculated by RELAP-4J is slightly higher corresponding to lower system pressure as compared with ALARM-P1.

5.9.3 ACC

Accumulator injection flow rate is shown in Fig. 5.49. Initiation of injection is at 20 sec after break in RELAP-4J and 21 sec after break in ALARM-P1. Later injection initiation in ALARM-P1 corresponds to higher calculated system pressure since initiation is set by trip signal based on system pressure. Accumulator injection flow rate calculated by ALARM-P1 is smaller than that of RELAP-4J. As can be seen in pressure in accumulator shown in Fig. 5.50, accumulator pressure is virtually identical while cold leg pressure is lower in RELAP-4J. Thus driving force for injection flow is larger in RELAP-4J.

5.9.4 ECC Water in Reactor Vessel

ECC water injected into cold leg from HPIS, LPIS and ACC flows into reactor vessel via downcomer and lower plenum. Thus effect of injected water can be best represented by calculating total amount of coolant accumulated in reactor vessel. Fig. 5.51 shows the calculated total mass in reactor vessel. It is found that effect of ECC injection is not significant except in downcomer. The reason is that occurrence of counter current two phase flow in downcomer is not modeled in RELAP-4J and ALARM-P1 as well. Thus injected water first fills downcomer and then flows into lower plenum. This type of flow pattern is unlikely to occur since cold water flowing into downcomer falls through downcomer gap overcoming upward steam flow and directly reaches lower plenum without accumulating in downcomer. In order to accurately predict coolant flow in downcomer, especially injected coolant behavior, modification of flow model is necessary to accomodate counter current two phase flow.

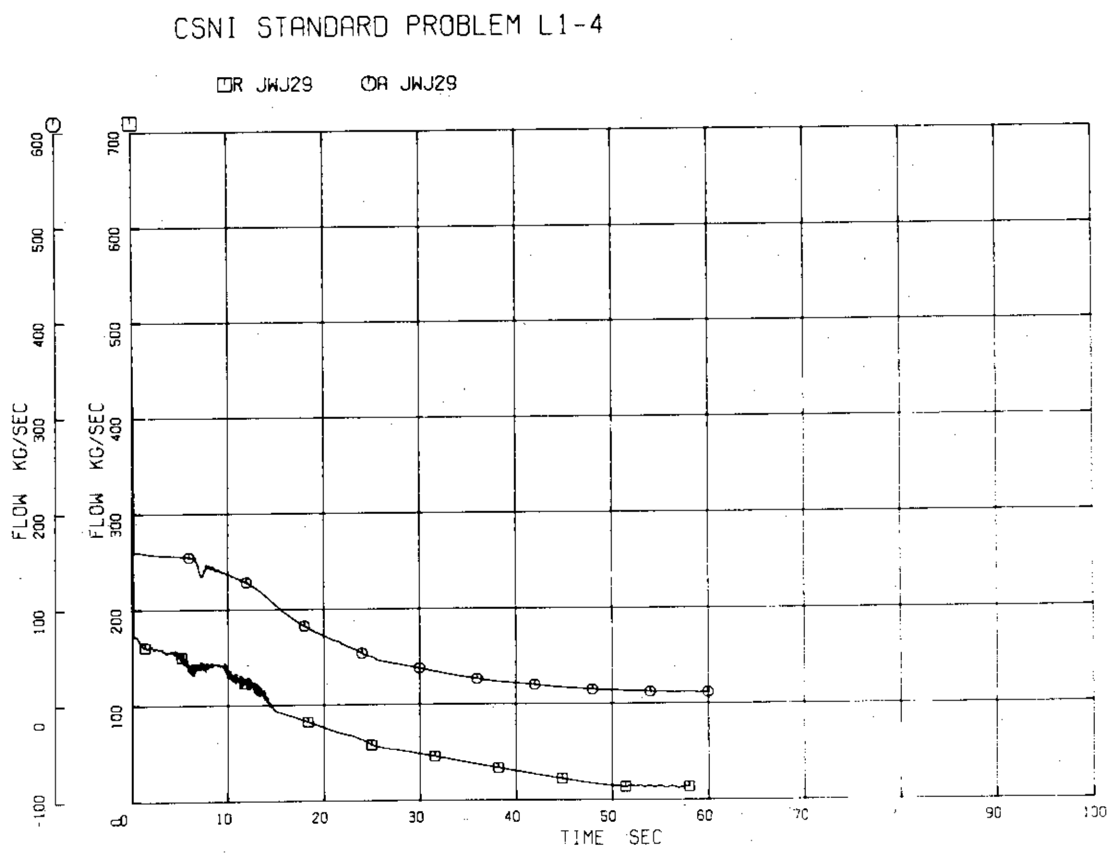


Fig. 5.1 Discharge Flow Rate at Broken Loop Cold Leg Break Plane

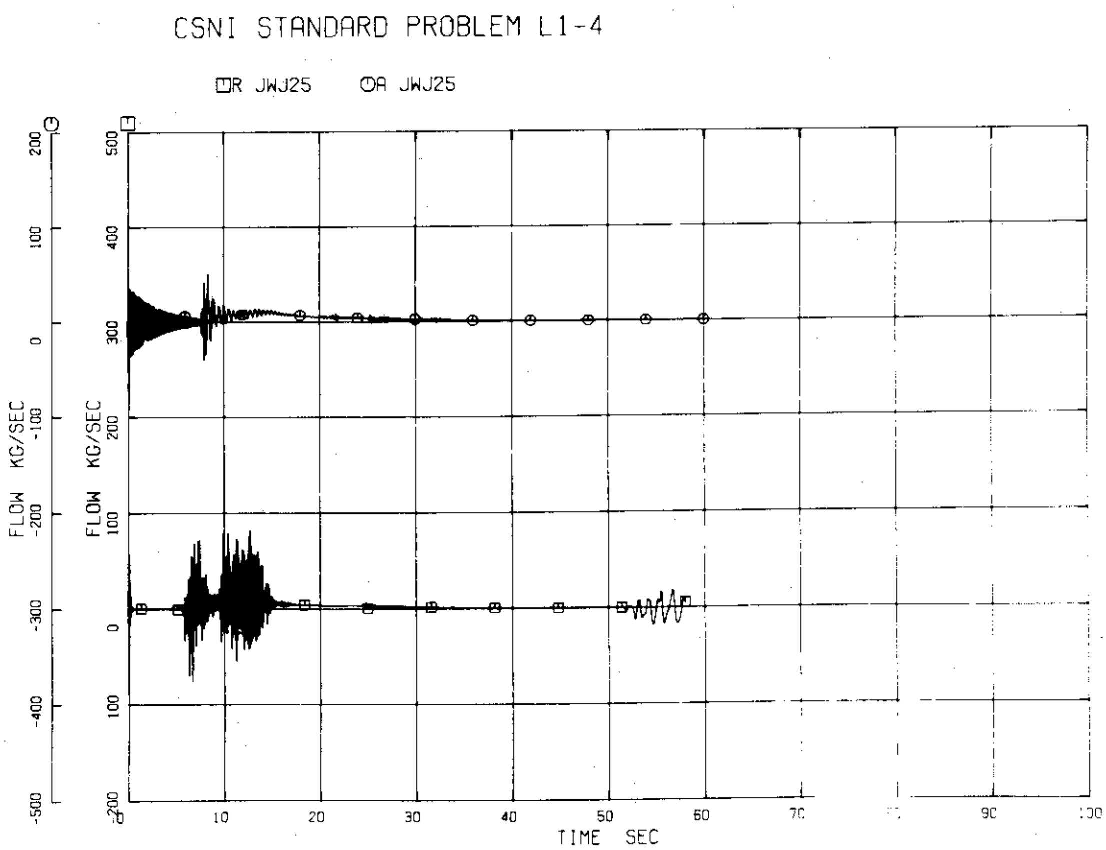


Fig. 5.2 Junction Flow at Reflood Assist Line Outlet in Broken Loop Cold Leg

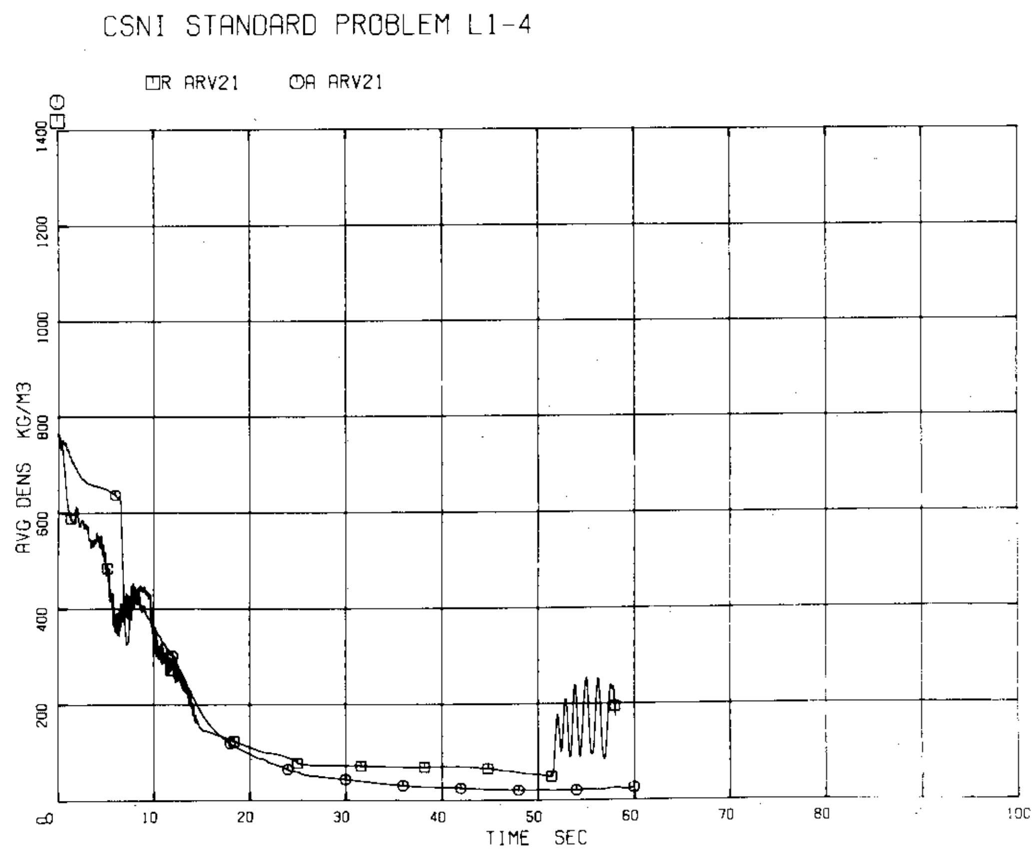


Fig. 5.3 Density in Broken Loop Cold Leg (DE-BL-1)

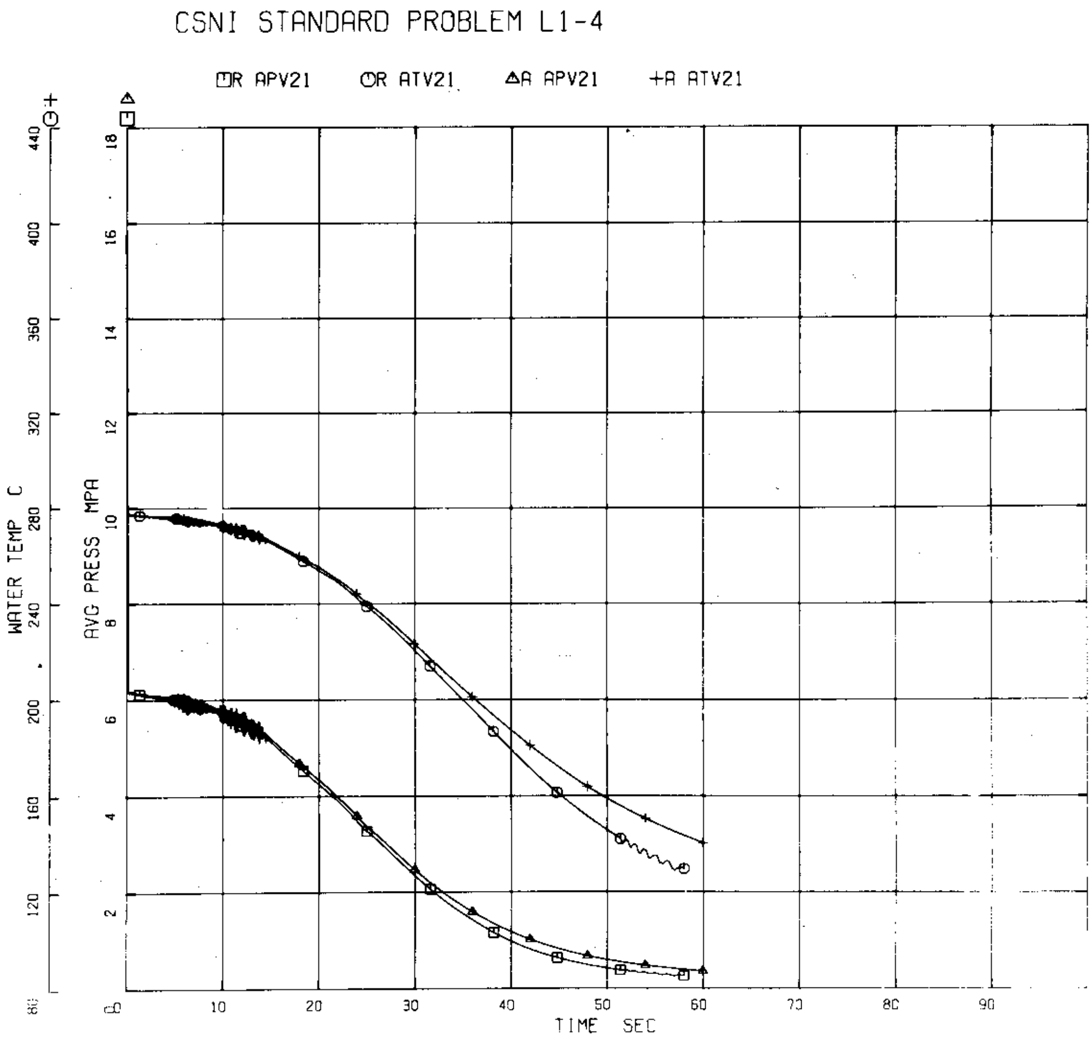


Fig. 5.4 Pressure and Temperature in Broken Loop Cold Leg (PE-BL-1, TE-BL-1)

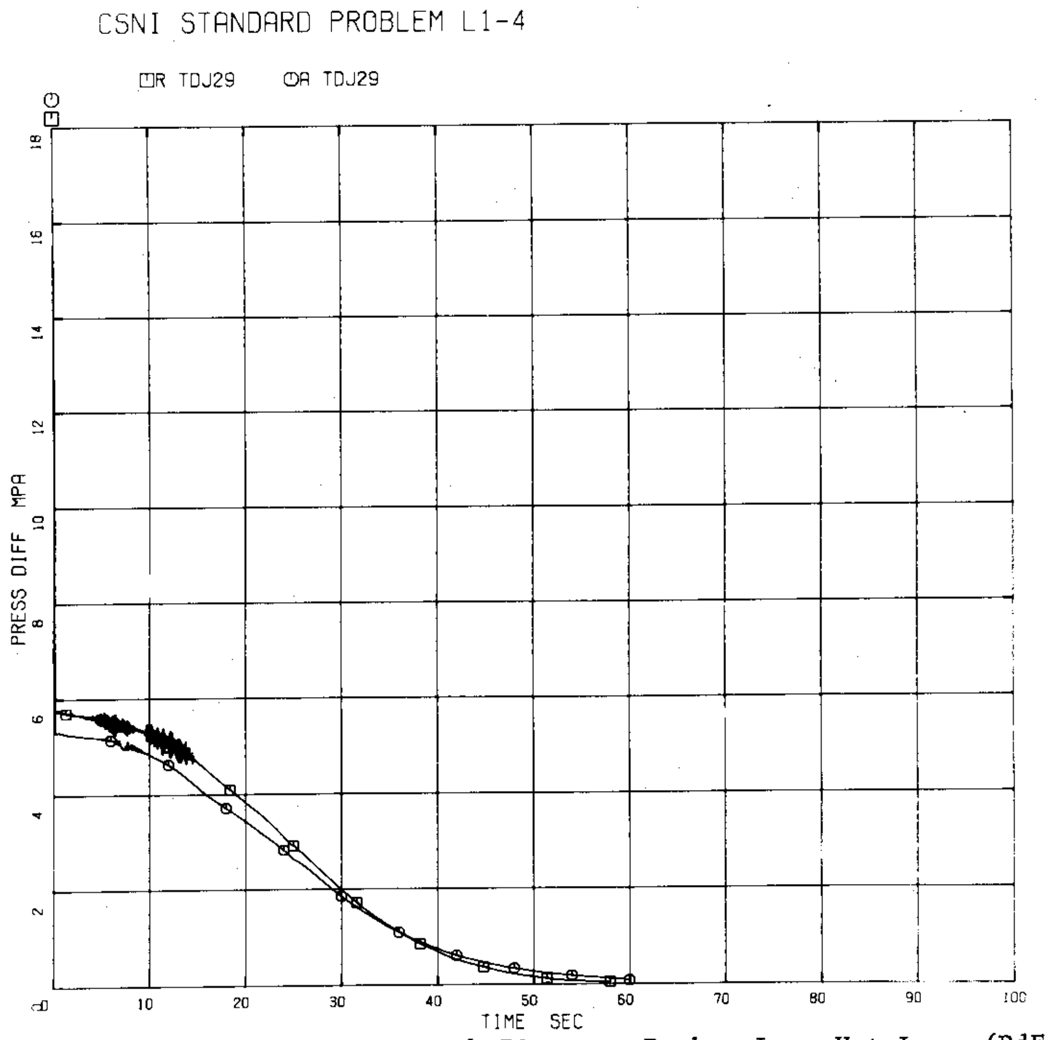


Fig. 5.5 Differential Pressure at Break Plane in Broken Loop Hot Leg (PdE-BL-3)

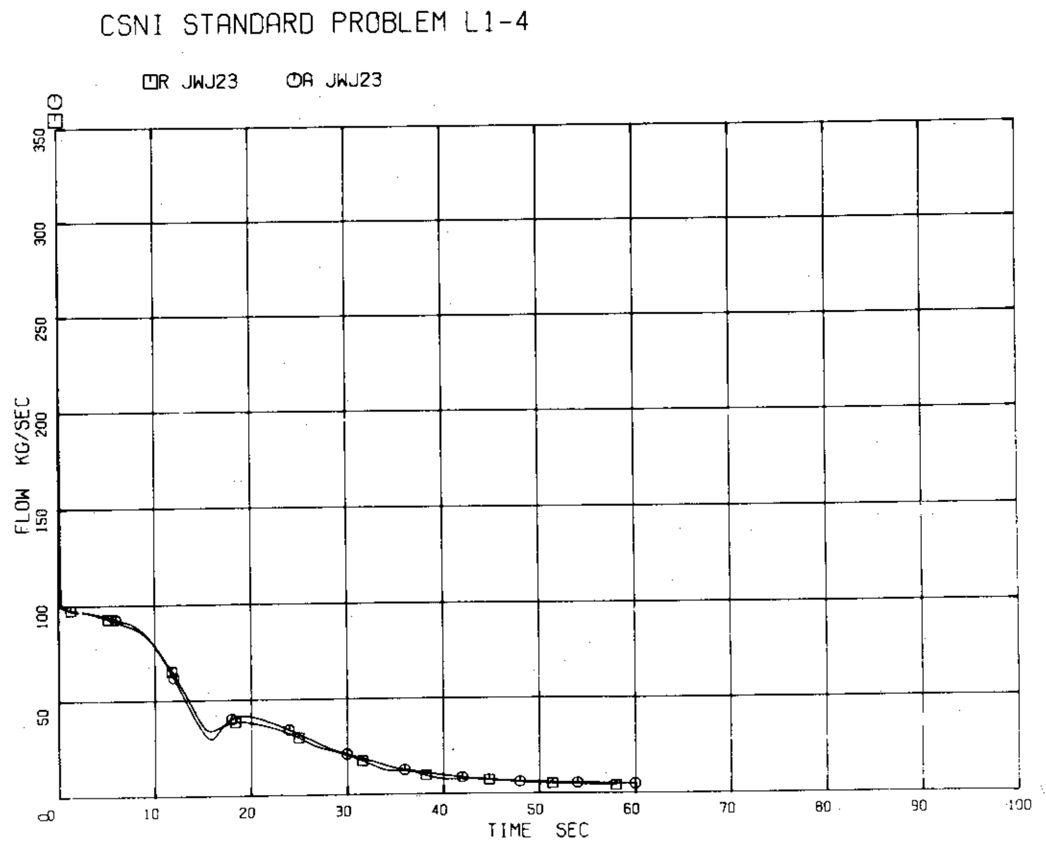


Fig. 5.6 Discharge Flow Rate at Break Plane in Broken Loop Hot Leg

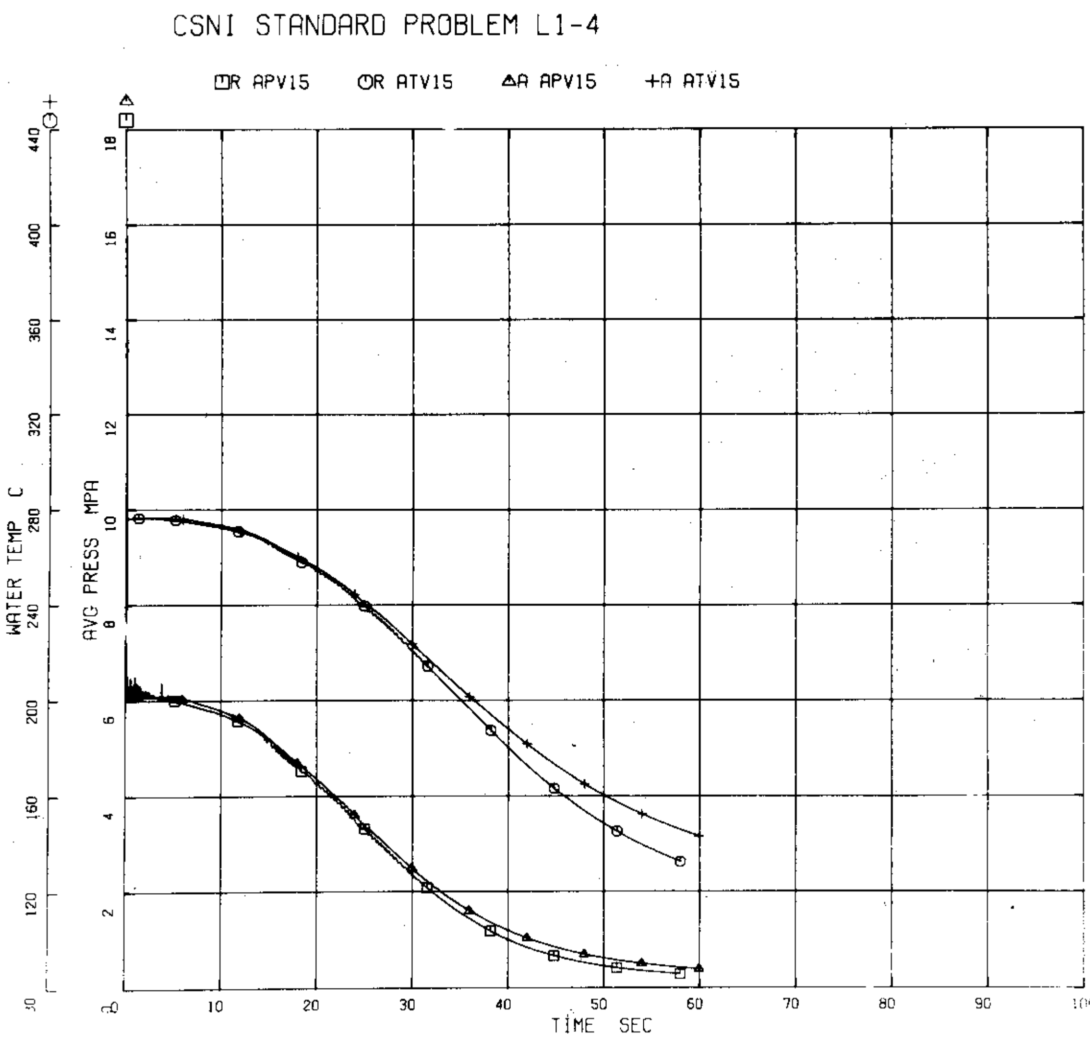


Fig. 5.7 Pressure and Temperature in Broken Loop Hot Leg (PE-BL-2, TE-BL-2)

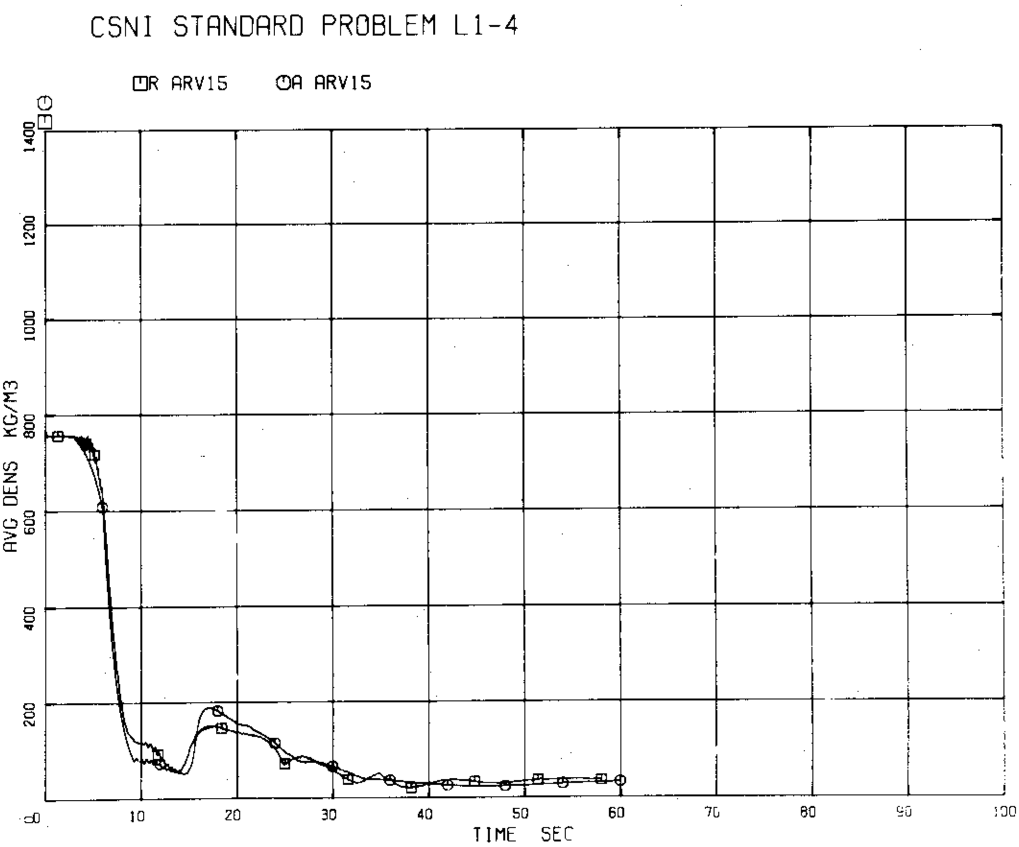


Fig. 5.8 Average Density in Broken Loop Hot Leg (DE-BL-2)

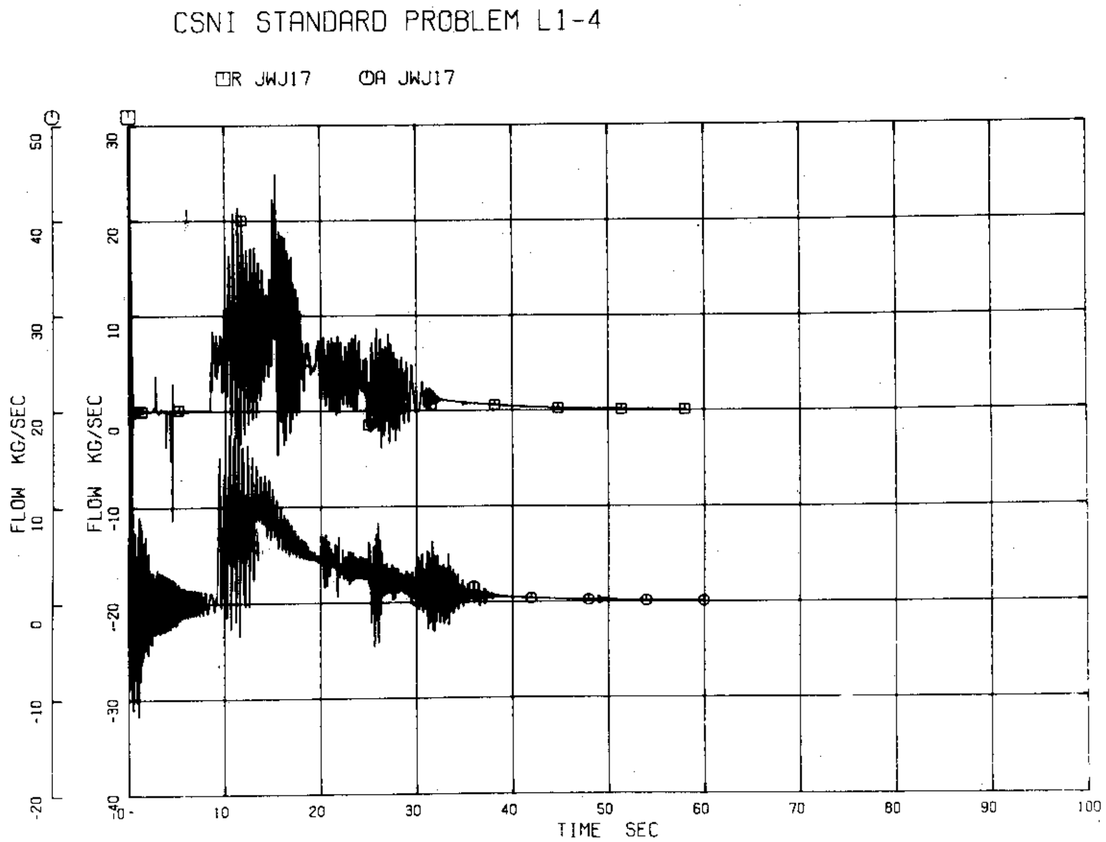


Fig. 5.9 Junction Flow at Reflood Assist Line Outlet

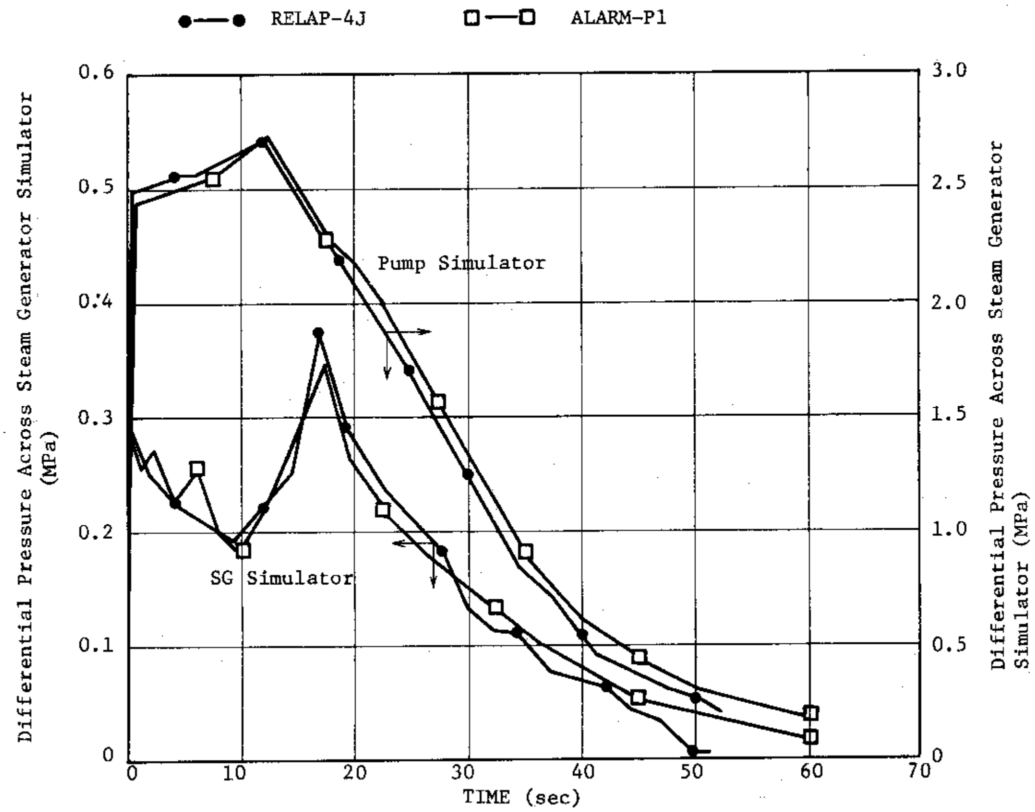


Fig. 5.10 Differential Pressure Across Steam Generator Simulator and Pump Simulator (PdE-BL-5, 6, 7, 8)

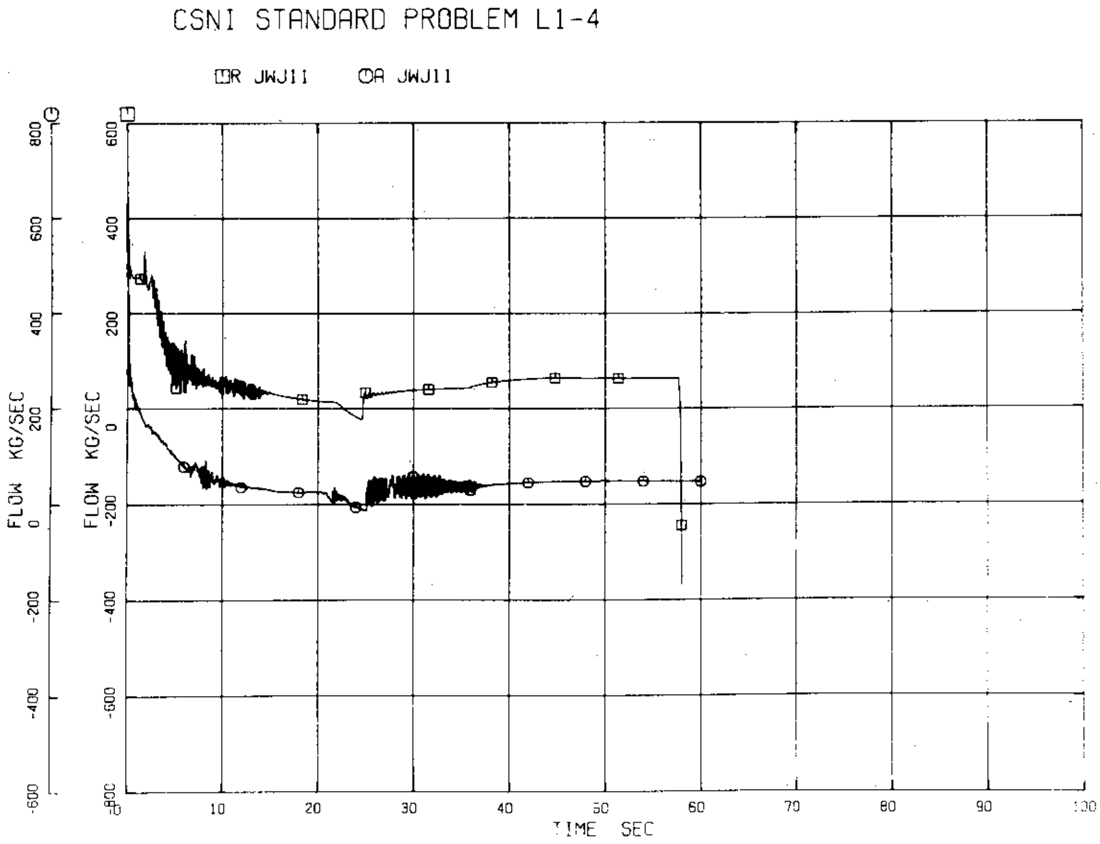


Fig. 5.11 Junction Flow at Downcomer Inlet from Intact Loop Cold Leg

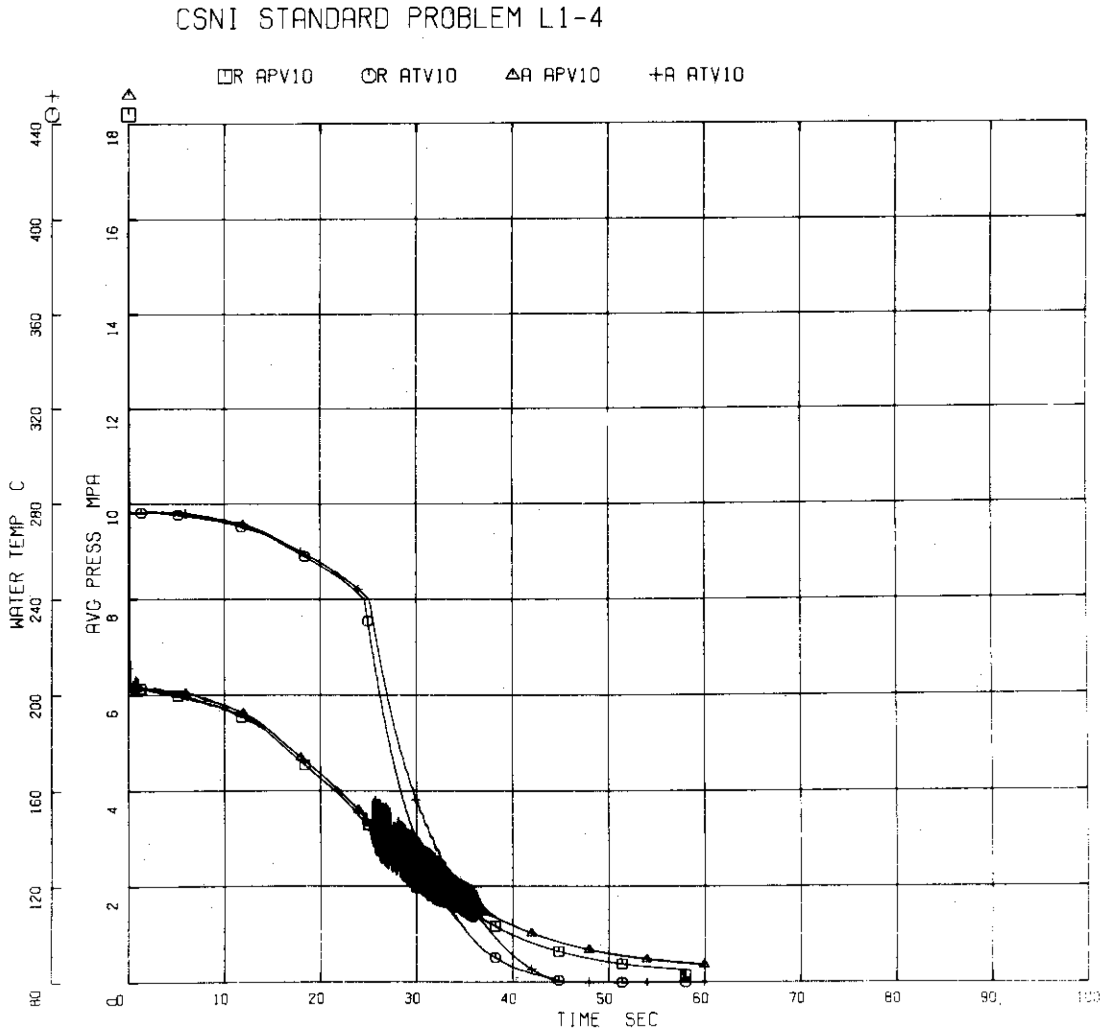


Fig. 5.12 Pressure and Temperature in Inlet Loop Cold Leg (PE-PC-1, TE-PC-1)

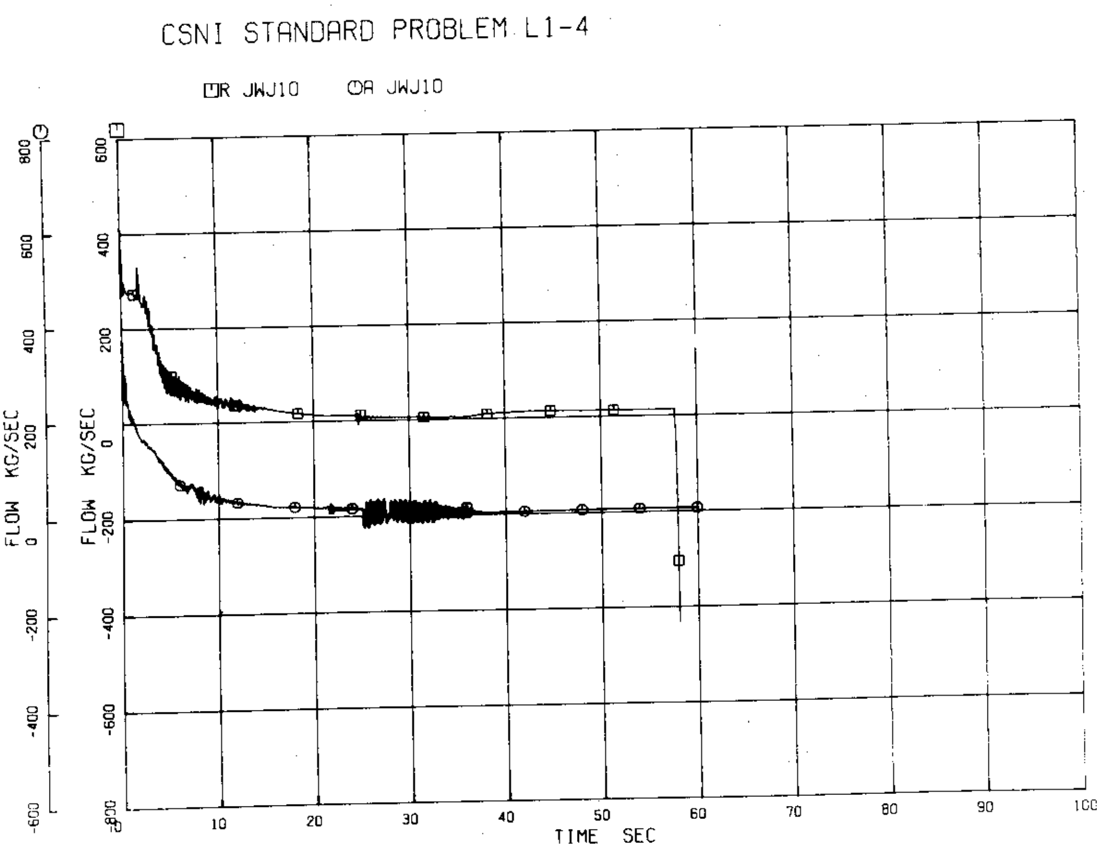


Fig. 5.13 Junction Flow Between Cold Leg Injection Location and Pump Outlet

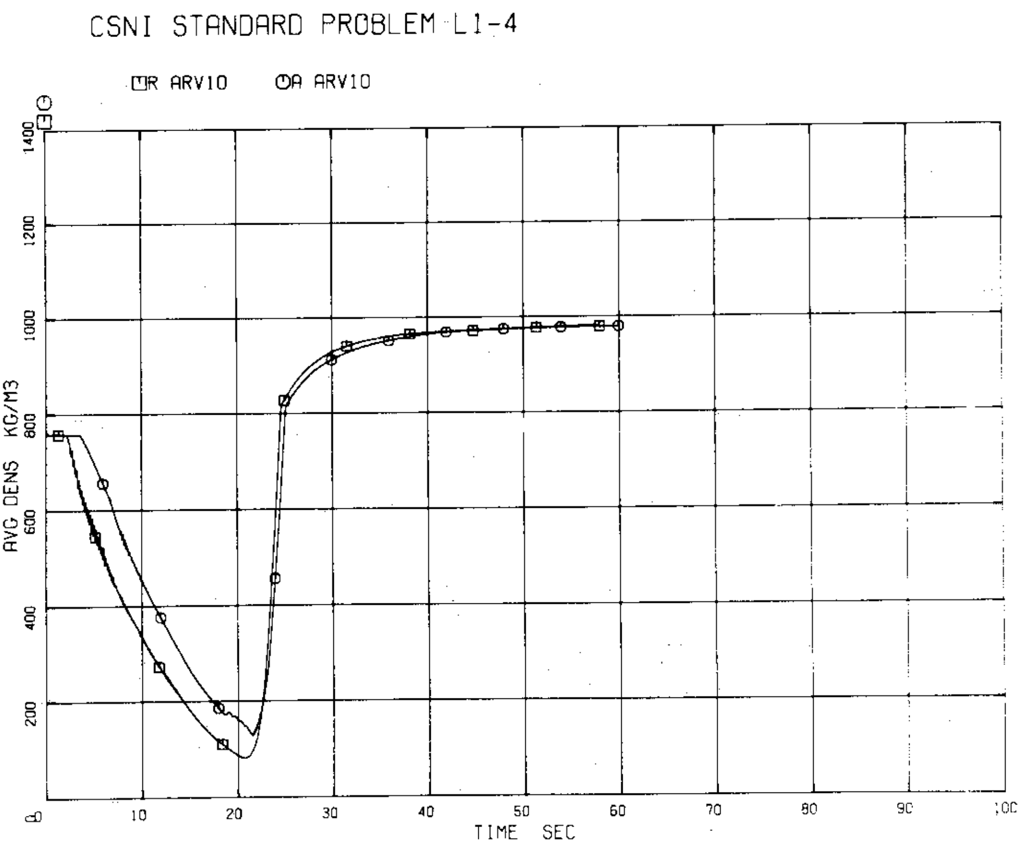


Fig. 5.14 Average Density and Quality in Intact Loop Cold Leg (DE-PC-1)

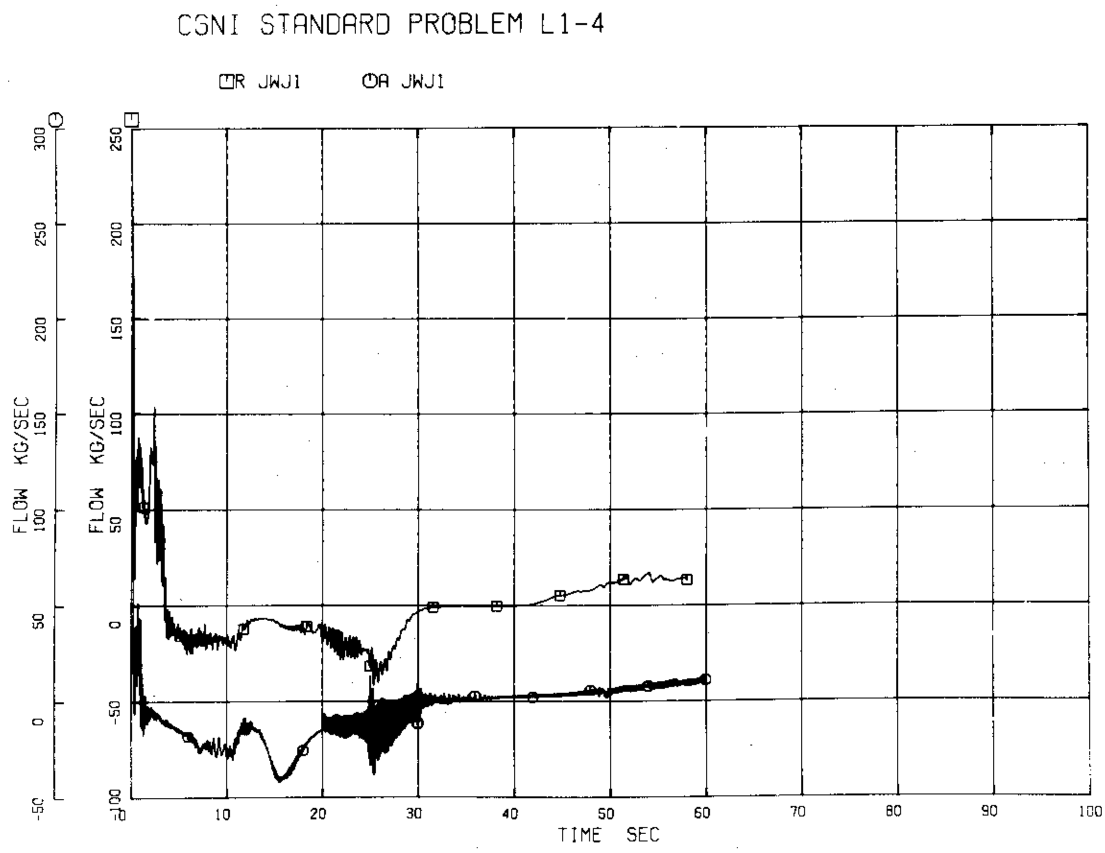


Fig. 5.15 Junction Flow at Upper Plenum Outlet to Intact Loop Hot Leg

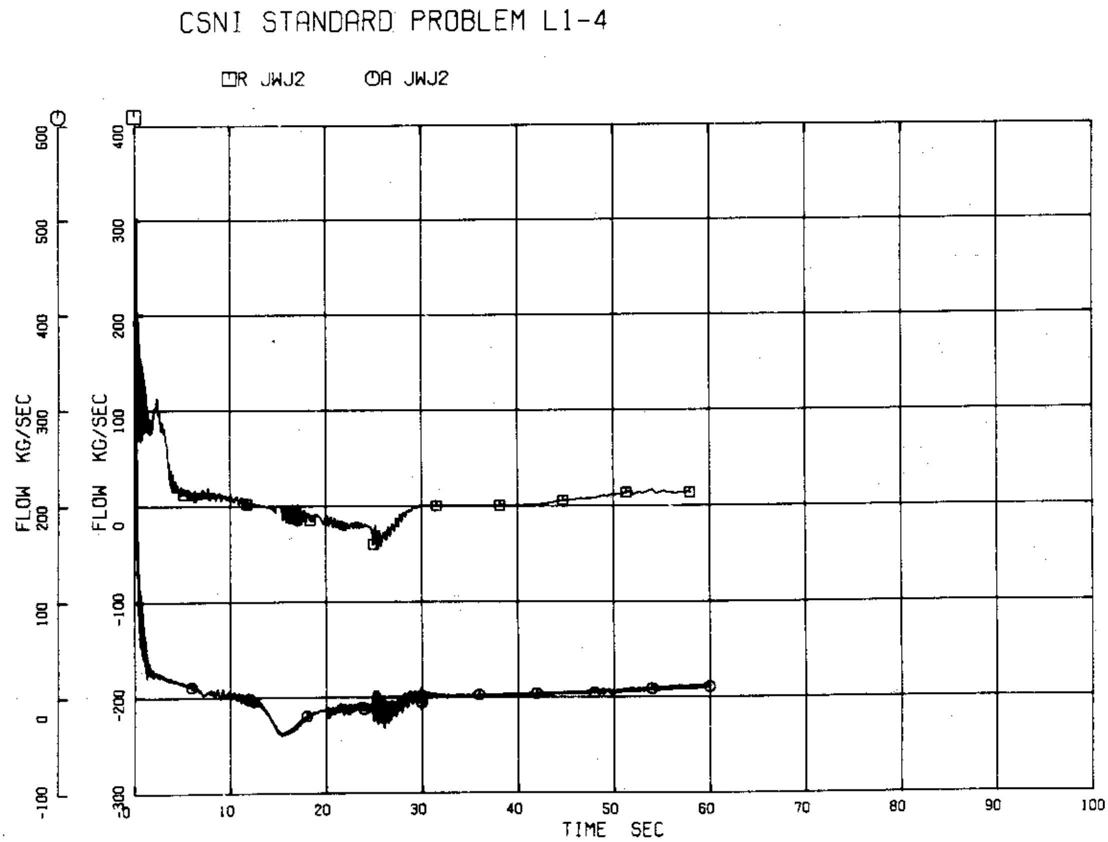


Fig. 5.16 Junction Flow Between Pressurizer Surge Line Outlet and Steam Generator Inlet

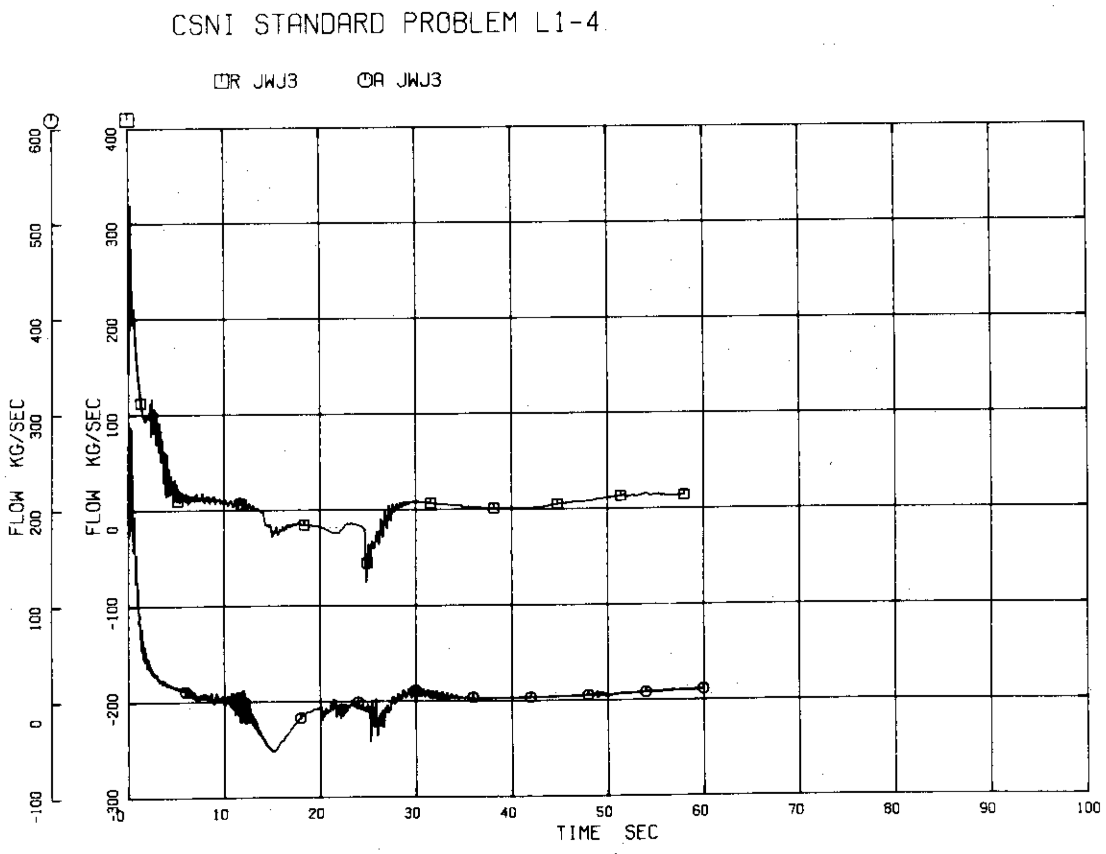


Fig. 5.17 Junction Flow at Steam Generator Inlet

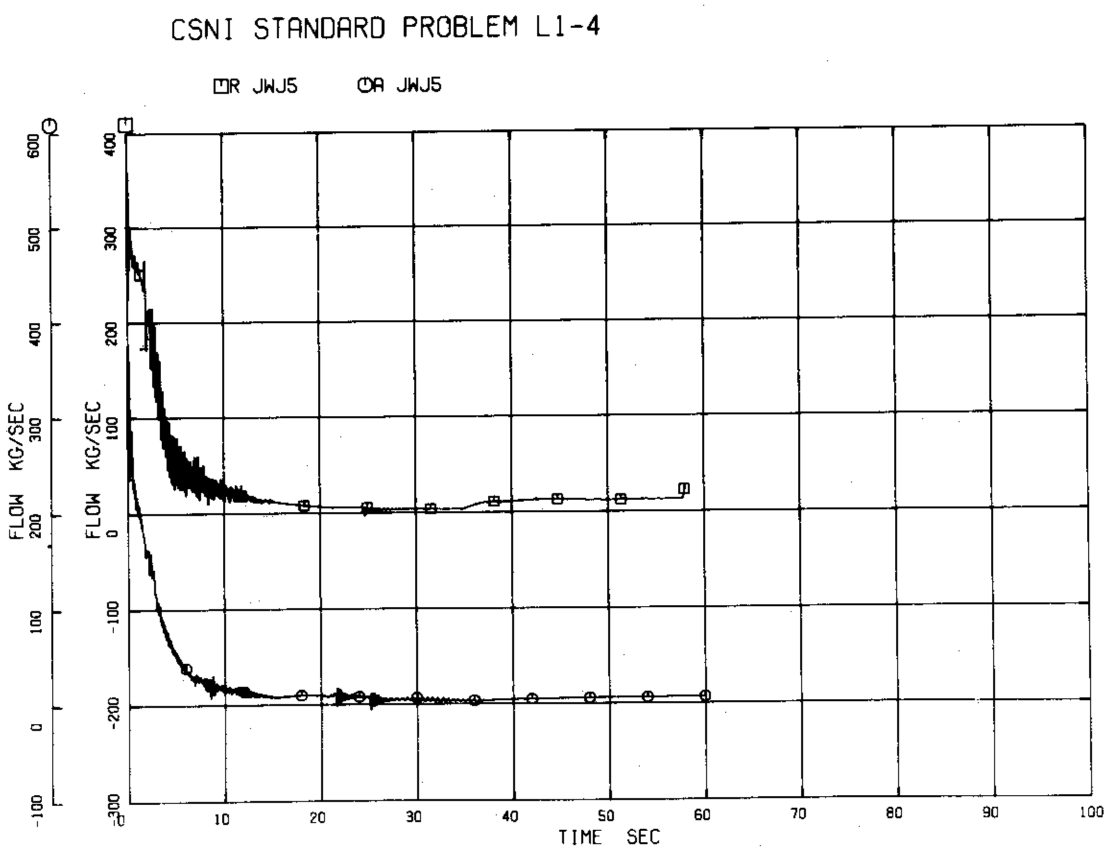


Fig. 5.18 Junction Flow at Steam Generator Outlet

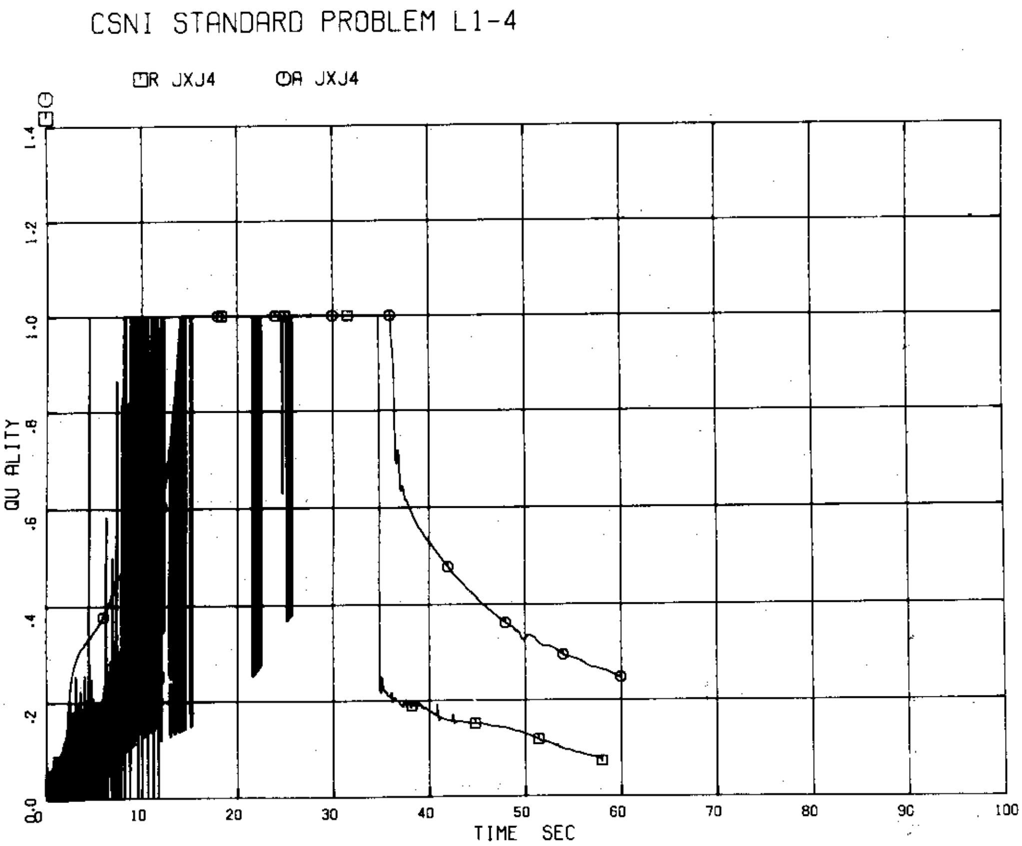


Fig. 5.19 Junction Flow at Steam Generator Top

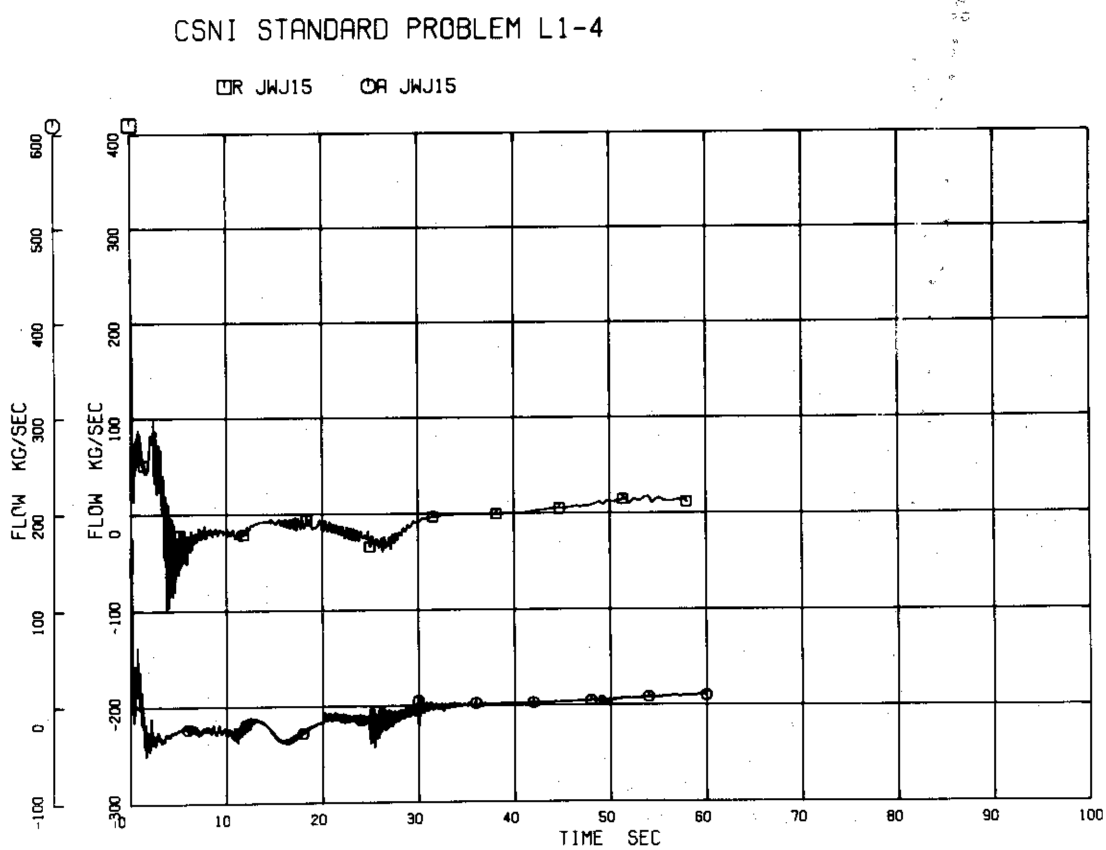


Fig. 5.20 Junction Flow at Upper Plenum Inlet from Intact Loop Hot Leg

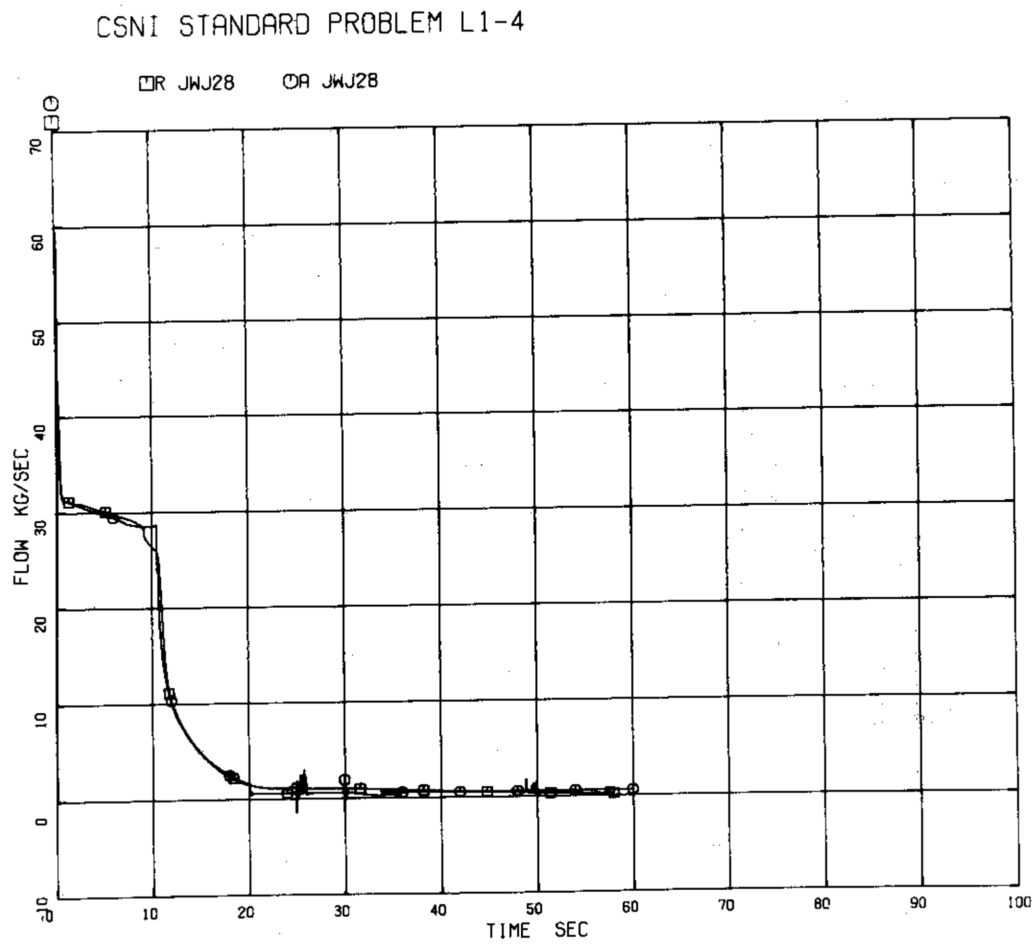


Fig. 5.21 Discharge Flow From Pressurizer Surge Line

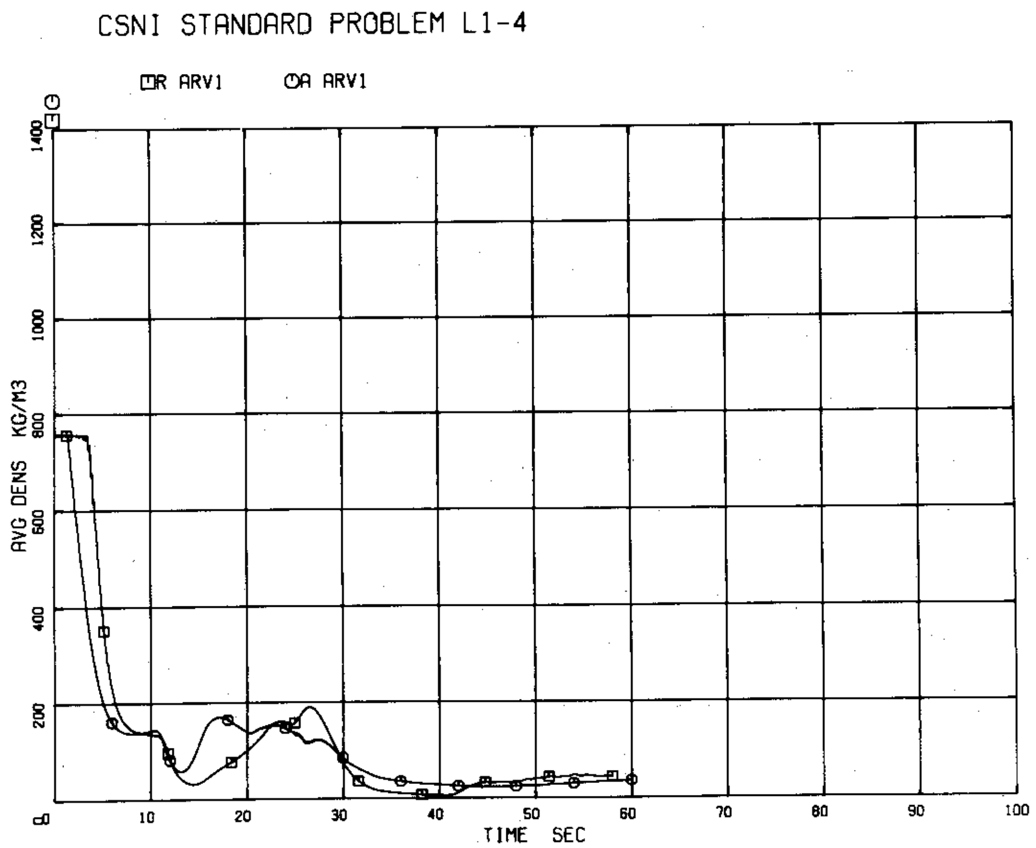


Fig. 5.22 Density in Intact Loop Hot Leg (DE-PC-2)

