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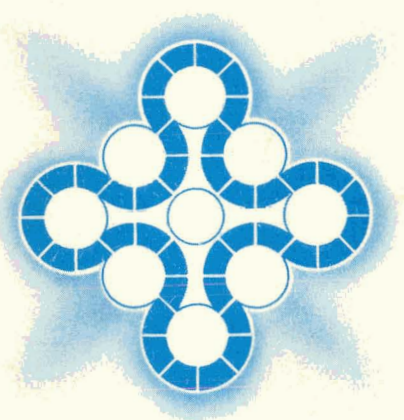
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EXPERIMENT DATA REPORT FOR SEMISCALE TRANSPARENT VESSEL COUNTERCURRENT FLOW TESTS

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Aerojet Nuclear Company

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FOR SEMISCALE TRANSPARENT VESSEL
COUNTERCURRENT FLOW TESTS

by

D. J. Hanson

AEROJET NUCLEAR COMPANY

Date Published - October 1975

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ABSTRACT

Steady state air-water tests were performed as part of the Semiscale Blowdown and Emergency Core Cooling (ECC) Project to investigate downcomer countercurrent flow and downcomer bypass flow phenomena. These tests were performed in a plexiglass representation of the Semiscale pressure vessel which allowed changes to be made in the geometry of the upper annulus and downcomer for the purpose of investigating the sensitivity of downcomer and bypass flow to changes in system geometry. Tests were also performed to investigate the effects of two-phase inlet flows and different initial system pressures on countercurrent and bypass flow.

Results for each test are presented in the form of computer printout of the measurements and of a summary of the pertinent calculated flow rates, pressures, and dimensionless volumetric fluxes. Descriptions of the test facility, instrumentation, operating procedures, and test conditions are also presented. An error analysis is presented to identify maximum and probable errors for selected volumetric flux calculations.

SUMMARY

Steady state air-water countercurrent flow and bypass flow tests were performed as part of the Semiscale Blowdown and Emergency Core Cooling (ECC) Project. These tests were the initial part of a more extensive experimental program conducted to investigate countercurrent flow and other ECC related phenomena in the Semiscale geometry. The objectives of these initial tests, reported herein, were to:

- (1) Investigate the countercurrent flow phenomena that occur in an annulus with dimensions similar to the Semiscale downcomer to determine whether commonly used countercurrent flow correlations describe the effect of the countercurrent air flow on the delivery of water (ECC) to the lower plenum.
- (2) Investigate the relationship between flow bypassing the downcomer and countercurrent flow in the downcomer.
- (3) Investigate the effect on countercurrent flow and bypass flow of changing the geometry of the upper annulus.
- (4) Investigate the effect on countercurrent flow of changing the downcomer length by changing the length of the core barrel.
- (5) Investigate the effect on countercurrent and bypass flow of a two-phase air-water mixture entering the vessel rather than water only.
- (6) Establish a relationship between the countercurrent flow tests in the transparent vessel and the metal Semiscale vessel.

These objectives were fulfilled using the data from the reported tests. The data provided information which aided in understanding the results from steam-water countercurrent flow tests performed in the metal Semiscale vessel.

The tests described were performed in a transparent plexiglass vessel with dimensions and internal parts similar to those of the Semiscale pressure vessel. The vessel was designed to facilitate geometric changes in the downcomer and upper annulus regions. The vessel was connected to air and water supply systems and to a drain system for the water. Volumetric flow, pressure, and temperature instrumentation and weigh tanks were used to measure the system parameters of interest.

This report presents the experimental data from the tests performed in the transparent vessel test program and provides the supportive information necessary to make the data usable. Results for each test are presented in the form of computer printout of the measurements and of a summary of the pertinent calculated flow rates, pressures, and dimensionless volumetric fluxes. An error analysis is presented to identify maximum and probable errors for selected volumetric flux calculations.

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**EXPERIMENT DATA REPORT
FOR SEMISCALE TRANSPARENT VESSEL
COUNTERCURRENT FLOW TESTS**

I. INTRODUCTION

Steady state air-water tests were performed in a transparent vessel to investigate downcomer countercurrent flow and downcomer bypass flow phenomena. These tests are part of an extensive experimental program conducted by Aerojet Nuclear Company to investigate countercurrent flow and emergency core coolant (ECC) related phenomena in the Semiscale geometry. The results from this experimental program are part of the Nuclear Regulatory Commission (NRC) data base which is used for evaluating the adequacy and improving the predictive capability of analytical models developed to predict system response during a loss-of-coolant accident (LOCA). In addition, the countercurrent flow data from the Semiscale geometry are also valuable for comparison with countercurrent flow data from similar investigations in larger geometries to aid in evaluating the effects of physical scale.

The experimental program conducted to investigate countercurrent flow and ECC related phenomena was made up of three different test programs which were coordinated to provide initially a basic understanding of certain ECC related phenomena and then to investigate progressively these phenomena as well as other ECC related phenomena in greater detail. The transparent vessel tests, which are reported herein, were conducted initially to investigate countercurrent flow and flow bypass phenomena in a Semiscale-sized downcomer and to determine whether these phenomena could be described in terms of existing countercurrent flow correlations. Air and water were used as the fluids for the transparent vessel tests because existing correlations were based on data limited almost exclusively to these fluids. The Semiscale system countercurrent flow tests^[1] were subsequently conducted to investigate steady state and transient countercurrent flow phenomena in a steam-water medium in which condensation and evaporation could affect the countercurrent flow phenomena. The concluding test program, the isothermal system test program^[2-9], was conducted to investigate transient ECC related phenomena and the interaction between these phenomena as well as the phenomena that occur during the blowdown portion of a simulated LOCA.

The transparent vessel test program was initiated when a literature search indicated that the majority of the countercurrent flow data was limited to data taken in small diameter tubes or packed beds with inlet geometries that distribute the flow uniformly around the top of the test section. Since the Semiscale vessel downcomer region is annular with a much larger diameter than most tubes tested and with an inlet geometry which would not necessarily distribute the fluid uniformly around the annulus, the applicability of prior countercurrent flow data to the Semiscale downcomer was uncertain. Therefore, a test program was conducted to supply countercurrent flow test data in a geometry similar to the Semiscale vessel. The objectives of the transparent vessel tests were to:

- (1) Investigate the countercurrent flow phenomena that occur in an annulus with dimensions similar to the Semiscale downcomer to determine whether commonly used countercurrent flow correlations describe the effect of the countercurrent air flow on the delivery of water (ECC) to the lower plenum.
- (2) Investigate the relationship between flow bypassing the downcomer and countercurrent flow in the downcomer.
- (3) Investigate the effect on countercurrent flow and bypass flow of changing the geometry of the upper annulus.
- (4) Investigate the effect on countercurrent flow of changing the downcomer length by changing the length of the core barrel.
- (5) Investigate the effect on countercurrent and bypass flow of a two-phase air-water mixture entering the vessel rather than water only.
- (6) Establish a relationship between the countercurrent flow tests in the transparent vessel and the metal Semiscale vessel.

In addition to the tests performed to meet the outlined objectives, a limited number of tests were performed to investigate the effect on countercurrent flow of specialized system geometries. Table I summarizes the tests performed during the transparent vessel test program to meet the objectives outlined. The data presentation table column lists the report table number of Section IV in which the data are presented. Comments on the test groups are included to aid the reader in locating test groups of interest.

The intent of this document is to present the experimental data from the transparent vessel test program and to provide the necessary supportive information to make those data usable. Section II of the report provides a description of the experimental apparatus and instrumentation. Section III describes the test procedures and the data acquisition process. A complete listing of all collected data is presented in Section IV.

TABLE I

TRANSPARENT VESSEL COUNTERCURRENT FLOW TESTS

Test Group	Downcomer Radial Gap (in.)	Lower Plenum Pressure (psig)	Cold Leg Air Flow (scfm)	Data Presentation Table	Comments
<u>BASELINE COUNTERCURRENT FLOW TESTS</u>					
1.1	0.35	10	0	IV	
1.2	0.35	30	0	V	
2.1	0.37	7.3	0	VI	
2.2	0.37	9	0	VII	
2.3	0.37	30	0	VIII	
4.1	0.49	7.3	0	IX	
4.2	0.49	30	0	X	
5.1	0.53	10	0	XI	
6.1	0.63	10	0	XII	
7.1	0.70	10	0	XIII	
9.1	1.58	~10	0	XIV	
<u>BYPASS FLOW TESTS</u>					
5.5	0.53	0, 10	20-160	XV	
5.7	0.53	0	0-100	XVI	Hot leg simulators removed
5.12	0.53	0	0-200	XVII	Extended upper annulus
5.15	0.53	0	0-200	XVIII	Nozzle inserts removed
9.5	1.58	0	100-165	XIX	
<u>MODIFIED UPPER ANNULUS GEOMETRY TESTS</u>					
5.4	0.53	10	0	XX	Filler piece lowered
5.8	0.53	10	0	XXI	Hot leg simulators removed
5.10	0.53	10	0	XXII	Extended upper annulus
5.13	0.53	10	0	XXIII	Nozzle inserts removed
6.2	0.63	10	0	XXIV	Filler piece lowered
9.2	1.58	10	0	XXV	Nozzle inserts removed
9.6	1.58	10	0	XXVI	Hot leg simulators removed
<u>SHORTENED CORE BARREL TESTS</u>					
3.1	0.40	10	0	XXVII	Downcomer length 6 in.
4.4	0.49	10	0	XXVIII	Downcomer length 34 in.
4.5	0.49	10	0	XXIX	Downcomer length 24 in.
4.6	0.49	10	0	XXX	Downcomer length 6 in.
8.1	1.45	10	0	XXXI	Downcomer length 12 in.
<u>TWO-PHASE COLD LEG MIXTURE TESTS</u>					
1.3	0.35	10	30, 80	XXXII	
1.4	0.35	30	50	XXXIII	
5.6	0.53	10	50-200	XXXIV	
7.2	0.70	10	53	XXXV	
9.4	1.58	10	50-200	XXXVI	
<u>COMBINED EFFECTS TESTS</u>					
3.2	0.40	10	36-76	XXXVII	Downcomer length 6 in.
4.3	0.49	10		XXXVIII	Downcomer length 34 in.; filler lowered
4.7	0.49	10	56-80	XXXIX	Downcomer length 6 in.
4.8	0.49	10		XL	Downcomer length 6 in.; hot leg simulator removed
4.9	0.49	10	73-82	XLI	Downcomer length 6 in.; hot leg simulator removed
5.9	0.53	10	50-110	XLII	Hot leg simulator removed
5.11	0.53	10	50-200	XLIII	Extended upper annulus
5.14	0.53	10	50-200	XLIV	Nozzle inserts removed
9.3	1.58	10	50-200	XLV	Nozzle inserts removed
9.7	1.58	10	50-200	XLVI	Hot leg simulator removed
<u>SPECIAL TESTS</u>					
4.10	0.49	10	0	XLVII	One-dimensional inlet
5.2	0.53	0-8.5	0	XLVIII	Increasing air flow at constant water flow
5.3	0.53	10-0	0	XLIX	Decreasing air flow at constant water flow
7.3	0.53, 0.70	10	0	L	Double annulus
9.8	1.58	10	0	LI	Longitudinal flow restrictors
9.9	1.50	10	0	LII	Shortened longitudinal flow restrictors

II. EXPERIMENTAL SYSTEM AND INSTRUMENTATION

The transparent vessel experimental system consists of a transparent pressure vessel connected to an air and water supply system and to a drain system for the water. Two different air and water supply systems were used during the test program; a low air capacity system was used initially and a high air capacity system was used for subsequent tests.

The system instrumentation used to monitor the test conditions included flow, pressure, and temperature measuring devices.

1. EXPERIMENTAL SYSTEM

The pressure vessel is shown in the normal operating configuration in Figure 1 along with the nomenclature used to identify the different parts of the vessel. The pressure vessel was designed so that the core barrels and filler pieces could be changed to obtain different downcomer gap widths. Table II lists the radial downcomer gap widths as a function of the core barrel outside diameter (OD) and the filler piece inside diameter (ID). Since the inside diameter of the vessel is 8.4 inches, gaps using Filler D in Table II do not actually incorporate a filler piece. The effective length of the downcomer was varied by shortening the length of the core barrel. The upper annulus region is also designed to allow a change to be made in the diameter of the inlet pipe by removal of the nozzle liner and to allow changes to be made in the flow area of the upper annulus by removal of the hot leg simulators or by extension upward of the baffle.

The exterior portion of the transparent vessel is constructed of three sections of plexiglass tube each with an ID of 8.4 inches and an OD of 9.25 inches. The uppermost section of the vessel includes the nozzles for the cold leg inlet and the cold leg outlet which attach to the water supply system and the cold leg outlet drain system, respectively. Water or a two-phase air-water mixture enters the vessel through the cold leg inlet. All of the air that is forced into the vessel plus any water that bypasses the downcomer exits the vessel through the cold leg vessel outlet. The middle section of the vessel spans most of the distance of the downcomer, and the bottom section of the vessel, in conjunction with the lower head, forms the lower plenum region of the vessel. The lower head contains a 3-inch drain for removal of the water that falls down the downcomer and into the lower plenum.

Three different plexiglass filler pieces were designed to change the downcomer dimensions by reducing the inside diameter of the vessel. The inside diameters of these filler pieces, which are the outside diameters of the corresponding downcomer, are listed in Table II. A somewhat different upper annulus geometry existed during tests with a filler piece installed than during tests with no filler piece. When a filler piece is installed to form the downcomer gap, a step occurs and reduces the flow area at the transition between the upper annulus and the downcomer. This step is 1.05 inches for Filler Piece A, 0.96 inch for Filler Piece B, and 0.34 inch for Filler Piece C. When the vessel wall, rather than one of the

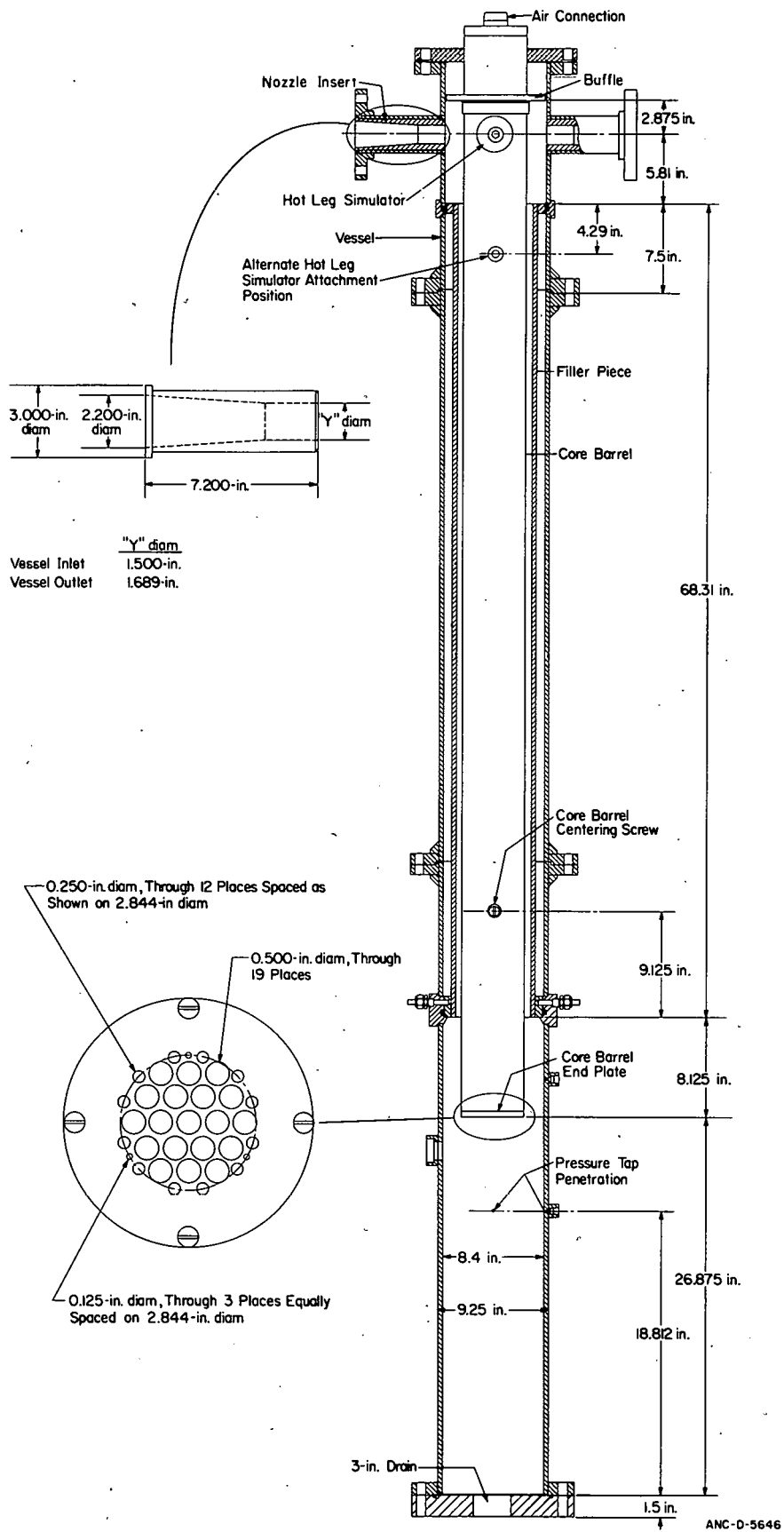


Fig. 1 Transparent vessel and internals.

TABLE II

POSSIBLE DOWNCOMER GAP GEOMETRIES FOR TRANSPARENT VESSEL TESTS

Core Barrel Filler Piece	1	2	3	4
	A	0.53 9.57	0.40 7.31	
B	0.63 11.53	0.49 9.27		
C	1.25 25.43	1.11 23.17	0.37 8.48	
D	1.58 33.87	1.45 31.61	0.70 16.92	0.35 8.93

Annular gap (in.)
Annulus flow area (in.²)

<u>Core Barrel Dimensions</u>			<u>Filler Piece Dimensions</u>		
	<u>Outside Diameter (in.)</u>	<u>Associated Cross-Sectional Area (in.²)</u>		<u>Inside Diameter (in.)</u>	<u>Associated Cross-Sectional Area (in.²)</u>
1	5.24	21.55	A	6.30	31.12
2	5.51	23.81	B	6.49	33.08
3	7.00	38.50	C	7.73	46.98
4	7.69	46.49	D	8.40	55.42

filler pieces, is used to form the downcomer, no step occurs and the upper annulus and downcomer have the same flow area. Leakage of air and water between the filler piece and the vessel wall is prohibited by an O-ring seal at the top and bottom of the filler piece. The groove in the vessel which holds the O-ring seal in place was filled flush with the vessel surface for all tests in which a filler piece was not installed.

Four different aluminum core barrels were designed to allow changes to be made in the dimensions of the downcomer gap. The outside diameters of these core barrels, which form the inside diameters of the downcomer, are listed in Table II. The outer surface of each core barrel is anodized a blue color to enhance the clarity of visual and photographic observations of two-phase flow patterns in the downcomer region.

The nozzle at the top of the core barrel is used to attach the core barrel to the air supply system. Air that enters the pressure vessel through the core barrel is forced to flow down through the core barrel, up the downcomer, and from the vessel through the vessel cold leg outlet. A multiholed plate is attached to the bottom of the core to decrease the flow area to a value that is similar to the flow area at the bottom of the Semiscale core.

A baffle ring attached near the top of the core barrel is used to simulate the seal ring which separates the upper annulus and upper plenum regions in the Semiscale vessel. Also attached to the core barrel in the upper annulus region are obstructions which have dimensions similar to those of the hot leg nozzles simulated in the Semiscale system. These hot leg simulators can be either removed completely or removed and placed at a lower position on the core barrel for tests with special upper annulus geometry configurations. These simulators are located such that their centerline is in the same axial plane as the centerline of the cold leg and vessel outlet nozzles.

Two different fixtures were designed so that geometry changes can be made in the upper annulus region of the pressure vessel. A 10-inch-long cylindrical plexiglass section with the same inside diameter as the vessel is designed to set directly on top of the vessel to act as a vessel extension. This section raises the core barrel and effectively increases the height of the upper annulus region. When this section is used, the hot leg simulators are removed from their normal position on the core barrel and moved down to a position where their centerline matches the centerline of the cold leg and bypass leg.

The second fixture is designed to replace the entire upper section of the vessel including the cold leg vessel inlet and outlet nozzles. This fixture, shown in Figure 2, is used to distribute the water uniformly around the top of the downcomer and to induce flow parallel to the downcomer axis. The perforated plate provides an even distribution of the incoming water, and the weir-type entrance to the downcomer induces the initial water flow to be parallel to the downcomer axis.

Two different air and water supply systems were used during the course of the transparent vessel tests. The initial system, shown in Figure 3, was designed for relatively low air flow rates and was used for performing tests with downcomer gap sizes of 0.70 inch or smaller. The subsequent system, shown in Figure 4, was designed for much larger air flows and was used for performing tests with both large and small downcomer gap sizes. For both systems, air was supplied from multistage compressors, and water was supplied from the building water supply system. The drain system from the lower plenum and the vessel cold leg outlet remained the same for all tests.

2. SYSTEM INSTRUMENTATION

Measurements of temperature, pressure, and volumetric flow were made by instrumentation located in the vessel throughout both the low capacity and the high capacity supply systems. A list of the instrumentation and a description of each detector is

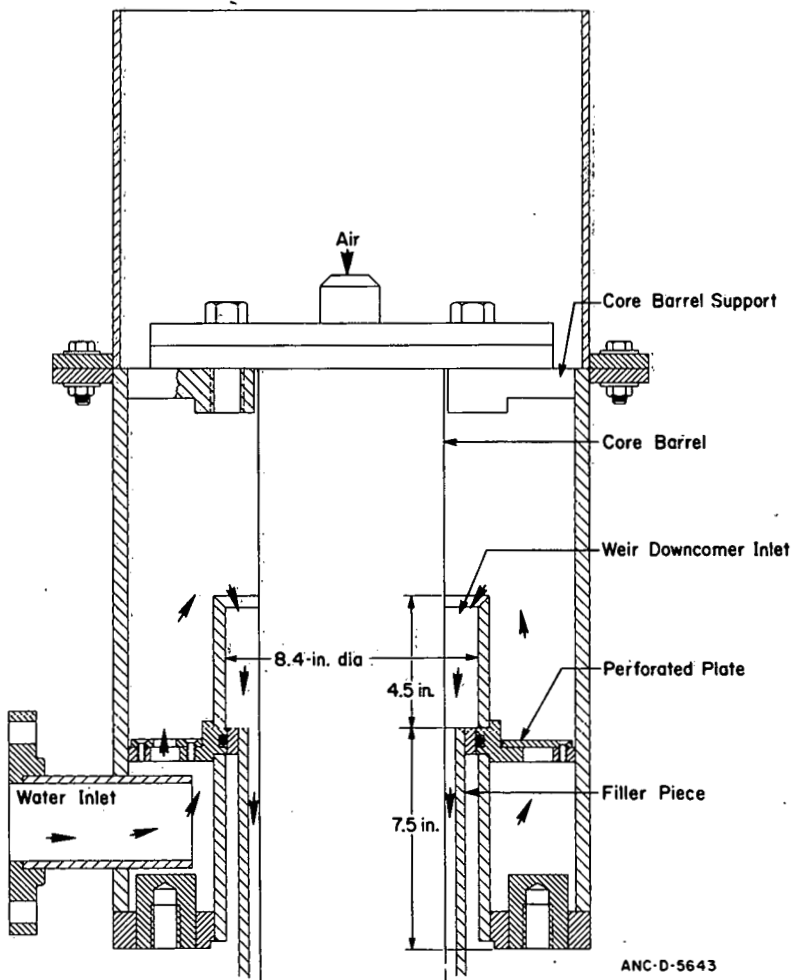
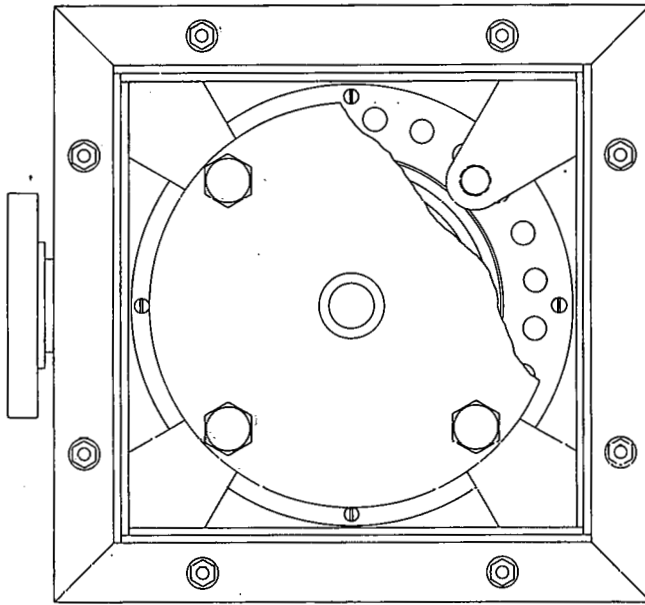


Fig. 2 Upper annulus uniform inlet flow distributor.

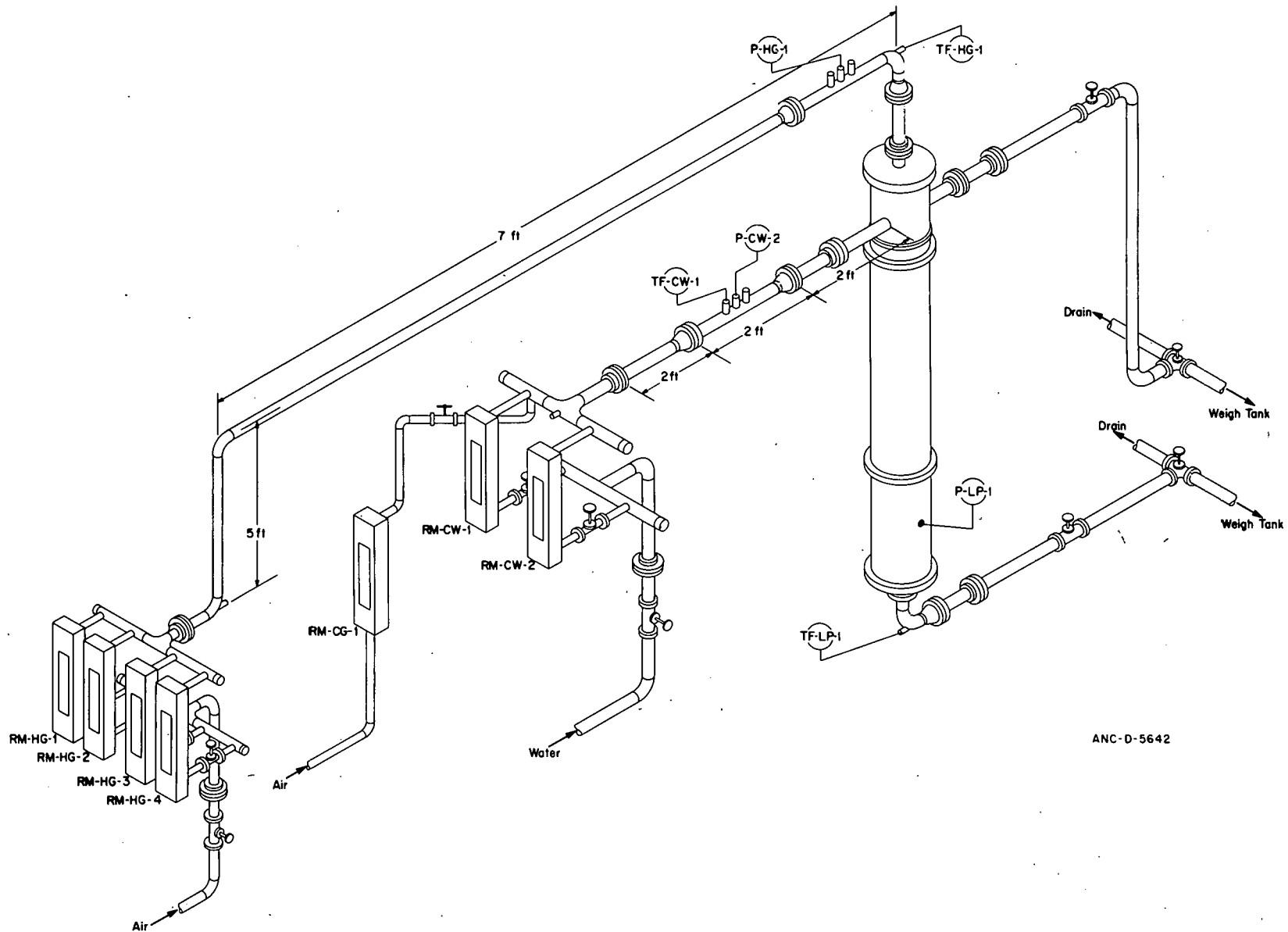


Fig. 3 Isometric diagram of the low capacity air flow system.

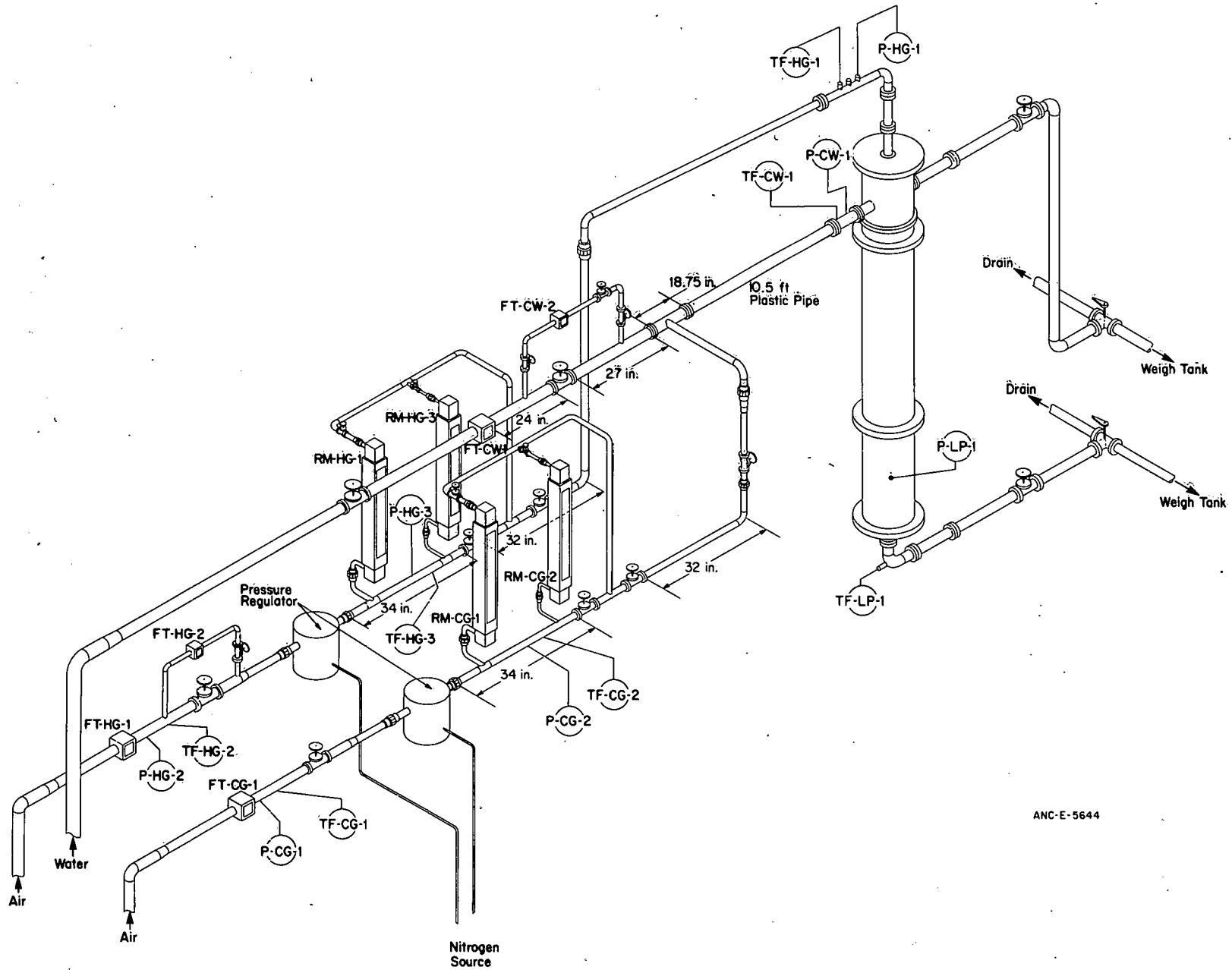


Fig. 4 Isometric diagram of the high capacity air flow system.

included in Table III. The maximum error includes instrumentation error, signal conditioner error, and errors in reading the scales of the direct reading instrumentation. Figure 3 and 4 show the detector locations for the low and high capacity systems, respectively.

In addition to the instrumentation listed in Table III, weigh tanks were used in conjunction with a timing device to measure the mass flow of water from the lower plenum and from the vessel cold leg outlet. The two-phase air-water mixture flowing from the cold leg outlet was separated by directing the mixture downward into a large weigh tank with sides that were sufficiently high to prevent water from being blown out of the tank. Lower plenum liquid level was measured using ruled indicators scribed on the plexiglass. This measurement was made from the bottom of the core barrel to the liquid surface.

The measurements made for each test are presented in the section on data presentation (Section IV). Those instruments used for each test can be distinguished because the results are shown as nonzero values. An error analysis for typical tests is presented in Appendix A. The analysis has been restricted to a consideration of the probable and the maximum errors that would exist for the parameters of the Wallis^[10] countercurrent flow correlation if the data were put into this form. The Wallis correlation was used for this error analysis because it is a commonly used countercurrent flow correlation that was expected to correlate the transparent vessel test data.

TABLE III

INSTRUMENTATION FOR TRANSPARENT VESSEL TESTS^[a]

Measurement	Location	System ^[b]	Measurement Range		Maximum Error
			Minimum	Maximum	
Water flow (rotameters)					
					+2.3% of reading
RM-CW-1	Vessel cold leg inlet	L	3.2	32 gpm	
RM-CW-2	Vessel cold leg inlet	L	1.2	12.5	
Water flow (turbine meters)					
FT-CW-1	Vessel cold leg inlet	H	40	650 gpm	+6.5 gpm
FT-CW-2	Vessel cold leg inlet	H	3.7	60	+0.7 gpm
Air flow (rotameters)					
					+2.3% of reading
RM-HG-1	Vessel core barrel inlet	H, L	9.2	92 cfm	
RM-HG-2	Vessel core barrel inlet	L	7.1	71	
RM-HG-3	Vessel core barrel inlet	H, L	3.2	32	
RM-HG-7	Vessel core barrel inlet	L	1	10	
RM-CG-1	Vessel cold leg inlet	H, L	7.1	71	
RM-CG-2	Vessel cold leg inlet	H	1	10	
Air flow (turbine meters)					
FT-HG-1	Vessel core barrel inlet	H	25	320 cfm	+3.2 cfm
FT-HG-2	Vessel core barrel inlet	H	4	33	+0.3 cfm
FT-CG-1	Vessel cold leg inlet	H	25	320	+3.2 cfm
Pressure					
			0	100 psig	+0.7 psig
P-CW-1	Cold leg water line near vessel entrance	H			
P-CW-2	Cold leg water line near vessel entrance	L			
P-CG-1	Cold leg air near turbine meters	H			
P-CG-2	Cold leg air near rotameters	H			
P-HG-1	Air line near core barrel entrance	H, L			
P-HG-2	Hot leg air near turbine meters	H			
P-HG-3	Hot leg air near rotameters	H			
P-LP-1	Lower plenum	H, L			
P-Baro	Barometric pressure	H, L			
Temperature					
			0	200°F	+2°F
TF-CW-1	Cold leg water line near vessel entrance	H, L			
TF-CG-1	Cold leg air near turbine meters	H			
TF-CG-2	Cold leg air near rotameters	H			
TF-HG-1	Air line near core barrel entrance	H, L			
TF-HG-2	Hot leg air near turbine meters	H			
TF-HG-3	Hot leg air near rotameters	H			
TF-LP-1	Lower plenum	H, L			

[a] The range and maximum error given at the beginning of a measurement category apply to all measurements within that category.

[b] L is for the low flow capacity system and H is for the high flow capacity system.

III. TEST PROCEDURES

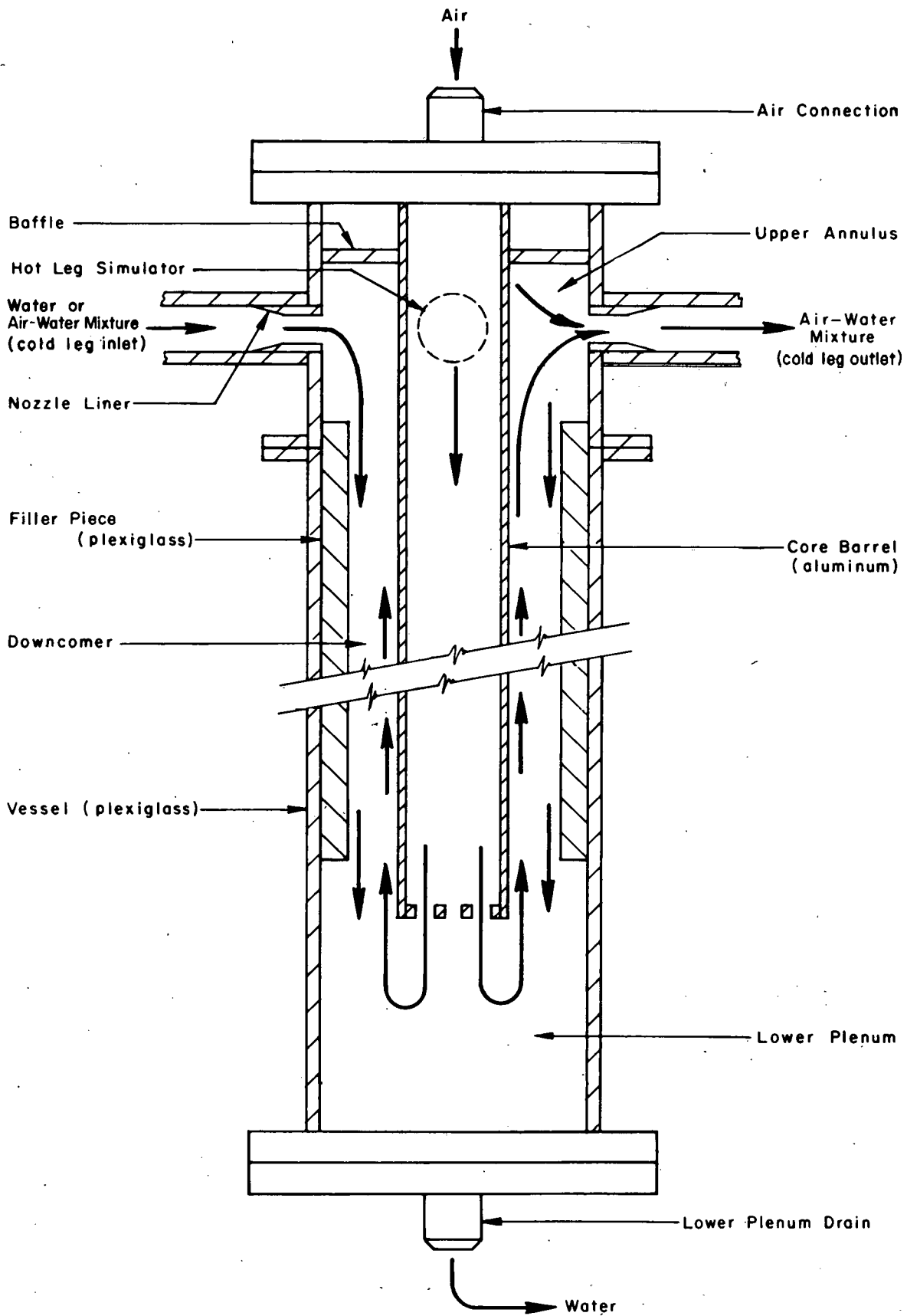
The experimental system was used to obtain data for several different types of tests including countercurrent flow tests, bypass flow tests, and a number of tests with specialized objectives. The test procedures for the countercurrent flow tests and the bypass flow tests were different and, therefore, a separate discussion for these two types of tests follows. Some of the test procedures for the specialized tests were different from the other test procedures. However, these procedures apply to a limited number of tests and, therefore, are included in the description of the test groups documented in Section IV.

The paths of the air and water flowing in the transparent vessel are shown in Figure 5. Either water or an air-water mixture entered the transparent vessel through the vessel cold leg inlet nozzle. In either case, the entering water flowed either down the downcomer to the lower plenum or around the core barrel and out the cold leg vessel outlet. The air from the air-water mixture flowed around the core barrel and out the vessel cold leg outlet. Water reaching the lower plenum was removed at a rate consistent with maintaining a constant water level. Air entered the vessel through the top of the core barrel, flowed downward through the core barrel to the lower plenum, and then upward through the downcomer gap formed by the core barrel and the vessel wall or filler piece. Air could leave the vessel only through the vessel cold leg outlet because the only other outlet from the vessel, through the lower plenum, was sealed by the water collected therein.

Prior to the conduction of any countercurrent or flow bypass tests, several preliminary tests were conducted to establish a lower plenum liquid level that was far enough below the core barrel that no entrainment of lower plenum liquid occurred. These tests were accomplished by filling the lower plenum to a level above the bottom of the core barrel and then establishing a large air flow rate down through the core barrel. The air flow was continued until the lower plenum liquid level was stabilized. By using several different large air flows, a level was established below which lower plenum liquid entrainment would not occur. No formalized data were taken during these preliminary tests.

The majority of the tests conducted in the transparent vessel had countercurrent flow in the downcomer. Operational testing procedures for these countercurrent flow tests included the following steps:

- (1) The desired downcomer countercurrent air flow was established through the appropriate flow measuring device(s).
- (2) The cold leg water flow along with the cold leg air flow, when used, was established through the appropriate flow measuring device(s).
- (3) A constant lower plenum water level was established and maintained by throttling the drain valve. Water drained from the lower plenum was diverted to the building drainage system whenever flow measurements were not being made.



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Fig. 5 Air and water flow paths in the transparent vessel.

- (4) The selected system pressure was established by throttling the valve on the vessel cold leg outlet line. The water flowing through this line was also dumped into the building drainage system prior to measurement.
- (5) The flows were continuously adjusted until the desired steady state operating point was established.
- (6) Appropriate data were hand recorded from the flow, temperature, and pressure instrumentation. The flows from the lower plenum and the vessel outlet were measured by directing these flows into weigh tanks for a measured period of time.

Several of the initial countercurrent flow tests were conducted with Steps 1 and 2 reversed to determine whether the order in which air and water flows were established influenced the countercurrent flow results. Since the order of establishment did not significantly influence the results, the listed procedure was used for the bulk of the countercurrent flow tests.

A limited number of bypass flow tests were performed to determine, in the absence of countercurrent air flow, the maximum cold leg water and air flow rates below which no bypass flow would occur. The operational test procedure for these bypass flow tests included the following steps:

- (1) The desired air flow in the cold leg was established for those tests in which cold air flow was used.
- (2) The water flow in the cold leg was increased slowly until water began to flow out the vessel cold leg outlet. All bypass tests were conducted at or above this water flow rate.
- (3) During tests in which cold leg air flow was used, the pressure in the system was adjusted to the desired value by establishing a lower plenum liquid level and subsequently throttling the valve in the vessel outlet line.
- (4) Appropriate data were recorded from flow, temperature, and pressure instrumentation. The flows from the lower plenum and the vessel outlet were measured by directing these flows into weigh tanks for a measured period of time.

IV. TEST DATA PRESENTATION

The transparent vessel tests have been categorized into test groups according to the purposes of the tests and the system geometry. The test data for each group of tests have been organized into a series of tables for the purpose of data presentation. Correspondence between the test groups and the tables containing the data was shown in Table I.

Each data table contains a summary page listing pertinent variables calculated from the experimental data. Following this summary page are up to four sets of tabulated experimental data. The first set contains air and water volumetric flow measurements, and the second set contains pressure and temperature measurements associated with the flow measurements. The third set of data contains the weigh tank measurements for the lower plenum and vessel cold leg bypass as well as lower plenum pressure, liquid level, and temperature measurements. The barometric pressure is also included in this set of measurements. The fourth data set contains flow, pressure, and temperature measurements associated with air flow in the cold leg. This fourth data set is not included in the tables for tests which did not have air flow in the cold leg.

A brief description of the variables included on the summary page is provided to make those variables usable for further calculations. The downcomer air flow was obtained by summing the mass flow rates calculated at each separate air flow measurement in the core barrel air supply. The mass flow at each meter was calculated using the measured volumetric flow, and a density which was calculated using the perfect gas law with pressure and temperature measurements located near the volumetric flow measurement. At locations where a significant pressure drop occurred between the flow and pressure measurements, the pressure at the flow measurement location was determined by subtracting the pressure drop calculated to occur between the flow and pressure instrumentation from the measured pressure. The process of calculating mass flow using a pressure and a pressure drop was iterative because the magnitude of the pressure drop was influenced by the mass flow which in turn was influenced through a density change by the magnitude of the pressure drop. The cold leg air flow was calculated similarly using the cold leg flow, temperature, and pressure measurements. The downcomer air density was calculated using the perfect gas law with pressure and temperature measurements in the lower plenum.

Downcomer water flow was calculated from the measurement of the mass being drained from the lower plenum. Water flow continuity was obtained by adding the calculated water mass flow from the lower plenum to the calculated water mass flow leaving the vessel through the vessel cold leg outlet and dividing this sum by the measured water mass flow into the vessel. This ratio can be used as an indicator of the exactness of the water mass balance. Even though the water mass balance may not be exact, the lower plenum mass flow used in the countercurrent flow calculations may be valid. The vessel inlet water flow was calculated using the water volumetric flow measurements and a fluid density of $62.4 \text{ lb}_m/\text{ft}^3$.

The parameters $J_{\text{air downcomer}}$ and $J_{\text{water downcomer}}$ are, respectively, the superficial velocities of the air and the water in the downcomer. The superficial air velocity was calculated by dividing the downcomer air flow by the downcomer air density and the total flow area of the downcomer, and the water superficial velocity was calculated similarly using a water density of $62.4 \text{ lb}_m/\text{ft}^3$.

The last two columns of the summary page contain parameters from the Wallis^[10] countercurrent flow correlation. The parameters for the Wallis countercurrent flow correlation are presented because this correlation is universally accepted as providing good correlation of countercurrent flow data. The form of the Wallis correlation

$$J_g^{*1/2} + m J_l^{*1/2} = C$$

where

$$J_g^* = \frac{J_g}{\sqrt{gD}} \left(\frac{\rho_g}{\rho_l - \rho_g} \right)^{1/2}$$

$$J_l^* = \frac{J_l}{\sqrt{gD}} \left(\frac{\rho_l}{\rho_l - \rho_g} \right)^{1/2}$$

and

- J_g = superficial gas velocity
- J_l = superficial liquid velocity
- D = downcomer hydraulic diameter
- ρ_g = gas density
- ρ_l = liquid density
- g = gravitational constant

allows countercurrent flow data to be presented as a straight line with slope m and ordinate intercept C .

A brief description of the test classifications, shown in Table I and certain of the test groups, is provided in the following paragraphs to aid in understanding the test data. Test groups were conducted with different radial downcomer gap widths in each different test classification to provide data for a range of downcomer geometries.

1. BASELINE COUNTERCURRENT FLOW TESTS

The baseline countercurrent flow tests were performed to investigate countercurrent phenomena in an annulus with dimensions and an inlet geometry similar to those of the Semiscale downcomer. The main objective of these tests was to provide data that could be used to determine whether commonly used countercurrent flow correlations are applicable to a downcomer the size of the Semiscale downcomer. Results from these baseline tests are presented in Tables IV through XIV.

During the early tests in which the smaller size downcomer gaps were used, several different cold leg water flow rates were used for each downcomer air flow rate. The results from these early tests showed that the amount of water reaching the lower plenum was relatively insensitive to the amount of water entering the vessel from the cold leg at high and intermediate downcomer air flows. However, at very low downcomer air flow rates, the results of the early tests showed that an increase in the inlet water flow would usually result in an increase in delivery to the lower plenum indicating some sensitivity in the amount of water reaching the lower plenum to the vessel inlet (cold leg) water flow. Usually, some maximum inlet water flow occurred above which no increase in lower plenum delivery rate was observed for an increase in the inlet flow, and a minimum inlet flow occurred below which all the water fell to the lower plenum. The difference between the maximum and minimum delivery rates to the lower plenum increased rapidly as the air flow approached zero.

Tests performed with the larger downcomer gap sizes, especially with the 1.58-inch downcomer gap, showed that the amount of water reaching the lower plenum was sensitive to the inlet water flow rate even at relatively high downcomer air flow rates. The difference in vessel inlet water flow was large between the minimum flow for which all inlet flow fell to the lower plenum and the maximum flow for which delivery to the lower plenum was no longer sensitive to an increase in the inlet flow rate.

Several different groups of tests were conducted with different lower plenum pressures. The purpose of these tests was to provide data that could be used to check the sensitivity of the countercurrent flow correlations to changes in the operating pressure.

2. BYPASS FLOW TESTS

The objectives of the bypass flow tests were to determine, in the absence of countercurrent air flow, the minimum cold leg flow above which flow would bypass the downcomer and leave the vessel through the vessel cold leg outlet and to investigate the relationship between the amount of flow that bypassed for different cold leg flows above the minimum. The results from these tests are presented in Tables XV through XIX. Bypass flow tests were conducted using both single- and two-phase cold leg flows so that the results from both types of tests could be compared to determine the effect of a two-phase cold leg

TABLE IV

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 1.1.1 TO 1.1.36 -- 0.35-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JC*)**1/2	(JL*)**1/2
1.1. 1	0.0155	0.1174	22.45	0.0	4.783	0.934	2.13	1.237	0.2593	0.9484
1.1. 2	0.0155	0.1174	22.45	0.0	3.702	0.957	2.13	0.957	0.2595	0.8343
1.1. 3	0.0152	0.1161	22.45	0.0	4.633	0.949	2.12	1.198	0.2578	0.9334
1.1. 4	0.0152	0.1161	22.45	0.0	4.467	1.008	2.12	1.155	0.2578	0.9165
1.1. 5	0.0475	0.1174	22.45	0.0	1.842	1.005	6.52	0.476	0.4535	0.5885
1.1. 6	0.0472	0.1174	22.45	0.0	1.836	1.009	6.49	0.475	0.4524	0.5876
1.1. 7	0.0470	0.1174	22.45	0.0	2.017	0.999	6.45	0.521	0.4512	0.6158
1.1. 8	0.0470	0.1174	22.45	0.0	1.958	0.995	6.45	0.506	0.4512	0.6069
1.1. 9	0.0793	0.1164	22.33	0.0	0.735	0.995	11.00	0.190	0.5878	0.3718
1.1.10	0.0789	0.1164	22.33	0.0	0.784	1.017	10.93	0.203	0.5860	0.3840
1.1.11	0.0793	0.1164	22.33	0.0	0.794	0.998	11.00	0.205	0.5878	0.3865
1.1.12	0.0793	0.1164	22.33	0.0	0.789	1.023	11.00	0.204	0.5878	0.3852
1.1.13	0.1129	0.1164	22.33	0.0	0.254	1.023	15.65	0.366	0.7011	0.2186
1.1.14	0.1125	0.1164	22.33	0.0	0.250	1.011	15.60	0.065	0.7000	0.2168
1.1.15	0.1116	0.1168	22.33	0.0	0.243	1.004	15.42	0.363	0.6966	0.2137
1.1.16	0.1126	0.1168	22.33	0.0	0.242	1.031	15.50	0.062	0.6996	0.2132
1.1.17	0.1420	0.1137	22.33	0.0	0.067	0.981	20.15	0.917	0.7919	0.1120
1.1.18	0.1428	0.1137	22.33	0.0	0.067	1.019	20.25	0.917	0.7930	0.1120
1.1.19	0.1267	0.1150	22.33	0.0	0.117	1.012	17.77	0.030	0.7449	0.1481
1.1.20	0.1260	0.1150	22.33	0.0	0.117	0.976	17.68	0.030	0.7430	0.1481
1.1.21	0.1260	0.1150	22.33	0.0	0.117	0.989	17.63	0.030	0.7430	0.1481
1.1.22	0.1275	0.1160	22.40	0.0	0.112	1.004	17.73	0.029	0.7456	0.1455
1.1.23	0.1280	0.1160	22.40	0.0	0.133	0.979	17.80	0.034	0.7470	0.1583
1.1.24	0.0954	0.1167	22.40	0.0	0.483	0.995	13.19	0.125	0.6440	0.3015
1.1.25	0.0944	0.1167	22.40	0.0	0.371	1.009	13.05	0.096	0.6406	0.2641
1.1.26	0.0951	0.1167	22.40	0.0	0.425	1.013	13.14	0.110	0.6429	0.2827
1.1.27	0.0946	0.1172	22.40	0.0	0.452	1.015	13.04	0.112	0.6409	0.2850
1.1.28	0.0951	0.1172	22.40	0.0	0.446	0.986	13.10	0.115	0.6426	0.2896
1.1.29	0.0946	0.1172	22.40	0.0	0.391	0.986	13.02	0.101	0.6406	0.2711
1.1.30	0.0622	0.1174	22.40	0.0	1.225	0.995	8.54	0.317	0.5191	0.4800
1.1.31	0.0624	0.1174	22.40	0.0	1.269	1.017	8.59	0.328	0.5203	0.4885
1.1.32	0.0628	0.1174	22.40	0.0	1.319	1.005	8.63	0.341	0.5217	0.4980
1.1.33	0.0621	0.1176	22.40	0.0	1.275	1.045	8.52	0.339	0.5186	0.4857
1.1.34	0.0300	0.1163	22.40	0.0	2.787	0.983	4.16	0.721	0.3612	0.7240
1.1.35	0.0307	0.1174	22.40	0.0	2.957	0.988	4.23	0.765	0.3651	0.7457
1.1.36	0.0312	0.1176	22.40	0.0	3.093	0.996	4.29	0.800	0.3679	0.7627

TABLE IV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.1.1 TO 1.1.36 -- 0.35-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
1.1. 1	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.1. 2	20.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.1. 3	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.1. 4	25.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.1. 5	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.1. 6	20.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.1. 7	20.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.1. 8	25.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.1. 9	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
1.1.10	20.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
1.1.11	20.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
1.1.12	0.0	8.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
1.1.13	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
1.1.14	20.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
1.1.15	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
1.1.16	0.0	5.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
1.1.17	30.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
1.1.18	0.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
1.1.19	30.0	10.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.1.20	20.0	10.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.1.21	20.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.1.22	0.0	10.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.1.23	0.0	4.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.1.24	30.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.1.25	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.1.26	20.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.1.27	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.1.28	0.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.1.29	0.0	5.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.1.30	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.1.31	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.1.32	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.1.33	12.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.1.34	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
1.1.35	20.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
1.1.36	23.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0

TABLE IV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.1.1 TO 1.1.36 -- 0.35-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
1.1. 1	0.0	10.5	10.7	0.0	0.0	53.0	81.0	0.0	0.0	12.5
1.1. 2	0.0	10.7	10.7	0.0	0.0	53.0	80.0	0.0	0.0	12.5
1.1. 3	0.0	10.0	10.0	0.0	0.0	53.0	82.0	0.0	0.0	12.5
1.1. 4	0.0	10.2	10.0	0.0	0.0	53.0	82.0	0.0	0.0	12.5
1.1. 5	0.0	11.0	11.5	0.0	0.0	53.0	82.0	0.0	0.0	12.5
1.1. 6	0.0	10.7	11.2	0.0	0.0	53.0	82.0	0.0	0.0	12.5
1.1. 7	0.0	10.7	11.0	0.0	0.0	53.0	82.0	0.0	0.0	12.5
1.1. 8	0.0	10.7	11.0	0.0	0.0	53.0	82.0	0.0	0.0	12.5
1.1. 9	0.0	11.2	11.5	0.0	0.0	53.0	84.0	0.0	0.0	12.3
1.1.10	0.0	11.2	11.2	0.0	0.0	55.0	85.0	0.0	0.0	12.3
1.1.11	0.0	11.2	11.5	0.0	0.0	54.0	84.0	0.0	0.0	12.3
1.1.12	0.0	11.2	11.5	0.0	0.0	54.0	84.0	0.0	0.0	12.3
1.1.13	0.0	11.5	11.7	0.0	0.0	53.0	84.0	0.0	0.0	12.3
1.1.14	0.0	11.0	11.5	0.0	0.0	53.0	82.0	0.0	0.0	12.3
1.1.15	0.0	11.5	11.2	0.0	0.0	53.0	85.0	0.0	0.0	12.3
1.1.16	0.0	11.0	11.5	0.0	0.0	52.0	81.0	0.0	0.0	12.3
1.1.17	0.0	11.0	11.5	0.0	0.0	52.0	91.0	0.0	0.0	12.3
1.1.18	0.0	11.2	11.7	0.0	0.0	53.0	91.0	0.0	0.0	12.3
1.1.19	0.0	11.5	11.7	0.0	0.0	53.0	91.0	0.0	0.0	12.3
1.1.20	0.0	11.2	11.5	0.0	0.0	53.0	91.0	0.0	0.0	12.3
1.1.21	0.0	11.2	11.5	0.0	0.0	53.0	91.0	0.0	0.0	12.3
1.1.22	0.0	11.2	11.5	0.0	0.0	56.0	80.0	0.0	0.0	12.4
1.1.23	0.0	11.2	11.5	0.0	0.0	53.0	76.0	0.0	0.0	12.4
1.1.24	0.0	10.7	11.0	0.0	0.0	52.0	73.0	0.0	0.0	12.4
1.1.25	0.0	10.7	10.5	0.0	0.0	51.0	76.0	0.0	0.0	12.4
1.1.26	0.0	10.5	10.7	0.0	0.0	51.0	76.0	0.0	0.0	12.4
1.1.27	0.0	10.5	10.5	0.0	0.0	51.0	75.0	0.0	0.0	12.4
1.1.28	0.0	10.2	10.7	0.0	0.0	52.0	75.0	0.0	0.0	12.4
1.1.29	0.0	10.2	10.5	0.0	0.0	52.0	75.0	0.0	0.0	12.4
1.1.30	0.0	10.0	10.2	0.0	0.0	51.0	75.0	0.0	0.0	12.4
1.1.31	0.0	10.5	10.5	0.0	0.0	52.0	76.0	0.0	0.0	12.4
1.1.32	0.0	11.0	10.7	0.0	0.0	52.0	76.0	0.0	0.0	12.4
1.1.33	0.0	9.7	10.2	0.0	0.0	52.0	76.0	0.0	0.0	12.4
1.1.34	0.0	7.2	9.5	0.0	0.0	53.0	88.0	0.0	0.0	12.4
1.1.35	0.0	10.0	10.2	0.0	0.0	52.0	78.0	0.0	0.0	12.4
1.1.36	0.0	10.5	11.0	0.0	0.0	52.0	78.0	0.0	0.0	12.4

TABLE IV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.1.1 TO 1.1.36 -- 0.35-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
1.1.1	219.0	362.5	30.0	90.0	117.5	40.0	12.0	10.0	56.0
1.1.2	362.5	477.3	31.0	117.5	132.0	50.0	12.0	10.0	56.0
1.1.3	133.5	272.5	30.0	90.5	119.5	45.0	12.0	10.0	62.0
1.1.4	272.5	406.5	30.0	119.5	143.8	55.0	12.0	10.0	62.0
1.1.5	406.5	461.8	30.0	143.8	349.8	55.0	12.0	10.0	56.0
1.1.6	461.8	526.0	35.0	349.8	444.8	40.0	12.0	10.0	56.0
1.1.7	369.5	430.0	30.0	241.5	274.5	45.0	12.0	10.0	56.0
1.1.8	456.0	514.8	30.0	274.5	334.5	40.0	12.0	10.0	56.0
1.1.9	132.8	169.5	50.0	82.0	250.0	35.0	12.0	10.0	58.0
1.1.10	169.5	201.3	40.5	250.0	390.0	40.5	12.0	10.0	58.0
1.1.11	201.3	237.0	45.0	390.0	469.3	40.0	12.0	10.0	59.0
1.1.12	237.0	272.5	45.0	469.3	490.5	60.0	12.0	10.0	58.0
1.1.13	272.5	287.0	60.0	490.5	653.5	30.0	12.0	10.0	58.0
1.1.14	287.5	302.5	60.0	653.5	772.5	30.0	12.0	10.0	58.0
1.1.15	302.5	317.1	60.0	660.0	736.5	30.0	12.0	10.0	56.0
1.1.16	317.8	332.3	60.0	736.5	765.0	60.0	12.0	10.0	56.0
1.1.17	133.0	137.0	60.0	89.5	224.3	25.0	12.0	10.0	70.0
1.1.18	137.0	141.0	60.0	224.3	278.3	40.0	12.0	10.0	70.0
1.1.19	141.0	148.0	60.0	278.3	398.5	20.0	12.0	10.0	64.0
1.1.20	148.0	155.0	60.0	388.5	523.0	34.0	12.0	10.0	64.0
1.1.21	155.0	162.0	60.0	523.0	612.5	34.0	12.0	10.0	64.0
1.1.22	133.0	139.8	60.0	87.0	125.5	30.0	12.0	10.0	61.0
1.1.23	139.8	147.8	60.0	125.5	144.0	45.0	12.0	10.0	61.0
1.1.24	133.3	162.3	60.0	89.0	190.0	20.0	12.0	10.0	59.0
1.1.25	162.3	184.5	60.0	190.0	266.8	20.0	12.0	10.0	58.0
1.1.26	184.5	210.0	60.0	266.8	350.5	35.0	12.0	10.0	59.0
1.1.27	210.0	233.9	55.0	350.5	426.5	20.0	12.0	10.0	56.0
1.1.28	233.8	260.5	60.0	426.5	454.3	30.0	12.0	10.0	56.0
1.1.29	260.5	282.0	55.0	454.3	467.5	45.0	12.0	10.0	56.0
1.1.30	282.0	343.3	50.0	467.5	575.3	25.0	12.0	10.0	55.0
1.1.31	343.3	394.0	40.0	575.3	664.5	30.0	12.0	10.0	55.0
1.1.32	394.0	446.8	40.0	664.5	723.5	40.0	12.0	10.0	55.0
1.1.33	446.8	497.8	40.0	723.5	742.3	40.0	12.0	10.0	54.0
1.1.34	135.5	247.0	40.0	99.3	193.0	35.0	12.0	10.0	60.0
1.1.35	247.0	350.5	35.0	193.0	235.5	40.0	12.0	10.0	55.0
1.1.36	350.5	458.8	35.0	235.5	246.5	75.0	12.0	10.0	54.0

TABLE V

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 1.2.1 TO 1.2.34 -- 0.35-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
1.2. 1	0.0214	0.2226	42.40	0.0	4.767	0.959	1.55	1.233	0.2596	0.9472
1.2. 2	0.0321	0.2226	42.40	0.0	3.692	0.984	2.33	0.955	0.3180	0.8336
1.2. 3	0.0323	0.2218	42.40	0.0	3.592	1.001	2.35	0.929	0.3196	0.8222
1.2. 4	0.0640	0.2218	42.40	0.0	2.097	1.006	4.65	0.542	0.4494	0.6282
1.2. 5	0.0641	0.2214	42.40	0.0	2.236	1.036	4.67	0.578	0.4500	0.6487
1.2. 6	0.0641	0.2222	42.40	0.0	2.250	1.034	4.66	0.582	0.4498	0.6508
1.2. 7	0.0644	0.2218	42.40	0.0	2.267	1.001	4.68	0.586	0.4509	0.6532
1.2. 8	0.1074	0.2218	42.40	0.0	0.938	1.012	7.81	0.242	0.5823	0.4201
1.2. 9	0.1065	0.2218	42.40	0.0	1.061	1.061	7.75	0.274	0.5798	0.4469
1.2.10	0.1072	0.2192	42.40	0.0	1.017	0.984	7.89	0.263	0.5834	0.4374
1.2.11	0.1073	0.2192	42.40	0.0	1.061	1.031	7.90	0.274	0.5837	0.4469
1.2.12	0.1486	0.2218	42.40	0.0	0.361	0.995	10.81	0.093	0.6849	0.2607
1.2.13	0.1477	0.2214	42.40	0.0	0.355	1.014	10.77	0.092	0.6833	0.2585
1.2.14	0.1482	0.2218	42.40	0.0	0.405	0.995	10.78	0.105	0.6840	0.2759
1.2.15	0.1492	0.2218	42.40	0.0	0.378	1.049	10.85	0.098	0.6863	0.2667
1.2.16	0.1918	0.2214	42.40	0.0	0.104	0.996	13.98	0.027	0.7785	0.1400
1.2.17	0.1923	0.2214	42.40	0.0	0.142	0.993	14.02	0.037	0.7796	0.1633
1.2.18	0.1938	0.2201	42.32	0.0	0.144	1.023	14.21	0.037	0.7837	0.1649
1.2.19	0.1929	0.2201	42.32	0.0	0.136	1.004	14.14	0.035	0.7818	0.1602
1.2.20	0.1714	0.2201	42.32	0.0	0.282	0.997	12.57	0.073	0.7371	0.2303
1.2.21	0.1721	0.2210	42.32	0.0	0.225	1.023	12.57	0.058	0.7378	0.2058
1.2.22	0.1711	0.2214	42.32	0.0	0.186	1.020	12.47	0.048	0.7353	0.1873
1.2.23	0.1711	0.2214	42.32	0.0	0.155	0.937	12.47	0.040	0.7353	0.1706
1.2.24	0.1299	0.2214	42.32	0.0	0.577	0.991	9.46	0.149	0.6406	0.3296
1.2.25	0.1295	0.2218	42.32	0.0	0.575	0.987	9.42	0.149	0.6394	0.3290
1.2.26	0.1284	0.2218	42.32	0.0	0.569	0.960	9.34	0.147	0.6366	0.3273
1.2.27	0.1291	0.2223	42.32	0.0	0.627	1.005	9.37	0.162	0.6381	0.3436
1.2.28	0.0862	0.2193	42.32	0.0	1.400	1.004	6.34	0.362	0.5232	0.5133
1.2.29	0.0861	0.2218	42.32	0.0	1.563	1.001	6.27	0.404	0.5214	0.5423
1.2.30	0.0852	0.2218	42.32	0.0	1.582	1.010	6.20	0.409	0.5187	0.5456
1.2.31	0.0960	0.2218	42.32	0.0	1.619	1.022	6.25	0.419	0.5209	0.5520
1.2.32	0.0430	0.2223	42.32	0.0	2.950	1.007	3.12	0.763	0.3683	0.7451
1.2.33	0.0428	0.2223	42.32	0.0	3.114	1.003	3.11	0.805	0.3674	0.7656
1.2.34	0.0429	0.2223	42.32	0.0	3.175	0.988	3.11	0.821	0.3678	0.7730

TABLE V (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.2.1 TO 1.2.34 -- 0.35-IN. DOWNCOMER GAP

TEST NO.	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
1.2. 1	29.0	11.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.2. 2	28.0	11.5	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
1.2. 3	20.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
1.2. 4	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.2. 5	20.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.2. 6	25.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.2. 7	17.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.2. 8	29.0	11.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.2. 9	20.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.2.10	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.2.11	0.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.2.12	30.0	10.0	0.0	0.0	40.00	30.00	0.0	0.0	0.0	0.0
1.2.13	20.0	10.0	0.0	0.0	40.00	30.00	0.0	0.0	0.0	0.0
1.2.14	20.0	0.0	0.0	0.0	40.00	30.00	0.0	0.0	0.0	0.0
1.2.15	0.0	8.0	0.0	0.0	40.00	30.00	0.0	0.0	0.0	0.0
1.2.16	30.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
1.2.17	20.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
1.2.18	20.0	0.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
1.2.19	0.0	4.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
1.2.20	27.0	12.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.2.21	20.0	10.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.2.22	20.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.2.23	0.0	4.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0	0.0
1.2.24	28.0	12.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.2.25	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.2.26	20.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.2.27	0.0	6.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.2.28	20.0	12.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.2.29	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.2.30	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.2.31	13.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.2.32	25.0	12.5	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
1.2.33	22.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
1.2.34	24.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0

TABLE V (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.2.1 TO 1.2.34 -- 0.35-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
1.2. 1	0.0	31.7	31.2	0.0	0.0	51.0	76.0	0.0	0.0	12.4
1.2. 2	0.0	31.7	31.5	0.0	0.0	52.0	78.0	0.0	0.0	12.4
1.2. 3	0.0	31.7	32.2	0.0	0.0	53.0	79.0	0.0	0.0	12.4
1.2. 4	0.0	31.0	31.2	0.0	0.0	52.0	79.0	0.0	0.0	12.4
1.2. 5	0.0	31.2	31.5	0.0	0.0	53.0	80.0	0.0	0.0	12.4
1.2. 6	0.0	31.0	31.5	0.0	0.0	53.0	79.0	0.0	0.0	12.4
1.2. 7	0.0	31.2	31.7	0.0	0.0	53.0	78.0	0.0	0.0	12.4
1.2. 8	0.0	31.0	31.2	0.0	0.0	52.0	78.0	0.0	0.0	12.4
1.2. 9	0.0	30.2	30.5	0.0	0.0	51.0	76.0	0.0	0.0	12.4
1.2.10	0.0	31.0	31.2	0.0	0.0	55.0	80.0	0.0	0.0	12.4
1.2.11	0.0	30.5	31.2	0.0	0.0	54.0	79.0	0.0	0.0	12.4
1.2.12	0.0	30.2	30.5	0.0	0.0	53.0	79.0	0.0	0.0	12.4
1.2.13	0.0	30.0	30.0	0.0	0.0	53.0	79.0	0.0	0.0	12.4
1.2.14	0.0	30.7	30.2	0.0	0.0	54.0	79.0	0.0	0.0	12.4
1.2.15	0.0	30.2	30.7	0.0	0.0	54.0	78.0	0.0	0.0	12.4
1.2.16	0.0	30.2	30.5	0.0	0.0	53.0	78.0	0.0	0.0	12.4
1.2.17	0.0	30.5	30.7	0.0	0.0	52.0	78.0	0.0	0.0	12.4
1.2.18	0.0	30.7	31.2	0.0	0.0	53.0	75.0	0.0	0.0	12.3
1.2.19	0.0	30.2	30.7	0.0	0.0	54.0	74.0	0.0	0.0	12.3
1.2.20	0.0	30.2	30.7	0.0	0.0	52.0	73.0	0.0	0.0	12.3
1.2.21	0.0	30.7	31.0	0.0	0.0	52.0	72.0	0.0	0.0	12.3
1.2.22	0.0	30.0	30.5	0.0	0.0	53.0	72.0	0.0	0.0	12.3
1.2.23	0.0	30.2	30.5	0.0	0.0	53.0	72.0	0.0	0.0	12.3
1.2.24	0.0	31.0	31.2	0.0	0.0	52.0	72.0	0.0	0.0	12.3
1.2.25	0.0	30.7	31.0	0.0	0.0	51.0	72.0	0.0	0.0	12.3
1.2.26	0.0	30.0	30.2	0.0	0.0	51.0	72.0	0.0	0.0	12.3
1.2.27	0.0	30.5	30.7	0.0	0.0	52.0	72.0	0.0	0.0	12.3
1.2.28	0.0	31.0	31.5	0.0	0.0	53.0	74.0	0.0	0.0	12.3
1.2.29	0.0	31.2	31.5	0.0	0.0	52.0	75.0	0.0	0.0	12.3
1.2.30	0.0	30.0	30.5	0.0	0.0	52.0	74.0	0.0	0.0	12.3
1.2.31	0.0	31.0	31.2	0.0	0.0	52.0	74.0	0.0	0.0	12.3
1.2.32	0.0	31.5	31.7	0.0	0.0	52.0	75.0	0.0	0.0	12.3
1.2.33	0.0	30.7	31.2	0.0	0.0	51.0	74.0	0.0	0.0	12.3
1.2.34	0.0	31.5	31.5	0.0	0.0	52.0	75.0	0.0	0.0	12.3

