

NBS REPORT

9703

CRYOGENIC PROPELLANT VENTING UNDER LOW PRESSURE
CONDITIONS

Final Report

to

National Aeronautics and Space Administration

Prepared Under Contract R-45

February 2, 1968

by

M. C. Jones, Patricia J. Giarratano, and A. U. Simpson

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[†] Research Associate February 1966 to August 1967 under sponsorship of AiResearch Manufacturing Division of the Garrett Corporation.

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ABSTRACT

Data are presented for wall temperatures and heat transfer coefficients for solid-vapor mixtures of parahydrogen and nitrogen flowing in an electrically heated straight tube of length 40 times its diameter. These are interpreted by the application of flat plate, constant property boundary layer theory to models in which the solid particle geometrical distribution takes on simple limiting forms. The observed enhancement of the heat transfer coefficient over that for gas alone traveling at the same velocity is qualitatively predicted as a function of a dimensionless heat flux, the Stermann parameter $q_w / \rho_v U \lambda$. This parameter is also shown to be an index of particle-wall interaction and is used to correlate observed limiting wall heat fluxes above which free flow may be guaranteed.

1. INTRODUCTION

The study described below was conducted in order to obtain information on the flow and heat transfer characteristics of single component, solid-vapor mixtures flowing through rocket engine propellant supply lines and propellant tank vent lines. The mixtures are formed when cryogenic liquid fuels are introduced into lines open to space atmospheres and thus at pressures below 10^{-6} torr. This is well below the triple point pressures of most liquid fuels. Triple point pressures of some common liquids are listed in Table 1. Such circumstances are most commonly encountered during the idle period or restart of an engine and during the accidental venting of liquid from a supply tank and can lead to lines plugged with solid.

Table 1.
Summary of Triple Point Temperatures and Pressures

	Triple Point Temperatures (°K)	Triple Point Pressure (torr)
Parahydrogen	13.8	52.8
Nitrogen	63.2	94.1
Fluorine	53.5	1.92
Oxygen	54.4	1.14
Water	273.16	4.58
Carbon Dioxide	216.6	3885.2

In order to obtain basic information on this phenomenon, liquids were expanded through orifices at the entrance of a simple straight tube and then discharged into a chamber under vacuum. Fine suspensions of solids in their own vapor were formed and, under certain heating conditions of the tube, were seen through windows in the vacuum chamber to discharge freely from the tube in a fairly homogeneous column. Under conditions of insufficient heat input, discharge became unsteady and even ceased with the tube temporarily blocked with solid.

The goals of the study were to establish heating conditions which would permit free discharge of the solid-vapor mixtures and to measure heat transfer coefficients for heat input through the tube wall. The latter are, in fact, unique two-phase, forced convection heat transfer results, but are quite related to more familiar studies of inert solid-in-gas suspensions [1-5].

Previous studies of flow and heat transfer to gas-inert solids mixtures were motivated by the desire to improve the heat transfer coefficient of a gas stream. Experimental data of various workers including the authors themselves were compared by Farbar and Depew [1] for various solids (glass spheres, catalysts, etc.) suspended in air streams. In summary, their work showed that the pure gas heat transfer coefficient could be enhanced, enhancement increasing with the proportion of solids present and decreasing with particle size. Particles greater than 200 microns did not appear to affect the heat transfer while 30 micron particles gave up to a four-fold enhancement for solids-to-gas mass flow ratios up to 10. For the smaller particles, however, at mass flow ratios less than 4, a decrease in heat transfer coefficient below the pure gas value was noted. Similar observations were reported by Tien and Quan [2]. They worked at mass flow ratios < 3.5 with 30 micron and 200 micron particles in both glass and lead. Only for the 30 micron glass particles was significant enhancement noted; significantly, glass has a volumetric heat capacity about 30% higher than that of lead.

Abel, et al. [3] conducted experiments with micronized graphite (particles in the size range $1 < D_p < 10$ microns) suspended in helium and nitrogen gas at mass flow ratios up to about 3. Only marginal enhancement of heat transfer was obtained, but the meaning of the results is obscured by the occurrence of deposition of graphite on the walls of the test section.

Theoretical expressions for heat transfer coefficients for gas-inert solid flow have been derived. In a simplified treatment of heat transfer in fully developed turbulent flow, with uniform distribution of very small particles and an unperturbed velocity profile, Tien[4] showed that the enhancement was proportional to the factor

$$\left(1 + \frac{\rho_p C_{p,p}}{\rho_v C_{p,v}} \right)$$

In a laminar boundary layer analysis Edelman[5] derived the enhancement factor

$$\left(1 + \frac{\rho_p C_{p,p}}{\rho_v C_{p,v}} \right)^{1/3} \left(1 + \frac{\rho_p}{\rho_v} \right)^{1/6}$$

Again, uniform particle distribution was assumed.

From this work the major effect of the presence of inert particles is clear: particles act as heat sinks for the vapor and, insofar as they do not constitute a hydrodynamic disturbance, they prolong the entrance region and consequently enhance heat transfer.

For subliming solid-vapor mixtures, only the previous work of Jones, et al. [6] is available. Preliminary studies were made of heat transfer to solid-vapor mixtures of parahydrogen below its triple point pressure flowing through a short (length = 13 diameters) uniformly heated tube. Enhancement was again observed and a dependence upon heat flux noted. A correlation was suggested in which a dimensionless heat flux, the Stermann parameter, was used. This is discussed more fully below. In that work only hydrogen data were reported since it was found impossible to obtain free flow of solid-vapor mixtures of nitrogen in the same apparatus.

In the present study a tube of 40 diameters length was used and was investigated for both parahydrogen and nitrogen. Free flow was achieved by concentrating heat in the vicinity of the entrance orifice. Heat transfer data for the two fluids permit a test of the correlation, suggested in the earlier study, here interpreted in the light of an analysis presented below. This analysis permits some interpretation of the form of the experimental correlation in terms of the distribution of solid particles over the cross section of the tube.

Under one approximation the analysis suggests that particle size would be an important factor in predicting heat transfer coefficients. An attempt was therefore made at photographing the solid particles discharging from the tube. Although quite clear photographs were obtained, it is not possible to pick representative particle diameters due to the wide range of particle sizes observed. However knowledge of this range was found to be of use and some additional qualitative information was obtained on the distribution of particles over the tube cross section.

2. EXPERIMENTAL

2.1. Flow System

The solid-vapor mixtures were investigated in a continuous flow system in which a cryogenic liquid, nitrogen or parahydrogen, was expanded through an orifice into a straight, heated tube and then discharged into a vacuum chamber. Figure 1 illustrates the flow system used.

The test liquid at a suitable pressure flowed from the supply dewar (A) through a precooler (B) into the plenum chamber (C) in which the thermocouple reference junctions were embedded and which also served as a reservoir for measuring temperature and pressure of the liquid before it entered the test section. The liquid then expanded through an orifice into the test section (D) where the pressure was well below the triple point of the fluid being tested.

The use of the precooler assured that subcooled or saturated liquid was maintained in the plenum chamber. The discharge pressure was maintained by one or two reciprocating vacuum pumps (E) each having a capacity of 310 liters/sec at 10 torr and was controlled by an absolute pressure sensor (F), vacuum pump butterfly valve (G), and pneumatic proportional controller (H).

2.2. Test Section

The details of the test section are shown in figure 2 and 2A. It was an "Inconel" tube of 1.37 cm internal diameter (9/16" O.D., 0.012" wall) having a length-to-diameter ratio of approximately 40 between the inlet orifice and the end of the tube.

Ten calibrated chromel-constantan thermocouples, located as indicated in figure 2 were used to measure wall temperatures; four heaters in the apparatus were used as follows:

1. Cartridge heater (P) upstream of discharge orifice for varying the quality of the stream.
2. Heater (N) adjacent to discharge orifice to prevent caking of solid on the tube wall adjacent to the orifice.
3. Main test-section heater (L) (wound uniformly and noninductively) along the length of the tube to supply heat to the solid-vapor mixture flowing in the test section. This heater could also be electrically wired so that upper and lower sections of the tube were independently heated.
4. Auxiliary heater (M) at the lower end of the test section to prevent heat loss from the bottom of the warm tube wall to the cold vacuum insulating jacket. An eleventh difference thermocouple (Q) located between the tube wall and the insulating jacket flange provided an error signal for a temperature

controller which supplied power to the auxiliary heater (M) and continuously compensated for this heat loss.

Pressure taps H1 and H2 located at the top and bottom of the test section were used for measuring static pressure drop along the tube during free flow of the solid-vapor mixture.

2.3 Instrumentation

A data acquisition system consisting of a digital voltmeter, amplifier, scanner, and printer was used for measuring and recording all voltages and currents. These included heater voltages and currents, thermocouple emfs and the voltage drop and current through a germanium resistance thermometer located inside the plenum chamber, C.

Flow rates were measured by means of a calibrated flow orifice, the pressure drop being read on a water manometer. For nitrogen runs, the flow rate was varied by changing the test discharge orifice size, while for hydrogen different flow rates were obtained more conveniently by varying the pressure upstream of the orifice. The flow orifice was submerged in the precooler to assure single-phase liquid flow.

Discharge chamber pressure was measured by an absolute pressure mercury manometer, and a specially designed mercury U-tube manometer capable of indicating small pressure drops was used to measure the pressure drop along the test section.

Photographs of the emerging solid-vapor stream were taken using a commercially available microflash unit, which had a flash duration of 0.3×10^{-6} sec, and a specially constructed camera consisting of a lens, a 1 meter expansion bellows and film holder. Because it was impractical to locate the camera close to the discharging stream inside the vacuum chamber, the special camera arrangement was necessary to obtain sufficient

resolution of solid particles. A traveling microscope was used to measure particle sizes in the photographs.

2.4. Experimental Procedure

The discharge chamber was evacuated to a pressure well below the triple point of the test fluid; liquid was then transferred from the supply dewar to the precooler accomplishing cooldown of the transfer line and filling the precooler.

Cooldown of the system between the precooler and test section was accomplished by venting the plenum (C) to the discharge chamber. Venting was discontinued when the germanium resistance thermometer located in the plenum chamber indicated the presence of subcooled or saturated liquid. At the first sight of solid emerging from the test section (viewed through windows in the discharge chamber), power was applied to the orifice and main heaters until free flow of solid and vapor was obtained. The automatic temperature controller governing the auxiliary heater was then placed in operation.

Heat transfer data and photographs of the emerging solid-vapor stream were taken for a set discharge pressure and flow rate (dictated by the size of the test discharge orifice and/or upstream driving pressure) with variable heat flux to the test section.

Previous work [6] indicated that at low heat fluxes flow was impeded due to adherence of solid to the tube wall adjacent to the discharge orifice. In order to qualitatively examine the heating conditions necessary for free flow in a region of parallel flow (in contrast to the region near the discharge orifice where the flow has a considerable radial component), the heat flux to the lower 8 cm of the tube (farthest section from the orifice) was reduced while the upper section heat flux was held constant. Heat transfer data were also taken during these runs.

In order to investigate the effect of varying the quality of the mixture, power into the cartridge heater was varied while discharge pressure, flow rate and heat flux into the test section were maintained constant. The power into the cartridge heater was increased until flow of solid-vapor stopped, indicating the liquid upstream of the discharge orifice had been vaporized. A significant variation of quality was not accomplished.