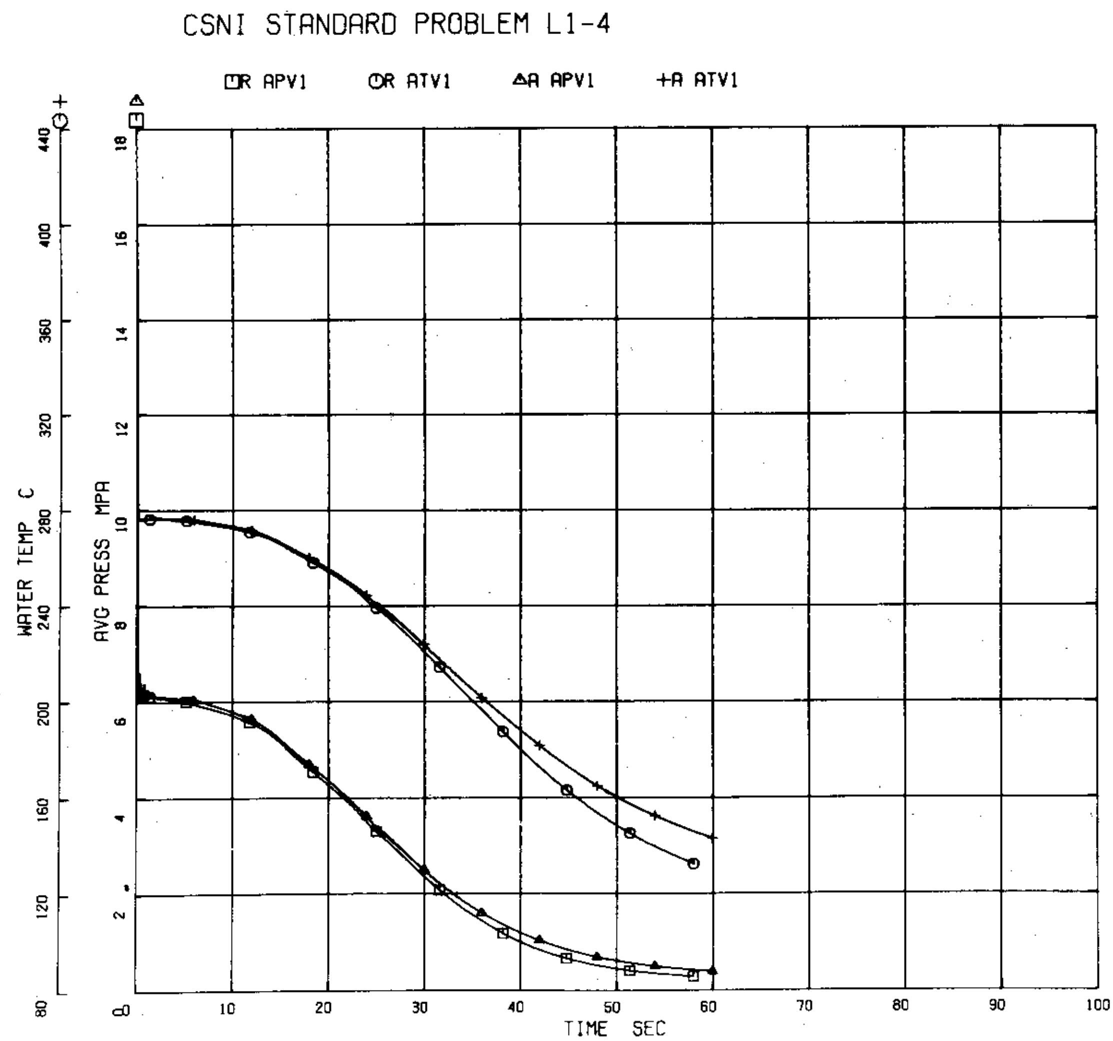


Fig. 5.23 Pressure and Temperature in Intact Loop Hot Leg (PE-PC-2,TE-PC-2)

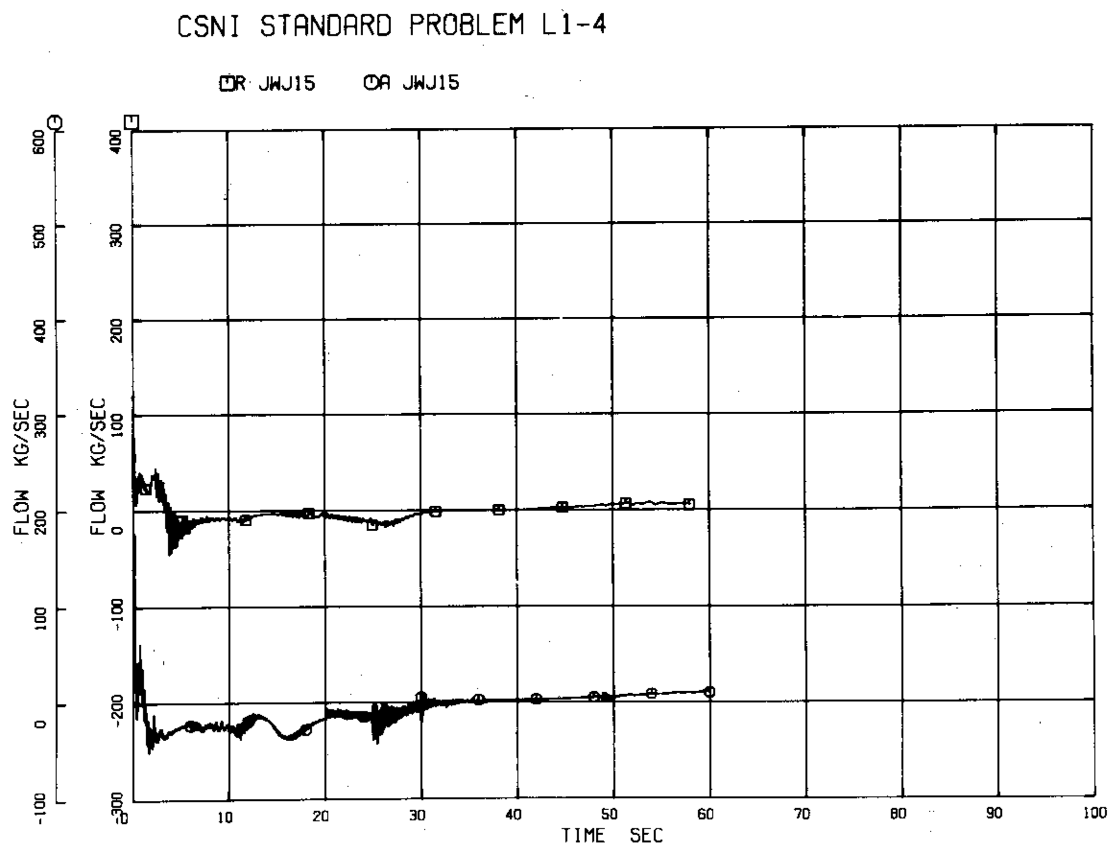


Fig. 5.24 Junction Flow at Upper Plenum Outlet to Intact Loop Hot Leg

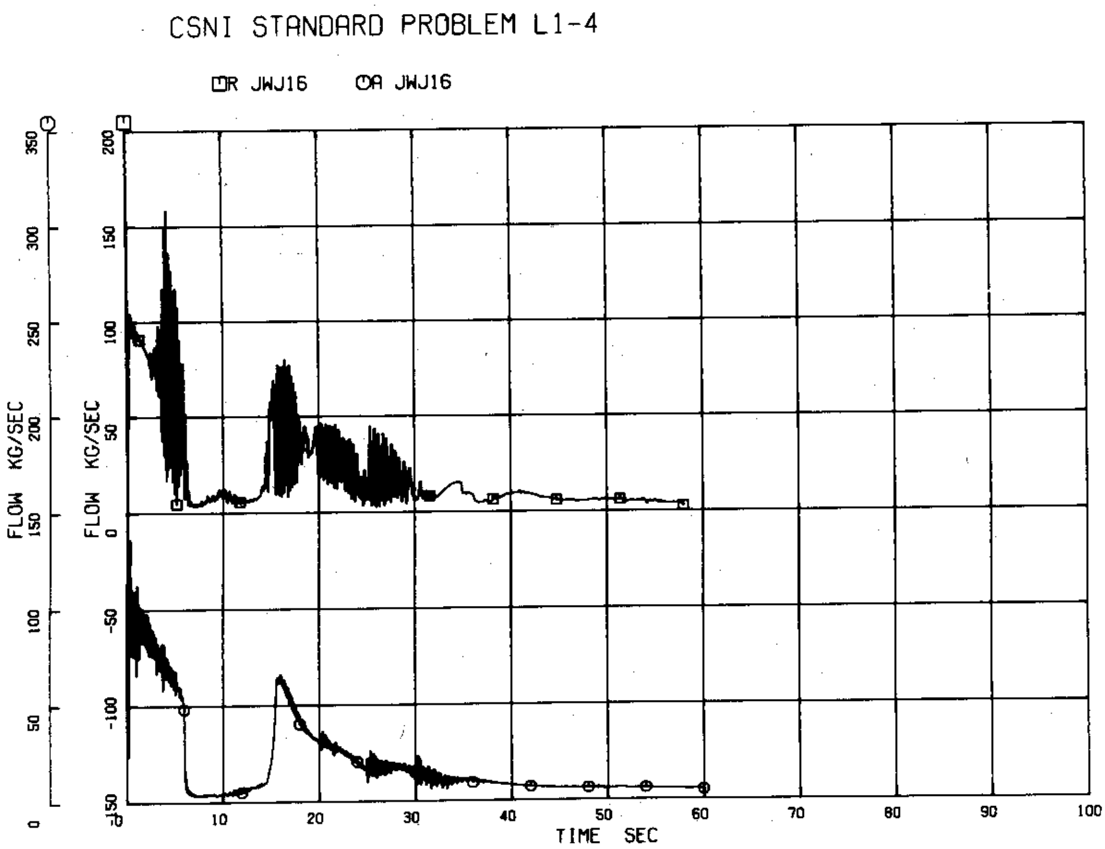


Fig. 5.25 Junction Flow Out of Upper Plenum to Broken Loop Hot Leg

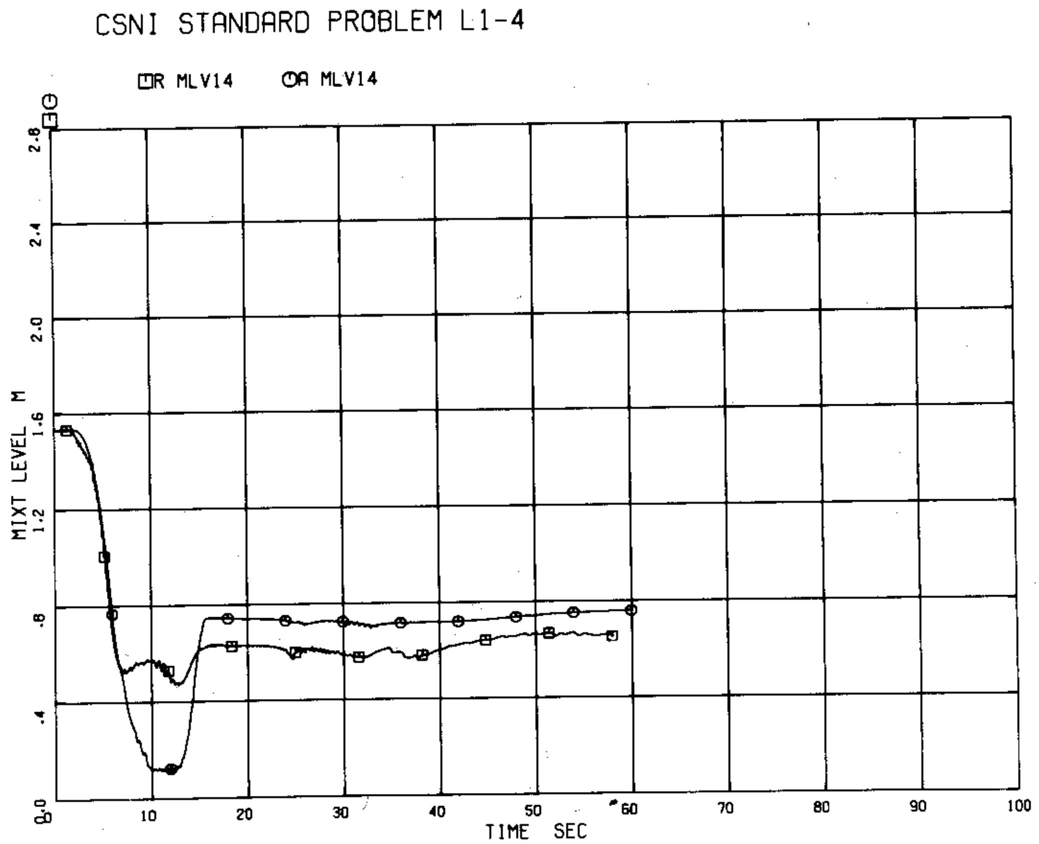


Fig. 5.26 Mixture Level in Upper Plenum

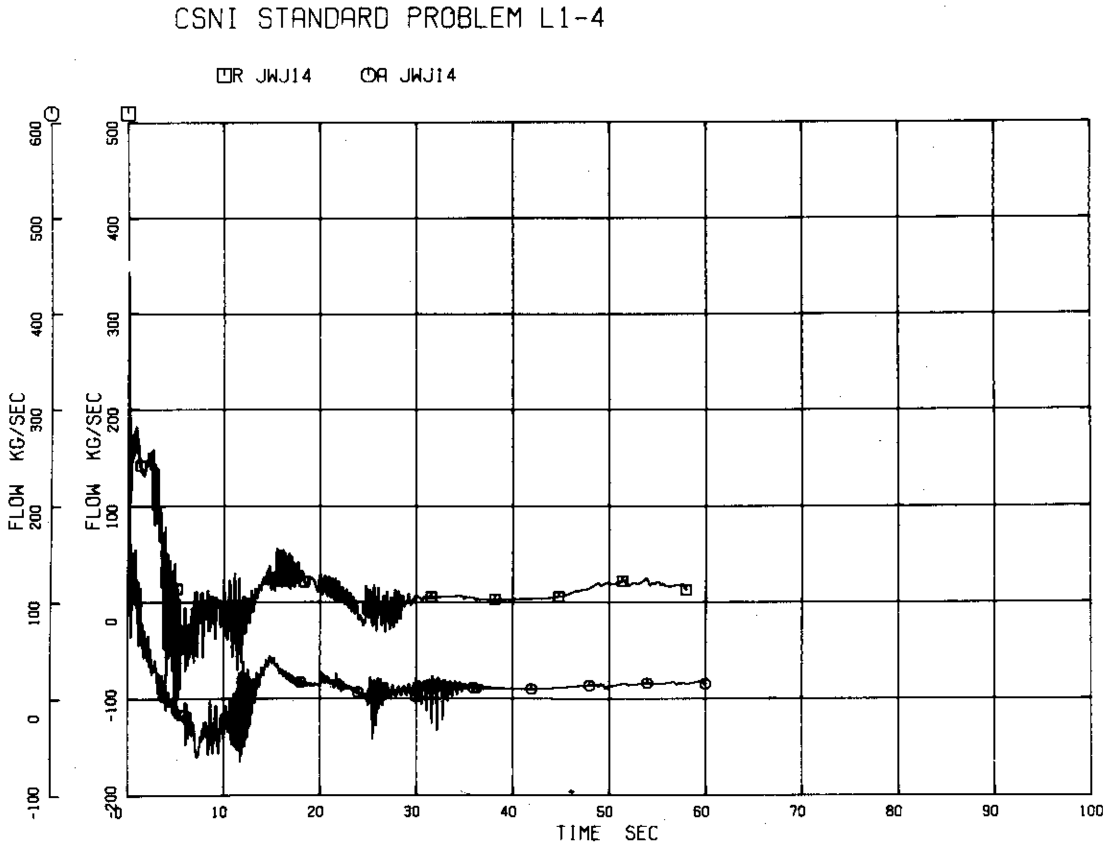


Fig. 5.27 Junction Flow Out of Core Simulator to Upper Plenum

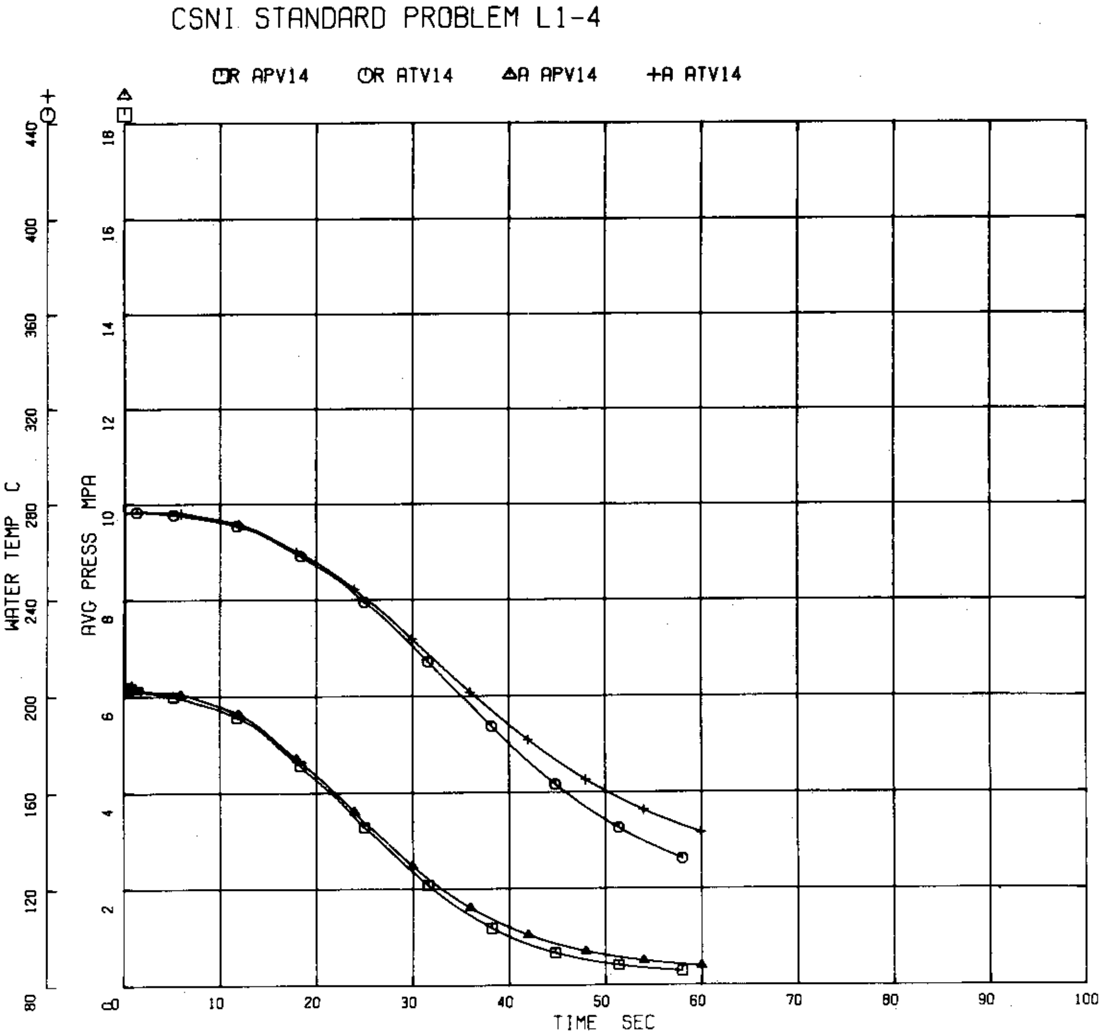


Fig. 5.28 Pressure and Temperature in Upper Plenum (PE-CS-1A, TE-CS-1A)

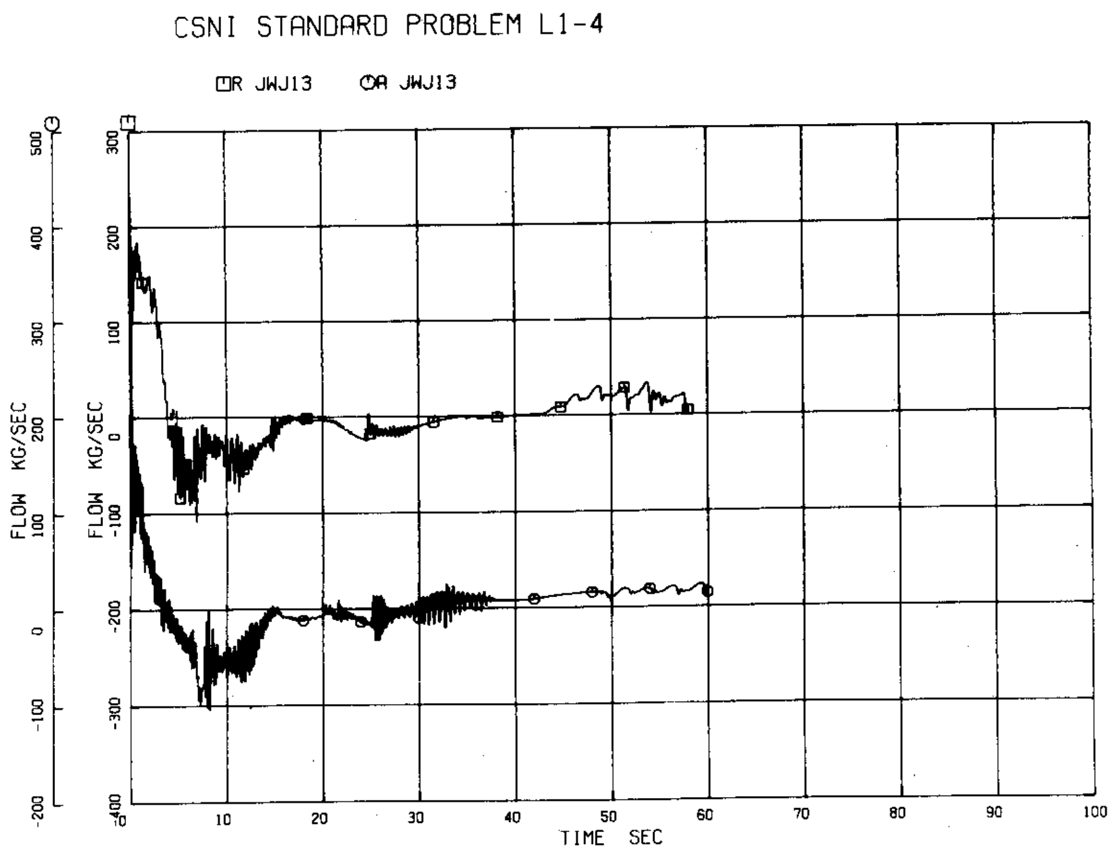


Fig. 5.29 Junction Flow From Lower Plenum to Core Simulator

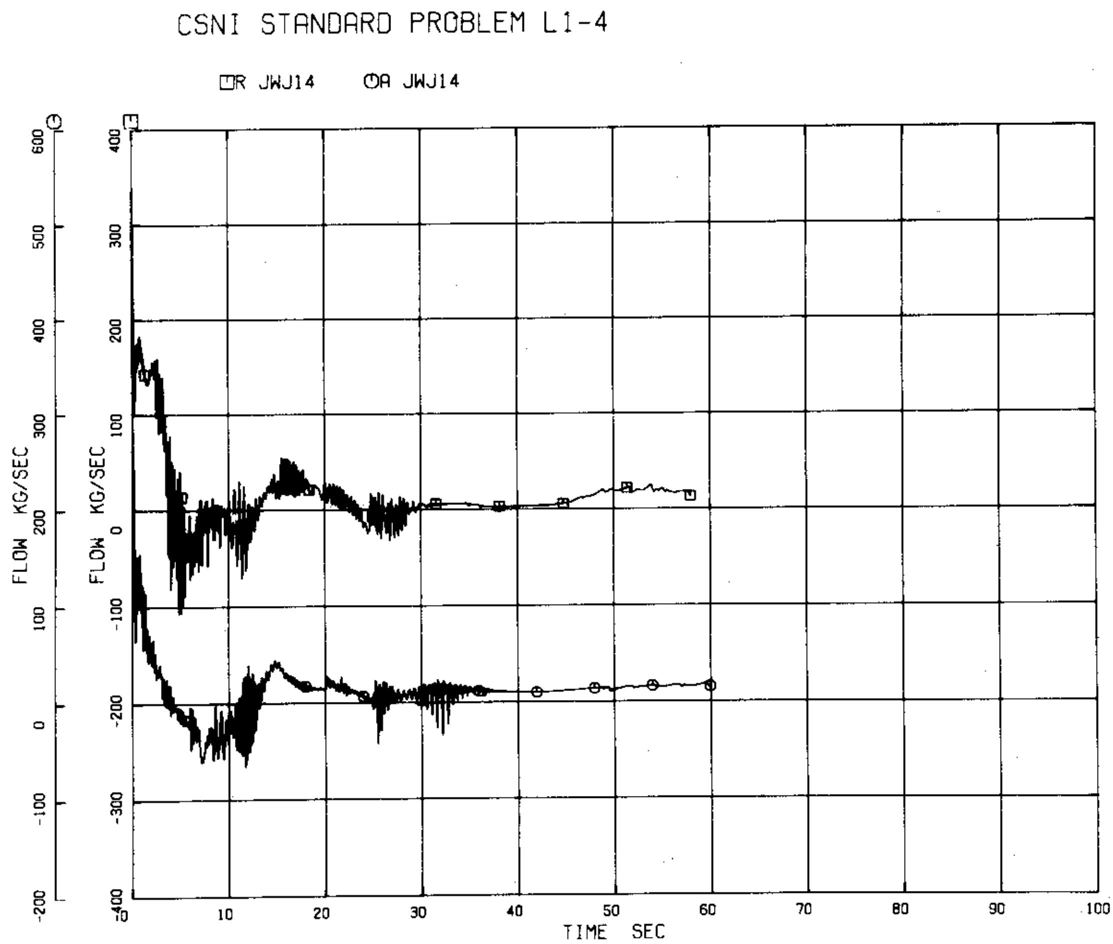


Fig. 5.30 Junction Flow into Upper Plenum Out of Core Simulator

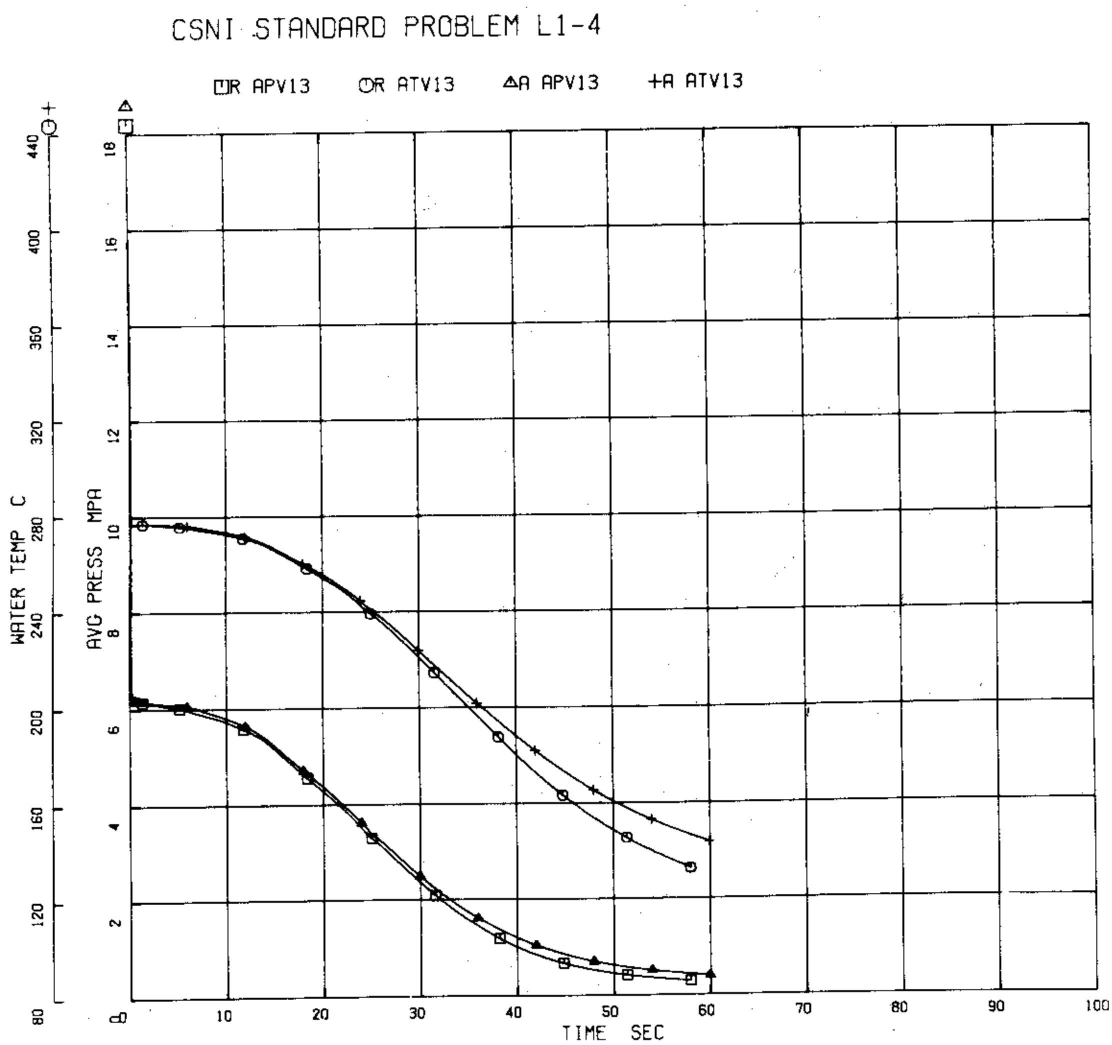


Fig. 5.31 Pressure and Temperature in Core Simulator

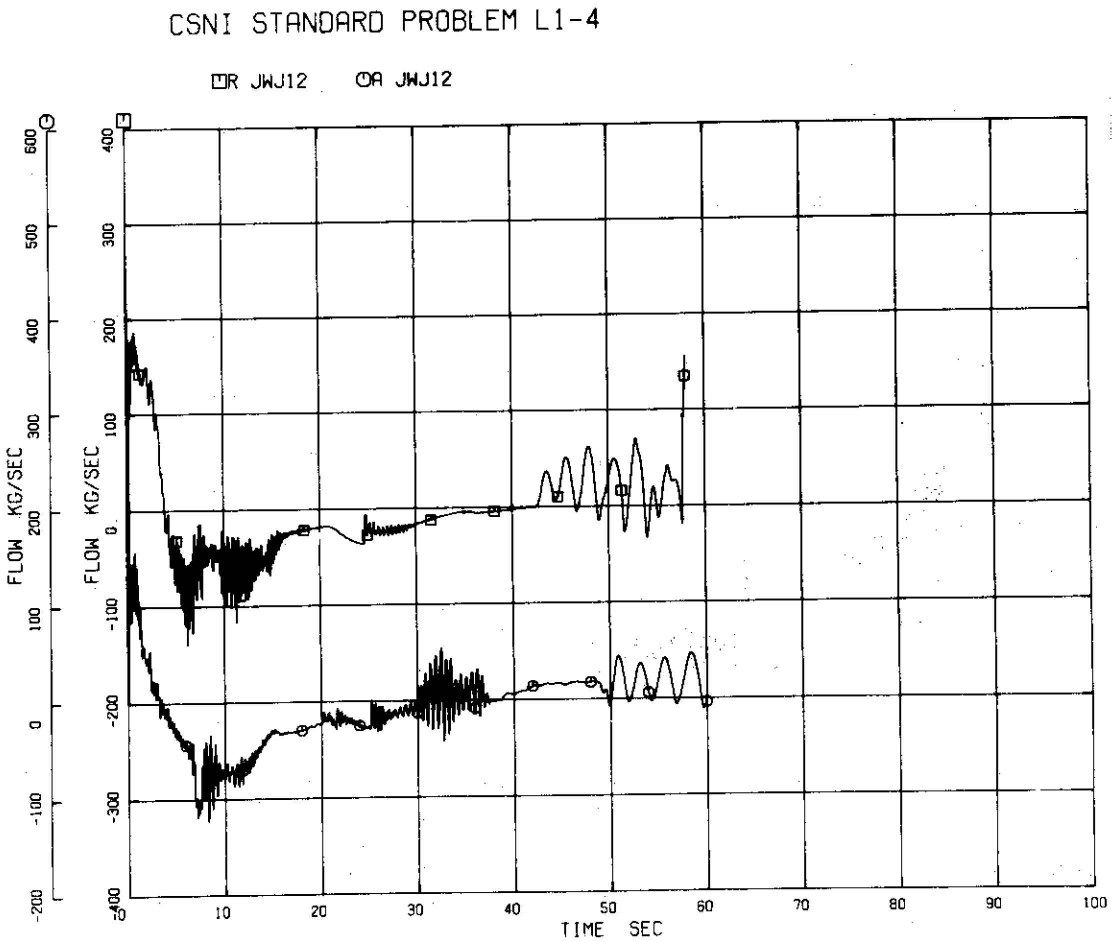


Fig. 5.32 Junction Flow From Downcomer to Lower Plenum

CSNI STANDARD PROBLEM L1-4

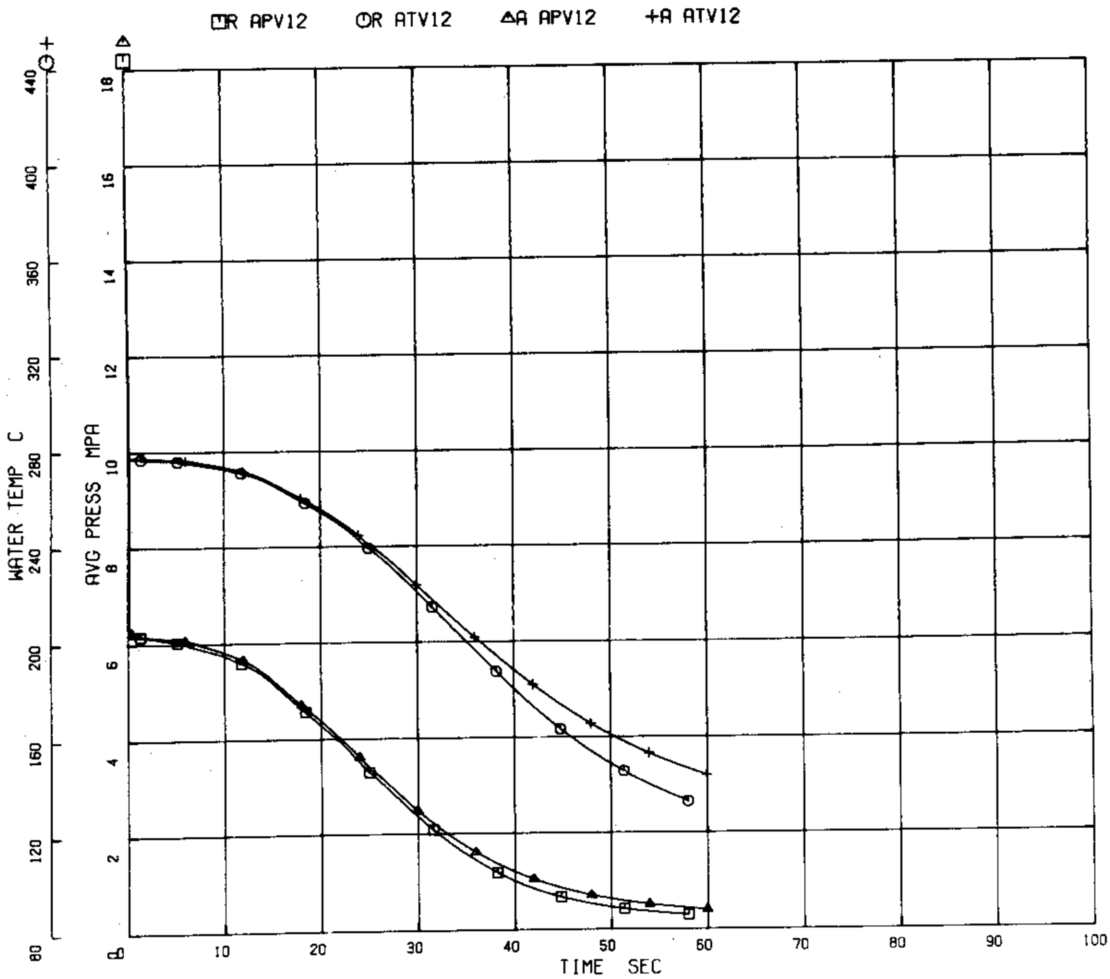


Fig. 5.33 Pressure and Temperature in Lower Plenum (PE-1ST-1A, TE-1ST-1A)

CSNI STANDARD PROBLEM L1-4

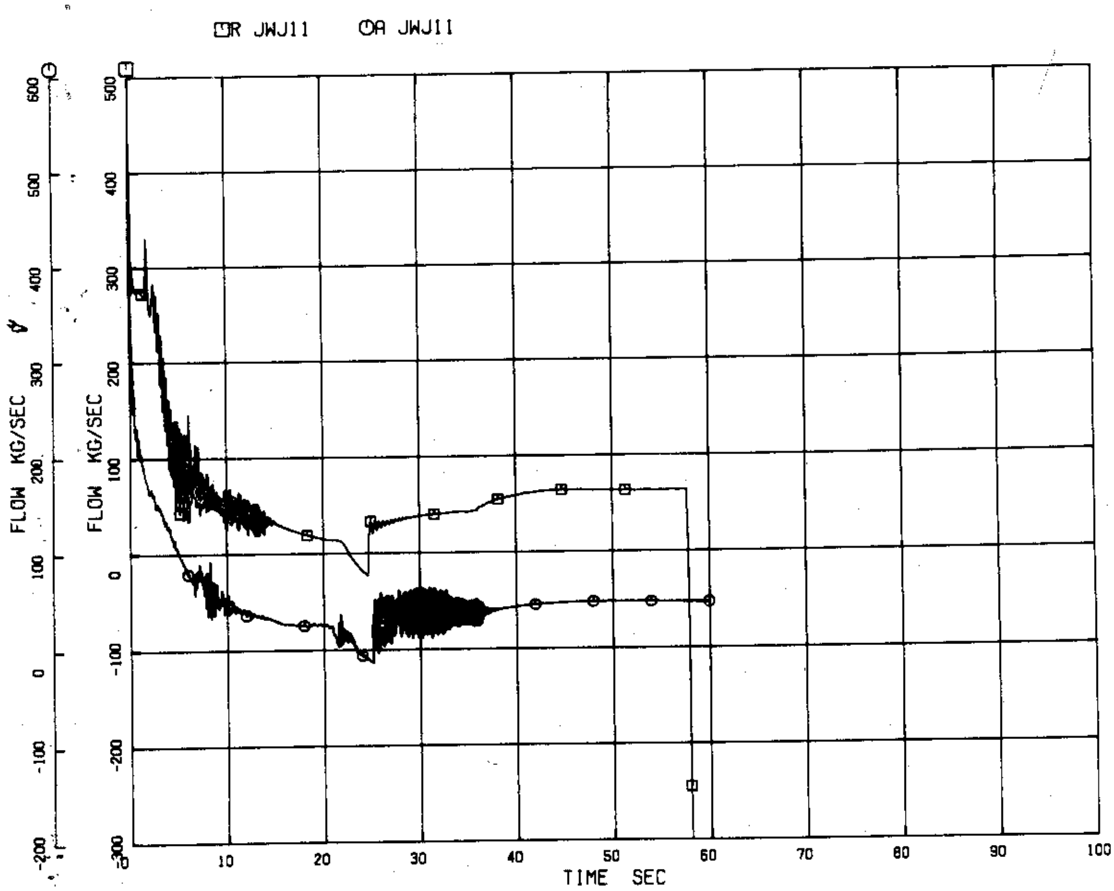


Fig. 5.34 Junction Flow From Intact Loop Cold Leg to Downcomer

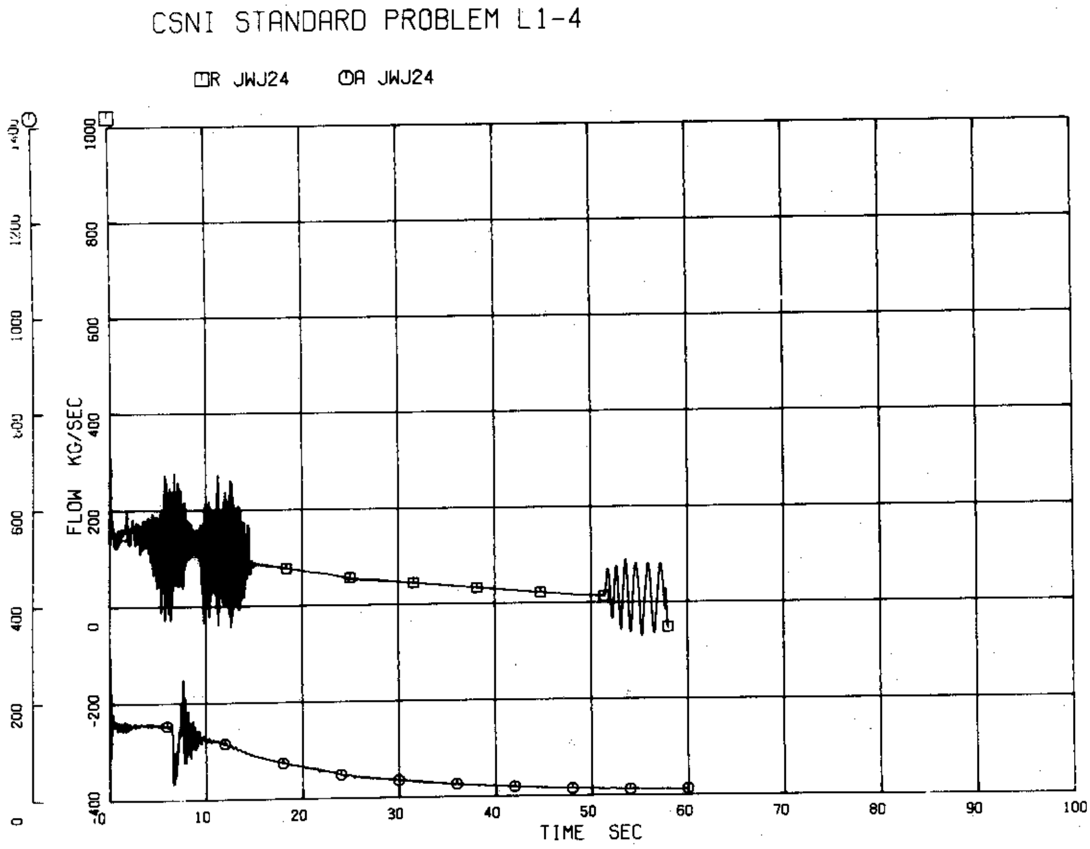


Fig. 5.35 Junction Flow From Downcomer to Broken Loop Cold Leg

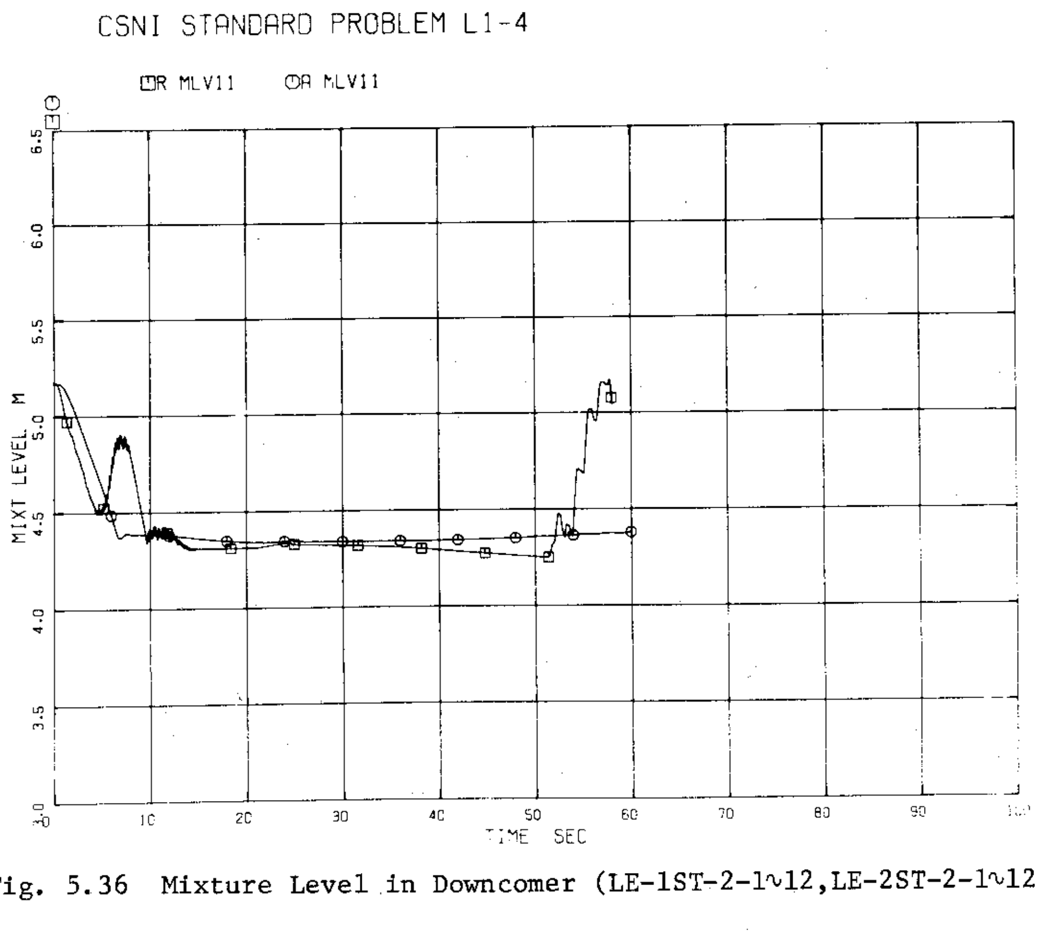


Fig. 5.36 Mixture Level in Downcomer (LE-1ST-2-1∿12,LE-2ST-2-1∿12)

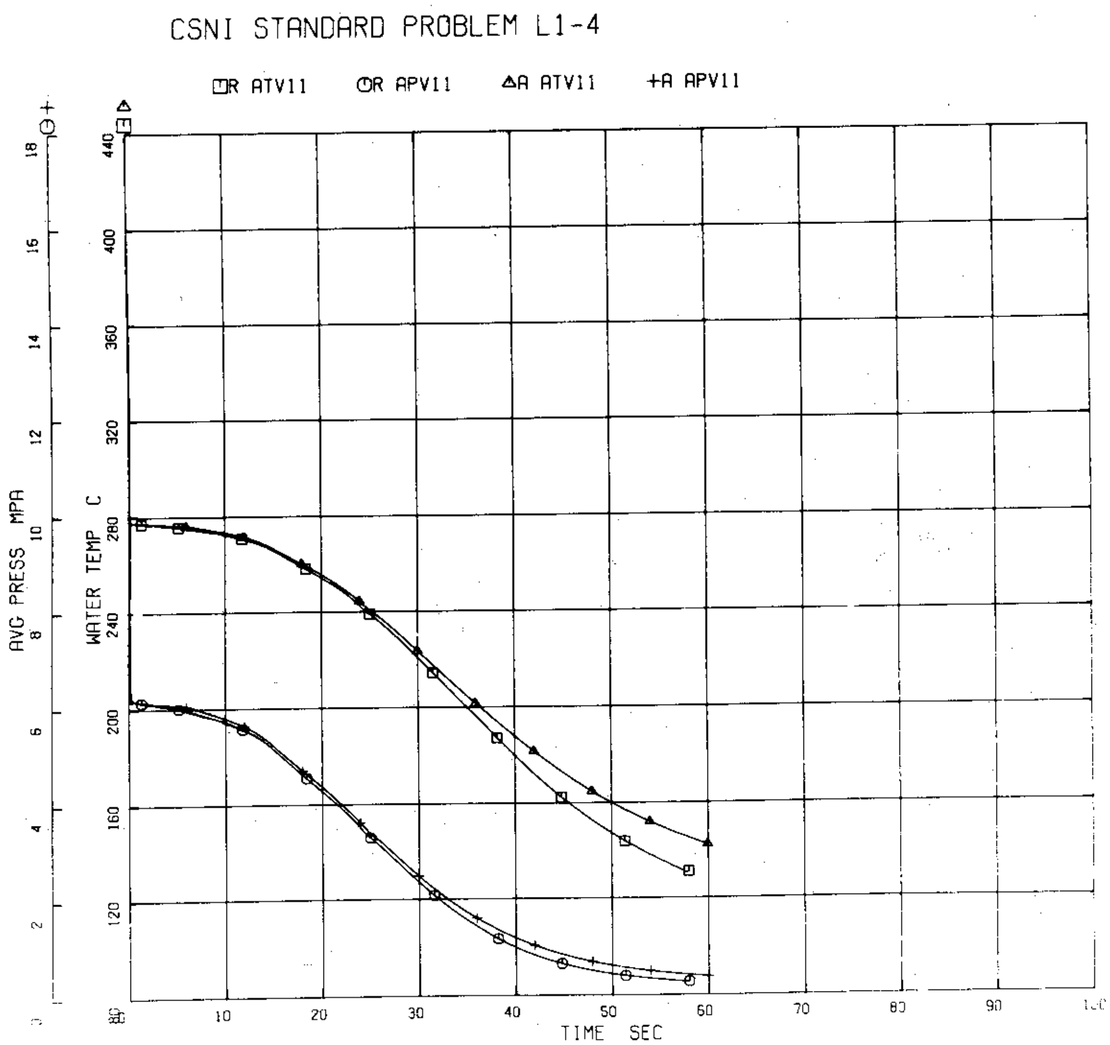


Fig. 5.37 Pressure and Temperature in Downcomer (PE-1ST-3,TE-1ST-1 ∿ 6)

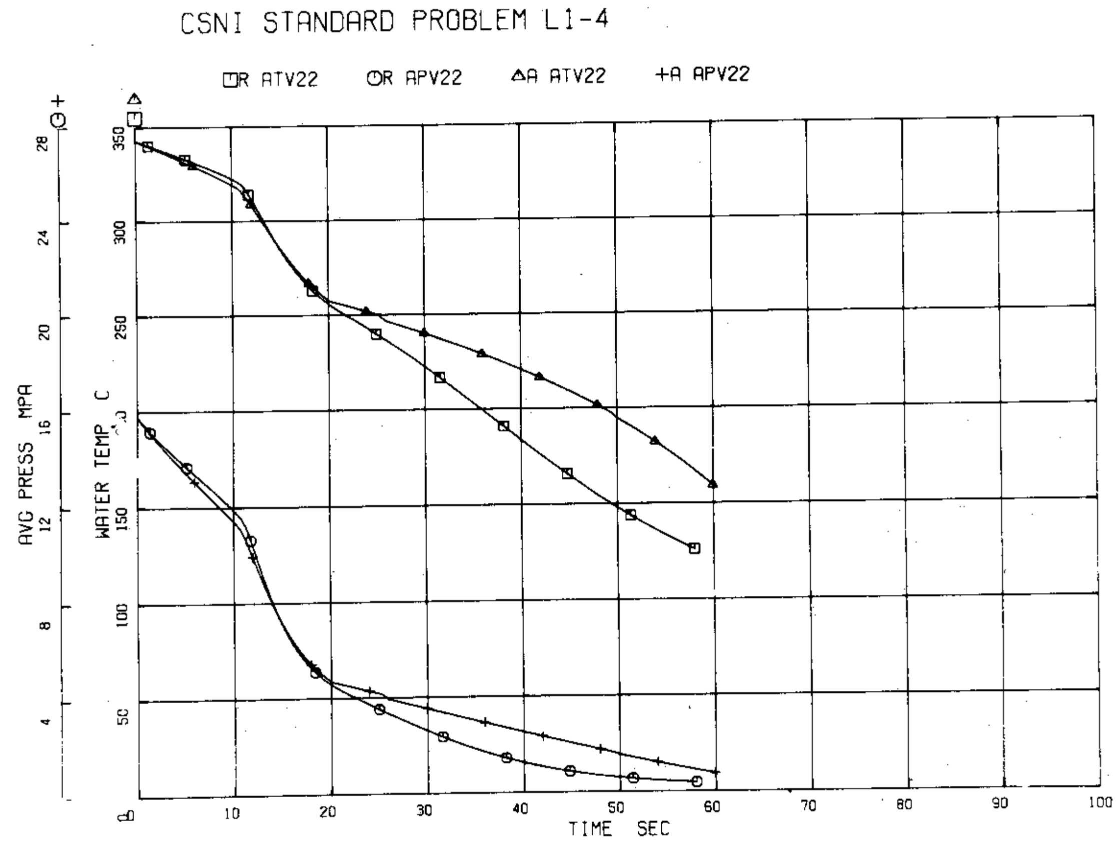


Fig. 5.38 Pressure and Temperature in Pressurizer (PE-PC-4,TE-P139-20)

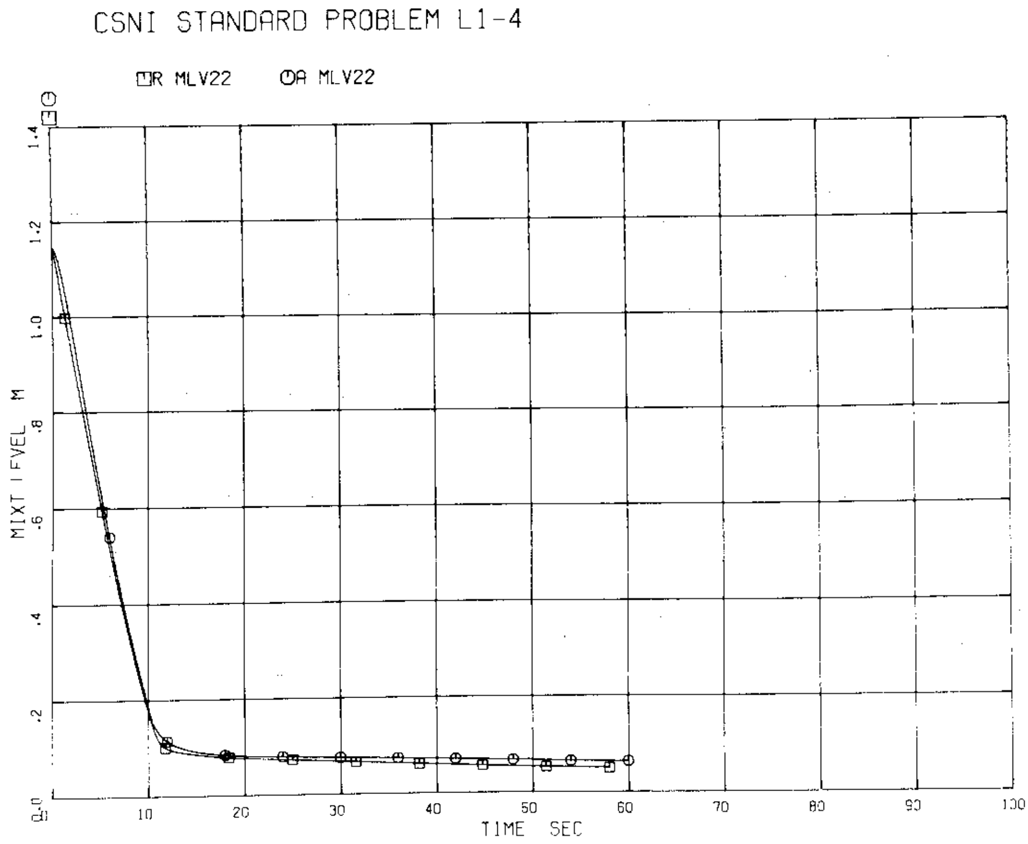


Fig. 5.39 Mixture Level in Pressurizer (LT-P139-6,7,8)

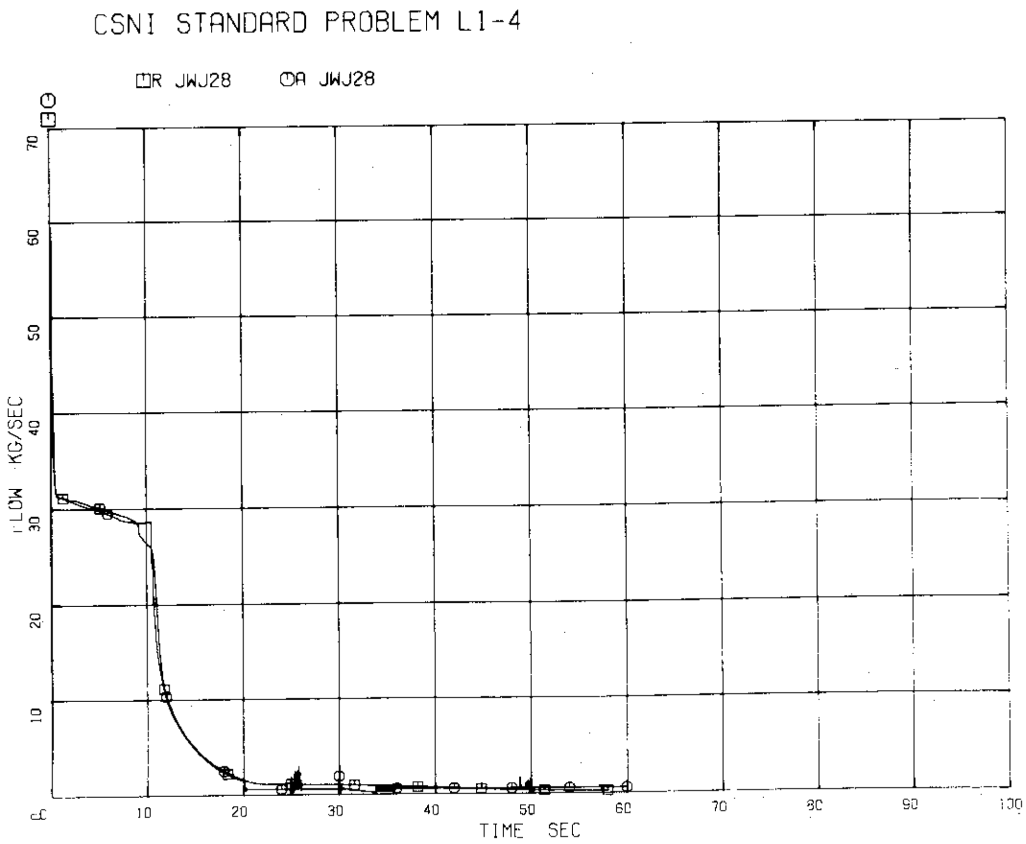


Fig. 5.40 Discharge Flow From Pressurizer Surge Line Outlet

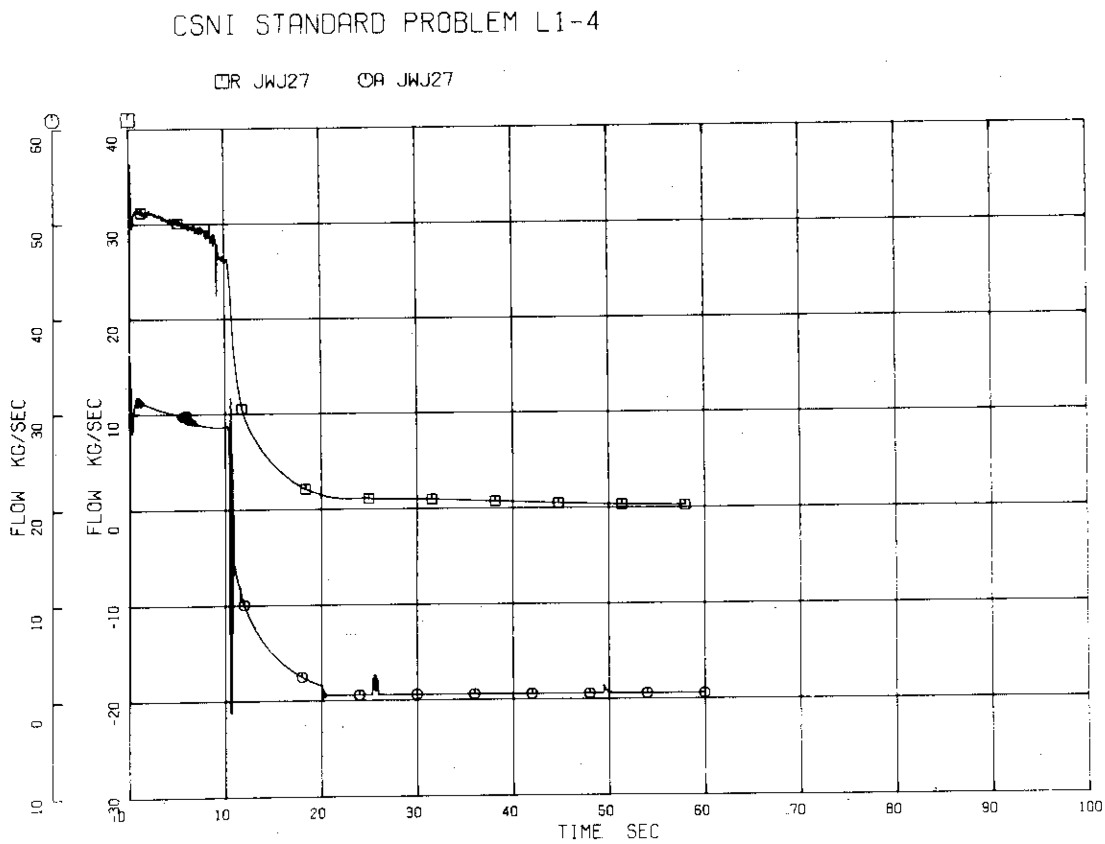


Fig. 5.41 Junction Flow at Pressurizer Surge Line Inlet

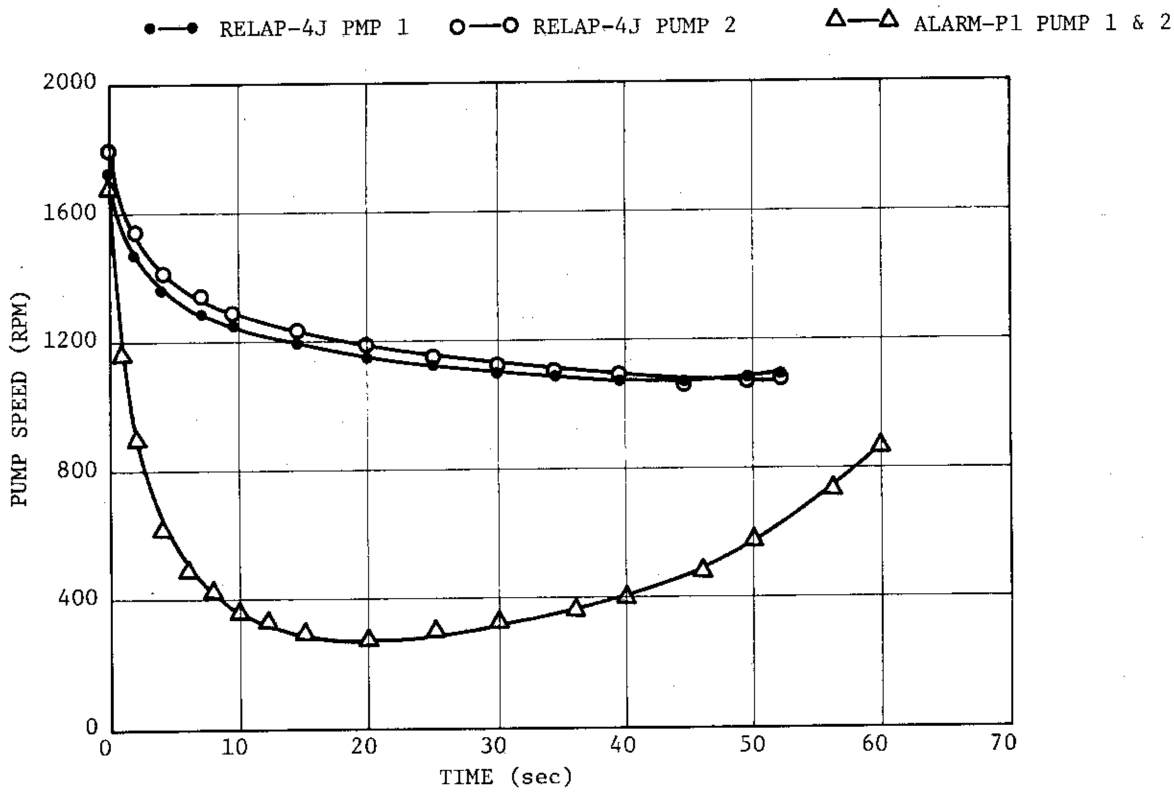


Fig. 5.42 Pump Speed

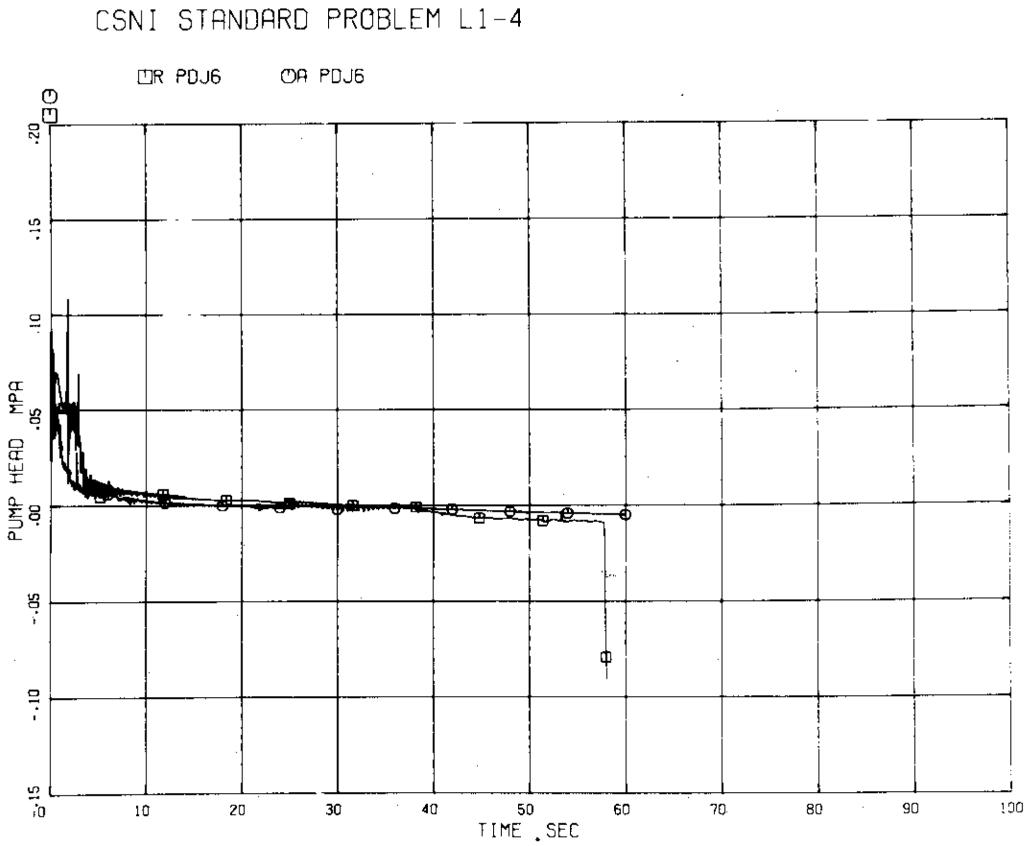


Fig. 5.43(a) Pump No.1 Head (PdE-PC-1)

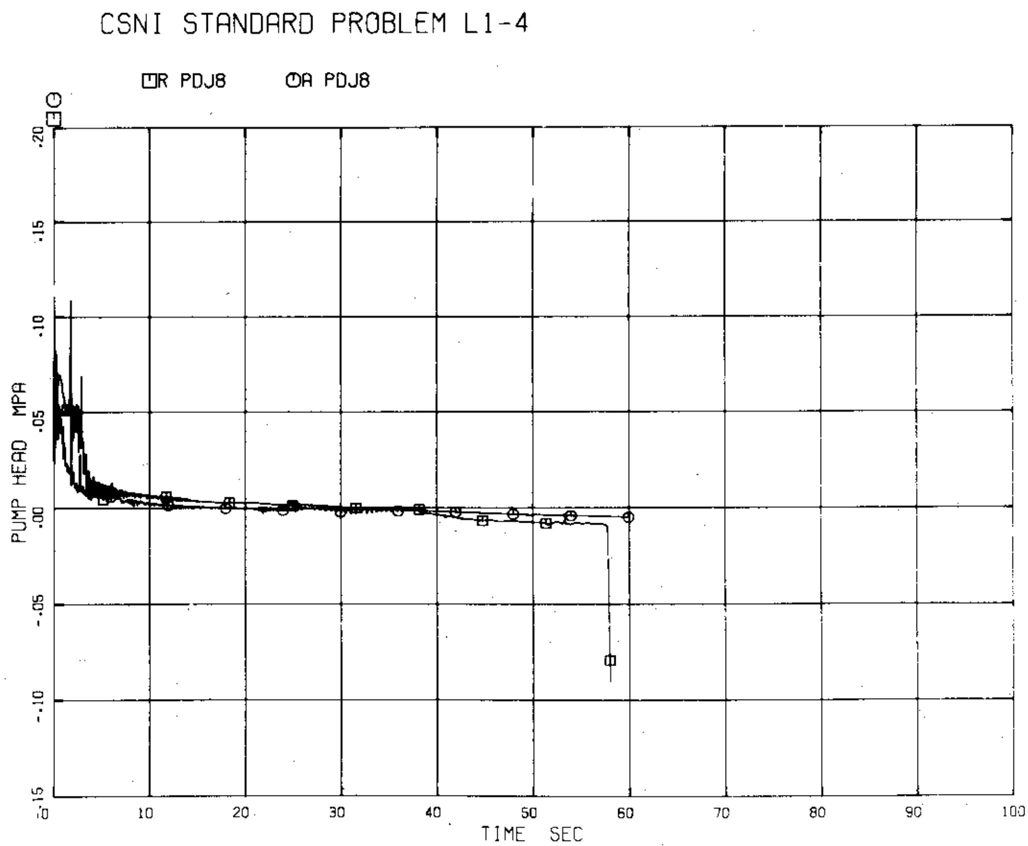


Fig. 5.43(b) Pump No.1 Head (PdE-PC-1)

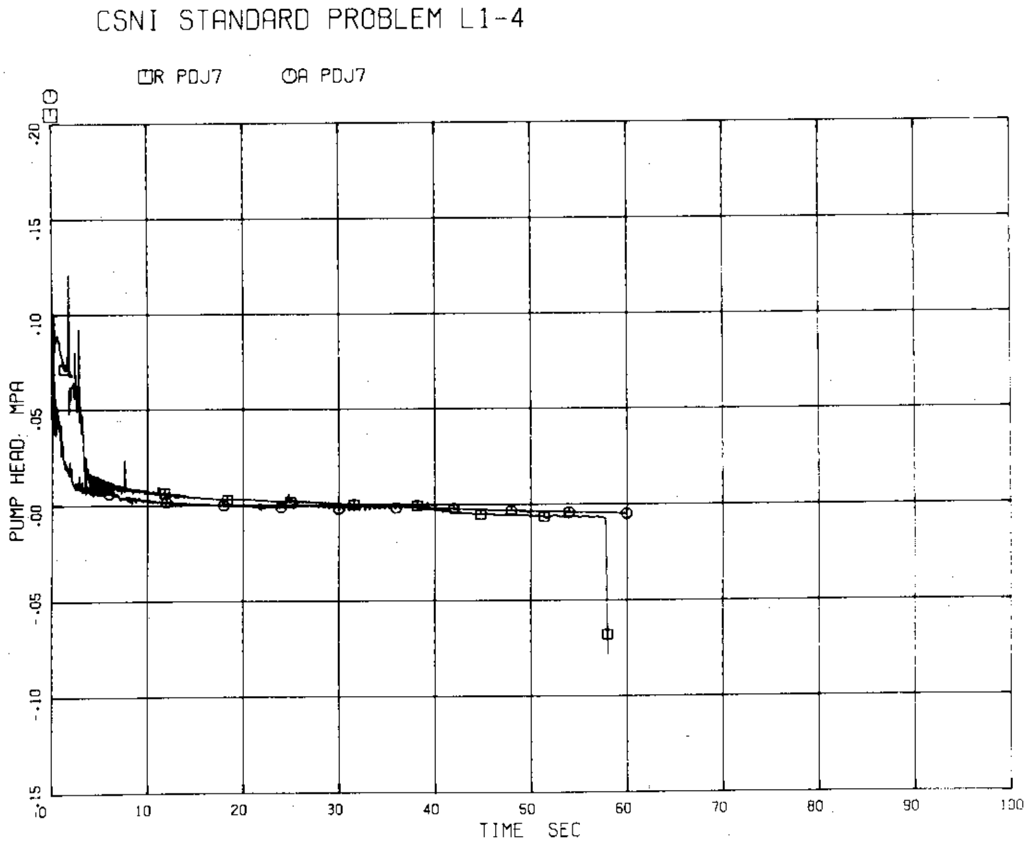


Fig. 5.44(a) Pump No.2 Head (PdE-PC-2)