TABLE V (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 1.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.2.1 TO 1.2.34 -- 0.35-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
1.2. 1	253.8	396.8	30.0	107.0	141.0	60.0	12.0	30.0	54.0
1.2. 2	396.8	507.5	30.0	141.0	209.5	40.0	12.0	30.0	54.0
1.2. 3	240.5	348.3	30.0	98.0	136.0	65.0	12.0	30.0	56.0
1.2. 4	348.3	413.3	31.0	136.0	241.0	30.0	12.0	30.0	56.0
1.2. 5	136.3	214.5	35.0	241.0	324.5	40.0	12.0	30.0	57.0
1.2. 6	214.5	293.3	35.0	324.5	371.5	35.0	12.0	30.0	55.0
1.2. 7	293.3	361.3	30.0	371.5	379.0	75.0	12.0	30.0	56.0
1.2. 8	361.3	398.8	40.0	379.0	543.3	35.0	12.0	30.0	56.0
1.2. 9	344.0	391.8	45.0	430.0	564.5	40.0	12.0	30.0	56.0
1.2.10	133.0	194.0	60.0	89.8	158.5	40.0	12.0	30.0	62.0
1.2.11	194.0	241.8	45.0	158.5	179.0	55.0	12.0	30.0	62.0
1.2.12	241.8	258.0	45.0	179.0	308.3	25.0	12.0	30.0	56.0
1.2.13	258.0	275.8	50.0	308.3	424.5	30.0	12.0	30.0	57.0
1.2.14	275.8	298.0	55.0	424.5	494.5	30.0	12.0	30.0	56.0
1.2.15	298.0	315.0	45.0	494.5	530.0	45.0	12.0	30.0	56.0
1.2.16	315.0	321.3	60.0	530.0	693.0	30.0	12.0	30.0	57.0
1.2.17	321.3	329.8	60.0	693.0	833.0	35.0	12.0	30.0	57.0
1.2.18	133.0	139.5	45.0	86.5	140.5	20.0	12.0	30.0	59.0
1.2.19	139.5	147.0	55.0	140.5	159.5	45.0	12.0	30.0	59.0
1.2.20	147.0	162.5	55.0	159.5	364.5	40.0	12.0	30.0	59.0
1.2.21	162.5	173.8	50.0	364.5	465.5	25.0	12.0	30.0	57.0
1.2.22	173.8	184.0	55.0	465.5	545.0	30.0	12.0	30.0	56.0
1.2.23	194.0	192.5	55.0	545.0	561.5	45.0	12.0	30.0	56.0
1.2.24	192.5	224.3	55.0	561.5	709.5	30.0	12.0	30.0	56.0
1.2.25	224.3	258.8	60.0	709.5	833.5	35.0	12.0	30.0	55.0
1.2.26	258.8	295.8	65.0	833.5	907.0	35.0	12.0	30.0	55.0
1.2.27	295.8	330.3	55.0	907.0	916.5	45.0	12.0	30.0	54.0
1.2.28	133.0	203.0	50.0	89.5	215.0	30.0	12.0	30.0	61.0
1.2.29	203.0	265.5	40.0	215.0	319.5	40.0	12.0	30.0	55.0
1.2.30	265.5	352.5	55.0	319.5	374.8	45.0	12.0	30.0	55.0
1.2.31	352.5	417.3	40.0	374.8	385.0	45.0	12.0	30.0	55.0
1.2.32	417.3	491.0	25.0	385.0	488.5	45.0	12.0	30.0	54.0
1.2.33	435.5	542.5	35.0	488.5	556.0	50.0	12.0	30.0	54.0
1.2.34	390.0	485.3	30.0	556.0	563.3	60.0	12.0	30.0	54.0

TABLE VI

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 2.1.1 TO 2.1.3 -- 0.37-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
2.1. 1	0.0296	0.1023	19.67	0.0	2.767	1.013	4.92	0.753	0.3768	0.7329
2.1. 2	0.0293	0.1023	19.67	0.0	2.950	0.923	4.86	0.803	0.3745	0.7568
2.1. 3	0.0293	0.1023	19.67	0.0	2.933	1.001	4.96	0.778	0.3745	0.7546

TABLE VII

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 2.2.1 TO 2.2.47 -- 0.37-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JC*)**1/2	(JL*)**1/2
2.2. 1	0.1747	0.1101	21.29	0.0	0.040	1.013	26.94	0.011	0.8986	0.0881
2.2. 2	0.1421	0.1101	21.29	0.0	0.147	1.006	21.90	0.040	0.8103	0.1687
2.2. 3	0.1426	0.1110	21.29	0.0	0.115	1.014	21.62	0.031	0.8103	0.1492
2.2. 4	0.1423	0.1110	21.30	0.0	0.033	1.013	21.76	0.009	0.8093	0.0804
2.2. 5	0.1423	0.1112	21.30	0.0	0.142	1.008	21.72	0.030	0.8009	0.1658
2.2. 6	0.1427	0.1114	21.30	0.0	0.146	1.010	21.74	0.040	0.8096	0.1683
2.2. 7	0.1423	0.1114	21.30	0.0	0.142	0.992	21.97	0.039	0.8085	0.1658
2.2. 8	0.1427	0.1114	21.30	0.0	0.153	0.991	21.74	0.042	0.8096	0.1721
2.2. 9	0.1434	0.1114	21.30	0.0	0.175	1.119	21.85	0.048	0.8118	0.1843
2.2.10	0.1121	0.1114	21.30	0.0	0.325	1.014	17.07	0.033	0.7178	0.2512
2.2.11	0.1126	0.1114	21.30	0.0	0.344	1.028	17.16	0.074	0.7193	0.2585
2.2.12	0.1113	0.1114	21.30	0.0	0.300	1.018	17.34	0.082	0.7168	0.2413
2.2.13	0.1113	0.1119	21.30	0.0	0.337	1.031	16.90	0.092	0.7146	0.2540
2.2.14	0.1131	0.1119	21.30	0.0	0.287	0.991	17.15	0.073	0.7202	0.2363
2.2.15	0.0790	0.1119	21.30	0.0	0.805	1.017	12.00	0.210	0.6020	0.3953
2.2.16	0.0780	0.1116	21.30	0.0	0.979	1.039	11.95	0.239	0.6007	0.4131
2.2.17	0.0790	0.1116	21.30	0.0	0.765	1.025	12.31	0.209	0.6020	0.3853
2.2.18	0.0790	0.1119	21.30	0.0	0.787	0.945	11.99	0.214	0.6017	0.3910
2.2.19	0.0781	0.1119	21.30	0.0	0.836	0.964	11.95	0.227	0.5935	0.4026
2.2.20	0.0781	0.1119	21.30	0.0	0.850	0.974	11.85	0.231	0.5985	0.4062
2.2.21	0.0465	0.1116	21.30	0.0	2.008	1.186	7.93	0.545	0.4622	0.6244
2.2.22	0.0467	0.1116	21.30	0.0	2.044	0.982	7.11	0.556	0.4632	0.6300
2.2.23	0.0467	0.1119	21.30	0.0	2.214	1.021	7.19	0.502	0.4630	0.6557
2.2.24	0.0310	0.1119	21.30	0.0	2.025	1.005	4.70	0.769	0.3770	0.7406
2.2.25	0.0310	0.1116	21.30	0.0	3.042	1.014	4.71	0.828	0.3772	0.7685
2.2.26	0.0311	0.1116	21.30	0.0	2.912	1.009	4.73	0.792	0.3779	0.7520
2.2.27	0.0156	0.1116	21.30	0.0	4.055	0.991	2.37	1.193	0.2572	0.8873
2.2.28	0.0155	0.1114	21.30	0.0	4.143	1.017	2.35	1.127	0.2666	0.8948
2.2.29	0.0620	0.1114	21.30	0.0	1.214	1.018	9.44	0.330	0.5336	0.4855
2.2.30	0.0630	0.1114	21.30	0.0	1.342	1.037	9.60	0.365	0.5380	0.5104
2.2.31	0.0623	0.1114	21.30	0.0	1.300	1.023	9.49	0.354	0.5351	0.5074
2.2.32	0.0623	0.1114	21.30	0.0	1.450	1.000	9.49	0.394	0.5351	0.5306
2.2.33	0.0627	0.1114	21.30	0.0	1.360	0.995	9.55	0.370	0.5369	0.5139
2.2.34	0.0955	0.1114	21.30	0.0	0.480	1.021	14.55	0.131	0.6624	0.3053
2.2.35	0.0945	0.1114	21.30	0.0	0.492	1.293	14.40	0.134	0.6589	0.3000
2.2.36	0.0945	0.1114	21.30	0.0	0.529	0.668	14.40	0.144	0.6589	0.3205
2.2.37	0.0960	0.1250	21.30	0.0	0.550	0.971	13.04	0.150	0.6453	0.3268
2.2.38	0.0958	0.1113	21.28	0.0	0.570	1.037	13.61	0.155	0.6437	0.3327
2.2.39	0.1288	0.1113	21.28	0.0	0.182	1.010	19.64	0.049	0.7694	0.1879
2.2.40	0.1288	0.1117	21.28	0.0	0.173	0.762	19.56	0.047	0.7696	0.1833

TABLE VII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.2

SUMMARY OF CALCULATED RESULTS FOR TESTS 2.2.1 TO 2.2.47 -- 0.37 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JS**)1/2	(JL**)1/2
2.2.41	0.1294	0.1117	21.28	0.0	0.204	1.014	19.64	0.055	0.7706	0.1986
2.2.42	0.1288	0.1113	21.28	0.0	0.215	0.992	19.64	0.059	0.7694	0.2045
2.2.43	0.1280	0.1117	21.28	0.0	0.225	1.064	19.44	0.061	0.7663	0.2090
2.2.44	0.1508	0.1117	21.28	0.0	0.057	1.018	24.12	0.024	0.8535	0.1303
2.2.45	0.1596	0.1117	21.28	0.0	0.092	1.007	24.25	0.025	0.9557	0.1334
2.2.46	0.1595	0.1111	21.28	0.0	0.069	0.967	24.22	0.024	0.9539	0.1316
2.2.47	0.1578	0.1111	21.28	0.0	0.071	1.012	24.11	0.021	0.8521	0.1224

TABLE VII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.2.1 TO 2.2.47 -- 0.37-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
2.2. 1	33.0	10.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
2.2. 2	30.0	10.0	0.0	0.0	60.00	30.00	0.0	0.0	0.0	0.0
2.2. 3	30.0	0.0	0.0	0.0	60.00	30.00	0.0	0.0	0.0	0.0
2.2. 4	30.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.2. 5	33.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.2. 6	30.0	0.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.2. 7	20.0	0.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.2. 9	0.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.2. 9	0.0	3.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.2.10	30.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
2.2.11	30.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
2.2.12	20.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
2.2.13	0.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
2.2.14	0.0	4.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
2.2.15	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
2.2.16	30.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
2.2.17	30.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
2.2.18	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
2.2.19	0.0	7.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
2.2.20	0.0	8.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
2.2.21	30.0	10.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
2.2.22	30.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
2.2.23	20.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
2.2.24	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
2.2.25	30.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
2.2.26	24.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
2.2.27	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
2.2.28	32.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
2.2.29	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.2.30	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.2.31	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.2.32	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.2.33	12.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.2.34	30.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.2.35	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.2.36	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.2.37	0.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.2.38	0.0	5.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.2.39	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.2.40	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0

TABLE VII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.2.1 TO 2.2.47 - 0.37-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
2.2.41	20.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.2.42	0.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.2.43	0.0	4.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.2.44	30.0	10.0	0.0	0.0	60.00	40.00	0.0	0.0	0.0	0.0
2.2.45	20.0	10.0	0.0	0.0	60.00	40.00	0.0	0.0	0.0	0.0
2.2.46	20.0	0.0	0.0	0.0	60.00	40.00	0.0	0.0	0.0	0.0
2.2.47	0.0	10.0	0.0	0.0	60.00	40.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-3APP (PSIA)
2.2. 1	0.0	10.7	10.5	0.0	0.0	53.0	70.0	0.0	0.0	12.3
2.2. 2	0.0	10.7	10.5	0.0	0.0	54.0	70.0	0.0	0.0	12.3
2.2. 3	0.0	10.7	10.5	0.0	0.0	55.0	66.0	0.0	0.0	12.3
2.2. 4	0.0	10.7	10.5	0.0	0.0	55.0	66.0	0.0	0.0	12.3
2.2. 5	0.0	10.7	10.5	0.0	0.0	55.0	66.0	0.0	0.0	12.3
2.2. 6	0.0	10.7	10.5	0.0	0.0	55.0	63.0	0.0	0.0	12.3
2.2. 7	0.0	10.5	10.5	0.0	0.0	50.0	66.0	0.0	0.0	12.3
2.2. 8	0.0	10.7	10.5	0.0	0.0	54.0	63.0	0.0	0.0	12.3
2.2. 9	0.0	10.7	10.7	0.0	0.0	57.0	63.0	0.0	0.0	12.3
2.2.10	0.0	10.7	10.5	0.0	0.0	55.0	63.0	0.0	0.0	12.3
2.2.11	0.0	10.7	10.7	0.0	0.0	55.0	64.0	0.0	0.0	12.3
2.2.12	0.0	10.5	10.5	0.0	0.0	54.0	66.0	0.0	0.0	12.3
2.2.13	0.0	10.5	10.2	0.0	0.0	52.0	65.0	0.0	0.0	12.3
2.2.14	0.0	11.0	11.0	0.0	0.0	52.0	65.0	0.0	0.0	12.3
2.2.15	0.0	10.7	10.5	0.0	0.0	53.0	65.0	0.0	0.0	12.3
2.2.16	0.0	10.5	10.2	0.0	0.0	53.0	65.0	0.0	0.0	12.3
2.2.17	0.0	10.7	10.5	0.0	0.0	53.0	66.0	0.0	0.0	12.3
2.2.18	0.0	10.5	10.5	0.0	0.0	53.0	66.0	0.0	0.0	12.3
2.2.19	0.0	10.5	10.0	0.0	0.0	51.0	66.0	0.0	0.0	12.3
2.2.20	0.0	10.0	10.0	0.0	0.0	53.0	66.0	0.0	0.0	12.3
2.2.21	0.0	10.5	10.2	0.0	0.0	53.0	66.0	0.0	0.0	12.3
2.2.22	0.0	10.5	10.5	0.0	0.0	53.0	67.0	0.0	0.0	12.3
2.2.23	0.0	10.5	10.5	0.0	0.0	53.0	67.0	0.0	0.0	12.3
2.2.24	0.0	10.5	10.2	0.0	0.0	51.0	67.0	0.0	0.0	12.3
2.2.25	0.0	10.5	10.2	0.0	0.0	51.0	67.0	0.0	0.0	12.3

TABLE VII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.2.1 TO 2.2.47 -- 0.37-IN. DIAMETER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-3090 (PSIA)
2.2.26	J.0	10.7	10.5	J.0	0.0	54.0	69.0	0.0	0.0	12.3
2.2.27	0.0	10.7	10.5	0.0	0.0	54.0	69.0	0.0	0.0	12.3
2.2.28	0.0	10.7	10.2	0.0	0.0	54.0	69.0	0.0	0.0	12.3
2.2.29	J.0	10.2	10.9	0.0	0.0	53.0	70.0	0.0	0.0	12.3
2.2.30	J.0	10.7	10.7	0.0	0.0	55.0	70.0	0.0	0.0	12.3
2.2.31	J.0	10.2	10.2	0.0	0.0	53.0	70.0	0.0	0.0	12.3
2.2.32	J.0	10.2	10.2	J.0	0.0	54.0	70.0	0.0	0.0	12.3
2.2.33	J.0	10.5	10.5	0.0	0.0	54.0	67.0	0.0	0.0	12.3
2.2.34	0.0	10.7	10.7	0.0	0.0	54.0	69.0	0.0	J.0	12.3
2.2.35	0.0	10.5	10.2	0.0	0.0	55.0	69.0	0.0	0.0	12.3
2.2.36	J.0	10.5	10.2	0.0	0.0	55.0	69.0	0.0	0.0	12.3
2.2.37	J.0	10.7	11.0	0.0	0.0	55.0	69.0	0.0	0.0	12.3
2.2.38	0.0	10.7	10.7	0.0	0.0	54.0	65.0	0.0	0.0	12.3
2.2.39	J.0	10.7	10.5	0.0	0.0	53.0	65.0	0.0	J.0	12.3
2.2.40	J.0	10.7	10.5	0.0	0.0	53.0	65.0	0.0	0.0	12.3
2.2.41	J.0	10.5	10.7	0.0	0.0	53.0	65.0	0.0	0.0	12.3
2.2.42	J.0	10.5	10.5	0.0	0.0	52.0	65.0	0.0	0.0	12.3
2.2.43	J.0	10.2	10.2	0.0	0.0	52.0	66.0	0.0	0.0	12.3
2.2.44	J.0	10.7	10.5	0.0	0.0	53.0	65.0	0.0	0.0	12.3
2.2.45	0.0	10.7	10.7	0.0	0.0	53.0	65.0	0.0	0.0	12.3
2.2.46	J.0	10.5	10.5	J.0	0.0	53.0	67.0	0.0	0.0	12.3
2.2.47	0.0	10.5	10.2	0.0	0.0	54.0	66.0	0.0	0.0	12.3

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
2.2. 1	132.5	135.5	75.0	86.3	254.0	30.0	12.0	9.0	62.0
2.2. 2	135.5	146.5	75.0	254.0	417.5	30.0	12.0	9.0	62.0
2.2. 3	146.5	156.3	95.0	417.5	541.0	30.0	12.0	9.0	59.0
2.2. 4	132.0	134.0	60.0	82.0	166.0	15.0	12.0	9.0	58.0
2.2. 5	134.0	142.5	60.0	166.0	330.0	30.0	12.0	9.0	57.0
2.2. 6	142.5	151.3	60.0	330.0	452.0	30.0	12.0	9.0	56.0
2.2. 7	151.3	159.8	60.0	452.0	530.5	30.0	12.0	9.0	56.0
2.2. 8	159.8	171.5	77.0	530.5	604.0	60.0	12.0	9.0	56.0
2.2. 9	171.5	182.0	60.0	604.0	621.5	60.0	12.0	9.0	56.0
2.2.10	182.0	201.5	60.0	121.5	281.0	30.0	12.0	9.0	56.0
2.2.11	201.5	222.5	61.0	281.0	399.3	30.0	12.0	9.0	56.0
2.2.12	222.5	240.5	60.0	399.3	490.8	40.0	12.0	9.0	56.0
2.2.13	240.5	260.8	60.0	490.8	256.0	60.0	12.0	9.0	54.0
2.2.14	260.8	278.0	60.0	256.0	271.5	60.0	12.0	9.0	54.0
2.2.15	278.0	318.3	50.0	271.5	417.0	30.0	12.0	9.0	54.0

TABLE VII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.2.1 TO 2.2.47 -- 0.37-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
2.2.16	318.3	371.0	60.0	417.0	572.5	45.0	12.0	9.0	55.0
2.2.17	371.0	436.0	85.0	572.5	713.0	40.0	12.0	9.0	55.0
2.2.18	436.0	483.3	60.0	713.0	791.5	40.0	12.0	9.0	54.0
2.2.19	483.3	512.5	35.0	791.5	792.0	105.0	12.0	9.0	54.0
2.2.20	512.5	555.0	50.0	792.0	806.0	60.0	12.0	9.0	54.0
2.2.21	191.5	312.0	60.0	329.0	489.5	35.0	12.0	9.0	55.0
2.2.22	312.0	404.0	45.0	489.5	561.5	35.0	12.0	9.0	55.0
2.2.23	309.0	382.5	35.0	561.5	599.0	60.0	12.0	9.0	54.0
2.2.24	382.5	475.5	40.0	599.0	751.0	55.0	12.0	9.0	54.0
2.2.25	348.8	546.5	65.0	444.0	497.5	45.0	12.0	9.0	55.0
2.2.26	133.0	307.8	60.0	497.5	529.0	70.0	12.0	9.0	55.0
2.2.27	281.0	483.8	50.0	529.0	616.5	60.0	12.0	9.0	55.0
2.2.28	346.0	489.0	35.0	616.5	643.3	70.0	12.0	9.0	56.0
2.2.29	387.5	430.0	35.0	461.5	595.0	30.0	12.0	9.0	56.0
2.2.30	347.3	337.5	30.0	372.0	461.5	30.0	12.0	9.0	56.0
2.2.31	430.0	482.0	40.0	595.0	634.0	30.0	12.0	9.0	56.0
2.2.32	216.5	267.3	35.0	136.5	203.0	50.0	12.0	9.0	56.0
2.2.33	267.3	335.3	50.0	203.0	220.0	60.0	12.0	9.0	56.0
2.2.34	157.5	181.5	50.0	427.0	503.0	30.0	12.0	9.0	56.0
2.2.35	181.5	211.0	60.0	583.0	730.0	30.0	12.0	9.0	56.0
2.2.36	211.0	242.8	60.0	730.0	707.0	35.0	12.0	9.0	56.0
2.2.37	242.8	275.8	60.0	809.0	869.0	50.0	12.0	9.0	56.0
2.2.38	132.0	174.8	75.0	89.0	191.0	70.0	12.0	9.0	56.0
2.2.39	174.8	184.8	55.0	101.0	264.0	30.0	12.0	9.0	56.0
2.2.40	184.8	156.0	65.0	264.0	386.0	30.0	12.0	9.0	54.0
2.2.41	196.0	209.3	65.0	386.0	464.5	30.0	12.0	9.0	54.0
2.2.42	209.3	223.3	65.0	464.5	499.0	30.0	12.0	9.0	56.0
2.2.43	223.3	236.8	60.0	499.0	510.0	30.0	12.0	9.0	54.0
2.2.44	236.8	242.0	60.0	510.0	421.5	20.0	12.0	9.0	54.0
2.2.45	242.0	268.0	60.0	452.5	555.3	25.0	12.0	9.0	54.0
2.2.46	132.5	137.8	60.0	72.5	170.5	30.0	12.0	9.0	57.0
2.2.47	137.8	143.3	70.0	170.5	237.0	50.0	12.0	9.0	57.0

TABLE VIII

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.3

TRANSPARENT VESSEL TEST DATA FOR TESTS 2.3.1 TO 2.3.36 -- 0.37-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
2.3.1	0.0212	0.2216	42.28	0.0	3.908	0.974	1.63	1.063	0.2632	0.8715
2.3.2	0.0217	0.2216	42.28	0.0	4.133	1.012	1.66	1.124	0.2661	0.8962
2.3.3	0.0666	0.2216	42.28	0.0	1.994	1.031	5.10	0.542	0.4660	0.6224
2.3.4	0.0645	0.2216	42.28	0.0	2.027	1.025	4.94	0.551	0.4585	0.6276
2.3.5	0.0639	0.2216	42.28	0.0	2.028	1.021	4.90	0.552	0.4566	0.6277
2.3.6	0.1069	0.2216	42.28	0.0	2.071	1.025	8.19	0.563	0.5905	0.6344
2.3.7	0.1075	0.2211	42.28	0.0	0.804	1.003	8.26	0.219	0.5925	0.3953
2.3.8	0.1072	0.2211	42.28	0.0	0.867	0.987	8.23	0.236	0.5916	0.4104
2.3.9	0.1075	0.2211	42.28	0.0	0.944	1.005	8.26	0.257	0.5925	0.4284
2.3.10	0.1069	0.2211	42.28	0.0	0.962	1.037	8.21	0.262	0.5908	0.4325
2.3.11	0.1514	0.2199	42.28	0.0	0.392	0.991	11.69	0.107	0.7040	0.2761
2.3.12	0.1504	0.2199	42.28	0.0	0.432	1.011	11.61	0.117	0.7016	0.2897
2.3.13	0.1508	0.2203	42.28	0.0	0.441	0.974	11.62	0.120	0.7022	0.2927
2.3.14	0.1508	0.2203	42.28	0.0	0.427	1.022	11.62	0.116	0.7022	0.2881
2.3.15	0.1955	0.2203	42.28	0.0	0.208	1.004	15.07	0.057	0.7996	0.2009
2.3.16	0.1939	0.2207	42.28	0.0	0.214	1.020	14.91	0.059	0.7959	0.2037
2.3.17	0.1932	0.2168	42.24	0.0	0.167	1.004	15.13	0.045	0.7982	0.1800
2.3.18	0.1930	0.2168	42.24	0.0	0.188	0.999	15.12	0.051	0.7978	0.1914
2.3.19	0.1930	0.2184	42.24	0.0	0.217	1.004	15.00	0.059	0.7963	0.2052
2.3.20	0.1739	0.2193	42.24	0.0	0.273	1.000	13.46	0.074	0.7550	0.2302
2.3.21	0.1737	0.2197	42.24	0.0	0.265	1.007	13.43	0.072	0.7543	0.2271
2.3.22	0.1742	0.2197	42.24	0.0	0.262	0.975	13.46	0.071	0.7554	0.2254
2.3.23	0.1731	0.2197	42.24	0.0	0.268	1.015	13.37	0.073	0.7529	0.2283
2.3.24	0.1750	0.2197	42.24	0.0	0.295	1.030	13.53	0.030	0.7571	0.2396
2.3.25	0.1301	0.2197	42.24	0.0	0.565	0.998	10.05	0.154	0.6529	0.3313
2.3.26	0.1289	0.2201	42.24	0.0	0.600	1.039	9.94	0.163	0.6494	0.3415
2.3.27	0.1286	0.2201	42.24	0.0	0.673	1.015	9.92	0.133	0.6487	0.3616
2.3.28	0.1286	0.2193	42.24	0.0	0.646	1.276	9.96	0.176	0.6494	0.3543
2.3.29	0.0858	0.2210	42.24	0.0	1.389	1.015	6.59	0.379	0.5293	0.5195
2.3.30	0.0857	0.2218	42.24	0.0	1.350	0.993	6.56	0.367	0.5295	0.5122
2.3.31	0.0859	0.2218	42.24	0.0	1.427	0.999	6.57	0.383	0.5288	0.5266
2.3.32	0.0863	0.2218	42.24	0.0	1.355	1.012	6.60	0.369	0.5303	0.5131
2.3.33	0.0433	0.2218	42.24	0.0	2.775	1.031	3.31	0.755	0.3757	0.7343
2.3.34	0.0433	0.2213	42.24	0.0	2.989	1.026	3.31	0.313	0.3757	0.7621
2.3.35	0.0431	0.2213	42.24	0.0	3.056	1.026	3.30	0.331	0.3747	0.7706
2.3.36	0.0432	0.2210	42.24	0.0	2.978	1.065	3.32	0.310	0.3755	0.7607

TABLE VIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.3.1 TO 2.3.36 -- 0.37-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
2.3. 1	30.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
2.3. 2	22.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
2.3. 3	30.0	10.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
2.3. 4	20.0	10.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
2.3. 5	20.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
2.3. 6	16.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
2.3. 7	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
2.3. 8	20.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
2.3. 9	20.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
2.3.10	0.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
2.3.11	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
2.3.12	20.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
2.3.13	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
2.3.14	0.0	6.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
2.3.15	30.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.3.16	20.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.3.17	20.0	0.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.3.18	0.0	10.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.3.19	0.0	4.0	0.0	0.0	50.00	40.00	0.0	0.0	0.0	0.0
2.3.20	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.3.21	20.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.3.22	20.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.3.23	0.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.3.24	0.0	4.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
2.3.25	30.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.3.26	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.3.27	20.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.3.28	0.0	6.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
2.3.29	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.3.30	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.3.31	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.3.32	12.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
2.3.33	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
2.3.34	20.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
2.3.35	20.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
2.3.36	24.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0

TABLE VIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.3.1 TO 2.3.36 -- 0.37-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARD (PSIA)
2.3.1	J.0	32.5	30.1	0.0	0.0	53.0	67.0	0.0	0.0	12.3
2.3.2	J.0	32.0	32.0	0.0	0.0	53.0	67.0	0.0	0.0	12.3
2.3.3	J.0	33.0	34.0	0.0	0.0	53.0	67.0	0.0	0.0	12.3
2.3.4	J.0	31.5	31.5	0.0	0.0	54.0	72.0	0.0	0.0	12.3
2.3.5	J.0	30.5	30.7	0.0	0.0	54.0	72.0	0.0	0.0	12.3
2.3.6	J.0	30.5	30.5	0.0	0.0	54.0	72.0	0.0	0.0	12.3
2.3.7	J.0	31.5	31.0	0.0	0.0	54.0	72.0	0.0	0.0	12.3
2.3.8	0.0	31.5	30.7	0.0	0.0	54.0	72.0	0.0	0.0	12.3
2.3.9	J.0	31.0	31.0	0.0	0.0	55.0	72.0	0.0	0.0	12.3
2.3.10	J.0	30.2	30.5	0.0	0.0	55.0	72.0	0.0	0.0	12.3
2.3.11	0.0	31.5	31.1	0.0	0.0	55.0	74.0	0.0	0.0	12.3
2.3.12	J.0	30.7	30.5	0.0	0.0	55.0	74.0	0.0	0.0	12.3
2.3.13	J.0	30.7	30.7	0.0	0.0	55.0	74.0	0.0	0.0	12.3
2.3.14	J.0	30.5	30.5	0.0	0.0	55.0	71.0	0.0	0.0	12.3
2.3.15	0.0	31.7	31.7	0.0	0.0	54.0	71.0	0.0	0.0	12.3
2.3.16	J.0	31.0	31.0	0.0	0.0	54.0	71.0	0.0	0.0	12.3
2.3.17	J.0	30.7	31.0	0.0	0.0	59.0	74.0	0.0	0.0	12.2
2.3.18	J.0	30.7	30.7	0.0	0.0	58.0	72.0	0.0	0.0	12.2
2.3.19	J.0	31.0	30.7	0.0	0.0	59.0	72.0	0.0	0.0	12.2
2.3.20	J.0	30.5	30.5	0.0	0.0	56.0	65.0	0.0	0.0	12.2
2.3.21	J.0	30.7	30.5	0.0	0.0	56.0	66.0	0.0	0.0	12.2
2.3.22	J.0	31.0	31.0	0.0	0.0	56.0	67.0	0.0	0.0	12.2
2.3.23	J.0	30.7	30.5	0.0	0.0	56.0	70.0	0.0	0.0	12.2
2.3.24	J.0	31.2	31.5	0.0	0.0	58.0	70.0	0.0	0.0	12.2
2.3.25	J.0	31.5	31.5	0.0	0.0	56.0	72.0	0.0	0.0	12.2
2.3.26	J.0	30.5	30.5	0.0	0.0	55.0	70.0	0.0	0.0	12.2
2.3.27	0.0	30.7	30.5	0.0	0.0	56.0	72.0	0.0	0.0	12.2
2.3.28	J.0	30.7	30.5	0.0	0.0	60.0	72.0	0.0	0.0	12.2
2.3.29	J.0	31.0	31.0	0.0	0.0	52.0	72.0	0.0	0.0	12.2
2.3.30	0.0	30.7	30.5	0.0	0.0	52.0	67.0	0.0	0.0	12.2
2.3.31	0.0	30.5	30.5	0.0	0.0	52.0	66.0	0.0	0.0	12.2
2.3.32	0.0	30.7	31.0	0.0	0.0	52.0	66.0	0.0	0.0	12.2
2.3.33	J.0	31.5	31.7	0.0	0.0	53.0	66.0	0.0	0.0	12.2
2.3.34	0.0	31.5	31.7	0.0	0.0	53.0	66.0	0.0	0.0	12.2
2.3.35	J.0	31.7	31.7	0.0	0.0	53.0	72.0	0.0	0.0	12.2
2.3.36	J.0	31.7	31.7	0.0	0.0	53.0	70.0	0.0	0.0	12.2

TABLE VIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 2.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 2.3.1 TO 2.3.36 -- 0.37-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DFG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
2.3.1	143.3	260.5	30.0	237.0	327.5	60.0	12.0	30.0	55.0
2.3.2	260.5	384.5	30.0	327.5	353.5	70.0	12.0	30.0	55.0
2.3.3	384.5	464.3	40.0	353.5	521.8	45.0	12.0	30.0	55.0
2.3.4	132.0	263.8	65.0	414.0	504.0	40.0	12.0	30.0	55.0
2.3.5	263.3	353.0	45.0	504.0	540.5	45.0	12.0	30.0	55.0
2.3.6	355.0	479.3	60.0	540.5	553.0	60.0	12.0	30.0	55.0
2.3.7	350.0	398.3	60.0	553.0	744.0	40.0	12.0	30.0	56.0
2.3.8	398.3	437.3	45.0	744.0	874.0	40.0	12.0	30.0	56.0
2.3.9	437.3	479.8	45.0	874.0	948.0	40.0	12.0	30.0	56.0
2.3.10	479.8	537.5	60.0	948.0	972.0	50.0	12.0	30.0	56.0
2.3.11	132.5	159.0	65.0	90.0	243.5	30.0	12.0	30.0	59.0
2.3.12	159.0	181.8	55.0	243.5	376.0	35.0	12.0	30.0	59.0
2.3.13	191.8	206.0	55.0	376.0	444.0	30.0	12.0	30.0	59.0
2.3.14	206.0	227.5	35.0	444.0	469.5	60.0	12.0	30.0	53.0
2.3.15	229.5	243.0	65.0	469.5	577.0	20.0	12.0	30.0	58.0
2.3.16	243.0	254.8	55.0	444.5	545.5	25.0	12.0	30.0	57.0
2.3.17	132.5	142.5	60.0	87.3	166.0	30.0	12.0	30.0	66.0
2.3.18	142.5	154.8	65.0	166.0	202.0	30.0	12.0	30.0	66.0
2.3.19	154.8	167.3	60.0	202.0	212.3	30.0	12.0	30.0	62.0
2.3.20	167.3	182.3	55.0	212.3	344.5	25.0	12.0	30.0	60.0
2.3.21	192.3	199.5	65.0	344.5	462.5	30.0	12.0	30.0	59.0
2.3.22	199.5	216.5	65.0	462.5	536.0	30.0	12.0	30.0	59.0
2.3.23	216.5	231.3	55.0	536.0	576.0	30.0	12.0	30.0	59.0
2.3.24	231.3	247.5	55.0	576.0	591.5	50.0	12.0	30.0	59.0
2.3.25	209.0	237.3	50.0	202.5	352.0	30.0	12.0	30.0	59.0
2.3.26	237.3	270.3	55.0	352.0	464.0	30.0	12.0	30.0	58.0
2.3.27	270.3	307.3	55.0	464.0	550.0	40.0	12.0	30.0	58.0
2.3.28	133.3	172.0	60.0	90.5	107.3	40.0	12.0	30.0	60.0
2.3.29	172.0	234.5	45.0	107.3	277.5	40.0	12.0	30.0	56.0
2.3.30	234.5	315.5	60.0	277.5	390.0	40.0	12.0	30.0	54.0
2.3.31	315.5	394.0	55.0	390.0	444.0	40.0	12.0	30.0	54.0
2.3.32	394.0	461.8	50.0	444.0	465.0	60.0	12.0	30.0	54.0
2.3.33	241.8	325.0	30.0	121.5	269.5	50.0	12.0	30.0	54.0
2.3.34	325.0	459.5	45.0	269.5	527.5	45.0	12.0	30.0	54.0
2.3.35	441.5	563.8	40.0	327.5	382.5	45.0	12.0	30.0	54.0
2.3.36	433.5	569.5	45.0	382.5	420.0	65.0	12.0	30.0	56.0

TABLE IX

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.1.1 TO 4.1.53 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.1. 1	0.1672	J.1034	19.70	0.0	0.075	1.005	25.10	0.019	0.7934	0.1072
4.1. 2	0.1672	J.1036	19.70	0.0	0.075	-1.038	25.05	0.019	0.7930	0.1072
4.1. 3	J.1672	0.1036	19.70	0.0	0.078	0.999	25.05	0.019	0.7930	0.1096
4.1. 4	0.0146	0.1030	19.70	0.0	4.717	0.991	2.20	1.174	0.2347	0.8504
4.1. 5	J.0146	0.1030	19.70	0.0	4.500	1.008	2.20	1.120	0.2348	0.8306
4.1. 6	0.0147	0.1030	19.70	0.0	4.650	1.115	2.22	1.157	0.2355	0.8443
4.1. 7	0.1667	0.1028	19.70	0.0	0.086	0.993	25.18	0.021	0.7934	0.1149
4.1. 9	J.1668	J.1029	19.70	0.0	0.075	0.247	25.20	0.019	0.7938	0.1072
4.1. 9	J.1390	0.1028	19.70	0.0	0.229	0.995	21.00	0.057	0.7246	0.1874
4.1.10	J.1390	J.1030	19.70	0.0	0.240	1.003	20.96	0.060	0.7242	0.1917
4.1.11	J.1390	0.1032	19.70	0.0	0.237	0.982	20.92	0.059	0.7239	0.1908
4.1.12	J.1390	0.1032	19.70	0.0	0.250	0.994	20.92	0.062	0.7239	0.1958
4.1.13	0.1398	0.1032	19.70	0.0	0.242	0.932	21.03	0.060	0.7259	0.1925
4.1.14	0.1389	0.1030	19.70	0.0	0.623	0.993	20.94	0.155	0.7239	0.3090
4.1.15	0.1063	J.1030	19.70	0.0	0.642	1.006	16.02	0.160	0.6333	0.3137
4.1.16	J.1063	0.1032	19.70	0.0	0.617	0.994	15.99	0.153	0.6330	0.3075
4.1.17	J.1057	J.1032	19.70	0.0	0.708	1.017	15.99	0.176	0.6311	0.3295
4.1.18	0.1063	0.1030	19.70	0.0	0.742	1.486	16.02	0.185	0.6333	0.3372
4.1.19	0.1060	0.1024	19.70	0.0	0.683	1.012	16.07	0.179	0.6333	0.3237
4.1.20	J.0751	J.1027	19.67	0.0	1.462	0.992	11.35	0.364	0.5326	0.4735
4.1.21	0.0751	0.1027	19.67	0.0	1.525	1.032	11.35	0.380	0.5326	0.4835
4.1.22	0.0751	0.1027	19.67	0.0	1.583	1.040	11.35	0.394	0.5326	0.4927
4.1.23	0.0746	J.1027	19.67	0.0	1.496	1.079	11.29	0.372	0.5310	0.4789
4.1.24	0.0446	0.1029	19.67	0.0	2.583	0.995	6.73	0.643	0.4104	0.6293
4.1.25	J.0449	0.1029	19.67	0.0	2.563	0.989	6.77	0.638	0.4116	0.6268
4.1.26	J.0449	0.1029	19.67	0.0	2.512	0.939	6.77	0.625	0.4116	0.6206
4.1.27	0.0433	0.1023	19.67	0.0	1.375	0.989	6.57	0.342	0.4047	0.4591
4.1.28	0.0295	J.1023	19.67	0.0	3.552	1.010	4.48	0.894	0.3343	0.7421
4.1.29	J.0295	J.1031	19.67	0.0	3.313	1.001	4.45	0.825	0.3338	0.7126
4.1.30	0.0294	0.1030	19.68	0.0	2.758	0.999	4.43	0.687	0.3329	0.6503
4.1.31	J.0295	0.1029	19.67	0.0	3.212	0.984	4.46	0.800	0.3339	0.7018
4.1.32	0.0599	0.1027	19.67	0.0	2.046	1.012	9.07	0.509	0.4760	0.5601
4.1.33	J.0599	J.1027	19.67	0.0	2.079	1.003	9.07	0.518	0.4760	0.5646
4.1.34	J.0596	J.1027	19.67	0.0	2.037	0.995	9.01	0.507	0.4746	0.5589
4.1.35	0.0589	0.1027	19.67	0.0	2.354	J.996	8.90	0.586	0.4717	0.6008
4.1.36	J.0592	J.1027	19.67	0.0	1.987	1.021	0.96	0.495	0.4731	0.5520
4.1.37	0.0909	J.1027	19.67	0.0	1.053	1.012	13.74	0.263	0.5860	0.4028
4.1.38	J.0898	0.1029	19.67	0.0	1.017	1.001	13.56	0.253	0.5823	0.3948
4.1.39	J.0898	0.1029	19.67	0.0	1.050	0.990	13.56	0.261	0.5823	0.4012
4.1.40	J.0910	J.1025	19.67	0.0	0.933	0.996	13.80	0.232	0.5869	0.3783

TABLE IX (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

SUMMARY OF CALCULATED RESULTS FOR TESTS 4.1.1 TO 4.1.53 -- 0.49 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.1.41	0.0926	0.1025	19.67	0.0	1.008	1.031	14.03	0.251	0.5919	0.3932
4.1.42	0.1218	0.1027	19.67	0.0	0.325	1.003	18.41	0.081	0.6783	0.2232
4.1.43	0.1231	0.1029	19.67	0.0	0.321	1.010	18.59	0.080	0.6819	0.2218
4.1.44	0.1223	0.1023	19.63	0.0	0.308	1.013	18.65	0.077	0.6819	0.2174
4.1.45	0.1229	0.1025	19.63	0.0	0.333	1.003	18.61	0.083	0.6816	0.2261
4.1.46	0.1223	0.1025	19.63	0.0	0.367	1.048	18.61	0.091	0.6816	0.2371
4.1.47	0.1510	0.1025	19.63	0.0	0.140	1.004	22.88	0.035	0.7558	0.1465
4.1.48	0.1522	0.1027	19.63	0.0	0.138	1.010	23.01	0.034	0.7583	0.1456
4.1.49	0.1513	0.1027	19.63	0.0	0.150	1.014	22.89	0.037	0.7561	0.1516
4.1.50	0.1512	0.1029	19.63	0.0	0.143	0.996	22.82	0.035	0.7554	0.1478
4.1.51	0.1501	0.1023	19.63	0.0	0.121	0.050	22.79	0.030	0.7540	0.1361
4.1.52	0.0030	0.1029	19.63	0.0	5.149	0.926	0.45	1.282	0.1059	0.8885
4.1.53	0.0030	0.1029	19.63	0.0	6.150	0.996	0.45	1.531	0.1067	0.9710

TABLE IX (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.1.1 TO 4.1.53 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.1. 1	25.0	10.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.1. 2	25.0	0.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.1. 3	29.0	0.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.1. 4	30.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
4.1. 5	25.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
4.1. 6	30.0	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
4.1. 7	30.0	10.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.1. 8	30.0	10.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.1. 9	30.0	10.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.1.10	30.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.1.11	20.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.1.12	10.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.1.13	0.0	2.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.1.14	30.0	10.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.1.15	30.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.1.16	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.1.17	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.1.18	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.1.19	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.1.20	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.1.21	30.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.1.22	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.1.23	10.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.1.24	40.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.1.25	30.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.1.26	20.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.1.27	10.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.1.28	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.1.29	30.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.1.30	20.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.1.31	27.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.1.32	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.1.33	30.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.1.34	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.1.35	17.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.1.36	25.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.1.37	30.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.1.38	30.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.1.39	20.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.1.40	0.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0

TABLE IX (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.1.1 TO 4.1.53 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.1.41	0.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.1.42	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.1.43	30.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.1.44	20.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.1.45	0.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.1.46	0.0	5.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.1.47	30.0	10.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.1.48	30.0	0.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.1.49	20.0	0.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.1.50	0.0	10.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.1.51	30.0	10.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.1.52	30.0	10.0	0.0	0.0	0.0	0.0	0.0	2.00	0.0	0.0
4.1.53	32.0	12.5	0.0	0.0	0.0	0.0	0.0	2.00	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.1. 1	0.0	8.2	8.2	0.0	0.0	54.0	68.0	0.0	0.0	12.4
4.1. 2	0.0	8.2	8.2	0.0	0.0	54.0	68.0	0.0	0.0	12.4
4.1. 3	0.0	8.2	8.2	0.0	0.0	54.0	68.0	0.0	0.0	12.4
4.1. 4	0.0	8.0	7.7	0.0	0.0	54.0	72.0	0.0	0.0	12.4
4.1. 5	0.0	8.0	7.7	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1. 6	0.0	8.2	8.0	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1. 7	0.0	8.2	8.2	0.0	0.0	55.0	71.0	0.0	0.0	12.4
4.1. 8	0.0	8.0	8.2	0.0	0.0	57.0	70.0	0.0	0.0	12.4
4.1. 9	0.0	8.2	8.2	0.0	0.0	55.0	70.0	0.0	0.0	12.4
4.1.10	0.0	8.2	8.2	0.0	0.0	54.0	70.0	0.0	0.0	12.4
4.1.11	0.0	8.2	8.2	0.0	0.0	52.0	70.0	0.0	0.0	12.4
4.1.12	0.0	8.0	8.2	0.0	0.0	52.0	70.0	0.0	0.0	12.4
4.1.13	0.0	8.0	8.5	0.0	0.0	53.0	70.0	0.0	0.0	12.4
4.1.14	0.0	8.2	8.2	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1.15	0.0	8.0	8.2	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1.16	0.0	8.0	8.2	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1.17	0.0	8.0	8.0	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1.18	0.0	8.0	8.2	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1.19	0.0	8.0	8.0	0.0	0.0	58.0	63.0	0.0	0.0	12.4
4.1.20	0.0	8.2	8.2	0.0	0.0	55.0	69.0	0.0	0.0	12.4

TABLE IX (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.1.1 TO 4.1.53 -- 0.49-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.1.21	J.0	8.5	8.2	0.0	0.0	55.0	69.0	0.0	0.0	12.4
4.1.22	J.0	9.0	8.2	0.0	0.0	54.0	69.0	0.0	0.0	12.4
4.1.23	J.0	8.2	8.0	J.0	0.0	55.0	69.0	0.0	0.0	12.4
4.1.24	J.0	9.5	8.2	J.0	0.0	54.0	70.0	0.0	0.0	12.4
4.1.25	J.0	J.7	9.5	0.0	0.0	54.0	70.0	0.0	0.0	12.4
4.1.26	J.0	8.7	8.5	0.0	0.0	54.0	70.0	0.0	0.0	12.4
4.1.27	J.0	7.7	7.0	0.0	0.0	55.0	70.0	0.0	0.0	12.4
4.1.28	J.0	8.2	8.2	0.0	0.0	55.0	73.0	J.0	0.0	12.4
4.1.29	J.0	8.7	8.2	J.0	0.0	52.0	72.0	0.0	0.0	12.4
4.1.30	J.0	8.2	8.0	0.0	0.0	54.0	72.0	0.0	0.0	12.4
4.1.31	J.0	8.2	8.2	0.0	0.0	54.0	72.0	0.0	0.0	12.4
4.1.32	J.0	8.5	8.5	J.0	0.0	54.0	72.0	J.0	0.0	12.4
4.1.33	J.0	8.7	8.5	J.0	0.0	54.0	72.0	J.0	0.0	12.4
4.1.34	J.0	8.5	9.2	0.0	0.0	54.0	72.0	0.0	0.0	12.4
4.1.35	J.0	8.0	7.7	0.0	J.0	54.0	72.0	J.0	0.0	12.4
4.1.36	J.0	8.2	8.0	0.0	0.0	55.0	72.0	0.0	0.0	12.4
4.1.37	J.0	8.7	8.5	0.0	0.0	53.0	72.0	0.0	0.0	12.4
4.1.38	J.0	7.0	8.0	J.0	0.0	52.0	72.0	0.0	0.0	12.4
4.1.39	J.0	8.2	8.0	0.0	J.0	51.0	72.0	0.0	0.0	12.4
4.1.40	J.0	8.2	8.5	0.0	0.0	56.0	70.0	0.0	0.0	12.4
4.1.41	J.0	9.2	9.2	0.0	0.0	55.0	70.0	0.0	0.0	12.4
4.1.42	J.0	8.2	8.0	0.0	0.0	52.0	70.0	0.0	0.0	12.4
4.1.43	J.0	8.5	8.5	0.0	0.0	52.0	70.0	0.0	0.0	12.4
4.1.44	J.0	8.5	8.5	J.0	0.0	55.0	72.0	0.0	0.0	12.4
4.1.45	J.0	8.5	8.5	0.0	J.0	55.0	72.0	0.0	0.0	12.4
4.1.46	J.0	8.2	8.5	0.0	0.0	55.0	72.0	0.0	0.0	12.4
4.1.47	J.0	8.2	8.2	J.0	0.0	54.0	72.0	0.0	0.0	12.4
4.1.48	0.0	8.2	8.5	0.0	0.0	54.0	70.0	J.0	0.0	12.4
4.1.49	0.0	8.2	8.2	0.0	0.0	54.0	70.0	J.0	0.0	12.4
4.1.50	J.0	8.2	8.2	0.0	0.0	54.0	71.0	0.0	0.0	12.4
4.1.51	0.0	8.0	8.0	0.0	0.0	58.0	72.0	0.0	0.0	12.4
4.1.52	J.0	8.7	8.5	J.0	0.0	53.0	71.0	0.0	0.0	12.4
4.1.53	J.0	9.5	9.2	0.0	0.0	53.0	75.0	0.0	0.0	12.4

TABLE IX (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.1.1 TO 4.1.53 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.1.1	159.0	181.5	300.0	250.0	394.5	30.0	12.0	7.2	54.0
4.1.2	181.5	204.0	300.0	394.5	500.5	30.0	12.0	7.2	53.0
4.1.3	204.0	227.5	300.0	500.5	662.5	60.0	12.0	7.2	53.0
4.1.4	134.5	417.5	60.0	86.5	184.0	122.3	12.0	7.2	56.0
4.1.5	285.0	555.0	60.0	184.0	241.0	140.3	12.0	7.2	56.0
4.1.6	257.0	396.5	30.0	241.0	241.0	0.0	12.0	7.2	56.0
4.1.7	163.0	163.5	180.0	241.0	572.5	61.0	12.0	7.2	57.0
4.1.8	163.5	172.5	120.0	572.5	702.0	90.6	12.0	7.2	57.0
4.1.9	172.5	200.0	120.0	702.0	1043.0	64.3	12.0	7.2	57.0
4.1.10	200.0	229.8	120.0	550.5	777.0	57.4	12.0	7.2	56.0
4.1.11	229.8	257.3	120.0	777.0	948.5	68.8	12.0	7.2	55.0
4.1.12	257.3	287.3	120.0	761.5	852.0	79.9	12.0	7.2	55.0
4.1.13	287.3	316.3	120.0	852.0	854.7	134.6	12.0	7.2	55.0
4.1.14	316.3	391.0	120.0	365.5	689.0	66.0	12.0	7.2	56.0
4.1.15	391.0	429.5	60.0	689.0	925.5	66.5	12.0	7.2	56.0
4.1.16	429.5	466.5	60.0	817.0	949.0	61.5	12.0	7.2	55.0
4.1.17	453.0	492.5	60.0	350.5	901.5	72.2	12.0	7.2	55.0
4.1.18	492.5	537.0	60.0	901.5	931.0	101.3	12.0	7.2	56.0
4.1.19	132.0	173.8	60.0	85.5	88.0	122.4	12.0	7.2	59.0
4.1.20	173.8	261.5	60.0	134.0	474.4	83.7	12.0	7.2	57.0
4.1.21	261.5	353.0	60.0	474.4	653.5	64.4	12.0	7.2	57.0
4.1.22	353.0	449.0	60.0	653.5	732.0	60.0	12.0	7.2	57.0
4.1.23	449.0	537.8	60.0	732.0	732.5	120.0	12.0	7.2	57.0
4.1.24	133.5	233.5	60.0	97.5	274.5	60.0	12.0	7.2	56.0
4.1.25	233.5	442.3	60.0	274.5	368.3	60.0	12.0	7.2	56.0
4.1.26	442.3	593.0	60.0	368.3	396.8	120.0	12.0	7.2	56.0
4.1.27	354.5	437.0	60.0	139.0	139.0	0.0	12.0	7.2	59.0
4.1.28	369.3	584.8	60.0	139.0	315.5	87.1	12.0	7.2	59.0
4.1.29	335.0	533.9	60.0	315.5	367.3	60.0	12.0	7.2	55.0
4.1.30	421.8	337.3	60.0	367.3	369.0	91.0	12.0	7.3	56.0
4.1.31	367.3	560.0	60.0	369.0	407.0	78.3	12.0	7.2	56.0
4.1.32	230.3	353.0	60.0	407.0	622.0	60.0	12.0	7.2	57.0
4.1.33	353.0	477.9	60.0	622.0	752.0	61.8	12.0	7.2	57.0
4.1.34	450.5	573.8	60.0	636.0	678.5	79.5	12.0	7.2	57.0
4.1.35	431.0	572.3	60.0	471.5	471.5	0.0	12.0	7.2	57.0
4.1.36	351.5	470.8	60.0	359.0	493.0	85.0	12.0	7.2	57.0
4.1.37	346.3	437.8	60.0	526.5	822.0	64.7	12.0	7.2	57.0
4.1.38	407.0	463.8	60.0	822.0	1311.5	60.0	12.0	7.2	56.0
4.1.39	393.0	456.0	60.0	364.0	972.0	63.4	12.0	7.2	56.0
4.1.40	132.8	188.8	60.0	86.0	126.5	89.7	12.0	7.2	58.0

TABLE IX (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.1.1 TO 4.1.53 — 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.1.41	188.8	249.3	60.0	126.5	140.0	97.7	12.0	7.2	58.0
4.1.42	249.3	268.8	60.0	140.0	454.0	59.8	12.0	7.2	57.0
4.1.43	203.8	238.0	60.0	154.0	687.5	60.0	12.0	7.2	56.0
4.1.44	199.5	208.0	60.0	91.3	238.5	58.7	12.0	7.2	58.0
4.1.45	203.0	228.0	60.0	238.5	320.0	76.8	12.0	7.2	57.0
4.1.46	228.0	250.0	60.0	320.0	346.5	73.2	12.0	7.2	57.0
4.1.47	250.0	258.4	60.0	346.5	659.0	57.4	12.0	7.2	57.0
4.1.48	253.0	266.7	60.0	659.0	886.0	55.7	12.0	7.2	56.0
4.1.49	266.7	275.7	60.0	886.0	1048.0	60.7	12.0	7.2	56.0
4.1.50	275.7	284.3	60.0	905.0	984.0	63.6	12.0	7.2	55.0
4.1.51	237.8	245.0	60.0	94.0	110.0	101.0	12.0	7.2	58.0
4.1.52	245.0	401.0	30.3	110.0	110.0	0.0	12.0	7.2	55.0
4.1.53	340.0	524.5	30.0	110.0	111.0	102.5	12.0	7.2	55.0

TABLE X

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.2.1 TO 4.2.46 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JL*)**1/2	(JL*)**1/2
4.2. 1	0.0217	0.2204	42.29	0.0	4.383	1.017	1.53	1.991	0.2366	0.8202
4.2. 2	0.0218	0.2212	42.29	0.0	4.183	1.006	1.53	1.041	0.2370	0.8012
4.2. 3	0.0217	0.2217	42.29	0.0	4.008	1.117	1.52	0.999	0.2353	0.7843
4.2. 4	0.0430	0.2212	42.29	0.0	3.267	1.017	3.02	0.913	0.3329	0.7080
4.2. 5	0.0433	0.2212	42.29	0.0	3.117	0.999	3.04	0.776	0.3340	0.6916
4.2. 6	0.0427	0.2200	42.29	0.0	2.969	1.000	3.02	0.714	0.3322	0.6635
4.2. 7	0.0636	0.2200	42.29	0.0	2.503	1.000	4.47	0.624	0.4053	0.6204
4.2. 8	0.0634	0.2200	42.29	0.0	2.412	1.003	4.48	0.601	0.4048	0.6085
4.2. 9	0.0636	0.2200	42.29	0.0	2.433	1.001	4.49	0.636	0.4053	0.6111
4.2.10	0.0630	0.2204	42.29	0.0	2.533	1.018	4.44	0.631	0.4034	0.6235
4.2.11	0.0345	0.2212	42.29	0.0	1.975	1.034	5.94	0.692	0.4669	0.5505
4.2.12	0.0843	0.2203	42.29	0.0	1.938	0.760	5.96	0.482	0.4677	0.5453
4.2.13	0.0850	0.2208	42.29	0.0	2.017	0.992	5.93	0.592	0.4684	0.5563
4.2.14	0.0843	0.2209	42.29	0.0	2.020	0.967	5.96	0.593	0.4677	0.5568
4.2.15	0.1069	0.2204	42.29	0.0	1.381	1.022	7.53	0.344	0.5253	0.4604
4.2.16	0.1069	0.2204	42.29	0.0	1.433	0.996	7.53	0.357	0.5253	0.4690
4.2.17	0.1069	0.2200	42.29	0.0	1.428	0.994	7.55	0.355	0.5255	0.4681
4.2.18	0.1062	0.2200	42.29	0.0	1.544	1.070	7.50	0.394	0.5240	0.4867
4.2.19	0.1500	0.2195	42.29	0.0	0.592	0.993	10.61	0.147	0.6229	0.3015
4.2.20	0.1503	0.2203	42.29	0.0	0.623	0.995	10.57	0.155	0.6226	0.3092
4.2.21	0.1536	0.2207	42.27	0.0	0.637	1.005	10.60	0.159	0.6235	0.3128
4.2.22	0.1493	0.2202	42.27	0.0	0.614	0.986	10.53	0.153	0.6211	0.3070
4.2.23	0.1511	0.2198	42.27	0.0	0.669	0.986	10.57	0.167	0.6250	0.3205
4.2.24	0.1953	0.2202	42.27	0.0	0.308	1.007	13.01	0.077	0.7112	0.2175
4.2.25	0.1747	0.2202	42.27	0.0	0.258	1.007	13.75	0.054	0.7092	0.1991
4.2.26	0.1953	0.2183	42.27	0.0	0.295	0.985	13.38	0.074	0.7115	0.2129
4.2.27	0.1974	0.2194	42.27	0.0	0.321	1.069	13.93	0.090	0.7148	0.2219
4.2.28	0.2371	0.2184	42.27	0.0	0.150	1.010	16.79	0.037	0.7934	0.1517
4.2.29	0.2391	0.2194	42.27	0.0	0.167	1.011	16.93	0.041	0.7967	0.1599
4.2.30	0.2303	0.2202	42.27	0.0	0.137	1.026	16.80	0.034	0.7845	0.1453
4.2.31	0.2149	0.2198	42.27	0.0	0.125	0.974	15.47	0.031	0.7523	0.1385
4.2.32	0.2353	0.2198	42.27	0.0	0.142	1.079	16.43	0.035	0.7800	0.1474
4.2.33	0.2181	0.2193	42.27	0.0	0.181	1.029	15.41	0.045	0.7510	0.1666
4.2.34	0.2131	0.2194	42.27	0.0	0.212	1.026	15.44	0.053	0.7513	0.1806
4.2.35	0.2151	0.2194	42.27	0.0	0.177	1.017	15.23	0.044	0.7460	0.1647
4.2.36	0.2151	0.2194	42.27	0.0	0.214	1.009	15.23	0.053	0.7460	0.1813
4.2.37	0.2150	0.2186	41.93	0.0	0.167	1.039	15.41	0.041	0.7482	0.1599
4.2.38	0.1734	0.2176	41.93	0.0	0.348	1.020	12.49	0.097	0.6713	0.2442
4.2.39	0.1754	0.2185	41.93	0.0	0.418	1.000	12.47	0.104	0.6745	0.2532
4.2.40	0.1749	0.2185	41.93	0.0	0.431	0.993	12.44	0.107	0.6735	0.2571

TABLE X (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.2

SUMMARY OF CALCULATED RESULTS FOR TESTS 4.2.1 TO 4.2.46 -- 0.49 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG)**1/2	(JL)**1/2
4.2.41	0.1736	0.2185	41.93	C.O	0.394	0.986	12.34	0.099	0.6710	0.2465
4.2.42	0.1739	0.2185	41.93	0.0	0.429	1.035	12.37	0.107	0.6717	0.2566
4.2.43	0.1306	0.2176	41.93	C.O	0.846	1.000	9.32	0.211	0.5928	0.3604
4.2.44	0.1284	0.2176	41.93	C.O	0.915	1.019	9.16	0.228	0.5776	0.3748
4.2.45	0.1291	0.2176	41.93	C.O	0.938	0.990	9.22	0.234	0.5793	0.3795
4.2.46	0.1291	0.2185	41.93	C.O	0.971	1.032	9.18	0.242	0.5787	0.3860

TABLE X (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.2.1 TO 4.2.40 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	FM-HG-2 (CFM)	RM-HG-3 (CFM)	PM-HG-4 (CFM)	ET-HG-1 (CFM)	FT-HG-2 (CFM)
4.2.1	30.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
4.2.2	30.0	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
4.2.3	25.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
4.2.4	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.2.5	30.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.2.6	25.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.2.7	30.0	10.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.2.8	30.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.2.9	20.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.2.10	10.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.2.11	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.2.12	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.2.13	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.2.14	15.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.2.15	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.2.16	30.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.2.17	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.2.18	0.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.2.19	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.2.20	30.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.2.21	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.2.22	0.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.2.23	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.2.24	0.0	10.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.2.25	30.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.2.26	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.2.27	0.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.2.28	30.0	10.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.2.29	30.0	0.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.2.30	20.0	0.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.2.31	0.0	10.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.2.32	0.0	0.0	0.0	0.0	70.00	40.00	0.0	0.0	0.0	0.0
4.2.33	30.0	10.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.2.34	30.0	0.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.2.35	20.0	0.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.2.36	0.0	10.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.2.37	0.0	0.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.2.38	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.2.39	30.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.2.40	20.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0

TABLE X (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.2.1 TO 4.2.46 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.2.41	13.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.2.42	0.0	4.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.2.43	33.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.2.44	30.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.2.45	23.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
4.2.46	0.0	8.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.2. 1	0.0	32.5	32.2	0.0	0.0	57.0	72.0	0.0	0.0	12.3
4.2. 2	0.0	33.2	32.7	0.0	0.0	53.0	72.0	0.0	0.0	12.3
4.2. 3	0.0	32.5	32.2	0.0	0.0	53.0	72.0	0.0	0.0	12.3
4.2. 4	0.0	31.5	31.5	0.0	0.0	54.0	72.0	0.0	0.0	12.3
4.2. 5	0.0	32.0	32.0	0.0	0.0	55.0	71.0	0.0	0.0	12.3
4.2. 6	0.0	31.5	31.2	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.2. 7	0.0	30.0	30.5	0.0	0.0	56.0	75.0	0.0	0.0	12.3
4.2. 8	0.0	30.0	30.2	0.0	0.0	56.0	75.0	0.0	0.0	12.3
4.2. 9	0.0	30.2	30.5	0.0	0.0	56.0	75.0	0.0	0.0	12.3
4.2.10	0.0	30.0	29.7	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.2.11	0.0	30.0	30.0	0.0	0.0	55.0	76.0	0.0	0.0	12.3
4.2.12	0.0	30.5	30.2	0.0	0.0	55.0	76.0	0.0	0.0	12.3
4.2.13	0.0	30.2	30.5	0.0	0.0	55.0	76.0	0.0	0.0	12.3
4.2.14	0.0	30.0	30.2	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.2.15	0.0	31.0	30.7	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.2.16	0.0	30.5	29.7	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.2.17	0.0	30.2	30.7	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.2.18	0.0	30.2	29.2	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.2.19	0.0	30.5	30.2	0.0	0.0	55.0	74.0	0.0	0.0	12.3
4.2.20	0.0	30.5	30.5	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.2.21	0.0	30.7	30.7	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.2.22	0.0	30.5	30.0	0.0	0.0	56.0	75.0	0.0	0.0	12.3
4.2.23	0.0	30.7	31.0	0.0	0.0	56.0	75.0	0.0	0.0	12.3
4.2.24	0.0	31.0	31.0	0.0	0.0	56.0	75.0	0.0	0.0	12.3
4.2.25	0.0	30.5	30.5	0.0	0.0	56.0	75.0	0.0	0.0	12.3

TABLE X (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.2.1 TO 4.2.46 -- 0.40-IN. DOWNCOMER GAP

TEST NO	P-CM-1 (PSIG)	P-CM-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CM-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARD (PSIA)
4.2.26	0.0	30.7	30.7	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.2.27	0.0	32.0	31.7	0.0	0.0	57.0	75.0	0.0	0.0	12.3
4.2.28	0.0	31.5	31.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.2.29	0.0	32.0	31.7	0.0	0.0	54.0	75.0	0.0	0.0	12.3
4.2.30	0.0	31.2	31.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.2.31	0.0	32.0	32.0	0.0	0.0	56.0	70.0	0.0	0.0	12.3
4.2.32	0.0	30.0	30.0	0.0	0.0	56.0	71.0	0.0	0.0	12.3
4.2.33	0.0	30.5	31.7	0.0	0.0	57.0	71.0	0.0	0.0	12.3
4.2.34	0.0	31.2	31.7	0.0	0.0	57.0	71.0	0.0	0.0	12.3
4.2.35	0.0	30.5	30.5	0.0	0.0	57.0	71.0	0.0	0.0	12.3
4.2.36	0.0	30.5	30.5	0.0	0.0	57.0	71.0	0.0	0.0	12.3
4.2.37	0.0	30.5	30.7	0.0	0.0	59.0	70.0	0.0	0.0	11.9
4.2.38	0.0	31.0	31.0	0.0	0.0	56.0	70.0	0.0	0.0	11.9
4.2.39	0.0	31.5	31.7	0.0	0.0	56.0	67.0	0.0	0.0	11.9
4.2.40	0.0	31.5	31.5	0.0	0.0	56.0	67.0	0.0	0.0	11.9
4.2.41	0.0	31.0	31.0	0.0	0.0	56.0	69.0	0.0	0.0	11.9
4.2.42	0.0	31.0	31.0	0.0	0.0	56.0	67.0	0.0	0.0	11.9
4.2.43	0.0	31.5	31.7	0.0	0.0	56.0	67.0	0.0	0.0	11.9
4.2.44	0.0	31.0	30.2	0.0	0.0	56.0	67.0	0.0	0.0	11.9
4.2.45	0.0	30.5	30.7	0.0	0.0	55.0	67.0	0.0	0.0	11.9
4.2.46	0.0	31.2	30.7	0.0	0.0	56.0	67.0	0.0	0.0	11.9

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL HEIGHT (LB)	FINAL HEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL HEIGHT (LB)	FINAL HEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.2. 1	134.0	265.5	30.0	81.0	157.5	60.0	12.0	30.0	58.0
4.2. 2	265.5	391.0	30.0	157.5	158.3	60.0	12.0	30.0	56.0
4.2. 3	371.0	511.3	30.0	158.3	201.0	30.0	12.0	30.0	55.0
4.2. 4	357.5	455.5	30.0	175.5	247.3	30.0	12.0	30.0	56.0
4.2. 5	431.5	525.0	30.0	247.3	310.3	60.0	12.0	30.0	56.0
4.2. 6	133.0	247.8	40.0	99.0	126.5	60.0	12.0	30.0	59.0
4.2. 7	247.8	323.0	30.0	138.5	221.8	60.0	12.0	30.0	59.0
4.2. 8	323.0	410.5	40.0	321.3	428.0	60.0	12.0	30.0	59.0
4.2. 9	419.5	492.5	30.0	428.0	447.0	60.0	12.0	30.0	59.0
4.2.10	492.5	560.5	30.0	449.0	450.3	80.0	12.0	30.0	58.0
4.2.11	133.0	212.0	40.0	90.8	242.7	40.0	12.0	30.0	56.0
4.2.12	212.0	289.5	40.0	242.7	330.0	60.0	12.0	30.0	57.0
4.2.13	289.5	350.0	30.0	330.0	424.5	60.0	12.0	30.0	57.0
4.2.14	350.0	451.0	50.0	424.5	434.0	70.0	12.0	30.0	57.0
4.2.15	242.0	297.3	40.0	155.5	349.0	45.0	12.0	30.0	59.0

TABLE X (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 4.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.2.1 TO 4.2.46 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.2.16	297.3	361.3	45.0	347.0	471.5	45.0	12.0	30.0	58.0
4.2.17	361.8	426.0	45.0	471.5	538.3	50.0	12.0	30.0	59.0
4.2.18	426.0	487.8	40.0	538.3	552.3	61.0	12.0	30.0	59.0
4.2.19	133.0	171.5	65.0	36.5	259.0	35.0	12.0	30.0	60.0
4.2.20	171.5	212.0	65.0	259.0	382.5	35.0	12.0	30.0	57.0
4.2.21	212.0	253.3	60.0	332.5	458.0	35.0	12.0	30.0	57.0
4.2.22	253.3	293.3	70.0	200.0	243.8	60.0	12.0	30.0	58.0
4.2.23	293.3	336.8	65.0	243.8	255.3	75.0	12.0	30.0	59.0
4.2.24	336.8	355.3	60.0	255.3	440.5	35.0	12.0	30.0	58.0
4.2.25	355.3	370.8	60.0	440.5	373.5	35.0	12.0	30.0	58.0
4.2.26	133.0	149.3	55.0	95.0	100.5	35.0	12.0	30.0	62.0
4.2.27	149.3	160.5	60.0	100.5	188.0	60.0	12.0	30.0	60.0
4.2.28	160.5	179.0	70.0	188.0	352.0	30.0	12.0	30.0	60.0
4.2.29	179.0	186.5	45.0	352.0	473.5	30.0	12.0	30.0	60.0
4.2.30	186.5	194.3	60.0	473.5	555.0	30.0	12.0	30.0	53.0
4.2.31	194.3	202.3	60.0	555.0	598.0	35.0	12.0	30.0	59.0
4.2.32	202.3	210.3	60.0	398.0	613.5	60.0	12.0	30.0	59.0
4.2.33	210.3	222.5	65.0	613.5	310.5	35.0	12.0	30.0	59.0
4.2.34	222.5	235.3	60.0	693.5	915.5	30.0	12.0	30.0	60.0
4.2.35	235.3	243.5	75.0	693.5	772.5	30.0	12.0	30.0	60.0
4.2.36	243.5	263.5	70.0	676.5	730.0	40.0	12.0	30.0	50.0
4.2.37	133.0	143.0	50.0	86.5	106.5	75.0	12.0	30.0	62.0
4.2.38	143.0	168.3	65.0	106.5	291.5	35.0	12.0	30.0	60.0
4.2.39	168.3	197.5	70.0	291.5	424.0	35.0	12.0	30.0	58.0
4.2.40	197.5	225.5	65.0	424.0	517.3	40.0	12.0	30.0	58.0
4.2.41	225.5	249.3	60.0	517.3	566.0	50.0	12.0	30.0	59.0
4.2.42	249.3	275.0	60.0	566.0	577.0	75.0	12.0	30.0	59.0
4.2.43	275.0	268.3	70.0	107.5	249.0	30.0	12.0	30.0	60.0
4.2.44	268.3	327.8	65.0	249.0	349.0	30.0	12.0	30.0	60.0
4.2.45	327.8	388.8	65.0	349.0	412.5	35.0	12.0	30.0	60.0
4.2.46	388.8	447.0	60.0	412.5	424.0	60.0	12.0	30.0	59.0

