JAEA-Research
2008-087

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- Loop-seal Clearing and 3D Core Heat-up Phenomena -

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October 2008
Japan Atomic Energy Agency
日本原子力研究開発機構

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A Study on ROSA/LSTF SB-CL-09 Test Simulating PWR 10% Cold Leg Break LOCA - Loop-seal Clearing and 3D Core Heat-up Phenomena -

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(Received September 11, 2008)

This report presents major results observed in loss-of-coolant accident (LOCA) SB-CL-09 experiment conducted at the Large Scale Test Facility (LSTF) of ROSA-IV Program simulating a 10% cold leg break in a 4-loop Westinghouse-type pressurized water reactor (PWR). High pressure injection (HPI) system was assumed to be in failure. Observed results are summarized as follows. (1) The primary pressure decreased to lower than the steam generator (SG) secondary pressure within two minutes because of relatively large break size. (2) A loop-seal clearing process started in both loops at about one minute after the break, caused significant core water level depression to almost core bottom and finished at about 80 s with the water level remained at the middle height in the core. The pressure balance due to water accumulation in the U-tube inlet-side more than in the outlet-side caused the water level suppression in the core. (3) The core uncovery in the upper half region continued even after the loop-seal clearing until 42 s later than the core power termination at 111s to limit the rod temperature rise. (4) Local core cooling especially in the intact-loop hot-leg side was observed during the loop-seal clearing process by the fall-back water from the SG. (5) All the core exit thermocouples (CETs) did not detect superheating during the core heat-up mainly due to the water fall-back effects. Applicability of these effects of fall-back water to PWR plant should be carefully analyzed considering differences in the upper plenum configuration.

Keywords: ROSA-IV/LSTF, Simulation Experiment, PWR, LOCA, 10% Cold Leg Break, HPI Failure Assumption, Loop-seal Clearing, Core Heat-up, Data Report

PWR 低温側配管 10%破断 LOCA を模擬する ROSA/LSTF SB-CL-09 実験の考察
－ループシールクリアリングと 3 次元炉心過熱現象－

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(2008 年 9 月 11 日受理)

ウェスティングハウス社型4ループ加圧水型原子炉(PWR)での低温側配管 10%破断 LOCA を模擬する ROSA-IV 計画大型非定常試験装置(LSTF)を用いた SB-CL-09 実験の主要な結果をまとめた。実験では、高圧注入系(HPI)故障を仮定し、以下の様な結果を明らかにした。(1) 比較的破断サイズが大きいため、1次系圧力は2分以内に蒸気発生器(SG)2次系圧力を下回った。(2)ループシールクリアリング過程は破断後約1分に両ループで開始し、炉心水位はほぼ炉心下端まで低下したが、約 80 秒のループシールクリアリング後も炉心水位はほぼ中央高さ位置にとどまった。これは、SG 伝熱管の下降側より上昇側により多くの冷却水が滞留したことに起因する圧力バランスの結果である。(3) 上半分の炉心露出はループシールクリアリング終了後も続き、ヒーター温度上昇を制限するために 111s に炉心出力を停止させた後も 42s 間継続した。(4)ループシールクリアリング過程において、炉心内では特に健全ループ側で SG からの流下水による部分冷却現象が見られた。(5)主にこの流下水の影響により、全ての炉心出口温度計(CET)は炉心が過熱しても全く過熱温度を検出しなかった。この様な流下水影響を PWR プラントへ適用する場合は、LSTF との上部プレナム形状の相違を考慮した慎重な解析が必要である。

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Acronyms and Abbreviations

ACC	Accumulator for Cold Leg A in Loop with PZR
ACH	Accumulator for Cold Leg B in Loop w/o PZR
AFW	Auxiliary Feedwater
AIS	Accumulator Injection System
AOV	Air Operated Valve
BU	Break Unit
CET	Core Exit Thermocouple
DC	Downcomer
DP	Differential Pressure
ECCS	Emergency Core Cooling System
EL	Elevation Level above Core Bottom
HPI	High Pressure Injection
ID	Inner Diameter
JAEA	Japan Atomic Energy Agency
JAERI	Japan Atomic Energy Research Institute (Former JAEA)
LOCA	Loss-of-Coolant Accident
LP	Lower Plenum
LPI	Low Pressure Injection
LSC	Loop-seal Clearing
LSTF	Large Scale Test Facility
MSIV	Main Steam Isolation Valve
PC	Primary Coolant Pump
PCT	Peak Cladding Temperature
PV	Pressure Vessel
PWR	Pressurized Water Reactor
PR	Pressurizer
RV	Relief Valve
RWST	Refueling Water Storage Tank
SBLOCA	Small Break Loss-of-Coolant Accident
SG	Steam Generator
SI	Safety Injection
ST	Storage Tank
SV	Safety Valve
UP	Upper Plenum
UH	Upper Head

1. Introduction

A 10% cold leg break experiment (SB-CL-09) was conducted at the Large-Scale Test Facility (LSTF)[1,2] on August 28 in 1986, at the early stage of the ROSA-IV Program, simulating a loss-of-coolant accident (LOCA) of a pressurized water reactor (PWR). The LSTF is a full-height and full-pressure simulator of a 4-loop 3423 MWt Westinghouse-type PWR[3] with 1/48 volumetric-scaling design. Since the break size is relatively large, thermal-hydraulic phenomena including a core flow transient and a loop-seal clearing[4,5] process with core heat-up should be significantly different from those in small break LOCA (SBLOCA) experiments such as 0.5% cold leg break experiments[6,7] but rather similar to those in 5% cold leg break experiments (SB-CL-18[8] referred as an International Standard Problem No.26, and SB-CL-08[9]). The fast transient would be good for comparison with those of 5-10% hot leg break LOCA experiments.[10-12] The experimental data shown in these reports and other LSTF experiment data described in published reports[13-20] are valuable for assessment and development of computer codes.

1.1 Background

The ROSA-IV Program was launched in 1980 soon after the TMI-2 accident[21] happened in 1979 to conduct integral SBLOCA simulation experiments by designing and using the LSTF. Test parameters of the LSTF experiments include break sizes ranging from 0.1 to 10% equivalent cold leg area, break locations in the primary coolant system such as cold leg, hot leg, pressure vessel (PV) top head, PV bottom head and a stuck open pressurizer (PR) power-operated relief valve (PORV), and failure assumptions on emergency core cooling system (ECCS). The 10% cold leg break experiment (SB-CL-09) was conducted as one of the break size parameter tests with a focus to study effects of the loop-seal clearing phenomena on core cooling in case of a total failure of high pressure injection (HPI) system.

1.2 Objectives

The objective of SB-CL-09 experiment is to clarify thermal-hydraulic phenomena especially for the core cooling conditions during the loop-seal clearing process of 10% cold leg break LOCA. Break orifice with 31.9 mm inner diameter (ID) is used to simulate 10% cold leg break. This report describes major experiment results with all the available experimental data and data analysis results including break flow rate, primary coolant mass inventory and details of core heat-up and quench behaviors.

2. Facility Description

2.1 System Components

The LSTF[1] simulates a Westinghouse-type 4-loop 3423 MWt PWR by a full-height and 1/48 volumetrically-scaled components in 2-loop system as shown in **Table 2-1** and **Figs.2-1** and **2-2**. **Figure 2-3** compares reactor vessel dimensions between the LSTF and reference PWR. The core height and the elevation of the hot leg top are the same as those of the reference PWR. The core bypass volume in the reference PWR is modeled in the downcomer (DC) volume in order to enlarge the DC gap in the LSTF PV. **Figure 2-4** shows internal configuration of the LSTF PV. The hot and cold legs with 207 mm ID are sized to conserve the volume scaling (2/48) and the ratio of the length to the square root of the diameter to simulate flow regime transitions in the horizontal legs.[22]

Figures 2-5 and **2-6** show the LSTF PR (4.2 m in inner height) and the surge line piping, respectively. This short-size PR vessel was used in the most of ROSA-IV program experiments.

The LSTF represents the reference PWR bypasses including eight upper head (UH) spray nozzles (3.4 mm ID, see Fig.5.2.6 in Ref.[1]) and the hot leg-to-DC leakage paths (see **Fig.2-7**). The spray nozzles allow bypass flow that amounts to about 0.3% of the total core flow rate during initial steady-state, while the hot leg-to-DC flow is set by the control valve in each line to allow about 0.2% bypass flow.

Figure 2-8 shows primary and secondary sides of both LSTF SG vessels. The height and inner diameter of 141 U-tubes in each SG are the same as those of the reference PWR. The regional volumes of SG primary and secondary sides simulate 2/48-scaled volumes of those in each PWR SG. The free volumes of inlet and outlet plena at both SGs are, however, significantly large compared with those of the scaled PWR SG plena volume due to removal of initially-designed plenum filler blocks[2] prior to the start of the integral LSTF experiment.

Detailed cross-sectional view of the simulated fuel rod assembly is shown in **Fig.2-9**. The LSTF core consists of 1064 heater rods (9.5 mm in outer diameter) assembled in 24 rod bundles, 104 tie rods simulating control rod guide thimbles in the core, 48 dummy rods in the peripheral region, and surrounding core barrel with 514 mm ID. There are sixteen bundles with 7x7 rod array and eight peripheral bundles in the core. **Figures 2-10** and **2-11** show the axial power distribution of high power rod and radial power distribution, respectively. There are three kinds of heater rod bundles with high, middle and low power densities noted as H, M and L in the horizontal heating zone, respectively. Eight high power bundles with numbers 13 through 20 have a radial peaking factor of 1.51, four middle power bundles in the central region have that of 1.00 and twelve low power bundles in the peripheral region have that of 0.66, respectively. Maximum LSTF electric core power is 10 MW which is 14% of the 1/48 scaled power of the reference PWR rated condition.

Figures 2-12 and **2-13** show structure of the accumulator injection system (AIS) tank and schematic view of each injection line, respectively. Two AIS tanks for ACC Cold (ACC) and ACC hot (ACH) have the same configuration of 0.95 m ID. Coolant flow from the ACC tank into cold leg A and that from the ACH tank into cold leg B are restricted by an orifice of 50.5 mm ID for ACC (OR4-1) and 26.0 mm ID for ACH (OR4-4), respectively. The LPI system injects cold water into two cold legs through the same injection points of the AIS.

Figure 2-14 shows the break unit (BU) attached to the horizontal N-7k nozzle (87.3 mm ID) at the middle part of cold leg B (see Figs.5.2.33 & 5.2.35 in Ref.[1]). The BU (1.958 m in length) consists of a Venturi flow meter with 64.53 mm ID (Fig.5.4.5 in Ref.[1]), spool piece with instruments including the three-beam gamma-ray densitometer, break orifice and air-operated break valve (AOV 300). An initial primary coolant volume in the horizontal BU line with connecting pipes (600 mm in total length between the cold leg B and BU) is 0.0147 m^3. Detail of the break orifice (31.9 mm ID) is shown in **Fig.2-15**.

2.2 Instrumentation

There are two types of data or measurement of interest; directly measured quantities and derived quantities (identified by symbol of RC). Directly measured quantities include temperature (ibid TE or TW), pressure (PE) and differential pressure (DP). Derived quantities result from the combination of two or more directly measured quantities, for example, coolant density (DE) and mass flow rate (FE).

Table 2-2 summarizes the number of directly measured quantities in various regions of the LSTF and major instrumentation locations are shown in **Figs.A.1** through **A.17** in Appendix A. The total number of instrument channels is 2354. Experimental data for this test were recorded using two data acquisition systems YEWCOM 7000 and FACOM 3300. The LSTF data sampling rate depends on the kind of measurement parameter. The sampling rates are generally 2 Hz for thermocouples, 10 Hz for conductance probes and 5 Hz for other instruments.

The experimental data (1842 channels in total) qualified as good and qualitative (*) which includes undetermined uncertainty or lack of calibration are listed in **Table A-1** of Appendix A. The experiment data which were not used in this experiment or showed malfunctions were excluded from **Table A-1**. The derived quantities (RC, 132 channels in total) are additionally listed in the measurement list of **Table A-1**. The derived data from RC 110 to RC 203 are newly added in this report by using the advanced data reduction methodology developed for the ROSA-V program.[23] The newly added RC data include average fluid densities, collapsed water levels derived from each DP measurement data, tank fluid masses for the AIS, ST and RWST with their mass changing rates (average mass flow rates), liquid levels in hot and cold legs derived from respective density data and saturation temperatures in primary and secondary systems.

3. Experimental Conditions and Data Qualification

3.1 Experimental Conditions

(1) Initial Conditions

Initial steady-state conditions achieved in the experiment were in reasonable agreement with the specified values as shown in **Table 3-1**. Initial steady-state conditions such as PR pressure, fluid temperatures in hot and cold legs were 15.5 MPa, 600 K and 565 K, respectively, according to the reference PWR conditions. As the LSTF initial core power of 10 MW was limited to 14% of the 1/48-scaled PWR rated core power (3423 MW), initial total core flow rate in the LSTF was controlled to approximately 14% of the 1/48-scaled PWR core flow rate in order to equalize their initial coolant enthalpy distribution across the core. An initial coolant mass in the primary system in the previous SB-CL-08 experiment was estimated as 6111 kg[24] and this value is applied to the SB-CL-09 experiment.

Initial SG secondary pressure was intended to raise up to 7.3 MPa to limit the primary-to-secondary heat transfer rate at 10 MW, while 6.1 MPa is a nominal value in the reference PWR. The secondary pressures were actually about 7.5 MPa. Initial secondary-side liquid levels were set above the top of U-tubes and the main feedwater flow rate was controlled to maintain stable secondary water level. A downcomer flow rate in **Table 3-1** is a sum of mass flow rates in four downcomer pipes for each SG. Initial main steam flow rate was 2.60 kg/s for both SGs and thus, a recirculation ratio that is a total downcomer flow rate divided by main steam flow rate was 6.3-6.4 for both SGs.

Initial pressure and coolant temperature of ACC and ACH tanks were 4.6 MPa and 322-323 K, respectively. Initial and final water levels for ACC and ACH tanks were determined as shown by specified levels in **Table 3-1** to simulate total injection coolant mass of 1.6815 m^3 from ACC to cold leg A and 0.5605 m^3 from ACH to cold leg B (ratio of 3:1), respectively. The measured tank water levels in **Table 3-1** are shown above a shifted zero level and their initial levels were actually set equal to each specified value. The coolant temperature of LPI system was 310 K.

Proportional heaters in the PR are used to trim the pressure, while backup heaters are used to mitigate system heat losses. The initial powers of the proportional and backup heaters were 6.6 and 21.6 kW, respectively. Many regions of the LSTF are equipped with trace heaters to mitigate environmental heat losses and the heater powers except for the AIS injection lines are tripped off immediately after the break initiation.

(2) Boundary Conditions and Control Logics

Table 3-2 shows the specified control logic, operation set-points and boundary conditions. The experiment is initiated by quickly opening the break valve (AOV 300) in the BU connected to the cold leg B at time zero. At the same time, rotation speed of each primary coolant pump is raised up to 1500 rpm for better simulation of the transient pump coast-down characteristics from the rated PWR pump speed after the scram signal. Scram and safety injection (SI) signals are generated when the PR pressure decreased to 12.97 MPa and 12.27 MPa, respectively.

The core power maintained at the initial value of 10 MW is changed by the scram signal into transient power curve (**Table 3-3**) which starts to decrease along the power decay simulation curve after 29 s from the scram signal. **Table 3-3** shows the pre-determined core power decay curve (JAERI power curve) after the scram based on calculations considering delayed neutron fission power and stored heat in PWR fuel rod[25].The core power was actually controlled as shown in **Fig.3-1** and started to decrease from 10 MW at 42 s after the break initiation. The core power was tripped off at 111 s in this experiment in order to protect heater rods from overheat above 923 K according to the power control logics shown in **Table 3-2**. The threshold temperature for the LSTF core protection and power controlling system is shown in **Table 3-2**.

The primary coolant pump speed is controlled to simulate PWR pump coast-down transient after the scram by the pump speed ratio to 1500 rpm (**Table 3-4**). The pump rotations in two loops were actually controlled as shown in **Fig.3-2** and their electric powers were tripped at 250 s after the scram signal.

Power supply to the proportional and base heaters in the PR was controlled as shown in **Fig.3-3**. The proportional heater was tripped off at 11 s. The base heaters were powered up at 4 s to compensate the pressure decrease and finally tripped off at 15 s.

Turbine trip and main feedwater valve closure concurrent with the scram are simulated in the experiment. Set-point pressures for opening and closure of the SG relief valves (RVs) are 8.03 and 7.82 MPa, respectively, referring to the corresponding values in the reference PWR. Flow area of the SG relief valve (RV) is simulated by using a 19.4 mm i.d. sharp-edged orifice. Set-point pressures for opening and closure of the SG safety valve (SV) are 8.68 and 7.69 MPa, respectively. Auxiliary feedwater (AFW) is assumed to be in failure.

As all the HPI system is assumed to be in failure, available ECCSs are AIS and LPI system. The ECCS injection ratio to the primary loops is set as 3 for the cold leg A assuming three intact primary loops and 1 for the cold leg B simulating a broken loop. The LPI system starts injection by both the SI signal with a time delay of 17 s and the low primary pressure less than 1.29 MPa.

The experiment was finished by closing the break valve. The data recording system was operated from 305 s prior to the break initiation and terminated at 1537 s after the break, covering all the experiment period including steady-state operation.

3.2 Data Qualification

After the data acquisition, some experimental data are calibrated. The high-range pressure data in the PR and upper plenum (UP) are corrected by the low-range pressure data with low uncertainty. The two-phase flow instruments such as gamma-ray densitometers use the conversion equations.[23] All the density data are calibrated at two points with different fluid conditions such as an initial liquid condition and a steam-filled condition during transient with known fluid density.

Collapsed water level derived from DP data is calibrated if it includes a zero shift at a clearly steam-filled condition. Actually, some collapsed water levels in SG U-tubes showed apparent zero shifts when water level disappeared at the end of experiment and they were corrected as follows. The collapsed water level at the inlet side of SG-A Tube-3 (RC 144) showed a constant zero shift of -0.25 m at 1100 s and it was corrected to be zero at 1100 s. Similarly, a level shift of -0.36 m at SG-A Tube-2 inlet side (RC 145) was corrected, that of -0.18 m at SG-B Tube-2 inlet side (RC 161) was corrected, that of +0.21 m at SG-B Tube-5 inlet side (RC 164) was corrected, that of +1.2 m at SG-B Tube-3 outlet side (RC 166) was corrected, respectively. The collapsed water level at the SG-B inlet riser region (RC159) showed a slight shift of -0.05 m at 1100 s and it was corrected. Other RC collapsed level data were estimated as good with lower zero-shifts than these corrected RC data.

4. Results of 10% Cold Leg Break Test, SB-CL-09

Thermal-hydraulic phenomena observed in the 10% cold leg break test with an assumption of total HPI failure are characterized by two processes; one is a blowdown process before the AIS start (0 - 195 s) and another one is a refill/reflooding process after the AIS start (195 s - Test end). The blowdown process described in Section 4.1 includes the loop-seal clearing phenomena, followed by core heat-up and core power trip-off to limit heater rod temperature rise. Major refill and reflooding processes described in Section 4.2 include the LPI injection and stored heat release from the pressure vessel wall between 194 and 500 s. Major events and procedures recorded in this test are shown in **Table 4-1**. This test was finished by closing the BU valve at 1042 s. Section 4.3 presents additional results of experimental data analyses with respect to the primary coolant mass inventory and heat-up and quench phenomena in the core.

4.1 Blowdown Process until Accumulator Injection (0 – 195 s)

4.1.1 Initial Transients under Limited Core Power (0 – 42 s)

As shown in Section 3.1, the electric core power in this test simulated 1/48-scaled PWR core decay power with the delayed neutron effects except for initial 29 s after the scram signal generation. Therefore, the initial transients shown below under this limited core power may be atypical to those in the reference PWR LOCA conditions.

(1) Pressure Responses

Figure 4-1 shows the primary and secondary pressures with the timing of major events in the initial 500 s after the break and **Fig.4-9** shows their earlier transients in the first 200 s. The primary pressure began to decrease rapidly when the break valve at cold leg (CL)-B opened at t = 0 s. The scram signal was generated when the primary pressure decreased to 12.97 MPa at 8 s. The SI signal was generated when the primary pressure decreased to 12.27 MPa at 11 s. The scram signal immediately caused the closure of SG main steam isolation valves (MSIVs) at 11 s and the start of primary coolant pumps (PCs) coast-down at 12 s. The SG secondary-side pressures rapidly increased up to about 8 MPa by heat transfer from the primary coolant system under the MSIV closure, and then the relief valve (RV) of both SGs opened at 29 s to regulate the secondary pressure within 8.03-7.82 MPa. The primary pressure was kept higher than the SG secondary pressures until 97 s.

(2) Discharged Primary Coolant Mass and Break Flow Rate

Figure 4-2 shows the primary coolant mass (RC191) discharged from the break at CL-B and break mass flow rate (RC194). These data include large fluctuation due to fluctuation of the ST tank level DP data in both the early blowdown phase and later phase after 300 s. The discharged coolant mass is used to estimate remaining primary coolant mass by using mass balance equation as shown in Section 4.3.1.

Figure 4-3 shows fluid densities measured by three-beam gamma-densitometer at the horizontal BU line. The three beam densities were nearly the same during the test period indicating rather homogeneous flows. **Figure 4-4** shows DP data between the inlet side and throat of the Venturi-type flow meter in the BU line, suggesting a monotonic decrease in the break flow rate during the initial 50 s similar to that shown in **Fig. 4-2**.

(3) Decreases of Primary Coolant Mass Inventory and Regional Collapsed Water Levels

The coolant mass discharge at the break resulted in the decrease in regional coolant masses in the primary system as shown by collapsed water levels in the core (RC139), upper plenum (RC140) and downcomer (RC142) in **Fig.4-5**. The collapsed water levels derived from each DP data in the pressure vessel include effects of pressure losses caused by the increased primary coolant flow rates during the first 40 s. During the first 60 s, water level was observed in the upper plenum and whole core was covered by mixture level which is also confirmed by no core heat-up (see **Fig.4-8**). The downcomer collapsed water level was maintained higher than 7.8 m in the first 60 s indicating the water level above the cold leg top (EL 5.6 m).

Water level in the PR and fluid density data measured by the single-beam gamma-ray densitometer at the vertical part of surge line (DE 281 in **Fig.2-6**) show transient coolant mass depletion from the PR and surge line (**Fig.4-16**). The PR water level showed sharp increase in a short time after the break probably due to immediate flashing caused by the start of fast depressurization and then rapidly decreased to zero in 20 s after the break. The surge line density data showed abrupt decrease at 22 s after the break indicating that a water level passed the vertical part immediately after the drainage of PR at 20 s. Then the steam inflow from the surge line to HL-A started at 24s.

Figures 4-6 and **4-7** show collapsed water levels in both inlet and outlet sides of No.2 SG-B U-tube, and both downflow and upflow regions of loop B loop-seal region, respectively. The effects of increased primary mass flow rates are also observed in these DP-level transients in the first 40 s. It is shown that the start of collapsed water level decrease was observed in both sides of SG-B U-tube in the first 40 s, while the loop B loop-seal region was filled with water. Similar level decreases were detected in the other instrumented U-tubes of SG-A and SG-B (see **Figs.4-21**, **4-22**, **4-24** and **4-25**).

Fluid density data measured by three-beam gamma-densitometers in the HL-A, HL-B, CL-A and CL-B indicate water level formation or no void in these horizontal legs in the first 40 s (see **Figs.4-17** through **4-20**). It is clear that void formation in HL-A was detected at 4 s after the break and that in HL-B at 8 s, respectively. Thereafter, phase separation and resulted liquid level was observed in the difference of density data among three beams in both hot legs. It should be noted that the beam C data in HL-B showed abnormally high value after 80 s due to failure of detector.

On the other hand, single-phase water flow was detected in both cold leg density data during the initial transients of 40 s. Water levels (RC196 & RC197) derived from the density data in HL-A and CL-A clearly show water level responses in the primary loop (see **Fig.4-26**).

(4) Core Cooling Conditions

Figure 4-8 shows representative heater rod surface temperatures at top (Pos.9) and bottom (Pos.1) of high power rod in Bundle 15 (4,4) and those at Pos.2 through Pos.8 of high power rod in Bundle 16 (4,4). It is shown here that all core region was cooled well under the increased primary loop flow rates (see **Fig.4-12**) and limited core power in the first 40 s.

(5) Transients in SG Secondary System

Typical pressure and water level in SG-B secondary system are shown in **Fig.4-9**. Mass flow rates in the main steam line, main feedwater line and RV line at SG-B are shown in **Fig.4-10**. The SG-B secondary system was isolated at 11 s by the scram signal and steam flow through the RV started at 29 s. Similar responses were also observed in the SG-A secondary system.

Slightly different fluid behavior was observed between the downcomer flows at two SGs in the first 50s (especially between 25 and 40s, see **Fig.4-11).** Four downcomer flow rates showed similar trends at each SG. The SG-B downcomer flow rates turned to decrease after 11s due to closure of the main steam line and also by decreased primary-to-secondary heat transfer under the decreased temperature difference across the SG-B U-tubes. After opening of the SG-B RV at 29s, the SG-B downcomer flows recovered. At 33s, the SG-B downcomer flow almost stopped. On the other hand, the SG-A downcomer flow rates were slightly higher than those of SG-B after 11s and showed no significant decreases at 33s. Additionally, fluid temperatures in the SG-A downcomer pipes slightly increased after 20s whereas those in the SG-B downcomer pipes were almost constant at the initial conditions.

Reasons of these different downcomer flows can be ascribed to different heat transfer conditions at two SGs related to inflow from the pressurizer (PR) to HL-A as shown below. The PR initial water mass of approximately 460 kg at saturation temperature, flowed into HL-A during the first 20s at an average mass flow rate of 23 kg/s which was about 45% of the maximum loop A flow rate at 14s (refer **Figs.4-16** & **4-12**). This PR water inflow slightly increased the loop A mass flow rate as shown in **Fig.4-12** during the first 20s. (Rather smaller difference between two loop flow rates suggests a lowered UP-to-HL-A flow rate by the PR inflow rate in comparison with the UP-to-HL-B flow rate). In addition, steam inflow from the PR surge line into HL-A started at 25s and could contribute to slightly increase the HL-A mass flow rate and its enthalpy compared with those in HL-B. The increased mass flow rate and fluid enthalpy at the SG-A inlet region could result in increased primary-to-secondary heat transfer and therefore result in larger steam uprising flow in the SG-A boiler region, larger SG-A downcomer flow rates and higher SG-A downcomer fluid temperatures in comparison with those in the SG-B secondary sides. The start of

RV steam discharge at 29s in two SGs contributed to recover the SG-B downcomer flow rate resulting in similar downcomer flow rates in two SGs after 40s.

(6) Fluid Temperature Responses in the Primary System

Figures 4-13 and **4-14** show fluid temperatures measured in the upper plenum and lower plenum compared with the primary saturation temperature (RC 200) which was derived from the upper plenum pressure (PE 10). All the fluid temperatures in the upper plenum reached saturation temperature at about 6 s after the break while those in the lower plenum were kept in subcooled conditions in the first 70 s under the forced circulation in the primary loops. The fluid temperatures in the upper plenum are representative of those in the hot primary regions covering the hot legs and SG inlet regions while those in the lower plenum are representative of the cold primary regions covering the SG outlet regions to cold legs.

Fluid temperature in the PR surge line shown in **Fig.4-15** was nearly saturated in the first 40 s while that in the spray line showed subcooled temperature indicating existence of condensed water in the steady state before the start of break.

(7) Large Pressure Differences across the Pressure Vessel after the Break

Pressure differences measured across the pressure vessel and primary loops present typical hydraulic conditions during the initial transient induced by the break flow at CL-B, change in forced primary loop circulation flows and void formation in the primary regions. **Figure 4-27** shows abrupt decrease of DP data (DP47) between the upper head (UH) and lower plenum after 15 s due to start of voiding in the top portion of UH which is connected to downcomer through narrow leak paths; spray nozzles. The flow paths through the control rod guide tubes (CRGTs) connect upper plenum (UP) to UH. Similar changes are detected in the DP data between the UH and UP (DP52 in **Fig.4-29**) and between the UH and downcomer (DP62 in **Fig.4-30**). **Figure 4-28** compares DP data in three regions of core, upper plenum and downcomer, which were used to estimate collapsed water levels in these regions (see **Fig.4-5**). The UH DP data (DP63, **Fig.4-30**) shows gradual water level decrease in the top region of UH.

Figure 4-31 shows DP data across the primary coolant pumps which depended on the transient pump speeds. **Figure 4-32** shows DP data between the upper plenum and downcomer across the core barrel. Two DP data in the inlet and outlet sides of representative U-tube (No.2) are compared in **Fig.4-33** for SG-A and **Fig.4-34** for SG-B, respectively.

4.1.2 Loop-seal Clearing Phenomena and Core Heat-up (42 – 111 s)

The core power started to decrease after 42 s simulating scaled PWR decay heat with delayed neutron effects. The loop-seal clearing phenomena and following core heat-up were observed in this time period as shown below.

(1) Gradual Depressurization under Coolant Mass Depletion in Primary System

The primary depressurization rate became lower than that in the previous period due to decreased heat removal at two SGs, decreased core power and increased steam generation regions in the primary system as shown in **Fig.4-9**. The primary depressurization was enhanced after steam discharge started from the break at 78 s (see **Fig.4-3**).

The collapsed water levels in both sides of U-tubes were estimated from DP data measured between EL 6.264 m in the SG inlet or outlet plenum and each U-tube top (see **Fig.A.11** in Appendix A). It should be noted that these DP measurement ranges include a common plenum height of 1.368 m and thus the U-tube water levels are observed in the range higher than 1.368 m. The collapsed water levels of U-tubes continuously decreased in both SGs, while some coolant accumulation appeared in a few U-tubes from about 40 to 100 s as shown in **Figs.4-21**, **4-22**, **4-24** and **4-25**, probably due to steam condensation in the U-tubes before the pressure crossover at 97 s. The U-tube levels in the inlet sides were higher than those in the outlet sides, and remained slightly even after the completion of coolant drainage from the outlet side at about 100 s.

The hot leg fluid density data showed continuous decrease of water mass (see **Figs.4-17** and **4-18**) while the cold leg fluid density data showed full water conditions until occurrence of the loop-seal clearing (see **Figs.4-19** and **4-20**).

(2) Loop-seal Clearing Phenomena

The steam generation in the core kept hot primary regions pressurized relative to cold leg with the break. The hot primary regions include UP and UH of PV, hot legs, SG plena and U-tubes. The degradation in primary-to-secondary heat transfer may have enhanced this system-wide pressure distribution. The relative pressurization of steam, thus increase in the steam volume, depressed water levels down into the cross-over leg downflow-side and into the core (see **Figs.4-5**, **4-7**, **4-23** and **4-28**) at 62 s, as the primary inventory decreased from the break. The loop-seal clearing (LSC) occurred in the broken loop at 74 s and the water level in the loop-seal upflow side (RC173) started to decrease as shown in **Fig.4-7**. The core water level decreased to the lowest elevation at 75 s. This LSC process completed at 80 s and the core water level recovered.

The cold leg top fluid density (Beam A) started to decrease at 67 s indicating water level formation. The three-beam fluid densities at the BU line showed abrupt decreases at 79 s.

It should be noted that the core water level did not fully recover irrespective of the end of LSC and stopped at the middle height with fluctuation from about 80 to 111 s as shown in **Fig.4-5**. This partial core level recovery may be attributed to the primary loop pressure balance affected by water remaining in the SG U-tube inlet side more than in the outlet side as shown in **Figs.4-21** and **4-22** for loop A and **4-24** and **4-25** for loop B, respectively.

(3) Core Heat-up Behavior

The core heat-up started by the core water level depression during the loop-seal clearing process and lower half region was quenched when the core water level recovered at 80 s as shown in **Figs.4-5** and **4-8**. **Figures 4-35** through **4-43** show fluid temperature distribution along vertical axis of several heater bundles with three different power levels (three high power bundles, two middle power bundles and four low power bundles). Distribution of heater rod surface temperatures in the same elevation is shown in **Figs.4-44** through **4-52** respectively for nine different elevations (from Position 9 (top) to 1 (bottom)). The observations are summarized as follows; (Further data analysis results on core heat-up behavior appear in Section 4.3.2)

A. Core heat-up started following the temporary water level depression during the loop-seal clearing process. The earliest temperature increase was detected at 67 s at the middle height (Pos.5) of high power bundles (B15 & B16). The lowest elevation of core heat-up was detected at Position 2 and the core bottom (Pos.1) was kept cooled. The core heat-up diminished in the lower half region after the loop-seal clearing because of the recovery of liquid level. Heat-up of the upper half core region continued temporarily as far as the water level was maintained at the middle core.
B. Significant distribution appeared in the fluid temperatures and heater rod surface temperatures during the core heat-up process. Measured temperatures in high power bundles below HL-A were far lower than those in the high power bundles below HL-B. Similar temperature distribution was observed among the peripheral bundles with low power level. The local low-temperature below the HL-A can be attributed to the fall-back of condensate in the SG-A into the core region, while the core heat-up below the HL-B indicates lack of fall-back condensate. Steam generated by the local core cooling and boiling under the water level can be mixed with super-heated steam in the core and rise up into UP. Such a three-dimensional core fluid behavior is suggested during the LSC process.
C. The upper plenum fluid temperatures in **Fig.4-13** showed slightly super-heated conditions at about 85 s indicating arrival of super-heated steam from the core top region.
D. The core electric power was tripped off at 111 s (see **Fig.3-1**) when the maximum heater rod temperature reached 923 K. No core power was supplied thereafter. The maximum heater rod surface temperature was 930 K at 112 s at Pos.6 of the high-power rod B16 (4,4).
E. The core water level rose up after the end of LSC in two steps; rapid level rise by the core power termination at 111 s and gradual level rise until 150 s, which was caused by the primary pressure balance as water mass in the SG inlet plenum depleted (see **Figs.4-21** & **4-24**). On the other hand, the downcomer water level decreased after the LSC to balance with the core water level. Final core quench was observed at 153 s (42 s after the core power trip) at the top of high power bundles (B15 & B16) before the AIS actuation at 195 s.

(4) No Core Heat-up Detection by Core Exit Thermocouples (CETs)

Figures 4-53 and **4-54** show fluid temperatures measured at the upper surface of upper core plate (UCP) which may show the performance of core exit thermocouples (CETs). **Figures 4-55**

and **4-56** show fluid temperatures measured at the lower surface of UCP. It is shown that no heat-up was detected by CETs during the core heat-up period (67-153 s) and most of the UCP lower surface temperatures remained saturated. Only few among 20 thermocouples at the lower surface of UCP detected super-heating at core central region above middle-power bundle of B23 and above high power bundles B15 & B10 at HL-B side.

The reasons of no core heat-up detection by the CETs can be mainly attributed to water fall-back onto the CETs from hot legs (mainly from the HL-A), and steam generation in the upper core as shown below. Actually, water level remained in the upper plenum until about 70 s (see RC140 in **Fig.4-5**). Water levels in SG-A U-tube inlet sides including inlet plenum water level (see **Fig.4-21**) gradually decreased but remained until about 150s and water level in HL-A higher than 3 cm was formed in a period of 70-170 s (see **Fig.4-26**). These suggest that water hold-up in the SG-A inlet side and HL-A may have been a source of fall-back water onto UCP during the core heat-up period. The fall-back water influenced the local core cooling behavior such that upper half of some heater rods at the HL-A side remained saturated during a period when the water level was located at the middle of core, suggesting steam generated in the core may have enhanced CCFL at the inlet of UCP flow holes.

4.1.3 Later Blowdown Process after Core Power Trip (111 – 195 s)

(1) Further Primary Depressurization under Higher SG Secondary Pressures

Prior to the core power termination, steam discharge started at the break at 78s, making the primary depressurization accelerated as shown in **Fig.4-9**. The primary pressure crossed the SG secondary pressures at 97 s and thereafter it further decreased. Thus, the SG secondary sides became heat sources to the primary fluid and the SG pressure regulation by RV cyclic operation was terminated. The core power termination at 111 s promoted the primary depressurization. The blowdown process continued until the start of AIS at 4.5 MPa (195 s).

The steam discharge through the break (see BU fluid densities in **Fig.4-3**) decreased the primary coolant mass decrease rate (RC191) as shown in **Fig.4-2**. The core was finally quenched during this process at 153 s. The primary coolant pump operation continued until 263 s as shown in **Fig.3-2** under two-phase and steam flow conditions.

(2) Void Fraction in Core, Lower Plenum and Lower Downcomer

Figure 4-5 showed that the core collapsed water level was kept constant at the core middle height in a time period from the final core quench (153 s) to the AIS start (195 s). On the other hand, the UP collapsed water level increased after 155 s while the downcomer collapsed water level continued to decrease until the AIS start time. These fluid conditions are examined below with respect to an average void fraction under each mixture level.

Tables 4-2 (1) through **(3)** show each collapsed water level and average void fraction in the lower plenum (LP), core and lower downcomer (LDC), which were estimated from each DP data during the later blowdown phase (110 – 200 s). It is shown here that the LP void fraction increased from 0.0 to about 0.2 during the time period, the LDC void fraction was higher than that in LP and the core void fraction after completion of core quench was the highest ($\alpha_C \geqq 0.44$) among three regions. The reason of higher LDC void fraction than that in LP can be attributed to void inflow from the LP to the LDC region in addition to steam generation by boiling and metal stored heat release in the LDC region. The reason of the highest core void fraction may be ascribable to accumulation of uprising steam under counter-current flow conditions in addition to steam generation in the core region.

(3) Estimation of Mixture Level in Upper Downcomer

Table 4-2 (4) shows the upper downcomer (UDC) mixture level estimated from DP data (DP58) by assuming the same void fraction as in the LDC. It is shown here that the UDC mixture level was maintained almost constant at or slightly lower than the cold leg bottom elevation (EL 5.399 m) during the blowdown phase (110 – 200 s). If the UDC void fraction were higher than the LDC void fraction, the UDC mixture level could be higher than these results. The estimated UDC mixture level is consistent to almost diminished CL-A water level (see **Fig.4-26**) and small amount of water remained in CL-B (see Beam C density data in **Fig.4-20**). These UDC mixture level and LDC void fraction suggest continuous two-phase fluid discharge from the downcomer to the break during the later blowdown phase irrespective of the significantly lower collapsed water level in all downcomer region (EL -1.8～6.799 m; RC 142 in **Fig.4-5**).

4.2 Refill Process after Accumulator Injection Started (195 s – Test End)

The primary depressurization continued during the refill process as shown in **Fig.4-1** and the primary regions were filled up by cold water injection both from the AIS tanks and LPI pump operation as shown below.

(1) AIS Injection Flow Rates at Two Cold Legs

The accumulator injection system (AIS) started to inject water into two cold legs at 195 s when the primary pressure decreased to about 4.5 MPa. A ratio of AIS injection flow rates (RC192 & RC193) between CL-A and CL-B was about 3:1 as shown in **Fig.4-57**. These AIS flow rates which were derived from water mass decreasing rate at each AIS tank gradually increased as the pressure differences increased between the primary system (see PE 10 in **Fig.4-57**) and each AIS tank (see **Figs.4-58** & **4-59**). The AIS injection was terminated at 315 s in the CL-B (ACH) and at 334 s in the CL-A (ACC), respectively by closing a valve in each injection line. The end time of each AIS injection flow shown in **Fig.4-57**, however, is slightly later than each valve closure time because of time average data at each time.

(2) Increases of Primary Loop Flow Rates and Break Flow Rate

The primary loop mass flow rates (FE 2 & FE 5 in **Fig.4-12**) look increased during periods both after the LSC and AIS injection start. These flow data, however, are incorrect because two-phase flow or steam flow went through the loop-seal upflow side during these periods. The flow rate increase during AIS injection period can be attributed to the increased flow rate of steam toward cold legs in which significant steam condensation occurred on cold AIS water.

Both of the break flow rate (**Fig.4-2)** and fluid density at the BU line (**Fig.4-3)** increased after the AIS actuation indicating that a part of AIS water flowed out from the break. The fluid density rapidly turned to steam density immediately after the termination of AIS injection. The break line fluid density increased again at about 370 s due to arrival of the LPI water.

(3) Recovery of Water Levels in Primary System

The collapsed water levels in the downcomer, core and UP after the AIS actuation are shown in **Fig.4-5**. The downcomer collapsed water level (RC142) gradually increased showing large fluctuations after the AIS start at 195 s. These fluctuation can be resulted mostly from steam condensation in the cold legs. The collapsed water level in the core (RC139), however, rather decreased after the AIS start suggesting transport of coolant mass from the core to downcomer due to condensation depressurization at the cold legs. In addition, the UP collapsed water level (RC140) increased after the AIS start. As the HL-A water level was lower than 0.02 m at the time of AIS start, the increase of UP water mass can not be a result of mass inflow from HL-A but may suggest coolant mass extraction from the core as the same result of rapid condensation depressurization in two cold legs.

The AIS injection flow rates gradually increased as shown in **Fig.4-57** and the LPI actuation at 303 s also contributed to fill up the primary coolant system (refer primary coolant mass recovery shown in Section 4.3.1). The loop-seal in loop A was formed again after about 430 s while that in loop B was kept empty till the end of test.

(4) LPI Injection Flow Rates

Figure 4-60 shows LPI injection flow rates measured by each nozzle-type flow meter at each ECCS injection line. The LPI injection started at 303 s by quickly opening each air-operated valve in each injection line to CL-A or CL-B. The LPI injection flow rate ratio to CL-A and CL-B was planned to 3:1 by using orifices in the injection lines. The actual LPI flow rates to cold legs, however, were different from the plan as shown in this figure. The LPI flow to CL-B rapidly decreased at 332 s and on the contrary, that to CL-A rapidly increased. In addition, these flow data apparently include zero shifts (-0.44 kg/s for FE 49 to CL-A and -1.26 kg/s for FE 50 to CL-B) in a time period prior to the injection start. Therefore, the meaning of these flow data, reasons of rapid change observed in two LPI flow rates and correct total LPI injection flow rate estimated from

RWST tank water level decrease rate are studied as shown below.

Figure 4-61 shows the RWST tank water level (LE 17) during the LPI injection period and the primary pressure in the UP (PE 10). The UP pressure was 1.27 MPa at the start of LPI actuation at 303 s. The LE 17 data decreased almost constantly with an average level decreasing rate of -3.76×10^{-4} [m/s] between 310 and 500 s. A total LPI flow rate (RC195) was estimated as shown in **Fig.4-62** by using the RWST tank mass decreasing rate, and an average value of W=3.93 kg/s which was determined by the average level decreasing rate, RWST tank flow area (10.464 m^2) and the tank water density, agreed well with the RC195 data. Thus, an average value of total LPI flow rate to two cold legs is determined as W=3.93 kg/s between 310 and 500 s.

Next, the meaning of each LPI flow rate after 332 s is checked below. An average value of LPI flow rate to CL-A (FE 49) in a period between 332 and 500 s gives a value of 3.22 kg/s by simply adding the zero shift to the mean value of FE 49 while an average value of that to CL-B similarly gives a value of 0.26 kg/s indicating a total of 3.48 kg/s which is 0.45 kg/s lower than the average value of total LPI flow rate. Thus, a part of this value of 0.45 kg/s should be added to FE 49 and FE 50. If this is added to only FE 50, the flow rate ratio of FE 49 and added FE 50 becomes 3.22 : 0.71 = 4.5 : 1. On the contrary, if that is added only to FE 49, the ratio of added FE 49 and FE 50 becomes 3.67 : 0.26 = 14.1 : 1. Therefore, it can be concluded that the LPI flow rate to CL-A can be larger than three times of that to CL-B in a time period after 332 s and correct flow distribution ratio between CL-A and CL-B is still uncertain.

Lastly, the reason of abrupt flow change at 332 s between the CL-A and CL-B is shown below. As these LPI flows were pumped by a single pump (PL), actual flows were dependent on both each friction loss along the injection line and the local pressure condition at CL-A and CL-B. Immediately after the AIS termination at 315 s, the CL-B water-filled condition beame steam-filled conditions (similar changes are observed in the break line fluid density data, **Fig.4-3**) and the LPI water injection could cause steam condensation in CL-B. On the other hand, the CL-A was still filled with water until the AIS termination at 334 s. Thus, the pressure in CL-B became lower than that in CL-A resulting in larger CL-B LPI flow and less CL-A LPI flow than their planned flows until 334 s. On the other hand, more strong steam condensation by larger LPI flow could occur in the CL-A immediately after the AIS termination at 334 s resulting in change of flow distribution between the CL-B and CL-A. Therefore, the abrupt LPI flow change occurred between two cold legs depending on their local pressure conditions which were influenced by different termination times of AIS injection and start of LPI actuation between two cold legs.

(5) Slight Pressure Recovery after LPI Actuation

It is also shown in **Fig.4-61** that the primary pressure gradually increased between 380 and 450 s under the conditions of no core power and continuing coolant discharge from the break. This pressure increase can be attributed to stored heat release from the metal structures especially from the thick metal parts of PV walls. The metal inner surface temperatures measured at various locations of PV walls, primary loop piping and SG plenum walls are shown in **Figs.4-63** through **4-71**. The following are shown in these metal temperature data.

The PV walls below the cold leg nozzle level (especially wall at EL 3.6m) showed subcooled temperatures when the AIS injection flow rates increased. On the other hand, upper PV wall temperatures at EL 6.0m showed fluctuation between saturated temperature and super-heated temperatures in a period between 220 and 420s indicating repeated dryout of PV wall above decreased water level and repeated rewet under rose-up water level. The PV wall temperatures in the UH region (EL 8.0m) were almost kept in super-heated conditions during the test period except for a short period between 300 and 400s in which the hot PV wall was temporarily cooled. The primary loop wall temperatures showed rather complicated transients including significant subcooling at the CL-A PV side during the AIS and LPI actuation periods, change from super-heated temperature to saturated temperature at the CL-A pump side, similar but limited temperature changes in the CL-B and change from saturated temperature to super-heated temperatures in both hot legs. It is shown in these temperature transients that stored heat release from these walls continued in the refill process with some intermittent way.

Figures 4-72 and **4-73** show inner wall metal temperatures of the SG vessel secondary sides compared with the saturation temperatures at two SGs (RC202 and RC203). A temperature distribution was observed between the upper region at almost saturation conditions and lower region at subcooled conditions at two SGs during all test period.

4.3 Experiment Data Analysis on Typical Phenomena

Data analysis were made in this Section on the primary coolant mass transient in relation to the loop-seal clearing (LSC), core dryout and primary loop water level transients, and on the three-dimensional fluid behavior related to the fall-back water during the LSC and remained core heat-up/quench period after the LSC.

4.3.1 Break Flow and Primary Coolant Mass Inventory

(1) Mass Balance Equation for Primary Coolant System

A total coolant mass (M_R [kg]) remained in the primary system was estimated for the initial 300 s by a following mass balance equation among the initial total coolant mass (M_O), discharged coolant mass into ST tank (M_D) and injected coolant mass (M_I) from AIS tanks.

$$M_R = M_O - M_D + M_I \qquad (1)$$

The initial primary coolant mass estimated as M_O = 6111 kg[24] for SB-CL-08: the previous test with 5% cold leg break, was applied to this test because of similar initial test conditions and the same facility configuration. The discharged mass of M_D is given by the estimated data of RC191. The amount of injected water mass is given by a sum of AIS injected mass (difference from the initial water mass for each AIS tank by using the data of RC189 and RC190).

(2) Primary Coolant Mass Inventory

Table 4-3 show the results of primary mass balance during initial 300 s after the break including the primary coolant mass of M_R and its ratio of M_R/M_O. **Figure 4-74** shows transient of the primary coolant mass related to the major events. The following are derived.

The first core heat-up started at 67 s at the middle core height (Pos.5) of high power bundles at M_R/M_O = 0.445 when the coolant mass partly remained in most of the primary regions including upper plenum, core, hot legs, SG inlet and outlet plenum, SG U-tube inlet and outlet sides, loop-seals, cold legs, downcomer, lower plenum and UH of PV. At the times of core power trip (111 s) and final core quench (153 s), the mass inventory ratios were M_R/M_O = 0.320 and 0.274, respectively.

The lowest primary inventory ratio (M_R/M_O = 0.233) was observed when the AIS started at 195 s. Thereafter, the primary coolant mass gradually recovered to M_R/M_O = 0.387 at 300 s (just before the LPI actuation). Therefore, an amount of net primary mass increase of $\Delta M/M_O$ = 0.154 during the refill process (195 – 300 s) is equivalent to only 39% of the total AIS water mass of 2419 kg (M_I/M_O = 0.396). This means that about 60% of the injected AIS water mass flowed out through the break in this period.

(3) Primary Water Level Transients Related to Coolant Mass Inventory

The water level transients is related to the transient coolant mass inventory as shown below.

The pressurizer water level diminished within 20 s after the break initiation while the primary coolant mass decreased to 78.9% of M_O. The LSC process started at 62 s when the mass inventory ratio was M_R/M_O = 0.467, which was detected by the water level decrease at the SG outlet region, and ended at about 80 s when the inventory ratio was M_R/M_O = 0.395.

The upper plenum (UP) collapsed water level (see **Fig.4-5**) started to decrease at 5 s after the break, reached the hot leg elevation at 15 s, further decreased below the hot leg elevation at 20 s and reached the UP bottom at 70 s. These timings of UP level decrease below the hot leg elevation and arrival at UP bottom correspond to the primary mass inventory ratio of M_R/M_O = 0.789 and 0.432, respectively. It is interesting to note that the first core heat-up detected by heater rod thermocouples was at 67 s; slightly earlier than the UP water level arrival at the bottom.

(4) Primary Pressure – Mass Inventory Map

Figure 4-75 shows a map of the primary coolant mass inventory ratio (M_R/M_O) in terms of the primary pressure (PE10) during 300 s after the break in 10% cold leg break LOCA experiment. The core heat-up start during the LSC process is shown in this figure by M_R/M_O = 0.445 and the primary pressure at 8.7 MPa. On the other hand, similar map was generated for a 0.5% cold leg break LOCA test (SB-CL-24[7]) in which temporary core heat-up was observed repeatedly in three

LSC processes (at the primary inventory ratio of M_R/M_O = 0.33) and significant core heat-up started during boil-off process (at M_R/M_O = 0.27). This comparison indicates that the LSC process in 10% cold leg break LOCA test started at significantly higher mass inventory conditions than that in 0.5% cold leg break LOCA test. The boil-off core heat-up start (at M_R/M_O = 0.27) in the 0.5% cold leg break LOCA test is similar to those in two 0.5% PV bottom break LOCA test of SB-PV-03[14] (at M_R/M_O = 0.26) and SB-PV-01[6] (at M_R/M_O = 0.25). It should be noted that these boil-off core heat-up conditions in three 0.5% LOCA tests are similar irrespective of their slightly different facility conditions; SB-PV-01 test with the first core assembly in the early ROSA-IV program (in Dec. 1986), SB-CL-24 test with the second core assembly (in March 1990) and SB-PV-03 test with the fourth core assembly in the ROSA-V program (in Nov. 2002).

It can be concluded that the primary mass inventory ratio related to the core heat-up start in 10% cold leg break experiment is significantly higher than those during boil-off process in 0.5% SBLOCA experiments as a result of larger coolant masses remaining in the primary loops during blowdown.

4.3.2 Heat-up and Quench Behavior in All Core Region

Both axial and horizontal behaviors of core heat-up and quench were investigated by using temperature measurement data as shown below.

(1) Axial Distribution of Heat-up and Quench in Bundles below HL-A and HL-B

Figure 4-76 compares the heat-up and quench propagation behavior along heater rods in different bundles with high- and low-power. The earliest heat-up was measured at 67 s during the LSC process at the middle height with maximum axial power density of high-power rods in B15 and B16 bundles located below HL-B. The temperature excursion portion extended both upward and downward covering most of the rods within 4 s, while the bottom of core (Pos.1) remained unheated. Similar heat-up behavior was observed for high-power rods in bundle B20 located below HL-A, but with a slight time delay from those in B15 and B16, probably because of water fall-back from the HL-A.

The heat-up of low-power rods occurred later than those of high-power rods generally irrespective of HL-A and -B sides. The low-power rod heat-up in HL-B side (B10), however, was significantly later in the upper core region and rather earlier in the lower core region than those of B07. This different heat-up behaviors between two low-power bundles may suggest different distribution of fall-back water between two peripheral bundles.

All the heater rods were quenched simultaneously in the lower half core (from Pos.2 to Pos.5) by the water level recovery after the LSC, while the core quench in the upper half core was significantly later than the timing of LSC. The low-power rods (B07 & B10) in the upper half core were quenched earlier than high-power rods and the final core quench was observed at the top of high-power rod of B20 at 153 s.

It is concluded that the heat-up and quench behavior of heater rods depend basically on the core water level transients but under strong influences of fall-back water from hot leg, which resulted wide variety in the behavior especially in the peripheral bundles of slender LSTF core.

(2) Horizontal Distribution of Local Cooling in the Core

Figures 4-77 and **4-78** show horizontal distribution of rod heat-up and quench at two timings of 75 s (just after the LSC) and 110 s (just before the core power trip), respectively. The colored circles are 53 heater rods with surface temperature measurements while white circles are non-instrumented heater rods (1011 rods) in addition to 104 tie rods (gray circles) and 48 dummy rods (black circles). All these heater rods and tie rods are arranged in 24 bundles (B01 through B24) with three different radial power distribution as shown in the figure. The red-, orange- and blue-colored circles respectively mean a heater rod with all heated, one of partly-quenched and one with completely-quenched, above the quench fronts for high-power rods in **Fig.4-76**.

At the time of LSC, completely-quenched heater rods were observed in two high-power bundles (B19 & B20), two middle-power bundles (B21 & B24) and seven low-power bundles (B01, B02, B03, B06, B07, B08, B09); total 17 rods that are 32% of all instrumented heater rods. These heater rods should have been cooled by the fall-back water, considering that the major core-quench mechanism is bottom-up flooding after the LSC. The partly-quenched heater rods were observed in two high power bundles (B18 & B20), one middle-power bundle (B24) and six low-power bundles (B02, B03, B06, B10, B11 & B12); 15 rods that are 28% of all, ibid. On the other hand, the completely heated heater rods were observed in five high-power bundles (B13, B14, B15, B16 & B17), two middle-power bundles (B22 & B23) and four low-power bundles (B03, B04, B05 & B11); 21 rods that are 40% of all, ibid. Although a ratio of instrumented heater rods is only 5% of all heater rods (1064 in total), it is shown from these results that the effects of fall-back water on heater rod cooling clearly appear in a half region of core; HL-A side, suggesting larger influences of fall-back water from HL-A rather than those from HL-B because two-phase flow in HL-B toward the CL-B break through the SG-B U-tubes may be dominant during the blowdown phase and a reverse flow to the UP may be less than that in HL-A. There was no quenched heater rods observed in a quarter upper half region between 35 degree and 125 degree in **Fig.4-77**.

At the time of 110 s in **Fig.4-78**, most of the instrumented heater rods were completely heated-up especially in high- and middle-power bundles; 39 rods that are 74% of all, ibid. The completely-quenched heater rods, however, were observed only in five peripheral bundles (B01, B02, B05, B06 & B08); 6 rods that are 11% of all, ibid. There was no cooled heater rod in low-power bundles of B09, B10, B11 and B12, which are located inside of these five peripheral bundles. The partly-quenched heater rods were observed in one high-power bundle (B19) located in the HL-A side and three peripheral bundles (B02, B03 & B07); 8 rods that are 15% of all, ibid. These results indicate that most of the upper half core was highly heated up at this time except for local cooling of heater rods which were observed mainly in the peripheral region. This suggests that smaller amount of the fall-back water continued even after the completion of LSC especially in the peripheral core.

(3) Radial Temperature Distribution of Heater Rods at Nine Elevations

The spatial distribution of heat-up and quench portions in the core (shown in **Figs.4-77** and **4-78**) is quantitatively analyzed in terms of heater rod temperature rise above saturation temperature ($\Delta T = TW - T_{SAT}$ [K]) with respect to (a) horizontal rod location between two hot legs and (b) three radial power levels as shown below. **Tables 4-4** and **4-5** show amount of temperature rise of all instrumented heater rods at two timings of 75 s at LSC and 110 s (just before the core power trip), respectively. The horizontal location of each instrumented heater rod is defined on a one-dimensional line between HL-A and HL-B and its relative location (Rel. Loc) is shown in the Tables between -1.0 at the core peripheral location just under the HL-A center line and 1.0 at that just under the HL-B center line. An average temperature rise is estimated in the same power level bundles at the same vertical elevation.

These data are shown in **Figs.7-79 (1)** through **(8)** for eight elevations (from Pos.9 to Pos.2) of three power density bundles at the time of LSC. Similarly, **Figs.4-80 (1)** through **(4)** show the data at four elevations from Pos.9 to Pos.6 at 110 s. An average temperature rise is shown in each figure in addition to an inclination of temperature rises between two hot legs. The following are derived from these results.

The temperature rise of heater rods at the LSC showed clear dependence on horizontal location between two hot legs; lower rises in the HL-A side and higher rises in the HL-B side. The temperature rises were also dependent on the local power density based on the axial and radial power distribution. The maximum heat-up at 75 s was observed at the middle core height at Pos.5 of high-power rod B14(4,4) as ΔT = 114.01 K. No heat-up was observed more at the rods in low-power bundles rather than those in high-power bundles.

The temperature rises at 110 s shown in **Fig.4-80** were significantly higher than those at the LSC and the maximum heat-up of ΔT = 358.92 K was observed at Pos.6 of high-power rod B16(4,4). The temperature rises were slightly dependent on the horizontal location between two hot legs indicating earlier start of heat-up in HL-B side than in HL-A side as those in the LSC time.

Consequently, heater rod temperature rises at two timings may indicate three-dimensional distribution of core cooling conditions during the LSC process (62-80 s) and the following heat-up period (80-153 s). It should be noted that the LSTF core diameter of 0.514 m is significantly scaled to that of 4-loop PWR with core diameter of 3.759 m and the height between the hot leg bottom and top of the upper core plate (UCP) is 1.3551 m for LSTF while that is 0.8255 m in the reference PWR. This atypicality of LSTF upper plenum configuration should be taken into account to estimate fall-back water effects on local core cooling conditions in the reference PWR.

5. Conclusions

A 10% cold leg break LOCA simulation experiment of SB-CL-09 (SC9) was conducted at the LSTF of ROSA-IV Program with an assumption of total HPI failure. The data obtained in the present experiment are good for the assessment of predictability of computer codes and models for the system integral analyses. Major observations in SC9 experiment are summarized as follows.

1. The relatively large break size resulted in a fast primary depressurization and early pressure crossover with SG secondary pressure within two minutes than in the other LSTF cold leg SBLOCA experiments. The accumulator injection system (AIS) and low-pressure injection (LPI) system started at 195 s and 303 s, respectively.

2. Loop-seal clearing (LSC) process started at about one minute after the break in both loops, caused significant core water level depression to almost the bottom of core at 75 s and finished at 80 s with the water level recovered only to the core middle height. A primary coolant mass inventory at the end of LSC was about 40% of the initial inventory. The incomplete core water level recovery is resulted from water head due to more water level in the U-tube inlet-side than in the outlet-side.

3. Core heat-up started during the LSC process especially in the broken-loop (loop-B) hot-leg side. The core heat-up in the intact-loop (loop-A) side was limited due to fall-back water from the hot leg. The core heat-up continued in the upper half of the core after the end of LSC until the electric core power was tripped off at 111 s to limit the maximum heater rod temperature at 923 K. The maximum heater rod temperature was observed at Position 6 around middle elevation in loop-B hot leg side. Rather three-dimensional core heat-up and quench behavior was observed in the LSTF core during blowdown phase before the AIS actuation.

4. All the core exit thermocouples (CETs) detected no super-heat temperature during the core heat-up mainly due to the water fall-back from the hot legs. The influences of fall-back water on CET performance as well as the core heat-up and quench behavior (distribution) in a PWR core should be carefully analyzed with respect to their different configuration including the core diameter and upper plenum height.

Acknowledgment

The authors are grateful to all ROSA members for their contribution to conduct Test SB-CL-09 and to Ms. K.TOYODA of IT-TEC Inc. for her contribution to experimental data processing.

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Table 2-1 Major design characteristics of LSTF compared with four-loop PWR

Item	(Unit)	LSTF*1	PWR	Ratio
Rated Condition				
Pressure	(MPa)	16	16	1 / 1
Hot Leg Temperature	(K)	598	598	1 / 1
Primary Fluid Volume (V)*2	(m^3)	8.0	354	1 / 44
Core Thermal Design				
Number of Fuel Rods		1064	50952	1 / 48
Thermal Core Power (P)	(MW)	10	3423	1 / 342
(P/V)	(MW/m^3)	1.25	9.67	1 / 7.7
Core Inlet Flow Rate	(kg/s)	48.8	16700	1 / 342
Core Height	(m)	3.66	3.66	1 / 1
Core Flow Area	(m^2)	0.1134	4.75	1 / 42
Downcomer Gap	(m)	0.053	0.260	1 / 4.9
Primary Loop Design				
Number of Primary Loops		2	4	1 / 2
Hot Leg Diameter (D)	(m)	0.207	0.737	1 / 3.6
Hot Leg Length (L)	(m)	3.69	6.99	1 / 1.9
($L/\sqrt{D}$)	($m^{1/2}$)	8.15	8.15	1 / 1
$\pi D^2L/4$	(m^3)	0.124	2.98	1 / 24
Hot Leg Top Elevation*3	(m)	EL 5.606	EL 5.606	1 / 1
Loopseal Bottom Elevation*3	(m)	EL 1.701	EL 1.7	1 / 1
Pressurizer Design				
Pressurizer Fluid Volume	(m^3)	1.147	51	1 / 44
Pressurizer Height	(m)	4.2	15.5	1 / 3.7
Steam Generator Design				
Number of SGs		2	4	1 / 2
One SG Vessel Fluid Volume	(m^3)	7.0	163.1	1 / 23
Number of U-tubes per One SG		141	3382	1 / 24
U-tube Inner Diameter	(mm)	19.6	19.6	1 / 1
Average U-tube Length	(m)	20.2	20.2	1 / 1

*1 Large-scale Test Facility (LSTF) with the first core assembly.
*2 Active dead volumes in connected pipes (Ref.[2]) are not included .
*3 Elevation above the core bottom (EL 0.0 m).

Table 2-2 Summary of measurement types and locations

Instrument/Measurement	Symbol	Pressure Vessel	Primary System	Steam Generators	Pressurizer	Secondary System	Suppression Tank and Break Units	Total
Fluid Temperature	TE	310	37	22	23	12	26	430
Wall Temperature (All)	TW_A & TW_B	1003	25	198	10			1236
Conductivity	CE	1						1
Conduction Probe	CP	112			10		1	123
Conduction Probe with TC	CPT		50	212			15	277
Optical Liquid Level Detector	OP		10					10
Flow Rate	F		6	8	5	10	8	37
Reflux Flow Meter	RF		2					2
Cross-Correlation Velocimeter	CF		2					2
Pitot-Tube Velocimeter	PIT		2				2	4
Liquid Level	L	1		8	1	1	4	15
Pressure	P	3	12	2	8	4	14	43
Differential Pressure	DP	14	59	22	3		12	110
1 Beam Densitometer	GD_1		3		3			6
3 Beam Densitometer	GD_3		6				3	9
Drag Disk Flow Meter	DD		22		6		6	34
Drag Disk Turbine Flow Meter	DTT	4						4
Video Probe	VP		4					4
Rotation Speed	RE		2					2
Pump Oscillation	VE		2					2
Pump Torque	TQ		2					2
Total		1448	246	472	69	27	91	2354

Table 3-1 Initial conditions in experiment SB-CL-09

Region and Items (Unit)	Specified	Measured (Accuracy*1)
Pressure vessel:		
Core power (MI 17) (MW)	10.0	10.0 (± 0.07)
UH temperature (Mid.-Bot./Top) (K)		594.0 / 598.0 (± 4.31)
Lower plenum Temperature (K)		565.5 (± 4.31)
Primary loops (A-Loop / B-Loop):		
Hot leg temperature (K)	598.1	600.6 / 600.3 (± 3.31)
Cold leg temperature (K)	562.4	565.5 / 564.9 (± 3.31)
Mass flow rate (kg/s/loop)	24.3	26.3 / 25.7 (± 1.01)
Downcomer-to-HL byp. flow (kg/s/loop)	0.049	0.049*2
Pressurizer:		
Pressure (PE 13) (MPa)	15.52	15.45 (± 0.064)
Water level above bottom*3 (m)	2.7	2.67 (± 0.016)
Steam generators (A-Loop / B-Loop):		
Pressure (MPa)	7.30	7.45 / 7.48 (± 0.032)
Water level (m)	10.3	10.7 / 10.6 (± 0.054)
Main feedwater flow rate (kg/s)	2.74	2.60 / 2.95 (± 0.065)
Total downcomer flow rate*4 (kg/s)		16.6 / 16.4 (± 0.227)
Main feedwater temperature (K)	495	495.2 / 495.2 (± 3.11)
Accumulators (ACC to CLA / ACH to CLB)		
Initial pressure (MPa)	4.51 / 4.51	4.6 / 4.6 (± 0.032)
Water temperature (K)	320 / 320	322.9 / 322.1 (± 2.3/2.7)
Initial water level*4 (m)	5.76 / 6.43	2.79 / 3.23 (±0.02/0.02)
Final water level*4 (m)	3.38 / 5.64	0.21 / 2.36 (±0.02/0.02)
Low pressure injection system:		
Water temperature (K)	310	310.1 (± 1.90)
Pressurizer heater Power		
Proportional heater power (kW)		6.6 (± 0.15)
Base heater power (kW)		21.6 (± 2.25)

*1 See measurement list in Appendix-A

*2 The downcomer-to-HL leak simulation flow in each loop is controlled by the flow control valve (HCV010 or HCV150).

*3 Bottom of the pressurizer level meter at DL 0.095 m.

*4 Specified water level is presented above bottom of level meter (DL 200mm) while measured water levels are shown above shifted levels (DL 3170 mm for ACC and DL 3400 mm for ACH, respectively).

Table 3-2 Control logic for experiment SB-CL-09

Event	Cause	Delay Time
Break signal	Time = 0.0 s	
Pressurizer heater power off	L_{PZR} < 1.0 m	
Scram signal	P_{PZR} ≦ 12.97 MPa	
SI signal	P_{PZR} ≦ 12.27 MPa	
Core power tripped to decay curve	Scram signal	
Core power limitation to prevent heater rod overheat	75 % for Rod Temp. ≧ 908 K 50 % for Rod Temp. ≧ 918 K 25 % for Rod Temp. ≧ 919 K 10 % for Rod Temp. ≧ 920 K 0 % for Rod Temp. ≧ 923 K	
Primary pumps speed-up (1500 rpm) Primary pumps decay start Primary pumps stopped	Break signal Scram signal Pump decay start	 250 s
Turbine trip	Scram signal	
Main feedwater valve closure	Scram signal	
SG-RV setpoint to open SG-RV setpoint to close RV orifice ID SG-SV setpoint to open SG-SV setpoint to close	P_{SG} ≧ 8.03 MPa P_{SG} ≦ 7.82 MPa 19.4 mm P_{SG} ≧ 8.68 MPa P_{SG} ≦ 7.69 MPa	
Auxiliary feedwater (AFW)	Failure	
AIS injection pressure Injection ratio*1 End of AIS injection*2	4.51 MPa 3 (CL-A) : 1 (CL-B) Setpoint at each tank level	
High pressure injection (HPI)	Failure	
Low pressure injection (LPI) Injection ratio	SI signal + 17s and LP pressure ≦ 1.29 MPa 3 (CL-A) : 1 (CL-B)	
End of experiment	BU valve closure	

*1 Amount of AIS injected water is specified as 1.6815 m^3 for ACC and 0.5605 m^3 for ACH, respectively.
*2 AIS injection is terminated by closing control valve in each injection line at lower end level setpoint for each AIS tank (see Table 3-1).

Table 3-3 JAERI core power curve after the scram

Time (s)	Power (MW)	Time (s)	Power (MW)	Time (s)	Power (MW)	Time (s)	Power (MW)
0	10.000	150	3.632	1500	1.280	19980	0.592
29	10.000	200	2.848	2000	1.200	60000	0.464
40	8.912	400	1.776	4000	0.992	100020	0.368
60	7.344	600	1.568	6000	0.848		
80	6.128	800	1.488	7980	0.784		
100	5.200	1000	1.424	10020	0.784		

Table 3-4 Primary pump coastdown curve after the scram

Time (s)	Pump Speed Ratio	Time (s)	Pump Speed Ratio	Time (s)	Pump Speed Ratio
0	1.000	30	0.280	80	0.125
2	0.850	40	0.220	90	0.110
5	0.730	50	0.185	100	0.100
10	0.540	60	0.160	250	0.000
20	0.370	70	0.140		

The pump speed ratio is normarized by the maximun pump speed of about 1500 rpm.

Table 4-1 Chronology of major events and procedures

Event	Time (s)
·Start of data recording	- 305
·Break initiation	**0**
·Primary pump started to power-up	0
·Hot leg top fluid saturated	4-8
·Scram signal generation (at 12.97 MPa)	**8**
·PZR heaters tripped off by low PZR level	11-15
·SI signal generation (at 12.27 MPa)	11
·Main steam line valve closed	11
·Start of pumps coast-down	12
·Main Feedwater pump stopped	15
·Pressurizer water level out of range	20
·Core power decreased from 10 MW	42
·Water level decreased in SG outlet plena	62
·Core heat-up started	**67**
·Cold leg top fluid saturated	67
·Loop-seal clearing	**74**
·Steam discharge at break unit	78
·Reversal of primary/secondary pressures	97
·Core power supply terminated	111
·Core finally quenched	**153**
·Accumulator injection system started	195
·Primary coolant pumps stopped	263
·LPI system actuated	303
·Accumulator injection system terminated	315-334
·End of LPI injection to two loops	1039-1051
·Break valve closure (End of experiment)	**1042**
·End of data recording	1537

Table 4-2 Collapsed level and void fraction in PV estimated from DP data (110 - 200 s)

(1) Average void fraction in lower plenum (EL -1.80 ～ -0.106 m)

Time (s)	Pressure PE12 (MPa)	Av. Temp. (K)	Dif. Pres. DP48 (kPa)	Density ρ_L (kg/m³)	Density ρ_G (kg/m³)	Level EL (m)	Void F. α_{LP} (-)
110	7.830	565.28	12.50	728.30	41.47	-0.106	0.0
120	7.401	563.61	11.48	732.90	38.89	-0.206	0.037
130	7.008	560.02	10.95	739.88	36.58	-0.298	0.092
140	6.594	556.06	10.78	747.36	34.18	-0.338	0.117
150	6.166	551.58	10.64	755.23	31.76	-0.372	0.137
160	5.745	546.92	10.58	763.17	29.41	-0.395	0.151
170	5.354	542.33	10.67	770.71	27.27	-0.398	0.153
180	4.978	537.73	10.67	778.16	25.24	-0.410	0.160
190	4.628	533.29	10.70	785.28	23.39	-0.418	0.165
200	4.259	528.25	10.36	793.07	21.44	-0.477	0.201

(2) Average void fraction in core (EL 0.0237 ～ 3.945 m)

Time (s)	Pressure PE12 (MPa)	Av. Temp. (K)	Dif. Pres. DP50 (kPa)	Density ρ_L (kg/m³)	Density ρ_G (kg/m³)	Level EL (m)	Void F. α_C (-)
110	7.830	599.74	10.53	725.38	41.47	1.356	-
120	7.401	583.90	13.38	732.90	38.89	1.771	-
130	7.008	560.24	14.12	739.88	36.58	1.867	-
140	6.594	555.75	14.72	747.36	34.18	1.940	-
150	6.166	551.36	15.93	755.23	31.76	2.097	-
160	5.745	546.72	16.62	763.17	29.41	2.176	0.451
170	5.354	542.27	16.99	770.71	27.27	2.210	0.442
180	4.978	537.61	17.04	778.16	25.24	2.200	0.445
190	4.628	533.17	17.20	785.28	23.39	2.205	0.444
200	4.259	528.15	16.72	793.07	21.44	2.125	0.464

(3) Average void fraction in lower downcomer (LDC; EL 0.0 ～ 3.66 m)

Time (s)	Pressure PE12 (MPa)	Av. Temp. (K)	Dif. Pres. DP57 (kPa)	Density ρ_L (kg/m³)	Density ρ_G (kg/m³)	Level EL (m)	Void F. α_{LDC} (-)
110	7.830	566.76	26.25	725.38	41.47	3.660	0.0
120	7.401	562.82	23.21	732.90	38.89	3.204	0.125
130	7.008	559.07	22.00	739.88	36.58	2.998	0.181
140	6.594	554.99	20.70	747.36	34.18	2.784	0.239
150	6.166	550.55	20.06	755.23	31.76	2.666	0.272
160	5.745	545.86	19.52	763.21	29.41	2.565	0.299
170	5.354	541.15	19.27	771.10	27.27	2.507	0.315
180	4.978	536.69	18.81	778.32	25.24	2.423	0.338
190	4.628	532.04	18.51	785.68	23.39	2.363	0.354
200	4.259	526.83	18.68	793.70	21.44	2.363	0.354

(4) Mixture level in upper downcomer based on LDC void fraction (EL 3.66 ～ 6.799 m)

Time (s)	Dif. Pres. DP58 (kPa)	Void F. α_{LDC} (-)	Level EL (m)
110	12.89	0.0	5.391
120	11.59	0.125	5.405
130	10.67	0.181	5.349
140	9.99	0.239	5.339
150	9.41	0.272	5.292

Time (s)	Dif. Pres. DP58 (kPa)	Void F. α_{LDC} (-)	Level EL (m)
160	9.03	0.299	5.270
170	8.67	0.315	5.227
180	8.33	0.338	5.204
190	8.00	0.354	5.167
200	9.73	0.354	5.512

Table 4-3 Estimated primary coolant mass in experiment SB-CL-09

Time after Break (s)	Discharged Mass, M_D (kg)	Injected Mass, ACC M_{IAC} (kg)	Injected Mass, ACH M_{IAH} (kg)	Remained Mass, M_R (kg)	Mass Ratio M_R/M_0
0	0	0	0	6111	1.000
10	713	0	0	5398	0.883
20	1288	0	0	4823	0.789
30	1786	0	0	4325	0.708
40	2213	0	0	3898	0.638
50	2848	0	0	3263	0.534
60	3204	0	0	2907	0.476
70	3468	0	0	2643	0.432
80	3698	0	0	2413	0.395
90	3836	0	0	2275	0.372
100	4025	0	0	2086	0.341
110	4150	0	0	1961	0.321
120	4193	0	0	1918	0.314
130	4274	0	0	1837	0.301
140	4353	0	0	1758	0.288
150	4415	0	0	1696	0.278
160	4484	0	0	1627	0.266
170	4566	0	0	1545	0.253
180	4633	0	0	1478	0.242
190	4670	0	0	1441	0.236
200	4702	66.5	21.4	1497	0.245
210	4816	158.5	59.9	1513	0.248
220	4880	256.1	98.7	1586	0.260
230	4967	369.4	144.5	1658	0.271
240	5116	500.7	198.7	1694	0.277
250	5218	646.4	259.7	1799	0.294
260	5442	814.6	328.0	1812	0.297
270	5660	1016.4	414.1	1942	0.318
280	5802	1230.7	502.2	2042	0.334
290	6029	1471.4	602.1	2156	0.353
300	6164	1715.5	703.6	2366	0.387

$M_R = M_0 - M_D + M_I$, where $M_0 = 6111$ kg and $M_I = M_{IAC} + M_{IAH}$.