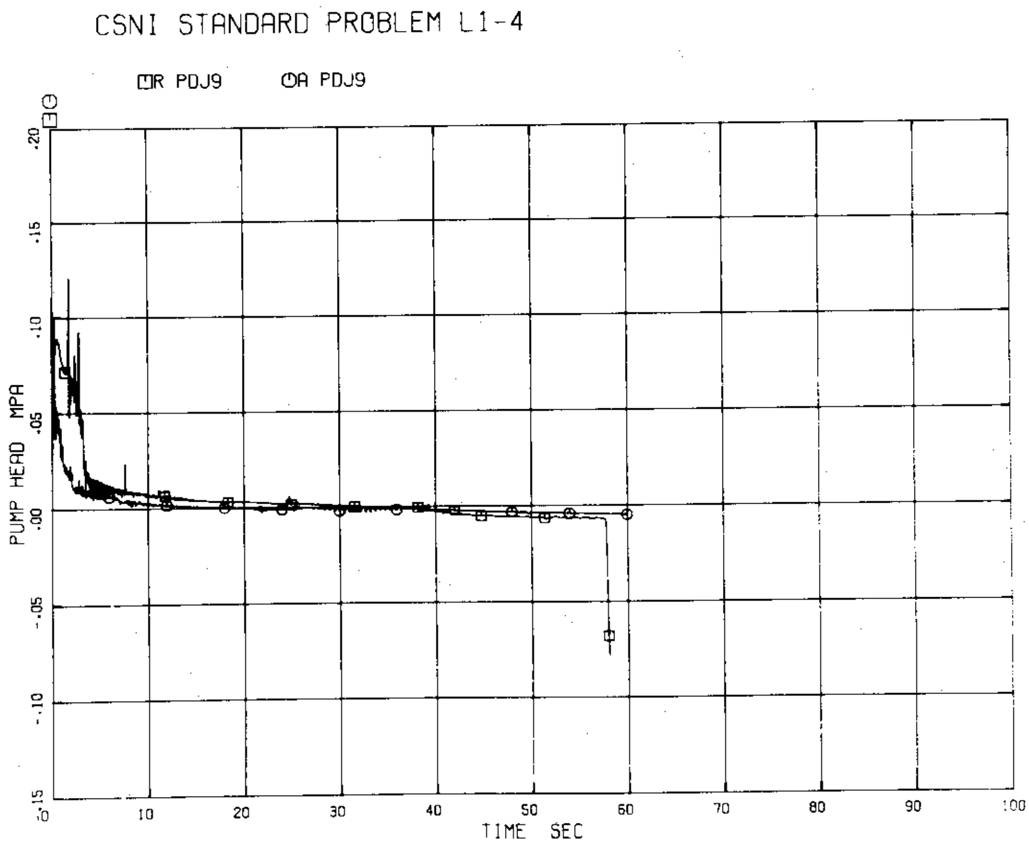


Fig. 5.44(b) Pump No.2 Head (PdE-PC-2)

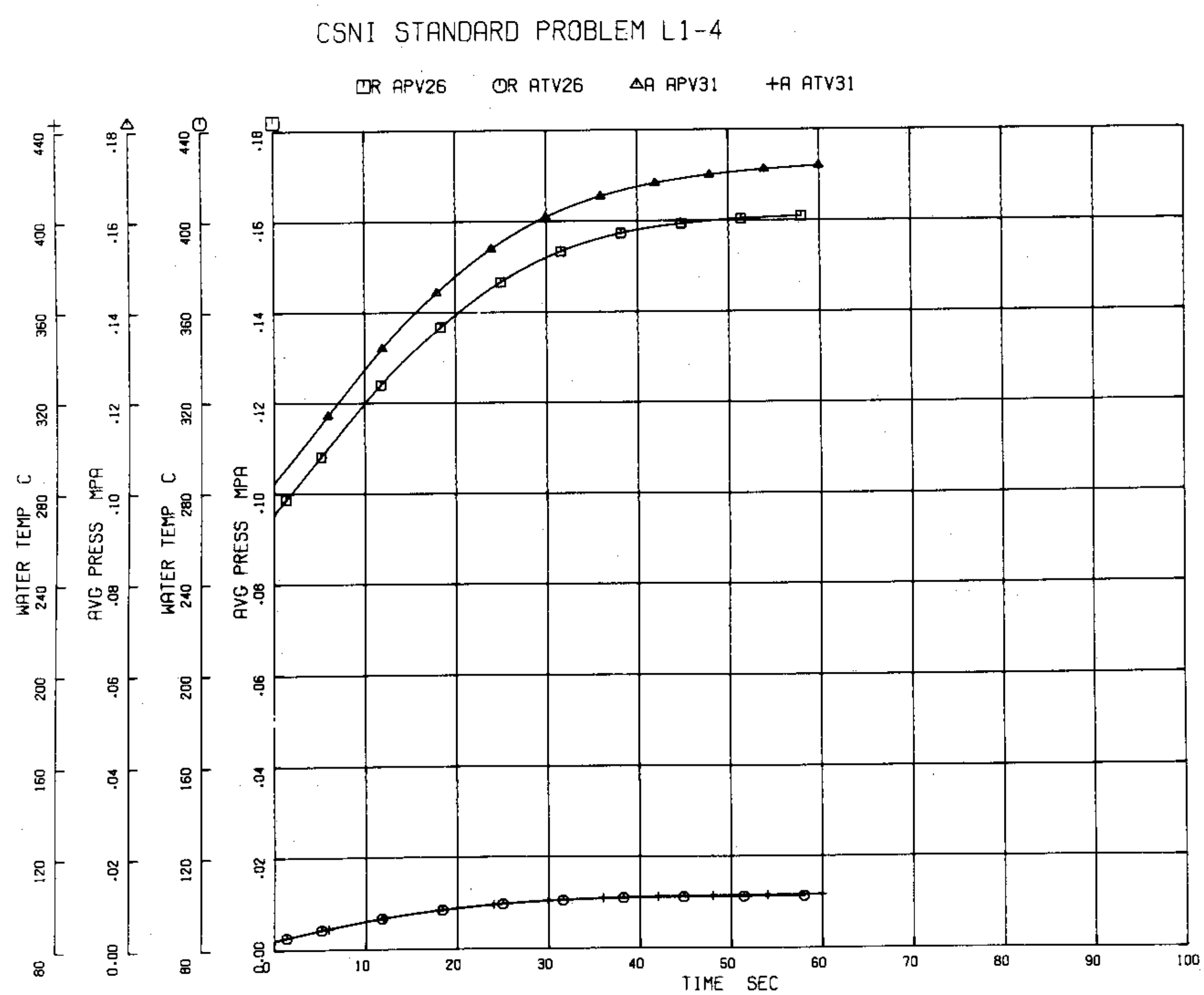


Fig. 5.45 Pressure and Temperature in Suppression Tank

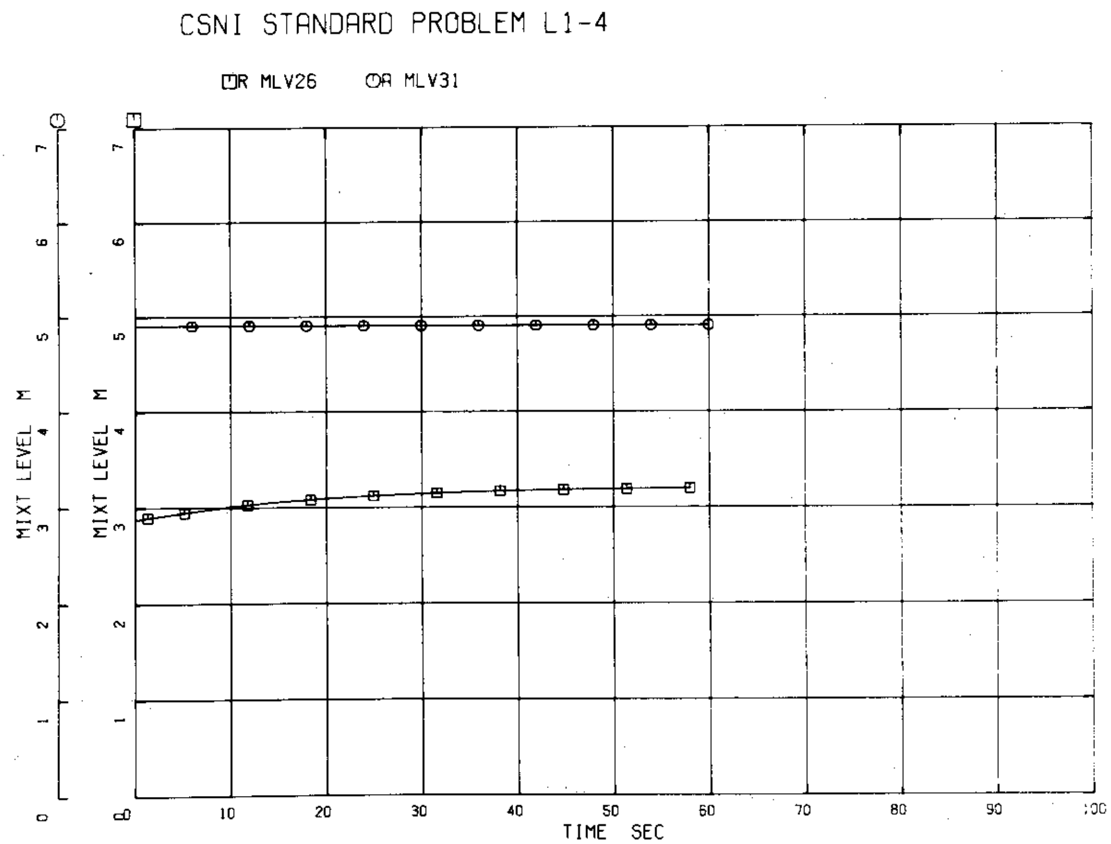


Fig. 5.46 Mixture Level in Suppression Tank

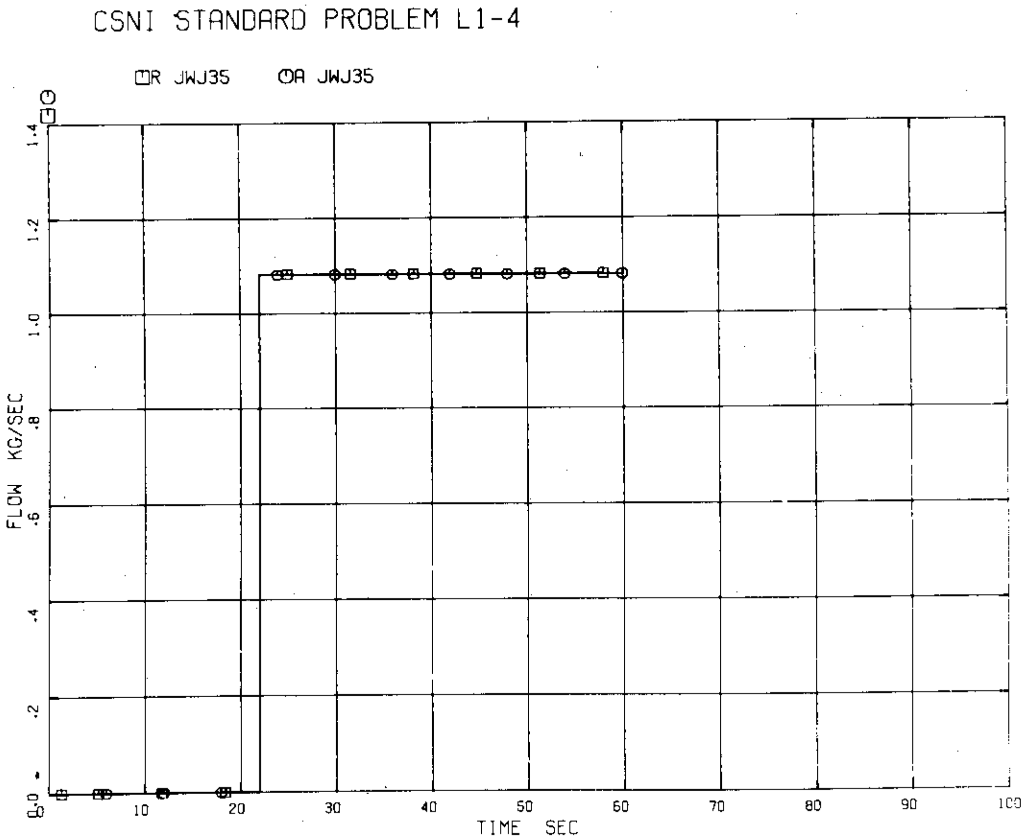


Fig. 5.47 HPIS Injection Flow

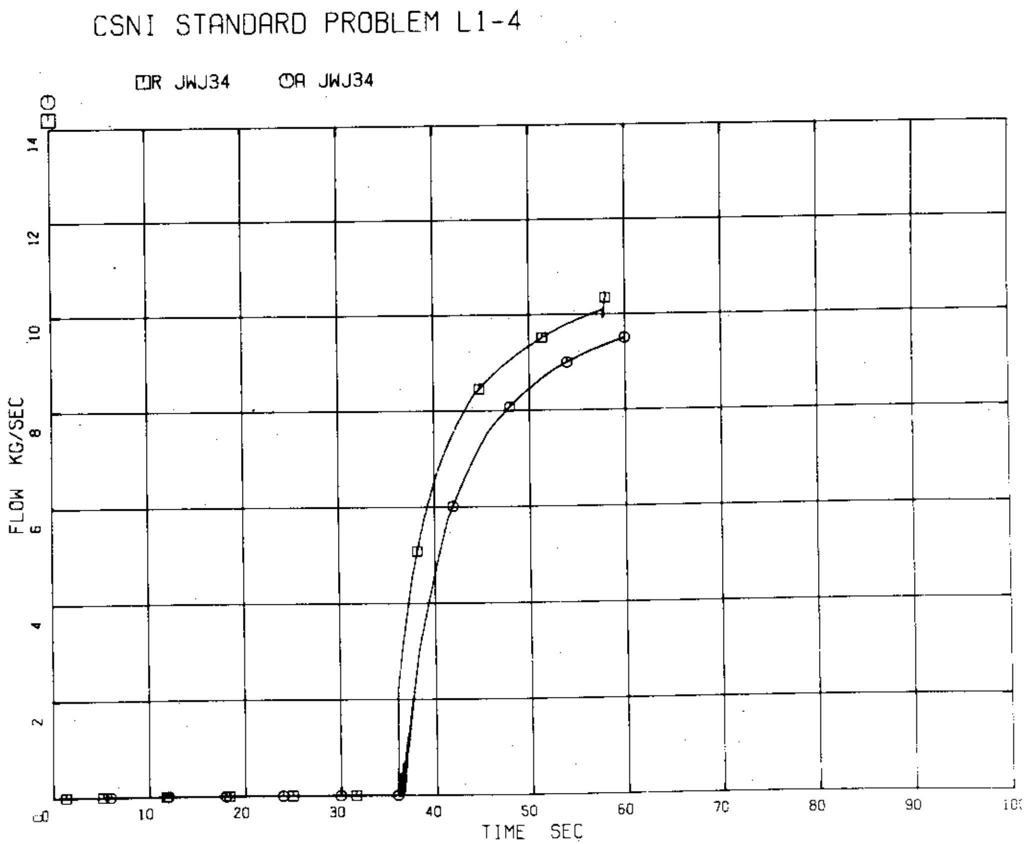


Fig. 5.48 LPIS Injection Flow

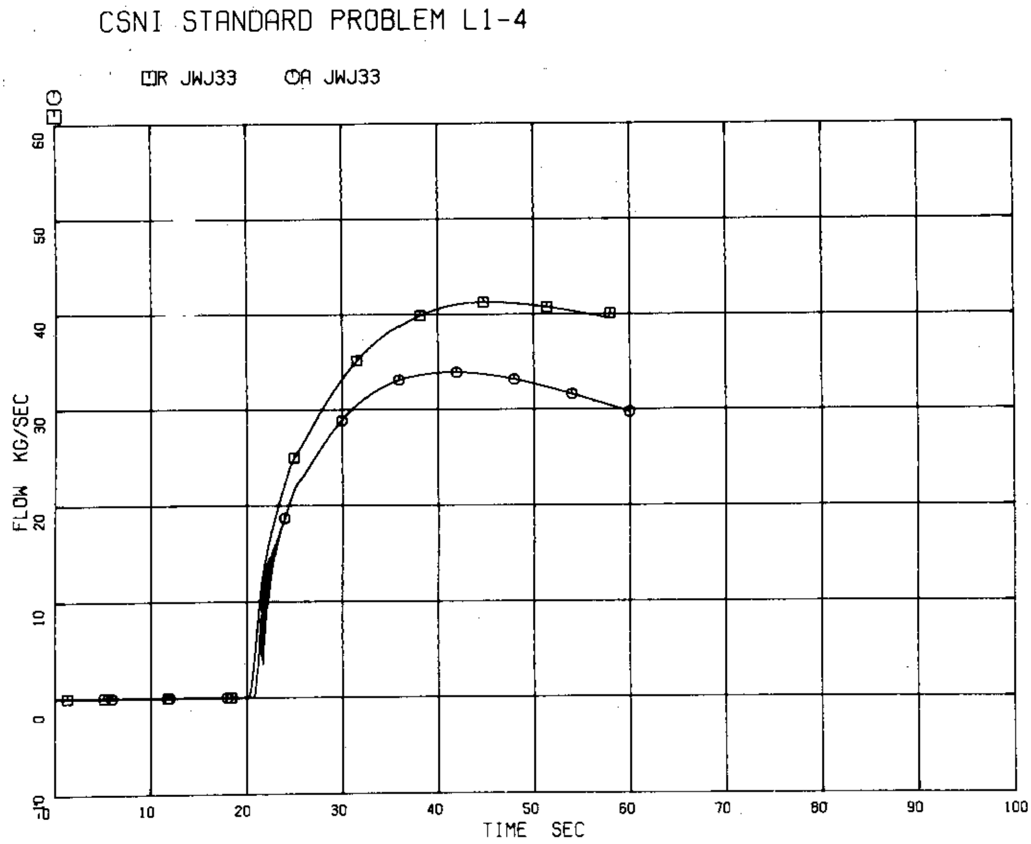


Fig. 5.49 Accumulator Injection Flow Rate

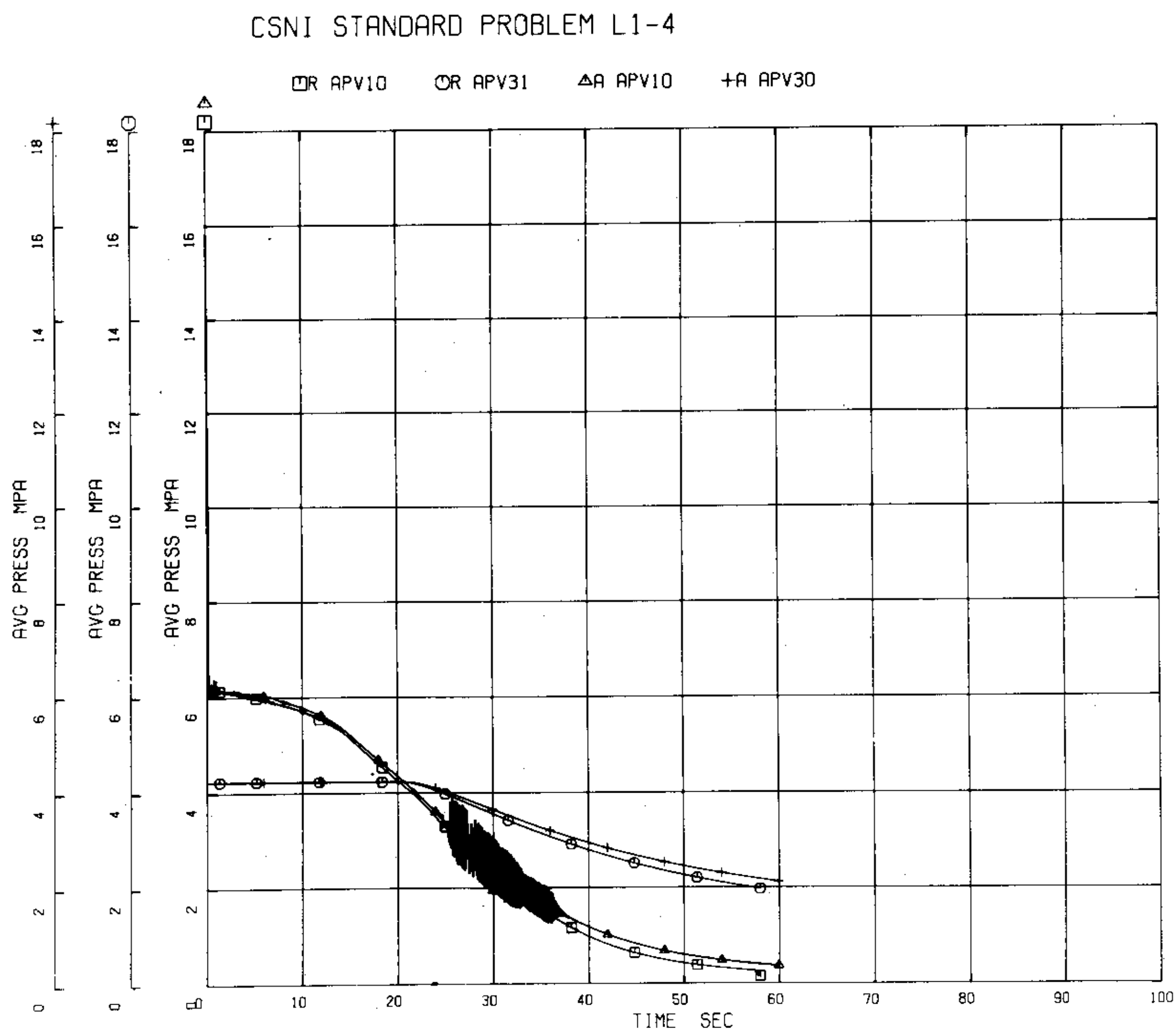


Fig. 5.50 Pressure in Accumulator and Cold Leg of Intact Loop

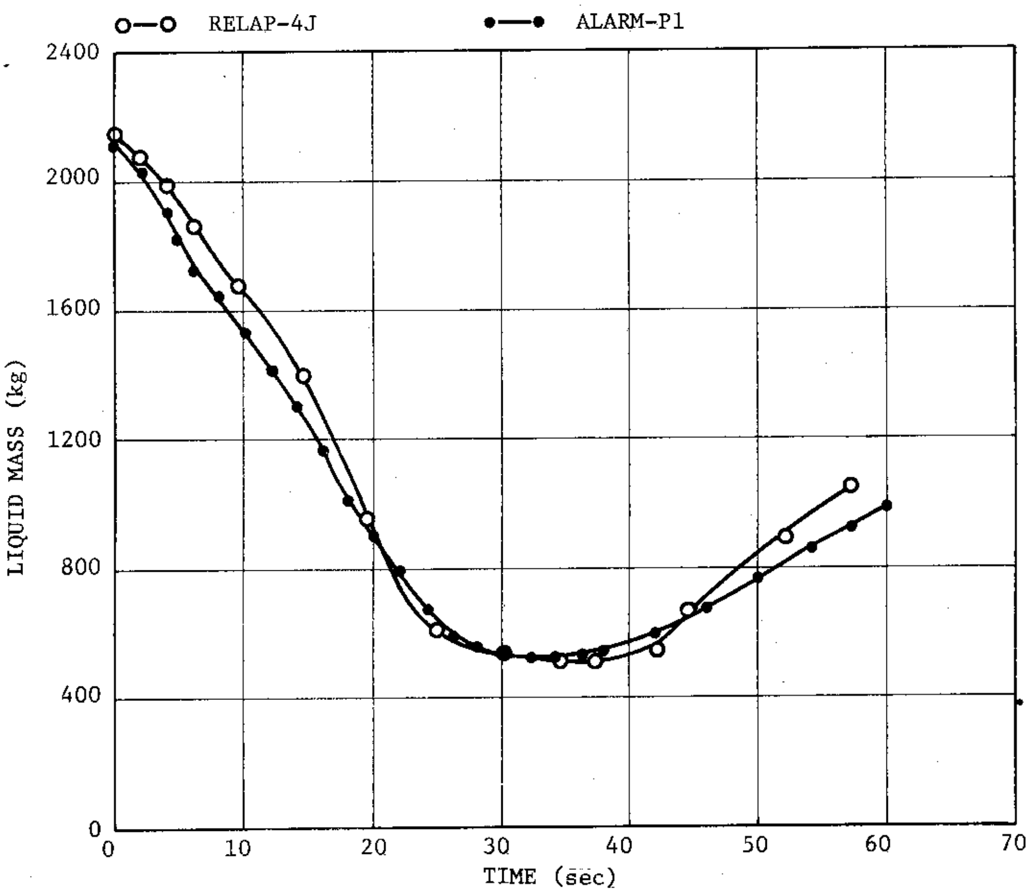


Fig. 5.51 Mass Inventory in Reactor Vessel

6. CONCLUSIONS

LOFT L1-4 experimental result was predicted by the LOFT analysis group and the code development group at JAERI with the use of RELAP-4J and ALARM-P1, respectively. For those analyses, input data were prepared by the analysis group and used for both analyses. Therefore any difference appeared in the analyses should be resulted from difference in code performance characteristics.

The present analysis leads to the following conclusions on LOFT L1-4 experiment and calculation model.

(1) Predicted coolant behavior by RELAP-4J and ALARM-P1 is generally in excellent agreement despite the fact that several differences exist in computational models employed in the codes.

(2) Major difference appears in coolant flow rate across the pump, i.e. ALARM-P1 predicts faster coastdown and smaller flow rate than RELAP-4J. The faster coastdown results in smaller pump head and it leads to earlier flow reversal in intact loop hot leg and core. The earlier flow reversal induces earlier back flow from steam generator inlet. The effect of earlier flow reversal and earlier back flow is felt by density in broken loop hot leg as the increase of coolant density. Although the timing of the density increase is earlier in ALARM-P1 results, qualitative agreement with RELAP-4J is satisfactory.

(3) Due to the differences in the models, following differences are observed in predicted results.

(a) Explicit method used in ALARM-P1 seems to result in unstable calculation at a T shaped junction such as reflood assist line outlet when one of the two volumes connected by the junction is filled with subcooled water. This type of oscillation occurs at both reflood assist line outlets in broken loop cold leg and hot leg.

(b) Junction flow calculation in ALARM-P1 becomes unstable when mixture level assumed in upstream volume connected to the junction approaches the junction elevation. Thus ALARM-P1 analysis results in sudden change in junction quality and sudden flow rate change.

(4) Computational models employed in RELAP-4J and ALARM-P1 need to be modified in common to better predict coolant behavior in the following components.

(a) Coolant flow in downcomer predicted by RELAP-4J and ALARM-P1 seems unreasonable since counter current two phase flow is not well modeled in both codes. Thus modification is necessary.

(b) Heat transfer to and from steam generator secondary was not assumed in the present analysis. Although the effect of steam generator secondary is not significant during blowdown phase, steam generator plays an important role in determing coolant behavior during reflooding phase. Thus steam generator should be considered in future analysis.

(c) Suppression tank was simulated by one volume in RELAP-4J and ALARM-P1. It turned out that pressure rise due to vent pipe air clearance was not well predicted. Therefore further improvement is necessary including pressure rise due to compressed air in suppression tank.

(5) Following instrumentations are suggested in future LOFT experiment.

(a) Coolant condition (pressure, temperature, density) in reflood assist lines.

(b) Liquid level in steam generator.

(c) Emergnecy coolant condition in injection line.

Based on conclusions described above, future study on L1-4 experiment will be focused on improving computational models and its application to future LOFT analysis including nuclear test series.

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Appendix 1. Input Data List of RELAP-4J Analysis

```
LISTING OF INPUT DATA FOR CASE  1

=LOFT(L1-4 ) ANALYSIS
*
*         PROBLEM DIMENSIONS
*
010001 -2  9  7  7 28  2  0 33  2  1  1  3  2  2  1  0  0        * L1-4  INPUT
010001 -2  9  7  7 31  2  0 35  2  2  1  2  2  2  1  0  0        * L1-4  INPUT
CARD ABOVE IS REPLACEMENT CARD.
*
*         PROBLEM CONSTANT
*
010002  0.0  1.0
*
*         UNIT OPTION
010005  0  0        * INPUT-FT.LB   OUTPUT-FT.LB
*
*         EDIT VARIABLES
*
020000 AP  1 AP 10 AP 15 AP 21 AP 22 AR  1 AR 10 AR 15 AR 21
*
*         TIME STEP
*
030010 50  2  2  0 0.0002  0.00001  0.1
030020 20 10  1  0 0.0005  0.00005  0.8
030030 10 20  1  0 0.001   0.0001   2.0
030040  5 10  4  0 0.01    0.0005   7.0
030050  5 50  4  0 0.01    0.0005  20.0
030060  5 50  4  0 0.01    0.00005 32.0
030070  5 50  2  0 0.01    0.0005  56.0
*
*         TRIP CONTROLS
*
040010  1   1  0  0  75.0  0.0        * END PROBLEM ON ELAPSED TIME
040020  1  -4  1  0  27.0  0.0        * END PROBLEM ON LOW PRESSURE IN VOL 1
040030  2   1  0  0   0.0  0.0        * ACTION 2 ON ELAP. TIME (PUMP)
040040  3   1  0  0   0.0  0.0        * ACTON 3 ON ELAP. TIME (LEAK)
040050  4  -4 29  0 613.4  0.0      * ACTION 4 ON ELAP.TIME (ACC)
040060  5  1  0  0 36.0  0.0        * ACTION 5 ON ELAP.TIME (LPIS)
040070  6  1  0  0 22.0  0.0        * ACTION 6 ON ELAP.TIME (HPIS)
*
*         VOLUME DATA
*
050011 0 0 2285.4 535.0 -1.0   4.92  0.932 0.932  0   0.6827 .932 -0.466
050021 0 0 2264.9 536.0 -1.0   2.42  0.932 0.932  0   0.6827 .932 -0.466
050031 0 0 2263.7 537.0 -1.0   5.85  1.26  1.26   0   0.6827 .932 -0.466
050041 1 0 2280.2 536.0 -1.0  24.9   11.25 11.25  0   1.6262 .0335 0.312
050051 0 0 2273.2 535.0 -1.0  24.9   11.25 11.25  0   1.6262 .0335 0.312
050061 0 0 2271.0 534.0 -1.0   6.17  5.53  5.53   0   0.6827 .932 -4.633
050071 0 0 2286. 535.0 -1.0   6.055 4.987 4.987  0   0.6827 .932 -4.633
050081 0 0 2285.1 535.0 -1.0   8.035 4.987 4.987  0   0.6827 .932 -4.633
050091 0 0 2294.9 535.0 -1.0   4.02  0.932 0.932  0   0.6827 .932 -0.466
050101 0 0 2294.4 535.0 -1.0   5.29  0.932 0.932  0   0.6827 .932 -0.466
050111 1 0 2295.2 537.0 -1.0  33.3  16.963 16.963 0   1.963  .162 -13.96
050121 0 0 2296.5 537.0 -1.0  22.71  2.703 2.703  0   8.402 3.271 -16.365
050131 0 0 2293.1 536.0 -1.0  32.3  11.587 11.587 0   2.788 1.884 -13.662
050141 1 0 2287.2 535.0 -1.0  10.9   5.028 5.028  0   2.483 1.778 -2.075
050151 0 0 2285.4 535.0 -1.0   5.793 0.932 0.932  0   0.6827 .932 -0.466
050161 0 0 2283.9 535.0 -1.0   0.448 2.523 2.523  0   0.09   .339 -0.169
050171 0 0 2282.4 530.0 -1.0  11.89  9.476 9.476  0   1.137 1.203  2.354
050181 0 0 2285.4 530.0 -1.0  11.89  9.476 9.476  0   1.137 1.203  2.354
050191 0 0 2288.5 525.0 -1.0   1.764 6.80  6.80   0   0.276  .593 -4.445
050201 0 0 2285.4 522.0 -1.0   0.556 4.148 4.148  0   0.09   .339 -4.148
050211 0 0 2294.4 537.0 -1.0   4.893 0.932 0.932  0   0.6827 .932 -0.466
050221 2 0 2282.8 649.0  0.0  34.0   5.5884 3.758 0   6.084 2.78   3.786
050231 0 0 2284.4 572.0 -1.0   0.224 3.382 3.382  0   0.0156 .141  0.466
050241 0 0 2284.5 530.0 -1.0   5.653 2.826 2.829  0   0.418  .729 -0.3646
050251 0 0 2293.5 530.0 -1.0   6.792 1.993 1.993  0   0.418  .729  0.466
050261 1 0     13.8 183.0 0.0 3700.9 16.094 9.42  0   230.0 17.1  -13.55
050271 0 0 2266.4 572.0 -1.0   0.144 .3386 .3386  0   0.09  .3386 -0.169
050281 0 0 2283.6 608.0 -1.0   0.224 0.664 0.664  0   0.0155 .140  3.707
*
*      INJECTION LINE  NEAR VESSEL
*
050291 0  0  2294.4 490.0 -1.0 1.2  0.1458  0.1458   0  0.06681 0.29167 0.466
*
*      INJECTION LINE  NEAR ACC TANK
*
050301 0  0   613.4  92.0 -1. 11.6  2.528  2.528 0  0.06681 0.29167 0.6118
*
*     ACC TANK
*
050311  2 0   613.4  92.0 0.0 130.0 9.58  6.5586 0  13.57  4.1567  0.6118
*
*
*         BUBBLE DATA
*
060011  0.8  3.0
060021  0.8 -3.0
*
*         JUNCTION DATA
*
080011  1  2  0  0 591.7 0.6827 0.0      .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080021  2  3  0  0 591.7 0.6827 0.0      .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080031  3  4  0  0 591.7 0.5564 0.794    .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080041  4  5  0  0 591.7 1.63   10.03    .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080051  5  6  0  0 591.7 0.5564 0.897    .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080061  6  7 -1  0 295.9 0.6827 -4.167   .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080071  6  8 -2  0 295.8 0.6827 -4.167   .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080081  7  9  1  0 295.9 0.3941  0.0     .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080091  8  9  2  0 295.8 0.3941  0.0     .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080101  9 10  0  0 591.7 0.6827  0.0     .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080111 10 11  0  0 591.7 0.6827  0.0     .0  0.0  0.0  1 1 2 0 0.0  0.0  1 0
080121 11 12  0  0 591.7 1.84   -13.96   .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080131 12 13  0  0 591.7 2.826  -13.662  .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080141 13 14  0  0 591.7 0.5144 -2.075   .0  0.0  0.0  0 1 2 0 0.0  0.0  1 0
080151 14  1  0  0 591.7 0.6827  0.0     .0  0.0  0.0  1 1 2 0 0.0  0.0  1 0
080161 14 15  0  0    0.0 0.6827  0.0    .0  0.0  0.0  1 1 3 0 0.0  0.0  1 0
080171 24 15  0  0    0.0 0.4176  0.0    .0  0.5  0.5  0 1 2 0 0.0  0.0  1 0
080181 15 16  0  0    0.0 0.09    0.0    .0  0.0  0.0  0 1 3 0 0.0  0.0  1 0
080191 16 17  0  0    0.0 0.09    2.354  .0  1.52 1.09 0 1 2 0 0.0  0.0  1 0
080201 17 18  0  0    0.0 0.206  11.228  .0  7.02 7.02 0 1 2 0 0.0  0.0  1 0
080211 18 19  0  0    0.0 0.09    2.354  .0  1.09 1.52 0 1 2 0 0.0  0.0  1 0
080221 19 20  0  0    0.0 0.09   -3.979  .0  17.1 17.1 0 1 2 0 0.0  0.0  1 0
080231 20 26  0  1    0.0 0.09    0.0    .0  0.0  0.0  1 1 3 0 0.0  0.57 1 0 1
080241 11 21  0  0    0.0 0.6827 0.0     .0  0.0  0.0  1 1 3 0 0.0  0.0  1 0
080251 25 21  0  0    0.0 0.4176 0.466   .0  0.5  0.5  0 1 2 0 0.0  0.0  1 0
080261 21 27  0  0    0.0 0.09   0.0     .0  0.0  0.0  0 1 3 0 0.0  0.0  1 0
080271 22 28  0  0    0.0 0.0504 4.181   .0  0.0  0.0  1 1 3 0 0.0  0.57 1 0 1
080281 23  2  0  0    0.0 0.0156 0.466   .0  0.95 0.44 0 1 2 0 0.0  0.57 1 0 1
080291 27 26  0  1    0.0 0.09   0.0     .0  0.0  0.0  1 1 3 0 0.0  0.57 1 0 1
080301 28 23  0  0    0.0 0.0156 3.778   .0  9.0  9.0  0 1 2 0 0.0  0.57 1 0 1
*
*            ACC INJECTION
*
080311 29 10 0 0 0.0 0.0645 0.466  .0 1.0 0.0 1 0 2 0 0.0 0.57 0 0 1
*
*      ACC CHECK VALVE
*
080321 30 29 0 2 0.0 0.0645 0.6118 0. 34.2 34.2 0 0 2 0 0.2866 0.57 0 0
*
*      ACCOUTLET PIPING
```

```
*
* 080331 31 30 0 0 0.0 0.06661 3.1398 0.0 38.5 0.0 1 0 2 0 0.0 0.57  0 0
*
*
*
*    LPIS INJECTION
*
080341  0  29  1  0    0.0 0.0645 0.5389   .0  1.0 0.0 1 0 2 0 0.0  0.57 0 0 1
*
*    HPIS INJECTION
*
080351  0 29  2  0    0.0 0.0645 0.5389    .0  1.0 0.0 1 0 2 0 0.0  0.57 0 0 1
*              PUMP CURVE INPUT INDICATORS
100000    0  0  0  0
100000   16  0  0  16
CARD ABOVE IS REPLACEMENT CARD.
*
*          PUMP DESCRIPTION
*
090011  1  3  1  1  3530.  0.6516  5000.  330.  443.  386.  48.02  110.7
090011  1  3  1  1  3530.  0.6516  5000.  330.  443.  294.  48.02  110.7
CARD ABOVE IS REPLACEMENT CARD.
090011 1 3 1 1 3530. 0.48 5000. 406.95 465. 340. 38.75 40.0522
CARD ABOVE IS REPLACEMENT CARD.
090021  1  3  1  1  3530.  0.6516  5000.  330.  443.  386.  48.02  110.7
090021  1  3  1  1  3530.  0.6516  5000.  330.  443.  294.  48.02  110.7
CARD ABOVE IS REPLACEMENT CARD.
090021 1 3 1 1 3530. 0.5062322 5000. 408.95 465. 340. 38.75 46.529
CARD ABOVE IS REPLACEMENT CARD.
*
*          PUMP HEAD MULTIPLIER
*
091001 -11  0.    0.      .1  0.    .15  .05  .24  .8. .3  .96  .4  .98
091002          .6   .97   .8   .9   .9   .8   .96  .5 1.  0.
*
*          PUMP TORQUE MULTIPLIER
*
092001 -7  0. 0.  .1 0.  .15 .05  .24 .56  .8 .56  .96 .45 1. 0.
*
*          PUMP HEAD AND TORQUE DATA
*
101011  1 1  6    0.          1.4036     .19061   1.3636    .38963   1.3186
101012              .59396    1.2328     .7902    1.1336    1.        1.0078
101021  1 2  3    0.          -.67       .2       -.5       .4       -.25
101022              .57534    0.         .74432   .2583     .77348    .3776
101023              .86313    .6326     1.        1.0078
101031  1 3  6    -1.         2.4722     -.80574  2.0474    -.6069    1.831
101032              -.40683   1.624      -.200171 1.4705    0.        1.4036
101041  1 4  8    -1.         2.4722     -.82297  1.9968    -.63332   1.5897
101042              -.45534   1.3279     -.27109  1.1949    -.17716   1.0605
101043              -.09073   1.0156     0.       .934279
101051  1 5  7    0.          .25        .2       .28       .4        .34
101052              .4118     .2768      .59763   .4584     .763467   .6992
101053            1.          .9465
101061  1 6 10    0.          .934279    .091099  .9229     .186509   .6963
101062              .271762   .875       .455872  .8433     .574406   .8355
101063              .740576   .9465      .766619  .8469     .871471   .8838
101064            1.          .9465
101071  1 7  6    -1.       -1.          -.8      -.63      -.6       -.3
101072            -.4         -.05       -.2      .15       0.        .25
101081  1 8  6    -1.       -1.          -.8      -.97      -.6       -.95
101082            -.4         -.66       -.2      -.8       0.        -.67
101091  2 1  6    0.          .6032      .1930    .6325     .393      .7369
101092              .59552    .6331      .79782   .9229     1.        .9672
101101  2 2  7    0.          -.67       .4       -.25      .5        .15
101102              .737255   .526586    .768049  .606594   .86723    .74366
101103            1.          .9672
101111  2 3  6    -1.         1.9843     -.80096  1.394     -.60638   1.0975
101112              -.40686   .822       -.19928  .6648     0.        .6032
101121  2 4  8    -1.         1.9843     -.82234  1.8306    -.63371   1.6824
101122              -.45853   1.557      -.267023 1.4362    -.176107  1.3879
101123              -.08931   1.3481     0.       1.23361
101131  2 5  4    0.          -.45       .4       -.25      .5        0.
101132            1.          .3569
101141  2 6 10    0.          1.23361    .090643  1.1965    .188569   1.2096
101142              .27347    1.0416     .458669  .8958     .57448    .7807
101143              .73816    .6134      .76852   .5849     .870057   .4877
101144            1.          .3569
101151  2 7  4    -1.       -1.          -.3      -.9       -.1       -.5
101152            0.          -.45
101161  2 8  4  . -1.       -1.          -.25     -.9       -.08      -.8
101162            0.          -.67
104011 1 1  7  0.  0.  .1  .83  .2  1.09  .5  1.02  .7  1.01  .9  .94  1.  1.
104021 1 2  8  0.  0.  .1 -.64  .2  0.  .3 .1 .4  .21  .8  .67 .9  .8  1. 1.
104031 1 3 10 -1. -1.16 -.9 -1.24  -.8 -1.77 -.7 -2.36 -.6 -2.79  -.5 2.91
104032           -.4 -2.67 -.25 -1.69 -.1 -.5  0.  0.
104041 1 4 10 -1. -1.16 -.9  -.78  -.8  -.5  -.7  -.31 -.6  -.17  -.5 -.08
104042          -.35  0.  -.2  .05  -.1  .08  0.  .11
104051 1 5  6  0. 0.  .2 -.34  .4 -.65  .6 -.93  .8 -1.19 1. -1.47
104061 1 6 10  0.  .11  .1  .13 .25 .15 .4  .13  .5  .07  .6 -.04  .7  -.23
104062              .8  -.51  .9 -.91 1. -1.47
104071 1 7  2   -1. 0.  0.  0.
104081 1 8  2   -1. 0.  0.  0.
104091 2 1  6     0.          .6032      .193      .6325     .393      .7369
104092              .59552    .6331      .79782    .9229     1.        .9672
104101 2 2  7     0.          -.67       .4        -.25      .5        .15
104102              .737255   .526586    .768049   .606594   .86723    .74366
104103            1.          .9672
104111  2 3  6    -1.         1.9843     -.80096   1.394     -.60638   1.0975
104112              -.40686   .822       -.19928   .6648     0.        .6032
104121  2 4  8    -1.         1.9843     -.82234   1.8306    -.63371   1.6824
104122              -.45853   1.557      -.267023  1.4362    -.176107  1.3879
104123              -.08931   1.3481     0.        1.23361
104131  2 5  4    0.  -.45    .4 -.25    .5  0.  1.  .3569
104141  2 6 10    0.          1.23361    .090643   1.1965    .188569   1.2096
104142              .27347    1.0416     .458669   .8958     .57448    .7807
104143              .73816    .6134      .76852    .5849     .870057   .4877
104144            1.          .3569
104151  2 7  4    -1.  -1.  -.3  -.9  -.1  -.5  0.  -.45
104161  2 8  4    -1.  -1.  -.25 -.9  -.08 -.8  0.  -.67
*
*   VALVE DATA
110010 -3 0.0 0.0 0.0 0.0
*
*        CHECK VALVE DATA FOR ACC INJECTION
*
110020 -4  0.0  0.0 0.0  0.0
*
*          LEAK TABLE
*
120100  3  2  27.0    0.0 0.0  0.02 1.0  100.0 1.0
120100  3  2  53.0    0.0 0.0  0.02 1.0  100.0 1.0
CARD ABOVE IS REPLACEMENT CARD.
*
* FILL TABLE (LPIS)
*
130100 14 5 1 1 100. 78. *LPIS INJECTION
130101 0. 2667. 20. 2589. 40. 2481. 60. 2326. 80. 2186. 100. 2047.
130102 120. 1860. 140. 1659. 160. 1411. 180. 1116. 200. 729. 220. 263.6
130103 226. 0.  5000.0  0.0
*
* FILL TABLE (HPIS)
```

```
*
130200 2 6 1 1 105. 78. *HPIS INJECTION
130201 0.0 266.7 3600. 266.7
*
*
150011  0 11  1  0 0.0   820.3 482.5 0.0   0.0
150021  0 22  2  0 0.0   64.3  16.1  0.0   0.0
170101  1  1  1  5 0.0   0.54  0.0
170201  1  2  1  5 0.0   0.25  0.0
*
*          THERMAL PROPERTIES
180101 -2          * SS304  THERMAL CONDUCTIVITY
180102  212. 9.574 2372. 19.294
190101 -13         * SS304  HEAT CAPACITY
190102  170. 44.46081     250. 44.32964     400. 44.48722
190103  600. 45.39201     800. 46.90936    1000. 48.84151
190104 1200. 50.99056    1400. 53.15869    1600. 55.14808
190105 1800. 56.76090    2000. 57.79932    2200. 58.06550
190106 2400. 57.36161
*
```

Appendix 2. Input Data List of ALARM-P1 Analysis

```
ALARM-P (VERSION 1)       PWR  LOSS OF COOLANT ANALYSIS PROGRAM

                          *****     LISTING OF INPUT DATA     *****

     ....*....1....*....2....*....3....*....4....*....5....*....6....*....7....*....8

     /*                                                                     LFT00000
     /*         LOFT(L1-4) ANALYSIS  BY  ALARM-P1                           LFT00010
     /*                                                                     LFT00020
        CSNI STANDARD PROBLEM NO.5  BY  ALARM-P1(MOD1)                      LFT00030
     /*                                                                     LFT00040
     /*  PROBLEM DIMENSION                                                  LFT00050
     /*                                                                     LFT00060
         -3  18  6  9  31  1  35  2  1  3  0  2  1  0  1  1  0  0.0         LFT00070
     /*                                                                     LFT00080
     /*  EDIT VARIABLE                                                      LFT00090
     /*                                                                     LFT00100
     AP  N1  AP  N10 AP  N15 AP  N21 AP  N22 AR  N1  AR  N10 AR  N15 AR  N21 LFT00110
     AP  N14 AP  N11 AP  N9  JW  J31 JW  J11 JW  J10 JW  J12 AP  N28 AP  N30 LFT00115
     /*                                                                     LFT00120
     /*  TIME STEP CONTROL                                                  LFT00130
     /*                                                                     LFT00140
         500     10     1     1000    0.00001          0.05                 LFT00150
         200     30     1      200    0.00005          0.30                 LFT00160
         500     20     1      100    0.0001           1.00                 LFT00170
         200     10     1       20    0.0005           5.00                 LFT00180
         500     10     1       10    0.001           20.00                 LFT00190
         500     20     1       10    0.001           80.00                 LFT00200
     /*  TRIP  CONTROL                                                      LFT00210
     /*                                                                     LFT00220
        1    1    0    0        60.0      0.0                               LFT00230
        1   -4    1    0         1.899E4  0.0                               LFT00240
     /*             ( TWO PUMPS )                                           LFT00256
       41    1    0    0         0.0      0.0                               LFT00260
       42    1    0    0         0.0      0.0                               LFT00270
     /*             ( LPIS INJECTION --- FILL SYSTEMS )                     LFT00271
       51    1    0    0       36.0      0.0                                LFT00272
     /*             ( HPIS INJECTION --- FILL SYSTEMS )                     LFT00273
       52    1    0    0       22.0      0.0                                LFT00274
     /*             ( ACC  INJECTION --- FILL SYSTEMS )                     LFT00275
        6   -4   28    0        43.14E4  0.0                                LFT00276
         7       1      0      0      0.0       0.0                         LFT00277
         8       1      0      0      0.0       0.0                         LFT00278
     /*                                                                     LFT00280
     /*  VOLUME DATA                                                        LFT00290
     /*                                                                     LFT00300
        0      0 160.7172995E+4 279.444   -1.0   0.13933   0.2840736        LFT00310
          0.2840736        0.06342      0.2840736      -0.1420368       0.0 LFT00320
        0      0 160.6821378E+4 280.000   -1.0   0.06853   0.2840736        LFT00330
          0.2840736        0.06342      0.2840736      -0.1420368       0.0 LFT00340
        0      0 160.5977496E+4 280.556   -1.0   0.16567   0.384048         LFT00350
          0.384048         0.06342      0.2840736      -0.1420368       0.0 LFT00360
        1      0 160.3516174E+4 280.000   -1.0   0.70517   3.429            LFT00370
          3.429            0.15107      0.0102108       0.0950976      3.56 LFT00380
        0      0 159.8593530E+4 279.444   -1.0   0.70517   3.429            LFT00390
          3.429            0.15107      0.0102108       0.0950976      3.56 LFT00400
```

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ALARM-P (VERSION 1)       PWR  LOSS OF COOLANT ANALYSIS PROGRAM

                          *****     LISTING OF INPUT DATA     *****

     ....*....1....*....2....*....3....*....4....*....5....*....6....*....7....*....8

        0      0 159.7046413E+4 278.889   -1.0   0.17473   1.685544         LFT00410
          1.685544         0.06342      0.2840736      -1.4121384       0.0 LFT00420
        0      1 160.6962025E+4 279.444   -1.0   0.19413   1.5200376        LFT00430
          1.5200376        0.06342      0.2840736      -1.4121384       0.0 LFT00440
           177.437                                                          LFT00445
        0      1 160.6962025E+4 279.444   -1.0   0.22755   1.5200376        LFT00450
          1.5200376        0.06342      0.2840736      -1.4121384       0.0 LFT00460
           177.437                                                          LFT00465
        0      0 161.3853727E+4 279.444   -1.0   0.11385   0.2840736        LFT00470
          0.2840736        0.06342      0.2840736      -0.1420368       0.0 LFT00480
        0      0 161.3502109E+4 279.444   -1.0   0.14981   0.2840736        LFT00490
          0.2840736        0.06342      0.2840736      -0.1420368       0.0 LFT00500
        1      0 161.4064697E+4 280.556   -1.0   0.94306   5.1703224        LFT00510
          5.1703224        0.18236      0.0493776      -4.255008        0.0 LFT00520
        0      0 161.4978902E+4 280.556   -1.0   0.64315   0.8238744        LFT00530
          0.8238744        0.78055      0.9970008      -4.988052        0.0 LFT00540
        0      0 161.2587904E+4 280.000   -1.0   0.91474   3.5317176        LFT00550
          3.5317176        0.25901      0.5742432      -4.1641776       0.0 LFT00560
        1      0 160.8438818E+4 279.444   -1.0   0.30869   1.5325344        LFT00570
          1.5325344        0.23067      0.5419344      -0.63246         0.0 LFT00580
        0      0 160.7172995E+4 279.444   -1.0   0.16406   0.2840736        LFT00590
          0.2840736        0.06342      0.2840736      -0.1420368       0.0 LFT00600
        0      0 160.6118143E+4 279.444   -1.0   0.01269   0.7690104        LFT00610
          0.7690104        0.00836      0.1033272      -0.0515112       0.0 LFT00620
        0      0 160.5063291E+4 276.667   -1.0   0.33672   2.8882848        LFT00630
          2.8882848        0.10563      0.3666744       0.7174992       0.0 LFT00640
        0      0 160.7172995E+4 276.667   -1.0   0.33672   2.8882848        LFT00650
          2.8882848        0.10563      0.3666744       0.7174992       0.0 LFT00660
        0      0 160.9353023E+4 273.889   -1.0   0.04996   2.07264          LFT00670
          2.07264          0.02564      0.1807464      -1.354836        0.0 LFT00680
        0      0 160.7172995E+4 272.222   -1.0   0.01575   1.2643104        LFT00690
          1.2643104        0.00836      0.10333        -1.2643104       0.0 LFT00700
        0      0 161.3502109E+4 280.556   -1.0   0.13857   0.2840736        LFT00710
          0.2840736        0.06342      0.2840736      -0.1420368       0.0 LFT00720
        1      0 160.5344585E+4 342.778    0.0   0.96288   1.703344         LFT00730
          1.1454384        0.56520      0.847344        1.1539728       0.0 LFT00740
        0      0 160.6469760E+4 300.000   -1.0   0.00634   1.0308336        LFT00750
          1.0308336        0.00145      0.0429768       0.1420368       0.0 LFT00760
        0      0 160.6540084E+4 276.667   -1.0   0.16576   0.8619744        LFT00770
          0.8619744        0.03883      0.2221992      -0.11113008      0.0 LFT00780
        0      0 161.2869198E+4 276.667   -1.0   0.19235   0.6074664        LFT00790
          0.6074664        0.03883      0.2221992       0.1420368       0.0 LFT00800
        0      0 159.3811533E+4 272.222   -1.0   0.00408   0.10320528       LFT00830
       0.10320528   0.00836   0.10320528   -0.0515112   0.0                 LFT00832
      0   0 160.5907172E+4  320.000   -1.0  0.00634   0.2023872             LFT00834
        0.2023872  0.00144   0.042672       1.1298936   0.0                 LFT00836
     /*  ECCS                                                               LFT00844
     /*  (VOL=28)  ACC LINE NEAR COLD-LEG                                   LFT00845
        0      0 161.3375359E+4 254.444   -1.0   0.03398   0.04443984       LFT00846
          0.04443984       0.006207     0.08890         0.1420368       0.0 LFT00847
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ALARM-P (VERSION 1)       PWR  LOSS OF COOLANT ANALYSIS PROGRAM

                     *****    LISTING OF INPUT DATA     *****

  NO.      ....*....1....*....2....*....3....*....4....*....5....*....6....*....7....*....8

  101      /*   (VOL=29)  ACC LINE NEAR ACC TANK (CONTAINS STANDPIPE )                LFT00848
  102          0     0  43.1364276E+4  33.333   -1.0   0.3285    0.7705344            LFT00849
  103            0.7705344      0.006207    0.08890        0.18647664          0.0  LFT00850
  104      /*   (VOL=30)  ACC TANK                                                    LFT00851
  105          1     0  43.1364276E+4  33.333    0.0   3.6816    2.919984             LFT00852
  106            1.999          1.2607      1.267          0.18647664          0.0  LFT00853
  107        0   0   1.0407876E+4  83.889    0.0  104.809   4.9054512               LFT00854
  108         2.871216      21.367       5.21208    -4.13004   0.0                   LFT00855
  109      /*                                                                         LFT00856
  110      /*     BUBBLE DATA                                                         LFT00860
  111      /*                                                                         LFT00870
  112               0.8      0.9144                                                   LFT00880
  113      /*                                                                         LFT00890
  114      /*     PUMP DATA                                                           LFT00900
  115      /*                                                                         LFT00910
  116             11  12  13  17  11   7  10  17  2                                   LFT00920
  117             0.0   1.0E-5  620.775  124.648  0.3154  369.661 10.232  0.363  0.0LFT00930
  118      /*                                                                         LFT00940
  119      /*     HEAD                                                                LFT00950
  120      /*                                                                         LFT00960
  121        -1.0       2.4722    -0.80574   2.0474    -0.6069   1.831                LFT00970
  122        -0.40683   1.624     -0.200171  1.4705     0.0      1.4036               LFT00980
  123         0.19061   1.3636     0.38963   1.3186     0.59396  1.2328               LFT00990
  124         0.7902    1.1336     1.0       1.0078                                   LFT01000
  125      /*                                                                         LFT01010
  126        -1.0      -1.0       -0.80     -0.63      -0.60    -0.30                 LFT01020
  127        -0.40     -0.05      -0.20      0.15       0.0      0.25                 LFT01030
  128         0.20      0.26       0.40      0.34       0.4118   0.2768               LFT01040
  129         0.59763   0.4584     0.763467  0.6992     1.0      0.9465               LFT01050
  130      /*                                                                         LFT01060
  131        -1.0      -1.0       -0.80     -0.97      -0.60    -0.95                 LFT01070
  132        -0.40     -0.88      -0.20     -0.60       0.0     -0.67                 LFT01080
  133         0.20     -0.50       0.40     -0.25       0.57554  0.0                  LFT01090
  134         0.74432   0.2583     0.77348   0.3778     0.86313  0.6326               LFT01100
  135         1.0       1.0078                                                        LFT01110
  136      /*                                                                         LFT01120
  137        -1.0       2.4722    -0.82297   1.9968    -0.63332  1.5897               LFT01130
  138        -0.45534   1.3279    -0.27109   1.1949    -0.17716  1.0605               LFT01140
  139        -0.09073   1.0156     0.0       0.934279   0.091099 0.9229               LFT01150
  140         0.186509 0.8963     0.271762  0.875      0.455872 0.8433               LFT01160
  141         0.574406 0.8355     0.740576  0.8466     0.766619 0.8469               LFT01170
  142         0.871471 0.8838     1.0       0.9465                                   LFT01180
  143      /*                                                                         LFT01190
  144      /*     TORQUE                                                              LFT01200
  145      /*                                                                         LFT01210
  146        -1.0       1.9843    -0.80096   1.394     -0.60638  1.0975               LFT01220
  147        -0.40686   0.622     -0.19928   0.6648     0.0      0.6032               LFT01230
  148         0.1930    0.6325     0.393     0.7369     0.59552  0.8331               LFT01240
  149         0.79782   0.9229     1.0       0.9672                                   LFT01250
  150      /*                                                                         LFT01260
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ALARM-P (VERSION 1)       PWR  LOSS OF COOLANT ANALYSIS PROGRAM

                     *****    LISTING OF INPUT DATA     *****

  NO.      ....*....1....*....2....*....3....*....4....*....5....*....6....*....7....*....8

  151        -1.0      -1.0       -0.30     -0.90      -0.10    -0.50                 LFT01270
  152         0.0      -0.45       0.40     -0.25       0.50     0.0                  LFT01280
  153         1.0       0.3569                                                        LFT01290
  154      /*                                                                         LFT01300
  155        -1.0      -1.0       -0.25     -0.90      -0.08    -0.80                 LFT01310
  156         0.0      -0.67       0.40     -0.25       0.50     0.15                 LFT01320
  157         0.737255 0.526586   0.768049  0.606594   0.86723  0.74366              LFT01330
  158         1.0       0.9672                                                        LFT01340
  159      /*                                                                         LFT01350
  160        -1.0       1.9843    -0.82234   1.8308    -0.63371  1.6824               LFT01360
  161        -0.45853   1.557     -0.267023  1.4362    -0.176107 1.3879               LFT01370
  162        -0.08931   1.3481     0.0       1.23361    0.090643 1.1965               LFT01380
  163         0.188569 1.1096     0.27347   1.0416     0.458669 0.8958               LFT01390
  164         0.57448   0.7807     0.73816   0.6134     0.76852  0.5849               LFT01400
  165         0.870057 0.4877     1.0       0.3569                                   LFT01410
  166      /*                                                                         LFT01420
  167         0.0       0.0        1.E+8     0.0                                      LFT01430
  168      /*                                                                         LFT01440
  169      /*     JUNCTION  DATA                                                      LFT01450
  170      /*                                                                         LFT01460
  171           1     2    0    0    0    1   268.400   0.06342     0.0          0.0  LFT01470
  172                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01480
  173           2     3    0    0    0    1   268.400   0.06342     0.0          0.0  LFT01490
  174                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01500
  175           3     4    0    0    0    1   268.400   0.05169     0.2420112    0.0  LFT01510
  176                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01520
  177           4     5    0    0    0    1   268.400   0.15143     3.057144     0.0  LFT01530
  178                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01540
  179           5     6    0    0    0    1   268.400   0.05169     0.2734056    0.0  LFT01550
  180                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01560
  181           6     7   -1    0    0    1   134.200   0.06342    -1.2701016    0.0  LFT01570
  182                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01580
  183           6     8   -2    0    0    1   134.200   0.06342    -1.2701016    0.0  LFT01590
  184                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01600
  185           7     9    1    0    0    1   134.200   0.03661     0.0          0.0  LFT01610
  186                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01620
  187           8     9    2    0    0    1   134.200   0.03661     0.0          0.0  LFT01630
  188                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01640
  189           9    10    0    0    0    1   268.400   0.06342     0.0          0.0  LFT01650
  190                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01660
  191          10    11    0    0    0    1   268.400   0.06342     0.0          0.0  LFT01670
  192                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01680
  193          11    12    0    0    0    1   268.400   0.17094    -4.255008     0.0  LFT01690
  194                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01700
  195          12    13    0    0    0    1   268.400   0.26254    -4.1641776    0.0  LFT01710
  196                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01720
  197          13    14    0    0    0    1   268.400   0.04779    -0.63246      0.0  LFT01730
  198                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01740
  199          14     1    0    0    0    1   268.400   0.06342     0.0          0.0  LFT01750
  200                        1.0E-5   1.0E-5   0.0    0.85     0.0                    LFT01760
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ALARM-P (VERSION 1)        PWR  LOSS OF COOLANT ANALYSIS PROGRAM

                    *****    LISTING OF INPUT DATA     *****

 NO.        ....*....1....*....2....*....3....*....4....*....5....*....6....*....7....*....8

 201           14   15   0   0   0   1      0.0      0.06342     0.0            0.0    LFT01770
 202              0.0      0.0      0.0   0.85   0.0                                     LFT01780
 203           24   15   0   0   0   1      0.0      0.03880     0.0            0.0    LFT01790
 204                      0.5      0.5   0.0   0.85   0.0                              LFT01800
 205           15   16   0   0   0   1      0.0      0.00836     0.0            0.0    LFT01810
 206              0.0      0.0      0.0   0.85   0.0                                     LFT01820
 207           16   17   0   0   0   1      0.0      0.00836     0.7174992      0.0    LFT01830
 208                      1.52     1.09  0.0   0.85   0.0                              LFT01840
 209           17   18   0   0   0   1      0.0      0.01914     3.4222944      0.0    LFT01850
 210                      7.02     7.02  0.0   0.85   0.0                              LFT01860
 211           18   19   0   0   0   1      0.0      0.00836     0.7174992      0.0    LFT01870
 212                      1.09     1.52  0.0   0.85   0.0                              LFT01880
 213           19   20   0   0   0   1      0.0      0.00836    -1.2127992      0.0    LFT01890
 214                     17.10    17.10  0.0   0.85   0.0                              LFT01900
 215           20   31   0   2   0   1      0.0      0.00836     0.0            0.0    LFT01910
 216                  0.0      0.0     0.0      0.85     0.60                          LFT01920
 217           11   21   0   0   0   1      0.0      0.06342     0.0            0.0    LFT01930
 218                0.0      0.0      0.0      0.85    0.0                             LFT01940
 219           25   21   0   0   0   1      0.0      0.03880     0.1420368      0.0    LFT01950
 220                      0.5      0.5   0.0   0.85   0.0                              LFT01960
 221           21   26   0   0   0   1      0.0      0.00836     0.0            0.0    LFT01970
 222                0.0      0.0      0.0      0.85    0.0                             LFT01980
 223           22   27   0   0   0   1      0.0      0.00468     1.2743688      0.0    LFT01990
 224                0.0      0.0      0.0      0.85    0.60                            LFT02000
 225           23    2   0   0   0   1      0.0      0.00145     0.1420368      0.0    LFT02010
 226                      0.95     0.44  0.0   0.85   0.60                             LFT02020
 227           26   31   0   3   0   1      0.0      0.00836     0.0            0.0    LFT02030
 228              0.0      0.0      0.0      0.85    0.60                              LFT02031
 229           27   23   0   0   0   1      0.0      0.00145     1.1515344      0.0    LFT02032
 230                      9.00     9.00  0.0   0.85   0.60                             LFT02033
 231        /*   ECC WATER INLET JUNCTION  (J=31)                                      LFT02034
 232           28   10   0   0   2   1      0.0      0.00599     0.1420368      0.0    LFT02035
 233                1.0   1.0   0.0     0.85   -1.0                                    LFT02036
 234        /*   ( ACC CHECK VALVE )  (J=32)                                           LFT02037
 235           29   28   0   1   0   1      0.0      0.00599     0.18647664     0.0    LFT02038
 236                     34.20   34.20  0.0   0.85   -1.0                              LFT02039
 237        /*    TOP OF STANDPIPE  (J=33)                                             LFT02040
 238           30   29   0   0_  0   1      0.0      0.00621     0.95701104     0.0    LFT02041
 239                     38.50   38.50  0.0   0.85   -1.0                              LFT02042
 240        /*   LPIS FILL JUNCTION (J=34)                                             LFT02043
 241            0   28   1   0   0   1      0.0      0.00599     0.1642567      0.0    LFT02044
 242                      1.00   1.0   0.0   0.85   0.60                               LFT02045
 243        /*   HPIS FILL JUNCTION (J=35)                                             LFT02046
 244            0   28   2   0   0   1      0.0      0.00599     0.1642567      0.0    LFT02047
 245                      1.00   1.0   0.0   0.85   0.60                               LFT02048
 246        /*                                                                         LFT02050
 247        /*                                                                         LFT02054
 248        /*   CHECK VALVE DATA                                                      LFT02055
 249        /*                                                                         LFT02056
 250            -6    0.0   0.0    0.0   0.0                                           LFT02057
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ALARM-P (VERSION 1)        PWR  LOSS OF COOLANT ANALYSIS PROGRAM

                    *****    LISTING OF INPUT DATA     *****

 NO.        ....*....1....*....2....*....3....*....4....*....5....*....6....*....7....*....8

 251            -7    0.0    0.0    0.0    0.0                                         LFT02060
 252            -8    0.0    0.0    0.0    0.0                                         LFT02065
 253        /*                                                                         LFT02090
 254        /*      FILL TABLE DATA                                                    LFT02091
 255        /*      ( LPIS INJECTION )                                                 LFT02092
 256             8    1    7.03E+4   26.0                                              LFT02093
 257               0.0   10.81   28124.0    10.0   56248.0  8.861                      LFT02094
 258           84372.0    7.541 112496.0    5.719 140620.0 2.954                       LFT02095
 259          160307.0    0.0    100.E+4     0.0                                       LFT02096
 260        /*      ( HPIS INJECTION )                                                 LFT02097
 261            2    1    7.03E+4   26.0                                               LFT02098
 262              70.31   1.081        2109300.0    1.081                              LFT02099
 263        /*                                                                         LFT02100
 264        /*   HEAT SLAB DATA                                                        LFT02105
 265        /*                                                                         LFT02110
 266            0   11  1    0.0   76.206    13.6644    0.0   0.0                      LFT02120
 267        /*                                                                         LFT02130
 268        /*   SLAB GEOMETRY DATA                                                    LFT02140
 269        /*                                                                         LFT02150
 270            1   1  0  1   5    0.2560   0.0   0.0                                  LFT02160
 271        /*                                                                         LFT02170
 272        /*   MATERIAL THERMAL PROPERTY DATA                                        LFT02180
 273        /*                                                                         LFT02190
 274        /*   SS304  THERMAL CONDUCTIVITY                                           LFT02200
 275        /*                                                                         LFT02210
 276            2                                                                      LFT02220
 277            100.0    3.95725E-3    1300.0     7.97485E-3                           LFT02230
 278        /*                                                                         LFT02240
 279        /*   SS304  HEAT CAPACITY                                                  LFT02250
 280        /*                                                                         LFT02260
 281            13                                                                     LFT02270
 282            76.667    712.1265   121.111  710.0256   204.444   712.5495            LFT02280
 283           315.556    727.0415   426.667  751.3452   537.778   782.2920            LFT02290
 284           648.889    816.7132   760.000  851.4400   871.111   883.3040            LFT02300
 285           982.222    909.1364  1093.333  925.7688  1204.444   930.0322            LFT02310
 286          1315.556    918.7580                                                     LFT02320
 287        /*                                                                         LFT02330
 288        /*   GAP CONDUCTANCE  DATA                                                 LFT02340
 289        /*                                                                         LFT02350
 290            2                                                                      LFT02360
 291            0.0   0.0    1000.0   0.0                                              LFT02370
 292        /*                                                                         LFT02380
 293        /*   END  OF DATA                                                          LFT02390

                              END OF INPUT DATA
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Appendix 3. Output Data List of RELAP-4J Analysis

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

PUMP SPEED

TIME	(RDE-PC-1) PUMP1	(RDE-PC-2) PUMP2
SEC	RPM	RPM
0.0	1.694400E+03	1.787000E+03
0.020	1.691910E+03	1.784170E+03
0.040	1.689640E+03	1.781450E+03
0.060	1.687170E+03	1.778600E+03
0.080	1.684710E+03	1.775780E+03
0.100	1.682260E+03	1.772990E+03
0.200	1.669810E+03	1.759020E+03
0.300	1.657430E+03	1.745300E+03
0.400	1.645140E+03	1.731770E+03
0.500	1.633070E+03	1.758480E+03
0.600	1.621200E+03	1.705440E+03
0.700	1.609500E+03	1.692590E+03
0.800	1.597960E+03	1.679930E+03
1.000	1.575250E+03	1.655010E+03
1.200	1.553220E+03	1.630730E+03
1.400	1.531860E+03	1.607130E+03
1.600	1.511010E+03	1.584310E+03
1.800	1.492830E+03	1.563760E+03
2.000	1.474430E+03	1.542750E+03
2.500	1.431250E+03	1.495110E+03
3.000	1.396970E+03	1.455270E+03
3.500	1.376640E+03	1.430150E+03
4.000	1.362450E+03	1.414150E+03
4.500	1.349780E+03	1.400030E+03
5.000	1.338020E+03	1.386990E+03
5.500	1.327380E+03	1.375030E+03
6.000	1.317030E+03	1.363480E+03
6.500	1.307480E+03	1.352740E+03
7.000	1.298260E+03	1.342390E+03
9.500	1.259590E+03	1.298490E+03
12.000	1.228990E+03	1.263540E+03
14.500	1.204470E+03	1.235310E+03
17.000	1.183570E+03	1.211410E+03
19.500	1.165830E+03	1.190990E+03
20.000	1.162600E+03	1.187240E+03
22.500	1.147670E+03	1.169850E+03
25.000	1.133670E+03	1.153610E+03
27.500	1.120900E+03	1.138980E+03
30.000	1.108850E+03	1.124950E+03
32.000	1.100170E+03	1.114640E+03
34.500	1.090660E+03	1.102850E+03
37.000	1.082770E+03	1.091840E+03
39.500	1.077430E+03	1.082820E+03
42.000	1.076890E+03	1.087840E+03
44.500	1.080080E+03	1.077970E+03
47.000	1.085340E+03	1.078860E+03
49.500	1.091690E+03	1.080770E+03
52.000	1.099800E+03	1.084260E+03
54.500	1.108100E+03	1.087980E+03
57.000	1.116660E+03	1.092010E+03
57.967	1.129510E+03	1.101680E+03