TABLE XI

BASELINE COUNTERCURRENT FLOW TEST GROUP 5.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.1.1 TO 5.1.29 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.1.1	0.0082	0.1177	22.37	0.0	4.580	0.957	1.04	1.103	0.1639	0.8095
5.1.2	0.0086	0.1184	22.37	0.0	3.588	0.860	1.00	0.864	0.1676	0.7165
5.1.3	0.0079	0.1184	22.37	0.0	4.330	0.976	1.00	1.043	0.1611	0.7871
5.1.4	0.0165	0.1179	22.37	0.0	3.700	1.003	2.10	0.891	0.2328	0.7276
5.1.5	0.0247	0.1157	22.37	0.0	3.442	0.981	3.21	0.320	0.2365	0.7017
5.1.6	0.0240	0.1179	22.37	0.0	3.500	1.008	3.05	0.843	0.2809	0.7076
5.1.7	0.0247	0.1177	22.37	0.0	3.080	0.990	3.15	0.742	0.2851	0.6638
5.1.8	0.0237	0.1179	22.37	0.0	2.387	0.935	3.02	0.695	0.2791	0.6427
5.1.9	0.0319	0.1179	22.37	0.0	2.575	0.971	4.06	0.620	0.3240	0.6070
5.1.10	0.0470	0.1179	22.37	0.0	2.390	0.987	5.99	0.576	0.3934	0.5847
5.1.11	0.0622	0.1179	22.37	0.0	1.958	0.978	7.93	0.472	0.4526	0.5293
5.1.12	0.0782	0.1179	22.37	0.0	1.746	1.039	9.06	0.420	0.5072	0.4998
5.1.13	0.1130	0.1179	22.37	0.0	0.879	1.006	14.40	0.212	0.6099	0.3545
5.1.14	0.1475	0.1179	22.37	0.0	0.417	1.038	18.79	0.100	0.6966	0.2442
5.1.15	0.1751	0.1179	22.37	0.0	0.150	0.959	22.31	0.036	0.7590	0.1465
5.1.16	0.1954	0.1179	22.37	0.0	0.106	1.052	24.49	0.026	0.8018	0.1233
5.1.17	0.0219	0.1181	22.34	0.0	4.291	1.314	2.79	1.033	0.2635	0.7835
5.1.18	0.0437	0.1183	22.34	0.0	2.635	0.996	5.54	0.635	0.3797	0.6140
5.1.19	0.1293	0.1178	22.34	0.0	0.500	1.008	16.50	0.120	0.6525	0.2675
5.1.20	0.1397	0.1180	22.34	0.0	0.350	1.040	17.79	0.084	0.6780	0.2238
5.1.21	0.0295	0.1171	22.13	0.0	3.750	-0.295	3.78	0.903	0.3119	0.7325
5.1.22	0.0293	0.1200	22.63	0.0	3.767	0.980	3.67	0.907	0.3091	0.7341
5.1.23	0.2037	0.1173	22.42	0.0	0.008	1.014	26.10	0.002	0.8199	0.0345
5.1.24	0.0289	0.1176	22.13	0.0	4.127	0.999	3.69	0.904	0.3086	0.7684
5.1.25	0.0294	0.1195	22.63	0.0	3.367	1.003	3.70	0.811	0.3100	0.6940
5.1.26	0.0294	0.1193	22.63	0.0	2.850	1.022	3.71	0.686	0.3104	0.6385
5.1.27	0.0295	0.1211	22.88	0.0	3.150	0.982	3.56	0.759	0.3094	0.6713
5.1.28	0.0295	0.1200	22.63	0.0	3.667	0.965	3.70	0.983	0.3103	0.7243
5.1.29	0.0295	0.1188	22.38	0.0	3.950	0.959	3.73	0.951	0.3111	0.7517

TABLE XI (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 5.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.1.1 TO 5.1.29 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.1. 1	29.5	10.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
5.1. 2	30.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
5.1. 3	25.0	10.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
5.1. 4	30.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.1. 5	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
5.1. 6	25.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
5.1. 7	28.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
5.1. 8	25.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
5.1. 9	25.8	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
5.1.10	20.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
5.1.11	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
5.1.12	15.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
5.1.13	12.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
5.1.14	0.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
5.1.15	5.0	0.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0
5.1.16	5.0	0.0	0.0	0.0	60.00	60.00	0.0	0.0	0.0	0.0
5.1.17	0.0	0.0	0.0	50.0	0.0	0.0	10.00	0.0	0.0	0.0
5.1.18	0.0	0.0	0.0	40.2	0.0	0.0	20.00	0.0	0.0	0.0
5.1.19	0.0	0.0	0.0	24.9	60.00	0.0	0.0	0.0	0.0	0.0
5.1.20	0.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0	15.77	0.0
5.1.21	0.0	0.0	80.0	0.0	0.0	0.0	13.40	0.0	0.0	0.0
5.1.22	0.0	0.0	70.0	0.0	0.0	0.0	13.30	0.0	0.0	0.0
5.1.23	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	22.82	0.0
5.1.24	0.0	0.0	59.0	0.0	0.0	0.0	13.40	0.0	0.0	0.0
5.1.25	0.0	0.0	0.0	39.9	0.0	0.0	13.40	0.0	0.0	0.0
5.1.26	0.0	0.0	0.0	24.5	0.0	0.0	13.40	0.0	0.0	0.0
5.1.27	0.0	0.0	0.0	50.0	0.0	0.0	13.40	0.0	0.0	0.0
5.1.28	0.0	0.0	80.0	0.0	0.0	0.0	13.40	0.0	0.0	0.0
5.1.29	0.0	0.0	60.0	0.0	0.0	0.0	13.40	0.0	0.0	0.0

TABLE XI (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 5.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.1.1 TO 5.1.29 -- 0.53-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.1.1	0.0	13.0	12.5	0.0	0.0	60.0	65.0	0.0	0.0	12.4
5.1.2	0.0	13.0	15.0	0.0	0.0	59.0	65.0	0.0	0.0	12.4
5.1.3	0.0	11.0	11.0	0.0	0.0	60.0	65.0	0.0	0.0	12.4
5.1.4	0.0	13.0	13.0	0.0	0.0	60.0	65.0	0.0	0.0	12.4
5.1.5	0.0	12.0	13.0	0.0	0.0	61.0	65.0	0.0	0.0	12.4
5.1.6	0.0	12.2	11.5	0.0	0.0	61.0	65.0	0.0	0.0	12.4
5.1.7	0.0	11.5	13.0	0.0	0.0	62.0	66.0	0.0	0.0	12.4
5.1.8	0.0	11.0	11.0	0.0	0.0	61.0	67.0	0.0	0.0	12.4
5.1.9	0.0	11.0	11.5	0.0	0.0	61.0	67.0	0.0	0.0	12.4
5.1.10	0.0	11.0	10.5	0.0	0.0	61.0	67.0	0.0	0.0	12.4
5.1.11	0.0	10.0	10.0	0.0	0.0	61.0	67.0	0.0	0.0	12.4
5.1.12	0.0	9.5	10.0	0.0	0.0	62.0	67.0	0.0	0.0	12.4
5.1.13	0.0	10.0	11.0	0.0	0.0	61.0	67.0	0.0	0.0	12.4
5.1.14	0.0	10.0	11.0	0.0	0.0	61.0	67.0	0.0	0.0	12.4
5.1.15	0.0	10.0	10.5	0.0	0.0	62.0	67.0	0.0	0.0	12.4
5.1.16	0.0	10.5	11.5	0.0	0.0	63.0	68.0	0.0	0.0	12.4
5.1.17	10.2	0.0	10.0	99.5	33.5	50.0	78.5	73.5	75.0	12.3
5.1.18	10.0	0.0	10.6	98.0	33.0	49.5	73.0	73.5	74.0	12.3
5.1.19	9.7	0.0	10.8	95.0	32.0	49.5	76.0	77.0	76.0	12.3
5.1.20	9.5	0.0	10.0	95.0	33.5	49.0	77.0	85.0	79.5	12.3
5.1.21	10.2	0.0	9.4	104.0	33.5	49.5	78.0	0.0	72.5	12.4
5.1.22	10.5	0.0	10.0	103.0	33.5	48.5	100.0	0.0	71.0	12.4
5.1.23	9.2	0.0	10.1	98.5	33.5	54.0	87.0	99.0	93.0	12.4
5.1.24	9.7	0.0	9.7	106.0	32.0	48.0	80.0	0.0	76.0	12.4
5.1.25	9.7	0.0	10.0	105.0	33.5	51.0	80.0	0.0	75.0	12.4
5.1.26	10.0	0.0	10.3	104.5	33.5	52.0	78.5	0.0	73.5	12.4
5.1.27	10.7	0.0	10.7	104.0	33.5	49.5	78.0	0.0	72.0	12.4
5.1.28	10.7	0.0	10.3	83.5	33.5	48.5	77.0	0.0	71.0	12.4
5.1.29	10.5	0.0	10.1	103.0	33.5	48.0	77.0	0.0	71.0	12.4

TABLE XI (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 5.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.1.1 TO 5.1.29 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.1.1	133.0	247.5	25.0	83.5	114.0	45.0	12.0	10.0	53.0
5.1.2	247.5	339.0	25.5	114.0	114.0	0.0	12.0	10.0	50.0
5.1.3	339.0	453.8	26.5	114.0	135.0	50.0	12.0	10.0	50.0
5.1.4	453.8	546.3	25.0	135.0	164.0	60.0	12.0	10.0	52.0
5.1.5	284.0	387.3	30.0	164.0	244.5	40.0	12.0	10.0	62.0
5.1.6	387.3	474.8	25.0	244.5	245.0	140.0	12.0	10.0	52.0
5.1.7	133.0	210.0	25.0	245.0	291.5	60.0	12.0	10.0	53.0
5.1.8	210.0	267.8	20.0	291.5	313.0	40.0	12.0	10.0	52.0
5.1.9	267.8	319.3	20.0	313.0	353.5	45.0	12.0	10.0	52.0
5.1.10	319.3	379.0	25.0	353.5	369.5	45.0	12.0	10.0	52.0
5.1.11	379.0	437.8	30.0	369.5	400.0	40.0	12.0	10.0	52.0
5.1.12	437.8	491.0	30.5	400.0	421.0	50.0	12.0	10.0	52.0
5.1.13	256.5	287.3	35.0	467.5	491.5	30.0	12.0	10.0	52.0
5.1.14	287.3	299.8	30.0	491.5	521.0	40.0	12.0	10.0	52.0
5.1.15	299.8	308.0	55.0	521.0	544.3	45.0	12.0	10.0	52.0
5.1.16	308.0	312.3	40.0	544.3	563.0	30.0	12.0	10.0	52.0
5.1.17	184.0	247.5	14.8	174.0	273.5	20.5	12.0	10.0	50.5
5.1.18	195.0	234.0	14.8	217.5	261.5	15.0	12.0	10.0	49.5
5.1.19	144.5	159.5	30.0	219.5	279.0	20.0	12.0	10.0	52.0
5.1.20	150.0	160.5	30.0	254.5	278.0	20.0	12.0	10.0	51.0
5.1.21	173.5	236.0	30.0	420.0	209.0	30.0	12.0	9.7	50.0
5.1.22	154.0	380.0	60.0	434.0	780.0	60.0	12.0	10.2	49.0
5.1.23	176.0	178.0	180.0	273.0	559.0	60.0	12.0	10.0	56.0
5.1.24	140.8	262.5	29.5	101.5	223.5	30.0	12.0	9.7	48.0
5.1.25	225.0	326.0	30.0	200.5	266.5	30.0	12.0	10.2	51.0
5.1.26	199.5	285.0	30.0	190.0	209.0	30.0	12.0	10.2	52.0
5.1.27	344.0	439.5	30.0	161.0	271.0	30.0	12.0	10.5	50.0
5.1.28	177.0	287.0	30.0	369.0	531.0	30.0	12.0	10.2	49.0
5.1.29	157.0	275.5	30.0	466.5	590.0	30.5	12.0	10.0	48.5

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TABLE XII

BASELINE COUNTERCURRENT FLOW TEST GROUP 6.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 6.1.1 TO 6.1.14 -- 0.63-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
6.1. 1	0.0233	0.1166	22.29	0.0	4.230	1.009	2.49	0.340	0.2426	0.6771
6.1. 2	0.0233	0.1162	22.29	0.0	3.983	1.016	2.50	0.797	0.2429	0.6594
6.1. 3	0.0078	0.1162	22.29	0.0	5.387	0.990	0.84	1.077	0.1405	0.7669
6.1. 4	0.0166	0.1164	22.29	0.0	4.550	0.946	1.78	0.910	0.2049	0.7047
6.1. 5	0.0160	0.1162	22.29	0.0	4.762	0.989	1.71	0.952	0.2009	0.7210
6.1. 6	0.0312	0.1164	22.29	0.0	3.340	1.005	3.35	0.668	0.2810	0.6038
6.1. 7	0.0471	0.1164	22.29	0.0	2.712	1.016	5.05	0.542	0.3449	0.5441
6.1. 8	0.0632	0.1153	22.29	0.0	2.300	1.011	6.94	0.560	0.4007	0.5528
6.1. 9	0.0625	0.1164	22.29	0.0	2.283	1.027	6.70	0.457	0.3973	0.4992
6.1.10	0.0769	0.1166	22.29	0.0	2.110	1.024	8.22	0.422	0.4404	0.4799
6.1.11	0.1097	0.1164	22.29	0.0	1.890	1.063	11.76	0.373	0.5265	0.4542
6.1.12	0.1414	0.1159	22.29	0.0	0.925	1.037	15.22	0.185	0.5985	0.3178
6.1.13	0.1687	0.1155	22.29	0.0	0.478	1.080	18.22	0.096	0.6541	0.2284
6.1.14	0.2019	0.1153	22.29	0.0	0.230	1.013	21.85	0.040	0.7161	0.1478

TABLE XII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 6.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 6.1.1 TO 6.1.14 -- 0.63-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
6.1.1	30.0	10.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
6.1.2	30.0	5.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
6.1.3	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
6.1.4	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
6.1.5	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
6.1.6	30.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
6.1.7	25.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
6.1.8	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
6.1.9	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
6.1.10	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
6.1.11	15.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
6.1.12	10.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
6.1.13	0.0	5.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0
6.1.14	0.0	5.0	0.0	0.0	70.00	60.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
6.1.1	0.0	11.0	10.7	0.0	0.0	55.0	76.0	0.0	0.0	12.3
6.1.2	0.0	10.7	10.7	0.0	0.0	58.0	76.0	0.0	0.0	12.3
6.1.3	0.0	11.0	11.0	0.0	0.0	58.0	77.0	0.0	0.0	12.3
6.1.4	0.0	14.0	14.0	0.0	0.0	57.0	75.0	0.0	0.0	12.3
6.1.5	0.0	12.5	12.0	0.0	0.0	58.0	76.0	0.0	0.0	12.3
6.1.6	0.0	10.5	11.0	0.0	0.0	57.0	76.0	0.0	0.0	12.3
6.1.7	0.0	10.0	11.0	0.0	0.0	57.0	76.0	0.0	0.0	12.3
6.1.8	0.0	11.2	11.2	0.0	0.0	61.0	77.0	0.0	0.0	12.3
6.1.9	0.0	10.5	10.7	0.0	0.0	56.0	79.0	0.0	0.0	12.3
6.1.10	0.0	10.7	10.0	0.0	0.0	56.0	84.0	0.0	0.0	12.3
6.1.11	0.0	10.7	10.7	0.0	0.0	57.0	92.5	0.0	0.0	12.3
6.1.12	0.0	10.5	10.2	0.0	0.0	58.0	94.0	0.0	0.0	12.3
6.1.13	0.0	10.2	10.2	0.0	0.0	59.0	100.0	0.0	0.0	12.3
6.1.14	0.0	10.5	10.7	0.0	0.0	59.0	105.5	0.0	0.0	12.3

TABLE XII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 6.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 6.1.1 TO 6.1.14 -- 0.63-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
6.1. 1	133.0	217.0	20.0	91.0	154.5	45.0	12.0	10.0	56.0
6.1. 2	217.0	336.5	30.0	154.5	251.5	80.0	12.0	10.0	58.0
6.1. 3	277.3	395.0	20.0	231.5	238.5	60.0	12.0	10.0	58.0
6.1. 4	350.0	480.5	30.0	238.5	274.0	50.0	12.0	10.0	57.0
6.1. 5	425.5	520.8	20.0	274.0	303.5	40.0	12.0	10.0	58.0
6.1. 6	400.0	483.5	25.0	303.5	346.0	50.0	12.0	10.0	57.0
6.1. 7	424.8	479.0	20.0	346.0	387.0	50.0	12.0	10.0	57.0
6.1. 8	133.0	217.0	30.0	94.5	95.5	90.0	12.0	10.0	62.0
6.1. 9	217.0	285.5	30.0	95.5	127.0	55.0	12.0	10.0	57.0
6.1.10	285.5	338.3	25.0	127.0	171.3	60.0	12.0	10.0	56.0
6.1.11	333.5	395.5	25.0	171.3	186.0	45.0	12.0	10.0	57.0
6.1.12	380.5	422.5	40.0	186.0	217.0	60.0	12.0	10.0	59.0
6.1.13	422.5	444.0	45.0	217.0	232.0	55.0	12.0	10.0	61.0
6.1.14	444.0	450.0	60.0	232.0	262.3	60.0	12.0	10.0	62.0

TABLE XIII

BASELINE COUNTERCURRENT FLOW TEST GROUP 7.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 7.1.1 TO 7.1.60 -- 0.70-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	CLOD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
7.1. 1	0.0158	0.1163	22.24	0.0	5.650	1.013	1.16	0.770	0.1605	0.6306
7.1. 2	0.0236	0.1163	22.24	0.0	5.487	0.997	1.73	0.749	0.1962	0.6215
7.1. 3	0.0315	0.1163	22.24	0.0	5.450	1.009	2.30	0.743	0.2265	0.6193
7.1. 4	0.0388	0.1163	22.24	0.0	5.300	0.993	2.34	0.722	0.2516	0.6107
7.1. 5	0.0467	0.1163	22.24	0.0	5.188	1.010	3.41	0.707	0.2758	0.6042
7.1. 6	0.0477	0.1163	22.24	0.0	5.070	1.011	3.48	0.691	0.2797	0.5973
7.1. 7	0.0551	0.1163	22.24	0.0	5.108	1.007	4.03	0.676	0.2997	0.5996
7.1. 8	0.0554	0.1193	22.47	0.0	4.887	1.007	3.93	0.666	0.2993	0.5865
7.1. 9	0.0655	0.1192	22.47	C.0	5.020	1.002	4.71	0.684	0.3255	0.5944
7.1.10	0.0652	0.1185	22.47	C.0	4.717	1.005	4.68	0.643	0.3245	0.5762
7.1.11	0.0904	0.1135	22.47	0.0	4.858	0.997	5.77	0.662	0.3604	0.5848
7.1.12	0.0316	0.1183	22.47	0.0	4.712	0.932	5.86	0.601	0.3631	0.5573
7.1.13	0.0794	0.1175	22.47	C.0	4.117	0.990	5.75	0.561	0.3589	0.5383
7.1.14	0.0982	0.1175	22.47	C.0	4.730	0.999	6.59	0.579	0.3777	0.5461
7.1.15	0.0987	0.1175	22.47	C.0	4.287	0.976	7.14	0.584	0.4002	0.5493
7.1.16	0.0973	0.1175	22.47	C.0	4.100	1.009	7.03	0.559	0.3983	0.5372
7.1.17	0.1160	0.1171	22.38	C.0	4.310	1.047	8.43	0.537	0.4342	0.5508
7.1.18	0.1144	0.1171	22.38	C.0	3.680	1.001	8.31	0.502	0.4311	0.5089
7.1.19	0.1143	0.1171	22.38	C.0	3.950	1.027	8.30	0.538	0.4309	0.5273
7.1.20	0.1140	0.1171	22.38	0.0	3.787	1.016	8.34	0.516	0.4320	0.5163
7.1.21	0.1305	0.1171	22.38	C.0	3.933	0.937	9.48	0.413	0.4605	0.4620
7.1.22	0.1329	0.1171	22.38	0.0	3.090	0.931	9.65	0.409	0.4646	0.4595
7.1.23	0.1392	0.1171	22.38	C.0	3.270	1.002	9.46	0.446	0.4600	0.4797
7.1.24	0.1302	0.1171	22.38	C.0	3.008	0.996	9.46	0.410	0.4600	0.4601
7.1.25	0.1448	0.1169	22.35	0.0	2.407	1.007	10.53	0.329	0.4852	0.4116
7.1.26	0.1715	0.1169	22.35	C.0	1.933	1.064	12.48	0.263	0.5281	0.3689
7.1.27	0.1934	0.1168	22.32	C.0	1.393	1.048	14.09	0.190	0.5609	0.3131
7.1.28	0.2103	0.1163	22.32	0.0	1.275	1.031	15.32	0.174	0.5850	0.2996
7.1.29	0.2317	0.1163	22.32	0.0	1.075	1.011	16.89	0.147	0.6142	0.2751
7.1.30	0.2543	0.1169	22.32	0.0	0.379	0.952	18.52	0.120	0.6432	0.2487
7.1.31	0.2631	0.1168	22.32	0.0	0.800	1.014	19.16	0.109	0.6543	0.2373
7.1.32	0.0219	0.1170	21.94	0.0	11.950	0.989	1.59	1.530	0.1997	0.9175
7.1.33	0.0215	0.1171	21.92	0.0	9.167	0.971	1.56	1.250	0.1871	0.8036
7.1.34	0.0219	0.1185	22.12	0.0	8.000	0.974	1.57	1.091	0.1993	0.7507
7.1.35	0.0423	0.1202	22.42	0.0	7.633	0.936	2.90	1.041	0.2604	0.7333
7.1.36	0.0432	0.1230	22.92	0.0	8.400	1.191	2.97	1.146	0.2619	0.7693
7.1.37	0.0432	0.1201	22.42	0.0	6.536	0.973	3.06	0.998	0.2635	0.6812
7.1.38	0.1078	0.1190	22.42	0.0	5.138	1.005	7.07	0.701	0.4165	0.6016
7.1.39	0.1292	0.1191	22.42	C.0	3.733	0.999	9.23	0.599	0.4564	0.5129
7.1.40	0.1751	0.1191	22.42	C.0	2.267	1.010	12.51	0.309	0.5314	0.3996

TABLE XIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 7.1

SUMMARY OF CALCULATED RESULTS FOR TESTS 7.1.1 TO 7.1.60 -- 0.79 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
7.1.41	0.1295	0.1176	22.17	0.0	4.000	1.039	9.37	0.545	0.4585	0.5309
7.1.42	0.1513	0.1191	22.42	0.0	2.900	1.030	10.95	0.395	0.4948	0.4520
7.1.43	0.2031	0.1188	22.42	0.0	1.850	1.146	14.55	0.252	0.5727	0.3610
7.1.44	0.2026	0.1133	22.42	0.0	1.533	1.066	14.52	0.209	0.5720	0.3287
7.1.45	0.2368	0.1201	22.67	0.0	0.300	1.005	16.73	0.109	0.6167	0.2374
7.1.46	0.3960	0.1178	22.42	0.0	0.422	1.072	28.61	0.058	0.8013	0.1725
7.1.47	0.3441	0.1179	22.67	0.0	0.112	0.994	24.84	0.015	0.7468	0.0890
7.1.48	0.0360	0.1212	22.92	0.0	13.933	1.095	2.53	1.899	0.2399	0.9903
7.1.49	0.0432	0.1213	22.92	0.0	9.800	0.990	3.02	1.336	0.2624	0.8305
7.1.50	0.0576	0.1191	22.42	0.0	9.300	0.963	4.11	1.267	0.3045	0.8090
7.1.51	0.1081	0.1205	22.67	0.0	4.767	0.976	7.53	0.650	0.4162	0.5792
7.1.52	0.1382	0.1260	23.67	0.0	5.567	1.008	7.30	0.759	0.4116	0.6259
7.1.53	0.1439	0.1238	23.42	0.0	3.267	1.003	9.88	0.445	0.4768	0.4795
7.1.54	0.1815	0.1249	23.67	0.0	1.917	1.004	12.36	0.261	0.5343	0.3673
7.1.55	0.2707	0.1181	22.45	0.0	0.417	1.019	19.49	0.057	0.6618	0.1712
7.1.56	0.2691	0.1347	25.45	0.0	0.575	1.010	16.99	0.073	0.6386	0.2012
7.1.57	0.4094	0.1403	26.70	0.0	0.021	1.010	24.31	0.003	0.7795	0.0383
7.1.58	0.3943	0.1635	31.20	0.0	0.175	1.020	20.51	0.024	0.7365	0.1110
7.1.59	0.3347	0.1475	28.20	0.0	0.400	1.035	19.30	0.055	0.6962	0.1678
7.1.60	0.3312	0.1242	23.70	0.0	0.100	0.990	22.63	0.014	0.7229	0.0839

TABLE XIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 7.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.1.1 TO 7.1.60 -- 0.70-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
7.1. 1	30.0	10.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0	0.0
7.1. 2	30.0	10.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
7.1. 3	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
7.1. 4	30.0	10.0	0.0	0.0	0.0	25.00	0.0	0.0	0.0	0.0
7.1. 5	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
7.1. 6	27.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
7.1. 7	30.0	10.0	0.0	0.0	0.0	35.00	0.0	0.0	0.0	0.0
7.1. 8	30.0	7.0	0.0	0.0	0.0	35.00	0.0	0.0	0.0	0.0
7.1. 9	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
7.1.10	30.0	5.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
7.1.11	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
7.1.12	30.0	5.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
7.1.13	20.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
7.1.14	30.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
7.1.15	25.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
7.1.16	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
7.1.17	30.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
7.1.18	25.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
7.1.19	20.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
7.1.20	30.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
7.1.21	30.0	10.0	0.0	0.0	0.0	70.00	10.00	0.0	0.0	0.0
7.1.22	25.0	10.0	0.0	0.0	0.0	70.00	10.00	0.0	0.0	0.0
7.1.23	20.0	10.0	0.0	0.0	0.0	70.00	10.00	0.0	0.0	0.0
7.1.24	25.0	0.0	0.0	0.0	0.0	70.00	10.00	0.0	0.0	0.0
7.1.25	20.0	0.0	0.0	0.0	0.0	70.00	20.00	0.0	0.0	0.0
7.1.26	15.0	0.0	0.0	0.0	0.0	70.00	30.00	10.00	0.0	0.0
7.1.27	10.0	0.0	0.0	0.0	60.00	60.00	0.0	0.0	0.0	0.0
7.1.28	10.0	0.0	0.0	0.0	70.00	60.00	0.0	0.0	0.0	0.0
7.1.29	10.0	0.0	0.0	0.0	70.00	70.00	0.0	0.0	0.0	0.0
7.1.30	10.0	0.0	0.0	0.0	80.00	70.00	0.0	0.0	0.0	0.0
7.1.31	10.0	0.0	0.0	0.0	90.00	70.00	0.0	0.0	0.0	0.0
7.1.32	0.0	0.0	100.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
7.1.33	0.0	0.0	80.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
7.1.34	0.0	0.0	70.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
7.1.35	0.0	0.0	70.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
7.1.36	0.0	0.0	60.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
7.1.37	0.0	0.0	60.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
7.1.38	0.0	0.0	0.0	49.6	50.00	0.0	0.0	0.0	0.0	0.0
7.1.39	0.0	0.0	0.0	50.2	60.00	0.0	0.0	0.0	0.0	0.0
7.1.40	0.0	0.0	0.0	50.5	80.00	0.0	0.0	0.0	0.0	0.0

TABLE XIII (Contd.)

BASELING COUNTERCURRENT FLOW TEST GROUP 7.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.1.1 TO 7.1.60 -- 0.70-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
7.1.41	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	14.62	0.0
7.1.42	0.0	0.0	0.0	30.1	0.0	0.0	0.0	0.0	17.44	0.0
7.1.43	0.0	0.0	0.0	20.4	0.0	0.0	0.0	0.0	23.72	0.0
7.1.44	0.0	0.0	0.0	19.7	0.0	0.0	0.0	0.0	23.85	0.0
7.1.45	0.0	0.0	0.0	15.0	0.0	0.0	0.0	0.0	28.21	0.0
7.1.46	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	48.08	0.0
7.1.47	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	42.56	0.0
7.1.48	0.0	0.0	129.0	0.0	0.0	0.0	16.70	0.0	0.0	0.0
7.1.49	0.0	0.0	90.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
7.1.50	0.0	0.0	120.0	0.0	0.0	0.0	26.60	0.0	0.0	0.0
7.1.51	0.0	0.0	90.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
7.1.52	0.0	0.0	120.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
7.1.53	0.0	0.0	90.0	0.0	66.50	0.0	0.0	0.0	0.0	0.0
7.1.54	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	20.64	0.0
7.1.55	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	27.82	0.0
7.1.56	0.0	0.0	0.0	49.9	0.0	0.0	0.0	0.0	28.21	0.0
7.1.57	0.0	0.0	0.0	37.0	0.0	0.0	0.0	0.0	47.18	0.0
7.1.58	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	47.05	0.0
7.1.59	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	49.38	0.0
7.1.60	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	40.64	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
7.1. 1	0.0	12.0	11.7	0.0	0.0	55.0	79.0	0.0	0.0	12.2
7.1. 2	0.0	11.7	11.5	0.0	0.0	55.0	78.0	0.0	0.0	12.2
7.1. 3	0.0	12.0	11.5	0.0	0.0	55.0	73.0	0.0	0.0	12.2
7.1. 4	0.0	12.0	10.7	0.0	0.0	55.0	78.0	0.0	0.0	12.2
7.1. 5	0.0	12.0	10.7	0.0	0.0	55.0	78.0	0.0	0.0	12.2
7.1. 6	0.0	12.0	11.7	0.0	0.0	55.0	78.0	0.0	0.0	12.2
7.1. 7	0.0	11.5	11.2	0.0	0.0	55.0	73.0	0.0	0.0	12.2
7.1. 8	0.0	12.2	11.0	0.0	0.0	67.5	71.5	0.0	0.0	12.5
7.1. 9	0.0	12.5	12.2	0.0	0.0	62.0	65.0	0.0	0.0	12.5
7.1.10	0.0	12.2	12.0	0.0	0.0	62.0	65.0	0.0	0.0	12.5

TABLE XIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 7.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.1.1 TO 7.1.60 -- 0.70-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARD (PSIA)
7.1.11	0.0	11.7	11.5	0.0	0.0	59.0	72.5	0.0	0.0	12.5
7.1.12	0.0	12.2	12.2	0.0	0.0	58.0	73.0	0.0	0.0	12.5
7.1.13	0.0	12.2	11.0	0.0	0.0	58.0	75.0	0.0	0.0	12.5
7.1.14	0.0	12.0	12.2	0.0	0.0	58.0	75.0	0.0	0.0	12.5
7.1.15	0.0	12.7	12.5	0.0	0.0	58.0	74.5	0.0	0.0	12.5
7.1.16	0.0	12.0	12.0	0.0	0.0	58.0	74.0	0.0	0.0	12.5
7.1.17	0.0	12.5	12.7	0.0	0.0	59.0	76.0	0.0	0.0	12.4
7.1.18	0.0	12.2	12.0	0.0	0.0	58.0	76.0	0.0	0.0	12.4
7.1.19	0.0	12.0	12.0	0.0	0.0	57.0	77.0	0.0	0.0	12.4
7.1.20	0.0	11.7	12.2	0.0	0.0	57.0	77.0	0.0	0.0	12.4
7.1.21	0.0	12.2	12.0	0.0	0.0	57.0	76.0	0.0	0.0	12.4
7.1.22	0.0	12.5	13.0	0.0	0.0	57.0	77.5	0.0	0.0	12.4
7.1.23	0.0	12.2	12.0	0.0	0.0	59.0	78.0	0.0	0.0	12.4
7.1.24	0.0	11.5	12.0	0.0	0.0	59.0	73.0	0.0	0.0	12.4
7.1.25	0.0	12.0	11.5	0.0	0.0	58.0	78.0	0.0	0.0	12.3
7.1.26	0.0	10.0	10.0	0.0	0.0	58.0	77.0	0.0	0.0	12.3
7.1.27	0.0	11.0	11.0	0.0	0.0	58.0	67.0	0.0	0.0	12.3
7.1.28	0.0	11.0	11.0	0.0	0.0	58.0	67.0	0.0	0.0	12.3
7.1.29	0.0	11.0	12.0	0.0	0.0	53.0	67.0	0.0	0.0	12.3
7.1.30	0.0	12.0	13.0	0.0	0.0	58.0	67.0	0.0	0.0	12.3
7.1.31	0.0	11.0	11.0	0.0	0.0	58.0	67.0	0.0	0.0	12.3
7.1.32	11.7	0.0	9.4	100.0	33.5	43.5	73.5	77.0	77.0	12.3
7.1.33	11.0	0.0	10.0	105.0	33.5	44.5	81.0	74.5	96.5	12.4
7.1.34	10.8	0.0	10.6	103.5	33.5	43.0	79.0	73.5	76.0	12.4
7.1.35	11.0	0.0	11.0	101.0	30.0	43.0	77.0	73.0	73.5	12.4
7.1.36	11.5	0.0	12.5	99.0	32.0	42.5	77.0	74.0	73.5	12.4
7.1.37	10.7	0.0	10.6	99.0	32.0	43.5	77.5	74.5	74.0	12.4
7.1.38	10.5	0.0	10.6	95.0	32.0	46.0	76.5	79.5	76.5	12.4
7.1.39	10.5	0.0	9.0	96.0	32.0	47.5	77.0	79.0	78.0	12.4
7.1.40	10.2	0.0	12.0	95.5	33.5	47.5	77.0	79.0	78.0	12.4
7.1.41	10.0	0.0	11.0	96.0	33.5	49.0	81.0	90.5	84.5	12.4
7.1.42	10.0	0.0	10.5	95.0	33.5	47.0	84.5	95.0	88.5	12.4
7.1.43	10.5	0.0	11.0	94.0	33.5	47.5	87.0	99.0	94.5	12.4
7.1.44	10.2	0.0	11.5	94.0	33.5	47.5	91.0	103.5	97.0	12.4
7.1.45	10.0	0.0	11.2	93.5	33.5	47.5	95.4	107.5	102.0	12.4
7.1.46	9.7	0.0	11.4	92.5	33.5	47.0	99.5	113.0	106.5	12.4
7.1.47	10.2	0.0	12.0	91.0	33.0	51.5	102.0	115.5	109.5	12.4
7.1.48	12.2	0.0	10.0	98.5	32.5	50.0	80.5	0.0	91.5	12.4
7.1.49	12.0	0.0	10.6	98.5	32.5	47.5	80.0	0.0	80.0	12.4
7.1.50	11.5	0.0	10.5	98.0	32.5	48.0	79.5	0.0	79.5	12.4

TABLE XIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 7.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.1.1 TO 7.1.60 -- 0.70-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
7.1.51	11.7	0.0	10.8	96.5	32.5	47.0	79.0	0.0	79.0	12.4
7.1.52	13.7	0.0	11.6	96.0	32.5	47.0	79.0	0.0	73.5	12.4
7.1.53	12.1	0.0	11.7	95.5	32.5	50.5	78.5	0.0	78.5	12.4
7.1.54	12.0	0.0	11.7	94.5	0.0	50.0	80.0	17.0	0.0	12.4
7.1.55	9.7	0.0	10.7	101.0	32.5	47.0	70.5	64.5	0.0	12.4
7.1.56	13.0	0.0	13.8	100.5	32.5	50.0	69.0	72.5	0.0	12.4
7.1.57	14.0	0.0	15.0	94.5	32.5	50.5	81.0	94.5	0.0	12.4
7.1.58	13.7	0.0	19.7	93.0	0.0	48.0	92.5	106.0	0.0	12.4
7.1.59	14.7	0.0	16.4	93.5	0.0	47.5	100.0	115.0	0.0	12.4
7.1.60	13.5	0.0	11.5	93.0	0.0	47.0	106.0	122.0	0.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
7.1. 1	133.0	274.3	25.0	86.3	87.3	75.0	12.0	10.0	56.0
7.1. 2	274.3	384.0	20.0	87.3	92.3	75.0	12.0	10.0	56.0
7.1. 3	394.0	493.0	20.0	92.3	105.0	80.0	12.0	10.0	56.0
7.1. 4	206.3	392.3	20.0	105.0	121.5	75.0	12.0	10.0	56.0
7.1. 5	133.8	237.5	20.0	121.5	151.5	70.0	12.0	10.0	56.0
7.1. 6	237.5	364.3	25.0	151.5	160.3	70.0	12.0	10.0	56.0
7.1. 7	364.3	517.5	30.0	160.3	190.3	60.0	12.0	10.0	56.0
7.1. 8	133.0	230.8	20.0	83.0	100.5	60.0	12.0	10.0	52.5
7.1. 9	230.8	356.3	25.0	100.5	139.3	70.0	12.0	10.0	53.0
7.1.10	356.3	497.8	30.0	139.3	151.5	70.0	12.0	10.0	52.0
7.1.11	173.8	319.5	30.0	151.5	199.5	70.0	12.0	10.0	52.0
7.1.12	319.5	407.8	20.0	199.5	225.3	70.0	12.0	10.0	52.5
7.1.13	133.0	256.5	30.0	145.5	146.5	81.5	12.0	10.0	56.0
7.1.14	256.5	374.8	25.0	146.5	208.0	74.5	12.0	10.0	56.0
7.1.15	374.8	463.5	20.0	208.0	239.0	65.0	12.0	10.0	56.0
7.1.16	463.5	542.5	20.0	239.0	245.0	65.0	12.0	10.0	56.0
7.1.17	133.0	240.8	25.0	83.5	150.3	50.0	12.0	10.0	56.0
7.1.18	240.8	332.8	25.0	150.3	224.8	50.0	12.0	10.0	56.0
7.1.19	332.8	471.0	35.0	224.8	248.0	70.0	12.0	10.0	56.0
7.1.20	471.0	500.0	20.0	248.0	313.3	35.0	12.0	10.0	56.0
7.1.21	292.0	373.0	30.0	313.3	485.0	70.0	12.0	10.0	56.0
7.1.22	373.0	493.0	40.0	485.0	573.8	50.0	12.0	10.0	56.0
7.1.23	158.5	237.5	25.0	264.5	323.5	65.0	12.0	10.0	56.0
7.1.24	237.5	327.5	30.0	323.5	346.5	55.0	12.0	10.0	56.0
7.1.25	133.8	218.0	35.0	77.0	106.5	75.0	12.0	10.0	56.0

TABLE XIII (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 7.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.1.1 TO 7.1.60 -- 0.70-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
7.1.26	218.0	276.0	30.0	106.5	126.0	75.0	12.0	10.0	56.0
7.1.27	133.3	182.0	35.0	237.8	243.0	82.0	12.0	10.0	56.0
7.1.28	182.0	207.5	20.0	243.0	252.5	63.0	12.0	10.0	56.0
7.1.29	207.5	229.0	20.0	252.5	274.0	65.0	12.0	10.0	56.0
7.1.30	229.0	259.8	35.0	274.0	298.5	55.0	12.0	10.0	56.0
7.1.31	259.8	283.8	30.0	293.5	329.0	50.0	12.0	10.0	56.0
7.1.32	149.5	269.0	10.0	108.5	216.0	69.0	12.0	9.5	44.0
7.1.33	139.0	276.5	15.0	108.0	157.0	30.0	12.0	9.5	45.0
7.1.34	254.0	379.0	14.5	134.5	170.0	30.0	12.0	9.7	44.0
7.1.35	267.5	384.0	15.0	160.5	219.5	30.0	12.0	10.0	43.5
7.1.36	197.0	323.0	15.0	219.5	288.5	45.0	12.0	10.5	43.0
7.1.37	149.5	230.0	14.5	231.0	327.0	30.0	12.0	10.0	44.0
7.1.38	219.0	293.5	14.5	327.0	381.0	30.0	12.0	10.0	46.0
7.1.39	149.0	196.0	15.0	104.5	201.5	30.0	12.0	10.0	48.0
7.1.40	196.0	230.0	15.0	201.5	346.0	30.0	12.0	10.0	48.0
7.1.41	206.5	266.5	15.0	274.0	327.0	30.0	12.0	9.7	49.0
7.1.42	297.5	251.0	15.0	313.0	355.5	30.0	12.0	10.0	48.0
7.1.43	151.5	187.5	20.0	355.5	397.5	30.0	12.0	10.0	49.5
7.1.44	187.5	210.5	15.0	397.5	439.0	30.0	12.0	10.0	49.5
7.1.45	196.5	216.5	25.0	395.0	414.5	15.0	12.0	10.2	49.5
7.1.46	216.5	235.5	45.0	414.5	436.0	20.0	12.0	10.0	53.5
7.1.47	235.5	249.0	120.0	436.0	472.0	60.0	12.0	10.2	59.0
7.1.48	192.0	401.0	15.0	104.5	218.5	20.0	4.0	10.5	50.5
7.1.49	153.0	305.0	15.0	120.0	157.0	15.0	4.0	10.5	48.0
7.1.50	223.5	363.0	15.0	131.0	232.5	15.0	6.0	10.0	48.0
7.1.51	173.0	316.0	30.0	144.5	366.0	30.0	12.0	10.2	49.0
7.1.52	141.5	308.5	30.0	108.5	446.0	30.0	12.0	11.2	47.0
7.1.53	143.5	241.5	30.0	200.0	478.5	30.0	12.0	11.0	50.5
7.1.54	161.5	219.0	30.0	423.0	658.5	30.0	12.0	11.2	51.5
7.1.55	135.5	161.5	60.0	78.5	213.5	30.0	12.0	10.0	53.0
7.1.56	161.5	196.0	60.0	213.5	406.5	30.0	12.0	13.0	50.0
7.1.57	179.0	191.5	120.0	240.0	366.5	30.0	12.0	14.2	53.5
7.1.58	181.5	192.0	60.0	366.5	574.0	30.0	12.0	18.7	55.0
7.1.59	192.0	216.0	60.0	574.0	676.0	15.0	12.0	15.7	56.0
7.1.60	216.0	228.0	120.0	676.0	736.5	15.0	12.0	11.2	55.0

TABLE XIV

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.1.1	0.4781	0.1377	26.17	0.0	2.367	1.022	14.76	0.161	0.4881	0.2354
9.1.2	0.4716	0.1539	29.17	0.0	2.992	1.034	13.03	0.204	0.4716	0.2646
9.1.3	0.5374	0.1398	26.67	0.0	1.433	1.051	16.34	0.098	0.5156	0.1832
9.1.4	0.5492	0.1594	30.17	0.0	1.733	1.023	14.73	0.118	0.5051	0.2014
9.1.5	0.3233	0.1229	23.17	0.0	5.500	0.993	11.36	0.375	0.4161	0.3588
9.1.6	0.3792	0.1551	29.30	0.0	5.009	1.000	10.40	0.341	0.4220	0.3424
9.1.7	0.1795	0.1192	22.30	0.0	11.750	1.010	6.40	0.800	0.3100	0.5244
9.1.8	0.0502	0.1192	22.30	0.0	18.700	0.993	1.79	1.274	0.1640	0.6616
9.1.9	0.4773	0.1430	27.05	0.0	2.242	1.030	14.19	0.153	0.4831	0.2291
9.1.10	0.5604	0.1431	27.30	0.0	1.329	1.028	16.65	0.091	0.5234	0.1764
9.1.11	0.6559	0.1524	29.30	0.0	0.438	1.037	18.29	0.030	0.5574	0.1012
9.1.12	0.7282	0.1641	31.80	0.0	0.280	0.993	18.96	0.019	0.5766	0.0810
9.1.13	0.6571	0.1453	28.05	0.0	0.425	1.041	19.22	0.029	0.5646	0.0997
9.1.14	0.3687	0.1092	20.55	0.0	3.900	0.997	14.35	0.266	0.4542	0.3021
9.1.15	0.2525	0.1179	22.05	0.0	6.517	0.968	9.11	0.444	0.3687	0.3905
9.1.16	0.1401	0.1166	22.09	0.0	11.550	0.966	5.11	0.787	0.2754	0.5199
9.1.17	0.5808	0.1453	27.34	0.0	1.467	1.068	16.99	0.100	0.5308	0.1853
9.1.18	0.6567	0.1436	27.34	0.0	0.894	1.015	19.44	0.061	0.5661	0.1447
9.1.19	0.5497	0.1449	27.34	0.0	2.117	1.004	17.31	0.144	0.5353	0.2226
9.1.20	0.4452	0.1169	22.09	0.0	3.033	0.814	16.19	0.207	0.4906	0.2664
9.1.21	0.2432	0.1261	23.84	0.0	6.520	0.901	8.29	0.444	0.3559	0.3906
9.1.22	0.2176	0.1260	23.84	0.0	9.976	0.707	7.31	0.690	0.3363	0.4832
9.1.23	0.1475	0.1245	23.34	0.0	11.400	0.812	5.03	0.777	0.2780	0.5166
9.1.24	0.1341	0.1188	22.62	0.0	13.800	0.996	4.80	0.940	0.2682	0.5683
9.1.25	0.1022	0.1186	22.37	0.0	16.600	1.001	3.66	1.131	0.2342	0.6233
9.1.26	0.2601	0.1175	22.12	0.0	6.983	1.026	9.41	0.476	0.3745	0.4043
9.1.27	0.2583	0.1243	23.37	0.0	8.083	0.973	8.83	0.551	0.3681	0.4350
9.1.28	0.2926	0.1522	28.62	0.0	9.283	0.990	7.05	0.632	0.3460	0.4662
9.1.29	0.2460	0.1792	33.62	0.0	9.783	0.965	5.86	0.666	0.3284	0.4786
9.1.30	0.1804	0.1430	26.87	0.0	12.650	1.002	5.36	0.862	0.2970	0.5442
9.1.31	0.4566	0.1688	31.87	0.0	3.733	0.996	11.50	0.254	0.4534	0.2957
9.1.32	0.1185	0.1153	21.79	0.0	9.508	1.048	4.37	0.375	0.2539	0.3591
9.1.33	0.1347	0.1150	21.79	0.0	5.153	0.998	4.98	0.350	0.2710	0.3466
9.1.34	0.1015	0.1123	21.41	0.0	5.483	1.019	3.84	0.374	0.2366	0.3582
9.1.35	0.1182	0.1164	22.16	0.0	5.383	0.995	4.32	0.367	0.2531	0.3550
9.1.36	0.1343	0.1164	22.16	0.0	5.190	0.976	4.93	0.347	0.2703	0.3455
9.1.37	0.4662	0.1436	27.48	0.0	2.833	1.017	13.80	0.193	0.4770	0.2575
9.1.38	0.3274	0.1043	19.98	0.0	2.725	0.999	13.34	0.185	0.4329	0.2525
9.1.39	0.3302	0.1167	22.23	0.0	3.022	1.007	12.02	0.206	0.4227	0.2660
9.1.40	0.3247	0.1100	20.98	0.0	3.483	1.001	12.55	0.237	0.4255	0.2855

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TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

SUMMARY OF CALCULATED RESULTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.1.41	0.1784	0.1130	21.48	0.0	4.108	1.002	6.71	0.280	0.3132	0.3101
9.1.42	0.1778	0.1130	21.48	0.0	4.792	0.999	6.69	0.326	0.3126	0.3349
9.1.43	0.1766	0.1175	22.29	0.0	5.667	1.005	6.39	0.386	0.3086	0.3642
9.1.44	0.1748	0.1160	22.04	0.0	6.608	0.995	6.40	0.450	0.3080	0.3933
9.1.45	0.1765	0.1063	20.29	0.0	7.867	0.978	7.06	0.536	0.3164	0.4291
9.1.46	0.1766	0.1118	21.29	0.0	9.656	0.994	6.71	0.658	0.3125	0.4754
9.1.47	0.2554	0.1197	22.79	0.0	4.117	1.017	9.07	0.280	0.3694	0.3104
9.1.48	0.2443	0.1404	26.79	0.0	9.787	0.984	7.41	0.667	0.3475	0.4787
9.1.49	0.1771	0.1271	23.78	0.0	13.900	0.976	5.92	0.947	0.3031	0.5704
9.1.50	0.4749	0.1589	30.17	0.0	2.500	1.016	12.70	0.170	0.4694	0.2419
9.1.51	0.2890	0.1158	21.92	0.0	3.125	1.003	10.61	0.213	0.3962	0.2704
9.1.52	0.1885	0.1211	22.80	0.0	4.758	0.995	6.61	0.324	0.3164	0.3337
9.1.53	0.1816	0.1190	22.30	0.0	8.067	0.980	6.49	0.549	0.3120	0.4345
9.1.54	0.0736	0.1194	22.30	0.0	13.933	0.979	2.62	0.949	0.1984	0.5711
9.1.55	0.1602	0.1180	22.30	0.0	7.522	0.990	5.77	0.512	0.2936	0.4196
9.1.56	0.2522	0.1180	22.30	0.0	5.354	0.997	9.09	0.365	0.3684	0.3540
9.1.57	0.3750	0.1173	22.20	0.0	2.817	1.023	13.59	0.192	0.4500	0.2568
9.1.58	0.2474	0.1196	22.55	0.0	3.672	0.973	8.79	0.250	0.3637	0.2932
9.1.59	0.2469	0.1179	22.10	0.0	4.650	0.996	8.90	0.317	0.3646	0.3299
9.1.60	0.2454	0.1205	22.55	0.0	4.350	1.022	8.65	0.296	0.3615	0.3191
9.1.61	0.1270	0.1167	21.80	0.0	5.100	0.987	4.62	0.347	0.2622	0.3455
9.1.62	0.1270	0.1183	22.05	0.0	8.300	0.996	4.56	0.565	0.2613	0.4407
9.1.63	0.1295	0.1172	21.80	0.0	9.200	0.900	4.66	0.627	0.2634	0.4640
9.1.64	0.2783	0.1178	22.20	0.0	10.500	1.002	10.06	0.715	0.3875	0.4957
9.1.65	0.3225	0.1502	29.95	0.0	7.225	1.059	8.56	0.492	0.3960	0.4113
9.1.66	0.3167	0.1509	28.20	0.0	7.150	1.045	8.92	0.437	0.3883	0.4091
9.1.67	0.2436	0.1200	22.45	0.0	6.933	1.023	8.63	0.472	0.3606	0.4028
9.1.68	0.5069	0.1533	28.95	0.0	1.575	1.022	14.05	0.107	0.4893	0.1920
9.1.69	0.5026	0.1864	35.42	0.0	3.350	1.040	11.46	0.229	0.4641	0.2801
9.1.70	0.4926	0.1721	32.67	0.0	2.983	1.011	12.17	0.203	0.4686	0.2643
9.1.71	0.5691	0.1813	34.42	0.0	2.017	1.039	13.30	0.137	0.4969	0.2173
9.1.72	0.5527	0.1602	30.42	0.0	1.733	1.034	14.66	0.119	0.5053	0.2014
9.1.73	0.5986	0.1826	34.67	0.0	1.783	1.039	13.93	0.121	0.5090	0.2044
9.1.74	0.5929	0.1733	32.42	0.0	1.483	0.999	14.55	0.101	0.5112	0.1864
9.1.75	0.4550	0.1716	32.42	0.0	3.767	1.021	11.27	0.257	0.4507	0.2970
9.1.76	0.5797	0.1744	33.17	0.0	1.700	1.001	14.13	0.116	0.5067	0.1995
9.1.77	0.4698	0.1782	33.67	0.0	3.450	0.994	11.20	0.235	0.4537	0.2842
9.1.78	0.4769	0.1124	21.48	0.0	1.329	1.013	18.04	0.091	0.5129	0.1764
9.1.79	0.4694	0.1153	21.98	0.0	2.139	1.049	17.30	0.146	0.5055	0.2237
9.1.80	0.4841	0.1284	24.48	0.0	2.378	1.047	16.02	0.162	0.4998	0.2359

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

SUMMARY OF CALCULATED RESULTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.1.81	0.3234	J.1244	23.73	0.0	5.367	1.103	11.05	0.366	0.4117	0.3544
9.1.82	0.3780	J.1491	23.48	0.0	4.942	0.972	10.77	0.337	0.4255	0.3401
9.1.83	0.1756	0.1223	23.29	0.0	11.583	0.999	6.10	0.789	0.3046	0.5207
9.1.84	0.2491	J.1224	23.29	0.0	6.756	1.003	8.65	0.460	0.3628	0.3976
9.1.85	0.3245	0.1552	20.28	0.0	6.600	0.999	8.89	0.450	0.3903	0.3931
9.1.86	0.4826	J.1269	24.03	0.0	2.365	1.034	16.17	0.161	0.5005	0.2353
9.1.87	0.4911	J.1240	24.17	0.0	1.762	1.043	16.83	0.120	0.5078	0.2031
9.1.88	0.5390	J.1262	24.17	0.0	1.003	1.084	18.15	0.069	0.5296	0.1536
9.1.89	0.3294	0.1176	22.17	0.0	4.267	1.014	11.91	0.291	0.4214	0.3160
9.1.90	0.5365	J.1355	25.55	0.0	2.767	1.036	16.83	0.188	0.5192	0.2545
9.1.91	0.4975	J.1368	25.80	0.0	2.300	1.019	15.46	0.157	0.4997	0.2320
9.1.92	0.2521	0.1190	22.30	0.0	6.400	1.063	9.01	0.436	0.3676	0.3870
9.1.93	0.1360	0.1183	22.09	0.0	12.333	1.013	4.89	0.840	0.2704	0.5373
9.1.94	0.5106	0.1632	30.87	0.0	2.433	1.032	13.53	0.166	0.4877	0.2387
9.1.95	0.2001	0.1437	28.12	0.0	11.075	0.990	5.72	0.754	0.3098	0.5092
9.1.96	0.1815	J.1248	23.37	0.0	12.383	1.001	6.18	0.844	0.3082	0.5384
9.1.97	0.5081	J.1702	32.12	0.0	2.967	1.016	12.69	0.202	0.4773	0.2636
9.1.98	0.0756	J.1200	22.34	0.0	13.900	0.981	2.68	0.947	0.2009	0.5704

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.1. 1	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	60.26	0.0
9.1. 2	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	60.38	0.0
9.1. 3	0.0	0.0	0.0	29.8	0.0	0.0	0.0	0.0	82.44	0.0
9.1. 4	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	80.77	0.0
9.1. 5	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	40.38	0.0
9.1. 6	0.0	0.0	78.0	0.0	0.0	0.0	0.0	0.0	39.49	0.0
9.1. 7	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	20.13	0.0
9.1. 8	0.0	0.0	148.0	0.0	0.0	0.0	0.0	0.0	0.0	5.56
9.1. 9	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	61.41	0.0
9.1.10	0.0	0.0	0.0	30.6	0.0	0.0	0.0	0.0	72.44	0.0
9.1.11	0.0	0.0	0.0	20.2	0.0	0.0	0.0	0.0	88.33	0.0
9.1.12	0.0	0.0	0.0	20.9	0.0	0.0	0.0	0.0	101.41	0.0
9.1.13	0.0	0.0	0.0	20.1	0.0	0.0	0.0	0.0	85.00	0.0
9.1.14	0.0	0.0	0.0	49.9	0.0	0.0	0.0	0.0	44.49	0.0
9.1.15	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	29.87	0.0
9.1.16	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.1.17	0.0	0.0	0.0	29.8	0.0	0.0	0.0	0.0	73.97	0.0
9.1.18	0.0	0.0	0.0	29.9	0.0	0.0	0.0	0.0	81.03	0.0
9.1.19	0.0	0.0	0.0	49.9	0.0	0.0	0.0	0.0	73.72	0.0
9.1.20	0.0	0.0	0.0	49.8	0.0	0.0	0.0	0.0	56.03	0.0
9.1.21	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0
9.1.22	0.0	0.0	150.0	0.0	80.00	0.0	20.00	0.0	0.0	0.0
9.1.23	0.0	0.0	150.0	0.0	67.00	0.0	0.0	0.0	0.0	0.0
9.1.24	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	14.49	0.0
9.1.25	0.0	0.0	160.0	0.0	46.50	0.0	0.0	0.0	0.0	0.0
9.1.26	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0
9.1.27	0.0	0.0	101.0	0.0	0.0	0.0	0.0	0.0	29.74	0.0
9.1.28	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0
9.1.29	0.0	0.0	160.0	0.0	0.0	0.0	0.0	0.0	29.10	0.0
9.1.30	0.0	0.0	161.0	0.0	0.0	0.0	0.0	0.0	20.77	0.0
9.1.31	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
9.1.32	0.0	0.0	42.0	0.0	10.00	0.0	60.00	0.0	0.0	0.0
9.1.33	0.0	0.0	40.0	0.0	10.00	0.0	70.00	0.0	0.0	0.0
9.1.34	0.0	0.0	41.8	0.0	10.00	0.0	50.00	0.0	0.0	0.0
9.1.35	0.0	0.0	41.8	0.0	10.00	0.0	60.00	0.0	0.0	0.0
9.1.36	0.0	0.0	41.8	0.0	10.00	0.0	70.00	0.0	0.0	0.0
9.1.37	0.0	0.0	0.0	39.6	0.0	0.0	0.0	0.0	59.36	0.0
9.1.38	0.0	0.0	0.0	19.7	0.0	0.0	0.0	0.0	40.13	0.0
9.1.39	0.0	0.0	0.0	30.1	0.0	0.0	0.0	0.0	40.26	0.0
9.1.40	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	40.00	0.0

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.1.41	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	20.00	0.0
9.1.42	0.0	0.0	0.0	39.2	0.0	0.0	0.0	0.0	20.26	0.0
9.1.43	0.0	0.0	0.0	55.0	0.0	0.0	0.0	0.0	20.26	0.0
9.1.44	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	20.26	0.0
9.1.45	0.0	0.0	91.0	0.0	0.0	0.0	0.0	0.0	20.38	0.0
9.1.46	0.0	0.0	109.0	0.0	0.0	0.0	0.0	0.0	20.26	0.0
9.1.47	0.0	0.0	0.0	39.8	0.0	0.0	0.0	0.0	30.64	0.0
9.1.48	0.0	0.0	120.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0
9.1.49	0.0	0.0	160.0	0.0	0.0	0.0	0.0	0.0	20.38	0.0
9.1.50	0.0	0.0	0.0	48.1	0.0	0.0	0.0	0.0	55.38	0.0
9.1.51	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	39.87	0.0
9.1.52	0.0	0.0	0.0	39.8	0.0	0.0	0.0	0.0	20.00	0.0
9.1.53	0.0	0.0	91.0	0.0	0.0	0.0	0.0	0.0	19.87	0.0
9.1.54	0.0	0.0	120.0	0.0	0.0	0.0	0.0	0.0	0.0	8.18
9.1.55	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	17.56	0.0
9.1.56	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	29.74	0.0
9.1.57	0.0	0.0	0.0	29.7	0.0	0.0	0.0	0.0	43.85	0.0
9.1.58	0.0	0.0	0.0	29.9	0.0	0.0	0.0	0.0	29.49	0.0
9.1.59	0.0	0.0	0.0	49.8	0.0	0.0	0.0	0.0	29.23	0.0
9.1.60	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	29.23	0.0
9.1.61	0.0	0.0	0.0	39.8	0.0	0.0	0.0	0.0	14.62	0.0
9.1.62	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	14.62	0.0
9.1.63	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.1.64	0.0	0.0	119.0	0.0	80.00	0.0	48.00	0.0	0.0	0.0
9.1.65	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	38.59	0.0
9.1.66	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	38.33	0.0
9.1.67	0.0	0.0	81.0	0.0	0.0	0.0	0.0	0.0	29.23	0.0
9.1.68	0.0	0.0	0.0	40.4	0.0	0.0	0.0	0.0	64.10	0.0
9.1.69	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	56.15	0.0
9.1.70	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	55.90	0.0
9.1.71	0.0	0.0	0.0	49.0	0.0	0.0	0.0	0.0	62.95	0.0
9.1.72	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	63.59	0.0
9.1.73	0.0	0.0	0.0	47.8	0.0	0.0	0.0	0.0	73.33	0.0
9.1.74	0.0	0.0	0.0	40.2	0.0	0.0	0.0	0.0	73.21	0.0
9.1.75	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	56.15	0.0
9.1.76	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	73.33	0.0
9.1.77	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	55.90	0.0
9.1.78	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	60.00	0.0
9.1.79	0.0	0.0	0.0	19.5	0.0	0.0	0.0	0.0	59.62	0.0
9.1.80	0.0	0.0	0.0	30.3	0.0	0.0	0.0	0.0	59.49	0.0

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	PM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.1.81	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	40.26	0.0
9.1.82	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	39.74	0.0
9.1.83	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	20.38	0.0
9.1.84	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	30.26	0.0
9.1.85	0.0	0.0	97.0	0.0	0.0	0.0	0.0	0.0	39.74	0.0
9.1.86	0.0	0.0	0.0	35.8	0.0	0.0	0.0	0.0	60.13	0.0
9.1.87	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	59.36	0.0
9.1.88	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	85.00	0.0
9.1.89	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	40.51	0.0
9.1.90	0.0	0.0	0.0	30.3	0.0	0.0	0.0	0.0	60.13	0.0
9.1.91	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	59.74	0.0
9.1.92	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0
9.1.93	0.0	0.0	129.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.1.94	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	63.72	0.0
9.1.95	0.0	0.0	151.0	0.0	0.0	0.0	0.0	0.0	21.92	0.0
9.1.96	0.0	0.0	140.0	0.0	0.0	0.0	0.0	0.0	20.90	0.0
9.1.97	0.0	0.0	59.0	0.0	0.0	0.0	0.0	0.0	63.97	0.0
9.1.98	0.0	0.0	120.0	0.0	0.0	0.0	0.0	0.0	0.0	8.19

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.1.1	16.0	0.0	15.0	89.0	27.0	50.0	93.0	107.9	100.5	12.2
9.1.2	18.5	0.0	16.5	89.0	27.0	50.0	102.5	117.0	110.0	12.2
9.1.3	16.5	0.0	15.5	73.0	30.0	50.0	116.0	127.7	122.5	12.2
9.1.4	20.0	0.0	19.0	77.0	30.0	50.0	118.5	130.0	124.8	12.2
9.1.5	14.2	0.0	11.5	91.0	30.0	48.0	98.9	110.9	105.5	12.2
9.1.6	20.0	0.0	17.5	100.0	30.0	50.0	68.0	66.0	65.0	12.3
9.1.7	16.0	0.0	10.5	97.0	30.0	44.0	79.0	91.5	85.0	12.3
9.1.8	16.5	0.0	10.0	99.0	15.0	44.0	83.5	94.0	98.0	12.3
9.1.9	17.0	0.0	15.0	89.0	30.0	48.0	105.0	120.5	113.0	12.3
9.1.10	18.0	0.0	16.5	89.0	30.0	49.0	116.5	129.0	123.5	12.3
9.1.11	19.0	0.0	17.5	84.0	30.0	54.5	110.0	123.5	117.0	12.3
9.1.12	21.0	0.0	20.5	83.0	33.0	49.0	124.0	137.0	130.5	12.3
9.1.13	17.5	0.0	16.7	89.0	32.0	50.0	117.0	129.5	123.5	12.3
9.1.14	11.7	0.0	10.0	94.0	33.5	47.0	104.0	117.0	111.5	12.3
9.1.15	13.5	0.0	11.4	93.0	33.5	45.0	90.5	100.5	95.5	12.3

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.1.16	13.5	0.0	10.6	100.0	32.5	51.5	73.5	72.0	71.0	12.3
9.1.17	14.7	0.0	16.5	89.5	32.0	43.0	108.0	123.5	116.5	12.3
9.1.18	15.0	0.0	16.0	89.0	35.0	48.5	87.0	102.5	95.0	12.3
9.1.19	14.5	0.0	16.0	90.0	35.5	47.5	100.5	115.5	108.5	12.3
9.1.20	10.0	0.0	10.5	91.0	35.0	48.5	111.5	125.0	119.5	12.3
9.1.21	7.0	0.0	11.7	93.0	35.0	50.0	104.0	114.5	110.5	12.3
9.1.22	14.0	0.0	11.5	94.5	35.0	48.0	92.5	106.0	101.0	12.3
9.1.23	14.5	0.0	12.0	95.5	35.0	45.5	91.5	102.5	88.5	12.3
9.1.24	14.5	0.0	10.2	97.5	0.0	54.0	76.0	74.0	0.0	12.4
9.1.25	15.0	0.0	10.3	97.5	33.5	49.0	74.5	0.0	73.0	12.4
9.1.26	11.2	0.0	10.4	95.0	0.0	47.5	81.0	90.0	0.0	12.4
9.1.27	13.2	0.0	12.0	94.0	0.0	46.5	82.0	91.0	0.0	12.4
9.1.28	19.0	0.0	17.5	93.5	0.0	46.5	86.0	96.0	0.0	12.4
9.1.29	26.2	0.0	22.5	93.5	0.0	46.0	90.0	101.5	0.0	12.4
9.1.30	18.2	0.0	15.0	94.0	0.0	46.5	80.0	91.0	0.0	12.4
9.1.31	20.0	0.0	20.2	89.0	0.0	47.5	88.0	99.5	0.0	12.4
9.1.32	9.5	0.0	9.2	90.0	15.0	50.0	84.0	78.0	75.0	12.3
9.1.33	9.5	0.0	9.5	90.0	15.0	54.0	81.5	89.0	80.5	12.3
9.1.34	9.0	0.0	8.5	95.0	15.0	54.5	84.5	80.5	77.5	12.4
9.1.35	10.0	0.0	10.0	95.0	15.0	53.5	84.0	83.5	79.5	12.4
9.1.36	9.0	0.0	8.5	95.0	15.0	52.5	84.0	97.0	81.5	12.4
9.1.37	17.0	0.0	17.0	88.0	26.0	54.5	102.5	115.5	109.5	12.5
9.1.38	10.0	0.0	9.0	92.0	27.0	55.5	103.5	116.0	110.5	12.5
9.1.39	11.0	0.0	10.0	92.0	27.0	54.0	99.5	113.0	102.5	12.5
9.1.40	10.0	0.0	9.2	91.0	27.0	54.5	106.5	113.5	113.5	12.5
9.1.41	10.5	0.0	9.0	95.0	27.0	52.5	76.5	82.0	78.5	12.5
9.1.42	10.0	0.0	9.0	95.0	27.0	52.5	80.5	91.0	85.0	12.5
9.1.43	12.2	0.0	11.0	95.0	27.0	52.5	93.0	93.5	88.0	12.3
9.1.44	12.5	0.0	10.2	95.0	27.0	52.5	86.0	99.5	92.5	12.3
9.1.45	11.0	0.0	8.5	93.0	27.0	55.0	80.0	87.0	82.5	12.3
9.1.46	13.0	0.0	9.0	94.0	27.0	53.5	80.5	88.5	83.5	12.3
9.1.47	13.5	0.0	11.5	91.0	27.0	53.0	95.0	97.5	91.0	12.3
9.1.48	19.5	0.0	15.5	91.0	27.0	54.5	94.5	109.5	102.5	12.3
9.1.49	18.0	0.0	12.0	95.0	27.0	45.0	83.0	95.5	89.5	12.3
9.1.50	20.0	0.0	19.0	90.0	26.0	52.0	73.0	76.0	74.0	12.2
9.1.51	12.2	0.0	10.5	82.0	30.0	49.0	113.5	124.5	120.5	12.2
9.1.52	14.0	0.0	11.5	100.0	30.0	46.5	71.0	76.0	71.5	12.3
9.1.53	14.0	0.0	10.5	98.0	30.0	46.0	74.0	83.0	77.5	12.3
9.1.54	15.0	0.0	10.5	98.0	15.0	44.0	83.0	91.5	96.0	12.3
9.1.55	14.0	0.0	10.0	97.0	30.0	50.0	77.0	79.0	77.0	12.3

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.1.56	13.2	0.0	10.5	94.0	30.0	49.5	89.0	104.0	96.5	12.3
9.1.57	12.7	0.0	12.2	95.5	33.5	50.0	94.0	107.0	101.0	12.3
9.1.58	13.0	0.0	12.0	94.0	33.5	48.0	98.0	110.0	104.5	12.3
9.1.59	13.0	0.0	11.8	93.5	33.5	45.0	92.5	103.5	98.5	12.3
9.1.60	13.0	0.0	12.2	93.5	33.5	44.0	94.5	107.0	101.0	12.3
9.1.61	12.6	0.0	10.2	95.5	33.7	43.0	88.0	99.0	93.0	12.3
9.1.62	14.2	0.0	11.0	95.0	33.0	43.0	87.0	95.5	91.5	12.3
9.1.63	15.5	0.0	9.6	95.0	32.5	42.0	86.0	94.0	89.5	12.3
9.1.64	12.7	0.0	10.0	96.0	33.5	49.0	83.5	0.0	80.5	12.2
9.1.65	19.2	0.0	17.0	92.5	33.5	44.0	91.0	103.5	0.0	12.2
9.1.66	17.5	0.0	16.5	92.5	33.5	44.0	96.5	110.0	0.0	12.2
9.1.67	11.5	0.0	10.7	93.5	33.5	44.0	98.5	110.5	0.0	12.2
9.1.68	17.0	0.0	18.4	89.5	33.0	44.5	106.0	118.5	0.0	12.2
9.1.69	23.2	0.0	23.5	97.0	32.5	52.0	79.0	90.0	0.0	12.4
9.1.70	20.0	0.0	20.8	96.0	0.0	50.5	80.0	93.5	0.0	12.4
9.1.71	21.2	0.0	22.0	96.5	0.0	49.5	78.0	82.0	0.0	12.4
9.1.72	17.5	0.0	18.6	95.0	0.0	49.5	85.0	96.0	0.0	12.4
9.1.73	22.2	0.0	13.3	92.0	0.0	49.5	103.0	115.5	0.0	12.4
9.1.74	19.5	0.0	20.5	91.0	0.0	47.5	112.0	124.3	0.0	12.4
9.1.75	29.5	0.0	20.3	91.5	0.0	49.0	105.0	117.0	0.0	12.4
9.1.76	29.5	0.0	21.2	89.5	0.0	49.5	108.0	120.0	0.0	12.4
9.1.77	21.5	0.0	21.4	93.5	0.0	48.0	95.3	107.0	0.0	12.4
9.1.78	19.5	0.0	10.0	90.0	15.0	52.5	103.0	120.0	106.5	12.5
9.1.79	11.0	0.0	10.5	90.0	20.0	52.0	113.0	125.5	119.5	12.5
9.1.80	14.0	0.0	13.5	90.0	25.0	52.5	94.0	106.5	100.0	12.5
9.1.81	15.0	0.0	12.5	91.0	27.0	54.5	106.5	119.5	113.5	12.5
9.1.82	13.5	0.0	18.0	100.0	27.0	55.0	70.0	72.0	70.0	12.5
9.1.83	16.0	0.0	11.5	93.0	27.0	53.5	81.0	90.0	84.5	12.3
9.1.84	14.0	0.0	11.2	91.0	27.0	52.5	90.0	104.5	97.5	12.3
9.1.85	21.0	0.0	18.0	91.0	27.0	47.5	95.0	109.0	102.5	12.3
9.1.86	14.5	0.0	13.5	88.0	27.0	47.5	99.0	102.0	105.0	12.3
9.1.87	15.0	0.0	14.5	90.0	27.0	57.0	85.0	95.5	90.0	12.2
9.1.88	13.5	0.0	12.5	70.0	30.0	54.0	110.0	123.0	117.0	12.2
9.1.89	13.0	0.0	11.0	91.0	30.0	48.0	98.5	110.8	105.0	12.2
9.1.90	16.0	0.0	15.0	96.0	32.0	48.5	76.0	86.0	81.0	12.3
9.1.91	17.5	0.0	14.5	93.5	33.0	47.0	98.0	111.5	105.5	12.3
9.1.92	13.5	0.0	12.0	93.0	33.5	45.0	87.0	96.5	92.5	12.3
9.1.93	13.5	0.0	11.2	98.0	33.5	43.5	74.0	79.0	74.0	12.3
9.1.94	19.7	0.0	19.5	99.5	0.0	48.5	86.0	102.0	0.0	12.4
9.1.95	17.5	0.0	16.5	98.0	0.0	49.5	80.0	84.0	0.0	12.4

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.1.96	14.5	0.0	20.0	94.0	0.0	45.5	84.0	91.0	0.0	12.4
9.1.97	29.0	0.0	20.6	88.0	0.0	47.0	94.5	108.5	0.0	12.4
9.1.98	12.7	0.0	10.0	98.0	10.5	42.0	76.5	77.5	74.5	12.3

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.1. 1	325.0	467.0	60.0	257.5	457.0	60.0	18.0	14.0	53.0
9.1. 2	343.5	523.0	60.0	330.0	581.5	60.0	18.0	17.0	52.0
9.1. 3	239.5	325.5	60.0	307.0	482.5	60.0	18.0	14.5	55.0
9.1. 4	325.5	429.5	60.0	390.0	626.5	60.0	18.0	18.0	54.0
9.1. 5	211.0	541.0	60.0	130.0	380.0	60.0	18.0	11.0	49.0
9.1. 6	154.0	454.5	60.0	116.0	466.0	60.0	18.0	17.0	50.0
9.1. 7	265.0	500.0	20.0	483.0	678.0	30.0	18.0	10.0	45.0
9.1. 8	140.5	421.0	15.0	123.0	226.5	60.0	18.0	10.0	45.0
9.1. 9	334.5	469.0	60.0	460.0	668.0	60.0	18.0	14.7	50.5
9.1.10	173.0	332.5	120.0	276.5	551.0	90.0	18.0	15.0	55.0
9.1.11	242.5	295.0	120.0	119.5	305.0	75.0	18.0	17.0	59.0
9.1.12	295.0	337.0	150.0	209.0	365.0	60.0	18.0	19.5	63.0
9.1.13	197.5	223.0	60.0	214.5	363.5	60.0	18.0	15.7	61.0
9.1.14	267.0	442.5	45.0	296.0	477.0	60.0	18.0	8.2	48.0
9.1.15	250.5	446.0	30.0	205.5	333.0	30.0	18.0	9.7	45.0
9.1.16	152.0	383.0	20.0	101.5	219.5	20.0	18.0	9.7	51.5
9.1.17	147.5	191.5	30.0	232.0	365.0	45.0	18.0	15.0	48.0
9.1.18	139.5	220.0	90.0	102.5	139.0	11.0	12.0	15.0	54.0
9.1.19	220.0	347.0	60.0	139.0	211.5	15.0	12.0	15.0	49.5
9.1.20	346.0	437.0	30.0	211.5	263.5	20.0	12.0	9.7	50.0
9.1.21	260.0	423.0	25.0	263.5	383.5	20.0	12.0	11.5	50.5
9.1.22	144.5	349.0	20.5	383.5	479.0	20.0	4.0	11.5	48.5
9.1.23	349.0	520.0	15.0	479.0	562.0	15.0	4.0	11.0	46.0
9.1.24	140.5	416.5	20.0	102.0	241.5	20.0	4.0	10.2	54.0
9.1.25	207.0	456.0	15.0	152.5	266.0	20.0	3.0	10.0	49.0
9.1.26	153.0	364.5	30.0	166.0	299.0	30.0	12.0	9.7	48.0
9.1.27	159.0	401.5	30.0	126.5	294.0	30.0	12.0	11.0	47.5
9.1.28	155.0	433.5	30.0	130.5	389.0	30.0	12.0	16.2	47.5
9.1.29	155.5	449.0	30.0	182.5	533.0	30.0	8.0	21.2	46.5
9.1.30	153.5	533.0	30.0	119.0	412.5	30.0	4.0	14.5	47.0

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.1.31	145.5	257.5	30.0	308.5	483.0	30.0	12.0	19.5	49.5
9.1.32	294.8	460.0	30.0	86.5	123.0	60.0	12.0	9.5	50.0
9.1.33	339.5	493.5	30.0	123.0	148.0	60.0	12.0	9.5	51.5
9.1.34	139.0	303.5	30.0	99.5	126.0	60.0	12.0	9.0	54.5
9.1.35	303.5	465.0	30.0	126.0	150.0	60.0	12.0	9.7	54.0
9.1.36	465.0	618.0	30.0	150.0	184.5	60.0	12.0	9.7	54.0
9.1.37	143.0	483.0	120.0	200.0	449.0	90.0	18.0	15.0	56.5
9.1.38	152.5	479.5	120.0	120.0	122.0	240.0	18.0	7.5	57.0
9.1.39	141.0	413.0	90.0	122.0	336.5	180.0	18.0	9.7	54.0
9.1.40	222.0	535.5	90.0	263.0	514.0	120.0	18.0	8.5	55.0
9.1.41	140.5	387.0	60.0	109.0	126.0	240.0	18.0	9.0	53.0
9.1.42	251.5	539.0	60.0	126.0	244.0	180.0	18.0	9.0	53.0
9.1.43	160.5	500.5	60.0	244.0	485.5	120.0	18.0	10.0	52.0
9.1.44	180.5	577.0	60.0	315.0	684.0	120.0	18.0	9.7	53.0
9.1.45	140.0	494.0	45.0	103.0	509.0	90.0	18.0	8.0	55.5
9.1.46	143.5	578.0	45.0	135.0	540.5	75.0	18.0	9.0	54.0
9.1.47	140.5	387.5	60.0	106.5	288.0	120.0	18.0	10.5	54.0
9.1.48	133.5	575.0	40.0	392.0	780.0	60.0	18.0	14.5	55.0
9.1.49	133.5	481.0	25.0	91.0	286.5	25.0	18.0	11.5	45.0
9.1.50	133.0	439.0	120.0	100.5	616.0	120.0	18.0	18.0	52.5
9.1.51	250.5	447.0	60.0	444.0	508.0	60.0	18.0	9.7	51.0
9.1.52	143.0	428.5	60.0	341.5	409.0	90.0	18.0	10.5	48.0
9.1.53	234.5	478.5	30.0	405.0	600.0	45.0	18.0	10.0	46.0
9.1.54	282.0	491.0	15.0	226.5	370.0	60.0	18.0	10.0	44.0
9.1.55	140.5	479.0	45.0	116.0	325.0	60.0	18.0	10.0	50.0
9.1.56	293.0	534.0	45.0	325.0	511.0	60.0	18.0	10.0	50.0
9.1.57	169.5	333.5	60.0	172.0	277.5	75.0	18.0	9.9	51.0
9.1.58	327.5	445.0	32.0	411.0	433.0	60.0	18.0	10.2	49.0
9.1.59	217.0	356.5	30.0	269.0	404.0	60.0	18.0	9.3	46.0
9.1.60	334.5	465.0	30.0	318.0	358.0	30.0	18.0	10.2	45.0
9.1.61	215.0	368.0	30.0	308.5	330.5	60.0	18.0	9.5	44.0
9.1.62	302.0	551.0	30.0	278.5	403.5	30.0	18.0	9.7	43.0
9.1.63	370.0	514.0	15.0	324.5	536.5	30.0	18.0	9.5	42.0
9.1.64	141.0	351.0	20.0	102.5	224.0	20.0	5.0	10.0	48.5
9.1.65	282.0	426.5	20.0	110.0	260.0	20.0	12.0	17.7	44.5
9.1.66	161.5	304.5	20.0	116.0	263.5	20.0	12.0	16.0	44.5
9.1.67	173.5	381.5	30.0	198.0	335.5	30.0	12.0	10.2	45.0
9.1.68	149.0	243.5	60.0	127.5	252.5	30.0	12.0	16.7	49.5
9.1.69	174.5	275.0	30.0	124.0	327.0	30.0	12.0	23.0	53.0
9.1.70	145.5	235.0	30.0	129.0	292.5	30.0	12.0	20.2	52.5

TABLE XIV (Contd.)