Table 4-4 Temperature rises of all instrumented heater rods at loop-seal clearing (t=75s)
$\Delta T = TW - Tsat$ (K), Tsat=572.96K

Hi-P. Rod	Loc. (mm)	Rel. Loc.	Pos.9 Rods (10)	Pos.8 Rod (13)	Pos.7 Rods (13)	Pos.6 Rods (13)	Pos.5 Rods (18)	Pos.4 Rods (13)	Pos.3 Rods (5)	Pos.2 Rods (13)
B20 Rod(1,1)	−26.0	−0.536		4.39	3.66	2.79	7.81	2.27		3.11
B19 Rod(4,4)	−25.5	−0.526	1.89	4.40		7.28	6.77		3.88	
B19 Rod(4,5)	−23.5	−0.485	2.55		4.64		8.20	3.85		3.82
B20 Rod(4,3)	−23.5	−0.485	2.58	9.76		21.59	25.97		8.12	
B20 Rod(4,4)	−21.0	−0.433	3.82		33.79		30.50	26.14		15.38
B18 Rod(4,4)	−14.5	−0.299	2.45	4.12		8.23	45.51		61.21	
B18 Rod(3,4)	−14.0	−0.289	2.56		2.88		6.62	74.56		33.85
B13 Rod(4,4)	−1.0	−0.021		17.73	74.73	85.58	80.20	65.07		31.64
B17 Rod(4,4)	1.0	0.021		39.12	67.66	87.89	100.23	105.45		37.37
B17 Rod(1,7)	10.0	0.206		47.14	62.29	90.02	107.43	78.68		35.15
B14 Rod(5,4)	14.0	0.289	17.22		52.27		107.34	96.17		34.07
B14 Rod(4,4)	14.5	0.299	17.40	42.83		90.50	114.01		63.93	
B16 Rod(4,4)	21.0	0.433		59.10	88.02	84.08	109.03	96.65		39.16
B14 Rod(1,7)	23.5	0.485		20.97	71.26	87.34	84.15	76.44		33.61
B15 Rod(4,4)	25.5	0.526	26.37		80.92		111.21	110.02		41.12
B15 Rod(4,5)	28.5	0.588	23.04	49.92		87.16	107.13		62.76	
B16 Rod(1,7)	30.0	0.619		35.78	62.18	78.27	103.01	99.94		33.76
B15 Rod(1,7)	35.0	0.722		35.97	73.77	89.72	111.96	101.39		37.27
Average			9.99	28.56	52.16	63.11	70.39	72.05	39.98	29.18

Mid-P. Rod	Loc. (mm)	Rel. Loc.	Pos.9 Rods (8)	Pos.8 Rods (7)	Pos.7 Rods (7)	Pos.6 Rods (7)	Pos.5 Rods (11)	Pos.4 Rods (7)	Pos.3 Rods (4)	Pos.2 Rods (7)
B24 Rod(7,1)	−18.5	−0.381		1.60	2.58	2.17	3.42	4.38		6.31
B24 Rod(4,4)	−10.0	−0.206	2.80	16.49		23.81	27.16		27.47	
B21 Rod(1,1)	−10.0	−0.206		2.77	2.90	3.05	3.62	2.80		2.16
B24 Rod(3,4)	−9.5	−0.196	1.86		25.81		12.58	20.04		15.16
B21 Rod(5,4)	−6.0	−0.124	2.70	2.62		2.18	4.40		3.28	
B21 Rod(4,4)	−5.5	−0.113	1.57		3.18		4.44	3.95		3.95
B23 Rod(4,4)	5.5	0.113	8.82		51.92		61.41	53.65		23.23
B23 Rod(4,5)	8.0	0.165	9.12	18.62		62.24	68.08		40.86	
B22 Rod(5,4)	9.5	0.196	10.43		31.27		34.23	29.23		5.52
B22 Rod(4,4)	10.0	0.206	10.15	13.68		30.19	32.56		8.15	
B22 Rod(1,7)	18.5	0.381		14.05	11.25	29.07	73.32	60.92		21.74
Average			5.93	9.97	18.41	21.82	29.56	25.00	19.94	11.15

Low-P. Rod	Loc. (mm)	Rel. Loc.	Pos.9 Rods (12)	Pos.8 Rods (18)	Pos.7 Rods (18)	Pos.6 Rods (18)	Pos.5 Rods (24)	Pos.4 Rods (18)	Pos.3 Rods (6)	Pos.2 Rods (18)
B07 Rod(8,4)	−44.0	−0.907		2.77	3.52	1.69	4.07	4.29		2.67
B07 Rod(4,3)	−39.5	−0.814	2.41	2.19		1.07	4.58		3.42	
B07 Rod(4,2)	−37.5	−0.773	1.15		1.68		3.12	3.11		3.17
B08 Rod(4,3)	−34.5	−0.711		1.65	2.71	2.19	3.73	3.36		2.84
B12 Rod(4,3)	−32.5	−0.670	2.38	12.87		4.43	12.41		6.50	
B12 Rod(4,4)	−30.0	−0.619	1.93		15.08		24.72	15.93		3.06
B06 Rod(4,8)	−27.5	−0.567		2.28	1.93	1.95	2.50	3.72		2.48
B06 Rod(3,4)	−18.5	−0.381	7.31	19.99		3.33	7.55		10.53	
B06 Rod(2,4)	−17.5	−0.351	6.97		22.69		16.43	24.32		6.87
B09 Rod(4,4)	−17.0	−0.351		1.61	3.31	3.07	3.22	3.74		3.03
B05 Rod(3,4)	−3.0	−0.062		13.56	26.96	43.27	44.20	44.49		14.20
B01 Rod(3,4)	3.0	0.062		4.25	2.72	1.99	4.46	3.74		4.90
B05 Rod(1,7)	6.0	0.124		12.49	38.88	36.74	53.12	46.12		14.04
B11 Rod(4,4)	17.0	0.351		26.65	33.56	47.34	55.61	40.75		13.64
B02 Rod(2,4)	17.5	0.351	4.41		3.70		17.61	20.22		2.51
B02 Rod(3,4)	18.5	0.381	3.06	2.60		2.17	4.51		4.25	
B11 Rod(1,7)	25.5	0.526		19.49	28.30	35.46	3.16	45.56		8.37
B02 Rod(4,8)	27.5	0.567		3.37	1.86	1.56	4.84	4.68		3.67
B10 Rod(4,4)	30.0	0.619	2.52		34.37		49.37	48.44		16.62
B10 Rod(4,5)	32.5	0.670	3.77	9.78		45.07	52.95		28.65	
B04 Rod(4,3)	34.5	0.711		24.55	36.54	40.53	52.91	50.38		17.62
B03 Rod(4,2)	37.5	0.773	7.61		36.74		49.14	45.01		16.11
B03 Rod(4,3)	39.5	0.814	3.99	9.92		42.63	47.38		27.72	
B03 Rod(8,4)	44.0	0.907		7.85	1.42	2.00	4.32	4.57		3.90
Average			3.96	9.88	16.44	17.58	21.91	22.91	13.51	7.76

Table 4-5 Temperature rises of all instrumented heater rods before power trip (t=110s)
$\Delta T = TW - Tsat$ (K), Tsat=566.59K

Hi-P. Rod	Loc. (mm)	Rel. Loc.	Pos.9 Rods (10)	Pos.8 Rods (13)	Pos.7 Rods (13)	Pos.6 Rods (13)	Pos.5 Rods (18)	Pos.4 Rods (13)	Pos.3 Rods (5)	Pos.2 Rods (13)
B20 Rod(1,1)	-26.0	-0.536		95.64	168.23	212.18	6.67	2.88		2.96
B19 Rod(4,4)	-25.5	-0.526	2.10	3.51		278.96	5.17		3.00	
B19 Rod(4,5)	-23.5	-0.485	2.79		104.60		6.88	4.27		3.06
B20 Rod(4,3)	-23.5	-0.485	75.64	163.61		285.39	5.23		3.89	
B20 Rod(4,4)	-21.0	-0.433	103.27		267.33		4.10	5.50		2.90
B18 Rod(4,4)	-14.5	-0.299	82.87	182.10		284.36	5.13		3.42	
B18 Rod(3,4)	-14.0	-0.289	100.70		258.45		4.73	4.00		3.54
B13 Rod(4,4)	-1.0	-0.021		216.92	287.22	328.35	5.50	3.54		1.68
B17 Rod(4,4)	1.0	0.021		217.64	296.45	336.59	2.53	4.83		3.09
B17 Rod(1,7)	10.0	0.206		242.80	295.70	335.73	3.35	3.84		3.46
B14 Rod(5,4)	14.0	0.289	151.51		287.99		3.60	3.04		2.90
B14 Rod(4,4)	14.5	0.299	130.88	235.62		344.29	5.20		3.26	
B16 Rod(4,4)	21.0	0.433		276.48	318.90	358.92	3.56	1.24		3.08
B14 Rod(1,7)	23.5	0.485		92.35	203.33	286.95	5.47	5.37		3.53
B15 Rod(4,4)	25.5	0.526	161.90		308.96		4.12	8.52		4.59
B15 Rod(4,5)	28.5	0.588	141.87	237.17		343.12	4.61		3.94	
B16 Rod(1,7)	30.0	0.619		210.90	257.51	294.16	4.34	4.86		2.72
B15 Rod(1,7)	35.0	0.722		127.57	213.30	295.17	6.39	4.37		4.10
Average			95.35	177.10	251.38	306.47	4.81	4.33	3.50	3.20

Mid-P. Rod	Loc. (mm)	Rel. Loc.	Pos.9 Rods (8)	Pos.8 Rods (7)	Pos.7 Rods (7)	Pos.6 Rods (7)	Pos.5 Rods (11)	Pos.4 Rods (7)	Pos.3 Rods (4)	Pos.2 Rods (7)
B24 Rod(7,1)	-18.5	-0.381		35.51	176.45	184.49	2.84	2.49		1.06
B24 Rod(4,4)	-10.0	-0.206	88.88	152.83		206.57	2.52		2.87	
B21 Rod(1,1)	-10.0	-0.206		139.35	172.25	185.39	2.89	2.37		1.18
B24 Rod(3,4)	-9.5	-0.196	90.50		198.05		2.03	1.09		3.16
B21 Rod(5,4)	-6.0	-0.124	81.45	125.45		173.33	3.82		2.82	
B21 Rod(4,4)	-5.5	-0.113	42.23		151.70		4.19	3.70		3.64
B23 Rod(4,4)	5.5	0.113	104.48		198.38		3.17	3.18		1.91
B23 Rod(4,5)	8.0	0.165	111.15	164.39		232.30	2.95		2.00	
B22 Rod(5,4)	9.5	0.196	105.43		188.18		2.84	2.06		1.41
B22 Rod(4,4)	10.0	0.206	102.25	153.52		214.51	3.10		1.79	
B22 Rod(1,7)	18.5	0.381		166.74	202.19	221.89	3.26	2.77		0.93
Average			90.80	133.97	183.88	202.64	3.06	2.52	2.37	1.90

Low-P. Rod	Loc. (mm)	Rel. Loc.	Pos.9 Rods (12)	Pos.8 Rods (18)	Pos.7 Rods (18)	Pos.6 Rods (18)	Pos.5 Rods (24)	Pos.4 Rods (18)	Pos.3 Rods (6)	Pos.2 Rods (18)
B07 Rod(8,4)	-44.0	-0.907		83.23	110.73	123.67	3.45	3.64		2.63
B07 Rod(4,3)	-39.5	-0.814	1.97	2.25		138.49	3.65		2.37	
B07 Rod(4,2)	-37.5	-0.773	0.63		84.80		3.51	2.31		2.28
B08 Rod(4,3)	-34.5	-0.711		1.63	2.41	2.41	3.37	3.61		1.93
B12 Rod(4,3)	-32.5	-0.670	50.76	89.90		133.58	3.32		3.33	
B12 Rod(4,4)	-30.0	-0.619	43.38		111.93		4.01	3.53		2.99
B06 Rod(4,8)	-27.5	-0.567		35.46	58.63	72.86	2.06	2.74		1.86
B06 Rod(3,4)	-18.5	-0.381	2.28	1.94		0.24	2.49		2.19	
B06 Rod(2,4)	-17.5	-0.351	2.39		3.22		3.52	3.40		3.40
B09 Rod(4,4)	-17.0	-0.351		76.77	105.35	126.46	2.90	2.76		2.23
B05 Rod(3,4)	-3.0	-0.062		0.81	0.99	2.31	3.60	3.74		4.12
B01 Rod(3,4)	3.0	0.062		2.81	2.07	8.62	3.66	3.21		4.41
B05 Rod(1,7)	6.0	0.124		11.59	97.94	140.48	3.22	3.37		2.49
B11 Rod(4,4)	17.0	0.351		127.02	140.34	159.95	3.84	3.61		2.45
B02 Rod(2,4)	17.5	0.351	3.58		43.53		2.44	3.05		2.29
B02 Rod(3,4)	18.5	0.381	2.36	1.68		33.12	3.56		2.81	
B11 Rod(1,7)	25.5	0.526		120.78	137.70	151.65	1.87	2.32		2.79
B02 Rod(4,8)	27.5	0.567		3.03	0.85	0.61	3.52	3.39		2.99
B10 Rod(4,4)	30.0	0.619	30.01		76.11		3.58	3.76		3.43
B10 Rod(4,5)	32.5	0.670	25.96	57.46		144.66	3.61		2.45	
B04 Rod(4,3)	34.5	0.711		111.78	139.21	159.46	3.99	3.86		2.46
B03 Rod(4,2)	37.5	0.773	26.40		105.08		3.21	3.23		2.53
B03 Rod(4,3)	39.5	0.814	3.50	64.06		125.06	4.05		2.52	
B03 Rod(8,4)	44.0	0.907		3.22	7.44	16.00	2.64	3.25		2.85
Average			16.10	44.19	68.24	85.53	3.29	3.27	2.61	2.78

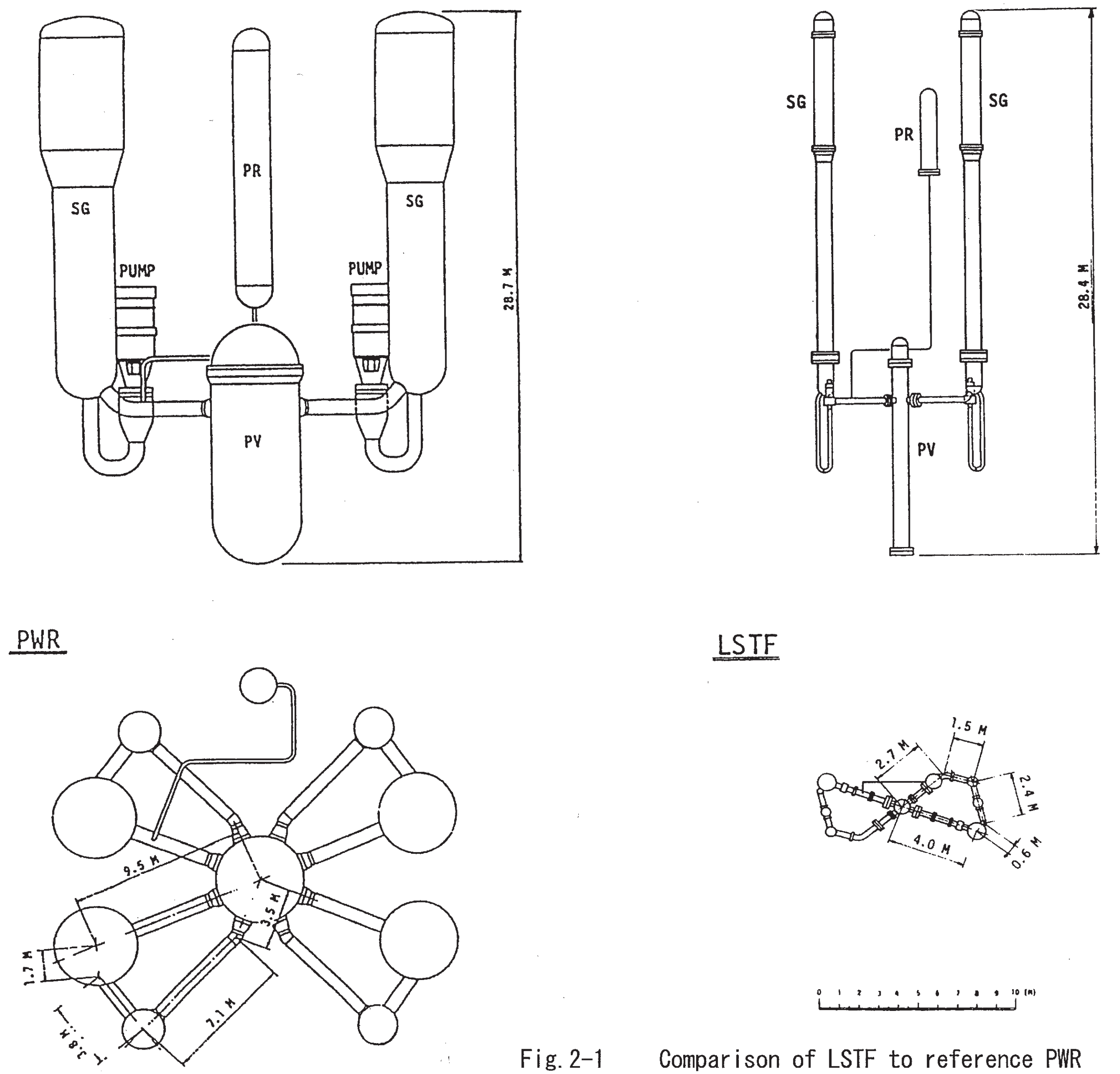


Fig. 2-1 Comparison of LSTF to reference PWR

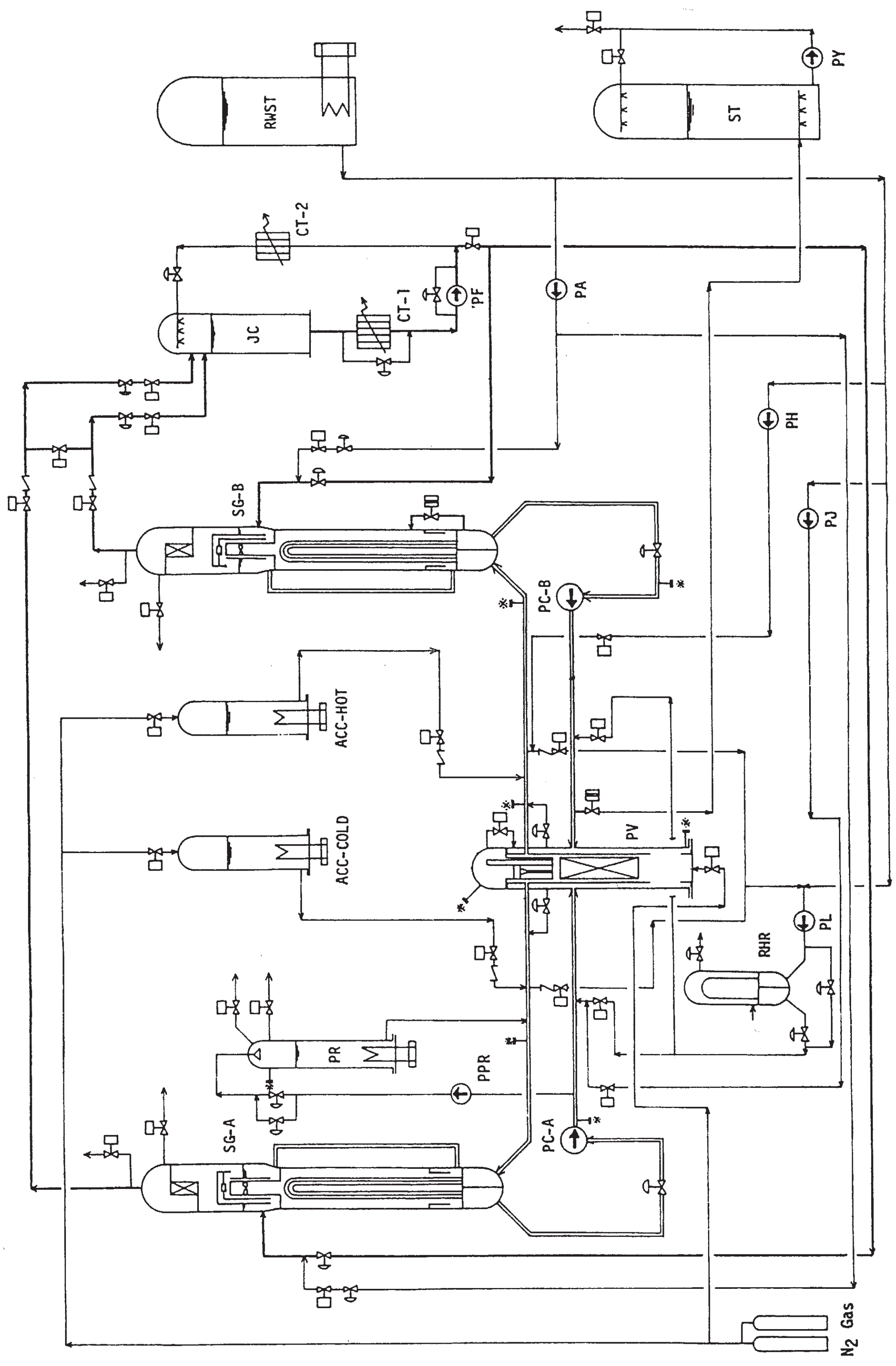


Fig. 2-2 Flow diagram of LSTF

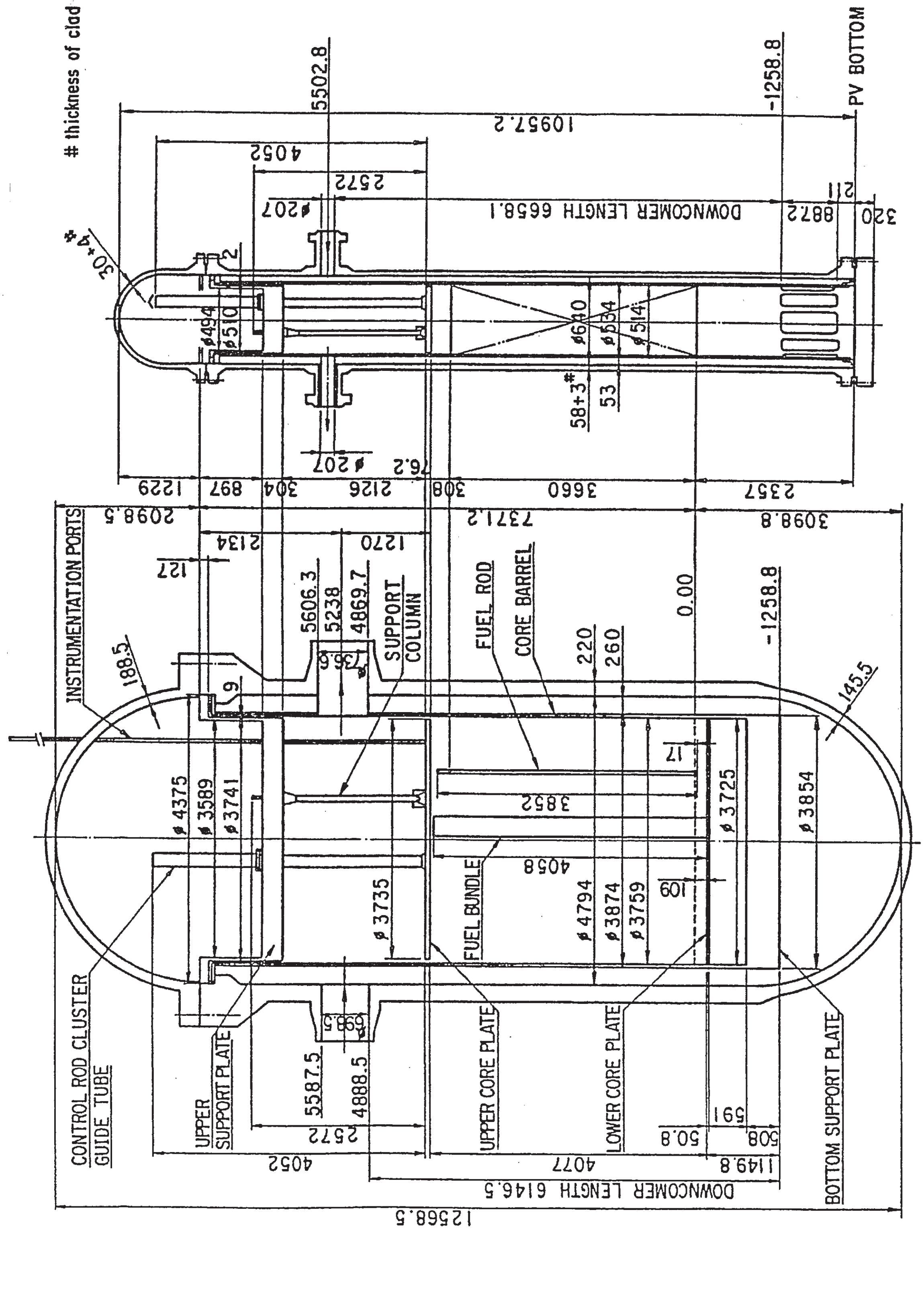


Fig. 2-3 Comparison of reactor vessel dimensions between LSTF and PWR

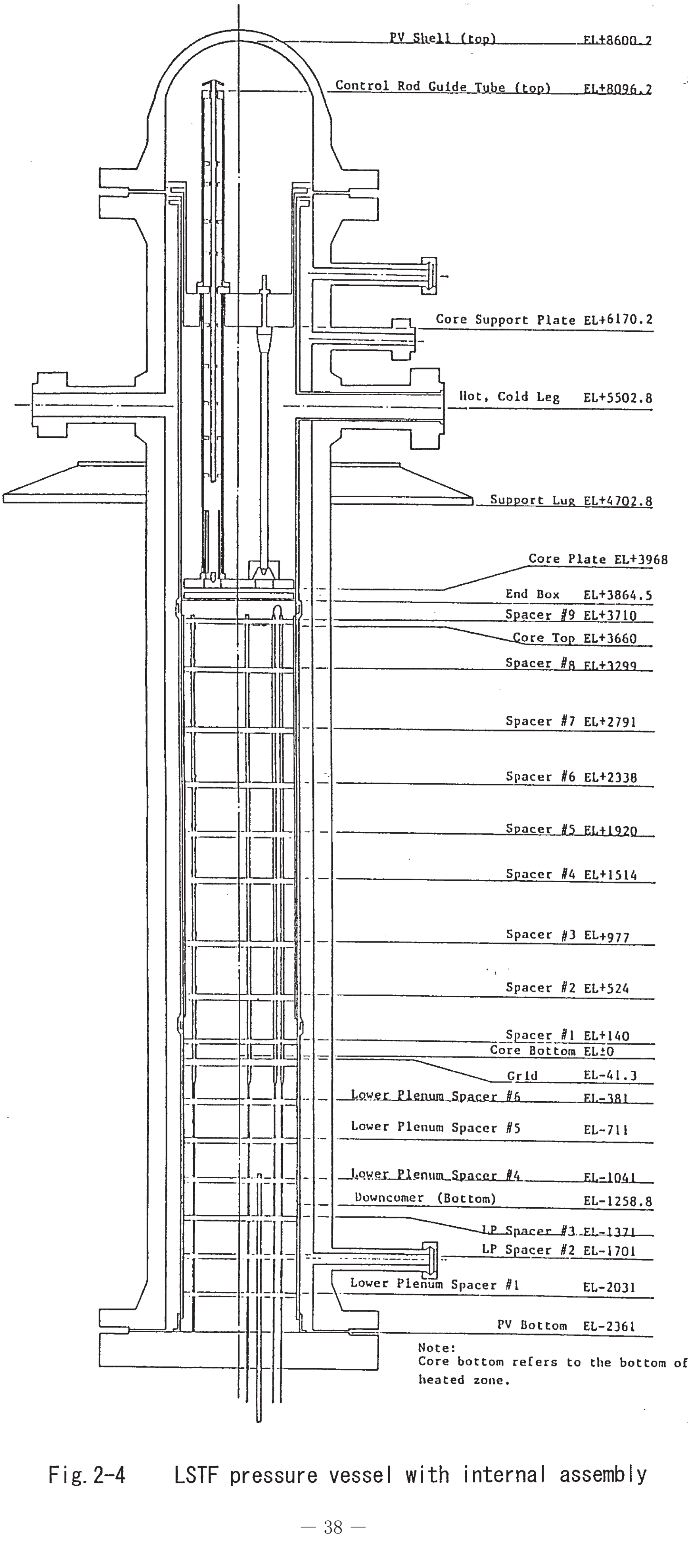


Fig. 2-4 LSTF pressure vessel with internal assembly

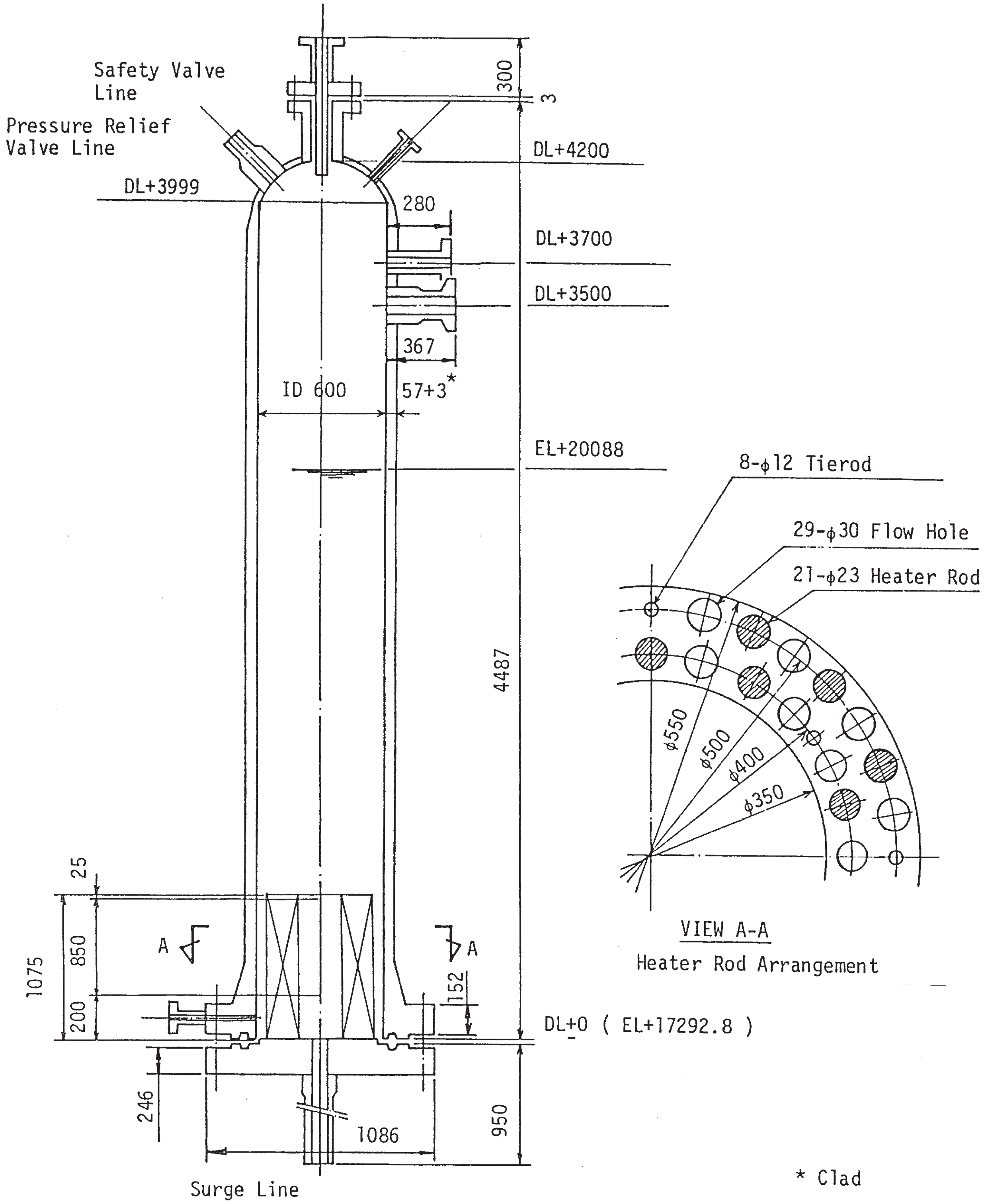


Fig. 2-5 Pressurizer and heater arrangement

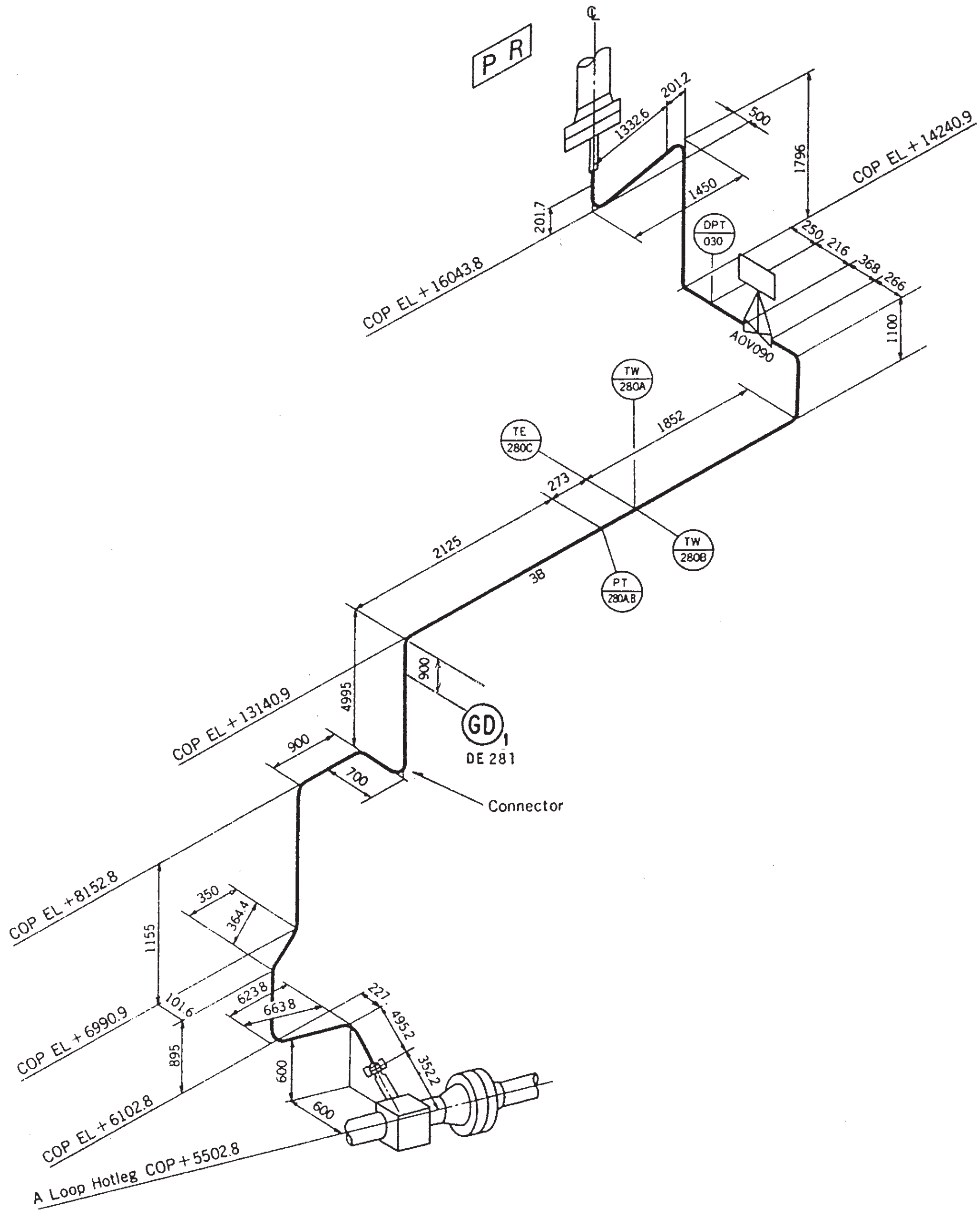


Fig. 2-6 Piping schematic for pressurizer surge line

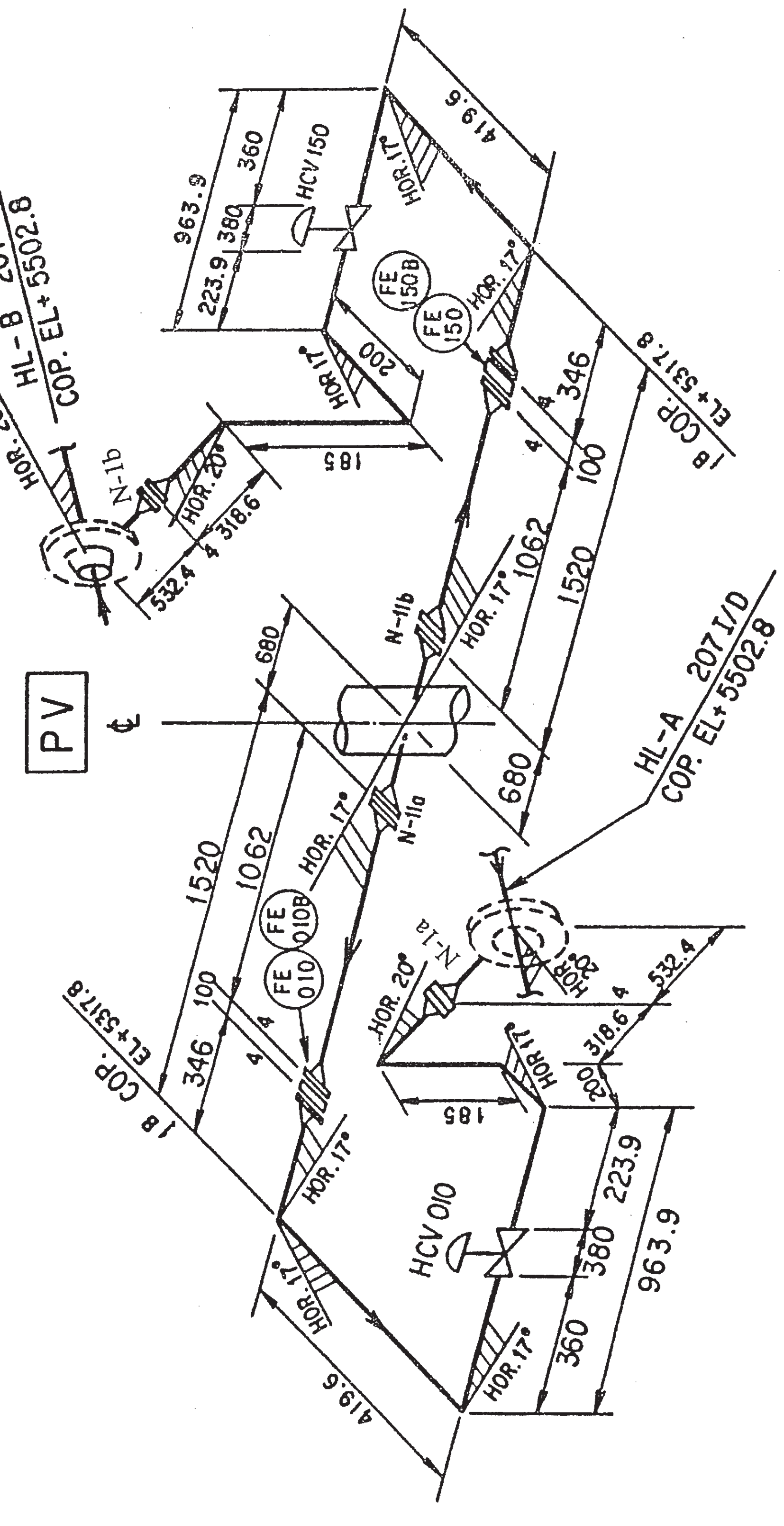


Fig. 2-7 Hot leg-to-downcomer leak simulation lines

List of Nozzle at SG Vessel

Nozzle No.	Size	Nozzle Name	Location(direction*)
N-1	206 mm I.D.	P. Coolant Inlet Nozzle	SG Inlet Plenum(36.5)
N-2	168.2 mm I.D.	P. Coolant Outlet Nozzle	SG Outlet Plenum(143.5)
N-3	3B Sch.80	Feedwater Inlet Nozzle	EL+19761.4(326.5)
N-4	8B 〃	Steam Outlet Nozzle	Top of Steam Dome
N-5	2B 〃	Safety Valve Nozzle	〃 〃
N-6	4B 〃	FW Break Line	EL+19846.6(146.5)
N-7a-d	〃 〃	Downcomer Piping Nozzle	EL+19163.9(4, 69,184,249)
N-7e-h	〃 〃	Downcomer Piping Nozzle	EL+ 8843.9 (4, 69,184,249)
		(249° downcomer connected to GDIS)	
N-8	1/2B Sch.160	Vacuum Vent Nozzle	EL+ 7761.9(180)
N-9	1B Sch.80	Level Instrumentation Nozzle	EL+7843.9(180)

Nozzle No.	Size	Nozzle Name	Location(direction*)
N-10	4B Sch.160	U tube Break Nozzle or Gas Vent Nozzle for SG-B	EL+6363.9(325)
N-11	1 1/2B Sch.80	U tube Break Nozzle	EL+ 7843.9(90)
N-21a	PT1/2	Air supply or Vacuum Vent Nozzle	EL+ 6263.9(36.5)
N-22a	〃	Level Instrumentation Nozzle	Top of Steam Dome
N-22b	〃	〃	EL+19161.4(216.5)
N-23a,b	〃	〃	EL+18518.9(90, 270)
N-23c,d	6B Sch.80	〃	EL+17663.9(90,270)
N-23e,f	〃 〃	〃	EL+17011.9(90, 270)
N-24	1 1/2B Sch.160	〃	EL+19386.9(216.5)

* : The direction zero indicated -16.5° from P.N. for SG-A and 163.5° for SG-B, respectively.

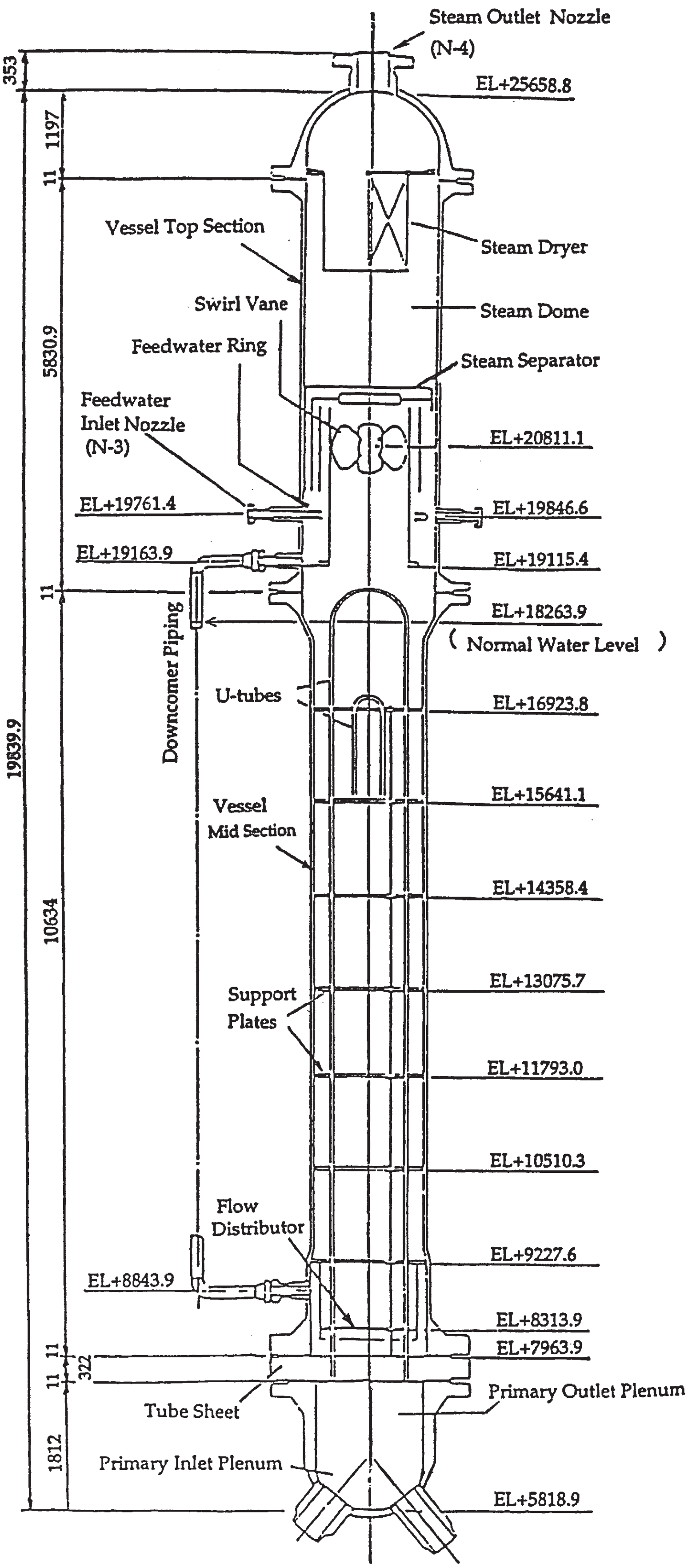


Fig. 2-8 Primary and secondary sides of steam generators (SG-A and SG-B)

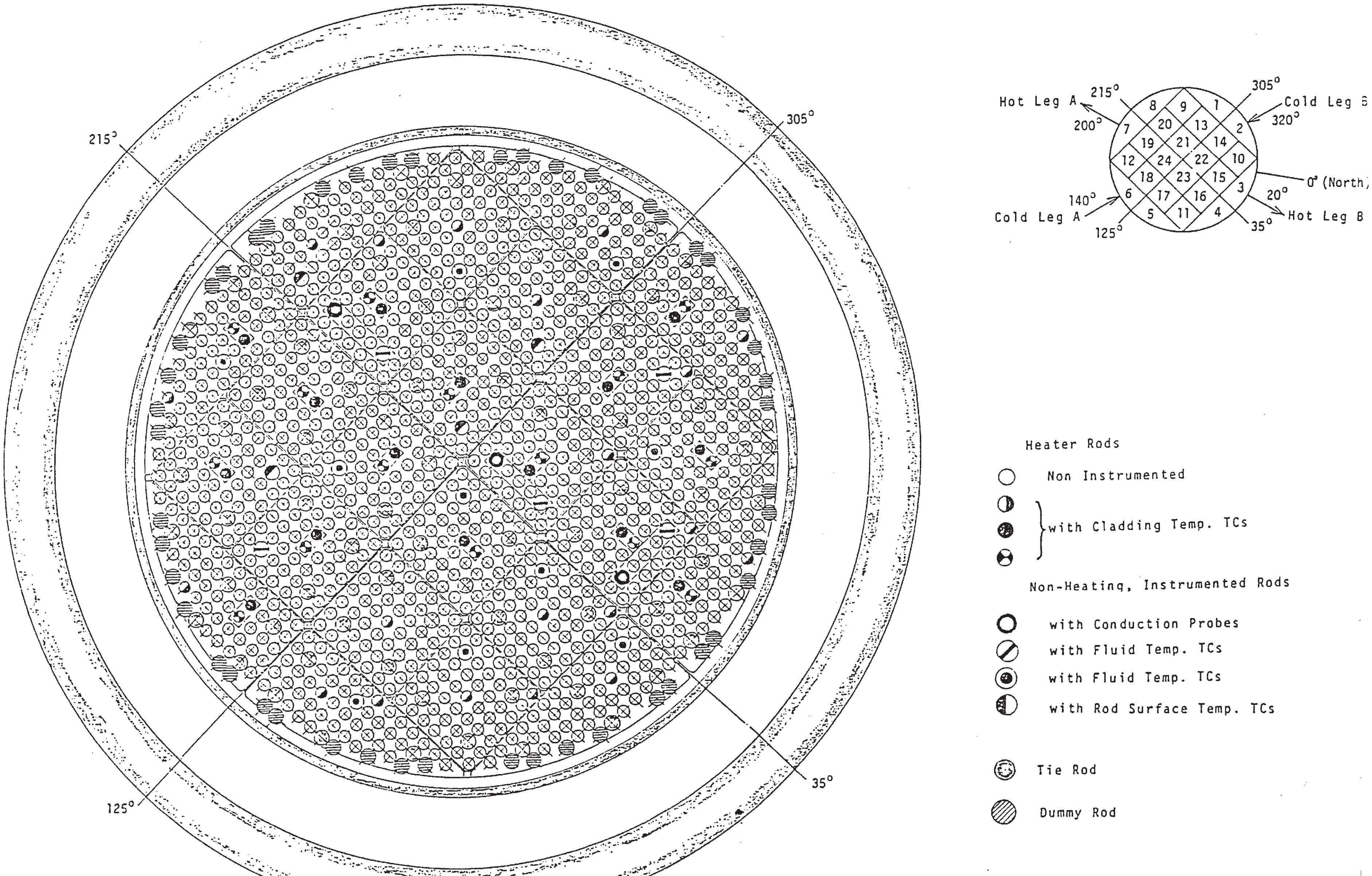


Fig. 2-9 Cross-section of core heater rod assembly

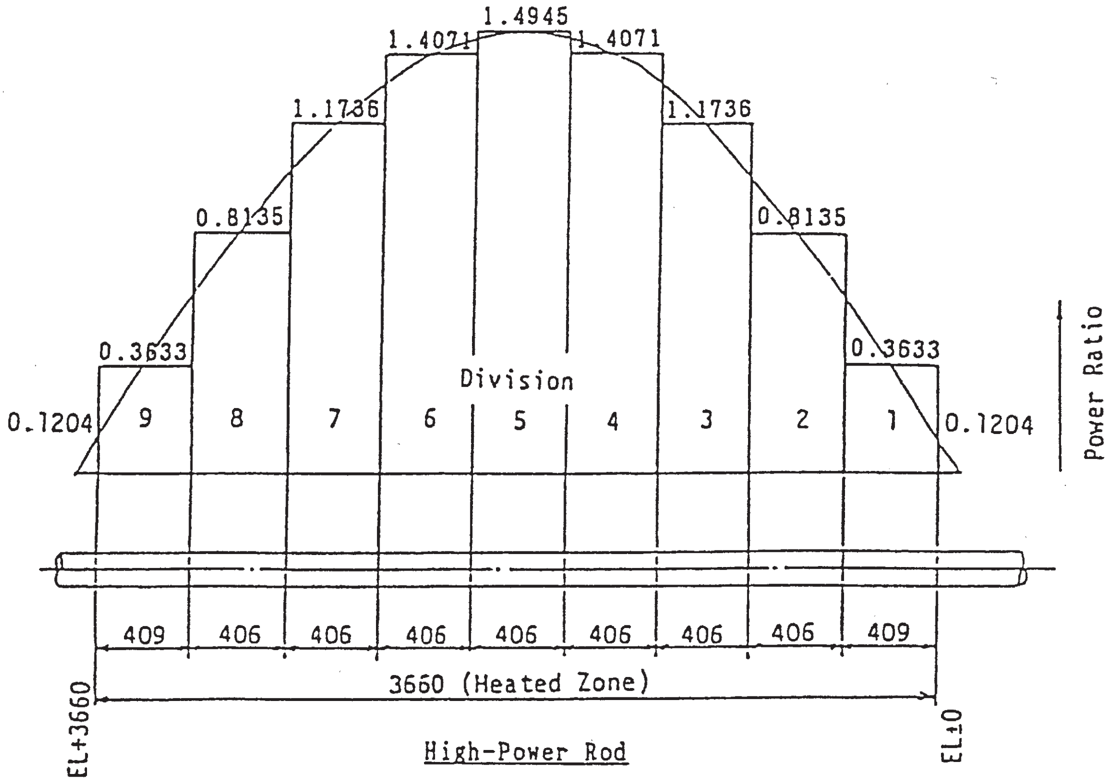
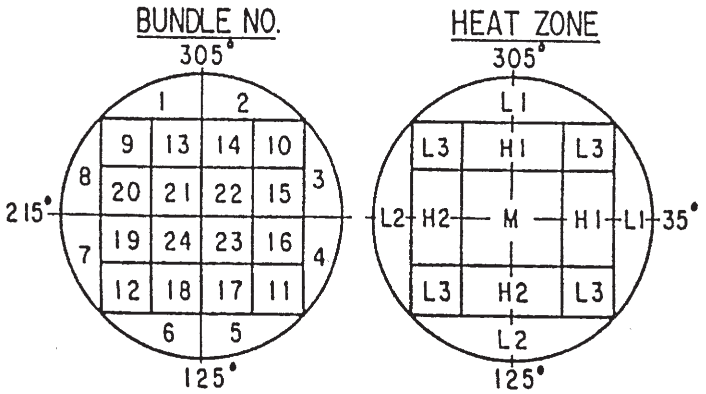


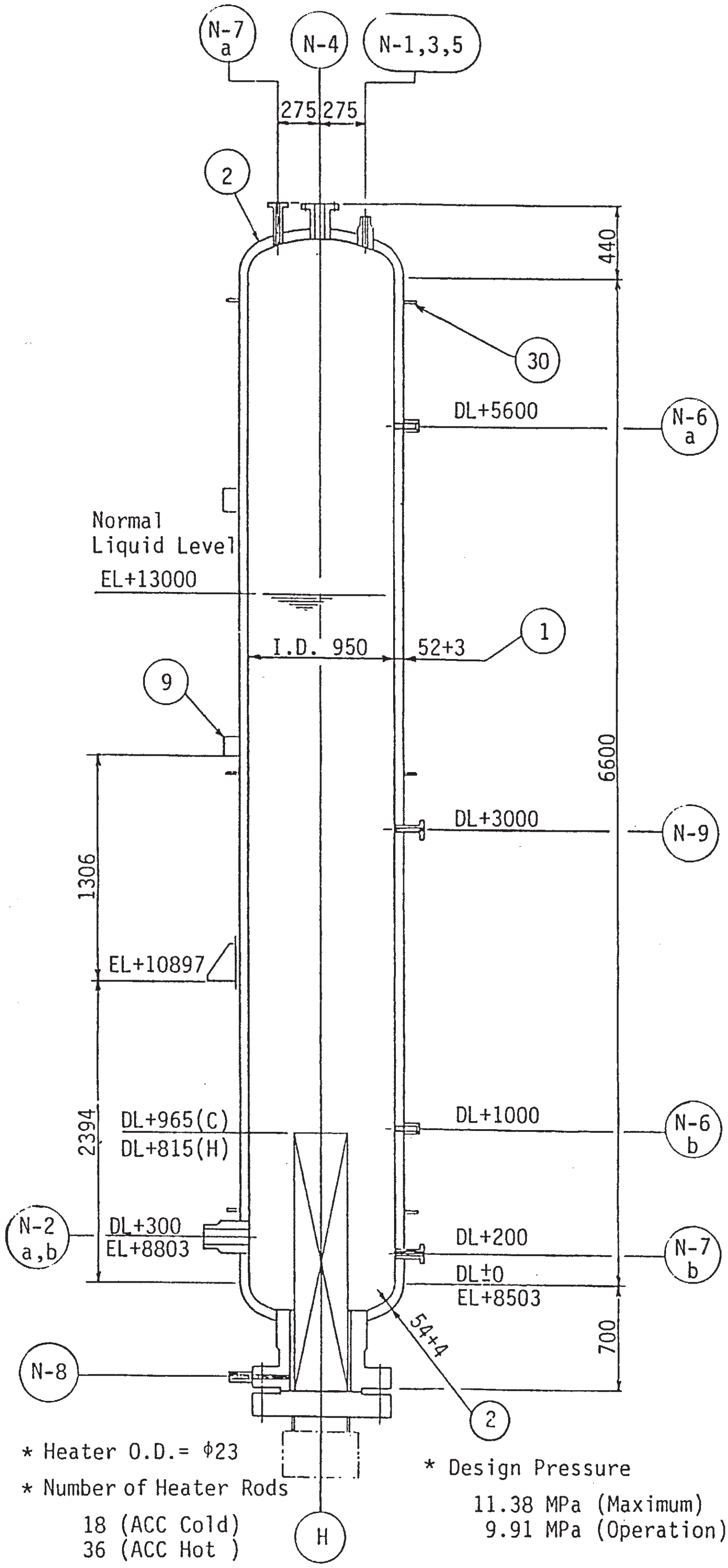
Fig. 2-10 Axial power distribution for high-power rod



HEAT ZONE		MAX. HEATER OUTPUT (DESIGN VALUE)
LOW	L1, L3	11.0kW/ROD x468ROD = 5.148 MW
HIGH	H1, H2	16.6kW/ROD x360ROD = 5.976 MW
MEAN	M	11.0kW/ROD x180ROD = 1.980 MW
TOTAL		1008 ROD 13.104 MW

HEAT ZONE	PIECE	CASE 3	
		PEAK FACTOR	HEATER OUTPUT
L 1	144	0.66	9.69kW/ROD ×0.66×144 =921kW
L 2	144		9.69kW/ROD ×0.66×144 =921kW
L 3	180		9.69kW/ROD ×0.66×180 =1151kW
H 1	180	1.51	9.69kW/ROD ×1.51×180 =2634kW
H 2	180		9.69kW/ROD ×1.51×180 =2634kW
M	180	1.00	9.69kW/ROD ×1.00×180 =1744kW
TOTAL	1008	10.005MW	

Fig. 2-11 Radial core power distribution in experiment SB-CL-09



* Heater O.D.= φ23

* Number of Heater Rods

18 (ACC Cold)
36 (ACC Hot)

* Design Pressure

11.38 MPa (Maximum)
9.91 MPa (Operation)

* Maximum Operating Temperature

373.2 K (ACC Cold)
473.2 K (ACC Hot)

Fig. 2-12 Accumulator tank geometry

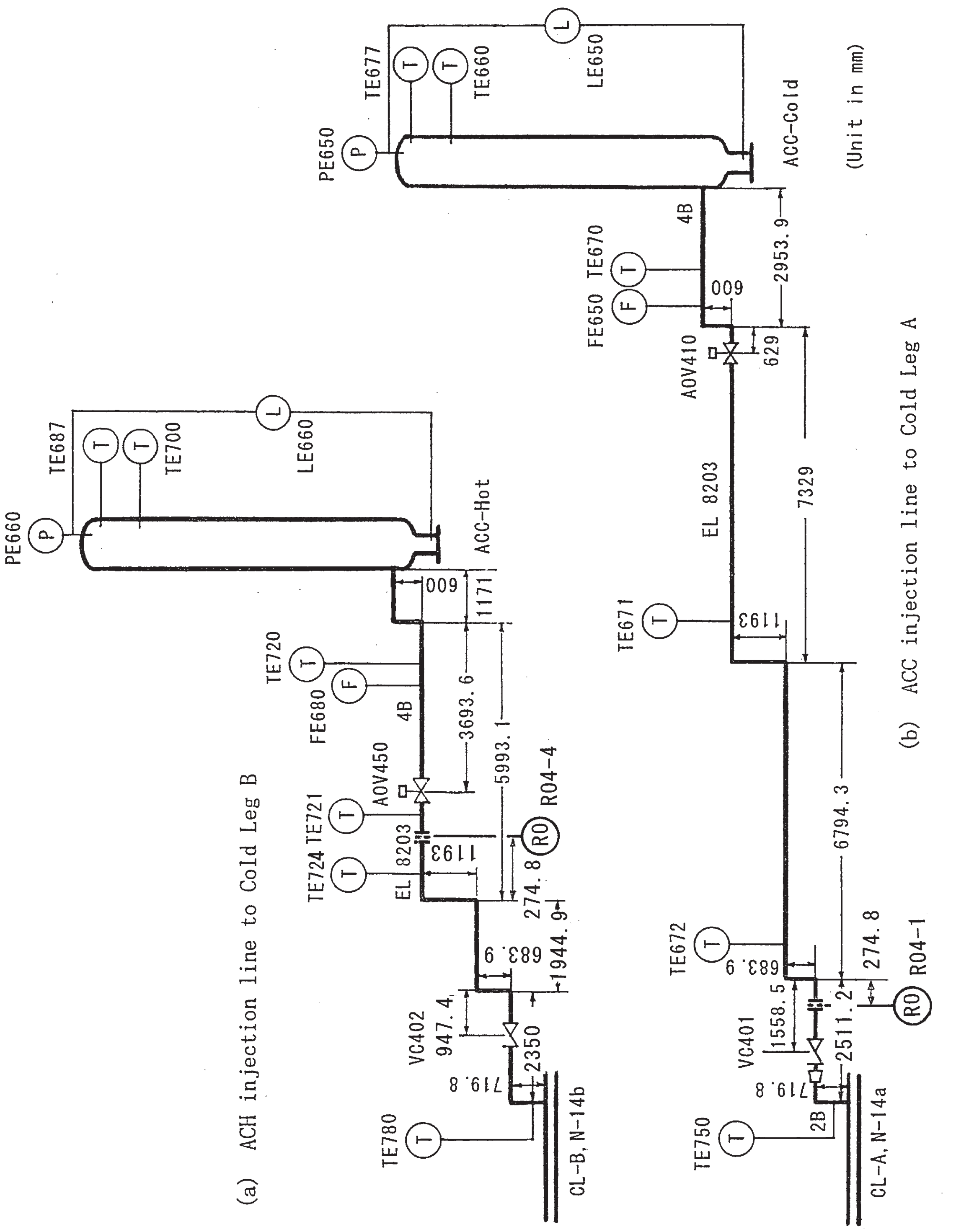
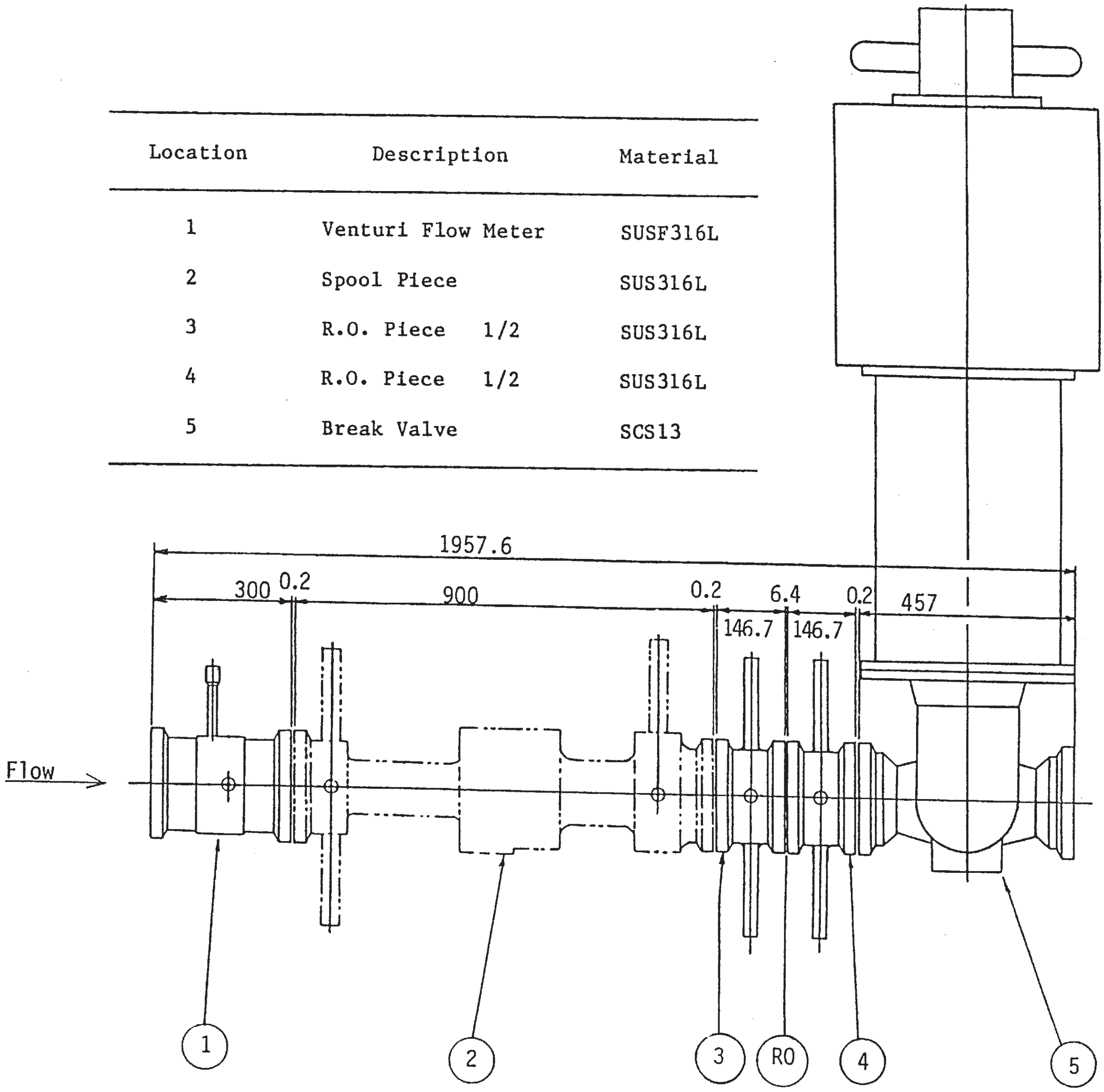
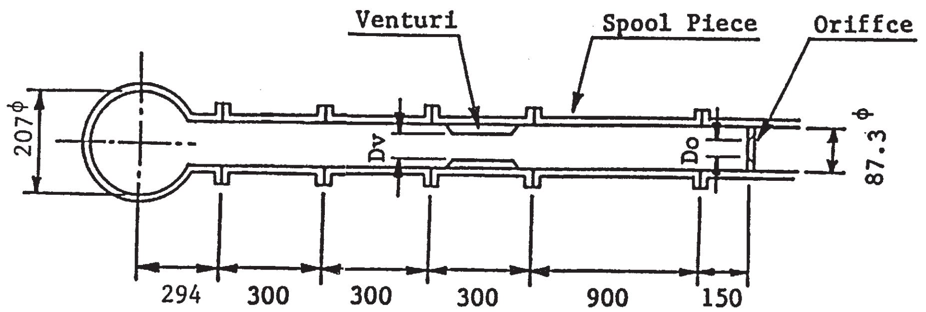


Fig. 2-13 Scheme of accumulator injection lines

Location	Description	Material
1	Venturi Flow Meter	SUSF316L
2	Spool Piece	SUS316L
3	R.O. Piece 1/2	SUS316L
4	R.O. Piece 1/2	SUS316L
5	Break Valve	SCS13

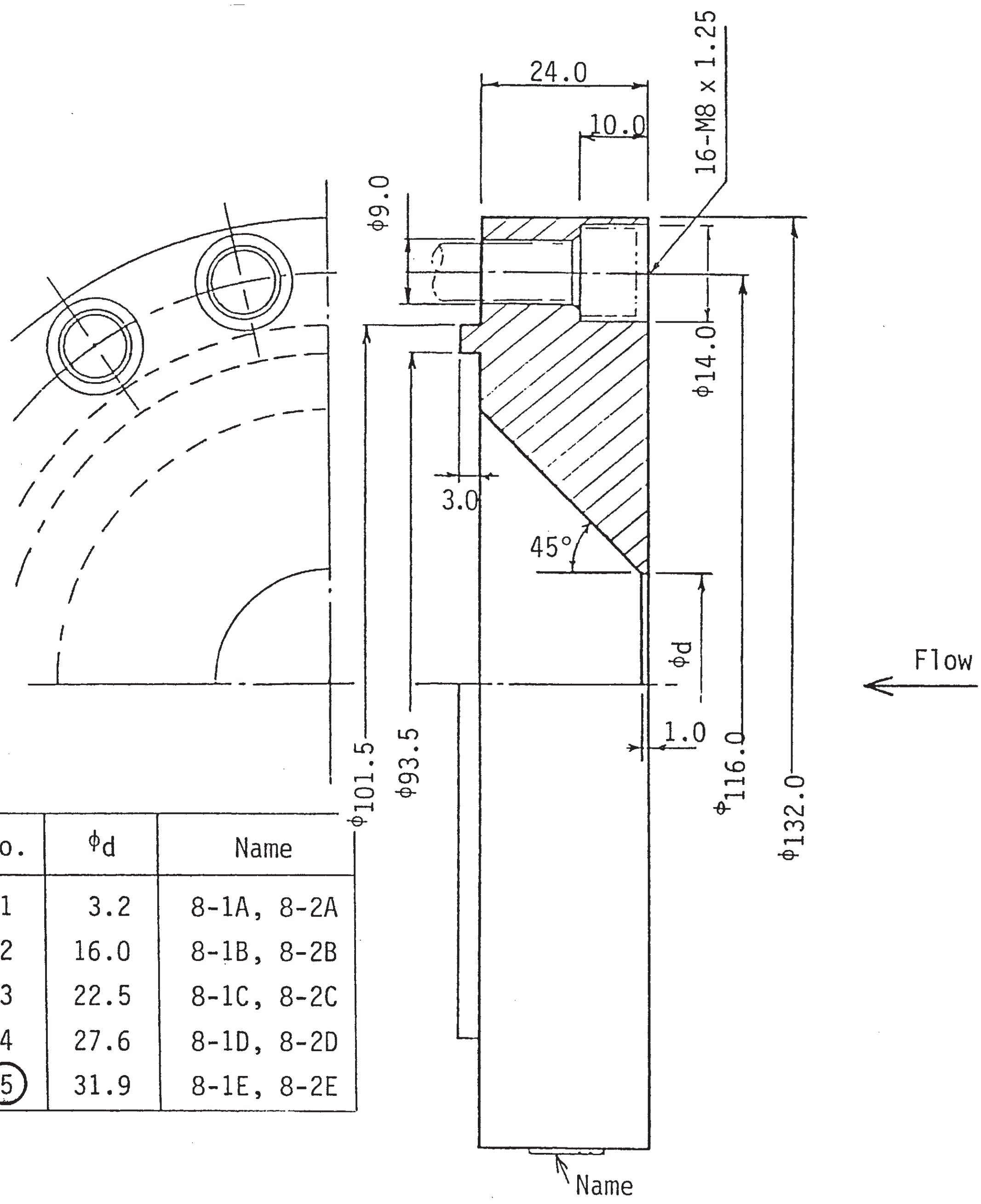




$Dv = 64.53^{\phi}$

$Do = 31.9^{\phi}$

Fig. 2-14 Configuration of break unit for experiment SB-CL-09



No.	φd	Name
1	3.2	8-1A, 8-2A
2	16.0	8-1B, 8-2B
3	22.5	8-1C, 8-2C
4	27.6	8-1D, 8-2D
5	31.9	8-1E, 8-2E

Fig. 2-15　Geometry of break orifice

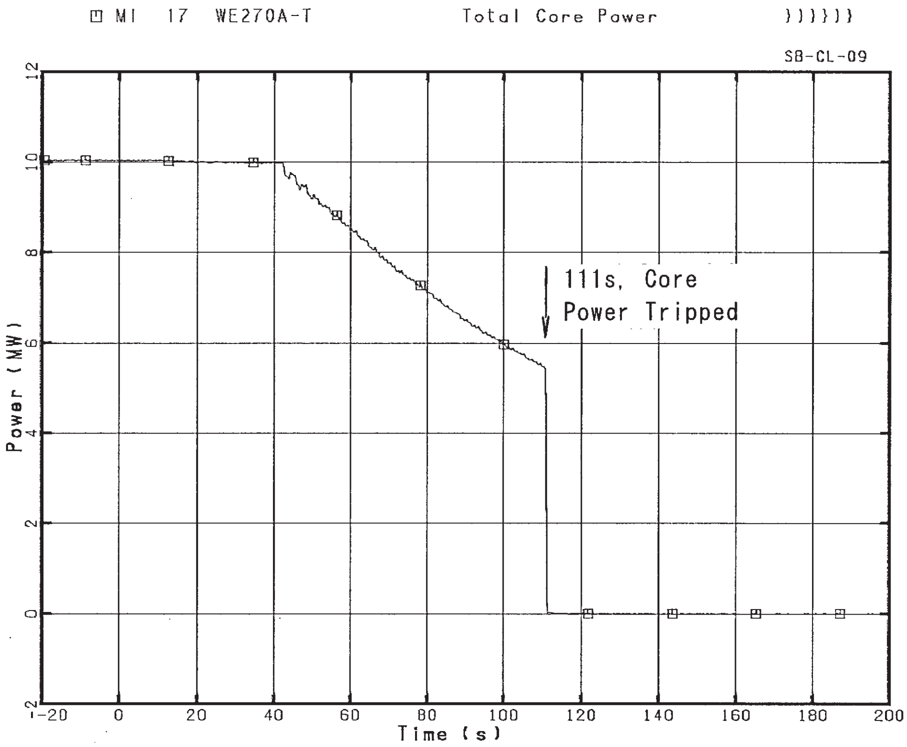


Fig. 3-1 Core power curve in experiment SB-CL-09

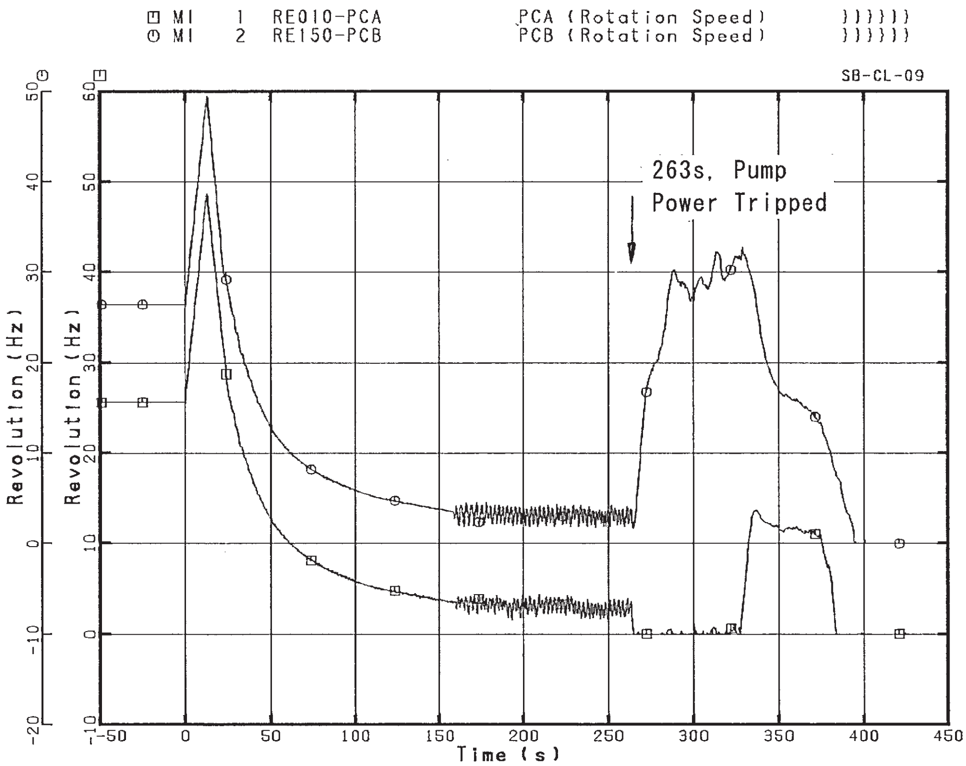


Fig. 3-2 Primary coolant pump speeds in experiment SB-CL-09

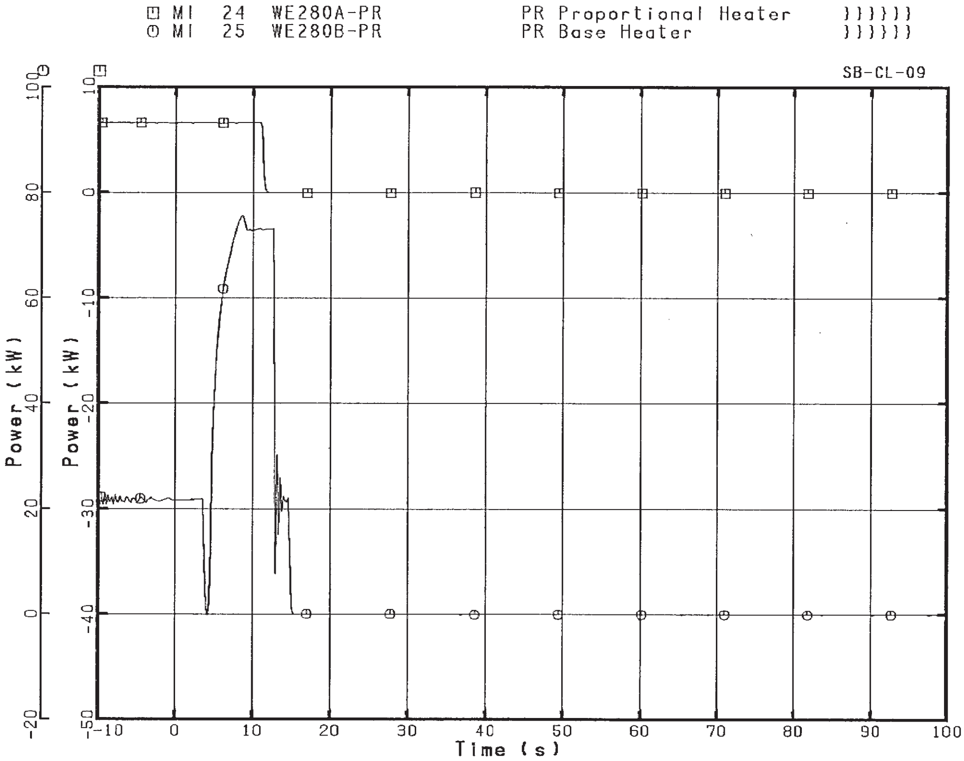


Fig. 3-3 Pressurizer heater powers in experiment SB-CL-09

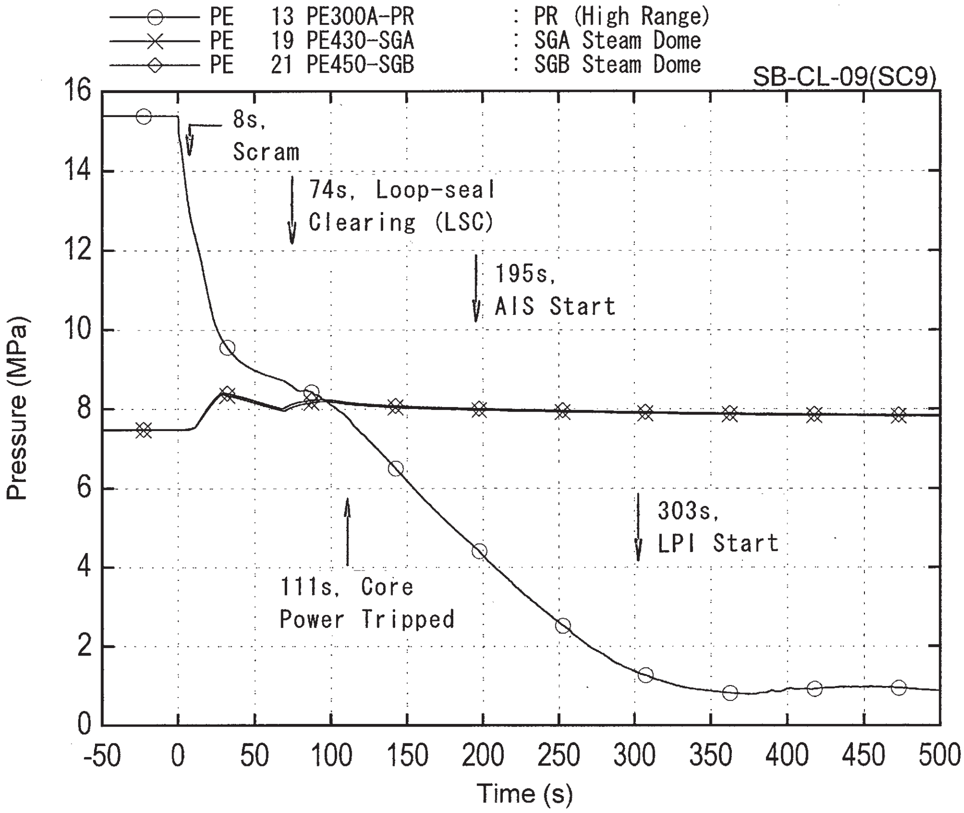


Fig. 4-1 System pressure transients and major events in experiment SB-CL-09

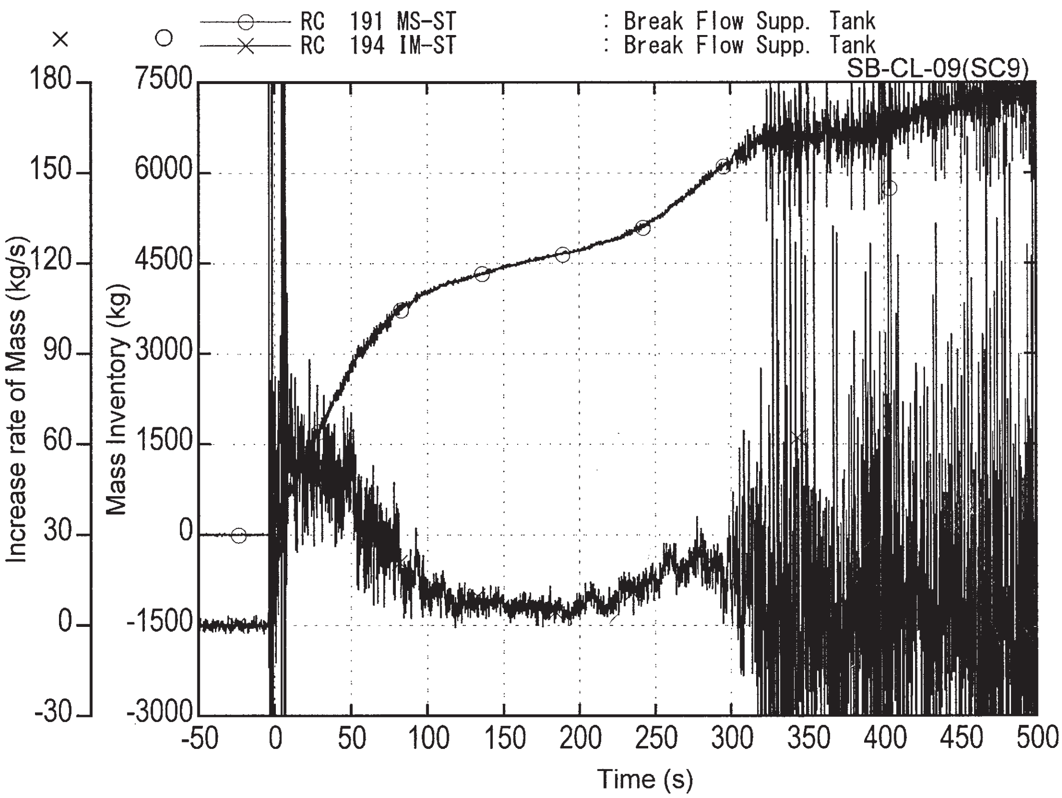


Fig. 4-2 Discharged coolant mass and break flow rate at CL-B

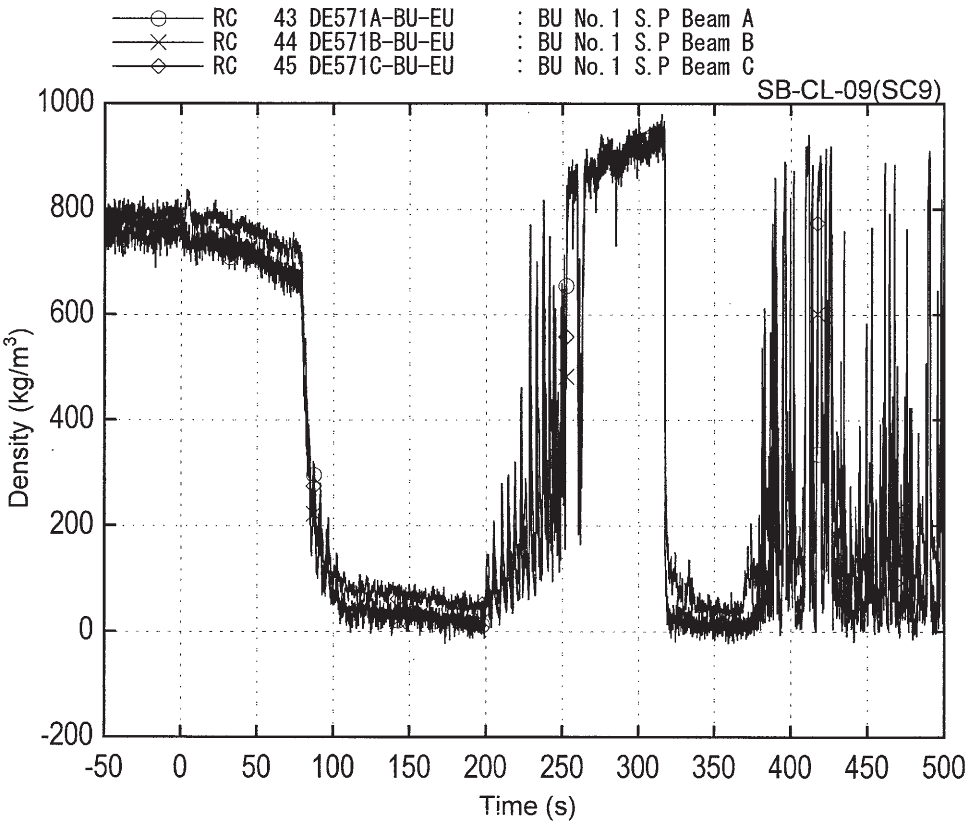


Fig. 4-3 Three-beam fluid density at BU line spool piece

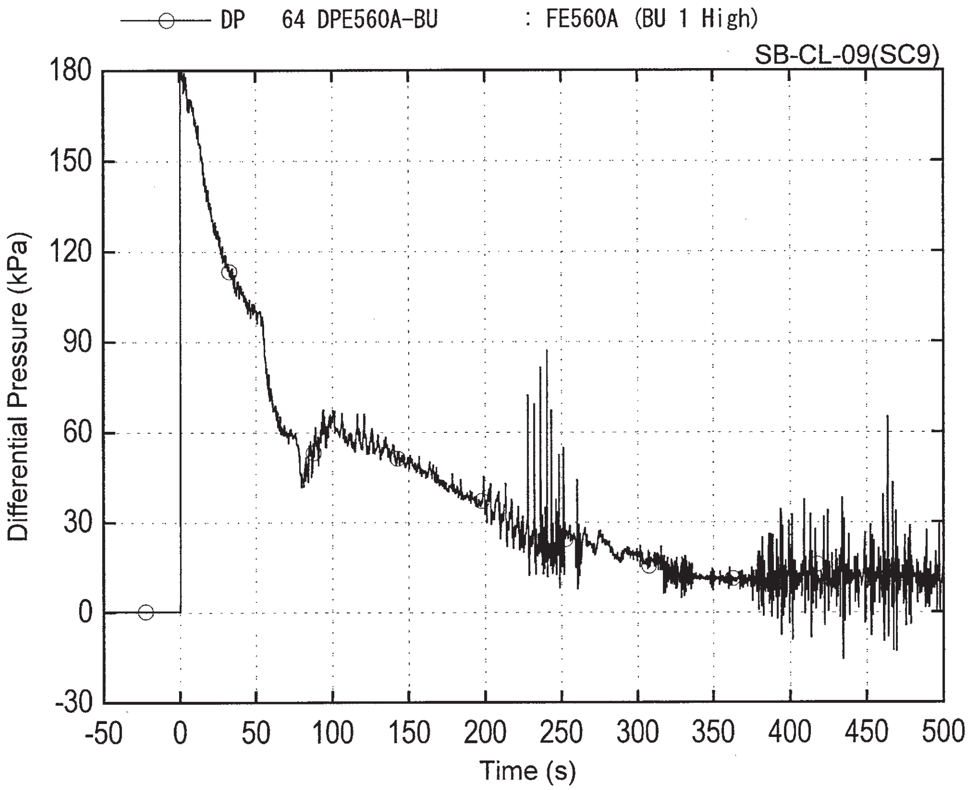


Fig. 4-4 Differential pressure between throat and inlet of Venturi-flow meter in BU line during blowdown and refill processes