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TEMPERATURE

TIME	(TE-CS-1) AT14	(TE-PC-1) AT10	(TE-BL-1) AT21	(TE-BL-2) AT15	(TE-1ST-1, TE-1ST-4, TE-1ST-7, TE-1ST-9, TE-1ST-13, TE-2ST-1, TE-2ST-4, TE-2ST-7) AT11	TE*P120-62 AT29	TE-SV-6 AT26
SEC	C	C	C	C	C	C	C
0.0	2.794444E+02	2.794444E+02	2.805556E+02	2.794444E+02	2.805556E+02	2.544444E+02	8.388889E+01
0.070	2.777475E+02	2.775198E+02	2.785500E+02	2.777598E+02	2.787030E+02	2.529229E+02	8.401756E+01
0.140	2.764684E+02	2.767382E+02	2.773900E+02	2.763934E+02	2.774384E+02	2.520363E+02	8.413144E+01
0.210	2.763504E+02	2.761865E+02	2.771558E+02	2.762475E+02	2.774034E+02	2.520547E+02	8.420654E+01
0.280	2.763643E+02	2.761907E+02	2.774039E+02	2.762392E+02	2.774094E+02	2.521012E+02	8.427279E+01
0.350	2.763654E+02	2.761883E+02	2.772576E+02	2.762321E+02	2.774838E+02	2.521242E+02	8.433821E+01
0.420	2.763961E+02	2.761925E+02	2.773983E+02	2.762457E+02	2.774796E+02	2.521243E+02	8.440331E+01
0.490	2.764245E+02	2.761924E+02	2.774529E+02	2.762618E+02	2.774671E+02	2.521206E+02	8.446838E+01
0.560	2.764357E+02	2.761927E+02	2.771342E+02	2.762626E+02	2.774866E+02	2.521206E+02	8.453309E+01
0.630	2.764445E+02	2.761906E+02	2.774065E+02	2.762638E+02	2.774359E+02	2.521209E+02	8.459763E+01
0.700	2.764607E+02	2.761897E+02	2.771187E+02	2.762706E+02	2.774331E+02	2.521209E+02	8.466202E+01
0.770	2.764838E+02	2.761884E+02	2.772091E+02	2.762844E+02	2.773832E+02	2.521201E+02	8.472598E+01
0.840	2.765082E+02	2.761378E+02	2.771650E+02	2.763017E+02	2.773427E+02	2.521194E+02	8.478980E+01
0.910	2.765276E+02	2.761677E+02	2.770601E+02	2.763115E+02	2.773106E+02	2.521190E+02	8.485319E+01
0.980	2.765452E+02	2.761690E+02	2.772208E+02	2.763246E+02	2.772496E+02	2.521174E+02	8.491648E+01
1.050	2.765595E+02	2.761938E+02	2.769082E+02	2.763345E+02	2.772344E+02	2.521171E+02	8.497944E+01
1.120	2.765708E+02	2.761990E+02	2.771146E+02	2.763438E+02	2.771706E+02	2.521157E+02	8.504222E+01
1.190	2.765819E+02	2.762077E+02	2.768553E+02	2.763535E+02	2.771553E+02	2.521148E+02	8.510484E+01
1.260	2.765919E+02	2.762186E+02	2.769875E+02	2.763633E+02	2.771019E+02	2.521135E+02	8.516729E+01
1.330	2.766019E+02	2.762329E+02	2.768012E+02	2.763735E+02	2.770818E+02	2.521126E+02	8.522968E+01
1.400	2.766114E+02	2.762497E+02	2.768812E+02	2.763841E+02	2.770361E+02	2.521116E+02	8.529191E+01
1.470	2.766199E+02	2.762701E+02	2.767584E+02	2.763941E+02	2.770118E+02	2.521108E+02	8.535410E+01
1.540	2.766281E+02	2.762938E+02	2.768166E+02	2.764042E+02	2.769692E+02	2.521099E+02	8.541615E+01
1.610	2.766357E+02	2.763234E+02	2.766881E+02	2.764140E+02	2.769472E+02	2.521112E+02	8.547815E+01
1.680	2.766432E+02	2.763565E+02	2.766950E+02	2.764239E+02	2.769237E+02	2.521134E+02	8.554002E+01
1.750	2.766508E+02	2.764013E+02	2.766290E+02	2.764342E+02	2.769309E+02	2.521167E+02	8.560186E+01
1.820	2.766586E+02	2.764388E+02	2.769309E+02	2.764444E+02	2.769184E+02	2.521145E+02	8.566372E+01
1.890	2.766514E+02	2.764923E+02	2.767541E+02	2.764517E+02	2.769365E+02	2.521098E+02	8.572580E+01
1.960	2.766199E+02	2.765411E+02	2.768824E+02	2.764510E+02	2.768938E+02	2.521076E+02	8.578771E+01
2.150	2.765603E+02	2.766786E+02	2.766325E+02	2.764458E+02	2.767629E+02	2.521069E+02	8.595535E+01
2.500	2.764577E+02	2.766880E+02	2.765612E+02	2.764093E+02	2.766730E+02	2.521092E+02	8.626173E+01
2.850	2.763577E+02	2.762390E+02	2.765501E+02	2.763303E+02	2.765553E+02	2.520972E+02	8.656680E+01
3.200	2.763016E+02	2.765798E+02	2.758676E+02	2.761881E+02	2.764327E+02	2.521068E+02	8.686988E+01
3.550	2.761734E+02	2.759438E+02	2.760513E+02	2.762520E+02	2.762742E+02	2.520916E+02	8.716892E+01
3.900	2.759737E+02	2.761544E+02	2.755227E+02	2.758172E+02	2.761795E+02	2.520980E+02	8.746618E+01
4.250	2.758396E+02	2.755589E+02	2.762349E+02	2.760173E+02	2.760049E+02	2.520847E+02	8.776190E+01
4.600	2.759001E+02	2.761771E+02	2.746727E+02	2.755331E+02	2.760251E+02	2.521037E+02	8.805566E+01
4.950	2.756087E+02	2.754194E+02	2.755090E+02	2.756251E+02	2.757636E+02	2.520674E+02	8.834673E+01
5.300	2.753899E+02	2.751271E+02	2.771588E+02	2.757256E+02	2.754343E+02	2.520842E+02	8.863309E+01
5.650	2.752582E+02	2.754579E+02	2.738888E+02	2.753784E+02	2.755480E+02	2.520974E+02	8.891591E+01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TEMPERATURE

	(TE-CS-1)	(TE-PC-1)	(TE-BL-1)	(TE-BL-2)	(TE-1ST-1, TE-1ST-4, TE-1ST-7, TE-1ST-9, TE-1ST-13, TE-2ST-1, TE-2ST-4, TE-2ST-7)	TE-P120-62	TE-SV-6
TIME	AT14	AT10	AT21	AT15	AT11	AT29	AT26
SEC	C	C	C	C	C	C	C
6.000	2.751259E+02	2.756644E+02	2.760180E+02	2.751088E+02	2.750087E+02	2.521070E+02	8.919360E+01
6.350	2.747976E+02	2.749764E+02	2.747034E+02	2.747537E+02	2.749082E+02	2.520942E+02	8.946847E+01
6.700	2.746274E+02	2.746935E+02	2.746187E+02	2.746031E+02	2.745619E+02	2.520695E+02	8.974014E+01
7.050	2.744726E+02	2.744374E+02	2.738407E+02	2.744579E+02	2.744234E+02	2.520672E+02	9.001227E+01
7.400	2.741466E+02	2.741318E+02	2.741036E+02	2.741282E+02	2.742990E+02	2.520810E+02	9.028157E+01
7.750	2.738632E+02	2.737866E+02	2.734878E+02	2.738290E+02	2.740913E+02	2.520733E+02	9.054999E+01
8.100	2.737536E+02	2.737220E+02	2.736067E+02	2.737312E+02	2.738214E+02	2.520747E+02	9.081651E+01
8.450	2.734315E+02	2.732199E+02	2.733391E+02	2.733659E+02	2.735839E+02	2.520637E+02	9.108173E+01
8.800	2.733314E+02	2.732384E+02	2.729355E+02	2.732871E+02	2.733631E+02	2.520666E+02	9.134493E+01
9.150	2.730017E+02	2.729665E+02	2.730148E+02	2.730250E+02	2.731149E+02	2.520618E+02	9.160577E+01
9.500	2.726489E+02	2.727102E+02	2.722713E+02	2.728054E+02	2.729523E+02	2.520569E+02	9.186344E+01
9.850	2.725407E+02	2.727713E+02	2.720988E+02	2.725532E+02	2.727016E+02	2.520620E+02	9.211760E+01
10.200	2.722610E+02	2.723202E+02	2.744042E+02	2.722520E+02	2.720741E+02	2.520553E+02	9.236528E+01
10.550	2.719426E+02	2.719279E+02	2.731895E+02	2.718928E+02	2.718489E+02	2.520492E+02	9.260857E+01
10.900	2.715436E+02	2.713266E+02	2.697309E+02	2.715330E+02	2.717869E+02	2.520374E+02	9.284772E+01
11.250	2.712477E+02	2.711127E+02	2.697446E+02	2.711909E+02	2.712737E+02	2.520355E+02	9.308185E+01
11.600	2.709329E+02	2.709500E+02	2.721481E+02	2.709116E+02	2.707682E+02	2.520362E+02	9.331241E+01
11.950	2.705212E+02	2.702369E+02	2.706493E+02	2.704968E+02	2.705734E+02	2.520228E+02	9.353935E+01
12.300	2.701342E+02	2.699034E+02	2.676535E+02	2.701073E+02	2.703431E+02	2.520206E+02	9.376232E+01
12.650	2.697327E+02	2.700580E+02	2.687306E+02	2.697057E+02	2.698450E+02	2.520342E+02	9.398025E+01
13.000	2.693063E+02	2.689171E+02	2.710760E+02	2.692791E+02	2.692145E+02	2.520155E+02	9.419505E+01
13.350	2.687920E+02	2.689447E+02	2.668697E+02	2.687661E+02	2.689385E+02	2.520262E+02	9.440457E+01
13.700	2.682666E+02	2.678662E+02	2.659263E+02	2.682395E+02	2.684031E+02	2.520089E+02	9.461007E+01
14.050	2.676759E+02	2.673828E+02	2.663204E+02	2.675737E+02	2.677375E+02	2.520040E+02	9.480987E+01
14.400	2.669719E+02	2.669627E+02	2.677323E+02	2.670639E+02	2.669647E+02	2.519943E+02	9.500272E+01
14.750	2.664048E+02	2.660496E+02	2.659285E+02	2.657171E+02	2.661906E+02	2.519765E+02	9.519079E+01
15.100	2.653936E+02	2.652718E+02	2.651454E+02	2.658661E+02	2.654377E+02	2.519592E+02	9.537315E+01
15.450	2.647696E+02	2.645178E+02	2.643792E+02	2.641820E+02	2.646891E+02	2.519425E+02	9.555137E+01
15.800	2.639916E+02	2.637367E+02	2.635917E+02	2.633557E+02	2.639122E+02	2.519259E+02	9.572620E+01
16.150	2.628831E+02	2.629237E+02	2.627837E+02	2.637481E+02	2.630906E+02	2.519104E+02	9.589806E+01
16.500	2.625366E+02	2.621073E+02	2.619784E+02	2.613748E+02	2.622727E+02	2.518950E+02	9.606730E+01
16.850	2.612990E+02	2.613154E+02	2.611808E+02	2.621974E+02	2.614807E+02	2.518801E+02	9.623425E+01
17.200	2.607792E+02	2.605216E+02	2.603805E+02	2.603439E+02	2.606865E+02	2.518654E+02	9.639899E+01
17.550	2.596394E+02	2.597176E+02	2.595767E+02	2.600272E+02	2.598787E+02	2.518506E+02	9.656153E+01
17.900	2.591031E+02	2.589191E+02	2.587798E+02	2.590070E+02	2.590786E+02	2.518361E+02	9.672185E+01
18.250	2.593820E+02	2.581107E+02	2.579743E+02	2.580099E+02	2.582705E+02	2.518215E+02	9.687989E+01
18.600	2.574570E+02	2.573016E+02	2.571640E+02	2.574151E+02	2.574562E+02	2.518070E+02	9.703546E+01
18.950	2.565341E+02	2.564317E+02	2.563445E+02	2.569467E+02	2.566354E+02	2.517925E+02	9.718871E+01
19.300	2.557016E+02	2.556530E+02	2.555136E+02	2.560656E+02	2.558031E+02	2.517779E+02	9.733958E+01
19.650	2.549634E+02	2.548174E+02	2.546787E+02	2.549231E+02	2.549650E+02	2.517634E+02	9.748800E+01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TEMPERATURE

	(TE-CS-1)	(TE-PC-1)	(TE-BL-1)	(TE-BL-2)	(TE-1ST-1, TE-1ST-4, TE-1ST-7, TE-1ST-9, TE-1ST-13, TE-2ST-1, TE-2ST-4, TE-2ST-7)	TE-P120-62	TE-SV-6
TIME	AT14	AT10	AT21	AT15	AT11	AT29	AT26
SEC	C	C	C	C	C	C	C
20.000	2.541491E+02	2.539749E+02	2.538367E+02	2.541057E+02	2.541197E+02	2.517488E+02	9.763395E+01
20.350	2.534559E+02	2.531273E+02	2.529865E+02	2.527870E+02	2.532701E+02	2.513173E+02	9.777740E+01
20.700	2.523620E+02	2.522749E+02	2.521355E+02	2.525221E+02	2.524142E+02	2.466516E+02	9.791838E+01
21.050	2.514846E+02	2.514130E+02	2.512737E+02	2.517145E+02	2.515492E+02	2.342382E+02	9.805686E+01
21.400	2.505606E+02	2.505272E+02	2.503893E+02	2.508804E+02	2.506641E+02	2.147757E+02	9.819289E+01
21.750	2.497894E+02	2.495990E+02	2.494651E+02	2.495591E+02	2.497374E+02	1.917393E+02	9.832648E+01
22.100	2.488755E+02	2.486190E+02	2.484851E+02	2.483907E+02	2.487552E+02	1.678957E+02	9.845761E+01
22.450	2.476112E+02	2.475666E+02	2.474407E+02	2.480105E+02	2.477083E+02	1.446924E+02	9.858618E+01
22.800	2.465070E+02	2.464614E+02	2.463318E+02	2.469574E+02	2.465962E+02	1.242023E+02	9.871206E+01
23.150	2.453570E+02	2.452857E+02	2.451613E+02	2.457361E+02	2.454207E+02	1.065572E+02	9.883509E+01
23.500	2.440815E+02	2.440567E+02	2.439308E+02	2.446351E+02	2.441875E+02	9.163244E+01	9.895516E+01
23.850	2.429163E+02	2.427697E+02	2.426443E+02	2.433217E+02	2.428979E+02	7.921369E+01	9.907214E+01
24.200	2.416612E+02	2.414266E+02	2.413027E+02	2.412467E+02	2.415509E+02	6.902472E+01	9.918597E+01
24.550	2.401045E+02	2.400319E+02	2.399091E+02	2.404925E+02	2.401542E+02	6.077727E+01	9.929663E+01
24.900	2.391773E+02	2.319029E+02	2.388863E+02	2.395439E+02	2.391567E+02	5.423071E+01	9.940444E+01
25.250	2.381096E+02	2.222600E+02	2.379539E+02	2.387089E+02	2.381958E+02	4.911859E+01	9.950993E+01
25.600	2.371060E+02	2.133466E+02	2.369303E+02	2.373209E+02	2.371792E+02	4.516389E+01	9.961304E+01
25.950	2.360044E+02	2.058765E+02	2.357713E+02	2.358835E+02	2.360359E+02	4.211729E+01	9.971352E+01
26.300	2.348424E+02	1.979430E+02	2.345801E+02	2.348557E+02	2.348147E+02	3.978203E+01	9.981145E+01
26.650	2.335148E+02	1.901613E+02	2.332991E+02	2.341601E+02	2.335731E+02	3.800235E+01	9.990702E+01
27.000	2.322808E+02	1.829067E+02	2.321042E+02	2.326792E+02	2.323454E+02	3.665472E+01	1.000003E+02
27.350	2.311176E+02	1.763609E+02	2.308016E+02	2.305104E+02	2.310737E+02	3.564087E+01	1.000913E+02
27.700	2.295157E+02	1.702816E+02	2.294871E+02	2.291696E+02	2.297558E+02	3.488321E+01	1.001801E+02
28.050	2.284963E+02	1.645201E+02	2.281654E+02	2.278241E+02	2.284077E+02	3.432064E+01	1.002666E+02
28.400	2.270846E+02	1.590893E+02	2.267861E+02	2.268531E+02	2.270498E+02	3.390553E+01	1.003506E+02
28.750	2.255582E+02	1.540304E+02	2.253908E+02	2.261246E+02	2.256790E+02	3.360099E+01	1.004328E+02
29.100	2.243280E+02	1.493318E+02	2.240007E+02	2.240835E+02	2.242903E+02	3.337882E+01	1.005124E+02
29.450	2.229049E+02	1.449640E+02	2.225963E+02	2.228608E+02	2.228791E+02	3.321755E+01	1.005898E+02
29.800	2.215579E+02	1.408936E+02	2.211743E+02	2.211717E+02	2.214584E+02	3.310102E+01	1.006647E+02
30.150	2.201125E+02	1.371123E+02	2.197381E+02	2.199385E+02	2.200308E+02	3.301715E+01	1.007374E+02
30.500	2.187085E+02	1.335684E+02	2.182970E+02	2.183673E+02	2.185977E+02	3.295698E+01	1.008079E+02
30.850	2.172565E+02	1.302447E+02	2.168550E+02	2.170589E+02	2.171598E+02	3.291392E+01	1.008763E+02
31.200	2.153227E+02	1.271076E+02	2.154040E+02	2.155603E+02	2.157094E+02	3.288316E+01	1.009427E+02
31.550	2.143435E+02	1.241230E+02	2.139503E+02	2.143209E+02	2.142651E+02	3.286123E+01	1.010070E+02
31.900	2.129046E+02	1.212879E+02	2.124952E+02	2.128472E+02	2.128144E+02	3.284563E+01	1.010693E+02
32.250	2.114567E+02	1.185873E+02	2.110333E+02	2.113910E+02	2.113563E+02	3.283454E+01	1.011297E+02
32.600	2.100102E+02	1.160136E+02	2.095744E+02	2.099380E+02	2.099039E+02	3.282672E+01	1.011881E+02
32.950	2.085675E+02	1.135655E+02	2.081198E+02	2.084987E+02	2.084547E+02	3.282124E+01	1.012446E+02
33.300	2.071294E+02	1.112729E+02	2.066656E+02	2.070583E+02	2.070066E+02	3.281746E+01	1.012992E+02
33.650	2.056666E+02	1.091475E+02	2.052079E+02	2.056150E+02	2.055549E+02	3.281494E+01	1.013519E+02

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TEMPERATURE

	(TE-CS-1)	(TE-PC-1)	(TE-BL-1)	(TE-BL-2)	(TE-1ST-1, TE-1ST-4, TE-1ST-7, TE-1ST-9, TE-1ST-13, TE-2ST-1, TE-2ST-4, TE-2ST-7)	TE-P120-62	TE-SV-6
TIME	AT14	AT10	AT21	AT15	AT11	AT29	AT26
SEC	C	C	C	C	C	C	C
34.000	2.042480E+02	1.071936E+02	2.037550E+02	2.041766E+02	2.041075E+02	3.281339E+01	1.014027E+02
34.350	2.028188E+02	1.054102E+02	2.023074E+02	2.027509E+02	2.026671E+02	3.281257E+01	1.014517E+02
34.700	2.013976E+02	1.037960E+02	2.008695E+02	2.013524E+02	2.012358E+02	3.281233E+01	1.014989E+02
35.050	2.000405E+02	1.017980E+02	1.995276E+02	1.999633E+02	1.998899E+02	3.281256E+01	1.015444E+02
35.400	1.967009E+02	9.989639E+01	1.981283E+02	1.986268E+02	1.985195E+02	3.281304E+01	1.015885E+02
35.750	1.973282E+02	9.826829E+01	1.967514E+02	1.972595E+02	1.971341E+02	3.281360E+01	1.016311E+02
36.100	1.959558E+02	9.675722E+01	1.953247E+02	1.958962E+02	1.957197E+02	3.276906E+01	1.016724E+02
36.450	1.945021E+02	9.523921E+01	1.938558E+02	1.944369E+02	1.942651E+02	3.261671E+01	1.017123E+02
36.800	1.930401E+02	9.392769E+01	1.923706E+02	1.929730E+02	1.927930E+02	3.249139E+01	1.017508E+02
37.150	1.915643E+02	9.289124E+01	1.908700E+02	1.914935E+02	1.913040E+02	3.238352E+01	1.017880E+02
37.500	1.901015E+02	9.196956E+01	1.893709E+02	1.900361E+02	1.898205E+02	3.228972E+01	1.018238E+02
37.850	1.886612E+02	9.101738E+01	1.878974E+02	1.885886E+02	1.883608E+02	3.220898E+01	1.018582E+02
38.200	1.872023E+02	9.027367E+01	1.864054E+02	1.871264E+02	1.868835E+02	3.214162E+01	1.018913E+02
38.550	1.857788E+02	8.943430E+01	1.849432E+02	1.856989E+02	1.854358E+02	3.208389E+01	1.019231E+02
38.900	1.843685E+02	8.856943E+01	1.834898E+02	1.842998E+02	1.840040E+02	3.203336E+01	1.019536E+02
39.250	1.829687E+02	8.778186E+01	1.820479E+02	1.828924E+02	1.825800E+02	3.198983E+01	1.019828E+02
39.600	1.815855E+02	8.708397E+01	1.806127E+02	1.815109E+02	1.811636E+02	3.195221E+01	1.020109E+02
39.950	1.802201E+02	8.639670E+01	1.791970E+02	1.801471E+02	1.797726E+02	3.191890E+01	1.020378E+02
40.300	1.788652E+02	8.576590E+01	1.777910E+02	1.787969E+02	1.783885E+02	3.188880E+01	1.020636E+02
40.650	1.775296E+02	8.523690E+01	1.763997E+02	1.774727E+02	1.770212E+02	3.186231E+01	1.020883E+02
41.000	1.762042E+02	8.485645E+01	1.750007E+02	1.761498E+02	1.756563E+02	3.183947E+01	1.021120E+02
41.350	1.749026E+02	8.441460E+01	1.736511E+02	1.748182E+02	1.743253E+02	3.181926E+01	1.021347E+02
41.700	1.736322E+02	8.398742E+01	1.723200E+02	1.735533E+02	1.730175E+02	3.180097E+01	1.021565E+02
42.050	1.723778E+02	8.359304E+01	1.709974E+02	1.723038E+02	1.717261E+02	3.178416E+01	1.021773E+02
42.400	1.711436E+02	8.323183E+01	1.696919E+02	1.710728E+02	1.704512E+02	3.176886E+01	1.021973E+02
42.750	1.699008E+02	8.297655E+01	1.683989E+02	1.698306E+02	1.691895E+02	3.175487E+01	1.022164E+02
43.100	1.686879E+02	8.259945E+01	1.671473E+02	1.686233E+02	1.679632E+02	3.174198E+01	1.022348E+02
43.450	1.675057E+02	8.218384E+01	1.659100E+02	1.674441E+02	1.667441E+02	3.172994E+01	1.022525E+02
43.800	1.663525E+02	8.178439E+01	1.646738E+02	1.662940E+02	1.655284E+02	3.171856E+01	1.022695E+02
44.150	1.652095E+02	8.142487E+01	1.634523E+02	1.651546E+02	1.643346E+02	3.170773E+01	1.022858E+02
44.500	1.640643E+02	8.107056E+01	1.622594E+02	1.640131E+02	1.631756E+02	3.169632E+01	1.023015E+02
44.850	1.629249E+02	8.066650E+01	1.610996E+02	1.628748E+02	1.620496E+02	3.169042E+01	1.023165E+02
45.200	1.618087E+02	8.018466E+01	1.599652E+02	1.617602E+02	1.609401E+02	3.168349E+01	1.023309E+02
45.550	1.607319E+02	7.964359E+01	1.588417E+02	1.606846E+02	1.598333E+02	3.167721E+01	1.023448E+02
45.900	1.596927E+02	7.909758E+01	1.577213E+02	1.596443E+02	1.587297E+02	3.167137E+01	1.023581E+02
46.250	1.586702E+02	7.859189E+01	1.566019E+02	1.586221E+02	1.576403E+02	3.166585E+01	1.023709E+02
46.600	1.576492E+02	7.812287E+01	1.555033E+02	1.576058E+02	1.565868E+02	3.166059E+01	1.023831E+02
46.950	1.565993E+02	7.762545E+01	1.544576E+02	1.565516E+02	1.555811E+02	3.165559E+01	1.023948E+02
47.300	1.555707E+02	7.704873E+01	1.534083E+02	1.555259E+02	1.545756E+02	3.165076E+01	1.024060E+02
47.650	1.545700E+02	7.644544E+01	1.523814E+02	1.545227E+02	1.535723E+02	3.164608E+01	1.024166E+02

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TEMPERATURE

	(TE-CS-1)	(TE-PC-1)	(TE-BL-1)	(TE-BL-2)	(TE-1ST-1, TE-1ST-4, TE-1ST-7, TE-1ST-9, TE-1ST-13, TE-2ST-1, TE-2ST-4, TE-2ST-7)	TE-P120-62	TE-SV-6
TIME	AT14	AT10	AT21	AT15	AT11	AT29	AT26
SEC	C	C	C	C	C	C	C
48.000	1.536092E+02	7.581135E+01	1.513607E+02	1.535588E+02	1.525672E+02	3.164152E+01	1.024271E+02
48.350	1.526900E+02	7.519837E+01	1.503373E+02	1.526368E+02	1.515655E+02	3.163707E+01	1.024371E+02
48.700	1.518017E+02	7.464592E+01	1.493116E+02	1.517470E+02	1.505819E+02	3.163271E+01	1.024466E+02
49.050	1.508642E+02	7.413338E+01	1.483430E+02	1.508107E+02	1.496754E+02	3.162851E+01	1.024558E+02
49.400	1.499620E+02	7.361027E+01	1.473751E+02	1.498972E+02	1.487657E+02	3.162440E+01	1.024646E+02
49.750	1.490720E+02	7.304439E+01	1.464055E+02	1.490135E+02	1.478498E+02	3.162037E+01	1.024731E+02
50.100	1.482043E+02	7.251706E+01	1.454557E+02	1.481274E+02	1.469421E+02	3.161644E+01	1.024812E+02
50.450	1.473254E+02	7.199660E+01	1.445193E+02	1.472748E+02	1.460372E+02	3.161259E+01	1.024890E+02
50.800	1.464908E+02	7.147280E+01	1.435905E+02	1.464382E+02	1.451387E+02	3.160880E+01	1.024965E+02
51.150	1.457024E+02	7.097676E+01	1.426605E+02	1.456282E+02	1.442493E+02	3.160493E+01	1.025038E+02
51.500	1.449204E+02	7.059410E+01	1.406809E+02	1.448659E+02	1.434001E+02	3.160085E+01	1.025107E+02
51.850	1.439447E+02	7.016629E+01	1.415519E+02	1.438584E+02	1.426820E+02	3.159698E+01	1.025170E+02
52.200	1.432198E+02	6.967649E+01	1.402195E+02	1.431506E+02	1.419353E+02	3.159313E+01	1.025229E+02
52.550	1.424555E+02	6.906003E+01	1.389834E+02	1.423689E+02	1.411559E+02	3.158934E+01	1.025285E+02
52.900	1.417128E+02	6.856549E+01	1.395853E+02	1.416426E+02	1.402975E+02	3.158543E+01	1.025340E+02
53.250	1.410298E+02	6.813487E+01	1.364207E+02	1.409747E+02	1.395647E+02	3.158161E+01	1.025394E+02
53.600	1.403418E+02	6.776336E+01	1.372556E+02	1.403049E+02	1.387191E+02	3.157786E+01	1.025445E+02
53.950	1.397046E+02	6.742239E+01	1.372309E+02	1.396285E+02	1.379702E+02	3.157408E+01	1.025495E+02
54.300	1.388399E+02	6.698487E+01	1.338617E+02	1.387514E+02	1.373753E+02	3.157062E+01	1.025544E+02
54.650	1.383186E+02	6.654195E+01	1.347144E+02	1.382285E+02	1.365900E+02	3.156702E+01	1.025591E+02
55.000	1.376778E+02	6.615595E+01	1.351473E+02	1.376198E+02	1.358120E+02	3.156337E+01	1.025636E+02
55.350	1.369667E+02	6.577564E+01	1.325171E+02	1.369183E+02	1.351910E+02	3.155990E+01	1.025681E+02
55.700	1.364044E+02	6.537784E+01	1.314620E+02	1.363208E+02	1.344859E+02	3.155647E+01	1.025724E+02
56.050	1.357429E+02	6.505845E+01	1.326765E+02	1.356776E+02	1.337273E+02	3.155291E+01	1.025765E+02
56.400	1.351054E+02	6.477930E+01	1.323061E+02	1.350134E+02	1.330058E+02	3.154943E+01	1.025806E+02
56.750	1.345169E+02	6.445220E+01	1.294107E+02	1.344361E+02	1.323849E+02	3.154608E+01	1.025846E+02
57.100	1.339202E+02	6.413045E+01	1.291134E+02	1.338412E+02	1.316827E+02	3.154271E+01	1.025884E+02
57.450	1.333603E+02	6.388423E+01	1.299717E+02	1.332759E+02	1.309689E+02	3.153931E+01	1.025921E+02
57.800	1.327657E+02	6.240665E+01	1.300119E+02	1.327066E+02	1.306084E+02	3.153596E+01	1.025957E+02

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

	PRESSURE					MIXTURE LEVEL		
	(PE-CS-1A)	(PE-PC-4)	(PE-SV-18)	(PT-P120-43)	(PE-BL-1)	(LE-1ST-(1,2), LE-2ST-(1,2))	(LT-P139-6)	(LT-P138-58)
TIME	AP14	AP22	AP26	AP31	AP21	AML11	AML22	AML26
SEC	MPA	MPA	MPA	MPA	MPA	M	M	M
0.0	1.576271E+01	1.573238E+01	9.510546E-02	4.227370E+00	1.581233E+01	5.170070E+00	1.145383E+00	2.871076E+00
0.070	1.043919E+01	1.572415E+01	9.544187E-02	4.227364E+00	9.980870E+00	5.170070E+00	1.143656E+00	2.873136E+00
0.140	6.569656E+00	1.568833E+01	9.574055E-02	4.227370E+00	6.592809E+00	5.170070E+00	1.135266E+00	2.874952E+00
0.210	6.178581E+00	1.565158E+01	9.593817E-02	4.227365E+00	6.146424E+00	5.170070E+00	1.126307E+00	2.876155E+00
0.280	6.167347E+00	1.561809E+01	9.611288E-02	4.227368E+00	6.169703E+00	5.163566E+00	1.118109E+00	2.877216E+00
0.350	6.123210E+00	1.558593E+01	9.628571E-02	4.227367E+00	6.155968E+00	5.167590E+00	1.110281E+00	2.878263E+00
0.420	6.154117E+00	1.555292E+01	9.645807E-02	4.227367E+00	6.169178E+00	5.157908E+00	1.102302E+00	2.879305E+00
0.490	6.175411E+00	1.551882E+01	9.663065E-02	4.227368E+00	6.174312E+00	5.144126E+00	1.093965E+00	2.880345E+00
0.560	6.151004E+00	1.548478E+01	9.680260E-02	4.227365E+00	6.144403E+00	5.138797E+00	1.085680E+00	2.881380E+00
0.630	6.121095E+00	1.545111E+01	9.697446E-02	4.227369E+00	6.169946E+00	5.119025E+00	1.077159E+00	2.882412E+00
0.700	6.112044E+00	1.541768E+01	9.714622E-02	4.227365E+00	6.142948E+00	5.108609E+00	1.068987E+00	2.883440E+00
0.770	6.122659E+00	1.538463E+01	9.731717E-02	4.227369E+00	6.151417E+00	5.088363E+00	1.060568E+00	2.884462E+00
0.840	6.136883E+00	1.535208E+01	9.748804E-02	4.227365E+00	6.147286E+00	5.070054E+00	1.052587E+00	2.885481E+00
0.910	6.144774E+00	1.532028E+01	9.765810E-02	4.227369E+00	6.137467E+00	5.055004E+00	1.044350E+00	2.886492E+00
0.980	6.148166E+00	1.528871E+01	9.782822E-02	4.227366E+00	6.152517E+00	5.035009E+00	1.036099E+00	2.887502E+00
1.050	6.145239E+00	1.525746E+01	9.799777E-02	4.227368E+00	6.123265E+00	5.024025E+00	1.027879E+00	2.888507E+00
1.120	6.136795E+00	1.522654E+01	9.816712E-02	4.227367E+00	6.142561E+00	5.004794E+00	1.019564E+00	2.889509E+00
1.190	6.130753E+00	1.519570E+01	9.833639E-02	4.227367E+00	6.118316E+00	4.994396E+00	1.011464E+00	2.890508E+00
1.260	6.124286E+00	1.516512E+01	9.850555E-02	4.227368E+00	6.130674E+00	4.978506E+00	1.003571E+00	2.891505E+00
1.330	6.129245E+00	1.513470E+01	9.867484E-02	4.227366E+00	6.113269E+00	4.967760E+00	9.955398E-01	2.892501E+00
1.400	6.116794E+00	1.510469E+01	9.884403E-02	4.227368E+00	6.120737E+00	4.953508E+00	9.873695E-01	2.893496E+00
1.470	6.112845E+00	1.507478E+01	9.901343E-02	4.227366E+00	6.109278E+00	4.942749E+00	9.794042E-01	2.894490E+00
1.540	6.109204E+00	1.504486E+01	9.918281E-02	4.227368E+00	6.114708E+00	4.928989E+00	9.717235E-01	2.895483E+00
1.610	6.105616E+00	1.501542E+01	9.935235E-02	4.227366E+00	6.102727E+00	4.918680E+00	9.635751E-01	2.896476E+00
1.680	6.102641E+00	1.498598E+01	9.952187E-02	4.227368E+00	6.103373E+00	4.908842E+00	9.559527E-01	2.897467E+00
1.750	6.100984E+00	1.495692E+01	9.969165E-02	4.227366E+00	6.097217E+00	4.904256E+00	9.479484E-01	2.898459E+00
1.820	6.099977E+00	1.492779E+01	9.986186E-02	4.227368E+00	6.125384E+00	4.898020E+00	9.402237E-01	2.899453E+00
1.890	6.099306E+00	1.489893E+01	1.000330E-01	4.227367E+00	6.108879E+00	4.895182E+00	9.324475E-01	2.900452E+00
1.960	6.094375E+00	1.487034E+01	1.002040E-01	4.227367E+00	6.120856E+00	4.882890E+00	9.245414E-01	2.901449E+00
2.150	6.090824E+00	1.479479E+01	1.006687E-01	4.227368E+00	6.097548E+00	4.840359E+00	9.037131E-01	2.904150E+00
2.500	6.081290E+00	1.465915E+01	1.015241E-01	4.227367E+00	6.090914E+00	4.792556E+00	8.654468E-01	2.909093E+00
2.850	6.071996E+00	1.452591E+01	1.023840E-01	4.227367E+00	6.089873E+00	4.736633E+00	8.279494E-01	2.914033E+00
3.200	6.060796E+00	1.439483E+01	1.032464E-01	4.227367E+00	6.026638E+00	4.677975E+00	7.910760E-01	2.918952E+00
3.550	6.054004E+00	1.425912E+01	1.041045E-01	4.227367E+00	6.043606E+00	4.617933E+00	7.543948E-01	2.923781E+00
3.900	6.039433E+00	1.412594E+01	1.049655E-01	4.227367E+00	5.994869E+00	4.570188E+00	7.178492E-01	2.928598E+00
4.250	6.024056E+00	1.399402E+01	1.058300E-01	4.227367E+00	6.060607E+00	4.521406E+00	6.822495E-01	2.933412E+00
4.600	6.029640E+00	1.386456E+01	1.066966E-01	4.227367E+00	5.917123E+00	4.515621E+00	6.471761E-01	2.938206E+00
4.950	6.002772E+00	1.373722E+01	1.075629E-01	4.227367E+00	5.993612E+00	4.511718E+00	6.126303E-01	2.942959E+00
5.300	5.962672E+00	1.361139E+01	1.084224E-01	4.227367E+00	6.146707E+00	4.526206E+00	5.786224E-01	2.947636E+00
5.650	5.970591E+00	1.348639E+01	1.092782E-01	4.227367E+00	5.846104E+00	4.638881E+00	5.452086E-01	2.952239E+00
6.000	5.958753E+00	1.336132E+01	1.101252E-01	4.227367E+00	6.040527E+00	4.713116E+00	5.122402E-01	2.956747E+00
6.350	5.928513E+00	1.323633E+01	1.109703E-01	4.227367E+00	5.919915E+00	4.814660E+00	4.800236E-01	2.961200E+00
6.700	5.912995E+00	1.311274E+01	1.118130E-01	4.227367E+00	5.912212E+00	4.840155E+00	4.479380E-01	2.965632E+00
7.050	5.898932E+00	1.298917E+01	1.126646E-01	4.227367E+00	5.841770E+00	4.858043E+00	4.165227E-01	2.970103E+00
7.400	5.869391E+00	1.286520E+01	1.135145E-01	4.227367E+00	5.865503E+00	4.882959E+00	3.854922E-01	2.974549E+00
7.750	5.843802E+00	1.274130E+01	1.143687E-01	4.227367E+00	5.810033E+00	4.847579E+00	3.548856E-01	2.978995E+00
8.100	5.833978E+00	1.261300E+01	1.152242E-01	4.227367E+00	5.820708E+00	4.761612E+00	3.245367E-01	2.983436E+00
8.450	5.804981E+00	1.248054E+01	1.160827E-01	4.227367E+00	5.796692E+00	4.667985E+00	2.946853E-01	2.987860E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

	PRESSURE					MIXTURE LEVEL		
	(PE-CS-1A)	(PE-PC-4)	(PE-SV-18)	(PT-P120-43)	(PE-BL-1)	(LE-1ST-(1,2), LE-2ST-(1,2))	(LT-P139-6)	(LT-P138-58)
TIME	AP14	AP22	AP26	AP31	AP21	AML11	AML22	AML26
SEC	MPA	MPA	MPA	MPA	MPA	M	M	M
8.800	5.796007E+00	1.234519E+01	1.169416E-01	4.227367E+00	5.760626E+00	4.570806E+00	2.654012E-01	2.992308E+00
9.150	5.766526E+00	1.221053E+01	1.177997E-01	4.227367E+00	5.767700E+00	4.474140E+00	2.374302E-01	2.996705E+00
9.500	5.752906E+00	1.207739E+01	1.186539E-01	4.227367E+00	5.701631E+00	4.384970E+00	2.113765E-01	3.001052E+00
9.850	5.725500E+00	1.193604E+01	1.195023E-01	4.227367E+00	5.686363E+00	4.402737E+00	1.856934E-01	3.005323E+00
10.200	5.700770E+00	1.178740E+01	1.203340E-01	4.227367E+00	5.892725E+00	4.365860E+00	1.606751E-01	3.009434E+00
10.550	5.672604E+00	1.163073E+01	1.211564E-01	4.227367E+00	5.783300E+00	4.390005E+00	1.371581E-01	3.013454E+00
10.900	5.637541E+00	1.144034E+01	1.219705E-01	4.227367E+00	5.480234E+00	4.420064E+00	1.200881E-01	3.017403E+00
11.250	5.611616E+00	1.116474E+01	1.227727E-01	4.227367E+00	5.481411E+00	4.379234E+00	1.093917E-01	3.021260E+00
11.600	5.564152E+00	1.079732E+01	1.235677E-01	4.227367E+00	5.690737E+00	4.378387E+00	1.028462E-01	3.025040E+00
11.950	5.548389E+00	1.038381E+01	1.243552E-01	4.227367E+00	5.559500E+00	4.379532E+00	9.877772E-02	3.028753E+00
12.300	5.514931E+00	9.956473E+00	1.251337E-01	4.227367E+00	5.304112E+00	4.390839E+00	9.599397E-02	3.032389E+00
12.650	5.480385E+00	9.529333E+00	1.258989E-01	4.227367E+00	5.394880E+00	4.373326E+00	9.387868E-02	3.035921E+00
13.000	5.443876E+00	9.108733E+00	1.266572E-01	4.227367E+00	5.596622E+00	4.338008E+00	9.214341E-02	3.039377E+00
13.350	5.400092E+00	8.702210E+00	1.274007E-01	4.227367E+00	5.238797E+00	4.339317E+00	9.076822E-02	3.042717E+00
13.700	5.355632E+00	8.316603E+00	1.281333E-01	4.227367E+00	5.160999E+00	4.315644E+00	8.955932E-02	3.045950E+00
14.050	5.305993E+00	7.951737E+00	1.289484E-01	4.227367E+00	5.193391E+00	4.301819E+00	8.846393E-02	3.049040E+00
14.400	5.247290E+00	7.610223E+00	1.295406E-01	4.227367E+00	5.310711E+00	4.316837E+00	8.748540E-02	3.051939E+00
14.750	5.200347E+00	7.290538E+00	1.302180E-01	4.227367E+00	5.161179E+00	4.311565E+00	8.656590E-02	3.054717E+00
15.100	5.117460E+00	6.991306E+00	1.308773E-01	4.227367E+00	5.097278E+00	4.310648E+00	8.560716E-02	3.057364E+00
15.450	5.066825E+00	6.714104E+00	1.315246E-01	4.227367E+00	5.035331E+00	4.310258E+00	8.471509E-02	3.059942E+00
15.800	5.004214E+00	6.457644E+00	1.321631E-01	4.227367E+00	4.972268E+00	4.309677E+00	8.394899E-02	3.062481E+00
16.150	4.916041E+00	6.219964E+00	1.327944E-01	4.227367E+00	4.908196E+00	4.310424E+00	8.320505E-02	3.064996E+00
16.500	4.888724E+00	5.999248E+00	1.334197E-01	4.227367E+00	4.844961E+00	4.310538E+00	8.247272E-02	3.067498E+00
16.850	4.792100E+00	5.797409E+00	1.340401E-01	4.227367E+00	4.782944E+00	4.309901E+00	8.178649E-02	3.069990E+00
17.200	4.751951E+00	5.613090E+00	1.346557E-01	4.227367E+00	4.721334E+00	4.309788E+00	8.118763E-02	3.072472E+00
17.550	4.680025E+00	5.443363E+00	1.352665E-01	4.227367E+00	4.660069E+00	4.310053E+00	8.060443E-02	3.074942E+00
17.900	4.624257E+00	5.286221E+00	1.358722E-01	4.227367E+00	4.599928E+00	4.310378E+00	8.011382E-02	3.077396E+00
18.250	4.570129E+00	5.141249E+00	1.364722E-01	4.227367E+00	4.539744E+00	4.310423E+00	7.953348E-02	3.079828E+00
18.600	4.501406E+00	5.007408E+00	1.370656E-01	4.227367E+00	4.479803E+00	4.310687E+00	7.905951E-02	3.082223E+00
18.950	4.433632E+00	4.884056E+00	1.376530E-01	4.227367E+00	4.419805E+00	4.310776E+00	7.858400E-02	3.084595E+00
19.300	4.373183E+00	4.769944E+00	1.382341E-01	4.227367E+00	4.359603E+00	4.310837E+00	7.822089E-02	3.086940E+00
19.650	4.320084E+00	4.664320E+00	1.388083E-01	4.227367E+00	4.299741E+00	4.311226E+00	7.776721E-02	3.089255E+00
20.000	4.262101E+00	4.565712E+00	1.393755E-01	4.227367E+00	4.240014E+00	4.311449E+00	7.744398E-02	3.091539E+00
20.350	4.213210E+00	4.473759E+00	1.399355E-01	4.227165E+00	4.180488E+00	4.311707E+00	7.702655E-02	3.093791E+00
20.700	4.136937E+00	4.387481E+00	1.404882E-01	4.224784E+00	4.121272E+00	4.312164E+00	7.674677E-02	3.096009E+00
21.050	4.076524E+00	4.306385E+00	1.410334E-01	4.218159E+00	4.062102E+00	4.313005E+00	7.636705E-02	3.098194E+00
21.400	4.014997E+00	4.229603E+00	1.415712E-01	4.206855E+00	4.002057E+00	4.314704E+00	7.612190E-02	3.100348E+00
21.750	3.961713E+00	4.156174E+00	1.421017E-01	4.191729E+00	3.940036E+00	4.317434E+00	7.582751E-02	3.102472E+00
22.100	3.900858E+00	4.084952E+00	1.426246E-01	4.173874E+00	3.875075E+00	4.320690E+00	7.556511E-02	3.104568E+00
22.450	3.817852E+00	4.015186E+00	1.431395E-01	4.154016E+00	3.806760E+00	4.323667E+00	7.518875E-02	3.106638E+00
22.800	3.746463E+00	3.946085E+00	1.436459E-01	4.132520E+00	3.735234E+00	4.326567E+00	7.490312E-02	3.108678E+00
23.150	3.673212E+00	3.876842E+00	1.441428E-01	4.109616E+00	3.660861E+00	4.329108E+00	7.462352E-02	3.110684E+00
23.500	3.593260E+00	3.807286E+00	1.446297E-01	4.085444E+00	3.583904E+00	4.331571E+00	7.438280E-02	3.112651E+00
23.850	3.515277E+00	3.737181E+00	1.451059E-01	4.060125E+00	3.504777E+00	4.333802E+00	7.401642E-02	3.114576E+00
24.200	3.445218E+00	3.666285E+00	1.455710E-01	4.033761E+00	3.423693E+00	4.335767E+00	7.378685E-02	3.116457E+00
24.550	3.352504E+00	3.594356E+00	1.460247E-01	4.006445E+00	3.341003E+00	4.337458E+00	7.339639E-02	3.118290E+00
24.900	3.298199E+00	3.522897E+00	1.464679E-01	3.978468E+00	3.281293E+00	4.326602E+00	7.311892E-02	3.120072E+00
25.250	3.236502E+00	3.454891E+00	1.469026E-01	3.950153E+00	3.227583E+00	4.326302E+00	7.283508E-02	3.121802E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

	PRESSURE					MIXTURE LEVEL		
	(PE-CS-1A)	(PE-PC-4)	(PE-SV-18)	(PT-P120-43)	(PE-BL-1)	(LE-1ST-(1,2), LE-2ST-(1,2))	(LT-P139-6)	(LT-P138-58)
TIME	AP14	AP22	AP26	AP31	AP21	AML11	AML22	AML26
SEC	MPA	MPA	MPA	MPA	MPA	M	M	M
25.600	3.179326E+00	3.389062E+00	1.473287E-01	3.921632E+00	3.169397E+00	4.326846E+00	7.257545E-02	3.123494E+00
25.950	3.117461E+00	3.324656E+00	1.477451E-01	3.892891E+00	3.104495E+00	4.326167E+00	7.219537E-02	3.125142E+00
26.300	3.053215E+00	3.260697E+00	1.481523E-01	3.863915E+00	3.038852E+00	4.326497E+00	7.194399E-02	3.126754E+00
26.650	2.981062E+00	3.197093E+00	1.485509E-01	3.834711E+00	2.969463E+00	4.324802E+00	7.164010E-02	3.128338E+00
27.000	2.915182E+00	3.133716E+00	1.489415E-01	3.805299E+00	2.905845E+00	4.324996E+00	7.140588E-02	3.129897E+00
27.350	2.854111E+00	3.070617E+00	1.493239E-01	3.775707E+00	2.837691E+00	4.324871E+00	7.105871E-02	3.131433E+00
27.700	2.785926E+00	3.007762E+00	1.496983E-01	3.745966E+00	2.770166E+00	4.324206E+00	7.075935E-02	3.132947E+00
28.050	2.720099E+00	2.945146E+00	1.500645E-01	3.716106E+00	2.703531E+00	4.324664E+00	7.051359E-02	3.134441E+00
28.400	2.649962E+00	2.882808E+00	1.504225E-01	3.686158E+00	2.635314E+00	4.324012E+00	7.010539E-02	3.135913E+00
28.750	2.577634E+00	2.820714E+00	1.507720E-01	3.656153E+00	2.567666E+00	4.323059E+00	6.985736E-02	3.137362E+00
29.100	2.517517E+00	2.758862E+00	1.511129E-01	3.626120E+00	2.501610E+00	4.322263E+00	6.961005E-02	3.138787E+00
29.450	2.450472E+00	2.697430E+00	1.514450E-01	3.596090E+00	2.436214E+00	4.321594E+00	6.918552E-02	3.140186E+00
29.800	2.366715E+00	2.636415E+00	1.517682E-01	3.566092E+00	2.371353E+00	4.320809E+00	6.892784E-02	3.141559E+00
30.150	2.323796E+00	2.575907E+00	1.520825E-01	3.536153E+00	2.307207E+00	4.320002E+00	6.868193E-02	3.142904E+00
30.500	2.262054E+00	2.516056E+00	1.523885E-01	3.506299E+00	2.244198E+00	4.319342E+00	6.830096E-02	3.144225E+00
30.850	2.199537E+00	2.456914E+00	1.526864E-01	3.476557E+00	2.182489E+00	4.318763E+00	6.806193E-02	3.145519E+00
31.200	2.139129E+00	2.398341E+00	1.529761E-01	3.446949E+00	2.121734E+00	4.318140E+00	6.768056E-02	3.146788E+00
31.550	2.073161E+00	2.340929E+00	1.532578E-01	3.417495E+00	2.062185E+00	4.317546E+00	6.731267E-02	3.148030E+00
31.900	2.020156E+00	2.283994E+00	1.535317E-01	3.388215E+00	2.003885E+00	4.316924E+00	6.706006E-02	3.149245E+00
32.250	1.963141E+00	2.227979E+00	1.537976E-01	3.359127E+00	1.946605E+00	4.316214E+00	6.683317E-02	3.150431E+00
32.600	1.907288E+00	2.172905E+00	1.540557E-01	3.330248E+00	1.890722E+00	4.315551E+00	6.637745E-02	3.151589E+00
32.950	1.852883E+00	2.118669E+00	1.543059E-01	3.301592E+00	1.836250E+00	4.314625E+00	6.612957E-02	3.152717E+00
33.300	1.799862E+00	2.065437E+00	1.545482E-01	3.273176E+00	1.783016E+00	4.314073E+00	6.591249E-02	3.153816E+00
33.650	1.747364E+00	2.013241E+00	1.547828E-01	3.245010E+00	1.730872E+00	4.313321E+00	6.544979E-02	3.154888E+00
34.000	1.697185E+00	1.962078E+00	1.550096E-01	3.217105E+00	1.680086E+00	4.312557E+00	6.521120E-02	3.155933E+00
34.350	1.647976E+00	1.911801E+00	1.552290E-01	3.189470E+00	1.630646E+00	4.311760E+00	6.500553E-02	3.156957E+00
34.700	1.600159E+00	1.862614E+00	1.554413E-01	3.162116E+00	1.582665E+00	4.310971E+00	6.453590E-02	3.157962E+00
35.050	1.555509E+00	1.814657E+00	1.556470E-01	3.135054E+00	1.538898E+00	4.310862E+00	6.429854E-02	3.158951E+00
35.400	1.512394E+00	1.767983E+00	1.558467E-01	3.108305E+00	1.494253E+00	4.309326E+00	6.411351E-02	3.159927E+00
35.750	1.469186E+00	1.722480E+00	1.560408E-01	3.081868E+00	1.451324E+00	4.308707E+00	6.365061E-02	3.160890E+00
36.100	1.426959E+00	1.678109E+00	1.562293E-01	3.055761E+00	1.407862E+00	4.307202E+00	6.354522E-02	3.161837E+00
36.450	1.353270E+00	1.634650E+00	1.564122E-01	3.030000E+00	1.364186E+00	4.306380E+00	6.307790E-02	3.162768E+00
36.800	1.340394E+00	1.591578E+00	1.565894E-01	3.004542E+00	1.321110E+00	4.305205E+00	6.286466E-02	3.163680E+00
37.150	1.295173E+00	1.550135E+00	1.567608E-01	2.979386E+00	1.278675E+00	4.303996E+00	6.270157E-02	3.164572E+00
37.500	1.257361E+00	1.509166E+00	1.569263E-01	2.954531E+00	1.237356E+00	4.303082E+00	6.221636E-02	3.165442E+00
37.850	1.218165E+00	1.469123E+00	1.570860E-01	2.929981E+00	1.197773E+00	4.301396E+00	6.200754E-02	3.166289E+00
38.200	1.179447E+00	1.429981E+00	1.572399E-01	2.905735E+00	1.158708E+00	4.300098E+00	6.186164E-02	3.167113E+00
38.550	1.142605E+00	1.391750E+00	1.573881E-01	2.881792E+00	1.121403E+00	4.298713E+00	6.137605E-02	3.167913E+00
38.900	1.107000E+00	1.354455E+00	1.575307E-01	2.858158E+00	1.085262E+00	4.297292E+00	6.115740E-02	3.168690E+00
39.250	1.077530E+00	1.318056E+00	1.576680E-01	2.834831E+00	1.050319E+00	4.295771E+00	6.104265E-02	3.169446E+00
39.600	1.039302E+00	1.282461E+00	1.578000E-01	2.811811E+00	1.016425E+00	4.294286E+00	6.056645E-02	3.170183E+00
39.950	1.007302E+00	1.247879E+00	1.579271E-01	2.789098E+00	9.838376E-01	4.292907E+00	6.051060E-02	3.170903E+00
40.300	9.763210E-01	1.214236E+00	1.580496E-01	2.766692E+00	9.522958E-01	4.291525E+00	6.025526E-02	3.171609E+00
40.650	9.465224E-01	1.181539E+00	1.581676E-01	2.744592E+00	9.218749E-01	4.290044E+00	5.976398E-02	3.172301E+00
41.000	9.176636E-01	1.149766E+00	1.582810E-01	2.722794E+00	8.920629E-01	4.288334E+00	5.959930E-02	3.172980E+00
41.350	8.900025E-01	1.118842E+00	1.583902E-01	2.701297E+00	8.640307E-01	4.257063E+00	5.951383E-02	3.173645E+00
41.700	8.630430E-01	1.088861E+00	1.584953E-01	2.680101E+00	8.370705E-01	4.285329E+00	5.899508E-02	3.174299E+00
42.050	8.382270E-01	1.059749E+00	1.585965E-01	2.659204E+00	8.109436E-01	4.283770E+00	5.885049E-02	3.174940E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

	PRESSURE					MIXTURE LEVEL		
	(PE-CS-1A)	(PE-PC-4)	(PE-SV-18)	(PT-P120-43)	(PE-BL-1)	(LE-1ST-(1,2), LE-2ST-(1,2))	(LT-P139-6)	(LT-P138-58)
TIME	AP14	AP22	AP26	AP31	AP21	AML11	AML22	AML26
SEC	MPA	MPA	MPA	MPA	MPA	M	M	M
42.400	8.137994E-01	1.031539E+00	1.586940E-01	2.638604E+00	7.857922E-01	4.282204E+00	5.877588E-02	3.175570E+00
42.750	7.897742E-01	1.004206E+00	1.587880E-01	2.618237E+00	7.614944E-01	4.280650E+00	5.825145E-02	3.176188E+00
43.100	7.668726E-01	9.777206E-01	1.588786E-01	2.598282E+00	7.385466E-01	4.279295E+00	5.810693E-02	3.176794E+00
43.450	7.450614E-01	9.520706E-01	1.589661E-01	2.578556E+00	7.164033E-01	4.277935E+00	5.805825E-02	3.177389E+00
43.800	7.242608E-01	9.272921E-01	1.590506E-01	2.559117E+00	6.948088E-01	4.276636E+00	5.754054E-02	3.177971E+00
44.150	7.041018E-01	9.028116E-01	1.591321E-01	2.539959E+00	6.739811E-01	4.275831E+00	5.740515E-02	3.178541E+00
44.500	6.843527E-01	8.793265E-01	1.592107E-01	2.521078E+00	6.541242E-01	4.274722E+00	5.738733E-02	3.179098E+00
44.850	6.651447E-01	8.567795E-01	1.592864E-01	2.502471E+00	6.352677E-01	4.273316E+00	5.684912E-02	3.179642E+00
45.200	6.467438E-01	8.338458E-01	1.593595E-01	2.484136E+00	6.172448E-01	4.271772E+00	5.675754E-02	3.180174E+00
45.550	6.293796E-01	8.121793E-01	1.594298E-01	2.466071E+00	5.997977E-01	4.270369E+00	5.675191E-02	3.180693E+00
45.900	6.129756E-01	7.912706E-01	1.594976E-01	2.448270E+00	5.827942E-01	4.269145E+00	5.617907E-02	3.181198E+00
46.250	5.971693E-01	7.711045E-01	1.595628E-01	2.430728E+00	5.661901E-01	4.268066E+00	5.617541E-02	3.181689E+00
46.600	5.817122E-01	7.516496E-01	1.596255E-01	2.413440E+00	5.502645E-01	4.266943E+00	5.617802E-02	3.182166E+00
46.950	5.661525E-01	7.328187E-01	1.596858E-01	2.396403E+00	5.354413E-01	4.264966E+00	5.554558E-02	3.182630E+00
47.300	5.512312E-01	7.145954E-01	1.597437E-01	2.379615E+00	5.208877E-01	4.263449E+00	5.533981E-02	3.183081E+00
47.650	5.370186E-01	6.969448E-01	1.597995E-01	2.363070E+00	5.069534E-01	4.261845E+00	5.513503E-02	3.183520E+00
48.000	5.236495E-01	6.798832E-01	1.598533E-01	2.346767E+00	4.934009E-01	4.260639E+00	5.493386E-02	3.183948E+00
48.350	5.111091E-01	6.634218E-01	1.599052E-01	2.330699E+00	4.801041E-01	4.259751E+00	5.473641E-02	3.184364E+00
48.700	4.997204E-01	6.475368E-01	1.599552E-01	2.314861E+00	4.670682E-01	4.258876E+00	5.454277E-02	3.184770E+00
49.050	4.869137E-01	6.322251E-01	1.600034E-01	2.299248E+00	4.550202E-01	4.259079E+00	5.435302E-02	3.185165E+00
49.400	4.753017E-01	6.174021E-01	1.600499E-01	2.283860E+00	4.432299E-01	4.255213E+00	5.416632E-02	3.185552E+00
49.750	4.640538E-01	6.030804E-01	1.600948E-01	2.268691E+00	4.316668E-01	4.254607E+00	5.398298E-02	3.185930E+00
50.100	4.533145E-01	5.892571E-01	1.601381E-01	2.253737E+00	4.205751E-01	4.253209E+00	5.380312E-02	3.186300E+00
50.450	4.426315E-01	5.758799E-01	1.601800E-01	2.238995E+00	4.098657E-01	4.252042E+00	5.362563E-02	3.186662E+00
50.800	4.326739E-01	5.629194E-01	1.602205E-01	2.224461E+00	3.994612E-01	4.251095E+00	5.344915E-02	3.187016E+00
51.150	4.234335E-01	5.503943E-01	1.602597E-01	2.210131E+00	3.892573E-01	4.250209E+00	5.327578E-02	3.187363E+00
51.500	4.144268E-01	5.382925E-01	1.602974E-01	2.195999E+00	3.682342E-01	4.264599E+00	5.310514E-02	3.187702E+00
51.850	4.034044E-01	5.265755E-01	1.603326E-01	2.182059E+00	3.773682E-01	4.322557E+00	5.293601E-02	3.188050E+00
52.200	3.953687E-01	5.151810E-01	1.603667E-01	2.168318E+00	3.634686E-01	4.424435E+00	5.311579E-02	3.188405E+00
52.550	3.870359E-01	5.041698E-01	1.603991E-01	2.154771E+00	3.509459E-01	4.470878E+00	5.260467E-02	3.188744E+00
52.900	3.790753E-01	4.935526E-01	1.604315E-01	2.141414E+00	3.569996E-01	4.381067E+00	5.271868E-02	3.189094E+00
53.250	3.718719E-01	4.832893E-01	1.604628E-01	2.128237E+00	3.260905E-01	4.419866E+00	5.228557E-02	3.189433E+00
53.600	3.647274E-01	4.733749E-01	1.604929E-01	2.115241E+00	3.340264E-01	4.384816E+00	5.213029E-02	3.189763E+00
53.950	3.562085E-01	4.638069E-01	1.605232E-01	2.102419E+00	3.337894E-01	4.421969E+00	5.244948E-02	3.190107E+00
54.300	3.495146E-01	4.545462E-01	1.605523E-01	2.089774E+00	3.027098E-01	4.686615E+00	5.182594E-02	3.190436E+00
54.650	3.443554E-01	4.455559E-01	1.605804E-01	2.077304E+00	3.103451E-01	4.700422E+00	5.210354E-02	3.190758E+00
55.000	3.380983E-01	4.368758E-01	1.606085E-01	2.065002E+00	3.142795E-01	4.683660E+00	5.153026E-02	3.191093E+00
55.350	3.312622E-01	4.284814E-01	1.606361E-01	2.052862E+00	2.909805E-01	4.911835E+00	5.207133E-02	3.191423E+00
55.700	3.259370E-01	4.203438E-01	1.606623E-01	2.040889E+00	2.820363E-01	5.016620E+00	5.158340E-02	3.191731E+00
56.050	3.197601E-01	4.124691E-01	1.606883E-01	2.029075E+00	2.923515E-01	4.979828E+00	5.110147E-02	3.192048E+00
56.400	3.138977E-01	4.048346E-01	1.607143E-01	2.017413E+00	2.891737E-01	4.954348E+00	5.162050E-02	3.192373E+00
56.750	3.085628E-01	3.974331E-01	1.607391E-01	2.005903E+00	2.652854E-01	5.131926E+00	5.105213E-02	3.192682E+00
57.100	3.032284E-01	3.902671E-01	1.607630E-01	1.994546E+00	2.629263E-01	5.157397E+00	5.160577E-02	3.192977E+00
57.450	2.982919E-01	3.833299E-01	1.607869E-01	1.983335E+00	2.697844E-01	5.142280E+00	5.146255E-02	3.193288E+00
57.800	2.931207E-01	3.766034E-01	1.608107E-01	1.972267E+00	2.701087E-01	5.169010E+00	5.104244E-02	3.193601E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TIME	DENSITY (DE-PC-1) ADE10	(DE-PC-2) ADE1	(DE-PC-3) ADE6	(DE-BL-1) ADE21	(DE-BL-2) ADE15	VOLUMETRIC FLOW (FT-P120-36-1) JW33	(FT-P120-85) JW34	(FT-P128-104) JW35
SEC	MG/M3	MG/M3	MG/M3	MG/M3	MG/M3	LITER/SEC	LITER/SEC	LITER/SEC
0.0	7.660482E-01	7.659596E-01	7.667455E-01	7.641611E-01	7.659596E-01	0.0	0.0	0.0
0.070	7.608131E-01	7.611178E-01	7.615932E-01	7.589533E-01	7.613309E-01	9.592824E-03	0.0	0.0
0.140	7.573313E-01	7.573691E-01	7.576130E-01	7.556330E-01	7.575324E-01	-1.813551E-02	0.0	0.0
0.210	7.571944E-01	7.570412E-01	7.556976E-01	7.492057E-01	7.571528E-01	2.479350E-02	0.0	0.0
0.280	7.572008E-01	7.570380E-01	7.568297E-01	7.513130E-01	7.571091E-01	-2.903970E-02	0.0	0.0
0.350	7.571920E-01	7.569592E-01	7.572928E-01	7.425484E-01	7.570577E-01	3.073669E-02	0.0	0.0
0.420	7.571985E-01	7.570132E-01	7.571706E-01	7.353102E-01	7.570595E-01	-2.989956E-02	0.0	0.0
0.490	7.571957E-01	7.570359E-01	7.570307E-01	7.216323E-01	7.570623E-01	2.674633E-02	0.0	0.0
0.560	7.571975E-01	7.569866E-01	7.557398E-01	7.015048E-01	7.570233E-01	-2.164912E-02	0.0	0.0
0.630	7.571953E-01	7.569262E-01	7.505367E-01	6.918887E-01	7.569825E-01	1.513364E-02	0.0	0.0
0.700	7.571961E-01	7.568978E-01	7.453166E-01	6.718122E-01	7.569556E-01	-7.772336E-03	0.0	0.0
0.770	7.571940E-01	7.568952E-01	7.440348E-01	6.574388E-01	7.569446E-01	2.186959E-04	0.0	0.0
0.840	7.571903E-01	7.569021E-01	7.416719E-01	6.418426E-01	7.569396E-01	6.668653E-03	0.0	0.0
0.910	7.571822E-01	7.568980E-01	7.347878E-01	6.282902E-01	7.569159E-01	-1.272122E-02	0.0	0.0
0.980	7.571704E-01	7.568655E-01	7.274133E-01	6.201611E-01	7.568981E-01	1.697925E-02	0.0	0.0
1.050	7.571594E-01	7.568649E-01	7.224648E-01	6.066274E-01	7.568710E-01	-1.946942E-02	0.0	0.0
1.120	7.571398E-01	7.568373E-01	7.171765E-01	6.022156E-01	7.568413E-01	2.014506E-02	0.0	0.0
1.190	7.571178E-01	7.568124E-01	7.086618E-01	5.935568E-01	7.568127E-01	-1.915004E-02	0.0	0.0
1.260	7.570893E-01	7.567884E-01	7.002029E-01	5.916452E-01	7.567840E-01	1.673300E-02	0.0	0.0
1.330	7.570569E-01	7.567682E-01	6.918244E-01	5.862386E-01	7.567571E-01	-1.322577E-02	0.0	0.0
1.400	7.570169E-01	7.567503E-01	6.829218E-01	5.851124E-01	7.567315E-01	9.012296E-03	0.0	0.0
1.470	7.569722E-01	7.567315E-01	6.738659E-01	5.823841E-01	7.567049E-01	-4.501211E-03	0.0	0.0
1.540	7.569208E-01	7.567146E-01	6.651005E-01	5.813045E-01	7.566796E-01	8.895012E-05	0.0	0.0
1.610	7.568679E-01	7.566967E-01	6.568089E-01	5.791523E-01	7.566541E-01	3.916549E-03	0.0	0.0
1.680	7.568059E-01	7.566791E-01	6.454838E-01	5.818709E-01	7.566299E-01	-7.209335E-03	0.0	0.0
1.750	7.567307E-01	7.566614E-01	6.288344E-01	5.903496E-01	7.566073E-01	9.602030E-03	0.0	0.0
1.820	7.566049E-01	7.566434E-01	6.265027E-01	6.081300E-01	7.565858E-01	-1.100100E-02	0.0	0.0
1.890	7.565072E-01	7.566257E-01	6.363475E-01	6.124006E-01	7.565690E-01	1.139951E-02	0.0	0.0
1.960	7.564017E-01	7.566176E-01	6.085043E-01	6.110529E-01	7.565638E-01	-1.083461E-02	0.0	0.0
2.150	7.559170E-01	7.566191E-01	5.918664E-01	5.789305E-01	7.565683E-01	-2.138176E-03	0.0	0.0
2.500	7.371691E-01	7.561941E-01	5.628256E-01	5.850250E-01	7.566213E-01	5.530642E-03	0.0	0.0
2.850	6.933204E-01	7.562854E-01	5.219495E-01	5.763385E-01	7.548952E-01	1.396908E-05	0.0	0.0
3.200	6.854131E-01	7.567956E-01	4.820973E-01	5.420313E-01	7.490535E-01	-2.168045E-03	0.0	0.0
3.550	6.368518E-01	7.322709E-01	4.684224E-01	5.426212E-01	7.551257E-01	3.368950E-04	0.0	0.0
3.900	6.251110E-01	6.802071E-01	4.358675E-01	5.367178E-01	7.366036E-01	8.027052E-04	0.0	0.0
4.250	5.869678E-01	5.618926E-01	4.246254E-01	5.513434E-01	7.531570E-01	-2.493517E-04	0.0	0.0
4.600	5.726479E-01	4.797000E-01	3.999979E-01	5.131935E-01	7.296161E-01	-2.612655E-04	0.0	0.0
4.950	5.540256E-01	3.934458E-01	3.852679E-01	4.897941E-01	7.286608E-01	1.253115E-04	0.0	0.0
5.300	5.322185E-01	3.162862E-01	3.760224E-01	4.837572E-01	7.128424E-01	7.328357E-05	0.0	0.0
5.650	5.285896E-01	2.690701E-01	3.553808E-01	3.996051E-01	6.685840E-01	-5.081646E-05	0.0	0.0
6.000	5.212721E-01	2.290678E-01	3.388540E-01	3.819852E-01	6.254775E-01	-1.837673E-05	0.0	0.0
6.350	4.906336E-01	1.981370E-01	3.252368E-01	3.615645E-01	5.380677E-01	2.114239E-05	0.0	0.0
6.700	4.715997E-01	1.777581E-01	3.130855E-01	3.946651E-01	4.387024E-01	3.587932E-06	0.0	0.0
7.050	4.540210E-01	1.642853E-01	3.002298E-01	3.883669E-01	3.510030E-01	-6.926557E-06	0.0	0.0
7.400	4.362467E-01	1.552458E-01	2.862222E-01	4.112408E-01	2.779718E-01	-2.965774E-07	0.0	0.0
7.750	4.185779E-01	1.491392E-01	2.737061E-01	4.090699E-01	2.196775E-01	1.905731E-06	0.0	0.0
8.100	4.066170E-01	1.446094E-01	2.629147E-01	4.323277E-01	1.761940E-01	-9.868526E-08	0.0	0.0
8.450	3.883390E-01	1.415247E-01	2.522535E-01	4.378218E-01	1.456559E-01	-4.245461E-07	0.0	0.0