3. RESULTS

Typical photographs of the solid-vapor mixture discharging from the end of the test section are shown in figures 3 and 4 for hydrogen. The absence of visible solid particles in the vicinity of the wall is clearly evident in figure 4 where the heat flux was three times that for figure 3. Photographs also indicated that a wide distribution of particle sizes existed in the solid vapor stream ranging from 10 to approximately 500 microns. The limits on particle size are wide since it was not possible in all cases to determine whether some of the particles being measured were individual or optically superimposed particles. Particles less than 10 microns could not be seen clearly with the photographic resolution available.

Selected temperature difference ($T_w - T_s$) profiles are given in figures 5 and 6 for hydrogen and figures 7 and 8 for nitrogen. The inside wall temperature, T_w , was calculated by correcting measured outside wall temperatures for temperature drop through the tube wall. The bulk fluid temperature at a given station was taken as the saturation temperature, T_s , corresponding to the pressure in the tube at that point, there being no means to actually measure it.

The heat flux to the fluid was calculated from the measured electrical power input, taking into account axial conduction along the tube (based on measured wall temperatures) and radiation losses.

The heat flux uncertainties were $\pm 1/2$ percent and uncertainties in the temperature difference were less than ± 5 percent for approximately 90 percent of the runs, the worst uncertainties being ± 25 percent to ± 150 percent at low heat fluxes ($<0.02 \text{ W/cm}^2$) for hydrogen data points. The uncertainties in temperature difference were almost entirely due to a tendency of the wall temperatures to drift randomly during a run. The arithmetic average of all the measured values (5 readings per datum point taken over a 2-1/2 minute interval) were used in the reported results.

In general, for a given heat flux, flow rate and discharge pressure, the trend was an increase in $(T_w - T_s)$ with axial distance along the tube. At a given heat flux and flow rate, discharge pressure did not appear to significantly affect the temperature profile for hydrogen while for nitrogen the general trend was a decrease in temperature profile with increased discharge pressure.

The temperature profile dependence on flow rate is also illustrated in figures 5 through 8. For hydrogen with a constant heat flux, an increase in flow rate decreased the temperature difference (increased the heat-transfer coefficient) at all stations. However, for nitrogen, between stations 5 and 7 only, the opposite is shown to be true as evidenced by the generally steeper rise of the curves in figure 8 compared to those in figure 7.

Attention is also drawn to the fact that wall temperatures remained close to saturation temperature for greater values of x/D in the case of nitrogen than with hydrogen.

In the discussion below it has been convenient to illustrate the results by a plot of the enhancement factor, f , vs Stermann parameter, N_{Sr} . The estimated uncertainties in these quantities are ± 10 percent and ± 1 percent respectively for most of the runs, worst values for f being ± 30 percent to ± 155 percent at $N_{Sr} < 0.0003$ due to large uncertainties in $(T_w - T_s)$ at low heat fluxes.

While it was possible to obtain a plugged tube when the entire main test section heater power was sufficiently reduced, this was not so when only the power to the lower 8 cm of the test section was reduced. Although the flow oscillated, plugging was not obtained for any measurable or reproducible length of time. Heat transfer data taken during these runs substantiated the trends of f vs N_{Sr} shown in figures 10 and 11. Since plugging did not occur in these runs it was possible to attain lower Stermann parameters for N_2 and results indicated a dipping down of the curve at low Stermann parameters. Because of the nonuniformity of the heat flux applied to the entire test section (power to the bottom 8 cm of the section was reduced while power to the remaining upper portion was held constant), these results are not included in the data shown in figures 5 through 11, where uniform heat flux was applied to the entire length of the test section. However, figure 12 illustrates conservative heating conditions necessary for free flow for the range of variables encountered in this study.

4. HEAT TRANSFER THEORY

A complete theoretical description of heat transfer coefficient for the subliming, solid-vapor mixtures investigated in this work would treat momentum and energy transport for the two phases—particle and vapor—in the presence of turbulence, particle transport, vaporization, compressibility effects, and temperature dependent transport properties. Such a

general treatment is not yet available and the interpretation of the experimental results must proceed from simplified analyses. Such analyses at this stage of knowledge have the advantage of separating out dominant effects and permitting some insight into the total process. An alternative procedure is to formulate the governing differential equations and boundary conditions and produce a purely numerical solution, but here insight is not improved without very extensive calculations because the functional form of the result is not known. It is further found that solutions are often not possible because of lack of knowledge of details of processes.

For the present treatment it was decided to use a boundary layer technique for laminar, incompressible, constant property flow over a flat plate with constant heat flux and investigate perturbations of the well known single phase results by the presence of vaporizing solid particles. It was considered that, being an entrance region with free stream turbulence enhanced by that from the orifice, the flat plate laminar boundary layer assumptions would be particularly appropriate up to the point of boundary layer transition. Some slight deviation from the flat plate result would be expected towards the end of the tube where the boundary layer is estimated to be between 10 and 20 percent of the tube diameter.

Essential for this analysis is a description of the size distribution, geometrical distribution and velocity distribution of the solid particles. A single size particle was chosen representing an average particle. For the geometrical distribution, two extreme cases were considered. In the first, a uniform density of particles was assumed throughout. In the second, it was assumed that particles exist only outside the thermal boundary layer. The first case corresponds physically to a high degree of mixing or a low heat flux, while the second represents the case of no mixing and immediate vaporization of particles entering the boundary layer. The true physical picture lies obviously between these extremes. The two

cases are referred to below as the "uniform particle density" and "vapor film" cases respectively. For the velocity distribution of the particles it was decided to treat only the case where no relative velocity exists between the phases, as would be the case for sufficiently small particles.

The details of the analysis are given in Appendix A. The procedure, the von Kármán approximate integral method [7], may be outlined as follows. Integral equations are written for mass, momentum and energy conservation for both particle and gas phases separately and for the combined phases for total conservation in a volume element which includes the boundary layer. Fourth order velocity and temperature profiles are chosen to satisfy all important boundary conditions. These are substituted into the integral equations, and after carrying out the integration, a first order differential equation results for both momentum and thermal boundary layer thicknesses. The momentum equation may be integrated immediately and the result substituted into the differential equation for the thermal boundary layer. The resulting differential equation is seen to resemble the usual single phase equation except for terms due to the presence of particles. The differential equations are soluble when a simple perturbation technique is applied. This leads to an explicit expression for the thermal boundary layer thickness as a function of x . For the case of uniform particle density, a second simple asymptotic solution is possible when the presence of solid dominates. In this case the usual single phase terms may be neglected and the solution is identical to that which would be obtained if the solid-vapor mixture were stagnant, as shown by Simpson [8].

Finally, heat transfer coefficients, h , are evaluated and enhancement factor, f , calculated. This is defined as

$$f = h/h^{\circ}$$

where h° is the heat transfer coefficient for the vapor alone, traveling at

the free stream velocity of the mixture. The results may be summarized as follows:

Case 1 - Uniform Density Model.

(a) Perturbation Solution:

$$\delta_t = \delta_t^1 \left[1 - \epsilon \right]^{1/3} \quad (1)$$

where

$$\frac{\delta_t^1}{x} = 4.44 N_{Pr}^{-1/3} N_{Re,D}^{-1/2} \left(x/D \right)^{-1/2} \left(1 + \rho_p/\rho_v \right)^{1/3}$$

and

$$\epsilon = \left(\delta_t^1/\Sigma \right)^2 \left[\frac{1}{5} \frac{\lambda}{\lambda^*} - 0.186 N_{Pr}^{1/3} \left(H \rho_p/\rho_v \right)^{-1/3} \right]$$

with

$$\Sigma^2 = \frac{D_p^2}{3 N_{Nu,p} S} \frac{\lambda}{\lambda^*} \frac{\tilde{\rho}_p}{\rho_p}$$

$$f = \left(1 + \rho_p/\rho_v \right)^{1/6} \left[1/(1 - \epsilon)^{1/3} + \frac{1}{6} \left(\delta_t^1/\Sigma \right)^2 \right] \quad (2)$$

(b) Asymptotic Solution:

$$\delta_t = \left(\frac{10}{3} \right)^{1/2} \left[\frac{\tilde{\rho}_p}{\rho_p} / N_{Nu,p} S \right]^{1/2} D_p \quad (3)$$

$$f = \left(\frac{5}{6} \right)^{1/2} \left[\frac{\rho_p}{\rho_p} \cdot N_{Nu,p} \cdot S \right]^{1/2} \frac{\lambda^*}{\lambda} \frac{\delta_t^0}{D_p} \quad (4)$$

Case 2 - Vapor Film Model:

$$\delta_v = \delta_t^0 \left[\frac{1 - 2(q_v/q_w)}{1 + 4(q_v/q_w)} \right]^{1/3} \quad (5)$$

where

$$\frac{\delta_t^o}{x} = 4.44 N_{Pr}^{-1/3} N_{Re,D}^{-1/2} \left(\frac{x}{D}\right)^{-1/2}$$

and

$$q_v/q_w = N_{Sr}^{-1} \Pi \left(\frac{\delta_t^o}{2x} \right) \left(\frac{\rho_p}{\rho_v} \right)$$

Π is a function of N_{Pr} only and is defined in Appendix A.

$$f = \frac{\left(1 + 4 q_v/q_w\right)^{1/3}}{\left(1 + q_v/q_w\right) \left(1 - 2 q_v/q_w\right)^{1/3}} \quad (6)$$

5. DISCUSSION

5.1. Heat Transfer

In this discussion an attempt will be made to interpret the broad features of the experimental results with reference to the theory presented. In the region close to the discharge orifice, the fluid mechanical situation of the stream impinging on the tube wall with a non-equilibrium condition existing between the phases does not lend itself to analysis. The rather complex behavior noted above in figures 5, 6, 7, and 8 in which the two fluids appear to behave differently is evidence of this. However, it is supposed that adjacent to the wall a laminar boundary layer does begin to develop in some manner in the region of the orifice. It is further expected that the development of the boundary layer becomes less dependent on this orifice condition the farther one proceeds down the tube, so that the wall temperatures or heat transfer coefficients here should be amenable to analysis.

The temperature difference profiles of figures 5, 6, 7, and 8 show typical single-phase behavior away from the orifice except for erratic behavior near the end of the tube. (This amounts to a small percentage since here the temperature differences are high.) Theory predicts, however, that the heat transfer coefficient should be enhanced by the presence of vaporizing solid. Unfortunately, it was not possible in these experiments to measure heat transfer coefficients for the single phase, pure gas case under comparable conditions, and therefore recourse must be had to calculation.

It was suggested in a previous paper [6] by a dimensional analysis that, for a given value of x/D , a correlation should exist between the enhancement factor, $f = h/h^\circ$, and the Stermann parameter N_{Sr} . While the present theory qualifies this somewhat, the plot is still convenient in that one can say something about the trend to be expected, namely: at large values of N_{Sr} , f should decrease to an

asymptotic value of 1.0 for all values of x/D . This is the prediction according to equation (6) and, in words, means simply that for high heat flux the tube wall becomes blanketed by a thick layer of gas which, in the limit, becomes pure gas flow as all the solid is vaporized.