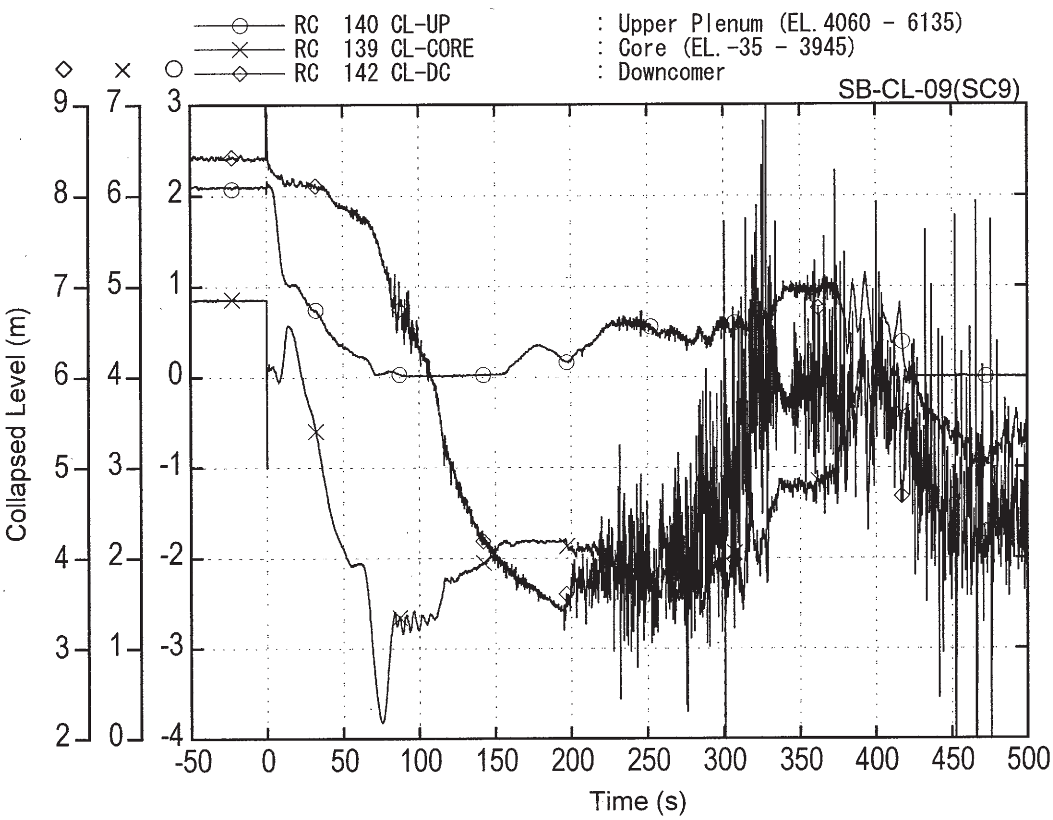


Fig.4-5 Collapsed water levels in upper plenum, core and downcomer

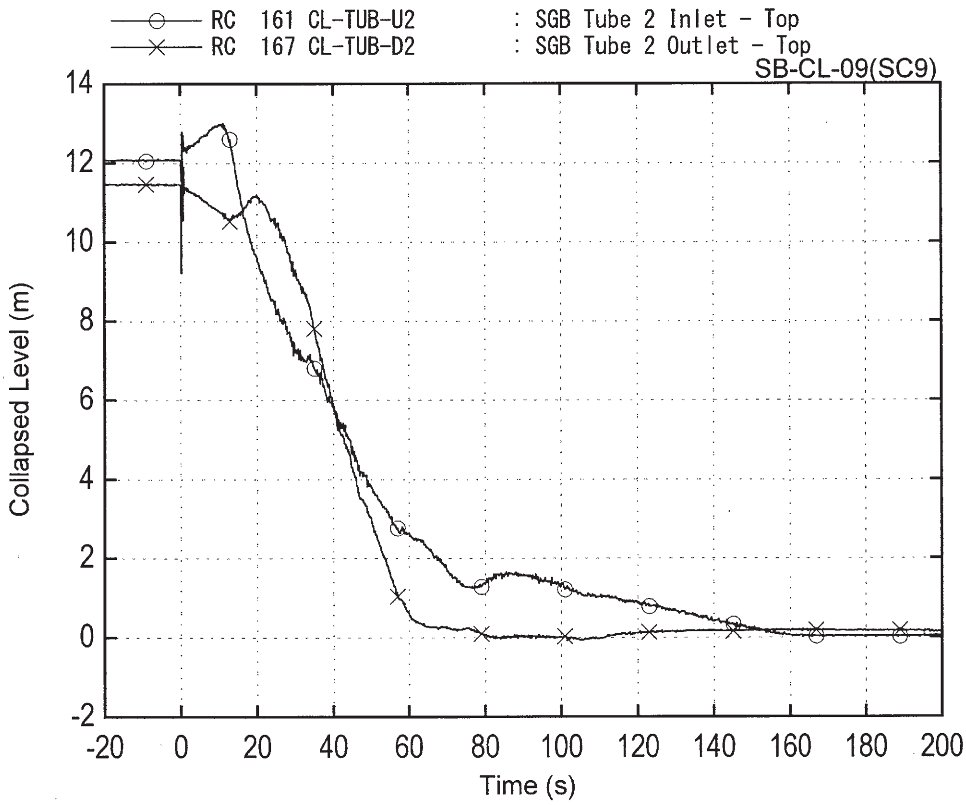


Fig.4-6 Collapsed liquid levels at inlet and outlet sides of SG-B Tube 2

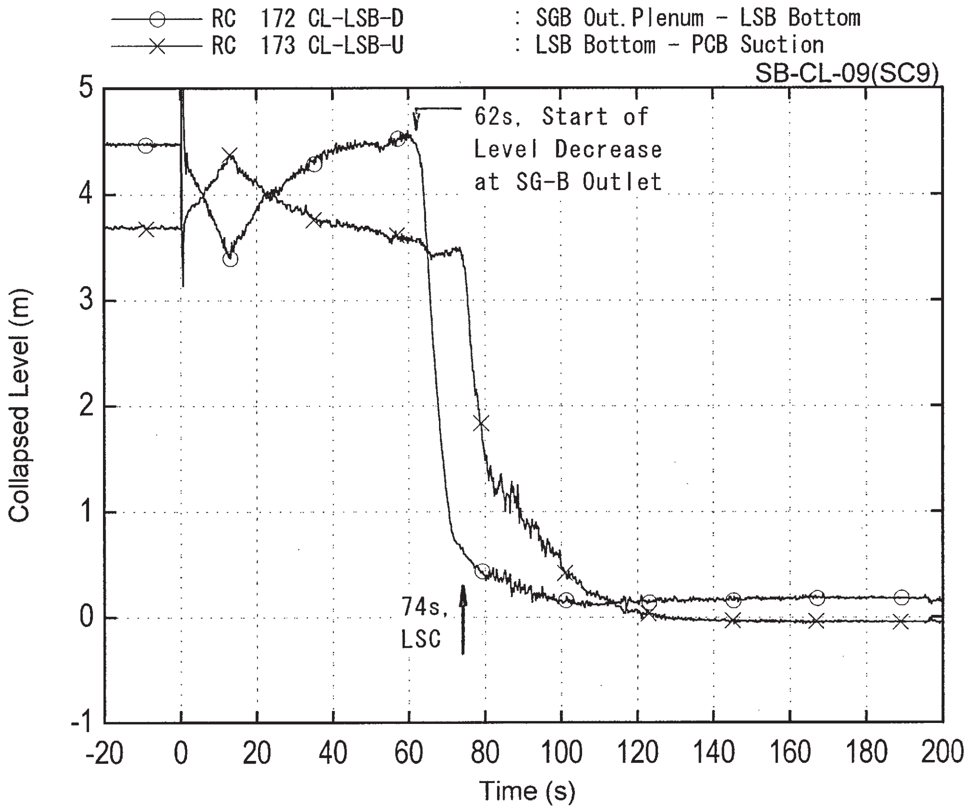


Fig. 4-7 Collapsed liquid levels at upflow and downflow sides of Loop-seal B

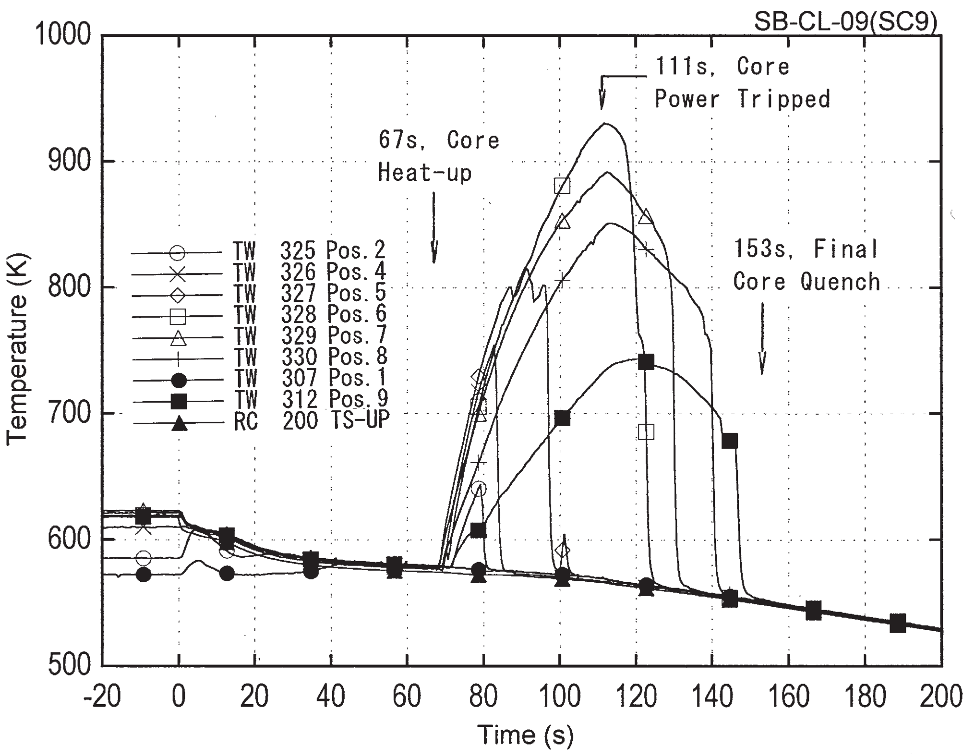


Fig. 4-8 Representative heater rod surface temperatures during blowdown

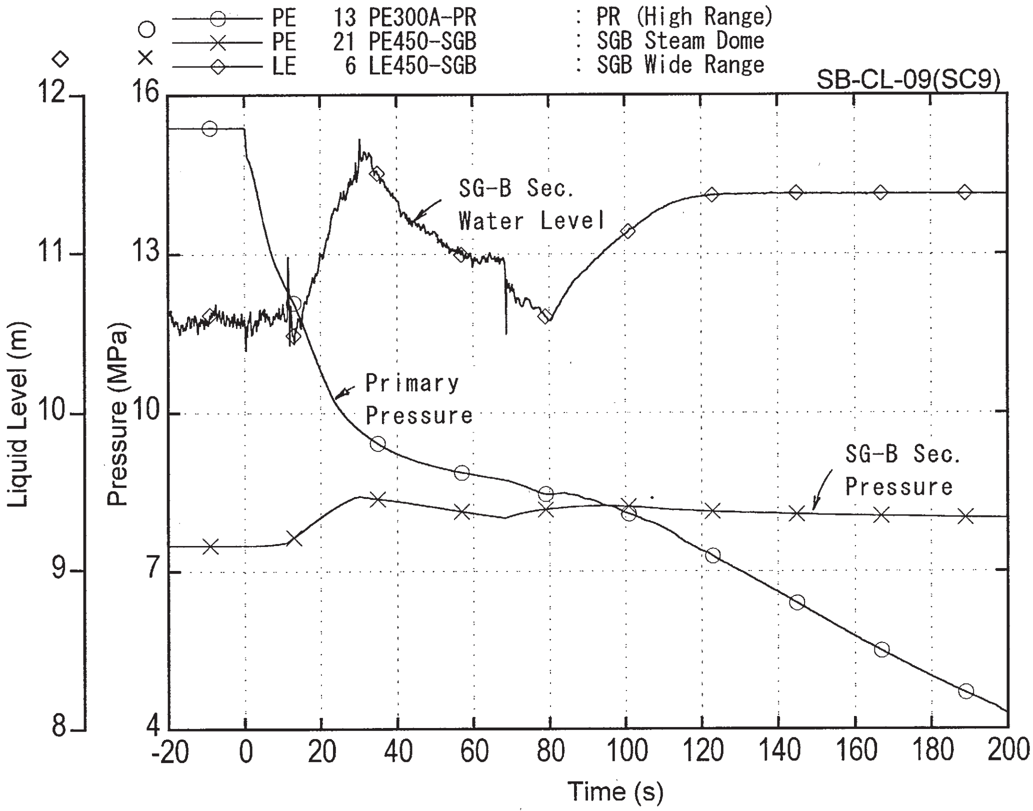


Fig. 4-9 Pressure transients and SG-B secondary water level during blowdown

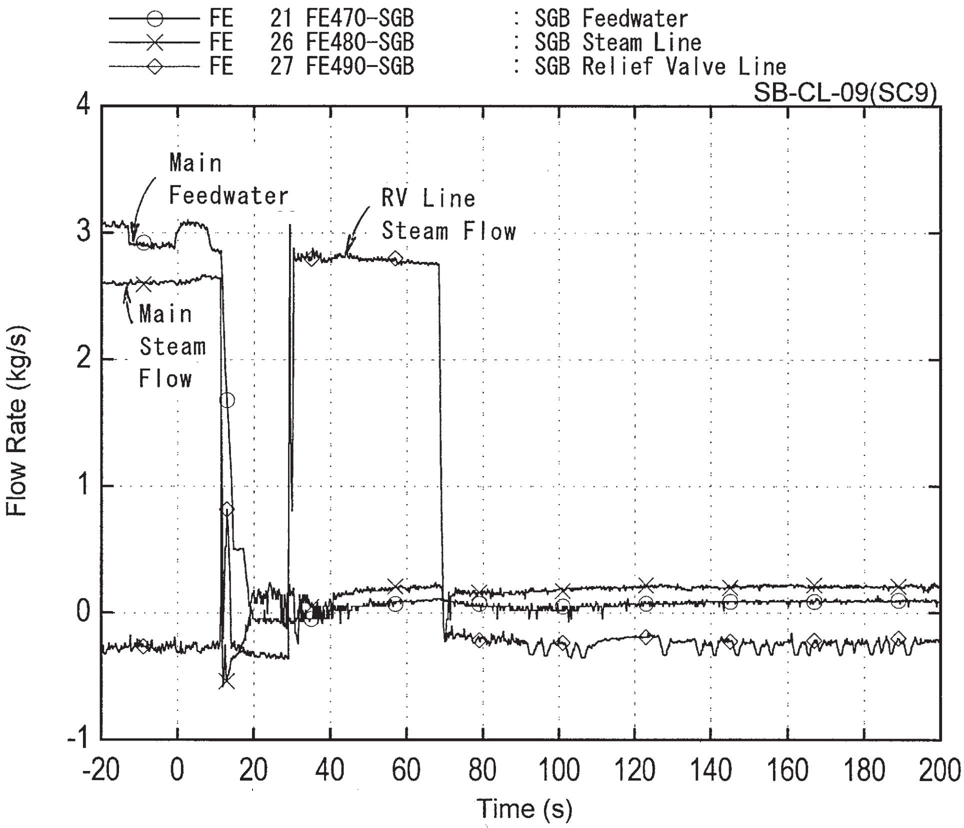


Fig. 4-10 Flow rates of main feedwater, main steam and RV steam lines at SG-B

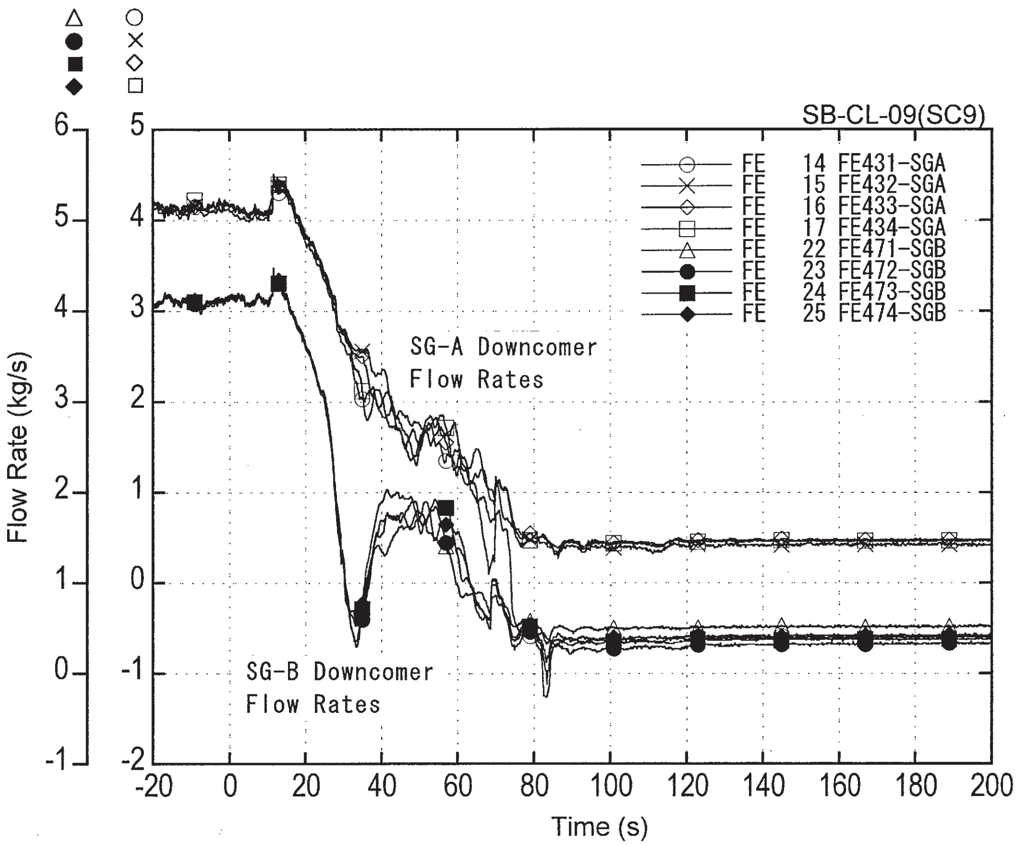


Fig. 4-11 Downcomer flow rates at SG-A and SG-B during blowdown

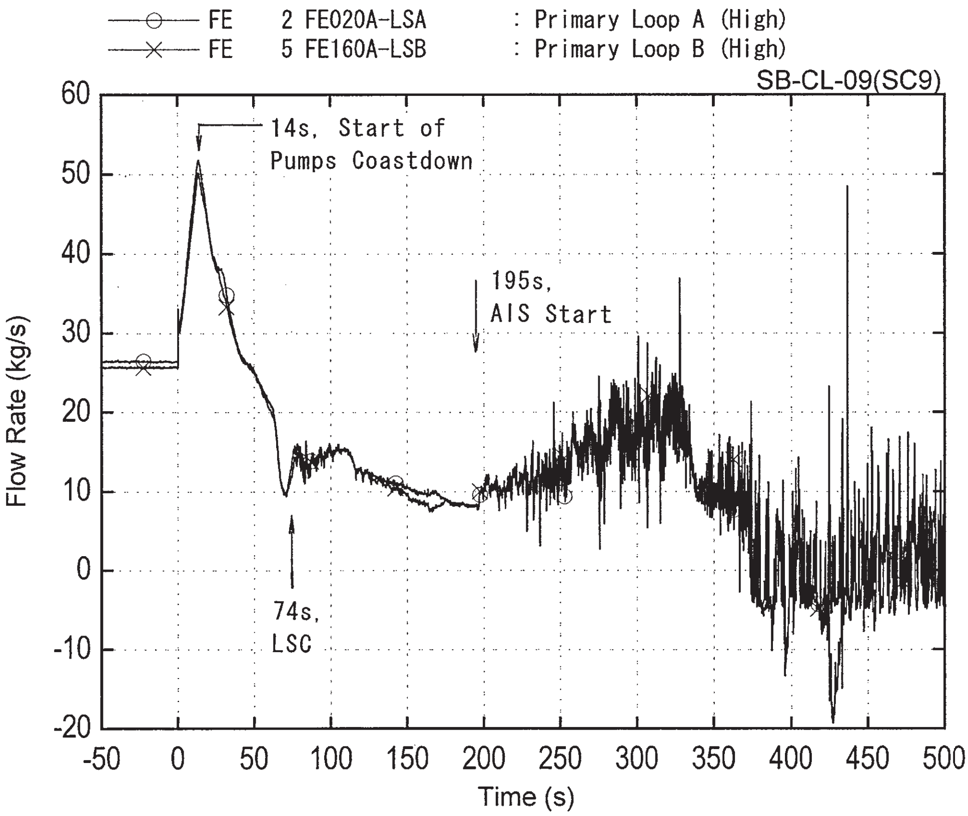


Fig. 4-12 Primary loop flow rates

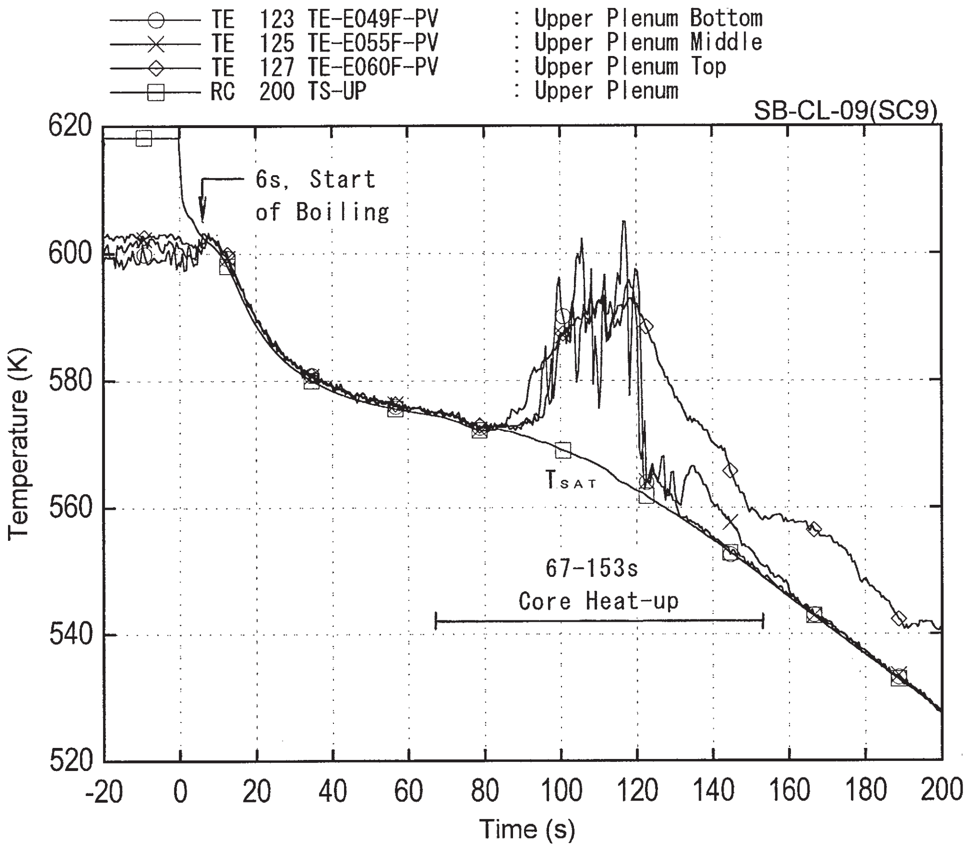


Fig. 4-13 Fluid temperatures at top, middle and bottom of upper plenum

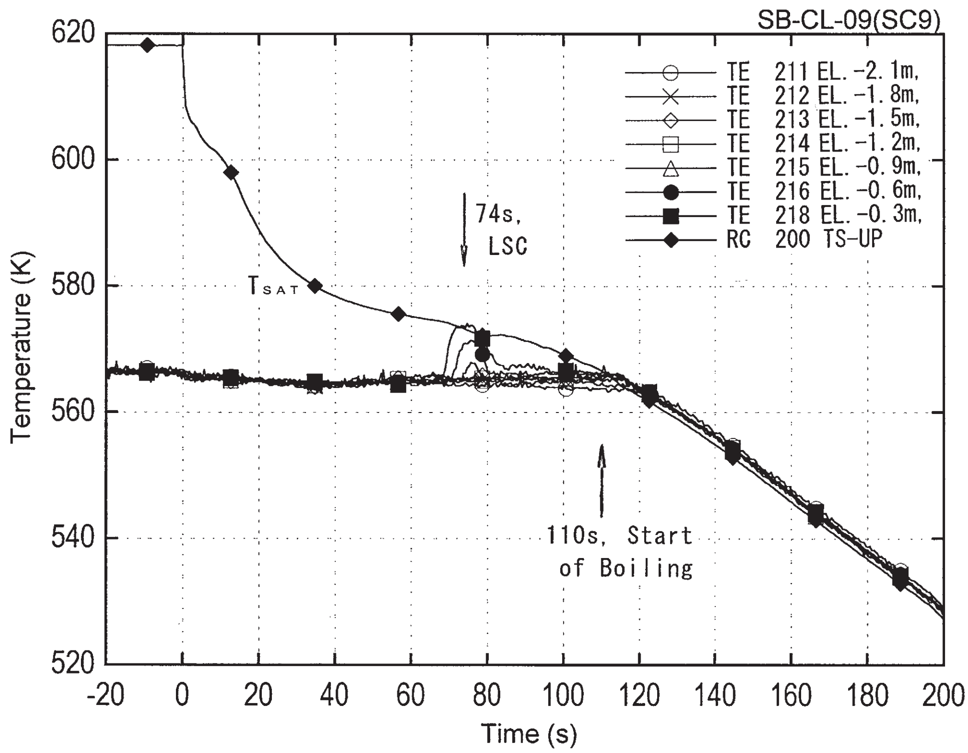


Fig. 4-14 Fluid temperatures in lower plenum during blowdown

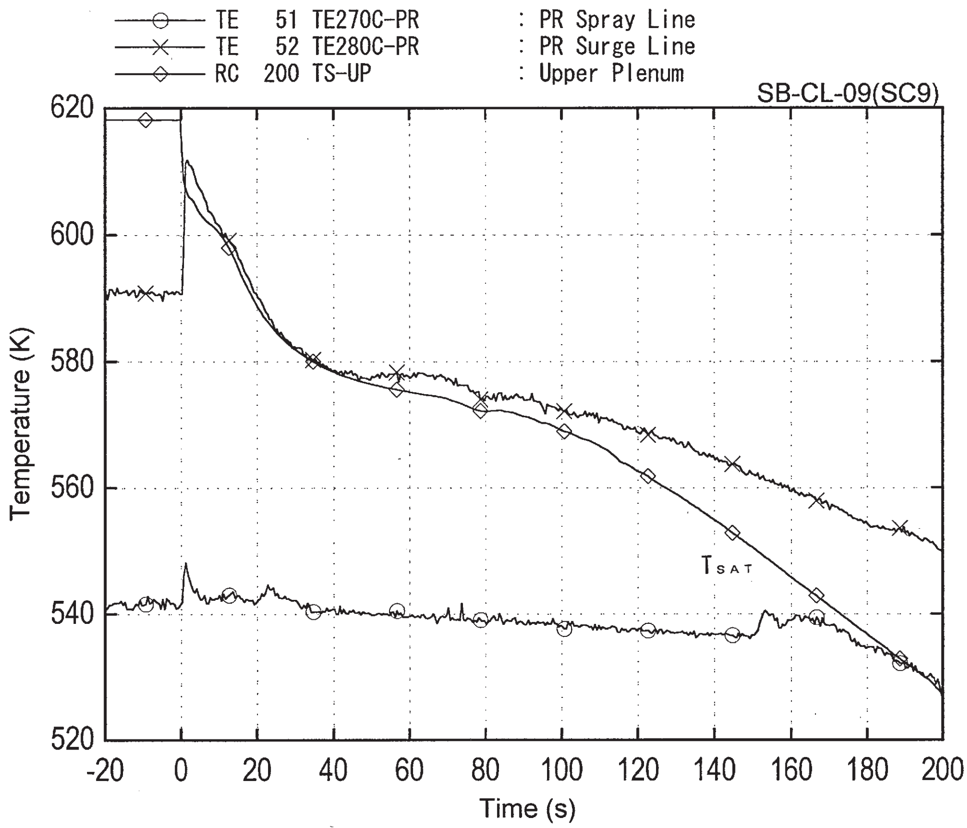


Fig. 4-15 Fluid temperatures at spray and surge lines of pressurizer

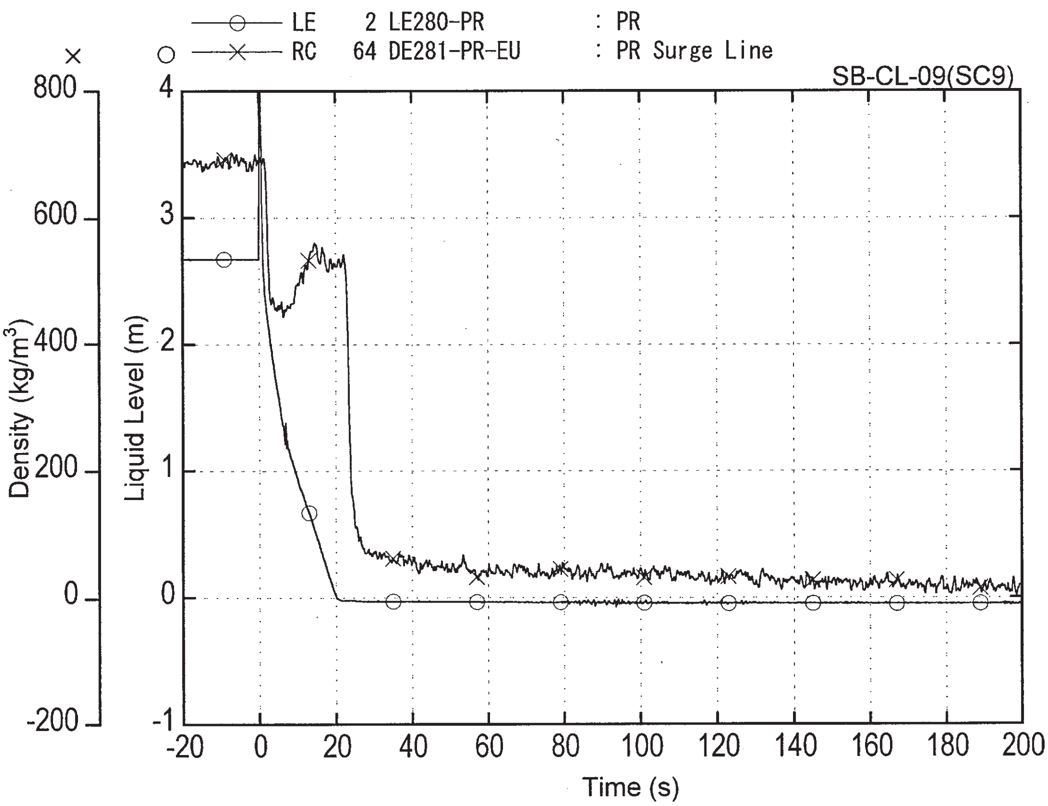


Fig. 4-16 Pressurizer water level and surge line fluid density

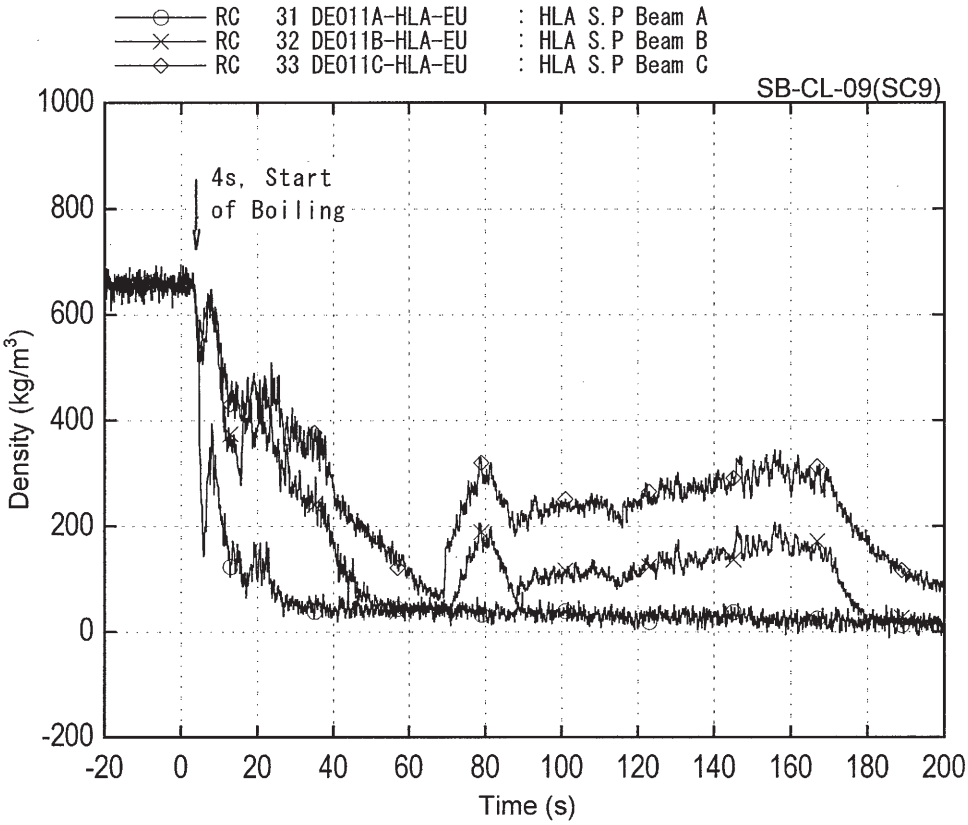


Fig. 4-17 Three-beam fluid density at HL-A spool piece

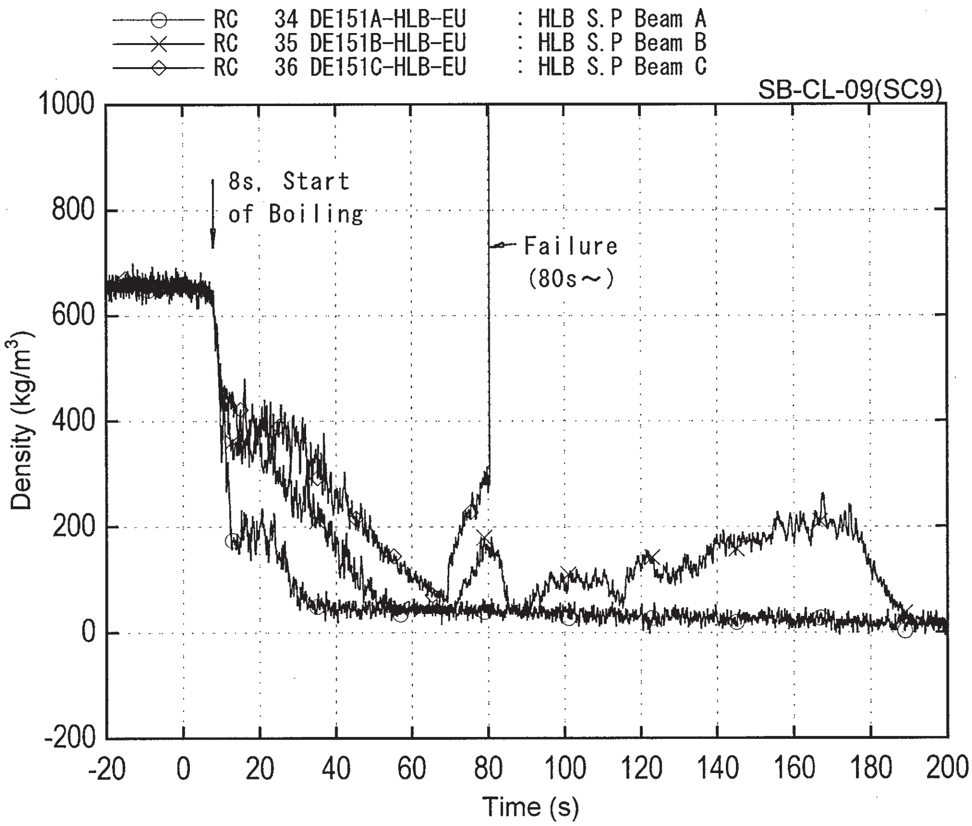


Fig. 4-18 Three-beam fluid density at HL-B spool piece

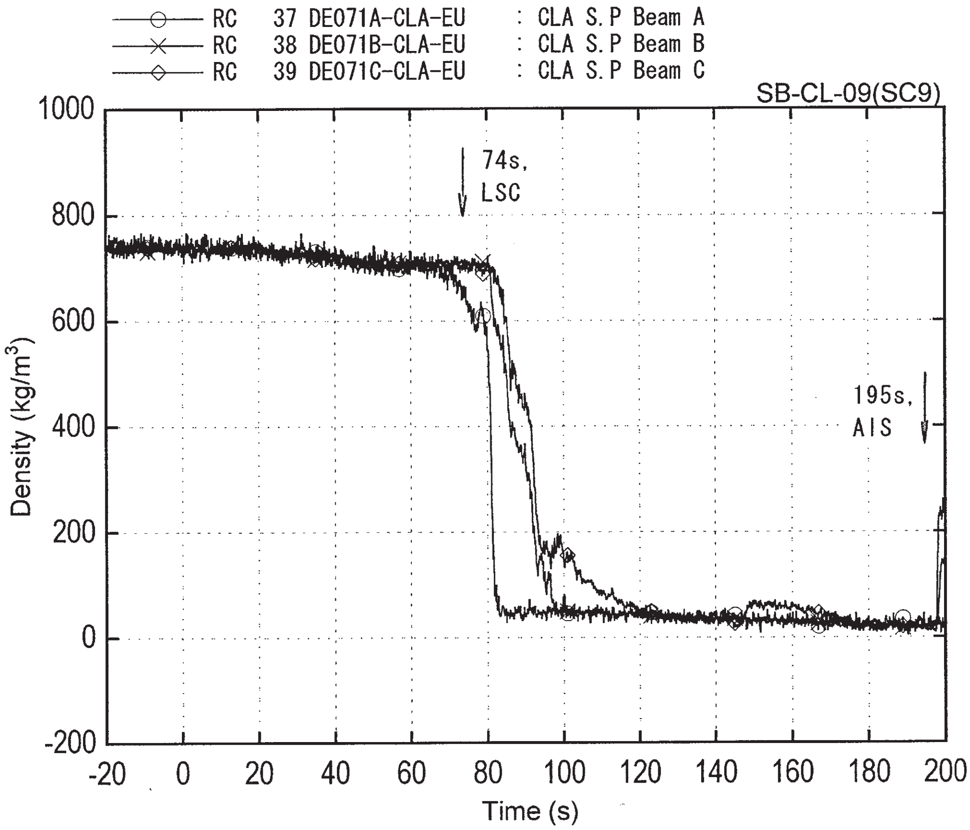


Fig. 4-19 Three-beam fluid density at CL-A spool piece

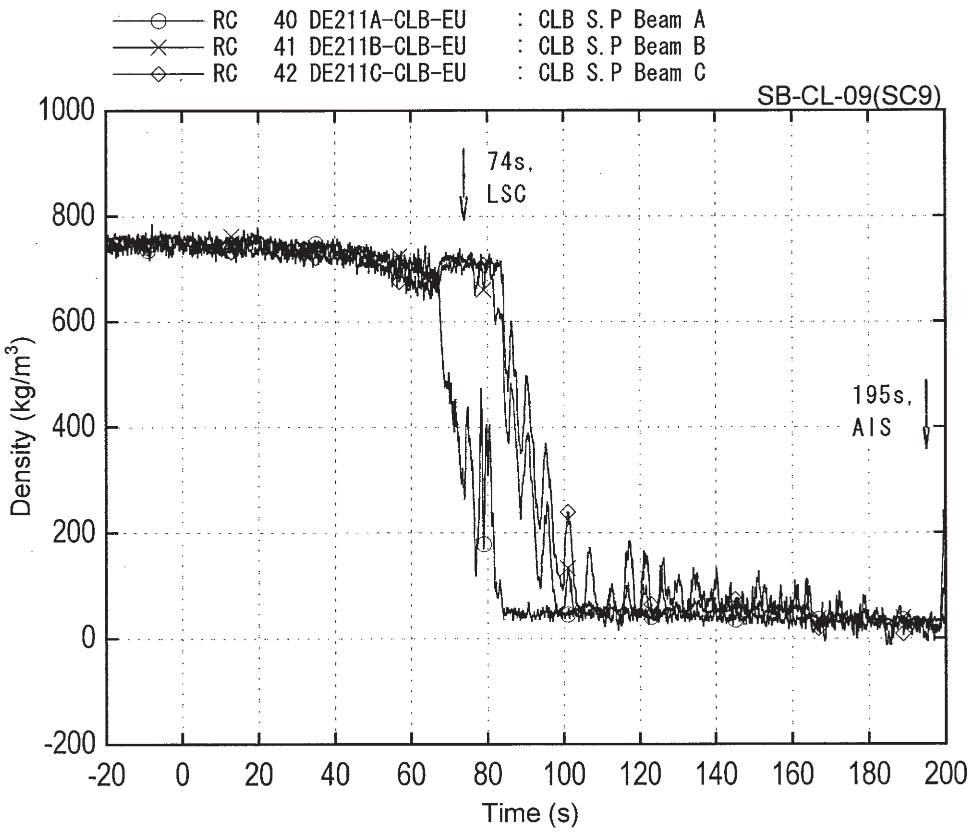


Fig. 4-20 Three-beam fluid density at CL-B spool piece

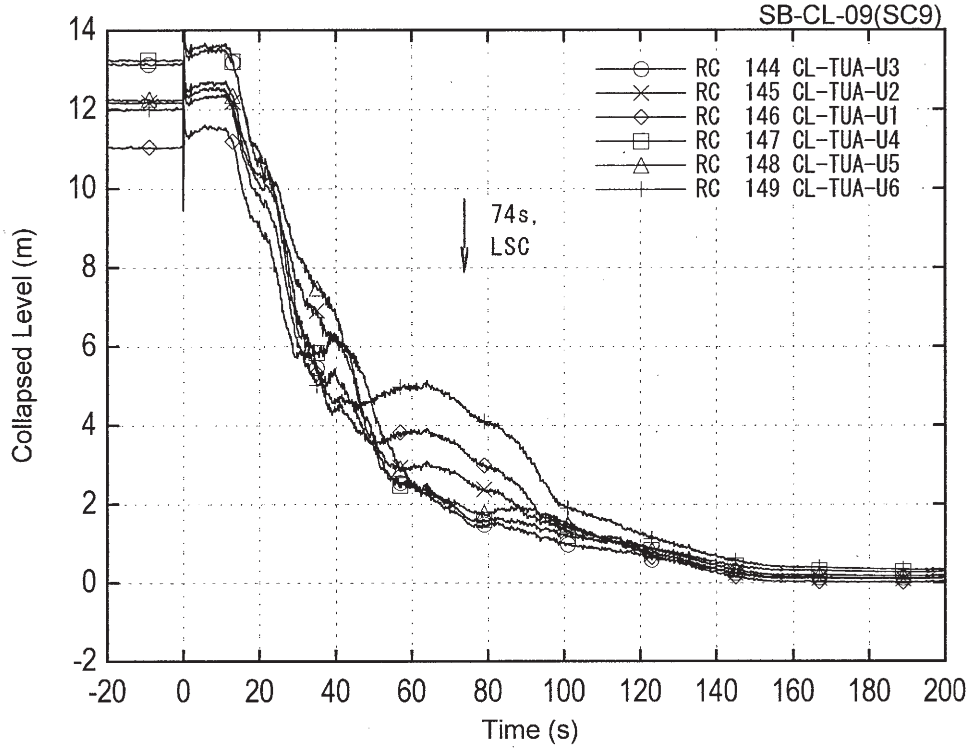


Fig. 4-21 Collapsed liquid levels in inlet side of SG-A U-tubes

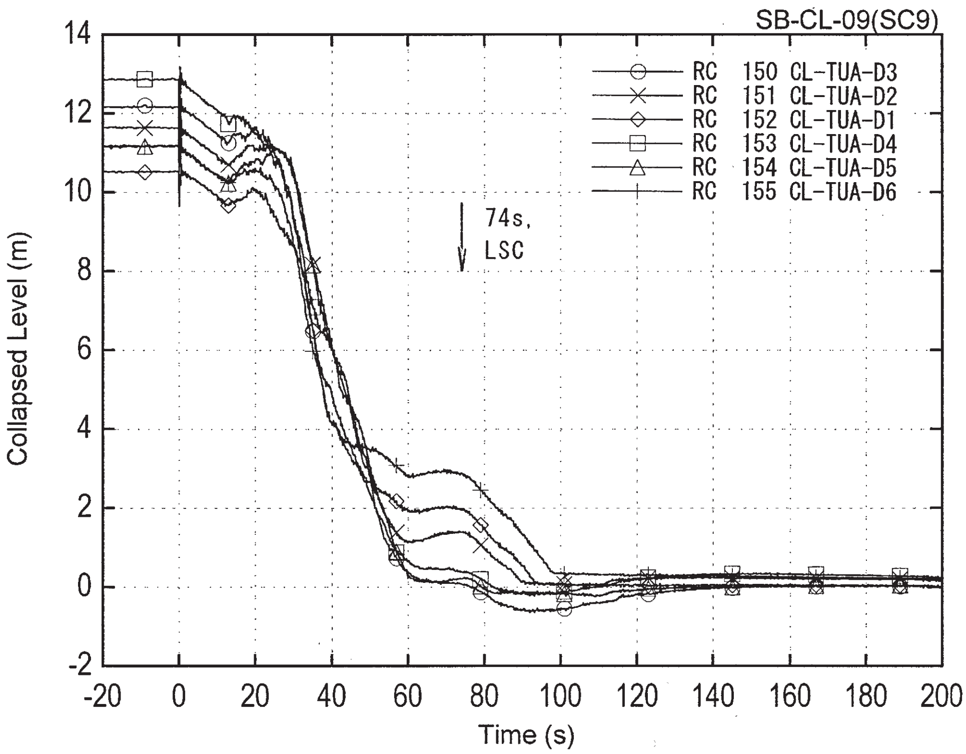


Fig. 4-22 Collapsed liquid levels in outlet side of SG-A U-tubes

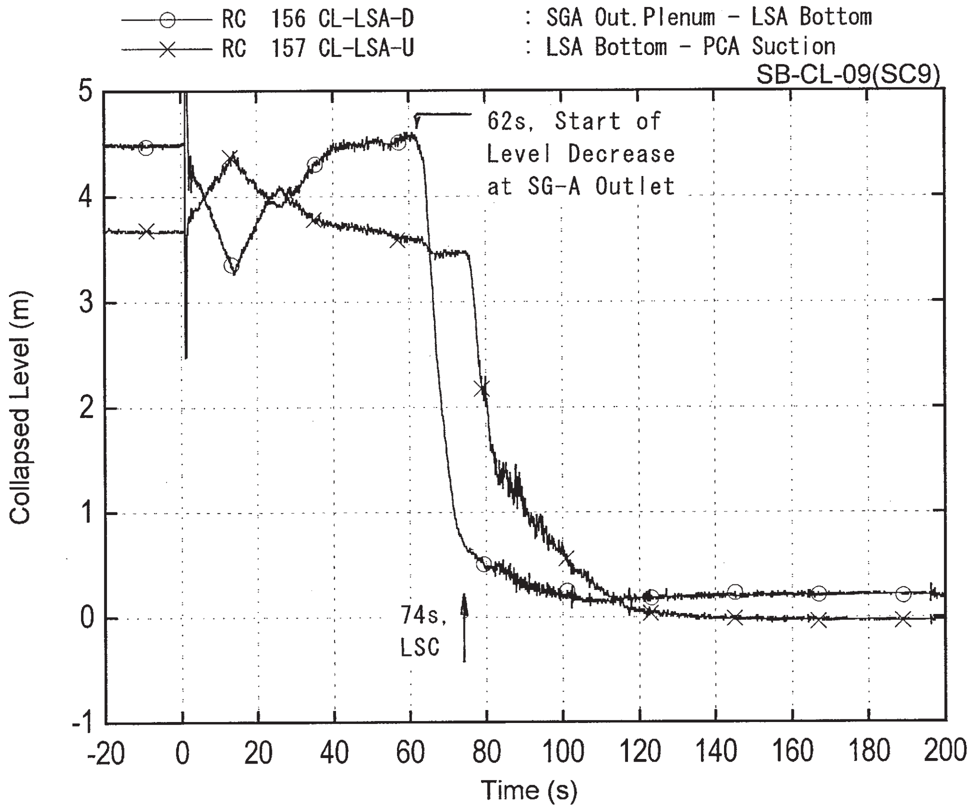


Fig.4-23 Collapsed liquid levels at upflow and downflow sides of Loop-seal A

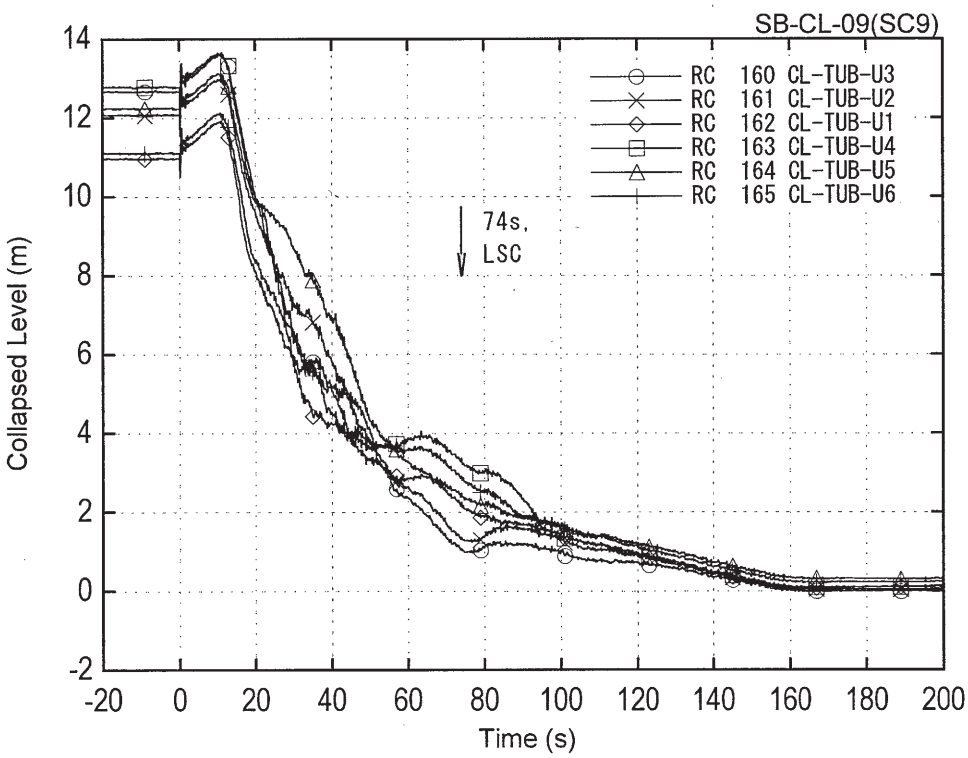


Fig.4-24 Collapsed liquid levels in inlet side of SG-B U-tubes

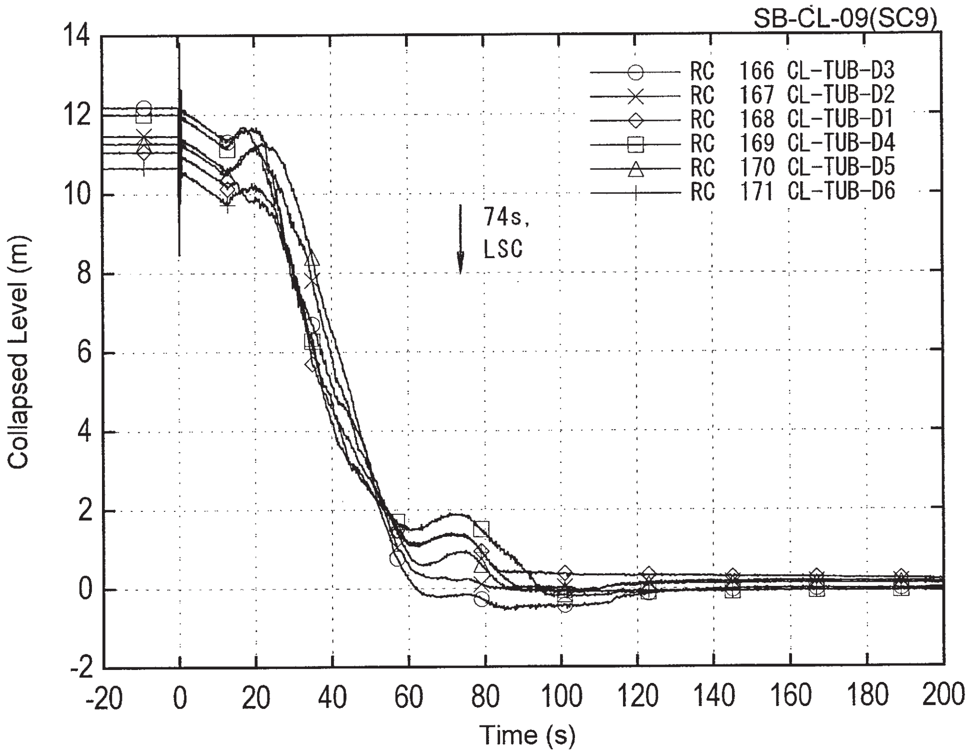


Fig. 4-25 Collapsed liquid levels in outlet side of SG-B U-tubes

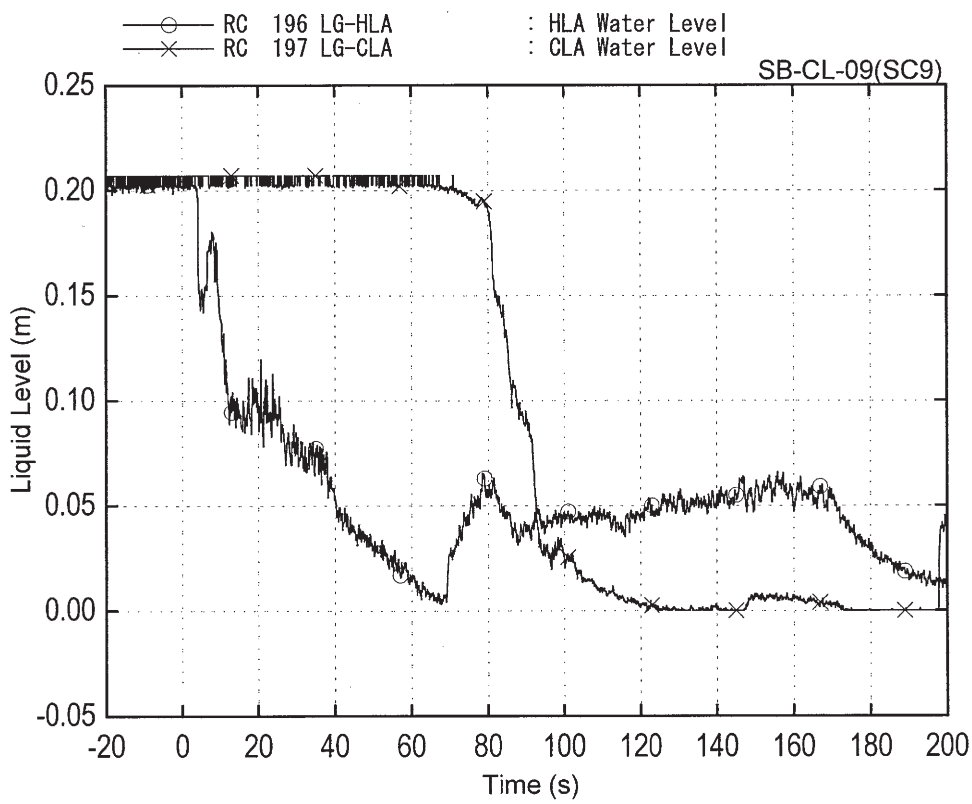


Fig. 4-26 Liquid levels derived from fluid densities in HL-A and CL-A

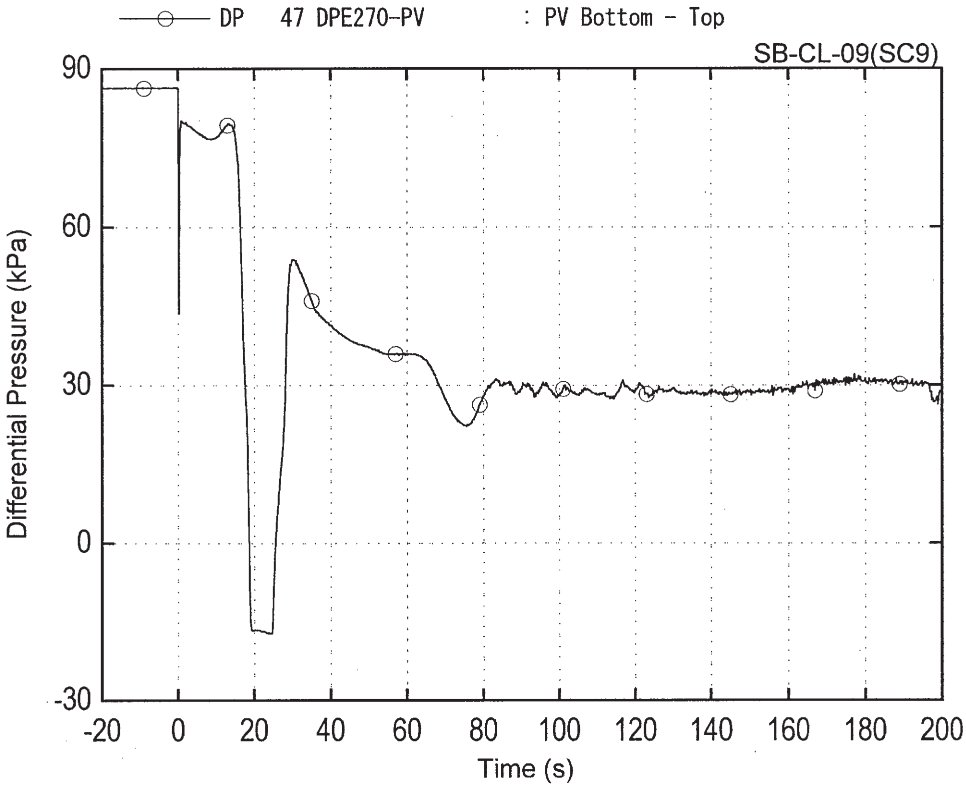


Fig. 4-27 Differential pressure between top and bottom of PV

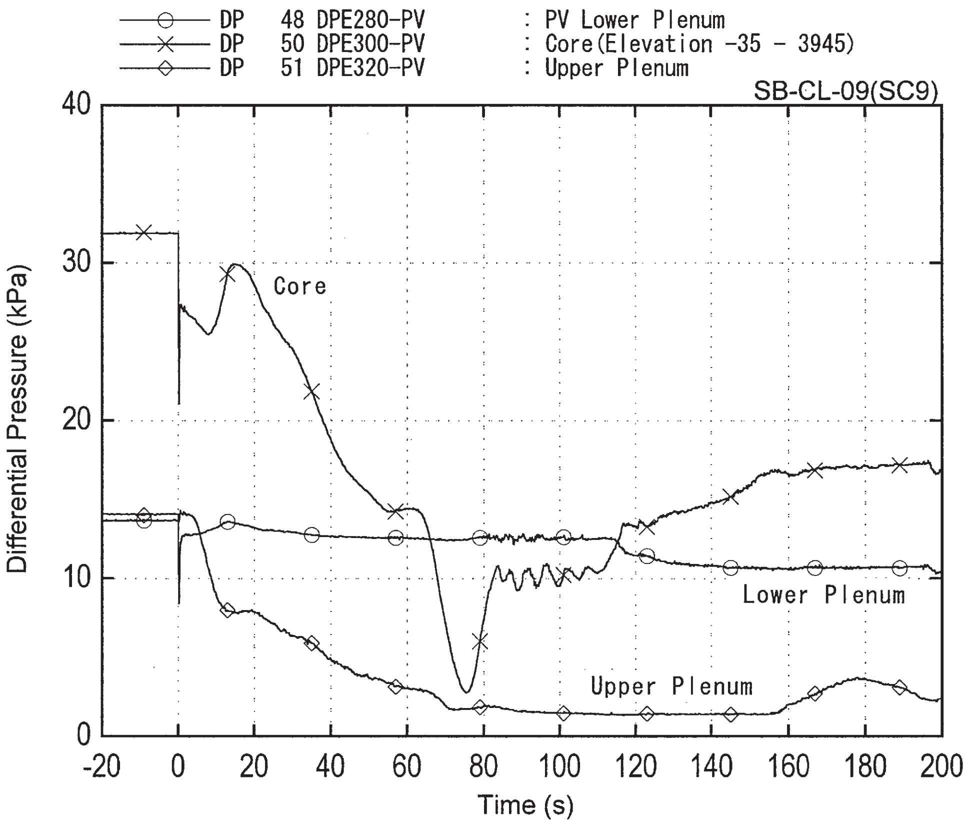


Fig. 4-28 Differential pressures across lower plenum, core and upper plenum

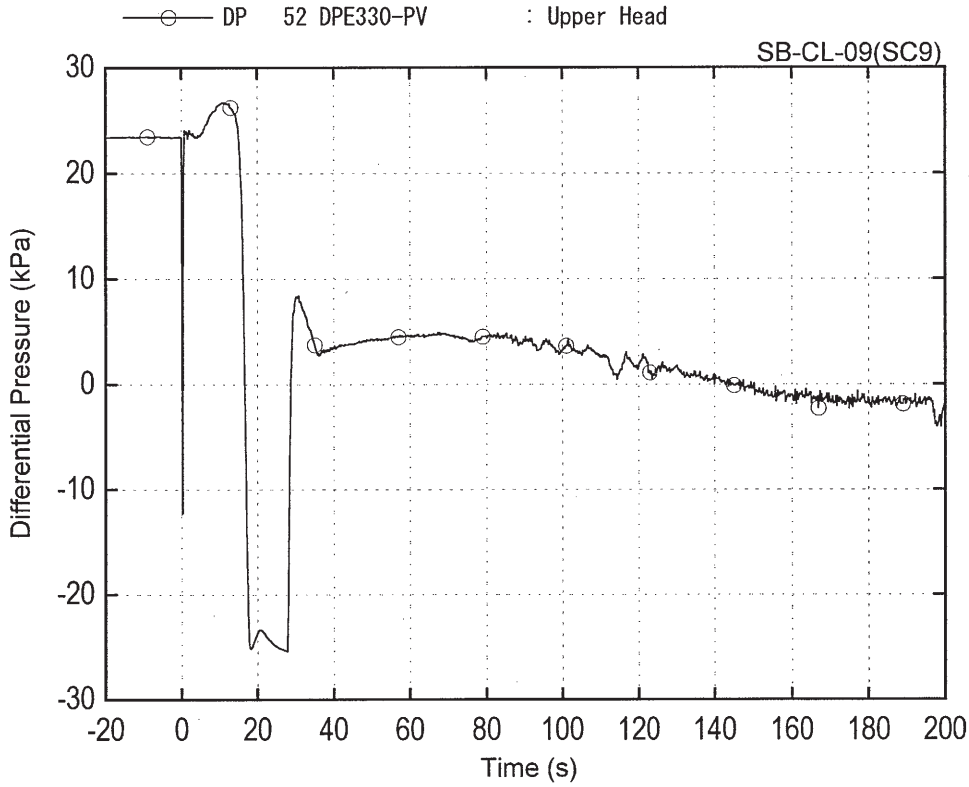


Fig. 4-29 Differential pressure between upper head and upper plenum

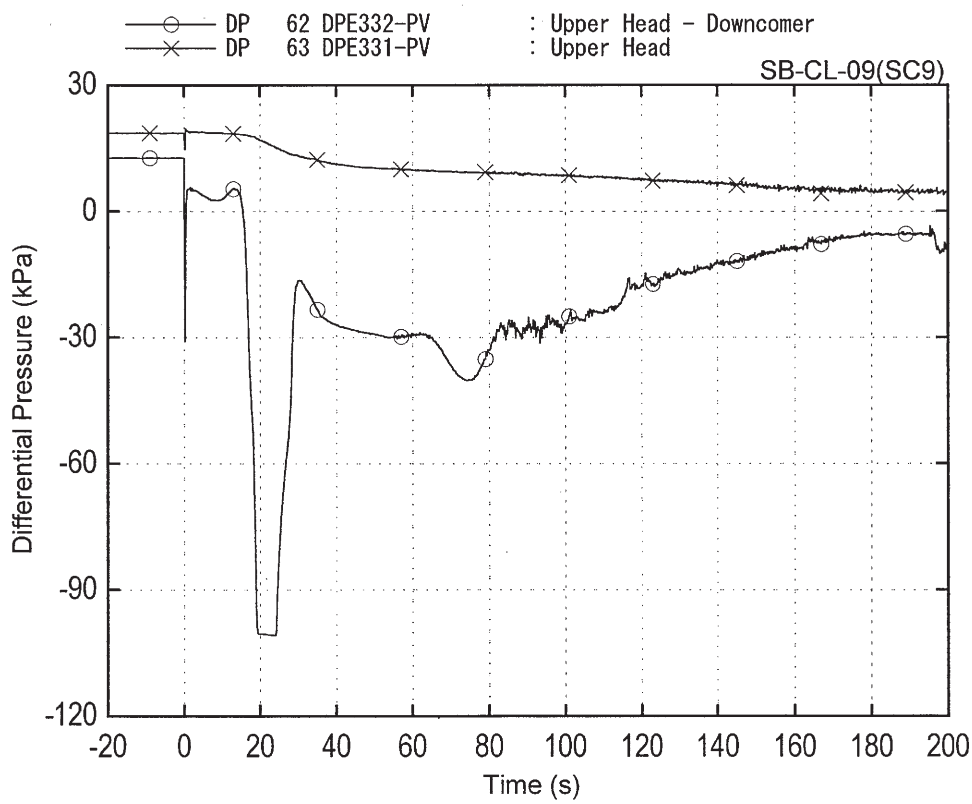


Fig. 4-30 Differential pressures in upper head and between upper head and downcomer

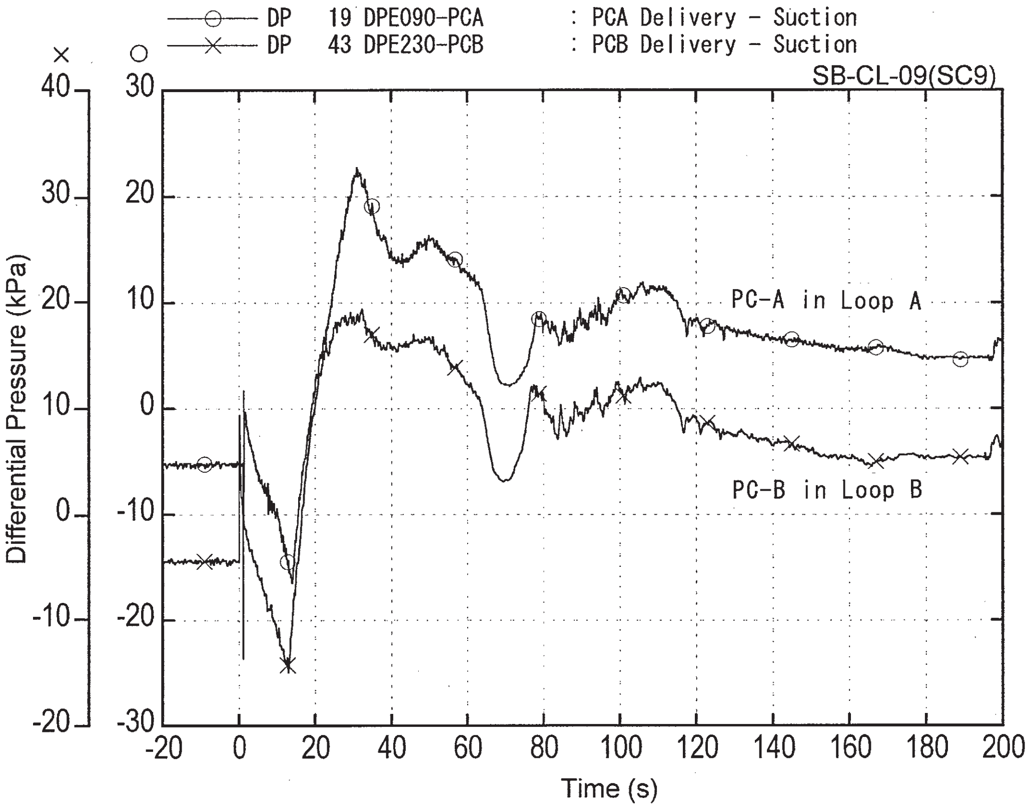


Fig. 4-31 Differential pressures across primary coolant pumps, PC-A and PC-B

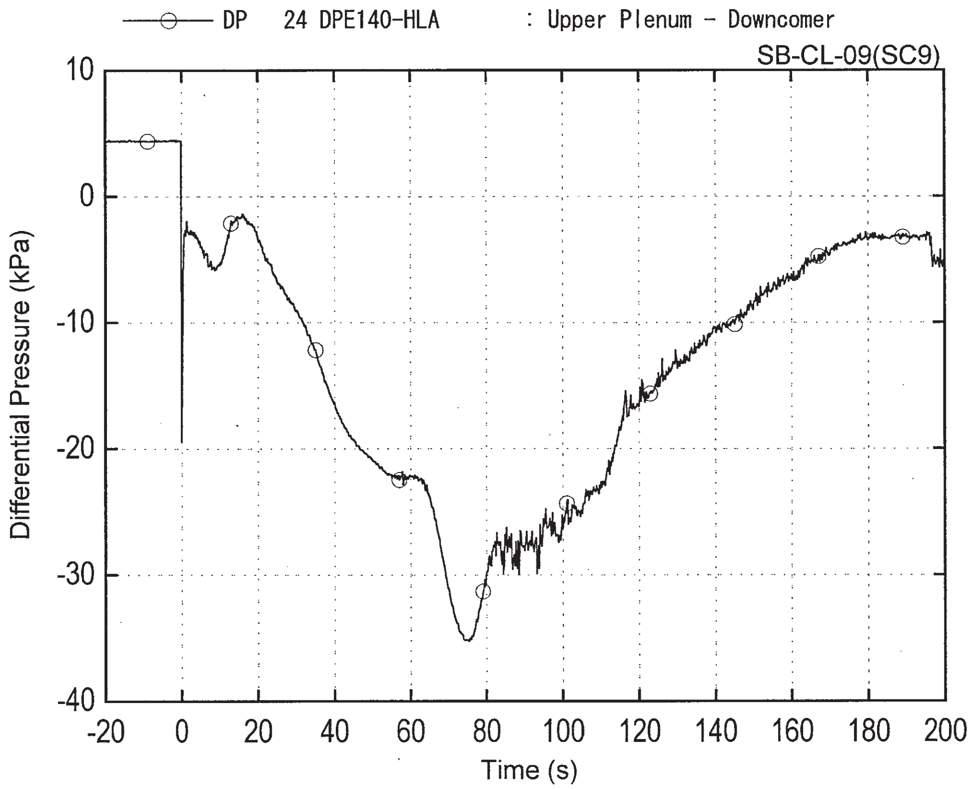


Fig. 4-32 Differential pressure between downcomer and upper plenum

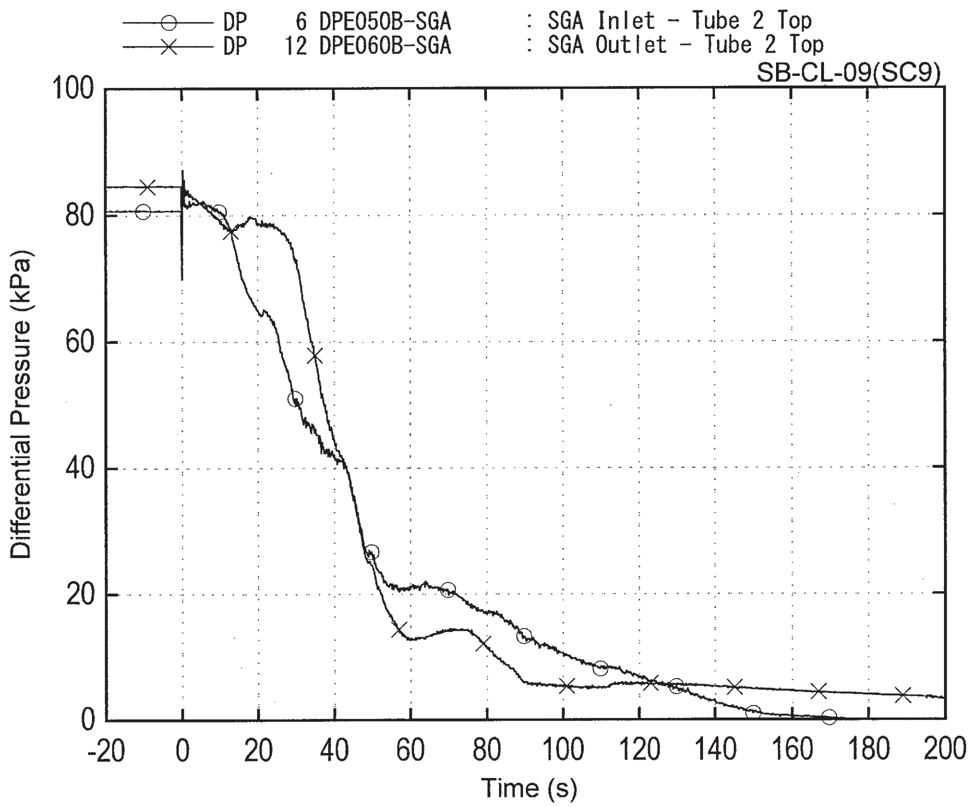


Fig. 4-33　Differential pressures in inlet and outlet sides of SG-A U-tube 2

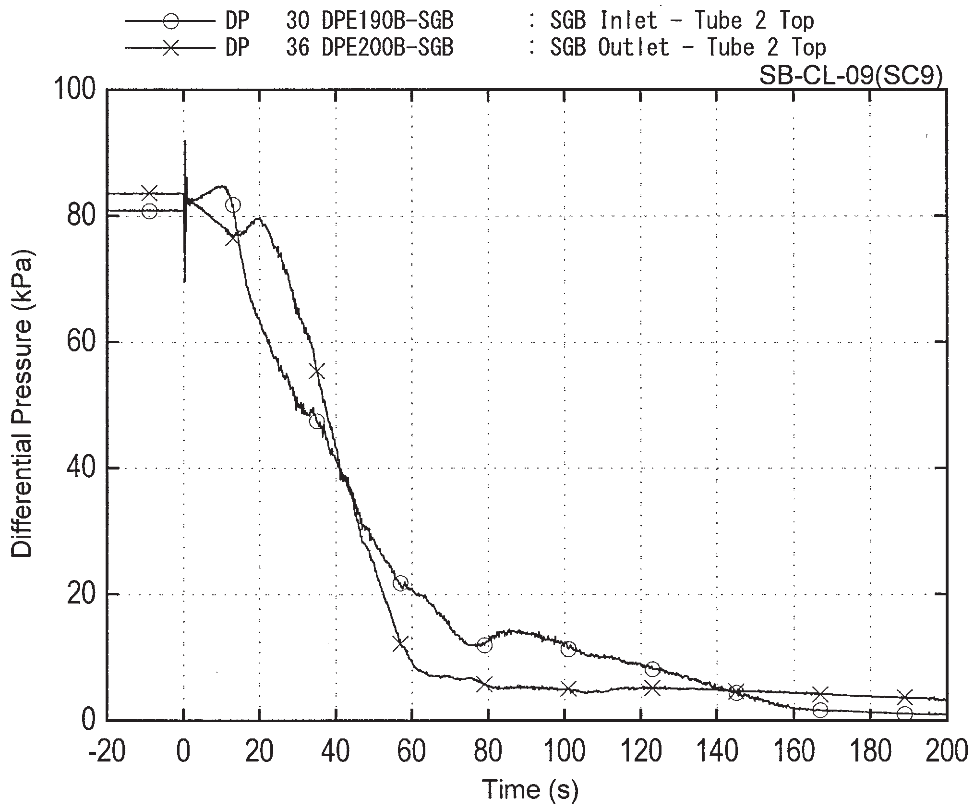


Fig. 4-34　Differential pressures in inlet and outlet sides of SG-B U-tube 2

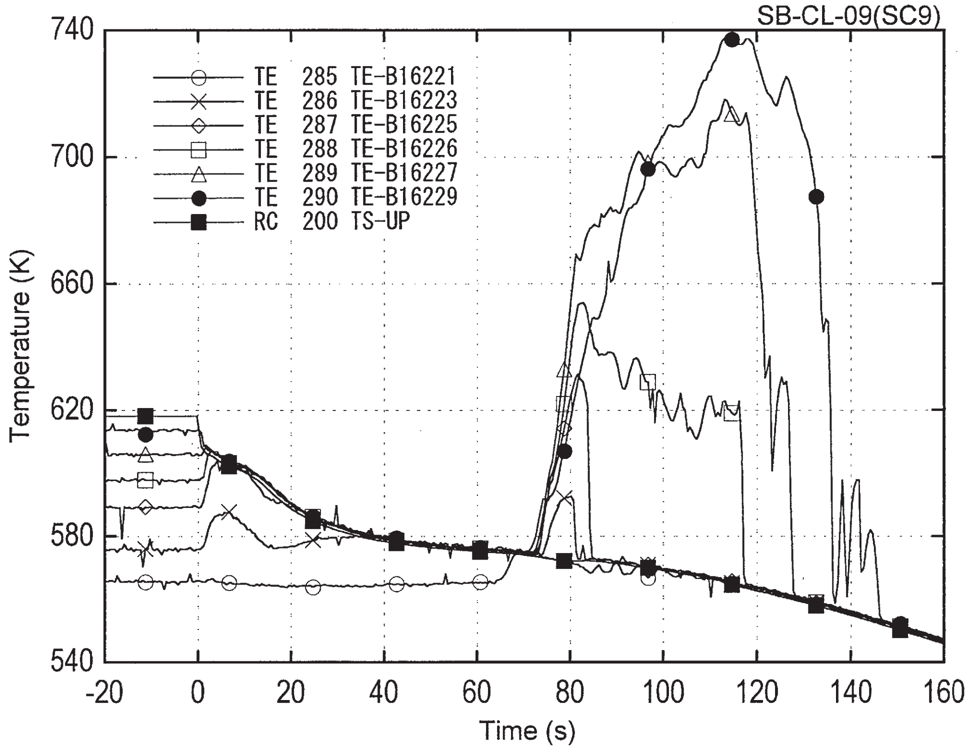


Fig. 4-35 Vertical fluid temperatures in high-power bundle (B16)

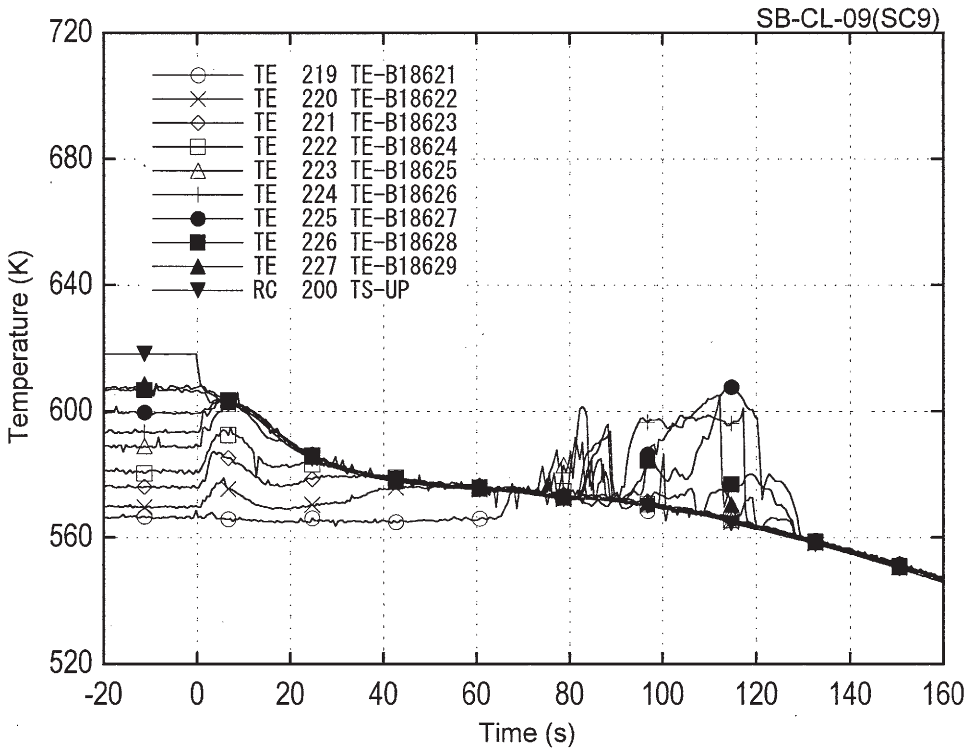


Fig. 4-36 Vertical fluid temperatures in high-power bundle (B18)