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

TIME	DENSITY (DE-PC-1) ADE10	(DE-PC-2) ADE1	(DE-PC-3) ADE6	(DE-BL-1) ADE21	(DE-BL-2) ADE15	VOLUMETRIC FLOW (FT-P120-36-1) JW33	(FT-P120-85) JW34	(FT-P128-104) JW35
SEC	MG/M3	MG/M3	MG/M3	MG/M3	MG/M3	LITER/SEC	LITER/SEC	LITER/SEC
8.800	3.791584E-01	1.394978E-01	2.437448E-01	4.353849E-01	1.329883E-01	4.705004E-08	0.0	0.0
9.150	3.658208E-01	1.379950E-01	2.330111E-01	4.308588E-01	1.239211E-01	6.752582E-08	0.0	0.0
9.500	3.531187E-01	1.370332E-01	2.252329E-01	4.252742E-01	1.189422E-01	-8.582824E-09	0.0	0.0
9.850	3.447542E-01	1.359509E-01	2.160336E-01	3.524426E-01	1.171567E-01	-9.488066E-09	0.0	0.0
10.200	3.302357E-01	1.349985E-01	2.078694E-01	3.511267E-01	1.143562E-01	2.082652E-09	0.0	0.0
10.550	3.162410E-01	1.341140E-01	1.988389E-01	3.195486E-01	1.158359E-01	1.667210E-09	0.0	0.0
10.900	3.007061E-01	1.318494E-01	1.910816E-01	2.843871E-01	1.163243E-01	-5.592430E-10	0.0	0.0
11.250	2.908989E-01	1.239642E-01	1.841013E-01	2.889047E-01	1.021762E-01	-3.120210E-10	0.0	0.0
11.600	2.807948E-01	1.052321E-01	1.749227E-01	2.926571E-01	9.550796E-02	1.554782E-10	0.0	0.0
11.950	2.662575E-01	8.483904E-02	1.680906E-01	2.808098E-01	9.174030E-02	5.655369E-11	0.0	0.0
12.300	2.562130E-01	6.778760E-02	1.617644E-01	2.467617E-01	8.278168E-02	-4.914737E-11	0.0	0.0
12.650	2.503797E-01	5.453010E-02	1.540401E-01	2.591159E-01	7.301557E-02	-1.508837E-11	0.0	0.0
13.000	2.347439E-01	4.533700E-02	1.479009E-01	2.603230E-01	6.499413E-02	1.144098E-11	0.0	0.0
13.350	2.265089E-01	3.915345E-02	1.408661E-01	2.254756E-01	5.913746E-02	-9.069642E-13	0.0	0.0
13.700	2.151374E-01	3.509245E-02	1.349375E-01	2.003243E-01	5.679506E-02	-7.062876E-12	0.0	0.0
14.050	2.061443E-01	3.274320E-02	1.286692E-01	1.789476E-01	5.925903E-02	-2.276740E-12	0.0	0.0
14.400	1.969091E-01	3.175273E-02	1.220826E-01	1.783812E-01	7.047726E-02	-8.888575E-13	0.0	0.0
14.750	1.866478E-01	3.265454E-02	1.160155E-01	1.518783E-01	8.639440E-02	-1.969692E-12	0.0	0.0
15.100	1.768700E-01	3.489606E-02	1.099123E-01	1.453961E-01	1.083525E-01	-2.020700E-12	0.0	0.0
15.450	1.679117E-01	3.892293E-02	1.042720E-01	1.441736E-01	1.206181E-01	-1.498284E-12	0.0	0.0
15.800	1.593544E-01	4.390442E-02	9.894025E-02	1.420559E-01	1.306624E-01	-1.346929E-12	0.0	0.0
16.150	1.512942E-01	4.893679E-02	9.403568E-02	1.394810E-01	1.427782E-01	-1.278756E-12	0.0	0.0
16.500	1.436418E-01	5.483149E-02	8.936187E-02	1.367643E-01	1.433371E-01	-1.164677E-12	0.0	0.0
16.850	1.365266E-01	5.909892E-02	8.497589E-02	1.346185E-01	1.509963E-01	-1.053423E-12	0.0	0.0
17.200	1.297826E-01	6.410832E-02	8.081951E-02	1.320442E-01	1.478577E-01	-9.354304E-13	0.0	0.0
17.550	1.234021E-01	6.821708E-02	7.693034E-02	1.292880E-01	1.526014E-01	-8.448555E-13	0.0	0.0
17.900	1.173793E-01	7.224226E-02	7.325324E-02	1.265805E-01	1.491338E-01	-7.690107E-13	0.0	0.0
18.250	1.116504E-01	7.623524E-02	6.978249E-02	1.238369E-01	1.461983E-01	-7.467034E-13	0.0	0.0
18.600	1.062246E-01	8.091026E-02	6.651310E-02	1.211200E-01	1.442854E-01	-6.596674E-13	0.0	0.0
18.950	1.010564E-01	8.546131E-02	6.341815E-02	1.183924E-01	1.431211E-01	-5.949534E-13	0.0	0.0
19.300	9.615746E-02	9.047854E-02	6.049676E-02	1.156304E-01	1.405285E-01	-5.558658E-13	0.0	0.0
19.650	9.151489E-02	9.589922E-02	5.774104E-02	1.128646E-01	1.387222E-01	-4.924647E-13	0.0	0.0
20.000	8.711770E-02	1.010632E-01	5.514220E-02	1.101113E-01	1.368752E-01	-4.413630E-13	0.0	0.0
20.350	8.316989E-02	1.071188E-01	5.269833E-02	1.074137E-01	1.348735E-01	6.668643E-01	0.0	0.0
20.700	8.141402E-02	1.135544E-01	5.040588E-02	1.046978E-01	1.351772E-01	3.349684E+00	0.0	0.0
21.050	8.386233E-02	1.204943E-01	4.825163E-02	1.021897E-01	1.338120E-01	7.119477E+00	0.0	0.0
21.400	9.247166E-02	1.281695E-01	4.619207E-02	1.002265E-01	1.328444E-01	1.061849E+01	0.0	0.0
21.750	1.088749E-01	1.367000E-01	4.418020E-02	9.892945E-02	1.304424E-01	1.328254E+01	0.0	0.0
22.100	1.361976E-01	1.449803E-01	4.217010E-02	9.804310E-02	1.282870E-01	1.523999E+01	0.0	1.085379E+00
22.450	1.811081E-01	1.519747E-01	4.014221E-02	9.727220E-02	1.278620E-01	1.684216E+01	0.0	1.085379E+00
22.800	2.472783E-01	1.563273E-01	3.812004E-02	9.595411E-02	1.242976E-01	1.824924E+01	0.0	1.085379E+00
23.150	3.299166E-01	1.589371E-01	3.610803E-02	9.419018E-02	1.194988E-01	1.955086E+01	0.0	1.085379E+00
23.500	4.269522E-01	1.602349E-01	3.415414E-02	9.214357E-02	1.145680E-01	2.079474E+01	0.0	1.085379E+00
23.850	5.368348E-01	1.593189E-01	3.226386E-02	8.971165E-02	1.070974E-01	2.198655E+01	0.0	1.085379E+00
24.200	6.579283E-01	1.568355E-01	3.045365E-02	8.694443E-02	9.550755E-02	2.313642E+01	0.0	1.085379E+00
24.550	7.884762E-01	1.548760E-01	2.873429E-02	8.391320E-02	8.227265E-02	2.424424E+01	0.0	1.085379E+00
24.900	8.249866E-01	1.563151E-01	2.785093E-02	7.801458E-02	7.121249E-02	2.490143E+01	0.0	1.085379E+00
25.250	8.380685E-01	1.644306E-01	2.703586E-02	7.565731E-02	7.618420E-02	2.551300E+01	0.0	1.085379E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

	DENSITY					VOLUMETRIC FLOW		
	(DE-PC-1)	(DE-PC-2)	(DE-PC-3)	(DE-BL-1)	(DE-BL-2)	(FT-P120-36-1)	(FT-P120-85)	(FT-P128-104)
TIME	ADE10	ADE1	ADE6	ADE21	ADE15	JW33	JW34	JW35
SEC	MG/M3	MG/M3	MG/M3	MG/M3	MG/M3	LITER/SEC	LITER/SEC	LITER/SEC
25.600	8.488530E-01	1.751099E-01	2.593612E-02	7.470166E-02	7.975048E-02	2.609910E+01	0.0	1.085379E+00
25.950	8.585972E-01	1.839680E-01	2.485101E-02	7.408139E-02	8.257687E-02	2.671486E+01	0.0	1.085379E+00
26.300	8.679909E-01	1.886349E-01	2.387260E-02	7.332669E-02	8.595313E-02	2.733186E+01	0.0	1.085379E+00
26.650	8.768926E-01	1.895377E-01	2.296731E-02	7.299826E-02	8.831958E-02	2.794022E+01	0.0	1.085379E+00
27.000	8.848520E-01	1.854630E-01	2.205567E-02	7.288169E-02	8.629760E-02	2.855533E+01	0.0	1.085379E+00
27.350	8.917257E-01	1.760186E-01	2.110221E-02	7.270983E-02	8.327545E-02	2.918117E+01	0.0	1.085379E+00
27.700	8.980587E-01	1.646307E-01	2.016170E-02	7.262965E-02	8.067419E-02	2.979112E+01	0.0	1.085379E+00
28.050	9.038114E-01	1.516605E-01	1.926639E-02	7.245607E-02	7.732680E-02	3.037852E+01	0.0	1.085379E+00
28.400	9.091184E-01	1.377596E-01	1.840973E-02	7.229709E-02	7.433798E-02	3.094546E+01	0.0	1.085379E+00
28.750	9.139437E-01	1.231287E-01	1.758218E-02	7.220610E-02	7.160527E-02	3.150028E+01	0.0	1.085379E+00
29.100	9.183178E-01	1.085765E-01	1.678450E-02	7.216618E-02	6.737139E-02	3.203656E+01	0.0	1.085379E+00
29.450	9.222841E-01	9.470290E-02	1.601869E-02	7.211841E-02	6.490833E-02	3.255502E+01	0.0	1.085379E+00
29.800	9.259481E-01	8.128384E-02	1.528719E-02	7.201677E-02	6.039117E-02	3.305416E+01	0.0	1.085379E+00
30.150	9.291970E-01	6.924975E-02	1.459032E-02	7.187839E-02	5.639629E-02	3.353499E+01	0.0	1.085379E+00
30.500	9.323016E-01	5.894331E-02	1.393005E-02	7.176730E-02	5.177397E-02	3.399681E+01	0.0	1.085379E+00
30.850	9.351153E-01	4.998779E-02	1.330695E-02	7.166661E-02	4.693163E-02	3.443933E+01	0.0	1.085379E+00
31.200	9.376680E-01	4.247958E-02	1.272131E-02	7.156352E-02	4.280442E-02	3.486472E+01	0.0	1.085379E+00
31.550	9.401603E-01	3.621566E-02	1.217320E-02	7.142602E-02	3.890847E-02	3.527269E+01	0.0	1.085379E+00
31.900	9.424622E-01	3.102419E-02	1.165962E-02	7.128300E-02	3.549876E-02	3.566042E+01	0.0	1.085379E+00
32.250	9.445807E-01	2.673542E-02	1.117851E-02	7.110984E-02	3.291437E-02	3.603253E+01	0.0	1.085379E+00
32.600	9.465776E-01	2.322207E-02	1.072819E-02	7.092046E-02	3.192166E-02	3.638815E+01	0.0	1.085379E+00
32.950	9.485103E-01	2.039604E-02	1.030656E-02	7.071374E-02	3.363637E-02	3.672490E+01	0.0	1.085379E+00
33.300	9.502666E-01	1.814201E-02	9.909514E-03	7.048980E-02	3.701248E-02	3.704495E+01	0.0	1.085379E+00
33.650	9.518475E-01	1.636686E-02	9.534347E-03	7.026336E-02	4.098208E-02	3.735142E+01	0.0	1.085379E+00
34.000	9.532600E-01	1.498939E-02	9.179971E-03	7.004203E-02	4.482019E-02	3.764335E+01	0.0	1.085379E+00
34.350	9.545941E-01	1.393995E-02	8.845004E-03	6.981434E-02	4.822564E-02	3.791944E+01	0.0	1.085379E+00
34.700	9.557912E-01	1.315538E-02	8.528294E-03	6.959675E-02	5.092200E-02	3.817970E+01	0.0	1.085379E+00
35.050	9.572452E-01	1.220552E-02	8.975936E-03	6.979815E-02	4.752473E-02	3.840294E+01	0.0	1.085379E+00
35.400	9.585915E-01	1.133447E-02	1.077702E-02	6.939755E-02	4.149208E-02	3.861665E+01	0.0	1.085379E+00
35.750	9.597127E-01	1.067671E-02	1.313538E-02	6.923292E-02	3.897347E-02	3.882490E+01	0.0	1.085379E+00
36.100	9.607328E-01	1.010242E-02	1.548178E-02	6.889424E-02	3.680870E-02	3.894475E+01	2.404608E+00	1.085379E+00
36.450	9.618145E-01	9.470689E-03	1.756735E-02	6.868521E-02	3.064087E-02	3.913968E+01	2.984666E+00	1.085379E+00
36.800	9.627279E-01	8.909596E-03	1.931015E-02	6.865980E-02	2.560365E-02	3.933579E+01	3.473881E+00	1.085379E+00
37.150	9.634335E-01	8.430548E-03	2.076426E-02	6.866194E-02	2.303061E-02	3.952730E+01	3.957173E+00	1.085379E+00
37.500	9.640365E-01	7.998215E-03	2.190484E-02	6.878477E-02	2.264221E-02	3.971341E+01	4.427293E+00	1.085379E+00
37.850	9.646797E-01	7.556620E-03	2.256415E-02	6.896478E-02	2.076242E-02	3.988127E+01	4.800480E+00	1.085379E+00
38.200	9.651610E-01	7.182240E-03	2.305009E-02	6.899554E-02	2.107802E-02	4.004693E+01	5.141286E+00	1.085379E+00
38.550	9.657008E-01	6.827590E-03	2.327874E-02	6.927021E-02	2.254754E-02	4.019818E+01	5.471023E+00	1.085379E+00
38.900	9.662506E-01	6.502247E-03	2.331163E-02	6.938029E-02	2.352804E-02	4.033830E+01	5.777670E+00	1.085379E+00
39.250	9.667439E-01	6.213211E-03	2.320887E-02	6.945097E-02	2.490102E-02	4.047161E+01	6.029329E+00	1.085379E+00
39.600	9.671739E-01	5.965265E-03	2.310274E-02	6.950030E-02	2.745270E-02	4.059233E+01	6.277279E+00	1.085379E+00
39.950	9.676185E-01	5.743077E-03	2.296708E-02	6.963805E-02	2.933906E-02	4.070208E+01	6.514303E+00	1.085379E+00
40.300	9.680204E-01	5.549771E-03	2.284217E-02	6.975961E-02	3.117475E-02	4.080399E+01	6.746584E+00	1.085379E+00
40.650	9.683773E-01	5.383662E-03	2.274562E-02	6.982344E-02	3.297338E-02	4.089857E+01	6.928207E+00	1.085379E+00
41.000	9.686189E-01	5.563785E-03	2.246756E-02	6.962634E-02	3.518236E-02	4.098758E+01	7.104806E+00	1.085379E+00
41.350	9.689004E-01	6.913439E-03	2.237517E-02	6.971775E-02	3.676676E-02	4.106250E+01	7.271262E+00	1.085379E+00
41.700	9.691707E-01	8.982223E-03	2.234067E-02	6.970469E-02	3.728200E-02	4.112965E+01	7.431623E+00	1.085379E+00
42.050	9.694181E-01	1.227204E-02	2.230160E-02	6.952942E-02	3.780957E-02	4.118854E+01	7.585224E+00	1.085379E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

	DENSITY					VOLUMETRIC FLOW		
	(DE-PC-1)	(DE-PC-2)	(DE-PC-3)	(DE-BL-1)	(DE-BL-2)	(FT-P120-36-1)	(FT-P120-85)	(FT-P128-104)
TIME	ADE10	ADE1	ADE6	ADE21	ADE15	JW33	JW34	JW35
SEC	MG/M3	MG/M3	MG/M3	MG/M3	MG/M3	LITER/SEC	LITER/SEC	LITER/SEC
42.400	9.696427E-01	1.623747E-02	2.222021E-02	6.934908E-02	3.799408E-02	4.124037E+01	7.724105E+00	1.085379E+00
42.750	9.697976E-01	2.047594E-02	2.197901E-02	6.912377E-02	3.790859E-02	4.128878E+01	7.858096E+00	1.085379E+00
43.100	9.700311E-01	2.360191E-02	2.178204E-02	6.894895E-02	3.701844E-02	4.132059E+01	7.984618E+00	1.085379E+00
43.450	9.702882E-01	2.632328E-02	2.154040E-02	6.829342E-02	3.617497E-02	4.134717E+01	8.106348E+00	1.085379E+00
43.800	9.705334E-01	2.888963E-02	2.125685E-02	6.728231E-02	3.573535E-02	4.137100E+01	8.225529E+00	1.085379E+00
44.150	9.707519E-01	3.099310E-02	2.095450E-02	6.638613E-02	3.533443E-02	4.139147E+01	8.336474E+00	1.085379E+00
44.500	9.709663E-01	3.221486E-02	2.063939E-02	6.585069E-02	3.461757E-02	4.140657E+01	8.420440E+00	1.085379E+00
44.850	9.712109E-01	3.244563E-02	2.030365E-02	6.550600E-02	3.349182E-02	4.141277E+01	8.497923E+00	1.085379E+00
45.200	9.715024E-01	3.206975E-02	1.994362E-02	6.493971E-02	3.223821E-02	4.141099E+01	8.571571E+00	1.085379E+00
45.550	9.718281E-01	3.172229E-02	1.957141E-02	6.390467E-02	3.130409E-02	4.140462E+01	8.642884E+00	1.085379E+00
45.900	9.721538E-01	3.177596E-02	1.920911E-02	6.256759E-02	3.083882E-02	4.139702E+01	8.712757E+00	1.085379E+00
46.250	9.724521E-01	3.217076E-02	1.887535E-02	6.126087E-02	3.072037E-02	4.138904E+01	8.781460E+00	1.085379E+00
46.600	9.727261E-01	3.264170E-02	1.857592E-02	6.046186E-02	3.074182E-02	4.137792E+01	8.847024E+00	1.085379E+00
46.950	9.730150E-01	3.228240E-02	1.828087E-02	6.022089E-02	3.024992E-02	4.135736E+01	8.909219E+00	1.085379E+00
47.300	9.733479E-01	3.226464E-02	1.797742E-02	5.943832E-02	3.001022E-02	4.133394E+01	8.968982E+00	1.085379E+00
47.650	9.737167E-01	3.245832E-02	1.768375E-02	5.849729E-02	2.999692E-02	4.130510E+01	9.026086E+00	1.085379E+00
48.000	9.741129E-01	3.286092E-02	1.738982E-02	5.719734E-02	3.016528E-02	4.127490E+01	9.081957E+00	1.085379E+00
48.350	9.744915E-01	3.403921E-02	1.712187E-02	5.580854E-02	3.083976E-02	4.124501E+01	9.137115E+00	1.085379E+00
48.700	9.748286E-01	3.593286E-02	1.689089E-02	5.466713E-02	3.194100E-02	4.121643E+01	9.191848E+00	1.085379E+00
49.050	9.751384E-01	3.782365E-02	1.672006E-02	5.450775E-02	3.303313E-02	4.118132E+01	9.241627E+00	1.085379E+00
49.400	9.754517E-01	3.757338E-02	1.651475E-02	5.396475E-02	3.318837E-02	4.114117E+01	9.290960E+00	1.085379E+00
49.750	9.757877E-01	3.927019E-02	1.634006E-02	5.315092E-02	3.408583E-02	4.110302E+01	9.338625E+00	1.085379E+00
50.100	9.760975E-01	4.067605E-02	1.622025E-02	5.248780E-02	3.497337E-02	4.106077E+01	9.384258E+00	1.085379E+00
50.450	9.764003E-01	4.108409E-02	1.610402E-02	5.163757E-02	3.543628E-02	4.101632E+01	9.428436E+00	1.085379E+00
50.800	9.767020E-01	4.164974E-02	1.601118E-02	5.067984E-02	3.589160E-02	4.097089E+01	9.472049E+00	1.085379E+00
51.150	9.769847E-01	4.257517E-02	1.595298E-02	4.971220E-02	3.652269E-02	4.092560E+01	9.519150E+00	1.085379E+00
51.500	9.771989E-01	4.431477E-02	1.589561E-02	5.270584E-02	3.744423E-02	4.089372E+01	9.574244E+00	1.085379E+00
51.850	9.774394E-01	4.420865E-02	1.598650E-02	1.571053E-01	3.705124E-02	4.083503E+01	9.607839E+00	1.085379E+00
52.200	9.777123E-01	4.227806E-02	1.595149E-02	1.330085E-01	3.661854E-02	4.077137E+01	9.643930E+00	1.085379E+00
52.550	9.780529E-01	4.347522E-02	1.596402E-02	1.406470E-01	3.690104E-02	4.070041E+01	9.677933E+00	1.085379E+00
52.900	9.783214E-01	4.442356E-02	1.595809E-02	2.033250E-01	3.734448E-02	4.064792E+01	9.720953E+00	1.085379E+00
53.250	9.785533E-01	4.402159E-02	1.595959E-02	8.956004E-02	3.755599E-02	4.059538E+01	9.755991E+00	1.085379E+00
53.600	9.787509E-01	4.559875E-02	1.594765E-02	1.840106E-01	3.824621E-02	4.053418E+01	9.792597E+00	1.085379E+00
53.950	9.789305E-01	4.853030E-02	1.603483E-02	2.164507E-01	3.925532E-02	4.048594E+01	9.829818E+00	1.085379E+00
54.300	9.791618E-01	4.648776E-02	1.624473E-02	8.901335E-02	3.831702E-02	4.039835E+01	9.850557E+00	1.085379E+00
54.650	9.794115E-01	4.498184E-02	1.624572E-02	1.773429E-01	3.828597E-02	4.032915E+01	9.882322E+00	1.085379E+00
55.000	9.796340E-01	4.586401E-02	1.627786E-02	2.544001E-01	3.864205E-02	4.027371E+01	9.917433E+00	1.085379E+00
55.350	9.798526E-01	4.691615E-02	1.640789E-02	1.193850E-01	3.876636E-02	4.020288E+01	9.940245E+00	1.085379E+00
55.700	9.800794E-01	4.647490E-02	1.649352E-02	1.024945E-01	3.867579E-02	4.012452E+01	9.966085E+00	1.085379E+00
56.050	9.802588E-01	4.496214E-02	1.649817E-02	2.240302E-01	3.814524E-02	4.006591E+01	1.000028E+01	1.085379E+00
56.400	9.804145E-01	4.388329E-02	1.651592E-02	2.136172E-01	3.741140E-02	4.000776E+01	1.002846E+01	1.085379E+00
56.750	9.805970E-01	4.368747E-02	1.657658E-02	8.796095E-02	3.716974E-02	3.993422E+01	1.004940E+01	1.085379E+00
57.100	9.807749E-01	4.451307E-02	1.663572E-02	1.279158E-01	3.716468E-02	3.986254E+01	1.007418E+01	1.085379E+00
57.450	9.809093E-01	4.486217E-02	1.664717E-02	2.336139E-01	3.721333E-02	3.980233E+01	1.010057E+01	1.085379E+00
57.800	9.817049E-01	4.514824E-02	1.653258E-02	2.345232E-01	3.723538E-02	3.982545E+01	1.018318E+01	1.085379E+00

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

MASS FLOW PER SYSTEM VOLUME

TIME	INTACT LOOP COLD LEG FLOW	INTACT LOOP HOT LEG FLOW	INTACT LOOP HOT LEG FLOW AT VENTURE	INTACT LOOP COLD LEG FLOW AT S.G.	BROKEN LOOP COLD LEG FLOW OUTLET	BROKEN LOOP HOT LEG FLOW	CORE SIMULA-TOR FLOW	R.V. DOWNCO-MER FLOW AT STALK NO.1 AND NO.2
	JW11	JW15	JW2	JW5	JW16	JW24	JW14	JW12
SEC.	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3
0.0	2.683447E+02	2.683447E+02	2.683447E+02	2.683447E+02	0.0	2.683447E+02	2.683447E+02	2.683447E+02
0.070	4.023734E+02	1.613758E+02	1.967838E+02	2.441728E+02	7.755485E+01	1.967838E+02	2.238093E+02	1.463988E+02
0.140	2.907413E+02	1.243326E+02	1.950753E+02	3.007496E+02	4.960258E+01	1.950753E+02	1.582512E+02	9.464758E+01
0.210	2.763164E+02	2.550998E+01	2.646101E+02	2.925184E+02	9.323385E+01	2.646101E+02	1.114859E+02	9.738074E+01
0.280	2.897258E+02	3.828727E+01	1.113292E+02	2.908164E+02	1.009660E+02	1.113292E+02	1.388613E+02	1.359388E+02
0.350	2.862234E+02	3.554861E+01	1.466724E+02	2.839714E+02	9.611849E+01	1.466724E+02	1.308623E+02	1.280451E+02
0.420	2.813929E+02	4.162757E+01	1.698253E+02	2.818861E+02	1.043928E+02	1.698253E+02	1.454335E+02	1.436153E+02
0.490	2.789011E+02	6.661123E+01	1.079478E+02	2.781122E+02	9.739999E+01	1.079478E+02	1.639119E+02	1.641545E+02
0.560	2.748596E+02	7.843272E+01	7.016939E+01	2.695483E+02	9.307222E+01	7.016939E+01	1.719650E+02	1.753935E+02
0.630	2.749196E+02	7.752430E+01	7.809241E+01	2.585909E+02	9.449558E+01	7.809241E+01	1.722527E+02	1.756769E+02
0.700	2.732123E+02	7.570582E+01	1.067947E+02	2.658007E+02	9.271288E+01	1.067947E+02	1.682467E+02	1.686954E+02
0.770	2.735480E+02	6.999623E+01	1.317003E+02	2.708531E+02	9.716861E+01	1.317003E+02	1.665687E+02	1.660256E+02
0.840	2.759686E+02	6.483335E+01	1.395931E+02	2.637644E+02	9.583844E+01	1.395931E+02	1.601513E+02	1.585287E+02
0.910	2.762971E+02	6.501917E+01	1.325199E+02	2.554657E+02	9.392636E+01	1.325199E+02	1.583499E+02	1.574475E+02
0.980	2.755615E+02	6.488432E+01	1.163611E+02	2.594069E+02	9.497843E+01	1.163611E+02	1.594930E+02	1.589194E+02
1.050	2.749084E+02	6.508453E+01	1.015455E+02	2.638316E+02	9.358549E+01	1.015455E+02	1.586490E+02	1.593564E+02
1.120	2.759568E+02	6.222634E+01	9.111592E+01	2.575080E+02	9.276803E+01	9.111592E+01	1.549811E+02	1.558376E+02
1.190	2.749677E+02	5.854497E+01	8.449098E+01	2.519085E+02	9.189453E+01	8.449098E+01	1.504615E+02	1.515283E+02
1.260	2.733958E+02	5.512163E+01	8.122724E+01	2.523967E+02	9.109494E+01	8.122724E+01	1.462772E+02	1.471864E+02
1.330	2.719296E+02	5.141660E+01	7.984969E+01	2.493704E+02	9.056463E+01	7.984969E+01	1.420573E+02	1.427684E+02
1.400	2.701105E+02	4.689674E+01	7.926520E+01	2.466107E+02	9.023200E+01	7.926520E+01	1.371103E+02	1.378907E+02
1.470	2.682050E+02	4.453048E+01	7.816192E+01	2.448763E+02	8.947016E+01	7.816192E+01	1.339850E+02	1.343386E+02
1.540	2.663596E+02	4.365785E+01	7.777190E+01	2.433160E+02	8.896609E+01	7.777190E+01	1.325858E+02	1.331400E+02
1.610	2.721103E+02	4.324998E+01	7.750865E+01	2.382626E+02	8.835164E+01	7.750865E+01	1.315074E+02	1.319035E+02
1.680	2.892238E+02	4.498112E+01	7.770998E+01	2.338782E+02	8.788470E+01	7.770998E+01	1.327869E+02	1.330907E+02
1.750	3.163520E+02	4.871188E+01	7.884910E+01	2.452679E+02	8.704482E+01	7.884910E+01	1.356115E+02	1.359475E+02
1.820	3.165280E+02	5.486624E+01	8.182012E+01	2.647319E+02	8.621028E+01	8.182012E+01	1.405405E+02	1.409238E+02
1.890	2.956356E+02	6.477177E+01	8.737523E+01	1.954479E+02	8.545061E+01	8.737523E+01	1.420126E+02	1.419897E+02
1.960	2.661798E+02	7.860938E+01	9.510545E+01	1.804239E+02	8.445795E+01	9.510545E+01	1.471864E+02	1.480267E+02
2.150	2.490847E+02	7.507484E+01	1.021866E+02	2.108914E+02	8.197295E+01	1.021866E+02	1.532836E+02	1.360628E+02
2.500	2.824729E+02	5.493958E+01	9.499376E+01	1.923494E+02	7.932813E+01	9.499376E+01	9.694330E+01	1.368123E+02
2.850	2.195475E+02	6.228411E+01	8.745896E+01	1.901598E+02	7.266826E+01	8.745896E+01	1.433737E+02	8.969394E+01
3.200	2.008677E+02	1.762967E+01	7.194802E+01	9.860539E+01	8.497402E+01	7.194802E+01	1.145413E+02	8.400854E+01
3.550	1.896178E+02	-4.610997E+01	4.548319E+01	1.149561E+02	8.994594E+01	4.548319E+01	1.538724E+01	3.921525E+01
3.900	1.140639E+02	-1.987263E+01	1.535104E+01	7.141722E+01	2.965755E+01	1.535104E+01	7.832795E+01	-2.071482E+01
4.250	1.237505E+02	-3.870345E+01	2.612986E+01	9.503882E+01	4.716197E+01	2.612986E+01	-5.169028E+01	-3.238121E+00
4.600	1.101916E+02	-8.020769E+01	1.582380E+01	3.168822E+01	1.038936E+02	1.582380E+01	-4.552157E+01	-4.606743E+01
4.950	5.730867E+01	-2.524226E+01	1.197878E+01	5.470615E+01	1.014291E+01	1.197878E+01	4.056896E+01	-7.623772E+01
5.300	1.041753E+02	-4.387305E+01	1.604170E+01	6.748322E+01	6.041271E+01	1.604170E+01	-3.372734E+01	-3.793432E+01
5.650	1.244506E+02	-4.924839E+01	7.755300E+00	2.575907E+01	7.249197E+01	7.755300E+00	-5.247072E+01	-9.914674E+01
6.000	6.990227E+01	-3.847273E+01	1.345218E+01	1.888364E+01	5.154729E+01	1.345218E+01	-7.154619E+01	-6.571840E+01
6.350	8.775276E+01	-3.325118E+01	9.376192E+00	2.823055E+01	1.196506E+01	9.376192E+00	-3.149067E+01	-1.220275E+02
6.700	6.032713E+01	-2.783723E+01	9.450839E+00	2.369935E+01	5.668216E+00	9.450839E+00	-6.159639E+00	-6.919417E+01
7.050	1.118611E+02	-1.722165E+01	1.594674E+01	2.458083E+01	3.800445E+00	1.594674E+01	-1.089753E+01	-7.510881E+01
7.400	7.132543E+01	-1.731081E+01	1.395455E+01	2.401517E+01	3.799931E+00	1.395455E+01	-1.061333E+01	-1.529592E+01
7.750	6.931026E+01	-1.916333E+01	1.147891E+01	2.392695E+01	5.821368E+00	1.147891E+01	1.036883E+01	-9.205721E+01
8.100	6.737592E+01	-1.848522E+01	1.182861E+01	3.732593E+01	6.002068E+00	1.182861E+01	1.786213E+00	-5.768023E+01
8.450	4.849588E+01	-1.768751E+01	1.132801E+01	3.702911E+01	7.040580E+00	1.132801E+01	-2.309291E+01	-4.652040E+01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

MASS FLOW PER SYSTEM VOLUME

TIME	INTACT LOOP COLD LEG FLOW	INTACT LOOP HOT LEG FLOW	INTACT LOOP HOT LEG FLOW AT VENTURE	INTACT LOOP COLD LEG FLOW AT S.G.	BROKEN LOOP COLD LEG FLOW OUTLET	BROKEN LOOP HOT LEG FLOW	CORE SIMULA-TOR FLOW	R.V. DOWNCO-MER FLOW AT STALK NO.1 AND NO.2
	JW11	JW15	JW2	JW5	JW16	JW24	JW14	JW12
SEC.	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3
8.800	5.059806E+01	-1.817721E+01	1.268506E+01	3.665788E+01	7.722585E+00	1.268506E+01	-1.258151E+01	-4.473332E+01
9.150	4.499377E+01	-1.900453E+01	9.554801E+00	2.384297E+01	6.417377E+00	9.554801E+00	-1.443802E+01	-4.502868E+01
9.500	5.363757E+01	-1.691566E+01	1.128162E+01	2.441269E+01	8.968045E+00	1.128162E+01	-3.772407E+00	-4.232758E+01
9.850	3.336158E+01	-1.937770E+01	7.969870E+00	2.144323E+01	9.740798E+00	7.969870E+00	-1.440443E+01	-2.180178E+01
10.200	4.999867E+01	-2.135133E+01	5.798459E+00	2.229519E+01	1.258555E+01	5.798459E+00	-5.355735E+00	-8.524385E+01
10.550	5.413819E+01	-1.683780E+01	9.148777E+00	1.844770E+01	6.834737E+00	9.148777E+00	1.581807E+01	-5.335498E+01
10.900	4.870831E+01	-2.554060E+01	2.311993E+00	2.600184E+01	6.079587E+00	2.311993E+00	-5.732171E+01	-6.185791E+01
11.250	2.600792E+01	-1.864449E+01	8.688155E+00	2.983643E+01	8.915822E+00	8.688155E+00	-2.106100E+01	-6.532461E+01
11.600	4.291804E+01	-1.827753E+01	4.763349E+00	1.576291E+01	6.255410E+00	4.763349E+00	2.518542E+01	-6.650428E+01
11.950	5.171658E+01	-2.082529E+01	9.222775E-01	1.810666E+01	5.888155E+00	9.222775E-01	-3.631563E+01	-6.903717E+01
12.300	2.910831E+01	-1.553683E+01	1.372267E+00	1.319683E+01	5.688421E+00	1.372267E+00	-3.172666E+01	-5.687488E+01
12.650	2.612884E+01	-1.139678E+01	1.682444E+00	1.651536E+01	5.809351E+00	1.682444E+00	-1.701342E+01	-3.397556E+01
13.000	5.144240E+01	-9.972896E+00	8.766274E-01	1.775474E+01	6.310670E+00	8.766274E-01	2.845344E+00	-7.069747E+01
13.350	1.942094E+01	-8.628739E+00	6.073520E-01	1.135275E+01	7.132447E+00	6.073520E-01	9.286339E+00	-4.080146E+01
13.700	2.885632E+01	-8.164963E+00	-5.297996E-01	1.218398E+01	8.292149E+00	-5.297996E-01	1.806192E+01	-6.298175E+01
14.050	3.265553E+01	-7.256531E+00	-8.430198E-01	1.332714E+01	1.330631E+01	-8.430198E-01	2.370471E+01	-6.304187E+01
14.400	3.211855E+01	-8.113958E+00	-2.448836E+00	1.290488E+01	1.320327E+01	-2.448836E+00	2.897086E+01	-4.430033E+01
14.750	3.262216E+01	-5.811031E+00	-5.478611E+00	1.164939E+01	2.355402E+01	-5.478611E+00	3.528076E+01	-4.553837E+01
15.100	3.223657E+01	-9.735930E+00	3.787353E-01	1.261328E+01	6.039916E+01	3.787353E-01	2.531997E+01	-4.685543E+01
15.450	2.991344E+01	-6.062479E+00	-1.433020E+01	1.208557E+01	1.924345E+01	-1.433020E+01	5.103223E+01	-4.609573E+01
15.800	2.831986E+01	-6.158159E+00	-1.496561E+01	1.109348E+01	2.023846E+01	-1.496561E+01	4.959803E+01	-3.616675E+01
16.150	2.663948E+01	-9.365293E+00	-1.087919E+01	1.014658E+01	2.883928E+01	-1.087919E+01	4.638450E+01	-2.551939E+01
16.500	2.530879E+01	-9.091211E+00	-6.592455E+00	9.907351E+00	5.674842E+01	-6.592455E+00	2.478707E+01	-2.603687E+01
16.850	2.435874E+01	-1.363123E+01	-4.409053E+00	9.868857E+00	4.687275E+01	-4.409053E+00	3.003233E+01	-2.615767E+01
17.200	2.280216E+01	-3.828104E+00	-2.030457E+01	9.177022E+00	1.331621E+01	-2.030457E+01	4.053779E+01	-2.360325E+01
17.550	2.171846E+01	-1.249358E+01	-5.772737E+00	8.693607E+00	6.266511E+01	-5.772737E+00	1.947965E+01	-2.244105E+01
17.900	2.040915E+01	-4.566166E+00	-1.558314E+01	8.460649E+00	3.937879E+01	-1.558314E+01	2.278290E+01	-2.200499E+01
18.250	1.965838E+01	-9.751259E+00	-1.180445E+01	7.990064E+00	3.312424E+01	-1.180445E+01	2.639645E+01	-2.287869E+01
18.600	1.860106E+01	-7.224430E+00	-1.517225E+01	7.676277E+00	4.282433E+01	-1.517225E+01	1.710269E+01	-2.129764E+01
18.950	1.766645E+01	-1.573362E+01	-8.159773E+00	7.322337E+00	3.134395E+01	-8.159773E+00	2.511900E+01	-2.119008E+01
19.300	1.692019E+01	-1.419484E+01	-1.125229E+01	7.026246E+00	3.119167E+01	-1.125229E+01	2.338848E+01	-1.964121E+01
19.650	1.597340E+01	-7.545170E+00	-1.782557E+01	6.713504E+00	4.312847E+01	-1.782557E+01	1.200636E+01	-1.957578E+01
20.000	1.520293E+01	-1.678067E+01	-9.776308E+00	6.396351E+00	1.886367E+01	-9.776308E+00	2.781511E+01	-1.858108E+01
20.350	1.447998E+01	-8.965062E+00	-1.769756E+01	6.112927E+00	3.608985E+01	-1.769756E+01	1.291548E+01	-1.856839E+01
20.700	1.406143E+01	-1.130131E+01	-2.043623E+01	5.766876E+00	4.435734E+01	-2.043623E+01	8.747360E+00	-1.818152E+01
21.050	1.398138E+01	-1.247134E+01	-2.242012E+01	5.507317E+00	4.202249E+01	-2.242012E+01	7.635923E+00	-1.824154E+01
21.400	1.382617E+01	-1.521774E+01	-2.307423E+01	5.437716E+00	4.245186E+01	-2.307423E+01	6.459621E+00	-1.978557E+01
21.750	1.279924E+01	-1.293929E+01	-2.515294E+01	5.433214E+00	4.568586E+01	-2.515294E+01	-1.024369E-01	-2.218959E+01
22.100	9.632527E+00	-1.226554E+01	-2.299639E+01	5.666278E+00	4.008079E+01	-2.299639E+01	1.577674E-01	-2.528413E+01
22.450	4.170549E+00	-2.125423E+01	-2.354475E+01	5.888447E+00	3.080435E+01	-2.354475E+01	4.475438E+00	-2.735740E+01
22.800	-2.958782E+00	-2.672636E+01	-2.135800E+01	5.913114E+00	1.571051E+01	-2.135800E+01	9.826734E+00	-3.029096E+01
23.150	-7.636026E+00	-2.781353E+01	-2.103880E+01	6.049037E+00	1.168557E+01	-2.103880E+01	7.536216E+00	-3.184994E+01
23.500	-1.212780E+01	-2.526220E+01	-2.322028E+01	6.035248E+00	2.301071E+01	-2.322028E+01	-3.777593E+00	-3.331817E+01
23.850	-1.617140E+01	-2.569974E+01	-2.237275E+01	5.922269E+00	1.603897E+01	-2.237275E+01	-6.960711E+00	-3.509184E+01
24.200	-1.967970E+01	-2.510296E+01	-2.073243E+01	5.805543E+00	8.473775E+00	-2.073243E+01	-1.425551E+01	-3.604432E+01
24.550	-2.252283E+01	-2.489624E+01	-2.201425E+01	5.650015E+00	8.856363E+00	-2.201425E+01	-2.164592E+01	-3.654282E+01
24.900	3.389838E+01	-2.915337E+01	-4.074791E+01	6.201439E+00	7.322969E+00	-4.074791E+01	8.570033E+00	-1.870631E+01
25.250	2.801749E+01	-2.437872E+01	-3.424206E+01	2.730298E+00	2.371527E+01	-3.424206E+01	2.059374E+00	-1.470973E+01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

MASS FLOW PER SYSTEM VOLUME

TIME	INTACT LOOP COLD LEG FLOW	INTACT LOOP HOT LEG FLOW	INTACT LOOP HOT LEG FLOW AT VENTURE	INTACT LOOP COLD LEG FLOW AT S.G.	BROKEN LOOP COLD LEG FLOW OUTLET	BROKEN LOOP HOT LEG FLOW	CORE SIMULA-TOR FLOW	R.V. DOWNCO-MER FLOW AT STALK NO.1 AND NO.2
	JW11	JW15	JW2	JW5	JW16	JW24	JW14	JW12
SEC.	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3
25.600	2.391952E+01	-2.668004E+01	-3.021475E+01	1.083571E+00	6.497657E+00	-3.021475E+01	1.797428E+01	-2.085236E+01
25.950	2.732318E+01	-3.335399E+01	-3.102113E+01	2.396463E+00	2.542064E+00	-3.102113E+01	-1.280462E+01	-2.332858E+01
26.300	3.186829E+01	-3.991156E+01	-3.600233E+01	3.904120E+00	2.876075E+00	-3.600233E+01	-1.182595E+01	-2.613817E+01
26.650	3.397477E+01	-3.446003E+01	-3.215761E+01	4.488957E+00	1.445728E+01	-3.215761E+01	8.733454E-01	-2.517458E+01
27.000	3.271101E+01	-2.411773E+01	-2.023957E+01	3.490521E+00	3.041781E+01	-2.023957E+01	-4.418477E+00	-1.802198E+01
27.350	3.200947E+01	-2.124259E+01	-1.354546E+01	2.947379E+00	2.771699E+01	-1.354546E+01	1.435051E+00	-2.384536E+01
27.700	3.288639E+01	-2.179908E+01	-8.830768E+00	2.977471E+00	1.554328E+01	-8.830768E+00	-1.228454E+01	-2.181344E+01
28.050	3.430233E+01	-1.896235E+01	-8.104125E+00	3.395302E+00	1.675406E+01	-8.104125E+00	-1.298896E+01	-2.347718E+01
28.400	3.568232E+01	-1.604686E+01	-6.839135E+00	3.691121E+00	2.566741E+01	-6.839135E+00	-1.701646E+01	-2.287268E+01
28.750	3.643001E+01	-1.674508E+01	-5.473325E+00	3.806057E+00	1.406898E+01	-5.473325E+00	-4.844429E+00	-2.235537E+01
29.100	3.709238E+01	-1.483591E+01	-2.141671E+00	3.808260E+00	5.527252E+00	-2.141671E+00	1.442362E+00	-2.059577E+01
29.450	3.749258E+01	-8.218897E+00	-1.791754E+00	3.734063E+00	2.266763E+01	-1.791754E+00	-2.460508E+00	-1.859814E+01
29.800	3.805186E+01	-9.139536E+00	-1.093404E-01	3.708253E+00	8.074691E+00	-1.093404E-01	4.413377E+00	-1.651966E+01
30.150	3.863172E+01	-7.722341E+00	2.784296E-03	3.724458E+00	6.188636E+00	2.784296E-03	5.850255E+00	-1.555965E+01
30.500	3.907755E+01	-4.535091E+00	-5.859037E-01	3.745817E+00	1.292561E+01	-5.859037E-01	3.020159E+00	-1.493894E+01
30.850	3.952145E+01	-4.583052E+00	1.406255E-02	3.719289E+00	7.038175E+00	1.406255E-02	4.591101E+00	-1.377071E+01
31.200	3.991262E+01	-3.986749E+00	1.090170E-01	3.678824E+00	7.201563E+00	1.090170E-01	4.501121E+00	-1.289694E+01
31.550	4.018611E+01	-3.271470E+00	3.034447E-01	3.641888E+00	8.293503E+00	3.034447E-01	5.483097E+00	-1.261609E+01
31.900	4.044881E+01	-2.793646E+00	2.832175E-01	3.534419E+00	7.385829E+00	2.832175E-01	4.568156E+00	-1.032433E+01
32.250	4.076526E+01	-2.391046E+00	2.821583E-01	3.486301E+00	7.658260E+00	2.821583E-01	5.125401E+00	-9.669377E+00
32.600	4.096694E+01	-2.017468E+00	3.049754E-01	3.432567E+00	8.932622E+00	3.049754E-01	5.461165E+00	-8.943972E+00
32.950	4.127435E+01	-1.696007E+00	3.367385E-01	3.393647E+00	1.068819E+01	3.367385E-01	5.541217E+00	-8.031448E+00
33.300	4.159809E+01	-1.416735E+00	3.820351E-01	3.383716E+00	1.237709E+01	3.820351E-01	5.664166E+00	-7.241384E+00
33.650	4.192550E+01	-1.147961E+00	4.526715E-01	3.389772E+00	1.369681E+01	4.526715E-01	5.780635E+00	-6.551433E+00
34.000	4.225281E+01	-9.056942E-01	5.332292E-01	3.408423E+00	1.469710E+01	5.332292E-01	5.970075E+00	-5.739666E+00
34.350	4.252773E+01	-6.756785E-01	6.274628E-01	3.441417E+00	1.530706E+01	6.274628E-01	6.121026E+00	-5.019974E+00
34.700	4.283311E+01	-4.620649E-01	7.269764E-01	3.472894E+00	1.534309E+01	7.269764E-01	6.197645E+00	-4.384701E+00
35.050	4.249096E+01	-7.794736E-01	4.735108E-01	4.040088E+00	9.502526E+00	4.735108E-01	5.137938E+00	-4.047882E+00
35.400	4.282447E+01	-6.465255E-01	5.263212E-01	5.380227E+00	9.045840E+00	5.263212E-01	4.748588E+00	-4.690128E+00
35.750	4.335940E+01	-5.711315E-01	5.456863E-01	6.650944E+00	9.494078E+00	5.456863E-01	4.399159E+00	-4.413299E+00
36.100	4.649311E+01	-6.173405E-01	4.919363E-01	7.960025E+00	8.309468E+00	4.919363E-01	3.085961E+00	-5.942095E+00
36.450	4.793136E+01	-5.763900E-01	4.912359E-01	8.593752E+00	5.425821E+00	4.912359E-01	3.036715E+00	-5.580503E+00
36.800	4.959189E+01	-5.335029E-01	4.963206E-01	9.423137E+00	4.893712E+00	4.963206E-01	2.914714E+00	-5.292833E+00
37.150	5.144606E+01	-4.397471E-01	5.479178E-01	1.035634E+01	5.288912E+00	5.479178E-01	2.862619E+00	-5.095458E+00
37.500	5.252498E+01	-5.365938E-01	4.461716E-01	1.016772E+01	5.234873E+00	4.461716E-01	2.183629E+00	-5.263435E+00
37.850	5.399309E+01	-5.107329E-01	4.421693E-01	1.058810E+01	4.938908E+00	4.421693E-01	2.406487E+00	-4.820541E+00
38.200	5.517553E+01	-4.228101E-01	4.894086E-01	1.086508E+01	6.829156E+00	4.894086E-01	2.878058E+00	-3.893183E+00
38.550	5.554946E+01	-4.637141E-01	4.331327E-01	1.055788E+01	6.668479E+00	4.331327E-01	2.571811E+00	-3.826144E+00
38.900	5.638338E+01	-4.575506E-01	4.182200E-01	1.064723E+01	7.247748E+00	4.182200E-01	2.484899E+00	-3.666009E+00
39.250	5.726498E+01	-3.814775E-01	4.607022E-01	1.091823E+01	8.163774E+00	4.607022E-01	2.679333E+00	-3.183205E+00
39.600	5.820772E+01	-3.260928E-01	4.888803E-01	1.090822E+01	9.249666E+00	4.888803E-01	2.805323E+00	-2.708059E+00
39.950	5.890721E+01	-2.524114E-01	5.376404E-01	1.100747E+01	9.290375E+00	5.376404E-01	2.857616E+00	-2.383968E+00
40.300	5.959546E+01	-1.701235E-01	5.952714E-01	1.126441E+01	9.606035E+00	5.952714E-01	2.943639E+00	-2.031310E+00
40.650	6.018906E+01	-8.523695E-02	6.559057E-01	1.154121E+01	9.767215E+00	6.559057E-01	3.034103E+00	-1.690699E+00
41.000	6.055209E+01	1.470198E-01	7.502698E-01	1.265536E+01	9.578634E+00	7.502698E-01	3.107618E+00	-1.902135E+00
41.350	6.132582E+01	6.802312E-01	8.000925E-01	1.204750E+01	9.762394E+00	8.000925E-01	3.234288E+00	-8.456188E-01
41.700	6.175800E+01	1.695754E+00	9.615577E-01	1.229553E+01	9.445169E+00	9.615577E-01	3.442568E+00	-6.167087E-01
42.050	6.224929E+01	2.180443E+00	1.170957E+00	1.258041E+01	9.044562E+00	1.170957E+00	3.523083E+00	-3.023549E-01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

MASS FLOW PER SYSTEM VOLUME

TIME	INTACT LOOP COLD LEG FLOW	INTACT LOOP HOT LEG FLOW	INTACT LOOP HOT LEG FLOW AT VENTURE	INTACT LOOP COLD LEG FLOW AT S.G.	BROKEN LOOP COLD LEG FLOW OUTLET	BROKEN LOOP HOT LEG FLOW	CORE SIMULA-TOR FLOW	R.V. DOWNCO-MER FLOW AT STALK NO.1 AND NO.2
	JW11	JW15	JW2	JW5	JW16	JW24	JW14	JW12
SEC.	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3	KG/M3
42.400	6.272922E+01	2.959838E+00	1.574935E+00	1.283234E+01	8.709597E+00	1.574935E+00	3.636796E+00	-2.933411E-02
42.750	6.297994E+01	3.706000E+00	2.190682E+00	1.302344E+01	8.093408E+00	2.190682E+00	3.683424E+00	4.253471E+00
43.100	6.329823E+01	3.495243E+00	2.635823E+00	1.288922E+01	7.314159E+00	2.635823E+00	3.670381E+00	2.163436E+01
43.450	6.355162E+01	4.089826E+00	3.271826E+00	1.291644E+01	7.229473E+00	3.271826E+00	3.936067E+00	3.578920E+01
43.800	6.390683E+01	4.895827E+00	4.084260E+00	1.305104E+01	7.124661E+00	4.084260E+00	4.388867E+00	3.283946E+01
44.150	6.423370E+01	5.355215E+00	4.850303E+00	1.318354E+01	6.776865E+00	4.850303E+00	4.898075E+00	1.841376E+01
44.500	6.437060E+01	5.381533E+00	5.419749E+00	1.319510E+01	6.287433E+00	5.419749E+00	5.332116E+00	7.472293E+00
44.850	6.432310E+01	5.161553E+00	5.701777E+00	1.304261E+01	5.838241E+00	5.701777E+00	5.714960E+00	1.396449E+01
45.200	6.418178E+01	5.235613E+00	5.883335E+00	1.281161E+01	5.590428E+00	5.883335E+00	6.278950E+00	3.522040E+01
45.550	6.412554E+01	5.631533E+00	6.196181E+00	1.265431E+01	5.613943E+00	6.196181E+00	7.187296E+00	5.068231E+01
45.900	6.419713E+01	6.323654E+00	6.642339E+00	1.265466E+01	5.696736E+00	6.642339E+00	8.768870E+00	4.525423E+01
46.250	6.436101E+01	7.117739E+00	7.278367E+00	1.275901E+01	5.740824E+00	7.278367E+00	1.043512E+01	2.284666E+01
46.600	6.437911E+01	7.705207E+00	7.767288E+00	1.284008E+01	5.707135E+00	7.767288E+00	1.203508E+01	-3.825786E+00
46.950	6.427619E+01	6.400334E+00	7.247369E+00	1.259914E+01	5.300670E+00	7.247369E+00	1.174813E+01	3.502383E+00
47.300	6.402824E+01	7.746599E+00	7.899613E+00	1.242308E+01	5.467667E+00	7.899613E+00	1.292753E+01	2.463958E+01
47.650	6.384851E+01	7.409675E+00	7.811148E+00	1.222037E+01	5.373449E+00	7.811148E+00	1.320800E+01	5.305146E+01
48.000	6.373062E+01	8.296363E+00	8.250805E+00	1.208896E+01	5.634180E+00	8.250805E+00	1.476847E+01	6.124228E+01
48.350	6.377254E+01	9.392490E+00	8.961497E+00	1.211274E+01	5.951449E+00	8.961497E+00	1.680263E+01	4.561357E+01
48.700	6.392968E+01	1.081027E+01	1.002996E+01	1.226731E+01	6.272106E+00	1.002996E+01	1.921095E+01	1.063707E+01
49.050	6.386739E+01	1.046448E+01	1.102181E+01	1.233268E+01	5.734711E+00	1.102181E+01	1.752270E+01	-1.336984E+01
49.400	6.372124E+01	9.717274E+00	1.003116E+01	1.203641E+01	5.996644E+00	1.003116E+01	1.806719E+01	5.139432E+00
49.750	6.364172E+01	1.256453E+01	1.161031E+01	1.210047E+01	6.401133E+00	1.161031E+01	1.989510E+01	1.650636E+01
50.100	6.367105E+01	1.163540E+01	1.184482E+01	1.216150E+01	6.011940E+00	1.184482E+01	1.882034E+01	3.487113E+01
50.450	6.356847E+01	1.223569E+01	1.173380E+01	1.211402E+01	5.921615E+00	1.173380E+01	1.872676E+01	4.775936E+01
50.800	6.353847E+01	1.305636E+01	1.205654E+01	1.211871E+01	5.851716E+00	1.205654E+01	1.969704E+01	4.689480E+01
51.150	6.362603E+01	1.358433E+01	1.335961E+01	1.224495E+01	6.038664E+00	1.335961E+01	2.081938E+01	3.156146E+01
51.500	6.423786E+01	1.491301E+01	1.454353E+01	1.287714E+01	6.300694E+00	1.454353E+01	2.266221E+01	-1.333645E+01
51.850	6.373823E+01	1.211190E+01	1.388691E+01	1.257278E+01	4.687632E+00	1.388691E+01	1.639315E+01	-1.787325E+01
52.200	6.318268E+01	1.104081E+01	1.207588E+01	1.210007E+01	5.087482E+00	1.207588E+01	1.814917E+01	1.565280E+01
52.550	6.310017E+01	1.470539E+01	1.365036E+01	1.197379E+01	5.602662E+00	1.365036E+01	2.026449E+01	5.012682E+01
52.900	6.368282E+01	1.326970E+01	1.334741E+01	1.231659E+01	5.212279E+00	1.334741E+01	1.852074E+01	6.779816E+01
53.250	6.334281E+01	1.360648E+01	1.359924E+01	1.227082E+01	5.339849E+00	1.359924E+01	2.003160E+01	5.234405E+01
53.600	6.356663E+01	1.674216E+01	1.505832E+01	1.271401E+01	5.879004E+00	1.505832E+01	2.269421E+01	2.259936E+01
53.950	6.369203E+01	1.756696E+01	1.653085E+01	1.286371E+01	5.561187E+00	1.653085E+01	2.303200E+01	-3.297019E+01
54.300	6.333243E+01	1.100837E+01	1.386053E+01	1.250786E+01	4.881797E+00	1.386053E+01	1.841150E+01	-5.315750E+00
54.650	6.330288E+01	1.296297E+01	1.342460E+01	1.230404E+01	4.285727E+00	1.342460E+01	1.847165E+01	1.955719E+01
55.000	6.366056E+01	1.527904E+01	1.446751E+01	1.264970E+01	5.582039E+00	1.446751E+01	2.116486E+01	-3.140747E+00
55.350	6.325980E+01	1.469315E+01	1.494492E+01	1.268980E+01	3.948674E+00	1.494492E+01	1.724859E+01	-5.330713E+00
55.700	6.337426E+01	1.279496E+01	1.382361E+01	1.249050E+01	4.266626E+00	1.382361E+01	1.774032E+01	2.252800E+01
56.050	6.395322E+01	1.257296E+01	1.336198E+01	1.280418E+01	4.484973E+00	1.336198E+01	1.694008E+01	4.017382E+01
56.400	6.379618E+01	1.220056E+01	1.291499E+01	1.290018E+01	3.875230E+00	1.291499E+01	1.627485E+01	3.074271E+01
56.750	6.340808E+01	1.336213E+01	1.334287E+01	1.274101E+01	4.224239E+00	1.334287E+01	1.720372E+01	2.565184E+01
57.100	6.354428E+01	1.397065E+01	1.376717E+01	1.282582E+01	4.143958E+00	1.376717E+01	1.776436E+01	2.467291E+01
57.450	6.366973E+01	1.370180E+01	1.382712E+01	1.309878E+01	4.159135E+00	1.382712E+01	1.812774E+01	1.605015E+00
57.800	5.700389E+00	1.393822E+01	1.443324E+01	1.440660E+01	3.462974E+00	1.443324E+01	1.525829E+01	9.093210E+01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

DIFFERENTIAL PRESSURE

	(PDE-PC-1)	(PDE-PC-2)	(PDE-P139-30)	(PDE-BL-1)	(PDE-BL-2)	(PDF-BL-3)	(PDE-BL-4)	(PDE-BL-5)	(PDE-BL-7)
TIME	AP9-AP6	AP3-AP6	AP10-AP1	AP15-AP16	AP21-AP27	AP27-AP26	AP20-AP26	AP19-AP20	AP16-AP19
SEC	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA
0.0	1.647114E-01	8.752425E-02	6.202534E-02	1.033743E-02	1.929663E-01	1.552426E+01	1.565520E+01	2.136423E-02	-3.170278E-02
0.070	-1.502462E-01	4.834511E-01	-4.152041E-01	-6.091766E-02	3.863689E+00	6.021739E+00	5.171487E+00	5.161266E+00	2.698510E-01
0.140	1.430128E-01	3.569540E-01	-2.141946E-01	8.077026E-02	6.555747E-01	5.841493E+00	4.549742E+00	1.739049E+00	1.568793E-01
0.210	1.198079E-01	1.615861E-01	-1.453501E-02	2.161285E-01	7.988290E-01	5.251657E+00	3.440903E+00	2.175118E+00	2.813122E-01
0.280	1.416146E-01	9.711661E-02	-5.767889E-03	1.549291E-01	7.977525E-01	5.275838E+00	3.204101E+00	2.411153E+00	3.062079E-01
0.350	1.108088E-01	8.775762E-02	6.694826E-02	1.095422E-01	7.991102E-01	5.260572E+00	3.174723E+00	2.450150E+00	3.017619E-01
0.420	1.150286E-01	5.417670E-02	1.010126E-02	1.481122E-01	8.003036E-01	5.272417E+00	3.171199E+00	2.458729E+00	2.754769E-01
0.490	1.163586E-01	6.455942E-02	-2.689650E-02	1.526092E-01	8.001061E-01	5.277575E+00	3.169952E+00	2.467958E+00	2.839766E-01
0.560	1.154182E-01	7.472760E-02	1.479959E-02	1.403803E-01	8.055259E-01	5.242075E+00	3.173923E+00	2.472823E+00	2.642815E-01
0.630	1.132938E-01	8.664133E-02	6.122140E-02	9.705708E-02	8.060225E-01	5.266949E+00	3.173353E+00	2.475509E+00	2.817158E-01
0.700	1.141686E-01	9.208005E-02	7.422693E-02	1.015573E-01	8.032593E-01	5.242543E+00	3.171597E+00	2.478800E+00	2.673551E-01
0.770	1.074723E-01	8.511494E-02	5.401733E-02	1.065600E-01	8.083931E-01	5.245706E+00	3.166555E+00	2.480422E+00	2.754612E-01
0.840	1.001399E-01	6.640670E-02	2.427513E-02	1.077624E-01	8.066985E-01	5.242900E+00	3.160485E+00	2.485065E+00	2.932526E-01
0.910	9.636407E-02	5.803750E-02	2.904646E-03	1.473767E-01	8.146668E-01	5.225142E+00	3.158208E+00	2.486887E+00	2.512750E-01
0.980	9.386271E-02	5.139043E-02	-9.463492E-03	1.463473E-01	8.130030E-01	5.241685E+00	3.150788E+00	2.488509E+00	2.628861E-01
1.050	9.122816E-02	4.825484E-02	-8.307340E-03	1.463627E-01	9.171447E-01	5.208122E+00	3.144511E+00	2.492007E+00	2.608793E-01
1.120	8.394930E-02	4.781614E-02	-3.614008E-03	1.393988E-01	8.190398E-01	5.225355E+00	3.140814E+00	2.494972E+00	2.613367E-01
1.190	8.359846E-02	5.244690E-02	2.130516E-03	1.347207E-01	8.215100E-01	5.198471E+00	3.139124E+00	2.497208E+00	2.595754E-01
1.260	8.274208E-02	5.393619E-02	6.196497E-03	1.295489E-01	8.207009E-01	5.211468E+00	3.138056E+00	2.498819E+00	2.582772E-01
1.330	8.272974E-02	5.650428E-02	8.940018E-03	1.272426E-01	8.222959E-01	5.192298E+00	3.136986E+00	2.500228E+00	2.558875E-01
1.400	8.252983E-02	5.901322E-02	8.223553E-03	1.244940E-01	8.224236E-01	5.199469E+00	3.135824E+00	2.501543E+00	2.554796E-01
1.470	8.340210E-02	5.715953E-02	1.087464E-02	1.230823E-01	8.221486E-01	5.188116E+00	3.134595E+00	2.502813E+00	2.525071E-01
1.540	8.471269E-02	5.775132E-02	1.138288E-02	1.213598E-01	8.247057E-01	5.190819E+00	3.133297E+00	2.504003E+00	2.508856E-01
1.610	9.541031E-02	5.559071E-02	1.919922E-02	1.196108E-01	8.245978E-01	5.178777E+00	3.131868E+00	2.505148E+00	2.490396E-01
1.680	1.146828E-01	6.120318E-02	2.740586E-02	1.179547E-01	8.243439E-01	5.179507E+00	3.130315E+00	2.506267E+00	2.481453E-01
1.750	1.465008E-01	7.898741E-02	3.616625E-02	1.145990E-01	8.246516E-01	5.172874E+00	3.128728E+00	2.507453E+00	2.502929E-01
1.820	8.311097E-02	6.208254E-02	6.064905E-03	1.120669E-01	8.096706E-01	5.215851E+00	3.127407E+00	2.508720E+00	2.519085E-01
1.890	4.035588E-02	1.429229E-02	1.406602E-02	1.095562E-01	8.017823E-01	5.207064E+00	3.126465E+00	2.509960E+00	2.525261E-01
1.960	8.259993E-02	6.351987E-02	1.319133E-02	1.055734E-01	8.012175E-01	5.219434E+00	3.125803E+00	2.511127E+00	2.518317E-01
2.150	8.505008E-02	6.179207E-02	1.112782E-02	1.024466E-01	9.175639E-01	5.179316E+00	3.124436E+00	2.514068E+00	2.492603E-01
2.500	5.305794E-02	-1.235542E-03	2.937139E-02	9.068787E-02	8.181655E-01	5.171224E+00	3.120276E+00	2.519239E+00	2.475223E-01
2.850	4.600339E-02	1.165905E-02	-8.905157E-03	8.786416E-02	8.167104E-01	5.170779E+00	3.112485E+00	2.524531E+00	2.421887E-01
3.200	7.646091E-02	9.593378E-02	7.175678E-03	8.715442E-02	8.258287E-01	5.097563E+00	3.103168E+00	2.529825E+00	2.328811E-01
3.550	-2.268071E-02	-5.718522E-03	-6.546725E-03	9.984415E-02	8.267203E-01	5.112781E+00	3.091395E+00	2.534910E+00	2.319368E-01
3.900	3.697543E-02	5.719411E-02	-1.984371E-02	8.308274E-02	8.229145E-01	5.066988E+00	3.077671E+00	2.539776E+00	2.164898E-01
4.250	-2.232696E-02	-3.482771E-02	6.607628E-05	3.424742E-02	8.243080E-01	5.130469E+00	3.062806E+00	2.544321E+00	2.892556E-01
4.600	4.348726E-02	4.607507E-02	2.273790E-02	5.429774E-02	8.297752E-01	4.980651E+00	3.046128E+00	2.548607E+00	2.400960E-01
4.950	1.614439E-02	2.950871E-02	-2.603845E-02	8.009763E-02	8.276563E-01	5.058393E+00	3.029305E+00	2.552342E+00	2.349804E-01
5.300	-3.031602E-02	-3.762628E-02	-5.853592E-03	9.085367E-02	8.227735E-01	5.215511E+00	3.012280E+00	2.555743E+00	2.462379E-01
5.650	2.474169E-02	3.306169E-02	1.217037E-02	8.353677E-02	8.674974E-01	4.869329E+00	2.994972E+00	2.558744E+00	2.350795E-01
6.000	5.514799E-02	5.577212E-02	3.655715E-02	8.343023E-02	8.796580E-01	5.050744E+00	2.977383E+00	2.561347E+00	2.246305E-01
6.350	3.834106E-02	3.221092E-02	1.766536E-02	6.390053E-02	8.599547E-01	4.948990E+00	2.959874E+00	2.564012E+00	2.257392E-01
6.700	1.388817E-02	1.375564E-02	9.303671E-03	6.074718E-02	8.463298E-01	4.954069E+00	2.942484E+00	2.566954E+00	2.287901E-01
7.050	7.172127E-03	1.572933E-03	1.392555E-03	5.757206E-02	8.362974E-01	4.892808E+00	2.926079E+00	2.570762E+00	2.305211E-01
7.400	1.938764E-02	1.206915E-02	1.535269E-03	4.489448E-02	8.293631E-01	4.922625E+00	2.910876E+00	2.576322E+00	2.221197E-01
7.750	1.584008E-02	2.833925E-02	-4.775715E-03	3.394124E-02	8.297616E-01	4.865903E+00	2.895489E+00	2.584127E+00	2.127859E-01
8.100	9.966957E-03	1.798069E-02	3.402882E-04	3.363955E-02	8.183970E-01	4.887087E+00	2.877930E+00	2.594115E+00	2.109965E-01
8.450	6.937916E-03	2.277164E-02	-1.987616E-02	2.472840E-02	8.218431E-01	4.858766E+00	2.856538E+00	2.606818E+00	1.954319E-01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

DIFFERENTIAL PRESSURE

	(PDE-PC-1)	(PDF-PC-2)	(PDE-P139-30)	(PDE-BL-1)	(PDE-BL-2)	(PDF-BL-3)	(PDE-BL-4)	(PDE-BL-5)	(PDE-BL-7)
TIME	AP9-AP6	AP3-AP6	AP10-AP1	AP15-AP16	AP21-AP27	AP27-AP26	AP20-AP26	AP19-AP20	AP16-AP19
SEC	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA
8.800	-5.754244E-03	-2.632397E-03	-1.690413E-03	2.710314E-02	8.138539E-01	4.829830E+00	2.829837E+00	2.621604E+00	1.965566E-01
9.150	1.962409E-02	2.197490E-02	-4.304398E-03	2.603546E-02	8.198660E-01	4.830034E+00	2.796861E+00	2.638371E+00	1.895389E-01
9.500	2.288650E-03	7.902237E-03	-9.357784E-03	2.361633E-02	8.377936E-01	4.745184E+00	2.758951E+00	2.656109E+00	1.916986E-01
9.850	1.358480E-02	1.864762E-02	2.168751E-02	2.906440E-02	8.695042E-01	4.697376E+00	2.716601E+00	2.673747E+00	1.876922E-01
10.200	1.536540E-02	1.534680E-02	6.842400E-03	2.804840E-02	8.560422E-01	4.916349E+00	2.669936E+00	2.690395E+00	1.912080E-01
10.550	1.925128E-02	1.902969E-02	1.797424E-03	3.097501E-02	8.636791E-01	4.798465E+00	2.617420E+00	2.704810E+00	1.938555E-01
10.900	-6.279116E-03	1.137895E-02	-1.665715E-02	3.307879E-02	9.107715E-01	4.447492E+00	2.566705E+00	2.717953E+00	1.968858E-01
11.250	-9.250772E-03	2.025747E-03	-7.070429E-03	3.520015E-02	9.212759E-01	4.437362E+00	2.515644E+00	2.727626E+00	2.052104E-01
11.600	2.782092E-02	3.616840E-02	2.942217E-03	4.269752E-02	8.868112E-01	4.680358E+00	2.467692E+00	2.733726E+00	2.146144E-01
11.950	8.741695E-03	2.584097E-02	-2.404457E-02	4.290257E-02	8.811101E-01	4.554034E+00	2.425385E+00	2.735396E+00	2.154127E-01
12.300	-7.395590E-03	8.005230E-03	-1.864837E-02	4.366212E-02	9.028149E-01	4.276163E+00	2.389340E+00	2.736638E+00	2.178441E-01
12.650	2.805429E-02	2.655593E-02	2.888281E-02	3.559334E-02	8.863766E-01	4.392604E+00	2.360037E+00	2.726303E+00	2.302333E-01
13.000	-4.571133E-04	1.117904E-02	-3.152474E-02	4.700089E-02	8.800311E-01	4.589934E+00	2.334547E+00	2.707289E+00	2.260641E-01
13.350	1.632149E-02	2.291165E-02	1.434014E-02	4.864775E-02	9.333587E-01	4.178037E+00	2.282859E+00	2.706710E+00	2.322718E-01
13.700	-9.428533E-03	1.149643E-02	-3.034789E-02	5.404344E-02	9.072203E-01	4.125646E+00	2.241090E+00	2.691255E+00	2.388272E-01
14.050	-1.664904E-03	1.312787E-02	-2.176923E-02	5.939771E-02	9.228239E-01	4.141719E+00	2.202297E+80	2.665628E+00	2.412668E-01
14.400	6.152758E-03	1.848949E-02	-3.553352E-04	6.616422E-02	8.878239E-01	4.293346E+00	2.173779E+00	2.609272E+00	2.761690E-01
14.750	4.058224E-03	1.630168E-02	-2.450765E-02	9.608902E-02	8.996758E-01	4.131285E+00	2.132395E+00	2.543595E+00	2.415739E-01
15.100	3.662420E-03	2.440140E-02	-1.153760E-02	1.413234E-01	8.854494E-01	4.080951E+00	2.076541E+00	2.477280E+00	3.300451E-01
15.450	4.772352E-03	1.347545E-02	-1.913100E-02	1.508727E-01	8.791449E-01	4.024662E+00	2.020120E+00	2.415173E+00	3.017961E-01
15.800	5.572838E-03	1.290694E-02	-2.040243E-02	1.682254E-01	8.737997E-01	3.966305E+00	1.965982E+00	2.372327E+00	3.147893E-01
16.150	4.809923E-03	2.207808E-02	1.274814E-02	1.221197E-01	8.674404E-01	3.907961E+00	1.921441E+00	2.343501E+00	4.648919E-01
16.500	4.237807E-03	1.273412E-02	-3.655037E-02	1.445492E-01	8.600420E-01	3.851499E+00	1.884535E+00	2.325200E+00	3.102672E-01
16.850	4.151403E-03	2.033402E-02	1.163690E-02	1.606732E-01	8.529974E-01	3.795907E+00	1.846666E+00	2.316630E+00	4.040845E-01
17.200	4.464401E-03	1.358704E-02	-1.891109E-02	1.577205E-01	8.457698E-01	3.740908E+00	1.818850E+00	2.302404E+00	3.048988E-01
17.550	4.080748E-03	1.726731E-02	-1.145288E-02	1.695999E-01	9.383901E-01	3.686413E+00	1.797022E+00	2.283607E+00	3.088329E-01
17.900	4.160656E-03	1.609887E-02	-1.187494E-02	1.538697E-01	8.306339E-01	3.633422E+00	1.777144E+00	2.261880E+00	2.882486E-01
18.250	4.042896E-03	1.615345E-02	-5.736954E-03	1.087753E-01	8.226866E-01	3.580585E+00	1.752083E+00	2.243977E+00	3.010817E-01
18.600	4.205423E-03	1.478047E-02	-1.790976E-02	1.344462E-01	8.145464E-01	3.528191E+00	1.728089E+00	2.224045E+00	2.746695E-01
18.950	4.256266E-03	1.496202E-02	-9.097872E-03	1.046310E-01	8.062085E-01	3.475943E+00	1.704026E+00	2.202266E+00	3.152596E-01
19.300	4.352530E-03	1.411509E-02	-1.056650E-02	8.807884E-02	7.977397E-01	3.423629E+00	1.679169E+00	2.178887E+00	3.151564E-01
19.650	4.397016E-03	1.376945E-02	-1.619841E-02	1.071123E-01	7.890380E-01	2.371895E+00	1.653436E+00	2.154270E+00	2.635765E-01
20.000	4.368792E-03	1.421855E-02	-5.435452E-03	9.829655E-02	7.801410E-01	3.320498E+00	1.626935E+00	2.128767E+00	2.656551E-01
20.350	4.357389E-03	1.456454E-02	-9.509937E-03	9.325157E-02	7.711162E-01	3.269436E+00	1.598093E+00	2.104421E+00	2.307442E-01
20.700	4.381876E-03	1.294207E-02	-1.343143E-02	1.011313E-01	7.619500E-01	3.218834E+00	1.568662E+00	2.080358E+00	2.573391E-01
21.050	4.319538E-03	1.242683E-02	-1.190111E-02	9.696792E-02	7.525193E-01	3.168249E+00	1.539458E+00	2.055369E+00	2.594569E-01
21.400	4.117384E-03	1.223411E-02	-1.218981E-02	9.658623E-02	7.440965E-01	3.116390E+00	1.510616E+00	2.029841E+00	2.567006E-01
21.750	3.838312E-03	1.290487E-02	-1.648000E-02	9.098975E-02	7.357283E-01	3.062206E+00	1.481584E+00	2.003299E+00	2.283324E-01
22.100	3.649149E-03	1.301254E-02	-1.711320E-02	8.528522E-02	7.269576E-01	3.005493E+00	1.452051E+00	1.975433E+00	2.134720E-01
22.450	3.152502E-03	1.218691E-02	-1.577728E-02	8.376304E-02	7.173110E-01	2.946310E+00	1.421715E+00	1.945950E+00	2.493505E-01
22.800	2.867729E-03	1.158139E-02	-6.655760E-03	9.325073E-02	7.063285E-01	2.885260E+00	1.390462E+00	1.914633E+00	2.334691E-01
23.150	2.547815E-03	1.176644E-02	-5.489004E-03	7.662801E-02	6.943285E-01	2.822390E+00	1.358561E+00	1.881814E+00	2.360932E-01
23.500	2.376316E-03	1.115979E-02	-1.183345E-02	7.452208E-02	6.814318E-01	2.757843E+00	1.326030E+00	1.847580E+00	2.350322E-01
23.850	2.164629E-03	1.079137E-02	-1.069155E-02	6.848297E-02	6.675383E-01	2.692133E+00	1.293217E+00	1.812104E+00	2.273628E-01
24.200	2.007149E-03	1.018435E-02	-3.725412E-03	5.857900E-02	6.529854E-01	2.625137E+00	1.260384E+00	1.775829E+00	1.799783E-01
24.550	1.844995E-03	1.011490E-02	-8.052901E-03	5.480378E-02	6.406337E-01	2.554345E+00	1.227984E+00	1.739994E+00	2.066212E-01
24.900	-1.659851E-04	1.993672E-02	-1.592784E-02	6.085522E-02	6.297898E-01	2.505037E+00	1.196773E+00	1.709863E+00	2.056299E-01
25.250	1.699011E-03	1.347395E-02	-9.078245E-03	6.181571E-02	6.216192E-01	2.459061E+00	1.171852E+00	1.684331E+00	2.061240E-01