If fully developed turbulent flow existed toward the end of the tube, the Sieder-Tate correlation [9]

$$h_{S-T} = 0.026 (k/D) N_{Re}^{0.8} N_{Pr}^{0.33} (\mu_s/\mu_w)^{0.14} = h^\circ$$

could be used to calculate the heat transfer coefficient, h° , for the pure gas traveling at the same velocity as the mixture. The enhancement factor so calculated is shown in figure 9 plotted against N_{Sr} for $x/D = 39$. Also shown are the data from [6] for $x/D = 13$. Apparently the Sieder-Tate correlation overpredicts the equivalent pure gas heat transfer coefficient since the enhancement factor for $x/D = 39$ approaches a value of 0.5-0.6. The data for $x/D = 13$ approach 1.0 as was noted in [6], but it now seems likely that part of the enhancement here when compared to fully developed turbulent flow is due to this station's being higher in the entrance region.

In the theory presented in this paper it is suggested that laminar boundary layer theory could be used to describe the developing wall temperatures. In figure 10, the enhancement factor presented was calculated for $x/D = 39$ using for h° the value obtained from equation (11b) of Appendix A for pure vapor traveling at the same free stream velocity as the mixture. Transport properties were calculated at $T = (T_w + T_s)/2$. The enhancement factor calculated in this way is now compatible with the stated requirement at large values of N_{Sr} for $x/D = 39$. For all other values of x/D , f is greater than 1.0 also and shows the correct trend of decreasing as N_{Sr} increases. It is noted also in this figure that the data for hydrogen and nitrogen correlate well.

According to Schlichting [7], the transition of a laminar to a turbulent boundary layer takes place over a flat plate at a Reynolds number, based on

length, of the order of 3×10^5 . In the present experiments this value is often exceeded toward the end of the tube and, indeed, some of the erratic behavior of the temperature difference profiles, particularly at high heat fluxes, could be explained by this; the possibility should not be excluded that at low heat flux the unvaporized particles in the boundary layer damp out turbulent fluctuations and therefore stabilize the flow. In either case it is clear from figures 9 and 10 that fully developed turbulence was not attained in these experiments, and the laminar boundary layer calculation of h° is reasonable.

It is now also clear that, except at high values of N_{Sr} , heat transfer is enhanced by the presence of subliming particles; indeed, according to figure 10, up to a tenfold enhancement was realized.

Theoretical values of f are also shown on figure 10. At high values of N_{Sr} , f was calculated for $x/D = 39$ and the range of N_{Re} encountered experimentally using equation (6) for the vapor film model. Unfortunately, the range of validity of the calculation does not encompass the experimental data, but it appears that this model could represent the correct asymptotic behavior for large values of N_{Sr} . If anything, the theoretical curve is too far to the right. The uniform particle density model was applied using the extreme values of particle sizes observed. For the 500 micron particles, the perturbation calculation of equation (2) is valid and the result is the lower shaded area at the left of the figure. For 10 micron particles, the perturbation term, c , is too large for equation (2) to be valid. However, this case may be handled by the asymptotic solution, equation (4). This is represented by the upper shaded area at the left of the figure. These two results have been plotted at low N_{Sr} because this is precisely where uniform density is expected, i. e., low heat flux and, consequently, no vapor film.

The result obtained for the enhancement factor from the asymptotic solution is in good order of magnitude agreement with experiment, and the predicted independence of N_{Sr} actually follows the data for small N_{Sr} . The perturbation solution is either inapplicable (small particles) or predicts too low an enhancement (large particles). It is evident that particle size data are crucial if the enhancement factor is to be accurately predicted, but it is felt that these results using a wide range of particle size are at least encouraging.

A further point of interest is the dependence of the enhancement factor on position along the tube. This is illustrated in figure 11 for hydrogen data at $x/D = 8, 19, \text{ and } 39$. Also presented for comparison are the data for $x/D = 13$ from [6]. The two sources of data seem to be reasonably compatible. Although h^o itself contains a dependence on x/D , it is seen that this is not sufficient to compensate for the experimental dependence of h ; the data for different x/D do not merge together. That this is expected can be shown by calculating f for the vapor film model for different x/D . In doing this, equation (6) has been used again, but in order to obtain better agreement with the data, the density, ρ_p , of particles in the free stream has been reduced to obtain a fit with the data for $x/D = 39$. This is not without reason when one remembers that in the vapor film model all solid is assumed to exist as very small particles which vaporize in a negligible time. This is obviously not the case in the experiments and only a fraction of the particles will be effective in this way. Having thus obtained a fit for $x/D = 39$, the curve for $x/D = 8$ was calculated with the same value of ρ_p and for the same range of N_{Re} . The shift is seen to be reasonable when compared with the data.

The preceding discussion leads to the following interpretation of the observed trend of f with N_{Sr} . At low heat flux and hence low N_{Sr} , the distribution of particles is unperturbed by vaporization and is independent of N_{Sr} as predicted by the uniform density model. Increasing N_{Sr} vaporizes particles from the region adjacent to the wall, forming some sort of film as particle concentration is depleted. Although the discontinuous concentration profile used in the vapor film model is not realistic, it is felt nevertheless that the same interpretation can be given to the role of N_{Sr} as is indicated theoretically, namely, N_{Sr} is an index of the departure of particle concentration profile from uniform. A striking confirmation of this interpretation is obtained from the photographs, figures 3 and 4, of the solid vapor stream emerging from the end of the heated tube. In figure 4, N_{Sr} is 2.3 times the value in figure 3; all other conditions are comparable.

5.2. Heating Configuration for Free Flow

The preceding interpretation of N_{Sr} can be put in another way. Since uniformity of particle distribution is approached with decreasing N_{Sr} , it must also be an index of particle-wall interaction. That this is explicitly the case is shown in Appendix B in a dimensional analysis of the forces acting on a particle. The Stermann parameter plays much the same role here as Kutateladze's parameter in boiling systems [9]. The latter indicates a change in liquid-wall interaction as nucleate boiling transforms into film boiling.

In figure 12 an estimate is made based on operating experience of the lowest safe value of N_{Sr} as a function of x/D above which free discharge can be guaranteed. Below the value indicated, the flow may become erratic or even stop altogether with solid plugging the tube.

Also shown are the corresponding heat fluxes for the two fluids at several flow rates. One can immediately see that higher heat fluxes are required to maintain free flow of nitrogen than are required for hydrogen, a consequence primarily of the higher molar heat of sublimation of nitrogen. At the right-hand end of the figure are curves which indicate the results obtained when the heat flux was lowered in the lower 8 cm of the tube while being held constant over the main section. For these results the main section was not at its lowest safe heat flux.

6. REFERENCES

- [1] Farbar, L. and Depew, C. A., "Heat transfer effects to gas-solids mixtures using solid spherical particles of uniform size," *Ind. Eng. Chem. Fundamentals* 2, 130-135 (1963).
- [2] Tien, C. L. and Quan, V., "Local heat transfer characteristics of air-glass and air-lead mixtures in turbulent pipe flow," ASME paper No. 62-HT-65, 1-9 (1962).
- [3] Abel, W. T., Bluman, D. E., and O'Leary, J. P., "Gas-solids suspensions as heat-carrying mediums," ASME paper no. 63-WA-210, (1963).
- [4] Tien, C. L., "Heat transfer by a turbulently flowing fluid-solids mixture in a pipe," *J. Heat Transfer* 83, 183-188 (1961).
- [5] Edelman, R. B., "The flow of a dilute suspension of solids in a laminar gas boundary layer," Ph.D. thesis, Yale University, (1962).
- [6] Jones, M. C., Nagamoto, T. T., and Brennan, J. A., "Heat transfer to a subliming solid-vapor mixture of hydrogen below its triple point," *A.I.Ch.E.J.* 12, 790-795 (1966).
- [7] Schlichting, H., *Boundary Layer Theory* (McGraw-Hill Book Company, Inc., New York, 1960) 4th ed.
- [8] Simpson, A. U., "Forced convection heat transfer to a mixture of subliming-particles and vapor," Ph.D. thesis, University of Colorado, (1967).
- [9] Kutateladze, S. S., *Isv. Otd. Tekh-Nauk, Akad. Nauk USSR*, No. 4, 530 (1951).

7. NOMENCLATURE

c	Coefficient of η^2 in dimensionless temperature profile	
C_p	Constant pressure specific heat of vapor	J/g°K
D	Inside tube diameter	cm
D_p	Average spherical particle diameter	cm
f	Enhancement factor--defined in text.	
F	Force on particle	dynes
G	Rate of vaporization per unit volume	g/cc sec
h	Local heat transfer coefficient	W/cm ² °K
h_p	Particle heat transfer coefficient	W/cm ² °K
k	Vapor thermal conductivity	W/cm°K
K	Critical value of N_{Sr}	
m	Mass of particle	g
N_{Nu}	Nussett number, hD/k	
$N_{Nu,p}$	Particle Nussett number, $\frac{h_p D_p}{k}$	
N_{Pr}	Prandtl number, $\frac{\mu C_p}{k}$	
N_{Re}	Reynolds number, $(\rho_p + \rho_v) UD/\mu$	
$N_{Re,v}$	Reynolds number, $\rho_v UD/\mu$	
N_{Sr}	Sterman parameter $q_w/\rho_v U \lambda$	
q_v	Heat flux at vapor film boundary	W/cm ²
q_w	Heat flux through tube wall	W/cm ²
S	Shape factor (surface area of particle/ πD_p^2)	

T	Local mean temperature of vapor	°K
T_w	Local wall temperature	°K
T_s	Local saturation temperature	°K
U	Free stream velocity for flat plate analysis	cm/sec
v	Radial velocity component	cm/sec
x	Axial distance along flat plate	cm
y	Perpendicular distance from wall	cm
α	Proportionality constant--defined in text	dynes/cm
Γ	Temperature difference $T_w - T_s$	°K
$\Gamma_1 =$	$(q_w - q_v) \delta_v / 2k$	°K
$\Gamma_2 =$	$q_v \delta_v / k$	°K
δ_m	Momentum boundary layer thickness	cm
δ_t	Thermal boundary layer thickness	cm
δ_v	Vapor film thickness	cm
$\Delta =$	δ_t / δ_m or δ_v / δ_m	
ϵ	Perturbation constant--defined in text	
η	Dimensionless coordinate (y / δ_t)	
θ	Temperature difference $T - T_s$	°K
λ	Latent heat of sublimation	J/g
μ	Vapor viscosity	g/sec cm
ξ	Dimensionless coordinate (y / δ_m)	
Π	Dimensionless function of Prandtl number--defined in text	
ρ_p	Average solid particle phase density	g/cc

$\tilde{\rho}$	Specific density of solid	g/cc
ρ_t	Total density ($\rho_{pt} \rho_v$)	g/cc
ρ_v	Density of vapor	g/cc
$\Sigma =$	$\left[\left(\frac{D_p}{3N_{Nu,p} \cdot S} \right) \left(\frac{\lambda^*}{\rho_p / \rho_p} \right) \tilde{\rho}_p / \rho_p \right]^{1/2}$	
$\omega =$	$(\alpha/M)^{1/2}$	sec ⁻¹

Subscripts

m	Momentum
p	Particle
s	Saturation conditions
t	Thermal
v	Vapor or vapor film
w	Wall conditions