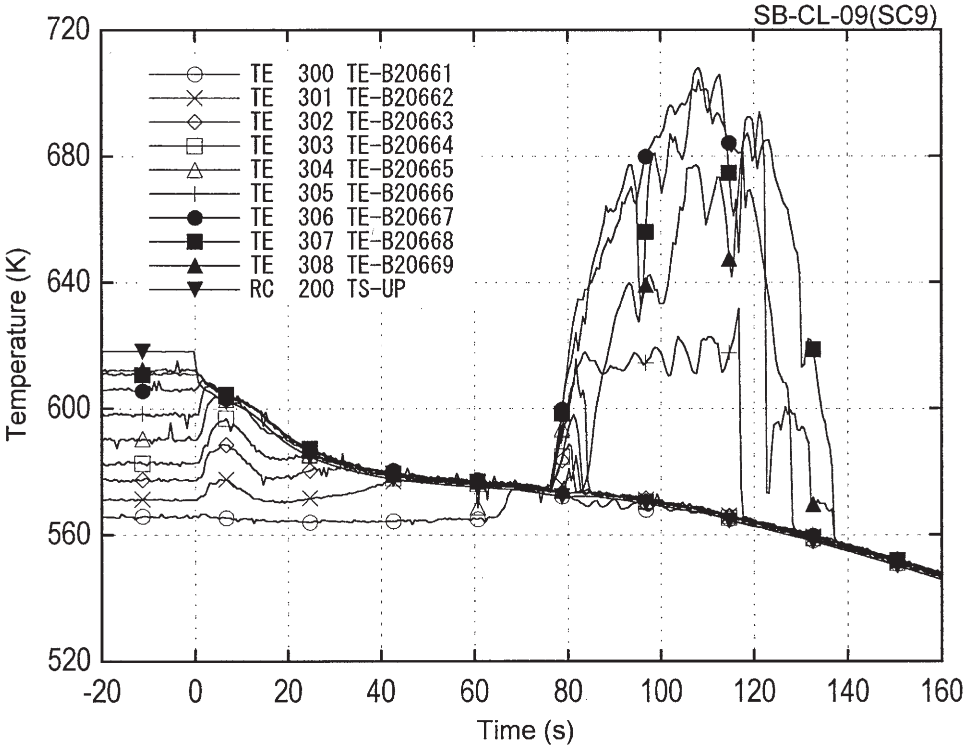


Fig. 4-37　Vertical fluid temperatures in high-power bundle (B20)

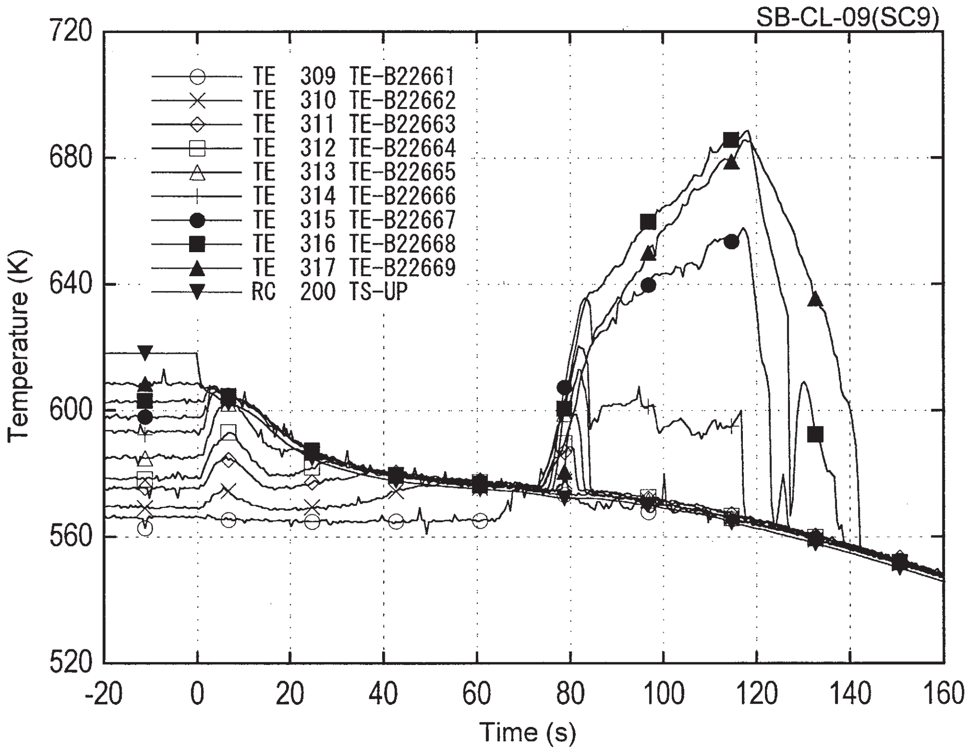


Fig. 4-38　Vertical fluid temperatures in middle-power bundle (B22)

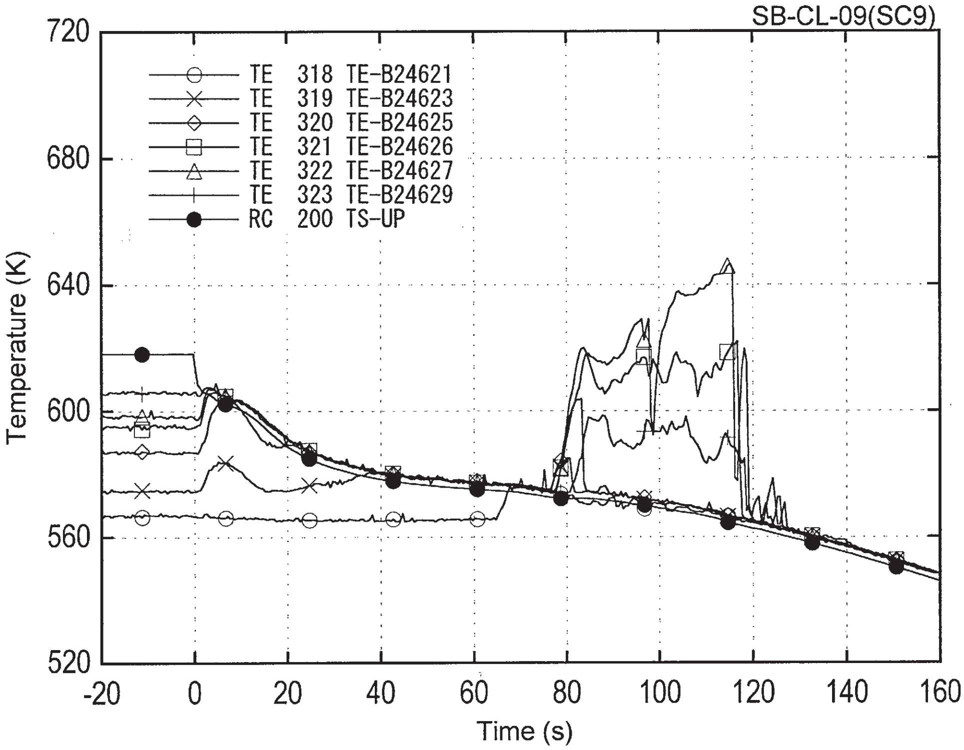


Fig. 4-39 Vertical fluid temperatures in middle-power bundle (B24)

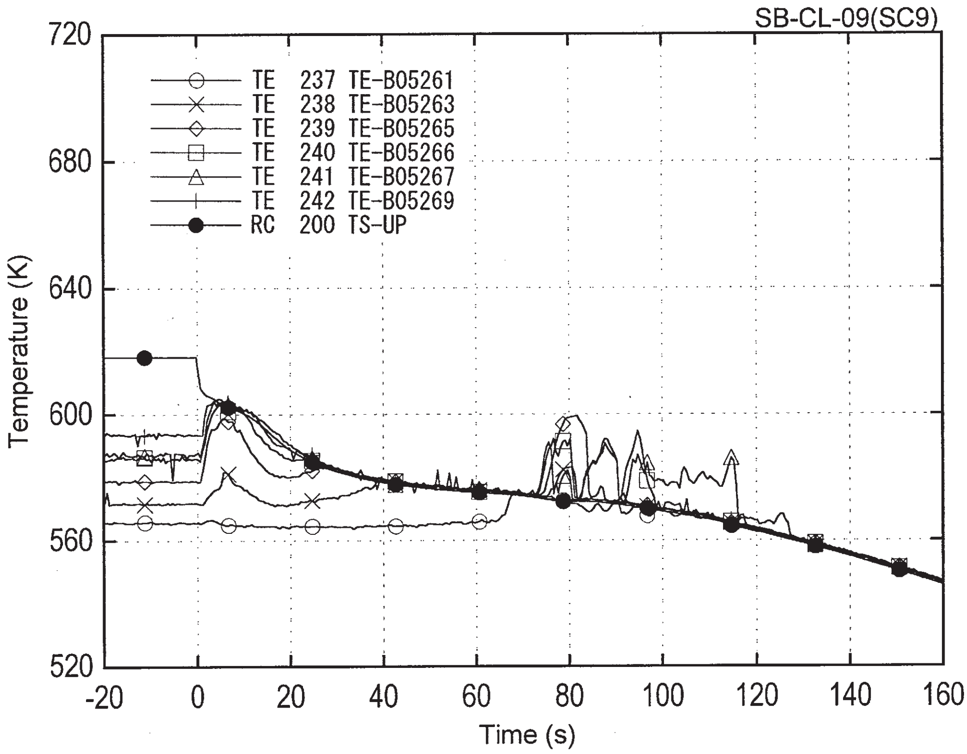


Fig. 4-40 Vertical fluid temperatures in low-power bundle (B05)

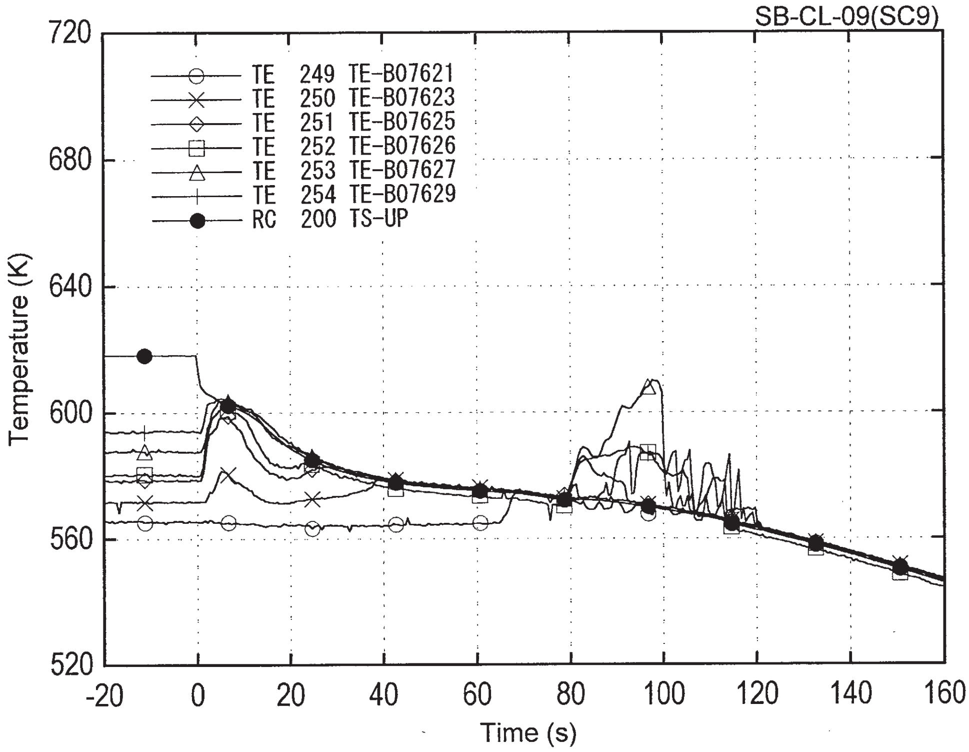


Fig. 4-41 Vertical fluid temperatures in low-power bundle (B07)

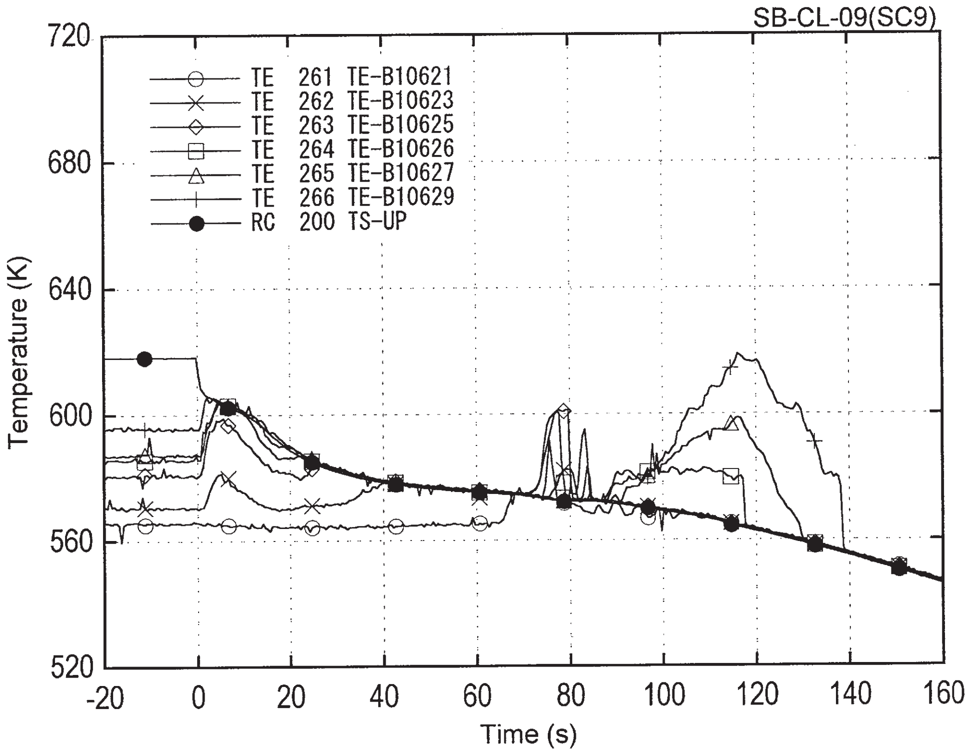


Fig. 4-42 Vertical fluid temperatures in low-power bundle (B10)

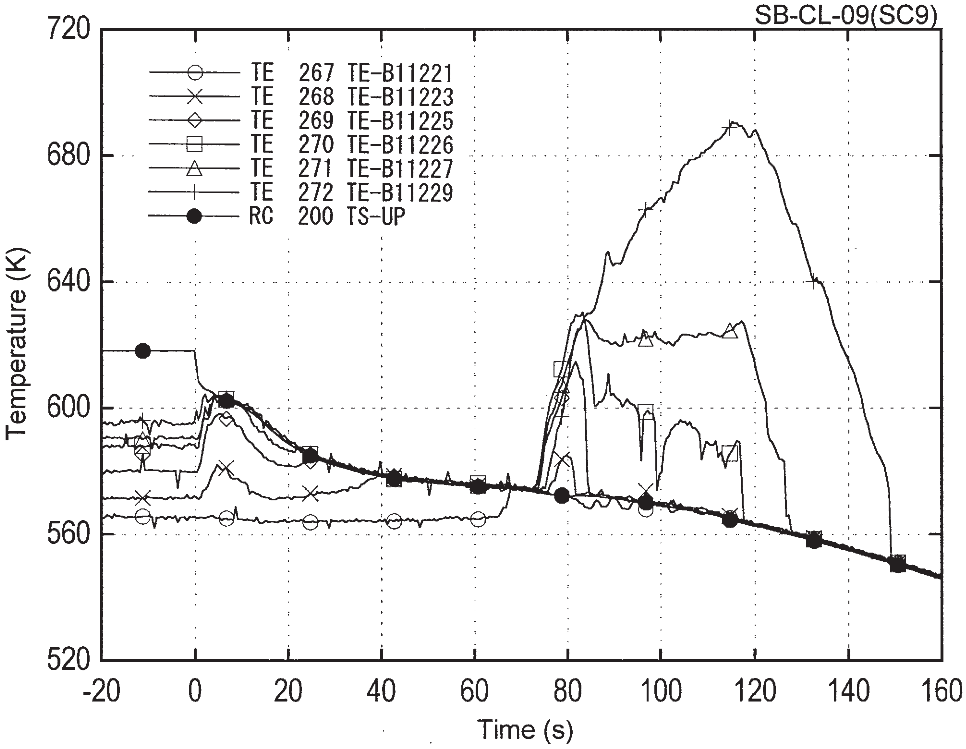


Fig. 4-43 Vertical fluid temperatures in low-power bundle (B11)

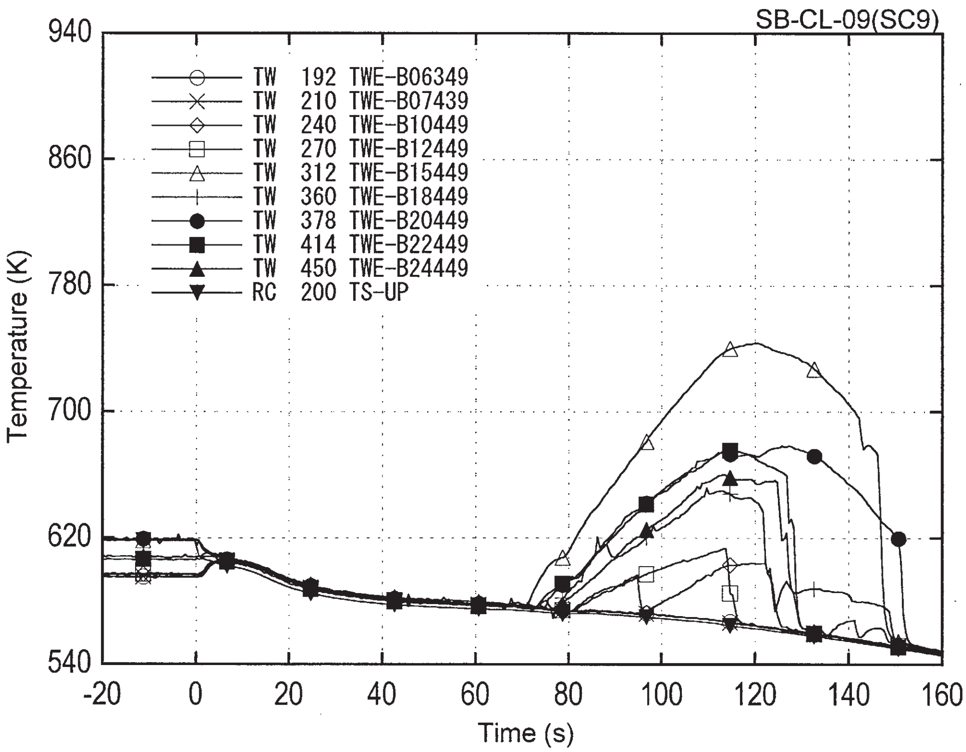


Fig. 4-44 Horizontal rod temperature distribution at core top (Pos. 9)

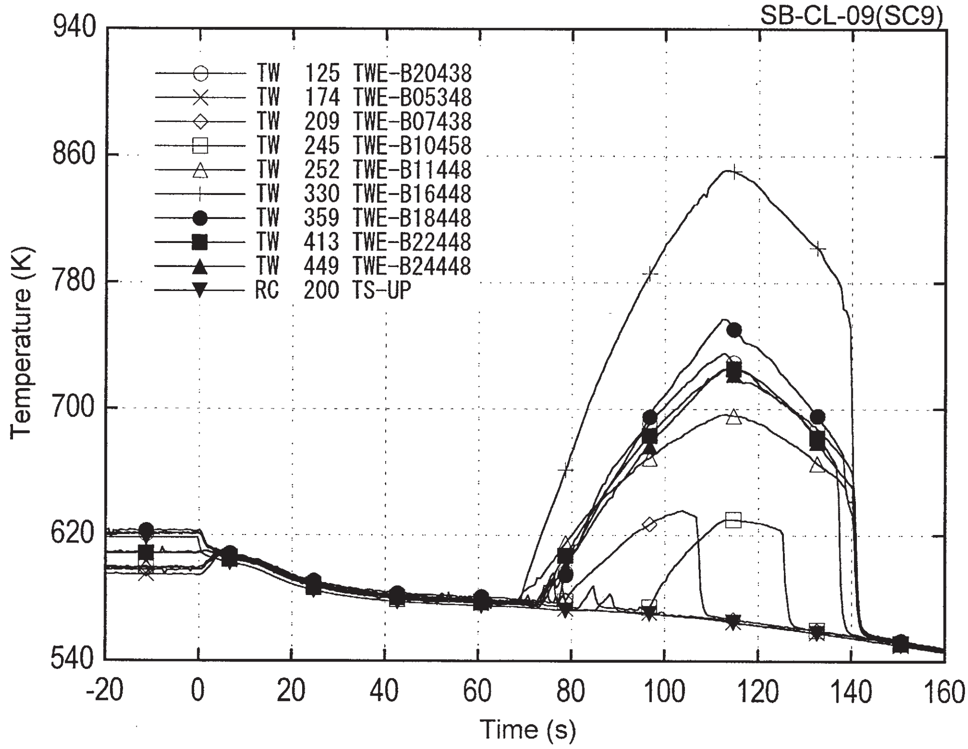


Fig. 4-45 Horizontal rod temperature distribution at upper core (Pos. 8)

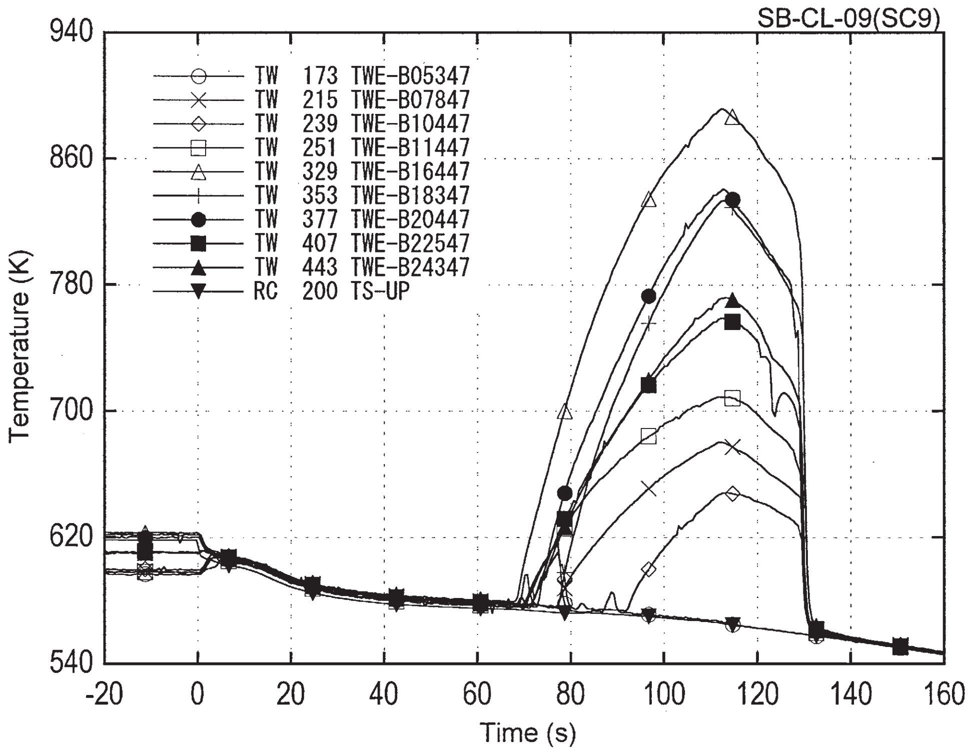


Fig. 4-46 Horizontal rod temperature distribution at Position 7

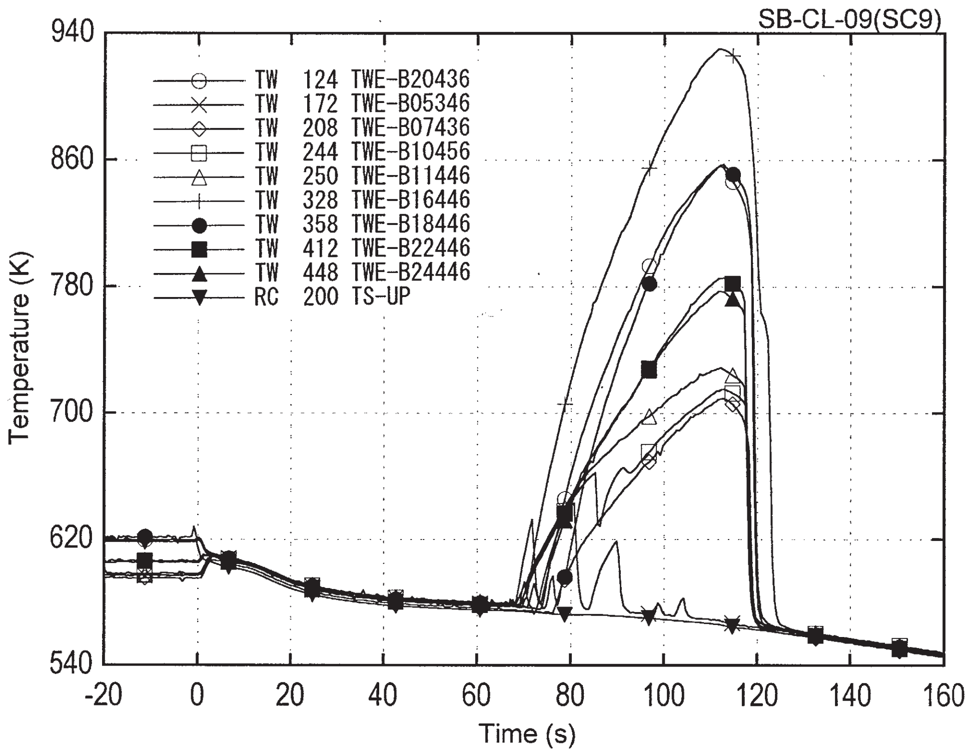


Fig. 4-47 Horizontal rod temperature distribution at Position 6

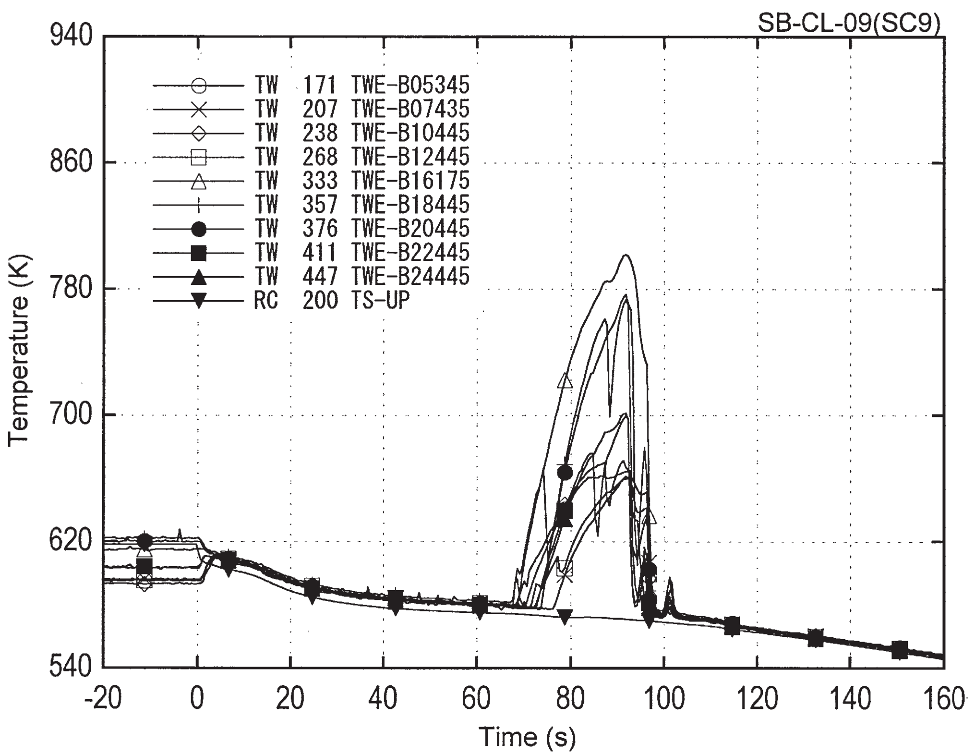


Fig. 4-48 Horizontal rod temperature distribution at middle core (Pos. 5)

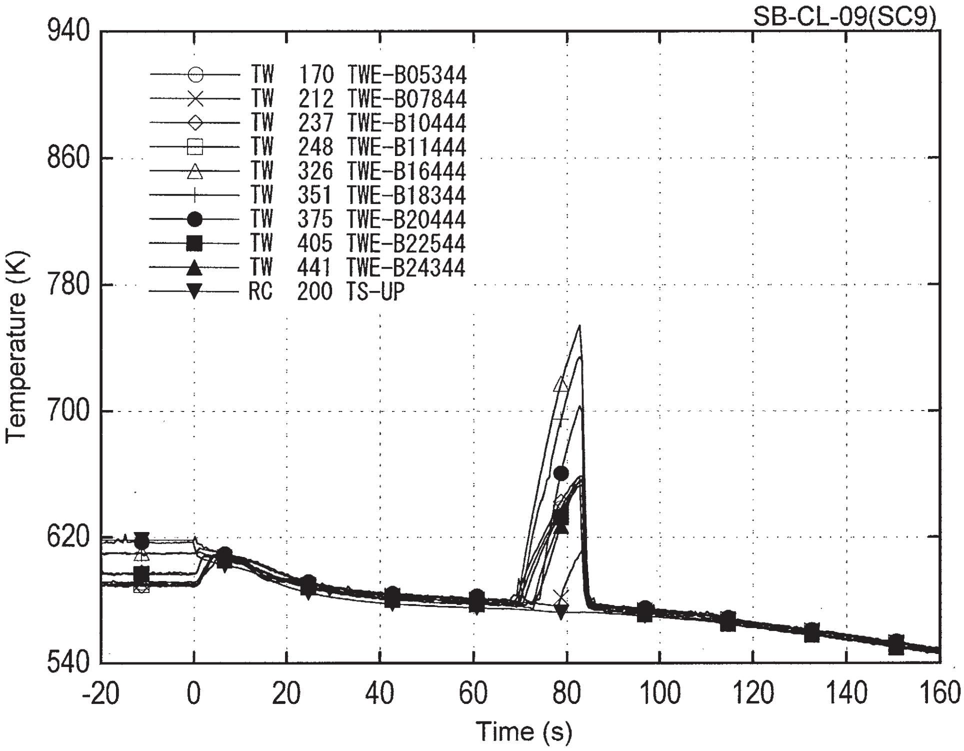


Fig. 4-49 Horizontal rod temperature distribution at Position 4

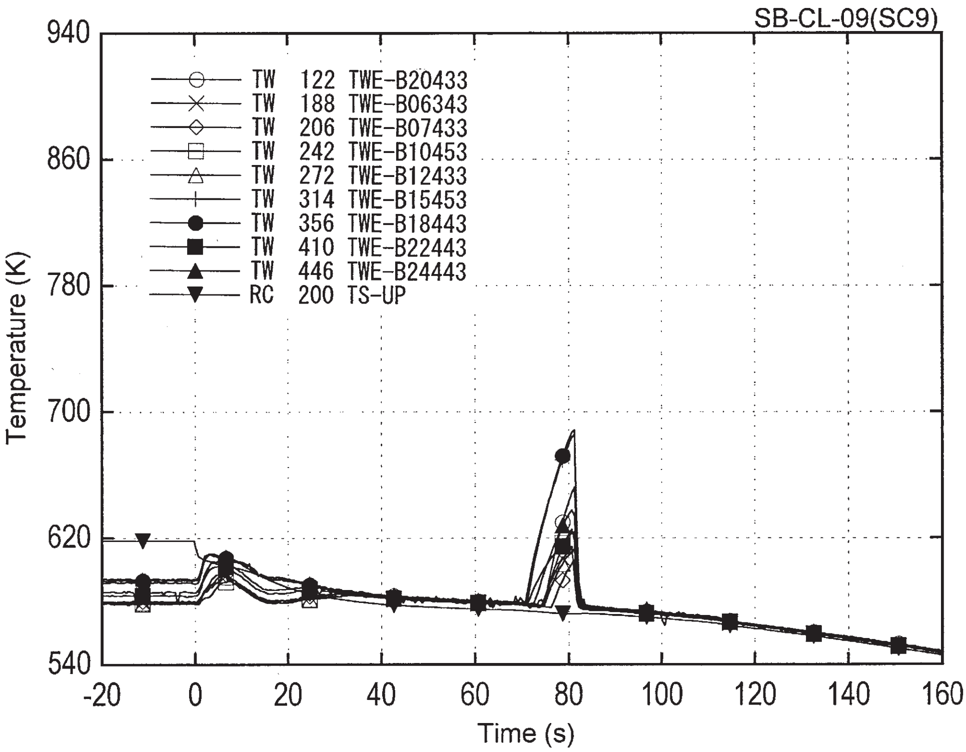


Fig. 4-50 Horizontal rod temperature distribution at Position 3

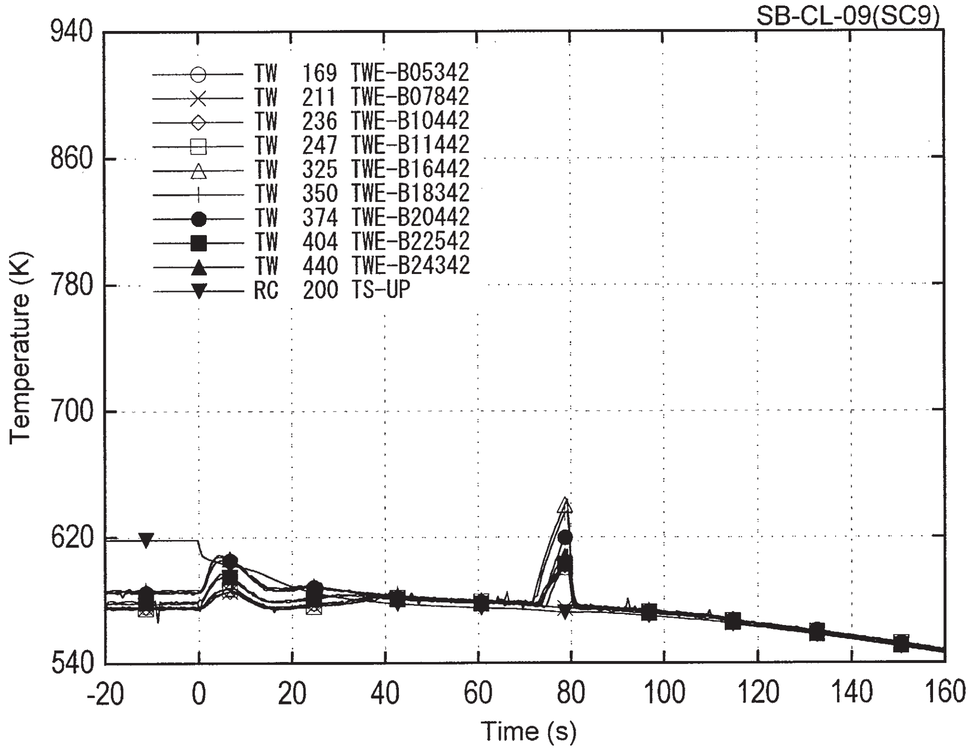


Fig. 4-51 Horizontal rod temperature distribution at lower core (Pos. 2)

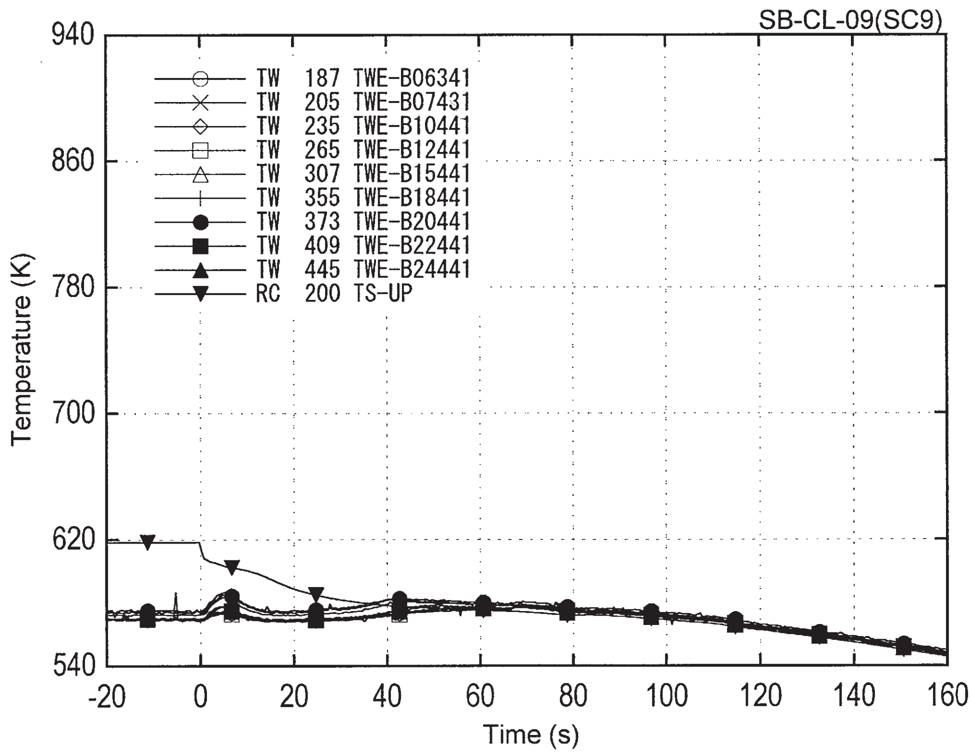


Fig. 4-52 Horizontal rod temperature distribution at core bottom (Pos. 1)

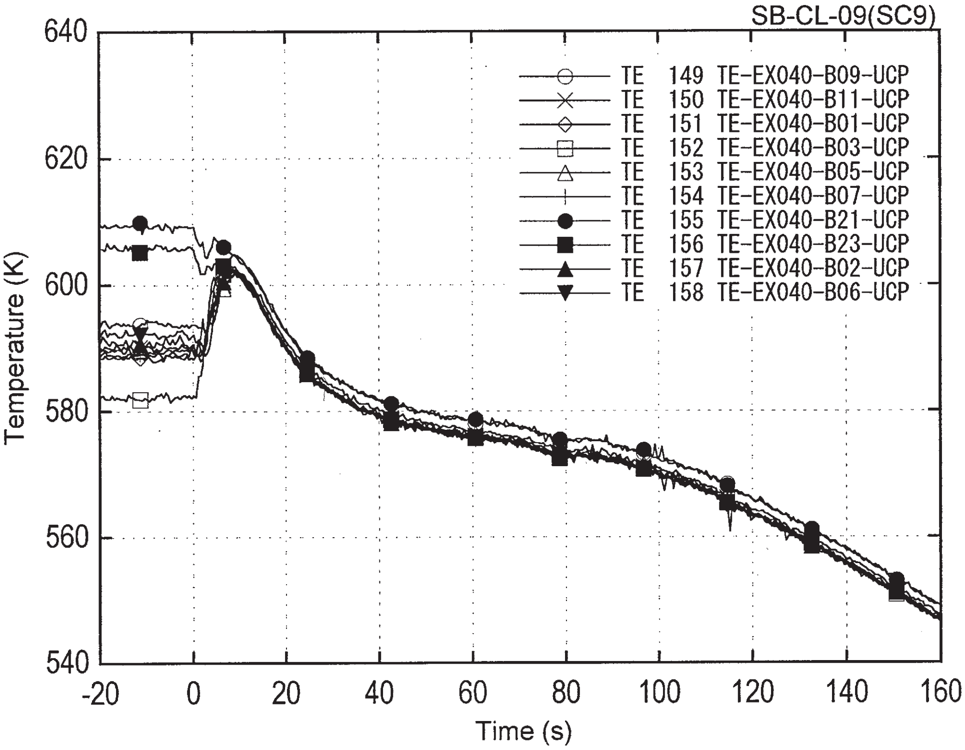


Fig. 4-53 Core exit temperatures in peripheral and central regions

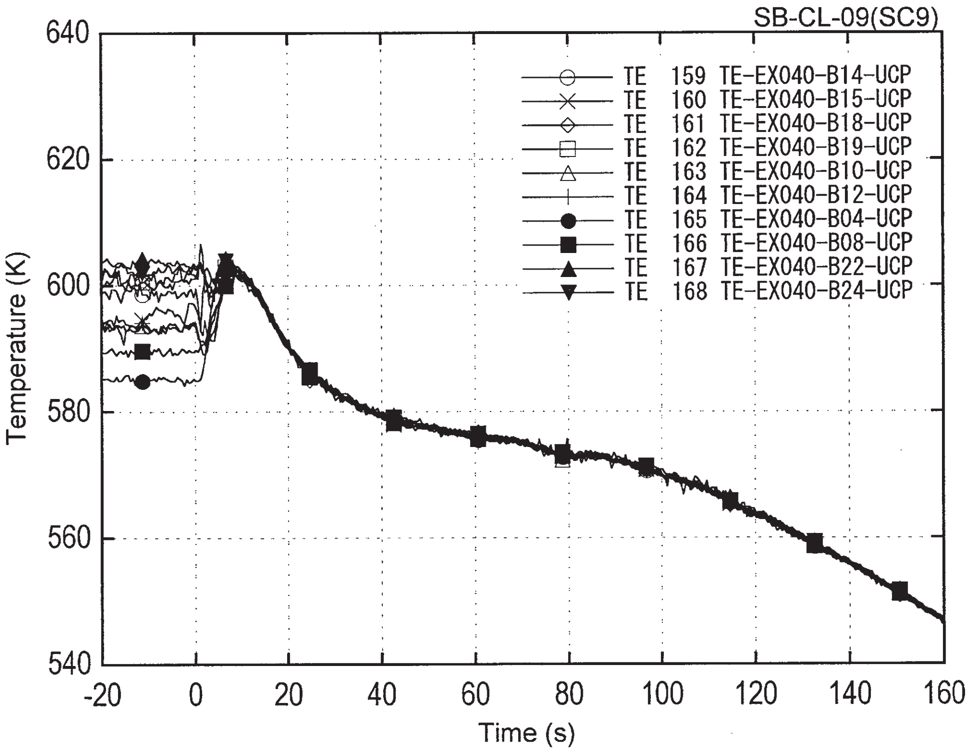


Fig. 4-54 Core exit temperatures including high-power bundle exits

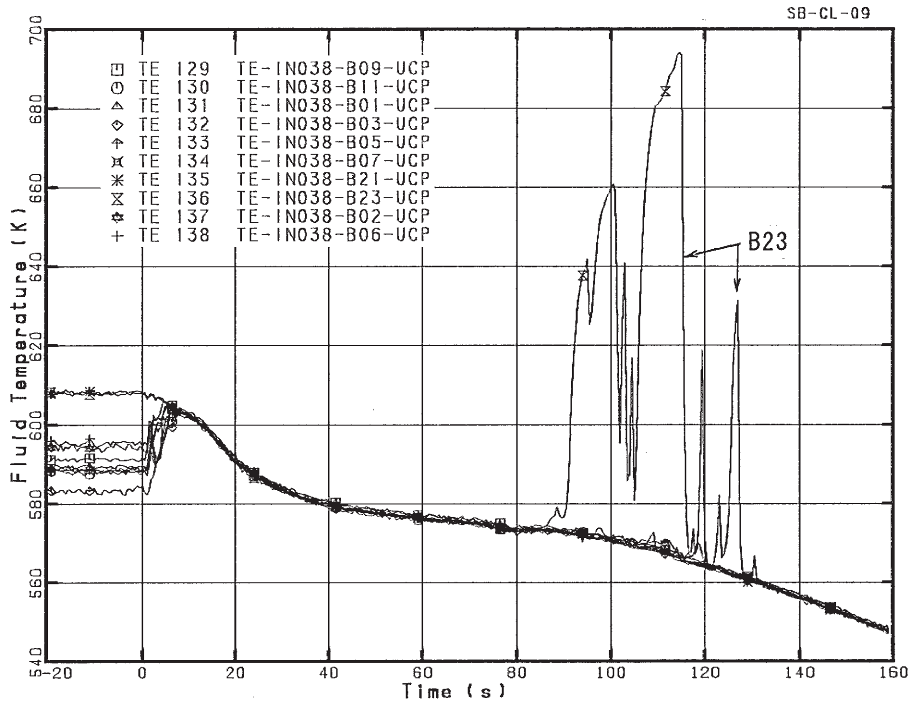


Fig. 4-55 Fluid temperatures below UCP in peripheral and central regions

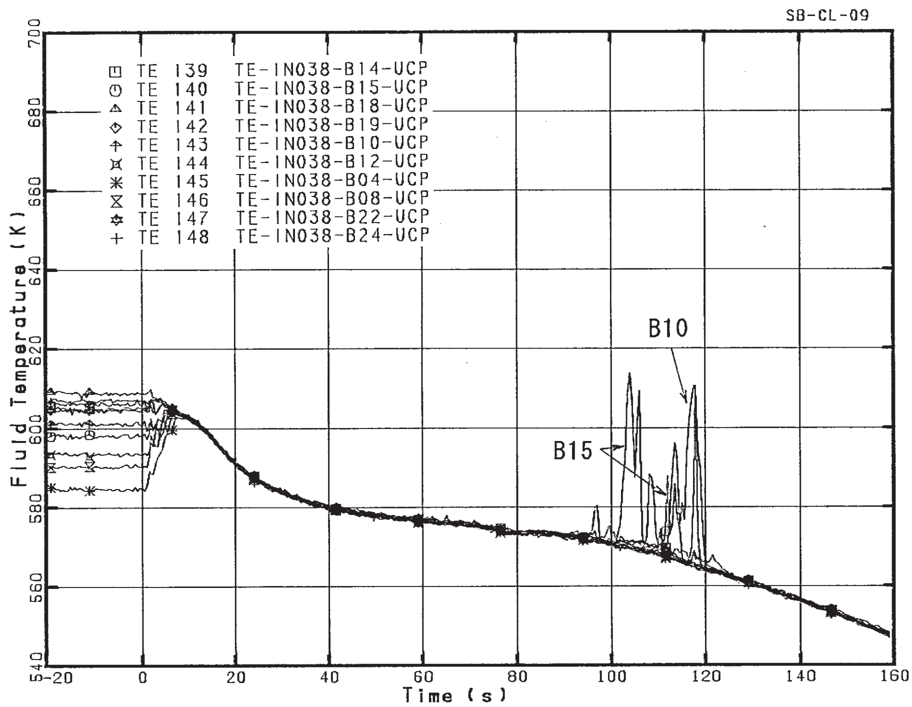


Fig. 4-56 Fluid temperatures below UCP including high-power bundle exits

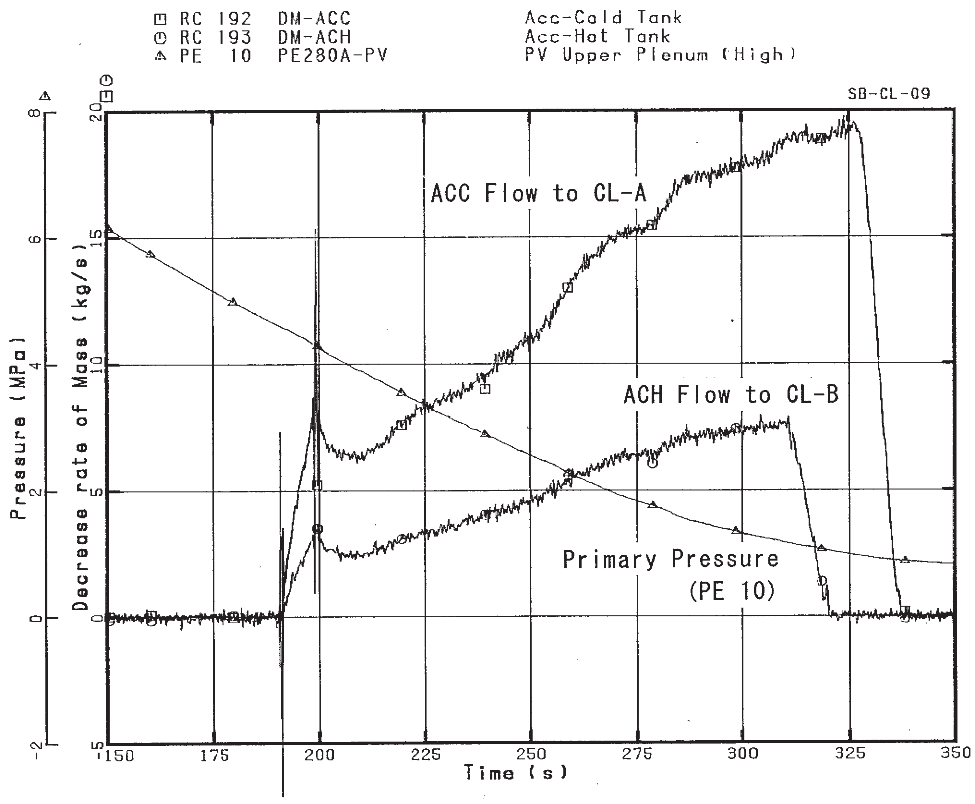


Fig. 4-57 Coolant injection flow rates from accumulator tanks

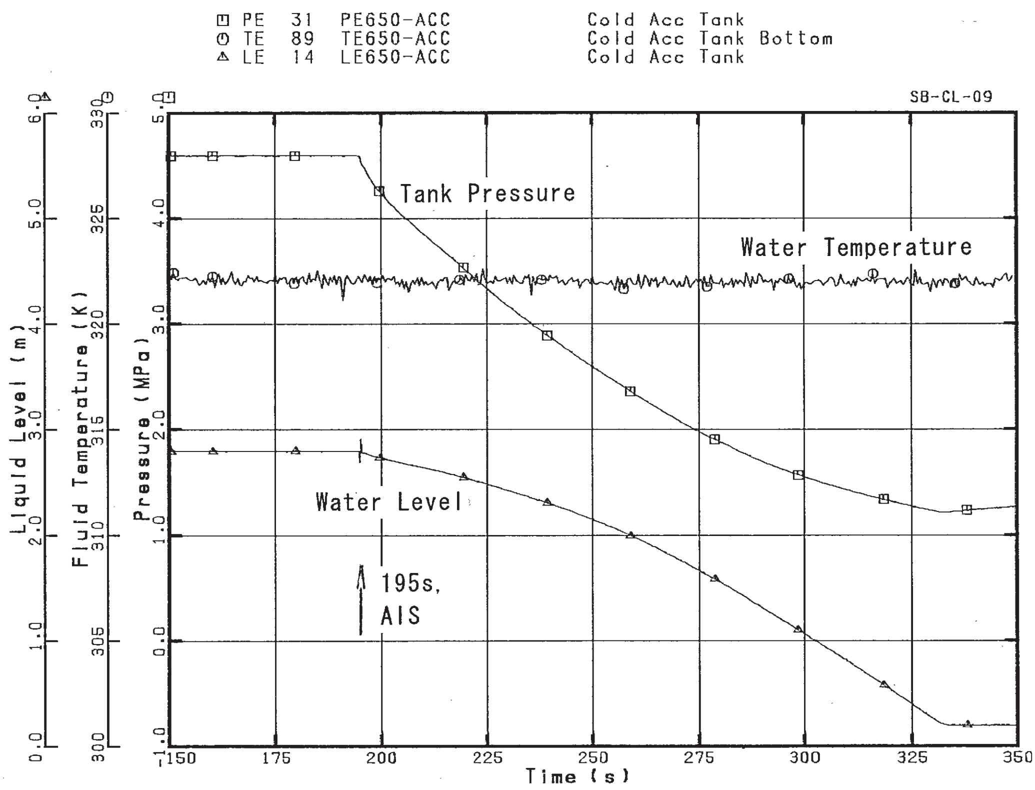


Fig. 4-58 Pressure, fluid temperatures and liquid level in ACC tank

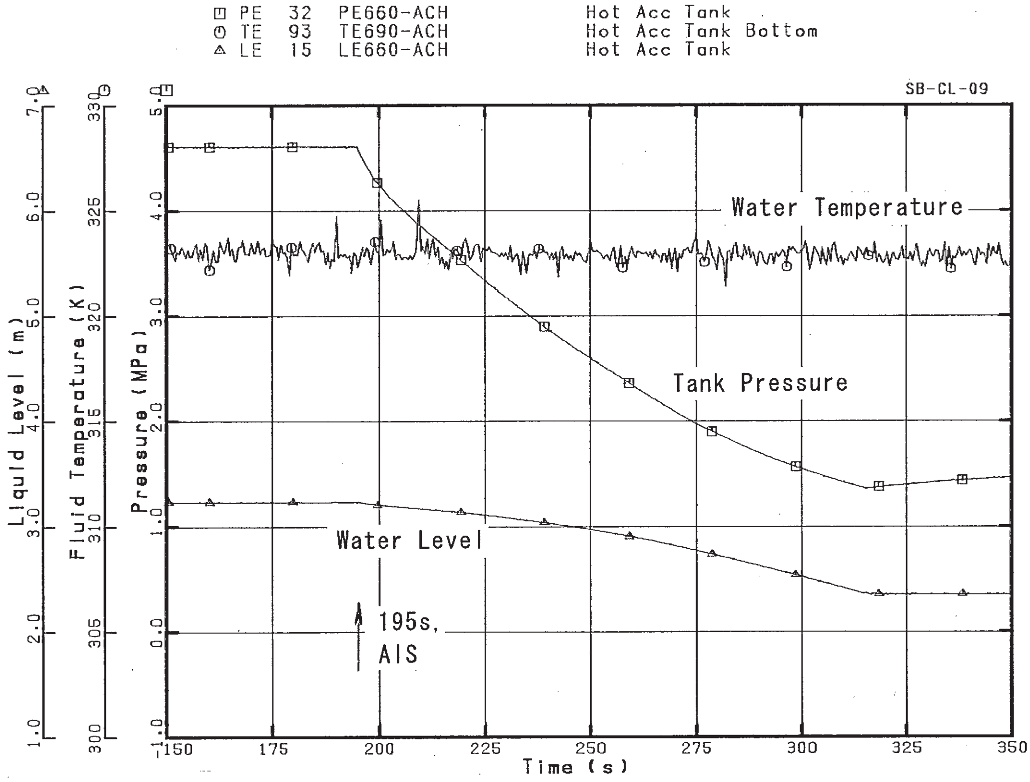


Fig. 4-59 Pressure, fluid temperatures and liquid level in ACH tank

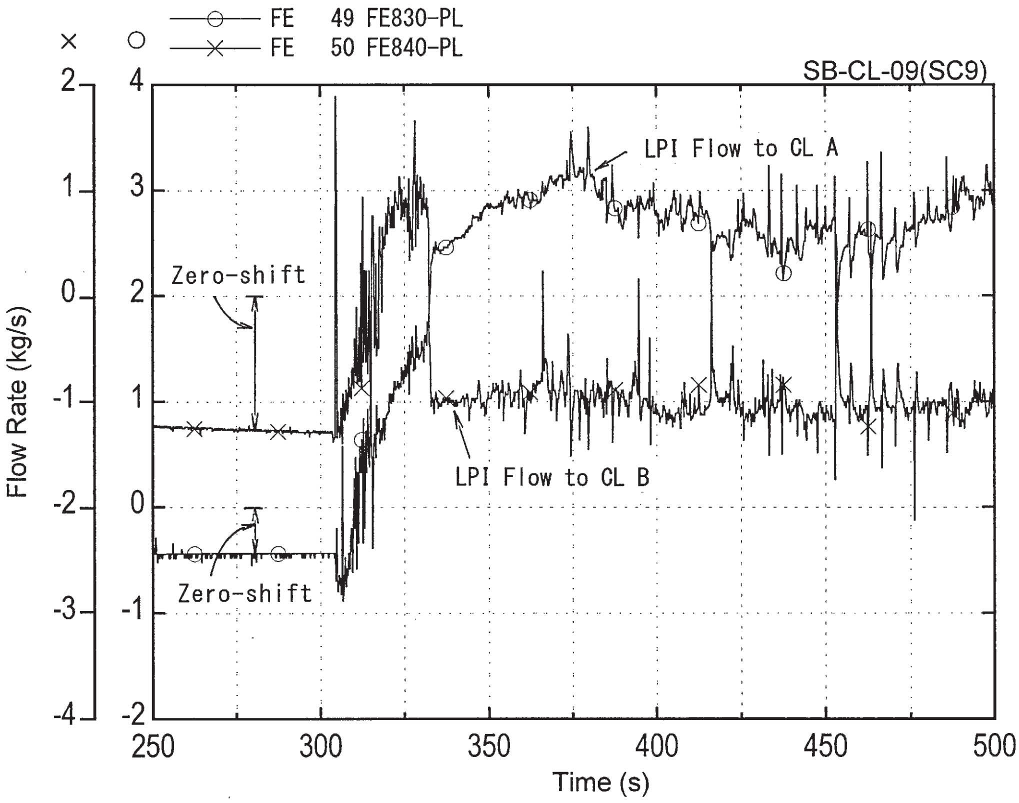


Fig.4-60 LPI flow rates to CL-A and CL-B

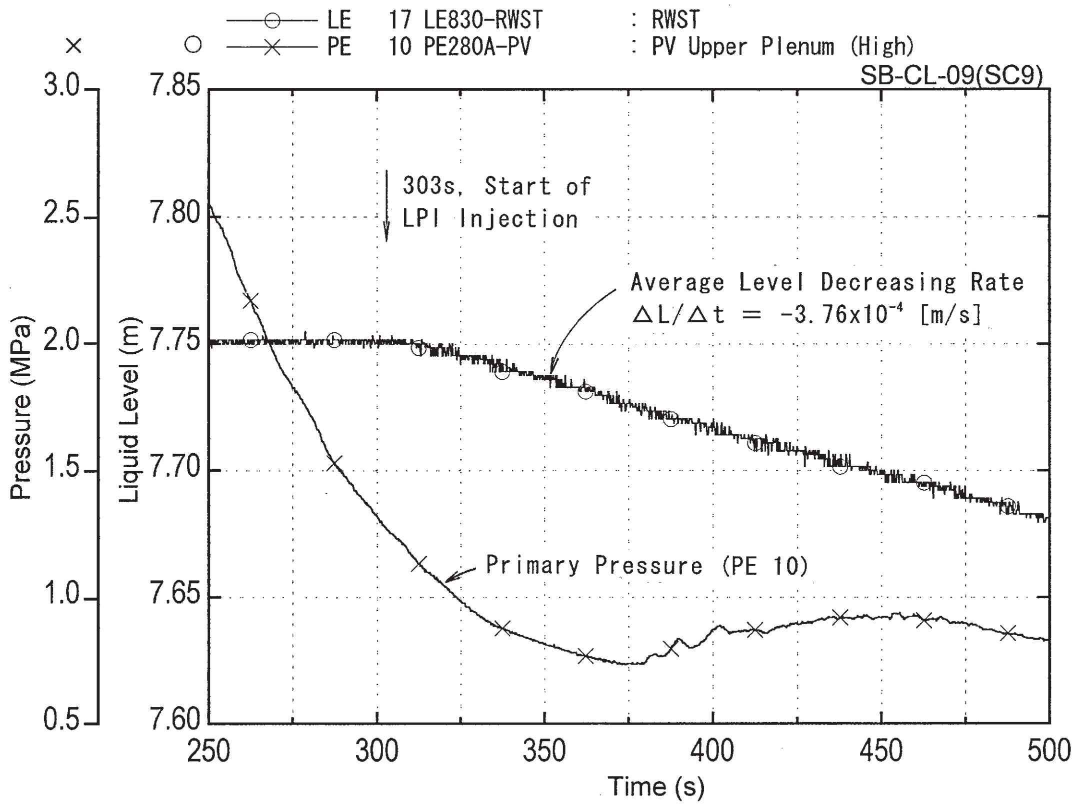


Fig.4-61 RWST tank level change under LPI injection related to primary pressure

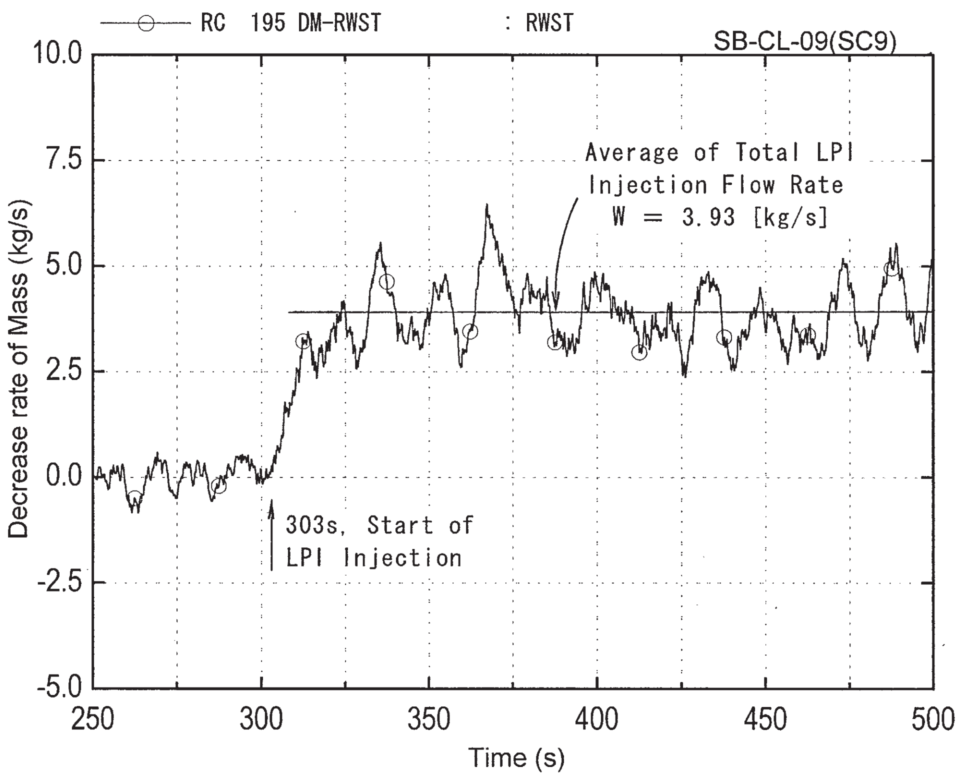


Fig.4-62 Total LPI flow rate estimated from RWST mass decreasing rate

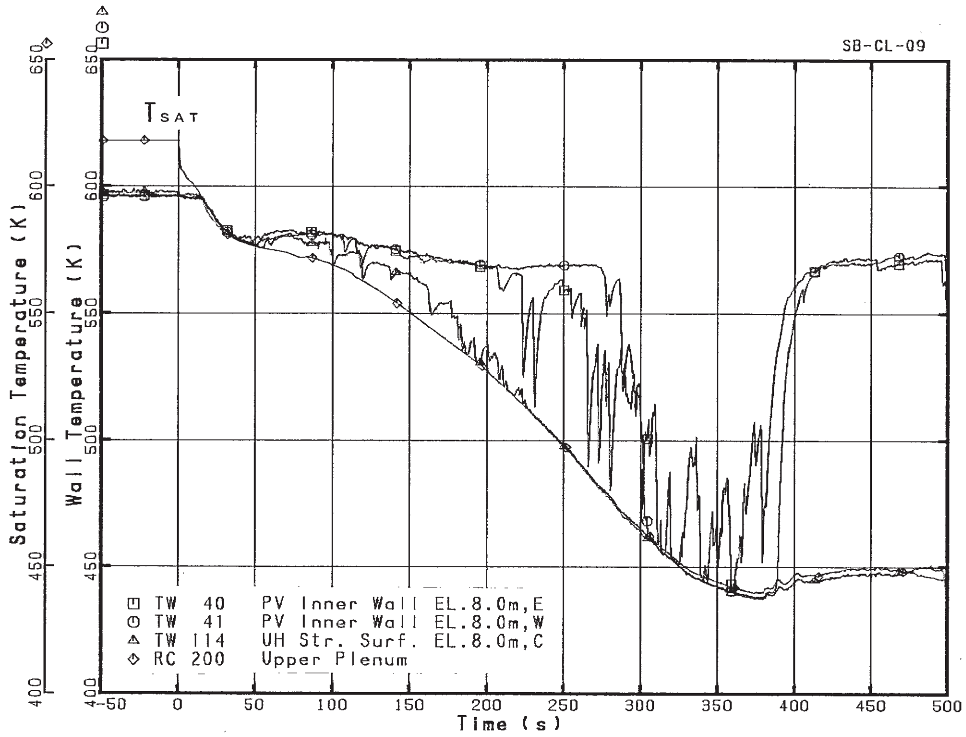


Fig. 4-63　Wall temperatures in PV upper head compared with saturation temperature

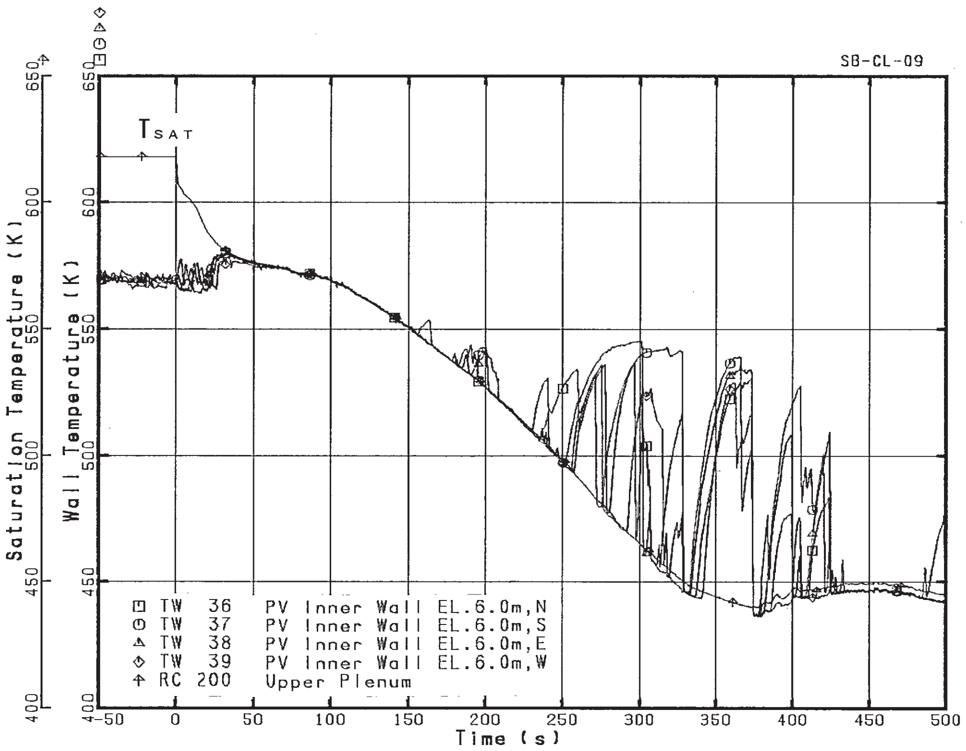


Fig. 4-64　Wall temperatures in PV upper downcomer compared with saturation temperature

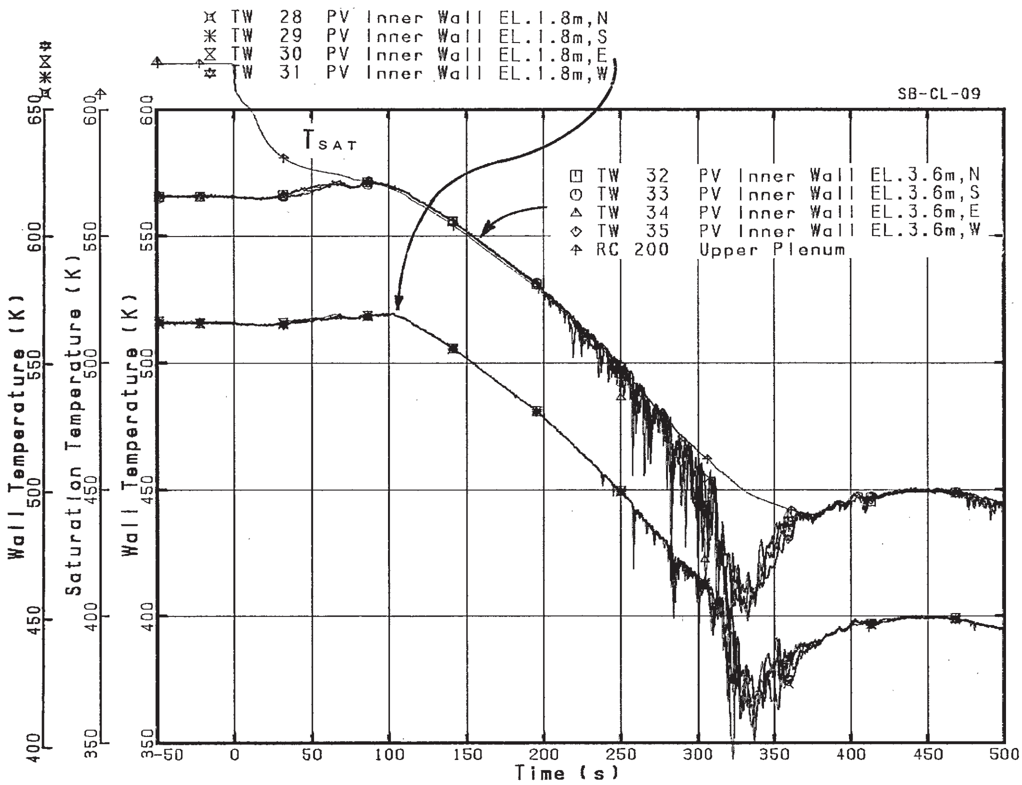


Fig. 4-65 Wall temperatures in PV middle downcomer compared with saturation temperature

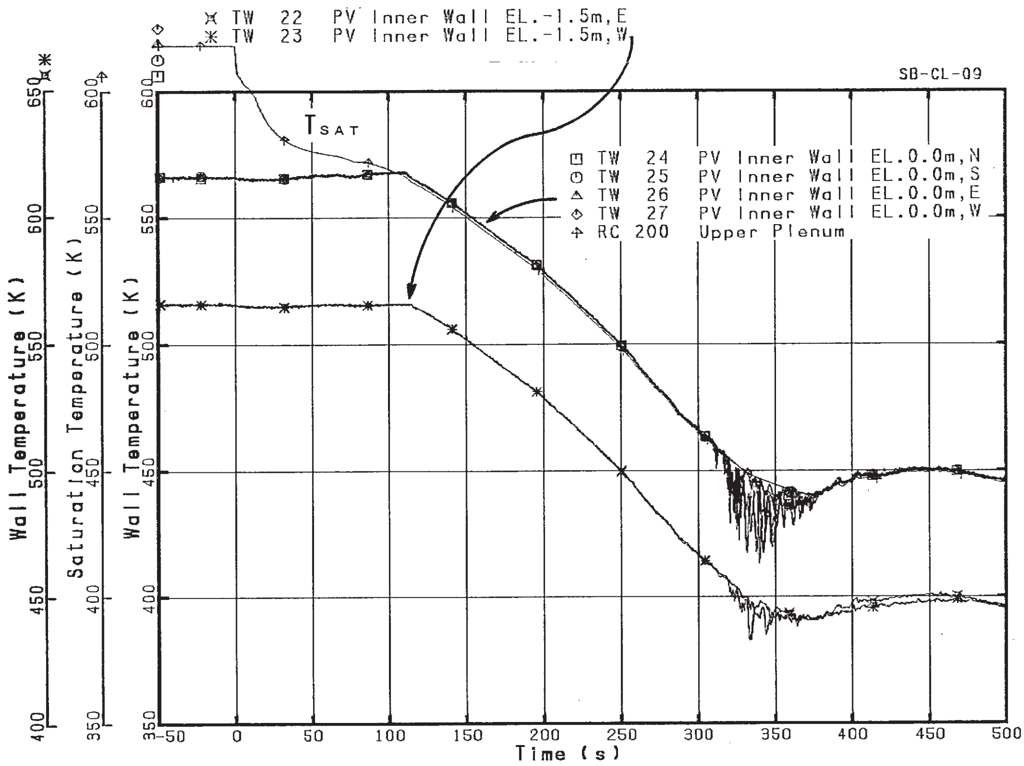


Fig. 4-66 Wall temperatures in PV lower downcomer compared with saturation temperature