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

DIFFERENTIAL PRESSURE

	(PDE-PC-1)	(PDE-PC-2)	(PDE-P139-30)	(PDE-BL-1)	(PDE-BL-2)	(PDF-BL-3)	(PDE-BL-4)	(PDE-BL-5)	(PDE-BL-7)
TIME	AP9-AP6	AP3-AP6	AP10-AP1	AP15-AP16	AP21-AP27	AP27-AP26	AP20-AP26	AP19-AP20	AP16-AP19
SEC	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA
25.600	3.986727E-03	7.594940E-03	-3.827284E-03	6.439362E-02	6.131562E-01	2.408912E+00	1.141374E+00	1.651269E+00	1.871407E-01
25.950	4.759314E-03	6.003175E-03	-4.665158E-03	6.387039E-02	6.043092E-01	2.352441E+00	1.109244E+00	1.616166E+00	1.737051E-01
26.300	3.486388E-03	1.149377E-02	-1.617327E-03	7.195160E-02	5.951899E-01	2.295510E+00	1.076174E+00	1.580128E+00	1.775367E-01
26.650	1.526437E-03	1.328484E-02	-9.613117E-03	7.540191E-02	5.941475E-01	2.226764E+00	1.043134E+00	1.544163E+00	2.047193E-01
27.000	1.597466E-03	7.047965E-03	-8.638422E-03	7.237717E-02	5.925864E-01	2.164318E+00	1.010758E+00	1.509381E+00	1.948715E-01
27.350	2.303791E-03	4.150749E-03	-2.079814E-03	5.873074E-02	5.897384E-01	2.098629E+00	9.803223E-01	1.476731E+00	1.575179E-01
27.700	2.647023E-03	4.164955E-03	1.432883E-03	5.286191E-02	5.854599E-01	2.035008E+00	9.502734E-01	1.445985E+00	1.552262E-01
28.050	2.304632E-03	4.411176E-03	-3.285963E-03	4.965025E-02	5.798034E-01	1.973663E+00	9.209716E-01	1.415725E+00	1.501159E-01
28.400	1.821864E-03	5.491247E-03	-4.420896E-03	5.950421E-02	5.728804E-01	1.912011E+00	8.925030E-01	1.385788E+00	1.503790E-01
28.750	1.466669E-03	6.090093E-03	-6.014156E-03	5.412853E-02	5.647592E-01	1.852135E+00	8.644895E-01	1.355504E+00	1.781810E-01
29.100	1.119184E-03	6.744500E-03	-3.661753E-03	4.966548E-02	5.554546E-01	1.795043E+00	8.366030E-01	1.324526E+00	1.436017E-01
29.450	7.113714E-04	6.880952E-03	-7.433581E-03	5.394782E-02	5.449980E-01	1.739771E+00	8.088951E-01	1.293331E+00	1.408077E-01
29.800	3.206615E-04	7.311522E-03	-3.803788E-03	4.290220E-02	5.334301E-01	1.686155E+00	7.817822E-01	1.262156E+00	1.326266E-01
30.150	4.350567E-05	7.673213E-03	-3.061285E-03	4.452579E-02	5.238172E-01	1.631307E+00	7.556039E-01	1.231344E+00	1.325197E-01
30.500	-2.185097E-04	7.025675E-03	-9.038092E-03	4.077280E-02	5.176462E-01	1.574163E+00	7.303851E-01	1.200702E+00	1.229928E-01
30.850	-3.078108E-04	7.664287E-03	-7.383640E-03	3.656074E-02	5.114100E-01	1.518392E+00	7.062437E-01	1.170368E+00	1.252758E-01
31.200	-4.526272E-04	7.521060E-03	-7.842422E-03	3.336511E-02	5.050833E-01	1.463675E+00	6.831238E-01	1.139565E+00	1.191845E-01
31.550	-5.170679E-04	7.846675E-03	-8.555990E-03	3.525585E-02	4.996439E-01	1.409283E+00	6.611116E-01	1.108036E+00	1.195795E-01
31.900	-5.529098E-04	7.946677E-03	-8.541177E-03	3.364091E-02	4.945314E-01	1.355822E+00	6.405583E-01	1.075601E+00	1.145352E-01
32.250	-6.609030E-04	8.287479E-03	-8.513700E-03	3.260930E-02	4.880001E-01	1.304807E+00	6.216057E-01	1.041830E+00	1.106608E-01
32.600	-7.186613E-04	8.392622E-03	-9.957190E-03	3.314216E-02	4.801773E-01	1.256489E+00	6.024183E-01	1.007574E+00	1.073417E-01
32.950	-8.152990E-04	8.499587E-03	-9.748541E-03	3.615494E-02	4.717273E-01	1.210217E+00	5.795118E-01	9.745194E-01	1.058263E-01
33.300	-9.463301E-04	8.711881E-03	-9.748260E-03	4.060499E-02	4.636588E-01	1.164809E+00	5.556537E-01	9.400998E-01	1.063679E-01
33.650	-1.086006E-03	8.891559E-03	-9.790411E-03	4.516220E-02	4.554365E-01	1.120653E+00	5.310020E-01	9.062501E-01	1.080958E-01
34.000	-1.255823E-03	9.038197E-03	-9.892516E-03	4.835869E-02	4.470774E-01	1.077999E+00	5.047326E-01	8.761460E-01	1.099542E-01
34.350	-1.464987E-03	9.235492E-03	-1.126554E-02	5.112056E-02	4.386279E-01	1.036790E+00	4.796240E-01	8.488531E-01	1.108441E-01
34.700	-1.662468E-03	9.401383E-03	-1.143036E-02	5.189418E-02	4.300833E-01	9.971403E-01	4.547226E-01	8.263292E-01	1.102675E-01
35.050	-1.169092E-03	9.856651E-03	-1.106137E-02	4.702806E-02	4.220084E-01	9.612341E-01	4.273696E-01	8.123165E-01	1.106379E-01
35.400	-6.979132E-04	1.078333E-02	-1.157195E-02	4.083759E-02	4.135531E-01	9.248531E-01	4.076312E-01	8.007103E-01	1.050095E-01
35.750	-1.417532E-03	1.065880E-02	-1.190791E-02	3.562292E-02	4.051082E-01	8.901745E-01	3.916211E-01	7.867695E-01	9.699694E-02
36.100	-1.949811E-03	1.154856E-02	-1.404406E-02	3.218754E-02	4.036997E-01	8.479334E-01	3.749521E-01	7.703603E-01	9.141751E-02
36.450	-2.383162E-03	1.093058E-02	-1.379305E-02	2.717081E-02	4.016491E-01	8.061242E-01	3.591346E-01	7.523658E-01	8.625347E-02
36.800	-2.996611E-03	1.053695E-02	-1.387527E-02	2.273762E-02	3.978069E-01	7.667142E-01	3.449111E-01	7.341024E-01	8.011069E-02
37.150	-3.847167E-03	1.012965E-02	-1.414960E-02	2.027369E-02	3.917291E-01	7.301847E-01	3.310683E-01	7.134635E-01	7.460911E-02
37.500	-3.598634E-03	1.090111E-02	-1.466302E-02	2.046002E-02	3.838396E-01	6.965905E-01	3.170578E-01	6.896577E-01	7.145769E-02
37.850	-3.203765E-03	1.199415E-02	-1.523128E-02	2.013137E-02	3.745666E-01	6.661202E-01	3.043383E-01	6.650646E-01	6.960148E-02
38.200	-5.750178E-03	1.090372E-02	-1.610448E-02	2.111499E-02	3.636349E-01	6.378329E-01	2.907765E-01	6.412685E-01	6.705840E-02
38.550	-6.028853E-03	1.138540E-02	-1.664375E-02	2.336128E-02	3.518531E-01	6.121614E-01	2.761717E-01	6.164586E-01	6.716352E-02
38.900	-6.501738E-03	1.102710E-02	-1.733827E-02	2.549818E-02	3.391802E-01	5.885506E-01	2.617400E-01	5.929837E-01	6.752958E-02
39.250	-6.240563E-03	1.130418E-02	-1.721434E-02	2.716747E-02	3.260386E-01	5.666124E-01	2.470551E-01	5.712733E-01	6.751129E-02
39.600	-7.840156E-03	1.113570E-02	-1.832727E-02	2.932340E-02	3.122683E-01	5.463566E-01	2.319183E-01	5.507406E-01	6.775162E-02
39.950	-8.260469E-03	1.132577E-02	-1.963797E-02	3.068325E-02	3.169655E-01	5.089450E-01	2.170438E-01	5.317819E-01	6.817960E-02
40.300	-8.839501E-03	1.153213E-02	-2.020745E-02	3.111711E-02	3.237114E-01	4.710347E-01	2.035911E-01	5.143854E-01	6.763783E-02
40.650	-9.446735E-03	1.175029E-02	-2.093926E-02	3.109961E-02	3.258251E-01	4.378822E-01	1.868531E-01	5.024752E-01	6.667248E-02
41.000	-8.769640E-03	1.274959E-02	-2.191836E-02	3.023653E-02	3.249837E-01	4.087981E-01	1.695793E-01	4.928260E-01	6.557103E-02
41.350	-1.076144E-02	1.224773E-02	-2.256250E-02	2.905323E-02	3.222584E-01	3.833820E-01	1.545639E-01	4.825778E-01	6.364669E-02
41.700	-1.133063E-02	1.237748E-02	-2.327953E-02	2.772049E-02	3.175217E-01	3.610534E-01	1.419771E-01	4.720159E-01	6.181777E-02
42.050	-1.208710E-02	1.245615E-02	-2.406050E-02	2.601662E-02	3.110884E-01	3.412587E-01	1.312353E-01	4.614601E-01	5.943739E-02

** RELAP4J ANALYSIS FOR STANDARD PROBLEM NO.5 L1-4:JAERI **

DIFFERENTIAL PRESSURE

	(PDE-PC-1)	(PDE-PC-2)	(PDE-P139-30)	(PDE-BL-1)	(PDE-BL-2)	(PDF-BL-3)	(PDE-BL-4)	(PDE-BL-5)	(PDE-BL-7)
TIME	AP9-AP6	AP3-AP6	AP10-AP1	AP15-AP16	AP21-AP27	AP27-AP26	AP20-AP26	AP19-AP20	AP16-AP19
SEC	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA	MPA
42.400	-1.283146E-02	1.261139E-02	-2.492627E-02	2.426478E-02	3.035235E-01	3.235747E-01	1.217654E-01	4.507901E-01	5.690150E-02
42.750	-1.306683E-02	1.273926E-02	-2.532085E-02	2.225086E-02	2.950275E-01	3.076789E-01	1.132564E-01	4.398783E-01	5.426209E-02
43.100	-1.340963E-02	1.244538E-02	-2.535607E-02	2.054244E-02	2.860932E-01	2.935748E-01	1.053998E-01	4.288672E-01	5.198030E-02
43.450	-1.375706E-02	1.245645E-02	-2.572058E-02	1.914697E-02	2.766234E-01	2.808138E-01	9.298983E-02	4.231133E-01	4.972129E-02
43.800	-1.442296E-02	1.269749E-02	-2.662763E-02	1.804029E-02	2.691814E-01	2.665765E-01	8.226551E-02	4.162177E-01	4.764367E-02
44.150	-1.510140E-02	1.291289E-02	-2.755178E-02	1.701539E-02	2.656432E-01	2.492058E-01	7.284173E-02	4.083743E-01	4.578086E-02
44.500	-1.545525E-02	1.290936E-02	-2.771435E-02	1.596889E-02	2.629462E-01	2.319673E-01	6.433611E-02	3.999302E-01	4.403507E-02
44.850	-1.538397E-02	1.273493E-02	-2.745853E-02	1.495229E-02	2.604605E-01	2.151208E-01	5.655050E-02	3.911398E-01	4.237972E-02
45.200	-1.511501E-02	1.267091E-02	-2.700253E-02	1.412817E-02	2.587164E-01	1.991690E-01	4.940394E-02	3.822198E-01	4.084243E-02
45.550	-1.509051E-02	1.240410E-02	-2.685325E-02	1.360336E-02	2.562073E-01	1.841606E-01	4.282514E-02	3.733070E-01	3.946134E-02
45.900	-1.547684E-02	1.249079E-02	-2.755476E-02	1.329424E-02	2.576686E-01	1.656280E-01	3.672863E-02	3.644780E-01	3.822136E-02
46.250	-1.615841E-02	1.325155E-02	-2.857674E-02	1.304314E-02	2.579773E-01	1.496500E-01	3.099358E-02	3.557204E-01	3.711363E-02
46.600	-1.658335E-02	1.325315E-02	-2.897731E-02	1.280736E-02	2.580376E-01	1.326015E-01	2.552192E-02	3.470094E-01	3.609899E-02
46.950	-1.643250E-02	1.262696E-02	-2.858180E-02	1.229762E-02	2.579235E-01	1.178320E-01	2.017582E-02	3.381951E-01	3.509891E-02
47.300	-1.608779E-02	1.258862E-02	-2.814751E-02	1.202311E-02	2.560380E-01	1.051059E-01	1.511000E-02	3.296153E-01	3.409744E-02
47.650	-1.586083E-02	1.233424E-02	-2.810498E-02	1.184105E-02	2.533708E-01	9.378307E-02	1.026230E-02	3.211562E-01	3.329477E-02
48.000	-1.580214E-02	1.235212E-02	-2.814673E-02	1.184851E-02	2.497836E-01	8.376400E-02	5.681170E-03	3.129468E-01	3.262607E-02
48.350	-1.620609E-02	1.259444E-02	-2.884367E-02	1.199969E-02	2.456567E-01	7.454230E-02	1.379497E-03	3.050285E-01	3.207849E-02
48.700	-1.699141E-02	1.326846E-02	-3.044278E-02	1.221105E-02	2.413635E-01	6.574949E-02	-2.813046E-03	2.975270E-01	3.161486E-02
49.050	-1.724567E-02	1.345851E-02	-2.981942E-02	1.185622E-02	2.376150E-01	5.740179E-02	-7.396022E-03	2.908826E-01	3.087318E-02
49.400	-1.687758E-02	1.280205E-02	-2.992953E-02	1.186808E-02	2.333213E-01	4.985873E-02	-8.497990E-03	2.806750E-01	3.038026E-02
49.750	-1.707364E-02	1.356141E-02	-3.076228E-02	1.172783E-02	2.285076E-01	4.306438E-02	-8.863252E-03	2.706839E-01	2.968935E-02
50.100	-1.744449E-02	1.374704E-02	-3.055174E-02	1.143662E-02	2.236723E-01	3.676469E-02	-9.206014E-03	2.610665E-01	2.893678E-02
50.450	-1.742293E-02	1.366987E-02	-3.106084E-02	1.121954E-02	2.186435E-01	3.104218E-02	-9.524187E-03	2.518457E-01	2.830182E-02
50.800	-1.756512E-02	1.329266E-02	-3.124378E-02	1.096510E-02	2.134888E-01	2.575195E-02	-9.816224E-03	2.430978E-01	2.758513E-02
51.150	-1.808405E-02	1.412294E-02	-3.137610E-02	1.073485E-02	2.082342E-01	2.076341E-02	-1.008505E-02	2.347965E-01	2.686657E-02
51.500	-2.055513E-02	1.411268E-02	-3.548950E-02	1.064382E-02	1.973695E-01	1.056727E-02	-1.033266E-02	2.269374E-01	2.625846E-02
51.850	-1.904536E-02	1.395021E-02	-3.112139E-02	8.703844E-03	2.233812E-01	-6.345583E-03	-1.057142E-02	2.194211E-01	2.455436E-02
52.200	-1.737940E-02	1.338580E-02	-3.081104E-02	9.260966E-03	2.131844E-01	-1.008248E-02	-1.082074E-02	2.114518E-01	2.434961E-02
52.550	-1.701024E-02	1.288435E-02	-3.054283E-02	8.988979E-03	2.007371E-01	-1.019035E-02	-1.103083E-02	2.044120E-01	2.354778E-02
52.900	-1.864220E-02	1.410147E-02	-3.195813E-02	8.652832E-03	2.066592E-01	-1.009104E-02	-1.123044E-02	1.976715E-01	2.280455E-02
53.250	-1.801801E-02	1.352648E-02	-3.166435E-02	8.678765E-03	1.761368E-01	-1.050910E-02	-1.141779E-02	1.912057E-01	2.236660E-02
53.600	-1.901747E-02	1.381749E-02	-3.226424E-02	8.617417E-03	1.839097E-01	-1.037624E-02	-1.159149E-02	1.851094E-01	2.171924E-02
53.950	-1.969331E-02	1.477398E-02	-3.508150E-02	8.251807E-03	1.839593E-01	-1.069304E-02	-1.175473E-02	1.792452E-01	2.117193E-02
54.300	-1.827195E-02	1.255035E-02	-3.020532E-02	6.814560E-03	1.534124E-01	-1.125490E-02	-1.192089E-02	1.734486E-01	1.973975E-02
54.650	-1.801522E-02	1.355035E-02	-3.226612E-02	7.532918E-03	1.609767E-01	-1.121208E-02	-1.207571E-02	1.675253E-01	1.990679E-02
55.000	-1.921341E-02	1.381364E-02	-3.341843E-02	7.514681E-03	1.647862E-01	-1.111523E-02	-1.221296E-02	1.623273E-01	1.929855E-02
55.350	-1.834773E-02	1.300120E-02	-3.181541E-02	6.728997E-03	1.423453E-01	-1.200090E-02	-1.234206E-02	1.573132E-01	1.846527E-02
55.700	-1.831853E-02	1.351946E-02	-3.252184E-02	6.760639E-03	1.334922E-01	-1.211829E-02	-1.247463E-02	1.521610E-01	1.804126E-02
56.050	-1.994411E-02	1.373656E-02	-3.285238E-02	6.292621E-03	1.432940E-01	-1.163072E-02	-1.259457E-02	1.473583E-01	1.741113E-02
56.400	-1.990179E-02	1.398286E-02	-3.368329E-02	5.744233E-03	1.403223E-01	-1.186286E-02	-1.271089E-02	1.426167E-01	1.669956E-02
56.750	-1.883992E-02	1.364674E-02	-3.263999E-02	5.721790E-03	1.167834E-01	-1.223719E-02	-1.281897E-02	1.379723E-01	1.622164E-02
57.100	-1.926524E-02	1.360287E-02	-3.290723E-02	5.514741E-03	1.145094E-01	-1.234611E-02	-1.292309E-02	1.335074E-01	1.566607E-02
57.450	-2.005061E-02	1.399879E-02	-3.404993E-02	5.404259E-03	1.213270E-01	-1.232954E-02	-1.302096E-02	1.291515E-01	1.523137E-02
57.800	-6.214484E-02	1.571539E-02	-5.557314E-02	5.153003E-03	1.214910E-01	-1.219279E-02	-1.310894E-02	1.249792E-01	1.477658E-02

Appendix 4. Output Data List of ALARM-P1 Analysis

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG PRESS VOL 14 MPA	AVG PRESS VOL 21 MPA	AVG PRESS VOL 22 MPA	AVG PRESS VOL 30 MPA	AVG PRESS VOL 31 MPA	AVG DENSE VOL 1 MG/M3	AVG DENSE VOL 6 MG/M3	AVG DENSE VOL 10 MG/M3	AVG DENSE VOL 15 MG/M3
0.0	0.15763D+02	0.15812D+02	0.15732D+02	0.42274D+01	0.10200D+00	0.76624D+00	0.76702D+00	0.76632D+00	0.76624D+00
0.50000D-02	0.15759D+02	0.12611D+02	0.15732D+02	0.42274D+01	0.10202D+00	0.76623D+00	0.76701D+00	0.76620D+00	0.76625D+00
0.10000D-01	0.15557D+02	0.15492D+02	0.15732D+02	0.42274D+01	0.10204D+00	0.76618D+00	0.76697D+00	0.76511D+00	0.76612D+00
0.15000D-01	0.14309D+02	0.13128D+02	0.15732D+02	0.42274D+01	0.10206D+00	0.76525D+00	0.76638D+00	0.76600D+00	0.76495D+00
0.20000D-01	0.14008D+02	0.15845D+02	0.15732D+02	0.42274D+01	0.10209D+00	0.76470D+00	0.76645D+00	0.76441D+00	0.76432D+00
0.25000D-01	0.13447D+02	0.13871D+02	0.15732D+02	0.42274D+01	0.10211D+00	0.76451D+00	0.76575D+00	0.76571D+00	0.76378D+00
0.30000D-01	0.13226D+02	0.14595D+02	0.15732D+02	0.42274D+01	0.10214D+00	0.76379D+00	0.76560D+00	0.76406D+00	0.76370D+00
0.35000D-01	0.13216D+02	0.12424D+02	0.15732D+02	0.42274D+01	0.10216D+00	0.76387D+00	0.76412D+00	0.76489D+00	0.76417D+00
0.40000D-01	0.13433D+02	0.12442D+02	0.15731D+02	0.42274D+01	0.10218D+00	0.76417D+00	0.76408D+00	0.76241D+00	0.76429D+00
0.45000D-01	0.12627D+02	0.11835D+02	0.15730D+02	0.42274D+01	0.10221D+00	0.76321D+00	0.76266D+00	0.76325D+00	0.76349D+00
0.50000D-01	0.11569D+02	0.12542D+02	0.15729D+02	0.42274D+01	0.10223D+00	0.76261D+00	0.76311D+00	0.76202D+00	0.76274D+00
0.60000D-01	0.10635D+02	0.10643D+02	0.15727D+02	0.42274D+01	0.10228D+00	0.76158D+00	0.76324D+00	0.76170D+00	0.76183D+00
0.70000D-01	0.10097D+02	0.95466D+01	0.15724D+02	0.42274D+01	0.10232D+00	0.76085D+00	0.76155D+00	0.76059D+00	0.76157D+00
0.80000D-01	0.96502D+01	0.94137D+01	0.15720D+02	0.42274D+01	0.10237D+00	0.76059D+00	0.76106D+00	0.76046D+00	0.76084D+00
0.90000D-01	0.87431D+01	0.92761D+01	0.15715D+02	0.42274D+01	0.10241D+00	0.75963D+00	0.76086D+00	0.76103D+00	0.75996D+00
0.10000D+00	0.88112D+01	0.81649D+01	0.15710D+02	0.42274D+01	0.10245D+00	0.75992D+00	0.75972D+00	0.75960D+00	0.75995D+00
0.11000D+00	0.79873D+01	0.76286D+01	0.15704D+02	0.42274D+01	0.10249D+00	0.75890D+00	0.75953D+00	0.75950D+00	0.75910D+00
0.12000D+00	0.73110D+01	0.73743D+01	0.15698D+02	0.42274D+01	0.10253D+00	0.75843D+00	0.75953D+00	0.75954D+00	0.75825D+00
0.13000D+00	0.72778D+01	0.70972D+01	0.15692D+02	0.42274D+01	0.10256D+00	0.75853D+00	0.75822D+00	0.75840D+00	0.75825D+00
0.14000D+00	0.68574D+01	0.64468D+01	0.15686D+02	0.42274D+01	0.10260D+00	0.75787D+00	0.75811D+00	0.75830D+00	0.75791D+00
0.15000D+00	0.62175D+01	0.65120D+01	0.15680D+02	0.42274D+01	0.10263D+00	0.75725D+00	0.75821D+00	0.75832D+00	0.75693D+00
0.16000D+00	0.61578D+01	0.64047D+01	0.15674D+02	0.42274D+01	0.10266D+00	0.75707D+00	0.75773D+00	0.75668D+00	0.75747D+00
0.17000D+00	0.60656D+01	0.61866D+01	0.15669D+02	0.42274D+01	0.10269D+00	0.75727D+00	0.75803D+00	0.75772D+00	0.75772D+00
0.18000D+00	0.60658D+01	0.61804D+01	0.15663D+02	0.42274D+01	0.10272D+00	0.75693D+00	0.75727D+00	0.75745D+00	0.75725D+00
0.19000D+00	0.62027D+01	0.61710D+01	0.15658D+02	0.42274D+01	0.10275D+00	0.75710D+00	0.75749D+00	0.75773D+00	0.75760D+00
0.20000D+00	0.62349D+01	0.61646D+01	0.15653D+02	0.42274D+01	0.10278D+00	0.75676D+00	0.75721D+00	0.75763D+00	0.75732D+00
0.21000D+00	0.60666D+01	0.61542D+01	0.15647D+02	0.42274D+01	0.10280D+00	0.75658D+00	0.75825D+00	0.75769D+00	0.75715D+00
0.22000D+00	0.63143D+01	0.61501D+01	0.15642D+02	0.42274D+01	0.10283D+00	0.75713D+00	0.75766D+00	0.75769D+00	0.75753D+00
0.23000D+00	0.62323D+01	0.61504D+01	0.15637D+02	0.42274D+01	0.10286D+00	0.75710D+00	0.75801D+00	0.75751D+00	0.75651D+00
0.24000D+00	0.62569D+01	0.61461D+01	0.15633D+02	0.42274D+01	0.10288D+00	0.75759D+00	0.75791D+00	0.75739D+00	0.75756D+00
0.25000D+00	0.60673D+01	0.61428D+01	0.15628D+02	0.42274D+01	0.10291D+00	0.75711D+00	0.75811D+00	0.75743D+00	0.75686D+00
0.26000D+00	0.61271D+01	0.61431D+01	0.15623D+02	0.42274D+01	0.10293D+00	0.75735D+00	0.75757D+00	0.75761D+00	0.75710D+00
0.27000D+00	0.60679D+01	0.61407D+01	0.15618D+02	0.42274D+01	0.10296D+00	0.75688D+00	0.75744D+00	0.75753D+00	0.75738D+00
0.28000D+00	0.60684D+01	0.61402D+01	0.15614D+02	0.42274D+01	0.10298D+00	0.75682D+00	0.75771D+00	0.75759D+00	0.75722D+00
0.29000D+00	0.62216D+01	0.61441D+01	0.15609D+02	0.42274D+01	0.10300D+00	0.75553D+00	0.75786D+00	0.75759D+00	0.75705D+00
0.30000D+00	0.62676D+01	0.61441D+01	0.15604D+02	0.42274D+01	0.10303D+00	0.75698D+00	0.75762D+00	0.75758D+00	0.75739D+00

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG PRESS VOL 14 MPA	AVG PRESS VOL 21 MPA	AVG PRESS VOL 22 MPA	AVG PRESS VOL 30 MPA	AVG PRESS VOL 31 MPA	AVG DENSE VOL 1 MG/M3	AVG DENSE VOL 6 MG/M3	AVG DENSE VOL 10 MG/M3	AVG DENSE VOL 15 MG/M3
0.35000D+00	0.60979D+01	0.61537D+01	0.15581D+02	0.42274D+01	0.10315D+00	0.75761D+00	0.75766D+00	0.75776D+00	0.75757D+00
0.40000D+00	0.60707D+01	0.61586D+01	0.15557D+02	0.42274D+01	0.10327D+00	0.75746D+00	0.75672D+00	0.75758D+00	0.75748D+00
0.45000D+00	0.63102D+01	0.61618D+01	0.15532D+02	0.42274D+01	0.10339D+00	0.75707D+00	0.75760D+00	0.75762D+00	0.75715D+00
0.50000D+00	0.62288D+01	0.61607D+01	0.15506D+02	0.42274D+01	0.10351D+00	0.75737D+00	0.75733D+00	0.75780D+00	0.75710D+00
0.55000D+00	0.60742D+01	0.61537D+01	0.15480D+02	0.42274D+01	0.10363D+00	0.75705D+00	0.75747D+00	0.75760D+00	0.75745D+00
0.60000D+00	0.62851D+01	0.61484D+01	0.15454D+02	0.42274D+01	0.10375D+00	0.75692D+00	0.75737D+00	0.75769D+00	0.75730D+00
0.65000D+00	0.62510D+01	0.61516D+01	0.15428D+02	0.42274D+01	0.10387D+00	0.75695D+00	0.75732D+00	0.75772D+00	0.75745D+00
0.70000D+00	0.60773D+01	0.61551D+01	0.15402D+02	0.42274D+01	0.10400D+00	0.75692D+00	0.75731D+00	0.75772D+00	0.75733D+00
0.75000D+00	0.60783D+01	0.61532D+01	0.15376D+02	0.42274D+01	0.10412D+00	0.75730D+00	0.75719D+00	0.75787D+00	0.75722D+00
0.80000D+00	0.60968D+01	0.61461D+01	0.15350D+02	0.42274D+01	0.10424D+00	0.75743D+00	0.75707D+00	0.75769D+00	0.75693D+00
0.85000D+00	0.61252D+01	0.61398D+01	0.15325D+02	0.42274D+01	0.10436D+00	0.75746D+00	0.75699D+00	0.75767D+00	0.75731D+00
0.90000D+00	0.60812D+01	0.61367D+01	0.15299D+02	0.42274D+01	0.10448D+00	0.75694D+00	0.75656D+00	0.75776D+00	0.75726D+00
0.95000D+00	0.61116D+01	0.61378D+01	0.15274D+02	0.42274D+01	0.10460D+00	0.75609D+00	0.75705D+00	0.75773D+00	0.75734D+00
0.10000D+01	0.60831D+01	0.61398D+01	0.15249D+02	0.42274D+01	0.10472D+00	0.75709D+00	0.75710D+00	0.75767D+00	0.75760D+00

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG PRESS VOL 14 MPA	AVG PRESS VOL 21 MPA	AVG PRESS VOL 22 MPA	AVG PRESS VOL 30 MPA	AVG PRESS VOL 31 MPA	AVG DENSE VOL 1 MG/M3	AVG DENSE VOL 6 MG/M3	AVG DENSE VOL 10 MG/M3	AVG DENSE VOL 15 MG/M3
0.11000D+01	0.60843D+01	0.61335D+01	0.15198D+02	0.42274D+01	0.10497D+00	0.75696D+00	0.75688D+00	0.75771D+00	0.75742D+00
0.12000D+01	0.60859D+01	0.61258D+01	0.15149D+02	0.42274D+01	0.10521D+00	0.75682D+00	0.75678D+00	0.75763D+00	0.75717D+00
0.13000D+01	0.60867D+01	0.61326D+01	0.15100D+02	0.42274D+01	0.10545D+00	0.75588D+00	0.75670D+00	0.75760D+00	0.75691D+00
0.14000D+01	0.60882D+01	0.61225D+01	0.15051D+02	0.42274D+01	0.10570D+00	0.75149D+00	0.75662D+00	0.75764D+00	0.75718D+00
0.15000D+01	0.62981D+01	0.61191D+01	0.15003D+02	0.42274D+01	0.10594D+00	0.72736D+00	0.75639D+00	0.75760D+00	0.75714D+00
0.16000D+01	0.60924D+01	0.61285D+01	0.14955D+02	0.42274D+01	0.10618D+00	0.71364D+00	0.75586D+00	0.75754D+00	0.75719D+00
0.17000D+01	0.61685D+01	0.61164D+01	0.14907D+02	0.42274D+01	0.10643D+00	0.68761D+00	0.75412D+00	0.75752D+00	0.75704D+00
0.18000D+01	0.61165D+01	0.61168D+01	0.14860D+02	0.42274D+01	0.10667D+00	0.67136D+00	0.74899D+00	0.75751D+00	0.75698D+00
0.19000D+01	0.61017D+01	0.61191D+01	0.14814D+02	0.42274D+01	0.10692D+00	0.64895D+00	0.74162D+00	0.75747D+00	0.75702D+00
0.20000D+01	0.61061D+01	0.61070D+01	0.14768D+02	0.42274D+01	0.10716D+00	0.62794D+00	0.74020D+00	0.75743D+00	0.75694D+00
0.21000D+01	0.61108D+01	0.61121D+01	0.14722D+02	0.42274D+01	0.10741D+00	0.60382D+00	0.73920D+00	0.75739D+00	0.75679D+00
0.22000D+01	0.61095D+01	0.61084D+01	0.14676D+02	0.42274D+01	0.10765D+00	0.59426D+00	0.73062D+00	0.75736D+00	0.75690D+00
0.23000D+01	0.61066D+01	0.61025D+01	0.14631D+02	0.42274D+01	0.10790D+00	0.57616D+00	0.71829D+00	0.75731D+00	0.75677D+00
0.24000D+01	0.61086D+01	0.60999D+01	0.14586D+02	0.42274D+01	0.10815D+00	0.55695D+00	0.71545D+00	0.75729D+00	0.75662D+00
0.25000D+01	0.61041D+01	0.60982D+01	0.14542D+02	0.42274D+01	0.10839D+00	0.53847D+00	0.70173D+00	0.75721D+00	0.75671D+00
0.26000D+01	0.61006D+01	0.61004D+01	0.14498D+02	0.42274D+01	0.10864D+00	0.51994D+00	0.69049D+00	0.75719D+00	0.75662D+00
0.27000D+01	0.61018D+01	0.60939D+01	0.14454D+02	0.42274D+01	0.10889D+00	0.50038D+00	0.68320D+00	0.75720D+00	0.75654D+00
0.28000D+01	0.60966D+01	0.60954D+01	0.14409D+02	0.42274D+01	0.10914D+00	0.48390D+00	0.66861D+00	0.75713D+00	0.75616D+00
0.29000D+01	0.60990D+01	0.60917D+01	0.14363D+02	0.42274D+01	0.10938D+00	0.46765D+00	0.66281D+00	0.75703D+00	0.75572D+00
0.30000D+01	0.60947D+01	0.60909D+01	0.14317D+02	0.42274D+01	0.10963D+00	0.45196D+00	0.64765D+00	0.75703D+00	0.75612D+00
0.31000D+01	0.60968D+01	0.60879D+01	0.14272D+02	0.42274D+01	0.10988D+00	0.43525D+00	0.64171D+00	0.75697D+00	0.75188D+00
0.32000D+01	0.60916D+01	0.60847D+01	0.14226D+02	0.42274D+01	0.11013D+00	0.41746D+00	0.62642D+00	0.75684D+00	0.75054D+00
0.33000D+01	0.60925D+01	0.60867D+01	0.14181D+02	0.42274D+01	0.11038D+00	0.39972D+00	0.61900D+00	0.75679D+00	0.74886D+00
0.34000D+01	0.60899D+01	0.60860D+01	0.14137D+02	0.42274D+01	0.11063D+00	0.38288D+00	0.60706D+00	0.75675D+00	0.74509D+00
0.35000D+01	0.60850D+01	0.60837D+01	0.14092D+02	0.42274D+01	0.11088D+00	0.36653D+00	0.59545D+00	0.75657D+00	0.74170D+00
0.36000D+01	0.60915D+01	0.60820D+01	0.14048D+02	0.42274D+01	0.11113D+00	0.35119D+00	0.58856D+00	0.75641D+00	0.73855D+00
0.37000D+01	0.60809D+01	0.60808D+01	0.14004D+02	0.42274D+01	0.11138D+00	0.33715D+00	0.57523D+00	0.75267D+00	0.73930D+00
0.38000D+01	0.60864D+01	0.60783D+01	0.13960D+02	0.42274D+01	0.11163D+00	0.32423D+00	0.56770D+00	0.74927D+00	0.72961D+00
0.39000D+01	0.60813D+01	0.60791D+01	0.13916D+02	0.42274D+01	0.11188D+00	0.31108D+00	0.55936D+00	0.74616D+00	0.73032D+00
0.40000D+01	0.60787D+01	0.60734D+01	0.13873D+02	0.42274D+01	0.11213D+00	0.29839D+00	0.54631D+00	0.74133D+00	0.72745D+00
0.41000D+01	0.60812D+01	0.60741D+01	0.13830D+02	0.42274D+01	0.11238D+00	0.28625D+00	0.54045D+00	0.73878D+00	0.72073D+00
0.42000D+01	0.60764D+01	0.60697D+01	0.13787D+02	0.42274D+01	0.11264D+00	0.27459D+00	0.53171D+00	0.73207D+00	0.71866D+00
0.43000D+01	0.60756D+01	0.60708D+01	0.13744D+02	0.42274D+01	0.11289D+00	0.26413D+00	0.52028D+00	0.73090D+00	0.71582D+00
0.44000D+01	0.60742D+01	0.60681D+01	0.13701D+02	0.42274D+01	0.11314D+00	0.25406D+00	0.51421D+00	0.72555D+00	0.70891D+00
0.45000D+01	0.60719D+01	0.60651D+01	0.13658D+02	0.42274D+01	0.11339D+00	0.24453D+00	0.50681D+00	0.72103D+00	0.70549D+00
0.46000D+01	0.60702D+01	0.60646D+01	0.13616D+02	0.42274D+01	0.11365D+00	0.23567D+00	0.49678D+00	0.71743D+00	0.70204D+00
0.47000D+01	0.60661D+01	0.60609D+01	0.13574D+02	0.42274D+01	0.11390D+00	0.22717D+00	0.48977D+00	0.71299D+00	0.69598D+00
0.48000D+01	0.60674D+01	0.60590D+01	0.13532D+02	0.42274D+01	0.11415D+00	0.21924D+00	0.48369D+00	0.70838D+00	0.69028D+00
0.49000D+01	0.60653D+01	0.60567D+01	0.13490D+02	0.42274D+01	0.11441D+00	0.21173D+00	0.47588D+00	0.70303D+00	0.68553D+00
0.50000D+01	0.60582D+01	0.60552D+01	0.13448D+02	0.42274D+01	0.11466D+00	0.20483D+00	0.46729D+00	0.70035D+00	0.68088D+00

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG PRESS VOL 14 MPA	AVG PRESS VOL 21 MPA	AVG PRESS VOL 22 MPA	AVG PRESS VOL 30 MPA	AVG PRESS VOL 31 MPA	AVG DENSE VOL 1 MG/M3	AVG DENSE VOL 6 MG/M3	AVG DENSE VOL 10 MG/M3	AVG DENSE VOL 15 MG/M3
0.55000D+01	0.60513D+01	0.60421D+01	0.13241D+02	0.42274D+01	0.11593D+00	0.17764D+00	0.43629D+00	0.67686D+00	0.64639D+00
0.60000D+01	0.60425D+01	0.60293D+01	0.13038D+02	0.42274D+01	0.11721D+00	0.15975D+00	0.40923D+00	0.65418D+00	0.59439D+00
0.65000D+01	0.60191D+01	0.60278D+01	0.12837D+02	0.42274D+01	0.11850D+00	0.14887D+00	0.38551D+00	0.63131D+00	0.43858D+00
0.70000D+01	0.59967D+01	0.59731D+01	0.12634D+02	0.42274D+01	0.11978D+00	0.14223D+00	0.36413D+00	0.59975D+00	0.31057D+00
0.75000D+01	0.59534D+01	0.59713D+01	0.12428D+02	0.42274D+01	0.12103D+00	0.13874D+00	0.34145D+00	0.56836D+00	0.22174D+00
0.80000D+01	0.59215D+01	0.58796D+01	0.12222D+02	0.42274D+01	0.12231D+00	0.13798D+00	0.32311D+00	0.54983D+00	0.16140D+00
0.85000D+01	0.58926D+01	0.58740D+01	0.12017D+02	0.42274D+01	0.12359D+00	0.13838D+00	0.30707D+00	0.51830D+00	0.11908D+00
0.90000D+01	0.58617D+01	0.58613D+01	0.11812D+02	0.42274D+01	0.12486D+00	0.13957D+00	0.29230D+00	0.49376D+00	0.89342D-01
0.95000D+01	0.58254D+01	0.58074D+01	0.11606D+02	0.42274D+01	0.12612D+00	0.14087D+00	0.27895D+00	0.47200D+00	0.85531D-01
0.10000D+02	0.57864D+01	0.57699D+01	0.11398D+02	0.42274D+01	0.12736D+00	0.14230D+00	0.26620D+00	0.45124D+00	0.83161D-01
0.10500D+02	0.57494D+01	0.57327D+01	0.11118D+02	0.42274D+01	0.12860D+00	0.14402D+00	0.25400D+00	0.43120D+00	0.83334D-01
0.11000D+02	0.57201D+01	0.56906D+01	0.10828D+02	0.42274D+01	0.12981D+00	0.13343D+00	0.24256D+00	0.41209D+00	0.82370D-01
0.11500D+02	0.56806D+01	0.56491D+01	0.10360D+02	0.42274D+01	0.13101D+00	0.10431D+00	0.23122D+00	0.39282D+00	0.79857D-01
0.12000D+02	0.56002D+01	0.56023D+01	0.98616D+01	0.42274D+01	0.13218D+00	0.79308D-01	0.22120D+00	0.37470D+00	0.70640D-01
0.12500D+02	0.55807D+01	0.55512D+01	0.93554D+01	0.42274D+01	0.13333D+00	0.65615D-01	0.21142D+00	0.35512D+00	0.66097D-01
0.13000D+02	0.55172D+01	0.54926D+01	0.88600D+01	0.42274D+01	0.13446D+00	0.59058D-01	0.20241D+00	0.33671D+00	0.59932D-01
0.13500D+02	0.54496D+01	0.54272D+01	0.83890D+01	0.42274D+01	0.13556D+00	0.60889D-01	0.19349D+00	0.31807D+00	0.55854D-01
0.14000D+02	0.53781D+01	0.53538D+01	0.79422D+01	0.42274D+01	0.13663D+00	0.71484D-01	0.18467D+00	0.29969D+00	0.53108D-01
0.14500D+02	0.52962D+01	0.52730D+01	0.75252D+01	0.42274D+01	0.13768D+00	0.90237D-01	0.17617D+00	0.28174D+00	0.51670D-01
0.15000D+02	0.52082D+01	0.51857D+01	0.71364D+01	0.42274D+01	0.13870D+00	0.11509D+00	0.16797D+00	0.26453D+00	0.61621D-01
0.15500D+02	0.51187D+01	0.50958D+01	0.67770D+01	0.42274D+01	0.13969D+00	0.14014D+00	0.16048D+00	0.24839D+00	0.10243D+00
0.16000D+02	0.50298D+01	0.50078D+01	0.64483D+01	0.42274D+01	0.14064D+00	0.15728D+00	0.15355D+00	0.23384D+00	0.16243D+00
0.16500D+02	0.49435D+01	0.49207D+01	0.61474D+01	0.42274D+01	0.14158D+00	0.16669D+00	0.14684D+00	0.22024D+00	0.18410D+00
0.17000D+02	0.48605D+01	0.48348D+01	0.58734D+01	0.42274D+01	0.14250D+00	0.16995D+00	0.14029D+00	0.20744D+00	0.18812D+00
0.17500D+02	0.47744D+01	0.47499D+01	0.56256D+01	0.42274D+01	0.14342D+00	0.16864D+00	0.13390D+00	0.19553D+00	0.18623D+00
0.18000D+02	0.46888D+01	0.46662D+01	0.54020D+01	0.42274D+01	0.14432D+00	0.16426D+00	0.12761D+00	0.18407D+00	0.18168D+00
0.18500D+02	0.46059D+01	0.45831D+01	0.51996D+01	0.42274D+01	0.14521D+00	0.15783D+00	0.12134D+00	0.17340D+00	0.17513D+00
0.19000D+02	0.45241D+01	0.45008D+01	0.50170D+01	0.42274D+01	0.14609D+00	0.15100D+00	0.11524D+00	0.17660D+00	0.16868D+00
0.19500D+02	0.44408D+01	0.44178D+01	0.48527D+01	0.42274D+01	0.14695D+00	0.14478D+00	0.10917D+00	0.16789D+00	0.16199D+00
0.20000D+02	0.43571D+01	0.43341D+01	0.47044D+01	0.42274D+01	0.14781D+00	0.13909D+00	0.10321D+00	0.15951D+00	0.15573D+00

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG PRESS VOL 14 MPA	AVG PRESS VOL 21 MPA	AVG PRESS VOL 22 MPA	AVG PRESS VOL 30 MPA	AVG PRESS VOL 31 MPA	AVG DENSE VOL 1 MG/M3	AVG DENSE VOL 6 MG/M3	AVG DENSE VOL 10 MG/M3	AVG DENSE VOL 15 MG/M3
0.20500D+02	0.42691D+01	0.42466D+01	0.46366D+01	0.42274D+01	0.14864D+00	0.13791D+00	0.97349D-01	0.15195D+00	0.15271D+00
0.21000D+02	0.41811D+01	0.41565D+01	0.45844D+01	0.42266D+01	0.14946D+00	0.14267D+00	0.91730D-01	0.14209D+00	0.15092D+00
0.21500D+02	0.40800D+01	0.40585D+01	0.45326D+01	0.42177D+01	0.15026D+00	0.14740D+00	0.85470D-01	0.12694D+00	0.14529D+00
0.22000D+02	0.39927D+01	0.39711D+01	0.44808D+01	0.42013D+01	0.15104D+00	0.14997D+00	0.80165D-01	0.15177D+00	0.13911D+00
0.22500D+02	0.39013D+01	0.38780D+01	0.44291D+01	0.41794D+01	0.15181D+00	0.15215D+00	0.75039D-01	0.18964D+00	0.13402D+00
0.23000D+02	0.38038D+01	0.37838D+01	0.43774D+01	0.41533D+01	0.15255D+00	0.15262D+00	0.69992D-01	0.24847D+00	0.12815D+00
0.23500D+02	0.37029D+01	0.36840D+01	0.43258D+01	0.41244D+01	0.15327D+00	0.15067D+00	0.64830D-01	0.34576D+00	0.12189D+00
0.24000D+02	0.35970D+01	0.35775D+01	0.42742D+01	0.40931D+01	0.15398D+00	0.14540D+00	0.59741D-01	0.47358D+00	0.11398D+00
0.24500D+02	0.34848D+01	0.34656D+01	0.42227D+01	0.40597D+01	0.15465D+00	0.14049D+00	0.54795D-01	0.61903D+00	0.10485D+00
0.25000D+02	0.33720D+01	0.33537D+01	0.41711D+01	0.40245D+01	0.15531D+00	0.13475D+00	0.50252D-01	0.77981D+00	0.96687D-01
0.25500D+02	0.32917D+01	0.32812D+01	0.40562D+01	0.39880D+01	0.15594D+00	0.12850D+00	0.47757D-01	0.82633D+00	0.90540D-01
0.26000D+02	0.32129D+01	0.31963D+01	0.39326D+01	0.39511D+01	0.15655D+00	0.11760D+00	0.44851D-01	0.84220D+00	0.82434D-01
0.26500D+02	0.31213D+01	0.31050D+01	0.38808D+01	0.39138D+01	0.15715D+00	0.11785D+00	0.42157D-01	0.85534D+00	0.77297D-01
0.27000D+02	0.30315D+01	0.30124D+01	0.38291D+01	0.38760D+01	0.15773D+00	0.12067D+00	0.39498D-01	0.86751D+00	0.75142D-01
0.27500D+02	0.29375D+01	0.29185D+01	0.37776D+01	0.38377D+01	0.15830D+00	0.12170D+00	0.36603D-01	0.87703D+00	0.74999D-01
0.28000D+02	0.28412D+01	0.28237D+01	0.37261D+01	0.37990D+01	0.15884D+00	0.11831D+00	0.33861D-01	0.88630D+00	0.75240D-01
0.28500D+02	0.27455D+01	0.27289D+01	0.36747D+01	0.37600D+01	0.15937D+00	0.11132D+00	0.31157D-01	0.89376D+00	0.74649D-01
0.29000D+02	0.26547D+01	0.26356D+01	0.36233D+01	0.37208D+01	0.15988D+00	0.10146D+00	0.28610D-01	0.90046D+00	0.72837D-01
0.29500D+02	0.25637D+01	0.25439D+01	0.35719D+01	0.36815D+01	0.16037D+00	0.92693D-01	0.26147D-01	0.90677D+00	0.69823D-01
0.30000D+02	0.24696D+01	0.24553D+01	0.35208D+01	0.36422D+01	0.16085D+00	0.84310D-01	0.23819D-01	0.91205D+00	0.65863D-01
0.30500D+02	0.23892D+01	0.23670D+01	0.34696D+01	0.36030D+01	0.16131D+00	0.74869D-01	0.21697D-01	0.91738D+00	0.62294D-01
0.31000D+02	0.23068D+01	0.22824D+01	0.34186D+01	0.35640D+01	0.16175D+00	0.68370D-01	0.19757D-01	0.92177D+00	0.58598D-01
0.31500D+02	0.22313D+01	0.21995D+01	0.33676D+01	0.35251D+01	0.16218D+00	0.62834D-01	0.18051D-01	0.92625D+00	0.54998D-01
0.32000D+02	0.21512D+01	0.21246D+01	0.33167D+01	0.34866D+01	0.16259D+00	0.58247D-01	0.16594D-01	0.93079D+00	0.50806D-01
0.32500D+02	0.20724D+01	0.20536D+01	0.32658D+01	0.34484D+01	0.16298D+00	0.53891D-01	0.15221D-01	0.93462D+00	0.46046D-01
0.33000D+02	0.19951D+01	0.19776D+01	0.32150D+01	0.34107D+01	0.16336D+00	0.48757D-01	0.13992D-01	0.93721D+00	0.41982D-01
0.33500D+02	0.19229D+01	0.19050D+01	0.31643D+01	0.33733D+01	0.16373D+00	0.44308D-01	0.12930D-01	0.94033D+00	0.39658D-01
0.34000D+02	0.18527D+01	0.18365D+01	0.31136D+01	0.33365D+01	0.16408D+00	0.41794D-01	0.11983D-01	0.94293D+00	0.39050D-01
0.34500D+02	0.17862D+01	0.17693D+01	0.30630D+01	0.33001D+01	0.16442D+00	0.39682D-01	0.11131D-01	0.94536D+00	0.38643D-01
0.35000D+02	0.17209D+01	0.17055D+01	0.30125D+01	0.32642D+01	0.16475D+00	0.37984D-01	0.10391D-01	0.94789D+00	0.38369D-01
0.35500D+02	0.16592D+01	0.16439D+01	0.29622D+01	0.32288D+01	0.16506D+00	0.36482D-01	0.97229D-02	0.94980D+00	0.37965D-01
0.36000D+02	0.15980D+01	0.15850D+01	0.29120D+01	0.31940D+01	0.16536D+00	0.35108D-01	0.91572D-02	0.95162D+00	0.37126D-01
0.36500D+02	0.15410D+01	0.15288D+01	0.28620D+01	0.31598D+01	0.16565D+00	0.33824D-01	0.87231D-02	0.95360D+00	0.35912D-01
0.37000D+02	0.14884D+01	0.14731D+01	0.28121D+01	0.31262D+01	0.16593D+00	0.32495D-01	0.86232D-02	0.95564D+00	0.34852D-01
0.37500D+02	0.14362D+01	0.14196D+01	0.27622D+01	0.30932D+01	0.16620D+00	0.31497D-01	0.87587D-02	0.95749D+00	0.34008D-01
0.38000D+02	0.13852D+01	0.13673D+01	0.27125D+01	0.30607D+01	0.16646D+00	0.30597D-01	0.89795D-02	0.95922D+00	0.33078D-01
0.38500D+02	0.13354D+01	0.13168D+01	0.26629D+01	0.30289D+01	0.16671D+00	0.29806D-01	0.92082D-02	0.96078D+00	0.32170D-01
0.39000D+02	0.12875D+01	0.12688D+01	0.26134D+01	0.29976D+01	0.16695D+00	0.29103D-01	0.94136D-02	0.96228D+00	0.31337D-01
0.39500D+02	0.12416D+01	0.12225D+01	0.25643D+01	0.29669D+01	0.16718D+00	0.28489D-01	0.95745D-02	0.96364D+00	0.30512D-01
0.40000D+02	0.11977D+01	0.11782D+01	0.25154D+01	0.29369D+01	0.16740D+00	0.27832D-01	0.96882D-02	0.96487D+00	0.29615D-01
0.40500D+02	0.11553D+01	0.11355D+01	0.24667D+01	0.29073D+01	0.16761D+00	0.27167D-01	0.97554D-02	0.96598D+00	0.28681D-01
0.41000D+02	0.11145D+01	0.10944D+01	0.24182D+01	0.28784D+01	0.16782D+00	0.26527D-01	0.97863D-02	0.96697D+00	0.27820D-01
0.41500D+02	0.10753D+01	0.10550D+01	0.23699D+01	0.28500D+01	0.16801D+00	0.25883D-01	0.97948D-02	0.96786D+00	0.27026D-01
0.42000D+02	0.10379D+01	0.10174D+01	0.23217D+01	0.28221D+01	0.16820D+00	0.25324D-01	0.97887D-02	0.96872D+00	0.26319D-01
0.42500D+02	0.10021D+01	0.98141D+00	0.22737D+01	0.27949D+01	0.16839D+00	0.24833D-01	0.97704D-02	0.96948D+00	0.25723D-01
0.43000D+02	0.96784D+00	0.94703D+00	0.22258D+01	0.27681D+01	0.16856D+00	0.24370D-01	0.97445D-02	0.97017D+00	0.25160D-01
0.43500D+02	0.93518D+00	0.91420D+00	0.21782D+01	0.27419D+01	0.16873D+00	0.24021D-01	0.97070D-02	0.97080D+00	0.24711D-01
0.44000D+02	0.90391D+00	0.88279D+00	0.21307D+01	0.27162D+01	0.16889D+00	0.23687D-01	0.96603D-02	0.97137D+00	0.24345D-01
0.44500D+02	0.87411D+00	0.85285D+00	0.20835D+01	0.26910D+01	0.16904D+00	0.23454D-01	0.96086D-02	0.97189D+00	0.24053D-01
0.45000D+02	0.84567D+00	0.82410D+00	0.20364D+01	0.26663D+01	0.16919D+00	0.23364D-01	0.95515D-02	0.97237D+00	0.23868D-01

ALARM-P (MODI(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG PRESS VOL 14 MPA	AVG PRESS VOL 21 MPA	AVG PRESS VOL 22 MPA	AVG PRESS VOL 30 MPA	AVG PRESS VOL 31 MPA	AVG DENSE VOL 1 MG/M3	AVG DENSE VOL 6 MG/M3	AVG DENSE VOL 10 MG/M3	AVG DENSE VOL 15 MG/M3
0.45500D+02	0.81839D+00	0.79671D+00	0.19896D+01	0.26421D+01	0.16934D+00	0.23301D-01	0.94998D-02	0.97279D+00	0.23779D-01
0.46000D+02	0.79243D+00	0.77054D+00	0.19431D+01	0.26184D+01	0.16948D+00	0.23359D-01	0.94492D-02	0.97319D+00	0.23753D-01
0.46500D+02	0.76766D+00	0.74557D+00	0.18966D+01	0.25952D+01	0.16961D+00	0.23540D-01	0.93949D-02	0.97355D+00	0.23836D-01
0.47000D+02	0.74407D+00	0.72177D+00	0.18505D+01	0.25724D+01	0.16974D+00	0.23811D-01	0.93417D-02	0.97388D+00	0.24000D-01
0.47500D+02	0.72158D+00	0.69904D+00	0.18046D+01	0.25501D+01	0.16986D+00	0.24093D-01	0.92879D-02	0.97421D+00	0.24231D-01
0.48000D+02	0.70011D+00	0.67736D+00	0.17590D+01	0.25283D+01	0.16998D+00	0.24492D-01	0.92342D-02	0.97452D+00	0.24510D-01
0.48500D+02	0.67973D+00	0.65669D+00	0.17137D+01	0.25069D+01	0.17010D+00	0.25005D-01	0.91759D-02	0.97482D+00	0.24851D-01
0.49000D+02	0.66098D+00	0.63689D+00	0.16686D+01	0.24859D+01	0.17021D+00	0.24991D-01	0.91129D-02	0.97508D+00	0.25159D-01
0.49500D+02	0.64272D+00	0.61819D+00	0.16120D+01	0.24654D+01	0.17032D+00	0.25967D-01	0.90780D-02	0.97533D+00	0.25517D-01
0.50000D+02	0.62490D+00	0.60085D+00	0.15467D+01	0.24452D+01	0.17042D+00	0.25157D-01	0.90905D-02	0.97547D+00	0.24811D-01
0.50500D+02	0.60804D+00	0.58397D+00	0.15009D+01	0.24255D+01	0.17052D+00	0.25578D-01	0.90223D-02	0.97576D+00	0.25162D-01
0.51000D+02	0.59218D+00	0.56741D+00	0.14573D+01	0.24061D+01	0.17062D+00	0.26502D-01	0.88768D-02	0.97604D+00	0.25853D-01
0.51500D+02	0.57695D+00	0.55126D+00	0.14141D+01	0.23872D+01	0.17071D+00	0.27631D-01	0.87650D-02	0.97625D+00	0.26642D-01
0.52000D+02	0.56168D+00	0.53628D+00	0.13713D+01	0.23686D+01	0.17080D+00	0.28234D-01	0.87123D-02	0.97644D+00	0.27161D-01
0.52500D+02	0.54748D+00	0.52203D+00	0.13289D+01	0.23504D+01	0.17089D+00	0.28390D-01	0.86419D-02	0.97668D+00	0.27251D-01
0.53000D+02	0.53415D+00	0.50836D+00	0.12868D+01	0.23325D+01	0.17097D+00	0.28756D-01	0.85442D-02	0.97692D+00	0.27621D-01
0.53500D+02	0.52150D+00	0.49499D+00	0.12450D+01	0.23150D+01	0.17106D+00	0.29556D-01	0.84547D-02	0.97713D+00	0.28182D-01
0.54000D+02	0.50930D+00	0.48204D+00	0.12038D+01	0.22978D+01	0.17113D+00	0.30434D-01	0.83999D-02	0.97729D+00	0.28876D-01
0.54500D+02	0.49711D+00	0.47003D+00	0.11630D+01	0.22809D+01	0.17121D+00	0.30923D-01	0.83700D-02	0.97745D+00	0.29269D-01
0.55000D+02	0.48578D+00	0.45854D+00	0.11226D+01	0.22644D+01	0.17129D+00	0.31135D-01	0.83170D-02	0.97763D+00	0.29504D-01
0.55500D+02	0.47495D+00	0.44756D+00	0.10827D+01	0.22482D+01	0.17136D+00	0.31608D-01	0.82487D-02	0.97780D+00	0.29766D-01
0.56000D+02	0.46475D+00	0.43676D+00	0.10432D+01	0.22323D+01	0.17143D+00	0.31965D-01	0.81792D-02	0.97796D+00	0.30148D-01
0.56500D+02	0.45500D+00	0.42614D+00	0.10042D+01	0.22167D+01	0.17150D+00	0.32866D-01	0.81304D-02	0.97809D+00	0.30774D-01
0.57000D+02	0.44497D+00	0.41634D+00	0.96577D+00	0.22014D+01	0.17156D+00	0.33725D-01	0.81121D-02	0.97820D+00	0.31248D-01
0.57500D+02	0.43590D+00	0.40686D+00	0.92760D+00	0.21864D+01	0.17163D+00	0.33526D-01	0.80735D-02	0.97832D+00	0.31340D-01
0.58000D+02	0.42693D+00	0.39790D+00	0.89019D+00	0.21717D+01	0.17169D+00	0.33978D-01	0.80206D-02	0.97845D+00	0.31593D-01
0.58500D+02	0.41843D+00	0.38927D+00	0.85341D+00	0.21572D+01	0.17175D+00	0.33937D-01	0.79599D-02	0.97857D+00	0.31714D-01
0.59000D+02	0.41041D+00	0.38058D+00	0.81727D+00	0.21430D+01	0.17181D+00	0.34481D-01	0.79004D-02	0.97869D+00	0.32074D-01
0.59500D+02	0.40283D+00	0.37193D+00	0.78181D+00	0.21291D+01	0.17187D+00	0.35913D-01	0.78618D-02	0.97877D+00	0.32902D-01
0.60000D+02	0.39458D+00	0.36427D+00	0.74705D+00	0.21154D+01	0.17193D+00	0.36182D-01	0.78498D-02	0.97886D+00	0.33182D-01

ALARM-P (MODI(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG DENSE VOL 21 MG/M3	MIX LEVEL VOL 11 M	MIX LEVEL VOL 22 M	MIX LEVEL VOL 31 M	AVG TEMP VOL 10 C	AVG TEMP VOL 11 C	AVG TEMP VOL 14 C	AVG TEMP VOL 15 C	AVG TEMP VOL 21 C
0.0	0.76444D+00	0.51703D+01	0.11454D+01	0.28712D+01	0.27944D+03	0.28056D+03	0.27944D+03	0.27944D+03	0.28056D+03
0.50000D-02	0.76158D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27940D+03	0.28033D+03	0.27945D+03	0.27945D+03	0.27949D+03
0.10000D-01	0.76419D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27900D+03	0.28015D+03	0.27938D+03	0.27940D+03	0.28043D+03
0.15000D-01	0.76208D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27931D+03	0.28020D+03	0.27898D+03	0.27897D+03	0.27965D+03
0.20000D-01	0.76450D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27873D+03	0.28004D+03	0.27889D+03	0.27874D+03	0.28055D+03
0.25000D-01	0.76275D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27920D+03	0.27994D+03	0.27871D+03	0.27854D+03	0.27990D+03
0.30000D-01	0.76342D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27860D+03	0.27994D+03	0.27864D+03	0.27851D+03	0.28012D+03
0.35000D-01	0.76147D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27889D+03	0.27974D+03	0.27864D+03	0.27867D+03	0.27939D+03
0.40000D-01	0.76148D+00	0.51703D+01	0.11454D+01	0.49055D+01	0.27801D+03	0.27942D+03	0.27871D+03	0.27871D+03	0.27940D+03
0.45000D-01	0.76090D+00	0.51703D+01	0.11453D+01	0.49055D+01	0.27829D+03	0.27926D+03	0.27845D+03	0.27842D+03	0.27922D+03
0.50000D-01	0.76153D+00	0.51703D+01	0.11453D+01	0.49055D+01	0.27786D+03	0.27933D+03	0.27811D+03	0.27815D+03	0.27946D+03
0.60000D-01	0.75976D+00	0.51703D+01	0.11452D+01	0.49055D+01	0.27775D+03	0.27884D+03	0.27781D+03	0.27782D+03	0.27884D+03
0.70000D-01	0.75868D+00	0.51703D+01	0.11450D+01	0.49055D+01	0.27734D+03	0.27863D+03	0.27763D+03	0.27773D+03	0.27848D+03
0.80000D-01	0.75849D+00	0.51703D+01	0.11448D+01	0.49055D+01	0.27729D+03	0.27839D+03	0.27749D+03	0.27747D+03	0.27848D+03
0.90000D-01	0.75832D+00	0.51703D+01	0.11446D+01	0.49055D+01	0.27749D+03	0.27845D+03	0.27719D+03	0.27717D+03	0.27845D+03
0.10000D+00	0.75718D+00	0.51703D+01	0.11443D+01	0.49055D+01	0.27699D+03	0.27799D+03	0.27722D+03	0.27717D+03	0.27811D+03
0.11000D+00	0.75660D+00	0.51703D+01	0.11440D+01	0.49055D+01	0.27695D+03	0.27787D+03	0.27695D+03	0.27688D+03	0.27795D+03
0.12000D+00	0.75627D+00	0.51703D+01	0.11436D+01	0.49055D+01	0.27696D+03	0.27774D+03	0.27672D+03	0.27654D+03	0.27790D+03
0.13000D+00	0.75593D+00	0.51703D+01	0.11433D+01	0.49055D+01	0.27651D+03	0.27756D+03	0.27671D+03	0.27654D+03	0.27784D+03
0.14000D+00	0.75522D+00	0.51703D+01	0.11429D+01	0.49055D+01	0.27648D+03	0.27746D+03	0.27657D+03	0.27641D+03	0.27764D+03
0.15000D+00	0.75523D+00	0.51703D+01	0.11425D+01	0.49055D+01	0.27648D+03	0.27737D+03	0.27635D+03	0.27617D+03	0.27769D+03
0.16000D+00	0.75507D+00	0.51703D+01	0.11421D+01	0.49055D+01	0.27611D+03	0.27726D+03	0.27633D+03	0.27624D+03	0.27768D+03
0.17000D+00	0.75422D+00	0.51703D+01	0.11417D+01	0.49055D+01	0.27625D+03	0.27725D+03	0.27630D+03	0.27633D+03	0.27760D+03
0.18000D+00	0.75082D+00	0.51703D+01	0.11413D+01	0.49055D+01	0.27614D+03	0.27726D+03	0.27631D+03	0.27617D+03	0.27753D+03
0.19000D+00	0.74586D+00	0.51703D+01	0.11409D+01	0.49055D+01	0.27624D+03	0.27733D+03	0.27636D+03	0.27628D+03	0.27743D+03
0.20000D+00	0.74290D+00	0.51703D+01	0.11404D+01	0.49055D+01	0.27619D+03	0.27728D+03	0.27637D+03	0.27618D+03	0.27736D+03
0.21000D+00	0.73725D+00	0.51703D+01	0.11400D+01	0.49055D+01	0.27621D+03	0.27736D+03	0.27631D+03	0.27617D+03	0.27725D+03
0.22000D+00	0.73538D+00	0.51703D+01	0.11396D+01	0.49055D+01	0.27620D+03	0.27731D+03	0.27641D+03	0.27626D+03	0.27721D+03
0.23000D+00	0.73627D+00	0.51703D+01	0.11391D+01	0.49055D+01	0.27612D+03	0.27730D+03	0.27638D+03	0.27616D+03	0.27721D+03
0.24000D+00	0.73409D+00	0.51703D+01	0.11387D+01	0.49055D+01	0.27610D+03	0.27731D+03	0.27639D+03	0.27627D+03	0.27717D+03
0.25000D+00	0.73263D+00	0.51703D+01	0.11382D+01	0.49055D+01	0.27609D+03	0.27733D+03	0.27632D+03	0.27617D+03	0.27713D+03
0.26000D+00	0.73353D+00	0.51703D+01	0.11377D+01	0.49055D+01	0.27614D+03	0.27737D+03	0.27635D+03	0.27617D+03	0.27714D+03
0.27000D+00	0.73241D+00	0.51703D+01	0.11373D+01	0.49055D+01	0.27609D+03	0.27737D+03	0.27633D+03	0.27620D+03	0.27711D+03
0.28000D+00	0.73244D+00	0.51703D+01	0.11368D+01	0.49055D+01	0.27612D+03	0.27735D+03	0.27633D+03	0.27617D+03	0.27710D+03
0.29000D+00	0.73534D+00	0.51703D+01	0.11363D+01	0.49055D+01	0.27611D+03	0.27735D+03	0.27639D+03	0.27617D+03	0.27715D+03
0.30000D+00	0.73552D+00	0.51703D+01	0.11358D+01	0.49055D+01	0.27611D+03	0.27736D+03	0.27641D+03	0.27621D+03	0.27715D+03