Superscripts

°	Unperturbed pure vapor phase
l	Two-phase without vaporization

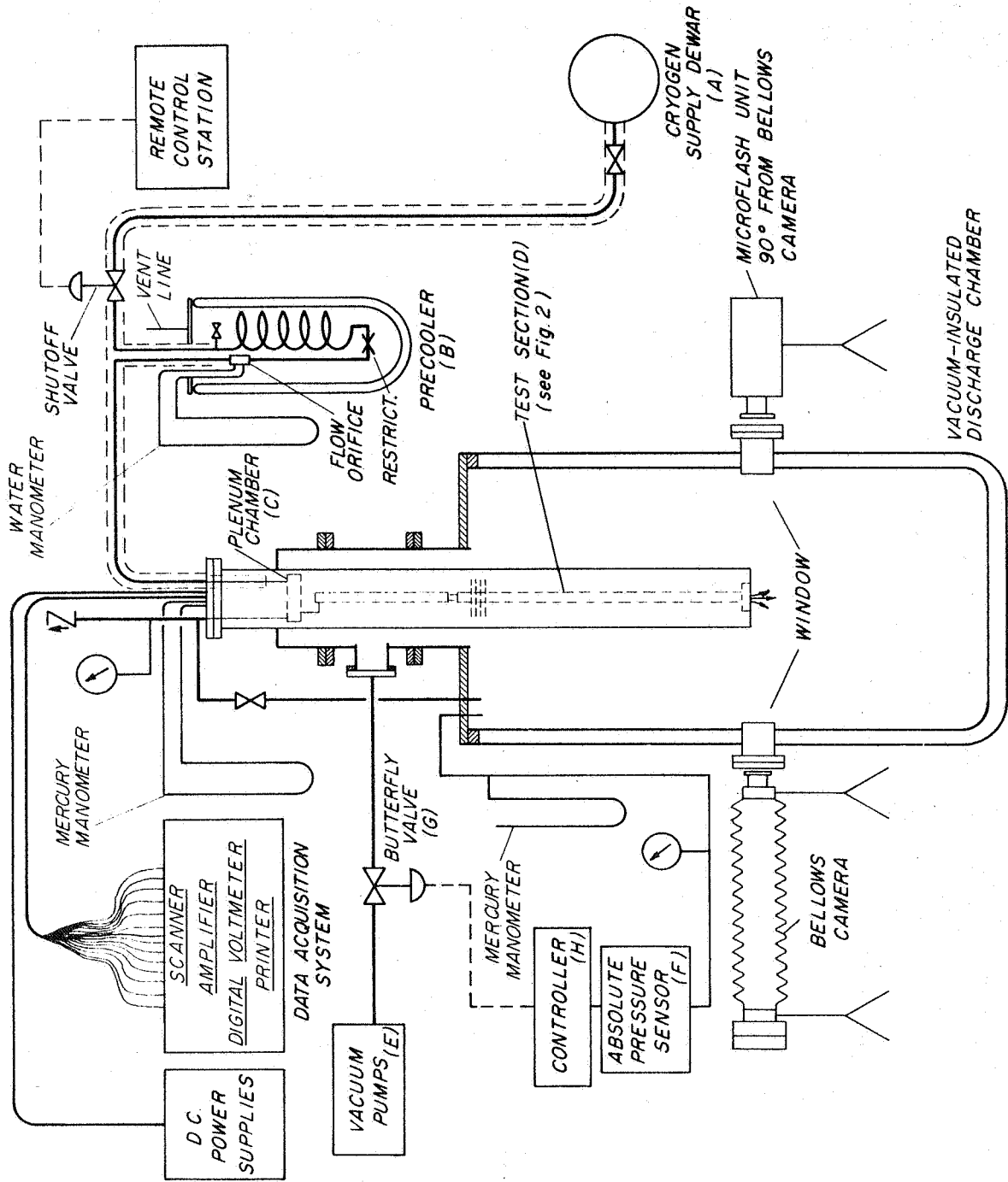


Fig. 1. Schematic arrangement of experimental system.

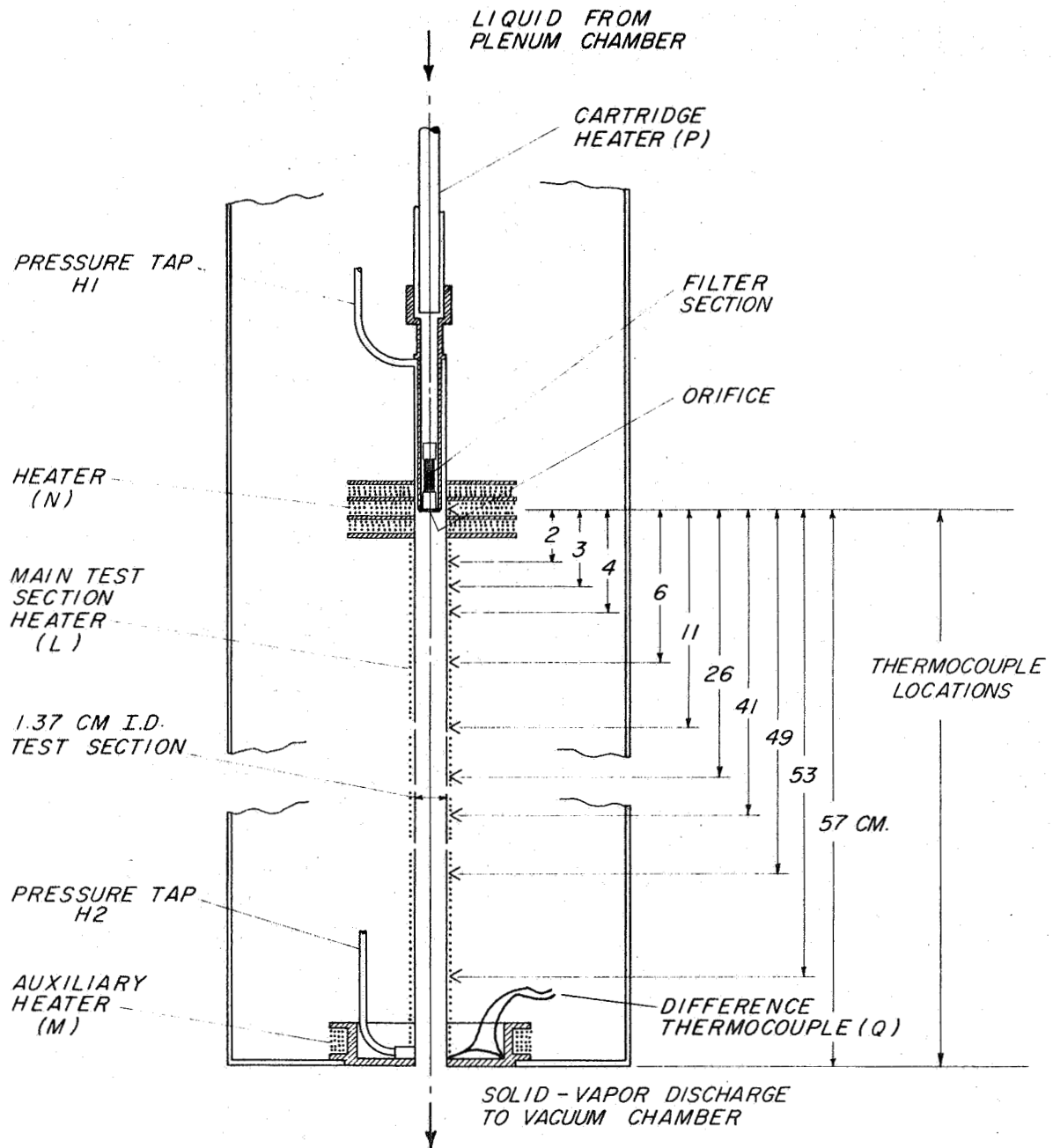


Fig. 2. Test section, showing heaters and locations of thermocouples.

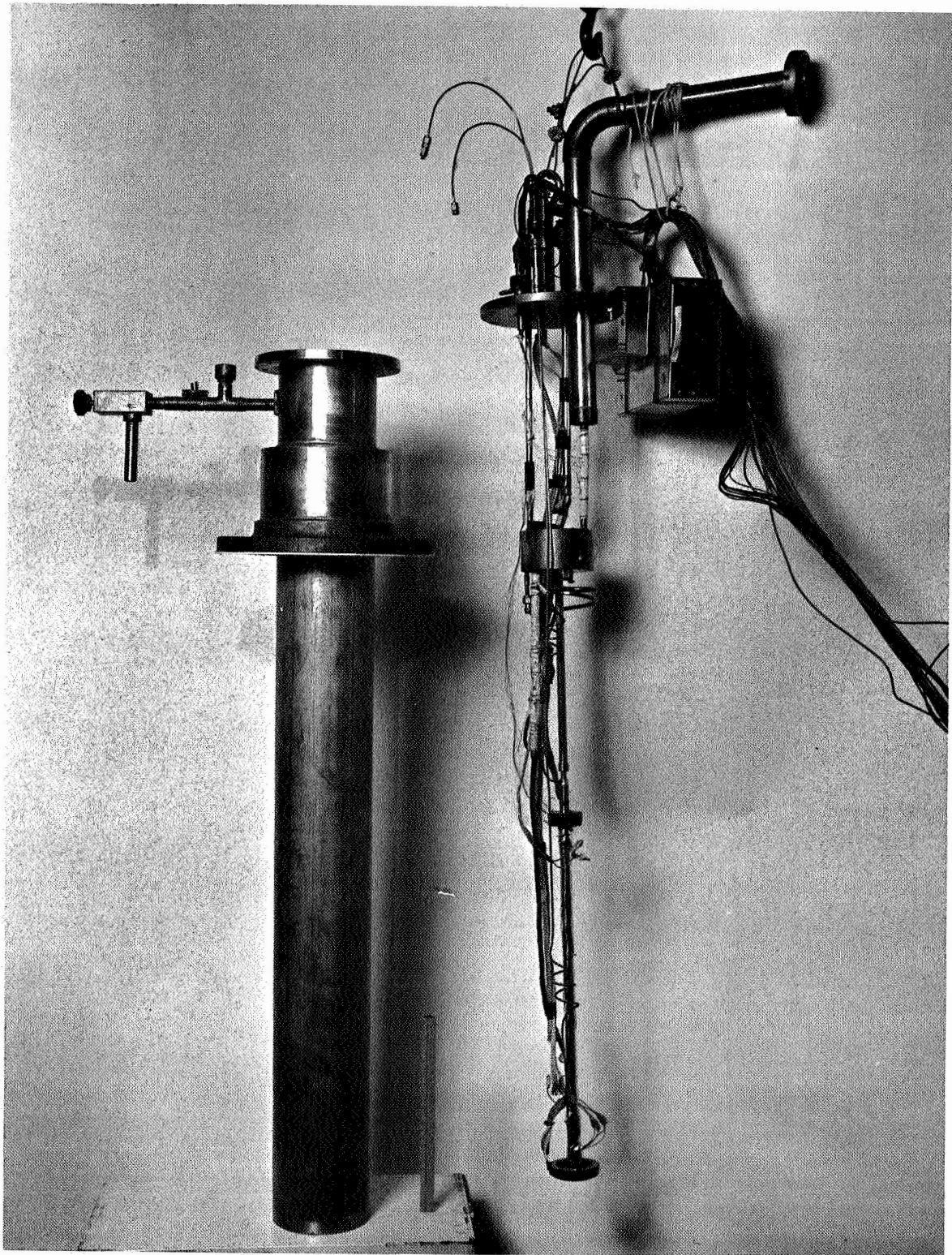


Fig. 2A. Photograph of test section and insulating vacuum jacket.