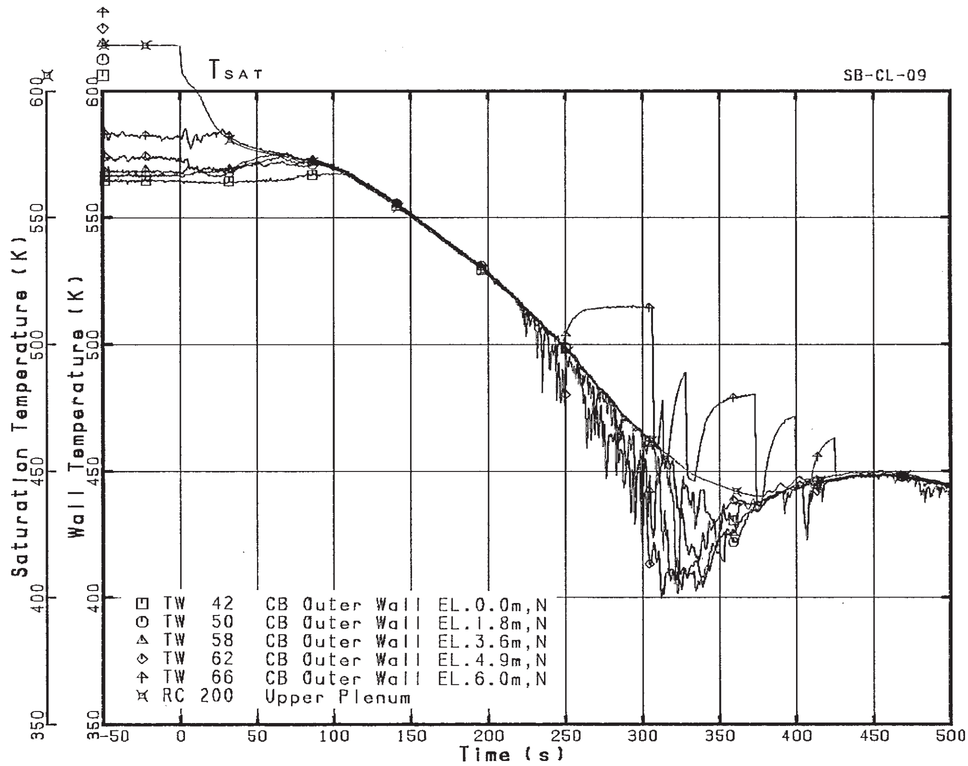


Fig. 4-67 Wall temperatures at core barrel compared with saturation temperature

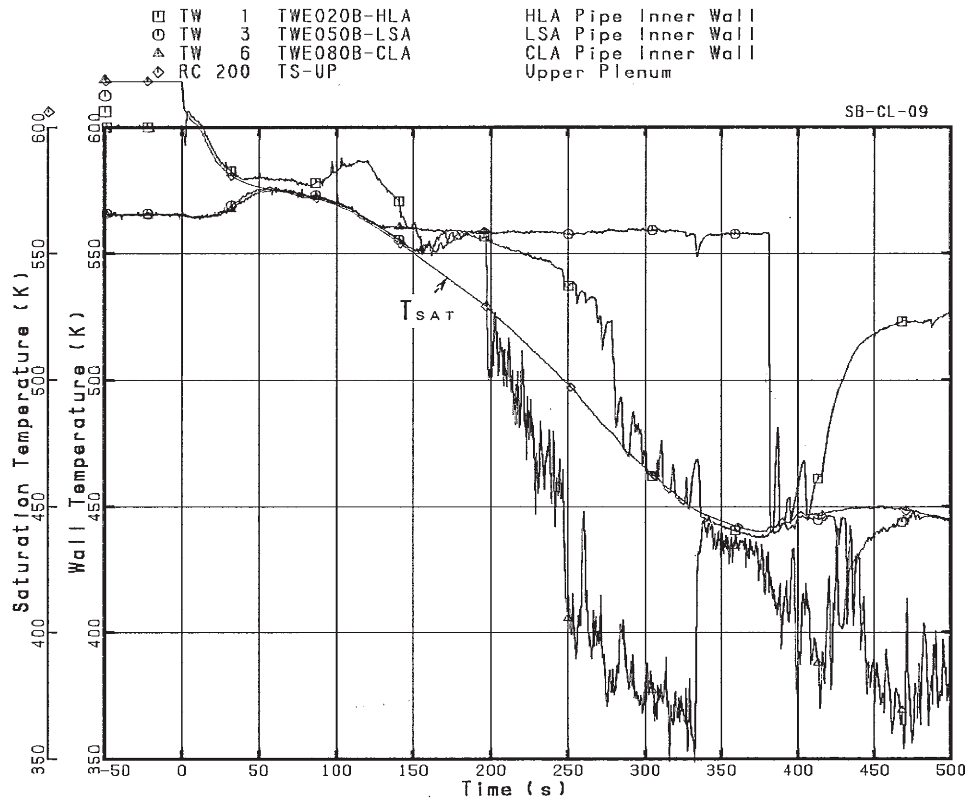


Fig. 4-68 Wall temperatures in loop A compared with saturation temperature

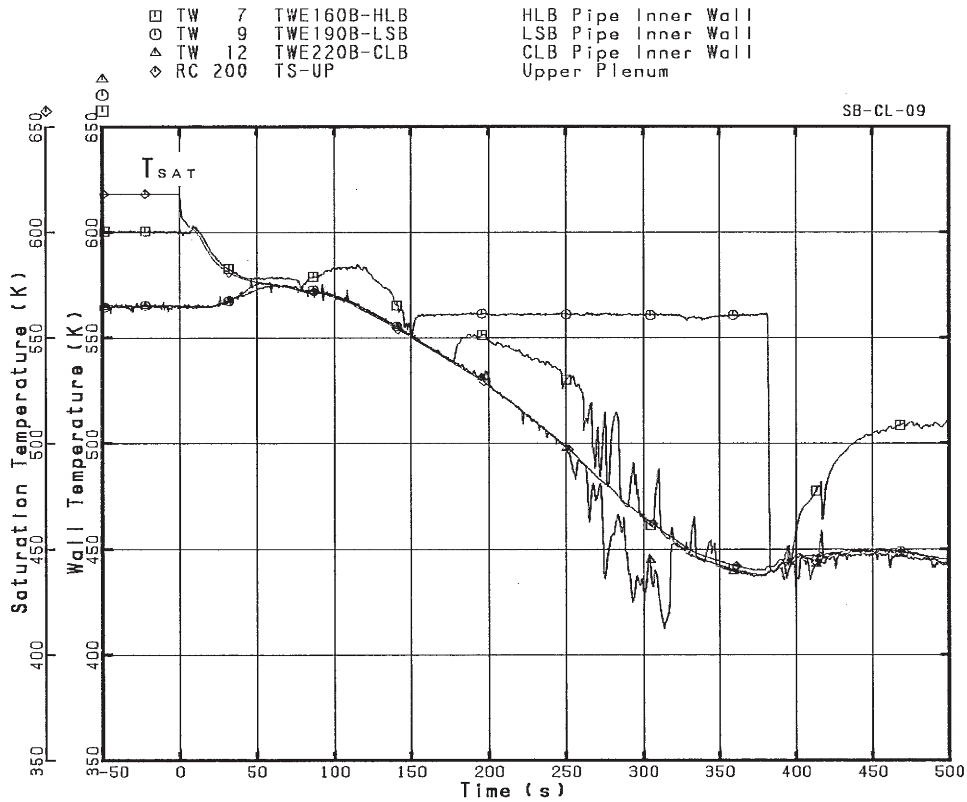


Fig. 4-69 Wall temperatures in loop B compared with saturation temperature

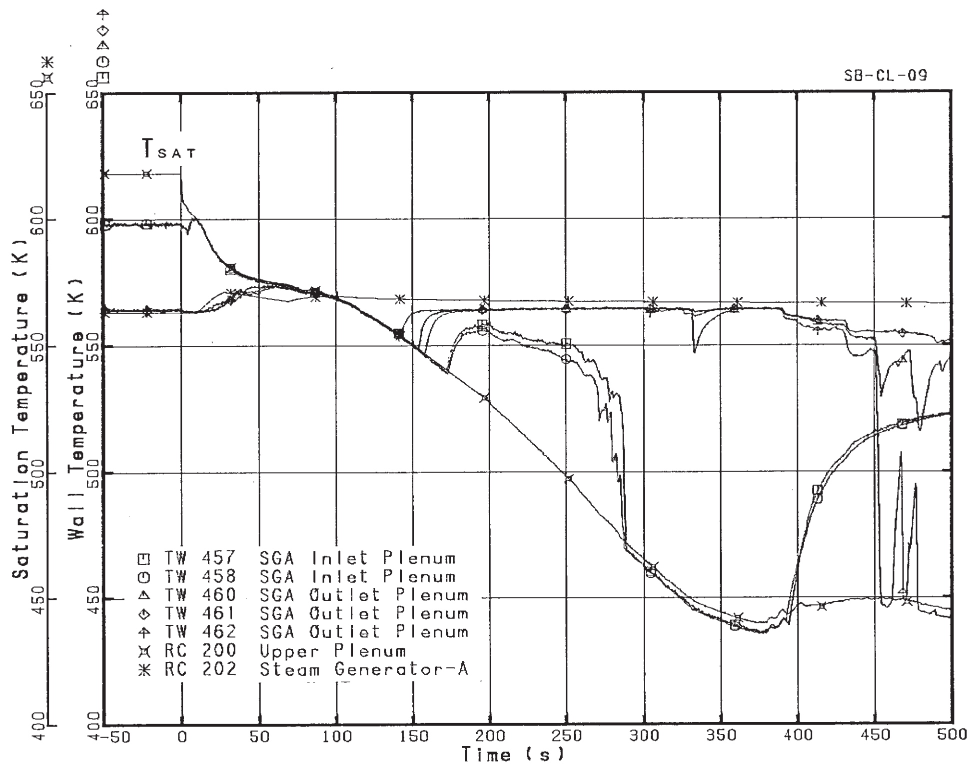


Fig. 4-70 Wall temperatures in SG-A plena compared with saturation temperature

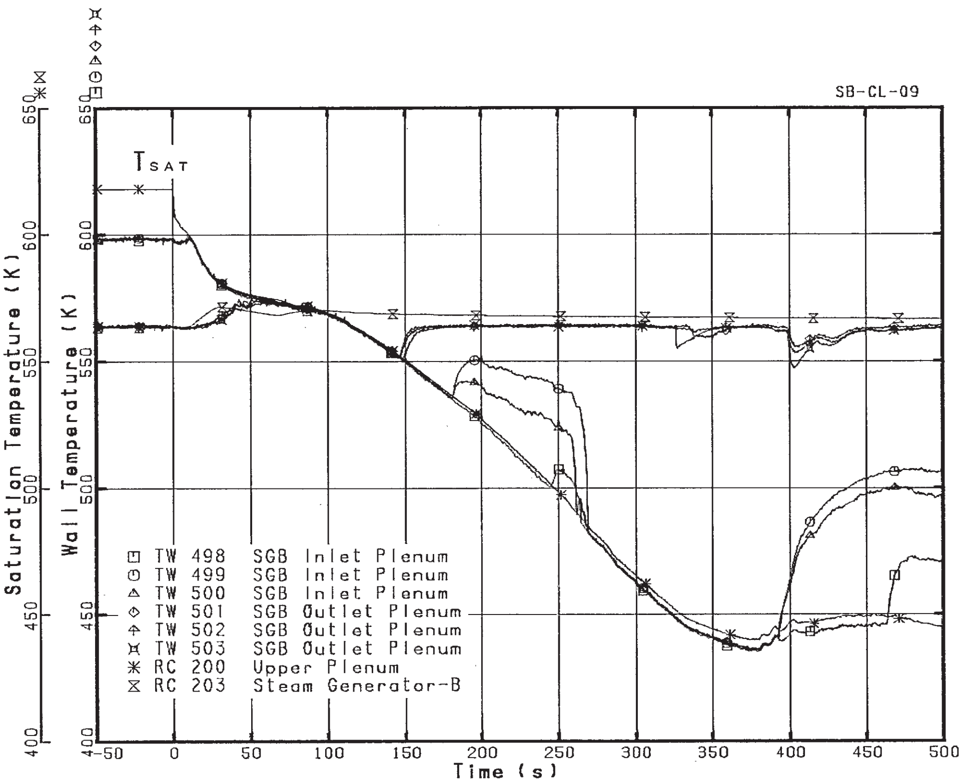


Fig. 4-71 Wall temperatures in SG-B plena compared with saturation temperature

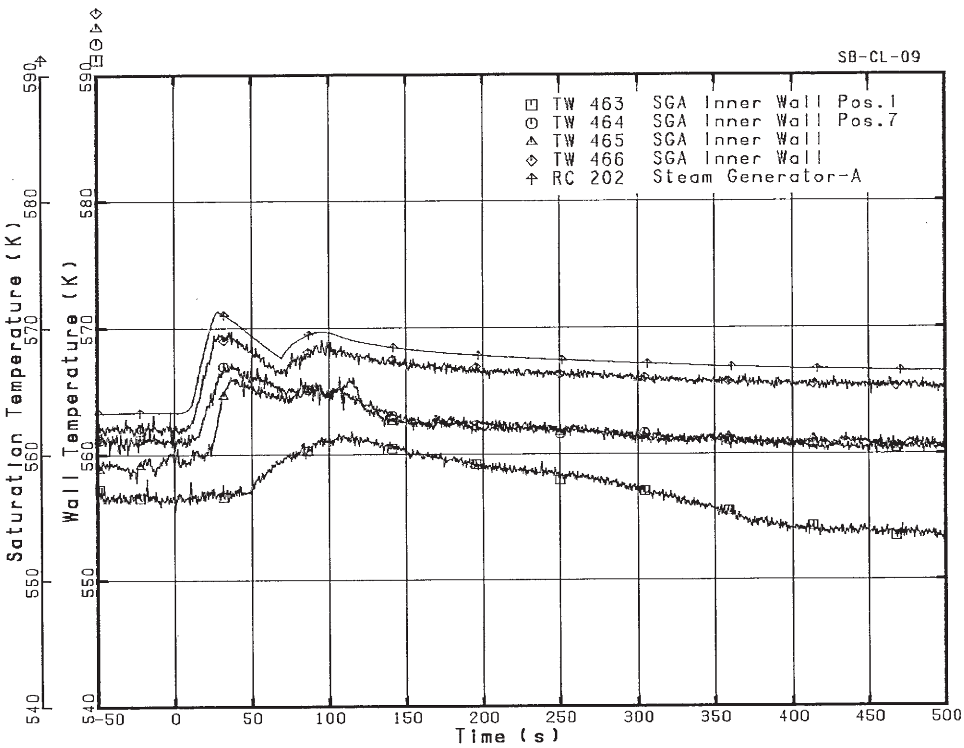


Fig. 4-72 Wall temperatures at SG-A vessel inner surfaces

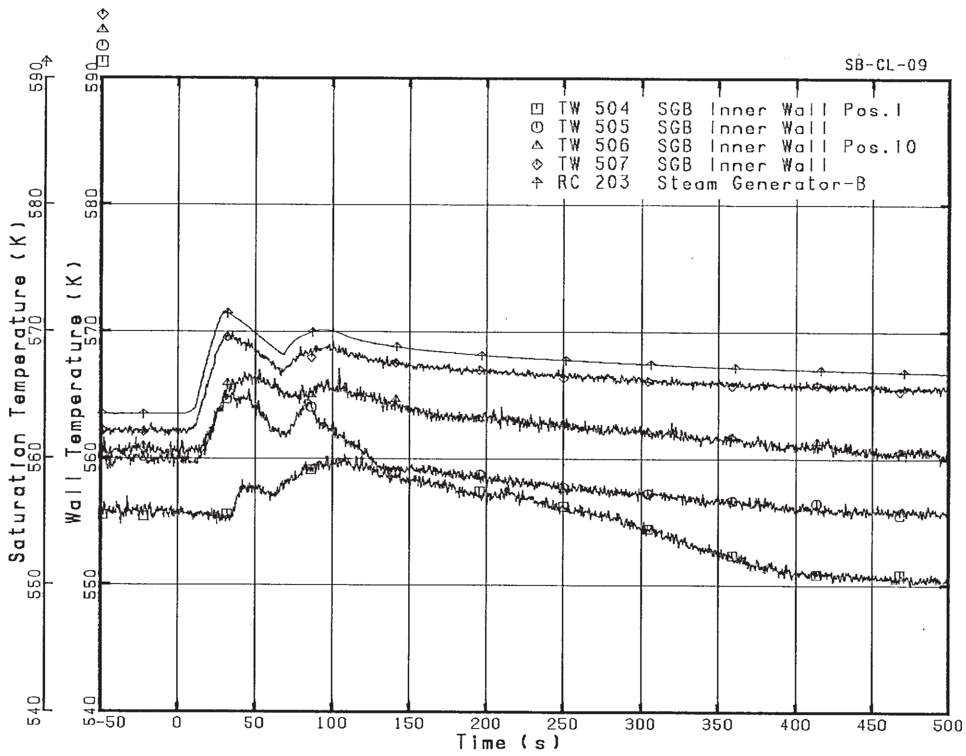


Fig. 4-73 Wall temperatures at SG-B vessel inner surfaces

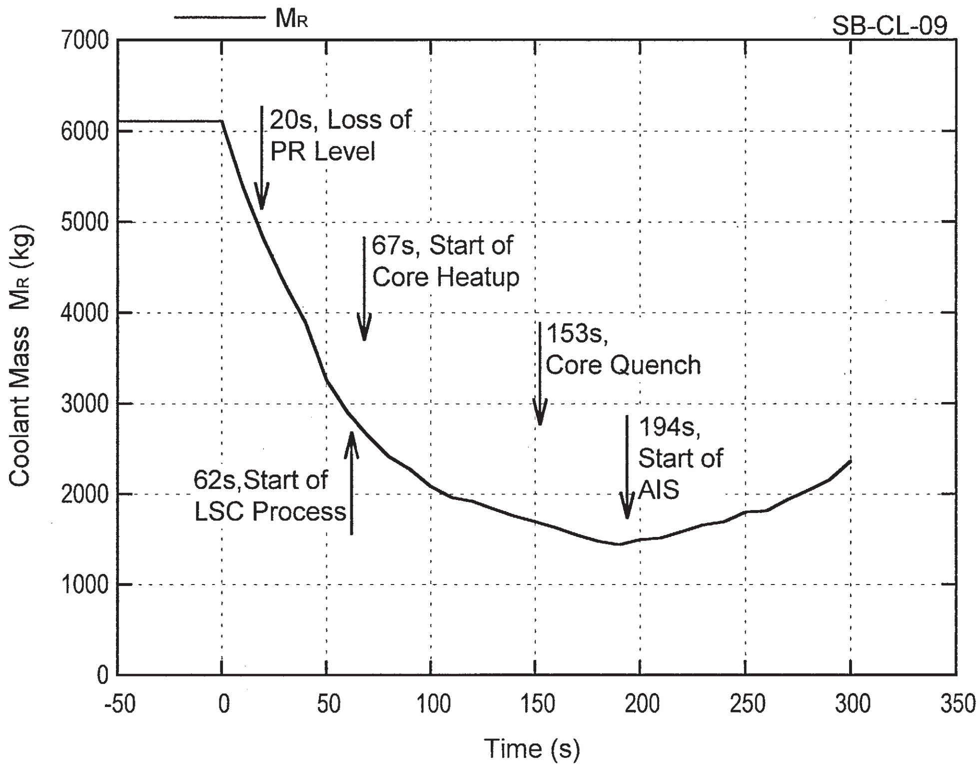


Fig. 4-74 Transients of primary coolant mass inventory related to major events

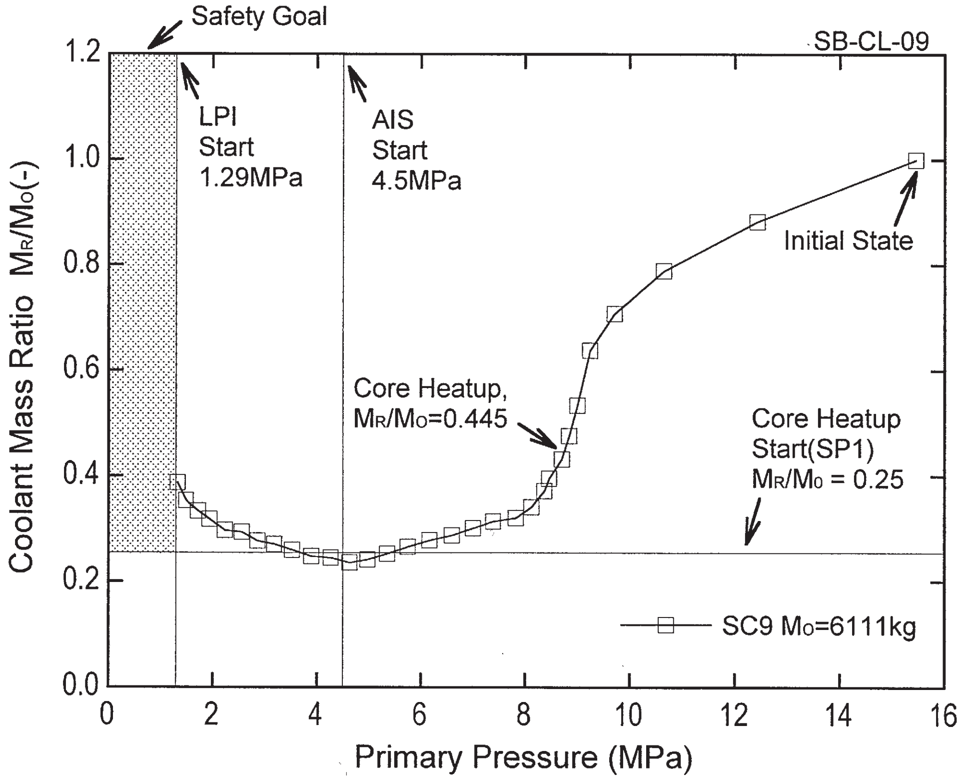


Fig. 4-75　Primary pressure — mass inventory map for experiment SB-CL-09

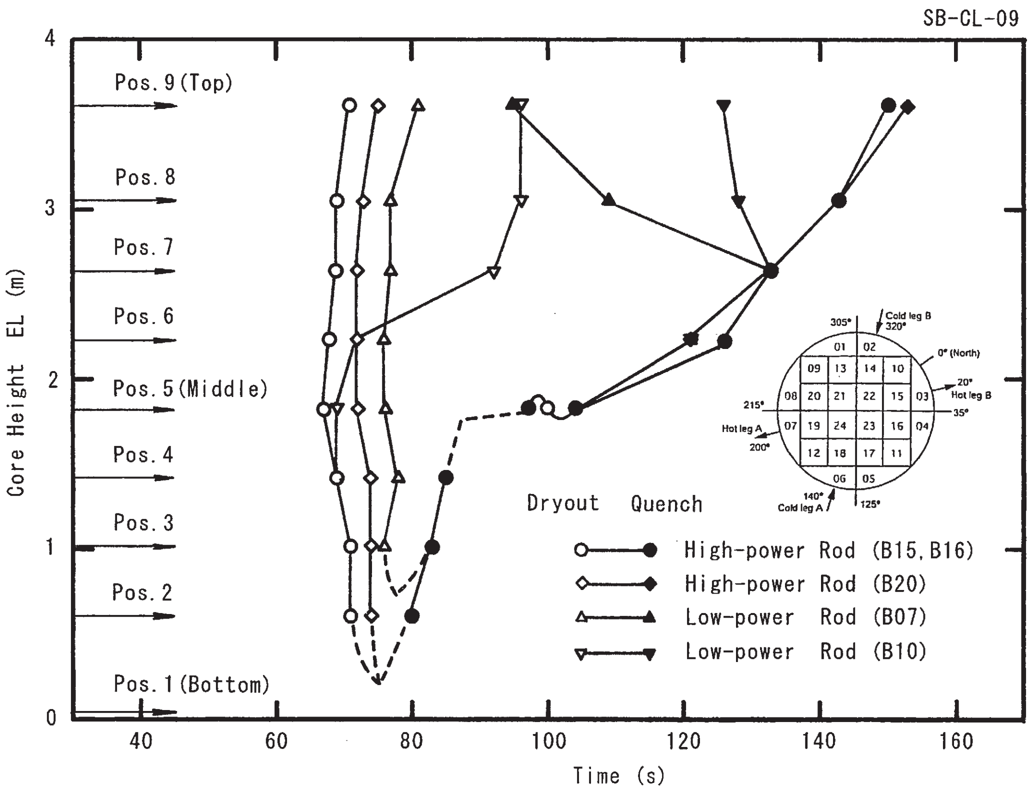


Fig. 4-76　Variety of rod heat-up and quench behaviors among high and low power bundles

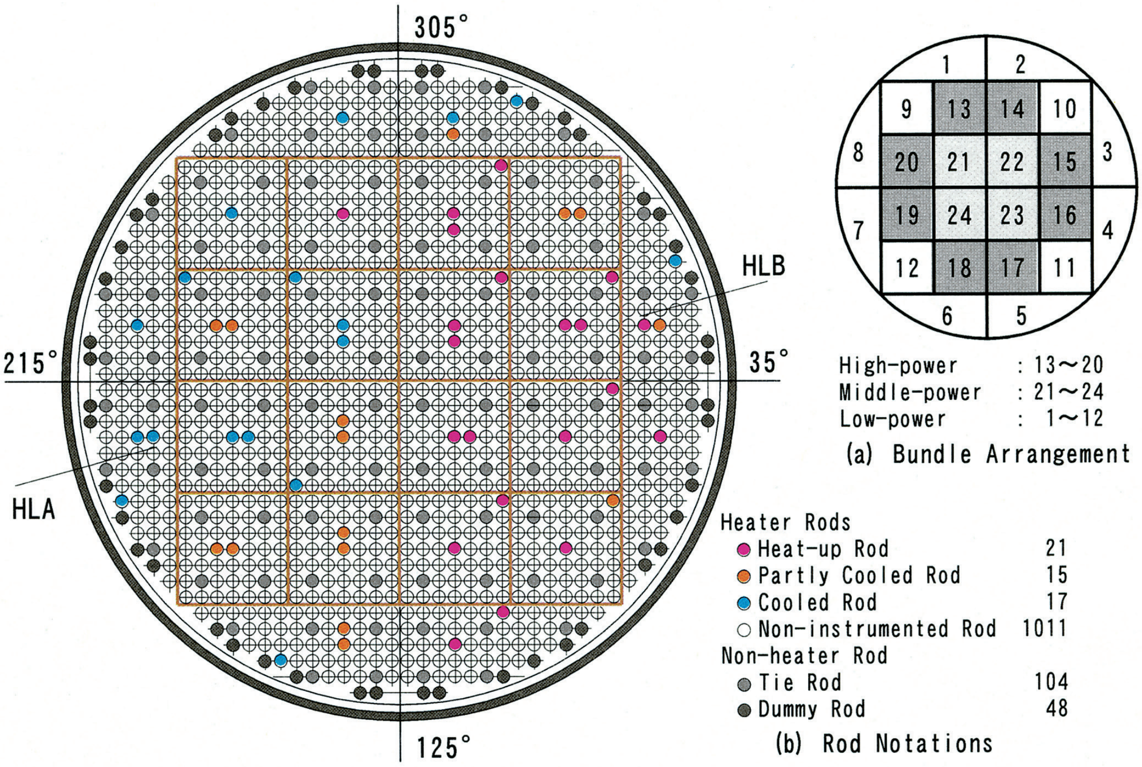


Fig. 4-77 Horizontal distribution of rod heat-up in core at loop-seal clearing (t=75s)

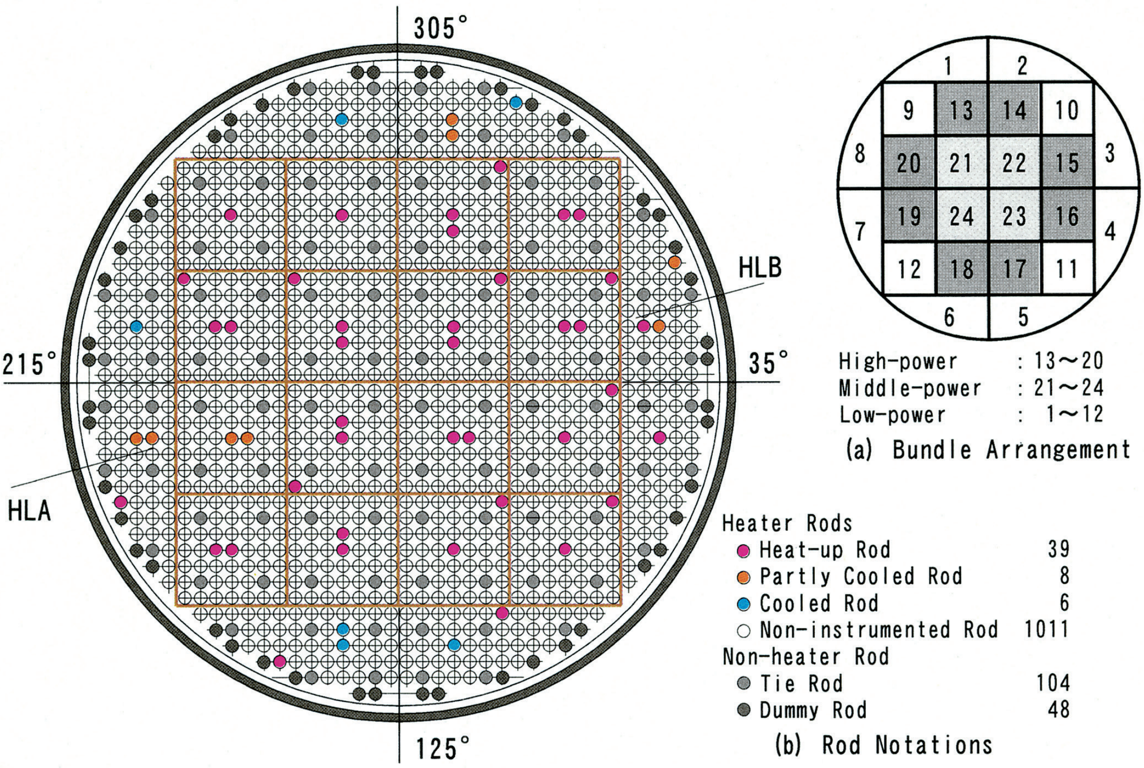
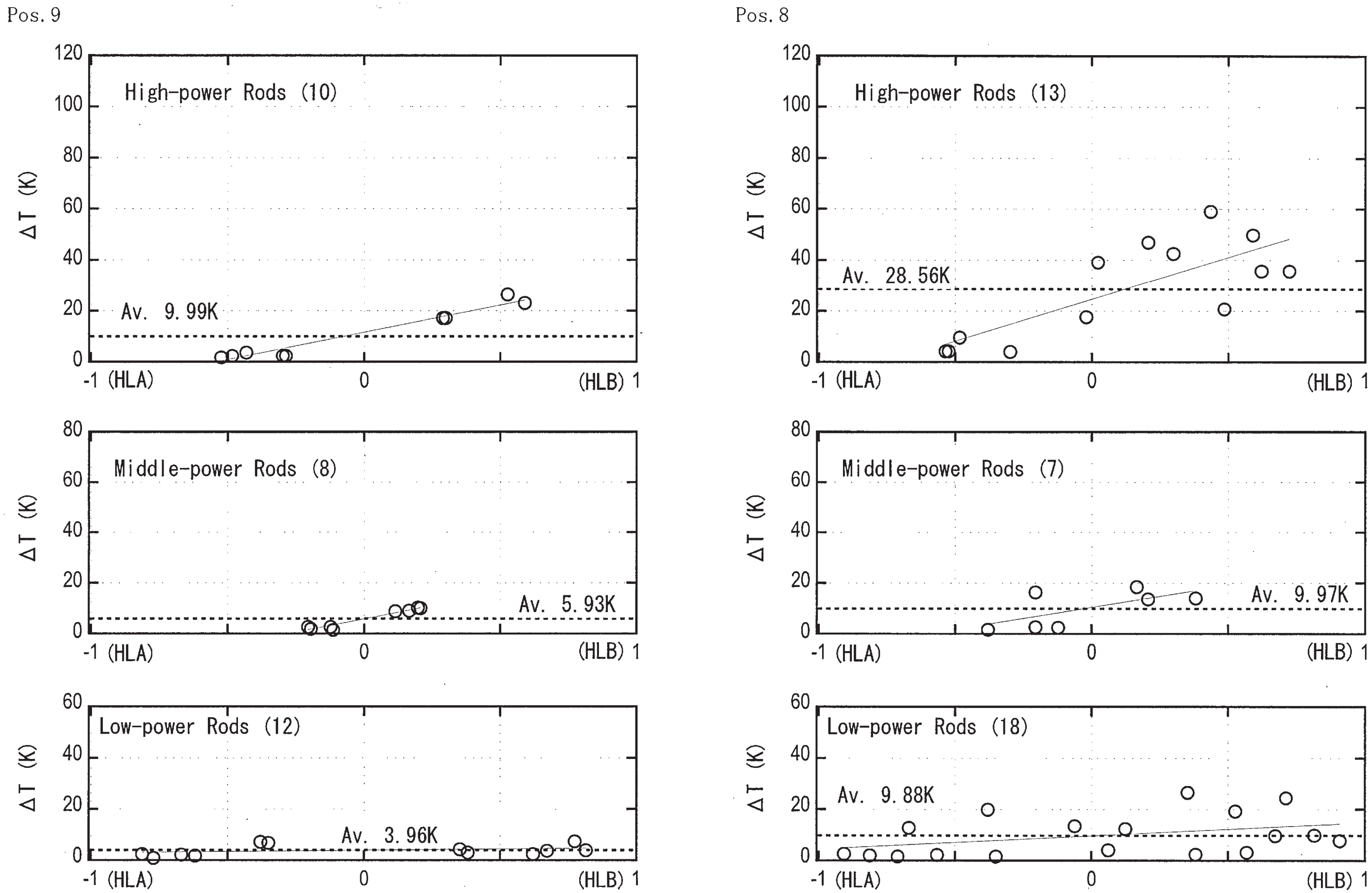


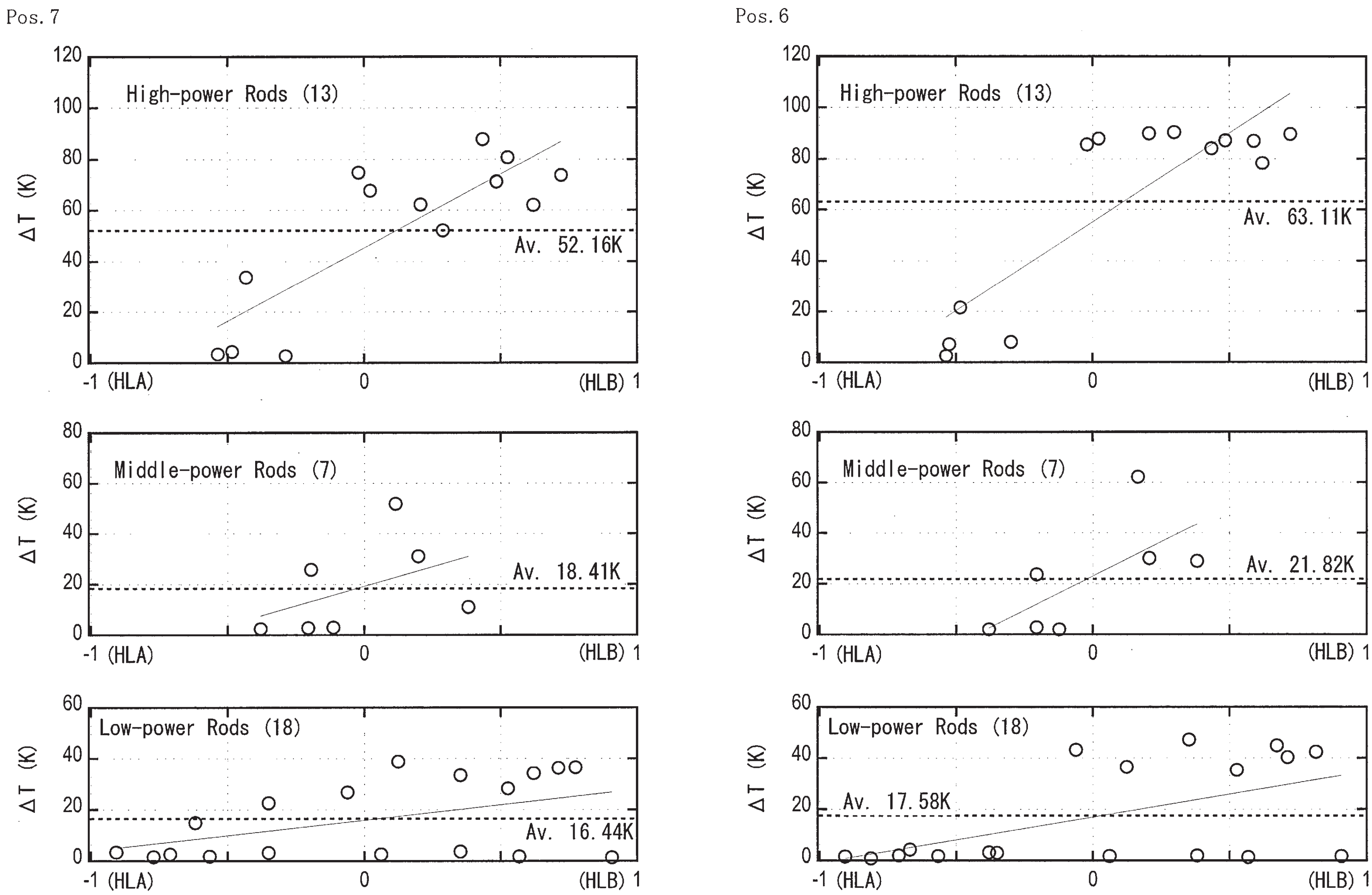
Fig. 4-78 Horizontal distribution of rod heat-up in upper half core (t=110s)



(1) Temperature rises at Position 9 (Core top)

(2) Temperature rises at Position 8

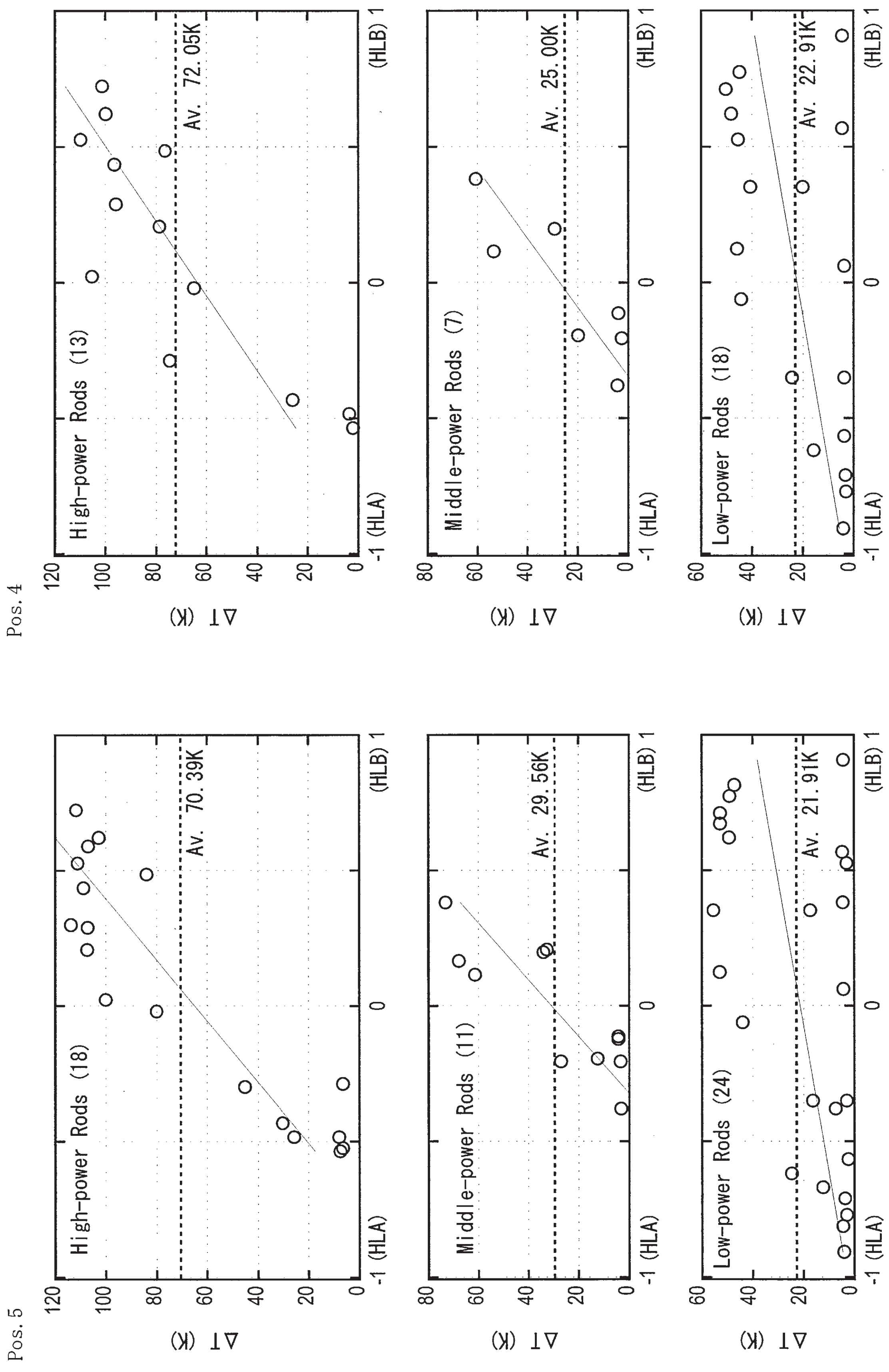
Fig. 4-79 Temperature rises of all instrumented heater rods at loop-seal clearing (t=75s) with respect to horizontal location between two hot legs (refer Table 4-3)



(3) Temperature rises at Position 7

(4) Temperature rises at Position 6

Fig. 4-79 Temperature rises of all instrumented heater rods at loop-seal clearing (t=75s) with respect to horizontal location between two hot legs (refer Table 4-3)

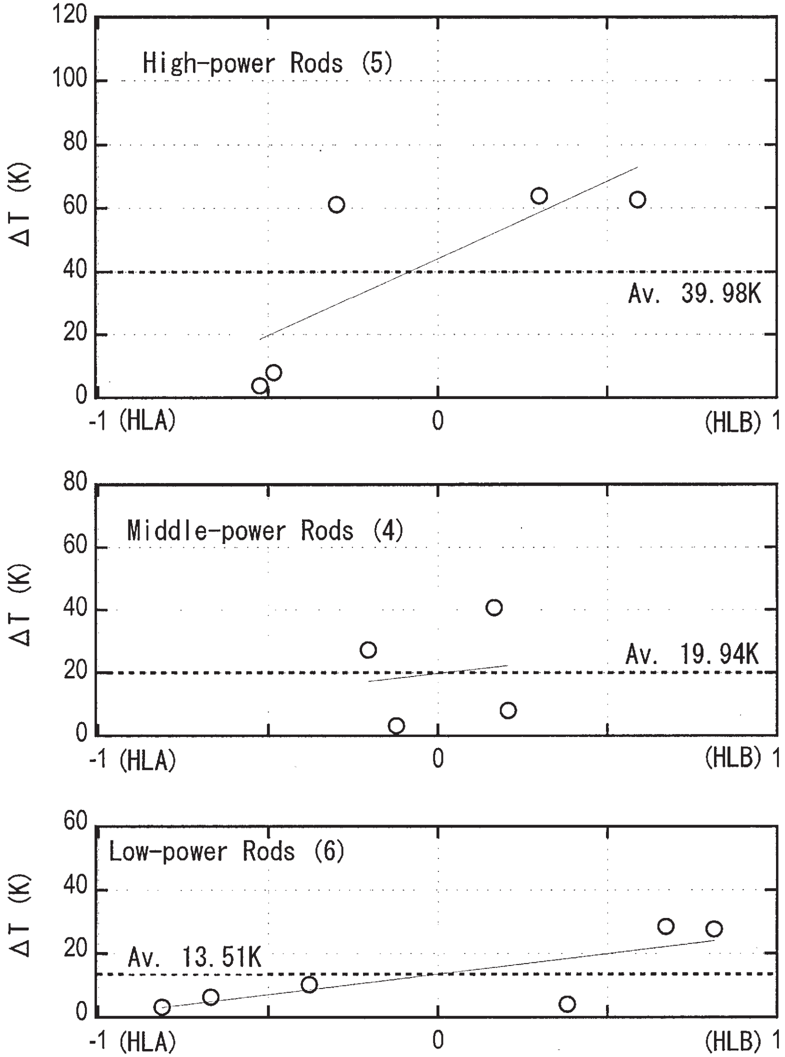


(5) Temperature rises at Position 5 (Core middle height)

(6) Temperature rises at Position 4

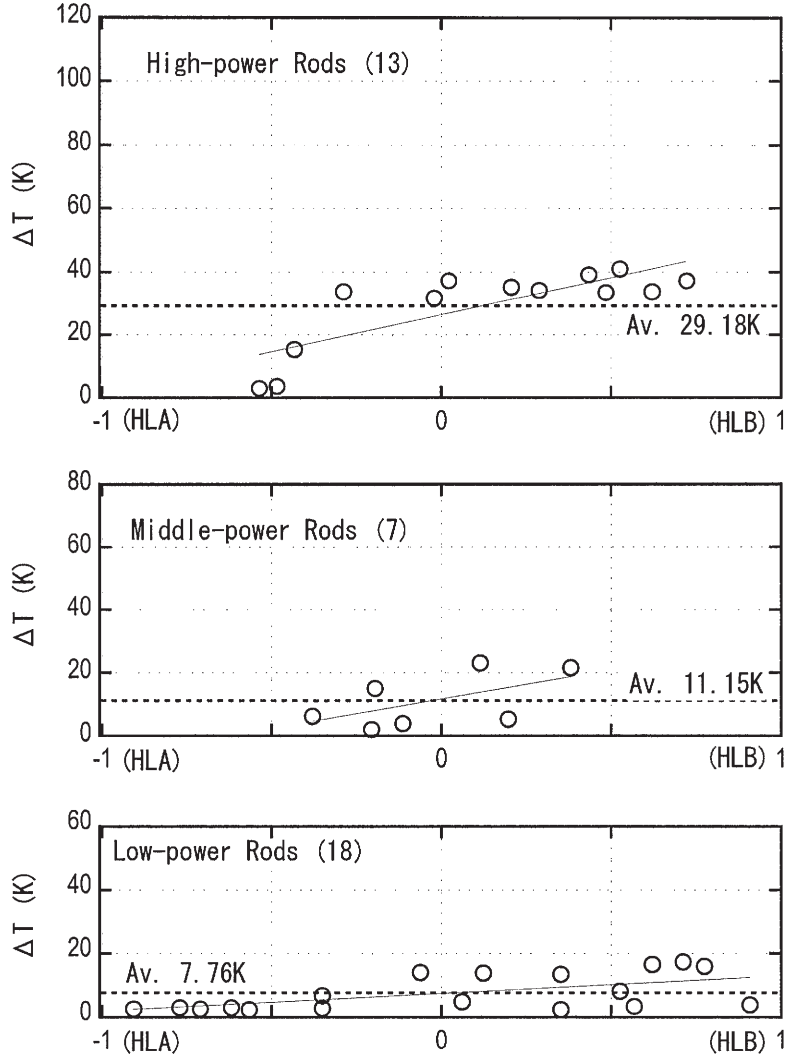
Fig.4-79 Temperature rises of all instrumented heater rods at loop-seal clearing (t=75s) with respect to horizontal location between two hot legs (refer Table 4-3)

Pos. 3



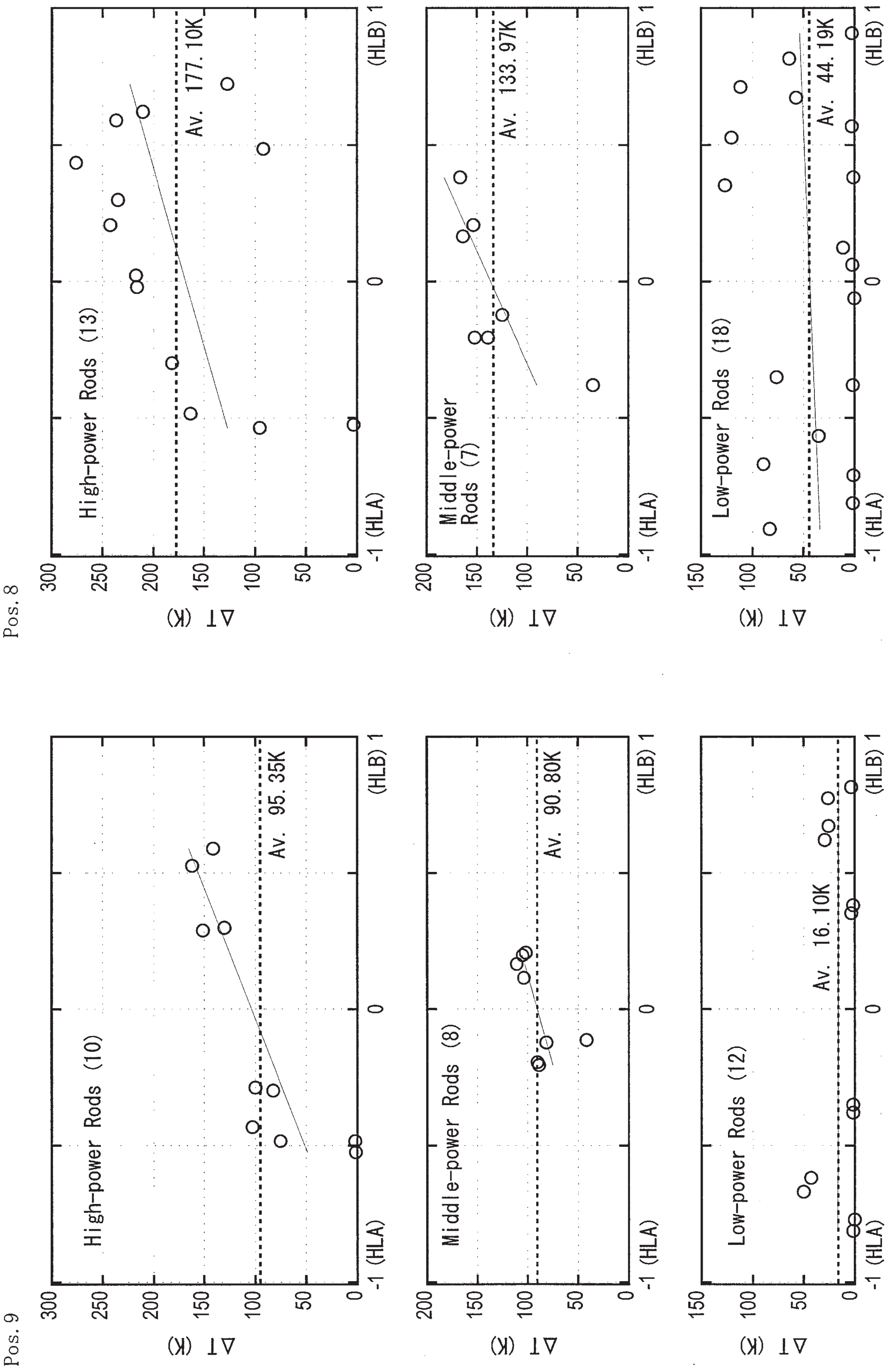
(7) Temperature rises at Position 3

Pos. 2



(8) Temperature rises at Position 2

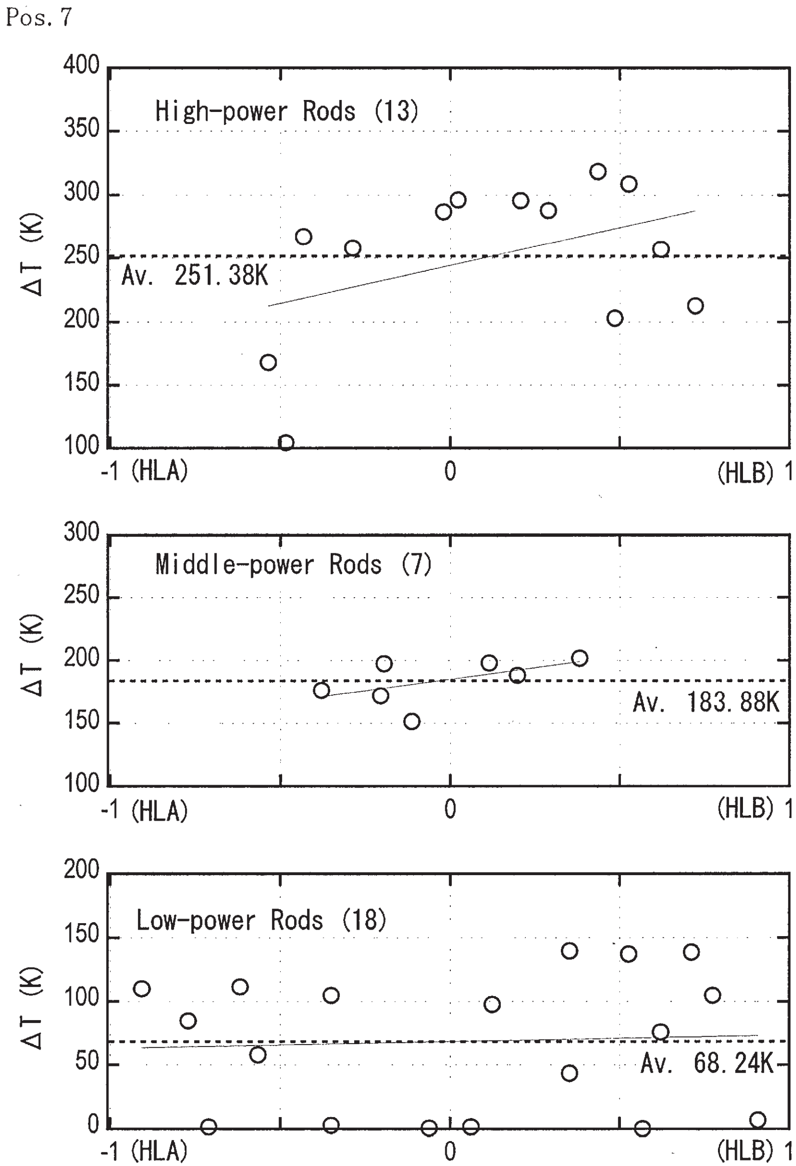
Fig. 4-79 Temperature rises of all instrumented heater rods at loop-seal clearing (t=75s) with respect to horizontal location between two hot legs (refer Table 4-3)



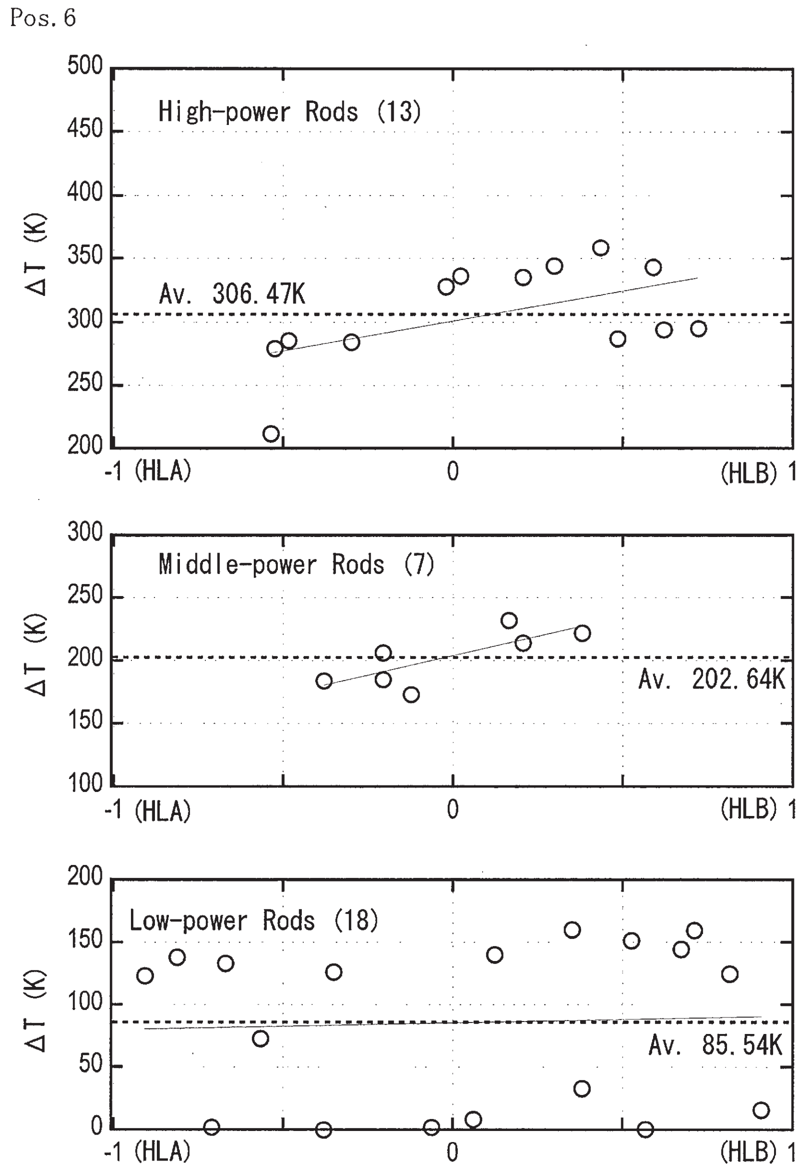
(1) Temperature rises at Position 9 (Core top)

(2) Temperature rises at Position 8

Fig. 4-80 Temperature rises of all instrumented heater rods before power trip (t=110s) with respect to horizontal location between two hot legs (refer Table 4-4)



(3) Temperature rises at Position 7



(4) Temperature rises at Position 6

Fig. 4-80 Temperature rises of all instrumented heater rods before power trip (t=110s) with respect to horizontal location between two hot legs (refer Table 4-4)

Appendix-A Measurement List and Instrument Location for Experiment SB-CL-09

A list of available measurements for experiment SB-CL-09 is presented in **Table A.1**. The experiment data of 1842 channels and 132 derived (RC) quantities are available for this experiment. The data channel with (*) means qualitative data. Measurement locations are presented below in **Figs.A.1** through **A.17** (refer [1]).

List of Table and Figures

Table A-1 List of available measurements for experiment SB-CL-09 (1/25)

SEQ No.	Function ID.		Tagname	Location	Range		Unit	Uncertainty	
					LO	HI		±ABS.	±%FR
1	TE	1	TE010A-HLA	HLA Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
2	TE	2	TE010B-HLA	HLA Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
3	TE	3	TE010C-HLA	HLA Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
4	TE	4	TE010D-HLA	HLA Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
5	TE	5	TE010E-HLA	HLA Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
6	TE	6	TE020C-HLA	HLA Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
7	TE	7	TE020D-HLA	HLA Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
8	TE	8	TE030C-HLA	HLA Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
9	TE	9	TE030D-HLA	HLA Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
10	TE	15	TE050C-LSA	LSA Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
11	TE	16	TE070C-CLA	CLA Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
12	TE	17	TE070D-CLA	CLA Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
13	TE	18	TE080C-CLA	CLA Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
14	TE	19	TE080D-CLA	CLA Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
15	TE	25	TE100-HLA	HLA-CLA Average	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
16	TE	26	TE150A-HLB	HLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
17	TE	27	TE150B-HLB	HLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
18	TE	28	TE150C-HLB	HLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
19	TE	29	TE150D-HLB	HLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
20	TE	30	TE150E-HLB	HLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
21	TE	31	TE160C-HLB	HLB Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
22	TE	32	TE160D-HLB	HLB Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
23	TE	33	TE170C-HLB	HLB Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
24	TE	34	TE170D-HLB	HLB Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
25	TE	35	TE180A-HLB	HLB SG Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
26	TE	36	TE180B-HLB	HLB SG Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
27	TE	37	TE180C-HLB	HLB SG Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
28	TE	38	TE180D-HLB	HLB SG Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
29	TE	39	TE180E-HLB	HLB SG Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
30	TE	40	TE190C-LSB	LSB Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
31	TE	41	TE210C-CLB	CLB Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
32	TE	42	TE210D-CLB	CLB Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
33	TE	43	TE220C-CLB	CLB Fluid at Pipe Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
34	TE	44	TE220D-CLB	CLB Fluid at Pipe Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
35	TE	45	TE230A-CLB	CLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
36	TE	46	TE230B-CLB	CLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
37	TE	47	TE230C-CLB	CLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
38	TE	48	TE230D-CLB	CLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
39	TE	49	TE230E-CLB	CLB Vessel Side CPT	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
40	TE	50	TE240-HLB	HLB-CLB Average	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
41	TE	51	TE270C-PR	PR Spray Line	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
42	TE	52	TE280C-PR	PR Surge Line	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
43	TE	55	TE430-SGA	SGA Feedwater Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
44	TE	56	TE440-SGA	SGA Main Steam Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
45	TE	57	TE450-SGA	SGA Relief Valve Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
46	TE	59	TE470-SGB	SGB Feedwater Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
47	TE	60	TE480-SGB	SGB Main Steam Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
48	TE	61	TE490-SGB	SGB Relief Valve Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
49	TE	63	TE510-SH	MSL Steam Header	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
50	TE	64	TE520-JC	JC Hot Water	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
51	TE	65	TE530-JC	PF Suction Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
52	TE	66	TE540-JC	JC Spray Water	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
53	TE	67	TE550-JC	JC Steam Vent Line	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
54	TE	68	TE431-SGA	SGA Downcomer A	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
55	TE	69	TE432-SGA	SGA Downcomer B	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
56	TE	70	TE433-SGA	SGA Downcomer C	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
57	TE	71	TE434-SGA	SGA Downcomer D	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
58	TE	72	TE471-SGB	SGB Downcomer A	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
59	TE	73	TE472-SGB	SGB Downcomer B	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
60	TE	74	TE473-SGB	SGB Downcomer C	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
61	TE	75	TE474-SGB	SGB Downcomer D	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
62	TE	76	TE560C-BU	BU No.1 Upstream Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
63	TE	77	TE560D-BU	BU No.1 Upstream Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
64	TE	78	TE570C-BU	BU No.1 Downstream Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
65	TE	79	TE570D-BU	BU No.1 Downstream Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
66	TE	84	TE600-ST	ST Inlet Line	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
67	TE	85	TE610-ST	ST Bottom Region	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
68	TE	86	TE620-ST	ST Middle Region	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
69	TE	87	TE630-ST	ST Top Region	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
70	TE	88	TE640-ST	ST Spray Line	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
71	TE	89	TE650-ACC	Cold Acc Tank Bottom	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
72	TE	90	TE660-ACC	Cold Acc Tank Top	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
73	TE	91	TE670-ACC	Cold Acc Line to CLA	2.700E+02	4.700E+02	K	2.304E+00	1.152E+00
74	TE	93	TE690-ACH	Hot Acc Tank Bottom	2.700E+02	5.700E+02	K	2.706E+00	9.020E-01
75	TE	94	TE700-ACH	Hot Acc Tank Top	2.700E+02	5.700E+02	K	2.706E+00	9.020E-01
76	TE	97	TE730-HLA	HLA ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
77	TE	98	TE740-LSA	LSA ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
78	TE	99	TE750-CLA	CLA ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
*79	TE	100	TE760-HLB	HLB ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
80	TE	101	TE770-LSB	LSB ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01

Table A.1(Cont'd) (2/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
81	TE 102	TE780-CLB	CLB ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
82	TE 104	TE800-PV	PV Top ECCS Nozzle	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
83	TE 112	TE880-RWST	RWST Tank Lower Region	2.700E+02	3.700E+02	K	1.902E+00	1.902E+00
84	TE 113	TE890-RWST	RWST Tank Middle Region	2.700E+02	3.700E+02	K	1.902E+00	1.902E+00
85	TE 115	TE-E066F-PV	Upper Head Bottom	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
86	TE 116	TE-W066F-PV	Upper Head Bottom	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
87	TE 117	TE-E075F-PV	Upper Head Middle	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
88	TE 118	TE-W075F-PV	Upper Head Middle	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
89	TE 119	TE-E081F-PV	Upper Head Top	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
90	TE 120	TE-W081F-PV	Upper Head Top	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
91	TE 121	TE-E080H-PV	CR Guide Tube Top	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
92	TE 122	TE-W080H-PV	CR Guide Tube Top	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
93	TE 123	TE-E049F-PV	Upper Plenum Bottom	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
94	TE 124	TE-W049F-PV	Upper Plenum Bottom	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
95	TE 125	TE-E055F-PV	Upper Plenum Middle	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
96	TE 126	TE-W055F-PV	Upper Plenum Middle	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
97	TE 127	TE-E060F-PV	Upper Plenum Top	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
98	TE 128	TE-W060F-PV	Upper Plenum Top	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
99	TE 129	TE-IN038-B09-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
100	TE 130	TE-IN038-B11-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
101	TE 131	TE-IN038-B01-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
102	TE 132	TE-IN038-B03-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
103	TE 133	TE-IN038-B05-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
104	TE 134	TE-IN038-B07-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
105	TE 135	TE-IN038-B21-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
106	TE 136	TE-IN038-B23-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
107	TE 137	TE-IN038-B02-UCP	Below Upper core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
108	TE 138	TE-IN038-B06-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
109	TE 139	TE-IN038-B14-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
110	TE 140	TE-IN038-B15-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
111	TE 141	TE-IN038-B18-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
112	TE 142	TE-IN038-B19-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
113	TE 143	TE-IN038-B10-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
114	TE 144	TE-IN038-B12-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
115	TE 145	TE-IN038-B04-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
116	TE 146	TE-IN038-B08-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
117	TE 147	TE-IN038-B22-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
118	TE 148	TE-IN038-B24-UCP	Below Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
119	TE 149	TE-EX040-B09-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
120	TE 150	TE-EX040-B11-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
121	TE 151	TE-EX040-B01-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
122	TE 152	TE-EX040-B03-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
123	TE 153	TE-EX040-B05-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
124	TE 154	TE-EX040-B07-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
125	TE 155	TE-EX040-B21-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
126	TE 156	TE-EX040-B23-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
127	TE 157	TE-EX040-B02-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
128	TE 158	TE-EX040-B06-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
129	TE 159	TE-EX040-B14-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
130	TE 160	TE-EX040-B15-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
131	TE 161	TE-EX040-B18-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
132	TE 162	TE-EX040-B19-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
133	TE 163	TE-EX040-B10-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
134	TE 164	TE-EX040-B12-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
135	TE 165	TE-EX040-B04-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
136	TE 166	TE-EX040-B08-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
137	TE 167	TE-EX040-B22-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
138	TE 168	TE-EX040-B24-UCP	Above Upper Core Plate	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
139	TE 169	TE-IN-002B02-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
140	TE 170	TE-IN-002B03-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
141	TE 171	TE-IN-002B06-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
142	TE 172	TE-IN-002B07-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
143	TE 173	TE-IN-002B09-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
144	TE 174	TE-IN-002B11-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
145	TE 175	TE-IN-002B14-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
146	TE 176	TE-IN-002B16-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
147	TE 177	TE-IN-002B18-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
148	TE 178	TE-IN-002B20-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
149	TE 179	TE-IN-002B21-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
150	TE 180	TE-IN-002B23-LCPP	Below Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
151	TE 181	TE-EX-000B02-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
152	TE 182	TE-EX-000B03-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
153	TE 183	TE-EX-000B06-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
154	TE 184	TE-EX-000B07-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
155	TE 185	TE-EX-000B09-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
156	TE 186	TE-EX-000B11-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
157	TE 187	TE-EX-000B14-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
158	TE 188	TE-EX-000B16-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
159	TE 189	TE-EX-000B18-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
160	TE 190	TE-EX-000B20-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01

Table A.1(Cont'd)　(3/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
161	TE 191	TE-EX-000B21-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
162	TE 192	TE-EX-000B23-LCPP	Above Lower Core Plate	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
163	TE 193	TE-N000C-DC	"Downcomer EL.0.0m,North"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
164	TE 194	TE-S000C-DC	"Downcomer EL.0.0m,South"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
165	TE 195	TE-E000C-DC	"Downcomer EL.0.0m,East"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
166	TE 196	TE-W000C-DC	"Downcomer EL.0.0m,West"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
167	TE 197	TE-N018C-DC	"Downcomer EL.1.8m,North"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
168	TE 198	TE-S018C-DC	"Downcomer EL.1.8m,South"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
169	TE 199	TE-E018C-DC	"Downcomer EL.1.8m,East"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
170	TE 200	TE-W018C-DC	"Downcomer EL.1.8m,West"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
171	TE 201	TE-N036C-DC	"Downcomer EL.3.6m,North"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
172	TE 202	TE-S036C-DC	"Downcomer EL.3.6m,South"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
173	TE 203	TE-E036C-DC	"Downcomer EL.3.6m,East"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
174	TE 204	TE-W036C-DC	"Downcomer EL.3.6m,West"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
175	TE 205	TE-N060C-DC	"Downcomer EL.6.0m,North"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
176	TE 206	TE-S060C-DC	"Downcomer EL.6.0m,South"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
177	TE 207	TE-E060C-DC	"Downcomer EL.6.0m,East"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
178	TE 208	TE-W060C-DC	"Downcomer EL.6.0m,West"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
179	TE 209	TE-N055C-DC	"Downcomer EL.5.5m,North"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
180	TE 210	TE-S055C-DC	"Downcomer EL.5.5m,South"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
181	TE 211	TE-C-021-LP	"Lower Plenum EL.-2.1m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
182	TE 212	TE-C-018-LP	"Lower Plenum EL.-1.8m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
183	TE 213	TE-C-015-LP	"Lower Plenum EL.-1.5m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
184	TE 214	TE-C-012-LP	"Lower Plenum EL.-1.2m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
185	TE 215	TE-C-009-LP	"Lower Plenum EL.-0.9m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
186	TE 216	TE-C-006-LP	"Lower Plenum EL.-0.6m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
187	TE 217	TE-C-005-LP	"Lower Plenum EL.-0.5m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
188	TE 218	TE-C-003-LP	"Lower Plenum EL.-0.3m,C"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
189	TE 219	TE-B18621	"B18 Rod(6,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
190	TE 220	TE-B18622	"B18 Rod(6,2) Pos.2,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
191	TE 221	TE-B18623	"B18 Rod(6,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
192	TE 222	TE-B18624	"B18 Rod(6,2) Pos.4,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
193	TE 223	TE-B18625	"B18 Rod(6,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
194	TE 224	TE-B18626	"B18 Rod(6,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
195	TE 225	TE-B18627	"B18 Rod(6,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
196	TE 226	TE-B18628	"B18 Rod(6,2) Pos.8,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
197	TE 227	TE-B18629	"B18 Rod(6,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
198	TE 228	TE-B01221	"B01 Rod(2,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
199	TE 229	TE-B01223	"B01 Rod(2,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
200	TE 230	TE-B01225	"B01 Rod(2,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
201	TE 231	TE-B01226	"B01 Rod(2,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
202	TE 232	TE-B01227	"B01 Rod(2,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
203	TE 233	TE-B01229	"B01 Rod(2,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
204	TE 234	TE-B14262	"B14 Rod(2,6) Pos.2,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
205	TE 235	TE-B14264	"B14 Rod(2,6) Pos.4,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
206	TE 236	TE-B14268	"B14 Rod(2,6) Pos.8,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
207	TE 237	TE-B05261	"B05 Rod(2,6) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
208	TE 238	TE-B05263	"B05 Rod(2,6) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
209	TE 239	TE-B05265	"B05 Rod(2,6) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
210	TE 240	TE-B05266	"B05 Rod(2,6) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
211	TE 241	TE-B05267	"B05 Rod(2,6) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
212	TE 242	TE-B05269	"B05 Rod(2,6) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
213	TE 243	TE-B04221	"B04 Rod(2,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
214	TE 244	TE-B04223	"B04 Rod(2,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
215	TE 245	TE-B04225	"B04 Rod(2,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
216	TE 246	TE-B04226	"B04 Rod(2,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
217	TE 247	TE-B04227	"B04 Rod(2,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
218	TE 248	TE-B04229	"B04 Rod(2,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
219	TE 249	TE-B07621	"B07 Rod(6,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
220	TE 250	TE-B07623	"B07 Rod(6,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
221	TE 251	TE-B07625	"B07 Rod(6,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
222	TE 252	TE-B07626	"B07 Rod(6,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
223	TE 253	TE-B07627	"B07 Rod(6,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
224	TE 254	TE-B07629	"B07 Rod(6,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
225	TE 255	TE-B09661	"B09 Rod(6,6) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
226	TE 256	TE-B09663	"B09 Rod(6,6) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
227	TE 257	TE-B09665	"B09 Rod(6,6) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
228	TE 258	TE-B09666	"B09 Rod(6,6) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
229	TE 259	TE-B09667	"B09 Rod(6,6) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
230	TE 260	TE-B09669	"B09 Rod(6,6) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
231	TE 261	TE-B10621	"B10 Rod(6,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
232	TE 262	TE-B10623	"B10 Rod(6,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
233	TE 263	TE-B10625	"B10 Rod(6,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
234	TE 264	TE-B10626	"B10 Rod(6,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
235	TE 265	TE-B10627	"B10 Rod(6,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
236	TE 266	TE-B10629	"B10 Rod(6,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
237	TE 267	TE-B11221	"B11 Rod(2,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
238	TE 268	TE-B11223	"B11 Rod(2,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
239	TE 269	TE-B11225	"B11 Rod(2,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
240	TE 270	TE-B11226	"B11 Rod(2,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01

Table A.1(Cont'd) (4/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
241	TE 271	TE-B11227	"B11 Rod(2,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
242	TE 272	TE-B11229	"B11 Rod(2,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
243	TE 273	TE-B14261	"B14 Rod(2,6) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
244	TE 274	TE-B14263	"B14 Rod(2,6) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
245	TE 275	TE-B14265	"B14 Rod(2,6) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
246	TE 276	TE-B14266	"B14 Rod(2,6) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
247	TE 277	TE-B14267	"B14 Rod(2,6) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
248	TE 278	TE-B14269	"B14 Rod(2,6) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
249	TE 279	TE-B15261	"B15 Rod(2,6) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
250	TE 280	TE-B15263	"B15 Rod(2,6) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
251	TE 281	TE-B15265	"B15 Rod(2,6) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
252	TE 282	TE-B15266	"B15 Rod(2,6) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
253	TE 283	TE-B15267	"B15 Rod(2,6) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
254	TE 284	TE-B15269	"B15 Rod(2,6) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
255	TE 285	TE-B16221	"B16 Rod(2,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
256	TE 286	TE-B16223	"B16 Rod(2,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
257	TE 287	TE-B16225	"B16 Rod(2,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
258	TE 288	TE-B16226	"B16 Rod(2,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
259	TE 289	TE-B16227	"B16 Rod(2,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
260	TE 290	TE-B16229	"B16 Rod(2,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
261	TE 291	TE-B15262	"B15 Rod(2,6) Pos.2,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
262	TE 292	TE-B15264	"B15 Rod(2,6) Pos.4,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
263	TE 293	TE-B15268	"B15 Rod(2,6) Pos.8,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
264	TE 294	TE-B23221	"B23 Rod(2,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
265	TE 295	TE-B23223	"B23 Rod(2,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
266	TE 296	TE-B23225	"B23 Rod(2,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
267	TE 297	TE-B23226	"B23 Rod(2,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
268	TE 298	TE-B23227	"B23 Rod(2,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
269	TE 299	TE-B23229	"B23 Rod(2,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
270	TE 300	TE-B20661	"B20 Rod(6,6) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
271	TE 301	TE-B20662	"B20 Rod(6,6) Pos.2,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
272	TE 302	TE-B20663	"B20 Rod(6,6) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
273	TE 303	TE-B20664	"B20 Rod(6,6) Pos.4,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
274	TE 304	TE-B20665	"B20 Rod(6,6) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
275	TE 305	TE-B20666	"B20 Rod(6,6) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
276	TE 306	TE-B20667	"B20 Rod(6,6) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
277	TE 307	TE-B20668	"B20 Rod(6,6) Pos.8,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
278	TE 308	TE-B20669	"B20 Rod(6,6) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
279	TE 309	TE-B22661	"B22 Rod(6,6) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
280	TE 310	TE-B22662	"B22 Rod(6,6) Pos.2,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
281	TE 311	TE-B22663	"B22 Rod(6,6) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
282	TE 312	TE-B22664	"B22 Rod(6,6) Pos.4,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
283	TE 313	TE-B22665	"B22 Rod(6,6) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
284	TE 314	TE-B22666	"B22 Rod(6,6) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
285	TE 315	TE-B22667	"B22 Rod(6,6) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
286	TE 316	TE-B22668	"B22 Rod(6,6) Pos.8,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
287	TE 317	TE-B22669	"B22 Rod(6,6) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
288	TE 318	TE-B24621	"B24 Rod(6,2) Pos.1,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
289	TE 319	TE-B24623	"B24 Rod(6,2) Pos.3,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
290	TE 320	TE-B24625	"B24 Rod(6,2) Pos.5,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
291	TE 321	TE-B24626	"B24 Rod(6,2) Pos.6,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
292	TE 322	TE-B24627	"B24 Rod(6,2) Pos.7,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
293	TE 323	TE-B24629	"B24 Rod(6,2) Pos.9,Fluid"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
294	TE 324	TE-IN0641-SGA	SGA Inlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
295	TE 325	TE-IN0642-SGA	SGA Inlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
296	TE 326	TE-IN0643-SGA	SGA Inlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
297	TE 327	TE-EX0641-SGA	SGA Outlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
298	TE 328	TE-EX0642-SGA	SGA Outlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
299	TE 329	TE-EX0643-SGA	SGA Outlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
300	TE 330	TE-IN0861-SGA	"SGA U-Tube(1,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
301	TE 331	TE-IN0862-SGA	"SGA U-Tube(2,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
302	TE 332	TE-IN0863-SGA	"SGA U-Tube(3,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
303	TE 333	TE-IN0864-SGA	"SGA U-Tube(4,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
304	TE 334	TE-IN0865-SGA	"SGA U-Tube(5,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
305	TE 335	TE-IN0866-SGA	"SGA U-Tube(6,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
306	TE 336	TE-EX0861-SGA	"SGA U-Tube(1,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
307	TE 337	TE-EX0862-SGA	"SGA U-Tube(2,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
308	TE 338	TE-EX0863-SGA	"SGA U-Tube(3,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
309	TE 339	TE-EX0864-SGA	"SGA U-Tube(4,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
310	TE 340	TE-EX0865-SGA	"SGA U-Tube(5,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
311	TE 341	TE-EX0866-SGA	"SGA U-Tube(6,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
312	TE 342	TE-IN0931-SGA	"SGA U-Tube(1,IN) Pos.2"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
313	TE 343	TE-IN0932-SGA	"SGA U-Tube(2,IN) Pos.2"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
314	TE 344	TE-IN0933-SGA	"SGA U-Tube(3,IN) Pos.2"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
315	TE 345	TE-IN0934-SGA	"SGA U-Tube(4,IN) Pos.2"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
316	TE 346	TE-IN0935-SGA	"SGA U-Tube(5,IN) Pos.2"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
317	TE 347	TE-IN0936-SGA	"SGA U-Tube(6,IN) Pos.2"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
318	TE 348	TE-IN0991-SGA	"SGA U-Tube(1,IN) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
319	TE 349	TE-EX0991-SGA	"SGA U-Tube(1,EX) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
320	TE 350	TE-IN0992-SGA	"SGA U-Tube(2,IN) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01

Table A.1(Cont'd)　(5/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
321	TE 351	TE-EX0992-SGA	″SGA U-Tube(2,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
322	TE 352	TE-IN0993-SGA	″SGA U-Tube(3,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
323	TE 353	TE-EX0993-SGA	″SGA U-Tube(3,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
324	TE 354	TE-IN0994-SGA	″SGA U-Tube(4,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
325	TE 355	TE-EX0994-SGA	″SGA U-Tube(4,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
326	TE 356	TE-IN0995-SGA	″SGA U-Tube(5,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
327	TE 357	TE-EX0995-SGA	″SGA U-Tube(5,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
328	TE 358	TE-IN0996-SGA	″SGA U-Tube(6,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
329	TE 359	TE-EX0996-SGA	″SGA U-Tube(6,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
330	TE 360	TE-IN1051-SGA	″SGA U-Tube(1,IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
331	TE 361	TE-IN1052-SGA	″SGA U-Tube(2,IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
332	TE 362	TE-IN1053-SGA	″SGA U-Tube(3,IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
333	TE 363	TE-IN1054-SGA	″SGA U-Tube(4,IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
334	TE 364	TE-IN1055-SGA	″SGA U-Tube(5,IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
335	TE 365	TE-IN1056-SGA	″SGA U-Tube(6,IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
336	TE 366	TE-IN1121-SGA	″SGA U-Tube(1,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
337	TE 367	TE-EX1121-SGA	″SGA U-Tube(1,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
338	TE 368	TE-IN1122-SGA	″SGA U-Tube(2,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
339	TE 369	TE-EX1122-SGA	″SGA U-Tube(2,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
340	TE 370	TE-IN1123-SGA	″SGA U-Tube(3,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
341	TE 371	TE-EX1123-SGA	″SGA U-Tube(3,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
342	TE 372	TE-IN1124-SGA	″SGA U-Tube(4,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
343	TE 373	TE-EX1124-SGA	″SGA U-Tbue(4,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
344	TE 374	TE-IN1125-SGA	″SGA U-Tube(5,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
345	TE 375	TE-EX1125-SGA	″SGA U-Tube(5,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
346	TE 376	TE-IN1126-SGA	″SGA U-Tube(6,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
347	TE 377	TE-EX1126-SGA	″SGA U-Tube(6,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
348	TE 378	TE-IN1251-SGA	″SGA U-Tube(1,IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
349	TE 379	TE-EX1251-SGA	″SGA U-Tube(1,EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
350	TE 380	TE-IN1252-SGA	″SGA U-Tube(2,IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
351	TE 381	TE-EX1252-SGA	″SGA U-Tube(2,EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
352	TE 382	TE-IN1253-SGA	″SGA U-Tube(3,IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
353	TE 383	TE-EX1253-SGA	″SGA U-Tube(3,EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
354	TE 384	TE-IN1254-SGA	″SGA U-Tube(4,IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
355	TE 385	TE-EX1254-SGA	″SGA U-Tube(4,EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
356	TE 386	TE-IN1255-SGA	″SGA U-Tube(5,IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
357	TE 387	TE-EX1255-SGA	″SGA U-Tube(5,EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
358	TE 388	TE-IN1256-SGA	″SGA U-Tube(6,IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
359	TE 389	TE-EX1256-SGA	″SGA U-Tube(6,EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
360	TE 390	TE-IN1371-SGA	″SGA U-Tube(1,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
361	TE 391	TE-EX1371-SGA	″SGA U-Tube(1,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
362	TE 392	TE-IN1372-SGA	″SGA U-Tube(2,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
363	TE 393	TE-EX1372-SGA	″SGA U-Tube(2,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
364	TE 394	TE-IN1373-SGA	″SGA U-Tube(3,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
365	TE 395	TE-EX1373-SGA	″SGA U-Tube(3,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
366	TE 396	TE-IN1374-SGA	″SGA U-Tube(4,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
367	TE 397	TE-EX1374-SGA	″SGA U-Tube(4,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
368	TE 398	TE-IN1375-SGA	″SGA U-Tube(5,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
369	TE 399	TE-EX1375-SGA	″SGA U-Tube(5,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
370	TE 400	TE-IN1376-SGA	″SGA U-Tube(6,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
371	TE 401	TE-EX1376-SGA	″SGA U-Tube(6,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
372	TE 402	TE-IN1501-SGA	″SGA U-Tube(1,IN) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
373	TE 403	TE-EX1501-SGA	″SGA U-Tube(1,EX) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
374	TE 404	TE-IN1502-SGA	″SGA U-Tube(2,IN) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
375	TE 405	TE-EX1502-SGA	″SGA U-Tube(2,EX) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
376	TE 406	TE-IN1503-SGA	″SGA U-Tube(3,IN) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
377	TE 407	TE-EX1503-SGA	″SGA U-Tube(3,EX) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
378	TE 408	TE-IN1504-SGA	″SGA U-Tube(4,IN) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
379	TE 409	TE-EX1504-SGA	″SGA U-Tube(4,EX) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
380	TE 410	TE-IN1505-SGA	″SGA U-Tube(5,IN) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
381	TE 411	TE-EX1505-SGA	″SGA U-Tube(5,EX) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
382	TE 412	TE-IN1506-SGA	″SGA U-Tube(6,IN) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
383	TE 413	TE-EX1506-SGA	″SGA U-Tube(6,EX) Pos.8″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
384	TE 414	TE-IN1632-SGA	″SGA U-Tube(2,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
385	TE 415	TE-EX1632-SGA	″SGA U-Tube(2,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
386	TE 416	TE-IN1633-SGA	″SGA U-Tube(3,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
387	TE 417	TE-EX1633-SGA	″SGA U-Tube(3,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
388	TE 418	TE-IN1634-SGA	″SGA U-Tube(4,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
389	TE 419	TE-EX1634-SGA	″SGA U-Tube(4,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
390	TE 420	TE-IN1635-SGA	″SGA U-Tube(5,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
391	TE 421	TE-EX1635-SGA	″SGA U-Tube(5,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
392	TE 422	TE-IN1701-SGA	″SGA U-Tube(1,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
393	TE 423	TE-IN1706-SGA	″SGA U-Tube(6,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
394	TE 424	TE-IN1782-SGA	″SGA U-Tube(2,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
395	TE 425	TE-IN1785-SGA	″SGA U-Tube(5,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
396	TE 426	TE-IN1863-SGA	″SGA U-Tube(3,IN) Pos.11″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
397	TE 427	TE-IN1864-SGA	″SGA U-Tube(4,IN) Pos.11″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
398	TE 428	TE-223D-SGA	SGA Steam Dome	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
399	TE 429	TE-086C-SGA	SGA Boiling Section Pos.1	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
400	TE 430	TE-099C-SGA	SGA Boiling Section Pos.3	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01

Table A.1(Cont'd) (6/25)

SEQ No.	Function ID.	Tagname	Location	Range		Unit	Uncertainty	
				LO	HI		±ABS.	±%FR
401	TE 431	TE-112C-SGA	SGA Boiling Section Pos.5	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
402	TE 432	TE-125C-SGA	SGA Boiling Section Pos.6	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
403	TE 433	TE-137C-SGA	SGA Boiling Section Pos.7	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
404	TE 434	TE-150C-SGA	SGA Boiling Section Pos.8	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
405	TE 435	TE-163C-SGA	SGA Boiling Section Pos.9	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
406	TE 436	TE-178C-SGA	SGA Boiling Section Pos.10	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
407	TE 437	TE-192F-SGA	SGA Boiling Section	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
408	TE 438	TE-208F-SGA	SGA Separator	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
409	TE 439	TE-192C-SGA	SGA Downcomer	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
410	TE 440	TE-208C-SGA	SGA Downcomer	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
411	TE 441	TE-223C-SGA	SGA Steam Dome	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
412	TE 442	TE-245C-SGA	SGA Steam Dome	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
413	TE 443	TE-IN0641-SGB	SGB Inlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
414	TE 444	TE-IN0642-SGB	SGB Inlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
415	TE 445	TE-IN0643-SGB	SGB Inlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
416	TE 446	TE-EX0641-SGB	SGB Outlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
417	TE 447	TE-EX0642-SGB	SGB Outlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
418	TE 448	TE-EX0643-SGB	SGB Outlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
419	TE 449	TE-IN0861-SGB	″SGB U-Tube(1, IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
420	TE 450	TE-IN0862-SGB	″SGB U-Tube(2, IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
421	TE 451	TE-IN0863-SGB	″SGB U-Tube(3, IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
422	TE 452	TE-IN0864-SGB	″SGB U-Tube(4, IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
423	TE 453	TE-IN0865-SGB	″SGB U-Tube(5, IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
424	TE 454	TE-IN0866-SGB	″SGB U-Tube(6, IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
425	TE 455	TE-EX0861-SGB	″SGB U-Tube(1, EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
426	TE 456	TE-EX0862-SGB	″SGB U-Tube(2, EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
427	TE 457	TE-EX0863-SGB	″SGB U-Tube(3, EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
428	TE 458	TE-EX0864-SGB	″SGB U-Tube(4, EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
429	TE 459	TE-EX0865-SGB	″SGB U-Tube(5, EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
430	TE 460	TE-EX0866-SGB	″SGB U-Tube(6, EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
431	TE 461	TE-IN0931-SGB	″SGB U-Tube(1, IN) Pos.2″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
432	TE 462	TE-IN0932-SGB	″SGB U-Tube(2, IN) Pos.2″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
433	TE 463	TE-IN0933-SGB	″SGB U-Tube(3, IN) Pos.2″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
434	TE 464	TE-IN0934-SGB	″SGB U-Tube(4, IN) Pos.2″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
435	TE 465	TE-IN0935-SGB	″SGB U-Tube(5, IN) Pos.2″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
436	TE 466	TE-IN0936-SGB	″SGB U-Tube(6, IN) Pos.2″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
437	TE 467	TE-IN0991-SGB	″SGB U-Tube(1, IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
438	TE 468	TE-EX0991-SGB	″SGB U-Tube(1, EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
439	TE 469	TE-IN0992-SGB	″SGB U-Tube(2, IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
440	TE 470	TE-EX0992-SGB	″SGB U-Tube(2, EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
441	TE 471	TE-IN0993-SGB	″SGB U-Tube(3, IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
442	TE 472	TE-EX0993-SGB	″SGB U-Tube(3, EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
443	TE 473	TE-IN0994-SGB	″SGB U-Tube(4, IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
444	TE 474	TE-EX0994-SGB	″SGB U-Tube(4, EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
445	TE 475	TE-IN0995-SGB	″SGB U-Tube(5, IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
446	TE 476	TE-EX0995-SGB	″SGB U-Tube(5, EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
447	TE 477	TE-IN0996-SGB	″SGB U-Tube(6, IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
448	TE 478	TE-EX0996-SGB	″SGB U-Tube(6, EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
449	TE 479	TE-IN1051-SGB	″SGB U-Tube(1, IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
450	TE 480	TE-IN1052-SGB	″SGB U-Tube(2, IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
451	TE 481	TE-IN1053-SGB	″SGB U-Tube(3, IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
452	TE 482	TE-IN1054-SGB	″SGB U-Tube(4, IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
453	TE 483	TE-IN1055-SGB	″SGB U-Tube(5, IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
454	TE 484	TE-IN1056-SGB	″SGB U-Tube(6, IN) Pos.4″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
455	TE 485	TE-IN1121-SGB	″SGB U-Tube(1, IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
456	TE 486	TE-EX1121-SGB	″SGB U-Tube(1, EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
457	TE 487	TE-IN1122-SGB	″SGB U-Tube(2, IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
458	TE 488	TE-EX1122-SGB	″SGB U-Tube(2, EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
459	TE 489	TE-IN1123-SGB	″SGB U-Tube(3, IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
460	TE 490	TE-EX1123-SGB	″SGB U-Tube(3, EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
461	TE 491	TE-IN1124-SGB	″SGB U-Tube(4, IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
462	TE 492	TE-EX1124-SGB	″SGB U-Tube(4, EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
463	TE 493	TE-IN1125-SGB	″SGB U-Tube(5, IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
464	TE 494	TE-EX1125-SGB	″SGB U-Tube(5, EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
465	TE 495	TE-IN1126-SGB	″SGB U-Tube(6, IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
466	TE 496	TE-EX1126-SGB	″SGB U-Tube(6, EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
467	TE 497	TE-IN1251-SGB	″SGB U-Tube(1, IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
468	TE 498	TE-EX1251-SGB	″SGB U-Tube(1, EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
469	TE 499	TE-IN1252-SGB	″SGB U-Tube(2, IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
470	TE 500	TE-EX1252-SGB	″SGB U-Tube(2, EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
471	TE 501	TE-IN1253-SGB	″SGB U-Tube(3, IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
472	TE 502	TE-EX1253-SGB	″SGB U-Tube(3, EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
473	TE 503	TE-IN1254-SGB	″SGB U-Tube(4, IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
474	TE 504	TE-EX1254-SGB	″SGB U-Tube(4, EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
475	TE 505	TE-IN1255-SGB	″SGB U-Tube(5, IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
476	TE 506	TE-EX1255-SGB	″SGB U-Tube(5, EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
477	TE 507	TE-IN1256-SGB	″SGB U-Tube(6, IN) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
478	TE 508	TE-EX1256-SGB	″SGB U-Tube(6, EX) Pos.6″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
479	TE 509	TE-IN1371-SGB	″SGB U-Tube(1, IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
480	TE 510	TE-EX1371-SGB	″SGB U-Tube(1, EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01