BASELINE COUNTERCURRENT FLOW TEST GROUP 9.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.1.1 TO 9.1.98 -- 1.58-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.1.71	146.5	207.0	30.0	165.0	317.0	30.0	12.0	22.0	51.0
9.1.72	196.5	248.5	30.0	235.5	356.0	30.0	12.0	18.0	52.5
9.1.73	147.0	209.5	30.0	216.0	369.5	30.0	12.0	22.2	52.5
9.1.74	186.5	231.0	30.0	266.0	389.0	30.0	12.0	20.0	54.0
9.1.75	157.0	279.0	30.0	118.0	303.0	30.0	12.0	20.0	59.0
9.1.76	149.0	200.0	30.0	173.0	310.0	30.0	12.0	20.7	53.5
9.1.77	141.5	245.0	30.0	105.0	287.5	30.0	12.0	21.2	50.0
9.1.78	133.5	293.0	120.0	98.0	117.0	240.0	18.0	9.0	56.0
9.1.79	293.0	485.5	90.0	117.0	286.5	240.0	18.0	9.5	54.5
9.1.80	200.0	414.0	90.0	224.0	589.0	180.0	18.0	12.0	54.5
9.1.81	236.0	608.0	60.0	514.0	859.0	90.0	18.0	11.2	55.0
9.1.82	139.5	435.0	60.0	100.0	363.0	60.0	18.0	16.0	55.5
9.1.83	157.5	505.0	30.0	328.5	716.5	60.0	18.0	11.0	54.0
9.1.84	164.5	468.5	45.0	199.0	594.5	90.0	18.0	11.0	53.5
9.1.85	141.0	537.0	60.0	176.5	486.0	45.0	18.0	17.0	49.0
9.1.86	153.0	436.8	120.0	260.0	599.0	122.0	18.0	11.7	51.0
9.1.87	140.0	325.0	105.0	102.5	257.5	60.0	18.0	12.0	66.0
9.1.88	337.0	397.5	60.0	366.0	486.0	60.0	18.0	12.0	57.0
9.1.89	141.0	397.0	60.0	109.0	276.0	60.0	18.0	10.0	49.0
9.1.90	97.0	180.0	30.0	134.0	182.0	30.0	18.0	13.2	49.0
9.1.91	140.0	278.0	60.0	104.5	307.0	60.0	18.0	13.5	49.0
9.1.92	146.0	338.0	30.0	143.5	257.5	30.0	18.0	10.0	46.0
9.1.93	282.0	467.0	15.0	198.5	286.0	15.0	10.0	9.7	44.0
9.1.94	191.5	264.5	30.0	132.0	274.0	30.0	12.0	18.5	50.5
9.1.95	142.0	363.5	20.0	109.0	303.0	20.0	4.0	15.7	50.5
9.1.96	141.5	513.0	30.0	108.5	321.5	30.0	4.0	11.0	45.5
9.1.97	143.5	232.5	30.0	277.0	438.0	30.0	12.0	19.7	49.5
9.1.98	214.0	422.5	15.0	255.0	329.0	30.0	12.0	10.0	42.5

TABLE XV

BYPASS FLOW TEST GROUP 5.5

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.5.1 TO 5.5.23 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.5. 1	0.0	0.1196	22.59	0.0671	4.596	1.011	0.0	1.107	0.0	0.8109
5.5. 2	0.0	0.1164	22.09	0.0668	3.950	0.966	0.0	0.951	0.0	0.7517
5.5. 3	0.0	0.1235	23.34	0.0667	3.433	0.977	0.0	0.827	0.0	0.7009
5.5. 4	0.0	0.1177	22.34	0.0666	2.633	1.041	0.0	0.634	0.0	0.6138
5.5. 5	0.0	0.1185	22.34	0.1312	3.450	0.845	0.0	0.831	0.0	0.7026
5.5. 6	0.0	0.1196	22.59	0.1312	3.200	0.966	0.0	0.771	0.0	0.6766
5.5. 7	0.0	0.1170	22.20	0.1387	3.400	1.003	0.0	0.819	0.0	0.6974
5.5. 8	0.0	0.1190	22.70	0.1355	2.458	1.007	0.0	0.592	0.0	0.5930
5.5. 9	0.0	0.1201	22.70	0.1328	3.025	1.004	0.0	0.728	0.0	0.6579
5.5.10	0.0	0.1170	22.20	0.1329	3.317	1.022	0.0	0.799	0.0	0.6888
5.5.11	0.0	0.1223	23.20	0.1325	3.458	0.976	0.0	0.833	0.0	0.7034
5.5.12	0.0	0.1223	23.20	0.1324	2.458	0.994	0.0	0.592	0.0	0.5931
5.5.13	0.0	0.1175	22.20	0.1858	2.267	1.011	0.0	0.546	0.0	0.5695
5.5.14	0.0	0.1199	22.70	0.1914	2.475	1.001	0.0	0.596	0.0	0.5951
5.5.15	0.0	0.1197	22.70	0.1882	3.342	0.974	0.0	0.805	0.0	0.6914
5.5.16	0.0	0.1157	21.95	0.1856	2.467	1.004	0.0	0.594	0.0	0.5940
5.5.17	0.0	0.1150	21.92	0.2012	1.325	1.010	0.0	0.319	0.0	0.4354
5.5.18	0.0	0.1216	22.88	0.0289	4.333	0.971	0.0	1.044	0.0	0.7874
5.5.19	0.0	0.1172	22.13	0.0301	5.567	0.973	0.0	1.341	0.0	0.8924
5.5.20	0.0	0.1211	22.88	0.0301	3.767	0.977	0.0	0.907	0.0	0.7341
5.5.21	0.0	0.1189	22.38	0.0668	4.283	0.980	0.0	1.032	0.0	0.7828
5.5.22	0.0	0.1190	22.67	0.1451	2.933	0.983	0.0	0.706	0.0	0.6478
5.5.23	0.0	0.1224	23.17	0.2049	2.817	1.016	0.0	0.678	0.0	0.6348

TABLE XV (Contd.)

BYPASS FLOW TEST GROUP 5.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.5.1 TO 5.5.23 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.5.1	0.0	0.0	0.0	50.5	0.0	0.0	0.0	0.0	0.0	0.0
5.5.2	0.0	0.0	0.0	39.8	0.0	0.0	0.0	0.0	0.0	0.0
5.5.3	0.0	0.0	0.0	29.7	0.0	0.0	0.0	0.0	0.0	0.0
5.5.4	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5.5	0.0	0.0	0.0	50.4	0.0	0.0	0.0	0.0	0.0	0.0
5.5.6	0.0	0.0	0.0	39.8	0.0	0.0	0.0	0.0	0.0	0.0
5.5.7	0.0	0.0	0.0	29.8	0.0	0.0	0.0	0.0	0.0	0.0
5.5.8	0.0	0.0	0.0	19.8	0.0	0.0	0.0	0.0	0.0	0.0
5.5.9	0.0	0.0	0.0	50.1	0.0	0.0	0.0	0.0	0.0	0.0
5.5.10	0.0	0.0	0.0	40.2	0.0	0.0	0.0	0.0	0.0	0.0
5.5.11	0.0	0.0	0.0	30.6	0.0	0.0	0.0	0.0	0.0	0.0
5.5.12	0.0	0.0	0.0	20.2	0.0	0.0	0.0	0.0	0.0	0.0
5.5.13	0.0	0.0	0.0	49.9	0.0	0.0	0.0	0.0	0.0	0.0
5.5.14	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5.15	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5.16	0.0	0.0	0.0	19.9	0.0	0.0	0.0	0.0	0.0	0.0
5.5.17	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0
5.5.18	0.0	0.0	0.0	40.1	0.0	0.0	0.0	0.0	0.0	0.0
5.5.19	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5.20	0.0	0.0	0.0	30.2	0.0	0.0	0.0	0.0	0.0	0.0
5.5.21	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5.22	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5.23	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.5.1	13.5	0.0	9.5	95.0	0.0	50.0	77.0	77.0	77.0	12.3
5.5.2	11.5	0.0	10.0	0.0	0.0	52.0	76.5	76.5	76.5	12.3
5.5.3	13.0	0.0	13.0	0.0	0.0	51.5	77.0	76.5	76.5	12.3
5.5.4	11.2	0.0	10.0	0.0	0.0	51.5	77.5	76.5	76.5	12.3
5.5.5	12.5	0.0	9.0	0.0	0.0	49.0	77.0	76.0	77.0	12.3
5.5.6	13.0	0.0	11.0	0.0	0.0	49.5	77.0	77.0	77.0	12.3
5.5.7	12.0	0.0	9.0	0.0	0.0	51.0	77.0	77.0	77.0	12.2
5.5.8	12.0	0.0	11.0	0.0	0.0	53.0	78.0	76.0	77.0	12.2
5.5.9	14.5	0.0	11.0	0.0	0.0	49.0	0.0	77.0	0.0	12.2
5.5.10	13.0	0.0	10.0	0.0	0.0	51.0	0.0	77.0	0.0	12.2

TABLE XV (Contd.)

BYPASS FLOW TEST GROUP 5.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.5.1 TO 5.5.23 -- 0.53-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.5.11	13.0	0.0	10.5	0.0	0.0	50.0	0.0	76.0	0.0	12.2
5.5.12	12.0	0.0	11.0	0.0	0.0	52.0	0.0	76.0	0.0	12.2
5.5.13	16.0	0.0	10.0	0.0	0.0	50.0	0.0	76.0	0.0	12.2
5.5.14	15.0	0.0	10.0	0.0	0.0	51.0	0.0	76.0	0.0	12.2
5.5.15	14.0	0.0	11.0	0.0	0.0	51.0	0.0	76.0	0.0	12.2
5.5.16	12.0	0.0	10.0	0.0	0.0	52.0	0.0	76.0	0.0	12.2
5.5.17	11.0	0.0	9.8	0.0	0.0	48.0	0.0	80.0	0.0	12.2
5.5.18	10.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	12.4
5.5.19	10.5	0.0	0.0	0.0	0.0	49.5	0.0	0.0	0.0	12.4
5.5.20	10.5	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	12.4
5.5.21	11.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	12.4
5.5.22	15.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	12.4
5.5.23	19.5	0.0	0.0	0.0	0.0	51.0	0.0	0.0	0.0	12.4

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.5. 1	140.5	231.5	19.8	107.0	157.0	20.0	12.0	10.2	50.0
5.5. 2	220.0	299.0	20.0	157.0	185.0	20.0	12.0	9.7	52.0
5.5. 3	214.5	266.0	15.0	185.0	203.0	30.0	12.0	11.0	50.0
5.5. 4	196.0	235.5	15.0	190.0	198.0	30.0	12.0	10.0	52.5
5.5. 5	144.5	213.5	20.0	146.5	220.5	30.0	12.0	10.0	49.0
5.5. 6	213.5	277.5	20.0	220.5	263.5	20.0	12.0	10.2	50.0
5.5. 7	138.5	342.5	60.0	101.0	146.0	60.0	12.0	10.0	52.0
5.5. 8	342.5	490.0	60.0	146.0	165.0	60.0	12.0	10.5	55.0
5.5. 9	166.5	348.0	60.0	175.5	414.0	60.0	12.0	10.5	50.0
5.5.10	348.0	547.0	60.0	414.0	558.0	60.0	12.0	10.0	52.0
5.5.11	183.0	390.5	60.0	335.5	377.5	60.0	12.0	11.0	52.0
5.5.12	277.0	424.5	60.0	251.5	291.0	120.0	12.0	11.0	52.0
5.5.13	140.0	276.0	60.0	105.5	319.0	45.0	12.0	10.0	50.0
5.5.14	276.0	424.5	60.0	319.0	505.0	60.0	12.0	10.5	51.0
5.5.15	209.5	410.0	60.0	242.5	308.0	90.0	12.0	10.5	52.0
5.5.16	374.0	522.0	60.0	308.0	345.5	120.0	12.0	9.7	52.0
5.5.17	141.0	220.5	60.0	106.0	111.5	60.0	12.0	9.7	54.5
5.5.18	141.5	271.5	30.0	137.0	169.5	30.0	12.0	10.5	48.0
5.5.19	187.0	354.0	30.0	162.5	239.0	30.0	12.0	9.7	49.5
5.5.20	226.5	339.5	30.0	169.5	189.5	60.0	12.0	10.5	50.0

TABLE XV (Contd.)

BYPASS FLOW TEST GROUP 5.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.5.1 TO 5.5.23 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.5.21	144.5	273.0	30.0	110.5	268.0	30.0	12.0	10.0	48.0
5.5.22	149.5	228.5	30.0	106.0	305.0	30.0	12.0	10.2	54.0
5.5.23	228.5	313.0	30.0	305.0	517.0	30.0	12.0	10.7	51.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.5. 1	0.0	30.0	0.0	0.0	35.5	0.0	76.0
5.5. 2	0.0	30.0	0.0	96.0	35.0	0.0	76.5
5.5. 3	0.0	30.0	0.0	95.0	35.0	0.0	77.5
5.5. 4	0.0	30.0	0.0	95.0	35.0	0.0	79.0
5.5. 5	0.0	0.0	14.7	95.0	0.0	82.5	0.0
5.5. 6	0.0	0.0	14.9	94.5	0.0	85.0	0.0
5.5. 7	0.0	0.0	14.6	100.0	35.0	72.0	0.0
5.5. 8	0.0	0.0	14.7	97.5	35.0	77.0	0.0
5.5. 9	0.0	60.0	0.0	96.0	35.0	0.0	81.0
5.5.10	0.0	60.0	0.0	95.0	35.0	0.0	80.0
5.5.11	0.0	60.0	0.0	96.0	35.0	0.0	83.0
5.5.12	0.0	60.0	0.0	95.0	35.0	0.0	84.0
5.5.13	0.0	0.0	21.4	93.5	35.0	88.0	0.0
5.5.14	0.0	0.0	22.2	93.5	35.0	91.0	0.0
5.5.15	0.0	0.0	21.9	93.5	35.0	94.0	0.0
5.5.16	0.0	0.0	21.7	93.5	35.0	95.0	0.0
5.5.17	0.0	0.0	21.8	98.0	34.5	77.0	0.0
5.5.19	0.0	13.0	0.0	103.0	35.0	0.0	78.0
5.5.19	0.0	13.5	0.0	102.5	35.0	76.5	76.5
5.5.20	0.0	13.5	0.0	102.5	35.1	76.0	76.0
5.5.21	0.0	30.0	0.0	102.0	34.8	0.0	74.0
5.5.22	0.0	0.0	14.7	103.0	0.0	67.5	0.0
5.5.23	0.0	0.0	21.0	101.0	0.0	63.5	0.0

TABLE XVI

BYPASS FLOW TEST GROUP 5.7

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.7.1 TO 5.7.9 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.7. 1	0.0	0.0635	12.17	0.0	8.662	0.997	0.0	2.086	0.0	1.1130
5.7. 2	0.0	0.0642	12.17	0.0	6.700	0.978	0.0	1.614	0.0	0.9788
5.7. 3	0.0	0.0640	12.17	0.0	6.250	1.004	0.0	1.505	0.0	0.9454
5.7. 4	0.0	0.1198	22.67	0.0666	5.550	0.976	0.0	1.337	0.0	0.8911
5.7. 5	0.0	0.1184	22.42	0.0666	4.275	0.786	0.0	1.030	0.0	0.7821
5.7. 6	0.0	0.1157	21.92	0.0664	2.825	0.980	0.0	0.680	0.0	0.6357
5.7. 7	0.0	0.1188	22.42	0.1322	4.158	0.986	0.0	1.001	0.0	0.7713
5.7. 8	0.0	0.1169	22.17	0.1311	2.883	1.017	0.0	0.694	0.0	0.6423
5.7. 9	0.0	0.1307	22.42	0.1313	1.333	1.016	0.0	0.321	0.0	0.4368

TABLE XVI (Contd.)

BYPASS FLOW TEST GROUP 5.7

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.7.1 TO 5.7.9 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.7. 1	0.0	0.0	65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 2	0.0	0.0	0.0	50.1	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 3	0.0	0.0	0.0	45.2	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 4	0.0	0.0	66.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 5	0.0	0.0	0.0	40.2	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 6	0.0	0.0	0.0	24.9	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 7	0.0	0.0	65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 8	0.0	0.0	0.0	25.1	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 9	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.7. 1	65.0	0.0	0.0	0.0	0.0	53.0	0.0	0.0	0.0	12.2
5.7. 2	54.5	0.0	0.0	0.0	0.0	51.5	0.0	0.0	0.0	12.2
5.7. 3	43.5	0.0	0.0	0.0	0.0	53.0	0.0	0.0	0.0	12.2
5.7. 4	14.0	0.0	0.0	0.0	0.0	50.5	0.0	0.0	0.0	12.2
5.7. 5	12.0	0.0	0.0	0.0	0.0	50.5	0.0	0.0	0.0	12.2
5.7. 6	13.7	0.0	0.0	0.0	0.0	51.0	0.0	0.0	0.0	12.2
5.7. 7	16.0	0.0	0.0	0.0	0.0	49.0	0.0	0.0	0.0	12.2
5.7. 8	12.0	0.0	0.0	0.0	0.0	51.0	0.0	0.0	0.0	12.2
5.7. 9	13.7	0.0	0.0	0.0	0.0	52.5	0.0	0.0	0.0	12.2

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TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.7. 1	145.5	396.7	29.0	108.0	129.0	60.0	12.0	0.0	57.5
5.7. 2	292.0	426.0	20.0	129.0	142.5	120.0	12.0	0.0	51.5
5.7. 3	287.0	412.0	20.0	142.5	150.5	120.0	12.0	0.0	53.5
5.7. 4	224.0	335.0	20.0	150.5	355.0	60.0	12.0	10.5	51.0
5.7. 5	249.5	335.0	20.0	299.5	373.5	60.0	12.0	10.2	51.0
5.7. 6	279.0	392.0	40.0	337.5	371.8	60.0	12.0	9.7	51.5
5.7. 7	141.0	220.0	19.0	194.0	246.5	30.0	12.0	10.2	49.5
5.7. 8	160.5	247.0	30.0	212.0	252.0	60.0	12.0	10.0	52.0
5.7. 9	215.0	295.0	60.0	252.0	261.5	120.0	12.0	10.2	3.0

TABLE XVI (Contd.)

BYPASS FLOW TEST GROUP 5.7

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.7.1 TO 5.7.9 -- 0.53-IN. DOWNCOMER GAP

TEST N ^o	PM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.7. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.7. 4	0.0	30.0	0.0	95.5	35.0	0.0	78.0
5.7. 5	0.0	30.0	0.0	95.5	35.0	0.0	78.0
5.7. 6	0.0	30.0	0.0	96.0	35.0	0.0	80.0
5.7. 7	0.0	60.0	0.0	96.0	34.5	0.0	80.0
5.7. 8	0.0	60.0	0.0	96.0	34.0	0.0	83.0
5.7. 9	0.0	60.0	0.0	95.5	34.5	0.0	87.0

TABLE XVII

BYPASS FLOW TEST GROUP 5.12

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.12.1 TO 5.12.16 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.12. 1	0.1271	0.0658	12.49	0.0	8.950	1.000	29.02	2.155	0.7482	1.1313
5.12. 2	0.1247	0.0662	12.49	0.0	6.700	1.002	28.29	1.614	0.7398	0.9788
5.12. 3	0.1253	0.0662	12.49	0.0	7.267	1.019	28.43	1.750	0.7416	1.0194
5.12. 4	0.1247	0.0663	12.49	0.0	5.333	0.963	28.24	1.284	0.7394	0.8733
5.12. 5	0.0	0.1186	22.24	0.0673	6.083	0.987	0.0	1.465	0.0	0.9329
5.12. 6	0.0	0.1181	22.24	0.0670	5.533	1.004	0.0	1.333	0.0	0.8897
5.12. 7	0.0	0.1225	22.99	0.0670	4.650	0.930	0.0	1.120	0.0	0.8156
5.12. 8	0.0	0.1191	22.49	0.0673	3.317	1.016	0.0	0.799	0.0	0.6888
5.12. 9	0.0	0.1195	22.49	0.1330	5.033	1.002	0.0	1.212	0.0	0.8486
5.12.10	0.0	0.1201	22.74	0.1333	4.600	0.970	0.0	1.108	0.0	0.8112
5.12.11	0.0	0.1182	22.49	0.1319	3.167	1.002	0.0	0.763	0.0	0.6731
5.12.12	0.0	0.1267	23.92	0.2738	2.717	0.995	0.0	0.654	0.0	0.6234
5.12.13	0.0	0.1188	22.42	0.2703	3.733	1.004	0.0	0.899	0.0	0.7308
5.12.14	0.0	0.1189	22.42	0.2573	3.067	0.973	0.0	0.739	0.0	0.6624
5.12.15	0.0	0.1173	22.17	0.2577	0.633	0.967	0.0	0.153	0.0	0.3010
5.12.16	0.0	0.1200	22.67	0.2568	1.258	0.983	0.0	0.303	0.0	0.4243

TABLE XVII (Contd.)

BYPASS FLOW TEST GROUP 5.12

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.12.1 TO 5.12.16 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.12. 1	0.0	0.0	65.0	0.0	50.00	0.0	53.00	0.0	0.0	0.0
5.12. 2	0.0	0.0	50.0	0.0	50.00	0.0	51.00	0.0	0.0	0.0
5.12. 3	0.0	0.0	0.0	59.5	50.50	0.0	51.00	0.0	0.0	0.0
5.12. 4	0.0	0.0	0.0	40.0	52.00	0.0	49.00	0.0	0.0	0.0
5.12. 5	0.0	0.0	65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 6	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 7	0.0	0.0	0.0	40.1	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 8	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 9	0.0	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12.10	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	0.0	0.0
5.12.11	0.0	0.0	0.0	24.9	0.0	0.0	0.0	0.0	0.0	0.0
5.12.12	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12.13	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12.14	0.0	0.0	0.0	25.1	0.0	0.0	0.0	0.0	0.0	0.0
5.12.15	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12.16	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.12. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
5.12. 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
5.12. 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
5.12. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
5.12. 5	12.5	0.0	0.0	0.0	0.0	46.0	75.0	77.0	77.5	12.5
5.12. 6	12.0	0.0	0.0	0.0	0.0	47.5	0.0	0.0	0.0	12.5
5.12. 7	11.7	0.0	0.0	0.0	0.0	46.0	0.0	0.0	0.0	12.5
5.12. 8	11.0	0.0	0.0	0.0	0.0	48.5	0.0	0.0	0.0	12.5
5.12. 9	15.0	0.0	0.0	0.0	0.0	48.0	0.0	77.0	0.0	12.5
5.12.10	13.0	0.0	0.0	0.0	0.0	51.0	0.0	77.0	0.0	12.5
5.12.11	11.0	0.0	0.0	0.0	0.0	51.0	0.0	77.0	0.0	12.5
5.12.12	21.0	0.0	0.0	0.0	0.0	49.5	77.0	0.0	77.0	12.4
5.12.13	16.0	0.0	0.0	0.0	0.0	49.0	0.0	0.0	0.0	12.4
5.12.14	14.0	0.0	0.0	0.0	0.0	49.0	0.0	0.0	0.0	12.4
5.12.15	11.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	12.4

TABLE XVII (Contd.)

BYPASS FLOW TEST GROUP 5.12

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.12.1 TO 5.12.16 -- 0.53-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.12.16	12.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.12. 1	187.5	456.0	30.0	252.5	268.5	180.0	12.0	0.0	52.0
5.12. 2	456.0	657.0	30.0	268.5	300.5	120.0	12.0	0.0	49.0
5.12. 3	210.0	428.0	30.0	300.5	388.0	75.0	12.0	0.0	49.0
5.12. 4	428.0	588.0	30.0	389.0	390.0	120.0	12.0	0.0	48.0
5.12. 5	162.0	344.5	30.0	363.5	448.5	30.0	12.0	9.7	46.0
5.12. 6	151.0	317.0	30.0	207.0	250.5	30.0	12.0	9.7	48.0
5.12. 7	215.0	354.5	30.0	211.0	243.5	60.0	12.0	10.5	46.5
5.12. 8	159.0	258.5	30.0	118.0	131.0	60.0	12.0	10.0	49.5
5.12. 9	141.0	292.0	30.0	104.0	220.5	30.0	12.0	10.0	48.0
5.12.10	290.0	428.0	30.0	219.0	242.5	30.0	12.0	10.2	51.0
5.12.11	325.0	420.0	30.0	227.5	245.5	60.0	12.0	10.0	53.5
5.12.12	162.5	244.0	30.0	127.5	295.0	30.0	12.0	11.5	49.5
5.12.13	230.0	342.0	30.0	234.0	289.5	30.0	12.0	10.0	49.5
5.12.14	241.0	333.0	30.0	245.5	265.0	60.0	12.0	10.0	49.0
5.12.15	196.5	234.5	60.0	265.0	267.5	60.0	12.0	9.7	50.0
5.12.16	234.5	310.0	60.0	267.5	274.0	60.0	12.0	10.2	50.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.12. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.12. 5	0.0	30.0	0.0	102.0	35.6	0.0	77.0
5.12. 6	0.0	30.0	0.0	99.5	35.2	0.0	76.5
5.12. 7	0.0	30.0	0.0	99.0	35.2	0.0	76.0
5.12. 8	0.0	30.0	0.0	98.5	35.6	0.0	76.0
5.12. 9	0.0	0.0	14.7	95.0	34.4	76.0	0.0
5.12.10	0.0	0.0	15.0	94.0	34.0	79.0	77.0
5.12.11	0.0	0.0	14.9	94.0	34.4	80.0	79.0
5.12.12	0.0	0.0	29.5	98.0	34.0	75.0	0.0

TABLE XVII (Contd.)

BYPASS FLOW TEST GROUP 5.12

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.12.1 TO 5.12.16 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.12.13	0.0	0.0	29.9	97.0	34.0	84.0	0.0
5.12.14	0.0	0.0	29.6	94.0	34.0	91.0	0.0
5.12.15	0.0	0.0	29.5	95.0	34.0	93.0	0.0
5.12.16	0.0	0.0	29.5	95.5	34.0	97.5	0.0

TABLE XVIII

BYPASS FLOW TEST GROUP 5.15

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.15.1 TO 5.15.6 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.15. 1	0.0	0.1182	22.25	0.0	10.050	0.997	0.0	2.420	0.0	1.1991
5.15. 2	0.0	0.1202	22.75	0.0662	5.283	0.997	0.0	1.272	0.0	0.8694
5.15. 3	0.0	0.1180	22.25	0.1446	4.833	1.005	0.0	1.164	0.0	0.8316
5.15. 4	0.0	0.1181	22.25	0.2514	2.750	0.992	0.0	0.662	0.0	0.6272
5.15. 5	0.0	0.0649	12.25	0.0	5.817	0.933	0.0	1.401	0.0	0.9120
5.15. 6	0.0	0.0651	12.25	0.0	7.267	1.002	0.0	1.750	0.0	1.0194

TABLE XVII (Contd.)

BYPASS FLOW TEST GROUP 5.15

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.15.1 TO 5.15.6 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.15.1	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.15.2	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	0.0	0.0
5.15.3	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0
5.15.4	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	0.0	0.0
5.15.5	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.15.6	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.15.1	0.0	0.0	0.0	0.0	0.0	47.5	0.0	0.0	0.0	12.3
5.15.2	9.5	0.0	0.0	0.0	0.0	50.0	79.0	0.0	78.0	12.3
5.15.3	0.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	12.3
5.15.4	9.2	0.0	9.5	0.0	0.0	48.0	0.0	0.0	0.0	12.3
5.15.5	0.0	0.0	0.0	0.0	0.0	47.5	0.0	0.0	0.0	12.3
5.15.6	0.0	0.0	0.0	0.0	0.0	47.5	0.0	0.0	0.0	12.3

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.15.1	141.0	442.5	30.0	103.0	145.0	120.0	12.0	10.0	48.0
5.15.2	267.0	425.5	30.0	145.0	160.0	60.0	10.0	10.5	51.0
5.15.3	272.0	417.0	30.0	129.5	174.5	60.0	10.0	10.0	49.0
5.15.4	169.5	252.0	30.0	148.5	231.0	30.0	10.0	10.0	48.5
5.15.5	145.0	319.5	30.0	116.5	331.0	30.0	0.0	0.0	49.5
5.15.6	219.0	437.0	30.0	265.0	465.0	30.0	0.0	0.0	48.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.15.2	0.0	30.0	0.0	0.0	35.0	0.0	84.0
5.15.3	0.0	0.0	14.9	95.5	0.0	84.5	0.0
5.15.4	0.0	0.0	29.5	92.0	0.0	90.0	0.0
5.15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XVII (Contd.)

BYPASS FLOW TEST GROUP 5.15

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.15.1 TO 5.15.6 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XIX

BYPASS FLOW TEST GROUP, 9.5

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.5.1 TO 9.5.10 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.5. 1	0.0	0.1199	22.70	0.1277	4.567	0.989	0.0	0.311	0.0	0.3269
9.5. 2	0.0	0.1177	22.20	0.1278	9.825	0.987	0.0	0.669	0.0	0.4795
9.5. 3	0.0	0.1268	23.70	0.1249	13.625	0.975	0.0	0.928	0.0	0.5647
9.5. 4	0.0	0.1184	22.20	0.1313	3.550	1.002	0.0	0.242	0.0	0.2882
9.5. 5	0.0	0.1179	22.20	0.1276	7.633	0.968	0.0	0.520	0.0	0.4227
9.5. 6	0.0	0.1184	22.20	0.1267	11.017	0.994	0.0	0.750	0.0	0.5078
9.5. 7	0.0	0.1216	22.88	0.2080	3.517	0.997	0.0	0.240	0.0	0.2869
9.5. 8	0.0	0.1199	22.63	0.2061	4.433	0.980	0.0	0.302	0.0	0.3221
9.5. 9	0.0	0.1200	22.63	0.1995	9.117	0.990	0.0	0.621	0.0	0.4619
9.5.10	0.0	0.1178	22.13	0.1917	12.850	0.997	0.0	0.875	0.0	0.5484

TABLE XIX (Contd.)

BYPASS FLOW TEST GROUP 9.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.5.1 TO 9.5.10 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.5.1	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5.2	0.0	0.0	89.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5.3	0.0	0.0	129.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5.4	0.0	0.0	0.0	30.1	0.0	0.0	0.0	0.0	0.0	0.0
9.5.5	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5.6	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5.7	0.0	0.0	0.0	30.2	0.0	0.0	0.0	0.0	0.0	0.0
9.5.8	0.0	0.0	0.0	39.9	0.0	0.0	0.0	0.0	0.0	0.0
9.5.9	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5.10	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.5.1	14.0	0.0	11.0	95.0	0.0	51.0	0.0	0.0	0.0	12.2
9.5.2	17.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	12.2
9.5.3	24.0	0.0	0.0	0.0	0.0	44.5	0.0	0.0	0.0	12.2
9.5.4	13.0	0.0	11.0	97.0	76.0	46.0	110.0	82.0	80.0	12.2
9.5.5	15.0	0.0	11.0	96.0	73.0	47.0	81.0	81.0	80.0	12.2
9.5.6	19.0	0.0	11.0	96.0	73.0	46.0	81.0	80.0	80.0	12.2
9.5.7	13.0	0.0	10.7	100.0	31.0	48.0	80.5	0.0	0.0	12.4
9.5.8	14.0	0.0	10.2	0.0	30.5	48.5	80.0	0.0	0.0	12.4
9.5.9	21.0	0.0	10.0	0.0	30.0	49.0	80.0	0.0	0.0	12.4
9.5.10	20.0	0.0	9.0	0.0	29.5	47.0	80.0	0.0	0.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.5.1	153.5	290.5	30.0	147.0	175.0	30.0	12.0	10.5	51.0
9.5.2	202.5	399.0	20.0	175.0	246.5	30.0	5.0	10.0	49.0
9.5.3	185.0	457.5	20.0	246.5	362.5	30.0	5.0	11.5	44.5
9.5.4	142.0	355.0	60.0	105.0	143.5	60.0	12.0	10.0	46.0
9.5.5	170.0	399.0	30.0	143.5	251.0	60.0	12.0	10.0	40.0
9.5.6	187.5	518.0	30.0	188.0	356.5	60.0	5.0	10.0	46.0
9.5.7	160.5	266.0	30.0	296.5	316.5	30.0	12.0	10.5	48.0
9.5.8	196.5	329.5	30.0	261.0	292.0	31.0	12.0	10.2	49.5
9.5.9	160.0	433.5	30.0	157.5	255.5	30.0	0.0	10.2	49.0
9.5.10	154.0	411.0	20.0	114.0	269.0	30.0	5.0	9.7	47.0

TABLE XIX (Contd.)

BYPASS FLOW TEST GROUP 9.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.5.1 TO 9.5.10 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
9.5. 1	0.0	0.0	14.6	96.0	35.0	97.0	92.5
9.5. 2	0.0	0.0	14.7	96.0	35.0	101.5	98.0
9.5. 3	0.0	0.0	14.5	96.0	0.0	104.5	0.0
9.5. 4	0.0	0.0	14.9	97.0	35.0	96.5	93.5
9.5. 5	0.0	0.0	14.7	96.0	34.0	101.5	97.5
9.5. 6	0.0	0.0	14.7	96.0	34.0	106.5	103.5
9.5. 7	0.0	0.0	22.1	100.0	0.0	76.0	0.0
9.5. 8	0.0	0.0	22.3	98.5	0.0	80.0	0.0
9.5. 9	0.0	0.0	22.2	96.5	0.0	84.5	0.0
9.5.10	0.0	0.0	21.9	95.0	0.0	92.5	0.0

flow on the bypass flow. Two types of tests were also performed in which the geometry of the upper annulus was modified to investigate the effect on bypass flow of changing the flow path between the cold leg vessel inlet and the cold leg vessel outlet. For the first type of tests, the hot leg simulators were removed from the upper annulus to provide a more direct flow path from the vessel cold leg inlet to the cold leg outlet. The purpose of these tests was to determine whether this unrestricted flow path resulted in additional bypass flow around the entrance to the downcomer. Test results from these tests are presented in Table XVI.

Additional modified upper annulus bypass flow tests were conducted in which an extension was placed on top of the normal transparent vessel upper annulus and the entire core barrel was raised 10 inches. Raising the core barrel lengthened the upper annulus region by 10 inches and effectively shortened the downcomer by the same amount. The hot leg simulators were appropriately moved on the core barrel to maintain their position in line with the inlet cold leg and the bypass leg. Lengthening the upper annulus provided a larger upper annulus vertical cross-sectional area in which the water entering from the cold leg could flow more easily over the top of the hot leg simulator and thereby reach the bypass leg more easily than with the shorter length upper annulus.

The purpose of these tests was to determine whether the potential for an increased flow through the upper annulus region would affect the bypass flow. Test results from these tests are presented in Table XVII.

Bypass flow tests were also performed to investigate the effect of the cold leg inlet flow velocity on the bypass flow phenomena. The cold leg flow area and, consequently, the velocity of the cold leg flow was varied by removing the cold leg nozzle insert at the cold leg inlet into the vessel and at the cold leg outlet. Removing the nozzle insert resulted in a flow area increase from 0.01227 ft² to 0.03758 ft² or about a factor of three increase. Results from these tests are presented in Table XVIII.

3. MODIFIED UPPER ANNULUS GEOMETRY TESTS

Countercurrent flow tests were performed with several different upper annulus configurations. The objective of these tests was to provide data that could be compared with the baseline countercurrent flow data to determine whether geometry differences in the upper annulus or changes in the upper annulus inlet fluid velocity have significant influence on countercurrent flow phenomena. Changes in the upper annulus geometry were accomplished by varying the depth (the distance from the cold leg centerline to the beginning of the downcomer) and the height (the distance from the cold leg centerline to the baffle) of the upper annulus and by removing restrictions in the flow path between the cold leg inlet and the vessel outlet. The velocity of the fluid entering the upper annulus from the cold leg inlet and leaving the upper annulus through the vessel cold leg outlet was varied by removing the cold leg nozzle inserts. The results from these countercurrent flow tests with a modified upper annulus are presented in Tables XX through XXVI.

TABLE XX

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.4

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.4.1 TO 5.4.18 -- 0.53-IN. DOWNCOMER GAP.

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.4. 1	0.0076	0.1164	22.34	0.0	5.500	0.989	0.98	1.325	0.1584	0.8870
5.4. 2	0.0152	0.1160	22.34	0.0	5.410	0.973	1.96	1.303	0.2243	0.8798
5.4. 3	0.0222	0.1164	22.34	0.0	4.200	0.984	2.87	1.011	0.2713	0.7752
5.4. 4	0.0222	0.1169	22.34	0.0	4.850	1.028	2.86	1.168	0.2710	0.8330
5.4. 5	0.0178	0.1169	22.34	0.0	5.580	1.003	2.29	1.344	0.2426	0.8935
5.4. 6	0.0296	0.1169	22.34	0.0	3.860	1.018	3.81	0.930	0.3131	0.7431
5.4. 7	0.0379	0.1166	22.34	0.0	3.417	0.994	4.89	0.823	0.3542	0.6991
5.4. 8	0.0383	0.1165	22.35	0.0	3.553	1.030	4.95	0.856	0.3563	0.7129
5.4. 9	0.0325	0.1162	22.35	0.0	3.720	1.005	4.21	0.896	0.3284	0.7295
5.4.10	0.0427	0.1165	22.35	0.0	3.012	0.995	5.51	0.725	0.3762	0.6565
5.4.11	0.0613	0.1165	22.35	0.0	2.450	1.012	7.92	0.590	0.4507	0.5920
5.4.12	0.0783	0.1165	22.35	0.0	1.960	0.982	10.11	0.472	0.5093	0.5295
5.4.13	0.1057	0.1162	22.35	0.0	1.137	1.025	13.67	0.274	0.5921	0.4034
5.4.14	0.1343	0.1162	22.35	0.0	0.579	1.023	17.43	0.139	0.6685	0.2877
5.4.15	0.1671	0.1156	22.35	0.0	0.271	1.009	21.72	0.065	0.7452	0.1971
5.4.16	0.1866	0.1151	22.35	0.0	0.161	0.919	24.36	0.039	0.7884	0.1518
5.4.17	0.2054	0.1147	22.35	0.0	0.092	0.999	26.91	0.022	0.8278	0.1145
5.4.18	0.2195	0.1132	22.35	0.0	0.050	0.993	29.14	0.012	0.8587	0.0846

TABLE XX (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.4.1 TO 5.4.18 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.4.1	30.0	10.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
5.4.2	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.4.3	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
5.4.4	30.0	4.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
5.4.5	30.0	10.0	0.0	0.0	0.0	0.0	12.00	0.0	0.0	0.0
5.4.6	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
5.4.7	30.0	10.0	0.0	0.0	0.0	0.0	25.00	0.0	0.0	0.0
5.4.8	30.0	0.0	0.0	0.0	0.0	25.00	0.0	0.0	0.0	0.0
5.4.9	30.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
5.4.10	25.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
5.4.11	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
5.4.12	15.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
5.4.13	15.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
5.4.14	10.0	0.0	0.0	0.0	30.00	60.00	0.0	0.0	0.0	0.0
5.4.15	5.0	0.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0
5.4.16	3.0	0.0	0.0	0.0	60.00	60.00	0.0	0.0	0.0	0.0
5.4.17	3.0	0.0	0.0	0.0	70.00	60.00	0.0	0.0	0.0	0.0
5.4.18	3.0	0.0	0.0	0.0	70.00	70.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.4.1	0.0	9.5	10.0	0.0	0.0	58.0	87.0	0.0	0.0	12.3
5.4.2	0.0	10.0	10.0	0.0	0.0	60.0	86.0	0.0	0.0	12.3
5.4.3	0.0	9.0	9.0	0.0	0.0	58.0	86.0	0.0	0.0	12.3
5.4.4	0.0	9.0	9.0	0.0	0.0	57.0	86.0	0.0	0.0	12.3
5.4.5	0.0	9.0	9.0	0.0	0.0	57.0	84.0	0.0	0.0	12.3
5.4.6	0.0	9.0	9.0	0.0	0.0	56.0	85.0	0.0	0.0	12.3
5.4.7	0.0	9.0	10.0	0.0	0.0	57.0	85.0	0.0	0.0	12.3
5.4.8	0.0	10.0	10.0	0.0	0.0	58.0	77.0	0.0	0.0	12.3
5.4.9	0.0	11.0	13.0	0.0	0.0	59.0	78.0	0.0	0.0	12.3
5.4.10	0.0	7.0	7.0	0.0	0.0	58.0	81.0	0.0	0.0	12.3
5.4.11	0.0	8.0	10.0	0.0	0.0	58.0	82.0	0.0	0.0	12.3
5.4.12	0.0	10.0	11.0	0.0	0.0	58.0	87.0	0.0	0.0	12.3
5.4.13	0.0	9.0	9.0	0.0	0.0	58.0	92.5	0.0	0.0	12.3
5.4.14	0.0	8.0	9.0	0.0	0.0	59.0	92.5	0.0	0.0	12.3
5.4.15	0.0	10.0	10.0	0.0	0.0	59.0	106.0	0.0	0.0	12.3

TABLE XX (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.4.1 TO 5.4.18 -- 0.53-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CN-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.4.16	9.0	10.0	11.0	0.0	0.0	62.0	106.5	0.0	0.0	12.3
5.4.17	9.0	10.0	11.0	0.0	0.0	79.0	93.5	0.0	0.0	12.3
5.4.18	9.0	10.0	11.0	0.0	0.0	75.0	106.0	0.0	0.0	12.3

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.4.1	132.5	270.0	25.0	95.0	95.0	45.0	12.0	10.0	58.0
5.4.2	270.0	405.3	25.0	95.0	95.0	40.0	12.0	10.0	60.0
5.4.3	405.3	531.3	30.0	95.0	165.0	55.0	12.0	10.0	58.0
5.4.4	456.3	553.3	20.0	165.0	165.5	60.0	12.0	10.0	56.0
5.4.5	290.5	430.0	25.0	165.5	165.5	40.0	12.0	10.0	56.0
5.4.6	430.0	526.5	25.0	165.5	264.5	55.0	12.0	10.0	56.0
5.4.7	461.5	564.0	30.0	264.5	380.5	55.0	12.0	10.0	57.0
5.4.8	132.5	240.5	30.4	90.0	123.5	45.0	12.0	10.0	58.0
5.4.9	240.5	333.5	25.0	123.5	144.8	45.0	12.0	10.0	59.0
5.4.10	333.5	393.8	20.0	144.8	164.8	45.0	12.0	10.0	58.0
5.4.11	339.3	400.5	25.0	164.8	184.8	55.0	12.0	10.0	58.0
5.4.12	400.5	449.5	25.0	184.8	190.5	65.0	12.0	10.0	58.0
5.4.13	449.5	495.0	40.0	190.5	230.5	40.0	12.0	10.0	59.0
5.4.14	495.0	515.3	35.0	230.5	268.5	45.0	12.0	10.0	59.0
5.4.15	515.3	524.8	35.0	268.5	290.0	50.0	12.0	10.0	62.0
5.4.16	524.8	532.0	45.0	290.0	300.0	45.0	12.0	10.0	64.0
5.4.17	133.0	138.5	60.0	93.0	119.0	80.0	12.0	10.0	66.0
5.4.18	138.5	141.5	60.0	119.0	144.5	70.0	12.0	10.0	73.0

TABLE XXI

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.8

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.8.1 TO 5.8.9 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.8. 1	0.0219	0.1145	21.67	0.0	4.086	0.979	2.87	0.984	0.2702	0.7646
5.8. 2	0.0219	0.1159	21.99	0.0	4.233	1.035	2.84	1.019	0.2696	0.7782
5.8. 3	0.0329	0.1170	22.24	0.0	3.541	0.982	4.23	0.853	0.3297	0.7117
5.8. 4	0.0437	0.1172	22.24	0.0	3.100	1.045	5.60	0.747	0.3796	0.6660
5.8. 5	0.0655	0.1160	21.99	0.0	2.217	1.043	8.48	0.534	0.4661	0.5631
5.8. 6	0.1090	0.1191	22.49	0.0	0.792	1.020	13.87	0.191	0.5988	0.3365
5.8. 7	0.1961	0.1185	22.49	0.0	0.025	0.998	24.88	0.006	0.8024	0.0598
5.8. 8	0.1463	0.1166	22.49	0.0	0.233	1.016	18.85	0.056	0.6957	0.1827
5.8. 9	0.1569	0.1157	22.24	0.0	0.162	0.975	20.39	0.034	0.7221	0.1424

TABLE XXI (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.8

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.8.1 TO 5.8.9 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.8. 1	0.0	0.0	60.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.8. 2	0.0	0.0	0.0	45.0	0.0	0.0	10.00	0.0	0.0	0.0
5.8. 3	0.0	0.0	0.0	44.9	0.0	0.0	15.00	0.0	0.0	0.0
5.8. 4	0.0	0.0	0.0	34.9	0.0	0.0	20.00	0.0	0.0	0.0
5.8. 5	0.0	0.0	0.0	24.9	0.0	0.0	30.00	0.0	0.0	0.0
5.8. 6	0.0	0.0	0.0	20.0	50.00	0.0	0.0	0.0	0.0	0.0
5.8. 7	0.0	0.0	0.0	10.1	90.00	0.0	0.0	0.0	0.0	0.0
5.8. 8	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	16.28	0.0
5.8. 9	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	17.82	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.8. 1	9.7	0.0	9.0	97.5	33.5	50.C	78.5	75.0	76.5	12.2
5.8. 2	9.5	0.0	8.5	100.0	33.5	52.C	78.0	73.0	75.0	12.2
5.8. 3	10.2	0.0	10.0	98.5	33.5	52.C	77.0	73.0	73.5	12.2
5.8. 4	10.0	0.0	9.5	97.5	33.0	51.C	75.0	73.0	73.0	12.2
5.8. 5	9.5	0.0	8.0	97.0	33.0	51.C	75.0	74.0	73.0	12.2
5.8. 6	9.2	0.0	10.2	95.5	33.0	51.0	74.0	78.0	74.0	12.2
5.8. 7	9.7	0.0	10.6	94.0	33.0	51.5	77.0	87.5	75.0	12.2
5.8. 8	9.5	0.0	10.0	97.0	33.0	59.5	80.5	87.0	83.5	12.2
5.8. 9	9.7	0.0	10.0	96.0	33.5	57.0	83.5	93.0	87.0	12.2

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.8. 1	141.5	260.0	29.0	311.0	556.0	60.0	12.0	9.5	51.0
5.8. 2	140.0	267.0	30.0	102.0	236.5	60.0	12.0	9.7	52.0
5.8. 3	163.0	271.0	30.5	219.0	374.5	60.0	12.0	10.0	53.0
5.8. 4	156.5	249.5	30.0	220.5	339.0	60.0	12.0	10.0	52.0
5.8. 5	171.5	238.0	30.0	270.5	354.5	60.0	12.0	9.7	51.5
5.8. 6	143.0	190.5	60.0	127.5	250.5	60.0	12.0	10.2	54.0
5.8. 7	158.5	163.0	180.0	193.0	275.5	60.0	12.0	10.2	52.5
5.8. 8	158.5	186.5	120.0	275.5	329.0	69.0	12.0	10.2	60.5
5.8. 9	186.5	203.5	120.0	280.5	312.5	60.0	12.0	10.0	59.0

TABLE XXII

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.10

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.10.1 TO 5.10.9 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	CCLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.10. 1	0.0109	0.1160	21.90	0.0	5.879	1.003	1.41	1.416	0.1903	0.9171
5.10. 2	0.0218	0.1215	22.90	0.0	4.050	0.915	2.70	0.775	0.2661	0.7612
5.10. 3	0.0219	0.1195	22.40	0.0	4.733	1.003	2.75	1.140	0.2673	0.8229
5.10. 4	0.0216	0.1209	22.65	0.0	3.879	0.974	2.69	0.934	0.2651	0.7450
5.10. 5	0.0328	0.1195	22.40	0.0	3.483	0.996	4.13	0.839	0.3275	0.7059
5.10. 6	0.0438	0.1207	22.65	0.0	2.750	1.027	5.45	0.662	0.3774	0.6272
5.10. 7	0.1092	0.1177	22.15	0.0	0.858	0.990	13.94	0.207	0.5997	0.3504
5.10. 8	0.1746	0.1190	22.40	0.0	0.200	1.017	22.05	0.048	0.7563	0.1692
5.10. 9	0.1593	0.1187	22.40	0.0	0.250	1.021	20.18	0.060	0.7230	0.1891

TABLE XXII (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.10

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.10.1 TO 5.10.9 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.10. 1	0.0	0.0	60.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
5.10. 2	0.0	0.0	60.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.10. 3	0.0	0.0	60.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.10. 4	0.0	0.0	0.0	44.9	0.0	0.0	10.00	0.0	0.0	0.0
5.10. 5	0.0	0.0	0.0	44.9	0.0	0.0	15.00	0.0	0.0	0.0
5.10. 6	0.0	0.0	0.0	35.0	0.0	0.0	20.00	0.0	0.0	0.0
5.10. 7	0.0	0.0	0.0	25.1	50.00	0.0	0.0	0.0	0.0	0.0
5.10. 8	0.0	0.0	0.0	15.0	80.00	0.0	0.0	0.0	0.0	0.0
5.10. 9	0.0	0.0	0.0	4.9	0.0	0.0	0.0	0.0	17.56	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.10. 1	9.5	0.0	9.0	105.0	33.0	49.5	79.0	73.0	75.0	12.4
5.10. 2	11.2	0.0	12.0	103.0	33.0	48.0	78.0	72.5	74.0	12.4
5.10. 3	10.0	0.0	10.0	102.0	33.0	45.5	78.0	71.5	73.5	12.4
5.10. 4	10.5	0.0	11.0	100.0	32.0	45.0	78.5	70.5	73.0	12.4
5.10. 5	10.0	0.0	10.0	99.5	33.0	45.5	77.0	69.5	72.5	12.4
5.10. 6	10.0	0.0	10.0	99.5	33.0	45.0	77.0	71.0	71.5	12.4
5.10. 7	9.0	0.0	9.5	98.0	33.0	46.0	74.5	69.5	74.5	12.4
5.10. 8	9.5	0.0	10.0	94.0	33.0	46.5	73.0	73.5	75.0	12.4
5.10. 9	9.5	0.0	9.5	96.5	33.5	48.0	74.0	80.0	75.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.10. 1	139.0	308.5	29.0	126.5	201.0	30.0	12.0	9.5	49.5
5.10. 2	208.0	329.5	30.0	135.0	242.5	30.0	12.0	10.5	48.5
5.10. 3	254.5	396.5	30.0	236.0	345.0	30.0	12.0	10.0	46.0
5.10. 4	142.5	255.0	29.0	110.0	176.0	30.0	12.0	10.2	45.5
5.10. 5	217.0	321.5	30.0	176.0	258.0	30.0	12.0	10.0	46.0
5.10. 6	204.5	287.0	30.0	258.0	325.5	30.0	12.0	10.2	46.5
5.10. 7	156.0	207.5	60.0	185.0	340.5	60.0	12.0	9.7	48.0
5.10. 8	187.0	211.0	120.0	216.0	331.5	60.0	12.0	10.0	48.0
5.10. 9	207.0	237.0	120.0	280.0	307.0	60.0	12.0	10.0	49.5

TABLE XXIII

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.13

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.13.1 TO 5.13.14 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.13.1	0.0074	0.1185	22.17	0.0	5.567	0.959	0.94	1.341	0.1562	0.8924
5.13.2	0.0145	0.1212	22.67	0.0	5.000	1.017	1.80	1.204	0.2168	0.8458
5.13.3	0.0290	0.1225	22.92	0.0	3.650	0.882	3.55	0.879	0.3058	0.7226
5.13.4	0.0285	0.1165	21.92	0.0	4.250	1.034	3.68	1.023	0.3075	0.7798
5.13.5	0.0432	0.1186	22.42	0.0	3.267	0.958	5.47	0.787	0.3765	0.6836
5.13.6	0.0721	0.1158	21.79	0.0	2.000	0.994	9.35	0.482	0.4893	0.5349
5.13.7	0.0721	0.1175	22.29	0.0	0.733	1.058	9.22	0.177	0.4875	0.3239
5.13.8	0.1750	0.1195	22.79	0.0	0.092	0.975	22.02	0.022	0.7565	0.1145
5.13.9	0.0147	0.1194	22.54	0.0	4.733	1.017	1.85	1.140	0.2190	0.8229
5.13.10	0.0147	0.1182	22.29	0.0	4.633	0.995	1.86	1.116	0.2196	0.8142
5.13.11	0.0219	0.1186	22.29	0.0	3.867	1.002	2.78	0.931	0.2681	0.7438
5.13.12	0.0733	0.1201	22.54	0.0	1.917	1.022	9.17	0.462	0.4888	0.5237
5.13.13	0.1170	0.1196	22.54	0.0	0.617	0.987	14.71	0.149	0.6184	0.2970
5.13.14	0.0291	0.1175	22.04	0.0	3.633	0.987	3.73	0.875	0.3099	0.7210

TABLE XXIII (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.13

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.13.1 TO 5.13.14 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.13. 1	0.0	0.0	60.0	0.0	0.0	0.0	3.40	0.0	0.0	0.0
5.13. 2	0.0	0.0	60.0	0.0	0.0	0.0	6.60	0.0	0.0	0.0
5.13. 3	0.0	0.0	0.0	45.0	0.0	0.0	13.40	0.0	0.0	0.0
5.13. 4	0.0	0.0	0.0	44.5	0.0	0.0	13.20	0.0	0.0	0.0
5.13. 5	0.0	0.0	0.0	34.5	0.0	0.0	20.00	0.0	0.0	0.0
5.13. 6	0.0	0.0	0.0	25.2	33.50	0.0	0.0	0.0	0.0	0.0
5.13. 7	0.0	0.0	0.0	15.1	33.50	0.0	0.0	0.0	0.0	0.0
5.13. 8	0.0	0.0	0.0	5.0	80.00	0.0	0.0	0.0	0.0	0.0
5.13. 9	0.0	0.0	80.0	0.0	0.0	0.0	6.70	0.0	0.0	0.0
5.13.10	0.0	0.0	90.0	0.0	0.0	0.0	6.70	0.0	0.0	0.0
5.13.11	0.0	0.0	70.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.13.12	0.0	0.0	0.0	50.1	33.50	0.0	0.0	0.0	0.0	0.0
5.13.13	0.0	0.0	0.0	25.0	53.50	0.0	0.0	0.0	0.0	0.0
5.13.14	0.0	0.0	60.0	0.0	0.0	0.0	13.30	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.13. 1	9.5	0.0	10.5	0.0	33.5	44.0	78.0	0.0	80.0	12.4
5.13. 2	10.0	0.0	10.0	0.0	33.5	45.0	79.0	0.0	76.0	12.4
5.13. 3	9.7	0.0	11.0	0.0	32.0	44.0	78.0	0.0	74.0	12.4
5.13. 4	9.5	0.0	11.0	0.0	32.0	48.0	78.0	0.0	73.0	12.4
5.13. 5	10.5	0.0	10.5	0.0	32.0	50.0	77.0	0.0	74.0	12.4
5.13. 6	8.7	0.0	9.2	0.0	32.0	47.5	76.0	0.0	77.0	12.3
5.13. 7	9.2	0.0	9.6	0.0	32.0	53.0	76.0	0.0	77.0	12.3
5.13. 8	10.0	0.0	10.6	0.0	33.5	55.0	76.0	0.0	77.0	12.3
5.13. 9	9.7	0.0	10.3	0.0	33.5	49.5	78.0	0.0	76.0	12.3
5.13.10	9.5	0.0	9.9	0.0	33.5	48.5	78.0	0.0	76.0	12.3
5.13.11	9.7	0.0	9.7	0.0	33.5	47.0	78.0	0.0	76.0	12.3
5.13.12	9.5	0.0	10.0	0.0	33.5	46.0	77.0	0.0	77.0	12.3
5.13.13	9.5	0.0	10.0	0.0	33.5	48.0	77.0	0.0	77.5	12.3
5.13.14	9.5	0.0	9.6	0.0	33.5	46.0	78.0	0.0	76.0	12.3

TABLE XXIII (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 5.13

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.13.1 TO 5.13.14 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.13. 1	265.5	432.5	30.0	120.0	193.0	30.0	8.0	9.7	45.0
5.13. 2	141.5	291.5	30.0	106.0	210.5	30.0	8.0	10.2	45.0
5.13. 3	355.5	465.0	30.0	173.0	229.0	30.0	12.0	10.5	45.0
5.13. 4	287.5	415.0	30.0	142.5	207.0	30.0	12.0	9.5	48.0
5.13. 5	311.5	409.5	30.0	141.0	181.0	30.0	12.0	10.0	50.0
5.13. 6	142.0	202.0	30.0	107.5	196.5	60.0	12.0	9.5	48.0
5.13. 7	202.0	224.0	30.0	196.5	241.0	30.0	12.0	10.0	52.0
5.13. 8	224.0	235.0	120.0	241.0	276.0	60.0	12.0	10.5	55.0
5.13. 9	143.0	285.0	30.0	120.5	318.0	30.0	12.0	10.2	49.5
5.13.10	166.5	305.5	30.0	247.0	481.5	30.0	12.0	10.0	49.0
5.13.11	144.5	260.5	30.0	249.5	426.0	30.0	12.0	10.0	47.5
5.13.12	148.0	205.5	30.0	296.5	452.5	30.0	12.0	10.2	46.5
5.13.13	149.5	168.0	30.0	452.5	537.0	30.0	12.0	10.2	49.0
5.13.14	143.5	252.5	30.0	219.5	357.5	30.0	12.0	9.7	46.5

TABLE XXIV

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 6.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 6.2.1 TO 6.2.17 -- 0.63-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINJITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
6.2. 1	0.0152	0.1173	22.39	0.0	5.550	0.998	1.61	1.110	0.1953	0.7783
6.2. 2	0.0300	0.1173	22.39	0.0	5.525	0.993	3.19	1.105	0.2746	0.7766
6.2. 3	0.0452	0.1173	22.39	0.0	5.650	1.017	4.80	1.130	0.3371	0.7853
6.2. 4	0.0461	0.1173	22.39	0.0	4.037	0.994	4.91	0.807	0.3408	0.6639
6.2. 5	0.0380	0.1185	22.39	0.0	5.573	1.005	4.00	1.114	0.3084	0.7800
6.2. 6	0.0527	0.1176	22.39	0.0	5.425	0.980	5.59	1.085	0.3640	0.7695
6.2. 7	0.0538	0.1173	22.39	0.0	3.569	0.997	5.72	0.714	0.3681	0.6241
6.2. 8	0.0630	0.1176	22.39	0.0	3.262	0.934	6.68	0.652	0.3979	0.5968
6.2. 9	0.0954	0.1173	22.39	0.0	2.300	1.005	10.15	0.460	0.4902	0.5011
6.2.10	0.0630	0.1173	22.39	0.0	3.200	0.994	6.70	0.640	0.3983	0.5910
6.2.11	0.0758	0.1173	22.39	0.0	2.800	1.012	8.06	0.560	0.4369	0.5528
6.2.12	0.1096	0.1173	22.39	0.0	1.783	1.014	11.66	0.357	0.5253	0.4412
6.2.13	0.1444	0.1171	22.39	0.0	1.058	0.984	15.38	0.212	0.6032	0.3399
6.2.14	0.1722	0.1167	22.39	0.0	0.537	0.973	18.42	0.107	0.6593	0.2422
6.2.15	0.1836	0.1164	22.39	0.0	0.431	1.028	19.69	0.096	0.6812	0.2170
6.2.16	0.2021	0.1160	22.39	0.0	0.325	0.983	21.74	0.065	0.7153	0.1883
6.2.17	0.2347	0.1155	22.39	0.0	0.169	1.076	25.36	0.034	0.7719	0.1357

TABLE XXIV (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 6.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 6.2.1 TO 6.2.17 -- 0.63-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
6.2. 1	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
6.2. 2	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
6.2. 3	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
6.2. 4	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
6.2. 5	30.0	10.0	0.0	0.0	0.0	25.00	0.0	0.0	0.0	0.0
6.2. 6	30.0	10.0	0.0	0.0	0.0	35.00	0.0	0.0	0.0	0.0
6.2. 7	30.0	10.0	0.0	0.0	0.0	35.00	0.0	0.0	0.0	0.0
6.2. 8	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
6.2. 9	30.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
6.2.10	30.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
6.2.11	25.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
6.2.12	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
6.2.13	12.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
6.2.14	8.0	0.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0
6.2.15	5.0	0.0	0.0	0.0	60.00	60.00	0.0	0.0	0.0	0.0
6.2.16	5.0	0.0	0.0	0.0	70.00	60.00	0.0	0.0	0.0	0.0
6.2.17	3.0	0.0	0.0	0.0	80.00	70.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
6.2. 1	0.0	9.7	9.5	0.0	0.0	55.0	75.0	0.0	0.0	12.4
6.2. 2	0.0	9.2	9.0	0.0	0.0	55.0	75.0	0.0	0.0	12.4
6.2. 3	0.0	9.0	9.0	0.0	0.0	55.0	75.0	0.0	0.0	12.4
6.2. 4	0.0	10.0	10.0	0.0	0.0	55.0	76.0	0.0	0.0	12.4
6.2. 5	0.0	9.7	9.5	0.0	0.0	55.0	76.0	0.0	0.0	12.4
6.2. 6	0.0	9.5	9.0	0.0	0.0	55.0	77.0	0.0	0.0	12.4
6.2. 7	0.0	10.0	10.0	0.0	0.0	55.0	78.0	0.0	0.0	12.4
6.2. 8	0.0	9.5	11.0	0.0	0.0	54.0	78.0	0.0	0.0	12.4
6.2. 9	0.0	10.0	11.0	0.0	0.0	54.0	77.0	0.0	0.0	12.4
6.2.10	0.0	10.0	11.0	0.0	0.0	55.0	77.0	0.0	0.0	12.4
6.2.11	0.0	10.0	9.0	0.0	0.0	55.0	76.0	0.0	0.0	12.4
6.2.12	0.0	10.0	10.0	0.0	0.0	55.0	78.0	0.0	0.0	12.4
6.2.13	0.0	10.0	11.0	0.0	0.0	55.0	90.0	0.0	0.0	12.4
6.2.14	0.0	9.0	11.0	0.0	0.0	55.0	96.5	0.0	0.0	12.4
6.2.15	0.0	9.0	10.0	0.0	0.0	56.0	102.0	0.0	0.0	12.4

TABLE XXIV (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 6.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 6.2.1 TO 6.2.17 -- 0.63-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
6.2.16	0.0	10.0	11.0	0.0	0.0	56.0	112.5	0.0	0.0	12.4
6.2.17	0.0	10.0	11.0	0.0	0.0	57.0	113.5	0.0	0.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
6.2. 1	132.5	243.5	20.0	85.5	85.5	45.0	12.0	10.0	55.0
6.2. 2	243.5	354.0	20.0	85.5	85.5	75.0	12.0	10.0	55.0
6.2. 3	300.0	413.0	20.0	85.5	86.5	120.0	12.0	10.0	55.0
6.2. 4	413.0	493.8	20.0	86.5	153.5	45.0	12.0	10.0	55.0
6.2. 5	426.3	560.0	24.0	153.5	155.0	90.0	12.0	10.0	50.0
6.2. 6	323.8	437.3	20.0	155.0	156.5	55.0	12.0	10.0	54.0
6.2. 7	437.3	580.0	40.0	156.5	245.5	45.0	12.0	10.0	55.0
6.2. 8	346.0	411.3	20.0	245.5	334.0	40.0	12.0	10.0	54.0
6.2. 9	350.0	396.0	20.0	334.0	428.5	50.0	12.0	10.0	55.0
6.2.10	133.0	213.0	25.0	94.3	141.5	50.0	12.0	10.0	55.0
6.2.11	213.0	283.0	25.0	141.5	181.0	55.0	12.0	10.0	55.0
6.2.12	283.0	336.5	30.0	181.0	253.5	70.0	12.0	10.0	55.0
6.2.13	336.5	368.3	30.0	253.5	288.5	60.0	12.0	10.0	56.0
6.2.14	368.3	389.8	40.0	288.5	313.0	45.0	12.0	10.0	58.0
6.2.15	389.8	407.0	40.0	313.0	330.0	60.0	12.0	10.0	59.0
6.2.16	407.0	416.8	30.0	330.0	351.5	60.0	12.0	10.0	61.0
6.2.17	416.8	423.5	40.0	351.5	365.5	50.0	12.0	10.0	63.0

TABLE XXV

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 9.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.2.1 TO 9.2.5 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.2. 1	0.1753	0.1188	22.34	0.0	11.133	0.989	6.27	0.758	0.3066	0.5105
9.2. 2	0.1456	0.1196	22.34	0.0	10.533	0.983	5.17	0.718	0.2790	0.4965
9.2. 3	0.2600	0.1183	22.09	0.0	7.083	1.008	9.34	0.493	0.3739	0.4072
9.2. 4	0.3770	0.1192	22.34	0.0	4.000	1.009	13.45	0.272	0.4494	0.3060
9.2. 5	0.5066	0.1270	24.09	0.0	0.833	1.074	16.96	0.057	0.5127	0.1397

TABLE XXV (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 9.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.2.1 TO 9.2.5 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.2. 1	0.0	0.0	120.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
9.2. 2	0.0	0.0	100.0	0.0	66.50	0.0	0.0	0.0	0.0	0.0
9.2. 3	0.0	0.0	79.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0
9.2. 4	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	44.49	0.0
9.2. 5	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	63.72	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.2. 1	9.5	0.0	9.8	0.0	33.5	47.0	73.0	0.0	76.0	12.3
9.2. 2	10.0	0.0	10.2	0.0	33.5	44.0	76.0	0.0	76.5	12.3
9.2. 3	9.7	0.0	10.5	95.5	33.5	44.0	82.0	92.5	0.0	12.3
9.2. 4	10.0	0.0	11.2	92.5	33.0	45.5	84.0	96.5	0.0	12.3
9.2. 5	11.5	0.0	13.2	90.0	33.0	47.5	100.5	119.0	0.0	12.3

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.2. 1	137.0	304.0	15.0	100.0	180.5	15.0	5.0	10.0	47.5
9.2. 2	272.5	430.5	15.0	180.5	227.5	15.0	5.0	10.0	44.0
9.2. 3	197.0	409.5	30.0	188.5	308.0	30.0	12.0	9.7	44.0
9.2. 4	141.0	261.0	30.0	102.5	193.0	30.0	12.0	10.0	46.0
9.2. 5	252.5	302.5	60.0	156.0	464.5	60.0	12.0	11.7	52.0

TABLE XXVI

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 9.6

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.6.1 TO 9.6.6 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.6. 1	0.0868	0.1230	23.29	0.0	14.275	0.998	3.00	0.972	0.2139	0.5780
9.6. 2	0.1436	0.1183	22.29	0.0	12.925	1.006	5.16	0.880	0.2778	0.5500
9.6. 3	0.2571	0.1171	22.04	0.0	8.283	1.005	9.33	0.564	0.3727	0.4403
9.6. 4	0.4870	0.1291	24.30	0.0	2.167	1.051	16.03	0.149	0.5006	0.2252
9.6. 5	0.6026	0.1224	23.30	0.0	0.567	1.065	20.93	0.039	0.5644	0.1152
9.6. 6	0.6779	0.1290	24.55	0.0	0.175	1.066	22.35	0.012	0.5908	0.0640

TABLE XXVI (Contd.)