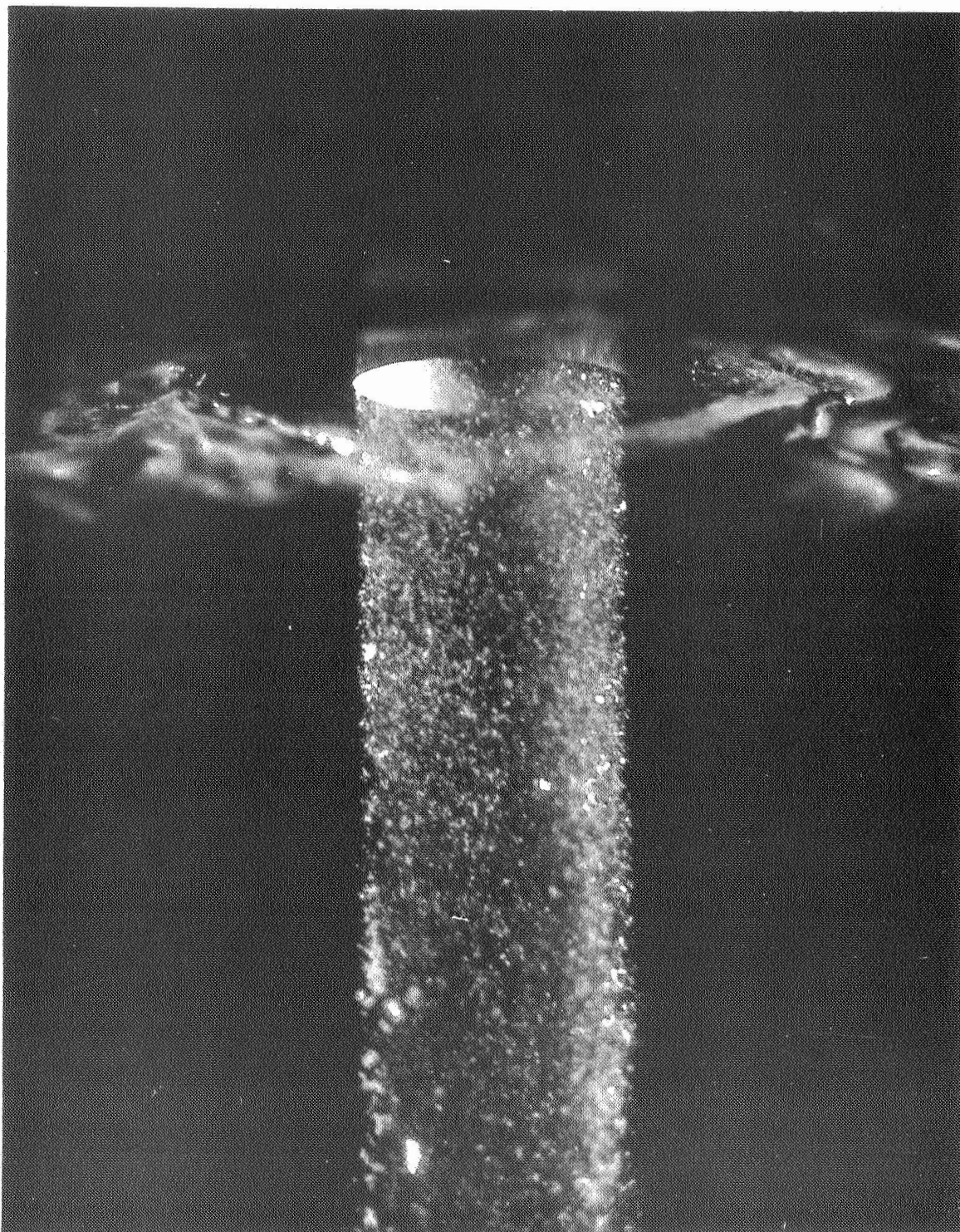


Fig. 3. Discharge of solid-vapor mixture of hydrogen

$$(q_w = 0.093 \text{ W/cm}^2, N_{Sr} = 0.0035)$$

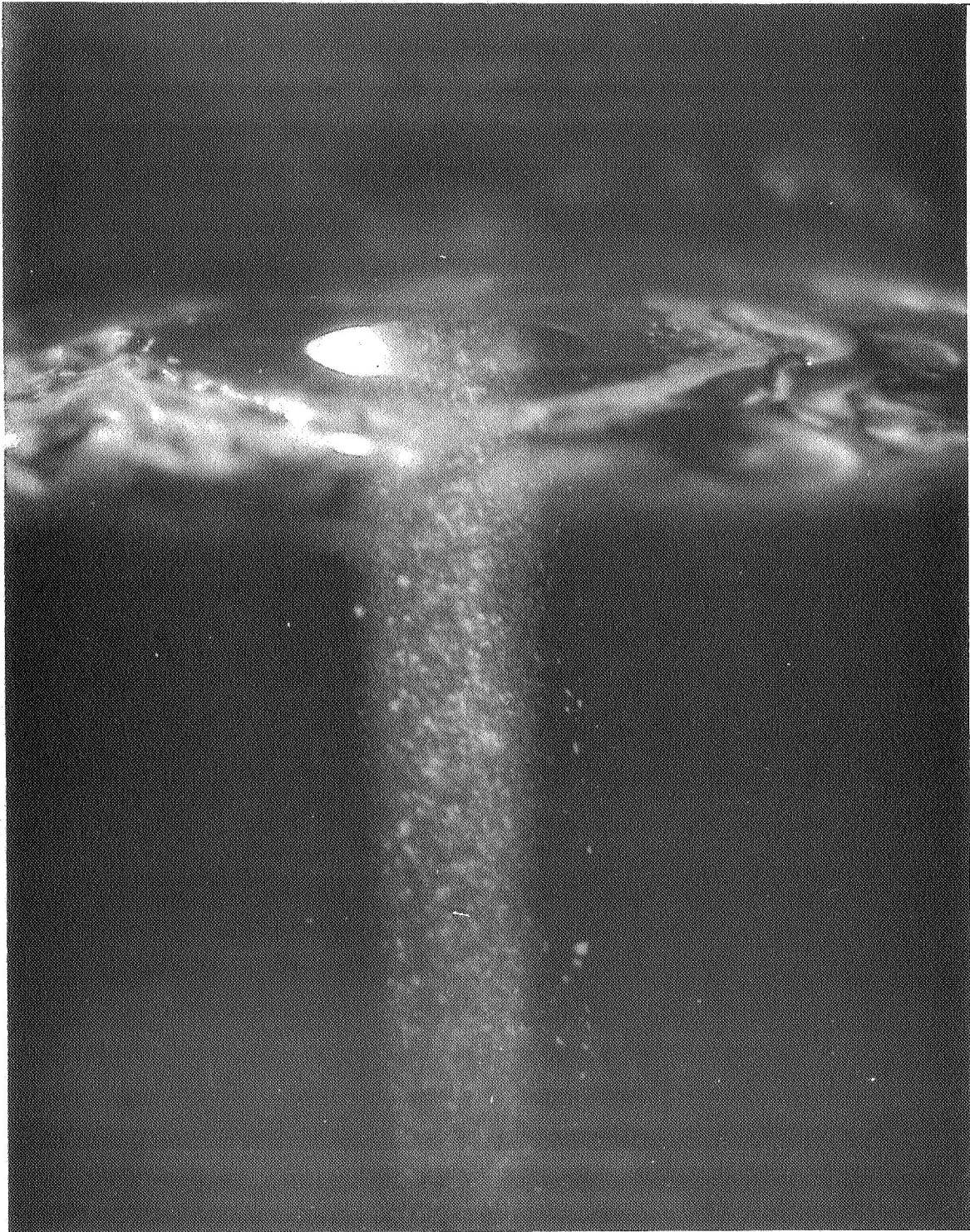


Fig. 4. Discharge of solid-vapor mixture of hydrogen

$$(q_w = 0.29 \text{ W/cm}^2, N_{Sr} = 0.0015)$$

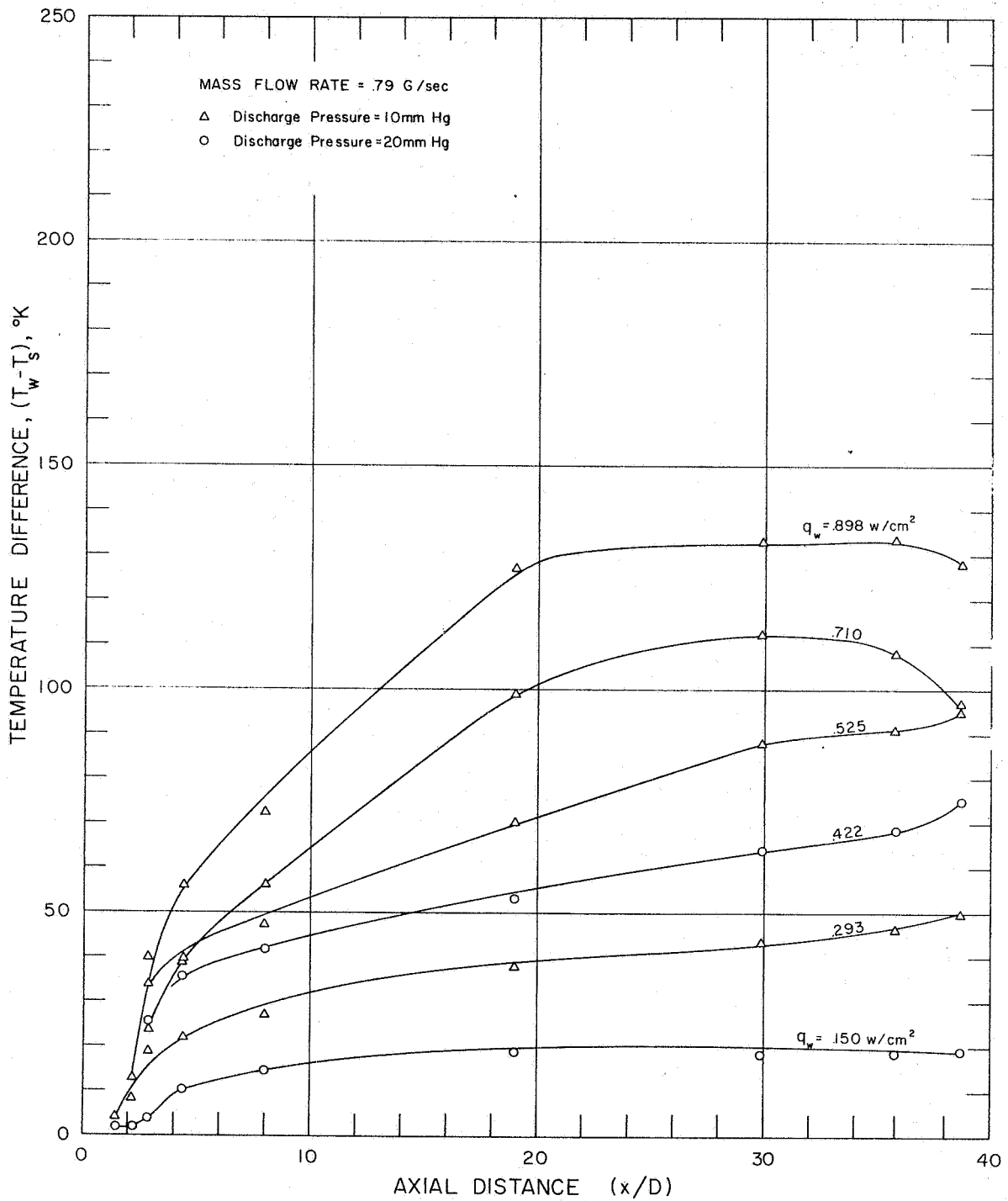


Fig. 5. Experimental temperature difference profiles for hydrogen with q_w as parameter--low flow rate