Table A.1(Cont'd) (7/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
481	TE 511	TE-IN1372-SGB	"SGB U-Tube(2, IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
482	TE 512	TE-EX1372-SGB	"SGB U-Tube(2, EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
483	TE 513	TE-IN1373-SGB	"SGB U-Tube(3, IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
484	TE 514	TE-EX1373-SGB	"SGB U-Tube(3, EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
485	TE 515	TE-IN1374-SGB	"SGB U-Tube(4, IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
486	TE 516	TE-EX1374-SGB	"SGB U-Tube(4, EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
487	TE 517	TE-IN1375-SGB	"SGB U-Tube(5, IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
488	TE 518	TE-EX1375-SGB	"SGB U-Tube(5, EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
489	TE 519	TE-IN1376-SGB	"SGB U-Tube(6, IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
490	TE 520	TE-EX1376-SGB	"SGB U-Tube(6, EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
491	TE 521	TE-IN1501-SGB	"SGB U-Tube(1, IN) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
492	TE 522	TE-EX1501-SGB	"SGB U-Tube(1, EX) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
493	TE 523	TE-IN1502-SGB	"SGB U-Tube(2, IN) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
494	TE 524	TE-EX1502-SGB	"SGB U-Tube(2, EX) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
495	TE 525	TE-IN1503-SGB	"SGB U-Tube(3, IN) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
496	TE 526	TE-EX1503-SGB	"SGB U-Tube(3, EX) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
497	TE 527	TE-IN1504-SGB	"SGB U-Tube(4, IN) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
498	TE 528	TE-EX1504-SGB	"SGB U-Tube(4, EX) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
499	TE 529	TE-IN1505-SGB	"SGB U-Tube(5, IN) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
500	TE 530	TE-EX1505-SGB	"SGB U-Tube(5, EX) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
501	TE 531	TE-IN1506-SGB	"SGB U-Tube(6, IN) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
502	TE 532	TE-EX1506-SGB	"SGB U-Tube(6, EX) Pos.8"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
503	TE 533	TE-IN1632-SGB	"SGB U-Tube(2, IN) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
504	TE 534	TE-EX1632-SGB	"SGB U-Tube(2, EX) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
505	TE 535	TE-IN1633-SGB	"SGB U-Tube(3, IN) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
506	TE 536	TE-EX1633-SGB	"SGB U-Tube(3, EX) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
507	TE 537	TE-IN1634-SGB	"SGB U-Tube(4, IN) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
508	TE 538	TE-EX1634-SGB	"SGB U-Tube(4, EX) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
509	TE 539	TE-IN1635-SGB	"SGB U-Tube(5, IN) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
510	TE 540	TE-EX1635-SGB	"SGB U-Tube(5, EX) Pos.9"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
511	TE 541	TE-IN1701-SGB	"SGB U-Tube(1, IN) Pos.10"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
512	TE 542	TE-IN1706-SGB	"SGB U-Tube(6, IN) Pos.10"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
513	TE 543	TE-IN1782-SGB	"SGB U-Tube(2, IN) Pos.10"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
514	TE 544	TE-IN1785-SGB	"SGB U-Tube(5, IN) Pos.10"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
515	TE 545	TE-IN1863-SGB	"SGB U-Tube(3, IN) Pos.11"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
516	TE 546	TE-IN1864-SGB	"SGB U-Tube(4, IN) Pos.11"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
517	TE 547	TE-223D-SGB	SGB Steam Dome	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
518	TE 548	TE-086C-SGB	SGB Boiling Section Pos.1	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
519	TE 549	TE-099C-SGB	SGB Boiling Section Pos.3	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
520	TE 550	TE-112C-SGB	SGB Boiling Section Pos.5	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
521	TE 551	TE-125C-SGB	SGB Boiling Section Pos.6	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
522	TE 552	TE-137C-SGB	SGB Boiling Section Pos.7	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
523	TE 553	TE-150C-SGB	SGB Boiling Section Pos.8	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
524	TE 554	TE-163C-SGB	SGB Boiling Section Pos.9	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
525	TE 555	TE-178C-SGB	SGB Boiling Section Pos.10	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
526	TE 556	TE-192F-SGB	SGB Boiling Section	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
527	TE 557	TE-208F-SGB	SGB Separator	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
528	TE 558	TE-192C-SGB	SGB Downcomer	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
529	TE 559	TE-208C-SGB	SGB Downcomer	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
530	TE 560	TE-223C-SGB	SGB Steam Dome	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
531	TE 561	TE-245C-SGB	SGB Steam Dome	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
532	TE 562	TE-211C-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
533	TE 563	TE-194C-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
534	TE 564	TE-177C-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
535	TE 596	TE-177D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
536	TE 597	TE-181D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
537	TE 598	TE-185D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
538	TE 599	TE-189D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
539	TE 600	TE-192D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
540	TE 601	TE-196D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
541	TE 602	TE-200D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
542	TE 603	TE-204D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
543	TE 604	TE-207D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
544	TE 605	TE-211D-PR	PR Fluid	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
545	TE 606	TE011A-HLA	HLA Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
546	TE 607	TE011B-HLA	HLA Spool Piece Side	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
547	TE 608	TE011C-HLA	HLA Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
548	TE 609	TE012C-HLA	HLA Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
549	TE 610	TE012D-HLA	HLA Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
550	TE 611	TE051A-LSA	LSA Spool Piece East	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
551	TE 612	TE051B-LSA	LSA Spool Piece South	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
552	TE 613	TE051C-LSA	LSA Spool Piece West	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
553	TE 614	TE051D-LSA	LSA Spool Piece North	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
554	TE 615	TE052-LSA	LSA Spool Piece	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
555	TE 616	TE071A-CLA	CLA Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
556	TE 617	TE071B-CLA	CLA Spool Piece Side	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
557	TE 618	TE071C-CLA	CLA Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
558	TE 619	TE072C-CLA	CLA Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
559	TE 620	TE072D-CLA	CLA Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
560	TE 621	TE151A-HLB	HLB Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01

Table A.1(Cont'd) (8/25)

SEQ No.	Function ID.	Tagname	Location	Range		Unit	Uncertainty	
				LO	HI		±ABS.	±%FR
561	TE 622	TE151B-HLB	HLB Spool Piece Side	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
562	TE 623	TE151C-HLB	HLB Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
563	TE 624	TE152C-HLB	HLB Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
564	TE 625	TE152D-HLB	HLB Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
565	TE 626	TE191A-LSB	LSB Spool Piece West	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
566	TE 627	TE191B-LSB	LSB Spool Piece North	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
567	TE 628	TE191C-LSB	LSB Spool Piece East	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
568	TE 629	TE191D-LSB	LSB Spool Piece South	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
569	TE 630	TE192-LSB	LSB Spool Piece	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
570	TE 631	TE211A-CLB	CLB Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
571	TE 632	TE211B-CLB	CLB Spool Piece Side	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
572	TE 633	TE211C-CLB	CLB Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
573	TE 634	TE212C-CLB	CLB Spool Piece Top	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
574	TE 635	TE212D-CLB	CLB Spool Piece Bottom	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
575	TE 638	TE301C-PR	PR Safety Valve Line	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
576	TE 639	TE301D-PR	PR Safety Valve Line	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
577	TE 644	TE571C-BU	BU No.1 S.P	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
578	TE 645	TE571D-BU	BU No.1 S.P	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
579	TE 662	TE-N-006-DC	PV Downcomer DTT North	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
580	TE 663	TE-S-006-DC	PV Downcomer DTT South	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
581	TE 664	TE-E-006-DC	PV Downcomer DTT East	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
582	TE 665	TE-W-006-DC	PV Downcomer DTT West	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
583	DT 1	DTE020A-HLA	HLA Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
584	DT 2	DTE020B-HLA	HLA Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
585	DT 3	DTE030A-HLA	HLA Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
586	DT 4	DTE030B-HLA	HLA Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
587	DT 5	DTE050A-LSA	LSA Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
588	DT 6	DTE050B-LSA	LSA Pipe Wall Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
589	DT 7	DTE060A-PCA	PCA Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
590	DT 8	DTE070A-CLA	CLA Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
591	DT 9	DTE070B-CLA	CLA Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
592	DT 10	DTE080A-CLA	CLA Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
593	DT 11	DTE080B-CLA	CLA Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
594	DT 12	DTE100-HLA	HLA-CLA	-1.500E+02	1.500E+02	K	2.490E+00	8.300E-01
595	DT 13	DTE160A-HLB	HLB Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
596	DT 14	DTE160B-HLB	HLB Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
597	DT 15	DTE170A-HLB	HLB Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
598	DT 16	DTE170B-HLB	HLB Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
599	DT 17	DTE190A-LSB	LSB Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
600	DT 18	DTE190B-LSB	LSB Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
601	DT 19	DTE200A-PCB	PCB Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
602	DT 20	DTE210A-CLB	CLB Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
603	DT 21	DTE210B-CLB	CLB Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
604	DT 22	DTE220A-CLB	CLB Pipe Wall I/O	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
605	DT 23	DTE220B-CLB	CLB Pipe Wall to Fluid	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
606	DT 24	DTE240-HLB	HLB-CLB	-1.500E+02	1.500E+02	K	2.490E+00	8.300E-01
607	DT 25	DTE270A-PR	PR Spray Line	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
608	DT 26	DTE280A-PR	PR Surge Line	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
609	DT 27	DTE-E-015A-PV	PV Wall I/O-E at L. Plenum	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
610	DT 28	DTE-W-015A-PV	PV Wall I/O-W at L. Plenum	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
611	DT 29	DTE-N000A-PV	PV Wall I/O-N at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
612	DT 30	DTE-S000A-PV	PV Wall I/O-S at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
613	DT 31	DTE-E000A-PV	PV Wall I/O-E at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
614	DT 32	DTE-W000A-PV	PV Wall I/O-W at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
615	DT 33	DTE-N018A-PV	PV Wall I/O-N at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
616	DT 34	DTE-S018A-PV	PV Wall I/O-S at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
617	DT 35	DTE-E018A-PV	PV Wall I/O-E at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
618	DT 36	DTE-W018A-PV	PV Wall I/O-W at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
619	DT 37	DTE-N036A-PV	PV Wall I/O-N at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
620	DT 38	DTE-S036A-PV	PV Wall I/O-S at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
621	DT 39	DTE-E036A-PV	PV Wall I/O-E at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
622	DT 40	DTE-W036A-PV	PV Wall I/O-W at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
623	DT 41	DTE-N060A-PV	PV Wall I/O-N at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
624	DT 42	DTE-S060A-PV	PV Wall I/O-S at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
625	DT 43	DTE-E060A-PV	PV Wall I/O-E at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
626	DT 44	DTE-W060A-PV	PV Wall I/O-W at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
627	DT 45	DTE-E080A-PV	PV Wall I/O-E at DC Head	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
628	DT 46	DTE-W080A-PV	PV Wall I/O-W at DC Head	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
629	DT 47	DTE-N000B-PV	PV/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
630	DT 48	DTE-S000B-PV	PV/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
631	DT 49	DTE-E000B-PV	PV/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
632	DT 50	DTE-W000B-PV	PV/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
633	DT 51	DTE-N018B-PV	PV/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
634	DT 52	DTE-S018B-PV	PV/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
635	DT 53	DTE-E018B-PV	PV/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
636	DT 54	DTE-W018B-PV	PV/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
637	DT 55	DTE-N036B-PV	PV/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
638	DT 56	DTE-S036B-PV	PV/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
639	DT 57	DTE-E036B-PV	PV/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00

Table A.1(Cont'd)　(9/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
640	DT 58	DTE-W036B-PV	PV/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
641	DT 59	DTE-N060B-PV	PV/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
642	DT 60	DTE-S060B-PV	PV/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
643	DT 61	DTE-E060B-PV	PV/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
644	DT 62	DTE-W060B-PV	PV/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
645	DT 63	DTE-N000C-PV	CB/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
646	DT 64	DTE-S000C-PV	CB/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
647	DT 65	DTE-E000C-PV	CB/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
648	DT 66	DTE-W000C-PV	CB/DC Fluid at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
649	DT 67	DTE-N018C-PV	CB/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
650	DT 68	DTE-S018C-PV	CB/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
651	DT 69	DTE-E018C-PV	CB/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
652	DT 70	DTE-W018C-PV	CB/DC Fluid at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
653	DT 71	DTE-N036C-PV	CB/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
654	DT 72	DTE-S036C-PV	CB/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
655	DT 73	DTE-E036C-PV	CB/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
656	DT 74	DTE-W036C-PV	CB/DC Fluid at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
657	DT 75	DTE-N060C-PV	CB/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
658	DT 76	DTE-S060C-PV	CB/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
659	DT 77	DTE-E060C-PV	CB/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
660	DT 78	DTE-W060C-PV	CB/DC Fluid at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
661	DT 79	DTE-N000E-PV	CB Wall I/O at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
662	DT 80	DTE-S000E-PV	CB Wall I/O at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
663	DT 81	DTE-E000E-PV	CB Wall I/O at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
664	DT 82	DTE-W000E-PV	CB Wall I/O at DC Bottom	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
665	DT 83	DTE-N010E-PV	CB Wall I/O at Lower DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
666	DT 84	DTE-S010E-PV	CB Wall I/O at Lower DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
667	DT 85	DTE-E010E-PV	CB Wall I/O at Lower DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
668	DT 86	DTE-W010E-PV	CB Wall I/O at Lower DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
669	DT 87	DTE-N018E-PV	CB Wall I/O at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
670	DT 88	DTE-S018E-PV	CB Wall I/O at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
671	DT 89	DTE-E018E-PV	CB Wall I/O at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
672	DT 90	DTE-W018E-PV	CB Wall I/O at DC Middle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
673	DT 91	DTE-N026E-PV	CB Wall I/O at DC Center	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
674	DT 92	DTE-S026E-PV	CB Wall I/O at DC Center	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
675	DT 93	DTE-E026E-PV	CB Wall I/O at DC Center	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
676	DT 94	DTE-W026E-PV	CB Wall I/O at DC Center	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
677	DT 95	DTE-N036E-PV	CB Wall I/O at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
678	DT 96	DTE-S036E-PV	CB Wall I/O at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
679	DT 97	DTE-E036E-PV	CB Wall I/O at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
680	DT 98	DTE-W036E-PV	CB Wall I/O at Upper DC	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
681	DT 99	DTE-N049E-PV	CB Wall I/O below Nozzle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
682	DT 100	DTE-S049E-PV	CB Wall I/O below Nozzle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
683	DT 101	DTE-E049E-PV	CB Wall I/O below Nozzle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
684	DT 102	DTE-W049E-PV	CB Wall I/O below Nozzle	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
685	DT 103	DTE-N060E-PV	CB Wall I/O at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
686	DT 104	DTE-S060E-PV	CB Wall I/O at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
687	DT 105	DTE-E060E-PV	CB Wall I/O at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
688	DT 106	DTE-W060E-PV	CB Wall I/O at DC Top	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
689	DT 107	DTE-040-B09-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
690	DT 108	DTE-040-B11-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
691	DT 109	DTE-040-B01-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
692	DT 110	DTE-040-B03-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
693	DT 111	DTE-040-B05-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
694	DT 112	DTE-040-B07-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
695	DT 113	DTE-040-B21-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
696	DT 114	DTE-040-B23-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
697	DT 115	DTE-040-B02-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
698	DT 116	DTE-040-B15-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
699	DT 117	DTE-040-B06-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
700	DT 118	DTE-040-B14-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
701	DT 119	DTE-040-B18-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
702	DT 120	DTE-040-B19-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
703	DT 121	DTE-040-B10-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
704	DT 122	DTE-040-B12-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
705	DT 123	DTE-040-B04-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
706	DT 124	DTE-040-B08-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
707	DT 125	DTE-040-B22-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
708	DT 126	DTE-040-B24-UCP	In/Out Fluid across UCP	-1.500E+02	1.500E+02	K	6.240E+00	2.080E+00
709	DT 127	DTE-000-B02-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
710	DT 128	DTE-000-B03-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
711	DT 129	DTE-000-B06-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
712	DT 130	DTE-000-B07-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
713	DT 131	DTE-000-B09-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
714	DT 132	DTE-000-B11-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
715	DT 133	DTE-000-B14-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
716	DT 134	DTE-000-B16-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
717	DT 135	DTE-000-B18-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
718	DT 136	DTE-000-B20-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
719	DT 137	DTE-000-B21-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00

Table A.1(Cont'd)　(10/25)

SEQ No.	Function ID.	Tagname	Location	Range		Unit	Uncertainty	
				LO	HI		±ABS.	±%FR
720	DT 138	DTE-000-B23-LCP	In/Out Fluid across LCP	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
721	DT 139	DTE-086A-SGA	SGA Wall I/O Pos.1	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
722	DT 140	DTE-137A-SGA	SGA Wall I/O Pos.7	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
723	DT 141	DTE-178A-SGA	SGA Wall I/O Pos.10	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
724	DT 142	DTE-223A-SGA	SGA Steam Dome Wall I/O	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
725	DT 143	DTE-IN0861-SGA	″SGA U-Tube(1, IN) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
726	DT 144	DTE-EX0861-SGA	″SGA U-Tube(1, EX) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
727	DT 145	DTE-IN0862-SGA	″SGA U-Tube(2, IN) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
728	DT 146	DTE-EX0862-SGA	″SGA U-Tube(2, EX) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
729	DT 147	DTE-IN0863-SGA	″SGA U-Tube(3, IN) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
730	DT 148	DTE-EX0863-SGA	″SGA U-Tube(3, EX) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
731	DT 149	DTE-IN0991-SGA	″SGA U-Tube(1, IN) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
732	DT 150	DTE-EX0991-SGA	″SGA U-Tube(1, EX) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
733	DT 151	DTE-IN0992-SGA	″SGA U-Tube(2, IN) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
734	DT 152	DTE-EX0992-SGA	″SGA U-Tube(2, EX) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
735	DT 153	DTE-IN0993-SGA	″SGA U-Tube(3, IN) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
736	DT 154	DTE-EX0993-SGA	″SGA U-Tube(3, EX) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
737	DT 155	DTE-IN1121-SGA	″SGA U-Tube(1, IN) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
738	DT 156	DTE-EX1121-SGA	″SGA U-Tube(1, EX) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
739	DT 157	DTE-IN1122-SGA	″SGA U-Tube(2, IN) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
740	DT 158	DTE-EX1122-SGA	″SGA U-Tube(2, EX) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
741	DT 159	DTE-IN1123-SGA	″SGA U-Tube(3, IN) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
742	DT 160	DTE-EX1123-SGA	″SGA U-Tube(3, EX) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
743	DT 161	DTE-IN1371-SGA	″SGA U-Tube(1, IN) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
744	DT 162	DTE-EX1371-SGA	″SGA U-Tube(1, EX) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
745	DT 163	DTE-IN1372-SGA	″SGA U-Tube(2, IN) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
746	DT 164	DTE-EX1372-SGA	″SGA U-Tube(2, EX) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
747	DT 165	DTE-IN1373-SGA	″SGA U-Tube(3, IN) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
748	DT 166	DTE-EX1373-SGA	″SGA U-Tube(3, EX) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
749	DT 167	DTE-IN1632-SGA	″SGA U-Tube(2, IN) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
750	DT 168	DTE-EX1632-SGA	″SGA U-Tube(2, EX) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
751	DT 169	DTE-IN1633-SGA	″SGA U-Tube(3, IN) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
752	DT 170	DTE-EX1633-SGA	″SGA U-Tube(3, EX) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
753	DT 171	DTE-IN1701-SGA	″SGA U-Tube(1, IN) Pos.10″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
754	DT 172	DTE-IN1782-SGA	″SGA U-Tube(2, IN) Pos.10″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
755	DT 173	DTE-IN1863-SGA	″SGA U-Tube(3, IN) Pos.11″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
756	DT 174	DTE-086A-SGB	SGB Wall I/O Pos.1	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
757	DT 175	DTE-137A-SGB	SGB Wall I/O Pos.7	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
758	DT 176	DTE-178A-SGB	SGB Wall I/O Pos.10	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
759	DT 177	DTE-223A-SGB	SGB Steam Dome Wall I/O	-4.000E+01	4.000E+01	K	1.664E+00	2.080E+00
760	DT 178	DTE-IN0861-SGB	″SGB U-Tube(1, IN) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
761	DT 179	DTE-EX0861-SGB	″SGB U-Tube(1, EX) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
762	DT 180	DTE-IN0862-SGB	″SGB U-Tube(2, IN) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
763	DT 181	DTE-EX0862-SGB	″SGB U-Tube(2, EX) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
764	DT 182	DTE-IN0863-SGB	″SGB U-Tube(3, IN) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
765	DT 183	DTE-EX0863-SGB	″SGB U-Tube(3, EX) Pos.1″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
766	DT 184	DTE-IN0991-SGB	″SGB U-Tube(1, IN) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
767	DT 185	DTE-EX0991-SGB	″SGB U-Tube(1, EX) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
768	DT 186	DTE-IN0992-SGB	″SGB U-Tube(2, IN) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
769	DT 187	DTE-EX0992-SGB	″SGB U-Tube(2, EX) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
770	DT 188	DTE-IN0993-SGB	″SGB U-Tube(3, IN) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
771	DT 189	DTE-EX0993-SGB	″SGB U-Tube(3, EX) Pos.3″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
772	DT 190	DTE-IN1121-SGB	″SGB U-Tube(1, IN) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
773	DT 191	DTE-EX1121-SGB	″SGB U-Tube(1, EX) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
774	DT 192	DTE-IN1122-SGB	″SGB U-Tube(2, IN) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
775	DT 193	DTE-EX1122-SGB	″SGB U-Tube(2, EX) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
776	DT 194	DTE-IN1123-SGB	″SGB U-Tube(3, IN) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
777	DT 195	DTE-EX1123-SGB	″SGB U-Tube(3, EX) Pos.5″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
778	DT 196	DTE-IN1371-SGB	″SGB U-Tube(1, IN) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
779	DT 197	DTE-EX1371-SGB	″SGB U-Tube(1, EX) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
780	DT 198	DTE-IN1372-SGB	″SGB U-Tube(2, IN) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
781	DT 199	DTE-EX1372-SGB	″SGB U-Tube(2, EX) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
782	DT 200	DTE-IN1373-SGB	″SGB U-Tube(3, IN) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
783	DT 201	DTE-EX1373-SGB	″SGB U-Tube(3, EX) Pos.7″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
784	DT 202	DTE-IN1632-SGB	″SGB U-Tube(2, IN) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
785	DT 203	DTE-EX1632-SGB	″SGB U-Tube(2, EX) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
786	DT 204	DTE-IN1633-SGB	″SGB U-Tube(3, IN) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
787	DT 205	DTE-EX1633-SGB	″SGB U-Tube(3, EX) Pos.9″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
788	DT 206	DTE-IN1701-SGB	″SGB U-Tube(1, IN) Pos.10″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
789	DT 207	DTE-IN1782-SGB	″SGB U-Tube(2, IN) Pos.10″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
790	DT 208	DTE-IN1863-SGB	″SGB U-Tube(3, IN) Pos.11″	-1.000E+02	1.000E+02	K	1.660E+00	8.300E-01
791	TW 1	TWE020B-HLA	HLA Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
792	TW 2	TWE030B-HLA	HLA Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
793	TW 3	TWE050B-LSA	LSA Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
794	TW 4	TWE060B-PCA	PCA Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
795	TW 5	TWE070B-CLA	CLA Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
796	TW 6	TWE080B-CLA	CLA Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
797	TW 7	TWE160B-HLB	HLB Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
798	TW 8	TWE170B-HLB	HLB Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01

Table A.1(Cont'd) (11/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
799	TW 9	TWE190B-LSB	LSB Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
800	TW 10	TWE200B-PCB	PCB Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
801	TW 11	TWE210B-CLB	CLB Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
802	TW 12	TWE220B-CLB	CLB Pipe Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
803	TW 13	TWE280B-PR	PR Surge Line	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
804	TW 14	TWE431A-SGA	SGA Downcomer A Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
805	TW 15	TWE432A-SGA	SGA Downcomer B Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
806	TW 16	TWE433A-SGA	SGA Downcomer C Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
807	TW 17	TWE434A-SGA	SGA Downcomer D Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
808	TW 18	TWE471A-SGB	SGB Downcomer A Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
809	TW 19	TWE472A-SGB	SGB Downcomer B Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
810	TW 20	TWE473A-SGB	SGB Downcomer C Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
811	TW 21	TWE474A-SGB	SGB Downcomer D Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
812	TW 22	TWE-E-015B-PV	″PV Inner Wall EL.-1.5m,E″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
813	TW 23	TWE-W-015B-PV	″PV Inner Wall EL.-1.5m,W″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
814	TW 24	TWE-N000B-PV	″PV Inner Wall EL.0.0m,N″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
815	TW 25	TWE-S000B-PV	″PV Inner Wall EL.0.0m,S″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
816	TW 26	TWE-E000B-PV	″PV Inner Wall EL.0.0m,E″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
817	TW 27	TWE-W000B-PV	″PV Inner Wall EL.0.0m,W″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
818	TW 28	TWE-N018B-PV	″PV Inner Wall EL.1.8m,N″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
819	TW 29	TWE-S018B-PV	″PV Inner Wall EL.1.8m,S″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
820	TW 30	TWE-E018B-PV	″PV Inner Wall EL.1.8m,E″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
821	TW 31	TWE-W018B-PV	″PV Inner Wall EL.1.8m,W″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
822	TW 32	TWE-N036B-PV	″PV Inner Wall EL.3.6m,N″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
823	TW 33	TWE-S036B-PV	″PV Inner Wall EL.3.6m,S″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
824	TW 34	TWE-E036B-PV	″PV Inner Wall EL.3.6m,E″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
825	TW 35	TWE-W036B-PV	″PV Inner Wall EL.3.6m,W″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
826	TW 36	TWE-N060B-PV	″PV Inner Wall EL.6.0m,N″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
827	TW 37	TWE-S060B-PV	″PV Inner Wall EL.6.0m,S″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
828	TW 38	TWE-E060B-PV	″PV Inner Wall EL.6.0m,E″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
829	TW 39	TWE-W060B-PV	″PV Inner Wall EL.6.0m,W″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
830	TW 40	TWE-E080B-PV	″PV Inner Wall EL.8.0m,E″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
831	TW 41	TWE-W080B-PV	″PV Inner Wall EL.8.0m,W″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
832	TW 42	TWE-N000D-CB	″CB Outer Wall EL.0.0m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
833	TW 43	TWE-S000D-CB	″CB Outer Wall EL.0.0m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
834	TW 44	TWE-E000D-CB	″CB Outer Wall EL.0.0m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
835	TW 45	TWE-W000D-CB	″CB Outer Wall EL.0.0m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
836	TW 46	TWE-N010D-CB	″CB Outer Wall EL.1.0m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
837	TW 47	TWE-S010D-CB	″CB Outer Wall EL.1.0m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
838	TW 48	TWE-E010D-CB	″CB Outer Wall EL.1.0m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
839	TW 49	TWE-W010D-CB	″CB Outer Wall EL.1.0m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
840	TW 50	TWE-N018D-CB	″CB Outer Wall EL.1.8m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
841	TW 51	TWE-S018D-CB	″CB Outer Wall EL.1.8m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
842	TW 52	TWE-E018D-CB	″CB Outer Wall EL.1.8m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
843	TW 53	TWE-W018D-CB	″CB Outer Wall EL.1.8m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
844	TW 54	TWE-N026D-CB	″CB Outer Wall EL.2.6m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
845	TW 55	TWE-S026D-CB	″CB Outer Wall EL.2.6m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
846	TW 56	TWE-E026D-CB	″CB Outer Wall EL.2.6m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
847	TW 57	TWE-W026D-CB	″CB Outer Wall EL.2.6m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
848	TW 58	TWE-N036D-CB	″CB Outer Wall EL.3.6m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
849	TW 59	TWE-S036D-CB	″CB Outer Wall EL.3.6m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
850	TW 60	TWE-E036D-CB	″CB Outer Wall EL.3.6m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
851	TW 61	TWE-W036D-CB	″CB Outer Wall EL.3.6m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
852	TW 62	TWE-N049D-CB	″CB Outer Wall EL.4.9m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
853	TW 63	TWE-S049D-CB	″CB Outer Wall EL.4.9m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
854	TW 64	TWE-E049D-CB	″CB Outer Wall EL.4.9m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
855	TW 65	TWE-W049D-CB	″CB Outer Wall EL.4.9m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
856	TW 66	TWE-N060D-CB	″CB Outer Wall EL.6.0m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
857	TW 67	TWE-S060D-CB	″CB Outer Wall EL.6.0m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
858	TW 68	TWE-E060D-CB	″CB Outer Wall EL.6.0m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
859	TW 69	TWE-W060D-CB	″CB Outer Wall EL.6.0m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
860	TW 70	TWE-N000E-CB	″CB Inner Wall EL.0.0m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
861	TW 71	TWE-S000E-CB	″CB Inner Wall EL.0.0m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
862	TW 72	TWE-E000E-CB	″CB Inner Wall EL.0.0m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
863	TW 73	TWE-W000E-CB	″CB Inner Wall EL.0.0m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
864	TW 74	TWE-N010E-CB	″CB Inner Wall EL.1.0m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
865	TW 75	TWE-S010E-CB	″CB Inner Wall EL.1.0m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
866	TW 76	TWE-E010E-CB	″CB Inner Wall EL.1.0m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
867	TW 77	TWE-W010E-CB	″CB Inner Wall EL.1.0m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
868	TW 78	TWE-N018E-CB	″CB Inner Wall EL.1.8m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
869	TW 79	TWE-S018E-CB	″CB Inner Wall EL.1.8m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
870	TW 80	TWE-E018E-CB	″CB Inner Wall EL.1.8m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
871	TW 81	TWE-W018E-CB	″CB Inner Wall EL.1.8m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
872	TW 82	TWE-N026E-CB	″CB Inner Wall EL.2.6m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
873	TW 83	TWE-S026E-CB	″CB Inner Wall EL.2.6m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
874	TW 84	TWE-E026E-CB	″CB Inner Wall EL.2.6m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
875	TW 85	TWE-W026E-CB	″CB Inner Wall EL.2.6m,W″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
876	TW 86	TWE-N036E-CB	″CB Inner Wall EL.3.6m,N″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
877	TW 87	TWE-S036E-CB	″CB Inner Wall EL.3.6m,S″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
878	TW 88	TWE-E036E-CB	″CB Inner Wall EL.3.6m,E″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01

Table A.1(Cont'd) (12/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
879	TW 89	TWE-W036E-CB	"CB Inner Wall EL.3.6m,W"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
880	TW 90	TWE-N049E-CB	"CB Inner Wall EL.4.9m,N"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
881	TW 91	TWE-S049E-CB	"CB Inner Wall EL.4.9m,S"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
882	TW 92	TWE-E049E-CB	"CB Inner Wall EL.4.9m,E"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
883	TW 93	TWE-W049E-CB	"CB Inner Wall EL.4.9m,W"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
884	TW 94	TWE-N060E-CB	"CB Inner Wall EL.6.0m,N"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
885	TW 95	TWE-S060E-CB	"CB Inner Wall EL.6.0m,S"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
886	TW 96	TWE-E060E-CB	"CB Inner Wall EL.6.0m,E"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
887	TW 97	TWE-W060E-CB	"CB Inner Wall EL.6.0m,W"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
888	TW 98	TWE-IN038B02-UCPP	"UCP L.Surf. EL.3.8m,B02"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
889	TW 99	TWE-IN038B04-UCPP	"UCP L.Surf. EL.3.8m,B04"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
890	TW 100	TWE-IN038B06-UCPP	"UCP L.Surf. EL.3.8m,B06"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
891	TW 101	TWE-IN038B08-UCPP	"UCP L.Surf. EL.3.8m,B08"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
892	TW 102	TWE-IN038B21-UCPP	"UCP L.Surf. EL.3.8m,C"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
893	TW 103	TWE-EX040B02-UCPP	"UCP U.Surf. EL.4.0m,B02"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
894	TW 104	TWE-EX040B04-UCPP	"UCP U.Surf. EL.4.0m,B04"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
895	TW 105	TWE-EX040B06-UCPP	"UCP U.Surf. EL.4.0m,B06"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
896	TW 106	TWE-EX040B08-UCPP	"UCP U.Surf. EL.4.0m,B08"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
897	TW 107	TWE-EX040B21-UCPP	"UCP U.Surf. EL.4.0m,C"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
898	TW 108	TWE-063-B09-UCSP	"UCSP L.Surf. EL.6.3m,B09"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
899	TW 109	TWE-065-B09-UCSP	"UCSP U.Surf. EL.6.5m,B09"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
900	TW 110	TWE-E047G-UP	"UP Str. Surf. EL.4.7m,East"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
901	TW 111	TWE-W047G-UP	"UP Str. Surf. EL.4.7m,West"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
902	TW 112	TWE-E056G-UP	"UP Str. Surf. EL.5.6m,East"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
903	TW 113	TWE-W056G-UP	"UP Str. Surf. EL.5.6m,West"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
904	TW 114	TWE-080G-UH	"UH Str. Surf. EL.8.0m,C"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
905	TW 115	TWE-B01342	"B01 Rod(3,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
906	TW 116	TWE-B01344	"B01 Rod(3,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
907	TW 117	TWE-B01345	"B01 Rod(3,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
908	TW 118	TWE-B01346	"B01 Rod(3,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
909	TW 119	TWE-B01347	"B01 Rod(3,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
910	TW 120	TWE-B01348	"B01 Rod(3,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
911	TW 121	TWE-B20431	"B20 Rod(4,3) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
912	TW 122	TWE-B20433	"B20 Rod(4,3) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
913	TW 123	TWE-B20435	"B20 Rod(4,3) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
914	TW 124	TWE-B20436	"B20 Rod(4,3) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
915	TW 125	TWE-B20438	"B20 Rod(4,3) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
916	TW 126	TWE-B20439	"B20 Rod(4,3) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
917	TW 127	TWE-B02241	"B02 Rod(2,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
918	TW 128	TWE-B02242	"B02 Rod(2,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
919	TW 129	TWE-B02244	"B02 Rod(2,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
920	TW 130	TWE-B02245	"B02 Rod(2,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
921	TW 131	TWE-B02247	"B02 Rod(2,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
922	TW 132	TWE-B02249	"B02 Rod(2,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
923	TW 133	TWE-B02341	"B02 Rod(3,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
924	TW 134	TWE-B02343	"B02 Rod(3,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
925	TW 135	TWE-B02345	"B02 Rod(3,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
926	TW 136	TWE-B02346	"B02 Rod(3,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
927	TW 137	TWE-B02348	"B02 Rod(3,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
928	TW 138	TWE-B02349	"B02 Rod(3,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
929	TW 139	TWE-B02482	"B02 Rod(4,8) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
930	TW 140	TWE-B02484	"B02 Rod(4,8) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
931	TW 141	TWE-B02485	B02 Rod(4.8) Pos.5	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
932	TW 142	TWE-B02486	"B02 Rod(4,8) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
933	TW 143	TWE-B02487	"B02 Rod(4,8) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
934	TW 144	TWE-B02488	"B02 Rod(4,8) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
935	TW 145	TWE-B03421	"B03 Rod(4,2) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
936	TW 146	TWE-B03422	"B03 Rod(4,2) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
937	TW 147	TWE-B03424	"B03 Rod(4,2) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
938	TW 148	TWE-B03425	"B03 Rod(4,2) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
939	TW 149	TWE-B03427	"B03 Rod(4,2) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
940	TW 150	TWE-B03429	"B03 Rod(4,2) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
941	TW 151	TWE-B03431	"B03 Rod(4,3) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
942	TW 152	TWE-B03433	"B03 Rod(4,3) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
943	TW 153	TWE-B03435	"B03 Rod(4,3) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
944	TW 154	TWE-B03436	"B03 Rod(4,3) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
945	TW 155	TWE-B03438	"B03 Rod(4,3) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
946	TW 156	TWE-B03439	"B03 Rod(4,3) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
947	TW 157	TWE-B03842	"B03 Rod(8,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
948	TW 158	TWE-B03844	"B03 Rod(8,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
949	TW 159	TWE-B03845	"B03 Rod(8,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
950	TW 160	TWE-B03846	"B03 Rod(8,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
951	TW 161	TWE-B03847	"B03 Rod(8,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
952	TW 162	TWE-B03848	"B03 Rod(8,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
953	TW 163	TWE-B04432	"B04 Rod(4,3) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
954	TW 164	TWE-B04434	"B04 Rod(4,3) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
955	TW 165	TWE-B04435	"B04 Rod(4,3) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
956	TW 166	TWE-B04436	"B04 Rod(4,3) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
957	TW 167	TWE-B04437	"B04 Rod(4,3) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
958	TW 168	TWE-B04438	"B04 Rod(4,3) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01

Table A.1(Cont'd) (13/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
959	TW 169	TWE-B05342	″B05 Rod(3,4) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
960	TW 170	TWE-B05344	″B05 Rod(3,4) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
961	TW 171	TWE-B05345	″B05 Rod(3,4) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
962	TW 172	TWE-B05346	″B05 Rod(3,4) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
963	TW 173	TWE-B05347	″B05 Rod(3,4) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
964	TW 174	TWE-B05348	″B05 Rod(3,4) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
965	TW 175	TWE-B05172	″B05 Rod(1,7) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
966	TW 176	TWE-B05174	″B05 Rod(1,7) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
967	TW 177	TWE-B05175	″B05 Rod(1,7) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
968	TW 178	TWE-B05176	″B05 Rod(1,7) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
969	TW 179	TWE-B05177	″B05 Rod(1,7) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
970	TW 180	TWE-B05178	″B05 Rod(1,7) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
971	TW 181	TWE-B06241	″B06 Rod(2,4) Pos.1″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
972	TW 182	TWE-B06242	″B06 Rod(2,4) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
973	TW 183	TWE-B06244	″B06 Rod(2,4) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
974	TW 184	TWE-B06245	″B06 Rod(2,4) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
975	TW 185	TWE-B06247	″B06 Rod(2,4) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
976	TW 186	TWE-B06249	″B06 Rod(2,4) Pos.9″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
977	TW 187	TWE-B06341	″B06 Rod(3,4) Pos.1″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
978	TW 188	TWE-B06343	″B06 Rod(3,4) Pos.3″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
979	TW 189	TWE-B06345	″B06 Rod(3,4) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
980	TW 190	TWE-B06346	″B06 Rod(3,4) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
981	TW 191	TWE-B06348	″B06 Rod(3,4) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
982	TW 192	TWE-B06349	″B06 Rod(3,4) Pos.9″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
983	TW 193	TWE-B06482	″B06 Rod(4,8) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
984	TW 194	TWE-B06484	″B06 Rod(4,8) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
985	TW 195	TWE-B06485	″B06 Rod(4,8) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
986	TW 196	TWE-B06486	″B06 Rod(4,8) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
987	TW 197	TWE-B06487	″B06 Rod(4,8) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
988	TW 198	TWE-B06488	″B06 Rod(4,8) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
989	TW 199	TWE-B07421	″B07 Rod(4,2) Pos.1″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
990	TW 200	TWE-B07422	″B07 Rod(4,2) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
991	TW 201	TWE-B07424	″B07 Rod(4,2) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
992	TW 202	TWE-B07425	″B07 Rod(4,2) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
993	TW 203	TWE-B07427	″B07 Rod(4,2) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
994	TW 204	TWE-B07429	″B07 Rod(4,2) Pos.9″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
995	TW 205	TWE-B07431	″B07 Rod(4,3) Pos.1″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
996	TW 206	TWE-B07433	″B07 Rod(4,3) Pos.3″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
997	TW 207	TWE-B07435	″B07 Rod(4,3) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
998	TW 208	TWE-B07436	″B07 Rod(4,3) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
999	TW 209	TWE-B07438	″B07 Rod(4,3) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1000	TW 210	TWE-B07439	″B07 Rod(4,3) Pos.9″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1001	TW 211	TWE-B07842	″B07 Rod(8,4) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1002	TW 212	TWE-B07844	″B07 Rod(8,4) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1003	TW 213	TWE-B07845	″B07 Rod(8,4) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1004	TW 214	TWE-B07846	″B07 Rod(8,4) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1005	TW 215	TWE-B07847	″B07 Rod(8,4) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1006	TW 216	TWE-B07848	″B07 Rod(8,4) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1007	TW 217	TWE-B08222	″B08 Rod(2,2) Pos.2″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1008	TW 218	TWE-B08224	″B08 Rod(2,2) Pos.4″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1009	TW 219	TWE-B08225	″B08 Rod(2,2) Pos.5″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1010	TW 220	TWE-B08226	″B08 Rod(2,2) Pos.6″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1011	TW 221	TWE-B08227	″B08 Rod(2,2) Pos.7″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1012	TW 222	TWE-B08228	″B08 Rod(2,2) Pos.8″	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1013	TW 223	TWE-B08432	″B08 Rod(4,3) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1014	TW 224	TWE-B08434	″B08 Rod(4,3) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1015	TW 225	TWE-B08435	″B08 Rod(4,3) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1016	TW 226	TWE-B08436	″B08 Rod(4,3) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1017	TW 227	TWE-B08437	″B08 Rod(4,3) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1018	TW 228	TWE-B08438	″B08 Rod(4,3) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1019	TW 229	TWE-B09442	″B09 Rod(4,4) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1020	TW 230	TWE-B09444	″B09 Rod(4,4) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1021	TW 231	TWE-B09445	″B09 Rod(4,4) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1022	TW 232	TWE-B09446	″B09 Rod(4,4) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1023	TW 233	TWE-B09447	″B09 Rod(4,4) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1024	TW 234	TWE-B09448	″B09 Rod(4,4) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1025	TW 235	TWE-B10441	″B10 Rod(4,4) Pos.1″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1026	TW 236	TWE-B10442	″B10 Rod(4,4) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1027	TW 237	TWE-B10444	″B10 Rod(4,4) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1028	TW 238	TWE-B10445	″B10 Rod(4,4) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1029	TW 239	TWE-B10447	″B10 Rod(4,4) Pos.7″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1030	TW 240	TWE-B10449	″B10 Rod(4,4) Pos.9″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1031	TW 241	TWE-B10451	″B10 Rod(4,5) Pos.1″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1032	TW 242	TWE-B10453	″B10 Rod(4,5) Pos.3″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1033	TW 243	TWE-B10455	″B10 Rod(4,5) Pos.5″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1034	TW 244	TWE-B10456	″B10 Rod(4,5) Pos.6″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1035	TW 245	TWE-B10458	″B10 Rod(4,5) Pos.8″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1036	TW 246	TWE-B10459	″B10 Rod(4,5) Pos.9″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1037	TW 247	TWE-B11442	″B11 Rod(4,4) Pos.2″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1038	TW 248	TWE-B11444	″B11 Rod(4,4) Pos.4″	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01

Table A.1(Cont'd) (14/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1039	TW 249	TWE-B11445	"B11 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1040	TW 250	TWE-B11446	"B11 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1041	TW 251	TWE-B11447	"B11 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1042	TW 252	TWE-B11448	"B11 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1043	TW 253	TWE-B11172	"B11 Rod(1,7) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1044	TW 254	TWE-B11174	"B11 Rod(1,7) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1045	TW 255	TWE-B11175	"B11 Rod(1,7) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1046	TW 256	TWE-B11176	"B11 Rod(1,7) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1047	TW 257	TWE-B11177	"B11 Rod(1,7) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1048	TW 258	TWE-B11178	"B11 Rod(1,7) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1049	TW 259	TWE-B12262	"B12 Rod(2,6) Pos.2"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1050	TW 260	TWE-B12264	"B12 Rod(2,6) Pos.4"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1051	TW 261	TWE-B12265	"B12 Rod(2,6) Pos.5"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1052	TW 262	TWE-B12266	"B12 Rod(2,6) Pos.6"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1053	TW 263	TWE-B12267	"B12 Rod(2,6) Pos.7"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1054	TW 264	TWE-B12268	"B12 Rod(2,6) Pos.8"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1055	TW 265	TWE-B12441	"B12 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1056	TW 266	TWE-B12442	"B12 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1057	TW 267	TWE-B12444	"B12 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1058	TW 268	TWE-B12445	"B12 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1059	TW 269	TWE-B12447	"B12 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1060	TW 270	TWE-B12449	"B12 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1061	TW 271	TWE-B12431	"B12 Rod(4,3) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1062	TW 272	TWE-B12433	"B12 Rod(4,3) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1063	TW 273	TWE-B12435	"B12 Rod(4,3) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1064	TW 274	TWE-B12436	"B12 Rod(4,3) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1065	TW 275	TWE-B12438	"B12 Rod(4,3) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1066	TW 276	TWE-B12439	"B12 Rod(4,3) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1067	TW 277	TWE-B13662	"B13 Rod(6,6) Pos.2"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1068	TW 278	TWE-B13664	"B13 Rod(6,6) Pos.4"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1069	TW 279	TWE-B13665	"B13 Rod(6,6) Pos.5"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1070	TW 280	TWE-B13666	"B13 Rod(6,6) Pos.6"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1071	TW 281	TWE-B13667	"B13 Rod(6,6) Pos.7"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1072	TW 282	TWE-B13668	"B13 Rod(6,6) Pos.8"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1073	TW 283	TWE-B13442	"B13 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1074	TW 284	TWE-B13444	"B13 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1075	TW 285	TWE-B13445	"B13 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1076	TW 286	TWE-B13446	"B13 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1077	TW 287	TWE-B13447	"B13 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1078	TW 288	TWE-B13448	"B13 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1079	TW 289	TWE-B14541	"B14 Rod(5,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1080	TW 290	TWE-B14542	"B14 Rod(5,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1081	TW 291	TWE-B14544	"B14 Rod(5,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1082	TW 292	TWE-B14545	"B14 Rod(5,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1083	TW 293	TWE-B14547	"B14 Rod(5,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1084	TW 294	TWE-B14549	"B14 Rod(5,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1085	TW 295	TWE-B14441	"B14 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1086	TW 296	TWE-B14443	"B14 Rod(4,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1087	TW 297	TWE-B14445	"B14 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1088	TW 298	TWE-B14446	"B14 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1089	TW 299	TWE-B14448	"B14 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1090	TW 300	TWE-B14449	"B14 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1091	TW 301	TWE-B14172	"B14 Rod(1,7) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1092	TW 302	TWE-B14174	"B14 Rod(1,7) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1093	TW 303	TWE-B14175	"B14 Rod(1,7) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1094	TW 304	TWE-B14176	"B14 Rod(1,7) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1095	TW 305	TWE-B14177	"B14 Rod(1,7) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1096	TW 306	TWE-B14178	"B14 Rod(1,7) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1097	TW 307	TWE-B15441	"B15 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1098	TW 308	TWE-B15442	"B15 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1099	TW 309	TWE-B15444	"B15 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1100	TW 310	TWE-B15445	"B15 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1101	TW 311	TWE-B15447	"B15 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1102	TW 312	TWE-B15449	"B15 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1103	TW 313	TWE-B15451	"B15 Rod(4,5) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1104	TW 314	TWE-B15453	"B15 Rod(4,5) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1105	TW 315	TWE-B15455	"B15 Rod(4,5) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1106	TW 316	TWE-B15456	"B15 Rod(4,5) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1107	TW 317	TWE-B15458	"B15 Rod(4,5) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1108	TW 318	TWE-B15459	"B15 Rod(4,5) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1109	TW 319	TWE-B15172	"B15 Rod(1,7) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1110	TW 320	TWE-B15174	"B15 Rod(1,7) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1111	TW 321	TWE-B15175	"B15 Rod(1,7) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1112	TW 322	TWE-B15176	"B15 Rod(1,7) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1113	TW 323	TWE-B15177	"B15 Rod(1,7) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1114	TW 324	TWE-B15178	"B15 Rod(1,7) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1115	TW 325	TWE-B16442	"B16 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1116	TW 326	TWE-B16444	"B16 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1117	TW 327	TWE-B16445	"B16 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1118	TW 328	TWE-B16446	"B16 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01

Table A.1(Cont'd)　(15/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1119	TW 329	TWE-B16447	"B16 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1120	TW 330	TWE-B16448	"B16 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1121	TW 331	TWE-B16172	"B16 Rod(1,7) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1122	TW 332	TWE-B16174	"B16 Rod(1,7) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1123	TW 333	TWE-B16175	"B16 Rod(1,7) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1124	TW 334	TWE-B16176	"B16 Rod(1,7) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1125	TW 335	TWE-B16177	"B16 Rod(1,7) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1126	TW 336	TWE-B16178	"B16 Roc(1,7) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1127	TW 337	TWE-B17442	"B17 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1128	TW 338	TWE-B17444	"B17 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1129	TW 339	TWE-B17445	"B17 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1130	TW 340	TWE-B17446	"B17 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1131	TW 341	TWE-B17447	"B17 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1132	TW 342	TWE-B17448	"B17 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1133	TW 343	TWE-B17172	"B17 Rod(1,7) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1134	TW 344	TWE-B17174	"B17 Rod(1,7) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1135	TW 345	TWE-B17175	"B17 Rod(1,7) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1136	TW 346	TWE-B17176	"B17 Rod(1,7) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1137	TW 347	TWE-B17177	"B17 Rod(1,7) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1138	TW 348	TWE-B17178	"B17 Rod(1,7) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1139	TW 349	TWE-B18341	"B18 Rod(3,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1140	TW 350	TWE-B18342	"B18 Rod(3,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1141	TW 351	TWE-B18344	"B18 Rod(3,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1142	TW 352	TWE-B18345	"B18 Rod(3,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1143	TW 353	TWE-B18347	"B18 Rod(3,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1144	TW 354	TWE-B18349	"B18 Rod(3,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1145	TW 355	TWE-B18441	"B18 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1146	TW 356	TWE-B18443	"B18 Rod(4,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1147	TW 357	TWE-B18445	"B18 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1148	TW 358	TWE-B18446	"B18 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1149	TW 359	TWE-B18448	"B18 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1150	TW 360	TWE-B18449	"B18 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1151	TW 361	TWE-B19451	"B19 Rod(4,5) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1152	TW 362	TWE-B19452	"B19 Rod(4,5) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1153	TW 363	TWE-B19454	"B19 Rod(4,5) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1154	TW 364	TWE-B19455	"B19 Rod(4,5) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1155	TW 365	TWE-B19457	"B19 Rod(4,5) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1156	TW 366	TWE-B19459	"B19 Rod(4,5) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1157	TW 367	TWE-B19441	"B19 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1158	TW 368	TWE-B19443	"B19 Rod(4,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1159	TW 369	TWE-B19445	"B19 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1160	TW 370	TWE-B19446	"B19 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1161	TW 371	TWE-B19448	"B19 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1162	TW 372	TWE-B19449	"B19 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1163	TW 373	TWE-B20441	"B20 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1164	TW 374	TWE-B20442	"B20 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1165	TW 375	TWE-B20444	"B20 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1166	TW 376	TWE-B20445	"B20 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1167	TW 377	TWE-B20447	"B20 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1168	TW 378	TWE-B20449	"B20 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1169	TW 379	TWE-B21441	"B21 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1170	TW 380	TWE-B21442	"B21 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1171	TW 381	TWE-B21444	"B21 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1172	TW 382	TWE-B21445	"B21 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1173	TW 383	TWE-B21447	"B21 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1174	TW 384	TWE-B21449	"B21 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1175	TW 385	TWE-B21541	"B21 Rod(5,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1176	TW 386	TWE-B21543	"B21 Rod(5,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1177	TW 387	TWE-B21545	"B21 Rod(5,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1178	TW 388	TWE-B21546	"B21 Rod(5,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1179	TW 389	TWE-B21548	"B21 Rod(5,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1180	TW 390	TWE-B21549	"B21 Rod(5,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1181	TW 391	TWE-B21662	"B21 Rod(6,6) Pos.2"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1182	TW 392	TWE-B21664	"B21 Rod(6,6) Pos.4"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1183	TW 393	TWE-B21665	"B21 Rod(6,6) Pos.5"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1184	TW 394	TWE-B21666	"B21 Rod(6,6) Pos.6"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1185	TW 395	TWE-B21667	"B21 Rod(6,6) Pos.7"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1186	TW 396	TWE-B21668	"B21 Rod(6,6) Pos.8"	2.700E+02	9.700E+02	K	4.312E+00	6.160E-01
1187	TW 397	TWE-B21112	"B21 Rod(1,1) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1188	TW 398	TWE-B21114	"B21 Rod(1,1) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1189	TW 399	TWE-B21115	"B21 Rod(1,1) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1190	TW 400	TWE-B21116	"B21 Rod(1,1) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1191	TW 401	TWE-B21117	"B21 Rod(1,1) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1192	TW 402	TWE-B21118	"B21 Rod(1,1) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1193	TW 403	TWE-B22541	"B22 Rod(5,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1194	TW 404	TWE-B22542	"B22 Rod(5,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1195	TW 405	TWE-B22544	"B22 Rod(5,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1196	TW 406	TWE-B22545	"B22 Rod(5,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1197	TW 407	TWE-B22547	"B22 Rod(5,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1198	TW 408	TWE-B22549	"B22 Rod(5,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01

Table A.1(Cont'd)　(16/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1199	TW 409	TWE-B22441	"B22 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1200	TW 410	TWE-B22443	"B22 Rod(4,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1201	TW 411	TWE-B22445	"B22 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1202	TW 412	TWE-B22446	"B22 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1203	TW 413	TWE-B22448	"B22 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1204	TW 414	TWE-B22449	"B22 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1205	TW 415	TWE-B22172	"B22 Rod(1,7) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1206	TW 416	TWE-B22174	"B22 Rod(1,7) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1207	TW 417	TWE-B22175	"B22 Rod(1,7) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1208	TW 418	TWE-B22176	"B22 Rod(1,7) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1209	TW 419	TWE-B22177	"B22 Rod(1,7) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1210	TW 420	TWE-B22178	"B22 Rod(1,7) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1211	TW 421	TWE-B23441	"B23 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1212	TW 422	TWE-B23442	"B23 Rod(4,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1213	TW 423	TWE-B23444	"B23 Rod(4,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1214	TW 424	TWE-B23445	"B23 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1215	TW 425	TWE-B23447	"B23 Rod(4,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1216	TW 426	TWE-B23449	"B23 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1217	TW 427	TWE-B23451	"B23 Rod(4,5) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1218	TW 428	TWE-B23453	"B23 Rod(4,5) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1219	TW 429	TWE-B23455	"B23 Rod(4,5) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1220	TW 430	TWE-B23456	"B23 Rod(4,5) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1221	TW 431	TWE-B23458	"B23 Rod(4,5) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1222	TW 432	TWE-B23459	"B23 Rod(4,5) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1223	TW 433	TWE-B20112	"B20 Rod(1,1) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1224	TW 434	TWE-B20114	"B20 Rod(1,1) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1225	TW 435	TWE-B20115	"B20 Rod(1,1) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1226	TW 436	TWE-B20116	"B20 Rod(1,1) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1227	TW 437	TWE-B20117	"B20 Rod(1,1) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1228	TW 438	TWE-B20118	"B20 Rod(1,1) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1229	TW 439	TWE-B24341	"B24 Rod(3,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1230	TW 440	TWE-B24342	"B24 Rod(3,4) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1231	TW 441	TWE-B24344	"B24 Rod(3,4) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1232	TW 442	TWE-B24345	"B24 Rod(3,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1233	TW 443	TWE-B24347	"B24 Rod(3,4) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1234	TW 444	TWE-B24349	"B24 Rod(3,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1235	TW 445	TWE-B24441	"B24 Rod(4,4) Pos.1"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1236	TW 446	TWE-B24443	"B24 Rod(4,4) Pos.3"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1237	TW 447	TWE-B24445	"B24 Rod(4,4) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1238	TW 448	TWE-B24446	"B24 Rod(4,4) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1239	TW 449	TWE-B24448	"B24 Rod(4,4) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1240	TW 450	TWE-B24449	"B24 Rod(4,4) Pos.9"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1241	TW 451	TWE-B24712	"B24 Rod(7,1) Pos.2"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1242	TW 452	TWE-B24714	"B24 Rod(7,1) Pos.4"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1243	TW 453	TWE-B24715	"B24 Rod(7,1) Pos.5"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1244	TW 454	TWE-B24716	"B24 Rod(7,1) Pos.6"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1245	TW 455	TWE-B24717	"B24 Rod(7,1) Pos.7"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1246	TW 456	TWE-B24718	"B24 Rod(7,1) Pos.8"	2.700E+02	1.470E+03	K	6.444E+00	5.370E-01
1247	TW 457	TWE-IN0641-SGA	SGA Inlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1248	TW 458	TWE-IN0642-SGA	SGA Inlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1249	TW 460	TWE-EX0641-SGA	SGA Outlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1250	TW 461	TWE-EX0642-SGA	SGA Outlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1251	TW 462	TWE-EX0643-SGA	SGA Outlet Plenum	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1252	TW 463	TWE-086B-SGA	SGA Inner Wall Pos.1	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1253	TW 464	TWE-137B-SGA	SGA Inner Wall Pos.7	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1254	TW 465	TWE-178B-SGA	SGA Inner Wall Pos.10	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1255	TW 466	TWE-223B-SGA	SGA Inner Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1256	TW 467	TWE-IN0861-SGA	"SGA U-Tube(1,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1257	TW 468	TWE-EX0861-SGA	"SGA U-Tube(1,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1258	TW 469	TWE-IN0862-SGA	"SGA U-Tube(2,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1259	TW 470	TWE-EX0862-SGA	"SGA U-Tube(2,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1260	TW 471	TWE-IN0863-SGA	"SGA U-Tube(3,IN) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1261	TW 472	TWE-EX0863-SGA	"SGA U-Tube(3,EX) Pos.1"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1262	TW 473	TWE-IN0991-SGA	"SGA U-Tube(1,IN) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1263	TW 474	TWE-EX0991-SGA	"SGA U-Tube(1,EX) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1264	TW 475	TWE-IN0992-SGA	"SGA U-Tube(2,IN) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1265	TW 476	TWE-EX0992-SGA	"SGA U-Tube(2,EX) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1266	TW 477	TWE-IN0993-SGA	"SGA U-Tube(3,IN) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1267	TW 478	TWE-EX0993-SGA	"SGA U-Tube(3,EX) Pos.3"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1268	TW 479	TWE-IN1121-SGA	"SGA U-Tube(1,IN) Pos.5"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1269	TW 480	TWE-EX1121-SGA	"SGA U-Tube(1,EX) Pos.5"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1270	TW 481	TWE-IN1122-SGA	"SGA U-Tube(2,IN) Pos.5"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1271	TW 482	TWE-EX1122-SGA	"SGA U-Tube(2,EX) Pos.5"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1272	TW 483	TWE-IN1123-SGA	"SGA U-Tube(3,IN) Pos.5"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1273	TW 484	TWE-EX1123-SGA	"SGA U-Tube(3,EX) Pos.5"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1274	TW 485	TWE-IN1371-SGA	"SGA U-Tube(1,IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1275	TW 486	TWE-EX1371-SGA	"SGA U-Tube(1,EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1276	TW 487	TWE-IN1372-SGA	"SGA U-Tube(2,IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1277	TW 488	TWE-EX1372-SGA	"SGA U-Tube(2,EX) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1278	TW 489	TWE-IN1373-SGA	"SGA U-Tube(3,IN) Pos.7"	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01

Table A.1(Cont'd) (17/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1279	TW 490	TWE-EX1373-SGA	″SGA U-Tube(3,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1280	TW 491	TWE-IN1632-SGA	″SGA U-Tube(2,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1281	TW 492	TWE-EX1632-SGA	″SGA U-Tube(2,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1282	TW 493	TWE-IN1633-SGA	″SGA U-Tube(3,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1283	TW 494	TWE-EX1633-SGA	″SGA U-Tube(3,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1284	TW 495	TWE-IN1701-SGA	″SGA U-Tube(1,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1285	TW 496	TWE-IN1782-SGA	″SGA U-Tube(2,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1286	TW 497	TWE-IN1863-SGA	″SGA U-Tube(3,IN) Pos.11″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1287	TW 498	TWE-IN0641-SGB	SGB Inlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
1288	TW 499	TWE-IN0642-SGB	SGB Inlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
1289	TW 500	TWE-IN0643-SGB	SGB Inlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
1290	TW 501	TWE-EX0641-SGB	SGB Outlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
1291	TW 502	TWE-EX0642-SGB	SGB Outlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
1292	TW 503	TWE-EX0643-SGB	SGB Outlet Plenum	2.700E+02	7.200E+02	K	3.735E+00	8.300E-01
1293	TW 504	TWE-086B-SGB	SGB Inner Wall Pos.1	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1294	TW 505	TWE-137B-SGB	SGB Inner Wall Pos.7	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1295	TW 506	TWE-178B-SGB	SGB Inner Wall Pos.10	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1296	TW 507	TWE-223B-SGB	SGB Inner Wall	2.700E+02	6.700E+02	K	3.108E+00	7.770E-01
1297	TW 508	TWE-IN0861-SGB	″SGB U-Tube(1,IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1298	TW 509	TWE-EX0861-SGB	″SGB U-Tube(1,EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1299	TW 510	TWE-IN0862-SGB	″SGB U-Tube(2,IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1300	TW 511	TWE-EX0862-SGB	″SGB U-Tube(2,EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1301	TW 512	TWE-IN0863-SGB	″SGB U-Tube(3,IN) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1302	TW 513	TWE-EX0863-SGB	″SGB U-Tube(3,EX) Pos.1″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1303	TW 514	TWE-IN0991-SGB	″SGB U-Tube(1,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1304	TW 515	TWE-EX0991-SGB	″SGB U-Tube(1,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1305	TW 516	TWE-IN0992-SGB	″SGB U-Tube(2,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1306	TW 517	TWE-EX0992-SGB	″SGB U-Tube(2,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1307	TW 518	TWE-IN0993-SGB	″SGB U-Tube(3,IN) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1308	TW 519	TWE-EX0993-SGB	″SGB U-Tube(3,EX) Pos.3″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1309	TW 520	TWE-IN1121-SGB	″SGB U-Tube(1,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1310	TW 521	TWE-EX1121-SGB	″SGB U-Tube(1,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1311	TW 522	TWE-IN1122-SGB	″SGB U-Tube(2,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1312	TW 523	TWE-EX1122-SGB	″SGB U-Tube(2,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1313	TW 524	TWE-IN1123-SGB	″SGB U-Tube(3,IN) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1314	TW 525	TWE-EX1123-SGB	″SGB U-Tube(3,EX) Pos.5″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1315	TW 526	TWE-IN1371-SGB	″SGB U-Tube(1,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1316	TW 527	TWE-EX1371-SGB	″SGB U-Tube(1,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1317	TW 528	TWE-IN1372-SGB	″SGB U-Tube(2,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1318	TW 529	TWE-EX1372-SGB	″SGB U-Tube(2,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1319	TW 530	TWE-IN1373-SGB	″SGB U-Tube(3,IN) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1320	TW 531	TWE-EX1373-SGB	″SGB U-Tube(3,EX) Pos.7″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1321	TW 532	TWE-IN1632-SGB	″SGB U-Tube(2,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1322	TW 533	TWE-EX1632-SGB	″SGB U-Tube(2,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1323	TW 534	TWE-IN1633-SGB	″SGB U-Tube(3,IN) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1324	TW 535	TWE-EX1633-SGB	″SGB U-Tube(3,EX) Pos.9″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1325	TW 536	TWE-IN1701-SGB	″SGB U-Tube(1,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1326	TW 537	TWE-IN1782-SGB	″SGB U-Tube(2,IN) Pos.10″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1327	TW 538	TWE-IN1863-SGB	″SGB U-Tube(3,IN) Pos.11″	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1328	TW 539	TWE-211A-PR	PR Outer Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1329	TW 540	TWE-211B-PR	PR Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1330	TW 541	TWE-194A-PR	PR Outer Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1331	TW 542	TWE-194B-PR	PR Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1332	TW 543	TWE-177A-PR	PR Outer Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1333	TW 544	TWE-177B-PR	PR Inner Wall	2.700E+02	7.200E+02	K	3.307E+00	7.350E-01
1334	TW 545	TWE270A-PR	PR Spray Line Outer Wall	0.0	1.500E+03	K	6.030E+00	4.020E-01
1335	FE 1	FE010-HLA	HLA Leakage(Positive)	0.0	4.000E-01	kg/s	6.480E-03	1.620E+00
1336	FE 2	FE020A-LSA	Primary Loop A (High)	0.0	9.000E+01	kg/s	1.008E+00	1.120E+00
1337	FE 3	FE020B-LSA	Primary Loop A (Low)	0.0	1.581E+01	kg/s	1.771E-01	1.120E+00
1338	FE 4	FE150-HLB	HLB Leakage(Positive)	0.0	4.000E-01	kg/s	6.480E-03	1.620E+00
1339	FE 5	FE160A-LSB	Primary Loop B (High)	0.0	9.000E+01	kg/s	1.008E+00	1.120E+00
1340	FE 6	FE160B-LSB	Primary Loop B (Low)	0.0	1.581E+01	kg/s	1.771E-01	1.120E+00
*1341	FE 8	FE280A-PR	PR Surge Line (Forward)	0.0	5.000E+01	kg/s	8.100E-01	1.620E+00
*1342	FE 9	FE280B-PR	PR Surge Line (Reverse)	-1.000E+01	0.0	kg/s	1.620E-01	1.620E+00
1343	FE 13	FE430-SGA	SGA Feedwater	0.0	4.000E+00	kg/s	6.480E-02	1.620E+00
1344	FE 14	FE431-SGA	SGA Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1345	FE 15	FE432-SGA	SGA Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1346	FE 16	FE433-SGA	SGA Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1347	FE 17	FE434-SGA	SGA Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1348	FE 18	FE440-SGA	SGA Steam Line	0.0	5.000E+00	kg/s	1.145E-01	2.290E+00
1349	FE 19	FE450-SGA	SGA Relief Valve Line	0.0	4.000E+00	kg/s	9.160E-02	2.290E+00
1350	FE 21	FE470-SGB	SGB Feedwater	0.0	4.000E+00	kg/s	6.480E-02	1.620E+00
1351	FE 22	FE471-SGB	SGB Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1352	FE 23	FE472-SGB	SGB Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1353	FE 24	FE473-SGB	SGB Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1354	FE 25	FE474-SGB	SGB Downcomer	0.0	7.000E+00	kg/s	1.134E-01	1.620E+00
1355	FE 26	FE480-SGB	SGB Steam Line	0.0	5.000E+00	kg/s	1.145E-01	2.290E+00
1356	FE 27	FE490-SGB	SGB Relief Valve Line	0.0	4.000E+00	kg/s	9.160E-02	2.290E+00
1357	FE 29	FE510-SH	Steam Header	0.0	1.000E+01	kg/s	2.290E-01	2.290E+00

Table A.1(Cont'd) (18/25)

SEQ No.	Function ID.		Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1358	FE	30	FE520-PA	Auxiliary Feedwater	0.0	1.500E+00	kg/s	3.435E-02	2.290E+00
*1359	FE	31	FE560A-BU	BU No.1 Venturi (High)	0.0	1.000E+02	kg/s	1.120E+00	1.120E+00
1360	FE	37	FE650-ACC	Cold Acc Flow to CLA	0.0	1.500E+01	kg/s	3.435E-01	2.290E+00
1361	FE	40	FE680-ACH	Hot Acc Flow to CLB	0.0	1.000E+01	kg/s	2.290E-01	2.290E+00
*1362	FE	48	FE820-PL	RHR Outlet(High)	0.0	1.500E+01	kg/s	3.435E-01	2.290E+00
*1363	FE	49	FE830-PL	LPI Flow to CLA(High)	0.0	1.500E+01	kg/s	3.435E-01	2.290E+00
*1364	FE	50	FE840-PL	LPI Flow to CLB(High)	0.0	1.500E+01	kg/s	3.435E-01	2.290E+00
*1365	FE	62	FE010B-HLA	HLA Leakage(Negative)	4.000E-01	0.0	kg/s	-1.280E-03	3.200E-01
*1366	FE	63	FE150B-HLB	HLB Leakage(Negative)	4.000E-01	0.0	kg/s	-1.280E-03	3.200E-01
*1367	FE	64	FE280C-PR	PR Surge Line(Low)	0.0	1.000E+01	kg/s	3.200E-02	3.200E-01
*1368	FE	66	FE451-SGA	SGA Turbine Bypass Flow	0.0	2.000E+01	kg/s	6.400E-02	3.200E-01
*1369	FE	68	FE491-SGB	SGB Turbine Bypass Flow	0.0	2.000E+01	kg/s	6.400E-02	3.200E-01
1370	PE	1	PE561-BU	BU No.1 Venturi	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1371	PE	3	PE010-SGA	SGA Inlet Plenum	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1372	PE	4	PE020-LSA	PCA Suction	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1373	PE	5	PE030-CLA	PCA Delivery	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1374	PE	6	PE150-SGB	SGB Inlet Plenum	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1375	PE	7	PE160-LSB	PCB Suction	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1376	PE	8	PE170-CLB	PCB Delivery	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1377	PE	9	PE290-PV	PV Upper Head	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1378	PE	10	PE280A-PV	PV Upper Plenum(High)	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1379	PE	11	PE280B-PV	PV Upper Plenum(Low)	0.0	5.000E+00	MPa	1.600E-02	3.200E-01
1380	PE	12	PE270-PV	PV Lower Plenum	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1381	PE	13	PE300A-PR	PR (High Range)	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1382	PE	14	PE300B-PR	PR (Low Range)	0.0	5.000E+00	MPa	1.600E-02	3.200E-01
1383	PE	19	PE430-SGA	SGA Steam Dome	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1384	PE	20	PE440-SGA	SGA Steam Line	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1385	PE	21	PE450-SGB	SGB Steam Dome	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1386	PE	22	PE460-SGB	SGB Steam Line	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1387	PE	23	PE470-SH	Steam Header	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1388	PE	24	PE480-JC	Jet Condenser	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1389	PE	25	PE610-ST	Suppression Tank	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1390	PE	26	PE560-BU	BU No.1 Orifice Upstream	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1391	PE	27	PE570-BU	BU No.1 Orifice Downstream	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1392	PE	30	PE600-ST	Blowdown Piping	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1393	PE	31	PE650-ACC	Cold Acc Tank	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1394	PE	32	PE660-ACH	Hot Acc Tank	0.0	1.000E+01	MPa	3.200E-02	3.200E-01
1395	PE	35	PE011-HLA	HLA Spool Piece	0.0	2.000E+01	MPa	6.410E-02	3.205E-01
1396	PE	36	PE071-CLA	CLA Spool Piece	0.0	2.000E+01	MPa	6.410E-02	3.205E-01
1397	PE	37	PE151-HLB	HLB Spool Piece	0.0	2.000E+01	MPa	6.410E-02	3.205E-01
1398	PE	38	PE211-CLB	CLB Spool Piece	0.0	2.000E+01	MPa	6.410E-02	3.205E-01
1399	PE	39	PE291-PR	PR Relief Valve S.P	0.0	2.000E+01	MPa	0.0	0.0
1400	PE	40	PE301-PR	PR Safety Valve Line	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1401	PE	41	PE311-PR	PV-PR Vent Line	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1402	PE	43	PE571-BU	BU No.1 S.P	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1403	PE	44	PE591-BU	BU No.2 S.P	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1404	PE	46	PE820-RHR	PL Delivery	0.0	2.000E+01	MPa	6.400E-02	3.200E-01
1405	MI	1	RE010-PCA	PCA (Rotation Speed)	0.0	7.000E+01	Hz	0.0	0.0
1406	MI	2	RE150-PCB	PCB (Rotation Speed)	0.0	7.000E+01	Hz	0.0	0.0
1407	MI	3	OPE270-PR	PR Spray (HCV270)	0.0	1.000E+02	%	5.400E-01	5.400E-01
1408	MI	5	OPE430-SGA	SGA Feedwater (FCV430)	0.0	1.000E+02	%	5.400E-01	5.400E-01
1409	MI	6	OPE470-SGB	SGB Feedwater (FCV470)	0.0	1.000E+02	%	5.400E-01	5.400E-01
1410	MI	8	OPE510-SH	Steam Flow (FCV510)	0.0	1.000E+02	%	5.400E-01	5.400E-01
1411	MI	9	OPE820-PL	RHR Flow (FCV820)	0.0	1.000E+02	%	5.400E-01	5.400E-01
1412	MI	11	VBE010-PCA	PCA (Vibration)	0.0	2.000E+01	um	1.420E+00	7.100E-01
1413	MI	12	VBE150-PCB	PCB (Vibration)	0.0	2.000E+01	um	1.420E+00	7.100E-01
*1414	MI	13	TQE010-PCA	PCA (Torque)	0.0	1.000E+02	um	4.020E-01	4.020E-01
*1415	MI	14	TQE150-PCB	PCB (Torque)	0.0	1.000E+02	um	4.020E-01	4.020E-01
1416	MI	15	AE010-PCA	PCA (Electric Current)	0.0	1.500E+02	A	7.500E-01	5.000E-01
1417	MI	16	AE150-PCB	PCB (Electric Current)	0.0	1.500E+02	A	7.500E-01	5.000E-01
1418	MI	17	WE270A-T	Total Core Power	0.0	1.600E+01	MW	1.152E-01	7.200E-01
1419	MI	18	WE270B-M	Middle Heat Flux Region	0.0	2.000E+00	MW	1.440E-02	7.200E-01
1420	MI	19	WE270C-H1	High Heat Flux Region	0.0	4.000E+00	MW	2.880E-02	7.200E-01
1421	MI	20	WE270D-H2	High Heat Flux Region	0.0	4.000E+00	MW	2.880E-02	7.200E-01
1422	MI	21	WE270E-L1	Low Heat Flux Region	0.0	2.000E+00	MW	1.440E-02	7.200E-01
1423	MI	22	WE270F-L2	Low Heat Flux Region	0.0	2.000E+00	MW	1.440E-02	7.200E-01
1424	MI	23	WE270G-L3	Low Heat Flux Region	0.0	2.000E+00	MW	1.440E-02	7.200E-01
1425	MI	24	WE280A-PR	PR Proportional Heater	0.0	1.000E+01	kW	1.500E-01	1.500E+00
1426	MI	25	WE280B-PR	PR Base Heater	0.0	1.500E+02	kW	2.250E+00	1.500E+00
1427	MI	26	WE010-PCA	PCA	0.0	3.000E+01	kW	4.500E-01	1.500E+00
1428	MI	27	WE150-PCB	PCB	0.0	3.000E+01	kW	4.500E-01	1.500E+00
*1429	MI	98	VE030A-CLA	CLA Pitot Tube					
*1430	MI	99	VE030B-CLA	CLA Pitot Tube					
*1431	MI	101	VE010A-HLA	HLA Pitot Tube					
*1432	MI	102	VE010B-HLA	HLA Pitot Tube					
*1433	MI	104	VE020B-LSA	LSA Pitot Tube					
1434	LE	1	LE270-PV	PV	0.0	1.100E+01	m	3.520E-02	3.200E-01

Table A.1(Cont'd) (19/25)

SEQ No.	Function ID.		Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1435	LE	2	LE280-PR	PR	0.0	5.000E+00	m	1.600E-02	3.200E-01
1436	LE	3	LE430-SGA	SGA Wide Range	0.0	1.700E+01	m	5.440E-02	3.200E-01
1437	LE	4	LE440-SGA	SGA Narrow Range	0.0	6.000E+00	m	1.920E-02	3.200E-01
1438	LE	5	LE441-SGA	SGA Boiling Section	0.0	1.100E+01	m	3.520E-02	3.200E-01
1439	LE	6	LE450-SGB	SGB Wide Range	0.0	1.700E+01	m	5.440E-02	3.200E-01
1440	LE	7	LE460-SGB	SGB Narrow Range	0.0	6.000E+00	m	1.920E-02	3.200E-01
1441	LE	8	LE461-SGB	SGB Boiling Section	0.0	1.100E+01	m	3.520E-02	3.200E-01
1442	LE	9	LE470-JC	JC	0.0	5.500E+00	m	1.760E-02	3.200E-01
1443	LE	10	LE560-ST	ST Wide Range	0.0	1.200E+01	m	3.840E-02	3.200E-01
1444	LE	11	LE570-ST	ST Low Level	0.0	4.000E+00	m	1.280E-02	3.200E-01
1445	LE	12	LE580-ST	ST Middle Level	0.0	4.000E+00	m	1.280E-02	3.200E-01
1446	LE	13	LE590-ST	ST High Level	0.0	4.000E+00	m	1.280E-02	3.200E-01
1447	LE	14	LE650-ACC	Cold Acc Tank	0.0	7.000E+00	m	2.240E-02	3.200E-01
1448	LE	15	LE660-ACH	Hot Acc Tank	0.0	7.000E+00	m	2.240E-02	3.200E-01
1449	LE	17	LE830-RWST	RWST	0.0	1.000E+01	m	3.200E-02	3.200E-01
1450	LE	18	LE442-SGA	SGA Downcomer	0.0	1.200E+01	m	3.840E-02	3.200E-01
1451	LE	19	LE462-SGB	SGB Downcomer	0.0	1.200E+01	m	3.840E-02	3.200E-01
1452	DP	1	DPE010-HLA	Upper Plenum - HLA Nozzle	-4.000E+01	4.000E+01	kPa	2.560E-01	3.200E-01
1453	DP	2	DPE020-HLA	HLA Nozzle - HLA Break	-4.000E+01	4.000E+01	kPa	2.560E-01	3.200E-01
1454	DP	4	DPE040-HLA	HLA Break - SGA Inlet	-4.000E+01	4.000E+01	kPa	2.560E-01	3.200E-01
1455	DP	5	DPE050A-SGA	SGA Inlet - Tube 3 Top	-1.500E+02	5.000E+01	kPa	6.400E-03	3.200E-01
1456	DP	6	DPE050B-SGA	SGA Inlet - Tube 2 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1457	DP	7	DPE050C-SGA	SGA Inlet - Tube 1 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1458	DP	8	DPE050D-SGA	SGA Inlet - Tube 4 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1459	DP	9	DPE050E-SGA	SGA Inlet - Tube 5 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1460	DP	10	DPE050F-SGA	SGA Inlet - Tube 6 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1461	DP	11	DPE060A-SGA	SGA Outlet - Tube 3 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1462	DP	12	DPE060B-SGA	SGA Outlet - Tube 2 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1463	DP	13	DPE060C-SGA	SGA Outlet - Tube 1 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1464	DP	14	DPE060D-SGA	SGA Outlet - Tube 4 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1465	DP	15	DPE060E-SGA	SGA Outlet - Tube 5 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1466	DP	16	DPE060F-SGA	SGA Outlet - Tube 6 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1467	DP	17	DPE070-LSA	SGA Outlet - LSA Bottom	-5.000E+01	5.000E+00	kPa	3.200E-01	3.200E-01
1468	DP	18	DPE080-LSA	LSA Bottom - PCA Suction	-5.000E+01	5.000E+00	kPa	3.200E-01	3.200E-01
1469	DP	19	DPE090-PCA	PCA Suction - Delivery	-5.000E+01	5.000E+00	kPa	3.200E-01	3.200E-01
1470	DP	20	DPE100-CLA	PR Spray Line	-2.000E+02	2.000E+02	kPa	1.280E-00	3.200E-01
1471	DP	21	DPE110-CLA	PCA Delivery - CLA Break	-5.000E+01	5.000E+00	kPa	3.200E-01	3.200E-01
1472	DP	22	DPE120-CLA	CLA Break - CLA Nozzle	-5.000E+01	5.000E+00	kPa	3.200E-01	3.200E-01
1473	DP	23	DPE130-CLA	CLA Nozzle - Downcomer	-5.000E+01	5.000E+00	kPa	3.200E-01	3.200E-01
1474	DP	24	DPE140-HLA	Upper Plenum - Downcomer	-5.000E+01	5.000E+01	kPa	3.200E+01	3.200E-01
1475	DP	25	DPE150-HLB	Upper Plenum - HLB Nozzle	-3.000E+01	3.000E+01	kPa	1.920E-01	3.200E-01
1476	DP	26	DPE160-HLB	HLB Nozzle - HLB Break	-3.000E+01	3.000E+01	kPa	1.920E-01	3.200E-01
1477	DP	27	DPE170-HLB	HLB Break - SGB Break	-3.000E+01	3.000E+01	kPa	1.920E-01	3.200E-01
1478	DP	28	DPE180-HLB	SGB Break - SGB Inlet	-3.000E+01	3.000E+01	kPa	1.920E-01	3.200E-01
1479	DP	29	DPE190A-SGB	SGB Inlet - Tube 3 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1480	DP	30	DPE190B-SGB	SGB Inlet - Tube 2 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1481	DP	31	DPE190C-SGB	SGB Inlet - Tube 1 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1482	DP	32	DPE190D-SGB	SGB Inlet - Tube 4 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1483	DP	33	DPE190E-SGB	SGB Inlet - Tube 5 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1484	DP	34	DPE190F-SGB	SGB Inlet - Tube 6 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1485	DP	35	DPE200A-SGB	SGB Outlet - Tube 3 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1486	DP	36	DPE200B-SGB	SGB Outlet - Tube 2 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1487	DP	37	DPE200C-SGB	SGB Outlet - Tube 1 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1488	DP	38	DPE200D-SGB	SGB Outlet - Tube 4 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1489	DP	39	DPE200E-SGB	SGB Outlet - Tube 5 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1490	DP	40	DPE200F-SGB	SGB Outlet - Tube 6 Top	-1.500E+02	5.000E+01	kPa	6.400E-01	3.200E-01
1491	DP	41	DPE210-LSB	SGB Outlet - LSB Bottom	-5.000E+01	5.000E+01	kPa	3.200E-01	3.200E-01
1492	DP	42	DPE220-LSB	LSB Bottom - PCB Suction	-5.000E+01	5.000E+01	kPa	3.200E-01	3.200E-01
1493	DP	43	DPE230-PCB	PCB Suction - Delivery	-5.000E+01	5.000E+01	kPa	3.200E-01	3.200E-01
1494	DP	45	DPE250-CLB	CLB Break - CLB Nozzle	-2.000E+01	2.000E+01	kPa	1.280E-01	3.200E-01
1495	DP	46	DPE260-CLB	CLB Nozzle - Downcomer	-2.000E+01	2.000E+01	kPa	1.280E-01	3.200E-01
1496	DP	47	DPE270-PV	PV Bottom - Top	-1.000E+02	4.000E+02	kPa	1.600E+00	3.200E-01
1497	DP	48	DPE280-PV	PV Lower Plenum	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1498	DP	49	DPE290-PV	Lower Core Support Plate	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1499	DP	50	DPE300-PV	Core(Elevation -35 - 3945)	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1500	DP	51	DPE320-PV	Upper Plenum	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1501	DP	52	DPE330-PV	Upper Head	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1502	DP	53	DPE310-PV	Upper Core Support Plate	-1.000E+02	1.000E+02	kPa	6.400E-01	3.200E-01
1503	DP	54	DPE350A-PV	Guide Tube Top Orifice	-1.000E+02	1.000E+02	kPa	6.400E-01	3.200E-01
1504	DP	55	DPE350B-PV	Guide Tube Top Orifice	-1.000E+02	1.000E+02	kPa	6.400E-01	3.200E-01
1505	DP	56	DPE360-PV	PV Downcomer	-1.000E+02	3.000E+02	kPa	1.280E+00	3.200E-01
1506	DP	57	DPE370-PV	Lower Downcomer	-5.000E+01	1.500E+02	kPa	6.400E-01	3.200E-01
1507	DP	58	DPE380-PV	Upper Downcomer	-5.000E+01	1.500E+02	kPa	6.400E-01	3.200E-01
1508	DP	59	DPE390-PV	Simulated Check Valve A	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1509	DP	60	DPE400-PV	Simulated Check Valve B	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1510	DP	61	DPE410-PV	Check Valve Control	-5.000E+01	1.000E+02	kPa	4.800E-01	3.200E-01
1511	DP	62	DPE332-PV	Upper Head - Downcomer	-1.000E+02	1.000E+02	kPa	6.400E-01	3.200E-01
1512	DP	63	DPE331-PV	Upper Head	-1.000E+02	1.000E+02	kPa	6.400E-01	3.200E-01
1513	DP	64	DPE560A-BU	FE560A (BU 1 High)	0.0	5.000E+02	kPa	1.600E+00	3.200E-01