MODIFIED UPPER ANNULUS GEOMETRY TEST GROUP 9.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.6.1 TO 9.6.6 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.6. 1	0.0	0.0	121.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.6. 2	0.0	0.0	129.0	0.0	66.50	0.0	0.0	0.0	0.0	0.0
9.6. 3	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	29.36	0.0
9.6. 4	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
9.6. 5	0.0	0.0	0.0	30.3	0.0	0.0	0.0	0.0	73.59	0.0
9.6. 6	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	88.59	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.6. 1	10.7	0.0	11.0	100.0	33.0	51.0	80.0	0.0	80.0	12.3
9.6. 2	10.0	0.0	10.5	97.5	32.5	48.0	77.0	0.0	79.0	12.3
9.6. 3	9.7	0.0	10.5	94.0	0.0	47.0	78.0	86.0	0.0	12.3
9.6. 4	13.0	0.0	14.5	93.0	0.0	47.0	80.0	85.0	0.0	12.3
9.6. 5	11.7	0.0	13.5	90.0	0.0	49.5	88.0	102.0	0.0	12.3
9.6. 6	11.5	0.0	15.6	85.0	0.0	50.0	97.0	112.0	0.0	12.3

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.6. 1	141.5	427.0	20.0	115.5	191.0	30.0	4.0	11.0	51.0
9.6. 2	165.5	424.0	20.0	118.0	271.5	30.0	4.0	10.0	48.5
9.6. 3	146.5	395.0	30.0	271.5	442.0	30.0	12.0	9.7	48.0
9.6. 4	144.0	209.0	30.0	103.0	301.0	30.0	12.0	12.0	48.0
9.6. 5	193.0	210.0	30.0	244.5	362.0	30.0	12.0	11.0	54.0
9.6. 6	210.0	220.5	60.0	111.5	195.0	30.0	12.0	12.2	54.0

The depth of the upper annulus was changed by lowering the filler piece to the bottom of the lower plenum which effectively decreased the length of the downcomer and increased the length of the upper annulus by about 34 inches. Tests conducted with this geometry are included in Test Groups 5.4 and 6.2. The geometry changes that resulted from increasing the height of the upper annulus, removing the hot leg simulators, and removing the nozzle inserts have been described in detail in the previous section on the bypass flow tests.

4. SHORTENED CORE BARREL TESTS

Tests were performed to investigate the effect on countercurrent flow of shortening the length of the downcomer. The downcomer was shortened from its nominal length of about 68 inches by shortening the length of the core barrel. For those tests with the shortened core barrel, the length of the downcomer was defined as the distance from the top of the downcomer filler piece to the bottom of the core barrel; or, if a filler piece was not used as part of the downcomer, the length was defined as the distance from the centerline of the cold leg pipe to the bottom of the core barrel. The shortened downcomers which used a filler piece were 34, 24, and 6 inches in length. The 34-inch downcomer length resulted when the core barrel was cut in half. The 24- and 6-inch downcomer lengths were based on scaling the ratio of the Semiscale core barrel diameter divided by the downcomer length to this same ratio for the Loss-of-Fluid-Test (LOFT) reactor system and a typical pressurized water reactor (PWR), respectively. A 12-inch downcomer resulted when the core barrel cut for the 6-inch-length downcomer, which included a filler piece, was used in a downcomer configuration without a filler piece. Results from the shortened downcomer tests are included in Tables XXVII through XXXI.

5. TWO-PHASE COLD LEG MIXTURE TESTS

Tests were performed to investigate the effect on countercurrent flow of a two-phase mixture entering the upper annulus through the core barrel. A range of different cold leg air flow rates was used in an attempt to cover the wide range of steam-water mixtures that could be entering the Semiscale vessel during the ECC injection period of a blowdown test. The results from the two-phase cold leg mixture tests are presented in Tables XXXII through XXXVI.

6. COMBINED EFFECTS TESTS

Ten groups of tests were conducted with a combination of one or more of the following changes to the system geometry or to two-phase flow in the cold leg: downcomer length shortened, upper annulus depth and height changed, hot leg simulator removed, cold

TABLE XXVII

SHORTENED CORE BARREL TEST GROUP 3.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 3.1.1 TO 3.1.31 -- 0.39-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
3.1. 1	0.0	0.0648	22.35	0.0	4.958	0.920	0.0	1.565	0.0	1.0373
3.1. 2	0.0075	0.1171	22.35	0.0	3.600	1.008	1.26	1.136	0.1935	0.8840
3.1. 3	0.0077	0.1162	22.35	0.0	3.420	0.986	1.30	1.079	0.1962	0.8616
3.1. 4	0.0151	0.1170	22.35	0.0	2.920	0.991	2.55	0.921	0.2755	0.7962
3.1. 5	0.0152	0.1169	22.35	0.0	2.743	1.053	2.57	0.866	0.2764	0.7716
3.1. 6	0.0230	0.1167	22.35	0.0	2.550	1.000	3.88	0.805	0.3396	0.7440
3.1. 7	0.0224	0.1171	22.35	0.0	2.340	1.048	3.77	0.738	0.3354	0.7127
3.1. 8	0.0300	0.1171	22.35	0.0	2.500	1.044	5.04	0.789	0.3874	0.7367
3.1. 9	0.0303	0.1171	22.35	0.0	2.423	1.028	5.09	0.765	0.3896	0.7253
3.1.10	0.0303	0.1171	22.35	0.0	2.140	1.041	5.09	0.675	0.3895	0.6816
3.1.11	0.0457	0.1171	22.35	0.0	1.620	1.031	7.68	0.511	0.4784	0.5930
3.1.12	0.0462	0.1171	22.35	0.0	1.667	1.066	7.77	0.526	0.4813	0.6015
3.1.13	0.0462	0.1169	22.35	0.0	1.629	1.042	7.78	0.514	0.4812	0.5946
3.1.14	0.0611	0.1162	22.44	0.0	0.912	1.026	10.35	0.288	0.5544	0.4451
3.1.15	0.0605	0.1178	22.44	0.0	0.995	1.041	10.11	0.314	0.5498	0.4649
3.1.16	0.0613	0.1178	22.44	0.0	1.071	1.024	10.24	0.338	0.5534	0.4823
3.1.17	0.0762	0.1175	22.44	0.0	0.425	1.009	12.76	0.134	0.6173	0.3037
3.1.18	0.0761	0.1171	22.44	0.0	1.377	0.997	12.79	0.435	0.6174	0.5468
3.1.19	0.0767	0.1168	22.44	0.0	0.773	1.006	12.93	0.244	0.6203	0.4097
3.1.20	0.0914	0.1169	22.44	0.0	0.267	1.009	15.38	0.084	0.6768	0.2406
3.1.21	0.0933	0.1168	22.44	0.0	0.375	1.011	15.72	0.118	0.6840	0.2853
3.1.22	0.0921	0.1168	22.44	0.0	0.454	1.002	15.53	0.143	0.6798	0.3140
3.1.23	0.0922	0.1160	22.44	0.0	1.362	1.040	15.65	0.430	0.6815	0.5439
3.1.24	0.0911	0.1165	22.44	0.0	0.503	0.998	15.40	0.159	0.6766	0.3305
3.1.25	0.1067	0.1168	22.44	0.0	0.187	1.034	17.98	0.059	0.7316	0.2013
3.1.26	0.1078	0.1169	22.44	0.0	0.233	1.009	18.15	0.074	0.7351	0.2251
3.1.27	0.1085	0.1168	22.44	0.0	0.272	1.020	18.29	0.086	0.7377	0.2431
3.1.28	0.1071	0.1160	22.44	0.0	0.317	1.022	18.18	0.100	0.7344	0.2622
3.1.29	0.1081	0.1174	22.44	0.0	1.267	0.983	18.14	0.400	0.7357	0.5244
3.1.30	0.1234	0.1169	22.44	0.0	0.100	1.011	20.77	0.032	0.7865	0.1473
3.1.31	0.1243	0.1169	22.44	0.0	0.178	0.983	20.93	0.056	0.7895	0.1965

01110	01111	01112	01113	01114	01115	01116	01117	01118	01119	01120
01121	01122	01123	01124	01125	01126	01127	01128	01129	01130	01131

TABLE XXVII (Contd.)

SHORTENED CORE BARREL TEST GROUP 3.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 3.1.1 TO 3.1.31 -- 0.39-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
3.1. 1	30.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.1. 2	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
3.1. 3	30.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
3.1. 4	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
3.1. 5	25.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
3.1. 6	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
3.1. 7	22.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
3.1. 8	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
3.1. 9	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
3.1.10	20.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
3.1.11	30.0	10.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
3.1.12	15.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
3.1.13	15.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
3.1.14	30.0	10.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
3.1.15	15.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
3.1.16	13.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
3.1.17	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
3.1.18	0.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
3.1.19	13.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
3.1.20	30.0	10.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.1.21	25.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.1.22	15.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.1.23	0.0	10.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.1.24	13.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.1.25	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.1.26	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.1.27	15.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.1.28	13.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.1.29	0.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.1.30	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
3.1.31	15.0	0.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0

TABLE XXVII (Contd.)

SHORTENED CORE BARREL TEST GROUP 3.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 3.1.1 TO 3.1.31 -- 0.39-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
3.1.1	0.0	0.0	0.0	0.0	0.0	53.0	76.0	0.0	0.0	12.3
3.1.2	0.0	9.5	9.0	0.0	0.0	55.0	76.0	0.0	0.0	12.3
3.1.3	0.0	10.0	10.0	0.0	0.0	57.5	75.0	0.0	0.0	12.3
3.1.4	0.0	10.0	9.5	0.0	0.0	55.5	75.0	0.0	0.0	12.3
3.1.5	0.0	10.0	9.7	0.0	0.0	55.0	74.5	0.0	0.0	12.3
3.1.6	0.0	10.5	10.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
3.1.7	0.0	10.0	9.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
3.1.8	0.0	9.0	9.0	0.0	0.0	55.0	74.0	0.0	0.0	12.3
3.1.9	0.0	9.5	9.5	0.0	0.0	55.0	74.5	0.0	0.0	12.3
3.1.10	0.0	10.5	9.5	0.0	0.0	55.0	75.0	0.0	0.0	12.3
3.1.11	0.0	9.0	9.5	0.0	0.0	54.0	74.0	0.0	0.0	12.3
3.1.12	0.0	9.5	10.0	0.0	0.0	55.0	73.0	0.0	0.0	12.3
3.1.13	0.0	9.0	10.0	0.0	0.0	55.5	74.5	0.0	0.0	12.3
3.1.14	0.0	9.0	9.5	0.0	0.0	53.5	77.0	0.0	0.0	12.4
3.1.15	0.0	9.0	9.0	0.0	0.0	54.0	75.0	0.0	0.0	12.4
3.1.16	0.0	9.0	9.5	0.0	0.0	55.0	73.0	0.0	0.0	12.4
3.1.17	0.0	8.7	9.0	0.0	0.0	56.0	72.5	0.0	0.0	12.4
3.1.18	0.0	8.7	9.0	0.0	0.0	57.5	74.0	0.0	0.0	12.4
3.1.19	0.0	8.5	9.5	0.0	0.0	58.0	77.0	0.0	0.0	12.4
3.1.20	0.0	8.5	9.0	0.0	0.0	57.0	79.0	0.0	0.0	12.4
3.1.21	0.0	10.0	10.0	0.0	0.0	57.5	80.5	0.0	0.0	12.4
3.1.22	0.0	8.7	9.5	0.0	0.0	57.5	82.0	0.0	0.0	12.4
3.1.23	0.0	8.5	9.5	0.0	0.0	61.0	80.5	0.0	0.0	12.4
3.1.24	0.0	8.5	9.0	0.0	0.0	57.5	82.0	0.0	0.0	12.4
3.1.25	0.0	8.5	9.0	0.0	0.0	55.0	85.0	0.0	0.0	12.4
3.1.26	0.0	9.0	9.5	0.0	0.0	55.5	86.0	0.0	0.0	12.4
3.1.27	0.0	8.5	9.5	0.0	0.0	61.0	79.0	0.0	0.0	12.4
3.1.28	0.0	8.5	9.0	0.0	0.0	56.5	80.5	0.0	0.0	12.4
3.1.29	0.0	9.5	9.2	0.0	0.0	58.5	76.5	0.0	0.0	12.4
3.1.30	0.0	8.5	9.0	0.0	0.0	54.5	80.5	0.0	0.0	12.4
3.1.31	0.0	9.0	9.5	0.0	0.0	55.0	84.0	0.0	0.0	12.4

TABLE XXVII (Contd.)

SHORTENED CORE BARREL TEST GROUP 3.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 3.1.1 TO 3.1.31 -- 0.39-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
3.1. 1	133.3	282.0	30.0	57.5	67.0	60.0	12.0	0.0	54.0
3.1. 2	282.0	354.0	20.0	67.0	147.3	40.0	12.0	10.0	55.0
3.1. 3	145.5	231.0	25.0	163.3	194.5	45.0	12.0	10.0	59.0
3.1. 4	231.0	304.0	25.0	194.5	311.0	45.0	12.0	10.0	55.5
3.1. 5	304.0	400.0	35.0	311.0	347.8	40.0	12.0	10.0	56.0
3.1. 6	135.0	211.5	30.0	94.0	214.5	40.0	12.0	10.0	57.0
3.1. 7	211.5	270.0	25.0	214.5	253.5	45.0	12.0	10.0	55.0
3.1. 8	270.0	332.5	25.0	393.0	492.3	30.0	12.0	10.0	55.0
3.1. 9	332.5	395.5	26.0	492.3	591.0	30.0	12.0	10.0	55.0
3.1.10	395.5	449.0	25.0	591.0	625.0	45.0	12.0	10.0	55.0
3.1.11	449.0	489.5	25.0	625.0	789.5	40.0	12.0	10.0	55.0
3.1.12	489.5	539.5	30.0	789.5	814.5	45.0	12.0	10.0	55.0
3.1.13	285.0	342.0	35.0	474.8	502.0	50.0	12.0	10.0	56.0
3.1.14	133.8	170.3	40.0	80.3	224.0	30.0	12.0	10.0	61.5
3.1.15	170.3	225.0	55.0	224.0	271.0	40.0	12.0	10.0	54.0
3.1.16	225.0	300.0	70.0	271.0	310.0	50.0	12.0	10.0	54.0
3.1.17	300.0	321.3	50.0	310.0	491.5	35.0	12.0	10.0	55.5
3.1.18	321.3	397.0	55.0	491.5	492.0	60.0	12.0	10.0	57.5
3.1.19	397.0	455.0	75.0	492.0	544.3	50.0	12.0	10.0	58.5
3.1.20	455.0	475.0	75.0	544.3	731.3	35.0	12.0	10.0	58.0
3.1.21	475.0	501.3	70.0	731.3	816.5	35.0	12.0	10.0	59.5
3.1.22	501.3	528.5	60.0	816.5	873.8	35.0	12.0	10.0	58.5
3.1.23	135.8	217.5	60.0	103.3	112.0	105.0	12.0	10.0	62.0
3.1.24	217.5	257.8	80.0	112.0	177.0	50.0	12.0	10.0	60.0
3.1.25	257.8	271.8	75.0	177.0	371.8	35.0	12.0	10.0	58.5
3.1.26	271.8	285.8	60.0	371.8	487.5	45.0	12.0	10.0	58.0
3.1.27	135.5	160.0	90.0	94.0	196.0	55.0	12.0	10.0	59.5
3.1.28	160.0	188.5	90.0	196.0	272.5	50.0	12.0	10.0	62.0
3.1.29	189.0	265.0	60.0	272.5	280.0	75.0	12.0	10.0	56.0
3.1.30	265.0	274.0	90.0	280.0	390.5	20.0	12.0	10.0	58.0
3.1.31	274.0	290.0	90.0	390.5	493.5	55.0	12.0	10.0	59.0

TABLE XXVIII

SHORTENED CORE BARREL TEST GROUP 4.4

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.4.1 TO 4.4.11 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.4. 1	0.0153	0.1168	22.33	0.0	3.813	0.990	2.03	0.949	0.2328	0.7646
4.4. 2	0.0076	0.1164	22.33	0.0	4.600	1.000	1.02	1.145	0.1647	0.8398
4.4. 3	0.0075	0.1161	22.33	0.0	4.200	1.007	1.00	1.045	0.1629	0.8025
4.4. 4	0.0156	0.1164	22.33	0.0	3.637	1.005	2.08	0.905	0.2355	0.7468
4.4. 5	0.0224	0.1164	22.33	0.0	3.125	0.993	2.99	0.778	0.2819	0.6922
4.4. 6	0.0299	0.1166	22.33	0.0	2.857	1.006	3.98	0.711	0.3255	0.6619
4.4. 7	0.0460	0.1164	22.33	0.0	2.310	0.989	6.15	0.575	0.4043	0.5951
4.4. 8	0.0763	0.1166	22.33	0.0	1.600	2.248	10.23	0.399	0.5219	0.4953
4.4. 9	0.1053	0.1166	22.33	0.0	0.817	1.043	14.02	0.203	0.6110	0.3539
4.4.10	0.1378	0.1164	22.33	0.0	0.356	0.996	18.40	0.089	0.6996	0.2337
4.4.11	0.1726	0.1164	22.33	0.0	0.156	0.984	23.04	0.039	0.7829	0.1548

TABLE XXVIII (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.4.1 TO 4.4.11 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.4. 1	30.0	10.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0	0.0
4.4. 2	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.4. 3	30.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.4. 4	30.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.4. 5	28.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.4. 6	25.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
4.4. 7	22.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.4. 8	15.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.4. 9	10.0	0.0	0.0	0.0	20.00	50.00	0.0	0.0	0.0	0.0
4.4.10	5.0	0.0	0.0	0.0	40.00	50.00	0.0	0.0	0.0	0.0
4.4.11	4.0	0.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BAR0 (PSIA)
4.4. 1	0.0	10.0	10.0	0.0	0.0	56.0	76.0	0.0	0.0	12.3
4.4. 2	0.0	10.0	10.0	0.0	0.0	58.0	77.0	0.0	0.0	12.3
4.4. 3	0.0	9.2	9.0	0.0	0.0	59.0	77.0	0.0	0.0	12.3
4.4. 4	0.0	10.0	11.0	0.0	0.0	58.0	77.0	0.0	0.0	12.3
4.4. 5	0.0	9.0	9.0	0.0	0.0	58.0	78.0	0.0	0.0	12.3
4.4. 6	0.0	9.0	9.0	0.0	0.0	57.0	77.0	0.0	0.0	12.3
4.4. 7	0.0	10.0	10.0	0.0	0.0	57.0	77.0	0.0	0.0	12.3
4.4. 8	0.0	9.7	9.7	0.0	0.0	57.0	79.0	0.0	0.0	12.3
4.4. 9	0.0	9.0	9.0	0.0	0.0	57.0	82.0	0.0	0.0	12.3
4.4.10	0.0	9.7	10.0	0.0	0.0	57.0	89.0	0.0	0.0	12.3
4.4.11	0.0	10.0	11.0	0.0	0.0	58.0	92.5	0.0	0.0	12.3

TABLE XXVIII (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.4.1 TO 4.4.11 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.4. 1	132.5	285.0	40.0	94.5	187.5	55.0	12.0	10.0	56.0
4.4. 2	295.0	377.0	20.0	187.5	226.0	40.0	12.0	10.0	58.0
4.4. 3	377.0	461.0	20.0	226.0	226.0	55.0	12.0	10.0	59.0
4.4. 4	461.0	533.8	20.0	226.0	256.5	55.0	12.0	10.0	58.0
4.4. 5	463.5	526.0	20.0	256.5	301.0	60.0	12.0	10.0	58.0
4.4. 6	449.3	509.3	21.0	301.0	333.0	50.0	12.0	10.0	57.0
4.4. 7	283.0	331.5	21.0	333.0	379.5	65.0	12.0	10.0	58.0
4.4. 8	331.5	371.5	25.0	279.5	403.0	40.0	12.0	10.0	57.0
4.4. 9	371.5	396.0	30.0	403.0	431.5	45.0	12.0	10.0	57.0
4.4.10	396.0	410.3	40.0	431.5	450.0	55.0	12.0	10.0	58.0
4.4.11	410.3	416.5	40.0	450.0	471.5	55.0	12.0	10.0	58.0

TABLE XXIX

SHORTENED CORE BARREL TEST GROUP 4.5

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.5.1 TO 4.5.12 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.5. 1	0.0227	0.1174	22.39	0.0	3.375	1.008	3.01	0.940	0.2835	0.7194
4.5. 2	0.0235	0.1165	22.39	0.0	3.237	1.018	3.13	0.806	0.2885	0.7046
4.5. 3	0.0156	0.1167	22.39	0.0	3.712	1.008	2.09	0.924	0.2355	0.7545
4.5. 4	0.0303	0.1165	22.39	0.0	2.762	0.996	4.05	0.688	0.3281	0.6508
4.5. 5	0.0452	0.1167	22.39	0.0	2.407	1.015	6.01	0.599	0.4002	0.6075
4.5. 6	0.0603	0.1165	22.39	0.0	1.980	0.998	8.05	0.493	0.4627	0.5510
4.5. 7	0.0767	0.1156	22.39	0.0	1.556	1.007	10.31	0.387	0.5227	0.4884
4.5. 8	0.1097	0.1165	22.39	0.0	0.756	1.023	14.63	0.189	0.6241	0.3404
4.5. 9	0.1395	0.1167	22.39	0.0	0.400	1.067	18.56	0.100	0.7032	0.2477
4.5.10	0.1533	0.1165	22.39	0.0	0.262	1.025	20.45	0.065	0.7377	0.2006
4.5.11	0.1694	0.1165	22.39	0.0	0.169	1.018	22.59	0.042	0.7754	0.1611
4.5.12	0.1834	0.1160	22.39	0.0	0.125	1.007	24.56	0.031	0.8076	0.1384

TABLE XXIX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.5.1 TO 4.5.12 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.5.1	30.0	10.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
4.5.2	30.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
4.5.3	30.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0	0.0
4.5.4	25.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
4.5.5	20.5	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.5.6	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.5.7	15.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.5.8	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.5.9	5.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.5.10	5.0	0.0	0.0	0.0	70.00	30.00	0.0	0.0	0.0	0.0
4.5.11	5.0	0.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0
4.5.12	5.0	0.0	0.0	0.0	60.00	60.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARN (PSIA)
4.5.1	0.0	9.5	9.5	0.0	0.0	55.0	75.0	0.0	0.0	12.4
4.5.2	0.0	10.0	11.0	0.0	0.0	58.0	77.0	0.0	0.0	12.4
4.5.3	0.0	10.0	11.0	0.0	0.0	58.0	77.0	0.0	0.0	12.4
4.5.4	0.0	9.5	9.5	0.0	0.0	59.0	74.0	0.0	0.0	12.4
4.5.5	0.0	9.0	9.0	0.0	0.0	58.0	75.0	0.0	0.0	12.4
4.5.6	0.0	3.7	9.0	0.0	0.0	58.0	77.0	0.0	0.0	12.4
4.5.7	0.0	8.0	9.5	0.0	0.0	61.0	76.0	0.0	0.0	12.4
4.5.8	0.0	9.5	10.0	0.0	0.0	58.0	77.0	0.0	0.0	12.4
4.5.9	0.0	9.5	9.0	0.0	0.0	58.0	83.0	0.0	0.0	12.4
4.5.10	0.0	9.5	9.5	0.0	0.0	59.0	86.0	0.0	0.0	12.4
4.5.11	0.0	9.7	10.0	0.0	0.0	59.0	91.5	0.0	0.0	12.4
4.5.12	0.0	9.5	9.5	0.0	0.0	60.0	91.5	0.0	0.0	12.4

TABLE XXIX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.5

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.5.1 TO 4.5.12 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.5. 1	133.0	200.5	20.0	91.0	191.5	45.0	12.0	10.0	55.0
4.5. 2	202.5	265.3	20.0	191.5	242.0	50.0	12.0	10.0	59.0
4.5. 3	265.3	339.5	20.0	242.0	274.0	65.0	12.0	10.0	58.0
4.5. 4	377.3	432.5	20.0	330.0	365.0	50.0	12.0	10.0	59.0
4.5. 5	352.5	436.8	35.0	365.0	389.3	50.0	12.0	10.0	58.0
4.5. 6	375.5	425.0	25.0	389.3	425.0	45.0	12.0	10.0	59.0
4.5. 7	133.0	203.0	45.0	94.0	124.0	55.0	12.0	10.0	63.0
4.5. 8	203.0	237.0	45.0	124.0	164.0	60.0	12.0	10.0	59.0
4.5. 9	237.0	261.0	60.0	164.0	184.5	60.0	12.0	10.0	58.0
4.5.10	261.0	276.8	60.0	184.5	211.5	60.0	12.0	10.0	59.0
4.5.11	276.8	287.8	65.0	211.5	246.5	65.0	12.0	10.0	59.0
4.5.12	287.8	295.3	60.0	246.5	281.0	60.0	12.0	10.0	61.0

TABLE XXX

SHORTENED CORE BARREL TEST GROUP 4.6

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.6.1 TO 4.6.48 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.6. 1	0.0228	0.1170	22.31	0.0	3.313	0.983	3.03	0.825	0.2844	0.7127
4.6. 2	0.0228	0.1163	22.31	0.0	3.188	0.990	3.05	0.793	0.2849	0.6991
4.6. 3	0.0153	0.1161	22.31	0.0	3.688	0.997	2.05	0.918	0.2331	0.7519
4.6. 4	0.0076	0.1161	22.31	0.0	4.787	0.987	1.02	1.192	0.1648	0.8568
4.6. 5	0.0076	0.1163	22.31	0.0	4.600	0.994	1.01	1.145	0.1642	0.8398
4.6. 6	0.0309	0.1152	22.31	0.0	2.750	1.014	4.17	0.685	0.3322	0.6494
4.6. 7	0.0456	0.1163	22.31	0.0	2.330	1.025	6.09	0.580	0.4023	0.5977
4.6. 8	0.0761	0.1163	22.31	0.0	1.358	1.025	10.17	0.338	0.5200	0.4564
4.6. 9	0.1059	0.1163	22.31	0.0	1.321	0.990	14.14	0.329	0.6133	0.4501
4.6.10	0.1067	0.1163	22.31	0.0	1.583	1.044	14.25	0.394	0.6156	0.4927
4.6.11	0.1364	0.1163	22.31	0.0	1.281	1.044	18.22	0.319	0.6960	0.4432
4.6.12	0.1665	0.1163	22.31	0.0	0.817	0.958	22.24	0.203	0.7690	0.3539
4.6.13	0.2004	0.1162	22.31	0.0	0.383	0.983	26.79	0.095	0.8439	0.2424
4.6.14	0.2325	0.1161	22.31	0.0	0.467	1.469	31.11	0.116	0.9091	0.2675
4.6.15	0.2075	0.1210	23.31	0.0	0.0	1.013	26.63	0.0	0.8499	0.0
4.6.16	0.1989	0.1157	22.31	0.0	0.052	0.997	26.70	0.013	0.8416	0.0897
4.6.17	0.1632	0.1164	22.31	0.0	0.096	1.006	21.78	0.024	0.7612	0.1212
4.6.18	0.1647	0.1164	22.31	0.0	0.104	0.996	21.98	0.026	0.7647	0.1264
4.6.19	0.1362	0.1163	22.31	0.0	0.239	1.009	18.19	0.060	0.6954	0.1915
4.6.20	0.1343	0.1163	22.31	0.0	0.283	1.001	18.01	0.071	0.6921	0.2084
4.6.21	0.2316	0.1165	22.31	0.0	0.533	0.986	30.88	0.133	0.9067	0.2860
4.6.22	0.1066	0.1167	22.31	0.0	0.617	1.006	14.19	0.153	0.6149	0.3075
4.6.23	0.0747	0.1163	22.31	0.0	1.111	1.003	9.98	0.277	0.5151	0.4128
4.6.24	0.0741	0.1165	22.31	0.0	1.283	1.019	9.89	0.319	0.5128	0.4436
4.6.25	0.0446	0.1167	22.31	0.0	2.350	1.011	5.94	0.585	0.3977	0.6003
4.6.26	0.1377	0.1157	22.31	0.0	0.211	1.005	18.49	0.053	0.7003	0.1799
4.6.27	0.1373	0.1161	22.31	0.0	0.239	1.014	18.36	0.059	0.6985	0.1914
4.6.28	0.1079	0.1164	22.31	0.0	0.478	1.021	14.40	0.119	0.6190	0.2707
4.6.29	0.1053	0.1161	22.31	0.0	1.417	1.050	14.08	0.353	0.6117	0.4661
4.6.30	0.0746	0.1161	22.32	0.0	1.258	1.038	9.99	0.313	0.5151	0.4393
4.6.31	0.0291	0.1164	22.31	0.0	3.107	1.002	3.89	0.773	0.3215	0.6902
4.6.32	0.0302	0.1165	22.31	0.0	2.908	1.010	4.02	0.724	0.3272	0.6678
4.6.33	0.0149	0.1165	22.31	0.0	4.000	0.977	1.99	0.996	0.2303	0.7832
4.6.34	0.2007	0.1160	22.31	0.0	0.421	1.008	26.87	0.105	0.8449	0.2540
4.6.35	0.1983	0.1147	22.31	0.0	0.535	0.932	26.85	0.133	0.8421	0.2863
4.6.36	0.1670	0.1152	22.31	0.0	0.161	0.991	22.51	0.040	0.7719	0.1572
4.6.37	0.1656	0.1154	22.31	0.0	0.246	1.021	22.29	0.061	0.7684	0.1941
4.6.38	0.1618	0.1160	22.31	0.0	0.637	1.723	21.66	0.159	0.7585	0.3126
4.6.39	0.1368	0.1162	22.31	0.0	0.359	1.016	18.27	0.089	0.6970	0.2346
4.6.40	0.1373	0.1161	22.31	0.0	1.350	0.989	18.37	0.336	0.6986	0.4550

TABLE XXX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.6

SUMMARY OF CALCULATED RESULTS FOR TESTS 4.6.1 TO 4.6.48 -- 0.49 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.6.41	0.1359	0.1165	22.31	0.0	0.469	1.009	18.13	0.117	0.6945	0.2682
4.6.42	0.1063	0.1162	22.31	0.0	0.778	1.026	14.21	0.194	0.6146	0.3453
4.6.43	0.1062	0.1164	22.31	0.0	0.787	0.927	14.18	0.196	0.6142	0.3475
4.6.44	0.1052	0.1162	22.31	0.0	0.923	1.035	14.06	0.230	0.6114	0.3761
4.6.45	0.0746	0.1160	22.31	0.0	1.700	1.026	9.98	0.423	0.5150	0.5106
4.6.46	0.1952	0.1158	22.31	0.0	0.600	1.018	26.19	0.149	0.8335	0.3033
4.6.47	0.1956	0.1155	22.31	0.0	0.392	1.016	26.31	0.097	0.8350	0.2451
4.6.48	0.1975	0.1159	22.31	0.0	0.258	1.272	26.47	0.064	0.8383	0.1990

TABLE XXX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.6.1 TO 4.6.48 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.6.1	30.0	10.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
4.6.2	30.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0	0.0
4.6.3	30.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.6.4	30.0	10.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
4.6.5	30.0	7.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
4.6.6	25.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
4.6.7	20.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.6.8	15.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.6.9	10.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.10	12.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.11	10.0	0.0	0.0	0.0	30.00	60.00	0.0	0.0	0.0	0.0
4.6.12	10.0	0.0	0.0	0.0	60.00	50.00	0.0	0.0	0.0	0.0
4.6.13	5.0	0.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.14	0.0	5.0	0.0	0.0	80.00	70.00	0.0	0.0	0.0	0.0
4.6.15	30.0	10.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.16	10.0	0.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.17	30.0	10.0	0.0	0.0	50.00	60.00	0.0	0.0	0.0	0.0
4.6.18	20.0	0.0	0.0	0.0	50.00	60.00	0.0	0.0	0.0	0.0
4.6.19	30.0	10.0	0.0	0.0	20.00	70.00	0.0	0.0	0.0	0.0
4.6.20	20.0	0.0	0.0	0.0	20.00	70.00	0.0	0.0	0.0	0.0
4.6.21	30.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.22	20.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.23	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.6.24	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.6.25	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.6.26	30.0	0.0	0.0	0.0	30.00	60.00	0.0	0.0	0.0	0.0
4.6.27	30.0	10.0	0.0	0.0	30.00	60.00	0.0	0.0	0.0	0.0
4.6.28	30.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.29	0.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.30	30.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.6.31	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
4.6.32	30.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
4.6.33	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.6.34	0.0	0.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.35	0.0	0.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.36	16.0	0.0	0.0	0.0	40.00	70.00	0.0	0.0	0.0	0.0
4.6.37	12.0	0.0	0.0	0.0	50.00	60.00	0.0	0.0	0.0	0.0
4.6.38	10.0	0.0	0.0	0.0	50.00	60.00	0.0	0.0	0.0	0.0
4.6.39	16.0	0.0	0.0	0.0	20.00	70.00	0.0	0.0	0.0	0.0
4.6.40	12.0	0.0	0.0	0.0	20.00	70.00	0.0	0.0	0.0	0.0

TABLE XXX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.6.1 TO 4.6.48 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.6.41	14.0	0.0	0.0	0.0	25.00	65.00	0.0	0.0	0.0	0.0
4.6.42	16.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.43	14.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.44	14.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
4.6.45	12.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
4.6.46	0.0	5.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.47	0.0	9.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0
4.6.48	0.0	9.0	0.0	0.0	60.00	70.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.6. 1	0.0	9.5	9.7	0.0	0.0	55.0	74.0	0.0	0.0	12.3
4.6. 2	0.0	10.2	9.7	0.0	0.0	58.0	74.0	0.0	0.0	12.3
4.6. 3	0.0	9.7	10.0	0.0	0.0	59.0	76.0	0.0	0.0	12.3
4.6. 4	0.0	10.2	10.0	0.0	0.0	59.0	77.0	0.0	0.0	12.3
4.6. 5	0.0	9.7	9.7	0.0	0.0	58.0	77.0	0.0	0.0	12.3
4.6. 6	0.0	11.0	10.5	0.0	0.0	63.0	76.0	0.0	0.0	12.3
4.6. 7	0.0	8.5	9.5	0.0	0.0	58.0	76.0	0.0	0.0	12.3
4.6. 8	0.0	9.7	9.2	0.0	0.0	57.0	76.0	0.0	0.0	12.3
4.6. 9	0.0	9.2	8.5	0.0	0.0	58.0	78.0	0.0	0.0	12.3
4.6.10	0.0	8.2	9.0	0.0	0.0	58.0	82.0	0.0	0.0	12.3
4.6.11	0.0	9.2	9.2	0.0	0.0	53.0	85.0	0.0	0.0	12.3
4.6.12	0.0	9.0	9.2	0.0	0.0	58.0	90.5	0.0	0.0	12.3
4.6.13	0.0	11.0	9.5	0.0	0.0	58.5	85.0	0.0	0.0	12.3
4.6.14	0.0	8.5	9.0	0.0	0.0	59.0	79.5	0.0	0.0	12.3
4.6.15	0.0	11.2	11.0	0.0	0.0	55.0	81.5	0.0	0.0	12.3
4.6.16	0.0	0.5	9.7	0.0	0.0	55.0	99.0	0.0	0.0	12.3
4.6.17	0.0	9.0	9.0	0.0	0.0	55.0	106.5	0.0	0.0	12.3
4.6.18	0.0	8.5	9.2	0.0	0.0	56.5	102.5	0.0	0.0	12.3
4.6.19	0.0	9.0	9.5	0.0	0.0	55.0	99.0	0.0	0.0	12.3
4.6.20	0.0	8.5	9.0	0.0	0.0	55.0	97.5	0.0	0.0	12.3
4.6.21	0.0	8.5	95.0	0.0	0.0	55.0	95.8	0.0	0.0	12.3
4.6.22	0.0	9.2	9.5	0.0	0.0	56.0	94.5	0.0	0.0	12.3
4.6.23	0.0	9.0	9.0	0.0	0.0	56.0	90.5	0.0	0.0	12.3
4.6.24	0.0	8.2	8.5	0.0	0.0	54.5	86.5	0.0	0.0	12.3
4.6.25	0.0	9.0	9.0	0.0	0.0	55.5	86.0	0.0	0.0	12.3

TABLE XXX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.6.1 TO 4.6.48 -# 0.49-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.6.26	0.0	8.5	9.2	0.0	0.0	54.5	74.5	0.0	0.0	12.3
4.6.27	0.0	9.2	9.2	0.0	0.0	56.0	78.0	0.0	0.0	12.3
4.6.28	0.0	9.0	9.5	0.0	0.0	58.0	81.5	0.0	0.0	12.3
4.6.29	0.0	8.0	8.5	0.0	0.0	59.5	84.0	0.0	0.0	12.3
4.6.30	0.0	8.2	8.7	0.0	0.0	58.0	85.0	0.0	0.0	12.3
4.6.31	0.0	8.2	8.2	0.0	0.0	57.0	84.5	0.0	0.0	12.3
4.6.32	0.0	9.0	9.7	0.0	0.0	57.0	84.0	0.0	0.0	12.3
4.6.33	0.0	9.0	9.2	0.0	0.0	57.0	81.5	0.0	0.0	12.3
4.6.34	0.0	9.7	9.5	0.0	0.0	65.0	83.0	0.0	0.0	12.3
4.6.35	0.0	9.0	9.2	0.0	0.0	60.5	90.5	0.0	0.0	12.3
4.6.36	0.0	9.0	9.5	0.0	0.0	57.0	96.0	0.0	0.0	12.3
4.6.37	0.0	8.5	9.0	0.0	0.0	58.5	90.5	0.0	0.0	12.3
4.6.38	0.0	8.0	8.2	0.0	0.0	56.5	97.0	0.0	0.0	12.3
4.6.39	0.0	9.0	9.5	0.0	0.0	58.0	94.0	0.0	0.0	12.3
4.6.40	0.0	9.5	9.7	0.0	0.0	56.5	95.4	0.0	0.0	12.3
4.6.41	0.0	9.0	9.5	0.0	0.0	56.5	97.5	0.0	0.0	12.3
4.6.42	0.0	8.7	9.5	0.0	0.0	57.0	97.5	0.0	0.0	12.3
4.6.43	0.0	9.5	9.5	0.0	0.0	57.0	98.5	0.0	0.0	12.3
4.6.44	0.0	8.7	9.0	0.0	0.0	57.5	97.0	0.0	0.0	12.3
4.6.45	0.0	8.5	9.0	0.0	0.0	59.0	92.0	0.0	0.0	12.3
4.6.46	0.0	8.5	8.7	0.0	0.0	58.5	95.7	0.0	0.0	12.3
4.6.47	0.0	8.0	9.0	0.0	0.0	58.5	99.5	0.0	0.0	12.3
4.6.48	0.0	9.2	9.7	0.0	0.0	59.0	106.9	0.0	0.0	12.3

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.6. 1	132.8	199.0	20.0	90.5	194.0	49.0	12.0	10.0	55.0
4.6. 2	199.0	262.8	20.0	194.0	241.0	50.0	12.0	10.0	59.0
4.6. 3	262.8	336.5	20.0	241.0	267.0	55.0	12.0	10.0	59.0
4.6. 4	336.5	432.3	20.0	267.0	302.0	50.0	12.0	10.0	59.0
4.6. 5	432.3	524.3	20.0	302.0	327.8	50.0	12.0	10.0	59.0
4.6. 6	133.3	202.0	25.0	90.0	121.0	40.0	12.0	10.0	63.0
4.6. 7	202.0	260.3	25.0	121.0	147.0	50.0	12.0	10.0	58.0
4.6. 8	260.3	301.0	30.0	147.0	186.0	50.0	12.0	10.0	58.0
4.6. 9	301.0	347.3	35.0	186.0	189.0	55.0	12.0	10.0	58.0
4.6.10	347.3	418.5	45.0	189.0	198.5	60.0	12.0	10.0	58.0

TABLE XXX (Contd.)

SHORTENED CORE BARREL TEST GROUP 4.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.6.1 TO 4.6.48 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.6.11	418.5	469.8	40.0	198.5	208.8	60.0	12.0	10.0	58.0
4.6.12	443.0	472.5	30.0	208.8	234.5	50.0	12.0	10.0	59.0
4.6.13	472.5	484.0	30.0	234.5	249.5	50.0	12.0	10.0	58.5
4.6.14	484.0	505.0	45.0	249.5	280.0	55.0	12.0	10.0	59.0
4.6.15	288.0	288.0	60.0	290.5	365.0	15.0	12.0	11.0	60.0
4.6.16	288.0	293.3	100.0	365.0	445.0	60.0	12.0	10.0	60.5
4.6.17	293.3	299.0	60.0	445.0	527.5	15.0	12.0	10.0	57.5
4.6.18	299.0	305.3	60.0	527.5	567.5	15.0	12.0	10.0	57.5
4.6.19	305.3	322.0	70.0	567.5	675.0	20.0	12.0	10.0	59.0
4.6.20	322.0	339.0	60.0	675.0	725.0	20.0	12.0	10.0	59.0
4.6.21	339.0	371.0	60.0	725.0	829.0	21.0	12.0	10.0	57.0
4.6.22	371.0	438.0	60.0	739.0	793.5	25.0	12.0	10.0	56.0
4.6.23	408.0	458.0	45.0	793.5	927.5	30.0	12.0	10.0	58.0
4.6.24	408.5	447.0	30.0	777.0	823.5	30.0	12.0	10.0	57.0
4.6.25	447.0	517.5	30.0	823.5	938.0	35.0	12.0	10.0	56.0
4.6.26	132.0	142.3	45.0	86.0	195.5	25.0	12.0	10.0	60.5
4.6.27	142.3	153.0	45.0	185.5	347.5	30.0	12.0	10.0	58.5
4.6.28	153.0	174.5	45.0	347.5	442.0	25.0	12.0	10.0	57.5
4.6.29	174.5	217.0	30.0	442.0	445.5	80.0	12.0	10.0	58.5
4.6.30	217.0	254.8	30.0	445.5	553.0	35.0	12.0	10.0	59.0
4.6.31	254.8	363.5	35.0	553.0	639.3	35.0	12.0	10.0	57.5
4.6.32	363.0	450.3	30.0	639.3	698.0	45.0	12.0	10.0	57.0
4.6.33	424.5	504.5	20.0	698.0	762.5	45.0	12.0	10.0	57.0
4.6.34	132.0	158.0	60.0	93.5	119.0	35.0	12.0	10.0	59.0
4.6.35	158.0	192.8	65.0	118.0	126.5	35.0	12.0	10.0	65.0
4.6.36	172.8	200.0	45.0	126.5	198.0	35.0	12.0	10.0	62.5
4.6.37	200.0	214.8	60.0	198.0	241.8	30.0	12.0	10.0	62.0
4.6.38	214.8	253.0	60.0	214.8	267.5	30.0	12.0	10.0	59.0
4.6.39	253.0	272.8	55.0	267.5	324.5	30.0	12.0	10.0	58.0
4.6.40	272.8	320.0	35.0	324.5	338.0	45.0	12.0	10.0	59.5
4.6.41	320.0	350.5	65.0	338.0	405.3	45.0	12.0	10.0	57.0
4.6.42	350.0	385.0	45.0	405.3	473.0	45.0	12.0	10.0	58.0
4.6.43	385.0	416.5	40.0	473.0	503.5	30.0	12.0	10.0	57.5
4.6.44	416.5	447.3	35.5	503.5	557.0	45.0	12.0	10.0	58.0
4.6.45	449.3	500.3	30.0	557.0	557.8	60.0	12.0	10.0	59.0
4.6.46	434.0	461.0	45.0	380.3	387.3	65.0	12.0	10.0	60.0
4.6.47	461.0	484.5	60.0	387.3	440.0	60.0	12.0	10.0	61.5
4.6.48	484.5	500.0	60.0	440.0	500.0	45.0	12.0	10.0	59.5

TABLE XXXI

SHORTENED CORE BARREL TEST GROUP 8.1

TRANSPARENT VESSEL TEST DATA FOR TESTS 8.1.1 TO 8.1.60 -- 1.45-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
8.1. 1	0.5208	0.1738	32.84	0.0	1.817	1.026	13.65	0.133	0.5088	0.2183
8.1. 2	0.5055	0.1740	32.84	0.0	2.450	1.060	13.24	0.179	0.5012	0.2535
8.1. 3	0.4979	0.1765	33.34	0.0	2.683	1.004	12.85	0.196	0.4956	0.2653
8.1. 4	0.4980	0.1763	33.34	0.0	2.500	1.014	12.87	0.183	0.4958	0.2561
8.1. 5	0.4937	0.1737	32.84	0.0	1.503	1.123	12.95	0.110	0.4955	0.1989
8.1. 6	0.5267	0.1803	34.40	0.0	2.525	1.027	13.31	0.194	0.5071	0.2574
8.1. 7	0.5147	0.1708	32.40	0.0	2.467	1.016	13.73	0.190	0.5080	0.2544
8.1. 8	0.5120	0.1701	32.40	0.0	2.717	0.986	13.71	0.199	0.5072	0.2670
8.1. 9	0.5094	0.1703	32.40	0.0	2.600	1.042	13.60	0.190	0.5053	0.2612
8.1.10	0.4715	0.1690	32.40	0.0	2.783	0.993	12.79	0.203	0.4883	0.2702
8.1.11	0.4621	0.1713	32.40	0.0	3.383	1.007	12.29	0.247	0.4810	0.2979
8.1.12	0.4528	0.1739	32.90	0.0	2.917	1.016	11.87	0.213	0.4745	0.2766
8.1.13	0.4596	0.1697	32.40	0.0	2.714	1.030	12.42	0.199	0.4816	0.2669
8.1.14	0.4499	0.1715	32.40	0.0	3.700	0.971	11.95	0.270	0.4745	0.3116
8.1.15	0.4468	0.1708	32.40	0.0	3.950	1.000	11.92	0.288	0.4733	0.3219
8.1.16	0.4445	0.1705	32.40	0.0	3.350	1.018	11.88	0.245	0.4723	0.2965
8.1.17	0.4933	0.1703	32.40	0.0	2.783	1.009	13.20	0.203	0.4978	0.2702
8.1.18	0.4429	0.1703	32.40	0.0	4.167	1.008	11.95	0.304	0.4716	0.3306
8.1.19	0.4421	0.1703	32.40	0.0	4.350	0.976	11.79	0.319	0.4709	0.3378
8.1.20	0.4879	0.1707	32.31	0.0	2.800	1.009	13.02	0.204	0.4947	0.2710
8.1.21	0.4711	0.1723	32.81	0.0	3.317	1.010	12.46	0.242	0.4850	0.2950
8.1.22	0.4584	0.1702	32.31	0.0	3.083	0.971	12.27	0.225	0.4799	0.2844
8.1.23	0.6514	0.1924	34.81	0.0	1.244	1.015	16.27	0.091	0.5622	0.1807
8.1.24	0.6507	0.1749	33.31	0.0	1.189	1.034	16.95	0.087	0.5678	0.1766
8.1.25	0.6452	0.1639	31.31	0.0	1.073	1.020	17.93	0.079	0.5747	0.1682
8.1.26	0.6351	0.1695	32.31	0.0	1.150	1.031	17.07	0.084	0.5654	0.1737
8.1.27	0.6266	0.1698	32.31	0.0	1.217	1.013	16.81	0.089	0.5613	0.1787
8.1.28	0.6718	0.1687	32.31	0.0	0.683	0.995	18.14	0.050	0.5822	0.1339
8.1.29	0.4560	0.1654	31.81	0.0	3.183	1.042	12.56	0.232	0.4820	0.2890
8.1.30	0.4520	0.1707	32.31	0.0	3.313	0.969	12.07	0.242	0.4762	0.2948
8.1.31	0.4516	0.1688	32.31	0.0	3.183	0.963	12.19	0.232	0.4772	0.2890
8.1.32	0.6343	0.1695	32.31	0.0	0.608	0.951	17.05	0.044	0.5651	0.1263
8.1.33	0.3514	0.1709	32.31	0.0	7.620	1.021	9.37	0.556	0.4198	0.4471
8.1.34	0.3528	0.1697	32.31	0.0	6.283	1.005	9.47	0.459	0.4213	0.4060
8.1.35	0.3603	0.1747	33.31	0.0	6.567	1.051	9.39	0.479	0.4227	0.4151
8.1.36	0.3578	0.1761	33.31	0.0	5.412	1.023	9.25	0.395	0.4203	0.3768
8.1.37	0.3547	0.1703	32.31	0.0	3.800	0.989	9.47	0.277	0.4216	0.3157
8.1.38	0.3553	0.1754	33.31	0.0	6.650	1.023	9.23	0.496	0.4193	0.4177
8.1.39	0.2443	0.1758	33.31	0.0	12.725	1.013	6.33	0.929	0.3475	0.5778
8.1.40	0.2511	0.1709	32.25	0.0	9.620	1.002	6.70	0.702	0.3548	0.5024

TABLE XXXI (Contd.)

SHORTENED CORE BARREL TEST GROUP 8.1

SUMMARY OF CALCULATED RESULTS FOR TESTS 8.1.1 TO 8.1.60 -- 1.45 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
8.1.41	0.4525	0.1699	32.25	0.0	3.267	1.022	12.14	0.239	0.4770	0.2928
8.1.42	0.4501	0.1705	32.25	0.0	3.733	0.997	12.02	0.273	0.4753	0.3130
8.1.43	0.4998	0.1705	32.25	0.0	2.700	1.010	13.35	0.197	0.5008	0.2662
8.1.44	0.5029	0.1700	32.25	0.0	2.650	1.011	13.48	0.193	0.5028	0.2637
8.1.45	0.5592	0.1702	32.25	0.0	1.867	1.031	14.97	0.136	0.5300	0.2213
8.1.46	0.5537	0.1702	32.25	0.0	1.867	1.031	14.92	0.136	0.5274	0.2213
8.1.47	0.4892	0.1694	32.25	0.0	2.567	1.013	13.16	0.187	0.4963	0.2595
8.1.48	0.4857	0.1700	32.25	0.0	2.733	1.024	13.01	0.200	0.4941	0.2678
8.1.49	0.4853	0.1702	32.25	0.0	3.000	0.989	12.99	0.219	0.4938	0.2805
8.1.50	0.5649	0.1661	32.25	0.0	1.767	1.027	15.49	0.129	0.5359	0.2153
8.1.51	0.5629	0.1704	32.25	0.0	1.967	1.012	15.05	0.144	0.5317	0.2272
8.1.52	0.5442	0.1699	32.25	0.0	2.033	1.048	14.60	0.148	0.5231	0.2310
8.1.53	0.5391	0.1685	32.25	0.0	2.300	1.020	14.57	0.168	0.5217	0.2456
8.1.54	0.5401	0.1684	32.25	0.0	2.433	1.015	14.61	0.178	0.5223	0.2527
8.1.55	0.5382	0.1690	32.25	0.0	2.033	1.031	14.51	0.149	0.5208	0.2310
8.1.56	0.5391	0.1680	32.25	0.0	2.450	1.028	14.62	0.179	0.5221	0.2535
8.1.57	0.4751	0.1690	32.25	0.0	3.033	1.035	12.91	0.221	0.4894	0.2821
8.1.58	0.4762	0.1700	32.25	0.0	3.311	1.025	12.76	0.242	0.4892	0.2948
8.1.59	0.4693	0.1695	32.25	0.0	3.533	0.983	12.61	0.258	0.4860	0.3045
8.1.60	0.6091	0.1695	32.25	0.0	1.550	1.047	16.37	0.113	0.5537	0.2017

TABLE XXXI (Contd.)

SHORTENED CORE BARREL TEST GROUP 8.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 8.1.1 TO 8.1.60 -- 1.45-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	PM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	PM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
8.1.1	0.0	0.0	0.0	49.8	0.0	0.0	0.0	0.0	63.46	0.0
8.1.2	0.0	0.0	0.0	39.8	0.0	0.0	0.0	0.0	63.46	0.0
8.1.3	0.0	0.0	0.0	29.9	0.0	0.0	0.0	0.0	63.46	0.0
8.1.4	0.0	0.0	0.0	19.9	0.0	0.0	0.0	0.0	63.46	0.0
8.1.5	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.6	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.7	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.8	0.0	0.0	0.0	35.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.9	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.10	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.11	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.12	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.13	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.14	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.15	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.16	0.0	0.0	0.0	35.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.17	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.18	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.19	0.0	0.0	55.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.20	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.21	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.22	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.23	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.24	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.25	0.0	0.0	0.0	35.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.26	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.27	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.28	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.29	0.0	0.0	65.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.30	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.31	0.0	0.0	55.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.32	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	81.67	0.0
8.1.33	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	44.23	0.0
8.1.34	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	44.23	0.0
8.1.35	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	44.23	0.0
8.1.36	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	44.23	0.0
8.1.37	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	44.23	0.0
8.1.38	0.0	0.0	85.0	0.0	0.0	0.0	0.0	0.0	44.23	0.0
8.1.39	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0
8.1.40	0.0	0.0	112.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0

TABLE XXXI (Contd.)

SHORTENED CORE BARREL TEST GROUP 8.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 8.1.1 TO 8.1.60 -- 1.45-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
8.1.41	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.42	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.43	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.44	0.0	0.0	0.0	35.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.45	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.46	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.47	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.48	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.49	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.50	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.51	0.0	0.0	55.0	0.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.52	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.53	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.54	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.55	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.56	0.0	0.0	0.0	35.0	0.0	0.0	0.0	0.0	63.46	0.0
8.1.57	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.58	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.59	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	56.03	0.0
8.1.60	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	81.67	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
8.1. 1	20.0	0.0	21.0	90.0	36.0	46.0	90.0	101.0	97.0	12.3
8.1. 2	19.0	0.0	19.0	90.0	35.0	48.5	103.0	118.0	111.0	12.3
8.1. 3	19.0	0.0	19.0	89.5	35.0	48.5	110.0	124.0	118.0	12.3
8.1. 4	19.0	0.0	20.0	89.0	35.0	49.5	109.0	121.0	116.0	12.3
8.1. 5	13.5	0.0	18.0	89.0	35.0	48.0	113.0	126.0	120.0	12.3
8.1. 6	19.5	0.0	20.0	90.0	35.0	50.0	85.0	95.0	0.0	12.4
8.1. 7	13.5	0.0	19.0	90.0	35.0	50.0	94.0	108.0	0.0	12.4
8.1. 8	19.0	0.0	19.0	90.0	35.0	51.5	97.0	111.0	0.0	12.4
8.1. 9	19.0	0.0	19.0	90.0	35.0	51.5	100.0	115.0	0.0	12.4
8.1.10	13.0	0.0	18.5	92.0	35.0	50.0	89.0	98.0	0.0	12.4

TABLE XXXI (Contd.)

SHORTENED CORE BARREL TEST GROUP 8.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 8.1.1 TO 8.1.60 -- 1.45-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
8.1.11	13.5	0.0	18.5	91.0	35.0	50.0	92.0	104.0	0.0	12.4
8.1.12	19.0	0.0	19.0	90.0	0.0	50.5	97.0	110.0	0.0	12.4
8.1.13	18.5	0.0	19.0	89.0	0.0	54.5	86.0	96.0	0.0	12.4
8.1.14	18.5	0.0	18.5	89.0	0.0	49.5	98.0	108.0	0.0	12.4
8.1.15	13.0	0.0	18.5	89.0	0.0	51.5	98.0	112.0	0.0	12.4
8.1.16	13.0	0.0	18.5	89.0	0.0	52.0	100.0	115.0	0.0	12.4
8.1.17	13.5	0.0	18.5	98.0	0.0	51.0	106.0	121.0	0.0	12.4
8.1.18	13.0	0.0	18.5	89.0	0.0	50.5	104.0	117.0	0.0	12.4
8.1.19	13.5	0.0	18.5	89.0	0.0	50.5	105.0	118.0	0.0	12.4
8.1.20	13.0	0.0	19.0	93.0	0.0	51.5	79.0	84.0	0.0	12.3
8.1.21	19.0	0.0	19.0	92.0	0.0	52.0	86.0	98.0	0.0	12.3
8.1.22	13.5	0.0	19.0	91.0	0.0	50.5	94.0	108.0	0.0	12.3
8.1.23	20.5	0.0	21.5	90.0	0.0	50.0	101.0	117.0	0.0	12.3
8.1.24	19.0	0.0	19.5	89.0	0.0	63.0	97.0	112.0	0.0	12.3
8.1.25	17.5	0.0	18.0	89.5	0.0	52.5	100.0	114.0	0.0	12.3
8.1.26	18.5	0.0	19.0	89.0	0.0	50.5	110.0	126.0	0.0	12.3
8.1.27	13.0	0.0	19.0	89.0	0.0	51.0	117.0	134.0	0.0	12.3
8.1.28	13.0	0.0	19.0	91.0	0.0	60.0	93.0	105.0	0.0	12.3
8.1.29	13.5	0.0	18.5	91.0	0.0	49.5	99.0	111.0	0.0	12.3
8.1.30	13.5	0.0	18.5	91.0	0.0	50.5	103.0	116.0	0.0	12.3
8.1.31	13.5	0.0	18.0	93.0	0.0	54.0	98.0	111.0	0.0	12.3
8.1.32	18.0	0.0	19.0	88.0	0.0	52.5	107.0	121.0	0.0	12.3
8.1.33	20.0	0.0	19.0	91.0	0.0	50.5	111.0	125.0	0.0	12.3
8.1.34	19.0	0.0	18.4	90.0	0.0	51.0	104.0	117.0	0.0	12.3
8.1.35	21.0	0.0	19.5	90.0	0.0	48.5	94.0	105.0	0.0	12.3
8.1.36	19.5	0.0	19.5	90.0	0.0	49.0	97.0	109.0	0.0	12.3
8.1.37	18.5	0.0	19.0	90.0	0.0	51.0	101.0	115.0	0.0	12.3
8.1.38	20.0	0.0	19.5	90.0	0.0	51.0	101.0	113.0	0.0	12.3
8.1.39	24.0	0.0	19.5	92.5	0.0	51.0	98.0	109.0	0.0	12.3
8.1.40	21.0	0.0	19.0	93.0	0.0	49.5	95.5	96.0	0.0	12.3
8.1.41	19.0	0.0	19.0	89.0	0.0	49.5	91.0	104.0	0.0	12.3
8.1.42	13.5	0.0	19.0	89.0	0.0	49.5	94.0	107.0	0.0	12.3
8.1.43	13.5	0.0	19.0	98.0	0.0	49.5	94.0	96.0	0.0	12.3
8.1.44	19.5	0.0	19.0	97.0	0.0	50.5	88.5	87.5	0.0	12.3
8.1.45	13.5	0.0	19.0	95.0	0.0	50.0	85.0	97.5	0.0	12.3
8.1.46	13.5	0.0	19.0	95.0	0.0	50.0	86.5	93.0	0.0	12.3
8.1.47	13.5	0.0	19.0	94.5	0.0	52.5	85.0	90.0	0.0	12.3
8.1.48	13.5	0.0	19.0	94.5	0.0	50.0	86.5	94.0	0.0	12.3
8.1.49	13.5	0.0	19.0	95.0	0.0	50.5	89.0	97.0	0.0	12.3
8.1.50	13.0	0.0	19.0	95.0	0.0	48.5	78.0	92.0	0.0	12.3

TABLE XXXI (Contd.)

SHORTENED CORE BARREL TEST GROUP 8.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 8.1.1 TO 8.1.60 -- 1.45-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
8.1.51	13.0	0.0	19.0	96.0	0.0	50.5	81.0	89.0	0.0	12.3
8.1.52	18.0	0.0	19.5	94.5	0.0	51.5	88.5	100.0	0.0	12.3
8.1.53	18.0	0.0	19.0	93.5	0.0	55.0	90.0	100.0	0.0	12.3
8.1.54	13.0	0.0	19.0	93.5	0.0	53.5	90.0	99.0	0.0	12.3
8.1.55	18.0	0.0	18.5	93.5	0.0	53.5	92.0	101.0	0.0	12.3
8.1.56	13.0	0.0	19.0	93.5	0.0	54.5	91.0	100.0	0.0	12.3
8.1.57	13.0	0.0	18.5	93.5	0.0	51.0	92.0	101.0	0.0	12.3
8.1.58	13.0	0.0	18.5	94.5	0.0	51.5	95.0	105.0	0.0	12.3
8.1.59	17.5	0.0	18.5	95.0	0.0	53.0	103.0	116.0	0.0	12.3
8.1.60	18.0	0.0	19.0	94.0	0.0	52.5	108.0	120.5	0.0	12.3

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
8.1. 1	142.0	251.0	60.0	103.5	262.0	30.0	12.0	20.5	50.0
8.1. 2	251.0	324.5	30.0	262.0	364.5	30.0	12.0	20.5	49.5
8.1. 3	324.5	405.0	30.0	364.5	409.0	30.0	12.0	21.0	50.0
8.1. 4	235.0	347.5	45.0	257.0	280.0	75.0	12.0	21.0	50.5
8.1. 5	347.5	438.0	60.0	280.0	282.9	60.0	12.0	20.5	50.5
8.1. 6	142.5	243.5	40.0	116.0	267.0	25.0	12.0	22.0	55.0
8.1. 7	243.5	317.5	30.0	267.0	383.5	30.0	12.0	20.0	52.0
8.1. 8	317.5	399.0	30.0	383.5	446.0	30.0	12.0	20.0	54.0
8.1. 9	399.0	477.0	30.0	446.0	507.0	60.0	12.0	20.0	53.5
8.1.10	141.5	225.0	30.0	110.0	233.5	30.0	12.0	20.0	60.5
8.1.11	225.0	326.5	30.0	233.5	300.0	30.0	12.0	20.0	50.5
8.1.12	326.5	414.0	30.0	120.5	180.0	45.0	12.0	20.5	51.0
8.1.13	141.5	236.5	35.0	180.0	189.0	60.0	12.0	20.0	58.5
8.1.14	236.5	347.5	30.0	189.0	321.0	30.0	12.0	20.0	50.0
8.1.15	347.5	466.0	30.0	321.0	390.0	30.0	12.0	20.0	52.0
8.1.16	353.5	454.0	30.0	390.0	438.0	30.0	12.0	20.0	53.0
8.1.17	317.0	400.5	30.0	265.0	392.0	30.0	12.0	20.0	53.5
8.1.18	152.5	277.5	30.0	139.5	253.0	40.0	12.0	20.0	53.5
8.1.19	277.5	408.0	30.0	253.0	346.5	30.0	12.0	20.0	52.0
8.1.20	142.5	226.5	30.0	116.0	284.5	30.0	12.0	20.0	51.0
8.1.21	226.5	326.0	30.0	284.5	480.0	30.0	12.0	20.5	54.0
8.1.22	209.0	301.5	30.0	368.0	518.5	30.0	12.0	20.0	52.5
8.1.23	144.5	200.5	45.0	260.0	387.5	25.0	12.0	22.5	55.0
8.1.24	209.5	354.0	45.0	132.0	246.0	25.0	12.0	21.0	54.0
8.1.25	189.0	237.5	45.0	117.0	233.5	30.0	12.0	19.0	55.5

TABLE XXXI (Contd.)