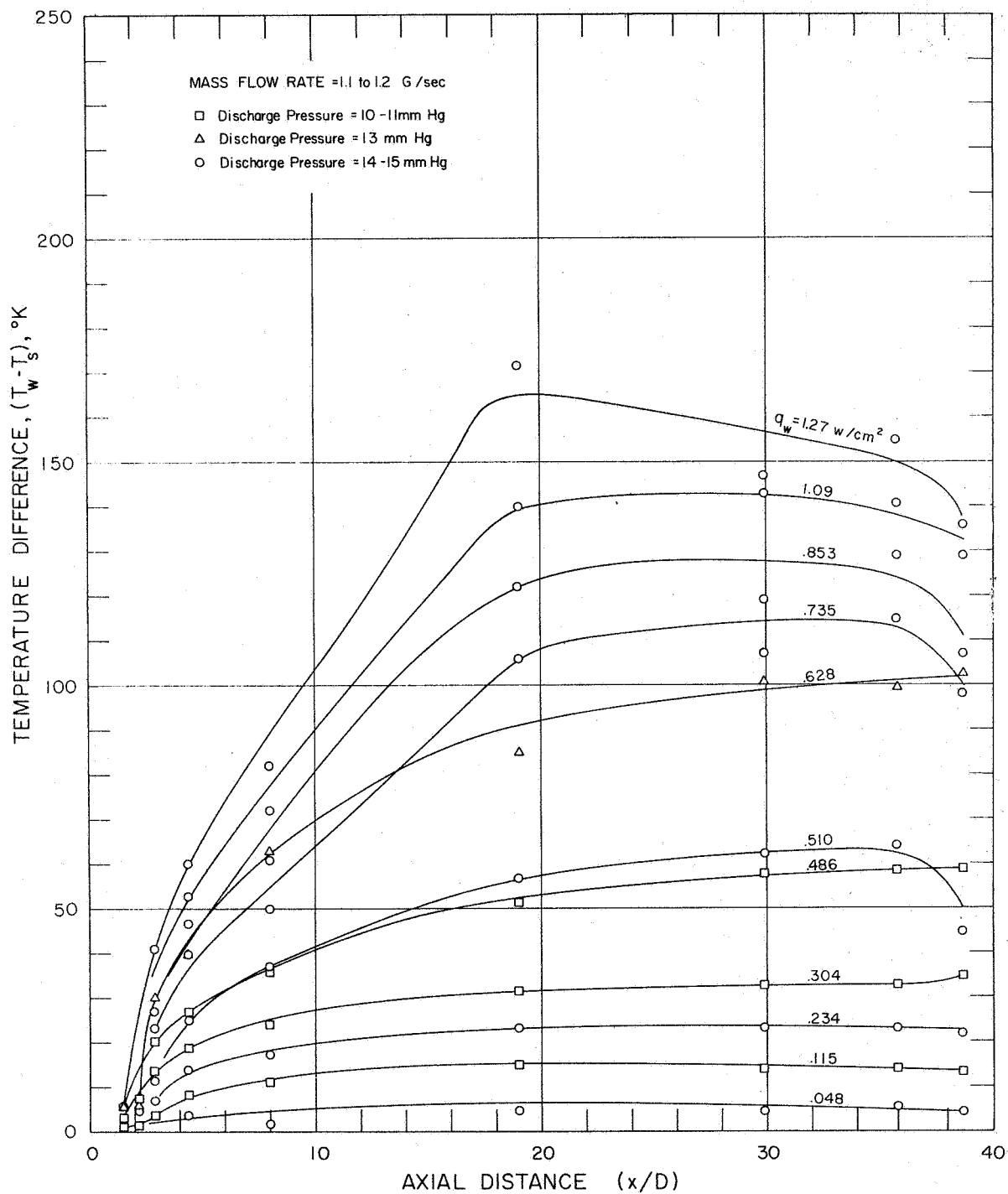


Fig. 6. Experimental temperature difference profiles for hydrogen with q_w as parameter--high flow rate

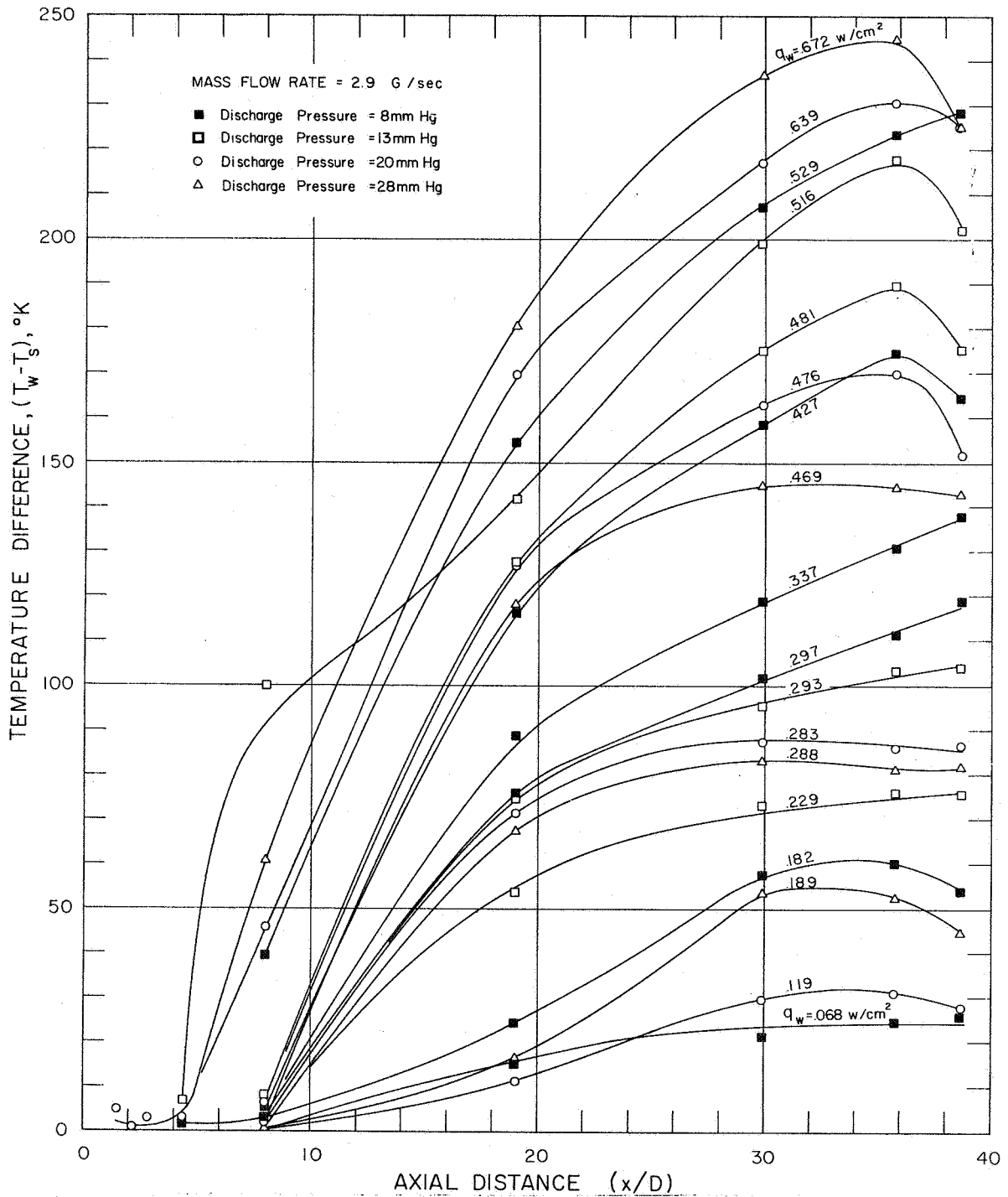


Fig. 7. Experimental temperature difference profiles for nitrogen with q_w as parameter--low flow rate

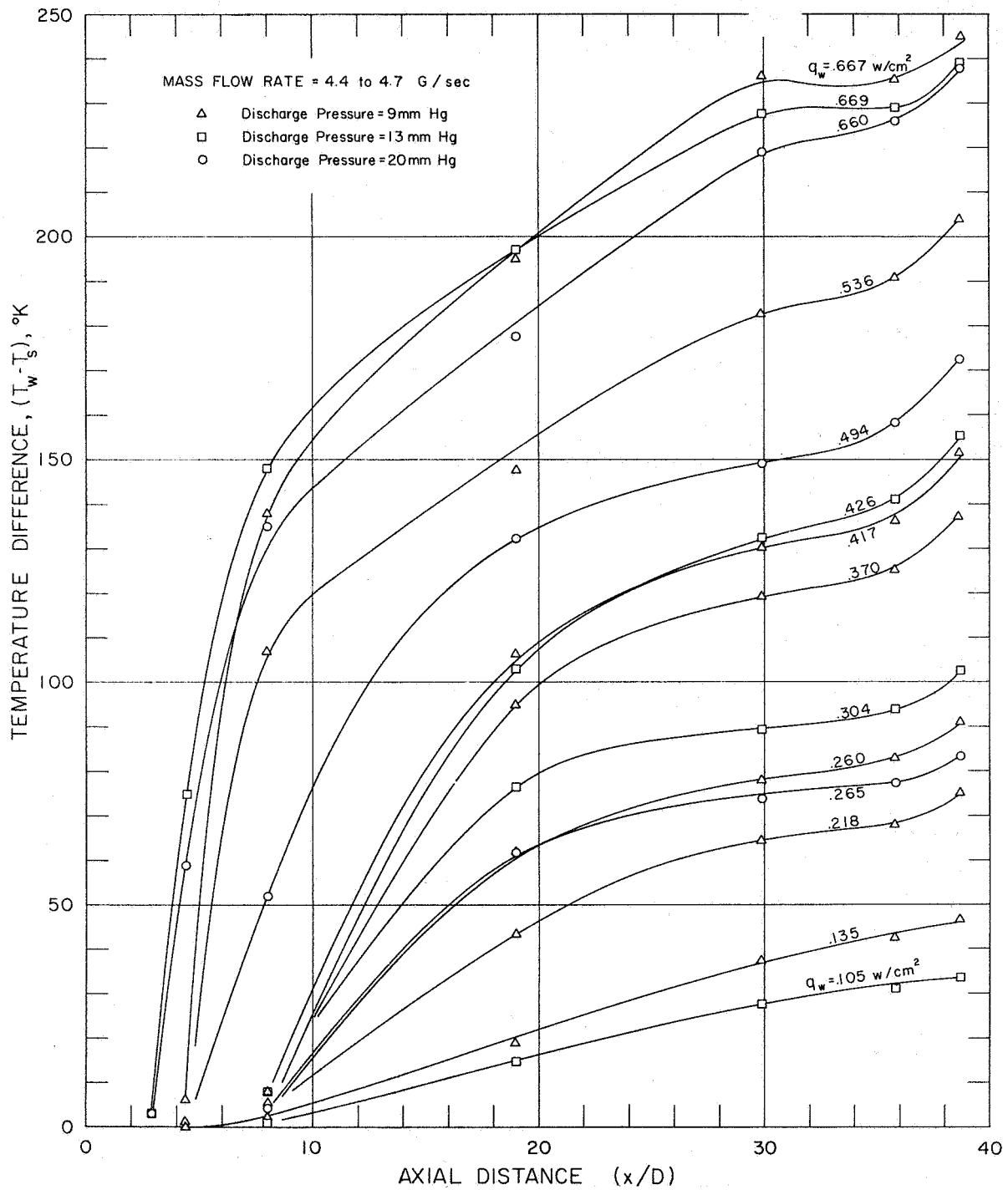


Fig. 8. Experimental temperature difference profiles for nitrogen with q_w as parameter--high flow rate