Table A.1(Cont'd) (20/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
*1514	DP 65	DPE560B-BU	FE560B (BU 1 Low)	0.0	5.000E+00	kPa	1.600E-02	3.200E-01
1515	DP 66	DPE570-BU	BU No.1 Venturi	0.0	5.000E+02	kPa	1.600E+00	3.200E-01
1516	DP 70	DPE030B-HLA	PR Surge Line(Low)	-3.000E+02	3.000E+02	kPa	1.920E+00	3.200E-01
1517	DP 71	DPE072-LSA	LSA (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1518	DP 72	DPE073-LSA	LSA (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1519	DP 73	DPE074-LSA	LSA (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1520	DP 74	DPE075-LSA	LSA (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1521	DP 75	DPE076-LSA	LSA (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1522	DP 76	DPE212-LSB	LSB (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1523	DP 77	DPE213-LSB	LSB (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1524	DP 78	DPE214-LSB	LSB (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1525	DP 79	DPE215-LSB	LSB (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
1526	DP 80	DPE216-LSB	LSB (SG Side)	-1.000E+01	1.000E+01	kPa	6.400E-02	3.200E-01
*1527	DP 81	DPE430-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1528	DP 82	DPE431-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1529	DP 83	DPE432-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1530	DP 84	DPE433-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1531	DP 85	DPE434-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1532	DP 86	DPE435-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1533	DP 87	DPE436-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1534	DP 88	DPE437-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1535	DP 89	DPE438-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1536	DP 90	DPE439-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1537	DP 91	DPE440-SGA	SGA Boiling Section	-2.500E+01	5.000E+00	kPa		
*1538	DP 92	DPE450-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1539	DP 93	DPE451-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1540	DP 94	DPE452-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1541	DP 95	DPE453-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1542	DP 96	DPE454-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1543	DP 97	DPE455-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1544	DP 98	DPE456-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1545	DP 99	DPE457-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1546	DP 100	DPE458-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1547	DP 101	DPE459-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
*1548	DP 102	DPE460-SGB	SGB Boiling Section	-2.500E+01	5.000E+00	kPa		
1549	DP 103	DPE011-HLA	HLA Spool Piece	-1.000E+01	1.000E+01	kPa	6.410E-02	3.205E-01
1550	DP 104	DPE071-CLA	CLA Spool Piece	-1.000E+01	1.000E+01	kPa	6.410E-02	3.205E-01
1551	DP 106	DPE211-CLB	CLB Spool Piece	-1.000E+01	1.000E+01	kPa	6.410E-02	3.205E-01
*1552	DP 107	DPE571-BU	BU No.1 Spool Piece	0.0	2.000E+02	kPa	6.410E-01	3.205E-01
*1553	DP 109	DPE041-PR	PR Diff. Press.	0.0	6.492E+00	kpa		
*1554	DP 110	DPE042-PR	PR Diff. Press.	0.0	7.355E+00	kpa		
*1555	DP 111	DPE043-PR	PR Diff. Press.	0.0	3.677E+00	kpa		
*1556	DP 112	DPE044-PR	PR Diff. Press.	0.0	3.677E+00	kpa		
*1557	DP 113	DPE045-PR	PR Diff. Press.	0.0	1.103E+01	kpa		
*1558	DP 114	DPE046-PR	PR Diff. Press.	0.0	7.355E+00	kpa		
1559	DP 115	DPE101-PR	PR-CLA Diff. Press.	-2.000E+02	2.000E+02	kpa		
*1560	MF 1	MFE011A-HLA	HLA Spool Piece Top			V		
*1561	MF 2	MFE011B-HLA	HLA Spool Piece Side			V		
*1562	MF 3	MFE011C-HLA	HLA Spool Piece Bottom			V		
*1563	MF 4	MFE051A-LSA	LSA Spool Piece East			V		
*1564	MF 5	MFE051B-LSA	LSA Spool Piece South			V		
*1565	MF 6	MFE051C-LSA	LSA Spool Piece West			V		
*1566	MF 7	MFE071A-CLA	CLA Spool Piece Top			V		
*1567	MF 8	MFE071B-CLA	CLA Spool Piece Side			V		
*1568	MF 9	MFE071C-CLA	CLA Spool Piece Bottom			V		
*1569	MF 10	MFE151A-HLB	HLB Spool Piece Top			V		
*1570	MF 11	MFE151B-HLB	HLB Spool Piece Side			V		
*1571	MF 12	MFE151C-HLB	HLB Spool Piece Bottom			V		
*1572	MF 13	MFE191A-LSB	LSB Spool Piece West			V		
*1573	MF 14	MFE191B-LSB	LSB Spool Piece North			V		
*1574	MF 15	MFE191C-LSB	LSB Spool Piece East			V		
*1575	MF 16	MFE211A-CLB	CLB Spool Piece Top			V		
*1576	MF 17	MFE211B-CLB	CLB Spool Piece Side			V		
*1577	MF 18	MFE211C-CLB	CLB Spool Piece Bottom			V		
*1578	MF 21	MFE021-HLA	SGA Inlet			V		
*1579	MF 22	MFE051D-LSA	LSA Spool Piece North(Low)			V		
*1580	MF 23	MFE161-HLB	SGB Inlet			V		
*1581	MF 24	MFE191D-LSB	LSB Spool Piece South(Low)			V		
*1582	MF 25	MFE-N-006-DC	PV Downcomer DTT North			V		
*1583	MF 26	MFE-S-006-DC	PV Downcomer DTT South			V		
*1584	MF 27	MFE-E-006-DC	PV Downcomer DTT East			V		
*1585	MF 28	MFE-W-006-DC	PV Downcomer DTT West			V		
*1586	MF 31	MFE571A-BU	BU No.1 S.P (High)			V		
*1587	MF 32	MFE571B-BU	BU No.1 S.P (Low)			V		
*1588	MF 35	MFE061A-LSA	LSA Spool Piece			V		
*1589	MF 36	MFE061B-LSA	LSA Spool Piece			V		
*1590	MF 37	MFE201A-LSB	LSB Spool Piece			V		
*1591	MF 38	MFE201B-LSB	LSB Spool Piece			V		

Table A.1(Cont'd)　(21/25)

SEQ No.	Function ID.		Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1592	DE	1	DE011A-HLA	HLA S.P Beam A			V		
1593	DE	2	DE011B-HLA	HLA S.P Beam B			V		
1594	DE	3	DE011C-HLA	HLA S.P Beam C			V		
1595	DE	4	DE051A-LSA	LSA S.P Beam A			V		
1596	DE	5	DE051B-LSA	LSA S.P Beam B			V		
1597	DE	6	DE051C-LSA	LSA S.P Beam C			V		
1598	DE	7	DE071A-CLA	CLA S.P Beam A			V		
1599	DE	8	DE071B-CLA	CLA S.P Beam B			V		
1600	DE	9	DE071C-CLA	CLA S.P Beam C			V		
1601	DE	10	DE151A-HLB	HLB S.P Beam A			V		
1602	DE	11	DE151B-HLB	HLB S.P Beam B			V		
*1603	DE	12	DE151C-HLB	HLB S.P Beam C			V		
1604	DE	13	DE191A-LSB	LSB S.P Beam A			V		
1605	DE	14	DE191B-LSB	LSB S.P Beam B			V		
1606	DE	15	DE191C-LSB	LSB S.P Beam C			V		
1607	DE	16	DE211A-CLB	CLB S.P Beam A			V		
1608	DE	17	DE211B-CLB	CLB S.P Beam B			V		
1609	DE	18	DE211C-CLB	CLB S.P Beam C			V		
1610	DE	19	DE052-LSA	LSA Bottom			V		
1611	DE	20	DE192-LSB	PCB Suction			V		
1612	DE	21	DE281-PR	PR Surge Line			V		
1613	DE	25	DE431-SGA	SGA Downcomer			V		
1614	DE	26	DE471-SGB	SGB Downcomer			V		
1615	DE	30	DE571A-BU	BU S.P Beam A			V		
1616	DE	31	DE571B-BU	BU S.P Beam B			V		
1617	DE	32	DE571C-BU	BU S.P Beam C			V		
1618	CP	1	CPE-E-012C-DC	"Downcomer E.L.-1.2m,East"	0.0	1.000E+02	%		
1619	CP	2	CPE-E-006C-DC	"Downcomer E.L.-0.6m,East"	0.0	1.000E+02	%		
1620	CP	3	CPE-E000C-DC	"Downcomer E.L.0.0m,East"	0.0	1.000E+02	%		
1621	CP	4	CPE-E006C-DC	"Downcomer E.L.0.6m,East"	0.0	1.000E+02	%		
1622	CP	6	CPE-E018C-DC	"Downcomer E.L.1.8m,East"	0.0	1.000E+02	%		
1623	CP	7	CPE-E024C-DC	"Downcomer E.L.2.4m,East"	0.0	1.000E+02	%		
1624	CP	8	CPE-E031C-DC	"Downcomer E.L.3.1m,East"	0.0	1.000E+02	%		
1625	CP	10	CPE-E043C-DC	"Downcomer E.L.4.3m,East"	0.0	1.000E+02	%		
1626	CP	11	CPE-E049C-DC	"Downcomer E.L.4.9m,East"	0.0	1.000E+02	%		
1627	CP	12	CPE-E055C-DC	"Downcomer E.L.5.5m,East"	0.0	1.000E+02	%		
1628	CP	14	CPE-E067C-DC	"Downcomer E.L.6.7m,East"	0.0	1.000E+02	%		
*1629	CP	17	CPE-E069F-UH	"Upper Head E.L.6.9m,East"	0.0	1.000E+02	%		
1630	CP	20	CPE-W072F-UH	"Upper Head E.L.7.2m,West"	0.0	1.000E+02	%		
1631	CP	27	CPE-E066H-GT	"Guide Tube E.L.6.6m,East"	0.0	1.000E+02	%		
1632	CP	30	CPE-W072H-GT	"Guide Tube E.L.7.2m,West"	0.0	1.000E+02	%		
1633	CP	40	CPE-W054H-GT	"Guide Tube E.L.5.4m,West"	0.0	1.000E+02	%		
1634	CP	42	CPE-W060H-GT	"Guide Tube E.L.6.0m,West"	0.0	1.000E+02	%		
1635	CP	44	CPE-W042-UP	"Upper Plenum E.L.4.2m,West"	0.0	1.000E+02	%		
1636	CP	45	CPE-E043-UP	"Upper Plenum E.L.4.3m,East"	0.0	1.000E+02	%		
1637	CP	57	CPE-E060-UP	"Upper Plenum E.L.6.0m,East"	0.0	1.000E+02	%		
*1638	CP	61	CPE-C-015-LP	Lower Plenum E.L.-1.5m	0.0	1.000E+02	%		
1639	CP	69	CPE-B08002	In-Core West Pos.2	0.0	1.000E+02	%		
*1640	CP	71	CPE-B08004	In-Core West Pos.4	0.0	1.000E+02	%		
1641	CP	73	CPE-B08006	In-Core West Pos.6	0.0	1.000E+02	%		
1642	CP	74	CPE-B08007	In-Core West Pos.7	0.0	1.000E+02	%		
1643	CP	77	CPE-B15661	"B15 Rod(6,6) Pos.1"	0.0	1.000E+02	%		
*1644	CP	78	CPE-B15662	"B15 Rod(6,6) Pos.2"	0.0	1.000E+02	%		
*1645	CP	82	CPE-B15666	"B15 Rod(6,6) Pos.6"	0.0	1.000E+02	%		
*1646	CP	83	CPE-B15667	"B15 Rod(6,6) Pos.7"	0.0	1.000E+02	%		
*1647	CP	84	CPE-B15668	"B15 Rod(6,6) Pos.8"	0.0	1.000E+02	%		
*1648	CP	87	CPE-B04002	In-Core East Pos.2	0.0	1.000E+02	%		
*1649	CP	90	CPE-B04005	In-Core East Pos.5	0.0	1.000E+02	%		
*1650	CP	93	CPE-B04008	In-Core East Pos.8	0.0	1.000E+02	%		
1651	CP	95	CPE-B20621	"B20 Rod(6,2) Pos.1"	0.0	1.000E+02	%		
1652	CP	97	CPE-B20623	"B20 Rod(6,2) Pos.3"	0.0	1.000E+02	%		
*1653	CP	100	CPE-B20626	"B20 Rod(6,2) Pos.6"	0.0	1.000E+02	%		
*1654	CP	101	CPE-B20627	"B20 Rod(6,2) Pos.7"	0.0	1.000E+02	%		
1655	CP	107	CPE-B22624	"B22 Rod(6,2) Pos.4"	0.0	1.000E+02	%		
*1656	CP	110	CPE-B22627	"B22 Rod(6,2) Pos.7"	0.0	1.000E+02	%		
*1657	CP	111	CPE-B22628	"B22 Rod(6,2) Pos.8"	0.0	1.000E+02	%		
*1658	CP	112	CPE-B22629	"B22 Rod(6,2) Pos.9"	0.0	1.000E+02	%		
*1659	CP	119	CPE-189-PR	Pressurizer Pos.4	0.0	1.000E+02	%		
1660	CP	121	CPE-181-PR	Pressurizer Pos.2	0.0	1.000E+02	%		
1661	CP	123	CPE-086C-SGA	SGA Boiling Section Pos.1	0.0	1.000E+02	%		
1662	CP	124	CPE-099C-SGA	SGA Boiling Section Pos.3	0.0	1.000E+02	%		
1663	CP	125	CPE-112C-SGA	SGA Boiling Section Pos.5	0.0	1.000E+02	%		
1664	CP	126	CPE-125C-SGA	SGA Boiling Section Pos.6	0.0	1.000E+02	%		
1665	CP	127	CPE-137C-SGA	SGA Boiling Section Pos.7	0.0	1.000E+02	%		
1666	CP	128	CPE-150C-SGA	SGA Boiling Section Pos.8	0.0	1.000E+02	%		
1667	CP	129	CPE-163C-SGA	SGA Boiling Section Pos.9	0.0	1.000E+02	%		
1668	CP	130	CPE-178C-SGA	SGA Boiling Section Pos.11	0.0	1.000E+02	%		
1669	CP	133	CPE-192C-SGA	Downcomer Pos.12	0.0	1.000E+02	%		
1670	CP	134	CPE-208C-SGA	Downcomer Pos.13	0.0	1.000E+02	%		

Table A.1(Cont'd)   (22/25)

SEQ No.	Function ID.	Tagname	Location	Range		Unit	Uncertainty	
				LO	HI		±ABS.	±%FR
1671	CP 135	CPE-223C-SGA	Dryer Pos.14	0.0	1.000E+02	%		
*1672	CP 137	CPE-IN0861-SGA	″SGA U-Tube(1,IN) Pos.1″	0.0	1.000E+02	%		
1673	CP 138	CPE-EX0861-SGA	″SGA U-Tube(1,EX) Pos.1″	0.0	1.000E+02	%		
1674	CP 140	CPE-EX0862-SGA	″SGA U-Tube(2,EX) Pos.1″	0.0	1.000E+02	%		
1675	CP 142	CPE-EX0863-SGA	″SGA U-Tube(3,EX) Pos.1″	0.0	1.000E+02	%		
1676	CP 143	CPE-IN0864-SGA	″SGA U-Tube(4,IN) Pos.1″	0.0	1.000E+02	%		
1677	CP 144	CPE-EX0864-SGA	″SGA U-Tube(4,EX) Pos.1″	0.0	1.000E+02	%		
1678	CP 145	CPE-IN0865-SGA	″SGA U-Tube(5,IN) Pos.1″	0.0	1.000E+02	%		
*1679	CP 150	CPE-IN0932-SGA	″SGA U-Tube(2,IN) Pos.2″	0.0	1.000E+02	%		
*1680	CP 151	CPE-IN0933-SGA	″SGA U-Tube(3,IN) Pos.2″	0.0	1.000E+02	%		
1681	CP 152	CPE-IN0934-SGA	″SGA U-Tube(4,IN) Pos.2″	0.0	1.000E+02	%		
1682	CP 153	CPE-IN0935-SGA	″SGA U-Tube(5,IN) Pos.2″	0.0	1.000E+02	%		
1683	CP 155	CPE-IN0991-SGA	″SGA U-Tube(1,IN) Pos.3″	0.0	1.000E+02	%		
1684	CP 157	CPE-IN0992-SGA	″SGA U-Tube(2,IN) Pos.3″	0.0	1.000E+02	%		
1685	CP 158	CPE-EX0992-SGA	″SGA U-Tube(2,EX) Pos.3″	0.0	1.000E+02	%		
1686	CP 159	CPE-IN0993-SGA	″SGA U-Tube(3,IN) Pos.3″	0.0	1.000E+02	%		
*1687	CP 160	CPE-EX0993-SGA	″SGA U-Tube(3,EX) Pos.3″	0.0	1.000E+02	%		
1688	CP 161	CPE-IN0994-SGA	″SGA U-Tube(4,IN) Pos.3″	0.0	1.000E+02	%		
1689	CP 162	CPE-EX0994-SGA	″SGA U-Tube(4,EX) Pos.3″	0.0	1.000E+02	%		
1690	CP 163	CPE-IN0995-SGA	″SGA U-Tube(5,IN) Pos.3″	0.0	1.000E+02	%		
1691	CP 164	CPE-EX0995-SGA	″SGA U-Tube(5,EX) Pos.3″	0.0	1.000E+02	%		
1692	CP 168	CPE-IN1052-SGA	″SGA U-Tube(2,IN) Pos.4″	0.0	1.000E+02	%		
1693	CP 170	CPE-IN1054-SGA	″SGA U-Tube(4,IN) Pos.4″	0.0	1.000E+02	%		
1694	CP 171	CPE-IN1055-SGA	″SGA U-Tube(5,IN) Pos.4″	0.0	1.000E+02	%		
1695	CP 178	CPE-EX1123-SGA	″SGA U-Tube(3,EX) Pos.5″	0.0	1.000E+02	%		
1696	CP 180	CPE-EX1124-SGA	″SGA U-Tube(4,EX) Pos.5″	0.0	1.000E+02	%		
*1697	CP 181	CPE-IN1125-SGA	″SGA U-Tube(5,IN) Pos.5″	0.0	1.000E+02	%		
1698	CP 182	CPE-EX1125-SGA	″SGA U-Tube(5,EX) Pos.5″	0.0	1.000E+02	%		
1699	CP 184	CPE-EX1126-SGA	″SGA U-Tube(6,EX) Pos.5″	0.0	1.000E+02	%		
1700	CP 186	CPE-EX1251-SGA	″SGA U-Tube(1,EX) Pos.6″	0.0	1.000E+02	%		
1701	CP 187	CPE-IN1252-SGA	″SGA U-Tube(2,IN) Pos.6″	0.0	1.000E+02	%		
*1702	CP 189	CPE-IN1253-SGA	″SGA U-Tube(3,IN) Pos.6″	0.0	1.000E+02	%		
1703	CP 190	CPE-EX1253-SGA	″SGA U-Tube(3,EX) Pos.6″	0.0	1.000E+02	%		
1704	CP 191	CPE-IN1254-SGA	″SGA U-Tube(4,IN) Pos.6″	0.0	1.000E+02	%		
1705	CP 192	CPE-EX1254-SGA	″SGA U-Tube(4,EX) Pos.6″	0.0	1.000E+02	%		
1706	CP 195	CPE-IN1256-SGA	″SGA U-Tube(6,IN) Pos.6″	0.0	1.000E+02	%		
1707	CP 197	CPE-IN1371-SGA	″SGA U-Tube(1,IN) Pos.7″	0.0	1.000E+02	%		
1708	CP 200	CPE-EX1372-SGA	″SGA U-Tube(2,EX) Pos.7″	0.0	1.000E+02	%		
1709	CP 203	CPE-IN1374-SGA	″SGA U-Tube(4,IN) Pos.7″	0.0	1.000E+02	%		
1710	CP 207	CPE-IN1376-SGA	″SGA U-Tube(6,IN) Pos.7″	0.0	1.000E+02	%		
*1711	CP 208	CPE-EX1376-SGA	″SGA U-Tube(6,EX) Pos.7″	0.0	1.000E+02	%		
1712	CP 211	CPE-IN1502-SGA	″SGA U-Tube(2,IN) Pos.8″	0.0	1.000E+02	%		
1713	CP 212	CPE-EX1502-SGA	″SGA U-Tube(2,EX) Pos.8″	0.0	1.000E+02	%		
1714	CP 214	CPE-EX1503-SGA	″SGA U-Tube(3,EX) Pos.8″	0.0	1.000E+02	%		
1715	CP 215	CPE-IN1504-SGA	″SGA U-Tube(4,IN) Pos.8″	0.0	1.000E+02	%		
1716	CP 219	CPE-IN1506-SGA	″SGA U-Tube(6,IN) Pos.8″	0.0	1.000E+02	%		
1717	CP 221	CPE-IN1632-SGA	″SGA U-Tube(2,IN) Pos.9″	0.0	1.000E+02	%		
1718	CP 222	CPE-EX1632-SGA	″SGA U-Tube(2,EX) Pos.9″	0.0	1.000E+02	%		
1719	CP 223	CPE-IN1633-SGA	″SGA U-Tube(3,IN) Pos.9″	0.0	1.000E+02	%		
1720	CP 224	CPE-EX1633-SGA	″SGA U-Tube(3,EX) Pos.9″	0.0	1.000E+02	%		
1721	CP 225	CPE-IN1634-SGA	″SGA U-Tube(4,IN) Pos.9″	0.0	1.000E+02	%		
1722	CP 226	CPE-EX1634-SGA	″SGA U-Tube(4,EX) Pos.9″	0.0	1.000E+02	%		
1723	CP 232	CPE-IN1785-SGA	″SGA U-Tube(5,IN) Pos.10″	0.0	1.000E+02	%		
1724	CP 233	CPE-IN1863-SGA	″SGA U-Tube(3,IN) Pos.11″	0.0	1.000E+02	%		
1725	CP 234	CPE-IN1864-SGA	″SGA U-Tube(4,IN) Pos.11″	0.0	1.000E+02	%		
1726	CP 235	CPE-086C-SGB	SGB Boiling Section Pos.1	0.0	1.000E+02	%		
1727	CP 236	CPE-099C-SGB	SGB Boiling Section Pos.3	0.0	1.000E+02	%		
1728	CP 237	CPE-112C-SGB	SGB Boiling Section Pos.5	0.0	1.000E+02	%		
1729	CP 238	CPE-125C-SGB	SGB Boiling Section Pos.6	0.0	1.000E+02	%		
1730	CP 239	CPE-137C-SGB	SGB Boiling Section Pos.7	0.0	1.000E+02	%		
1731	CP 240	CPE-150C-SGB	SGB Boiling Section Pos.8	0.0	1.000E+02	%		
1732	CP 241	CPE-163C-SGB	SGB Boiling Section Pos.9	0.0	1.000E+02	%		
1733	CP 242	CPE-178C-SGB	SGB Boiling Section Pos.11	0.0	1.000E+02	%		
1734	CP 243	CPE-192F-SGB	SGB Boiling Section Pos.12	0.0	1.000E+02	%		
1735	CP 244	CPE-208F-SGB	SGB Separator Pos.13	0.0	1.000E+02	%		
1736	CP 245	CPE-192C-SGB	SGB Downcomer Pos.12	0.0	1.000E+02	%		
1737	CP 246	CPE-208C-SGB	SGB Downcomer Pos.13	0.0	1.000E+02	%		
1738	CP 247	CPE-223C-SGB	SGB Dryer Pos.14	0.0	1.000E+02	%		
1739	CP 248	CPE-245C-SGB	SGB Steam Dome Pos.15	0.0	1.000E+02	%		
1740	CP 250	CPE-EX0861-SGB	″SGB U-Tube(1,EX) Pos.1″	0.0	1.000E+02	%		
1741	CP 251	CPE-IN0862-SGB	″SGB U-Tube(2,IN) Pos.1″	0.0	1.000E+02	%		
*1742	CP 254	CPE-EX0863-SGB	″SGB U-Tube(3,EX) Pos.1″	0.0	1.000E+02	%		
1743	CP 255	CPE-IN0864-SGB	″SGB U-Tube(4,IN) Pos.1″	0.0	1.000E+02	%		
1744	CP 257	CPE-IN0865-SGB	″SGB U-Tube(5,IN) Pos.1″	0.0	1.000E+02	%		
1745	CP 258	CPE-EX0865-SGB	″SGB U-Tube(5,EX) Pos.1″	0.0	1.000E+02	%		
1746	CP 259	CPE-IN0866-SGB	″SGB U-Tube(6,IN) Pos.1″	0.0	1.000E+02	%		
*1747	CP 261	CPE-IN0931-SGB	″SGB U-Tube(1,IN) Pos.2″	0.0	1.000E+02	%		
1748	CP 262	CPE-IN0932-SGB	″SGB U-Tube(2,IN) Pos.2″	0.0	1.000E+02	%		
1749	CP 263	CPE-IN0933-SGB	″SGB U-Tube(3,IN) Pos.2″	0.0	1.000E+02	%		
1750	CP 264	CPE-IN0934-SGB	″SGB U-Tube(4,IN) Pos.2″	0.0	1.000E+02	%		

Table A.1(Cont'd) (23/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
1751	CP 265	CPE-IN0935-SGB	"SGB U-Tube(5, IN) Pos.2"	0.0	1.000E+02	%		
1752	CP 266	CPE-IN0936-SGB	"SGB U-Tube(6, IN) Pos.2"	0.0	1.000E+02	%		
*1753	CP 267	CPE-IN0991-SGB	"SGB U-Tube(1, IN) Pos.3"	0.0	1.000E+02	%		
1754	CP 270	CPE-EX0992-SGB	"SGB U-Tube(2, EX) Pos.3"	0.0	1.000E+02	%		
1755	CP 272	CPE-EX0993-SGB	"SGB U-Tube(3, EX) Pos.3"	0.0	1.000E+02	%		
1756	CP 273	CPE-IN0994-SGB	"SGB U-Tube(4, IN) Pos.3"	0.0	1.000E+02	%		
1757	CP 276	CPE-EX0995-SGB	"SGB U-Tube(5, EX) Pos.3"	0.0	1.000E+02	%		
1758	CP 277	CPE-IN0996-SGB	"SGB U-Tube(6, IN) Pos.3"	0.0	1.000E+02	%		
1759	CP 278	CPE-EX0996-SGB	"SGB U-Tube(6, EX) Pos.3"	0.0	1.000E+02	%		
1760	CP 280	CPE-IN1052-SGB	"SGB U-Tube(2, IN) Pos.4"	0.0	1.000E+02	%		
1761	CP 285	CPE-IN1121-SGB	"SGB U-Tube(1, IN) Pos.5"	0.0	1.000E+02	%		
1762	CP 286	CPE-EX1121-SGB	"SGB U-Tube(1, EX) Pos.5"	0.0	1.000E+02	%		
1763	CP 288	CPE-EX1122-SGB	"SGB U-Tube(2, EX) Pos.5"	0.0	1.000E+02	%		
1764	CP 289	CPE-IN1123-SGB	"SGB U-Tube(3, IN) Pos.5"	0.0	1.000E+02	%		
1765	CP 290	CPE-EX1123-SGB	"SGB U-Tube(3, EX) Pos.5"	0.0	1.000E+02	%		
1766	CP 291	CPE-IN1124-SGB	"SGB U-Tube(4, IN) Pos.5"	0.0	1.000E+02	%		
1767	CP 292	CPE-EX1124-SGB	"SGB U-Tube(4, EX) Pos.5"	0.0	1.000E+02	%		
1768	CP 295	CPE-IN1126-SGB	"SGB U-Tube(6, IN) Pos.5"	0.0	1.000E+02	%		
1769	CP 296	CPE-EX1126-SGB	"SGB U-Tube(6, EX) Pos.5"	0.0	1.000E+02	%		
*1770	CP 297	CPE-IN1251-SGB	"SGB U-Tube(1, IN) Pos.6"	0.0	1.000E+02	%		
1771	CP 299	CPE-IN1252-SGB	"SGB U-Tube(2, IN) Pos.6"	0.0	1.000E+02	%		
*1772	CP 300	CPE-EX1252-SGB	"SGB U-Tube(2, EX) Pos.6"	0.0	1.000E+02	%		
1773	CP 301	CPE-IN1253-SGB	"SGB U-Tube(3, IN) Pos.6"	0.0	1.000E+02	%		
1774	CP 302	CPE-EX1253-SGB	"SGB U-Tube(3, EX) Pos.6"	0.0	1.000E+02	%		
1775	CP 303	CPE-IN1254-SGB	"SGB U-Tube(4, IN) Pos.6"	0.0	1.000E+02	%		
1776	CP 304	CPE-EX1254-SGB	"SGB U-Tube(4, EX) Pos.6"	0.0	1.000E+02	%		
*1777	CP 305	CPE-IN1255-SGB	"SGB U-Tube(5, IN) Pos.6"	0.0	1.000E+02	%		
1778	CP 307	CPE-IN1256-SGB	"SGB U-Tube(6, IN) Pos.6"	0.0	1.000E+02	%		
1779	CP 308	CPE-EX1256-SGB	"SGB U-Tube(6, EX) Pos.6"	0.0	1.000E+02	%		
1780	CP 309	CPE-IN1371-SGB	"SGB U-Tube(1, IN) Pos.7"	0.0	1.000E+02	%		
1781	CP 312	CPE-EX1372-SGB	"SGB U-Tube(2, EX) Pos.7"	0.0	1.000E+02	%		
1782	CP 313	CPE-IN1373-SGB	"SGB U-Tube(3, IN) Pos.7"	0.0	1.000E+02	%		
1783	CP 315	CPE-IN1374-SGB	"SGB U-Tube(4, IN) Pos.7"	0.0	1.000E+02	%		
1784	CP 316	CPE-EX1374-SGB	"SGB U-Tube(4, EX) Pos.7"	0.0	1.000E+02	%		
1785	CP 318	CPE-EX1375-SGB	"SGB U-Tube(5, EX) Pos.7"	0.0	1.000E+02	%		
1786	CP 319	CPE-IN1376-SGB	"SGB U-Tube(6, IN) Pos.7"	0.0	1.000E+02	%		
1787	CP 323	CPE-IN1502-SGB	"SGB U-Tube(2, IN) Pos.8"	0.0	1.000E+02	%		
1788	CP 324	CPE-EX1502-SGB	"SGB U-Tube(2, EX) Pos.8"	0.0	1.000E+02	%		
*1789	CP 325	CPE-IN1503-SGB	"SGB U-Tube(3, IN) Pos.8"	0.0	1.000E+02	%		
1790	CP 326	CPE-EX1503-SGB	"SGB U-Tube(3, EX) Pos.8"	0.0	1.000E+02	%		
1791	CP 329	CPE-IN1505-SGB	"SGB U-Tube(5, IN) Pos.8"	0.0	1.000E+02	%		
1792	CP 330	CPE-EX1505-SGB	"SGB U-Tube(5, EX) Pos.8"	0.0	1.000E+02	%		
1793	CP 331	CPE-IN1506-SGB	"SGB U-Tube(6, IN) Pos.8"	0.0	1.000E+02	%		
*1794	CP 332	CPE-EX1506-SGB	"SGB U-Tube(6, EX) Pos.8"	0.0	1.000E+02	%		
1795	CP 333	CPE-IN1632-SGB	"SGB U-Tube(2, IN) Pos.9"	0.0	1.000E+02	%		
1796	CP 334	CPE-EX1632-SGB	"SGB U-Tube(2, EX) Pos.9"	0.0	1.000E+02	%		
1797	CP 335	CPE-IN1633-SGB	"SGB U-Tube(3, IN) Pos.9"	0.0	1.000E+02	%		
1798	CP 337	CPE-IN1634-SGB	"SGB U-Tube(4, IN) Pos.9"	0.0	1.000E+02	%		
1799	CP 338	CPE-EX1634-SGB	"SGB U-Tube(4, EX) Pos.9"	0.0	1.000E+02	%		
1800	CP 339	CPE-IN1635-SGB	"SGB U-Tube(5, IN) Pos.9"	0.0	1.000E+02	%		
1801	CP 340	CPE-EX1635-SGB	"SGB U-Tube(5, EX) Pos.9"	0.0	1.000E+02	%		
1802	CP 341	CPE-IN1701-SGB	"SGB U-Tube(1, IN) Pos.10"	0.0	1.000E+02	%		
1803	CP 343	CPE-IN1782-SGB	"SGB U-Tube(2, IN) Pos.10"	0.0	1.000E+02	%		
1804	CP 344	CPE-IN1785-SGB	"SGB U-Tube(5, IN) Pos.10"	0.0	1.000E+02	%		
1805	CP 346	CPE-IN1864-SGB	"SGB U-Tube(4, IN) Pos.11"	0.0	1.000E+02	%		
1806	CP 347	CPE-010A-HLA	HLA Vessel Side CPT	0.0	1.000E+02	%		
1807	CP 348	CPE-010B-HLA	HLA Vessel Side CPT	0.0	1.000E+02	%		
1808	CP 350	CPE-010D-HLA	HLA Vessel Side CPT	0.0	1.000E+02	%		
1809	CP 351	CPE-010E-HLA	HLA Vessel Side CPT	0.0	1.000E+02	%		
1810	CP 362	CPE-150A-HLB	HLB Vessel Side CPT	0.0	1.000E+02	%		
1811	CP 363	CPE-150B-HLB	HLB Vessel Side CPT	0.0	1.000E+02	%		
1812	CP 366	CPE-150E-HLB	HLB Vessel Side CPT	0.0	1.000E+02	%		
1813	CP 367	CPE-180A-HLB	HLB SG Side CPT	0.0	1.000E+02	%		
1814	CP 368	CPE-180B-HLB	HLB SG Side CPT	0.0	1.000E+02	%		
1815	CP 369	CPE-180C-HLB	HLB SG Side CPT	0.0	1.000E+02	%		
1816	CP 370	CPE-180D-HLB	HLB SG Side CPT	0.0	1.000E+02	%		
1817	CP 372	CPE-230A-CLB	CLB Vessel Side CPT	0.0	1.000E+02	%		
1818	CP 373	CPE-230B-CLB	CLB Vessel Side CPT	0.0	1.000E+02	%		
1819	CP 374	CPE-230C-CLB	CLB Vessel Side CPT	0.0	1.000E+02	%		
1820	CP 375	CPE-230D-CLB	CLB Vessel Side CPT	0.0	1.000E+02	%		
1821	CP 376	CPE-230E-CLB	CLB Vessel Side CPT	0.0	1.000E+02	%		
1822	CP 378	CPE051A-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1823	CP 379	CPE051B-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1824	CP 380	CPE051C-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1825	CP 381	CPE051D-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1826	CP 382	CPE051E-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1827	CP 383	CPE051F-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1828	CP 384	CPE051G-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1829	CP 385	CPE051H-LSA	LSA (SG Side)	0.0	1.000E+02	%		
1830	CP 386	CPE051I-LSA	LSA (SG Side)	0.0	1.000E+02	%		

Table A.1(Cont'd) (24/25)

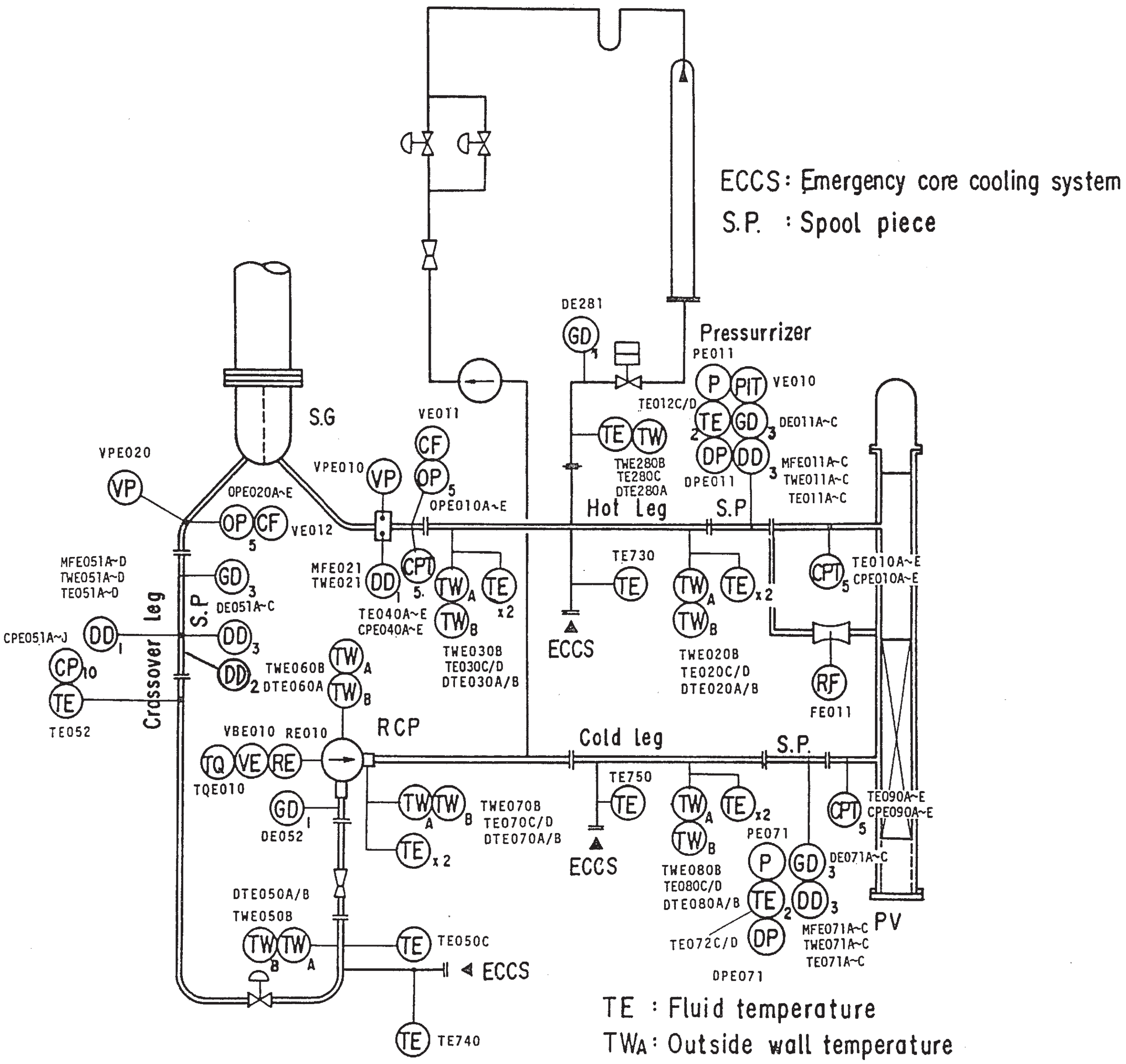
SEQ No.	Function ID.	Tagname	Location	Range		Unit	Uncertainty	
				LO	HI		±ABS.	±%FR
1831	CP 388	CPE191A-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1832	CP 390	CPE191C-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1833	CP 391	CPE191D-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1834	CP 392	CPE191E-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1835	CP 393	CPE191F-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1836	CP 394	CPE191G-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1837	CP 395	CPE191H-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1838	CP 396	CPE191I-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1839	CP 397	CPE191J-LSB	LSB (SG Side)	0.0	1.000E+02	%		
1840	CP 408	CE270-PV	PV Bottom	0.0	1.000E+02	%		
1841	CP 409	CP-VALVE-Y	Break Signal for YEWCOM	0.0	1.000E+02	%		
1842	CP 410	CP-VALVE-S	Break Signal for FACOM	0.0	1.000E+02	%		
*1843	RC 1	MFE011A-HLA-EU	HLA Spool Piece Top	-1.300E+04	1.300E+04	kg/ms2	8.2E+01	
*1844	RC 2	MFE011B-HLA-EU	HLA Spool Piece Side	-1.300E+04	1.300E+04	kg/ms2	8.8E+01	
*1845	RC 3	MFE011C-HLA-EU	HLA Spool Piece Bottom	-1.300E+04	1.300E+04	kg/ms2	8.0E+01	
*1846	RC 4	MFE051A-LSA-EU	LSA Spool Piece East	-1.300E+04	1.300E+04	kg/ms2		
*1847	RC 5	MFE051B-LSA-EU	LSA Spool Piece South	-1.300E+04	1.300E+04	kg/ms2		
*1848	RC 6	MFE051C-LSA-EU	LSA Spool Piece West	-1.300E+04	1.300E+04	kg/ms2		
*1849	RC 7	MFE071A-CLA-EU	CLA Spool Piece Top	-1.300E+04	1.300E+04	kg/ms2	7.4E+01	
*1850	RC 8	MFE071B-CLA-EU	CLA Spool Piece Side	-1.300E+04	1.300E+04	kg/ms2	8.8E+01	
*1851	RC 9	MFE071C-CLA-EU	CLA Spool Piece Bottom	-1.300E+04	1.300E+04	kg/ms2	8.6E+01	
*1852	RC 10	MFE151A-HLB-EU	HLB Spool Piece Top	-1.300E+04	1.300E+04	kg/ms2	8.3E+01	
*1853	RC 11	MFE151B-HLB-EU	HLB Spool Piece Side	-1.300E+04	1.300E+04	kg/ms2	6.9E+01	
*1854	RC 12	MFE151C-HLB-EU	HLB Spool Piece Bottom	-1.300E+04	1.300E+04	kg/ms2	6.6E+01	
*1855	RC 13	MFE191A-LSB-EU	LSB Spool Piece West	-1.300E+04	1.300E+04	kg/ms2		
*1856	RC 14	MFE191B-LSB-EU	LSB Spool Piece North	-1.300E+04	1.300E+04	kg/ms2		
*1857	RC 15	MFE191C-LSB-EU	LSB Spool Piece East	-1.300E+04	1.300E+04	kg/ms2		
*1858	RC 16	MFE211A-CLB-EU	CLB Spool Piece Top	-1.300E+04	1.300E+04	kg/ms2	7.1E+01	
*1859	RC 17	MFE211B-CLB-EU	CLB Spool Piece Side	-1.300E+04	1.300E+04	kg/ms2	8.0E+01	
*1860	RC 18	MFE211C-CLB-EU	CLB Spool Piece Bottom	-1.300E+04	1.300E+04	kg/ms2	6.8E+01	
*1861	RC 19	MFE021-HLA-EU	SGA Inlet	-2.890E+03	2.890E+03	kg/ms2		
*1862	RC 20	MFE051D-LSA-EU	LSA Spool Piece North(Low)	-2.890E+03	2.890E+03	kg/ms2		
*1863	RC 21	MFE161-HLB-EU	SGB Inlet	-2.890E+03	2.890E+03	kg/ms2		
*1864	RC 22	MFE191D-LSB-EU	LSB Spool Piece South(Low)	-2.890E+03	2.890E+03	kg/ms2		
*1865	RC 23	MFE-E-006-DC-EU	PV Downcomer DTT East	-1.400E+04	1.400E+04	kg/ms2		
*1866	RC 24	MFE-S-006-DC-EU	PV Downcomer DTT South	-1.400E+04	1.400E+04	kg/ms2		
*1867	RC 25	MFE-W-006-DC-EU	PV Downcomer DTT West	-1.400E+04	1.400E+04	kg/ms2		
*1868	RC 26	MFE-N-006-DC-EU	PV Downcomer DTT North	-1.400E+04	1.400E+04	kg/ms2		
*1869	RC 27	VE-E-006-DC-EU	PV Downcomer East	-9.000E+00	9.000E+00	m/s		
*1870	RC 28	VE-S-006-DC-EU	PV Downcomer South	-9.000E+00	9.000E+00	m/s		
*1871	RC 29	VE-W-006-DC-EU	PV Downcomer West	-9.000E+00	9.000E+00	m/s		
*1872	RC 30	VE-N-006-DC-EU	PV Downcomer North	-9.000E+00	9.000E+00	m/s		
1873	RC 31	DE011A-HLA-EU	HLA S.P Beam A	0.0	1.000E+03	kg/m3	2.7E+01	
1874	RC 32	DE011B-HLA-EU	HLA S.P Beam B	0.0	1.000E+03	kg/m3	2.0E+01	
1875	RC 33	DE011C-HLA-EU	HLA S.P Beam C	0.0	1.000E+03	kg/m3	2.2E+01	
1876	RC 34	DE151A-HLB-EU	HLB S.P Beam A	0.0	1.000E+03	kg/m3	2.7E+01	
1877	RC 35	DE151B-HLB-EU	HLB S.P Beam B	0.0	1.000E+03	kg/m3	2.0E+01	
*1878	RC 36	DE151C-HLB-EU	HLB S.P Beam C	0.0	1.000E+03	kg/m3	2.2E+01	
1879	RC 37	DE071A-CLA-EU	CLA S.P Beam A	0.0	1.000E+03	kg/m3	9.48E+01	
1880	RC 38	DE071B-CLA-EU	CLA S.P Beam B	0.0	1.000E+03	kg/m3	9.48E+01	
1881	RC 39	DE071C-CLA-EU	CLA S.P Beam C	0.0	1.000E+03	kg/m3	9.48E+01	
1882	RC 40	DE211A-CLB-EU	CLB S.P Beam A	0.0	1.000E+03	kg/m3	9.48E+01	
1883	RC 41	DE211B-CLB-EU	CLB S.P Beam B	0.0	1.000E+03	kg/m3	9.48E+01	
1884	RC 42	DE211C-CLB-EU	CLB S.P Beam C	0.0	1.000E+03	kg/m3	9.48E+01	
1885	RC 43	DE571A-BU-EU	BU No.1 S.P Beam A	0.0	1.000E+03	kg/m3	9.48E+01	
1886	RC 44	DE571B-BU-EU	BU No.1 S.P Beam B	0.0	1.000E+03	kg/m3	9.48E+01	
1887	RC 45	DE571C-BU-EU	BU No.1 S.P Beam C	0.0	1.000E+03	kg/m3	9.48E+01	
*1888	RC 46	FRE-011-HLA	from RC 1 2 3 31 32 33	-5.830E+01	5.830E+01	kg/s		
1889	RC 47	DAE-011-HLA	from RC 31 32 33	0.0	1.000E+03	kg/m3	1.3E+01	
*1890	RC 48	FRE-151-HLB	from RC 10 11 12 34 35 36	-5.830E+01	5.830E+01	kg/s		
*1891	RC 49	DAE-151-HLB	from RC 34 35 36	0.0	1.000E+03	kg/m3	1.3E+01	
*1892	RC 50	FRE-071-CLA	from RC 7 8 9 37 38 39	-5.830E+01	5.830E+01	kg/s		
*1893	RC 51	FRE-211-CLB	from RC 16 17 18 40 41 42	-5.830E+01	5.830E+01	kg/s		
1894	RC 52	DAE-071-CLA	from RC 37 38 39	0.0	1.000E+03	kg/m3	5.563E+01	
1895	RC 53	DAE-211-CLB	from RC 40 41 42	0.0	1.000E+03	kg/m3	5.563E+01	
*1896	RC 54	MFE571A-BU-EU	BU No.1 S.P (High)	-1.000E+01	1.000E+01	kg/ms2	1.2955E+04	
*1897	RC 55	MFE571B-BU-EU	BU No.1 S.P (Low)	-1.000E+01	1.000E+01	kg/ms2	3.037E+03	
1898	RC 56	DE051A-LSA-EU	LSA S.P Beam A	0.0	1.000E+03	kg/m3	9.48E+01	
1899	RC 57	DE051B-LSA-EU	LSA S.P Beam B	0.0	1.000E+03	kg/m3	9.48E+01	
1900	RC 58	DE051C-LSA-EU	LSA S.P Beam C	0.0	1.000E+03	kg/m3	9.48E+01	
1901	RC 59	DE191A-LSB-EU	LSB S.P Beam A	0.0	1.000E+03	kg/m3	9.48E+01	
1902	RC 60	DE191B-LSB-EU	LSB S.P Beam B	0.0	1.000E+03	kg/m3	9.48E+01	
1903	RC 61	DE191C-LSB-EU	LSB S.P Beam C	0.0	1.000E+03	kg/m3	9.48E+01	
1904	RC 62	DE052-LSA-EU	LSA Bottom	0.0	1.000E+03	kg/m3	9.48E+01	
1905	RC 63	DE192-LSB-EU	PCB Suction	0.0	1.000E+03	kg/m3	9.48E+01	
1906	RC 64	DE281-PR-EU	PR Surge Line	0.0	1.000E+03	kg/m3	9.48E+01	
1907	RC 68	DE431-SGA-EU	SGA Downcomer	0.0	1.000E+03	kg/m3		
1908	RC 69	DE471-SGB-EU	SGB Downcomer	0.0	1.000E+03	kg/m3		
*1909	RC 76	MFE061A-LSA-EU	LSA Spool Piece	0.0	1.239E+04	kg/ms2		

Table A.1(Cont'd) (25/25)

SEQ No.	Function ID.	Tagname	Location	Range LO	Range HI	Unit	Uncertainty ±ABS.	Uncertainty ±%FR
*1910	RC 77	MFE061B-LSA-EU	LSA Spool Piece	0.0	1.239E+04	kg/ms2		
*1911	RC 78	MFE201A-LSB-EU	LSB Spool Piece	0.0	1.239E+04	kg/ms2		
*1912	RC 79	MFE201B-LSB-EU	LSB Spool Piece	0.0	1.239E+04	kg/ms2		
*1913	RC 110	FRE-051-LSA	Cross Over Leg A Flow Rate			kg/s		
*1914	RC 111	FRE-191-LSB	Cross Over Leg B Flow Rate			kg/s		
1915	RC 112	DAE-051-LSA	Cross Over Leg A Ave. Dens.			kg/m3		
1916	RC 113	DAE-191-LSB	Cross Over Leg B Ave. Dens.			kg/m3		
*1917	RC 114	FRE-061-LSA	"from RC 76, 77, 56, 57, 58"			kg/s		
*1918	RC 115	FRE-201-LSB	"from RC 78, 79, 59, 60, 61"			kg/s		
*1919	RC 116	FRE-571A-BU	"from RC 54, 43, 44, 45"			kg/s		
*1920	RC 117	FRE-571B-BU	"from RC 55, 43, 44, 45"			kg/s		
1921	RC 120	DAE-051-LSA-TY	"from RC 56, 57, 58"			kg/m3		
1922	RC 121	DAE-191-LSB-TY	"from RC 59, 60, 61"			kg/m3		
1923	RC 122	DAE-571A-BU	"from RC 43, 44, 45"			kg/m3		
1924	RC 133	TWE-PCT	Peak Cladding Temp.			K	5.31E+00	
1925	RC 134	TWE-PCTLOC	Location of PCT			Channel		
1926	RC 139	CL-CORE	Core (EL. -35 - 3945)			m	2.16E-01	
1927	RC 140	CL-UP	Upper Plenum (EL. 4060 - 6135)			m	1.97E-01	
1928	RC 141	CL-UH	Upper Head (EL. 7834 - 9653)			m	(2.10E-01)	
1929	RC 142	CL-DC	Downcomer			m	7.46E-01	
1930	RC 143	CL-HLA-SGA	HLA Riser Part			m	(1.81E-01)	
1931	RC 144	CL-TUA-U3	SGA Tube 3 Inlet - Top			m	(4.30E-01)	
1932	RC 145	CL-TUA-U2	SGA Tube 2 Inlet - Top			m	(4.20E-01)	
1933	RC 146	CL-TUA-U1	SGA Tube 1 Inlet - Top			m	(4.13E-01)	
1934	RC 147	CL-TUA-U4	SGA Tube 4 Inlet - Top			m	(4.30E-01)	
1935	RC 148	CL-TUA-U5	SGA Tube 5 Inlet - Top			m	(4.20E-01)	
1936	RC 149	CL-TUA-U6	SGA Tube 6 Inlet - Top			m	(4.25E-01)	
1937	RC 150	CL-TUA-D3	SGA Tube 3 Outlet - Top			m	(4.42E-01)	
1938	RC 151	CL-TUA-D2	SGA Tube 2 Outlet - Top			m	(4.31E-01)	
1939	RC 152	CL-TUA-D1	SGA Tube 1 Outlet - Top			m	(4.22E-01)	
1940	RC 153	CL-TUA-D4	SGA Tube 4 Outlet - Top			m	(4.42E-01)	
1941	RC 154	CL-TUA-D5	SGA Tube 5 Outlet - Top			m	(4.31E-01)	
1942	RC 155	CL-TUA-D6	SGA Tube 6 Outlet - Top			m	(4.22E-01)	
1943	RC 156	CL-LSA-D	SGA Out.Plenum - LSA Bottom			m	(2.07E-01)	
1944	RC 157	CL-LSA-U	LSA Bottom - PCA Suction			m	1.88E-01	
1945	RC 159	CL-HLB-SGB	HLB Riser Part			m	(1.79E-01)	
1946	RC 160	CL-TUB-U3	SGB Tube 3 Inlet - Top			m	(4.45E-01)	
1947	RC 161	CL-TUB-U2	SGB Tube 2 Inlet - Top			m	(4.33E-01)	
1948	RC 162	CL-TUB-U1	SGB Tube 1 Inlet - Top			m	(7.30E-01)	
1949	RC 163	CL-TUB-U4	SGB Tube 4 Inlet - Top			m	(7.40E-01)	
1950	RC 164	CL-TUB-U5	SGB Tube 5 Inlet - Top			m	(7.34E-01)	
1951	RC 165	CL-TUB-U6	SGB Tube 6 Inlet - Top			m	(7.30E-01)	
1952	RC 166	CL-TUB-D3	SGB Tube 3 Outlet - Top			m	(9.51E-01)	
1953	RC 167	CL-TUB-D2	SGB Tube 2 Outlet - Top			m	(7.40E-01)	
1954	RC 168	CL-TUB-D1	SGB Tube 1 Outlet - Top			m	(7.35E-01)	
1955	RC 169	CL-TUB-D4	SGB Tube 4 Outlet - Top			m	(7.47E-01)	
1956	RC 170	CL-TUB-D5	SGB Tube 5 Outlet - Top			m	(7.40E-01)	
1957	RC 171	CL-TUB-D6	SGB Tube 6 Outlet - Top			m	(7.35E-01)	
1958	RC 172	CL-LSB-D	SGB Out.Plenum - LSB Bottom			m	(2.07E-01)	
1959	RC 173	CL-LSB-U	LSB Bottom - PCB Suction			m	1.88E-01	
1960	RC 189	MS-ACC	Acc-Cold Tank			kg	3.926E+01	
1961	RC 190	MS-ACH	Acc-Hot Tank			kg	7.426E+01	
1962	RC 191	MS-ST	Break Flow Supp. Tank			kg	3.236E+02	
1963	RC 192	DM-ACC	Acc-Cold Tank			kg/s	1.355E+01	
1964	RC 193	DM-ACH	Acc-Hot Tank			kg/s	2.608E+01	
1965	RC 194	IM-ST	Break Flow Supp. Tank			kg/s	3.35E+00	
1966	RC 195	DM-RWST	RWST			kg/s	5.19E+01	
1967	RC 196	LG-HLA	HLA Water Level			m	1.20E-02	
1968	RC 197	LG-CLA	CLA Water Level			m	2.80E-02	
1969	RC 198	LG-HLB	HLB Water Level			m	1.20E-02	
1970	RC 199	LG-CLB	CLB Water Level			m	2.80E-02	
1971	RC 200	TS-UP	Upper Plenum			K	1.764E+01	
1972	RC 201	TS-PR	Pressurizer			K	1.764E+01	
1973	RC 202	TS-SGA	Steam Generator-A			K	7.82E+00	
1974	RC 203	TS-SGB	Steam Generator-B			K	7.82E+00	

*The data is qualified as Qualitative because it includes large uncertainty or undefined trend.

◊ Uncertainty ranges of CP and RC data are revised to those for the LSTF system with the third and fourth core assembly (JAERI-Tech 2003-037). The bracketed values in the uncertainty range are to be revised for the experiment SB-CL-09 conditions with different level measuring ranges from those of the third and fourth LSTF core assembly.



TE : Fluid temperature
TWA: Outside wall temperature
TWB: Inside wall temperature
RE : Rotation speed
VE : Pump oscillation
TQ : Pump torque

GD_1 : 1 beam γ-densitometer
GD_3 : 3 beam γ-densitometer
DD : Drag disk flow meter
PIT : Pitot-tube velocimeter
OP_5 : Optical liquid level detector
CP_{10} : Conductance probe
RF : Reflux flow meter
DP : Differential pressure
P : Pressure
VP : Video probe
CF : Cross-correlation velocimeter
CPT_5 : Conductance probe with TC

Fig. A. 1 Instruments in primary loop A
(1) Pressure, temperature, fluid density and others

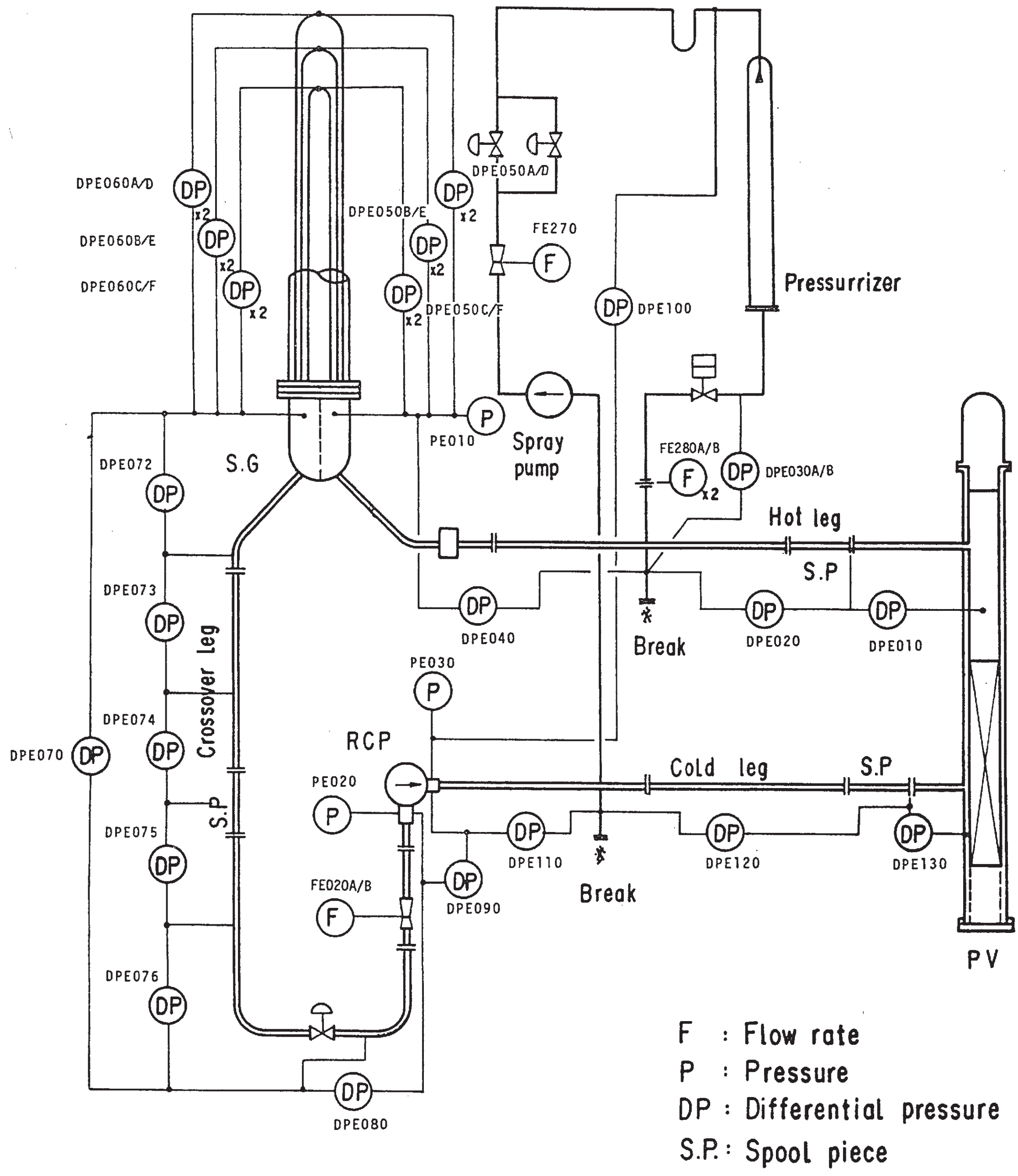
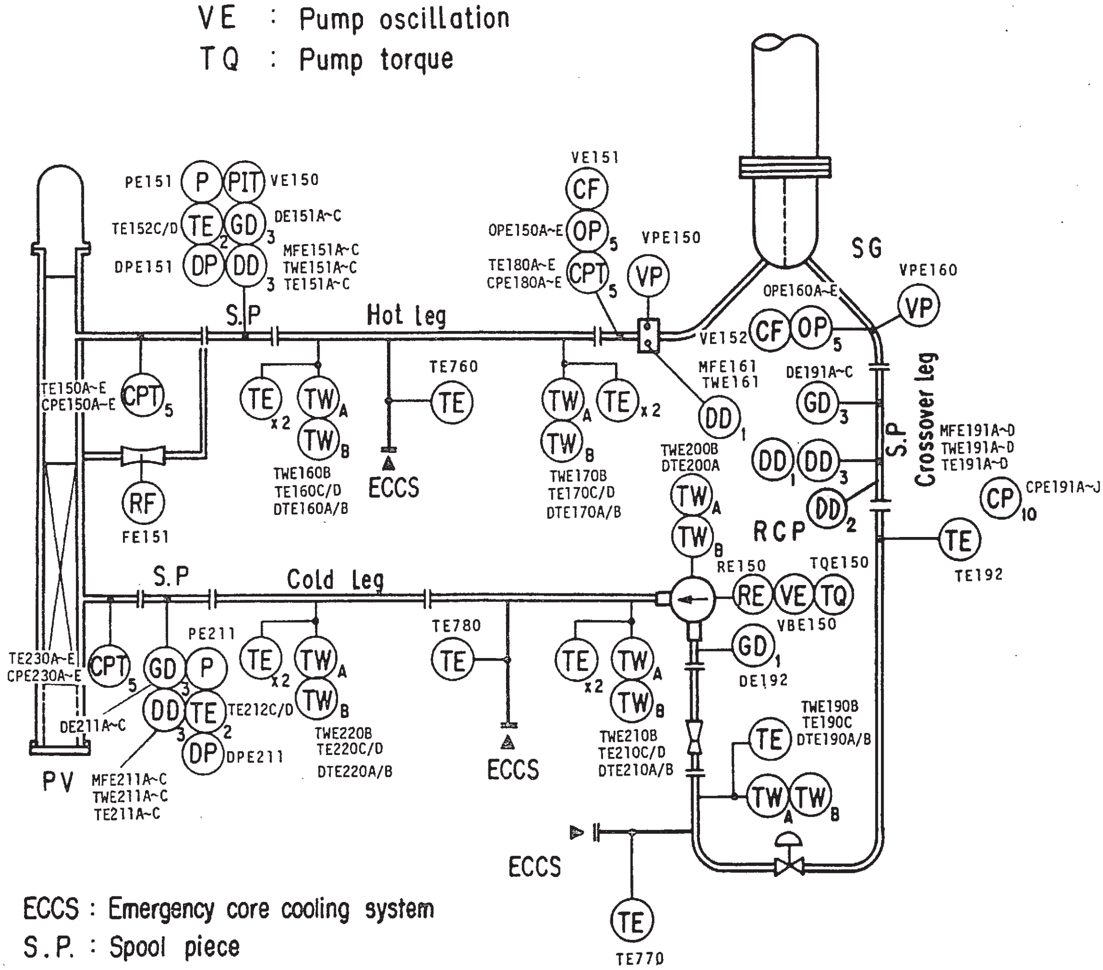


Fig. A. 1 Instruments in primary loop A
(2) Differential pressure and flow rate

VP : Video probe
GD_3 : 3 beams γ - densitometer
DD : Drag disk flow meter
PIT : Pitot - tube velocimeter
OP_5 : Optical liquid level detector
CP_{10} : Conductance probe
RF : Reflux flow meter
DP : Differential pressure
P : Pressure
CPT_5 : Conductance probe with TC
TE : Fluid temperature
TW : Outside wall temperature
TW : Inside wall temperature
RE : Rotation speed
VE : Pump oscillation
TQ : Pump torque



ECCS : Emergency core cooling system
S.P. : Spool piece

Fig. A.2 Instruments in primary loop B
(1) Pressure, temperature, fluid density and others

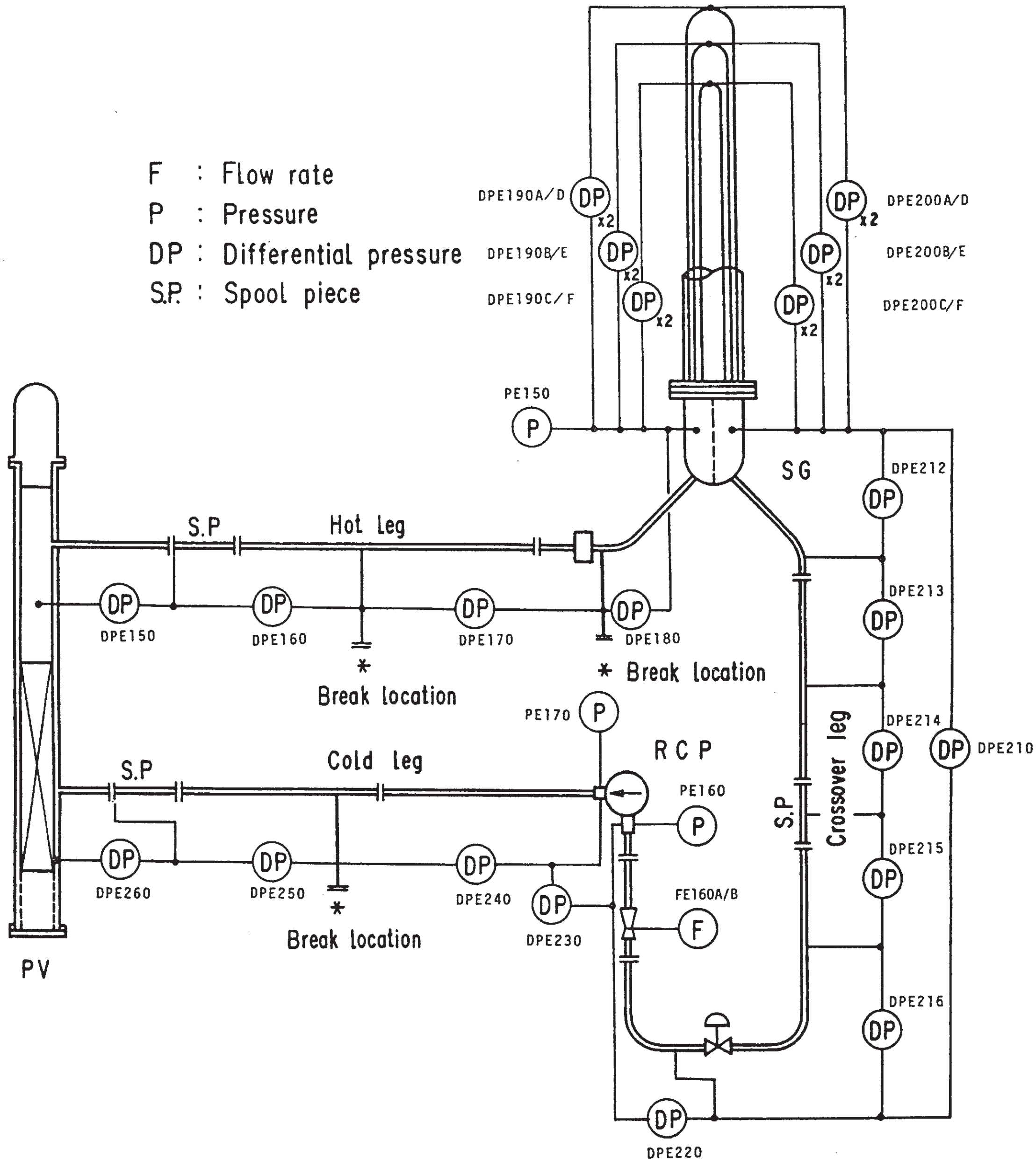


Fig. A. 2 Instruments in primary loop B
(2) Differential pressure and flow rate

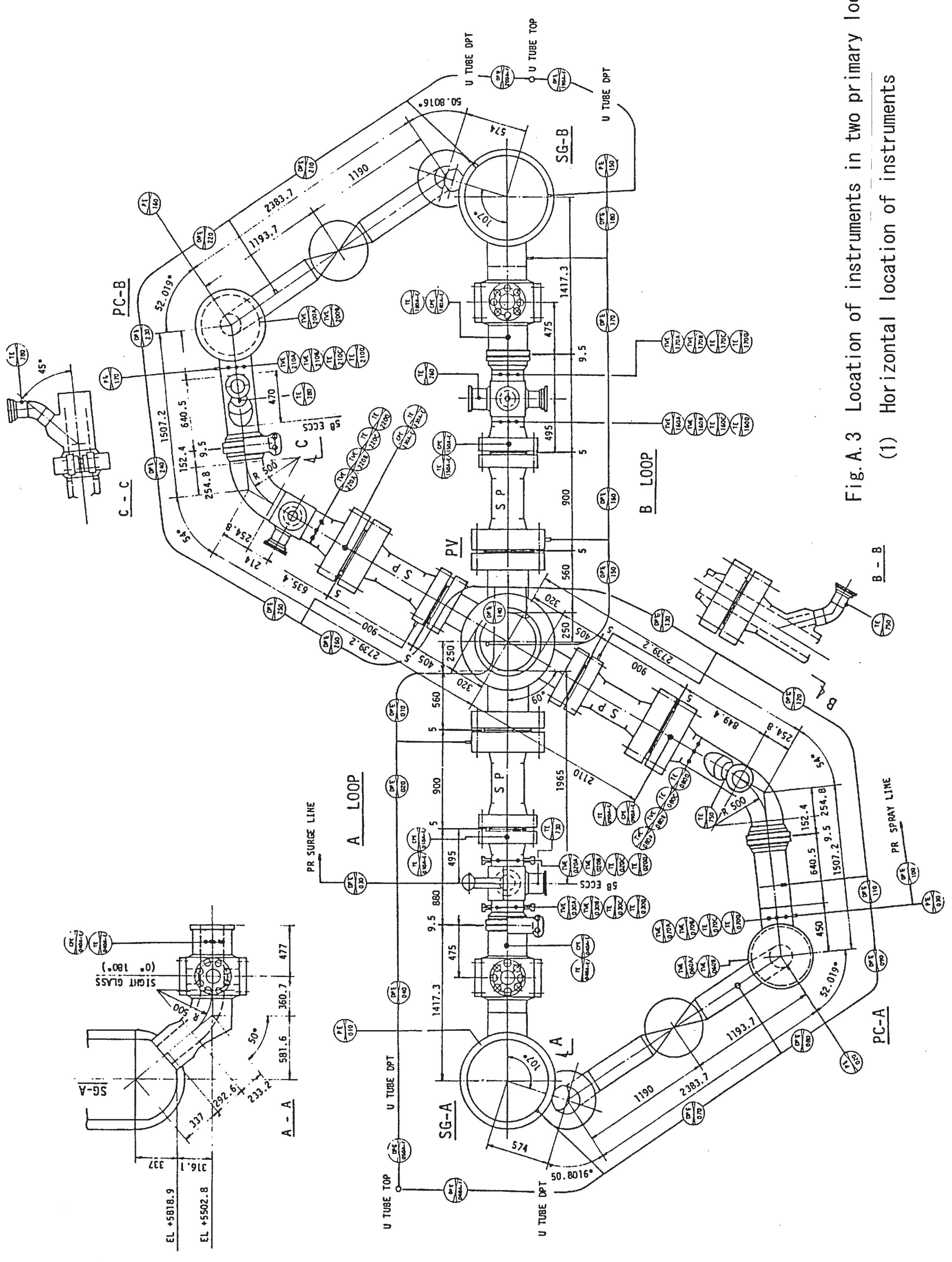


Fig. A.3 Location of instruments in two primary loops

(1) Horizontal location of instruments

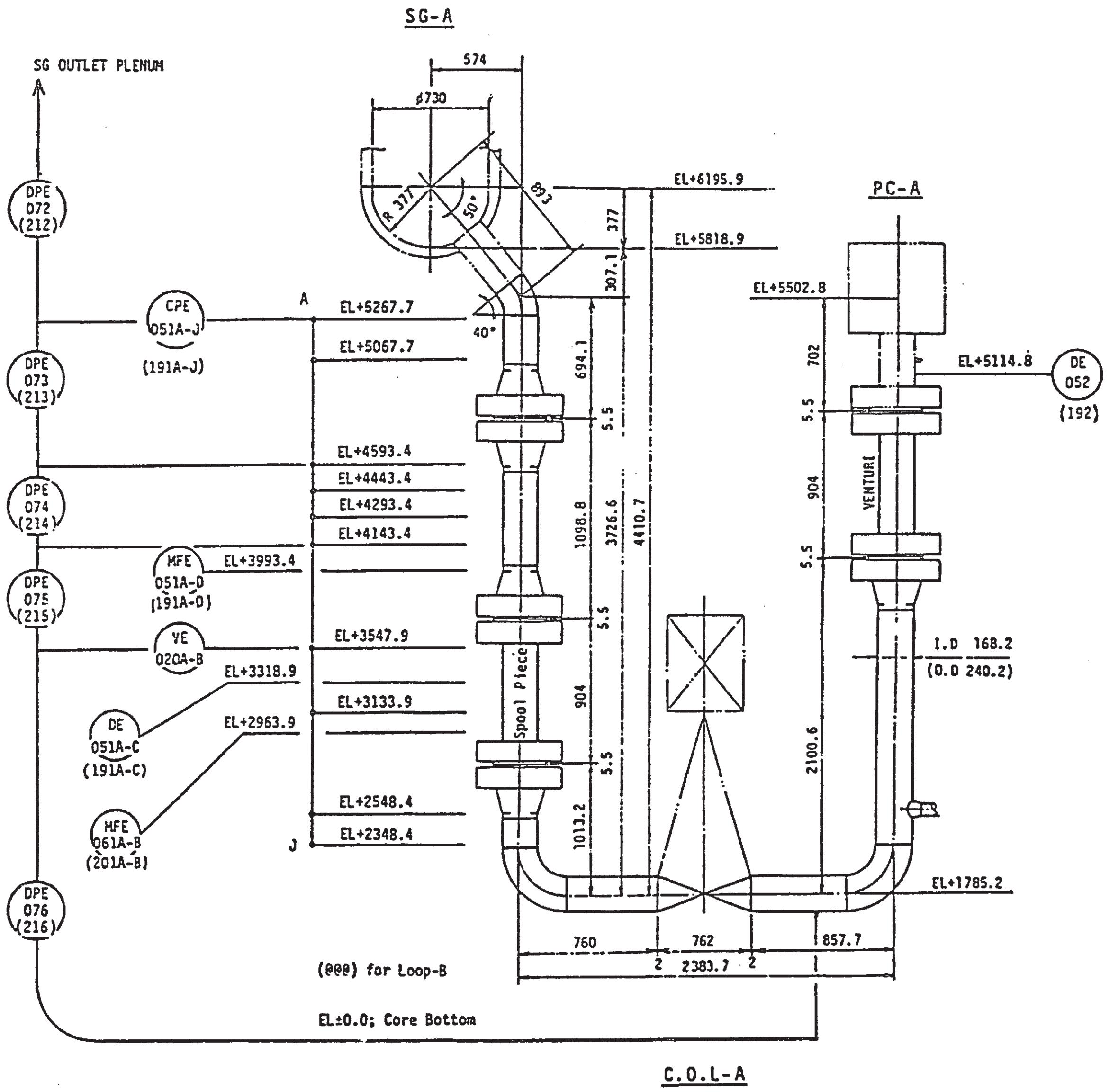


Fig. A. 3 Location of instruments in two primary loops
(2) Vertical location of loop-seal instruments

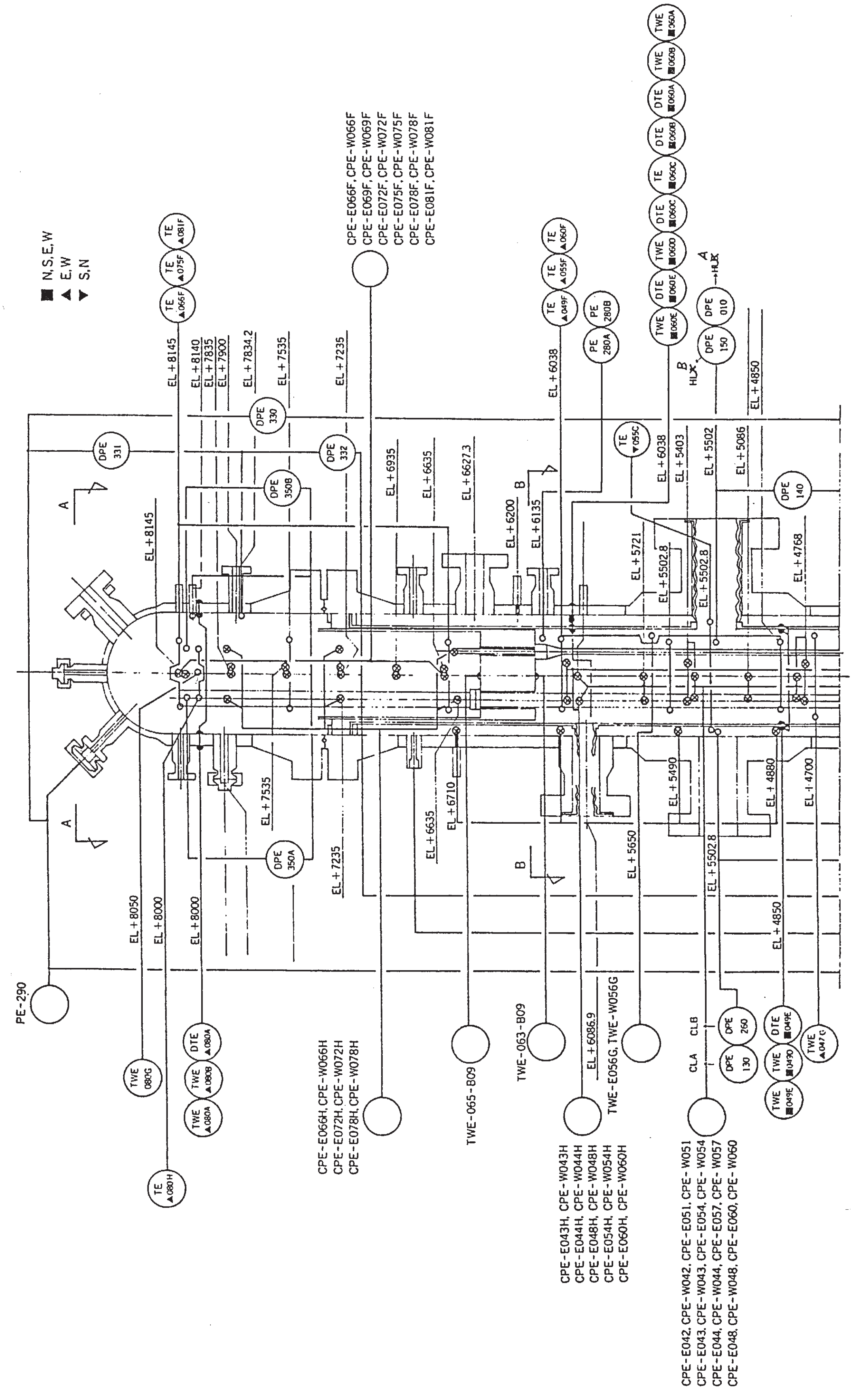


Fig.A.4 Instruments in pressure vessel (PV) except for core (1) Vertical location of upper PV instruments