SHORTENED CORE BARREL TEST GROUP 8.1

EXPERIMENTAL MEASUREMENTS FOR TESTS 8.1.1 TO 8.1.60 -- 1.45-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
8.1.26	237.5	306.5	60.0	233.5	328.0	30.0	12.0	20.0	54.5
8.1.27	305.5	379.5	60.0	329.0	376.0	30.0	12.0	20.0	53.5
8.1.28	141.5	182.5	60.0	110.0	131.0	30.0	12.0	20.0	57.0
8.1.29	182.5	278.0	30.0	131.0	318.0	30.0	12.0	19.5	59.0
8.1.30	278.0	410.5	40.0	318.0	461.0	30.0	12.0	20.0	51.0
8.1.31	142.5	238.0	30.0	122.5	248.0	30.0	12.0	20.0	56.5
8.1.32	238.0	274.5	60.0	248.0	251.0	60.0	12.0	20.0	54.5
8.1.33	274.5	465.0	25.0	251.0	380.0	25.0	12.0	20.0	50.5
8.1.34	163.5	349.0	30.0	156.5	303.5	30.0	12.0	20.0	54.0
8.1.35	141.5	338.5	30.0	110.0	311.0	25.0	12.0	21.0	54.5
8.1.36	151.5	368.0	40.0	154.0	279.0	40.0	12.0	21.0	50.5
8.1.37	363.0	482.0	30.0	279.0	330.0	30.0	12.0	20.0	52.0
8.1.38	254.0	453.5	30.0	150.5	313.5	30.0	12.0	21.0	52.5
8.1.39	187.5	442.0	20.0	313.5	481.5	20.0	12.0	21.0	51.5
8.1.40	212.5	453.0	25.0	248.0	397.5	25.0	12.0	20.0	49.5
8.1.41	144.5	242.5	30.0	127.0	223.0	25.0	12.0	20.0	52.5
8.1.42	242.5	354.5	30.0	223.0	298.0	30.0	12.0	20.0	50.5
8.1.43	354.5	435.5	30.0	298.0	385.5	30.0	12.0	20.0	50.5
8.1.44	231.5	311.0	30.0	232.5	300.5	30.0	12.0	20.0	52.0
8.1.45	311.0	367.0	30.0	300.5	416.5	30.0	12.0	20.0	51.5
8.1.46	367.0	423.0	30.0	416.5	554.0	30.0	12.0	20.0	51.5
8.1.47	143.0	220.0	30.0	221.0	334.0	30.0	12.0	20.0	54.0
8.1.48	220.0	302.0	30.0	334.0	465.5	30.0	12.0	20.0	52.0
8.1.49	302.0	392.0	30.0	465.5	540.5	30.0	12.0	20.0	51.5
8.1.50	140.0	193.0	30.0	108.5	244.5	20.0	12.0	20.0	64.0
8.1.51	193.0	252.0	30.0	244.5	360.0	20.0	12.0	20.0	51.0
8.1.52	252.0	313.0	30.0	360.0	465.0	20.0	12.0	20.0	52.5
8.1.53	141.5	210.5	30.0	119.5	187.0	20.0	12.0	20.0	56.5
8.1.54	210.5	283.5	30.0	187.0	241.0	30.0	12.0	20.0	57.0
8.1.55	283.5	344.5	30.0	241.0	266.0	30.0	12.0	20.0	55.0
8.1.56	141.5	215.0	30.0	114.5	191.0	30.0	12.0	20.0	59.0
8.1.57	215.0	306.0	30.0	191.0	303.0	20.0	12.0	20.0	55.0
8.1.58	306.0	407.0	30.5	303.0	417.5	30.0	12.0	20.0	52.0
8.1.59	316.0	422.0	30.0	343.0	401.0	30.0	12.0	20.0	53.5
8.1.60	363.5	410.0	30.0	364.0	464.0	20.0	12.0	20.0	53.5

TABLE XXXII

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

TRANSPARENT VESSEL TEST DATA FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JC)**1/2	(JL)**1/2
1.3. 1	0.1270	0.1161	22.32	0.0485	0.159	1.021	17.65	0.041	0.7441	0.1731
1.3. 2	0.1279	0.1163	22.32	0.0481	0.165	1.008	17.74	0.043	0.7464	0.1762
1.3. 3	0.1252	0.1163	22.32	0.0476	0.228	0.995	17.36	0.059	0.7383	0.2070
1.3. 4	0.1247	0.1166	22.32	0.0467	0.161	1.024	17.26	0.042	0.7366	0.1741
1.3. 5	0.0925	0.1166	22.32	0.0468	0.475	1.005	12.81	0.123	0.6345	0.2989
1.3. 6	0.0924	0.1166	22.32	0.0478	0.594	1.006	12.80	0.154	0.6342	0.3343
1.3. 7	0.0924	0.1168	22.32	0.0468	0.617	0.985	12.77	0.159	0.6339	0.3405
1.3. 8	0.0924	0.1166	22.32	0.0468	0.535	1.032	12.80	0.138	0.6342	0.3172
1.3. 9	0.0924	0.1166	22.32	0.0468	0.487	1.064	12.80	0.126	0.6342	0.3028
1.3.10	0.0628	0.1168	22.37	0.0484	1.256	0.992	8.68	0.325	0.5224	0.4861
1.3.11	0.0625	0.1168	22.37	0.0479	1.261	0.998	8.64	0.326	0.5213	0.4869
1.3.12	0.0632	0.1168	22.37	0.0481	1.379	1.013	8.73	0.356	0.5241	0.5092
1.3.13	0.0635	0.1163	22.37	0.0478	1.209	0.982	8.81	0.313	0.5259	0.4768
1.3.14	0.0311	0.1168	22.37	0.0486	2.821	1.016	4.30	0.730	0.3680	0.7284
1.3.15	0.0308	0.1168	22.37	0.0479	2.403	0.972	4.26	0.623	0.3661	0.6730
1.3.16	0.0312	0.1168	22.37	0.0484	2.586	1.003	4.31	0.669	0.3681	0.6973
1.3.17	0.0309	0.1166	22.37	0.0481	2.017	0.997	4.28	0.521	0.3670	0.6158
1.3.18	0.0156	0.1170	22.37	0.0491	3.450	1.004	2.16	0.892	0.2606	0.8055
1.3.19	0.0155	0.1170	22.37	0.0485	2.883	0.998	2.13	0.746	0.2592	0.7364
1.3.20	0.0154	0.1170	22.37	0.0479	2.286	0.913	2.12	0.591	0.2585	0.6556
1.3.21	0.0469	0.1170	22.37	0.0491	1.769	1.000	6.47	0.457	0.4512	0.5767
1.3.22	0.0467	0.1168	22.37	0.0486	1.806	0.984	6.46	0.467	0.4507	0.5827
1.3.23	0.0470	0.1168	22.37	0.0494	1.883	1.014	6.49	0.497	0.4519	0.5951
1.3.24	0.0467	0.1168	22.37	0.0491	1.586	1.039	6.46	0.410	0.4507	0.5461
1.3.25	0.0789	0.1163	22.37	0.0486	0.850	1.022	10.94	0.220	0.5862	0.3998
1.3.26	0.0781	0.1168	22.37	0.0474	0.800	0.996	10.79	0.207	0.5825	0.3879
1.3.27	0.0776	0.1168	22.37	0.0468	0.906	0.988	10.73	0.234	0.5810	0.4127
1.3.28	0.0785	0.1168	22.37	0.0471	0.811	0.999	10.84	0.210	0.5841	0.3906
1.3.29	0.1108	0.1168	22.37	0.0481	0.271	1.008	15.31	0.070	0.6941	0.2257
1.3.30	0.1097	0.1168	22.37	0.0476	0.256	0.994	15.15	0.066	0.6904	0.2192
1.3.31	0.1109	0.1168	22.37	0.0479	0.350	1.038	15.31	0.091	0.6941	0.2566
1.3.32	0.1084	0.1163	22.37	0.0471	0.342	1.006	15.03	0.098	0.6870	0.2535
1.3.33	0.1096	0.1166	22.37	0.0474	0.254	1.024	15.17	0.066	0.6904	0.2186
1.3.34	0.1272	0.1170	22.37	0.0998	0.237	1.011	17.55	0.061	0.7434	0.2112
1.3.35	0.1232	0.1170	22.37	0.0958	0.167	1.013	16.99	0.043	0.7315	0.1770
1.3.36	0.1257	0.1167	22.43	0.0964	0.192	1.011	17.39	0.050	0.7395	0.1899
1.3.37	0.1244	0.1169	22.43	0.0959	0.118	0.970	17.17	0.030	0.7352	0.1489
1.3.38	0.1240	0.1169	22.43	0.0937	0.092	0.948	17.11	0.024	0.7339	0.1313
1.3.39	0.0946	0.1169	22.43	0.0979	0.495	1.013	13.06	0.129	0.6412	0.3051
1.3.40	0.0946	0.1169	22.43	0.0974	0.450	0.993	13.06	0.116	0.6412	0.2909

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP I.3

SUMMARY OF CALCULATED RESULTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35 IN. DOWNCOMER GAP

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
1.3.41	0.0946	0.1169	22.43	0.0959	0.486	0.993	13.06	0.126	0.6412	0.3024
1.3.42	0.0941	0.1169	22.43	0.0954	0.465	1.000	12.99	0.120	0.6395	0.2957
1.3.43	0.0950	0.1169	22.43	0.0958	0.464	1.074	13.12	0.120	0.6426	0.2953
1.3.44	0.0623	0.1171	22.43	0.0979	1.394	0.995	8.58	0.360	0.5201	0.5120
1.3.45	0.0616	0.1171	22.43	0.0969	1.225	1.001	8.49	0.317	0.5172	0.4800
1.3.46	0.0623	0.1173	22.43	0.0954	1.275	0.990	8.57	0.330	0.5198	0.4897
1.3.47	0.0616	0.1173	22.43	0.0942	1.139	1.020	8.48	0.295	0.5170	0.4628
1.3.48	0.0309	0.1173	22.43	0.0985	2.106	0.928	4.25	0.545	0.3659	0.6294
1.3.49	0.0310	0.1173	22.43	0.1019	2.525	0.987	4.27	0.653	0.3668	0.6891
1.3.50	0.0314	0.1173	22.43	0.1004	2.142	0.978	4.31	0.554	0.3687	0.6346
1.3.51	0.0312	0.1173	22.43	0.0979	1.942	1.010	4.29	0.502	0.3679	0.6043
1.3.52	0.0153	0.1173	22.43	0.1011	2.956	1.011	2.11	0.764	0.2579	0.7456
1.3.53	0.0153	0.1173	22.43	0.1001	2.392	0.996	2.11	0.618	0.2578	0.6707
1.3.54	0.0154	0.1173	22.43	0.0970	2.050	0.991	2.12	0.530	0.2585	0.6209
1.3.55	0.0459	0.1173	22.43	0.0990	1.809	0.998	6.32	0.469	0.4463	0.5832
1.3.56	0.0467	0.1173	22.43	0.0995	1.983	1.015	6.42	0.513	0.4500	0.6107
1.3.57	0.0472	0.1173	22.43	0.0984	1.733	1.001	6.49	0.449	0.4524	0.5709
1.3.58	0.0792	0.1169	22.43	0.1018	0.862	1.020	10.94	0.223	0.5868	0.4027
1.3.59	0.0784	0.1169	22.43	0.0988	0.810	0.993	10.83	0.209	0.5837	0.3903
1.3.60	0.0772	0.1169	22.43	0.0958	0.794	1.005	10.66	0.205	0.5793	0.3865
1.3.61	0.0773	0.1169	22.43	0.0948	0.818	1.041	10.67	0.212	0.5796	0.3923
1.3.62	0.1115	0.1276	24.43	0.1019	0.229	1.017	14.11	0.059	0.6811	0.2076
1.3.63	0.1080	0.1167	22.43	0.0964	0.315	1.031	14.94	0.091	0.6854	0.2434
1.3.64	0.1092	0.1167	22.43	0.0958	0.278	0.992	15.10	0.072	0.6892	0.2286
1.3.65	0.1086	0.1167	22.43	0.0937	0.267	1.019	15.02	0.069	0.6873	0.2239

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
1.3. 1	30.0	10.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3. 2	20.0	10.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3. 3	20.0	0.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3. 4	10.0	0.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3. 5	30.0	10.0	0.0	0.0	0.0	40.00	20.00	0.0	0.0	0.0
1.3. 6	30.0	0.0	0.0	0.0	0.0	40.00	20.00	0.0	0.0	0.0
1.3. 7	25.0	0.0	0.0	0.0	0.0	40.00	20.00	0.0	0.0	0.0
1.3. 8	15.0	0.0	0.0	0.0	0.0	40.00	20.00	0.0	0.0	0.0
1.3. 9	0.0	6.0	0.0	0.0	0.0	40.00	20.00	0.0	0.0	0.0
1.3.10	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.11	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.12	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.13	12.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.14	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.15	20.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.16	20.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.17	21.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.18	30.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
1.3.19	20.0	10.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
1.3.20	25.0	0.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0
1.3.21	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.22	20.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.23	25.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.24	16.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.25	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.26	20.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.27	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.28	0.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.29	30.0	10.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.30	20.0	10.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.31	20.0	0.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.32	20.0	0.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.33	0.0	6.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.34	30.0	10.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3.35	30.0	0.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3.36	20.0	0.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3.37	0.0	10.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3.38	0.0	4.0	0.0	0.0	0.0	60.00	20.00	0.0	0.0	0.0
1.3.39	30.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.3.40	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
1.3.41	20.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.3.42	0.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.3.43	0.0	5.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.3.44	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.45	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.46	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.47	12.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.3.48	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.49	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.50	20.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.51	20.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.3.52	30.0	10.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0	0.0
1.3.53	20.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.3.54	20.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.3.55	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.56	20.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.57	20.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.3.58	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.59	20.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.60	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.61	0.0	8.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.3.62	30.0	10.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.63	20.0	10.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.64	20.0	0.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0
1.3.65	0.0	6.0	0.0	0.0	0.0	50.00	20.00	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
1.3. 1	0.0	11.5	11.0	0.0	0.0	52.0	75.0	0.0	0.0	12.3
1.3. 2	0.0	11.2	10.7	0.0	0.0	55.0	62.0	0.0	0.0	12.3
1.3. 3	0.0	10.7	10.0	0.0	0.0	55.0	68.0	0.0	0.0	12.3
1.3. 4	0.0	10.0	10.0	0.0	0.0	56.0	72.0	0.0	0.0	12.3
1.3. 5	0.0	10.0	10.0	0.0	0.0	54.0	74.0	0.0	0.0	12.3

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
1.3.6	0.0	11.0	10.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
1.3.7	0.0	10.0	10.0	0.0	0.0	54.0	75.0	0.0	0.0	12.3
1.3.8	0.0	10.0	10.0	0.0	0.0	54.0	75.0	0.0	0.0	12.3
1.3.9	0.0	10.0	10.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
1.3.10	0.0	11.5	10.7	0.0	0.0	55.0	75.0	0.0	0.0	12.4
1.3.11	0.0	11.0	10.5	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.12	0.0	11.2	11.0	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.13	0.0	11.0	11.2	0.0	0.0	57.0	74.0	0.0	0.0	12.4
1.3.14	0.0	11.7	10.7	0.0	0.0	55.0	75.0	0.0	0.0	12.4
1.3.15	0.0	11.0	10.2	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.16	0.0	11.5	10.7	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.17	0.0	11.2	10.5	0.0	0.0	56.0	76.0	0.0	0.0	12.4
1.3.18	0.0	12.2	11.0	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.3.19	0.0	11.5	10.5	0.0	0.0	53.0	76.0	0.0	0.0	12.4
1.3.20	0.0	11.0	10.2	0.0	0.0	54.0	76.0	0.0	0.0	12.4
1.3.21	0.0	12.2	10.7	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.3.22	0.0	11.7	10.5	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.23	0.0	11.5	10.7	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.24	0.0	11.2	10.5	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.25	0.0	11.7	10.7	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.26	0.0	10.5	10.2	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.27	0.0	10.0	10.0	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.28	0.0	10.2	10.5	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.29	0.0	11.2	11.0	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.30	0.0	10.7	10.5	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.31	0.0	11.0	11.0	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.32	0.0	10.2	10.0	0.0	0.0	54.0	75.0	0.0	0.0	12.4
1.3.33	0.0	10.5	10.5	0.0	0.0	55.0	75.0	0.0	0.0	12.4
1.3.34	0.0	13.0	11.0	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.35	0.0	11.0	9.5	0.0	0.0	55.0	74.0	0.0	0.0	12.4
1.3.36	0.0	11.2	10.5	0.0	0.0	55.0	77.0	0.0	0.0	12.4
1.3.37	0.0	11.0	10.0	0.0	0.0	55.0	77.0	0.0	0.0	12.4
1.3.38	0.0	10.0	9.7	0.0	0.0	56.0	75.0	0.0	0.0	12.4
1.3.39	0.0	12.0	10.5	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.3.40	0.0	11.7	10.5	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.3.41	0.0	11.0	10.5	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.3.42	0.0	10.7	10.2	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.3.43	0.0	11.0	10.7	0.0	0.0	56.0	77.0	0.0	0.0	12.4
1.3.44	0.0	12.0	10.5	0.0	0.0	55.0	79.0	0.0	0.0	12.4
1.3.45	0.0	11.5	10.0	0.0	0.0	55.0	79.0	0.0	0.0	12.4

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
1.3.46	0.0	10.7	10.5	0.0	0.0	55.0	79.0	0.0	0.0	12.4
1.3.47	0.0	10.2	10.0	0.0	0.0	56.0	79.0	0.0	0.0	12.4
1.3.48	0.0	12.2	10.5	0.0	0.0	54.0	80.0	0.0	0.0	12.4
1.3.49	0.0	14.0	10.7	0.0	0.0	54.0	81.0	0.0	0.0	12.4
1.3.50	0.0	13.2	11.2	0.0	0.0	55.0	81.0	0.0	0.0	12.4
1.3.51	0.0	12.0	11.0	0.0	0.0	55.0	80.0	0.0	0.0	12.4
1.3.52	0.0	13.5	10.2	0.0	0.0	53.0	81.0	0.0	0.0	12.4
1.3.53	0.0	13.0	10.2	0.0	0.0	53.0	82.0	0.0	0.0	12.4
1.3.54	0.0	11.5	10.5	0.0	0.0	54.0	82.0	0.0	0.0	12.4
1.3.55	0.0	12.5	10.0	0.0	0.0	54.0	82.0	0.0	0.0	12.4
1.3.56	0.0	12.7	10.7	0.0	0.0	54.0	82.0	0.0	0.0	12.4
1.3.57	0.0	12.2	11.2	0.0	0.0	55.0	82.0	0.0	0.0	12.4
1.3.58	0.0	14.0	11.2	0.0	0.0	55.0	82.0	0.0	0.0	12.4
1.3.59	0.0	12.5	10.7	0.0	0.0	56.0	82.0	0.0	0.0	12.4
1.3.60	0.0	11.0	10.0	0.0	0.0	56.0	81.0	0.0	0.0	12.4
1.3.61	0.0	10.5	10.0	0.0	0.0	56.0	80.0	0.0	0.0	12.4
1.3.62	0.0	14.0	11.5	0.0	0.0	55.0	80.0	0.0	0.0	12.4
1.3.63	0.0	11.2	10.0	0.0	0.0	55.0	80.0	0.0	0.0	12.4
1.3.64	0.0	11.0	10.5	0.0	0.0	56.0	80.0	0.0	0.0	12.4
1.3.65	0.0	10.0	10.2	0.0	0.0	56.0	80.0	0.0	0.0	12.4

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TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
1.3. 1	133.3	140.5	45.5	95.0	233.0	25.0	12.0	10.0	59.0
1.3. 2	140.5	148.8	50.0	233.0	334.0	25.0	12.0	10.0	59.0
1.3. 3	148.8	159.0	45.0	334.0	397.5	25.0	12.0	10.0	58.0
1.3. 4	159.0	166.3	45.0	397.5	448.0	40.0	12.0	10.0	57.0
1.3. 5	166.3	194.8	60.0	94.5	273.5	35.0	12.0	10.0	57.0
1.3. 6	194.8	221.5	45.0	273.5	381.5	30.0	12.0	10.0	57.0
1.3. 7	221.5	249.3	45.0	381.5	479.8	35.0	12.0	10.0	56.0
1.3. 8	133.0	159.8	50.0	90.0	138.5	30.0	12.0	10.0	57.0
1.3. 9	159.8	179.3	40.0	138.5	158.5	50.0	12.0	10.0	57.0
1.3.10	133.0	183.3	40.0	86.0	192.5	25.0	12.0	10.0	57.0
1.3.11	133.3	241.3	46.0	192.5	294.0	35.0	12.0	10.0	57.0
1.3.12	241.3	289.5	35.0	294.0	351.5	40.0	12.0	10.0	57.0
1.3.13	289.5	356.0	55.0	351.5	373.0	50.0	12.0	10.0	59.0
1.3.14	356.0	454.8	35.0	373.0	472.0	35.0	12.0	10.0	57.0
1.3.15	454.8	527.0	30.0	472.0	546.0	45.0	12.0	10.0	57.0

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
1.3.16	465.0	555.5	35.0	436.0	492.0	35.0	12.0	10.0	57.0
1.3.17	133.0	223.8	45.0	89.3	129.5	45.0	12.0	10.0	58.0
1.3.18	223.8	327.3	30.0	129.5	193.5	30.0	12.0	10.0	56.0
1.3.19	327.3	413.8	30.0	193.5	251.0	45.0	12.0	10.0	56.0
1.3.20	413.8	493.8	35.0	251.0	304.3	60.0	12.0	10.0	56.0
1.3.21	133.3	204.0	40.0	304.3	437.0	35.0	12.0	10.0	56.0
1.3.22	204.0	285.3	45.0	437.0	552.0	50.0	12.0	10.0	57.0
1.3.23	285.3	370.0	45.0	552.0	634.0	50.0	12.0	10.0	57.0
1.3.24	370.0	425.5	35.0	634.0	663.0	40.0	12.0	10.0	57.0
1.3.25	139.3	173.3	40.0	121.5	266.5	30.0	12.0	10.0	59.0
1.3.26	173.3	205.3	40.0	266.5	417.5	45.0	12.0	10.0	57.0
1.3.27	205.3	246.0	45.0	417.5	482.0	35.0	12.0	10.0	57.0
1.3.28	246.0	282.5	45.0	482.0	508.0	45.0	12.0	10.0	57.0
1.3.29	282.5	298.8	60.0	508.0	668.0	30.0	12.0	10.0	57.0
1.3.30	298.8	310.3	45.0	668.0	765.3	25.0	12.0	10.0	57.0
1.3.31	310.3	331.3	60.0	765.3	854.0	35.0	12.0	10.0	57.0
1.3.32	133.0	153.5	60.0	90.3	200.8	45.0	12.0	10.0	59.0
1.3.33	153.5	168.8	60.0	200.8	233.8	55.0	12.0	10.0	58.0
1.3.34	168.8	178.0	39.0	233.8	341.5	20.0	12.0	10.0	56.0
1.3.35	178.0	185.8	46.5	341.5	443.0	25.0	12.0	10.0	56.0
1.3.36	147.3	153.8	60.0	80.5	146.0	25.0	12.0	10.0	59.0
1.3.37	153.8	167.0	70.0	146.0	195.3	40.0	12.0	10.0	58.0
1.3.38	167.0	172.5	60.0	195.3	210.5	35.0	12.0	10.0	58.0
1.3.39	172.5	197.3	50.0	210.5	339.0	25.0	12.0	10.0	58.0
1.3.40	197.3	219.8	50.0	339.0	431.3	25.0	12.0	10.0	58.0
1.3.41	219.8	246.5	55.0	431.3	499.5	30.0	12.0	10.0	58.0
1.3.42	246.5	269.8	50.0	499.5	536.5	40.0	12.0	10.0	58.0
1.3.43	269.8	295.3	55.0	536.5	553.5	60.0	12.0	10.0	58.0
1.3.44	196.0	251.8	40.0	201.0	325.3	30.0	12.0	10.0	57.0
1.3.45	251.8	300.8	40.0	325.3	458.0	45.0	12.0	10.0	57.0
1.3.46	300.8	351.8	40.0	458.0	524.5	45.0	12.0	10.0	56.0
1.3.47	351.8	403.0	45.0	524.5	547.0	40.0	12.0	10.0	56.0
1.3.48	178.5	282.8	40.0	120.0	257.5	45.0	12.0	10.0	56.0
1.3.49	133.0	234.0	40.0	91.0	194.8	35.0	12.0	10.0	56.0
1.3.50	234.0	298.3	30.0	194.8	262.5	35.0	12.0	10.0	56.0
1.3.51	298.3	356.5	30.0	262.5	301.5	45.0	12.0	10.0	56.0
1.3.52	356.5	474.8	40.0	301.5	381.5	30.0	12.0	10.0	56.0
1.3.53	345.5	417.3	30.0	381.5	443.3	35.0	12.0	10.0	56.0
1.3.54	250.5	328.3	35.0	443.3	471.5	40.0	12.0	10.0	56.0
1.3.55	261.5	315.8	30.0	471.5	565.0	25.0	12.0	10.0	56.0

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
1.3.56	241.5	301.0	30.0	565.0	655.0	40.0	12.0	10.0	56.0
1.3.57	192.0	244.0	30.0	375.8	407.3	30.0	12.0	10.0	56.0
1.3.58	244.0	279.5	40.0	407.3	503.5	20.0	12.0	10.0	58.0
1.3.59	278.5	319.0	50.0	503.5	603.5	30.0	12.0	10.0	58.0
1.3.60	319.0	354.8	45.0	603.5	663.5	30.0	12.0	10.0	58.0
1.3.61	354.8	399.8	55.0	663.5	680.5	50.0	12.0	10.0	58.0
1.3.62	399.8	413.5	60.0	680.5	789.0	20.0	12.0	12.0	57.0
1.3.63	413.5	429.3	50.0	643.5	723.3	20.0	12.0	10.0	59.0
1.3.64	429.3	441.8	45.0	723.3	785.3	25.0	12.0	10.0	59.0
1.3.65	441.8	453.8	45.0	785.3	811.5	45.0	12.0	10.0	59.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
1.3. 1	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 2	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 3	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 5	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 6	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 7	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 8	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3. 9	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.10	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.11	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.12	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.13	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.14	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.15	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.16	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.17	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.18	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.19	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.20	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.21	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.22	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.23	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.24	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.25	30.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XXXII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.3.1 TO 1.3.65 -- 0.35-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
1.3.26	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.27	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.28	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.29	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.30	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.31	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.32	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.33	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.34	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.35	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.36	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.37	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.38	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.39	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.40	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.41	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.42	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.43	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.44	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.45	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.46	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.47	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.48	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.49	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.50	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.51	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.52	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.53	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.54	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.55	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.56	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.57	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.58	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.59	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.60	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.61	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.62	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.63	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.64	60.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3.65	60.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XXXIII

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.4

TRANSPARENT VESSEL TEST DATA FOR TESTS 1.4.1 TO 1.4.40 -- 0.35-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
1.4. 1	0.0214	0.2203	42.28	0.0658	3.225	1.022	1.57	0.834	0.2602	0.7791
1.4. 2	0.0212	0.2203	42.28	0.0655	2.760	1.005	1.55	0.714	0.2591	0.7207
1.4. 3	0.0212	0.2203	42.28	0.0659	2.100	0.970	1.55	0.543	0.2591	0.6287
1.4. 4	0.0637	0.2203	42.28	0.0659	2.010	0.976	4.67	0.520	0.4494	0.6151
1.4. 5	0.0634	0.2203	42.28	0.0653	1.910	0.983	4.64	0.494	0.4481	0.5996
1.4. 6	0.0634	0.2203	42.28	0.0652	1.820	0.973	4.64	0.471	0.4481	0.5853
1.4. 7	0.0632	0.2203	42.28	0.0644	1.586	0.953	4.63	0.410	0.4474	0.5463
1.4. 8	0.0639	0.2203	42.28	0.0651	1.683	1.037	4.63	0.435	0.4500	0.5629
1.4. 9	0.1079	0.2203	42.28	0.0659	1.075	0.992	7.90	0.278	0.5845	0.4498
1.4.10	0.1073	0.2203	42.28	0.0644	1.100	1.261	7.96	0.284	0.5829	0.4550
1.4.11	0.1069	0.2203	42.28	0.0644	0.983	0.960	7.83	0.254	0.5820	0.4302
1.4.12	0.1069	0.2203	42.28	0.0648	1.056	1.047	7.83	0.273	0.5820	0.4457
1.4.13	0.1499	0.2203	42.28	0.0652	0.433	0.989	10.97	0.112	0.6889	0.2856
1.4.14	0.1502	0.2203	42.28	0.0652	0.432	0.997	11.00	0.112	0.6898	0.2851
1.4.15	0.1515	0.2203	42.28	0.0653	0.492	1.049	11.10	0.127	0.6927	0.3044
1.4.16	0.1499	0.2203	42.28	0.0643	0.364	0.945	10.97	0.094	0.6889	0.2616
1.4.17	0.1694	0.2203	42.28	0.0648	0.325	1.055	12.41	0.084	0.7326	0.2473
1.4.18	0.1704	0.2203	42.28	0.0652	0.305	1.008	12.49	0.079	0.7347	0.2396
1.4.19	0.1712	0.2188	42.24	0.0649	0.271	1.057	12.62	0.070	0.7376	0.2258
1.4.20	0.1694	0.2188	42.24	0.0635	0.379	1.020	12.49	0.098	0.7336	0.2671
1.4.21	0.1715	0.2188	42.24	0.0646	0.233	0.964	12.64	0.060	0.7382	0.2096
1.4.22	0.1695	0.2188	42.24	0.0642	0.221	1.034	12.50	0.057	0.7340	0.2039
1.4.23	0.1299	0.2188	42.24	0.0655	0.546	0.935	9.58	0.141	0.6424	0.3205
1.4.24	0.1277	0.2188	42.24	0.0647	0.522	1.005	9.41	0.135	0.6370	0.3135
1.4.25	0.1289	0.2197	42.24	0.0646	0.700	0.973	9.47	0.181	0.6394	0.3630
1.4.26	0.1075	0.2172	42.24	0.0644	1.050	1.009	7.99	0.272	0.5856	0.4445
1.4.27	0.1289	0.2184	42.24	0.0645	0.625	1.103	9.52	0.162	0.6403	0.3430
1.4.28	0.1296	0.2188	42.24	0.0653	0.689	0.971	9.56	0.178	0.6419	0.3601
1.4.29	0.0860	0.2198	42.24	0.0659	1.400	1.001	6.34	0.362	0.5227	0.5133
1.4.30	0.0857	0.2188	42.24	0.0658	1.417	1.002	6.32	0.366	0.5219	0.5164
1.4.31	0.0861	0.2210	42.24	0.0659	1.470	1.001	6.29	0.380	0.5219	0.5260
1.4.32	0.0864	0.2210	42.24	0.0654	1.300	0.989	6.31	0.336	0.5227	0.4947
1.4.33	0.0426	0.2210	42.24	0.0657	2.667	0.983	3.11	0.690	0.3672	0.7085
1.4.34	0.0425	0.2212	42.38	0.0656	2.417	1.024	3.10	0.625	0.3664	0.6744
1.4.35	0.0425	0.2212	42.38	0.0652	1.814	0.940	3.10	0.469	0.3665	0.5843
1.4.36	0.0421	0.2204	42.38	0.0645	1.922	1.031	3.08	0.477	0.3653	0.6015
1.4.37	0.0430	0.2200	42.38	0.0656	2.357	0.969	3.15	0.610	0.3690	0.6661
1.4.38	0.0107	0.2200	42.38	0.0662	3.385	1.000	0.79	0.975	0.1842	0.7982
1.4.39	0.0107	0.2208	42.38	0.0663	2.938	0.986	0.78	0.760	0.1842	0.7436
1.4.40	0.0106	0.2212	42.38	0.0656	2.330	0.998	0.78	0.603	0.1834	0.6622

TABLE XXXIII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.4.1 TO 1.4.40 -- 0.35-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
1.4. 1	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.4. 2	20.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.4. 3	22.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
1.4. 4	29.0	11.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.4. 5	20.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.4. 6	25.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.4. 7	18.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.4. 8	19.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
1.4. 9	30.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.4.10	20.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.4.11	20.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.4.12	0.0	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.4.13	30.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
1.4.14	20.0	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
1.4.15	20.0	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
1.4.16	0.0	6.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0
1.4.17	30.0	10.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0
1.4.18	30.0	10.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0
1.4.19	20.0	10.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0
1.4.20	20.0	0.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0
1.4.21	0.0	10.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0
1.4.22	0.0	4.0	0.0	0.0	0.0	50.00	30.00	0.0	0.0	0.0
1.4.23	23.0	12.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.4.24	20.0	10.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.4.25	20.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.4.26	12.0	0.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0
1.4.27	0.0	6.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.4.28	12.0	0.0	0.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0
1.4.29	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.4.30	20.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.4.31	20.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.4.32	12.0	0.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
1.4.33	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.4.34	20.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.4.35	20.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
1.4.36	20.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
1.4.37	20.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
1.4.38	31.0	9.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0
1.4.39	20.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
1.4.40	24.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0

TABLE XXXIII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.4.1 TO 1.4.40 -- 0.35-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
1.4.1	0.0	32.3	21.5	0.0	0.0	59.0	78.0	0.0	0.0	12.3
1.4.2	0.0	31.5	30.8	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.3	0.0	32.0	30.8	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.4	0.0	32.0	31.0	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.5	0.0	31.3	30.5	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.6	0.0	31.0	30.5	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.7	0.0	30.0	30.3	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.8	0.0	31.0	31.3	0.0	0.0	56.0	78.0	0.0	0.0	12.3
1.4.9	0.0	32.0	31.8	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.10	0.0	30.0	31.3	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.11	0.0	30.0	31.0	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.12	0.0	30.8	31.0	0.0	0.0	57.0	78.0	0.0	0.0	12.3
1.4.13	0.0	31.0	30.5	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.14	0.0	31.0	30.8	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.15	0.0	31.3	31.5	0.0	0.0	56.0	78.0	0.0	0.0	12.3
1.4.16	0.0	30.0	30.5	0.0	0.0	56.0	78.0	0.0	0.0	12.3
1.4.17	0.0	30.5	30.3	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.18	0.0	31.0	30.8	0.0	0.0	55.0	78.0	0.0	0.0	12.3
1.4.19	0.0	30.7	31.0	0.0	0.0	55.0	76.0	0.0	0.0	12.2
1.4.20	0.0	29.0	30.0	0.0	0.0	56.0	75.0	0.0	0.0	12.2
1.4.21	0.0	30.5	31.0	0.0	0.0	57.0	74.0	0.0	0.0	12.2
1.4.22	0.0	30.0	30.0	0.0	0.0	58.0	74.0	0.0	0.0	12.2
1.4.23	0.0	31.5	31.5	0.0	0.0	55.0	74.0	0.0	0.0	12.2
1.4.24	0.0	30.5	30.0	0.0	0.0	55.0	74.0	0.0	0.0	12.2
1.4.25	0.0	30.2	30.7	0.0	0.0	55.0	73.0	0.0	0.0	12.2
1.4.26	0.0	30.7	31.0	0.0	0.0	64.0	72.0	0.0	0.0	12.2
1.4.27	0.0	30.5	30.7	0.0	0.0	59.0	73.0	0.0	0.0	12.2
1.4.28	0.0	31.5	21.2	0.0	0.0	58.0	73.0	0.0	0.0	12.2
1.4.29	0.0	32.0	31.2	0.0	0.0	55.0	73.0	0.0	0.0	12.2
1.4.30	0.0	31.7	31.0	0.0	0.0	53.0	73.0	0.0	0.0	12.2
1.4.31	0.0	32.0	31.5	0.0	0.0	54.0	74.0	0.0	0.0	12.2
1.4.32	0.0	31.5	31.7	0.0	0.0	57.0	74.0	0.0	0.0	12.2
1.4.33	0.0	31.7	31.0	0.0	0.0	55.0	74.0	0.0	0.0	12.2
1.4.34	0.0	31.5	20.7	0.0	0.0	55.0	77.0	0.0	0.0	12.4
1.4.35	0.0	31.0	30.7	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.4.36	0.0	30.0	30.0	0.0	0.0	55.0	76.0	0.0	0.0	12.4
1.4.37	0.0	31.5	31.7	0.0	0.0	55.0	77.0	0.0	0.0	12.4
1.4.38	0.0	32.2	31.5	0.0	0.0	55.0	77.0	0.0	0.0	12.4
1.4.39	0.0	32.5	31.7	0.0	0.0	55.0	78.0	0.0	0.0	12.4
1.4.40	0.0	31.5	31.0	0.0	0.0	55.0	78.0	0.0	0.0	12.4

TABLE XXXIII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.4.1 TO 1.4.40 -- 0.35-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
1.4. 1	133.0	229.8	30.0	75.0	148.8	30.0	12.0	30.0	58.0
1.4. 2	229.8	298.8	25.0	148.8	191.8	30.0	12.0	30.0	58.0
1.4. 3	298.8	372.3	35.0	191.8	243.8	60.0	12.0	30.0	58.0
1.4. 4	372.3	422.5	25.0	243.8	380.5	40.0	12.0	30.0	58.0
1.4. 5	422.5	470.3	25.0	380.8	446.5	30.0	12.0	30.0	58.0
1.4. 6	470.3	515.8	25.0	446.5	516.8	45.0	12.0	30.0	58.0
1.4. 7	469.3	523.8	35.0	426.0	454.0	35.0	12.0	30.0	58.0
1.4. 8	133.0	183.5	30.0	88.0	129.0	45.0	12.0	30.0	58.0
1.4. 9	183.5	226.5	40.0	129.0	306.8	40.0	12.0	30.0	58.0
1.4.10	226.5	259.5	30.0	306.8	431.5	30.0	12.0	30.0	58.0
1.4.11	259.5	303.8	45.0	431.5	499.0	40.0	12.0	30.0	58.0
1.4.12	303.8	341.8	36.0	499.0	521.0	55.0	12.0	30.0	58.0
1.4.13	170.3	189.8	45.0	112.5	264.5	30.0	12.0	30.0	58.0
1.4.14	189.8	213.5	55.0	264.5	395.0	35.0	12.0	30.0	58.0
1.4.15	213.5	245.5	65.0	395.0	492.0	40.0	12.0	30.0	58.0
1.4.16	245.5	265.5	55.0	492.0	517.5	60.0	12.0	30.0	59.0
1.4.17	265.0	281.3	50.0	517.5	656.0	25.0	12.0	30.0	58.0
1.4.18	281.3	296.5	50.0	656.0	841.5	35.0	12.0	30.0	58.0
1.4.19	132.8	149.0	60.0	84.5	188.0	25.0	12.0	30.0	61.0
1.4.20	149.0	171.8	60.0	188.0	274.0	35.0	12.0	30.0	61.0
1.4.21	171.8	185.8	60.0	274.0	312.8	35.0	12.0	30.0	61.0
1.4.22	185.8	199.0	60.0	312.8	334.0	60.0	12.0	30.0	61.0
1.4.23	199.0	231.8	60.0	334.0	457.3	25.0	12.0	30.0	61.0
1.4.24	231.8	255.3	45.0	457.3	549.0	25.0	12.0	30.0	61.0
1.4.25	255.3	293.8	55.0	549.0	639.3	45.0	12.0	30.0	59.0
1.4.26	133.0	185.5	50.0	64.3	92.8	45.0	12.0	30.0	65.0
1.4.27	226.5	264.0	60.0	92.8	109.0	55.0	12.0	30.0	62.0
1.4.28	264.0	295.0	45.0	109.0	146.3	40.0	12.0	30.0	61.0
1.4.29	295.0	337.0	30.0	146.3	271.3	30.0	12.0	30.0	61.0
1.4.30	337.0	379.5	30.0	271.1	354.0	30.0	12.0	30.0	61.0
1.4.31	379.5	453.0	50.0	354.0	400.0	35.0	12.0	30.0	56.0
1.4.32	135.5	187.5	40.0	96.5	114.0	50.0	12.0	30.0	56.0
1.4.33	187.5	307.5	45.0	114.0	240.0	45.0	12.0	30.0	56.0
1.4.34	133.8	242.5	45.0	93.3	167.5	40.0	12.0	30.0	57.0
1.4.35	242.5	342.3	55.0	167.5	207.5	50.0	12.0	30.0	57.0
1.4.36	342.3	428.8	45.0	207.5	250.0	45.0	12.0	30.0	59.0
1.4.37	215.8	310.0	40.0	250.0	309.0	35.0	12.0	30.0	60.0
1.4.38	310.0	377.8	20.0	309.0	374.3	30.0	12.0	30.0	60.0
1.4.39	377.8	436.5	20.0	374.3	409.5	30.0	12.0	30.0	58.0
1.4.40	436.5	494.8	25.0	409.5	467.5	60.0	12.0	30.0	57.0

TABLE XXXIII (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 1.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 1.4.1 TO 1.4.40 -- 0.35-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
1.4.1	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.2	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.3	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.5	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.6	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.7	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.8	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.9	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.10	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.11	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.12	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.13	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.14	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.15	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.16	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.17	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.18	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.19	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.20	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.21	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.22	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.23	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.24	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.25	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.26	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.27	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.28	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.29	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.30	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.31	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.32	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.33	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.34	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.35	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.36	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.37	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.38	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.39	30.0	0.0	0.0	0.0	0.0	0.0	0.0
1.4.40	30.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XXXIV

TWO-PHASE COLD LEG MIXTURE TEST GROUP 5.6

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.6.1 TO 5.6.17 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.6.1	0.0218	0.1204	22.70	0.0667	3.100	1.018	2.72	0.747	0.2662	0.6660
5.6.2	0.0431	0.1168	22.20	0.0667	2.233	0.989	5.54	0.538	0.3774	0.5653
5.6.3	0.1275	0.1166	22.20	0.0667	0.504	1.010	16.43	0.121	0.6496	0.2685
5.6.4	0.1479	0.1170	22.20	0.0667	0.221	1.012	18.98	0.053	0.6989	0.1777
5.6.5	0.0795	0.1197	22.67	0.0670	1.383	1.002	9.98	0.333	0.5096	0.4449
5.6.6	0.1013	0.1209	22.92	0.0672	0.858	0.999	12.60	0.207	0.5739	0.3504
5.6.7	0.1013	0.1173	22.17	0.0672	0.917	1.045	12.98	0.221	0.5782	0.3621
5.6.8	0.1307	0.1195	22.67	0.0669	0.375	1.035	16.44	0.090	0.6537	0.2316
5.6.9	0.0293	0.1189	22.42	0.0671	2.983	0.992	3.70	0.718	0.3098	0.6533
5.6.10	0.0511	0.1213	22.92	0.0670	2.225	1.008	6.33	0.536	0.4073	0.5642
5.6.11	0.0290	0.1295	24.42	0.2745	1.617	1.005	3.37	0.389	0.3018	0.4809
5.6.12	0.0292	0.1517	28.67	0.2709	2.367	0.995	2.89	0.570	0.2909	0.5820
5.6.13	0.0513	0.1249	23.67	0.2662	1.150	1.022	6.18	0.277	0.4052	0.4056
5.6.14	0.1450	0.1252	24.17	0.2663	0.333	1.022	17.40	0.080	0.6805	0.2184
5.6.15	0.1540	0.1186	22.42	0.2535	0.137	1.017	19.51	0.033	0.7109	0.1403
5.6.16	0.0287	0.1538	29.17	0.2508	2.711	1.009	2.81	0.653	0.2878	0.6229
5.6.17	0.1013	0.1177	22.42	0.2596	0.700	1.012	12.93	0.169	0.5777	0.3165

TABLE XXXIV (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 5.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.6.1 TO 5.6.17 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.6.1	0.0	0.0	0.0	50.1	0.0	0.0	10.00	0.0	0.0	0.0
5.6.2	0.0	0.0	0.0	40.1	0.0	0.0	20.00	0.0	0.0	0.0
5.6.3	0.0	0.0	0.0	25.2	60.00	0.0	0.0	0.0	0.0	0.0
5.6.4	0.0	0.0	0.0	9.9	0.0	0.0	0.0	0.0	16.28	0.0
5.6.5	0.0	0.0	0.0	40.3	36.50	0.0	0.0	0.0	0.0	0.0
5.6.6	0.0	0.0	0.0	30.2	46.50	0.0	0.0	0.0	0.0	0.0
5.6.7	0.0	0.0	0.0	34.9	46.50	0.0	0.0	0.0	0.0	0.0
5.6.8	0.0	0.0	0.0	30.4	60.00	0.0	0.0	0.0	0.0	0.0
5.6.9	0.0	0.0	70.0	0.0	0.0	0.0	13.40	0.0	0.0	0.0
5.6.10	0.0	0.0	60.0	0.0	0.0	0.0	23.40	0.0	0.0	0.0
5.6.11	0.0	0.0	0.0	49.7	0.0	0.0	13.30	0.0	0.0	0.0
5.6.12	0.0	0.0	71.0	0.0	0.0	0.0	13.30	0.0	0.0	0.0
5.6.13	0.0	0.0	0.0	40.0	0.0	0.0	23.40	0.0	0.0	0.0
5.6.14	0.0	0.0	0.0	25.4	66.60	0.0	0.0	0.0	0.0	0.0
5.6.15	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	17.69	0.0
5.6.16	0.0	0.0	81.0	0.0	0.0	0.0	13.30	0.0	0.0	0.0
5.6.17	0.0	0.0	0.0	30.7	46.50	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.6.1	13.0	0.0	10.0	98.0	33.0	49.0	80.0	74.0	76.0	12.2
5.6.2	12.0	0.0	10.0	97.0	32.0	51.0	78.0	75.0	75.0	12.2
5.6.3	11.0	0.0	10.0	94.0	31.0	50.0	76.0	80.0	77.0	12.2
5.6.4	11.0	0.0	10.0	97.0	33.0	50.0	77.0	81.0	77.0	12.2
5.6.5	11.2	0.0	10.5	0.0	33.0	50.0	78.0	71.0	77.0	12.4
5.6.6	10.7	0.0	10.5	100.0	33.0	49.0	75.0	71.5	77.0	12.4
5.6.7	10.0	0.0	9.5	100.0	33.0	49.0	75.0	73.0	77.0	12.4
5.6.8	10.7	0.0	10.5	99.0	33.0	49.0	75.0	75.0	77.0	12.4
5.6.9	11.5	0.0	9.5	101.0	33.0	49.0	77.0	75.0	74.0	12.4
5.6.10	12.0	0.0	10.0	100.0	33.0	50.0	77.0	75.0	74.0	12.4
5.6.11	19.0	0.0	12.4	98.0	33.0	48.0	81.0	75.0	76.0	12.4
5.6.12	25.0	0.0	15.0	98.0	33.5	50.0	80.0	0.0	76.0	12.4
5.6.13	16.5	0.0	10.6	97.0	33.5	51.0	79.0	0.0	76.0	12.4
5.6.14	15.0	0.0	11.2	95.0	33.0	50.0	77.0	77.0	78.0	12.4
5.6.15	10.7	0.0	9.6	95.0	33.5	55.0	84.0	95.0	88.0	12.4

TABLE XXXIV (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 5.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.6.1 TO 5.6.17 -- 0.53-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.6.16	27.5	0.0	16.0	96.0	33.0	51.0	84.0	90.0	86.0	12.4
5.6.17	13.5	0.0	10.0	97.0	33.5	52.0	83.0	92.5	83.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.6. 1	143.0	331.0	60.0	165.0	404.5	60.0	12.0	10.5	49.0
5.6. 2	331.0	465.0	60.0	404.5	601.5	60.0	12.0	10.0	53.0
5.6. 3	153.0	216.0	125.0	549.0	731.0	60.0	12.0	10.0	54.0
5.6. 4	140.0	166.5	120.0	105.0	175.0	60.0	12.0	10.0	52.0
5.6. 5	145.0	228.0	60.0	313.5	567.0	60.0	12.0	10.2	51.0
5.6. 6	143.0	199.5	60.0	324.5	525.0	60.0	12.0	10.5	52.0
5.6. 7	191.5	246.5	60.0	467.0	591.5	30.0	12.0	9.7	50.0
5.6. 8	211.5	234.0	60.0	392.5	508.5	30.0	12.0	10.2	52.0
5.6. 9	143.0	232.5	30.0	309.5	509.5	30.0	12.0	10.0	49.0
5.6.10	222.5	356.0	60.0	421.5	607.0	30.0	12.0	10.5	50.0
5.6.11	140.5	237.5	60.0	104.5	264.5	30.0	12.0	12.0	49.0
5.6.12	237.5	308.5	30.0	264.5	488.0	30.0	12.0	16.2	50.0
5.6.13	277.0	346.0	60.0	447.0	583.0	30.0	12.0	11.2	52.0
5.6.14	140.0	160.0	60.0	102.5	299.0	60.0	12.0	11.7	61.0
5.6.15	160.0	176.5	120.0	299.0	376.0	60.0	12.0	10.0	50.0
5.6.16	170.0	300.0	45.0	359.0	616.5	30.0	12.0	16.7	52.0
5.6.17	300.0	331.5	45.0	489.0	596.5	30.0	12.0	10.0	54.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.6. 1	0.0	30.0	0.0	98.0	35.0	0.0	76.0
5.6. 2	0.0	30.0	0.0	97.0	35.0	0.0	76.0
5.6. 3	0.0	30.0	0.0	94.0	35.0	0.0	76.0
5.6. 4	0.0	30.0	0.0	97.0	35.0	0.0	76.0
5.6. 5	0.0	30.0	0.0	101.0	34.5	63.5	67.5
5.6. 6	0.0	30.0	0.0	0.0	35.0	0.0	70.0
5.6. 7	0.0	30.0	0.0	0.0	35.0	0.0	71.0
5.6. 8	0.0	30.0	0.0	0.0	34.7	0.0	72.0
5.6. 9	0.0	30.0	0.0	0.0	35.0	73.0	72.0

TABLE XXXIV (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 5.6

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.6.1 TO 5.6.17 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.6.10	0.0	30.0	0.0	0.0	35.0	0.0	73.0
5.6.11	0.0	0.0	29.6	98.0	0.0	76.0	0.0
5.6.12	0.0	0.0	29.6	98.0	0.0	83.0	0.0
5.6.13	0.0	0.0	29.7	97.0	0.0	90.0	0.0
5.6.14	0.0	0.0	29.9	95.0	0.0	82.0	0.0
5.6.15	0.0	0.0	29.5	95.0	0.0	102.0	0.0
5.6.16	0.0	0.0	28.6	96.0	0.0	96.0	0.0
5.6.17	0.0	0.0	29.6	97.0	0.0	101.5	0.0

TABLE XXXV

TWO-PHASE COLD LEG MIXTURE TEST GROUP 7.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 7.2.1 TO 7.2.10 -- 0.70-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
7.2. 1	0.022J	0.1192	22.34	0.0668	10.467	1.007	1.57	1.427	0.1884	0.8587
7.2. 2	0.0219	0.1200	22.55	0.0668	6.020	0.496	1.55	0.921	0.1876	0.6513
7.2. 3	0.0219	0.1212	22.59	0.0667	9.533	0.977	1.54	1.164	0.1871	0.7754
7.2. 4	0.0436	0.1220	22.59	0.0663	7.967	0.960	3.04	0.964	0.2635	0.7056
7.2. 5	0.0421	0.1209	22.59	0.0664	6.690	1.013	2.96	0.912	0.2596	0.6865
7.2. 6	0.0861	0.1208	22.59	0.0659	5.172	0.983	6.07	0.705	0.3714	0.6037
7.2. 7	0.1291	0.1220	22.84	0.0658	4.133	1.014	9.01	0.564	0.4536	0.5396
7.2. 8	0.1566	0.1188	22.34	0.0660	2.350	1.007	11.21	0.320	0.5028	0.4069
7.2. 9	0.2125	0.1160	22.09	0.0669	1.033	0.974	15.59	0.141	0.5893	0.2698
7.2.10	0.0438	0.1184	22.59	0.0668	7.237	0.974	3.15	0.997	0.2662	0.7141

TABLE XXXV (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 7.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.2.1 TO 7.2.10 -- 0.70-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
7.2. 1	9.0	0.0	101.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
7.2. 2	0.0	0.0	100.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
7.2. 3	0.0	0.0	89.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
7.2. 4	0.0	0.0	80.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
7.2. 5	0.0	0.0	69.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
7.2. 6	0.0	0.0	60.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
7.2. 7	0.0	0.0	60.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
7.2. 8	0.0	0.0	0.0	30.2	0.0	0.0	0.0	0.0	17.69	0.0
7.2. 9	0.0	0.0	0.0	20.2	0.0	0.0	0.0	0.0	23.33	0.0
7.2.10	0.0	0.0	80.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BAPO (PSIA)
7.2. 1	15.5	0.0	11.0	98.0	34.0	46.0	79.0	76.0	76.5	12.3
7.2. 2	17.0	0.0	12.0	98.5	33.5	47.5	79.5	76.5	76.5	12.3
7.2. 3	16.0	0.0	11.6	96.0	33.5	43.0	79.5	77.0	76.5	12.3
7.2. 4	15.0	0.0	12.0	95.5	33.0	43.5	78.0	78.5	76.5	12.3
7.2. 5	14.0	0.0	12.0	95.0	30.0	44.0	78.0	79.5	76.0	12.3
7.2. 6	14.0	0.0	11.5	94.5	32.0	45.0	78.0	82.0	77.0	12.3
7.2. 7	13.5	0.0	11.5	93.0	32.0	45.0	79.0	88.5	77.5	12.3
7.2. 8	11.0	0.0	10.0	95.0	33.5	46.0	78.5	85.5	81.0	12.3
7.2. 9	11.0	0.0	11.0	97.0	33.5	51.5	75.0	80.0	76.5	12.3
7.2.10	15.0	0.0	11.0	98.0	33.5	51.0	77.0	79.0	76.0	12.3

TEST NO	LOWEP PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
7.2. 1	137.0	296.0	15.0	101.0	211.0	30.0	12.0	10.0	46.0
7.2. 2	140.0	237.5	24.5	203.5	225.5	30.0	8.0	10.2	48.0
7.2. 3	276.5	404.5	15.0	208.5	315.0	30.0	8.0	10.2	43.0
7.2. 4	343.0	449.0	15.0	209.0	277.5	19.0	9.0	10.2	40.0
7.2. 5	253.5	350.5	14.5	206.0	266.5	20.0	8.0	10.2	44.5
7.2. 6	190.5	265.5	14.5	266.5	327.0	20.0	12.0	10.2	45.0
7.2. 7	196.5	253.5	15.0	301.0	387.5	20.0	12.0	10.5	45.5
7.2. 8	140.0	197.0	20.0	104.5	142.0	20.0	12.0	10.0	47.5
7.2. 9	173.0	204.0	30.0	137.0	188.0	30.0	12.0	9.7	54.0
7.2.10	204.0	417.5	29.5	188.0	296.0	30.0	8.0	10.2	55.0

TABLE XXXV (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 7.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.2.1 TO 7.2.10 -- 0.70-IN. DOWNCOMER GAP

TEST NO	FM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
7.2. 1	0.0	30.0	0.0	0.0	35.0	0.0	76.5
7.2. 2	0.0	30.0	0.0	0.0	35.0	0.0	76.5
7.2. 3	0.0	30.0	0.0	0.0	35.0	0.0	77.5
7.2. 4	0.0	30.0	0.0	0.0	34.5	0.0	78.0
7.2. 5	0.0	30.0	0.0	0.0	34.6	0.0	78.0
7.2. 6	0.0	30.0	0.0	0.0	34.0	0.0	78.5
7.2. 7	0.0	30.0	0.0	0.0	34.0	0.0	80.0
7.2. 8	0.0	30.0	0.0	0.0	34.0	0.0	78.0
7.2. 9	0.0	30.0	0.0	0.0	35.0	0.0	74.5
7.2.10	0.0	30.0	0.0	0.0	35.0	0.0	75.5

TABLE XXXVI

TWO-PHASE COLD LEG MIXTURE TEST GROUP 9.4

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.4.1 TO 9.4.30 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JC)**1/2	(JL)**1/2
9.4. 1	0.1741	0.1212	22.70	0.0664	10.650	1.003	6.11	0.725	0.3041	0.4993
9.4. 2	0.3140	0.1663	31.45	0.0664	6.833	1.001	8.03	0.465	0.3774	0.4000
9.4. 3	0.2227	0.1291	24.45	0.0665	7.000	1.077	7.33	0.477	0.3395	0.4048
9.4. 4	0.3599	0.1228	23.20	0.0665	4.267	1.039	12.46	0.291	0.4358	0.3160
9.4. 5	0.4941	0.1532	28.95	0.0662	2.167	1.040	13.71	0.148	0.4832	0.2252
9.4. 6	0.1716	0.1136	22.20	0.0666	7.450	0.995	6.15	0.507	0.3035	0.4176
9.4. 7	0.3056	0.1235	23.20	0.0661	5.883	0.985	10.52	0.401	0.4010	0.3711
9.4. 8	0.1741	0.1102	22.20	0.0655	4.045	1.012	6.26	0.276	0.3060	0.3077
9.4. 9	0.1878	0.1155	21.70	0.0661	6.517	0.976	6.91	0.444	0.3196	0.3905
9.4.10	0.1825	0.1186	22.20	0.0660	8.150	0.990	6.54	0.555	0.3130	0.4367
9.4.11	0.1301	0.1349	25.70	0.0658	11.000	0.981	5.67	0.749	0.3010	0.5074
9.4.12	0.0864	0.1183	22.40	0.0660	12.917	0.987	3.10	0.980	0.2155	0.5498
9.4.13	0.1269	0.1152	21.65	0.0660	12.733	0.986	4.68	0.967	0.2628	0.5459
9.4.14	0.2471	0.1311	24.65	0.0660	8.483	0.985	8.01	0.578	0.3552	0.4456
9.4.15	0.3084	0.1242	23.40	0.0659	5.917	0.992	10.55	0.403	0.4022	0.3721
9.4.16	0.4160	0.1493	28.15	0.0657	3.917	0.995	11.85	0.267	0.4462	0.3028
9.4.17	0.5642	0.1478	28.15	0.0658	1.567	1.057	16.22	0.107	0.5207	0.1915
9.4.18	0.6523	0.1474	28.40	0.0655	0.617	1.042	18.81	0.042	0.5605	0.1202
9.4.19	0.1489	0.1315	24.70	0.1266	10.283	0.975	4.81	0.700	0.2755	0.4906
9.4.20	0.4780	0.1498	29.20	0.1197	2.883	1.068	13.56	0.196	0.4779	0.2598
9.4.21	0.2443	0.1564	29.65	0.2448	7.467	0.991	6.64	0.509	0.3380	0.4181
9.4.22	0.1237	0.1372	25.90	0.2381	9.433	1.002	3.83	0.643	0.2485	0.4699
9.4.23	0.4189	0.1622	30.65	0.2165	4.767	0.998	10.98	0.325	0.4386	0.3341
9.4.24	0.0858	0.1331	25.15	0.0272	10.117	0.980	2.74	0.699	0.2095	0.4866
9.4.25	0.5094	0.1504	28.65	0.2153	2.250	1.091	14.39	0.153	0.4928	0.2295
9.4.26	0.6616	0.1649	31.65	0.2545	0.933	0.997	17.05	0.064	0.5489	0.1478
9.4.27	0.1447	0.1325	24.95	0.2456	7.276	0.963	4.64	0.476	0.2711	0.4127
9.4.28	0.3022	0.1541	28.95	0.2333	6.033	1.014	8.33	0.411	0.3773	0.3758
9.4.29	0.2331	0.1424	26.70	0.2345	6.733	0.970	6.96	0.459	0.3379	0.3970
9.4.30	0.4713	0.1641	30.95	0.2269	2.933	1.026	12.21	0.200	0.4639	0.2621

TABLE XXXVI (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 9.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.4.1 TO 9.4.30 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	PM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.4.1	0.0	0.0	119.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
9.4.2	0.0	0.0	99.0	0.0	0.0	0.0	0.0	0.0	37.95	0.0
9.4.3	0.0	0.0	79.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0
9.4.4	0.0	0.0	0.0	49.9	0.0	0.0	0.0	0.0	44.23	0.0
9.4.5	0.0	0.0	0.0	39.6	0.0	0.0	0.0	0.0	63.21	0.0
9.4.6	0.0	0.0	80.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
9.4.7	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	38.03	0.0
9.4.8	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	21.15	0.0
9.4.9	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	21.41	0.0
9.4.10	0.0	0.0	88.0	0.0	0.0	0.0	0.0	0.0	21.41	0.0
9.4.11	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	21.28	0.0
9.4.12	0.0	0.0	131.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.4.13	0.0	0.0	140.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.4.14	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	29.74	0.0
9.4.15	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	38.33	0.0
9.4.16	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	56.79	0.0
9.4.17	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	75.51	0.0
9.4.18	0.0	0.0	0.0	20.1	0.0	0.0	0.0	0.0	98.46	0.0
9.4.19	0.0	0.0	117.0	0.0	0.0	0.0	0.0	0.0	17.82	0.0
9.4.20	0.0	0.0	0.0	40.2	0.0	0.0	0.0	0.0	62.31	0.0
9.4.21	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0
9.4.22	0.0	0.0	105.0	0.0	0.0	0.0	0.0	0.0	14.97	0.0
9.4.23	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	56.15	0.0
9.4.24	0.0	0.0	115.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.4.25	0.0	0.0	0.0	29.5	0.0	0.0	0.0	0.0	75.13	0.0
9.4.26	0.0	0.0	0.0	19.7	0.0	0.0	0.0	0.0	76.79	0.0
9.4.27	0.0	0.0	94.0	0.0	0.0	0.0	0.0	0.0	17.69	0.0
9.4.28	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	38.33	0.0
9.4.29	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	29.36	0.0
9.4.30	0.0	0.0	0.0	40.1	0.0	0.0	0.0	0.0	63.59	0.0

TABLE XXXVI (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 9.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.4.1 TO 9.4.30 -- 1.53-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.4.1	17.5	0.0	10.5	94.0	33.5	46.0	84.0	0.0	91.5	12.2
9.4.2	24.0	0.0	19.8	92.0	33.5	50.0	93.0	106.5	0.0	12.2
9.4.3	15.2	0.0	12.3	82.5	33.5	50.0	94.0	106.5	0.0	12.2
9.4.4	13.0	0.0	11.5	90.0	33.5	48.0	93.0	105.0	0.0	12.2
9.4.5	17.5	0.0	17.5	88.5	33.0	47.0	106.0	119.5	0.0	12.2
9.4.6	14.0	0.0	9.5	96.0	32.0	52.0	81.0	94.0	79.0	12.2
9.4.7	14.5	0.0	12.0	92.0	33.0	52.5	110.5	124.0	117.0	12.2
9.4.8	12.0	0.0	10.0	94.0	34.0	46.0	108.0	120.5	114.5	12.2
9.4.9	13.0	0.0	10.0	97.0	34.0	47.0	88.0	100.0	94.0	12.2
9.4.10	14.5	0.0	11.0	96.0	33.0	44.5	97.0	111.0	104.0	12.2
9.4.11	21.0	0.0	14.0	95.0	34.0	50.0	97.0	110.0	104.0	12.2
9.4.12	13.7	0.0	10.5	95.0	33.0	50.5	84.0	92.0	93.0	12.1
9.4.13	19.0	0.0	10.0	94.0	0.0	46.5	85.0	95.0	0.0	12.1
9.4.14	13.0	0.0	13.0	91.0	0.0	46.5	88.0	98.5	0.0	12.1
9.4.15	14.0	0.0	12.0	90.5	0.0	47.5	99.0	114.0	0.0	12.1
9.4.16	19.2	0.0	17.5	83.5	0.0	46.0	113.0	127.5	0.0	12.1
9.4.17	16.5	0.0	17.0	86.5	0.0	48.0	120.0	134.0	0.0	12.1
9.4.18	16.0	0.0	17.0	83.0	0.0	52.0	106.5	120.5	0.0	12.1
9.4.19	22.0	0.0	12.0	93.0	33.0	47.0	94.5	106.5	100.5	12.2
9.4.20	17.0	0.0	17.0	88.0	32.0	45.0	112.5	127.5	120.5	12.2
9.4.21	29.0	0.0	18.0	91.0	0.0	51.0	86.0	102.5	0.0	12.1
9.4.22	29.7	0.0	14.5	92.0	0.0	49.0	88.0	103.5	0.0	12.1
9.4.23	24.5	0.0	19.6	87.0	0.0	48.0	121.0	138.0	0.0	12.1
9.4.24	29.0	0.0	12.0	86.0	33.0	50.0	95.0	113.5	91.0	12.1
9.4.25	13.0	0.0	16.5	77.0	0.0	49.5	116.5	131.5	0.0	12.1
9.4.26	21.0	0.0	21.0	95.0	0.0	51.5	98.0	99.5	0.0	12.1
9.4.27	23.7	0.0	12.8	90.5	33.5	47.0	92.8	105.0	0.0	12.2
9.4.28	24.7	0.0	17.0	89.0	33.5	46.0	101.0	117.5	0.0	12.2
9.4.29	24.5	0.0	14.7	89.0	33.5	45.0	99.5	113.5	0.0	12.2
9.4.30	21.5	0.0	18.8	85.5	33.0	46.0	117.5	133.0	0.0	12.2

TABLE XXXVI (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 9.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.4.1 TO 9.4.30 -- 1.58-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.4.1	141.0	354.0	20.0	102.0	221.0	20.0	12.0	10.5	45.5
9.4.2	198.0	300.5	15.0	121.5	330.0	30.0	12.0	19.2	50.5
9.4.3	167.0	377.0	30.0	139.0	284.0	30.0	12.0	12.2	51.0
9.4.4	142.0	270.0	30.0	106.0	188.0	30.0	12.0	11.0	50.0
9.4.5	241.0	371.0	60.0	116.0	223.0	30.0	12.0	16.7	50.0
9.4.6	140.5	364.0	30.0	92.5	201.0	30.0	12.0	10.0	45.0
9.4.7	287.0	463.5	30.0	117.0	224.0	30.0	12.0	11.0	47.0
9.4.8	220.0	398.0	44.0	128.0	199.0	45.0	12.0	10.0	47.0
9.4.9	141.0	336.5	30.0	102.0	191.5	30.0	12.0	9.5	47.0
9.4.10	152.5	397.0	30.0	121.5	240.5	30.0	12.0	10.0	45.0
9.4.11	192.0	412.0	20.0	138.5	340.5	30.0	5.0	13.5	54.0
9.4.12	141.0	528.5	30.0	104.0	256.0	30.0	4.0	10.2	51.0
9.4.13	164.0	546.0	30.0	118.0	312.0	30.0	4.0	9.5	47.0
9.4.14	143.5	403.0	30.0	112.5	269.0	30.0	12.0	12.5	47.5
9.4.15	164.0	341.5	30.0	125.5	237.5	30.0	12.0	11.2	49.5
9.4.16	144.0	261.5	30.0	237.5	369.0	30.0	12.0	16.0	49.0
9.4.17	141.5	235.5	60.0	107.0	194.0	30.0	12.0	16.0	54.0
9.4.18	147.5	166.0	30.0	216.0	285.0	30.0	12.0	16.2	60.0
9.4.19	142.5	451.0	30.0	105.0	272.5	30.0	5.0	12.5	47.0
9.4.20	149.5	236.0	30.0	110.5	203.0	30.0	12.0	16.0	48.0
9.4.21	138.5	362.5	30.0	99.0	247.0	30.0	12.0	17.5	51.5
9.4.22	159.0	442.0	30.0	125.5	281.5	30.0	12.0	13.7	49.5
9.4.23	166.0	309.0	30.0	125.0	236.0	30.0	12.0	18.5	50.0
9.4.24	158.0	461.5	30.0	125.0	291.5	30.0	6.0	13.0	50.0
9.4.25	143.5	211.0	30.0	160.5	227.5	30.0	12.0	16.5	54.0
9.4.26	158.0	186.0	30.0	190.0	217.0	15.0	12.0	19.5	58.0
9.4.27	141.5	352.5	29.0	104.0	223.0	30.0	12.0	12.7	48.0
9.4.28	200.0	381.0	30.0	122.5	237.5	30.0	12.0	16.7	47.0
9.4.29	143.5	345.5	30.0	109.5	231.0	30.0	12.0	14.5	46.0
9.4.30	251.5	339.5	30.0	180.5	264.0	30.0	12.0	18.7	49.0

TABLE XXXVI (Contd.)

TWO-PHASE COLD LEG MIXTURE TEST GROUP 9.4

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.4.1 TO 9.4.30 -- 1.59-IN. DOWNCOMER GAP

TEST NO	R1-CG-1 (CFM)	PM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
9.4. 1	0.0	30.0	0.0	0.0	34.8	80.0	78.5
9.4. 2	0.0	30.0	0.0	0.0	35.0	0.0	80.0
9.4. 3	0.0	30.0	0.0	0.0	35.1	0.0	81.0
9.4. 4	0.0	30.0	0.0	0.0	35.1	0.0	81.0
9.4. 5	0.0	30.0	0.0	0.0	34.8	33.0	82.5
9.4. 6	0.0	30.0	0.0	0.0	35.0	81.0	78.0
9.4. 7	0.0	30.0	0.0	0.0	35.0	90.0	85.0
9.4. 8	0.0	30.0	0.0	94.0	35.0	99.5	95.5
9.4. 9	0.0	30.0	0.0	97.0	35.0	84.0	86.0
9.4.10	0.0	30.0	0.0	96.0	35.0	91.5	88.0
9.4.11	0.0	30.0	0.0	95.0	35.0	93.5	90.0
9.4.12	0.0	30.0	0.0	0.0	35.0	0.0	97.5
9.4.13	0.0	30.0	0.0	0.0	34.9	0.0	96.0
9.4.14	0.0	30.0	0.0	0.0	34.8	0.0	85.0
9.4.15	0.0	30.0	0.0	0.0	34.8	0.0	86.5
9.4.16	0.0	30.0	0.0	0.0	34.7	0.0	88.0
9.4.17	0.0	30.0	0.0	0.0	34.8	0.0	88.0
9.4.18	0.0	30.0	0.0	0.0	34.8	0.0	92.5
9.4.19	0.0	0.0	14.9	93.0	34.0	96.0	90.5
9.4.20	0.0	0.0	14.9	88.0	35.0	100.0	95.5
9.4.21	0.0	0.0	29.4	91.0	0.0	96.5	0.0
9.4.22	0.0	0.0	28.7	92.0	0.0	105.0	0.0
9.4.23	0.0	0.0	28.2	87.0	0.0	121.0	0.0
9.4.24	0.0	0.0	28.6	0.0	0.0	114.0	0.0
9.4.25	0.0	0.0	30.3	77.0	0.0	103.5	0.0
9.4.26	0.0	0.0	29.4	95.0	0.0	96.0	0.0
9.4.27	0.0	0.0	29.9	90.5	0.0	102.0	0.0
9.4.28	0.0	0.0	29.2	87.0	0.0	110.5	0.0
9.4.29	0.0	0.0	29.4	89.0	0.0	110.0	0.0
9.4.30	0.0	0.0	29.7	85.5	0.0	116.5	0.0

leg nozzle removed, and two-phase flow entering the vessel through the cold leg. The objective of these combined effects tests was to investigate the sensitivity of the system countercurrent flow to several coinciding changes in geometry of cold leg flow conditions. Tables XXXVII through XLVI contain the data for these ten tests and Table I includes a listing of the tests and the respective changes to the normal configuration.

7. SPECIAL TESTS

Following is a brief discussion of countercurrent flow tests which did not have objectives consistent with the classifications discussed previously because either specially designed equipment was required or special operating procedures were used.

7.1 One-Dimensional Inlet Test Group

A limited number of countercurrent flow tests were performed with the upper annulus portion of the transparent vessel, including the cold leg and bypass leg, removed and replaced with an inlet water distributor that was designed to induce flow parallel to the downcomer axis and to distribute the water uniformly around the top of the downcomer. The purpose of these tests was to provide countercurrent flow data for a uniform inlet flow distribution that could be compared with countercurrent flow data obtained for the normal inlet to indicate the effect on countercurrent flow of the nonuniform distribution of water to the downcomer entrance that results from injection normal to the downcomer.

The design for the one-dimensional inlet flow distributor was discussed in Section II-1. The test procedure for these tests included the following steps:

- (1) Downcomer air flow was initiated at a predetermined value.
- (2) Water flow was gradually increased until a level above the top of weir entrance was established.
- (3) The system was allowed to run until the height of the water level above the weir entrance stabilized.
- (4) The water flow was increased slightly and the preceding step was repeated; water flow was gradually increased in steps until a water flow rate was reached at which the height of the water level above the weir entrance did not stabilize but was continually increasing.
- (5) The water flow was decreased slightly until the water level stabilized.
- (6) The necessary measurements were recorded.