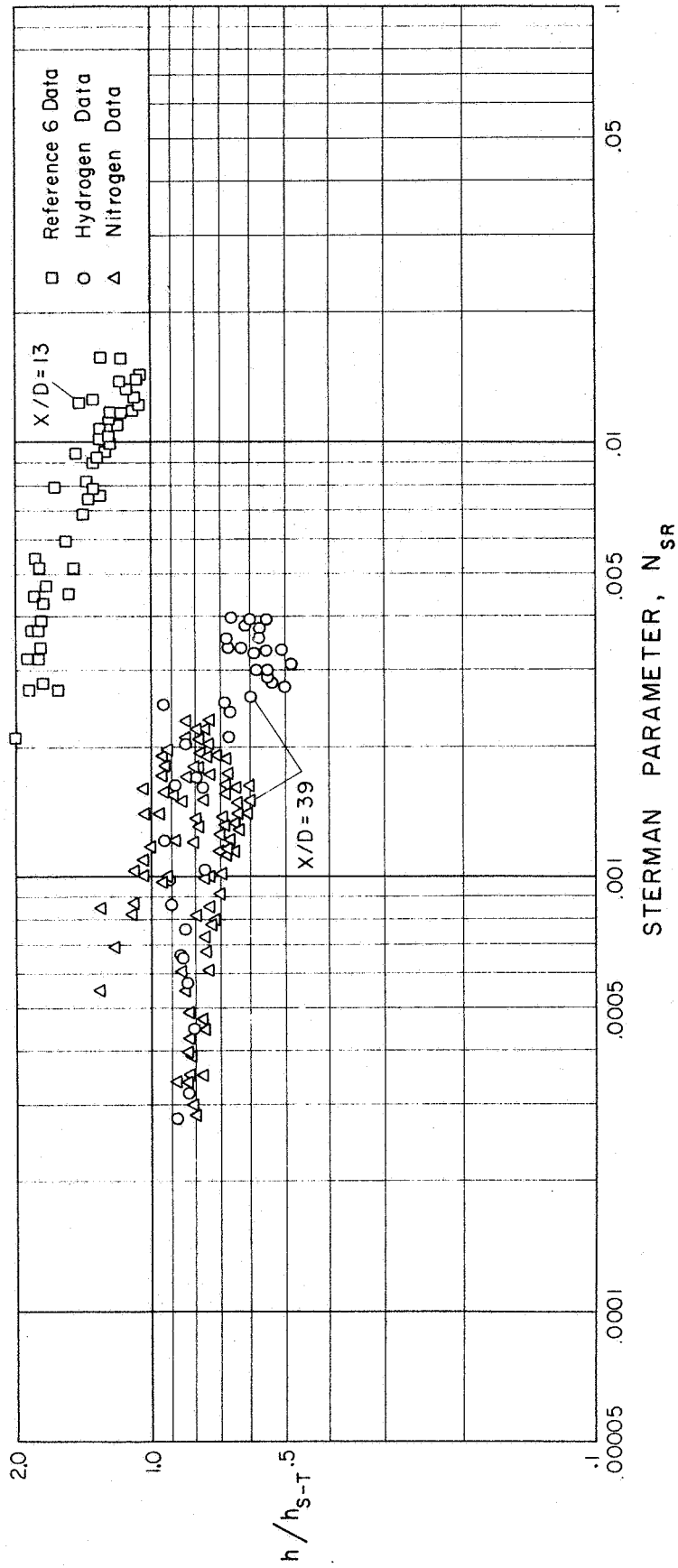


Fig. 9. Enhancement factor based on Sieder-Tate equation for hydrogen with x/D as parameter

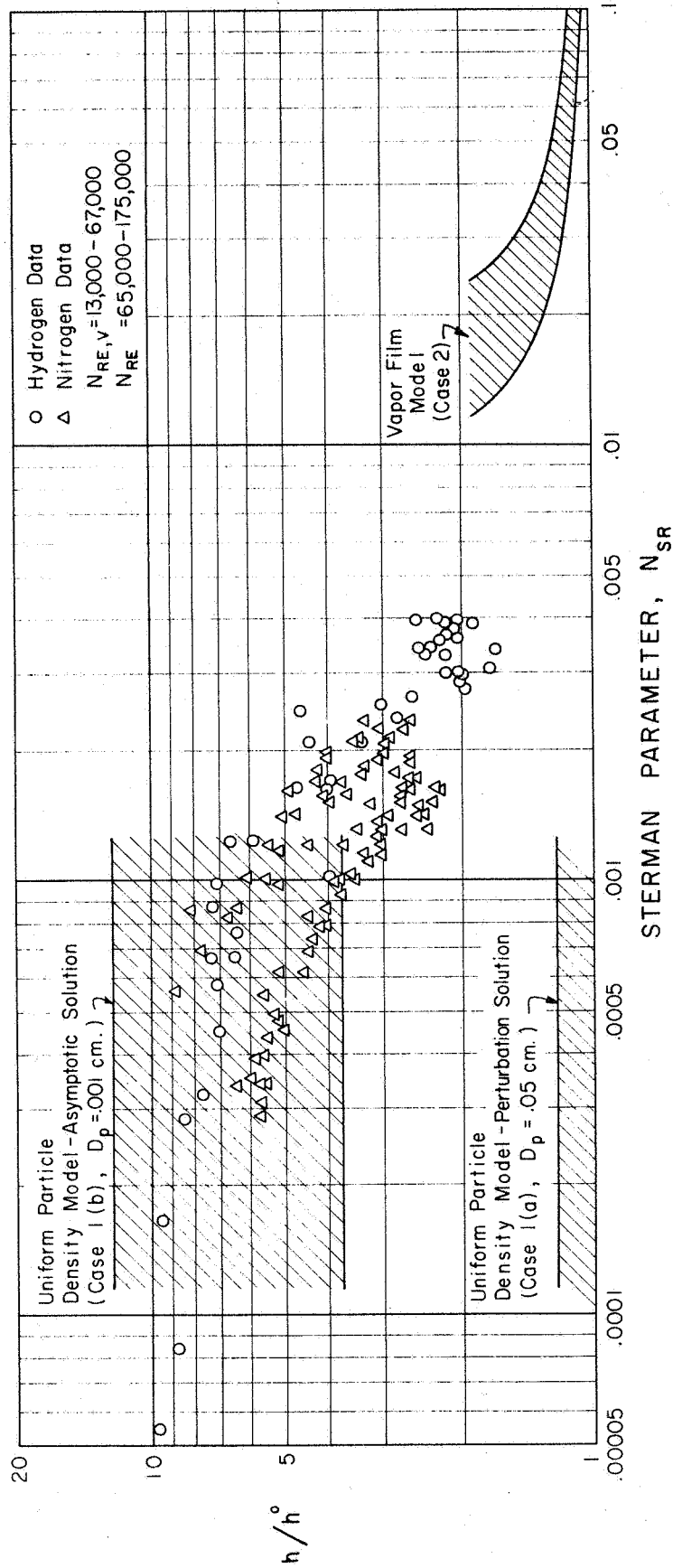


Fig. 10. Comparison of theoretical and experimental enhancement factors for $x/D = 39$ --hydrogen and nitrogen

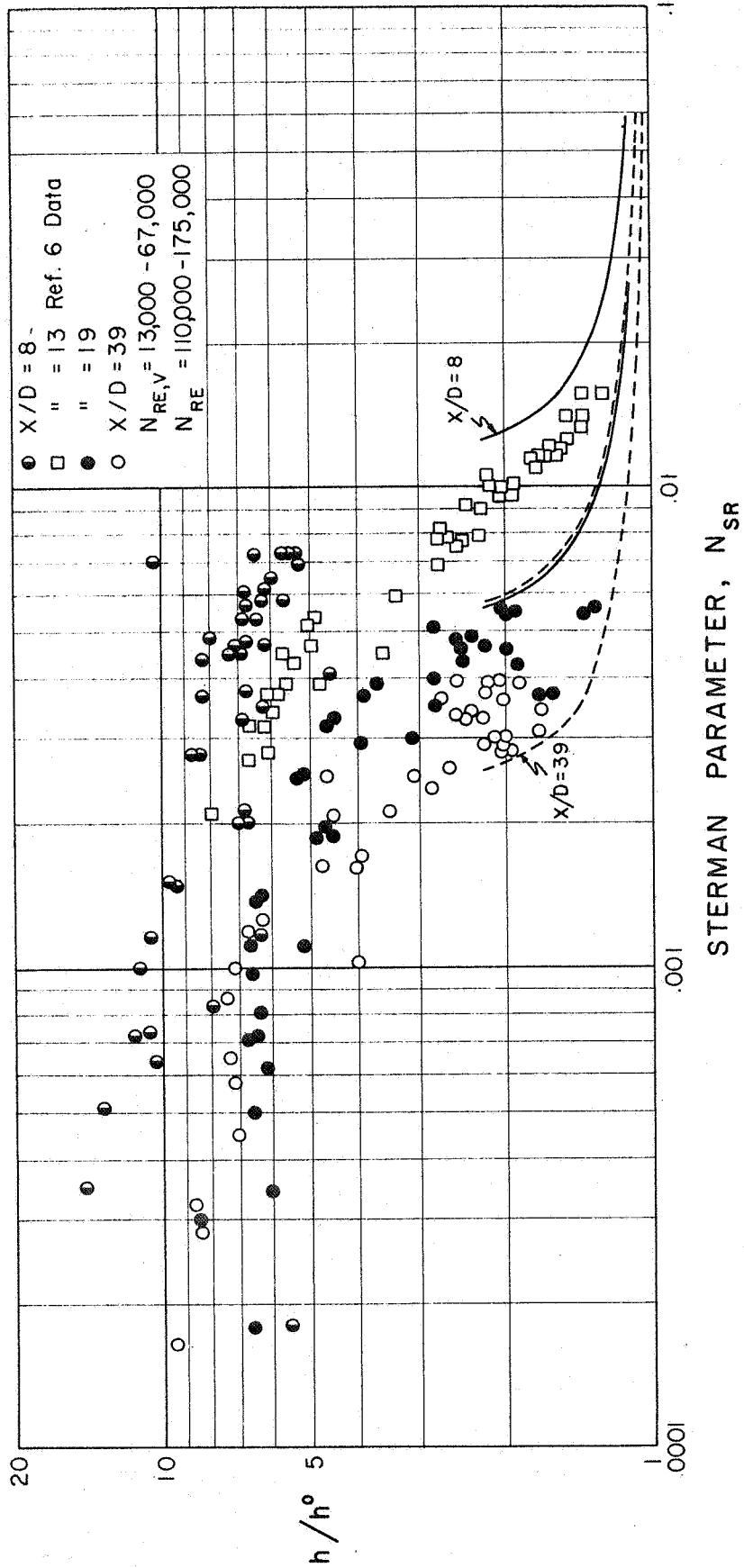


Fig. 11. Comparison of theoretical and experimental enhancement factors for variations in x/D , (vapor film model)---hydrogen