ALARM-P (MODI(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG DENSE VOL 21 MG/M3	MIX LEVEL VOL 11 M	MIX LEVEL VOL 22 M	MIX LEVEL VOL 31 M	AVG TEMP VOL 10 C	AVG TEMP VOL 11 C	AVG TEMP VOL 14 C	AVG TEMP VOL 15 C	AVG TEMP VOL 21 C
0.35000D+00	0.74279D+00	0.51701D+01	0.11332D+01	0.49055D+01	0.27615D+03	0.27740D+03	0.27636D+03	0.27627D+03	0.27725D+03
0.40000D+00	0.74658D+00	0.51699D+01	0.11303D+01	0.49055D+01	0.27605D+03	0.27743D+03	0.27636D+03	0.27625D+03	0.27730D+03
0.45000D+00	0.74940D+00	0.51696D+01	0.11272D+01	0.49055D+01	0.27605D+03	0.27745D+03	0.27646D+03	0.27618D+03	0.27733D+03
0.50000D+00	0.74962D+00	0.51691D+01	0.11239D+01	0.49055D+01	0.27610D+03	0.27744D+03	0.27644D+03	0.27618D+03	0.27732D+03
0.55000D+00	0.74589D+00	0.51682D+01	0.11203D+01	0.49055D+01	0.27601D+03	0.27744D+03	0.27640D+03	0.27626D+03	0.27725D+03
0.60000D+00	0.74270D+00	0.51672D+01	0.11166D+01	0.49055D+01	0.27601D+03	0.27743D+03	0.27648D+03	0.27621D+03	0.27719D+03
0.65000D+00	0.74446D+00	0.51658D+01	0.11127D+01	0.49055D+01	0.27602D+03	0.27741D+03	0.27648D+03	0.27627D+03	0.27723D+03
0.70000D+00	0.74609D+00	0.51641D+01	0.11086D+01	0.49055D+01	0.27600D+03	0.27739D+03	0.27643D+03	0.27623D+03	0.27726D+03
0.75000D+00	0.74411D+00	0.51620D+01	0.11043D+01	0.49055D+01	0.27604D+03	0.27735D+03	0.27644D+03	0.27621D+03	0.27724D+03
0.80000D+00	0.73919D+00	0.51595D+01	0.10999D+01	0.49055D+01	0.27598D+03	0.27733D+03	0.27646D+03	0.27621D+03	0.27717D+03
0.85000D+00	0.73492D+00	0.51568D+01	0.10954D+01	0.49055D+01	0.27597D+03	0.27732D+03	0.27648D+03	0.27626D+03	0.27710D+03
0.90000D+00	0.73215D+00	0.51538D+01	0.10907D+01	0.49055D+01	0.27600D+03	0.27730D+03	0.27647D+03	0.27625D+03	0.27707D+03
0.95000D+00	0.73127D+00	0.51506D+01	0.10860D+01	0.49055D+01	0.27600D+03	0.27726D+03	0.27649D+03	0.27629D+03	0.27708D+03
0.10000D+01	0.73073D+00	0.51469D+01	0.10811D+01	0.49055D+01	0.27599D+03	0.27723D+03	0.27649D+03	0.27640D+03	0.27710D+03

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG DENSE VOL 21 MG/M3	MIX LEVEL VOL 11 M	MIX LEVEL VOL 22 M	MIX LEVEL VOL 31 M	AVG TEMP VOL 10 C	AVG TEMP VOL 11 C	AVG TEMP VOL 14 C	AVG TEMP VOL 15 C	AVG TEMP VOL 21 C
0.11000D+01	0.72455D+00	0.51390D+01	0.10711D+01	0.49055D+01	0.27604D+03	0.27721D+03	0.27651D+03	0.27634D+03	0.27703D+03
0.12000D+01	0.71712D+00	0.51302D+01	0.10607D+01	0.49055D+01	0.27603D+03	0.27718D+03	0.27652D+03	0.27627D+03	0.27695D+03
0.13000D+01	0.71731D+00	0.51208D+01	0.10500D+01	0.49055D+01	0.27605D+03	0.27714D+03	0.27653D+03	0.27627D+03	0.27702D+03
0.14000D+01	0.70898D+00	0.51106D+01	0.10391D+01	0.49055D+01	0.27609D+03	0.27712D+03	0.27655D+03	0.27632D+03	0.27692D+03
0.15000D+01	0.70374D+00	0.51000D+01	0.10280D+01	0.49055D+01	0.27610D+03	0.27712D+03	0.27665D+03	0.27633D+03	0.27688D+03
0.16000D+01	0.70543D+00	0.50891D+01	0.10167D+01	0.49055D+01	0.27611D+03	0.27709D+03	0.27659D+03	0.27637D+03	0.27698D+03
0.17000D+01	0.69670D+00	0.50778D+01	0.10053D+01	0.49055D+01	0.27612D+03	0.27707D+03	0.27665D+03	0.27635D+03	0.27685D+03
0.18000D+01	0.69405D+00	0.50661D+01	0.99381D+00	0.49055D+01	0.27614D+03	0.27705D+03	0.27666D+03	0.27635D+03	0.27685D+03
0.19000D+01	0.69244D+00	0.50540D+01	0.98223D+00	0.49055D+01	0.27616D+03	0.27702D+03	0.27669D+03	0.27640D+03	0.27688D+03
0.20000D+01	0.68436D+00	0.50417D+01	0.97058D+00	0.49055D+01	0.27617D+03	0.27700D+03	0.27674D+03	0.27640D+03	0.27675D+03
0.21000D+01	0.68454D+00	0.50289D+01	0.95890D+00	0.49055D+01	0.27618D+03	0.27695D+03	0.27679D+03	0.27641D+03	0.27680D+03
0.22000D+01	0.68078D+00	0.50158D+01	0.94720D+00	0.49055D+01	0.27620D+03	0.27694D+03	0.27678D+03	0.27646D+03	0.27676D+03
0.23000D+01	0.67613D+00	0.50024D+01	0.93549D+00	0.49055D+01	0.27621D+03	0.27689D+03	0.27675D+03	0.27646D+03	0.27670D+03
0.24000D+01	0.67294D+00	0.49886D+01	0.92378D+00	0.49055D+01	0.27624D+03	0.27686D+03	0.27677D+03	0.27648D+03	0.27667D+03
0.25000D+01	0.67058D+00	0.49749D+01	0.91210D+00	0.49055D+01	0.27623D+03	0.27687D+03	0.27672D+03	0.27651D+03	0.27666D+03
0.26000D+01	0.67027D+00	0.49612D+01	0.90044D+00	0.49055D+01	0.27626D+03	0.27685D+03	0.27668D+03	0.27653D+03	0.27668D+03
0.27000D+01	0.66630D+00	0.49475D+01	0.88881D+00	0.49055D+01	0.27630D+03	0.27684D+03	0.27669D+03	0.27656D+03	0.27661D+03
0.28000D+01	0.66608D+00	0.49336D+01	0.87720D+00	0.49055D+01	0.27631D+03	0.27681D+03	0.27664D+03	0.27658D+03	0.27662D+03
0.29000D+01	0.66370D+00	0.49198D+01	0.86557D+00	0.49055D+01	0.27632D+03	0.27680D+03	0.27666D+03	0.27660D+03	0.27659D+03
0.30000D+01	0.66279D+00	0.49059D+01	0.85396D+00	0.49055D+01	0.27636D+03	0.27677D+03	0.27662D+03	0.27664D+03	0.27658D+03
0.31000D+01	0.66093D+00	0.48919D+01	0.84237D+00	0.49055D+01	0.27639D+03	0.27675D+03	0.27664D+03	0.27659D+03	0.27654D+03
0.32000D+01	0.65914D+00	0.48779D+01	0.83083D+00	0.49055D+01	0.27642D+03	0.27673D+03	0.27658D+03	0.27659D+03	0.27651D+03
0.33000D+01	0.65985D+00	0.48640D+01	0.81933D+00	0.49055D+01	0.27645D+03	0.27673D+03	0.27659D+03	0.27659D+03	0.27653D+03
0.34000D+01	0.65959D+00	0.48504D+01	0.80789D+00	0.49055D+01	0.27650D+03	0.27673D+03	0.27657D+03	0.27656D+03	0.27652D+03
0.35000D+01	0.65869D+00	0.48367D+01	0.79650D+00	0.49055D+01	0.27653D+03	0.27670D+03	0.27651D+03	0.27653D+03	0.27650D+03
0.36000D+01	0.65815D+00	0.48231D+01	0.78517D+00	0.49055D+01	0.27657D+03	0.27668D+03	0.27658D+03	0.27651D+03	0.27648D+03
0.37000D+01	0.65782D+00	0.48093D+01	0.77391D+00	0.49055D+01	0.27654D+03	0.27666D+03	0.27647D+03	0.27657D+03	0.27647D+03
0.38000D+01	0.65694D+00	0.47957D+01	0.76271D+00	0.49055D+01	0.27653D+03	0.27665D+03	0.27653D+03	0.27643D+03	0.27644D+03
0.39000D+01	0.65753D+00	0.47819D+01	0.75157D+00	0.49055D+01	0.27652D+03	0.27662D+03	0.27647D+03	0.27649D+03	0.27645D+03
0.40000D+01	0.65528D+00	0.47684D+01	0.74050D+00	0.49055D+01	0.27648D+03	0.27662D+03	0.27644D+03	0.27649D+03	0.27639D+03
0.41000D+01	0.65585D+00	0.47545D+01	0.72950D+00	0.49055D+01	0.27649D+03	0.27658D+03	0.27647D+03	0.27641D+03	0.27640D+03
0.42000D+01	0.65416D+00	0.47409D+01	0.71857D+00	0.49055D+01	0.27641D+03	0.27658D+03	0.27642D+03	0.27643D+03	0.27635D+03
0.43000D+01	0.65500D+00	0.47271D+01	0.70771D+00	0.49055D+01	0.27645D+03	0.27655D+03	0.27641D+03	0.27643D+03	0.27636D+03
0.44000D+01	0.65413D+00	0.47133D+01	0.69691D+00	0.49055D+01	0.27640D+03	0.27653D+03	0.27640D+03	0.27635D+03	0.27633D+03
0.45000D+01	0.65309D+00	0.46995D+01	0.68619D+00	0.49055D+01	0.27637D+03	0.27651D+03	0.27637D+03	0.27636D+03	0.27630D+03
0.46000D+01	0.65302D+00	0.46854D+01	0.67553D+00	0.49055D+01	0.27636D+03	0.27648D+03	0.27635D+03	0.27636D+03	0.27629D+03
0.47000D+01	0.65154D+00	0.46714D+01	0.66494D+00	0.49055D+01	0.27634D+03	0.27647D+03	0.27631D+03	0.27631D+03	0.27625D+03
0.48000D+01	0.65082D+00	0.46572D+01	0.65441D+00	0.49055D+01	0.27631D+03	0.27644D+03	0.27632D+03	0.27628D+03	0.27623D+03
0.49000D+01	0.64990D+00	0.46430D+01	0.64395D+00	0.49055D+01	0.27627D+03	0.27642D+03	0.27630D+03	0.27627D+03	0.27621D+03
0.50000D+01	0.64932D+00	0.46286D+01	0.63356D+00	0.49055D+01	0.27628D+03	0.27639D+03	0.27622D+03	0.27627D+03	0.27619D+03

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG DENSE VOL 21 MG/M3	MIX LEVEL VOL 11 M	MIX LEVEL VOL 22 M	MIX LEVEL VOL 31 M	AVG TEMP VOL 10 C	AVG TEMP VOL 11 C	AVG TEMP VOL 14 C	AVG TEMP VOL 15 C	AVG TEMP VOL 21 C
0.55000D+01	0.64317D+00	0.45545D+01	0.58266D+00	0.49055D+01	0.27614D+03	0.27627D+03	0.27615D+03	0.27612D+03	0.27605D+03
0.60000D+01	0.63613D+00	0.44757D+01	0.53339D+00	0.49055D+01	0.27600D+03	0.27611D+03	0.27605D+03	0.27608D+03	0.27591D+03
0.65000D+01	0.62632D+00	0.43913D+01	0.48566D+00	0.49055D+01	0.27582D+03	0.27592D+03	0.27580D+03	0.27578D+03	0.27590D+03
0.70000D+01	0.36316D+00	0.43726D+01	0.43927D+00	0.49055D+01	0.27540D+03	0.27561D+03	0.27556D+03	0.27554D+03	0.27530D+03
0.75000D+01	0.38356D+00	0.43896D+01	0.39396D+00	0.49055D+01	0.27501D+03	0.27515D+03	0.27509D+03	0.27507D+03	0.27528D+03
0.80000D+01	0.43297D+00	0.43873D+01	0.34973D+00	0.49055D+01	0.27491D+03	0.27488D+03	0.27474D+03	0.27472D+03	0.27427D+03
0.85000D+01	0.42039D+00	0.43860D+01	0.30662D+00	0.49055D+01	0.27430D+03	0.27449D+03	0.27442D+03	0.27441D+03	0.27421D+03
0.90000D+01	0.40603D+00	0.43855D+01	0.26456D+00	0.49055D+01	0.27388D+03	0.27411D+03	0.27408D+03	0.27409D+03	0.27407D+03
0.95000D+01	0.37919D+00	0.43845D+01	0.22349D+00	0.49055D+01	0.27350D+03	0.27374D+03	0.27367D+03	0.27367D+03	0.27347D+03
0.10000D+02	0.36242D+00	0.43837D+01	0.18329D+00	0.49055D+01	0.27311D+03	0.27334D+03	0.27324D+03	0.27323D+03	0.27305D+03
0.10500D+02	0.34490D+00	0.43825D+01	0.14958D+00	0.49055D+01	0.27271D+03	0.27290D+03	0.27282D+03	0.27280D+03	0.27264D+03
0.11000D+02	0.32826D+00	0.43816D+01	0.13296D+00	0.49055D+01	0.27230D+03	0.27246D+03	0.27249D+03	0.27247D+03	0.27216D+03
0.11500D+02	0.31495D+00	0.43806D+01	0.12174D+00	0.49055D+01	0.27182D+03	0.27199D+03	0.27205D+03	0.27204D+03	0.27169D+03
0.12000D+02	0.29930D+00	0.43790D+01	0.11382D+00	0.49055D+01	0.27134D+03	0.27146D+03	0.27113D+03	0.27113D+03	0.27116D+03
0.12500D+02	0.28023D+00	0.43769D+01	0.10782D+00	0.49055D+01	0.27068D+03	0.27085D+03	0.27091D+03	0.27094D+03	0.27057D+03
0.13000D+02	0.26030D+00	0.43746D+01	0.10318D+00	0.49055D+01	0.27002D+03	0.27019D+03	0.27018D+03	0.27015D+03	0.26989D+03
0.13500D+02	0.23943D+00	0.43719D+01	0.99577D-01	0.49055D+01	0.26925D+03	0.26942D+03	0.26939D+03	0.26938D+03	0.26913D+03
0.14000D+02	0.21839D+00	0.43689D+01	0.96548D-01	0.49055D+01	0.26839D+03	0.26856D+03	0.26855D+03	0.26849D+03	0.26826D+03
0.14500D+02	0.19901D+00	0.43656D+01	0.94064D-01	0.49055D+01	0.26744D+03	0.26760D+03	0.26757D+03	0.26753D+03	0.26730D+03
0.15000D+02	0.18161D+00	0.43623D+01	0.91930D-01	0.49055D+01	0.26641D+03	0.26656D+03	0.26652D+03	0.26646D+03	0.26624D+03
0.15500D+02	0.16596D+00	0.43595D+01	0.90099D-01	0.49055D+01	0.26530D+03	0.26546D+03	0.26542D+03	0.26529D+03	0.26514D+03
0.16000D+02	0.15292D+00	0.43574D+01	0.88566D-01	0.49055D+01	0.26422D+03	0.26437D+03	0.26433D+03	0.26427D+03	0.26405D+03
0.16500D+02	0.14248D+00	0.43549D+01	0.87453D-01	0.49055D+01	0.26313D+03	0.26328D+03	0.26324D+03	0.26319D+03	0.26296D+03
0.17000D+02	0.13350D+00	0.43527D+01	0.86405D-01	0.49055D+01	0.26204D+03	0.26219D+03	0.26219D+03	0.26205D+03	0.26186D+03
0.17500D+02	0.12506D+00	0.43508D+01	0.85486D-01	0.49055D+01	0.26094D+03	0.26109D+03	0.26108D+03	0.26101D+03	0.26077D+03
0.18000D+02	0.11837D+00	0.43468D+01	0.84685D-01	0.49055D+01	0.25985D+03	0.25999D+03	0.25997D+03	0.25995D+03	0.25967D+03
0.18500D+02	0.11177D+00	0.43471D+01	0.83929D-01	0.49055D+01	0.25874D+03	0.25889D+03	0.25887D+03	0.25885D+03	0.25857D+03
0.19000D+02	0.10584D+00	0.43451D+01	0.83237D-01	0.49055D+01	0.25763D+03	0.25778D+03	0.25778D+03	0.25774D+03	0.25746D+03
0.19500D+02	0.10100D+00	0.43440D+01	0.82605D-01	0.49055D+01	0.25651D+03	0.25665D+03	0.25665D+03	0.25661D+03	0.25633D+03
0.20000D+02	0.96435D-01	0.43428D+01	0.82039D-01	0.49055D+01	0.25536D+03	0.25549D+03	0.25549D+03	0.25544D+03	0.25517D+03

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)　　P*R LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG DENSE VOL 21 MG/M3	MIX LEVEL VOL 11 M	MIX LEVEL VOL 22 M	MIX LEVEL VOL 31 M	AVG TEMP VOL 10 C	AVG TEMP VOL 11 C	AVG TEMP VOL 14 C	AVG TEMP VOL 15 C	AVG TEMP VOL 21 C
0.20500D+02	0.90877D-01	0.43410D+01	0.81259D-01	0.49055D+01	0.25411D+03	0.25426D+03	0.25426D+03	0.25421D+03	0.25394D+03
0.21000D+02	0.86638D-01	0.43405D+01	0.81060D-01	0.49055D+01	0.25281D+03	0.25298D+03	0.25301D+03	0.25298D+03	0.25266D+03
0.21500D+02	0.85657D-01	0.43439D+01	0.80855D-01	0.49055D+01	0.25142D+03	0.25155D+03	0.25155D+03	0.25155D+03	0.25123D+03
0.22000D+02	0.79149D-01	0.43396D+01	0.80653D-01	0.49055D+01	0.25025D+03	0.25026D+03	0.25026D+03	0.25022D+03	0.24994D+03
0.22500D+02	0.75426D-01	0.43395D+01	0.80452D-01	0.49055D+01	0.24860D+03	0.24884D+03	0.24890D+03	0.24884D+03	0.24854D+03
0.23000D+02	0.72250D-01	0.43406D+01	0.80250D-01	0.49055D+01	0.24732D+03	0.24741D+03	0.24741D+03	0.24736D+03	0.24710D+03
0.23500D+02	0.68476D-01	0.43418D+01	0.80048D-01	0.49055D+01	0.24563D+03	0.24583D+03	0.24584D+03	0.24581D+03	0.24554D+03
0.24000D+02	0.63776D-01	0.43446D+01	0.79846D-01	0.49055D+01	0.24394D+03	0.24413D+03	0.24416D+03	0.24410D+03	0.24384D+03
0.24500D+02	0.60402D-01	0.43480D+01	0.79645D-01	0.49055D+01	0.24219D+03	0.24231D+03	0.24233D+03	0.24230D+03	0.24201D+03
0.25000D+02	0.59427D-01	0.43509D+01	0.79447D-01	0.49055D+01	0.24030D+03	0.24043D+03	0.24045D+03	0.24068D+03	0.24014D+03
0.25500D+02	0.53950D-01	0.43434D+01	0.80073D-01	0.49055D+01	0.23067D+03	0.23919D+03	0.23908D+03	0.23904D+03	0.23890D+03
0.26000D+02	0.52223D-01	0.43409D+01	0.78594D-01	0.49055D+01	0.21976D+03	0.23772D+03	0.23771D+03	0.23777D+03	0.23742D+03
0.26500D+02	0.50428D-01	0.43418D+01	0.78271D-01	0.49055D+01	0.20884D+03	0.23608D+03	0.23609D+03	0.23611D+03	0.23579D+03
0.27000D+02	0.50190D-01	0.43403D+01	0.78057D-01	0.49055D+01	0.19898D+03	0.23441D+03	0.23446D+03	0.23431D+03	0.23411D+03
0.27500D+02	0.48939D-01	0.43408D+01	0.77843D-01	0.49055D+01	0.19001D+03	0.23267D+03	0.23271D+03	0.23257D+03	0.23236D+03
0.28000D+02	0.47617D-01	0.43412D+01	0.77629D-01	0.49055D+01	0.18219D+03	0.23085D+03	0.23088D+03	0.23080D+03	0.23054D+03
0.28500D+02	0.46857D-01	0.43406D+01	0.77416D-01	0.49055D+01	0.17473D+03	0.22901D+03	0.22901D+03	0.22898D+03	0.22868D+03
0.29000D+02	0.45600D-01	0.43407D+01	0.77199D-01	0.49055D+01	0.16782D+03	0.22712D+03	0.22719D+03	0.22712D+03	0.22680D+03
0.29500D+02	0.44575D-01	0.43404D+01	0.76979D-01	0.49055D+01	0.16156D+03	0.22524D+03	0.22532D+03	0.22526D+03	0.22491D+03
0.30000D+02	0.43521D-01	0.43404D+01	0.76760D-01	0.49055D+01	0.15589D+03	0.22335D+03	0.22333D+03	0.22331D+03	0.22302D+03
0.30500D+02	0.42405D-01	0.43401D+01	0.76541D-01	0.49055D+01	0.15056D+03	0.22146D+03	0.22158D+03	0.22142D+03	0.22109D+03
0.31000D+02	0.41076D-01	0.43404D+01	0.76322D-01	0.49055D+01	0.14559D+03	0.21955D+03	0.21974D+03	0.21974D+03	0.21919D+03
0.31500D+02	0.39824D-01	0.43391D+01	0.76103D-01	0.49055D+01	0.14052D+03	0.21763D+03	0.21801D+03	0.21792D+03	0.21727D+03
0.32000D+02	0.38719D-01	0.43390D+01	0.75884D-01	0.49055D+01	0.13558D+03	0.21580D+03	0.21612D+03	0.21602D+03	0.21548D+03
0.32500D+02	0.37841D-01	0.43405D+01	0.75659D-01	0.49055D+01	0.13123D+03	0.21408D+03	0.21421D+03	0.21415D+03	0.21375D+03
0.33000D+02	0.36740D-01	0.43399D+01	0.75435D-01	0.49055D+01	0.12778D+03	0.21219D+03	0.21229D+03	0.21217D+03	0.21184D+03
0.33500D+02	0.35609D-01	0.43398D+01	0.75213D-01	0.49055D+01	0.12429D+03	0.21030D+03	0.21043D+03	0.21037D+03	0.20996D+03
0.34000D+02	0.34631D-01	0.43403D+01	0.74984D-01	0.49055D+01	0.12081D+03	0.20849D+03	0.20857D+03	0.20852D+03	0.20814D+03
0.34500D+02	0.33680D-01	0.43400D+01	0.74754D-01	0.49055D+01	0.11771D+03	0.20666D+03	0.20677D+03	0.20670D+03	0.20630D+03
0.35000D+02	0.32834D-01	0.43403D+01	0.74525D-01	0.49055D+01	0.11485D+03	0.20488D+03	0.20494D+03	0.20486D+03	0.20450D+03
0.35500D+02	0.31946D-01	0.43404D+01	0.74296D-01	0.49055D+01	0.11211D+03	0.20310D+03	0.20316D+03	0.20307D+03	0.20271D+03
0.36000D+02	0.31103D-01	0.43403D+01	0.74067D-01	0.49055D+01	0.10958D+03	0.20135D+03	0.20134D+03	0.20125D+03	0.20095D+03
0.36500D+02	0.30176D-01	0.43412D+01	0.73839D-01	0.49055D+01	0.10698D+03	0.19962D+03	0.19961D+03	0.19949D+03	0.19922D+03
0.37000D+02	0.29357D-01	0.43406D+01	0.73611D-01	0.49055D+01	0.10441D+03	0.19787D+03	0.19795D+03	0.19787D+03	0.19746D+03
0.37500D+02	0.28622D-01	0.43401D+01	0.73380D-01	0.49055D+01	0.10184D+03	0.19615D+03	0.19627D+03	0.19619D+03	0.19572D+03
0.38000D+02	0.27873D-01	0.43399D+01	0.73147D-01	0.49055D+01	0.99393D+02	0.19442D+03	0.19458D+03	0.19449D+03	0.19397D+03
0.38500D+02	0.27653D-01	0.43403D+01	0.72915D-01	0.49055D+01	0.97120D+02	0.19270D+03	0.19288D+03	0.19279D+03	0.19223D+03
0.39000D+02	0.27634D-01	0.43408D+01	0.72677D-01	0.49055D+01	0.95006D+02	0.19101D+03	0.19120D+03	0.19110D+03	0.19052D+03
0.39500D+02	0.27343D-01	0.43412D+01	0.72436D-01	0.49055D+01	0.93041D+02	0.18933D+03	0.18954D+03	0.18945D+03	0.18883D+03
0.40000D+02	0.27035D-01	0.43417D+01	0.72200D-01	0.49055D+01	0.91227D+02	0.18768D+03	0.18790D+03	0.18781D+03	0.18717D+03
0.40500D+02	0.26731D-01	0.43424D+01	0.71965D-01	0.49055D+01	0.89542D+02	0.18604D+03	0.18628D+03	0.18619D+03	0.18551D+03
0.41000D+02	0.26385D-01	0.43431D+01	0.71730D-01	0.49055D+01	0.87996D+02	0.18442D+03	0.18468D+03	0.18458D+03	0.18387D+03
0.41500D+02	0.26012D-01	0.43438D+01	0.71496D-01	0.49055D+01	0.86593D+02	0.18282D+03	0.18309D+03	0.18299D+03	0.18225D+03
0.42000D+02	0.25581D-01	0.43443D+01	0.71261D-01	0.49055D+01	0.85298D+02	0.18125D+03	0.18154D+03	0.18143D+03	0.18066D+03
0.42500D+02	0.25099D-01	0.43448D+01	0.71022D-01	0.49055D+01	0.84131D+02	0.17970D+03	0.18001D+03	0.17990D+03	0.17910D+03
0.43000D+02	0.24636D-01	0.43454D+01	0.70784D-01	0.49055D+01	0.83059D+02	0.17818D+03	0.17850D+03	0.17839D+03	0.17756D+03
0.43500D+02	0.24165D-01	0.43458D+01	0.70547D-01	0.49055D+01	0.82057D+02	0.17669D+03	0.17702D+03	0.17691D+03	0.17605D+03
0.44000D+02	0.23708D-01	0.43464D+01	0.70308D-01	0.49055D+01	0.81140D+02	0.17523D+03	0.17557D+03	0.17546D+03	0.17457D+03
0.44500D+02	0.23290D-01	0.43470D+01	0.70068D-01	0.49055D+01	0.80279D+02	0.17379D+03	0.17415D+03	0.17403D+03	0.17311D+03
0.45000D+02	0.22929D-01	0.43477D+01	0.69828D-01	0.49055D+01	0.79488D+02	0.17238D+03	0.17276D+03	0.17264D+03	0.17168D+03

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)　　P*R LOSS OF COOLANT ANALYSIS PROGRAM　　PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG DENSE VOL 21 MG/M3	MIX LEVEL VOL 11 M	MIX LEVEL VOL 22 M	MIX LEVEL VOL 31 M	AVG TEMP VOL 10 C	AVG TEMP VOL 11 C	AVG TEMP VOL 14 C	AVG TEMP VOL 15 C	AVG TEMP VOL 21 C
0.45500D+02	0.22660D-01	0.43487D+01	0.69590D-01	0.49055D+01	0.78776D+02	0.17100D+03	0.17139D+03	0.17126D+03	0.17027D+03
0.46000D+02	0.22391D-01	0.43495D+01	0.69353D-01	0.49055D+01	0.78096D+02	0.16965D+03	0.17005D+03	0.16992D+03	0.16889D+03
0.46500D+02	0.22096D-01	0.43502D+01	0.69111D-01	0.49055D+01	0.77471D+02	0.16833D+03	0.16874D+03	0.16861D+03	0.16754D+03
0.47000D+02	0.21814D-01	0.43510D+01	0.68869D-01	0.49055D+01	0.76891D+02	0.16703D+03	0.16746D+03	0.16733D+03	0.16622D+03
0.47500D+02	0.21564D-01	0.43518D+01	0.68630D-01	0.49055D+01	0.76350D+02	0.16576D+03	0.16621D+03	0.16607D+03	0.16493D+03
0.48000D+02	0.21343D-01	0.43526D+01	0.68392D-01	0.49055D+01	0.75844D+02	0.16453D+03	0.16499D+03	0.16485D+03	0.16366D+03
0.48500D+02	0.21123D-01	0.43534D+01	0.68157D-01	0.49055D+01	0.75357D+02	0.16332D+03	0.16380D+03	0.16366D+03	0.16242D+03
0.49000D+02	0.20936D-01	0.43543D+01	0.67933D-01	0.49055D+01	0.74920D+02	0.16214D+03	0.16268D+03	0.16259D+03	0.16121D+03
0.49500D+02	0.21035D-01	0.43559D+01	0.69471D-01	0.49055D+01	0.74499D+02	0.16100D+03	0.16157D+03	0.16142D+03	0.16003D+03
0.50000D+02	0.21477D-01	0.43582D+01	0.67552D-01	0.49055D+01	0.74261D+02	0.15993D+03	0.16046D+03	0.16030D+03	0.15892D+03
0.50500D+02	0.21758D-01	0.43592D+01	0.67039D-01	0.49055D+01	0.73770D+02	0.15885D+03	0.15938D+03	0.15923D+03	0.15781D+03
0.51000D+02	0.21121D-01	0.43584D+01	0.66811D-01	0.49055D+01	0.73297D+02	0.15775D+03	0.15835D+03	0.15819D+03	0.15669D+03
0.51500D+02	0.20459D-01	0.43587D+01	0.66586D-01	0.49055D+01	0.72935D+02	0.15667D+03	0.15734D+03	0.15718D+03	0.15558D+03
0.52000D+02	0.20768D-01	0.43610D+01	0.66366D-01	0.49055D+01	0.72606D+02	0.15567D+03	0.15630D+03	0.15614D+03	0.15453D+03
0.52500D+02	0.21356D-01	0.43627D+01	0.66152D-01	0.49055D+01	0.72196D+02	0.15469D+03	0.15532D+03	0.15515D+03	0.15350D+03
0.53000D+02	0.21322D-01	0.43630D+01	0.65937D-01	0.49055D+01	0.71780D+02	0.15370D+03	0.15437D+03	0.15420D+03	0.15249D+03
0.53500D+02	0.20781D-01	0.43629D+01	0.65727D-01	0.49055D+01	0.71409D+02	0.15272D+03	0.15346D+03	0.15328D+03	0.15149D+03
0.54000D+02	0.20686D-01	0.43642D+01	0.65524D-01	0.49055D+01	0.71111D+02	0.15178D+03	0.15256D+03	0.15238D+03	0.15050D+03
0.54500D+02	0.21535D-01	0.43668D+01	0.65330D-01	0.49055D+01	0.70828D+02	0.15090D+03	0.15165D+03	0.15147D+03	0.14956D+03
0.55000D+02	0.22395D-01	0.43685D+01	0.65142D-01	0.49055D+01	0.70512D+02	0.15002D+03	0.15079D+03	0.15060D+03	0.14864D+03
0.55500D+02	0.22370D-01	0.43684D+01	0.64963D-01	0.49055D+01	0.70195D+02	0.14914D+03	0.14994D+03	0.14975D+03	0.14774D+03
0.56000D+02	0.21609D-01	0.43679D+01	0.64791D-01	0.49055D+01	0.69904D+02	0.14826D+03	0.14914D+03	0.14894D+03	0.14684D+03
0.56500D+02	0.21333D-01	0.43690D+01	0.64633D-01	0.49055D+01	0.69671D+02	0.14741D+03	0.14835D+03	0.14815D+03	0.14594D+03
0.57000D+02	0.22570D-01	0.43721D+01	0.64491D-01	0.49055D+01	0.69467D+02	0.14664D+03	0.14753D+03	0.14733D+03	0.14510D+03
0.57500D+02	0.24253D-01	0.43744D+01	0.64395D-01	0.49055D+01	0.69239D+02	0.14586D+03	0.14677D+03	0.14657D+03	0.14426D+03
0.58000D+02	0.25264D-01	0.43751D+01	0.64250D-01	0.49055D+01	0.69007D+02	0.14508D+03	0.14601D+03	0.14581D+03	0.14346D+03
0.58500D+02	0.24555D-01	0.43741D+01	0.64155D-01	0.49055D+01	0.68773D+02	0.14430D+03	0.14528D+03	0.14507D+03	0.14267D+03
0.59000D+02	0.23298D-01	0.43736D+01	0.64086D-01	0.49055D+01	0.68560D+02	0.14352D+03	0.14458D+03	0.14436D+03	0.14186D+03
0.59500D+02	0.23479D-01	0.43757D+01	0.64046D-01	0.49055D+01	0.68394D+02	0.14278D+03	0.14390D+03	0.14369D+03	0.14104D+03
0.60000D+02	0.26688D-01	0.43799D+01	0.64042D-01	0.49055D+01	0.68240D+02	0.14212D+03	0.14316D+03	0.14294D+03	0.14031D+03

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG TEMP VOL 28 C	AVG TEMP VOL 31 C	DIFF PRESS V 6-V 9 MPA	DIFF PRESS V 3-V 6 MPA	DIFF PRESS V 1-V10 MPA	DIFF PRESS V15-V16 MPA	DIFF PRESS V21-V26 MPA	DIFF PRESS V26-V31 MPA	DIFF PRESS V20-V31 MPA
0.0	0.25444D+03	0.83889D+02	-0.16471D+00	0.87525D-01	-0.62025D-01	0.10338D+01	0.19297D+00	0.15517D+02	0.15648D+02
0.50000D-02	0.25444D+03	0.83896D+02	-0.14535D+00	0.84344D-01	0.70711D-01	0.18559D-01	0.18935D+01	0.10615D+02	0.53052D+01
0.10000D-01	0.25430D+03	0.83905D+02	0.52534D+00	0.12789D+00	0.12474D+01	0.92384D+00	0.13448D+01	0.14045D+02	0.53362D+01
0.15000D-01	0.25394D+03	0.83913D+02	-0.15993D+00	0.54058D+00	-0.78400D+00	0.11589D+01	0.20569D+01	0.10969D+02	0.57448D+01
0.20000D-01	0.25416D+03	0.83923D+02	0.79309D+00	-0.62828D+00	0.38161D+00	0.96846D+00	0.14031D+01	0.14340D+02	0.55324D+01
0.25000D-01	0.25414D+03	0.83932D+02	-0.54559D+00	0.21115D+00	-0.12827D+01	0.10357D+01	0.18053D+01	0.11963D+02	0.55002D+01
0.30000D-01	0.25413D+03	0.83941D+02	0.47816D+00	-0.13512D+01	-0.22893D+00	0.10836D+01	0.13105D+01	0.13183D+02	0.54189D+01
0.35000D-01	0.25375D+03	0.83950D+02	-0.10541D+01	0.63844D+00	-0.10471D+01	0.11735D+01	0.16092D+01	0.10713D+02	0.54356D+01
0.40000D-01	0.25367D+03	0.83958D+02	0.72640D+00	0.22592D-01	0.19829D+01	0.11387D+01	0.12236D+01	0.11116D+02	0.54696D+01
0.45000D-01	0.25326D+03	0.83967D+02	-0.82325D+00	0.13656D+01	0.40184D-01	0.44234D+00	0.15857D+01	0.10147D+02	0.55417D+01
0.50000D-01	0.25329D+03	0.83976D+02	0.56282D+00	0.34535D+00	0.72198D+00	-0.16153D+00	0.13553D+01	0.11087D+02	0.56376D+01
0.60000D-01	0.25365D+03	0.83994D+02	0.18983D+00	-0.74730D+00	-0.39043D-01	-0.52024D+00	0.10676D+01	0.94732D+01	0.56725D+01
0.70000D-01	0.25277D+03	0.84010D+02	0.29989D+00	0.88426D+00	0.39947D+00	-0.24173D-02	0.97424D+00	0.84701D+01	0.55115D+01
0.80000D-01	0.25297D+03	0.84026D+02	-0.95535D-01	0.70962D+00	0.25004D+00	0.22106D+00	0.99873D+00	0.83126D+01	0.55138D+01
0.90000D-01	0.25301D+03	0.84042D+02	-0.66196D+00	-0.54547D+00	-0.13338D+01	0.21389D+00	0.90610D+00	0.82676D+01	0.54899D+01
0.10000D+00	0.25248D+03	0.84058D+02	-0.23557D+00	0.84694D+00	0.45300D+00	0.46030D+00	0.66389D+00	0.73986D+01	0.54449D+01
0.11000D+00	0.25238D+03	0.84072D+02	-0.32310D+00	0.26218D-01	-0.45955D+00	0.80272D-01	0.49583D+00	0.70302D+01	0.53850D+01
0.12000D+00	0.25272D+03	0.84086D+02	-0.72616D+00	-0.72185D+00	-0.10062D+01	-0.31366D+00	0.54051D+00	0.67312D+01	0.53160D+01
0.13000D+00	0.25205D+03	0.84100D+02	-0.38673D+00	0.10558D+01	0.36253D+00	-0.20130D-01	0.39107D+00	0.66036D+01	0.52392D+01
0.14000D+00	0.25226D+03	0.84112D+02	-0.53429D+00	0.32077D+00	-0.26463D+00	0.13339D-01	0.25351D+00	0.60907D+01	0.51320D+01
0.15000D+00	0.25235D+03	0.84125D+02	-0.66923D+00	-0.21155D+00	-0.95747D+00	-0.22936D+00	0.32149D+00	0.60878D+01	0.49919D+01
0.16000D+00	0.25194D+03	0.84136D+02	-0.55937D-01	0.43896D+00	0.11053D-01	-0.63459D-01	0.24397D+00	0.60581D+01	0.48458D+01
0.17000D+00	0.25227D+03	0.84148D+02	0.14981D+00	0.15495D+00	-0.26297D+00	0.43958D+00	0.24402D+00	0.58399D+01	0.46665D+01
0.18000D+00	0.25210D+03	0.84159D+02	-0.28153D-01	0.14238D+00	-0.37643D-01	0.87784D-02	0.65729D+00	0.54204D+01	0.44598D+01
0.19000D+00	0.25219D+03	0.84169D+02	-0.27895D-01	0.14498D+00	-0.32667D+00	0.34041D+00	0.77516D+00	0.52931D+01	0.42442D+01
0.20000D+00	0.25226D+03	0.84179D+02	-0.27677D-01	0.14881D+00	-0.21485D+00	0.59975D-01	0.75986D+00	0.53019D+01	0.40357D+01
0.21000D+00	0.25217D+03	0.84189D+02	0.12678D-02	-0.34135D+00	-0.26302D+00	0.42519D-01	0.74735D+00	0.53041D+01	0.38525D+01
0.22000D+00	0.25248D+03	0.84198D+02	-0.25070D-01	0.15795D+00	-0.25866D+00	0.27572D+00	0.74458D+00	0.53027D+01	0.37007D+01
0.23000D+00	0.25196D+03	0.84208D+02	-0.70639D-01	-0.94751D-01	-0.49055D-01	0.23760D-01	0.74671D+00	0.53008D+01	0.35793D+01
0.24000D+00	0.25270D+03	0.84217D+02	0.50519D-01	0.16004D-03	0.42000D+00	0.28308D+00	0.74428D+00	0.52989D+01	0.34857D+01
0.25000D+00	0.25205D+03	0.84226D+02	0.30375D+00	-0.23456D+00	0.13951D-01	0.19399D-01	0.74356D+00	0.52963D+01	0.34151D+01
0.26000D+00	0.25272D+03	0.84235D+02	-0.21220D-01	0.16727D+00	0.29838D-01	0.23784D-01	0.74626D+00	0.52939D+01	0.33661D+01
0.27000D+00	0.25207D+03	0.84244D+02	-0.18843D+00	0.16396D+00	-0.27459D-01	0.92333D-01	0.74583D+00	0.52919D+01	0.33326D+01
0.28000D+00	0.25272D+03	0.84253D+02	0.34341D-02	0.13445D+00	-0.99969D-01	0.16221D-01	0.74730D+00	0.52899D+01	0.33054D+01
0.29000D+00	0.25225D+03	0.84262D+02	-0.23720D-01	-0.49556D-01	-0.61645D-01	0.14485D-01	0.75226D+00	0.52888D+01	0.32819D+01
0.30000D+00	0.25266D+03	0.84271D+02	-0.92396D-01	0.13512D+00	-0.75727D-01	0.10924D+00	0.75246D+00	0.52886D+01	0.32664D+01

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG TEMP VOL 28 C	AVG TEMP VOL 31 C	DIFF PRESS V 6-V 9 MPA	DIFF PRESS V 3-V 6 MPA	DIFF PRESS V 1-V10 MPA	DIFF PRESS V15-V16 MPA	DIFF PRESS V21-V26 MPA	DIFF PRESS V26-V31 MPA	DIFF PRESS V20-V31 MPA
0.35000D+00	0.25272D+03	0.84316D+02	-0.76655D-02	0.46235D-01	0.25329D+00	0.29331D+00	0.75979D+00	0.52907D+01	0.32352D+01
0.40000D+00	0.25243D+03	0.84360D+02	-0.11760D-01	0.83447D-01	0.33151D+00	0.23693D+00	0.75729D+00	0.52980D+01	0.32246D+01
0.45000D+00	0.25273D+03	0.84405D+02	-0.13624D+00	-0.29672D-01	-0.27250D-01	0.39014D-01	0.75430D+00	0.53041D+01	0.32167D+01
0.50000D+00	0.25319D+03	0.84449D+02	-0.95788D-02	0.83933D-01	0.45704D-01	0.23263D-01	0.75237D+00	0.53048D+01	0.32155D+01
0.55000D+00	0.25295D+03	0.84493D+02	-0.78174D-01	0.37657D-01	0.24613D-01	0.20507D+00	0.74900D+00	0.53011D+01	0.32178D+01
0.60000D+00	0.25287D+03	0.84538D+02	-0.96459D-01	0.63542D-01	-0.30047D-01	0.66636D-01	0.74801D+00	0.52966D+01	0.32209D+01
0.65000D+00	0.25341D+03	0.84582D+02	0.24076D-01	0.41102D-01	-0.49078D-01	0.23114D+00	0.75274D+00	0.52950D+01	0.32212D+01
0.70000D+00	0.25346D+03	0.84626D+02	-0.47429D-01	0.19780D-01	-0.33267D-01	0.10228D+00	0.75463D+00	0.52965D+01	0.32202D+01
0.75000D+00	0.25316D+03	0.84670D+02	-0.17713D+00	0.99473D-01	0.23064D-01	0.29190D-01	0.75104D+00	0.52980D+01	0.32180D+01
0.80000D+00	0.25346D+03	0.84714D+02	-0.22462D+00	0.85162D-01	0.36032D+00	0.20415D-01	0.74632D+00	0.52955D+01	0.32147D+01
0.85000D+00	0.25370D+03	0.84759D+02	0.13382D-01	0.60813D-01	0.40690D+00	0.13692D+00	0.74698D+00	0.52885D+01	0.32127D+01
0.90000D+00	0.25350D+03	0.84803D+02	-0.13023D+00	0.65254D-01	-0.58054D-01	0.92297D-01	0.75025D+00	0.52819D+01	0.32105D+01
0.95000D+00	0.25358D+03	0.84847D+02	-0.10316D-01	0.76336D-01	-0.33512D-01	0.17409D+00	0.75253D+00	0.52807D+01	0.32055D+01
0.10000D+01	0.25371D+03	0.84890D+02	-0.90359D-01	-0.25590D-01	0.15362D-01	0.49915D+00	0.75180D+00	0.52833D+01	0.32033D+01

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG TEMP VOL 28 C	AVG TEMP VOL 31 C	DIFF PRESS V 6-V 9 MPA	DIFF PRESS V 3-V 6 MPA	DIFF PRESS V 1-V10 MPA	DIFF PRESS V15-V16 MPA	DIFF PRESS V21-V26 MPA	DIFF PRESS V26-V31 MPA	DIFF PRESS V20-V31 MPA
0.11000D+01	0.25364D+03	0.84978D+02	-0.10518D+00	0.63872D-01	-0.62412D-01	0.31199D+00	0.75473D+00	0.52738D+01	0.31962D+01
0.12000D+01	0.25372D+03	0.85066D+02	-0.17299D-01	0.47558D-01	0.15874D+00	0.71672D-01	0.75658D+00	0.52640D+01	0.31890D+01
0.13000D+01	0.25370D+03	0.85153D+02	-0.80420D-01	0.41197D-01	0.35438D-01	0.65250D-01	0.75797D+00	0.52692D+01	0.31844D+01
0.14000D+01	0.25374D+03	0.85240D+02	-0.11439D-01	0.15732D-01	-0.12516D-01	0.14766D+00	0.75989D+00	0.52569D+01	0.31794D+01
0.15000D+01	0.25372D+03	0.85327D+02	-0.14331D-01	0.35293D-01	-0.29179D-01	0.11626D+00	0.76403D+00	0.52491D+01	0.31792D+01
0.16000D+01	0.25375D+03	0.85414D+02	-0.42095D-01	0.25762D-01	0.20613D-01	0.21861D+00	0.76314D+00	0.52591D+01	0.31791D+01
0.17000D+01	0.25375D+03	0.85501D+02	-0.34494D-01	0.27440D-02	0.39353D-02	0.94911D-01	0.75967D+00	0.52504D+01	0.31785D+01
0.18000D+01	0.25375D+03	0.85587D+02	-0.90753D-02	0.22877D-01	-0.10312D-01	0.53866D-01	0.76519D+00	0.52450D+01	0.31780D+01
0.19000D+01	0.25375D+03	0.85674D+02	-0.16572D-01	0.25877D-01	-0.12226D-01	0.15871D+00	0.76131D+00	0.52509D+01	0.31770D+01
0.20000D+01	0.25376D+03	0.85760D+02	-0.39434D-01	0.81171D-02	0.42713D-02	0.76208D-01	0.76032D+00	0.52395D+01	0.31763D+01
0.21000D+01	0.25376D+03	0.85846D+02	-0.14752D-01	-0.31273D-02	-0.11003D-01	0.78261D-01	0.76651D+00	0.52382D+01	0.31752D+01
0.22000D+01	0.25376D+03	0.85933D+02	0.24166D-01	0.76563D-02	0.32391D-02	0.14830D+00	0.76289D+00	0.52379D+01	0.31746D+01
0.23000D+01	0.25376D+03	0.86019D+02	-0.36938D-01	0.16723D-01	0.11761D-01	0.51191D-01	0.76400D+00	0.52306D+01	0.31741D+01
0.24000D+01	0.25377D+03	0.86105D+02	-0.27468D-02	-0.80275D-03	-0.95209D-02	0.87960D-01	0.76309D+00	0.52286D+01	0.31737D+01
0.25000D+01	0.25380D+03	0.86191D+02	-0.17061D-01	0.11680D-01	0.42146D-01	0.79472D-01	0.75851D+00	0.52313D+01	0.31732D+01
0.26000D+01	0.25380D+03	0.86276D+02	0.14407D-01	0.70605D-02	0.20846D-01	0.63156D-01	0.75771D+00	0.52341D+01	0.31727D+01
0.27000D+01	0.25382D+03	0.86362D+02	0.14217D-01	0.50292D-02	-0.27552D-01	0.10204D+00	0.75958D+00	0.52254D+01	0.31719D+01
0.28000D+01	0.25385D+03	0.86448D+02	0.34304D-02	0.61250D-02	-0.64741D-02	0.56925D-01	0.76065D+00	0.52256D+01	0.31710D+01
0.29000D+01	0.25385D+03	0.86533D+02	-0.10685D-01	0.55603D-03	0.29448D-01	0.10267D+00	0.76140D+00	0.52210D+01	0.31698D+01
0.30000D+01	0.25387D+03	0.86619D+02	-0.79032D-02	0.99290D-02	-0.10629D-01	0.53977D-01	0.76225D+00	0.52190D+01	0.31684D+01
0.31000D+01	0.25388D+03	0.86704D+02	-0.10420D-02	-0.14368D-02	-0.10969D-01	0.79963D-01	0.76320D+00	0.52148D+01	0.31669D+01
0.32000D+01	0.25388D+03	0.86789D+02	-0.13204D-01	0.13417D-01	0.16420D-01	0.90289D-01	0.76465D+00	0.52099D+01	0.31652D+01
0.33000D+01	0.25390D+03	0.86874D+02	-0.32811D-02	0.58590D-03	0.14865D-01	0.61563D-01	0.76407D+00	0.52123D+01	0.31634D+01
0.34000D+01	0.25389D+03	0.86959D+02	-0.11239D-01	0.56597D-02	-0.62784D-02	0.10753D+00	0.76501D+00	0.52104D+01	0.31614D+01
0.35000D+01	0.25393D+03	0.87044D+02	-0.95989D-02	0.11665D-01	-0.86961D-04	0.61735D-01	0.76545D+00	0.52074D+01	0.31594D+01
0.36000D+01	0.25391D+03	0.87128D+02	-0.61978D-02	0.11606D-02	0.23720D-02	0.65344D-01	0.76635D+00	0.52045D+01	0.31572D+01
0.37000D+01	0.25393D+03	0.87213D+02	-0.14982D-01	0.92698D-02	-0.41256D-02	0.11460D+00	0.76695D+00	0.52025D+01	0.31548D+01
0.38000D+01	0.25397D+03	0.87297D+02	-0.43711D-02	0.81383D-02	0.83057D-03	0.52168D-01	0.76761D+00	0.51991D+01	0.31524D+01
0.39000D+01	0.25394D+03	0.87381D+02	-0.86824D-02	0.19195D-02	-0.31385D-02	0.67805D-01	0.76626D+00	0.52009D+01	0.31499D+01
0.40000D+01	0.25397D+03	0.87465D+02	-0.15597D-01	0.12584D-01	-0.41893D-03	0.11255D+00	0.76718D+00	0.51941D+01	0.31473D+01
0.41000D+01	0.25401D+03	0.87549D+02	-0.39016D-02	0.35405D-02	-0.66057D-03	0.61763D-01	0.76633D+00	0.51954D+01	0.31446D+01
0.42000D+01	0.25398D+03	0.87633D+02	-0.89374D-02	0.39578D-02	-0.19809D-03	0.62931D-01	0.76680D+00	0.51903D+01	0.31418D+01
0.43000D+01	0.25402D+03	0.87717D+02	-0.11790D-01	0.14129D-01	-0.36072D-02	0.10190D+00	0.76792D+00	0.51899D+01	0.31390D+01
0.44000D+01	0.25405D+03	0.87800D+02	-0.37837D-02	0.24723D-02	-0.99395D-03	0.73548D-01	0.76793D+00	0.51870D+01	0.31361D+01
0.45000D+01	0.25402D+03	0.87864D+02	-0.87194D-02	0.51892D-03	-0.60473D-03	0.58680D-01	0.76886D+00	0.51829D+01	0.31331D+01
0.46000D+01	0.25407D+03	0.87967D+02	-0.11692D-01	0.12518D-01	-0.13957D-02	0.95148D-01	0.76859D+00	0.51824D+01	0.31301D+01
0.47000D+01	0.25409D+03	0.88050D+02	-0.48932D-02	0.92952D-02	-0.32149D-02	0.94897D-01	0.76869D+00	0.51783D+01	0.31270D+01
0.48000D+01	0.25407D+03	0.88134D+02	-0.71743D-02	0.33762D-02	0.62795D-03	0.53637D-01	0.76849D+00	0.51764D+01	0.31239D+01
0.49000D+01	0.25412D+03	0.88217D+02	-0.77721D-02	0.42142D-02	0.21938D-02	0.67668D-01	0.76966D+00	0.51726D+01	0.31207D+01
0.50000D+01	0.25414D+03	0.88299D+02	-0.11009D-01	0.10259D-01	-0.55124D-02	0.10216D+00	0.76987D+00	0.51707D+01	0.31175D+01

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG TEMP VOL 28 C	AVG TEMP VOL 31 C	DIFF PRESS V 6-V 9 MPA	DIFF PRESS V 3-V 6 MPA	DIFF PRESS V 1-V10 MPA	DIFF PRESS V15-V16 MPA	DIFF PRESS V21-V26 MPA	DIFF PRESS V26-V31 MPA	DIFF PRESS V20-V31 MPA
0.55000D+01	0.25422D+03	0.88712D+02	-0.58845D-02	0.10401D-01	-0.40365D-03	0.75618D-01	0.77263D+00	0.51535D+01	0.31007D+01
0.60000D+01	0.25430D+03	0.89120D+02	-0.70890D-02	0.49282D-02	0.15035D-02	0.68184D-01	0.77483D+00	0.51372D+01	0.30831D+01
0.65000D+01	0.25451D+03	0.89525D+02	-0.82618D-02	0.16141D-01	0.22119D-02	0.64113D-01	0.78591D+00	0.51234D+01	0.30668D+01
0.70000D+01	0.25463D+03	0.89925D+02	-0.21297D-02	0.80670D-02	0.99180D-02	0.52067D-01	0.81927D+00	0.50341D+01	0.30542D+01
0.75000D+01	0.25477D+03	0.90314D+02	-0.64941D-02	0.88305D-02	0.62664D-02	0.34064D-01	0.81124D+00	0.50391D+01	0.30384D+01
0.80000D+01	0.25506D+03	0.90703D+02	-0.98239D-02	0.18273D-01	-0.13644D-01	0.26669D-01	0.76621D+00	0.49911D+01	0.30088D+01
0.85000D+01	0.25522D+03	0.91089D+02	-0.14004D-02	0.68239D-02	0.88832D-02	0.23126D-01	0.77322D+00	0.49772D+01	0.29713D+01
0.90000D+01	0.25536D+03	0.91468D+02	-0.32731D-05	0.14079D-01	0.16679D-01	0.22363D-01	0.78375D+00	0.49527D+01	0.29247D+01
0.95000D+01	0.25566D+03	0.91840D+02	0.29368D-02	0.10297D-01	0.16120D-01	0.17204D-01	0.80136D+00	0.48799D+01	0.28696D+01
0.10000D+02	0.25591D+03	0.92205D+02	0.29471D-02	0.37470D-02	0.10086D-01	0.18203D-01	0.81375D+00	0.48287D+01	0.28049D+01
0.10500D+02	0.25606D+03	0.92561D+02	0.23109D-02	0.92272D-02	0.10439D-01	0.21735D-01	0.82586D+00	0.47783D+01	0.27340D+01
0.11000D+02	0.25627D+03	0.92909D+02	0.21218D-02	0.15965D-01	0.26168D-01	0.31505D-01	0.83716D+00	0.47236D+01	0.26596D+01
0.11500D+02	0.25658D+03	0.93248D+02	-0.63077D-02	0.17754D-01	0.16600D-01	0.34565D-01	0.84517D+00	0.46729D+01	0.25810D+01
0.12000D+02	0.25687D+03	0.93578D+02	-0.37482D-02	0.81831D-02	-0.18428D-01	0.25973D-01	0.85426D+00	0.46158D+01	0.25036D+01
0.12500D+02	0.25699D+03	0.93899D+02	-0.33932D-02	0.33110D-01	0.14931D-01	0.48033D-01	0.86622D+00	0.45516D+01	0.24423D+01
0.13000D+02	0.25729D+03	0.94211D+02	-0.49315D-03	0.15067D-01	0.16067D-01	0.51350D-01	0.87842D+00	0.44797D+01	0.23502D+01
0.13500D+02	0.25755D+03	0.94514D+02	0.51473D-03	0.90016D-02	0.12505D-01	0.60646D-01	0.88966D+00	0.44020D+01	0.22793D+01
0.14000D+02	0.25771D+03	0.94807D+02	0.68367D-03	0.91755D-02	0.10548D-01	0.71608D-01	0.89881D+00	0.43184D+01	0.22422D+01
0.14500D+02	0.25787D+03	0.95091D+02	0.14738D-02	0.85170D-02	0.93620D-02	0.84579D-01	0.90287D+00	0.42324D+01	0.21897D+01
0.15000D+02	0.25806D+03	0.95367D+02	-0.50842D-05	0.96387D-02	0.49704D-02	0.11194D+00	0.90221D+00	0.41448D+01	0.21541D+01
0.15500D+02	0.25825D+03	0.95633D+02	0.11124D-02	0.77684D-02	0.65378D-02	0.17462D+00	0.89655D+00	0.40595D+01	0.20696D+01
0.16000D+02	0.25840D+03	0.95889D+02	0.15762D-02	0.67851D-02	0.83247D-02	0.24878D+00	0.88595D+00	0.39812D+01	0.19413D+01
0.16500D+02	0.25852D+03	0.96137D+02	0.14968D-02	0.68112D-02	0.10046D-01	0.24929D+00	0.87086D+00	0.39082D+01	0.18473D+01
0.17000D+02	0.25863D+03	0.96379D+02	0.13674D-02	0.71714D-02	0.57089D-02	0.21272D+00	0.85449D+00	0.38379D+01	0.18095D+01
0.17500D+02	0.25871D+03	0.96616D+02	0.18731D-02	0.73062D-02	0.68868D-02	0.17717D+00	0.83658D+00	0.37699D+01	0.17998D+01
0.18000D+02	0.25876D+03	0.96850D+02	0.19521D-02	0.62774D-02	0.10112D-01	0.15013D+00	0.81958D+00	0.37023D+01	0.17866D+01
0.18500D+02	0.25877D+03	0.97078D+02	0.19725D-02	0.61314D-02	0.90165D-02	0.12962D+00	0.80116D+00	0.36367D+01	0.17711D+01
0.19000D+02	0.25739D+03	0.97302D+02	0.21508D-02	0.61787D-02	0.97632D-02	0.11565D+00	0.78499D+00	0.35697D+01	0.17421D+01
0.19500D+02	0.25665D+03	0.97521D+02	0.19825D-02	0.58995D-02	0.86113D-02	0.10515D+00	0.77289D+00	0.34979D+01	0.17091D+01
0.20000D+02	0.25561D+03	0.97736D+02	0.13301D-02	0.61966D-02	0.74775D-02	0.97385D-01	0.76002D+00	0.34263D+01	0.16738D+01

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM   PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG TEMP VOL 28 C	AVG TEMP VOL 31 C	DIFF PRESS V 6-V 9 MPA	DIFF PRESS V 3-V 6 MPA	DIFF PRESS V 1-V10 MPA	DIFF PRESS V15-V16 MPA	DIFF PRESS V21-V26 MPA	DIFF PRESS V26-V31 MPA	DIFF PRESS V20-V31 MPA
0.20500D+02	0.25418D+03	0.97945D+02	0.17773D-02	0.80341D-02	0.93560D-02	0.92106D-01	0.74483D+00	0.33532D+01	0.16353D+01
0.21000D+02	0.25257D+03	0.98148D+02	0.40004D-02	0.57103D-02	0.77012D-02	0.90503D-01	0.72925D+00	0.32778D+01	0.15929D+01
0.21500D+02	0.25101D+03	0.98346D+02	0.37410D-02	0.66535D-02	0.13351D-01	0.83623D-01	0.71533D+00	0.31929D+01	0.15483D+01
0.22000D+02	0.22538D+03	0.98539D+02	0.43687D-02	0.81535D-02	-0.40125D-02	0.83048D-01	0.69580D+00	0.31243D+01	0.15033D+01
0.22500D+02	0.19217D+03	0.98725D+02	0.37602D-02	0.79853D-02	0.10658D-01	0.80544D-01	0.67773D+00	0.30485D+01	0.14598D+01
0.23000D+02	0.15904D+03	0.98906D+02	0.52996D-02	0.50081D-02	0.10120D-02	0.75809D-01	0.65997D+00	0.29712D+01	0.14158D+01
0.23500D+02	0.12853D+03	0.99082D+02	0.62867D-02	0.53024D-02	0.15363D-01	0.71682D-01	0.63898D+00	0.28917D+01	0.13707D+01
0.24000D+02	0.10399D+03	0.99251D+02	0.32472D-02	0.97237D-03	0.79486D-02	0.66318D-01	0.61297D+00	0.28106D+01	0.13233D+01
0.24500D+02	0.84790D+02	0.99413D+02	0.21446D-02	0.52287D-02	0.10874D-01	0.61487D-01	0.58945D+00	0.27215D+01	0.12744D+01
0.25000D+02	0.70061D+02	0.99570D+02	0.40506D-02	0.94899D-02	0.82312D-02	0.63973D-01	0.57504D+00	0.26234D+01	0.12244D+01
0.25500D+02	0.59022D+02	0.99720D+02	0.31546D-02	-0.29469D-02	0.44298D+00	0.63345D-01	0.55040D+00	0.25748D+01	0.11778D+01
0.26000D+02	0.51236D+02	0.99866D+02	0.70831D-02	0.20959D-01	-0.66402D+00	0.62622D-01	0.53845D+00	0.25013D+01	0.11411D+01
0.26500D+02	0.45565D+02	0.10001D+03	-0.27592D-02	0.83651D-02	-0.28769D-02	0.57971D-01	0.52553D+00	0.24224D+01	0.11014D+01
0.27000D+02	0.41539D+02	0.10014D+03	-0.61206D-02	0.12472D-02	-0.52651D+00	0.55674D-01	0.51790D+00	0.23368D+01	0.10579D+01
0.27500D+02	0.38741D+02	0.10028D+03	-0.23842D-02	0.30588D-02	0.41630D+00	0.57193D-01	0.50792D+00	0.22523D+01	0.10135D+01
0.28000D+02	0.36787D+02	0.10040D+03	0.69433D-02	0.44480D-02	-0.60017D+00	0.59480D-01	0.49705D+00	0.21678D+01	0.96908D+00
0.28500D+02	0.35455D+02	0.10053D+03	0.22961D-02	0.45197D-02	-0.42246D-01	0.59603D-01	0.48819D+00	0.20814D+01	0.92557D+00
0.29000D+02	0.34553D+02	0.10064D+03	-0.12598D-02	0.39186D-02	0.44682D+00	0.58717D-01	0.47642D+00	0.19993D+01	0.88359D+00
0.29500D+02	0.33946D+02	0.10076D+03	0.10410D-02	0.74552D-02	0.36581D+00	0.56939D-01	0.46504D+00	0.19185D+01	0.84341D+00
0.30000D+02	0.33545D+02	0.10087D+03	-0.17737D-02	0.63129D-02	0.60118D+00	0.51145D-01	0.45309D+00	0.18413D+01	0.80517D+00
0.30500D+02	0.33279D+02	0.10097D+03	0.47640D-02	0.62583D-02	0.10481D+00	0.39407D-01	0.44038D+00	0.17653D+01	0.76857D+00
0.31000D+02	0.33107D+02	0.10107D+03	0.34564D-02	0.10214D-01	0.29928D+00	0.56631D-01	0.42703D+00	0.16936D+01	0.73353D+00
0.31500D+02	0.32995D+02	0.10117D+03	0.65945D-03	0.12999D-01	0.48198D+00	0.49647D-01	0.41363D+00	0.16237D+01	0.69960D+00
0.32000D+02	0.32920D+02	0.10126D+03	0.41582D-02	0.46359D-02	0.17429D-01	0.46782D-01	0.40098D+00	0.15610D+01	0.66692D+00
0.32500D+02	0.32873D+02	0.10135D+03	0.16027D-02	0.91323D-02	-0.11778D+00	0.45087D-01	0.39126D+00	0.14994D+01	0.63582D+00
0.33000D+02	0.32844D+02	0.10144D+03	-0.17459D-02	0.54524D-02	0.34048D+00	0.40043D-01	0.38089D+00	0.14333D+01	0.60730D+00
0.33500D+02	0.32822D+02	0.10152D+03	0.46294D-02	0.36358D-02	-0.99856D-01	0.39957D-01	0.37042D+00	0.13708D+01	0.58016D+00
0.34000D+02	0.32811D+02	0.10160D+03	-0.33693D-02	0.53095D-02	0.33930D+00	0.39890D-01	0.36089D+00	0.13115D+01	0.55397D+00
0.34500D+02	0.32803D+02	0.10167D+03	-0.36324D-03	0.48686D-02	0.28633D+00	0.40468D-01	0.35141D+00	0.12534D+01	0.52787D+00
0.35000D+02	0.32795D+02	0.10175D+03	0.60737D-02	0.48767D-02	-0.24822D+00	0.40382D-01	0.34285D+00	0.11979D+01	0.50199D+00
0.35500D+02	0.32793D+02	0.10182D+03	0.38967D-03	0.67737D-02	0.18672D+00	0.40011D-01	0.33450D+00	0.11443D+01	0.47635D+00
0.36000D+02	0.32791D+02	0.10188D+03	-0.38373D-02	0.45231D-02	0.34515D+00	0.37487D-01	0.32607D+00	0.10936D+01	0.45212D+00
0.36500D+02	0.32776D+02	0.10195D+03	-0.32991D-02	0.77616D-02	0.16257D+00	0.34740D-01	0.31712D+00	0.10460D+01	0.42915D+00
0.37000D+02	0.32724D+02	0.10201D+03	0.53459D-02	0.55500D-02	-0.51647D-01	0.35478D-01	0.30816D+00	0.99898D+00	0.40681D+00
0.37500D+02	0.32631D+02	0.10207D+03	0.16653D-02	0.70206D-02	0.31536D-01	0.35027D-01	0.29960D+00	0.95379D+00	0.38582D+00
0.38000D+02	0.32516D+02	0.10212D+03	0.28626D-02	0.79573D-02	0.13527D-01	0.33957D-01	0.29131D+00	0.90957D+00	0.36599D+00
0.38500D+02	0.32396D+02	0.10218D+03	0.33114D-02	0.89141D-02	0.12289D-01	0.32779D-01	0.28505D+00	0.86506D+00	0.34720D+00
0.39000D+02	0.32293D+02	0.10223D+03	0.36254D-02	0.77636D-02	0.11173D-01	0.31602D-01	0.27921D+00	0.82263D+00	0.32947D+00
0.39500D+02	0.32202D+02	0.10228D+03	0.38705D-02	0.90138D-02	0.12811D-01	0.30494D-01	0.27228D+00	0.78307D+00	0.31283D+00
0.40000D+02	0.32121D+02	0.10233D+03	0.41225D-02	0.86520D-02	0.12641D-01	0.29356D-01	0.26527D+00	0.74554D+00	0.29631D+00
0.40500D+02	0.32047D+02	0.10237D+03	0.42932D-02	0.91610D-02	0.12175D-01	0.28172D-01	0.26054D+00	0.70735D+00	0.28055D+00
0.41000D+02	0.31980D+02	0.10242D+03	0.45147D-02	0.96206D-02	0.16129D-01	0.27076D-01	0.25536D+00	0.67120D+00	0.26553D+00
0.41500D+02	0.31918D+02	0.10246D+03	0.49463D-02	0.79907D-02	0.11993D-01	0.26086D-01	0.24910D+00	0.63789D+00	0.25121D+00
0.42000D+02	0.31868D+02	0.10250D+03	0.49512D-02	0.86663D-02	0.13546D-01	0.25275D-01	0.24192D+00	0.60727D+00	0.23756D+00
0.42500D+02	0.31826D+02	0.10254D+03	0.52058D-02	0.89677D-02	0.17384D-01	0.24529D-01	0.23413D+00	0.57890D+00	0.22457D+00
0.43000D+02	0.31790D+02	0.10257D+03	0.55254D-02	0.81429D-02	0.12934D-01	0.23808D-01	0.22603D+00	0.55244D+00	0.21214D+00
0.43500D+02	0.31758D+02	0.10261D+03	0.56936D-02	0.10235D-01	0.13494D-01	0.23178D-01	0.21770D+00	0.52777D+00	0.20028D+00
0.44000D+02	0.31728D+02	0.10264D+03	0.58952D-02	0.86284D-02	0.14262D-01	0.22547D-01	0.21000D+00	0.50390D+00	0.18895D+00
0.44500D+02	0.31700D+02	0.10267D+03	0.60623D-02	0.86522D-02	0.17170D-01	0.21994D-01	0.20284D+00	0.48096D+00	0.17810D+00
0.45000D+02	0.31674D+02	0.10271D+03	0.62876D-02	0.10664D-01	0.15014D-01	0.21475D-01	0.19999D+00	0.45492D+00	0.16770D+00

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	AVG TEMP VOL 28 C	AVG TEMP VOL 31 C	DIFF PRESS V 6-V 9 MPA	DIFF PRESS V 3-V 6 MPA	DIFF PRESS V 1-V10 MPA	DIFF PRESS V15-V16 MPA	DIFF PRESS V21-V26 MPA	DIFF PRESS V26-V31 MPA	DIFF PRESS V20-V31 MPA
0.45500D+02	0.31650D+02	0.10274D+03	0.64510D-02	0.88299D-02	0.15918D-01	0.20962D-01	0.19701D+00	0.43037D+00	0.15777D+00
0.46000D+02	0.31628D+02	0.10276D+03	0.66147D-02	0.92998D-02	0.17535D-01	0.20495D-01	0.19328D+00	0.40779D+00	0.14837D+00
0.46500D+02	0.31609D+02	0.10279D+03	0.69732D-02	0.10204D-01	0.18930D-01	0.20048D-01	0.18886D+00	0.38710D+00	0.13949D+00
0.47000D+02	0.31592D+02	0.10282D+03	0.71637D-02	0.10699D-01	0.18017D-01	0.19613D-01	0.18405D+00	0.36798D+00	0.13113D+00
0.47500D+02	0.31577D+02	0.10284D+03	0.74211D-02	0.84176D-02	0.17580D-01	0.19142D-01	0.17900D+00	0.35018D+00	0.12328D+00
0.48000D+02	0.31562D+02	0.10287D+03	0.74734D-02	0.85777D-02	0.14063D-01	0.18686D-01	0.17374D+00	0.33365D+00	0.11593D+00
0.48500D+02	0.31548D+02	0.10289D+03	0.77378D-02	0.10288D-01	0.16227D-01	0.18282D-01	0.16826D+00	0.31833D+00	0.10905D+00
0.49000D+02	0.31535D+02	0.10291D+03	0.81583D-02	0.39391D-02	0.12970D-01	0.18423D-01	0.16380D+00	0.30288D+00	0.10275D+00
0.49500D+02	0.31522D+02	0.10294D+03	0.83813D-02	0.14352D-01	0.21078D-01	0.17784D-01	0.16071D+00	0.28717D+00	0.96877D-01
0.50000D+02	0.31509D+02	0.10296D+03	0.85328D-02	0.10498D-01	0.13914D-01	0.16057D-01	0.15846D+00	0.27198D+00	0.89345D-01
0.50500D+02	0.31497D+02	0.10298D+03	0.81440D-02	0.93249D-02	0.16181D-01	0.15965D-01	0.15534D+00	0.25812D+00	0.81618D-01
0.51000D+02	0.31485D+02	0.10300D+03	0.83333D-02	0.96952D-02	0.23322D-01	0.15832D-01	0.15007D+00	0.24672D+00	0.74640D-01
0.51500D+02	0.31474D+02	0.10301D+03	0.89630D-02	0.12820D-01	0.17031D-01	0.15684D-01	0.14482D+00	0.23574D+00	0.68223D-01
0.52000D+02	0.31462D+02	0.10303D+03	0.88565D-02	0.10241D-01	0.24481D-01	0.15119D-01	0.14183D+00	0.22365D+00	0.62227D-01
0.52500D+02	0.31451D+02	0.10305D+03	0.86099D-02	0.12506D-01	0.18141D-01	0.14768D-01	0.13907D+00	0.21207D+00	0.56687D-01
0.53000D+02	0.31440D+02	0.10307D+03	0.88807D-02	0.10513D-01	0.19016D-01	0.14433D-01	0.13529D+00	0.20210D+00	0.51738D-01
0.53500D+02	0.31429D+02	0.10308D+03	0.91052D-02	0.12036D-01	0.25513D-01	0.14097D-01	0.13112D+00	0.19281D+00	0.47269D-01
0.54000D+02	0.31419D+02	0.10310D+03	0.94712D-02	0.11228D-01	0.26672D-01	0.13746D-01	0.12764D+00	0.18327D+00	0.43155D-01
0.54500D+02	0.31410D+02	0.10311D+03	0.95525D-02	0.11166D-01	0.25429D-01	0.13167D-01	0.12454D+00	0.17428D+00	0.39307D-01
0.55000D+02	0.31400D+02	0.10313D+03	0.95802D-02	0.10765D-01	0.25990D-01	0.12819D-01	0.12122D+00	0.16604D+00	0.35755D-01
0.55500D+02	0.31391D+02	0.10314D+03	0.96009D-02	0.13871D-01	0.28467D-01	0.12433D-01	0.11754D+00	0.15867D+00	0.32514D-01
0.56000D+02	0.31381D+02	0.10315D+03	0.98012D-02	0.11171D-01	0.27831D-01	0.12101D-01	0.11371D+00	0.15162D+00	0.29542D-01
0.56500D+02	0.31372D+02	0.10317D+03	0.10339D-01	0.11425D-01	0.22056D-01	0.11806D-01	0.11003D+00	0.14461D+00	0.26783D-01
0.57000D+02	0.31362D+02	0.10318D+03	0.10521D-01	0.14054D-01	0.19747D-01	0.11180D-01	0.10654D+00	0.13823D+00	0.24172D-01
0.57500D+02	0.31353D+02	0.10319D+03	0.10376D-01	0.13067D-01	0.30102D-01	0.10985D-01	0.10470D+00	0.13054D+00	0.21664D-01
0.58000D+02	0.31344D+02	0.10320D+03	0.10568D-01	0.14082D-01	0.22397D-01	0.10588D-01	0.11090D+00	0.11531D+00	0.19353D-01
0.58500D+02	0.31334D+02	0.10321D+03	0.10538D-01	0.12258D-01	0.25829D-01	0.10272D-01	0.10848D+00	0.10904D+00	0.17169D-01
0.59000D+02	0.31325D+02	0.10322D+03	0.10854D-01	0.12327D-01	0.23577D-01	0.10039D-01	0.10344D+00	0.10533D+00	0.14784D-01
0.59500D+02	0.31316D+02	0.10324D+03	0.11203D-01	0.13688D-01	0.29451D-01	0.99254D-02	0.10445D+00	0.95608D-01	0.10109D-01
0.60000D+02	0.31307D+02	0.10325D+03	0.11317D-01	0.13631D-01	0.18477D-01	0.93245D-02	0.11325D+00	0.79093D-01	0.58886D-02