TABLE XXXVII

COMBINED EFFECTS TEST GROUP 3.2

TRANSPARENT VESSEL TEST DATA FOR TESTS 3.2.1 TO 3.2.25 -- 0.39-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
3.2. 1	0.0	0.1175	22.46	0.0958	2.420	1.003	0.0	0.764	0.0	0.7248
3.2. 2	0.0	0.1168	22.46	0.0958	2.767	1.003	0.0	0.973	0.0	0.7750
3.2. 3	0.0	0.1174	22.44	0.0474	3.780	1.010	0.0	1.193	0.0	0.9059
3.2. 4	0.0	0.1173	22.44	0.0484	3.050	0.987	0.0	0.962	0.0	0.8137
3.2. 5	0.0	0.1172	22.44	0.0479	2.375	0.985	0.0	0.749	0.0	0.7180
3.2. 6	0.0075	0.1180	22.46	0.0470	3.275	0.997	1.25	1.033	0.1932	0.8432
3.2. 7	0.0076	0.1177	22.46	0.0469	2.800	0.989	1.27	0.894	0.1946	0.7796
3.2. 8	0.0153	0.1177	22.46	0.0475	2.587	0.987	2.56	0.817	0.2768	0.7495
3.2. 9	0.0155	0.1172	22.46	0.0468	2.412	1.023	2.61	0.761	0.2788	0.7237
3.2.10	0.0227	0.1176	22.46	0.0469	2.063	1.006	3.81	0.651	0.3373	0.6691
3.2.11	0.0225	0.1175	22.46	0.0479	2.010	1.020	3.77	0.634	0.3354	0.6606
3.2.12	0.0310	0.1172	22.46	0.0479	1.787	1.036	5.21	0.564	0.3941	0.6229
3.2.13	0.0303	0.1172	22.46	0.0458	1.675	1.032	5.09	0.529	0.3897	0.6030
3.2.14	0.0462	0.1163	22.46	0.0480	1.200	1.000	7.82	0.379	0.4820	0.5104
3.2.15	0.0457	0.1175	22.46	0.0474	1.125	1.041	7.66	0.355	0.4782	0.4942
3.2.16	0.0610	0.1172	22.46	0.0469	0.833	1.020	10.25	0.263	0.5529	0.4253
3.2.17	0.0617	0.1176	22.46	0.0469	0.750	1.055	10.33	0.237	0.5553	0.4035
3.2.18	0.0773	0.1174	22.46	0.0469	0.479	1.004	12.97	0.151	0.6220	0.3223
3.2.19	0.0754	0.1174	22.46	0.0447	0.469	0.995	12.65	0.148	0.6143	0.3190
3.2.20	0.0909	0.1171	22.46	0.0469	0.389	1.036	15.28	0.123	0.6748	0.2906
3.2.21	0.0508	0.1170	22.46	0.0453	0.311	0.987	15.28	0.099	0.6747	0.2599
3.2.22	0.1076	0.1171	22.46	0.0458	0.227	0.989	18.08	0.072	0.7361	0.2219
3.2.23	0.1061	0.1171	22.46	0.0453	0.192	0.966	17.84	0.060	0.7293	0.2040
3.2.24	0.0076	0.1175	22.46	0.0958	2.340	1.005	1.27	0.738	0.1947	0.7127
3.2.25	0.0075	0.1175	22.46	0.0927	2.383	1.010	1.25	0.752	0.1934	0.7193

TABLE XXVII (Contd.)

COMBINED EFFECTS TEST GROUP 3.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 3.2.1 TO 3.2.25 -- 0.39-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
3.2. 1	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2. 2	30.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2. 3	30.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2. 4	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2. 5	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2. 6	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
3.2. 7	28.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
3.2. 8	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
3.2. 9	24.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
3.2.10	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
3.2.11	20.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
3.2.12	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
3.2.13	15.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
3.2.14	30.0	10.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
3.2.15	12.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
3.2.16	30.0	10.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
3.2.17	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
3.2.18	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
3.2.19	0.0	8.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
3.2.20	30.0	10.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.2.21	0.0	6.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
3.2.22	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.2.23	0.0	5.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
3.2.24	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
3.2.25	20.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
3.2. 1	0.0	11.0	9.0	0.0	0.0	56.0	80.5	0.0	0.0	12.5
3.2. 2	0.0	11.0	10.0	0.0	0.0	56.5	81.0	0.0	0.0	12.5
3.2. 3	0.0	10.5	9.5	0.0	0.0	55.5	80.5	0.0	0.0	12.4
3.2. 4	0.0	11.5	10.5	0.0	0.0	56.5	76.5	0.0	0.0	12.4
3.2. 5	0.0	11.0	9.0	0.0	0.0	57.0	77.5	0.0	0.0	12.4

TABLE XXVII (Contd.)

COMBINED EFFECTS TEST GROUP 3.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 3.2.1 TO 3.2.25 -- 0.39-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
3.2. 6	0.0	10.0	9.0	0.0	0.0	53.0	78.0	0.0	0.0	12.5
3.2. 7	0.0	10.0	9.5	0.0	0.0	55.0	77.0	0.0	0.0	12.5
3.2. 8	0.0	10.5	10.0	0.0	0.0	55.0	76.5	0.0	0.0	12.5
3.2. 9	0.0	10.0	10.5	0.0	0.0	57.0	75.0	0.0	0.0	12.5
3.2.10	0.0	10.0	9.5	0.0	0.0	55.5	76.0	0.0	0.0	12.5
3.2.11	0.0	11.0	9.0	0.0	0.0	56.0	76.0	0.0	0.0	12.5
3.2.12	0.0	11.0	10.5	0.0	0.0	55.5	76.0	0.0	0.0	12.5
3.2.13	0.0	9.0	9.5	0.0	0.0	57.0	76.0	0.0	0.0	12.5
3.2.14	0.0	11.0	10.0	0.0	0.0	55.0	76.0	0.0	0.0	12.5
3.2.15	0.0	10.5	9.5	0.0	0.0	56.0	76.0	0.0	0.0	12.5
3.2.16	0.0	10.0	9.5	0.0	0.0	55.0	78.0	0.0	0.0	12.5
3.2.17	0.0	10.0	10.0	0.0	0.0	55.5	79.0	0.0	0.0	12.5
3.2.18	0.0	10.0	10.0	0.0	0.0	55.5	81.0	0.0	0.0	12.5
3.2.19	0.0	8.0	9.0	0.0	0.0	57.0	84.0	0.0	0.0	12.5
3.2.20	0.0	10.0	9.0	0.0	0.0	56.0	85.0	0.0	0.0	12.5
3.2.21	0.0	8.5	9.0	0.0	0.0	56.0	86.0	0.0	0.0	12.5
3.2.22	0.0	9.0	9.5	0.0	0.0	56.0	88.5	0.0	0.0	12.5
3.2.23	0.0	8.5	9.0	0.0	0.0	56.0	91.0	0.0	0.0	12.5
3.2.24	0.0	11.0	9.5	0.0	0.0	56.0	76.5	0.0	0.0	12.5
3.2.25	0.0	9.5	9.0	0.0	0.0	56.0	79.0	0.0	0.0	12.5

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
3.2. 1	213.5	279.0	25.0	160.8	175.5	40.0	12.0	10.0	56.0
3.2. 2	135.5	218.5	30.0	104.5	160.8	20.0	12.0	10.0	59.0
3.2. 3	290.0	384.5	25.0	493.5	576.3	45.0	12.0	10.0	56.0
3.2. 4	384.5	445.5	20.0	576.3	629.5	50.0	12.0	10.0	56.5
3.2. 5	445.5	516.8	30.0	629.5	653.3	65.0	12.0	10.0	57.0
3.2. 6	134.3	232.5	30.0	90.5	170.0	35.0	12.0	10.0	53.5
3.2. 7	232.5	316.5	30.0	170.0	222.5	50.0	12.0	10.0	55.0
3.2. 8	316.5	368.3	20.0	222.5	338.5	40.0	12.0	10.0	55.0
3.2. 9	368.3	416.5	20.0	338.5	373.5	35.0	12.0	10.0	57.0
3.2.10	416.5	457.8	20.0	373.5	479.5	30.0	12.0	10.0	55.5
3.2.11	457.8	508.0	25.0	479.5	512.5	40.0	12.0	10.0	56.0
3.2.12	442.8	478.5	20.0	592.5	672.0	20.0	12.0	10.0	57.0
3.2.13	478.5	512.0	20.0	672.0	693.5	45.0	12.0	10.0	57.0
3.2.14	135.8	183.8	40.0	94.5	203.5	25.0	12.0	10.0	61.0
3.2.15	183.8	217.5	30.0	203.5	231.0	45.0	12.0	10.0	56.0

TABLE XXVII (Contd.)

COMBINED EFFECTS TEST GROUP 3.2

EXPERIMENTAL MEASUREMENTS FOR TESTS 3.2.1 TO 3.2.25 -- 0.39-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
3.2.16	217.5	242.5	30.0	231.0	352.0	25.0	12.0	10.0	57.0
3.2.17	242.5	272.5	40.0	352.0	384.3	45.0	12.0	10.0	55.5
3.2.18	272.5	289.3	35.0	384.3	563.0	35.0	12.0	10.0	56.5
3.2.19	289.3	308.0	40.0	563.0	588.5	40.0	12.0	10.0	56.5
3.2.20	308.0	325.5	45.0	588.5	696.0	20.0	12.0	10.0	57.5
3.2.21	325.5	339.5	45.0	696.0	716.5	40.0	12.0	10.0	58.0
3.2.22	339.5	354.3	65.0	716.5	822.0	20.0	12.0	10.0	57.5
3.2.23	354.3	365.8	60.0	822.0	846.0	50.0	12.0	10.0	57.5
3.2.24	279.0	337.5	25.0	175.5	240.5	20.0	12.0	10.0	56.0
3.2.25	337.5	409.0	30.0	240.5	257.5	40.0	12.0	10.0	56.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
3.2.1	60.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.2	60.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.3	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.4	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.5	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.6	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.7	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.8	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.9	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.10	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.11	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.12	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.13	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.14	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.15	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.16	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.17	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.18	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.19	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.20	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.21	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.22	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.23	30.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.24	60.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2.25	60.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XXXVIII

COMBINED EFFECTS TEST GROUP 4.3

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.3.1 TO 4.3.5 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.3.1	0.0299	0.1170	22.33	0.0	5.352	0.962	3.96	1.332	0.3252	0.9059
4.3.2	0.0460	0.1161	22.33	0.0	5.548	1.001	6.16	1.391	0.4045	0.9223
4.3.3	0.0526	0.1162	22.33	0.0	5.428	0.986	7.03	1.351	0.4323	0.9123
4.3.4	0.0619	0.1164	22.33	0.0	5.525	1.007	8.27	1.375	0.4690	0.9204
4.3.5	0.0689	0.1164	22.33	0.0	5.362	0.996	9.20	1.335	0.4946	0.9068

TABLE XXXVIII (Contd.)

COMBINED EFFECTS TEST GROUP 4.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.3.1 TO 4.3.5 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.3.1	30.0	10.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0	0.0
4.3.2	30.0	10.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.3.3	30.0	10.0	0.0	0.0	0.0	35.00	0.0	0.0	0.0	0.0
4.3.4	30.0	10.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0
4.3.5	30.0	10.0	0.0	0.0	0.0	45.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.3.1	0.0	9.7	9.0	0.0	0.0	55.0	77.0	0.0	0.0	12.3
4.3.2	0.0	10.5	10.0	0.0	0.0	59.0	77.0	0.0	0.0	12.3
4.3.3	0.0	11.7	9.0	0.0	0.0	59.0	77.0	0.0	0.0	12.3
4.3.4	0.0	11.0	10.2	0.0	0.0	58.0	77.0	0.0	0.0	12.3
4.3.5	0.0	10.2	9.7	0.0	0.0	58.0	80.0	0.0	0.0	12.3

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.3.1	132.9	250.5	22.0	90.8	90.8	85.0	12.0	10.0	55.0
4.3.2	251.5	367.0	21.0	90.8	92.5	100.0	12.0	10.0	59.0
4.3.3	177.0	402.3	41.5	92.5	97.0	80.0	12.0	10.0	58.5
4.3.4	368.8	479.3	20.0	97.0	104.0	90.0	12.0	10.0	58.0
4.3.5	474.3	586.5	20.0	104.0	112.5	70.0	12.0	10.0	58.0

TABLE XXXIX

COMBINED EFFECTS TEST GROUP 4.7

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.7.1 TO 4.7.25 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.7. 1	0.0076	0.1166	22.25	0.0890	2.640	1.005	1.01	0.657	0.1639	0.6362
4.7. 2	0.0076	0.1161	22.25	0.0937	2.780	0.963	1.01	0.692	0.1642	0.6529
4.7. 3	0.0152	0.1153	22.25	0.0973	2.280	1.025	2.04	0.568	0.2329	0.5913
4.7. 4	0.0151	0.1289	22.25	0.0931	2.410	1.017	1.82	0.609	0.2255	0.6079
4.7. 5	0.0223	0.1159	22.25	0.0973	2.083	1.017	3.06	0.519	0.2949	0.5652
4.7. 6	0.0477	0.0647	12.43	0.0703	2.208	1.020	11.46	0.550	0.4767	0.5813
4.7. 7	0.0394	0.1159	22.25	0.0993	1.800	1.001	4.07	0.448	0.3288	0.5254
4.7. 8	0.0298	0.1149	22.25	0.0923	1.950	1.045	4.02	0.485	0.3260	0.5468
4.7. 9	0.0463	0.1156	22.25	0.0976	1.408	1.020	6.18	0.351	0.4046	0.4647
4.7.10	0.0446	0.1163	22.25	0.0903	1.742	1.056	5.96	0.434	0.3981	0.5168
4.7.11	0.0456	0.1161	22.25	0.0964	1.858	1.005	6.10	0.463	0.4026	0.5338
4.7.12	0.0455	0.1164	22.25	0.0954	1.767	1.026	6.97	0.440	0.4019	0.5205
4.7.13	0.0625	0.1162	22.25	0.0994	1.129	1.019	8.35	0.281	0.4712	0.4160
4.7.14	0.0594	0.1158	22.25	0.0899	1.557	1.048	7.96	0.388	0.4596	0.4886
4.7.15	0.0636	0.1157	22.25	0.0937	1.567	1.026	8.14	0.390	0.4667	0.4901
4.7.16	0.0609	0.1159	22.25	0.0963	1.367	1.015	8.16	0.340	0.4655	0.4578
4.7.17	0.0613	0.1156	22.25	0.0974	1.119	1.004	8.24	0.278	0.4674	0.4142
4.7.18	0.0767	0.1162	22.25	0.0994	0.971	1.026	10.25	0.242	0.5221	0.3859
4.7.19	0.0749	0.1162	22.25	0.0911	1.186	1.063	10.02	0.295	0.5160	0.4264
4.7.20	0.0921	0.1159	22.25	0.0984	0.750	1.025	12.33	0.197	0.5723	0.3391
4.7.21	0.0903	0.1158	22.25	0.0911	0.950	1.011	12.11	0.236	0.5670	0.3817
4.7.22	0.1110	0.1236	23.75	0.1003	0.511	1.021	13.95	0.127	0.6194	0.2800
4.7.23	0.1056	0.1153	22.25	0.0906	0.550	1.043	14.16	0.137	0.6131	0.2904
4.7.24	0.1326	0.1315	25.19	0.1024	0.317	1.032	15.66	0.079	0.6656	0.2204
4.7.25	0.1241	0.1161	22.19	0.0921	0.342	1.067	16.61	0.095	0.6643	0.2289

TABLE XXXIX (Contd.)

COMBINED EFFECTS TEST GROUP 4.7

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.7.1 TO 4.7.25 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.7. 1	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.7. 2	25.0	0.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.7. 3	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.7. 4	20.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.7. 5	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.7. 6	13.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.7. 7	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.7. 8	15.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.7. 9	30.0	10.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.7.10	13.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.7.11	20.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.7.12	30.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.7.13	30.0	10.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.7.14	12.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.7.15	20.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.7.16	30.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.7.17	30.0	10.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.7.18	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.7.19	10.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.7.20	30.0	10.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
4.7.21	0.0	10.0	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
4.7.22	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.7.23	0.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.7.24	30.0	10.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
4.7.25	0.0	5.0	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARD (PSIA)
4.7. 1	0.0	7.5	9.7	0.0	0.0	55.5	78.0	0.0	0.0	12.3
4.7. 2	0.0	10.2	9.7	0.0	0.0	58.0	77.0	0.0	0.0	12.3
4.7. 3	0.0	12.0	10.0	0.0	0.0	59.0	78.0	0.0	0.0	12.3
4.7. 4	0.0	10.0	9.5	0.0	0.0	58.5	77.5	0.0	0.0	12.3
4.7. 5	0.0	12.0	10.0	0.0	0.0	58.0	79.5	0.0	0.0	12.3

TABLE XXXIX (Contd.)

COMBINED EFFECTS TEST GROUP 4.7

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.7.1 TO 4.7.25 -- 0.49-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.7. 6	0.0	10.3	95.0	0.0	0.0	59.5	80.0	0.0	0.0	2.4
4.7. 7	0.0	13.0	10.0	0.0	0.0	57.0	81.0	0.0	0.0	12.3
4.7. 8	0.0	9.7	9.0	0.0	0.0	61.5	79.0	0.0	0.0	12.3
4.7. 9	0.0	12.5	10.2	0.0	0.0	65.5	78.0	0.0	0.0	12.3
4.7.10	0.0	9.0	9.0	0.0	0.0	66.5	77.0	0.0	0.0	12.3
4.7.11	0.0	11.5	10.0	0.0	0.0	56.5	81.0	0.0	0.0	12.3
4.7.12	0.0	11.0	10.0	0.0	0.0	56.0	83.0	0.0	0.0	12.3
4.7.13	0.0	12.5	11.0	0.0	0.0	57.0	83.5	0.0	0.0	12.3
4.7.14	0.0	8.5	8.7	0.0	0.0	59.5	84.5	0.0	0.0	12.3
4.7.15	0.0	10.2	9.5	0.0	0.0	59.0	80.0	0.0	0.0	12.3
4.7.16	0.0	11.5	9.7	0.0	0.0	57.0	81.5	0.0	0.0	12.3
4.7.17	0.0	12.0	10.0	0.0	0.0	57.0	80.0	0.0	0.0	12.3
4.7.18	0.0	13.0	10.0	0.0	0.0	56.0	84.5	0.0	0.0	12.3
4.7.19	0.0	9.0	9.0	0.0	0.0	57.0	85.5	0.0	0.0	12.3
4.7.20	0.0	12.5	10.0	0.0	0.0	57.0	90.0	0.0	0.0	12.3
4.7.21	0.0	9.0	9.2	0.0	0.0	57.5	92.7	0.0	0.0	12.3
4.7.22	0.0	13.5	11.5	0.0	0.0	57.0	95.0	0.0	0.0	12.3
4.7.23	0.0	3.7	9.2	0.0	0.0	57.0	97.5	0.0	0.0	12.3
4.7.24	0.0	14.5	12.5	0.0	0.0	54.5	74.0	0.0	0.0	12.2
4.7.25	0.0	9.5	9.5	0.0	0.0	56.5	79.5	0.0	0.0	12.2

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO.	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.7. 1	133.5	199.5	25.0	90.8	164.5	25.0	12.0	10.0	55.0
4.7. 2	199.5	269.0	25.0	164.5	181.5	30.0	12.0	10.0	57.5
4.7. 3	269.0	326.0	25.0	181.5	267.0	25.0	12.0	10.0	59.5
4.7. 4	326.0	386.3	25.0	267.0	279.5	30.0	12.0	10.0	5.8
4.7. 5	386.3	438.8	25.2	279.5	404.5	35.0	12.0	10.0	59.0
4.7. 6	438.8	505.0	30.0	404.5	420.0	45.0	12.0	10.0	58.5
4.7. 7	505.0	550.0	25.0	420.0	533.0	30.0	12.0	10.0	58.0
4.7. 8	133.5	201.8	35.0	95.5	107.0	50.0	12.0	10.0	62.5
4.7. 9	201.8	244.0	30.0	107.0	235.0	30.0	12.0	10.0	59.5
4.7.10	244.0	296.3	30.0	235.0	245.0	60.0	12.0	10.0	56.5
4.7.11	296.3	352.0	30.0	245.0	282.5	40.0	12.0	10.0	57.5
4.7.12	352.0	405.0	30.0	282.5	383.0	40.0	12.0	10.0	56.0
4.7.13	405.0	444.5	35.0	383.0	496.5	25.0	12.0	10.0	57.0
4.7.14	444.5	499.0	35.0	496.5	507.0	55.0	12.0	10.0	58.5
4.7.15	499.0	508.0	30.0	507.0	558.5	40.0	12.0	10.0	59.0

TABLE XXXIX (Contd.)

COMBINED EFFECTS TEXT GROUP 4:7

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.7.1 TO 4.7.25 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.7.16	468.3	509.3	30.0	558.5	644.5	30.0	12.0	10.0	58.0
4.7.17	183.0	227.8	40.0	102.5	236.5	30.0	12.0	10.0	59.5
4.7.18	227.8	261.8	35.0	236.5	378.5	30.0	12.0	10.0	57.0
4.7.19	261.8	303.3	35.0	378.5	396.0	60.0	12.0	10.0	57.0
4.7.20	303.3	329.5	35.0	396.0	544.5	30.0	12.0	10.0	58.0
4.7.21	329.5	367.5	40.0	544.5	565.0	45.0	12.0	10.0	58.5
4.7.22	367.5	390.5	45.0	565.0	720.0	30.0	12.0	11.5	58.5
4.7.23	390.5	415.3	45.0	720.0	736.0	50.0	12.0	10.0	59.5
4.7.24	132.8	151.8	60.0	83.0	191.5	20.0	12.0	13.0	57.0
4.7.25	151.8	172.3	60.0	191.5	209.5	45.0	12.0	10.0	56.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
4.7. 1	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 2	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 3	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 4	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 5	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 6	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 7	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 8	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7. 9	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.10	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.11	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.12	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.13	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.14	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.15	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.16	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.17	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.18	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.19	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.20	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.21	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.22	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.23	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.24	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.7.25	60.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XL

COMBINED EFFECTS TEST GROUP 4.8

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.8.1 TO 4.8.34 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.8.1	0.0073	0.1160	22.19	0.0	4.925	0.989	0.98	1.226	0.1615	0.8690
4.8.2	0.0150	0.1159	22.19	0.0	4.150	0.944	2.01	1.033	0.2313	0.7977
4.8.3	0.0150	0.1161	22.19	0.0	4.175	0.972	2.01	1.039	0.2312	0.8001
4.8.4	0.0152	0.1161	22.19	0.0	3.986	1.023	2.04	0.992	0.2328	0.7818
4.8.5	0.0227	0.1163	22.19	0.0	3.758	1.010	3.03	0.936	0.2839	0.7591
4.8.6	0.0226	0.1163	22.19	0.0	3.412	1.007	3.02	0.949	0.2832	0.7234
4.8.7	0.0226	0.1163	22.19	0.0	3.537	0.995	3.02	0.881	0.2832	0.7365
4.8.8	0.0303	0.1160	22.19	0.0	3.100	0.980	4.06	0.772	0.3282	0.6894
4.8.9	0.0305	0.1163	22.19	0.0	2.933	1.029	4.07	0.730	0.3289	0.6707
4.8.10	0.0449	0.1163	22.19	0.0	2.580	1.005	5.99	0.642	0.3992	0.6290
4.8.11	0.0443	0.1162	22.19	0.0	2.340	0.988	5.72	0.592	0.3967	0.5990
4.8.12	0.0606	0.1162	22.19	0.0	1.800	1.025	8.10	0.449	0.4641	0.5254
4.8.13	0.0599	0.1161	22.19	0.0	2.217	1.006	8.02	0.552	0.4616	0.5830
4.8.14	0.0612	0.1162	22.19	0.0	1.800	0.977	8.19	0.448	0.4665	0.5254
4.8.15	0.0774	0.1166	22.25	0.0	1.194	1.006	10.31	0.297	0.5241	0.4278
4.8.16	0.0759	0.1166	22.25	0.0	1.267	1.030	10.10	0.316	0.5186	0.4411
4.8.17	0.0776	0.1165	22.25	0.0	1.487	0.974	10.34	0.370	0.5247	0.4776
4.8.18	0.1074	0.1166	22.25	0.0	0.569	1.010	14.31	0.142	0.6173	0.2953
4.8.19	0.1072	0.1165	22.25	0.0	0.578	1.013	14.30	0.144	0.6168	0.2976
4.8.20	0.1062	0.1165	22.25	0.0	1.617	1.024	14.16	0.402	0.6138	0.4979
4.8.21	0.1087	0.1164	22.25	0.0	0.669	1.041	14.51	0.166	0.6212	0.3202
4.8.22	0.1067	0.1162	22.25	0.0	0.691	1.002	14.26	0.172	0.6157	0.3255
4.8.23	0.1052	0.1166	22.25	0.0	1.017	1.014	14.01	0.253	0.6108	0.3948
4.8.24	0.1395	0.1166	22.25	0.0	0.300	1.016	18.53	0.075	0.7035	0.2145
4.8.25	0.1377	0.1165	22.25	0.0	0.287	1.013	18.36	0.072	0.6990	0.2100
4.8.26	0.1393	0.1165	22.25	0.0	0.306	1.009	18.58	0.076	0.7031	0.2167
4.8.27	0.1393	0.1165	22.25	0.0	0.444	1.009	18.57	0.111	0.7030	0.2611
4.8.28	0.1402	0.1164	22.25	0.0	0.520	1.030	18.71	0.129	0.7056	0.2824
4.8.29	0.2200	0.2905	56.17	0.0	1.737	1.209	11.76	0.432	0.7036	0.5165
4.8.30	0.1392	0.1163	22.25	0.0	1.456	0.996	18.66	0.362	0.7037	0.4724
4.8.31	0.1695	0.1158	22.25	0.0	0.125	1.024	22.73	0.031	0.7767	0.1384
4.8.32	0.1686	0.1153	22.25	0.0	0.142	1.004	22.60	0.035	0.7745	0.1474
4.8.33	0.1744	0.1166	22.25	0.0	1.144	1.013	23.23	0.285	0.7865	0.4189
4.8.34	0.1615	0.1165	22.25	0.0	0.491	1.033	21.54	0.122	0.7571	0.2744

TABLE XL (Contd.)

COMBINED EFFECTS TEST GROUP 4.8

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.8.1 TO 4.8.34 — 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.8.1	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.8.2	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.8.3	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.8.4	32.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.8.5	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.8.6	30.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.8.7	30.0	5.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.8.8	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.8.9	26.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.8.10	30.0	10.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
4.8.11	22.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0	0.0
4.8.12	30.0	10.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.8.13	16.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.8.14	20.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.8.15	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.8.16	25.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.8.17	15.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.8.18	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.8.19	25.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.8.20	12.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.8.21	20.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.8.22	16.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.8.23	14.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.8.24	30.0	10.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.25	25.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.26	20.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.27	16.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.28	14.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.29	12.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.30	12.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.8.31	30.0	10.0	0.0	0.0	90.00	0.0	20.00	0.0	0.0	0.0
4.8.32	20.0	0.0	0.0	0.0	90.00	0.0	20.00	0.0	0.0	0.0
4.8.33	10.0	0.0	0.0	0.0	90.00	0.0	20.00	0.0	0.0	0.0
4.8.34	12.0	0.0	0.0	0.0	90.00	0.0	20.00	0.0	0.0	0.0

TABLE XL (Contd.)

COMBINED EFFECTS TEST GROUP 4.8

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.8.1 TO 4.8.34 -- 0.49-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.8.1	0.0	9.2	8.5	0.0	0.0	56.5	79.5	0.0	0.0	12.2
4.8.2	0.0	10.0	9.5	0.0	0.0	57.0	79.0	0.0	0.0	12.2
4.8.3	0.0	9.7	9.5	0.0	0.0	56.0	78.5	0.0	0.0	12.2
4.8.4	0.0	9.7	10.0	0.0	0.0	55.5	76.0	0.0	0.0	12.2
4.8.5	0.0	10.5	9.7	0.0	0.0	55.0	78.0	0.0	0.0	12.2
4.8.6	0.0	8.5	9.5	0.0	0.0	55.0	77.0	0.0	0.0	12.2
4.8.7	0.0	9.0	9.5	0.0	0.0	55.0	77.0	0.0	0.0	12.2
4.8.8	0.0	10.5	9.7	0.0	0.0	55.0	77.0	0.0	0.0	12.2
4.8.9	0.0	10.2	10.0	0.0	0.0	54.5	77.0	0.0	0.0	12.2
4.8.10	0.0	3.7	9.0	0.0	0.0	54.5	77.0	0.0	0.0	12.2
4.8.11	0.0	3.5	8.5	0.0	0.0	55.0	78.0	0.0	0.0	12.2
4.8.12	0.0	9.0	9.5	0.0	0.0	54.5	79.0	0.0	0.0	12.2
4.8.13	0.0	8.5	9.0	0.0	0.0	50.0	79.0	0.0	0.0	12.2
4.8.14	0.0	3.7	10.0	0.0	0.0	55.0	80.0	0.0	0.0	12.2
4.8.15	0.0	9.7	10.0	0.0	0.0	54.0	74.0	0.0	0.0	12.3
4.8.16	0.0	8.2	9.0	0.0	0.0	55.0	72.5	0.0	0.0	12.3
4.8.17	0.0	11.0	10.0	0.0	0.0	55.5	72.0	0.0	0.0	12.3
4.8.18	0.0	3.7	9.0	0.0	0.0	55.0	73.0	0.0	0.0	12.3
4.8.19	0.0	8.7	9.0	0.0	0.0	55.0	75.0	0.0	0.0	12.3
4.8.20	0.0	3.5	8.7	0.0	0.0	55.0	79.5	0.0	0.0	12.3
4.8.21	0.0	9.0	9.7	0.0	0.0	57.5	78.0	0.0	0.0	12.3
4.8.22	0.0	8.0	9.0	0.0	0.0	55.0	80.5	0.0	0.0	12.3
4.8.23	0.0	9.0	8.5	0.0	0.0	55.0	83.5	0.0	0.0	12.3
4.8.24	0.0	8.7	9.2	0.0	0.0	54.5	85.0	0.0	0.0	12.3
4.8.25	0.0	8.5	8.7	0.0	0.0	54.5	87.5	0.0	0.0	12.3
4.8.26	0.0	9.0	9.2	0.0	0.0	55.5	80.5	0.0	0.0	12.3
4.8.27	0.0	8.0	9.2	0.0	0.0	55.5	87.0	0.0	0.0	12.3
4.8.28	0.0	9.0	9.7	0.0	0.0	55.0	91.0	0.0	0.0	12.3
4.8.29	0.0	9.0	9.5	0.0	0.0	61.0	80.5	0.0	0.0	46.2
4.8.30	0.0	7.0	9.0	0.0	0.0	58.0	82.0	0.0	0.0	12.3
4.8.31	0.0	3.7	9.0	0.0	0.0	55.0	83.0	0.0	0.0	12.3
4.8.32	0.0	3.5	9.0	0.0	0.0	55.0	89.0	0.0	0.0	12.3
4.8.33	0.0	9.0	11.0	0.0	0.0	55.0	95.4	0.0	0.0	12.3
4.8.34	0.0	7.5	7.5	0.0	0.0	55.0	99.0	0.0	0.0	12.3

TABLE XL (Contd.)

COMBINED EFFECTS TEST GROUP 4.8

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.8.1 TO 4.8.34 -- 0.49-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.8. 1	133.3	281.0	30.0	95.5	121.5	45.0	12.0	10.0	56.5
4.8. 2	281.0	405.5	30.0	121.5	176.5	50.0	12.0	10.0	57.0
4.8. 3	405.5	530.8	30.0	176.5	232.0	45.0	12.0	10.0	56.0
4.8. 4	132.8	272.3	35.0	94.3	122.5	50.0	12.0	10.0	56.0
4.8. 5	272.3	385.0	30.0	122.5	187.5	35.0	12.0	10.0	55.0
4.8. 6	385.0	453.3	20.0	187.5	219.0	40.0	12.0	10.0	55.0
4.8. 7	453.3	524.0	20.0	219.0	284.3	50.0	12.0	10.0	55.0
4.8. 8	150.0	212.0	20.0	98.0	192.0	40.0	12.0	10.0	56.5
4.8. 9	212.0	300.0	30.0	192.0	231.3	50.0	12.0	10.0	55.0
4.8.10	300.0	364.5	25.0	231.3	321.5	30.0	12.0	10.0	55.0
4.8.11	364.5	423.0	25.0	321.5	342.0	30.0	12.0	10.0	55.5
4.8.12	423.0	468.0	25.0	342.0	459.0	30.0	12.0	10.0	55.5
4.8.13	468.0	534.5	30.0	459.0	460.0	45.0	12.0	10.0	56.0
4.8.14	480.5	525.5	25.0	460.0	487.5	30.0	12.0	10.0	55.5
4.8.15	132.5	180.3	40.0	91.0	223.0	30.0	12.0	10.0	55.0
4.8.16	180.3	231.0	40.0	223.0	315.5	40.0	12.0	10.0	55.0
4.8.17	231.0	290.5	40.0	315.5	340.0	45.0	12.0	10.0	55.5
4.8.18	290.5	313.3	40.0	340.0	491.5	30.0	12.0	10.0	55.0
4.8.19	313.3	339.3	45.0	491.5	594.5	35.0	12.0	10.0	55.5
4.8.20	339.3	412.0	45.0	594.5	600.0	60.0	12.0	10.0	55.5
4.8.21	133.8	160.5	40.0	104.5	193.5	40.0	12.0	10.0	56.0
4.8.22	160.5	198.5	55.0	193.5	255.0	40.0	12.0	10.0	57.0
4.8.23	198.5	229.0	30.0	255.0	288.5	35.0	12.0	10.0	55.0
4.8.24	229.0	241.0	40.0	288.5	449.0	30.0	12.0	10.0	55.0
4.8.25	241.0	252.5	40.0	449.0	546.0	30.0	12.0	10.0	55.5
4.8.26	252.5	264.8	40.0	546.0	634.0	35.2	12.0	10.0	55.5
4.8.27	264.8	294.8	45.0	634.0	688.0	30.0	12.0	10.0	55.5
4.8.28	294.8	310.8	50.0	688.0	740.0	35.0	12.0	10.0	56.0
4.8.29	152.5	222.0	40.0	107.0	121.0	50.0	12.0	10.0	62.0
4.8.30	222.0	287.5	45.0	121.0	130.3	45.0	12.0	10.0	58.5
4.8.31	287.5	295.0	60.0	130.3	269.5	25.0	12.0	10.0	58.5
4.8.32	295.0	303.5	60.0	269.5	375.5	40.0	12.0	10.0	58.5
4.8.33	303.5	355.0	45.0	375.5	394.0	70.0	12.0	10.0	55.0
4.8.34	355.0	382.0	55.0	394.0	431.0	30.0	12.0	10.0	55.5

TABLE XLI

COMBINED EFFECTS TEST GROUP 4.9

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.9.1 TO 4.9.21 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.9. 1	0.0	0.1166	22.21	0.0976	4.275	1.064	0.0	1.064	0.0	0.8096
4.9. 2	0.0075	0.1164	22.21	0.0965	3.740	0.998	1.00	0.931	0.1635	0.7573
4.9. 3	0.0075	0.1165	22.21	0.0955	3.575	1.012	1.00	0.990	0.1636	0.7404
4.9. 4	0.0153	0.1165	22.21	0.0986	3.350	1.027	2.04	0.834	0.2332	0.7167
4.9. 5	0.0152	0.1164	22.21	0.0955	3.095	0.997	2.02	0.770	0.2320	0.6889
4.9. 6	0.0231	0.1162	22.21	0.0935	2.840	0.996	3.09	0.707	0.2866	0.6599
4.9. 7	0.0223	0.1164	22.21	0.0934	2.767	1.005	2.99	0.699	0.2915	0.6513
4.9. 8	0.0314	0.1165	22.21	0.0935	2.600	0.980	4.18	0.647	0.3336	0.6314
4.9. 9	0.0299	0.1168	22.21	0.0935	2.480	1.003	3.98	0.617	0.3257	0.6167
4.9.10	0.0457	0.1166	22.21	0.0988	2.067	1.006	6.08	0.514	0.4025	0.5629
4.9.11	0.0456	0.1165	22.21	0.0965	2.050	1.076	6.08	0.510	0.4022	0.5607
4.9.12	0.0459	0.1146	22.21	0.0939	1.929	0.984	6.22	0.480	0.4051	0.5438
4.9.13	0.0769	0.1157	22.21	0.0965	1.417	1.017	10.32	0.353	0.5232	0.4661
4.9.14	0.0762	0.1164	22.21	0.0934	1.071	1.025	10.16	0.267	0.5200	0.4053
4.9.15	0.0613	0.1164	22.21	0.0986	1.688	0.986	8.19	0.420	0.4664	0.5087
4.9.16	0.0608	0.1164	22.21	0.0934	1.458	1.018	8.12	0.363	0.4647	0.4729
4.9.17	0.0762	0.1163	22.21	0.0954	1.121	1.003	10.18	0.279	0.5202	0.4147
4.9.18	0.1098	0.1215	23.21	0.0986	0.737	0.999	14.03	0.184	0.6176	0.3363
4.9.19	0.1068	0.1164	22.21	0.0934	0.563	1.028	14.25	0.140	0.6157	0.2937
4.9.20	0.1496	0.1374	26.21	0.1034	0.387	1.023	16.92	0.096	0.6993	0.2438
4.9.21	0.1368	0.1162	22.21	0.0913	0.239	1.066	19.29	0.059	0.6972	0.1914

TABLE XLI (Contd.)

COMBINED EFFECTS TEST GROUP 4.9

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.9.1 TO 4.9.21 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.9. 1	30.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 2	30.0	10.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.9. 3	30.0	3.0	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
4.9. 4	30.0	10.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.9. 5	30.0	0.0	0.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
4.9. 6	30.0	10.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.9. 7	25.0	0.0	0.0	0.0	0.0	0.0	15.00	0.0	0.0	0.0
4.9. 8	30.0	10.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.9. 9	22.0	0.0	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
4.9.10	30.0	10.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.9.11	18.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.9.12	18.0	0.0	0.0	0.0	0.0	0.0	30.00	0.0	0.0	0.0
4.9.13	30.0	10.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.9.14	15.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.9.15	30.0	10.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.9.16	15.0	0.0	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
4.9.17	15.0	0.0	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
4.9.18	30.0	10.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.9.19	10.0	0.0	0.0	0.0	70.00	0.0	0.0	0.0	0.0	0.0
4.9.20	30.0	10.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
4.9.21	6.0	0.0	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.9. 1	0.0	12.0	10.0	0.0	0.0	54.0	76.5	0.0	0.0	12.2
4.9. 2	0.0	11.5	9.5	0.0	0.0	54.5	77.5	0.0	0.0	12.2
4.9. 3	0.0	11.0	9.5	0.0	0.0	54.0	76.0	0.0	0.0	12.2
4.9. 4	0.0	12.5	10.2	0.0	0.0	54.0	76.5	0.0	0.0	12.2
4.9. 5	0.0	11.0	9.7	0.0	0.0	54.5	76.5	0.0	0.0	12.2
4.9. 6	0.0	12.5	10.5	0.0	0.0	54.5	77.0	0.0	0.0	12.2
4.9. 7	0.0	10.0	9.0	0.0	0.0	54.5	78.0	0.0	0.0	12.2
4.9. 8	0.0	12.5	11.0	0.0	0.0	55.0	70.0	0.0	0.0	12.2
4.9. 9	0.0	10.0	9.0	0.0	0.0	53.0	72.0	0.0	0.0	12.2
4.9.10	0.0	12.5	10.0	0.0	0.0	52.0	77.5	0.0	0.0	12.2

TABLE XLI (Contd.)

COMBINED EFFECTS TEST GROUP 4.9

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.9.1 TO 4.9.21 -- 0.49-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.9.11	0.0	11.5	10.0	0.0	0.0	54.0	80.0	0.0	0.0	12.2
4.9.12	0.0	10.5	10.2	0.0	0.0	61.0	79.0	0.0	0.0	12.2
4.9.13	0.0	11.5	10.0	0.0	0.0	54.0	81.0	0.0	0.0	12.2
4.9.14	0.0	10.0	9.7	0.0	0.0	55.0	85.0	0.0	0.0	12.2
4.9.15	0.0	12.5	10.2	0.0	0.0	54.0	86.0	0.0	0.0	12.2
4.9.16	0.0	10.0	10.0	0.0	0.0	55.0	88.0	0.0	0.0	12.2
4.9.17	0.0	11.0	10.0	0.0	0.0	55.0	90.5	0.0	0.0	12.2
4.9.18	0.0	12.5	11.0	0.0	0.0	54.0	95.0	0.0	0.0	12.2
4.9.19	0.0	10.0	9.7	0.0	0.0	55.0	96.5	0.0	0.0	12.2
4.9.20	0.0	15.0	13.5	0.0	0.0	54.5	99.5	0.0	0.0	12.2
4.9.21	0.0	9.0	9.0	0.0	0.0	54.0	100.0	0.0	0.0	12.2

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.9. 1	133.5	219.0	20.0	93.0	134.0	25.0	12.0	10.0	54.0
4.9. 2	219.0	312.5	25.0	134.0	195.5	35.0	12.0	10.0	55.0
4.9. 3	312.5	384.0	20.0	195.5	227.5	30.0	12.0	10.0	54.5
4.9. 4	384.0	451.0	20.0	227.5	286.5	25.0	12.0	10.0	54.5
4.9. 5	451.0	512.9	20.0	286.5	329.0	40.0	12.0	10.0	55.0
4.9. 6	133.5	210.5	25.0	100.0	181.0	30.0	12.0	10.0	56.0
4.9. 7	210.5	293.5	30.0	181.0	210.0	40.0	12.0	10.0	55.0
4.9. 8	293.5	371.5	30.0	210.0	281.3	25.0	12.0	10.0	54.5
4.9. 9	371.5	433.5	25.0	281.3	304.8	40.0	12.0	10.0	53.5
4.9.10	433.5	495.5	30.0	304.8	393.0	25.0	12.0	10.0	54.0
4.9.11	495.5	546.8	25.0	393.0	412.3	30.0	12.0	10.0	54.5
4.9.12	135.5	203.0	35.0	93.5	117.5	45.0	12.0	10.0	63.0
4.9.13	203.0	245.5	30.0	117.5	287.0	40.0	12.0	10.0	58.0
4.9.14	245.5	283.0	35.0	287.0	319.0	30.0	12.0	10.0	55.0
4.9.15	283.0	350.5	40.0	319.0	470.8	40.0	12.0	10.0	55.0
4.9.16	350.5	394.3	30.0	470.8	494.0	35.0	12.0	10.0	55.0
4.9.17	394.3	433.5	35.0	494.0	528.0	35.0	12.0	10.0	55.5
4.9.18	433.5	463.0	40.0	528.0	648.5	25.0	12.0	11.0	55.5
4.9.19	463.0	495.5	40.0	648.5	674.5	30.0	12.0	10.0	55.0
4.9.20	495.5	501.0	40.0	674.5	754.0	15.0	12.0	14.0	55.0
4.9.21	501.0	511.8	45.0	754.0	783.3	45.0	12.0	10.0	56.0

TABLE XLI (Contd.)

COMBINED EFFECTS TEST GROUP 4.9

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.9.1 TO 4.9.21 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
4.9. 1	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 2	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 3	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 4	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 5	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 6	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 7	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 8	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9. 9	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.10	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.11	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.12	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.13	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.14	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.15	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.16	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.17	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.18	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.19	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.20	60.0	0.0	0.0	0.0	0.0	0.0	0.0
4.9.21	60.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XLII

COMBINED EFFECTS TEST GROUP 5.9

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.9.1 TO 5.9.11 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.9. 1	0.0216	0.1177	22.24	0.0653	3.458	0.960	2.76	0.833	0.2668	0.7034
5.9. 2	0.0214	0.1186	22.49	0.0665	3.583	1.017	2.71	0.863	0.2650	0.7160
5.9. 3	0.0327	0.1175	22.24	0.0668	1.183	0.977	4.18	0.285	0.3282	0.4115
5.9. 4	0.0651	0.1181	22.49	0.0667	1.717	1.022	8.29	0.413	0.4629	0.4956
5.9. 5	0.1956	0.1183	22.49	0.0665	0.036	1.022	24.84	0.009	0.8017	0.0719
5.9. 6	0.1490	0.1174	22.49	0.0663	0.212	1.006	19.07	0.051	0.7011	0.1744
5.9. 7	0.0235	0.1185	22.49	0.1278	2.833	0.983	2.98	0.682	0.2778	0.6367
5.9. 8	0.0328	0.1156	21.90	0.1445	2.567	0.996	4.27	0.618	0.3302	0.6060
5.9. 9	0.0656	0.1183	22.40	0.1396	1.783	0.998	8.33	0.429	0.4643	0.5051
5.9.10	0.1969	0.1182	22.40	0.1342	0.044	1.003	25.03	0.011	0.8045	0.0797
5.9.11	0.1634	0.1178	22.40	0.1375	0.146	1.023	20.83	0.035	0.7334	0.1444

TABLE XLII (Contd.)

COMBINED EFFECTS TEST GROUP 5.9

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.9.1 TO 5.9.11 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.9.1	0.0	0.0	60.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.9.2	0.0	0.0	60.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.9.3	0.0	0.0	0.0	44.9	0.0	0.0	15.00	0.0	0.0	0.0
5.9.4	0.0	0.0	0.0	25.0	0.0	0.0	30.00	0.0	0.0	0.0
5.9.5	0.0	0.0	0.0	10.0	90.00	0.0	0.0	0.0	0.0	0.0
5.9.6	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	17.69	0.0
5.9.7	0.0	0.0	61.0	0.0	0.0	0.0	10.00	0.0	0.0	0.0
5.9.8	0.0	0.0	0.0	45.2	0.0	0.0	15.00	0.0	0.0	0.0
5.9.9	0.0	0.0	0.0	25.1	0.0	0.0	30.00	0.0	0.0	0.0
5.9.10	0.0	0.0	0.0	10.0	90.00	0.0	0.0	0.0	0.0	0.0
5.9.11	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	17.82	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.9.1	12.5	0.0	10.0	96.0	33.0	50.0	81.0	0.0	84.0	12.2
5.9.2	12.5	0.0	10.0	96.0	32.0	52.0	80.0	0.0	82.0	12.2
5.9.3	11.0	0.0	8.0	95.5	33.5	50.5	79.0	0.0	81.0	12.2
5.9.4	12.0	0.0	10.0	95.0	33.0	51.5	79.0	0.0	78.5	12.2
5.9.5	10.0	0.0	10.0	92.0	33.0	51.5	79.0	0.0	77.5	12.2
5.9.6	10.0	0.0	10.0	93.0	0.0	52.0	87.0	102.0	0.0	12.2
5.9.7	15.5	0.0	11.0	94.0	33.0	52.5	81.0	88.5	0.0	12.2
5.9.8	13.0	0.0	9.0	101.0	33.0	51.0	72.0	67.5	70.0	12.1
5.9.9	11.5	0.0	9.0	99.5	33.0	50.0	71.0	72.5	70.0	12.1
5.9.10	11.0	0.0	11.0	95.5	33.0	51.0	70.0	77.0	69.5	12.1
5.9.11	10.5	0.0	11.0	98.0	33.5	51.5	73.0	80.5	76.5	12.1

TABLE XLII (Contd.)

COMBINED EFFECTS TEST GROUP 5.9

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.9.1 TO 5.9.11 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.9. 1	203.5	411.0	60.0	216.0	489.0	60.0	12.0	10.0	50.0
5.9. 2	272.5	380.0	30.0	345.5	492.5	30.0	12.0	10.2	52.0
5.9. 3	202.5	238.0	30.0	150.5	298.0	30.0	12.0	10.0	51.0
5.9. 4	141.5	193.0	30.0	105.0	160.0	30.0	12.0	10.2	54.0
5.9. 5	143.5	150.0	180.0	160.0	243.5	60.0	12.0	10.2	53.0
5.9. 6	150.0	175.5	120.0	243.5	272.5	60.0	12.0	10.2	57.0
5.9. 7	142.0	227.0	30.0	113.0	305.5	35.0	12.0	10.2	52.5
5.9. 8	140.0	217.0	30.0	111.5	333.5	60.0	12.0	9.7	51.5
5.9. 9	217.0	270.5	30.0	333.5	435.5	60.0	12.0	10.2	51.0
5.9.10	270.5	278.5	180.0	435.5	516.5	60.0	12.0	10.2	51.5
5.9.11	278.5	296.0	120.0	516.5	551.0	60.0	12.0	10.2	53.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.9. 1	0.0	30.0	0.0	96.0	35.0	0.0	100.0
5.9. 2	0.0	30.0	0.0	96.0	35.0	0.0	79.5
5.9. 3	0.0	30.0	0.0	95.5	35.4	0.0	80.0
5.9. 4	0.0	30.0	0.0	95.0	35.2	0.0	79.0
5.9. 5	0.0	30.0	0.0	92.0	35.0	0.0	79.5
5.9. 6	0.0	30.0	0.0	93.0	35.2	0.0	84.5
5.9. 7	0.0	0.0	14.7	94.0	34.6	91.5	89.0
5.9. 8	0.0	0.0	15.0	101.0	35.0	68.5	66.5
5.9. 9	0.0	0.0	14.7	99.5	35.2	70.5	68.5
5.9.10	0.0	0.0	14.7	95.5	34.5	72.0	70.0
5.9.11	0.0	0.0	14.9	98.0	35.0	76.0	73.0

TABLE XLIII

COMBINED EFFECTS TEST GROUP 5.11

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.11.1 TO 5.11.12 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.11. 1	0.0110	0.1168	21.90	0.0670	4.450	0.941	1.41	1.072	0.1905	0.7979
5.11. 2	0.0109	0.1203	22.65	0.0673	4.817	1.007	1.37	1.160	0.1887	0.8301
5.11. 3	0.0330	0.1190	22.40	0.0673	3.150	1.008	4.17	0.759	0.3288	0.6713
5.11. 4	0.0440	0.1199	22.65	0.0672	2.667	1.020	5.52	0.642	0.3790	0.6177
5.11. 5	0.1097	0.1181	22.40	0.0673	0.917	1.014	13.96	0.221	0.6007	0.3621
5.11. 6	0.1744	0.1194	22.65	0.0666	0.171	1.010	21.95	0.041	0.7553	0.1563
5.11. 7	0.1537	0.1176	22.40	0.0664	0.283	0.991	19.64	0.068	0.7117	0.2013
5.11. 8	0.0110	0.1217	22.90	0.2567	2.517	0.992	1.35	0.606	0.1884	0.6000
5.11. 9	0.0110	0.1241	23.40	0.2526	2.642	1.002	1.33	0.636	0.1875	0.6148
5.11.10	0.0412	0.1203	22.65	0.2492	1.827	1.011	5.15	0.440	0.3664	0.5112
5.11.11	0.1727	0.1164	22.24	0.2626	0.183	1.022	22.29	0.044	0.7562	0.1620
5.11.12	0.1524	0.1169	22.24	0.2534	0.271	1.008	19.59	0.065	0.7097	0.1968

TABLE XLIII (Contd.)

COMBINED EFFECTS TEST GROUP 5.11

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.11.1 TO 5.11.12 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.11. 1	0.0	0.0	60.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
5.11. 2	0.0	0.0	60.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
5.11. 3	0.0	0.0	0.0	45.0	0.0	0.0	15.00	0.0	0.0	0.0
5.11. 4	0.0	0.0	0.0	35.0	0.0	0.0	20.00	0.0	0.0	0.0
5.11. 5	0.0	0.0	0.0	25.1	50.00	0.0	0.0	0.0	0.0	0.0
5.11. 6	0.0	0.0	0.0	15.2	80.00	0.0	0.0	0.0	0.0	0.0
5.11. 7	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	17.56	0.0
5.11. 8	0.0	0.0	60.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
5.11. 9	0.0	0.0	60.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
5.11.10	0.0	0.0	0.0	35.0	0.0	0.0	20.00	0.0	0.0	0.0
5.11.11	0.0	0.0	0.0	15.1	80.00	0.0	0.0	0.0	0.0	0.0
5.11.12	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	17.69	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.11. 1	12.0	0.0	9.0	102.0	33.5	45.0	78.0	75.0	75.0	12.4
5.11. 2	13.0	0.0	10.0	99.0	33.0	47.0	76.0	72.5	73.0	12.4
5.11. 3	11.5	0.0	9.5	97.5	33.5	48.0	76.0	72.0	72.0	12.4
5.11. 4	11.5	0.0	10.5	97.0	33.5	49.0	77.0	72.0	72.0	12.4
5.11. 5	10.7	0.0	10.5	95.0	33.5	50.0	75.0	76.0	75.0	12.4
5.11. 6	10.2	0.0	10.0	90.0	33.0	51.0	76.0	83.0	76.0	12.4
5.11. 7	9.5	0.0	10.0	94.0	33.5	52.0	78.0	87.0	81.0	12.4
5.11. 8	20.0	0.0	11.0	93.0	33.5	48.0	77.0	78.0	77.0	12.4
5.11. 9	20.0	0.0	11.0	93.0	33.5	49.0	76.0	77.0	76.0	12.4
5.11.10	16.0	0.0	10.0	92.0	28.0	48.0	74.0	77.0	74.0	12.4
5.11.11	12.0	0.0	95.0	95.0	32.0	51.0	75.0	85.0	76.0	12.5
5.11.12	10.2	0.0	10.2	93.0	33.5	50.5	79.0	91.0	84.0	12.5

TABLE XLIII (Contd.)

COMBINED EFFECTS TEST GROUP 5.11

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.11.1 TO 5.11.12 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.11. 1	141.5	275.0	30.0	103.5	205.5	30.0	12.0	9.5	46.0
5.11. 2	275.0	419.5	30.0	205.5	313.0	30.0	12.0	10.2	48.0
5.11. 3	248.0	342.5	30.0	157.5	252.0	30.0	12.0	10.0	48.0
5.11. 4	144.0	304.0	60.0	111.0	249.0	60.0	12.0	10.2	50.0
5.11. 5	143.5	198.5	60.0	116.5	273.5	60.0	12.0	10.0	52.0
5.11. 6	158.5	179.0	120.0	170.5	288.0	60.0	12.0	10.2	52.0
5.11. 7	144.5	195.5	180.0	141.0	165.5	60.0	12.0	10.0	54.0
5.11. 8	142.5	218.0	30.0	107.5	453.0	60.0	12.0	10.5	48.0
5.11. 9	181.5	340.0	60.0	350.5	693.5	60.0	12.0	11.0	49.0
5.11.10	146.5	283.5	75.0	207.0	392.5	60.0	12.0	10.2	48.0
5.11.11	138.0	160.0	120.0	109.0	226.5	60.0	12.0	9.7	55.5
5.11.12	160.0	192.5	120.0	226.5	252.5	60.0	12.0	9.7	53.5

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.11. 1	0.0	30.0	0.0	102.0	35.0	0.0	73.0
5.11. 2	0.0	30.0	0.0	99.0	35.2	0.0	71.0
5.11. 3	0.0	30.0	0.0	97.5	35.2	0.0	71.0
5.11. 4	0.0	30.0	0.0	97.0	35.2	0.0	72.0
5.11. 5	0.0	30.0	0.0	95.0	35.4	0.0	73.0
5.11. 6	0.0	30.0	0.0	90.0	34.5	0.0	74.0
5.11. 7	0.0	30.0	0.0	94.0	34.4	0.0	76.0
5.11. 8	0.0	0.0	29.6	93.0	0.0	87.0	0.0
5.11. 9	0.0	0.0	29.4	93.0	0.0	91.0	0.0
5.11.10	0.0	0.0	29.5	92.0	0.0	95.8	0.0
5.11.11	0.0	0.0	29.5	95.0	0.0	83.0	0.0
5.11.12	0.0	0.0	29.6	93.0	0.0	94.5	0.0

TABLE XLIV

COMBINED EFFECTS TEST GROUP 5.14

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.14.1 TO 5.14.14 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.14. 1	0.0074	0.1192	22.29	0.0667	5.583	0.949	0.94	1.345	0.1559	0.8937
5.14. 2	0.0074	0.1211	22.79	0.0663	6.167	1.007	0.92	1.485	0.1553	0.9393
5.14. 3	0.0219	0.1229	23.04	0.0664	4.683	0.982	2.67	1.128	0.2654	0.8186
5.14. 4	0.0286	0.1218	22.79	0.0662	3.831	0.948	3.53	0.922	0.3043	0.7403
5.14. 5	0.1169	0.1171	22.29	0.0663	0.600	0.971	15.01	0.144	0.6215	0.2930
5.14. 6	0.1749	0.1168	22.29	0.0662	0.104	1.003	22.49	0.025	0.7603	0.1221
5.14. 7	0.0072	0.1164	22.00	0.1366	4.283	0.975	0.93	1.032	0.1549	0.7828
5.14. 8	0.0286	0.1175	22.25	0.1361	3.450	0.979	3.66	0.931	0.3072	0.7025
5.14. 9	0.1170	0.1186	22.50	0.1303	0.633	1.007	14.82	0.153	0.6196	0.3010
5.14.10	0.1748	0.1155	22.00	0.1280	0.033	0.913	22.73	0.008	0.7623	0.0691
5.14.11	0.0072	0.1206	22.75	0.2499	2.867	1.027	0.90	0.690	0.1531	0.6404
5.14.12	0.0292	0.1191	22.50	0.2476	2.200	1.000	3.69	0.530	0.3095	0.5610
5.14.13	0.1170	0.1168	22.25	0.2422	0.667	1.052	15.05	0.161	0.6219	0.3088
5.14.14	0.1748	0.1182	22.50	0.2379	0.117	1.074	22.23	0.028	0.7580	0.1292

TABLE XLIV (Contd.)

COMBINED EFFECTS TEST GROUP 5.14

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.14.1 TO 5.14.14 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.14. 1	0.0	0.0	59.0	0.0	0.0	0.0	3.40	0.0	0.0	0.0
5.14. 2	0.0	0.0	60.0	0.0	0.0	0.0	3.40	0.0	0.0	0.0
5.14. 3	0.0	0.0	0.0	45.1	0.0	0.0	10.00	0.0	0.0	0.0
5.14. 4	0.0	0.0	0.0	35.2	0.0	0.0	13.30	0.0	0.0	0.0
5.14. 5	0.0	0.0	0.0	15.1	53.50	0.0	0.0	0.0	0.0	0.0
5.14. 6	0.0	0.0	0.0	4.9	80.00	0.0	0.0	0.0	0.0	0.0
5.14. 7	0.0	0.0	60.0	0.0	0.0	0.0	3.33	0.0	0.0	0.0
5.14. 8	0.0	0.0	0.0	35.2	0.0	0.0	13.30	0.0	0.0	0.0
5.14. 9	0.0	0.0	0.0	15.1	53.50	0.0	0.0	0.0	0.0	0.0
5.14.10	0.0	0.0	0.0	5.1	80.00	0.0	0.0	0.0	0.0	0.0
5.14.11	0.0	0.0	60.0	0.0	0.0	0.0	3.30	0.0	0.0	0.0
5.14.12	0.0	0.0	0.0	35.0	0.0	0.0	13.40	0.0	0.0	0.0
5.14.13	0.0	0.0	0.0	14.7	53.50	0.0	0.0	0.0	0.0	0.0
5.14.14	0.0	0.0	0.0	5.0	80.00	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.14. 1	10.0	0.0	10.5	0.0	33.5	45.0	81.0	0.0	79.0	12.3
5.14. 2	11.0	0.0	10.5	0.0	33.5	46.0	81.0	0.0	79.0	12.3
5.14. 3	10.5	0.0	11.5	0.0	33.5	45.0	79.0	0.0	78.0	12.3
5.14. 4	9.7	0.0	10.0	0.0	32.0	45.0	80.0	0.0	78.0	12.3
5.14. 5	9.5	0.0	10.0	0.0	33.5	53.0	78.0	0.0	78.0	12.3
5.14. 6	9.7	0.0	10.4	0.0	33.5	52.0	78.0	0.0	78.0	12.3
5.14. 7	9.2	0.0	9.5	0.0	33.0	49.0	79.5	0.0	77.0	12.3
5.14. 8	9.7	0.0	10.0	0.0	32.0	50.0	78.0	0.0	76.0	12.3
5.14. 9	9.5	0.0	10.2	0.0	33.5	52.0	78.0	0.0	77.0	12.3
5.14.10	9.5	0.0	9.8	0.0	33.5	54.0	79.0	0.0	78.0	12.3
5.14.11	10.2	0.0	10.0	0.0	33.5	48.0	79.0	0.0	79.5	12.3
5.14.12	10.0	0.0	10.4	0.0	33.5	49.0	79.0	0.0	79.0	12.3
5.14.13	9.7	0.0	10.4	0.0	33.5	53.0	78.0	0.0	77.0	12.3
5.14.14	9.7	0.0	10.5	0.0	33.5	55.0	80.0	0.0	78.0	12.3

TABLE XLIV (Contd.)

COMBINED EFFECTS TEST GROUP 5.14

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.14.1 TO 5.14.14 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.14. 1	141.5	309.0	30.0	104.0	170.0	30.0	8.0	10.0	45.0
5.14. 2	163.5	348.5	30.0	149.0	216.0	30.0	8.0	10.5	48.0
5.14. 3	175.5	316.0	30.0	128.5	172.5	30.0	12.0	10.7	46.0
5.14. 4	144.5	257.5	29.5	112.0	161.0	60.0	12.0	10.5	45.0
5.14. 5	141.5	186.5	75.0	114.0	200.0	60.0	12.0	10.0	54.0
5.14. 6	186.5	199.0	120.0	170.5	205.5	60.0	12.0	10.0	55.0
5.14. 7	145.0	273.5	30.0	110.0	225.5	30.0	12.0	9.7	50.0
5.14. 8	259.5	363.0	30.0	125.0	165.0	10.0	12.0	10.0	51.0
5.14. 9	164.0	202.0	60.0	117.0	206.0	60.0	12.0	10.2	52.0
5.14.10	147.0	149.0	60.0	181.0	217.0	59.0	12.0	9.7	54.0
5.14.11	149.0	235.0	30.0	106.0	277.0	30.0	12.0	10.5	49.0
5.14.12	217.0	283.0	30.0	218.0	298.0	30.0	12.0	10.2	50.0
5.14.13	143.0	183.0	60.0	113.0	202.0	60.0	12.0	10.0	54.0
5.14.14	165.0	172.0	60.0	202.0	240.0	60.0	12.0	10.2	54.0

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
5.14. 1	0.0	30.0	0.0	0.0	35.0	0.0	77.0
5.14. 2	0.0	30.0	0.0	0.0	34.5	0.0	78.0
5.14. 3	0.0	30.0	0.0	0.0	34.6	0.0	78.0
5.14. 4	0.0	30.0	0.0	0.0	34.6	0.0	80.0
5.14. 5	0.0	30.0	0.0	0.0	34.5	0.0	78.0
5.14. 6	0.0	30.0	0.0	0.0	34.5	0.0	79.5
5.14. 7	0.0	0.0	14.5	99.5	0.0	73.0	0.0
5.14. 8	0.0	0.0	14.7	97.5	0.0	75.0	0.0
5.14. 9	0.0	0.0	14.7	94.0	0.0	81.0	0.0
5.14.10	0.0	0.0	14.9	92.0	0.0	85.0	0.0
5.14.11	0.0	0.0	29.4	92.0	0.0	91.0	0.0
5.14.12	0.0	0.0	29.4	92.0	0.0	96.0	0.0
5.14.13	0.0	0.0	29.4	90.0	0.0	97.5	0.0
5.14.14	0.0	0.0	29.6	89.0	0.0	107.0	0.0

TABLE LXV

COMBINED EFFECTS TEST GROUP 9.3

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.3.1 TO 9.3.9 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.3. 1	0.1722	0.1165	21.84	0.0667	10.820	0.999	6.23	0.737	0.3054	0.5032
9.3. 2	0.1436	0.1183	22.09	0.0665	9.675	1.012	5.16	0.659	0.2778	0.4759
9.3. 3	0.2468	0.1195	22.34	0.0665	6.800	0.988	8.78	0.463	0.3633	0.3989
9.3. 4	0.3587	0.1179	22.09	0.0665	3.717	1.013	12.93	0.253	0.4394	0.2949
9.3. 5	0.4742	0.1374	26.09	0.0661	0.817	1.060	14.67	0.056	0.4864	0.1383
9.3. 6	0.1403	0.1166	21.84	0.2441	10.333	1.013	5.13	0.704	0.2761	0.4918
9.3. 7	0.1213	0.1210	22.59	0.2426	8.767	0.990	4.26	0.597	0.2539	0.4530
9.3. 8	0.3899	0.1219	22.95	0.2658	3.667	1.047	13.59	0.250	0.4544	0.2929
9.3. 9	0.4995	0.1562	29.70	0.2259	1.533	1.066	13.34	0.104	0.4790	0.1895

TABLE LXV (Contd.)

COMBINED EFFECTS TEST GROUP 9.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.3.1 TO 9.3.9 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.3. 1	0.0	0.0	119.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
9.3. 2	0.0	0.0	99.0	0.0	66.50	0.0	0.0	0.0	0.0	0.0
9.3. 3	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0
9.3. 4	0.0	0.0	0.0	49.7	0.0	0.0	0.0	0.0	44.23	0.0
9.3. 5	0.0	0.0	0.0	39.6	0.0	0.0	0.0	0.0	64.23	0.0
9.3. 6	0.0	0.0	119.0	0.0	0.0	0.0	0.0	0.0	17.44	0.0
9.3. 7	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	14.87	0.0
9.3. 8	0.0	0.0	0.0	50.1	0.0	0.0	0.0	0.0	44.36	0.0
9.3. 9	0.0	0.0	0.0	40.6	0.0	0.0	0.0	0.0	63.85	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARD (PSIA)
9.3. 1	9.7	0.0	10.0	95.5	33.0	46.0	94.0	110.0	89.5	12.3
9.3. 2	10.0	0.0	10.3	95.0	33.0	88.5	92.0	104.5	86.0	12.3
9.3. 3	10.0	0.0	10.5	92.5	33.5	44.0	91.0	103.5	0.0	12.3
9.3. 4	9.7	0.0	9.8	90.5	33.0	45.0	96.0	110.5	0.0	12.3
9.3. 5	13.0	0.0	14.5	83.5	33.0	46.0	109.5	124.0	0.0	12.3
9.3. 6	10.0	0.0	9.2	91.0	33.5	45.0	101.5	115.5	0.0	12.3
9.3. 7	10.7	0.0	10.5	91.0	33.5	40.0	96.0	110.0	0.0	12.3
9.3. 8	11.0	0.0	13.7	94.0	33.5	47.5	76.0	83.5	0.0	12.2
9.3. 9	15.0	0.0	16.8	86.0	33.0	49.0	98.0	115.0	0.0	12.2

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.3. 1	145.5	416.0	25.0	222.0	364.5	25.0	5.0	9.5	46.0
9.3. 2	160.5	354.0	20.0	166.5	251.5	20.0	5.0	9.7	44.0
9.3. 3	214.0	418.0	30.0	251.5	377.0	30.0	12.0	10.0	44.5
9.3. 4	141.0	252.5	30.0	104.0	202.5	30.0	12.0	9.7	45.5
9.3. 5	252.0	301.0	60.0	202.5	353.0	30.0	12.0	13.7	52.5
9.3. 6	180.0	490.0	30.0	237.5	430.5	30.0	5.0	9.5	45.5
9.3. 7	195.0	458.0	30.0	259.5	409.5	30.0	12.0	10.2	44.0
9.3. 8	156.0	266.0	30.0	163.5	272.5	30.0	12.0	10.7	48.0
9.3. 9	266.0	358.0	60.0	272.5	407.0	30.0	12.0	17.5	53.0

TABLE LXV (Contd.)

COMBINED EFFECTS TEST GROUP 9.3

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.3.1 TO 9.3.9 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
9.3. 1	0.0	30.0	0.0	0.0	35.0	0.0	78.0
9.3. 2	0.0	30.0	0.0	0.0	35.0	0.0	80.0
9.3. 3	0.0	30.0	0.0	0.0	35.0	0.0	80.0
9.3. 4	0.0	30.0	0.0	0.0	35.0	0.0	81.0
9.3. 5	0.0	30.0	0.0	0.0	34.6	0.0	92.5
9.3. 6	0.0	0.0	29.9	91.0	0.0	109.0	0.0
9.3. 7	0.0	0.0	29.7	91.0	0.0	110.0	0.0
9.3. 8	0.0	0.0	29.9	94.0	0.0	77.0	0.0
9.3. 9	0.0	0.0	29.4	86.0	0.0	114.0	0.0

TABLE XLVI

COMBINED EFFECTS TEST GROUP 9.7

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.7.1 TO 9.7.11 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	CCLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	{JG*}**1/2	{JL*}**1/2
9.7. 1	0.0853	0.1207	22.80	0.0662	15.200	1.015	3.00	1.035	0.2131	0.5965
9.7. 2	0.1404	0.1172	22.05	0.0663	14.233	1.014	5.10	0.970	0.2754	0.5772
9.7. 3	0.2763	0.1172	22.10	0.0669	7.575	1.027	10.02	0.516	0.3863	0.4211
9.7. 4	0.4863	0.1418	26.85	0.0666	2.650	1.109	14.58	0.181	0.4887	0.2491
9.7. 5	0.6092	0.1350	25.85	0.0665	0.683	1.032	19.19	0.047	0.5537	0.1265
9.7. 6	0.7035	0.1376	26.35	0.0665	0.175	1.051	21.74	0.012	0.5922	0.0640
9.7. 7	0.0856	0.1193	22.60	0.2599	12.525	0.994	3.05	0.853	0.2141	0.5414
9.7. 8	0.6119	0.1561	29.85	0.2539	0.833	0.943	16.66	0.057	0.5351	0.1397
9.7. 9	0.7151	0.1572	30.35	0.2510	0.267	0.867	19.33	0.019	0.5775	0.0790
9.7.10	0.4580	0.1476	28.10	0.2494	3.283	1.035	13.19	0.224	0.4696	0.2772
9.7.11	0.2468	0.1209	23.10	0.2535	8.383	1.006	8.67	0.571	0.3622	0.4430

TABLE XLVI (Contd.)

COMBINED EFFECTS TEST GROUP 9.7

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.7.1 TO 9.7.11 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.7. 1	0.0	0.0	150.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.7. 2	0.0	0.0	150.0	0.0	66.50	0.0	0.0	0.0	0.0	0.0
9.7. 3	0.0	0.0	101.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0
9.7. 4	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	57.31	0.0
9.7. 5	0.0	0.0	0.0	30.1	0.0	0.0	0.0	0.0	73.72	0.0
9.7. 6	0.0	0.0	0.0	19.9	0.0	0.0	0.0	0.0	88.72	0.0
9.7. 7	0.0	0.0	139.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.7. 8	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	73.21	0.0
9.7. 9	0.0	0.0	0.0	20.1	0.0	0.0	0.0	0.0	88.72	0.0
9.7.10	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	55.77	0.0
9.7.11	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	29.62	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.7. 1	10.7	0.0	10.5	0.0	32.0	50.0	87.0	0.0	87.0	12.3
9.7. 2	10.0	0.0	10.0	0.0	31.0	48.0	87.0	0.0	85.0	12.3
9.7. 3	9.2	0.0	9.0	98.0	32.5	49.0	75.0	72.0	0.0	12.3
9.7. 4	13.0	0.0	14.0	96.5	32.5	49.0	100.5	117.0	110.0	12.3
9.7. 5	13.0	0.0	14.6	93.0	32.5	51.0	101.5	113.5	0.0	12.3
9.7. 6	13.2	0.0	14.7	90.5	32.0	50.5	108.5	123.5	0.0	12.3
9.7. 7	11.7	0.0	10.5	96.0	33.0	51.5	94.5	0.0	95.5	12.3
9.7. 8	17.2	0.0	18.2	93.0	32.5	49.5	96.0	107.0	0.0	12.3
9.7. 9	17.2	0.0	18.8	93.0	32.5	50.0	113.0	128.0	0.0	12.3
9.7.10	15.0	0.0	16.6	95.0	32.5	51.5	117.0	128.0	0.0	12.3
9.7.11	11.2	0.0	13.0	96.0	32.5	51.0	114.5	125.0	0.0	12.3

TABLE XLVI (Contd.)