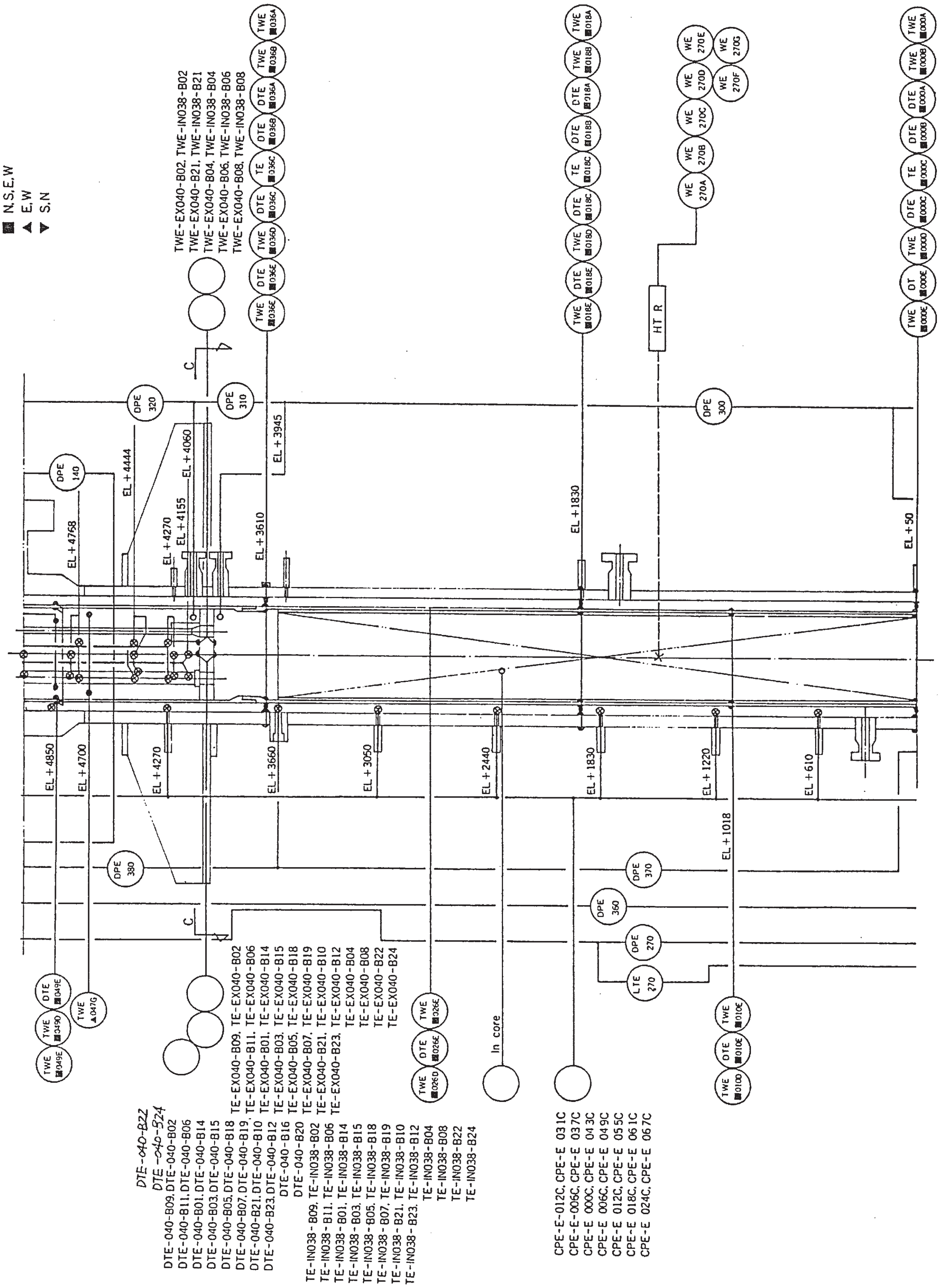


Fig. A.4 Instruments in pressure vessel (PV) except for core (2) Vertical location of middle PV instruments

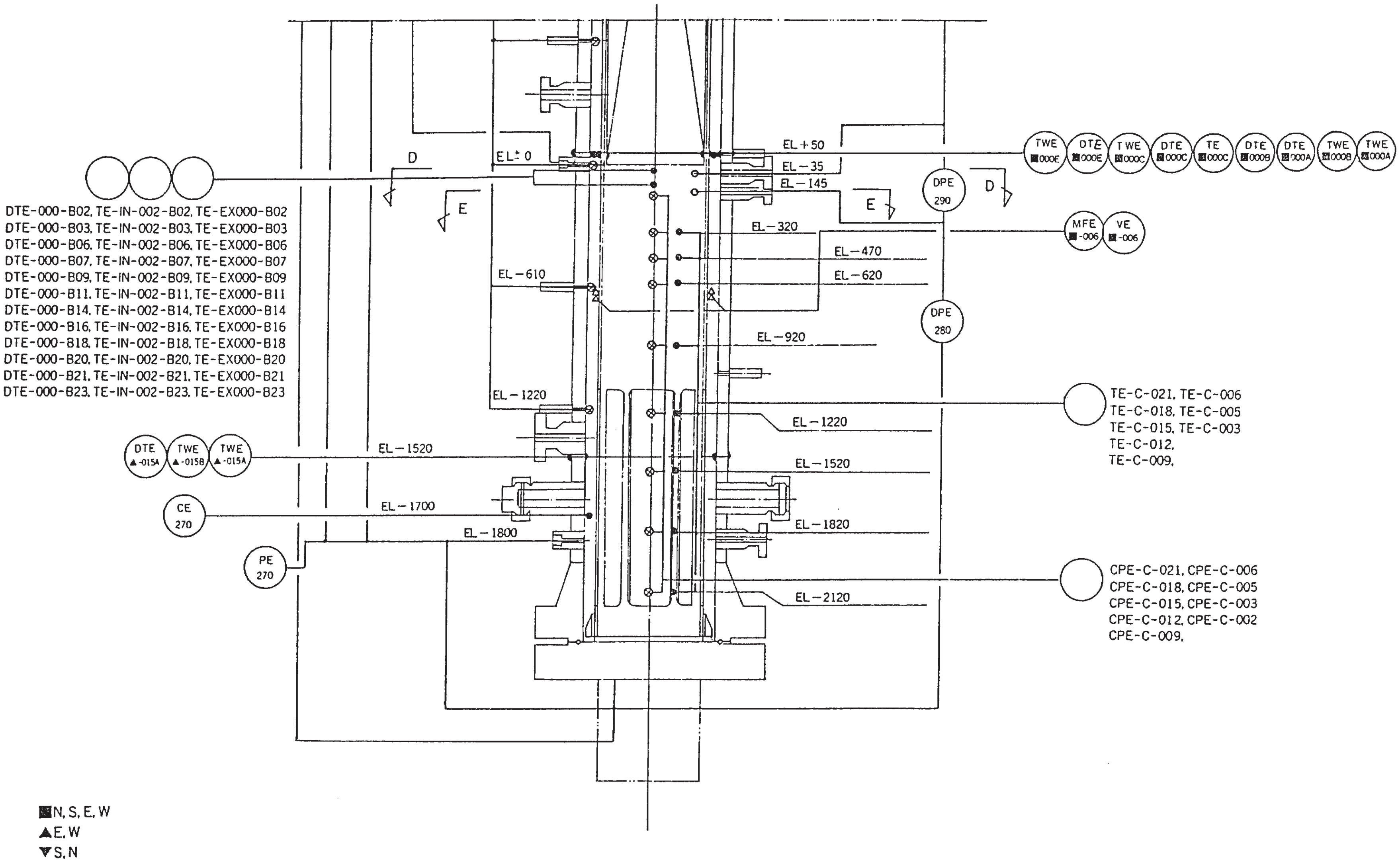


Fig. A.4 Instruments in pressure vessel (PV) except for core

(3) Vertical location of lower PV instruments

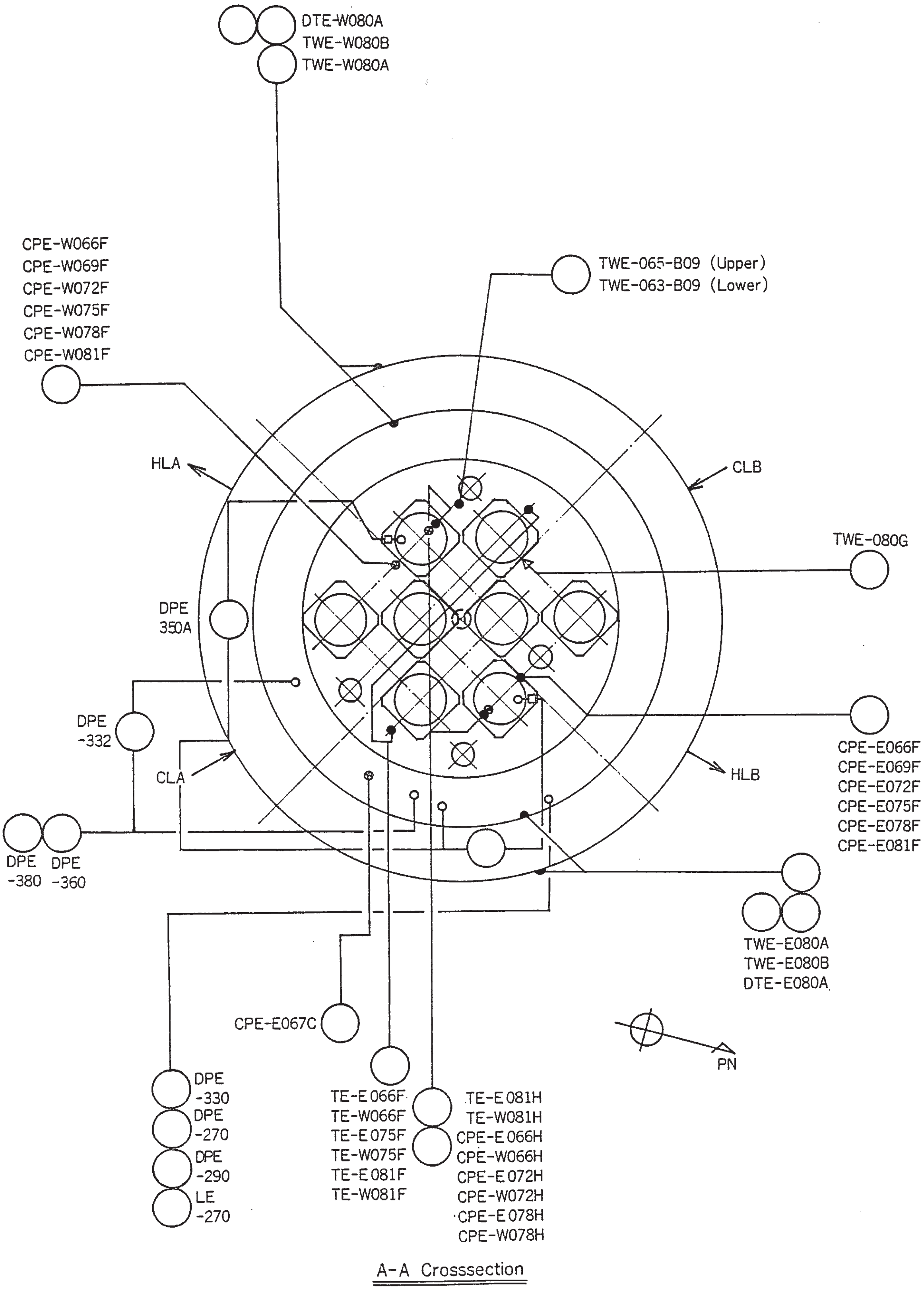
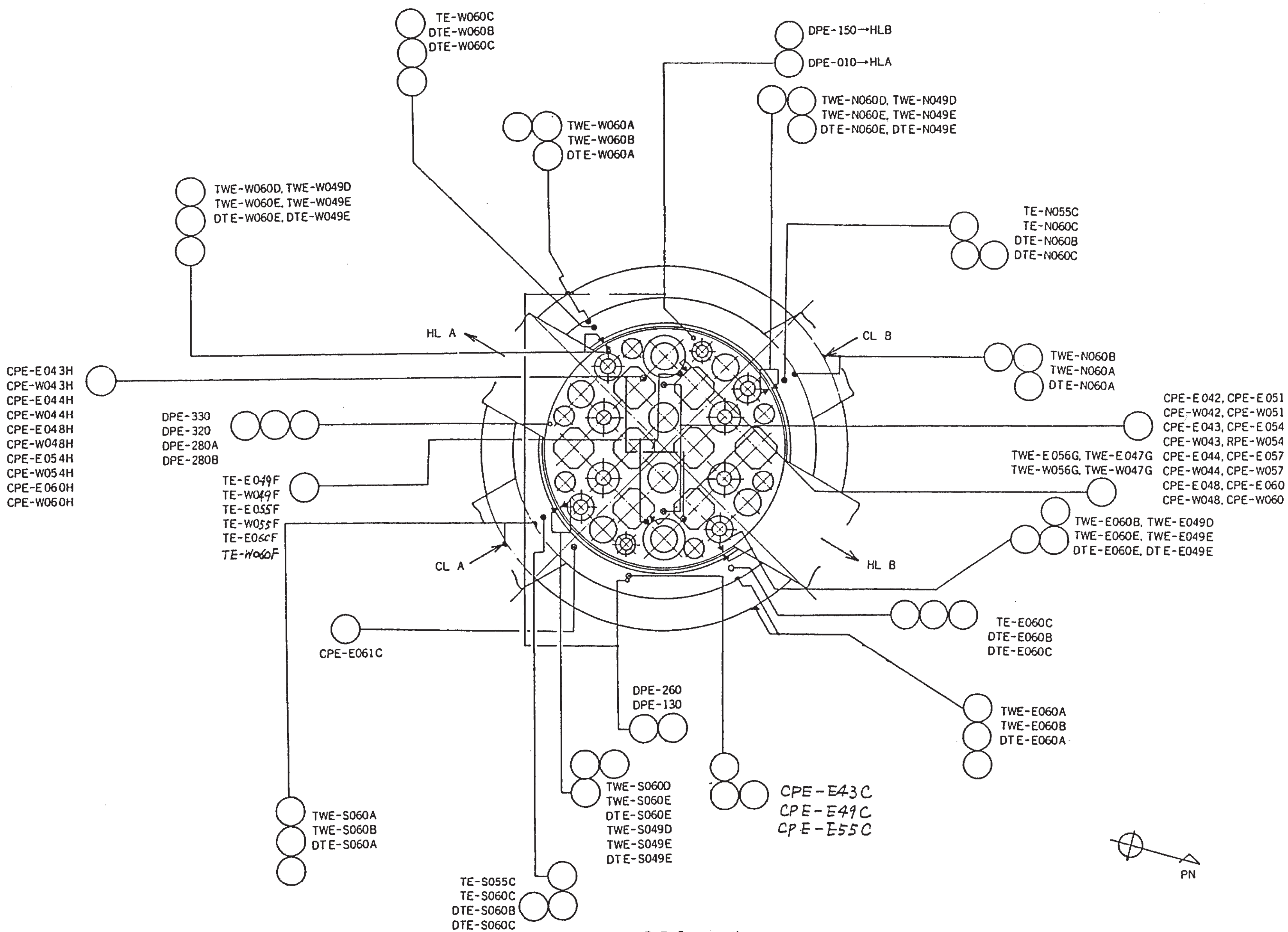


Fig. A. 5 Instruments in pressure vessel (PV) in plane view
(1) Horizontal location of upper head instruments



B-B Crosssection

Fig. A.5 Instruments in pressure vessel (PV) in plane view (2) Horizontal location of upper plenum instruments

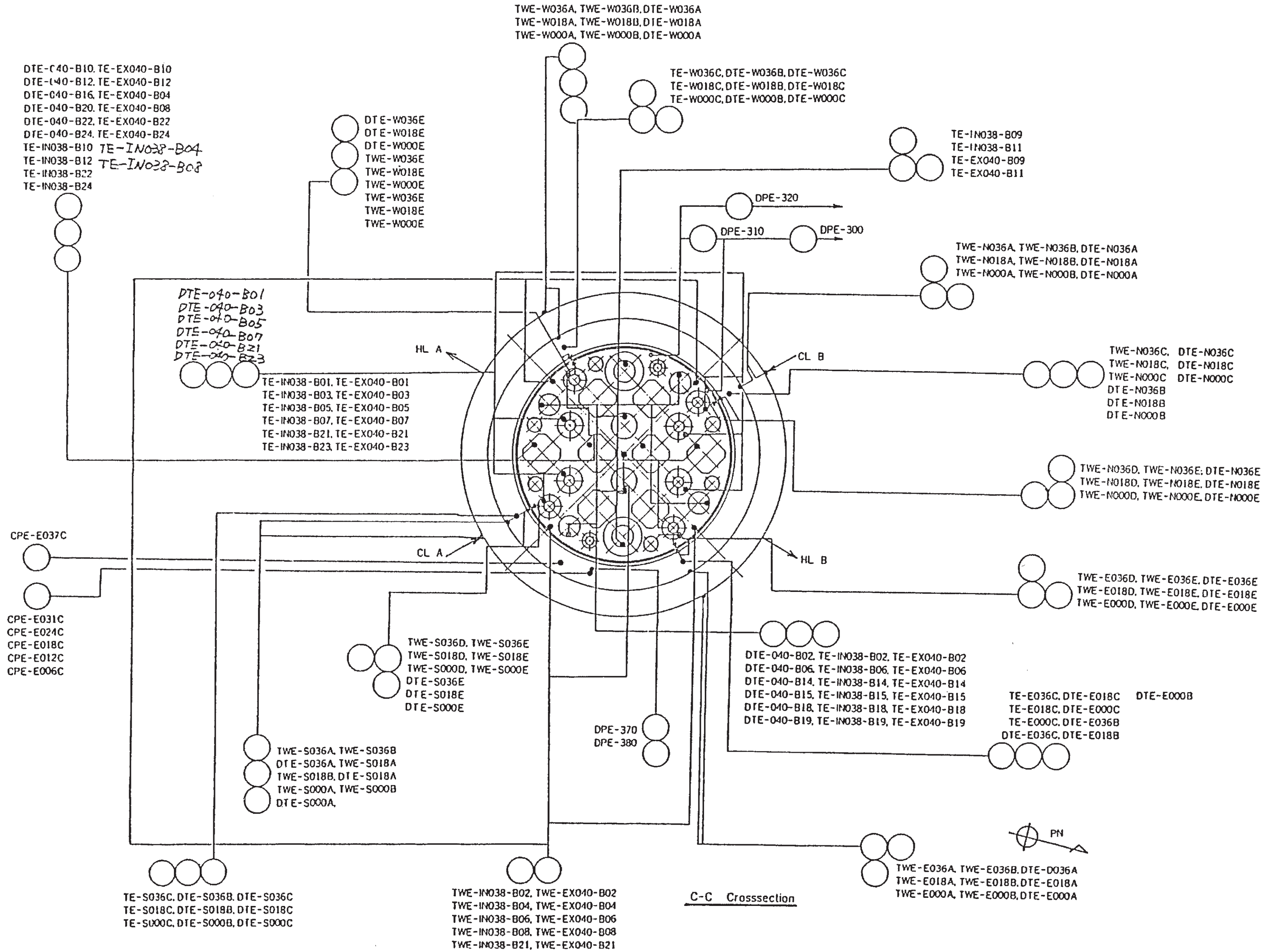


Fig. A.5 Instruments in pressure vessel (PV) in plane view (3) Horizontal location of core exit part instruments

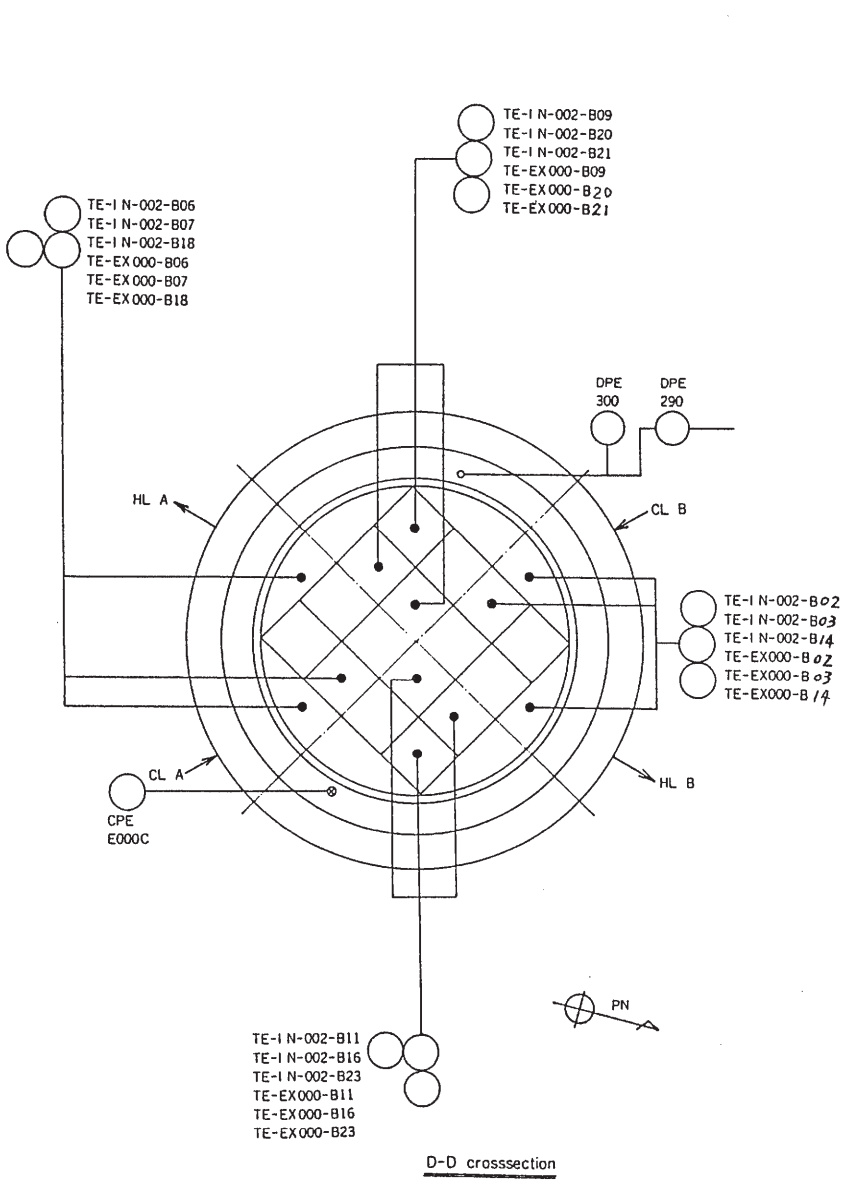


Fig. A.5 Instruments in pressure vessel (PV) in plane view
(4) Horizontal location of core inlet part instruments

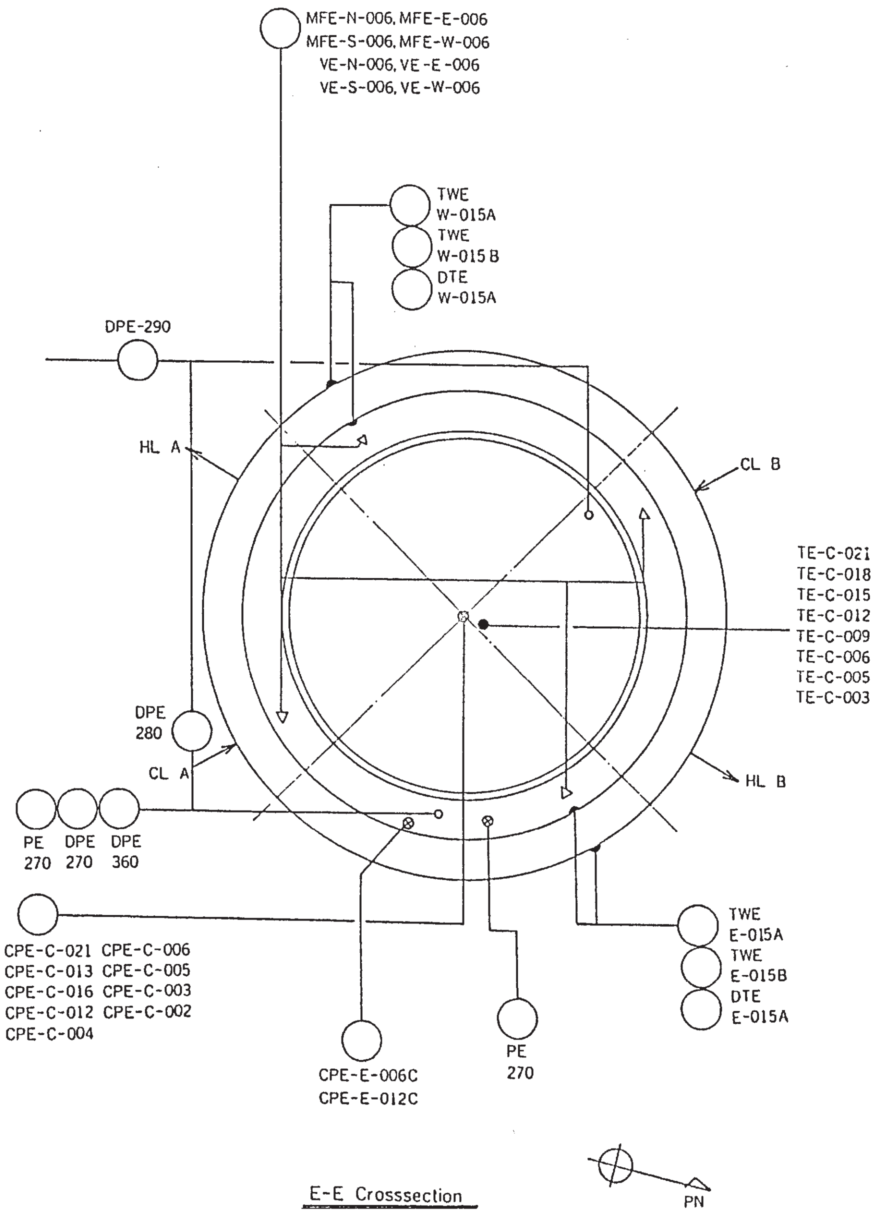


Fig. A.5 Instruments in pressure vessel (PV) in plane view
(5) Horizontal location of lower plenum instruments

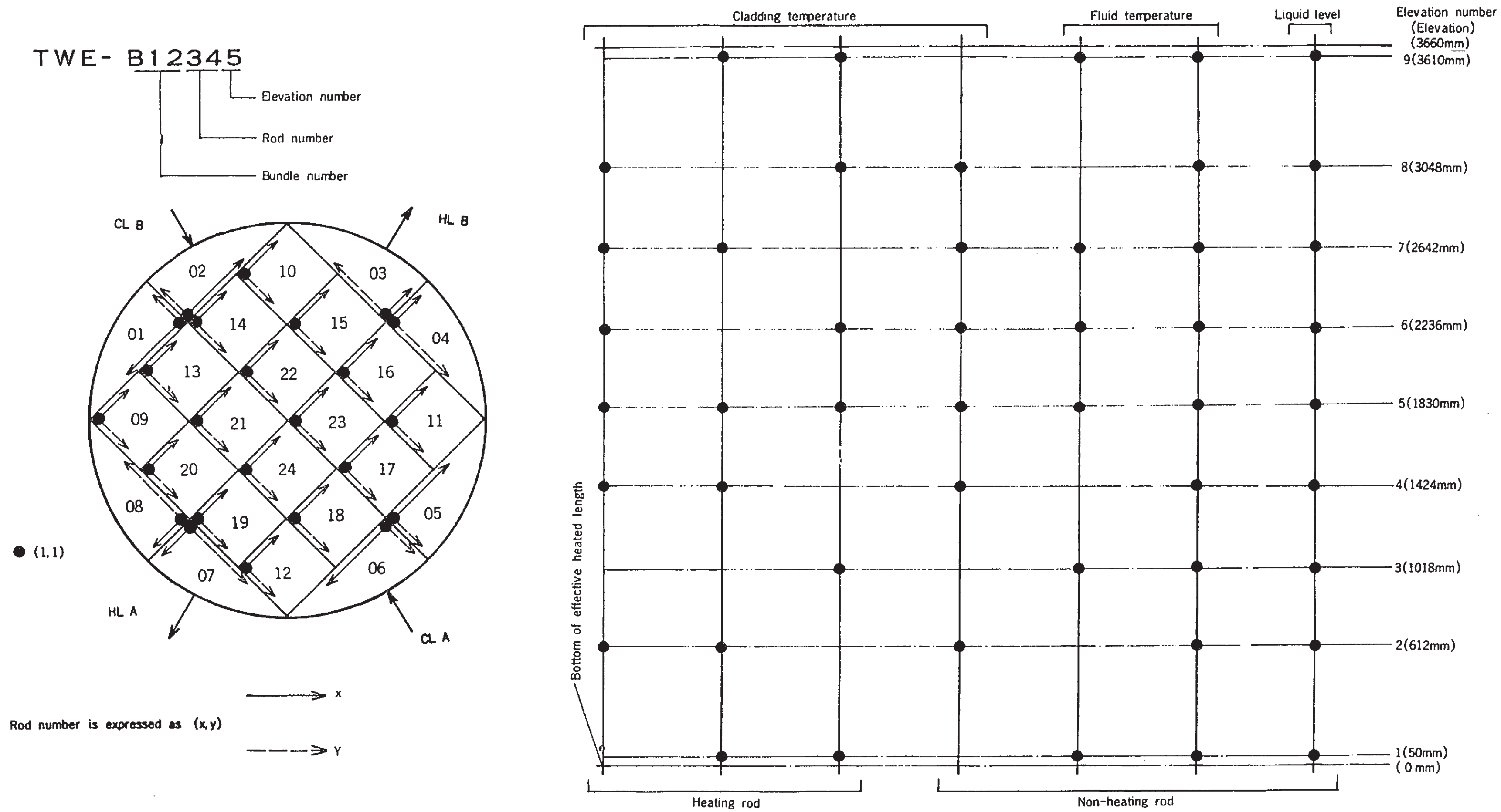


Fig. A. 6 Temperature measurement location in core heater rod assembly

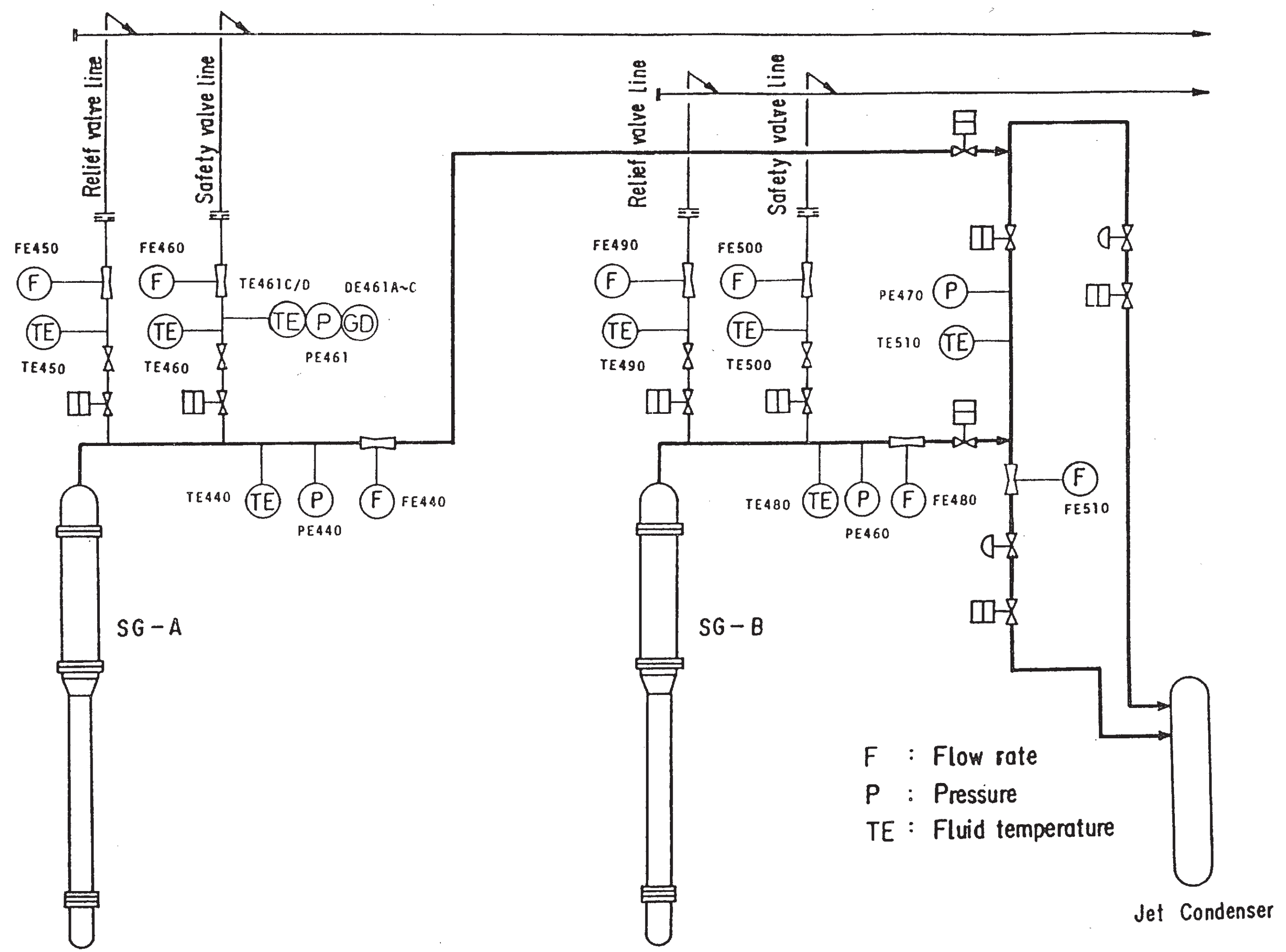


Fig. A.7 Instruments in steam generator (SG) steam lines

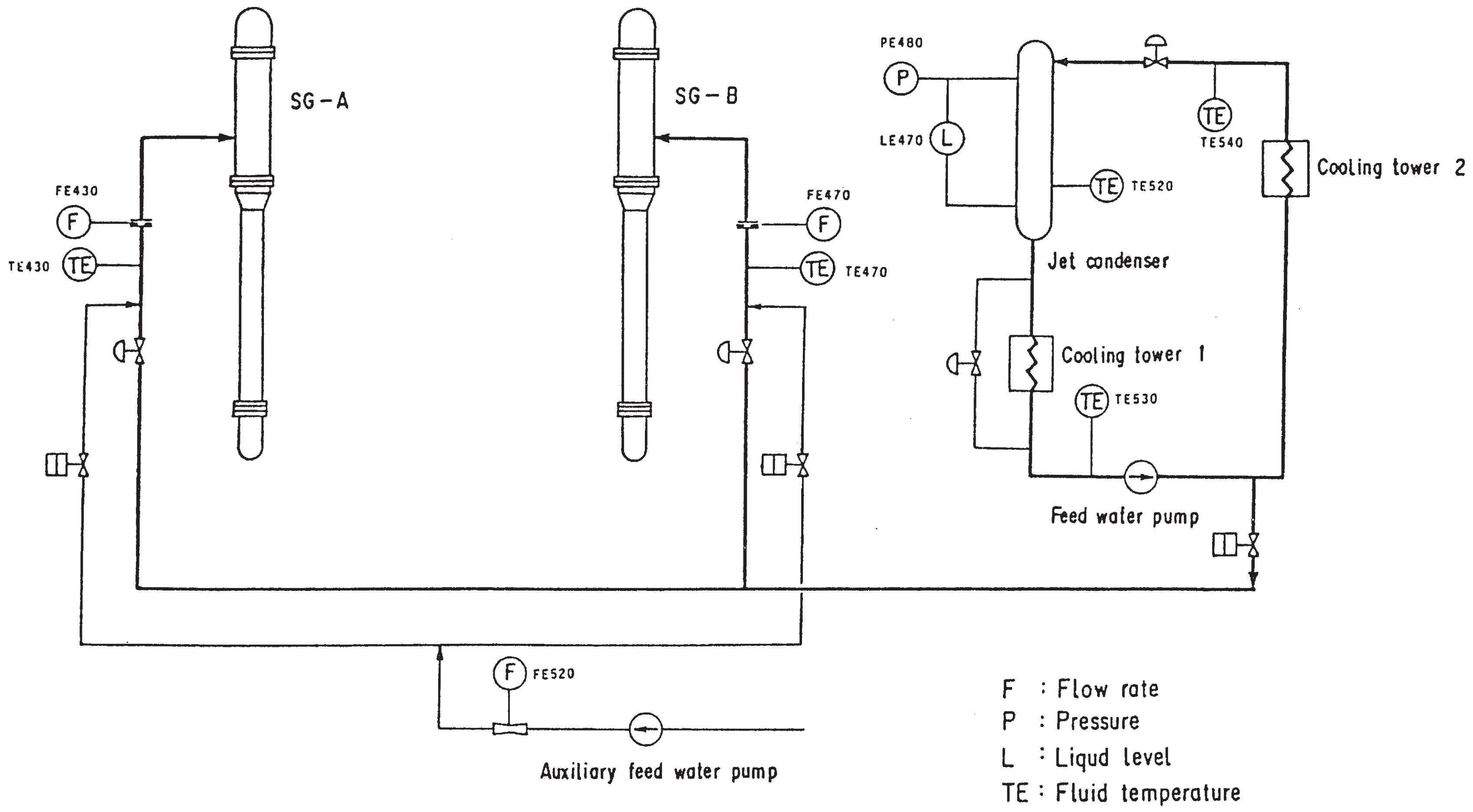


Fig. A. 8 Instruments in SG feedwater and condenser system

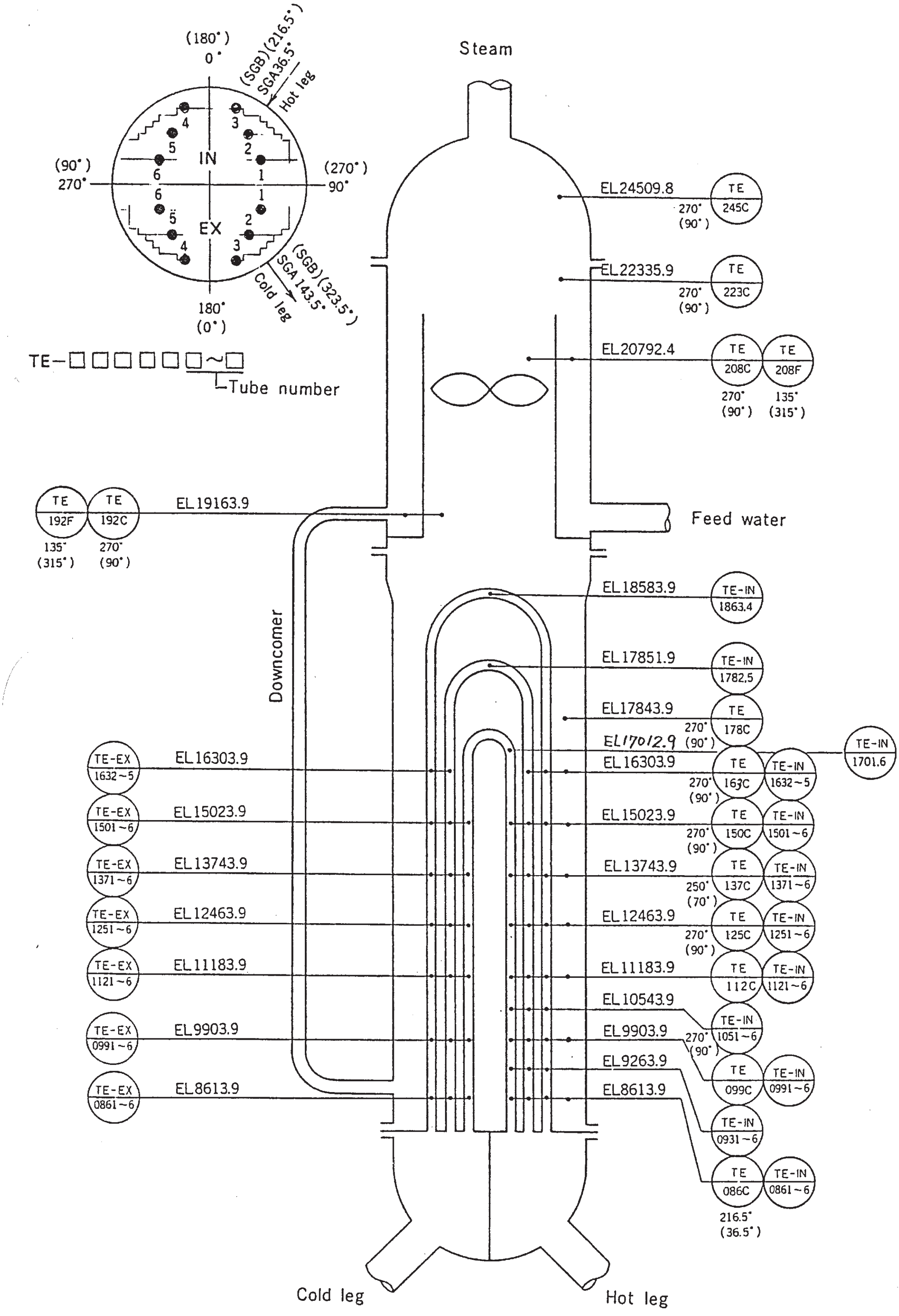


Fig. A. 9 Location of fluid temperature measurements in SG-A/B

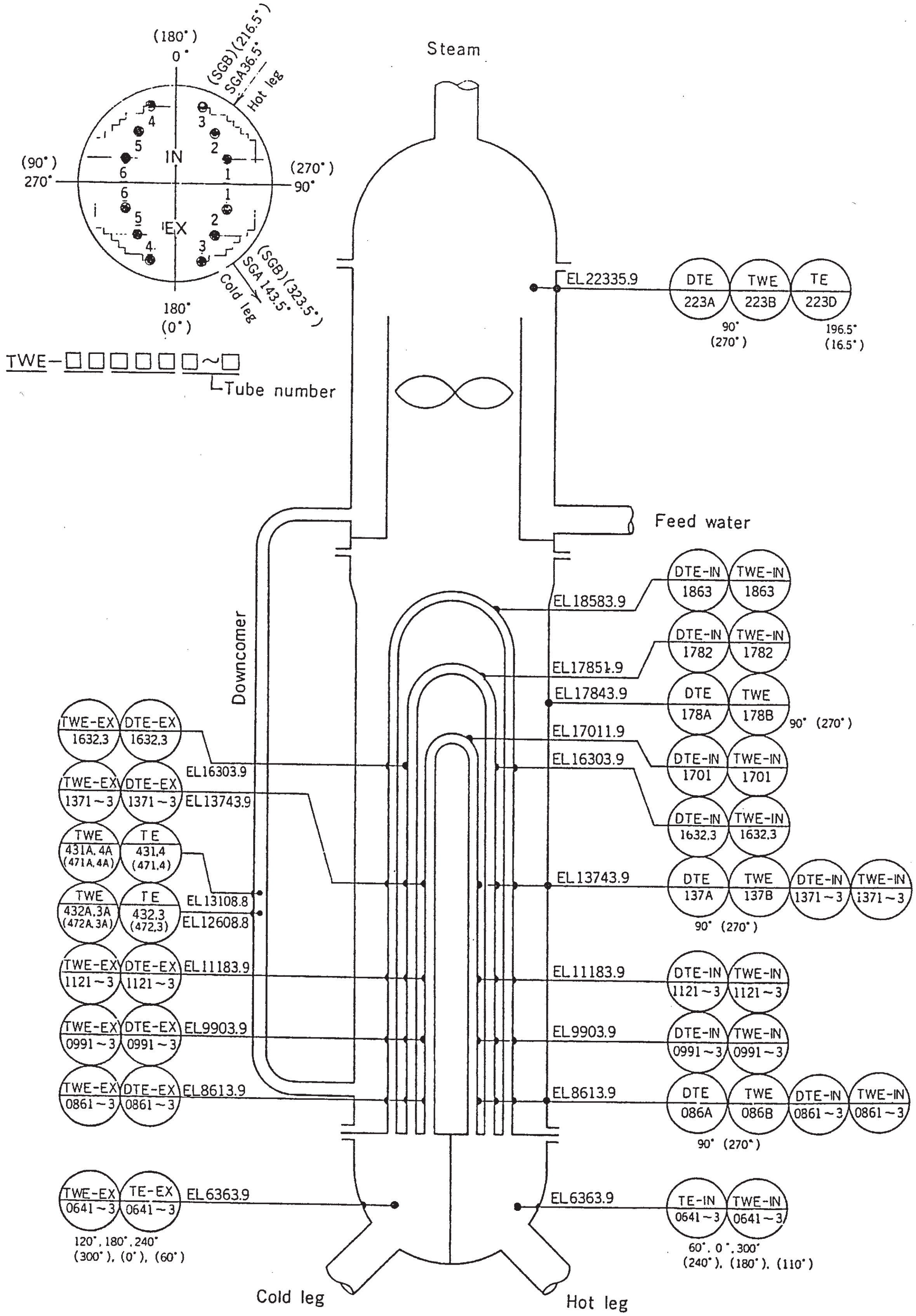


Fig. A. 10 Location of wall temperature and temperature difference in SG-A/B

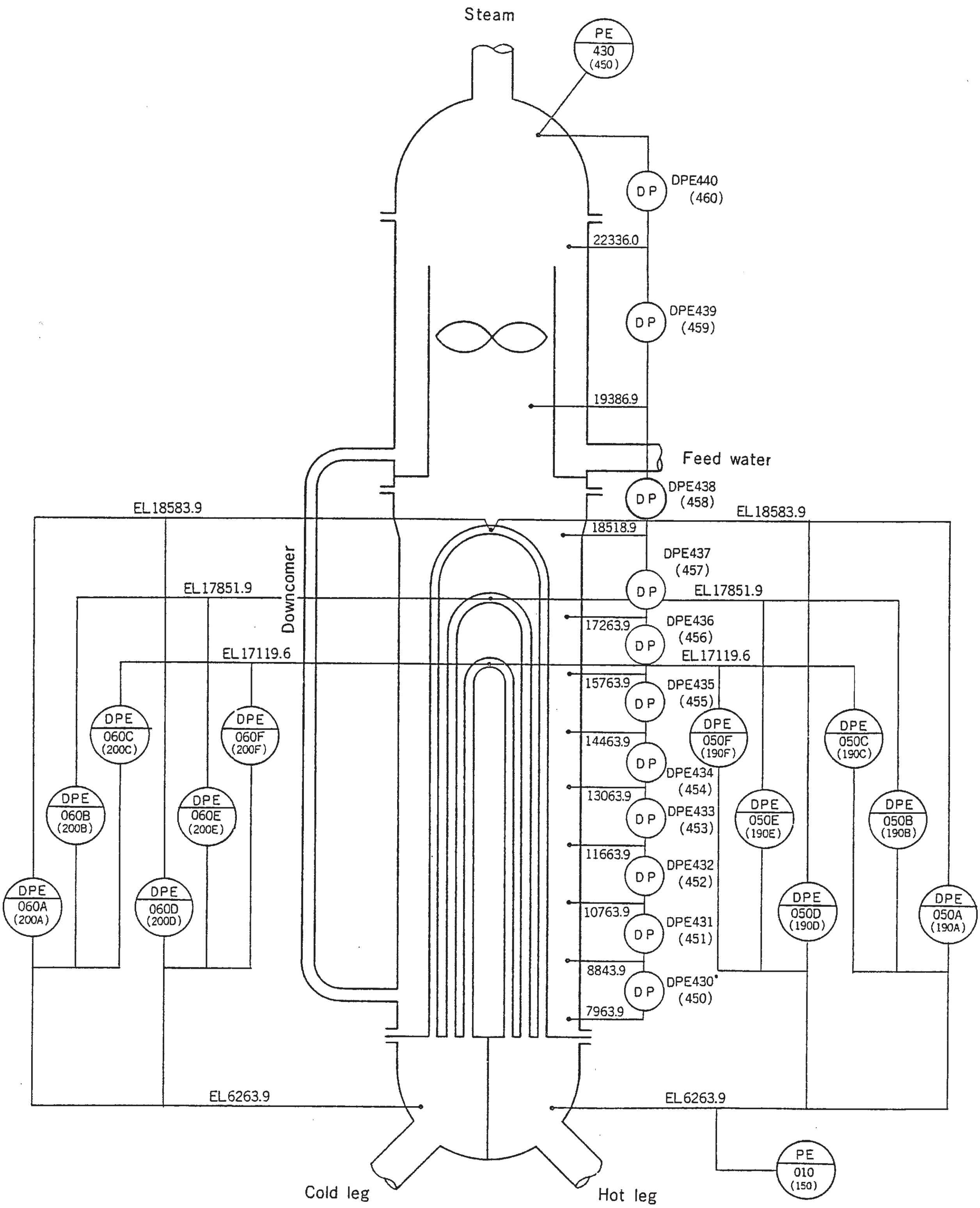


Fig. A. 11 Location of pressure and DP measurements in SG-A/B

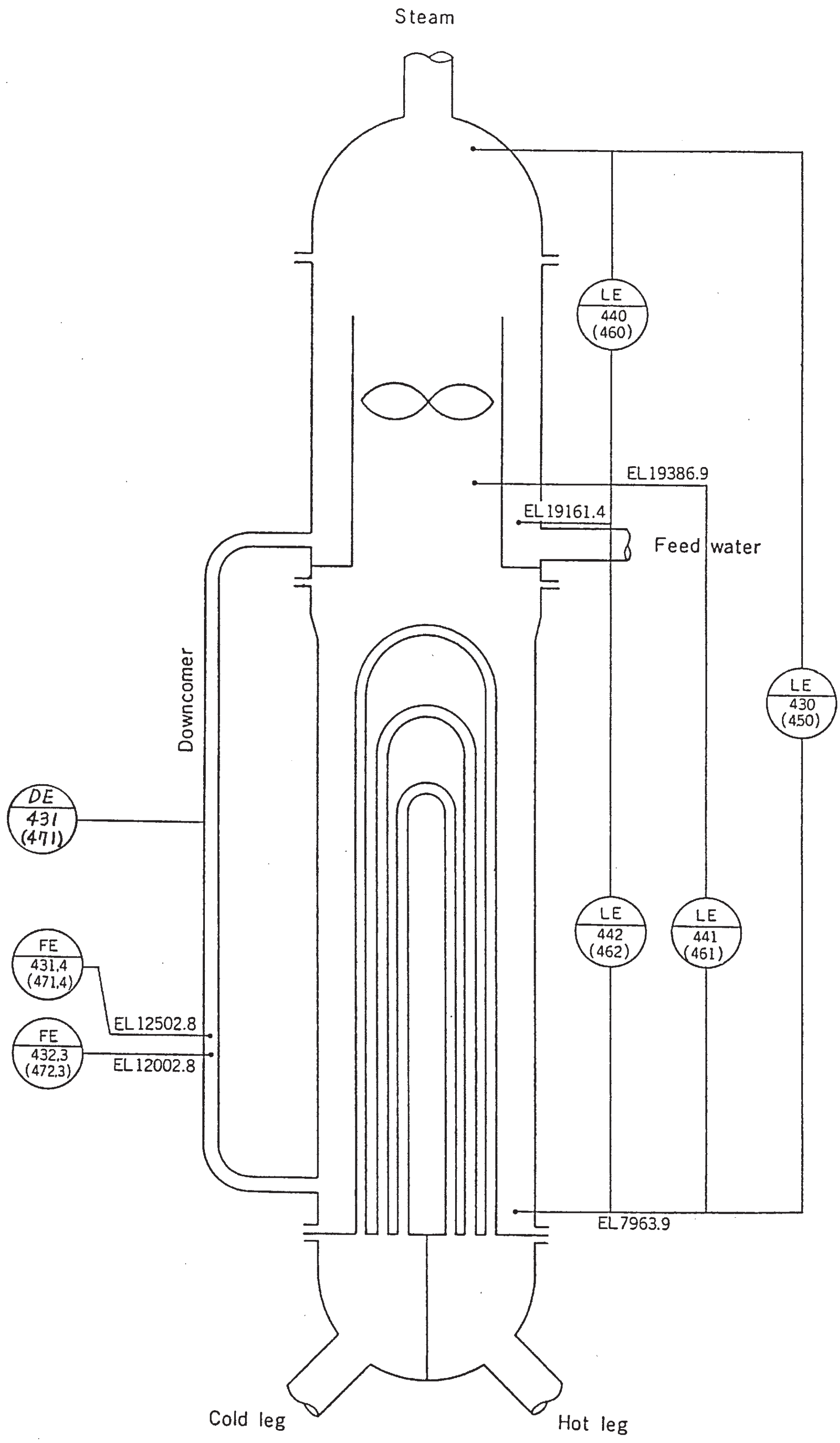


Fig. A. 12 Location of liquid levels and flow rates in SG-A/B

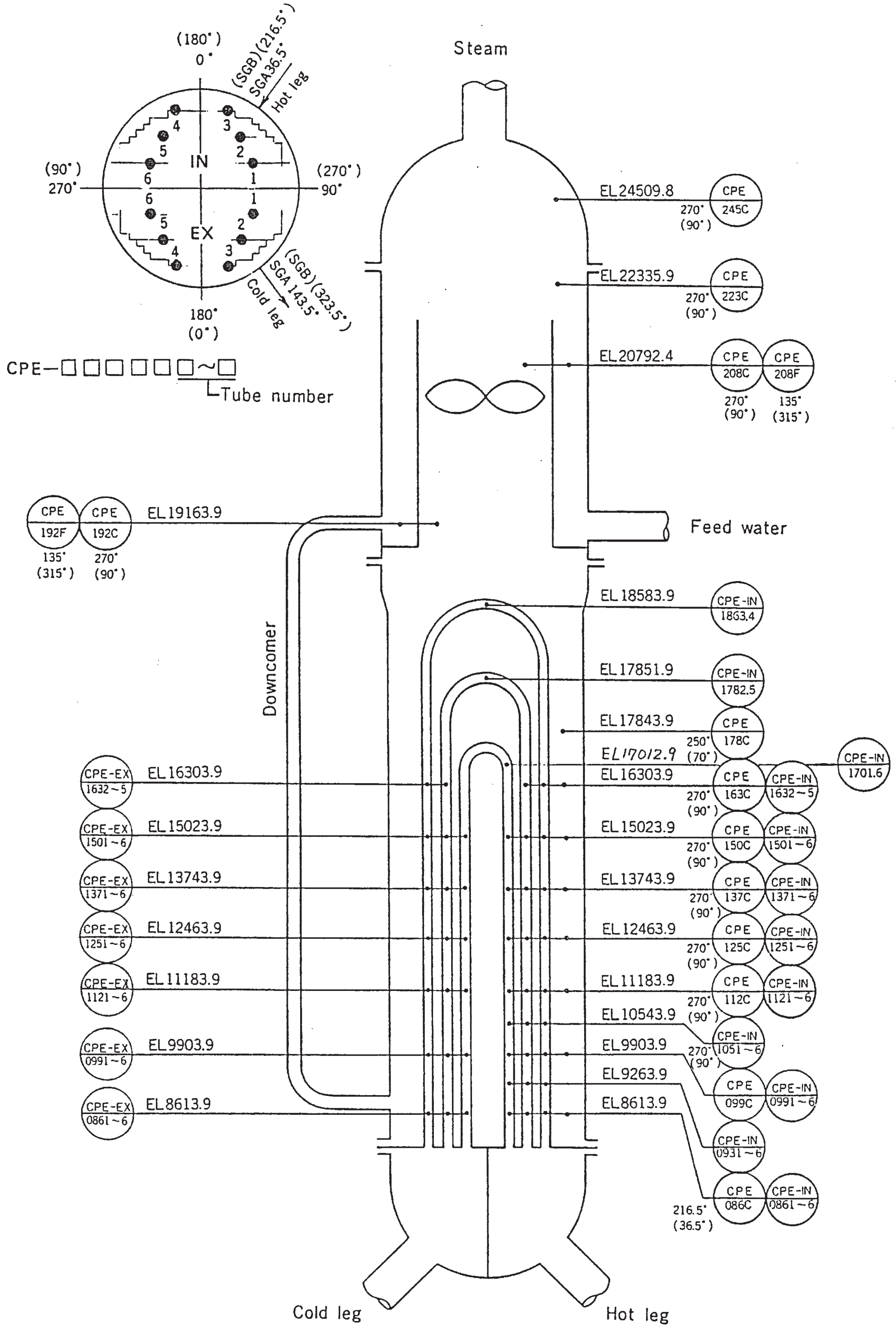


Fig. A. 13 Location of conduction probe measurements in SG-A/B

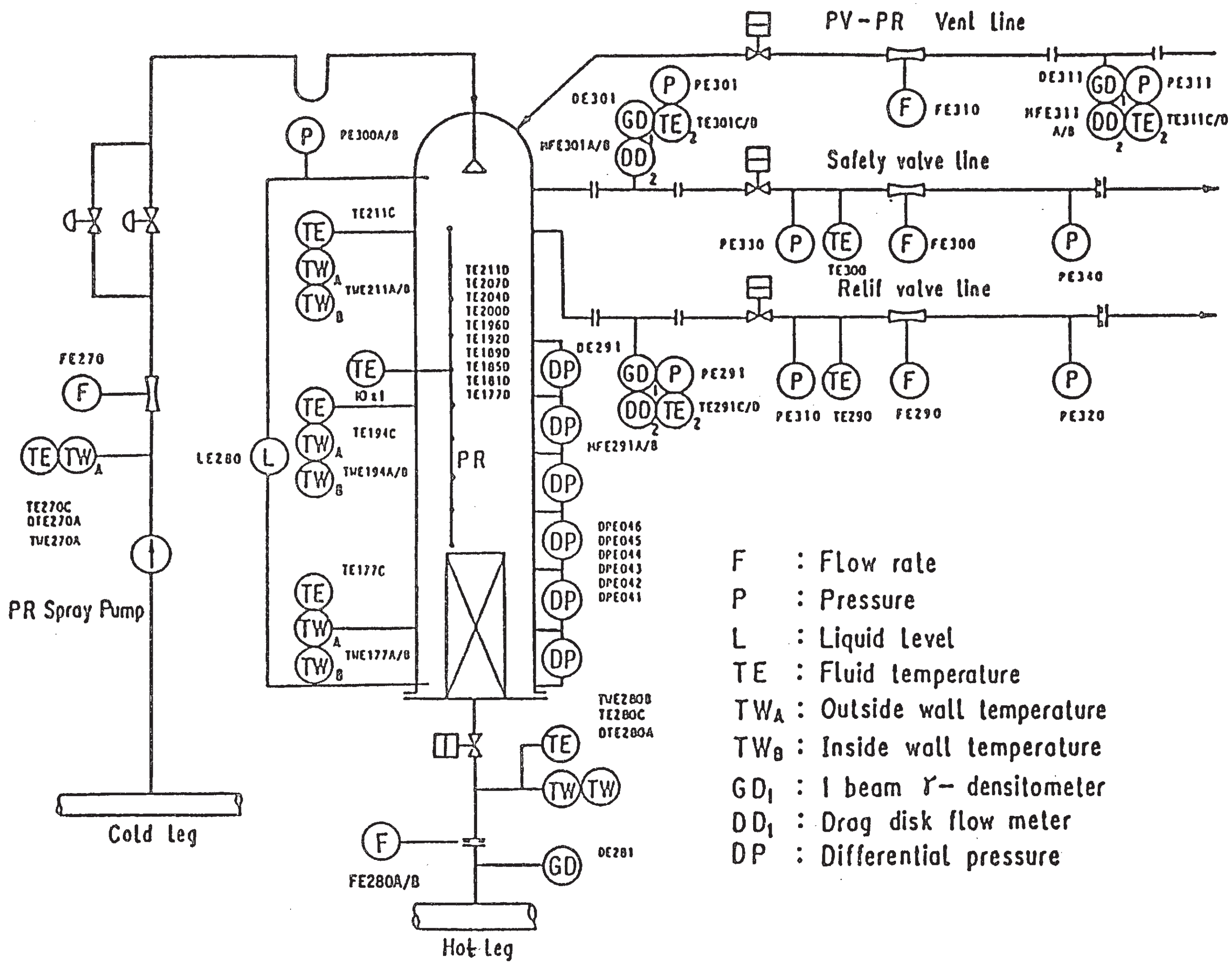


Fig. A. 14 Instruments for pressurizer and associated lines

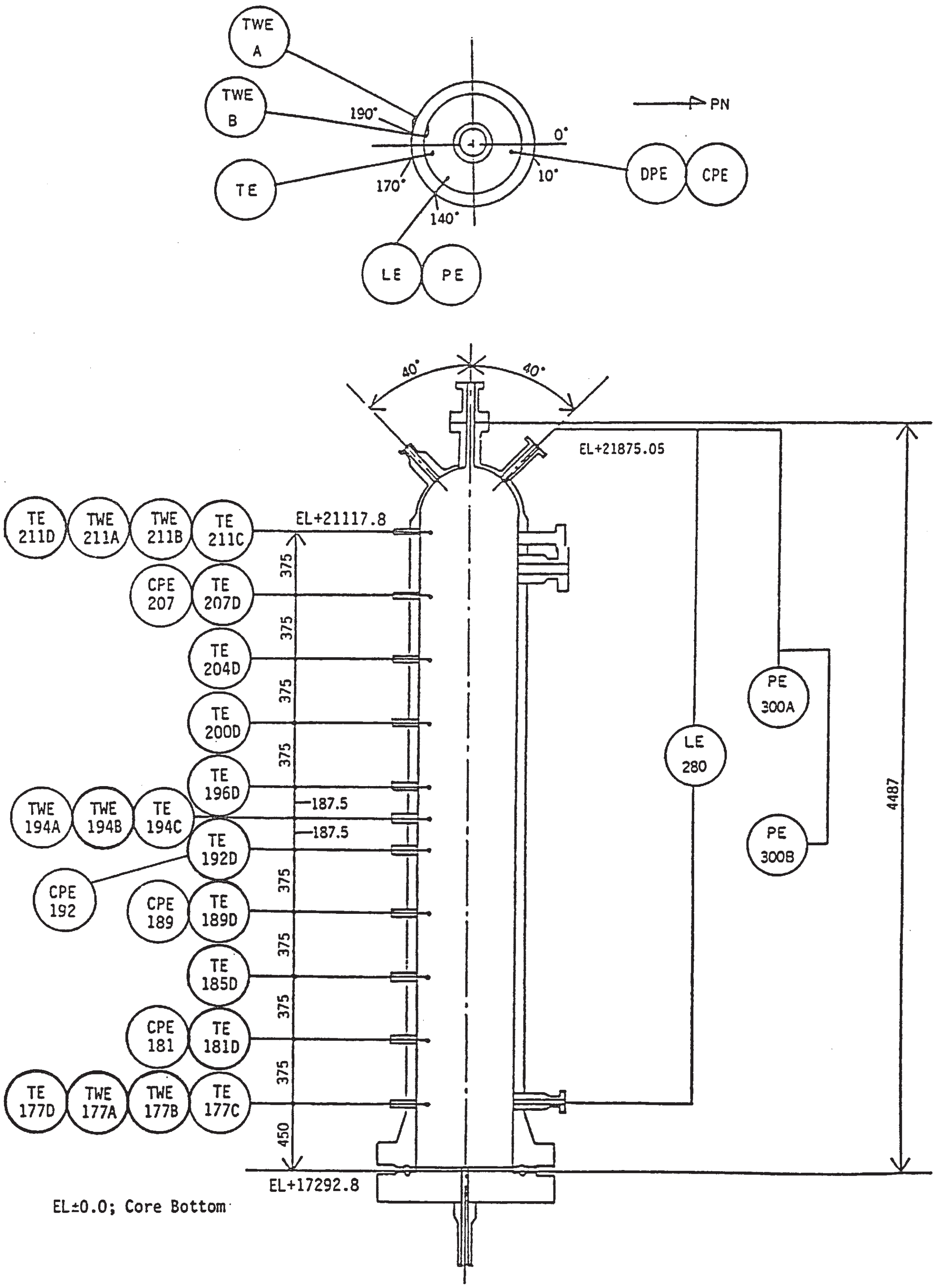


Fig. A. 15 Location of selected instruments for pressurizer

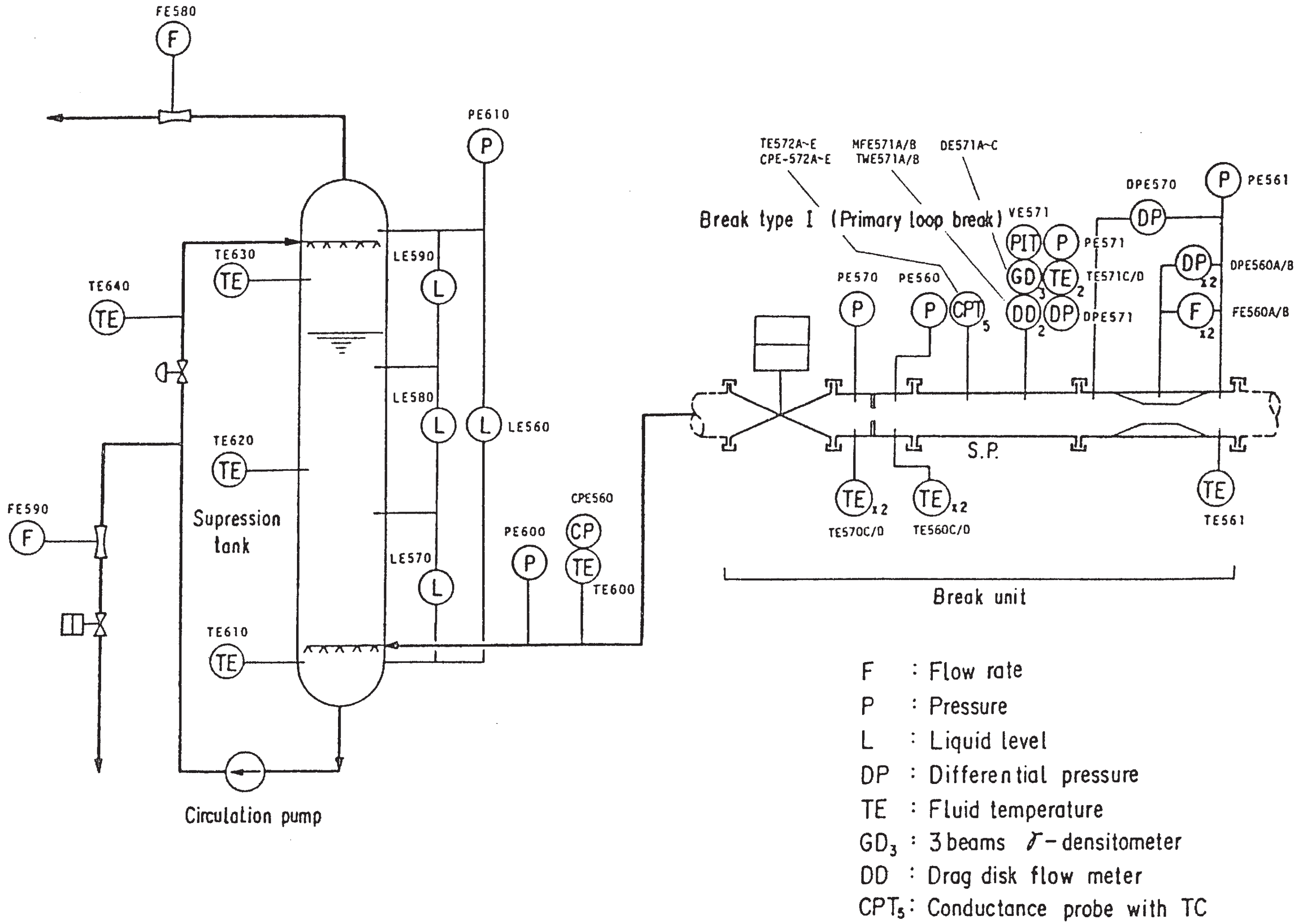
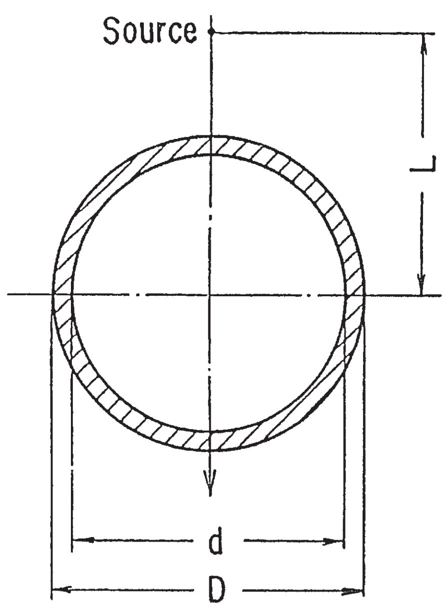
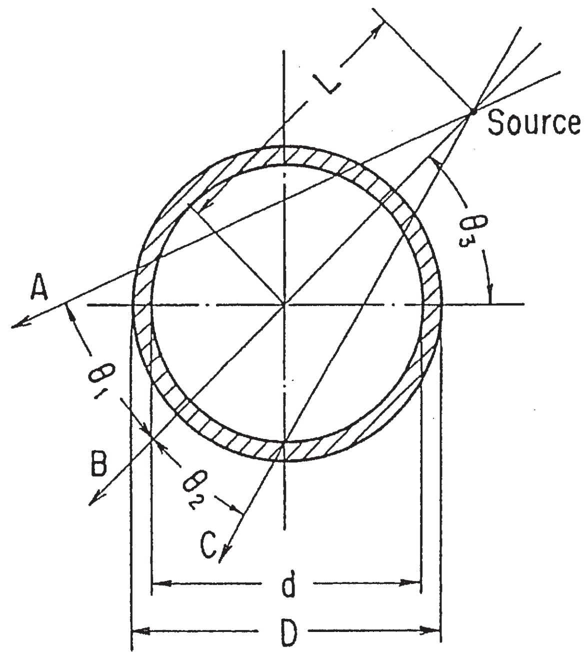


Fig. A. 16 Typical instruments for break unit and break flow storage tank





Single-beam densitometer

Function ID No.	Tag Name	D (mm)	d (mm)	L (mm)	Location Pipe Name/Direction
DE19	DE052	240.2	168.2	305.0	Loopseal A / Vertical
DE20	DE192	240.2	168.2	305.0	Loopseal B / Vertical
DE21	DE281	89.1	66.9	155.0	RZR Surge L. / Horiz.
DE40	DE291	89.1	66.9	-	SGB Feegwater line / Horiz.
DE41	DE321	457.2	372.0	-	PZR Body / Vertical

Three-beam densitometer

Function ID No.	Tag Name	D (mm)	d (mm)	L (mm)	θ1 (Deg.)	θ2 (Deg.)	θ3 (Deg.)	Location Pipe Name/Direction
DE1~3	DE011A~C	295.0	207.0	212.9	22.1	14.35	45.0	HLA / Horiz.
DE7~9	DE071A~C	295.0	207.0	212.9	22.1	14.35	45.0	CLA / Horiz.
DE10~12	DE151A~C	295.0	207.0	212.9	22.1	14.35	45.0	HLB / Horiz.
DE16~18	DE211A~C	295.0	207.0	212.9	22.1	14.35	45.0	CLB / Horiz.
DE4~6	DE051A~C	240.2	168.2	240.0	15..9	11.2		LSA / Vertical
DE13~15	DE191A~C	240.2	168.2	240.0	15..10	12.2		LSB / Vertical
DE27~29	DE451A~C	216.3	190.9	240.0	18.1	12.3	45.0	SGA / Horiz.
DE30~32	*DE571A~C	114.3	87.3	165.5	12.0	8.08	50.0	Break Unit
DE33~35	*DE591A~C	114.3	87.3	130.0	14.0	14.0	45.0	RSV1~3 / Horiz.

Note: DE571A~C was equipped ADS1~3 line and
DE591A~C was equipped breaj unit from Exp.AP-SG-01

Fig. A. 17 Gamma-densitometer setup for single-beam and three-beam types

国際単位系（SI）

表１．SI 基本単位

基本量	SI 基本単位	
	名称	記号
長さ	メートル	m
質量	キログラム	kg
時間	秒	s
電流	アンペア	A
熱力学温度	ケルビン	K
物質量	モル	mol
光度	カンデラ	cd

表２．基本単位を用いて表されるSI組立単位の例

組立量	SI 基本単位	
	名称	記号
面積	平方メートル	m^2
体積	立法メートル	m^3
速さ，速度	メートル毎秒	m/s
加速度	メートル毎秒毎秒	m/s^2
波数	毎メートル	m-1
密度（質量密度）	キログラム毎立法メートル	kg/m^3
質量体積（比体積）	立法メートル毎キログラム	m^3/kg
電流密度	アンペア毎平方メートル	A/m^2
磁界の強さ	アンペア毎メートル	A/m
（物質量の）濃度	モル毎立方メートル	mol/m^3
輝度	カンデラ毎平方メートル	cd/m^2
屈折率	（数の）1	1

表５．SI 接頭語

乗数	接頭語	記号	乗数	接頭語	記号
10^{24}	ヨタ	Y	10^{-1}	デシ	d
10^{21}	ゼタ	Z	10^{-2}	センチ	c
10^{18}	エクサ	E	10^{-3}	ミリ	m
10^{15}	ペタ	P	10^{-6}	マイクロ	μ
10^{12}	テラ	T	10^{-9}	ナノ	n
10^{9}	ギガ	G	10^{-12}	ピコ	p
10^{6}	メガ	M	10^{-15}	フェムト	f
10^{3}	キロ	k	10^{-18}	アト	a
10^{2}	ヘクト	h	10^{-21}	ゼプト	z
10^{1}	デカ	da	10^{-24}	ヨクト	y

表３．固有の名称とその独自の記号で表されるSI組立単位

組立量	SI 組立単位			
	名称	記号	他のSI単位による表し方	SI基本単位による表し方
平面角	ラジアン[a]	rad		$m \cdot m^{-1}=1$[b]
立体角	ステラジアン[a]	sr[c]		$m^2 \cdot m^{-2}=1$[b]
周波数	ヘルツ	Hz		s^{-1}
力	ニュートン	N		$m \cdot kg \cdot s^{-2}$
圧力，応力	パスカル	Pa	N/m^2	$m^{-1} \cdot kg \cdot s^{-2}$
エネルギー，仕事，熱量	ジュール	J	$N \cdot m$	$m^2 \cdot kg \cdot s^{-2}$
工率，放射束	ワット	W	J/s	$m^2 \cdot kg \cdot s^{-3}$
電荷，電気量	クーロン	C		$s \cdot A$
電位差（電圧），起電力	ボルト	V	W/A	$m^2 \cdot kg \cdot s^{-3} \cdot A^{-1}$
静電容量	ファラド	F	C/V	$m^{-2} \cdot kg^{-1} \cdot s^4 \cdot A^2$
電気抵抗	オーム	Ω	V/A	$m^2 \cdot kg \cdot s^{-3} \cdot A^{-2}$
コンダクタンス	ジーメンス	S	A/V	$m^{-2} \cdot kg^{-1} \cdot s^3 \cdot A^2$
磁束	ウエーバ	Wb	$V \cdot s$	$m^2 \cdot kg \cdot s^{-2} \cdot A^{-1}$
磁束密度	テスラ	T	Wb/m^2	$kg \cdot s^{-2} \cdot A^{-1}$
インダクタンス	ヘンリー	H	Wb/A	$m^2 \cdot kg \cdot s^{-2} \cdot A^{-2}$
セルシウス温度	セルシウス度[d]	℃		K
光束	ルーメン	lm	$cd \cdot sr$[c]	$m^2 \cdot m^{-2} \cdot cd=cd$
照度	ルクス	lx	lm/m^2	$m^2 \cdot m^{-4} \cdot cd=m^{-2} \cdot cd$
（放射性核種の）放射能	ベクレル	Bq		s^{-1}
吸収線量，質量エネルギー分与，カーマ	グレイ	Gy	J/kg	$m^2 \cdot s^{-2}$
線量当量，周辺線量当量，方向性線量当量，個人線量当量，組織線量当	シーベルト	Sv	J/kg	$m^2 \cdot s^{-2}$

(a) ラジアン及びステラジアンの使用は、同じ次元であっても異なった性質をもった量を区別するときの組立単位の表し方として利点がある。組立単位を形作るときのいくつかの用例は表４に示されている。
(b) 実際には、使用する時には記号rad及びsrが用いられるが、習慣として組立単位としての記号“１”は明示されない。
(c) 測光学では、ステラジアンの名称と記号srを単位の表し方の中にそのまま維持している。
(d) この単位は、例としてミリセルシウス度m℃のようにSI接頭語を伴って用いても良い。

表４．単位の中に固有の名称とその独自の記号を含むSI組立単位の例

組立量	SI 組立単位		
	名称	記号	SI 基本単位による表し方
粘度	パスカル秒	$Pa \cdot s$	$m^{-1} \cdot kg \cdot s^{-1}$
力のモーメント	ニュートンメートル	$N \cdot m$	$m^2 \cdot kg \cdot s^{-2}$
表面張力	ニュートン毎メートル	N/m	$kg \cdot s^{-2}$
角速度	ラジアン毎秒	rad/s	$m \cdot m^{-1} \cdot s^{-1}=s^{-1}$
角加速度	ラジアン毎平方秒	rad/s^2	$m \cdot m^{-1} \cdot s^{-2}=s^{-2}$
熱流密度，放射照度	ワット毎平方メートル	W/m^2	$kg \cdot s^{-3}$
熱容量，エントロピー	ジュール毎ケルビン	J/K	$m^2 \cdot kg \cdot s^{-2} \cdot K^{-1}$
質量熱容量（比熱容量），質量エントロピー	ジュール毎キログラム毎ケルビン	$J/(kg \cdot K)$	$m^2 \cdot s^{-2} \cdot K^{-1}$
質量エネルギー（比エネルギー）	ジュール毎キログラム	J/kg	$m^2 \cdot s^{-2} \cdot K^{-1}$
熱伝導率	ワット毎メートル毎ケルビン	$W/(m \cdot K)$	$m \cdot kg \cdot s^{-3} \cdot K^{-1}$
体積エネルギー	ジュール毎立方メートル	J/m^3	$m^{-1} \cdot kg \cdot s^{-2}$
電界の強さ	ボルト毎メートル	V/m	$m \cdot kg \cdot s^{-3} \cdot A^{-1}$
体積電荷	クーロン毎立方メートル	C/m^3	$m^{-3} \cdot s \cdot A$
電気変位	クーロン毎平方メートル	C/m^2	$m^{-2} \cdot s \cdot A$
誘電率	ファラド毎メートル	F/m	$m^{-3} \cdot kg^{-1} \cdot s^4 \cdot A^2$
透磁率	ヘンリー毎メートル	H/m	$m \cdot kg \cdot s^{-2} \cdot A^{-2}$
モルエネルギー	ジュール毎モル	J/mol	$m^2 \cdot kg \cdot s^{-2} \cdot mol^{-1}$
モルエントロピー，モル熱容量	ジュール毎モル毎ケルビン	$J/(mol \cdot K)$	$m^2 \cdot kg \cdot s^{-2} \cdot K^{-1} \cdot mol^{-1}$
照射線量（X線及びγ線）	クーロン毎キログラム	C/kg	$kg^{-1} \cdot s \cdot A$
吸収線量率	グレイ毎秒	Gy/s	$m^2 \cdot s^{-3}$
放射強度	ワット毎ステラジアン	W/sr	$m^4 \cdot m^{-2} \cdot kg \cdot s^{-3}=m^2 \cdot kg \cdot s^{-3}$
放射輝度	ワット毎平方メートル毎ステラジアン	$W/(m^2 \cdot sr)$	$m^2 \cdot m^{-2} \cdot kg \cdot s^{-3}=kg \cdot s^{-3}$

表６．国際単位系と併用されるが国際単位系に属さない単位

名称	記号	SI 単位による値
分	min	1 min=60s
時	h	1h =60 min=3600 s
日	d	1 d=24 h=86400 s
度	°	1° =(π/180) rad
分	’	1’ =(1/60)° =(π/10800) rad
秒	”	1” =(1/60)’ =(π/648000) rad
リットル	l、L	$1l=1\ dm^3=10^{-3}m^3$
トン	t	$1t=10^3$ kg
ネーパ	Np	1Np=1
ベル	B	1B=(1/2)ln10(Np)

表７．国際単位系と併用されこれに属さない単位で
SI単位で表される数値が実験的に得られるもの

名称	記号	SI 単位であらわされる数値
電子ボルト	eV	$1eV=1.60217733(49)\times10^{-19}J$
統一原子質量単位	u	$1u=1.6605402(10)\times10^{-27}kg$
天文単位	ua	$1ua=1.49597870691(30)\times10^{11}m$

表８．国際単位系に属さないが国際単位系と
併用されるその他の単位

名称	記号	SI 単位であらわされる数値
海里		1海里=1852m
ノット		1ノット=1海里毎時=(1852/3600)m/s
アール	a	$1\ a=1\ dam^2=10^2m^2$
ヘクタール	ha	$1\ ha=1\ hm^2=10^4m^2$
バール	bar	$1\ bar=0.1MPa=100kPa=1000hPa=10^5Pa$
オングストローム	Å	1 Å$=0.1nm=10^{-10}m$
バーン	b	$1\ b=100fm^2=10^{-28}m^2$

表９．固有の名称を含むCGS組立単位

名称	記号	SI 単位であらわされる数値
エルグ	erg	$1\ erg=10^{-7}\ J$
ダイン	dyn	$1\ dyn=10^{-5}N$
ポアズ	P	$1\ P=1\ dyn \cdot s/cm^2=0.1Pa \cdot s$
ストークス	St	$1\ St=1cm^2/s=10^{-4}m^2/s$
ガウス	G	$1\ G \triangleq 10^{-4}T$
エルステッド	Oe	$1\ Oe \triangleq (1000/4\pi)A/m$
マクスウェル	Mx	$1\ Mx \triangleq 10^{-8}Wb$
スチルブ	sb	$1\ sb=1cd/cm^2=10^4cd/m^2$
ホト	ph	$1\ ph=10^4lx$
ガル	Gal	$1\ Gal=1cm/s^2=10^{-2}m/s^2$

表10．国際単位に属さないその他の単位の例

名称	記号	SI 単位であらわされる数値
キュリー	Ci	$1\ Ci=3.7\times10^{10}Bq$
レントゲン	R	$1\ R = 2.58\times10^{-4}C/kg$
ラド	rad	$1\ rad=1cGy=10^{-2}Gy$
レム	rem	$1\ rem=1\ cSv=10^{-2}Sv$
X線単位		$1X\ unit=1.002\times10^{-4}nm$
ガンマ	γ	$1\gamma=1\ nT=10^{-9}T$
ジャンスキー	Jy	$1\ Jy=10^{-26}W \cdot m^{-2} \cdot Hz^{-1}$
フェルミ		$1\ fermi=1\ fm=10^{-15}m$
メートル系カラット		$1\ metric\ carat = 200\ mg = 2\times10^{-4}kg$
トル	Torr	1 Torr = (101 325/760) Pa
標準大気圧	atm	1 atm = 101 325 Pa
カロリー	cal	
ミクロン	μ	$1\ \mu=1\mu m=10^{-6}m$

（第７版，1998年改訂）