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	DIFF PRESS V19-V20 MPA	DIFF PRESS V16-V19 MPA	PUMP SPEED VOL 7 RPM	PUMP SPEED VOL 8 RPM	MASS FLOW JUN 11 KG/SEC	MASS FLOW JUN 15 KG/SEC	MASS FLOW JUN 16 KG/SEC	MASS FLOW JUN 14 KG/SEC	MASS FLOW JUN 12 KG/SEC
0.0	0.21364D-01	-0.31702D-01	0.16944D+04	0.16944D+04	0.26840D+03	0.26840D+03	0.0	0.26840D+03	0.26840D+03
0.50000D-02	0.59616D+01	0.43806D+01	0.16907D+04	0.16907D+04	0.28964D+03	0.26864D+03	0.76775D+00	0.26930D+03	0.21733D+03
0.10000D-01	0.79263D+01	0.13266D+01	0.16869D+04	0.16869D+04	0.35973D+03	0.25968D+03	-0.27462D+01	0.21949D+03	-0.35787D+02
0.15000D-01	0.69502D+01	0.33712D+00	0.16834D+04	0.16834D+04	0.35341D+03	0.18127D+03	-0.20078D+02	0.96529D+02	0.86390D+01
0.20000D-01	0.43542D+01	0.26246D+01	0.16800D+04	0.16799D+04	0.39757D+03	0.16532D+03	0.49034D+02	0.21091D+03	0.27476D+02
0.25000D-01	0.54106D+01	0.93957D+00	0.16771D+04	0.16769D+04	0.38922D+03	0.84572D+02	0.10991D+03	0.15515D+03	0.14563D+03
0.30000D-01	0.49010D+01	0.14003D+01	0.16739D+04	0.16737D+04	0.46040D+03	0.70747D+02	0.25462D+03	0.32490D+03	0.23329D+03
0.35000D-01	0.46588D+01	0.20380D+01	0.16708D+04	0.16705D+04	0.41101D+03	0.12340D+03	0.18785D+03	0.32633D+03	0.32055D+03
0.40000D-01	0.54340D+01	0.13926D+01	0.16672D+04	0.16670D+04	0.44223D+03	0.10717D+03	0.23842D+03	0.32842D+03	0.22605D+03
0.45000D-01	0.54911D+01	0.10876D+01	0.16639D+04	0.16636D+04	0.33839D+03	0.17684D+03	0.13106D+03	0.24484D+03	-0.70192D+01
0.50000D-01	0.59234D+01	0.33973D+00	0.16603D+04	0.16601D+04	0.34160D+03	0.12928D+03	0.18498D+03	0.25776D+03	0.22845D+00
0.60000D-01	0.57367D+01	-0.13400D+00	0.16534D+04	0.16532D+04	0.37579D+03	0.17331D+03	0.15674D+03	0.33162D+03	0.18025D+03
0.70000D-01	0.46834D+01	0.29130D+00	0.16464D+04	0.16462D+04	0.43861D+03	0.15822D+03	0.81819D+02	0.23265D+03	0.14958D+03
0.80000D-01	0.34879D+01	0.49951D+00	0.16399D+04	0.16396D+04	0.35435D+03	0.99282D+02	0.39870D+02	0.90734D+02	-0.53815D+01
0.90000D-01	0.27382D+01	0.35646D+00	0.16335D+04	0.16331D+04	0.37818D+03	0.16252D+03	0.57867D+02	0.22422D+03	0.17666D+03
0.10000D+00	0.22731D+01	0.61253D+00	0.16266D+04	0.16262D+04	0.38586D+03	0.19614D+03	0.93137D+02	0.28542D+03	0.12529D+03
0.11000D+00	0.22518D+01	0.21266D+00	0.16199D+04	0.16195D+04	0.27199D+03	0.14581D+03	0.48795D+02	0.18837D+03	0.80570D+02
0.12000D+00	0.22153D+01	-0.23480D+00	0.16133D+04	0.16129D+04	0.36311D+03	0.12980D+03	0.76240D+02	0.18443D+03	0.91495D+02
0.13000D+00	0.18071D+01	-0.45178D-01	0.16066D+04	0.16062D+04	0.33475D+03	0.14000D+03	0.75081D+02	0.24377D+03	0.22998D+03
0.14000D+00	0.14515D+01	0.11280D-01	0.16000D+04	0.15996D+04	0.26785D+03	0.13758D+03	0.56553D+02	0.17137D+03	0.24915D+02
0.15000D+00	0.13308D+01	-0.14276D+00	0.15933D+04	0.15929D+04	0.27713D+03	0.17557D+03	0.23163D+02	0.21199D+03	0.17578D+03
0.16000D+00	0.11083D+01	0.23313D+00	0.15869D+04	0.15865D+04	0.29048D+03	0.16672D+03	0.46743D+02	0.22374D+03	0.15979D+03
0.17000D+00	0.10387D+01	0.24572D+00	0.15804D+04	0.15799D+04	0.26550D+03	0.13577D+03	0.55904D+02	0.20901D+03	0.18903D+03
0.18000D+00	0.11766D+01	0.30566D+00	0.15738D+04	0.15734D+04	0.27337D+03	0.10745D+03	0.56183D+02	0.17816D+03	0.19579D+03
0.19000D+00	0.13656D+01	0.31123D+00	0.15674D+04	0.15670D+04	0.26225D+03	0.78321D+02	0.68974D+02	0.16190D+03	0.18178D+03
0.20000D+00	0.15796D+01	0.29177D+00	0.15609D+04	0.15605D+04	0.25714D+03	0.66138D+02	0.50695D+02	0.16056D+03	0.12165D+03
0.21000D+00	0.17639D+01	0.29162D+00	0.15546D+04	0.15541D+04	0.24949D+03	0.63674D+02	0.76411D+02	0.10371D+03	0.14294D+03
0.22000D+00	0.19225D+01	0.28845D+00	0.15483D+04	0.15479D+04	0.28172D+03	0.19230D+02	0.12016D+03	0.16637D+03	0.13079D+03
0.23000D+00	0.20325D+01	0.31391D+00	0.15422D+04	0.15417D+04	0.25874D+03	0.22645D+02	0.86060D+02	0.12796D+03	0.12328D+03
0.24000D+00	0.21214D+01	0.32355D+00	0.15362D+04	0.15356D+04	0.25781D+03	0.26933D+02	0.89030D+02	0.12616D+03	0.13219D+03
0.25000D+00	0.22052D+01	0.31029D+00	0.15301D+04	0.15296D+04	0.29430D+03	0.33643D+02	0.10521D+03	0.16067D+03	0.13228D+03
0.26000D+00	0.22907D+01	0.26969D+00	0.15243D+04	0.15237D+04	0.30119D+03	0.16852D+02	0.72630D+02	0.11364D+03	0.13515D+03
0.27000D+00	0.23350D+01	0.26118D+00	0.15185D+04	0.15179D+04	0.27936D+03	0.18926D+02	0.11228D+03	0.15612D+03	0.10424D+03
0.28000D+00	0.23163D+01	0.31257D+00	0.15126D+04	0.15121D+04	0.25493D+03	0.13386D+01	0.98918D+02	0.13248D+03	0.13446D+03
0.29000D+00	0.23481D+01	0.30577D+00	0.15069D+04	0.15063D+04	0.28061D+03	0.37648D+02	0.76749D+02	0.12602D+03	0.13503D+03
0.30000D+00	0.24001D+01	0.26355D+00	0.15010D+04	0.15005D+04	0.28208D+03	0.11796D+02	0.13561D+03	0.87698D+02	0.12010D+03

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE 46
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	DIFF PRESS V19-V20 MPA	DIFF PRESS V16-V19 MPA	PUMP SPEED VOL 7 RPM	PUMP SPEED VOL 8 RPM	MASS FLOW JUN 11 KG/SEC	MASS FLOW JUN 15 KG/SEC	MASS FLOW JUN 16 KG/SEC	MASS FLOW JUN 14 KG/SEC	MASS FLOW JUN 12 KG/SEC
0.35000D+00	0.24288D+01	0.26971D+00	0.14725D+04	0.14721D+04	0.26919D+03	0.80571D+00	0.99236D+02	0.78152D+02	0.87790D+02
0.40000D+00	0.24020D+01	0.27716D+00	0.14450D+04	0.14444D+04	0.25470D+03	0.22815D+02	0.11661D+03	0.98392D+02	0.13821D+03
0.45000D+00	0.24135D+01	0.28162D+00	0.14181D+04	0.14175D+04	0.25331D+03	0.27051D+02	0.93261D+02	0.10250D+03	0.13875D+03
0.50000D+00	0.24211D+01	0.29122D+00	0.13920D+04	0.13915D+04	0.23870D+03	0.18208D+02	0.80217D+02	0.13960D+03	0.14436D+03
0.55000D+00	0.24271D+01	0.28173D+00	0.13669D+04	0.13664D+04	0.23625D+03	0.29521D+02	0.90303D+02	0.13084D+03	0.15469D+03
0.60000D+00	0.24290D+01	0.26365D+00	0.13427D+04	0.13422D+04	0.22120D+03	0.18913D+02	0.94555D+02	0.11314D+03	0.10575D+03
0.65000D+00	0.24316D+01	0.26353D+00	0.13194D+04	0.13189D+04	0.22128D+03	0.38207D+02	0.84263D+02	0.12862D+03	0.11272D+03
0.70000D+00	0.24331D+01	0.27415D+00	0.12969D+04	0.12964D+04	0.23009D+03	0.62290D+02	0.92359D+02	0.13326D+03	0.12737D+03
0.75000D+00	0.24352D+01	0.27048D+00	0.12751D+04	0.12746D+04	0.21341D+03	0.43548D+02	0.96415D+02	0.99674D+02	0.11732D+03
0.80000D+00	0.24372D+01	0.28066D+00	0.12540D+04	0.12535D+04	0.21718D+03	0.12597D+02	0.92252D+02	0.12882D+03	0.10979D+03
0.85000D+00	0.24408D+01	0.26251D+00	0.12336D+04	0.12331D+04	0.21312D+03	0.59469D+01	0.95704D+02	0.12063D+03	0.13509D+03
0.90000D+00	0.24400D+01	0.26896D+00	0.12139D+04	0.12134D+04	0.21646D+03	0.36568D+02	0.92667D+02	0.98033D+02	0.11979D+03
0.95000D+00	0.24424D+01	0.28600D+00	0.11948D+04	0.11943D+04	0.20637D+03	0.39920D+02	0.92091D+02	0.11104D+03	0.10045D+03
0.10000D+01	0.24450D+01	0.25155D+00	0.11764D+04	0.11759D+04	0.21040D+03	-0.22204D+01	0.88041D+02	0.11640D+03	0.94659D+02

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	DIFF PRESS V19-V20 MPA	DIFF PRESS V16-V19 MPA	PUMP SPEED VOL 7 RPM	PUMP SPEED VOL 8 RPM	MASS FLOW JUN 11 KG/SEC	MASS FLOW JUN 15 KG/SEC	MASS FLOW JUN 16 KG/SEC	MASS FLOW JUN 14 KG/SEC	MASS FLOW JUN 12 KG/SEC
0.11000D+01	0.24475D+01	0.26026D+00	0.11413D+04	0.11408D+04	0.20926D+03	-0.91050D+01	0.10221D+03	0.90120D+02	0.10188D+03
0.12000D+01	0.24502D+01	0.27253D+00	0.11085D+04	0.11081D+04	0.19834D+03	0.78417D+01	0.10267D+03	0.83908D+02	0.72461D+02
0.13000D+01	0.24508D+01	0.25684D+00	0.10778D+04	0.10774D+04	0.19216D+03	-0.12185D+02	0.10100D+03	0.70950D+02	0.97090D+02
0.14000D+01	0.24546D+01	0.26363D+00	0.10488D+04	0.10485D+04	0.18977D+03	-0.29143D+02	0.96381D+02	0.70680D+02	0.76065D+02
0.15000D+01	0.24570D+01	0.28102D+00	0.10213D+04	0.10209D+04	0.18168D+03	-0.37121D+02	0.89927D+02	0.75189D+02	0.49598D+02
0.16000D+01	0.24587D+01	0.25395D+00	0.99490D+03	0.99460D+03	0.17868D+03	-0.35477D+02	0.95382D+02	0.65077D+02	0.58752D+02
0.17000D+01	0.24603D+01	0.25338D+00	0.97004D+03	0.96976D+03	0.17576D+03	-0.42680D+02	0.83874D+02	0.73584D+02	0.53171D+02
0.18000D+01	0.24619D+01	0.26985D+00	0.94652D+03	0.94628D+03	0.17259D+03	-0.32655D+02	0.96791D+02	0.57667D+02	0.45157D+02
0.19000D+01	0.24636D+01	0.24085D+00	0.92409D+03	0.92391D+03	0.16593D+03	-0.33531D+02	0.79208D+02	0.53212D+02	0.40840D+02
0.20000D+01	0.24650D+01	0.27824D+00	0.90251D+03	0.90236D+03	0.16281D+03	-0.43109D+02	0.91253D+02	0.47735D+02	0.46892D+02
0.21000D+01	0.24667D+01	0.24606D+00	0.88234D+03	0.88219D+03	0.16582D+03	-0.24338D+02	0.86182D+02	0.55220D+02	0.37023D+02
0.22000D+01	0.24683D+01	0.25188D+00	0.86347D+03	0.86335D+03	0.16795D+03	-0.32895D+02	0.81793D+02	0.60777D+02	0.39824D+02
0.23000D+01	0.24699D+01	0.27692D+00	0.84540D+03	0.84529D+03	0.16031D+03	-0.25042D+02	0.89492D+02	0.29764D+02	0.51277D+02
0.24000D+01	0.24715D+01	0.24071D+00	0.82809D+03	0.82794D+03	0.15954D+03	-0.33655D+02	0.84609D+02	0.49214D+02	0.16284D+02
0.25000D+01	0.24731D+01	0.26237D+00	0.81163D+03	0.81145D+03	0.16059D+03	-0.32836D+02	0.81644D+02	0.25308D+02	0.20970D+02
0.26000D+01	0.24747D+01	0.26779D+00	0.79571D+03	0.79556D+03	0.14969D+03	-0.38307D+02	0.84866D+02	0.34517D+02	0.15236D+02
0.27000D+01	0.24762D+01	0.23031D+00	0.78027D+03	0.78019D+03	0.15141D+03	-0.33189D+02	0.74608D+02	0.31392D+02	0.15353D+02
0.28000D+01	0.24778D+01	0.27660D+00	0.76539D+03	0.76529D+03	0.15070D+03	-0.26370D+02	0.81715D+02	0.31090D+02	0.17593D+02
0.29000D+01	0.24793D+01	0.23210D+00	0.75089D+03	0.75104D+03	0.15162D+03	-0.26988D+02	0.78180D+02	0.33361D+02	0.58975D+01
0.30000D+01	0.24808D+01	0.28379D+00	0.73724D+03	0.73746D+03	0.14815D+03	-0.32355D+02	0.82208D+02	0.31168D+02	0.21630D+02
0.31000D+01	0.24823D+01	0.25279D+00	0.72418D+03	0.72421D+03	0.14763D+03	-0.34571D+02	0.69020D+02	0.10252D+02	0.50018D+01
0.32000D+01	0.24838D+01	0.24295D+00	0.71179D+03	0.71168D+03	0.14392D+03	-0.36585D+02	0.81547D+02	0.24775D+02	0.65730D+01
0.33000D+01	0.24853D+01	0.27197D+00	0.69958D+03	0.69964D+03	0.14136D+03	-0.35963D+02	0.73656D+02	0.13308D+01	-0.14735D+02
0.34000D+01	0.24868D+01	0.22281D+00	0.68810D+03	0.68798D+03	0.13678D+03	-0.33348D+02	0.68211D+02	0.15537D+02	0.43358D+01
0.35000D+01	0.24882D+01	0.26654D+00	0.67682D+03	0.67685D+03	0.13490D+03	-0.33707D+02	0.78802D+02	0.83554D+00	-0.77971D+01
0.36000D+01	0.24897D+01	0.26161D+00	0.66574D+03	0.66608D+03	0.13084D+03	-0.31181D+02	0.72727D+02	0.17229D+02	-0.14686D+01
0.37000D+01	0.24911D+01	0.21880D+00	0.65544D+03	0.65541D+03	0.13483D+03	-0.28751D+02	0.68586D+02	0.81465D+01	-0.91957D+01
0.38000D+01	0.24926D+01	0.26812D+00	0.64525D+03	0.64503D+03	0.12741D+03	-0.28044D+02	0.75967D+02	-0.24407D+01	-0.11944D+02
0.39000D+01	0.24940D+01	0.25950D+00	0.63574D+03	0.63512D+03	0.12860D+03	-0.30545D+02	0.66955D+02	0.19198D+02	-0.89094D+01
0.40000D+01	0.24953D+01	0.21530D+00	0.62658D+03	0.62585D+03	0.12782D+03	-0.30193D+02	0.72175D+02	-0.97598D+01	-0.12626D+02
0.41000D+01	0.24967D+01	0.25958D+00	0.61746D+03	0.61658D+03	0.12380D+03	-0.28173D+02	0.71354D+02	0.40206D+00	-0.88003D+01
0.42000D+01	0.24981D+01	0.26140D+00	0.60878D+03	0.60773D+03	0.12214D+03	-0.29295D+02	0.64970D+02	0.62339D+01	-0.24014D+02
0.43000D+01	0.24995D+01	0.22428D+00	0.60035D+03	0.59951D+03	0.11687D+03	-0.27658D+02	0.71241D+02	-0.69782D+01	-0.14190D+02
0.44000D+01	0.25008D+01	0.24679D+00	0.59227D+03	0.59127D+03	0.11502D+03	-0.26862D+02	0.65075D+02	-0.37373D+01	-0.25115D+02
0.45000D+01	0.25021D+01	0.26320D+00	0.58443D+03	0.58327D+03	0.10887D+03	-0.25547D+02	0.70671D+02	-0.35317D+01	-0.18401D+02
0.46000D+01	0.25034D+01	0.22867D+00	0.57685D+03	0.57579D+03	0.11486D+03	-0.25023D+02	0.61251D+02	-0.64028D+01	-0.29327D+02
0.47000D+01	0.25048D+01	0.22601D+00	0.56976D+03	0.56839D+03	0.10558D+03	-0.25533D+02	0.68525D+02	-0.11439D+02	-0.20908D+02
0.48000D+01	0.25060D+01	0.26559D+00	0.56269D+03	0.56123D+03	0.10657D+03	-0.26655D+02	0.66668D+02	-0.14128D+02	-0.33007D+02
0.49000D+01	0.25073D+01	0.25255D+00	0.55590D+03	0.55452D+03	0.10266D+03	-0.25008D+02	0.58885D+02	-0.54746D+01	-0.26352D+02
0.50000D+01	0.25086D+01	0.21995D+00	0.54951D+03	0.54784D+03	0.10185D+03	-0.23384D+02	0.61102D+02	-0.13586D+02	-0.34730D+02

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	DIFF PRESS V19-V20 MPA	DIFF PRESS V16-V19 MPA	PUMP SPEED VOL 7 RPM	PUMP SPEED VOL 8 RPM	MASS FLOW JUN 11 KG/SEC	MASS FLOW JUN 15 KG/SEC	MASS FLOW JUN 16 KG/SEC	MASS FLOW JUN 14 KG/SEC	MASS FLOW JUN 12 KG/SEC
0.55000D+01	0.25148D+01	0.24122D+00	0.52026D+03	0.51792D+03	0.88554D+02	-0.22808D+07	0.55435D+02	-0.17680D+02	-0.40759D+02
0.60000D+01	0.25210D+01	0.25556D+00	0.49549D+03	0.49251D+03	0.78205D+02	-0.19580D+02	0.12497D+07	-0.10310D+02	-0.44387D+02
0.65000D+01	0.25281D+01	0.23933D+00	0.47402D+03	0.47058D+03	0.70607D+02	-0.20666D+02	0.51441D+01	-0.18649D+02	-0.48637D+02
0.70000D+01	0.25379D+01	0.23110D+00	0.45524D+03	0.45150D+03	0.78895D+02	-0.25557D+02	0.38634D+01	-0.52863D+02	-0.10699D+03
0.75000D+01	0.25507D+01	0.20799D+00	0.43823D+03	0.43418D+03	0.76260D+02	-0.25166D+02	0.38116D+01	-0.44497D+02	-0.10932D+03
0.80000D+01	0.25660D+01	0.19668D+00	0.42368D+03	0.41937D+03	0.41283D+02	-0.20954D+02	0.37716D+01	-0.38372D+02	-0.40724D+02
0.85000D+01	0.25850D+01	0.18925D+00	0.41110D+03	0.40647D+03	0.37171D+02	-0.21320D+02	0.41185D+01	-0.22641D+02	-0.37661D+02
0.90000D+01	0.26073D+01	0.18403D+00	0.39970D+03	0.39468D+03	0.46976D+02	-0.27427D+02	0.42256D+01	-0.38467D+02	-0.47767D+02
0.95000D+01	0.26324D+01	0.17956D+00	0.38919D+03	0.38404D+03	0.54862D+02	-0.27224D+02	0.39198D+01	-0.46682D+02	-0.78964D+02
0.10000D+02	0.26576D+01	0.17796D+00	0.37970D+03	0.37440D+03	0.45449D+02	-0.27688D+02	0.39340D+01	-0.20468D+02	-0.72226D+02
0.10500D+02	0.26819D+01	0.18143D+00	0.37103D+03	0.36561D+03	0.40829D+02	-0.28394D+02	0.41009D+01	-0.23078D+02	-0.73015D+02
0.11000D+02	0.27038D+01	0.19342D+00	0.36305D+03	0.35751D+03	0.42213D+02	-0.27844D+02	0.47845D+01	-0.23531D+02	-0.80460D+02
0.11500D+02	0.27263D+01	0.20683D+00	0.35577D+03	0.35013D+03	0.40914D+02	-0.20125D+02	0.55674D+01	0.85682D+01	-0.75545D+02
0.12000D+02	0.27410D+01	0.19734D+00	0.34912D+03	0.34334D+03	0.39464D+02	-0.15353D+02	0.60871D+01	-0.10698D+02	-0.64009D+02
0.12500D+02	0.27344D+01	0.22537D+00	0.34297D+03	0.33710D+03	0.34149D+02	-0.16319D+02	0.74912D+01	0.19777D+02	-0.60841D+02
0.13000D+02	0.27473D+01	0.23204D+00	0.33731D+03	0.33135D+03	0.35298D+02	-0.13848D+02	0.77518D+01	0.50158D+01	-0.59733D+02
0.13500D+02	0.27293D+01	0.24428D+00	0.33208D+03	0.32605D+03	0.35216D+02	-0.14792D+02	0.88076D+01	0.15653D+02	-0.49199D+02
0.14000D+02	0.26680D+01	0.25438D+00	0.32724D+03	0.32113D+03	0.34480D+02	-0.17939D+02	0.89416D+01	0.30999D+02	-0.41831D+02
0.14500D+02	0.26123D+01	0.26820D+00	0.32277D+03	0.31657D+03	0.32983D+02	-0.22979D+02	0.10457D+02	0.34743D+02	-0.32922D+02
0.15000D+02	0.25170D+01	0.28232D+00	0.31867D+03	0.31237D+03	0.30943D+02	-0.28501D+02	0.21235D+02	0.36235D+02	-0.31711D+02
0.15500D+02	0.24103D+01	0.31339D+00	0.31488D+03	0.30851D+03	0.28170D+02	-0.33052D+02	0.57154D+02	0.34403D+02	-0.30898D+02
0.16000D+02	0.23128D+01	0.38217D+00	0.31141D+03	0.30494D+03	0.26963D+02	-0.35335D+02	0.65113D+02	0.28389D+02	-0.33208D+02
0.16500D+02	0.23085D+01	0.39247D+00	0.30837D+03	0.30181D+03	0.26800D+02	-0.32664D+02	0.60018D+02	0.20319D+02	-0.31002D+02
0.17000D+02	0.23182D+01	0.36688D+00	0.30566D+03	0.29900D+03	0.26052D+02	-0.32539D+02	0.53636D+02	0.20269D+02	-0.31379D+02
0.17500D+02	0.22994D+01	0.34884D+00	0.30329D+03	0.29651D+03	0.25904D+02	-0.31577D+02	0.44952D+02	0.20852D+02	-0.30777D+02
0.18000D+02	0.22853D+01	0.32117D+00	0.30127D+03	0.29438D+03	0.25445D+02	-0.26011D+02	0.40864D+02	0.15852D+02	-0.29609D+02
0.18500D+02	0.22602D+01	0.29790D+00	0.29958D+03	0.29258D+03	0.24918D+02	-0.22089D+02	0.38596D+02	0.14654D+02	-0.28142D+02
0.19000D+02	0.22369D+01	0.28054D+00	0.29810D+03	0.29101D+03	0.27688D+02	-0.19833D+02	0.35404D+02	0.13736D+02	-0.25672D+02
0.19500D+02	0.22097D+01	0.26699D+00	0.29710D+03	0.28979D+03	0.26576D+02	-0.17723D+02	0.32815D+02	0.14934D+02	-0.23860D+02
0.20000D+02	0.21788D+01	0.25572D+00	0.29665D+03	0.28908D+03	0.24862D+02	-0.16174D+02	0.30471D+02	0.14477D+02	-0.22903D+02

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	DIFF PRESS V19-V20 MPA	DIFF PRESS V16-V19 MPA	PUMP SPEED VOL 7 RPM	PUMP SPEED VOL 8 RPM	MASS FLOW JUN 11 KG/SEC	MASS FLOW JUN 15 KG/SEC	MASS FLOW JUN 16 KG/SEC	MASS FLOW JUN 14 KG/SEC	MASS FLOW JUN 12 KG/SEC
0.20500D+02	0.21443D+01	0.24484D+00	0.29647D+03	0.28868D+03	0.23386D+02	-0.11426D+02	0.28411D+02	0.17009D+02	-0.17131D+02
0.21000D+02	0.21061D+01	0.24008D+00	0.29672D+03	0.28869D+03	0.15936D+02	-0.10261D+02	0.28061D+02	0.18978D+02	-0.18270D+02
0.21500D+02	0.20655D+01	0.23221D+00	0.29965D+03	0.29146D+03	0.32631D+01	-0.10591D+02	0.24924D+02	0.14228D+02	-0.28537D+02
0.22000D+02	0.20242D+01	0.22791D+00	0.30124D+03	0.29291D+03	0.10349D+02	-0.15975D+02	0.26889D+02	0.15284D+02	-0.14051D+02
0.22500D+02	0.19835D+01	0.22191D+00	0.30227D+03	0.29389D+03	0.18222D+02	-0.13756D+02	0.26045D+02	0.92458D+01	-0.20181D+02
0.23000D+02	0.19415D+01	0.21480D+00	0.30414D+03	0.29567D+03	0.10758D+02	-0.10292D+02	0.25274D+02	0.10734D+02	-0.22542D+02
0.23500D+02	0.18974D+01	0.20799D+00	0.30679D+03	0.29828D+03	-0.19103D+01	-0.11952D+02	0.22830D+02	0.86157D+01	-0.21806D+02
0.24000D+02	0.18501D+01	0.19990D+00	0.31001D+03	0.30145D+03	-0.54144D+01	-0.14904D+02	0.19785D+02	0.62988D+01	-0.26263D+02
0.24500D+02	0.18002D+01	0.19221D+00	0.31341D+03	0.30475D+03	-0.90519D+01	-0.13415D+02	0.17479D+02	0.33056D+01	-0.26866D+02
0.25000D+02	0.17484D+01	0.19337D+00	0.31661D+03	0.30796D+03	-0.13550D+02	0.26086D+01	0.18413D+02	-0.56340D+01	-0.28910D+02
0.25500D+02	0.17049D+01	0.18761D+00	0.31764D+03	0.30895D+03	0.30337D+02	-0.20744D+02	0.16526D+02	-0.24988D+02	-0.26784D+02
0.26000D+02	0.16693D+01	0.18689D+00	0.31764D+03	0.30886D+03	0.14033D+02	-0.16828D+02	0.17035D+02	0.52749D+01	-0.14535D+02
0.26500D+02	0.16297D+01	0.17645D+00	0.31770D+03	0.30889D+03	0.54171D+02	-0.23614D+02	0.15937D+02	-0.46295D+01	-0.15828D+02
0.27000D+02	0.15841D+01	0.16801D+00	0.31855D+03	0.30970D+03	0.10286D+02	-0.18571D+02	0.15522D+02	0.76935D+01	-0.94656D+01
0.27500D+02	0.15353D+01	0.16547D+00	0.32025D+03	0.31137D+03	0.20400D+02	-0.14110D+02	0.17445D+02	0.88155D+01	-0.11344D+02
0.28000D+02	0.14854D+01	0.16437D+00	0.32244D+03	0.31350D+03	0.28827D+02	-0.72103D+01	0.17808D+02	0.78326D+01	-0.12268D+02
0.28500D+02	0.14363D+01	0.16278D+00	0.32516D+03	0.31616D+03	0.20334D+02	-0.90211D+01	0.17179D+02	0.57344D+01	-0.14123D+02
0.29000D+02	0.13895D+01	0.15934D+00	0.32819D+03	0.31919D+03	0.38092D+02	-0.86588D+01	0.16543D+02	0.41598D+01	-0.15224D+02
0.29500D+02	0.13451D+01	0.15523D+00	0.33157D+03	0.32255D+03	0.36487D+02	-0.64222D+01	0.14617D+02	0.28013D+01	-0.14583D+02
0.30000D+02	0.13025D+01	0.14893D+00	0.33536D+03	0.32632D+03	0.51720D+02	-0.81877D+01	0.74171D+01	0.85183D+01	-0.13197D+02
0.30500D+02	0.12611D+01	0.15142D+00	0.33920D+03	0.33015D+03	0.62778D+02	-0.35093D+01	0.14447D+02	-0.31843D+01	-0.21198D+02
0.31000D+02	0.12203D+01	0.13445D+00	0.34314D+03	0.33408D+03	0.40123D+02	-0.63029D+01	0.13107D+02	-0.22150D+01	-0.26860D+02
0.31500D+02	0.11797D+01	0.13610D+00	0.34676D+03	0.33772D+03	0.47829D+02	-0.34420D+01	0.15952D+02	0.13744D+02	-0.28133D+02
0.32000D+02	0.11394D+01	0.13127D+00	0.35038D+03	0.34137D+03	0.29851D+02	-0.33427D+01	0.14324D+02	0.97108D+01	0.11350D+02
0.32500D+02	0.10996D+01	0.12628D+00	0.35436D+03	0.34535D+03	0.17342D+02	-0.24884D+01	0.10380D+02	0.14633D+02	0.53834D+02
0.33000D+02	0.10609D+01	0.11893D+00	0.35834D+03	0.34933D+03	0.39127D+02	-0.27205D+00	0.11995D+02	0.18550D+02	0.39191D+02
0.33500D+02	0.10217D+01	0.11518D+00	0.36187D+03	0.35285D+03	0.26323D+02	-0.50254D+00	0.12600D+02	0.17140D+02	0.28753D+02
0.34000D+02	0.98168D+00	0.11105D+00	0.36549D+03	0.35646D+03	0.37696D+02	-0.37266D+00	0.11550D+02	0.17734D+02	0.17338D+02
0.34500D+02	0.94196D+00	0.10907D+00	0.36900D+03	0.35997D+03	0.44630D+02	-0.32745D+00	0.11453D+02	0.14685D+02	0.20060D+02
0.35000D+02	0.90483D+00	0.10631D+00	0.37261D+03	0.36357D+03	0.25903D+02	0.61225D+00	0.11484D+02	0.13283D+02	0.22432D+02
0.35500D+02	0.87085D+00	0.10388D+00	0.37626D+03	0.36723D+03	0.45724D+02	0.10039D+01	0.10463D+02	0.11418D+02	0.23571D+02
0.36000D+02	0.84039D+00	0.99567D-01	0.37982D+03	0.37078D+03	0.39867D+02	0.19503D+00	0.10872D+02	0.12030D+02	0.74857D+01
0.36500D+02	0.81213D+00	0.95780D-01	0.38300D+03	0.37396D+03	0.40728D+02	0.21621D+01	0.89894D+01	0.11995D+02	-0.79256D+01
0.37000D+02	0.78356D+00	0.93855D-01	0.38621D+03	0.37717D+03	0.38901D+02	0.15504D+01	0.89694D+01	0.10275D+02	-0.39238D+01
0.37500D+02	0.75548D+00	0.91115D-01	0.38977D+03	0.38074D+03	0.40319D+02	0.93140D+00	0.95609D+01	0.11218D+02	-0.39247D+00
0.38000D+02	0.72810D+00	0.88072D-01	0.39373D+03	0.38471D+03	0.40334D+02	0.17713D+01	0.93485D+01	0.10845D+02	-0.84044D+00
0.38500D+02	0.70124D+00	0.84871D-01	0.39824D+03	0.38923D+03	0.41312D+02	0.18789D+01	0.90018D+01	0.10718D+02	-0.58852D-01
0.39000D+02	0.67509D+00	0.81766D-01	0.40319D+03	0.39419D+03	0.42100D+02	0.20582D+01	0.86938D+01	0.10579D+02	0.43678D+01
0.39500D+02	0.64980D+00	0.78838D-01	0.40851D+03	0.39952D+03	0.42837D+02	0.21093D+01	0.83785D+01	0.10507D+02	0.63463D+01
0.40000D+02	0.62604D+00	0.76016D-01	0.41418D+03	0.40521D+03	0.43400D+02	0.20311D+01	0.80350D+01	0.10114D+02	0.53993D+01
0.40500D+02	0.60325D+00	0.73189D-01	0.42016D+03	0.41121D+03	0.44017D+02	0.21775D+01	0.77869D+01	0.99607D+01	0.78882D+01
0.41000D+02	0.58112D+00	0.70445D-01	0.42647D+03	0.41754D+03	0.44773D+02	0.24208D+01	0.75622D+01	0.98283D+01	0.91276D+01
0.41500D+02	0.55963D+00	0.67863D-01	0.43317D+03	0.42426D+03	0.45181D+02	0.23867D+01	0.73218D+01	0.97911D+01	0.11026D+02
0.42000D+02	0.53889D+00	0.65487D-01	0.44016D+03	0.43127D+03	0.45571D+02	0.26907D+01	0.71415D+01	0.99110D+01	0.14167D+02
0.42500D+02	0.51895D+00	0.63232D-01	0.44751D+03	0.43864D+03	0.46094D+02	0.28464D+01	0.69916D+01	0.10045D+02	0.14488D+02
0.43000D+02	0.49976D+00	0.61108D-01	0.45516D+03	0.44631D+03	0.46259D+02	0.28194D+01	0.68400D+01	0.10228D+02	0.15308D+02
0.43500D+02	0.48144D+00	0.59108D-01	0.46307D+03	0.45424D+03	0.46593D+02	0.29480D+01	0.67230D+01	0.10518D+02	0.16426D+02
0.44000D+02	0.46392D+00	0.57166D-01	0.47130D+03	0.46248D+03	0.46851D+02	0.30027D+01	0.66116D+01	0.10801D+02	0.16031D+02
0.44500D+02	0.44717D+00	0.55358D-01	0.47978D+03	0.47098D+03	0.47195D+02	0.31481D+01	0.65331D+01	0.11160D+02	0.16845D+02
0.45000D+02	0.43124D+00	0.53628D-01	0.48858D+03	0.47980D+03	0.47415D+02	0.34432D+01	0.64729D+01	0.11531D+02	0.16005D+02

ALARM-P (MOD1(VERSION 01) DATE 77.06.30) PWR LOSS OF COOLANT ANALYSIS PROGRAM PAGE
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	DIFF PRESS V19-V20 MPA	DIFF PRESS V16-V19 MPA	PUMP SPEED VOL 7 RPM	PUMP SPEED VOL 8 RPM	MASS FLOW JUN 11 KG/SEC	MASS FLOW JUN 15 KG/SEC	MASS FLOW JUN 16 KG/SEC	MASS FLOW JUN 14 KG/SEC	MASS FLOW JUN 12 KG/SEC
0.45500D+02	0.41593D+00	0.51951D-01	0.49778D+03	0.48902D+03	0.47658D+02	0.35045D+01	0.64097D+01	0.11840D+02	0.15639D+02
0.46000D+02	0.40127D+00	0.50383D-01	0.50724D+03	0.49850D+03	0.47793D+02	0.37352D+01	0.63661D+01	0.12294D+02	0.17483D+02
0.46500D+02	0.38721D+00	0.48871D-01	0.51703D+03	0.50830D+03	0.47966D+02	0.43024D+01	0.63671D+01	0.12679D+02	0.18065D+02
0.47000D+02	0.37374D+00	0.47429D-01	0.52713D+03	0.51843D+03	0.48044D+02	0.45264D+01	0.63522D+01	0.13049D+02	0.17598D+02
0.47500D+02	0.36083D+00	0.46016D-01	0.53755D+03	0.52886D+03	0.48064D+02	0.45838D+01	0.63359D+01	0.13382D+02	0.16961D+02
0.48000D+02	0.34842D+00	0.44647D-01	0.54827D+03	0.53960D+03	0.48126D+02	0.49989D+01	0.63190D+01	0.13715D+02	0.17807D+02
0.48500D+02	0.33648D+00	0.43374D-01	0.55923D+03	0.55058D+03	0.48265D+02	0.49546D+01	0.63050D+01	0.13958D+02	0.18110D+02
0.49000D+02	0.32518D+00	0.42864D-01	0.57045D+03	0.56181D+03	0.48549D+02	0.25943D+01	0.63829D+01	0.13854D+02	0.11911D+02
0.49500D+02	0.31428D+00	0.41110D-01	0.58184D+03	0.57320D+03	0.48629D+02	0.15919D+01	0.57319D+01	0.11596D+02	0.97619D+01
0.50000D+02	0.30711D+00	0.39438D-01	0.59467D+03	0.58605D+03	0.48383D+02	0.49230D+01	0.59094D+01	0.11689D+02	-0.30559D+01
0.50500D+02	0.29925D+00	0.38280D-01	0.60646D+03	0.59786D+03	0.48091D+02	0.59639D+01	0.60095D+01	0.13625D+02	0.32325D+02
0.51000D+02	0.29124D+00	0.37369D-01	0.61825D+03	0.60966D+03	0.48381D+02	0.64550D+01	0.61310D+01	0.14510D+02	0.41822D+02
0.51500D+02	0.28338D+00	0.36534D-01	0.63063D+03	0.62206D+03	0.48332D+02	0.71433D+01	0.62021D+01	0.15169D+02	0.14083D+02
0.52000D+02	0.27562D+00	0.35516D-01	0.64344D+03	0.63488D+03	0.48345D+02	0.68374D+01	0.58670D+01	0.13392D+02	-0.16457D+01
0.52500D+02	0.26803D+00	0.34667D-01	0.65598D+03	0.64745D+03	0.48008D+02	0.67515D+01	0.59367D+01	0.14713D+02	0.17639D+02
0.53000D+02	0.26081D+00	0.33749D-01	0.66852D+03	0.66000D+03	0.48148D+02	0.69438D+01	0.59630D+01	0.14932D+02	0.36122D+02
0.53500D+02	0.25381D+00	0.32827D-01	0.68134D+03	0.67283D+03	0.48207D+02	0.75475D+01	0.60254D+01	0.15694D+02	0.27361D+02
0.54000D+02	0.24692D+00	0.31911D-01	0.69472D+03	0.68623D+03	0.48124D+02	0.84845D+01	0.60342D+01	0.16077D+02	0.28859D+01
0.54500D+02	0.24006D+00	0.30921D-01	0.70843D+03	0.69995D+03	0.47951D+02	0.79486D+01	0.57788D+01	0.15294D+02	0.12200D+01
0.55000D+02	0.23339D+00	0.30109D-01	0.72208D+03	0.71363D+03	0.47864D+02	0.81519D+01	0.57745D+01	0.15269D+02	0.22683D+02
0.55500D+02	0.22698D+00	0.29264D-01	0.73578D+03	0.72734D+03	0.47829D+02	0.83315D+01	0.57036D+01	0.15303D+02	0.41157D+02
0.56000D+02	0.22081D+00	0.28448D-01	0.74968D+03	0.74126D+03	0.47900D+02	0.87824D+01	0.57436D+01	0.16154D+02	0.33491D+02
0.56500D+02	0.21484D+00	0.27651D-01	0.76409D+03	0.75568D+03	0.47858D+02	0.95179D+01	0.58044D+01	0.17013D+02	0.57443D+01
0.57000D+02	0.20897D+00	0.26712D-01	0.77895D+03	0.77056D+03	0.47492D+02	0.89021D+01	0.53785D+01	0.14603D+02	-0.28079D+01
0.57500D+02	0.20315D+00	0.26089D-01	0.79384D+03	0.78547D+03	0.47536D+02	0.98939D+01	0.54886D+01	0.15674D+02	0.15727D+02
0.58000D+02	0.19761D+00	0.25305D-01	0.80878D+03	0.80042D+03	0.47538D+02	0.93743D+01	0.54010D+01	0.15524D+02	0.39359D+02
0.58500D+02	0.19223D+00	0.24613D-01	0.82376D+03	0.81542D+03	0.47204D+02	0.94650D+01	0.53274D+01	0.15989D+02	0.46368D+02
0.59000D+02	0.18742D+00	0.23962D-01	0.83896D+03	0.83063D+03	0.47423D+02	0.10217D+02	0.54444D+01	0.17184D+02	0.28058D+02
0.59500D+02	0.18502D+00	0.23506D-01	0.85468D+03	0.84636D+03	0.47150D+02	0.11150D+02	0.56458D+01	0.18590D+02	-0.71109D+01
0.60000D+02	0.18221D+00	0.22831D-01	0.87076D+03	0.86246D+03	0.47081D+02	0.99574D+01	0.50866D+01	0.16306D+02	-0.18136D+01

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	MASS FLOW JUN 2 KG/SEC	MASS FLOW JUN 5 KG/SEC	MASS FLOW JUN 24 KG/SEC	VOLUME FLOW JUN 33 L/SEC	VOLUME FLOW JUN 34 L/SEC	VOLUME FLOW JUN 35 L/SEC
0.0	0.26840D+03	0.26840D+03	0.0	0.0	0.0	0.0
0.50000D-02	0.26837D+03	0.26835D+03	0.36239D+03	0.10259D-01	0.0	0.0
0.10000D-01	0.26779D+03	0.26973D+03	0.21447D+03	0.20092D-01	0.0	0.0
0.15000D-01	0.23907D+03	0.30829D+03	0.53364D+03	0.29091D-01	0.0	0.0
0.20000D-01	0.15160D+03	0.37615D+03	0.31428D+03	0.36885D-01	0.0	0.0
0.25000D-01	0.12893D+03	0.35094D+03	0.36721D+03	0.43148D-01	0.0	0.0
0.30000D-01	0.93668D+02	0.33236D+03	0.15952D+03	0.47622D-01	0.0	0.0
0.35000D-01	0.10201D+03	0.25874D+03	0.32410D+03	0.50121D-01	0.0	0.0
0.40000D-01	0.15540D+03	0.28598D+03	0.30524D+03	0.50542D-01	0.0	0.0
0.45000D-01	0.18920D+03	0.26500D+03	0.38953D+03	0.48867D-01	0.0	0.0
0.50000D-01	0.21343D+03	0.34690D+03	0.30446D+03	0.45167D-01	0.0	0.0
0.60000D-01	0.19899D+03	0.28224D+03	0.22218D+03	0.32393D-01	0.0	0.0
0.70000D-01	0.19178D+03	0.25628D+03	0.29546D+03	0.14303D-01	0.0	0.0
0.80000D-01	0.17393D+03	0.39949D+03	0.28215D+03	-0.41904D-02	0.0	0.0
0.90000D-01	0.17822D+03	0.28628D+03	0.25915D+03	-0.17465D-01	0.0	0.0
0.10000D+00	0.20587D+03	0.21897D+03	0.22916D+03	-0.27872D-01	0.0	0.0
0.11000D+00	0.19089D+03	0.35944D+03	0.22036D+03	-0.33701D-01	0.0	0.0
0.12000D+00	0.20198D+03	0.23955D+03	0.22585D+03	-0.33997D-01	0.0	0.0
0.13000D+00	0.17736D+03	0.25902D+03	0.19444D+03	-0.28711D-01	0.0	0.0
0.14000D+00	0.20509D+03	0.30850D+03	0.16129D+03	-0.18712D-01	0.0	0.0
0.15000D+00	0.23714D+03	0.23596D+03	0.22120D+03	-0.56408D-02	0.0	0.0
0.16000D+00	0.24268D+03	0.21988D+03	0.12517D+03	0.12229D-01	0.0	0.0
0.17000D+00	0.21936D+03	0.26123D+03	0.93666D+02	0.30706D-01	0.0	0.0
0.18000D+00	0.25117D+03	0.27799D+03	0.80290D+02	0.44142D-01	0.0	0.0
0.19000D+00	0.25998D+03	0.28385D+03	0.89330D+02	0.50331D-01	0.0	0.0
0.20000D+00	0.26880D+03	0.26869D+03	0.93043D+02	0.48259D-01	0.0	0.0
0.21000D+00	0.29233D+03	0.24883D+03	0.12242D+03	0.38266D-01	0.0	0.0
0.22000D+00	0.29022D+03	0.24150D+03	0.14443D+03	0.21994D-01	0.0	0.0
0.23000D+00	0.28972D+03	0.27582D+03	0.14761D+03	0.21120D-02	0.0	0.0
0.24000D+00	0.22432D+03	0.30612D+03	0.14611D+03	-0.12378D-01	0.0	0.0
0.25000D+00	0.20631D+03	0.26075D+03	0.14641D+03	-0.24165D-01	0.0	0.0
0.26000D+00	0.18324D+03	0.26744D+03	0.15023D+03	-0.31985D-01	0.0	0.0
0.27000D+00	0.16072D+03	0.28247D+03	0.16382D+03	-0.34552D-01	0.0	0.0
0.28000D+00	0.14159D+03	0.29257D+03	0.17316D+03	-0.31446D-01	0.0	0.0
0.29000D+00	0.13069D+03	0.27866D+03	0.17414D+03	-0.23177D-01	0.0	0.0
0.30000D+00	0.12737D+03	0.24699D+03	0.17525D+03	-0.11104D-01	0.0	0.0

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	MASS FLOW JUN 2 KG/SEC	MASS FLOW JUN 5 KG/SEC	MASS FLOW JUN 24 KG/SEC	VOLUME FLOW JUN 33 L/SEC	VOLUME FLOW JUN 34 L/SEC	VOLUME FLOW JUN 35 L/SEC
0.35000D+00	0.16213D+03	0.27323D+03	0.17703D+03	0.50052D-01	0.0	0.0
0.40000D+00	0.89125D+02	0.24949D+03	0.17221D+03	-0.19811D-01	0.0	0.0
0.45000D+00	0.12412D+03	0.23999D+03	0.16113D+03	-0.16266D-01	0.0	0.0
0.50000D+00	0.83939D+02	0.23414D+03	0.15265D+03	0.50526D-01	0.0	0.0
0.55000D+00	0.78235D+02	0.23570D+03	0.15181D+03	-0.14943D-01	0.0	0.0
0.60000D+00	0.11012D+03	0.23382D+03	0.15733D+03	-0.20991D-01	0.0	0.0
0.65000D+00	0.66387D+02	0.21723D+03	0.16268D+03	0.49658D-01	0.0	0.0
0.70000D+00	0.53763D+02	0.22686D+03	0.16116D+03	-0.96830D-02	0.0	0.0
0.75000D+00	0.87718D+02	0.22324D+03	0.15237D+03	-0.25154D-01	0.0	0.0
0.80000D+00	0.90038D+02	0.21562D+03	0.14418D+03	0.47471D-01	0.0	0.0
0.85000D+00	0.57566D+02	0.20823D+03	0.14538D+03	-0.41698D-02	0.0	0.0
0.90000D+00	0.41671D+02	0.21191D+03	0.15518D+03	-0.28645D-01	0.0	0.0
0.95000D+00	0.51698D+02	0.21764D+03	0.16141D+03	0.44024D-01	0.0	0.0
0.10000D+01	0.63150D+02	0.20441D+03	0.15648D+03	0.21213D-02	0.0	0.0

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	MASS FLOW JUN 2 KG/SEC	MASS FLOW JUN 5 KG/SEC	MASS FLOW JUN 24 KG/SEC	VOLUME FLOW JUN 33 L/SEC	VOLUME FLOW JUN 34 L/SEC	VOLUME FLOW JUN 35 L/SEC
0.11000D+01	0.61149D+02	0.20186D+03	0.14342D+03	0.39401D-01	0.0	0.0
0.12000D+01	0.50170D+02	0.20040D+03	0.15741D+03	-0.33251D-01	0.0	0.0
0.13000D+01	0.36217D+02	0.19441D+03	0.15335D+03	0.18148D-01	0.0	0.0
0.14000D+01	0.33967D+02	0.19035D+03	0.14351D+03	0.27208D-01	0.0	0.0
0.15000D+01	0.30990D+02	0.18513D+03	0.16152D+03	-0.34350D-01	0.0	0.0
0.16000D+01	0.24809D+02	0.17698D+03	0.15142D+03	0.32234D-01	0.0	0.0
0.17000D+01	0.25799D+02	0.17077D+03	0.14469D+03	0.12169D-01	0.0	0.0
0.18000D+01	0.28595D+02	0.15631D+03	0.16198D+03	-0.31826D-01	0.0	0.0
0.19000D+01	0.23633D+02	0.15912D+03	0.14758D+03	0.42899D-01	0.0	0.0
0.20000D+01	0.24222D+02	0.16130D+03	0.15038D+03	-0.28202D-02	0.0	0.0
0.21000D+01	0.26650D+02	0.16165D+03	0.15725D+03	-0.25951D-01	0.0	0.0
0.22000D+01	0.25046D+02	0.13817D+03	0.14775D+03	0.49024D-01	0.0	0.0
0.23000D+01	0.25583D+02	0.15439D+03	0.15392D+03	-0.13638D-01	0.0	0.0
0.24000D+01	0.21799D+02	0.14607D+03	0.15163D+03	-0.17349D-01	0.0	0.0
0.25000D+01	0.25130D+02	0.13295D+03	0.15781D+03	0.49972D-01	0.0	0.0
0.26000D+01	0.22310D+02	0.14001D+03	0.15293D+03	-0.23000D-01	0.0	0.0
0.27000D+01	0.22885D+02	0.12600D+03	0.15316D+03	-0.69332D-02	0.0	0.0
0.28000D+01	0.23188D+02	0.11698D+03	0.15636D+03	0.45652D-01	0.0	0.0
0.29000D+01	0.22130D+02	0.11094D+03	0.15221D+03	-0.29921D-01	0.0	0.0
0.30000D+01	0.22677D+02	0.10447D+03	0.15675D+03	0.61409D-02	0.0	0.0
0.31000D+01	0.21084D+02	0.10167D+03	0.15128D+03	0.36527D-01	0.0	0.0
0.32000D+01	0.20137D+02	0.10274D+03	0.15714D+03	-0.33675D-01	0.0	0.0
0.33000D+01	0.20689D+02	0.91131D+02	0.15612D+03	0.21754D-01	0.0	0.0
0.34000D+01	0.18797D+02	0.93616D+02	0.15596D+03	0.23567D-01	0.0	0.0
0.35000D+01	0.19607D+02	0.83295D+02	0.15386D+03	-0.33873D-01	0.0	0.0
0.36000D+01	0.19232D+02	0.84263D+02	0.15663D+03	0.35047D-01	0.0	0.0
0.37000D+01	0.19055D+02	0.83686D+02	0.15346D+03	0.81455D-02	0.0	0.0
0.38000D+01	0.19633D+02	0.73272D+02	0.15701D+03	-0.30499D-01	0.0	0.0
0.39000D+01	0.17525D+02	0.78403D+02	0.15436D+03	0.44624D-01	0.0	0.0
0.40000D+01	0.18379D+02	0.73949D+02	0.15453D+03	-0.55400D-02	0.0	0.0
0.41000D+01	0.17333D+02	0.64614D+02	0.15629D+03	-0.23915D-01	0.0	0.0
0.42000D+01	0.16588D+02	0.70695D+02	0.15350D+03	0.49482D-01	0.0	0.0
0.43000D+01	0.18177D+02	0.65237D+02	0.15783D+03	-0.16042D-01	0.0	0.0
0.44000D+01	0.16518D+02	0.61226D+02	0.15163D+03	-0.14821D-01	0.0	0.0
0.45000D+01	0.16126D+02	0.61440D+02	0.15680D+03	0.49116D-01	0.0	0.0
0.46000D+01	0.15291D+02	0.59495D+02	0.15319D+03	-0.24835D-01	0.0	0.0
0.47000D+01	0.16006D+02	0.53868D+02	0.15503D+03	-0.41795D-02	0.0	0.0
0.48000D+01	0.15427D+02	0.53257D+02	0.15367D+03	0.43574D-01	0.0	0.0
0.49000D+01	0.14349D+02	0.55824D+02	0.15524D+03	-0.30995D-01	0.0	0.0
0.50000D+01	0.14541D+02	0.51376D+02	0.15264D+03	0.10076D-01	0.0	0.0

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	MASS FLOW JUN 2 KG/SEC	MASS FLOW JUN 5 KG/SEC	MASS FLOW JUN 24 KG/SEC	VOLUME FLOW JUN 33 L/SEC	VOLUME FLOW JUN 34 L/SEC	VOLUME FLOW JUN 35 L/SEC
0.55000D+01	0.12942D+02	0.40636D+02	0.15119D+03	-0.33125D-01	0.0	0.0
0.60000D+01	0.96064D+01	0.34131D+02	0.15122D+03	-0.81201D-02	0.0	0.0
0.65000D+01	0.87930D+01	0.27312D+02	0.14655D+03	0.47900D-01	0.0	0.0
0.70000D+01	0.48007D+01	0.31399D+02	0.74043D+02	0.13689D-01	0.0	0.0
0.75000D+01	0.55835D+01	0.26579D+02	0.16300D+03	-0.32274D-01	0.0	0.0
0.80000D+01	0.78679D+01	0.18676D+02	0.15577D+03	-0.10550D-01	0.0	0.0
0.85000D+01	0.53084D+01	0.79369D+01	0.15920D+03	0.46523D-01	0.0	0.0
0.90000D+01	0.12492D+01	0.18240D+02	0.12776D+03	0.17183D-01	0.0	0.0
0.95000D+01	0.10436D+01	0.17334D+02	0.11647D+03	-0.31245D-01	0.0	0.0
0.10000D+02	-0.11592D+01	0.19536D+02	0.12116D+03	-0.12892D-01	0.0	0.0
0.10500D+02	0.12103D+01	0.17772D+02	0.11875D+03	0.44890D-01	0.0	0.0
0.11000D+02	-0.15908D+01	0.14522D+02	0.11936D+03	0.20539D-01	0.0	0.0
0.11500D+02	0.25459D+01	0.15948D+02	0.11943D+03	-0.30046D-01	0.0	0.0
0.12000D+02	0.76452D+00	0.10032D+02	0.11694D+03	-0.15133D-01	0.0	0.0
0.12500D+02	-0.61702D+00	0.98910D+01	0.11185D+03	0.43015D-01	0.0	0.0
0.13000D+02	-0.83359D+01	0.12407D+02	0.10841D+03	0.23739D-01	0.0	0.0
0.13500D+02	-0.12668D+02	0.87388D+01	0.10405D+03	-0.28685D-01	0.0	0.0
0.14000D+02	-0.18863D+02	0.90751D+01	0.98484D+02	-0.17262D-01	0.0	0.0
0.14500D+02	-0.27006D+02	0.96242D+01	0.92653D+02	0.40911D-01	0.0	0.0
0.15000D+02	-0.34963D+02	0.82581D+01	0.88427D+02	0.26766D-01	0.0	0.0
0.15500D+02	-0.38305D+02	0.75940D+01	0.86771D+02	-0.27172D-01	0.0	0.0
0.16000D+02	-0.36506D+02	0.80868D+01	0.84910D+02	-0.19267D-01	0.0	0.0
0.16500D+02	-0.35042D+02	0.85796D+01	0.81175D+02	0.38592D-01	0.0	0.0
0.17000D+02	-0.30125D+02	0.88644D+01	0.78807D+02	0.29604D-01	0.0	0.0
0.17500D+02	-0.22936D+02	0.94446D+01	0.76789D+02	-0.25518D-01	0.0	0.0
0.18000D+02	-0.20047D+02	0.96964D+01	0.73966D+02	-0.21139D-01	0.0	0.0
0.18500D+02	-0.17762D+02	0.98090D+01	0.72144D+02	0.36074D-01	0.0	0.0
0.19000D+02	-0.16134D+02	0.96253D+01	0.69494D+02	0.32239D-01	0.0	0.0
0.19500D+02	-0.13489D+02	0.90677D+01	0.67986D+02	-0.23733D-01	0.0	0.0
0.20000D+02	-0.11744D+02	0.89570D+01	0.66188D+02	-0.22867D-01	0.0	0.0

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	MASS FLOW JUN 2 KG/SEC	MASS FLOW JUN 5 KG/SEC	MASS FLOW JUN 24 KG/SEC	VOLUME FLOW JUN 33 L/SEC	VOLUME FLOW JUN 34 L/SEC	VOLUME FLOW JUN 35 L/SEC
0.20500D+02	-0.11617D+02	0.86911D+01	0.64401D+02	0.33373D-01	0.0	0.0
0.21000D+02	-0.13288D+02	0.10205D+02	0.62152D+02	0.31209D+01	0.0	0.0
0.21500D+02	-0.78854D+01	0.10613D+02	0.62306D+02	0.12363D+02	0.0	0.0
0.22000D+02	-0.16081D+02	0.18428D+01	0.56650D+02	0.11937D+02	0.0	0.10840D+01
0.22500D+02	-0.12551D+02	0.53997D+01	0.55757D+02	0.21049D+02	0.0	0.10840D+01
0.23000D+02	-0.83960D+01	0.71502D+01	0.53768D+02	0.23134D+02	0.0	0.10840D+01
0.23500D+02	-0.83153D+01	0.78263D+01	0.51295D+02	0.25623D+02	0.0	0.10840D+01
0.24000D+02	-0.11113D+02	0.83425D+01	0.48195D+02	0.28224D+02	0.0	0.10840D+01
0.24500D+02	-0.91671D+01	0.79521D+01	0.47353D+02	0.30506D+02	0.0	0.10840D+01
0.25000D+02	0.40473D+01	0.70510D+01	0.46482D+02	0.32699D+02	0.0	0.10840D+01
0.25500D+02	0.28263D+01	0.92849D+01	0.43691D+02	0.34173D+02	0.0	0.10840D+01
0.26000D+02	-0.22846D+02	0.68425D+01	0.42060D+02	0.35244D+02	0.0	0.10840D+01
0.26500D+02	-0.20399D+02	0.54974D+01	0.42380D+02	0.36612D+02	0.0	0.10840D+01
0.27000D+02	-0.15616D+02	0.50980D+01	0.39463D+02	0.38007D+02	0.0	0.10840D+01
0.27500D+02	-0.10141D+02	0.44303D+01	0.40336D+02	0.39418D+02	0.0	0.10840D+01
0.28000D+02	0.15248D+00	0.50186D+01	0.39863D+02	0.40795D+02	0.0	0.10840D+01
0.28500D+02	-0.11377D+01	0.60675D+01	0.38190D+02	0.42149D+02	0.0	0.10840D+01
0.29000D+02	-0.33674D+01	0.64314D+01	0.37858D+02	0.43443D+02	0.0	0.10840D+01
0.29500D+02	0.16676D+00	0.66787D+01	0.36659D+02	0.44693D+02	0.0	0.10840D+01
0.30000D+02	-0.79752D+01	0.62053D+01	0.36199D+02	0.45895D+02	0.0	0.10840D+01
0.30500D+02	-0.15432D+01	0.67050D+01	0.35035D+02	0.47060D+02	0.0	0.10840D+01
0.31000D+02	0.14004D+01	0.71962D+01	0.34166D+02	0.48181D+02	0.0	0.10840D+01
0.31500D+02	0.12896D+01	0.61549D+01	0.32096D+02	0.49203D+02	0.0	0.10840D+01
0.32000D+02	0.87735D+00	0.34929D+01	0.30874D+02	0.50186D+02	0.0	0.10840D+01
0.32500D+02	0.74338D+00	0.25231D+01	0.31776D+02	0.51145D+02	0.0	0.10840D+01
0.33000D+02	0.19781D+01	0.22484D+01	0.29617D+02	0.52139D+02	0.0	0.10840D+01
0.33500D+02	0.87572D+00	0.26340D+01	0.28386D+02	0.53049D+02	0.0	0.10840D+01
0.34000D+02	0.13651D+01	0.28478D+01	0.28490D+02	0.53924D+02	0.0	0.10840D+01
0.34500D+02	0.12495D+01	0.29583D+01	0.27739D+02	0.54772D+02	0.0	0.10840D+01
0.35000D+02	0.21120D+01	0.29505D+01	0.27127D+02	0.55593D+02	0.0	0.10840D+01
0.35500D+02	0.24668D+01	0.27866D+01	0.26720D+02	0.56386D+02	0.0	0.10840D+01
0.36000D+02	0.20455D+01	0.30629D+01	0.25517D+02	0.57141D+02	0.0	0.10840D+01
0.36500D+02	0.29277D+01	0.34106D+01	0.25346D+02	0.57857D+02	0.0	0.10840D+01
0.37000D+02	0.23598D+01	0.34879D+01	0.24476D+02	0.58513D+02	0.12003D+01	0.10840D+01
0.37500D+02	0.16330D+01	0.35075D+01	0.23546D+02	0.59161D+02	0.18210D+01	0.10840D+01
0.38000D+02	0.30275D+01	0.37172D+01	0.22875D+02	0.59807D+02	0.26491D+01	0.10840D+01
0.38500D+02	0.28749D+01	0.39618D+01	0.22643D+02	0.60453D+02	0.32598D+01	0.10840D+01
0.39000D+02	0.32212D+01	0.41432D+01	0.22266D+02	0.61085D+02	0.37420D+01	0.10840D+01
0.39500D+02	0.26415D+01	0.43142D+01	0.21769D+02	0.61698D+02	0.41996D+01	0.10840D+01
0.40000D+02	0.24556D+01	0.44351D+01	0.21345D+02	0.62299D+02	0.46393D+01	0.10840D+01
0.40500D+02	0.26491D+01	0.45669D+01	0.20936D+02	0.62885D+02	0.50649D+01	0.10840D+01
0.41000D+02	0.34676D+01	0.46864D+01	0.20505D+02	0.63460D+02	0.54685D+01	0.10840D+01
0.41500D+02	0.29114D+01	0.47957D+01	0.20056D+02	0.64027D+02	0.58220D+01	0.10840D+01
0.42000D+02	0.38394D+01	0.49008D+01	0.19548D+02	0.64586D+02	0.60674D+01	0.10840D+01
0.42500D+02	0.40149D+01	0.50097D+01	0.19039D+02	0.65132D+02	0.63042D+01	0.10840D+01
0.43000D+02	0.35280D+01	0.50892D+01	0.18544D+02	0.65666D+02	0.65330D+01	0.10840D+01
0.43500D+02	0.35219D+01	0.51768D+01	0.18031D+02	0.66190D+02	0.67519D+01	0.10840D+01
0.44000D+02	0.32438D+01	0.52629D+01	0.17558D+02	0.66701D+02	0.69574D+01	0.10840D+01
0.44500D+02	0.33470D+01	0.53294D+01	0.17101D+02	0.67202D+02	0.71536D+01	0.10840D+01
0.45000D+02	0.39381D+01	0.54466D+01	0.16774D+02	0.67696D+02	0.73470D+01	0.10840D+01

ALARM-P (MOD1(VERSION 01) DATE 77.06.30)   PWR LOSS OF COOLANT ANALYSIS PROGRAM
CSNI STANDARD PROBLEM NO.5 BY ALARM-P1(MOD1)

TIME SEC	MASS FLOW JUN 2 KG/SEC	MASS FLOW JUN 5 KG/SEC	MASS FLOW JUN 24 KG/SEC	VOLUME FLOW JUN 33 L/SEC	VOLUME FLOW JUN 34 L/SEC	VOLUME FLOW JUN 35 L/SEC
0.45500D+02	0.36124D+01	0.55118D+01	0.16495D+02	0.68182D+02	0.75274D+01	0.10840D+01
0.46000D+02	0.36725D+01	0.55976D+01	0.16165D+02	0.68663D+02	0.76625D+01	0.10840D+01
0.46500D+02	0.54215D+01	0.56711D+01	0.15828D+02	0.69136D+02	0.77822D+01	0.10840D+01
0.47000D+02	0.55549D+01	0.57523D+01	0.15502D+02	0.69603D+02	0.78985D+01	0.10840D+01
0.47500D+02	0.47945D+01	0.58276D+01	0.15186D+02	0.70061D+02	0.80055D+01	0.10840D+01
0.48000D+02	0.57939D+01	0.58950D+01	0.14873D+02	0.70515D+02	0.81129D+01	0.10840D+01
0.48500D+02	0.45512D+01	0.59329D+01	0.14559D+02	0.70963D+02	0.82150D+01	0.10840D+01
0.49000D+02	0.52735D+01	0.58134D+01	0.14308D+02	0.71415D+02	0.83094D+01	0.10840D+01
0.49500D+02	0.60185D+01	0.61268D+01	0.14226D+02	0.71843D+02	0.83989D+01	0.10840D+01
0.50000D+02	0.71872D+01	0.62335D+01	0.14344D+02	0.72270D+02	0.84847D+01	0.10840D+01
0.50500D+02	0.66055D+01	0.60479D+01	0.13968D+02	0.72692D+02	0.85615D+01	0.10840D+01
0.51000D+02	0.72798D+01	0.61058D+01	0.13361D+02	0.73123D+02	0.86411D+01	0.10840D+01
0.51500D+02	0.79813D+01	0.62572D+01	0.13136D+02	0.73559D+02	0.87250D+01	0.10840D+01
0.52000D+02	0.81971D+01	0.62717D+01	0.13310D+02	0.73986D+02	0.87913D+01	0.10840D+01
0.52500D+02	0.64786D+01	0.61934D+01	0.13194D+02	0.74407D+02	0.88644D+01	0.10840D+01
0.53000D+02	0.64219D+01	0.61918D+01	0.12767D+02	0.74831D+02	0.89270D+01	0.10840D+01
0.53500D+02	0.66425D+01	0.62787D+01	0.12425D+02	0.75256D+02	0.89798D+01	0.10840D+01
0.54000D+02	0.96724D+01	0.63924D+01	0.12459D+02	0.75686D+02	0.90315D+01	0.10840D+01
0.54500D+02	0.95196D+01	0.64120D+01	0.12661D+02	0.76109D+02	0.90816D+01	0.10840D+01
0.55000D+02	0.82009D+01	0.63974D+01	0.12567D+02	0.76532D+02	0.91305D+01	0.10840D+01
0.55500D+02	0.83608D+01	0.63974D+01	0.12078D+02	0.76955D+02	0.91774D+01	0.10840D+01
0.56000D+02	0.85598D+01	0.64567D+01	0.11672D+02	0.77383D+02	0.92249D+01	0.10840D+01
0.56500D+02	0.94676D+01	0.65743D+01	0.11732D+02	0.77817D+02	0.92747D+01	0.10840D+01
0.57000D+02	0.87307D+01	0.66324D+01	0.12225D+02	0.78248D+02	0.93132D+01	0.10840D+01
0.57500D+02	0.11001D+02	0.66147D+01	0.12342D+02	0.78679D+02	0.93482D+01	0.10840D+01
0.58000D+02	0.90852D+01	0.66276D+01	0.12204D+02	0.79110D+02	0.93955D+01	0.10840D+01
0.58500D+02	0.92248D+01	0.66279D+01	0.11499D+02	0.79546D+02	0.94240D+01	0.10840D+01
0.59000D+02	0.10298D+02	0.66902D+01	0.11181D+02	0.79989D+02	0.94687D+01	0.10840D+01
0.59500D+02	0.99207D+01	0.68049D+01	0.11824D+02	0.80440D+02	0.94956D+01	0.10840D+01
0.60000D+02	0.12024D+02	0.68321D+01	0.13009D+02	0.80883D+02	0.95386D+01	0.10840D+01