COMBINED EFFECTS TEST GROUP 9.7

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.7.1 TO 9.7.11 -- 1.58-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.7. 1	220.5	448.5	15.0	195.0	374.0	30.0	4.0	10.5	50.0
9.7. 2	249.5	463.0	15.0	382.5	590.0	30.0	4.0	9.7	48.0
9.7. 3	146.5	298.0	20.0	272.0	409.0	20.0	12.0	9.7	49.0
9.7. 4	239.5	319.0	30.0	319.5	517.5	30.0	12.0	14.5	51.0
9.7. 5	143.0	184.0	60.0	263.0	372.0	30.0	12.0	13.5	57.0
9.7. 6	159.5	170.0	60.0	152.0	234.0	30.0	12.0	14.0	57.0
9.7. 7	156.5	407.0	20.0	126.5	260.0	20.0	4.0	10.2	51.5
9.7. 8	142.0	167.0	30.0	105.0	167.0	20.0	12.0	17.5	56.0
9.7. 9	167.0	183.0	60.0	167.0	195.0	13.0	12.0	18.0	61.0
9.7.10	157.0	255.5	30.0	164.5	325.0	30.0	12.0	15.7	54.0
9.7.11	248.0	499.5	30.0	308.0	476.0	30.0	12.0	10.7	55.5

TEST NO	RM-CG-1 (CFM)	RM-CG-2 (CFM)	FT-CG-1 (CFM)	P-CG-1 (PSIG)	P-CG-2 (PSIG)	TF-CG-1 (DEG F)	TF-CG-2 (DEG F)
9.7. 1	0.0	30.0	0.0	0.0	34.5	0.0	79.0
9.7. 2	0.0	30.0	0.0	0.0	34.8	0.0	80.5
9.7. 3	0.0	30.0	0.0	98.0	35.1	0.0	76.0
9.7. 4	0.0	30.0	0.0	96.5	35.0	0.0	79.0
9.7. 5	0.0	30.0	0.0	93.0	34.9	0.0	80.0
9.7. 6	0.0	30.0	0.0	90.5	35.0	0.0	81.0
9.7. 7	0.0	0.0	29.4	96.0	0.0	95.5	0.0
9.7. 8	0.0	0.0	29.5	93.0	0.0	90.5	0.0
9.7. 9	0.0	0.0	29.7	93.0	0.0	101.5	0.0
9.7.10	0.0	0.0	29.2	95.0	0.0	106.0	0.0
9.7.11	0.0	0.0	29.6	96.0	0.0	109.5	0.0

Results from tests in the one-dimensional inlet test group are shown in Table XLVII.

7.2 Increasing and Decreasing Air Flow at Constant Water Flow

Tests were performed to investigate the influence on countercurrent flow of maintaining a constant water flow rate and consistently increasing the air flow. The objective of these tests was to check for hysteresis effects in the method of establishment of a test. Some evidence existed in the literature that a slightly different countercurrent water flow at a given air flow would occur depending on whether the air flow was increased from a lower air flow or decreased from a higher air flow.

The test procedures for these tests included the following steps:

- (1) A constant water flow of about 45 gpm was established.
- (2) The air flow was increased from a volumetric flow of 5 cfm to a volumetric flow of about 125 cfm in eleven increments. Vessel pressure was atmospheric for tests up to air flows of about 60 cfm. Above 60 cfm, the valve on the vessel outlet was throttled to maintain pressure varying from 3 to 8.5 psig.
- (3) At 125 gpm, a second test was conducted by holding the water flow constant at 45 cfm and decreasing the air flow to 55 cfm in five increments. For these tests, the pressure and air flows were matched closely to the pressure and flows used during the tests in which the air flows were increasing.

Results from tests with increasing and decreasing air flow are presented in Tables XLVIII and XLIX, respectively.

7.3 Double Annulus Tests

A series of tests was performed to investigate the influence on countercurrent flow of the presence of two parallel downcomer gaps in which the air and water flows could interact. This downcomer configuration was tested because two parallel downcomers are created in some reactor systems by a cylindrical thermal shield which is supported within the downcomer. The objective of these tests was to determine whether the parallel flow paths would cause more water to be delivered to the lower plenum because of large water flows in one downcomer and large air flows in the other downcomer. Results from these tests are presented in Table L.

Parallel downcomers were created by modifying Filler Piece A (6.30-inch ID) to allow flow in the 0.70-inch radial gap between the filler piece and the vessel as well as the normal downcomer flow path (0.53-inch radial gap) between the filler piece and the 5.24-inch-OD core barrel. Modifications to the filler piece included machining the support rings to within a short distance of the support pins. Details of the support ring modification are shown in Figure 6. The procedures for conducting these tests followed those of the single downcomer countercurrent flow tests.

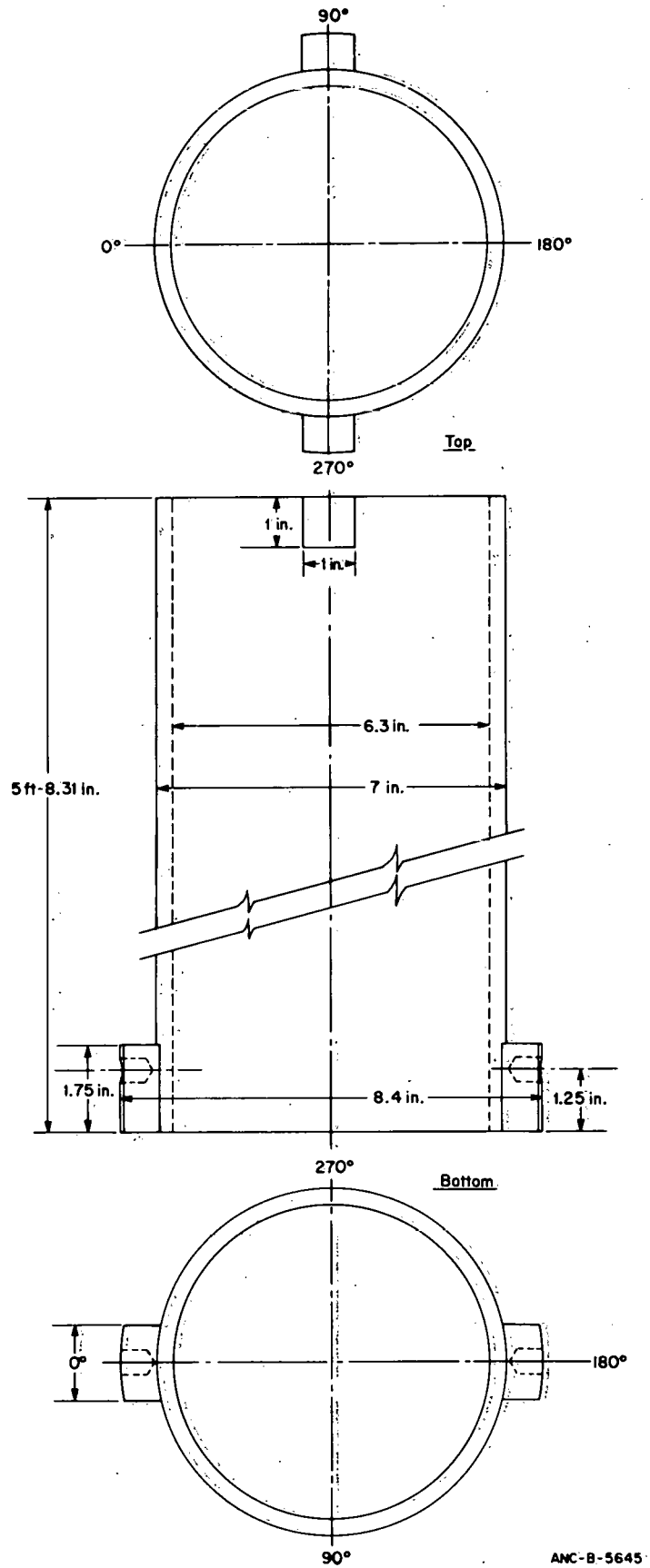


Fig. 6 Filler piece flange configuration for double annulus tests.

TABLE XLVII

SPECIAL TEST GROUP 4.10 - ONE-DIMENSIONAL INLET

TRANSPARENT VESSEL TEST DATA FOR TESTS 4.10.1 TO 4.10.7 -- 0.49-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
4.10. 1	0.0430	0.0711	13.48	0.0	1.958	0.988	9.39	0.487	0.4417	0.5479
4.10. 2	0.0709	0.0709	13.48	0.0	1.117	1.009	15.52	0.278	0.5677	0.4137
4.10. 3	0.0709	0.0709	13.48	0.0	1.192	1.353	15.52	0.297	0.5677	0.4274
4.10. 4	0.1074	0.0707	13.48	0.0	0.692	1.000	23.61	0.172	0.6995	0.3256
4.10. 5	0.1074	0.0708	13.48	0.0	0.642	1.000	23.57	0.160	0.6991	0.3136
4.10. 6	0.1303	0.0705	13.48	0.0	0.300	0.973	28.71	0.075	0.7709	0.2144
4.10. 7	0.1303	0.0705	13.48	0.0	0.375	0.994	28.71	0.093	0.7709	0.2397

TABLE XLVII (Contd.)

SPECIAL TEST GROUP 4.10 - ONE-DIMENSIONAL INLET

EXPERIMENTAL MEASUREMENTS FOR TESTS 4.10.1 TO 4.10.7 -- 0.49-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
4.10.1	0.0	0.0	0.0	14.3	20.00	0.0	0.0	0.0	0.0	0.0
4.10.2	0.0	0.0	0.0	8.0	33.00	0.0	0.0	0.0	0.0	0.0
4.10.3	0.0	0.0	0.0	6.3	33.00	0.0	0.0	0.0	0.0	0.0
4.10.4	0.0	0.0	0.0	5.0	50.00	0.0	0.0	0.0	0.0	0.0
4.10.5	0.0	0.0	0.0	4.6	50.00	0.0	0.0	0.0	0.0	0.0
4.10.6	0.0	0.0	0.0	2.2	60.00	0.0	0.0	0.0	0.0	0.0
4.10.7	0.0	0.0	0.0	2.7	60.00	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
4.10.1	0.0	0.0	0.0	0.0	32.0	0.0	80.0	0.0	81.0	12.5
4.10.2	0.0	0.0	0.0	0.0	32.0	0.0	80.0	0.0	81.0	12.5
4.10.3	0.0	0.0	0.0	0.0	32.0	0.0	80.0	0.0	81.0	12.5
4.10.4	0.0	0.0	0.0	0.0	32.0	0.0	80.0	0.0	81.0	12.5
4.10.5	0.0	0.0	0.0	0.0	32.0	0.0	80.0	0.0	81.0	12.5
4.10.6	0.0	0.0	0.0	0.0	33.0	0.0	80.0	0.0	81.0	12.5
4.10.7	0.0	0.0	0.0	0.0	33.0	0.0	80.0	0.0	81.0	12.5

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
4.10.1	326.0	443.5	60.0	0.0	0.0	0.0	12.0	1.0	52.0
4.10.2	443.5	510.5	60.0	0.0	0.0	0.0	12.0	1.0	53.0
4.10.3	510.0	581.5	60.0	0.0	0.0	0.0	12.0	1.0	53.0
4.10.4	581.0	622.5	60.0	0.0	0.0	0.0	12.0	1.0	55.0
4.10.5	272.0	310.5	60.0	0.0	0.0	0.0	12.0	1.0	54.0
4.10.6	310.0	346.0	120.0	0.0	0.0	0.0	12.0	1.0	56.0
4.10.7	346.0	391.0	120.0	0.0	0.0	0.0	12.0	1.0	56.0

TABLE XLVIII

SPECIAL TEST GROUP 5.2 - INCREASING AIR FLOW

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.2.1 TO 5.2.13 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.2. 1	0.0057	0.0640	12.28	0.0	4.720	1.018	1.34	1.137	0.1595	0.8216
5.2. 2	0.0120	0.0640	12.28	0.0	3.837	1.028	2.81	0.924	0.2311	0.7408
5.2. 3	0.0228	0.0642	12.28	0.0	2.662	1.004	5.33	0.641	0.3187	0.6170
5.2. 4	0.0345	0.0644	12.28	0.0	2.200	1.021	8.05	0.530	0.3917	0.5609
5.2. 5	0.0345	0.0644	12.28	0.0	2.200	1.021	8.05	0.530	0.3917	0.5609
5.2. 6	0.0462	0.0644	12.28	0.0	1.850	1.026	10.79	0.446	0.4536	0.5144
5.2. 7	0.0579	0.0645	12.28	0.0	1.675	1.028	13.50	0.403	0.5077	0.4894
5.2. 8	0.0806	0.0802	15.28	0.0	1.210	1.005	15.10	0.291	0.5671	0.4160
5.2. 9	0.1162	0.0906	17.28	0.0	0.587	1.007	19.27	0.141	0.6604	0.2899
5.2.10	0.1113	0.0956	18.28	0.0	1.620	1.221	17.50	0.390	0.6379	0.4814
5.2.11	0.1690	0.1001	19.28	0.0	0.218	1.029	25.38	0.253	0.7770	0.1767
5.2.12	0.1872	0.1049	20.28	0.0	0.136	1.016	26.82	0.033	0.8082	0.1397
5.2.13	0.1941	0.1068	20.78	0.0	0.094	1.011	27.31	0.023	0.8193	0.1162

TABLE XLVIII (Contd.)

SPECIAL TEST GROUP 5.2 - INCREASING AIR FLOW

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.2.1 TO 5.2.13 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.2. 1	32.0	12.5	0.0	0.0	0.0	0.0	5.00	0.0	0.0	0.0
5.2. 2	32.0	12.5	0.0	0.0	0.0	0.0	10.50	0.0	0.0	0.0
5.2. 3	32.0	12.5	0.0	0.0	0.0	0.0	20.00	0.0	0.0	0.0
5.2. 4	32.0	12.5	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
5.2. 5	32.0	12.5	0.0	0.0	30.00	0.0	0.0	0.0	0.0	0.0
5.2. 6	32.0	12.5	0.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
5.2. 7	32.0	12.5	0.0	0.0	50.00	0.0	0.0	0.0	0.0	0.0
5.2. 8	32.0	12.5	0.0	0.0	59.00	0.0	0.0	0.0	0.0	0.0
5.2. 9	32.0	12.5	0.0	0.0	80.00	0.0	0.0	0.0	0.0	0.0
5.2.10	32.0	12.5	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
5.2.11	32.0	12.5	0.0	0.0	90.00	20.00	0.0	0.0	0.0	0.0
5.2.12	32.0	12.5	0.0	0.0	90.00	30.00	0.0	0.0	0.0	0.0
5.2.13	32.0	12.5	0.0	0.0	90.00	35.00	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.2. 1	0.0	0.0	0.0	0.0	0.0	58.0	71.0	0.0	0.0	12.3
5.2. 2	0.0	0.0	0.0	0.0	0.0	58.0	71.0	0.0	0.0	12.3
5.2. 3	0.0	0.0	0.0	0.0	0.0	57.0	71.0	0.0	0.0	12.3
5.2. 4	0.0	0.0	0.0	0.0	0.0	55.0	71.0	0.0	0.0	12.3
5.2. 5	0.0	0.0	0.0	0.0	0.0	55.0	71.0	0.0	0.0	12.3
5.2. 6	0.0	0.0	0.0	0.0	0.0	55.0	72.0	0.0	0.0	12.3
5.2. 7	0.0	0.0	0.0	0.0	0.0	55.0	77.0	0.0	0.0	12.3
5.2. 8	0.0	4.8	5.0	0.0	0.0	54.0	83.0	0.0	0.0	12.3
5.2. 9	0.0	6.5	7.0	0.0	0.0	55.0	92.0	0.0	0.0	12.3
5.2.10	0.0	7.0	1.0	0.0	0.0	54.0	100.0	0.0	0.0	12.3
5.2.11	0.0	9.0	10.0	0.0	0.0	54.0	108.5	0.0	0.0	12.3
5.2.12	0.0	10.0	11.0	0.0	0.0	48.0	114.0	0.0	0.0	12.3
5.2.13	0.0	10.8	11.0	0.0	0.0	54.0	119.0	0.0	0.0	12.3

TABLE XLVIII (Contd.)

SPECIAL TEST GROUP 5.2 - INCREASING AIR FLOW

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.2.1 TO 5.2.13 -- 0.53-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.2. 1	133.0	251.0	25.0	87.0	126.5	25.0	12.0	0.0	58.0
5.2. 2	228.0	304.8	20.0	126.5	177.0	20.0	12.0	0.0	58.0
5.2. 3	304.8	358.0	20.0	177.0	248.0	20.0	12.0	0.0	56.0
5.2. 4	358.0	402.0	20.0	248.0	351.0	25.0	12.0	0.0	55.0
5.2. 5	358.0	402.0	20.0	248.0	351.0	25.0	12.0	0.0	55.0
5.2. 6	356.0	393.0	20.0	351.0	441.0	20.0	12.0	0.0	55.0
5.2. 7	324.5	358.0	20.0	441.0	534.8	20.0	12.0	0.0	54.0
5.2. 8	358.0	388.3	25.0	534.8	685.0	30.0	12.0	3.0	54.0
5.2. 9	388.3	400.0	20.0	685.0	826.0	25.0	12.0	5.0	55.0
5.2.10	400.0	440.5	25.0	671.0	849.0	30.0	12.0	6.0	56.0
5.2.11	410.5	422.5	55.0	678.0	801.0	20.0	12.0	7.0	60.0
5.2.12	371.5	379.0	55.0	667.5	790.5	20.0	12.0	8.0	62.0
5.2.13	379.0	383.3	45.0	623.0	777.0	25.0	12.0	9.5	65.0

TABLE XLIX

SPECIAL TEST GROUP 5.3 - DECREASING AIR FLOW

TRANSPARENT VESSEL TEST DATA FOR TESTS 5.3.1 TO 5.3.6 -- 0.53-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINJITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
5.3. 1	0.1922	0.1120	22.28	0.0	0.087	1.004	25.80	0.021	0.8057	0.1119
5.3. 2	0.1815	0.1103	21.78	0.0	0.117	1.017	24.73	0.028	0.7858	0.1292
5.3. 3	0.1633	0.1090	21.28	0.0	0.167	1.001	22.52	0.040	0.7477	0.1544
5.3. 4	0.1285	0.1005	19.28	0.0	0.380	0.999	19.22	0.092	0.6769	0.2331
5.3. 5	0.0772	0.0855	16.28	0.0	1.400	1.014	13.57	0.337	0.5461	0.4475
5.3. 6	0.0709	0.0801	15.28	0.0	1.517	1.008	13.30	0.365	0.5320	0.4657

TABLE XLIX (Contd.)

SPECIAL TEST GROUP 5.3 - DECREASING AIR FLOW

EXPERIMENTAL MEASUREMENTS FOR TESTS 5.3.1 TO 5.3.6 -- 0.53-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
5.3. 1	32.0	12.5	0.0	0.0	90.00	35.00	0.0	0.0	0.0	0.0
5.3. 2	32.0	12.5	0.0	0.0	90.00	30.00	0.0	0.0	0.0	0.0
5.3. 3	32.0	12.5	0.0	0.0	90.00	20.00	0.0	0.0	0.0	0.0
5.3. 4	32.0	12.5	0.0	0.0	90.00	0.0	0.0	0.0	0.0	0.0
5.3. 5	32.0	12.5	0.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
5.3. 6	32.0	12.5	0.0	0.0	55.00	0.0	0.0	0.0	0.0	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
5.3. 1	0.0	10.5	11.0	0.0	0.0	54.0	130.5	0.0	0.0	12.3
5.3. 2	0.0	10.0	10.0	0.0	0.0	54.0	128.5	0.0	0.0	12.3
5.3. 3	0.0	9.0	9.0	0.0	0.0	54.0	126.0	0.0	0.0	12.3
5.3. 4	0.0	7.0	7.0	0.0	0.0	54.0	124.5	0.0	0.0	12.3
5.3. 5	0.0	4.5	4.0	0.0	0.0	54.0	120.0	0.0	0.0	12.3
5.3. 6	0.0	4.0	4.0	0.0	0.0	54.0	113.5	0.0	0.0	12.3

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
5.3. 1	133.8	139.0	60.0	102.0	224.5	20.0	12.0	10.0	77.0
5.3. 2	139.0	146.0	60.0	224.5	348.0	20.0	12.0	9.5	73.0
5.3. 3	146.0	156.0	60.0	348.0	468.5	20.0	12.0	9.0	67.0
5.3. 4	156.0	175.0	50.0	468.5	584.5	20.0	12.0	7.0	58.0
5.3. 5	175.0	217.0	30.0	584.5	682.0	20.0	12.0	4.0	54.0
5.3. 6	217.0	262.5	30.0	682.0	800.0	25.0	12.0	3.0	55.0

TABLE L

SPECIAL TEST GROUP 7.3 - DOUBLE ANNULUS

TRANSPARENT VESSEL TEST DATA FOR TESTS 7.3.1 TO 7.3.21 -- 1.23-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
7.3. 1	0.5590	0.1812	34.45	0.0	1.533	1.015	16.77	0.134	0.5935	0.2282
7.3. 2	0.5325	0.1608	30.45	0.0	1.533	1.008	18.00	0.134	0.5968	0.2282
7.3. 3	0.4059	0.1910	35.95	0.0	2.500	0.989	11.55	0.218	0.4991	0.2914
7.3. 4	0.3999	0.1616	30.45	0.0	2.150	1.010	13.45	0.187	0.5165	0.2702
7.3. 5	0.3052	0.1944	36.45	0.0	3.725	1.004	8.53	0.325	0.4309	0.3557
7.3. 6	0.3072	0.1726	32.45	0.0	3.333	1.111	9.68	0.290	0.4454	0.3364
7.3. 7	0.4085	0.1790	33.70	0.0	2.067	0.928	12.40	0.180	0.5089	0.2649
7.3. 8	0.3041	0.1726	32.45	0.0	3.283	0.995	9.59	0.286	0.4431	0.3339
7.3. 9	0.4311	0.1855	34.98	0.0	2.125	0.987	12.63	0.195	0.5182	0.2686
7.3.10	0.6209	0.1846	34.98	0.0	1.142	1.038	18.28	0.099	0.6226	0.1969
7.3.11	0.6243	0.1604	33.48	0.0	0.829	1.021	21.16	0.072	0.6466	0.1677
7.3.12	0.2165	0.1736	32.48	0.0	5.978	1.022	6.78	0.521	0.3733	0.4505
7.3.13	0.1520	0.1590	29.68	0.0	8.111	1.011	5.29	0.707	0.3198	0.5248
7.3.14	0.1134	0.1338	24.98	0.0	9.371	1.002	4.61	0.816	0.2883	0.5640
7.3.15	0.3857	0.1970	19.96	0.0	11.700	0.975	4.35	1.019	0.2650	0.6301
7.3.16	0.2262	0.1975	36.98	0.0	6.130	0.993	6.23	0.531	0.3696	0.4552
7.3.17	0.6244	0.1721	32.48	0.0	0.947	1.022	19.73	0.082	0.6354	0.1793
7.3.18	0.1576	0.1436	26.98	0.0	7.267	1.001	5.97	0.633	0.3340	0.4967
7.3.19	0.1300	0.1195	22.37	0.0	8.500	1.004	5.91	0.740	0.3175	0.5371
7.3.20	0.0848	0.1196	22.37	0.0	11.400	1.027	3.95	0.993	0.2564	0.6220
7.3.21	0.3059	0.1797	33.62	0.0	3.456	1.013	9.25	0.301	0.4400	0.3425

TABLE L (Contd.)

SPECIAL TEST GROUP 7.3 - DOUBLE ANNULUS

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.3.1 TO 7.3.21 -- 0.63-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
7.3. 1	0.0	0.0	0.0	48.0	0.0	0.0	0.0	0.0	65.77	0.0
7.3. 2	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	65.26	0.0
7.3. 3	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	50.51	0.0
7.3. 4	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	50.13	0.0
7.3. 5	0.0	0.0	110.0	0.0	0.0	0.0	0.0	0.0	37.05	0.0
7.3. 6	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	36.79	0.0
7.3. 7	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	50.26	0.0
7.3. 8	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	37.18	0.0
7.3. 9	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	50.13	0.0
7.3.10	0.0	0.0	0.0	40.4	0.0	0.0	0.0	0.0	79.36	0.0
7.3.11	0.0	0.0	0.0	29.9	0.0	0.0	0.0	0.0	81.28	0.0
7.3.12	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	26.79	0.0
7.3.13	0.0	0.0	153.0	0.0	0.0	0.0	0.0	0.0	19.23	0.0
7.3.14	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	13.21	0.0
7.3.15	0.0	0.0	150.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
7.3.16	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	26.79	0.0
7.3.17	0.0	0.0	0.0	34.7	0.0	0.0	0.0	0.0	82.31	0.0
7.3.18	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	19.10	0.0
7.3.19	0.0	0.0	130.0	0.0	60.00	0.0	0.0	0.0	0.0	0.0
7.3.20	0.0	0.0	129.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
7.3.21	0.0	0.0	98.0	0.0	0.0	0.0	0.0	0.0	37.56	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARD (PSIA)
7.3. 1	21.5	0.0	22.3	92.5	0.0	50.0	84.0	95.5	0.0	12.4
7.3. 2	17.7	0.0	18.8	91.5	0.0	48.5	92.0	113.0	0.0	12.4
7.3. 3	24.5	0.0	24.2	91.5	0.0	45.5	108.0	122.0	0.0	12.4
7.3. 4	18.0	0.0	18.0	90.5	0.0	45.5	108.0	120.5	0.0	12.4
7.3. 5	25.7	0.0	24.7	92.0	0.0	45.0	99.5	110.5	0.0	12.4
7.3. 6	21.0	0.0	20.8	91.5	0.0	46.0	91.5	100.0	0.0	12.4
7.3. 7	21.5	0.0	21.6	90.0	0.0	45.5	95.5	107.0	0.0	12.4
7.3. 8	21.0	0.0	20.0	92.0	0.0	46.0	102.5	114.5	0.0	12.4
7.3. 9	22.5	0.0	22.5	92.0	0.0	48.0	78.0	86.5	0.0	12.5
7.3.10	22.5	0.0	23.0	89.0	0.0	49.0	107.0	123.5	0.0	12.5

TABLE L (Contd.)

SPECIAL TEST GROUP 7.3 - DOUBLE ANNULUS

EXPERIMENTAL MEASUREMENTS FOR TESTS 7.3.1 TO 7.3.21 -- 0.63-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
7.3.11	18.0	0.0	20.0	88.0	0.0	48.5	113.5	128.5	0.0	12.5
7.3.12	23.0	0.0	21.0	93.5	0.0	45.0	118.0	130.0	0.0	12.5
7.3.13	21.5	0.0	17.4	89.0	0.0	44.0	106.0	117.5	0.0	12.5
7.3.14	17.0	0.0	13.0	94.5	0.0	44.0	92.5	100.5	0.0	12.5
7.3.15	10.0	0.0	7.5	94.5	32.0	44.0	85.0	94.5	84.0	12.5
7.3.16	28.5	0.0	25.0	93.0	0.0	45.0	90.0	102.0	0.0	12.5
7.3.17	20.0	0.0	21.0	85.5	0.0	44.0	103.5	121.0	0.0	12.5
7.3.18	17.5	0.0	15.0	94.0	0.0	46.5	105.5	120.5	0.0	12.5
7.3.19	14.0	0.0	11.0	0.0	32.5	47.5	75.5	80.8	76.9	12.4
7.3.20	13.5	0.0	11.0	0.0	32.5	44.4	101.5	117.5	100.0	12.4
7.3.21	23.5	0.0	22.5	92.0	35.0	43.5	106.0	116.5	112.0	12.4

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
7.3. 1	140.5	186.5	30.0	103.5	182.0	15.0	12.0	22.0	53.0
7.3. 2	186.5	232.5	30.0	182.0	263.5	20.0	12.0	18.0	51.0
7.3. 3	232.5	307.5	30.0	263.5	391.0	15.0	12.0	23.5	48.0
7.3. 4	307.5	372.0	30.0	391.0	516.5	20.0	12.0	18.0	48.5
7.3. 5	143.5	218.0	20.0	219.0	393.5	15.0	12.0	24.0	46.0
7.3. 6	162.0	262.0	30.0	111.5	270.0	15.0	12.0	20.0	47.5
7.3. 7	262.0	324.0	30.0	270.0	479.0	30.0	12.0	21.2	48.0
7.3. 8	186.5	285.0	30.0	375.0	650.0	30.0	12.0	20.0	47.5
7.3. 9	140.5	268.0	60.0	130.0	354.5	30.0	12.0	22.5	49.0
7.3.10	268.0	336.5	60.0	354.5	495.0	30.0	12.0	22.5	51.5
7.3.11	163.5	221.5	70.0	335.0	437.5	30.0	12.0	18.0	53.0
7.3.12	142.0	411.0	45.0	114.5	427.0	25.0	12.0	20.0	45.0
7.3.13	183.5	548.5	45.0	283.5	618.5	25.0	12.0	17.2	44.0
7.3.14	146.0	474.0	35.0	210.5	614.0	35.0	12.0	12.5	44.0
7.3.15	156.0	448.5	25.0	368.5	627.5	30.0	4.0	7.5	44.0
7.3.16	225.0	408.0	30.0	400.0	692.0	20.0	12.0	24.5	45.5
7.3.17	141.5	212.5	75.0	123.0	242.5	30.0	12.0	20.0	49.5
7.3.18	212.5	430.5	30.0	242.5	567.0	30.0	12.0	14.5	47.0
7.3.19	144.5	484.5	40.0	107.5	348.5	25.0	12.0	10.0	45.5
7.3.20	141.5	369.5	20.0	104.0	244.5	20.0	4.0	10.0	44.8
7.3.21	369.5	525.0	45.0	244.5	555.0	30.0	12.0	21.2	45.0

7.4 Longitudinal Flow Restrictor Tests

Countercurrent flow tests were performed with flow restrictors attached to the core barrel. These flow restrictors ran longitudinally along the core barrel and protruded out into the 1.58-inch radial downcomer gap about 1.0 inch. Figure 7 shows a sketch of the azimuthal location and relative dimensions of the flow restrictors and the downcomer gap. Two groups of tests were conducted. In the first test group (Test Group 9.8), the restrictors ran nearly the full length of the vessel from the core barrel flange at the top to near the bottom of the lower plenum. For the second group of tests, the restrictors were shortened at the upper end such that they began at the top of the downcomer and ran the entire length of the downcomer. This latter configuration left the upper annulus region unrestricted.

The objective of these two test groups was to determine whether the longitudinal restrictors affected the lower plenum delivery rate and the two-phase flow patterns occurring in the downcomer. These tests were considered to be demonstration tests of the countercurrent flow phenomena that might be expected to occur in the LOFT downcomer as a result of the instrumentation stalks that run longitudinally down the core barrel and protrude into the downcomer gap. The tests were only demonstrational because many of the pertinent transparent vessel dimensions were not scaled to the equivalent LOFT dimensions.

Results from the longitudinal flow restrictor tests are shown in Tables LI and LII.

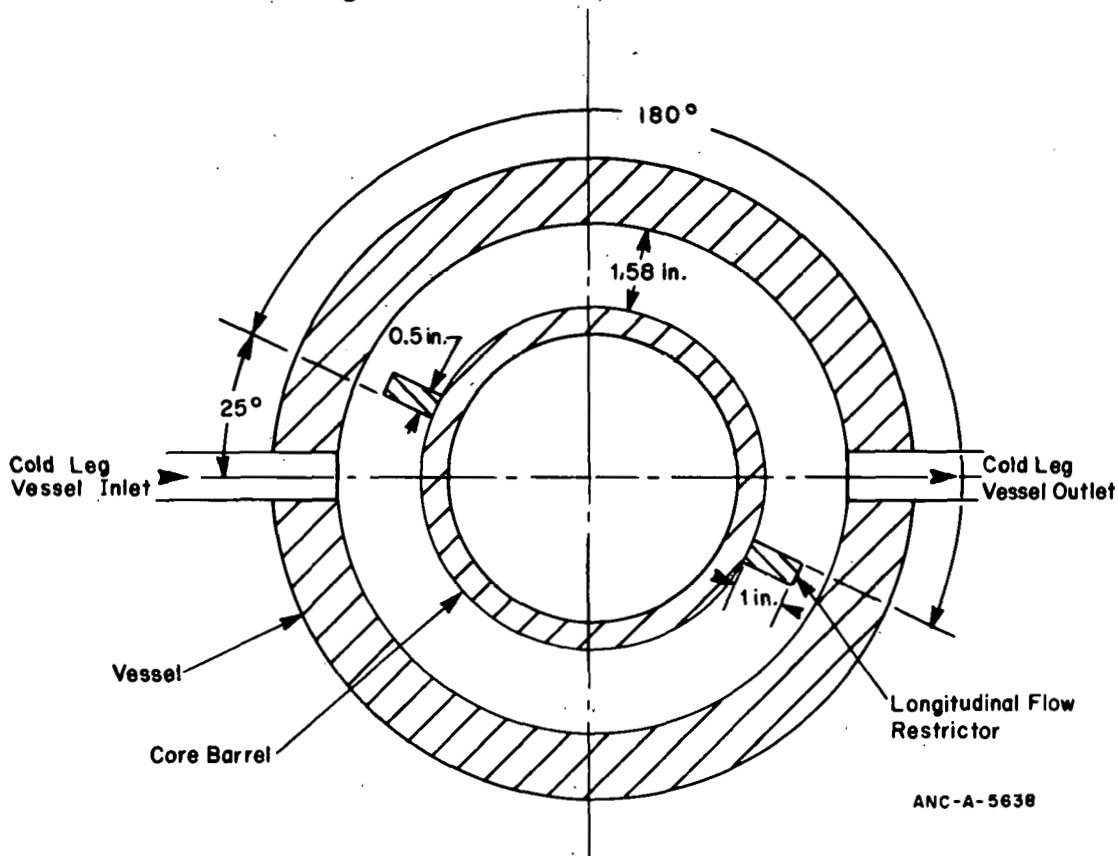


Fig. 7 Location and dimensions of longitudinal flow restrictors.

TABLE LI

SPECIAL TEST GROUP 9.8 - LONGITUDINAL FLOW RESTRICTORS

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.8.1 TO 9.8.20 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.8.1	0.6509	0.1509	29.11	0.0	0.442	1.065	18.33	0.030	0.5566	0.1017
9.8.2	0.5919	0.1566	29.86	0.0	1.258	1.060	16.06	0.086	0.5259	0.1716
9.8.3	0.5382	0.1571	29.86	0.0	3.533	1.019	14.56	0.241	0.5011	0.2876
9.8.4	0.3105	0.1151	21.86	0.0	6.450	1.004	11.46	0.439	0.4113	0.3885
9.8.5	0.1853	0.1168	22.11	0.0	11.613	0.999	6.74	0.791	0.3166	0.5213
9.8.6	0.1272	0.1197	22.61	0.0	16.767	1.025	4.52	1.142	0.2607	0.6264
9.8.7	0.0864	0.1199	22.61	0.0	16.133	1.020	3.06	1.099	0.2148	0.6145
9.8.8	0.0872	0.1209	22.65	0.0	20.600	1.017	3.06	1.403	0.2153	0.6944
9.8.9	0.0872	0.1199	22.65	0.0	14.600	1.032	3.09	0.995	0.2158	0.5846
9.8.10	0.1338	0.1176	22.15	0.0	15.387	1.003	4.84	1.048	0.2686	0.6001
9.8.11	0.1148	0.1328	24.90	0.0	12.645	1.020	3.68	0.861	0.2414	0.5440
9.8.12	0.2551	0.1246	23.40	0.0	8.175	1.023	8.71	0.557	0.3656	0.4374
9.8.13	0.4558	0.1416	26.65	0.0	3.017	1.030	13.68	0.205	0.4733	0.2657
9.8.14	0.5583	0.1678	31.90	0.0	2.067	1.049	14.14	0.141	0.5021	0.2200
9.8.15	0.6571	0.1698	32.40	0.0	0.917	1.065	16.45	0.062	0.5431	0.1465
9.8.16	0.1260	0.1181	22.40	0.0	16.033	1.007	4.53	1.092	0.2603	0.6126
9.8.17	0.1265	0.1190	22.40	0.0	14.067	1.009	4.52	0.958	0.2604	0.5738
9.8.18	0.4501	0.1648	31.15	0.0	3.983	1.029	11.61	0.271	0.4528	0.3054
9.8.19	0.3180	0.1413	26.65	0.0	6.250	0.983	9.56	0.426	0.3955	0.3825
9.8.20	0.1907	0.1187	22.40	0.0	10.967	0.990	6.83	0.747	0.3199	0.5066

TABLE LI (Contd.)

SPECIAL TEST GROUP 9.8 - LONGITUDINAL FLOW RESTRICTORS

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.8.1 TO 9.8.20 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.8. 1	0.0	0.0	0.0	20.1	0.0	0.0	0.0	0.0	88.46	0.0
9.8. 2	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	73.72	0.0
9.8. 3	0.0	0.0	0.0	49.9	0.0	0.0	0.0	0.0	66.28	0.0
9.8. 4	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	38.21	0.0
9.8. 5	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	22.44	0.0
9.8. 6	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.8. 7	0.0	0.0	160.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.8. 8	0.0	0.0	180.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.8. 9	0.0	0.0	110.0	0.0	40.00	0.0	0.0	0.0	0.0	0.0
9.8.10	0.0	0.0	141.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.8.11	0.0	0.0	151.0	0.0	0.0	0.0	0.0	0.0	22.44	0.0
9.8.12	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0
9.8.13	0.0	0.0	0.0	50.3	0.0	0.0	0.0	0.0	56.03	0.0
9.8.14	0.0	0.0	0.0	49.0	0.0	0.0	0.0	0.0	71.67	0.0
9.8.15	0.0	0.0	0.0	30.3	0.0	0.0	0.0	0.0	82.44	0.0
9.8.16	0.0	0.0	149.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.8.17	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	14.87	0.0
9.8.18	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	55.77	0.0
9.8.19	0.0	0.0	89.0	0.0	0.0	0.0	0.0	0.0	38.33	0.0
9.8.20	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	22.31	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.8. 1	15.5	0.0	18.0	83.0	33.0	50.5	109.0	123.0	116.0	12.4
9.8. 2	17.0	0.0	18.0	90.0	33.0	49.5	100.5	113.5	108.0	12.4
9.8. 3	19.0	0.0	19.0	89.0	33.0	50.5	103.5	101.5	110.5	12.4
9.8. 4	9.7	0.0	9.6	92.5	33.0	51.5	106.5	120.5	113.5	12.4
9.8. 5	12.5	0.0	9.8	93.0	33.5	50.5	103.0	114.0	108.5	12.4
9.8. 6	14.7	0.0	10.7	95.0	33.5	50.0	91.5	100.0	96.5	12.4
9.8. 7	14.0	0.0	10.5	96.0	33.0	49.0	86.5	100.0	86.0	12.4
9.8. 8	12.7	0.0	11.5	78.0	33.0	70.0	76.0	70.0	76.5	12.4
9.8. 9	12.7	0.0	10.6	98.0	33.0	50.0	76.5	0.0	76.5	12.4
9.8.10	14.0	0.0	10.1	96.0	33.5	48.0	75.5	77.5	76.5	12.4

TABLE LI (Contd.)

SPECIAL TEST GROUP 9.8 - LONGITUDINAL FLOW RESTRICTORS

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.8.1 TO 9.8.20 -- 1.58-IN. DOWNCOMER GAP

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-3ARO (PSIA)
9.8.11	17.5	0.0	13.2	49.5	33.5	46.0	77.0	84.0	76.5	12.4
9.8.12	13.5	0.0	12.2	93.0	33.5	47.0	80.0	88.0	76.5	12.4
9.8.13	14.5	0.0	15.4	89.5	33.5	47.0	90.0	103.5	76.5	12.4
9.8.14	19.7	0.0	21.0	89.0	0.0	50.0	111.5	125.5	0.0	12.4
9.8.15	19.7	0.0	21.0	91.0	0.0	49.5	110.0	123.5	0.0	12.4
9.8.16	14.0	0.0	10.0	97.0	0.0	51.0	104.0	116.0	0.0	12.4
9.8.17	13.0	0.0	10.6	94.0	0.0	47.0	94.0	102.5	0.0	12.4
9.8.18	19.2	0.0	19.0	89.5	0.0	48.5	97.5	108.0	0.0	12.4
9.8.19	14.7	0.0	15.0	91.5	0.0	48.0	94.5	103.5	0.0	12.4
9.8.20	11.5	0.0	10.2	94.0	0.0	49.0	91.5	100.0	0.0	12.4

LOWER PLENUM FLOW

BYPASS FLOW

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.8. 1	174.5	201.0	60.0	104.0	180.0	30.0	12.0	16.7	60.5
9.8. 2	141.5	217.0	60.0	108.5	206.5	31.0	12.0	17.5	54.5
9.8. 3	141.5	247.5	30.0	104.5	210.5	30.0	12.0	17.5	53.0
9.8. 4	156.0	349.5	30.0	176.0	275.5	30.0	12.0	9.5	52.5
9.8. 5	202.5	562.5	31.0	184.5	378.0	30.0	5.0	9.7	51.0
9.8. 6	142.5	394.0	15.0	111.5	250.0	30.0	4.0	10.2	50.0
9.8. 7	146.0	388.0	15.0	250.0	447.0	30.0	2.0	10.2	49.0
9.8. 8	140.0	449.0	15.0	105.0	250.5	30.0	3.0	10.2	45.5
9.8. 9	232.0	378.0	10.0	110.0	145.5	30.0	5.0	10.2	50.0
9.8.10	155.0	393.5	15.5	132.5	260.5	30.0	4.0	9.7	48.5
9.8.11	170.0	366.0	15.5	260.5	523.5	30.0	5.0	12.5	46.0
9.8.12	147.5	311.0	20.0	268.5	389.5	20.0	12.0	11.0	47.0
9.8.13	161.5	252.0	30.0	278.0	403.5	30.0	12.0	14.2	48.0
9.8.14	161.5	223.5	30.0	336.0	488.5	30.0	12.0	19.5	53.0
9.8.15	141.0	168.5	30.0	108.0	215.0	30.0	12.0	20.0	55.0
9.8.16	162.0	402.5	15.0	215.0	359.5	30.0	3.0	10.0	52.0
9.8.17	145.0	356.0	15.0	164.5	289.5	30.0	4.0	10.0	48.0
9.8.18	150.5	270.0	30.0	263.5	444.5	30.0	12.0	13.7	50.0
9.8.19	141.5	329.0	30.0	109.5	287.0	30.0	12.0	14.2	49.0
9.8.20	151.5	480.5	30.0	124.5	208.5	30.0	12.0	10.0	49.5

TABLE LII

SPECIAL TEST GROUP 9.9 - SHORTENED LONGITUDINAL FLOW RESTRICTORS

TRANSPARENT VESSEL TEST DATA FOR TESTS 9.9.1 TO 9.9.14 -- 1.58-IN. DOWNCOMER GAP

SUMMARY OF CALCULATED RESULTS

TEST NO	DOWNCOMER AIR FLOW (LB/SEC)	DOWNCOMER AIR DENSITY (LB/FT**3)	LOWER PLENUM PRESSURE (PSIA)	COLD LEG AIR FLOW (LB/SEC)	DOWNCOMER WATER FLOW (LB/SEC)	WATER FLOW CONTINUITY	J-AIR DOWNCOMER (FT/SEC)	J-WATER DOWNCOMER (FT/SEC)	(JG*)**1/2	(JL*)**1/2
9.9. 1	0.3656	0.1384	26.16	0.0	5.100	1.022	11.23	0.347	0.4263	0.3455
9.9. 2	0.5765	0.1662	31.66	0.0	1.533	0.812	14.74	0.104	0.5114	0.1895
9.9. 3	0.5512	0.1717	32.66	0.0	2.183	1.045	13.65	0.149	0.4960	0.2261
9.9. 4	0.1312	0.1197	22.61	0.0	12.133	0.990	4.66	0.827	0.2648	0.5329
9.9. 5	0.1410	0.1190	22.66	0.0	13.700	1.003	5.04	0.933	0.2749	0.5663
9.9. 6	0.2056	0.1518	28.66	0.0	11.100	1.001	5.76	0.756	0.3124	0.5098
9.9. 7	0.2687	0.1297	24.41	0.0	8.000	1.005	8.81	0.545	0.3714	0.4327
9.9. 8	0.4944	0.1583	29.91	0.0	2.603	1.019	13.28	0.177	0.4794	0.2469
9.9. 9	0.5830	0.1803	34.41	0.0	1.833	1.035	13.74	0.125	0.5039	0.2072
9.9.10	0.7045	0.1770	33.91	0.0	0.717	1.018	16.92	0.049	0.5565	0.1295
9.9.11	0.1960	0.1212	22.91	0.0	8.775	1.011	6.87	0.598	0.3226	0.4532
9.9.12	0.1308	0.1200	22.66	0.0	12.400	1.001	4.63	0.845	0.2642	0.5387
9.9.13	0.3253	0.1427	26.91	0.0	6.650	1.006	9.69	0.453	0.3991	0.3946
9.9.14	0.3131	0.1855	34.91	0.0	7.875	1.021	7.18	0.536	0.3667	0.4294

TABLE LII (Contd.)

SPECIAL TEST GROUP 9.9 - SHORTENED LONGITUDINAL FLOW RESTRICTORS

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.9.1 TO 9.9.14 -- 1.58-IN. DOWNCOMER GAP

TEST NO	RM-CW-1 (GPM)	RM-CW-2 (GPM)	FT-CW-1 (GPM)	FT-CW-2 (GPM)	RM-HG-1 (CFM)	RM-HG-2 (CFM)	RM-HG-3 (CFM)	RM-HG-4 (CFM)	FT-HG-1 (CFM)	FT-HG-2 (CFM)
9.9. 1	0.0	0.0	70.0	0.0	0.0	0.0	0.0	0.0	38.46	0.0
9.9. 2	0.0	0.0	0.0	49.7	0.0	0.0	0.0	0.0	66.28	0.0
9.9. 3	0.0	0.0	0.0	48.6	0.0	0.0	0.0	0.0	66.54	0.0
9.9. 4	0.0	0.0	129.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.9. 5	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	14.87	0.0
9.9. 6	0.0	0.0	150.0	0.0	0.0	0.0	0.0	0.0	22.05	0.0
9.9. 7	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	29.49	0.0
9.9. 8	0.0	0.0	0.0	49.8	0.0	0.0	0.0	0.0	56.28	0.0
9.9. 9	0.0	0.0	0.0	48.4	0.0	0.0	0.0	0.0	73.08	0.0
9.9.10	0.0	0.0	0.0	30.1	0.0	0.0	0.0	0.0	81.79	0.0
9.9.11	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	22.18	0.0
9.9.12	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	14.74	0.0
9.9.13	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	38.33	0.0
9.9.14	0.0	0.0	130.0	0.0	0.0	0.0	0.0	0.0	38.33	0.0

TEST NO	P-CW-1 (PSIG)	P-CW-2 (PSIG)	P-HG-1 (PSIG)	P-HG-2 (PSIG)	P-HG-3 (PSIG)	TF-CW-1 (DEG F)	TF-HG-1 (DEG F)	TF-HG-2 (DEG F)	TF-HG-3 (DEG F)	P-BARO (PSIA)
9.9. 1	14.5	0.0	14.5	98.0	32.5	50.0	67.5	62.5	0.0	12.4
9.9. 2	19.0	0.0	19.7	95.0	32.5	51.5	82.0	95.5	0.0	12.4
9.9. 3	19.7	0.0	20.5	95.5	32.5	50.5	111.0	126.0	1.0	12.4
9.9. 4	13.7	0.0	10.5	101.0	32.5	49.8	102.5	113.0	0.0	12.4
9.9. 5	14.5	0.0	10.4	101.0	32.5	53.0	79.0	78.0	0.0	12.4
9.9. 6	19.0	0.0	17.4	99.5	32.5	49.0	77.0	80.0	0.0	12.4
9.9. 7	14.2	0.0	13.0	98.0	32.5	48.0	79.0	85.0	0.0	12.4
9.9. 8	17.0	0.0	18.0	95.0	32.0	48.0	81.0	90.0	0.0	12.4
9.9. 9	22.0	0.0	23.0	94.0	32.5	49.5	125.0	140.0	0.0	12.4
9.9.10	21.0	0.0	22.5	94.0	32.5	50.0	91.5	95.8	0.0	12.4
9.9.11	12.7	0.0	11.2	98.0	32.5	50.0	93.5	102.0	97.5	12.4
9.9.12	14.0	0.0	11.2	98.0	32.5	49.0	93.0	100.0	0.0	12.4
9.9.13	16.0	0.0	15.0	94.0	32.5	48.0	95.0	104.0	0.0	12.4
9.9.14	25.0	0.0	23.5	94.0	32.5	47.0	115.5	126.0	0.0	12.4

TABLE LII (Contd.)

SPECIAL TEST GROUP 9.9 - SHORTENED LONGITUDINAL FLOW RESTRICTORS

EXPERIMENTAL MEASUREMENTS FOR TESTS 9.9.1 TO 9.9.14 -- 1.58-IN. DOWNCOMER GAP

TEST NO	LOWER PLENUM FLOW			BYPASS FLOW			LOWER PLENUM LEVEL (IN)	P-LP-1 (PSIG)	TF-LP-1 (DEG F)
	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)	INITIAL WEIGHT (LB)	FINAL WEIGHT (LB)	TIME OF COLLECTION (SEC)			
9.9. 1	160.5	313.5	30.0	127.5	273.0	30.0	12.0	13.7	50.0
9.9. 2	251.0	297.0	30.0	262.0	384.5	30.0	12.0	19.2	54.0
9.9. 3	164.0	229.5	30.0	302.5	449.0	30.0	12.0	20.2	53.5
9.9. 4	213.0	395.0	15.0	377.0	545.5	30.0	4.0	10.2	50.0
9.9. 5	141.0	346.5	15.0	105.5	250.0	20.0	4.0	10.2	54.0
9.9. 6	172.5	339.0	15.0	141.5	435.0	30.0	4.0	16.2	49.5
9.9. 7	162.0	282.0	15.0	318.5	408.0	15.0	12.0	12.0	48.0
9.9. 8	142.4	220.5	30.0	121.5	255.0	30.0	12.0	17.5	50.0
9.9. 9	144.5	199.5	30.0	123.0	277.0	30.0	12.0	22.0	55.0
9.9.10	144.0	187.0	60.0	126.0	197.0	20.0	12.0	21.5	57.0
9.9.11	144.5	320.0	20.0	183.0	341.5	30.0	8.0	10.5	50.0
9.9.12	203.5	394.5	15.0	269.5	440.0	30.0	4.0	10.2	49.5
9.9.13	167.5	367.0	30.0	291.0	469.0	30.0	12.0	14.5	49.0
9.9.14	144.5	302.0	20.0	219.0	430.5	20.0	12.0	22.5	48.0

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APPENDIX A
DATA ERROR ANALYSIS

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APPENDIX A
DATA ERROR ANALYSIS

An error analysis was performed to evaluate the total probable and total maximum errors in the air and water volumetric fluxes for several representative tests from the transparent vessel test program. This error analysis was based on the following assumptions:

- (1) Each input to the total probable or total maximum error is normally distributed.
- (2) The maximum error limits (reported in Table III of the main body of the text) for each measurement device assumes 95% of the area of a normal distribution is between the maximum error limits.
- (3) The inputs to the total probable or total maximum error are independent.
- (4) Measurements were not adversely affected by nonhomogeneous flow.

An abbreviated Taylor series expansion may be used to obtain a first order approximation to the total probable error^[A-1] in J_g^* and J_1^* . This Taylor series expansion can be more clearly presented if J_g^* is assigned to be the independent variable y and J_1^* is the dependent variable x . With this definition, the Taylor series expansion which defines the error in J_g^* is

$$\left(\frac{dy}{y}\right)^2 = \sum \left(\frac{\partial y}{\partial z_i}\right)^2 \left(\frac{dz_i}{y}\right)^2$$

and the error in J_1^* is

$$\left(\frac{dx}{x}\right)^2 = \sum \left(\frac{\partial x}{\partial z_i}\right)^2 \left(\frac{dz_i}{x}\right)^2$$

where

$$i = 1, 2, 3, \dots, n.$$

The experimentally measured variables, z_1, z_2, \dots, z_i , when combined in a mathematical relationship (discussed later), define either J_1^* or J_g^* . The error computed by the preceding method is referred to in this text as the probable error.

From a statistical viewpoint, the quantity actually being propagated in the preceding equation is two times the coefficient of variance or "the relative error". Stated mathematically:

$$\frac{\partial y}{\partial z_i} \frac{dz_i}{y} \approx \frac{2 \sigma_i}{\hat{z}_i}$$

where σ_i is the variance associated with z_i and \hat{z}_i is the true value. With the preceding definition:

$$\frac{dy}{\hat{y}} = \frac{2 \sigma_y}{\hat{y}}$$

where σ_y is the variance of J_g^* from the combined measurements which define J_g^* . In a similar manner, σ_x can be defined.

In addition to the probable error, a maximum error was computed. The maximum error is defined as the error that would result if all the instruments which combine to make J_g^* and J_1^* read in such a way that the total error is the sum of the individual inaccuracies. Mathematically stated:

$$\begin{aligned} \frac{dy}{y} \Big|_{\max} &= \Sigma \left| \frac{\partial y}{\partial z_i} \frac{dz_i}{y} \right| \\ \frac{dx}{x} \Big|_{\max} &= \Sigma \left| \frac{\partial x}{\partial z_i} \frac{dz_i}{dx} \right| \end{aligned}$$

When the relationship between two variables is considered, one variable is usually expected to be more precisely determined than the other, or the uncertainty of measurement can be solely attributed to the dependent variable y ; that is:

$$\frac{dx}{x} < \frac{dy}{y}$$

This type of relationship is not always the case. The error in the dependent and independent variables can be of the same order of magnitude. In such a case, the method suggested in Reference A-1 is to assign all of the error to the dependent variable in the following manner:

$$\sigma_j = \sqrt{\left(\frac{dx}{x}\right)^2 + \left(\frac{dy}{y}\right)^2}$$

where σ_j is the new uncertainty assigned to the dependent variable.

The uncertainties in J_g^* and J_1^* for the steady state countercurrent flow tests were of the same order of magnitude; therefore, the uncertainties in J_g^* and J_1^* were combined by the technique mentioned and assigned to the dependent variable J_g^* .

1. DISCUSSION

The data from the transparent vessel tests were used to calculate the following nondimensional volumetric fluxes:

$$\begin{aligned} J_g^* &= J_g \left(\frac{\rho_g}{gD (\rho_1 - \rho_g)} \right)^{1/2} \\ J_f^* &= J_f \left(\frac{\rho_1}{gD (\rho_1 - \rho_g)} \right)^{1/2} \end{aligned} \quad (A-1)$$

where D is the hydraulic diameter of the downcomer

$$D = D_0 - D_i$$

To find the error in $J_g^{*1/2}$ and $J_f^{*1/2}$, total differentials must be obtained; that is:

$$d \sqrt{J_g^*} = 1/2 \frac{dJ_g^*}{\sqrt{J_g^*}}$$

Division by $\sqrt{J_g^*}$ results in

$$\frac{d \sqrt{J_g^*}}{\sqrt{J_g^*}} = 1/2 \frac{dJ_g^*}{J_g^*} \quad (A-2)$$

The error in $d J_g^{*1/2}/J_g^{*1/2}$ is one-half the error in $d J_g^*/J_g^*$. Thus, for ease of presentation, $d J_g^*/J_g^*$ is developed.

The magnitude of errors in the gas volumetric flux may be estimated by determining the total differential in terms of basic measured quantities. From Equation (A-1), the dimensionless volumetric gas flux is a function of J_g , D , ρ_g , and ρ_1 . The total differential of J_g^* is

$$\begin{aligned} dJ_g^* &= \frac{\partial(J_g^*)}{\partial J_g} dJ_g + \frac{\partial(J_g^*)}{\partial D_o} dD_o + \frac{\partial(J_g^*)}{\partial D_i} dD_i \\ &+ \frac{\partial(J_g^*)}{\partial \rho_g} d\rho_g + \frac{\partial(J_g^*)}{\partial \rho_1} d\rho_1 \end{aligned} \quad (A-3)$$

The partial differentials in Equation (A-3) are

$$\frac{\partial(J_g^*)}{\partial J_g} = \left(\frac{\rho_g}{g D (\rho_1 - \rho_g)} \right)^{1/2} dJ_g \quad (A-4)$$

$$\frac{\partial J_g^*}{\partial D_o} = - 1/2 J_g \left(\frac{\rho_g}{g D (\rho_1 - \rho_g)} \right)^{1/2} \frac{dD_o}{D} \quad (A-5)$$

$$\frac{\partial J_g^*}{\partial D_i} = 1/2 J_g \left(\frac{\rho_g}{g D (\rho_1 - \rho_g)} \right)^{1/2} \frac{dD_i}{D} \quad (A-6)$$

$$\frac{\partial J_g^*}{\partial \rho_g} = 1/2 J_g \left(\frac{\rho_g}{g D (\rho_1 - \rho_g)} \right)^{1/2} \left(1 + \frac{\rho_g}{\rho_1 - \rho_g} \right) \frac{d\rho_g}{\rho_g} \quad (A-7)$$

$$\frac{\partial J_g^*}{\partial \rho_1} = -1/2 J_g \left(\frac{\rho_g}{g D (\rho_1 - \rho_g)} \right)^{1/2} \left(\frac{\rho_1}{\rho_1 - \rho_g} \right) \frac{d\rho_1}{\rho_1} \quad (A-8)$$

Substituting Equations (A-4) through (A-8) into Equation (A-3) and dividing by J_g^* from Equation (A-1) gives

$$\begin{aligned} \frac{dJ_g^*}{J_g^*} = \frac{dJ_g}{J_g} - 1/2 \left(\frac{dD_o}{D} - \frac{dD_i}{D} \right) + 1/2 \left(1 + \frac{\rho_g}{\rho_1 - \rho_g} \right) \frac{d\rho_g}{\rho_g} \\ - 1/2 \left(\frac{\rho_1}{\rho_1 - \rho_g} \right) \frac{d\rho_1}{\rho_1} \end{aligned} \quad (A-9)$$

The terms dJ_g/J_g , $d\rho_g/\rho_g$, and $d\rho_1/\rho_1$ in Equation (A-9) require further definition in terms of measurable parameters. The basic definition of J_g

$$J_g = \frac{Q_g}{A}$$

where

Q_g = the volumetric flow of the air in the downcomer

A = the total cross-sectional area of the downcomer

can be differentiated to give

$$\frac{dJ_g}{J_g} = \frac{dQ_g}{Q_g} - \frac{dA}{A} \quad (A-10)$$

A direct measurement of the volumetric flow in the downcomer was not possible due to the complexity of the geometry in the downcomer and lower plenum regions. The volumetric flow of air in the downcomer was derived from volumetric flow measurements in the system piping using a mass balance. The measured flow was therefore corrected with the ratio of the air specific volume in the lower plenum divided by the air specific volume at the measurement location. Using the perfect gas law to define the specific volumes at the

measurement location and the lower plenum in terms of the measured pressure and temperature yields

$$\frac{dQ_g}{Q_g} = \frac{dT_L}{T_L} - \frac{dP_L}{P_L} - \frac{dT_m}{T_m} + \frac{dP_m}{P_m} + \frac{dQ_m}{Q_m} \quad (\text{A-11})$$

where the subscripts L and m refer to the lower plenum and the air measurement location, respectively.

The area term in Equation (A-10) can be evaluated by considering the following possible causes of errors in downcomer flow area:

- (1) Error in misalignment of core barrel and filler piece
- (2) Dependence of A on wear and scaling
- (3) Variation of A with position in the annulus
- (4) Dependence of A on temperature.

The area of the annulus is dependent on the filler piece inside diameter and the core barrel outside diameter. Neither the area of the filler piece inside diameter nor the area of the core barrel outside diameter is dependent on the position of the core barrel within the vessel, and therefore, the annulus area is not dependent on position of the core barrel within the vessel. The vessel liner was measured after the test was completed. No indication of wear and only negligible scaling was observed. From measurements of the vessel liner and tolerances for construction of the core barrel, the dependence of A on position in the annulus is determined. By using the following definition for annulus area:

$$A = \frac{\pi}{4} (D_o^2 - D_i^2)$$

the following results:

$$\frac{dA}{A} = \frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \quad (A-12)$$

In computing dA/A , the term dD_o was taken to be

$$1/2 [D_o(\max) - D_o(\min)].$$

The same technique was employed for dD_i using the tolerances given for the construction of the core barrel.

The dimensions of the vessel and vessel internals were measured at room temperature, but some tests were conducted with the water substantially below this temperature. An equation describing the effect of temperature on cross-sectional area can be derived using the coefficient of thermal expansion for the plexiglass filler piece or vessel and for the aluminum core barrel considering the change in diameter with temperature

$$\frac{dA(T)}{dA} = \frac{2 D_o^2 \alpha_p \Delta T - 2 D_i^2 \alpha_a \Delta T}{D_o^2 - D_i^2}$$

This equation shows that this component of error is small because for the case for which $\alpha_p = \alpha_a$, the equation reduces to

$$\frac{dA(T)}{dA} = 2 \alpha \Delta T$$

Since both α_a and α_p are small and ΔT is not larger than about 40°F, the contribution of temperature to the error in annulus area would be negligible. The corresponding effect of the temperature on the diameter terms in Equation (A-9) would also be negligible for the same reasons as discussed for the flow area.

Substitution of Equations (A-12) and (A-11) into Equation (A-10) leads to

$$\frac{dJ_g}{J_g} = \frac{dT_L}{T_L} - \frac{dP_L}{P_L} - \frac{dT_m}{T_m} + \frac{dP_m}{P_m} + \frac{dQ_m}{Q_m} - \frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \quad (A-13)$$

The term $d\rho_g/\rho_g$ in Equation (A-9) can be defined by differentiating the perfect gas law to give (in terms of the lower plenum properties)

$$\frac{d\rho_g}{\rho_g} = \frac{dP_L}{P_L} - \frac{dT_L}{T_L} \quad (A-14)$$

The term $d\rho_l/\rho_l$ in Equation (A-9) can be derived assuming the liquid is incompressible and that changes in ρ_l are caused only by temperature changes so that

$$\frac{d\rho_l}{\rho_l} = \frac{d\rho_l}{\rho_l T_l} \frac{dT_l}{T_l}$$

but from the property table for water

$$\frac{d\rho_l}{dT} = 2.5 \times 10^{-3} \text{ lb}_m/\text{ft}^3 \text{ } ^\circ\text{F}$$

for the range of temperatures used during testing; therefore, this contribution to the total error would be so small as to be negligible.

Substitution of Equations (A-13) and (A-14) along with $d\rho_1/\rho_g \approx 0$ into Equation (A-9) results in

$$\frac{dJ_g^*}{J_g^*} = \left[\begin{array}{l} \frac{dT_L}{T_L} - \frac{dP_L}{P_L} - \frac{dT_m}{T_m} + \frac{dP_m}{P_m} + \frac{dQ_m}{Q_m} \\ - \frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} - 1/2 \left(\frac{dD_o}{D_o} - \frac{dD_i}{D_i} \right) \\ + 1/2 \left(1 + \frac{\rho_g}{\rho_1 - \rho_g} \right) \left(\frac{dP_L}{P_L} - \frac{dT_L}{T_L} \right) \end{array} \right] \quad (A-15)$$

This equation can now be used to define the maximum and probable errors for the gas volumetric flux.

The errors in the liquid volumetric flux can be evaluated using a method similar to that used for the air volumetric flux. From Equation (A-1), the liquid volumetric flux can be differentiated and the partial derivations evaluated to give

$$\begin{aligned} \frac{dJ_1^*}{J_1^*} &= \frac{dJ_1}{J_1} - 1/2 \left[\frac{dD_o}{D_o} - \frac{dD_i}{D_i} \right] + \left(1 - \frac{\rho_1}{\rho_1 - \rho_g} \right) \frac{d\rho_1}{\rho_1} \\ &+ 1/2 \left(\frac{\rho_g}{\rho_1 - \rho_g} \right) \frac{d\rho_g}{\rho_g} \end{aligned} \quad (A-16)$$

The term dJ_1/J_1 must be evaluated in terms of measured quantities. Through use of a method similar to the derivation of Equation (A-10):

$$\frac{dJ_1}{J_1} = \frac{dQ_1}{Q_1} - \frac{dA}{A} \quad (A-17)$$

The dA/A terms have already been evaluated and are given by Equation (A-13).

Use of the weigh tank measurements for liquid flow in the downcomer results in a volumetric flow measurement defined by

$$Q_1 = \frac{M}{t\rho_1}$$

where

M = the measured mass from the weigh tanks

t = the collection time.

Differentiating and dividing by Q_1 gives

$$\frac{dQ_1}{Q_1} = \frac{dM}{M} - \frac{dt}{t} - \frac{d\rho_1}{\rho_1}$$

but $d\rho_1/\rho_1$ has been shown to be negligible, so the preceding equation along with Equation (A-13) can be substituted into Equation (A-17) which along with Equation (A-14) can be substituted into Equation (A-16) to give

$$\frac{dJ_1^*}{J_1} = \left[\begin{array}{l} \frac{dM}{M} - \frac{dt}{t} - \frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \\ - 1/2 \left(\frac{dD_o}{D} - \frac{dD_i}{D} \right) \\ + \left(\frac{\rho_g}{\rho_1 - \rho_g} \right) \left(\frac{dP_L}{P_L} - \frac{dT_L}{T_L} \right) \end{array} \right] \quad (A-18)$$

Equation (A-18) can now be used to define the maximum and probable errors for the liquid volumetric flux.

By taking all nonmutually exclusive error terms in Equations (A-15) and (A-18) positive, maximum error Equations (A-19) and (A-20) are obtained.

$$\frac{d \sqrt{J_g^*}}{\sqrt{J_g^*}} (\max) = \frac{1}{2} \left[\begin{aligned} & \left| \frac{dT_L}{T_L} \right| + \left| \frac{dP_L}{P_L} \right| + \left| \frac{dT_m}{T_m} \right| + \left| \frac{dP_m}{P_m} \right| \\ & + \left| \frac{dQ_m}{Q_m} \right| + \left| \frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \right| \\ & + \left| \frac{1}{2} \left(\frac{dD_o}{D} - \frac{dD_i}{D} \right) \right| \\ & + \left| \frac{1}{2} \left(1 + \frac{\rho_g}{\rho_l} \right) \left(\frac{dP_L}{P_L} - \frac{dT_L}{T_L} \right) \right| \end{aligned} \right] \quad (\text{A-19})$$

$$\frac{d \sqrt{J_l^*}}{\sqrt{J_l^*}} (\max) = \frac{1}{2} \left[\begin{aligned} & \left| \frac{dM}{M} \right| + \left| \frac{dt}{t} \right| + \left| \frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \right| \\ & + \left| \frac{1}{2} \left(\frac{dD_o}{D} - \frac{dD_i}{D} \right) \right| \\ & + \left| \left(\frac{\rho_g}{\rho_l} \right) \left(\frac{dP_L}{P_L} - \frac{dT_L}{T_L} \right) \right| \end{aligned} \right] \quad (\text{A-20})$$

The probable errors for these quantities are expressed by

$$\frac{d \sqrt{J_g^*}}{\sqrt{J_g^*}} (\text{prob}) = \frac{1}{2} \left[\begin{aligned} & \left(\frac{dT_L}{T_L} \right)^2 + \left(\frac{dP_L}{P_L} \right)^2 + \left(\frac{dT_m}{T_m} \right)^2 + \left(\frac{dP_m}{P_m} \right)^2 \\ & + \left(\frac{dQ_m}{Q_m} \right)^2 + \left(\frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \right)^2 \\ & + \left[\frac{1}{2} \left(\frac{dD_o}{D} - \frac{dD_i}{D} \right) \right]^2 \\ & + \left[\frac{1}{2} \left(1 + \frac{\rho_g}{\rho_1 - \rho_g} \right) \left(\frac{dP_L}{P_L} - \frac{dT_L}{T_L} \right) \right]^2 \end{aligned} \right] \quad (\text{A-21})$$

$$\frac{d \sqrt{J_1^*}}{\sqrt{J_1^*}} (\text{prob}) = \frac{1}{2} \left[\begin{aligned} & \left[\left(\frac{dM}{M} \right)^2 + \left(\frac{dt}{t} \right)^2 - \left[\frac{2 D_o dD_o - 2 D_i dD_i}{D_o^2 - D_i^2} \right]^2 \right]^{1/2} \\ & + \left[\frac{1}{2} \left(\frac{dD_o}{D} - \frac{dD_i}{D} \right) \right]^2 \\ & + \left[\left(\frac{\rho_g}{\rho_1 - \rho_g} \right) \left(\frac{dP_L}{P_L} - \frac{dT_L}{T_L} \right) \right]^2 \end{aligned} \right] \quad (\text{A-22})$$

2. RESULTS

The equations for the dimensionless volumetric fluxes defined in Equation (A-1) have been reduced to basic measured quantities so that the maximum and probable errors can be calculated. Table A-I summarizes the maximum and probable errors for selected transparent vessel tests. An examination of the distribution of the components that make up the maximum errors indicates that errors in the pressure and turbine flowmeter measurements are the largest contributors to the errors in the calculated volumetric fluxes.

TABLE A-I
PROBABLE AND MAXIMUM ERRORS

Test	$\sqrt{j_g^*}$	$\sqrt{j_1^*}$	Probable Error (%)			Maximum Error (%)		
			$d\sqrt{j_g^*}/\sqrt{j_g^*}$	$d\sqrt{j_1^*}/\sqrt{j_1^*}$	Total [a]	$d\sqrt{j_g^*}/\sqrt{j_g^*}$	$d\sqrt{j_1^*}/\sqrt{j_1^*}$	Total [a]
7.1.32	0.1887	0.9175	4.4	2.7	5.2	9.8	5.1	11.04
7.1.36	0.269	0.7693	4.0	2.1	4.5	8.9	4.3	9.4
7.1.38	0.4165	0.6016	4.8	2.7	5.5	8.8	5.2	10.2
7.1.42	0.4948	0.4520	9.2	3.7	9.9	14.5	6.5	15.9
7.1.40	0.5314	0.3996	3.8	4.4	5.8	8.6	7.4	11.3
7.1.45	0.6167	0.2374	6.0	6.0	8.5	1.2	10.5	15.2
7.1.47	0.7468	0.0890	4.4	4.8	6.5	8.8	14.7	17.1

[a] Assigned to the dependent variable, J_g^* .

3. REFERENCE

- A-1. P. R. Bevington, *Data Reduction and Error Analysis for the Physical Sciences*, New York: McGraw-Hill Book Company, Inc., 1969.

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