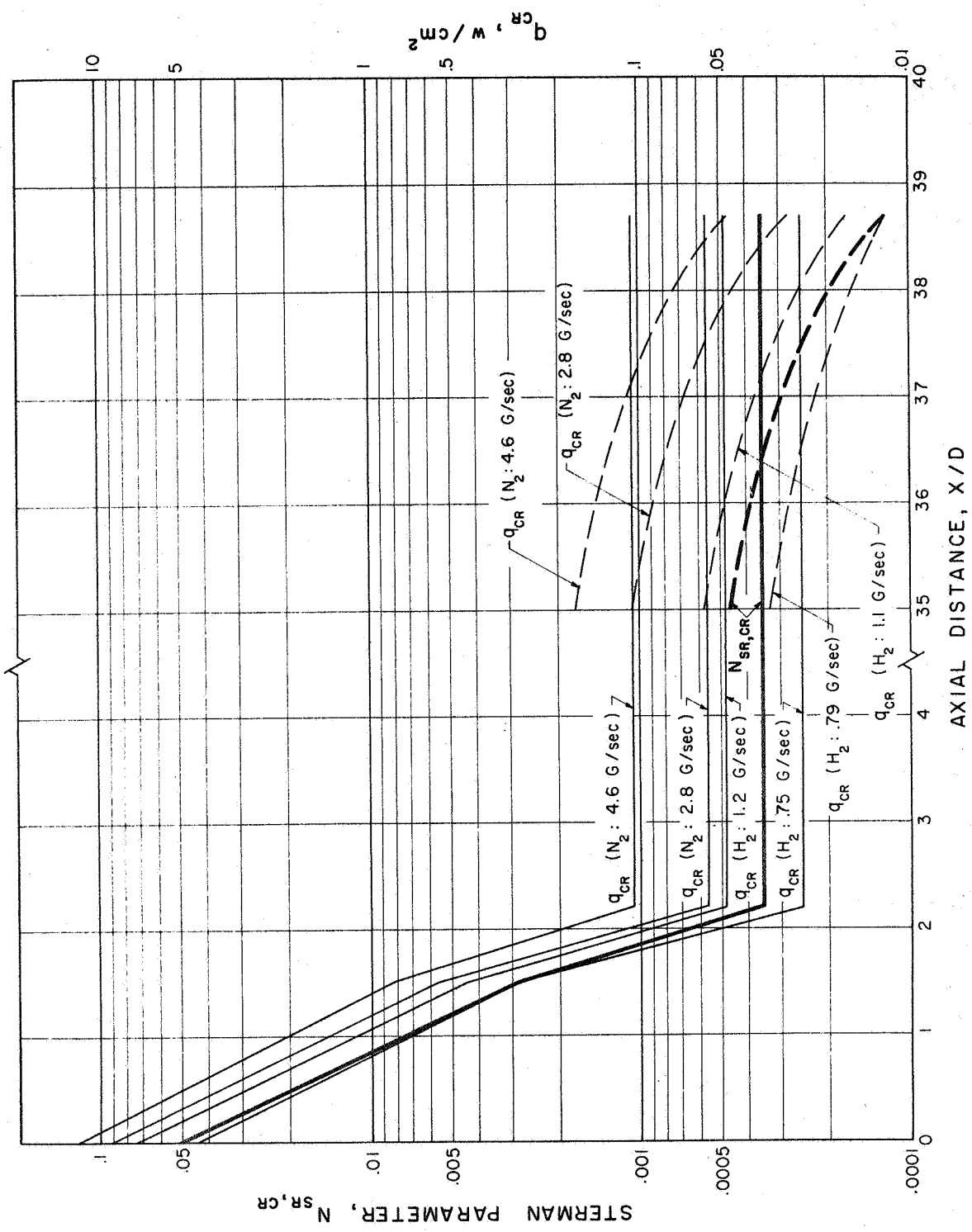


Fig. 12. Minimum adequate heating conditions for free discharge of solid-vapor mixtures

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Appendix A

Heat Transfer Theory

Treating the particle phase as a continuum, Simpson [8] derived the basic continuity, momentum, and energy equations for the two phases separately and the mixture. In these equations the average solid phase density is described by a function ρ_p while the specific density of the solid is a constant, $\tilde{\rho}_p$. The major difference between the conservation equations for a vapor in the presence of the particle phase and a pure vapor or gas is that the former contains an energy sink and a mass source. The mass source — the rate of vaporization per unit volume and time — denoted by G is given by

$$G = \frac{6S}{D_p} \frac{\rho_p h_p}{\tilde{\rho}_p \lambda} (T - T_s) \quad (\text{A-1})$$

where it is assumed that the particles, represented by an average spherical diameter D_p and a shape factor S , vaporize at a rate proportional to the local mean driving temperature $(T - T_s)$, and the heat transfer coefficient h_p is based on the surface area of a particle, $\pi D_p^2 S$. The energy sink is simply $G[\lambda + C_p(T - T_s)]$.

By making the usual boundary layer approximations and integrating the resulting equations across the boundary layer, or, by making mass, momentum and energy balances across an element of volume extending into the free stream, the following integral equations may be written for the conservation of momentum and energy at a point x along the flat plate.

Mixture Momentum:

$$\mu \frac{\partial u}{\partial y} \Big|_{y=0} = \frac{d}{dx} \int_0^{\delta_m} \rho_t U^2 \frac{u}{U} \left(1 - \frac{u}{U}\right) dy \quad (\text{A-2})$$

Vapor Energy:

$$q_w = \frac{d}{dx} \int_0^{\delta_t} \rho_v C_p u (T - T_s) dy + \int_0^{\delta_t} G \lambda dy. \quad (A-3)$$

The mixture momentum integral equation differs from the usual single phase equation [7] by the appearance of the total density ρ_t instead of vapor density ρ_v as might be expected for the case of zero relative velocity. The vapor energy integral equation differs by the appearance of the second integral term. In writing this equation the result has been anticipated that the thermal boundary layer thickness is less than the momentum boundary layer thickness. This will be confirmed below. These are the basic equations which will now be applied to the two extreme cases of particle geometrical distribution.

Case 1. - Uniform Particle Phase Density ($\rho_p = \text{const}$). Exactly as for the single phase case treated in standard texts [7], a fourth order polynomial velocity profile is chosen to satisfy the important boundary conditions which remain unchanged if particle-wall interactions are neglected. Thus

$$\frac{u}{U} = 2\xi - 2\xi^3 + \xi^4, \quad \xi = y/\delta_m. \quad (A-4)$$

Satisfying boundary conditions

$$y = 0, \quad u = 0, \quad v = 0, \quad \frac{\partial^2 u}{\partial y^2} = 0$$

$$y = \delta_m, \quad u = U, \quad \frac{\partial u}{\partial y} = 0, \quad \frac{\partial^2 u}{\partial y^2} = 0. \quad (A-5)$$

Inserting $\frac{u}{U}$ from equation (4) into equation (2) results, after evaluating the integral, in

$$\frac{2\mu U}{\delta_m} = \frac{37}{315} \frac{d}{dx} (\rho_t U^2 \delta_m),$$

which on integrating gives

$$\delta_m = \left[34 \times \left(\frac{\mu}{\rho_t U} \right) \right]^{1/2}. \quad (A-6)$$

Again, as to be expected, this differs from the single phase case only in the appearance of ρ_t instead of ρ_v .

A fourth order polynomial is now chosen to represent the temperature profile of the vapor.

$$\frac{T - T_s}{T_w - T_s} = \frac{\theta}{\Gamma} = a + b\eta + c\eta^2 + d\eta^3 + e\eta^4, \quad \eta = y/\delta_t \quad (A-7)$$

The coefficients a, b, c, d, and e are to be determined. The boundary conditions to be satisfied are

$$y = 0, \quad T = T_w, \quad \frac{dT}{dy} = \frac{-q_w}{k}, \quad \frac{d^2T}{dy^2} = \frac{G_w}{k} (\lambda + C_p \Gamma) \quad (A-8)$$

$$y = \delta_t, \quad T = T_s, \quad \frac{dT}{dy} = 0, \quad \frac{d^2T}{dy^2} = 0.$$

These boundary conditions differ from the single phase case only in the one

for $\frac{d^2T}{dy^2}$ at $y = 0$. This condition should be considered carefully. It will

be recalled that $k\nabla^2 T$ is the heat sink per unit volume and time. In the vicinity of the wall the rate of vaporization is given by equation (1) as

$$G_w = \frac{6S}{D_p} \frac{\rho_p}{\rho_v} \frac{h_p}{\lambda} (T_w - T_s)$$

and since vapor must be heated up to T_w after leaving the solid boundary, the energy removed from the gas phase is

$$k(\nabla^2 T)_w = G_w [\lambda + C_p (T_w - T_s)]$$

or

$$k(\nabla^2 T)_w = G_w (\lambda + C_p \Gamma).$$

Furthermore, since $\frac{d^2 T}{dx^2} \ll \frac{d^2 T}{dy^2}$ under the usual boundary layer approximation, the boundary condition follows.

Applying the boundary condition (8) to equation (7) gives the following values for the coefficients:

$$a = 1, b = -\left(\frac{c}{3} + 2\right), d = 2 - c, e = \frac{c}{3} - 1$$

where

$$c = \frac{G_w}{2k\Gamma} (\lambda + C_p \Gamma) \delta_t^2.$$

The temperature profile thus contains a coefficient which is a function of x through its dependence on δ_t and Γ and, in contrast to the single phase result, temperature profiles are non-similar. This is a direct consequence of the presence of heat sinks and, hence, the boundary condition on $\frac{d^2 T}{dy^2}$ discussed above.

Inserting the temperature profile (7) into equation (3) and carrying out the integration results in the following differential equation:

$$q_w = \frac{d}{dx} \left[\rho_v C_p U \Gamma \delta_t \left\{ \Delta \left(\frac{2}{15} + \frac{17}{90} c \right) - \Delta^3 \left(\frac{3}{140} - \frac{3}{1260} c \right) + \Delta^4 \left(\frac{1}{180} - \frac{98}{27,216} c \right) \right\} \right] + G_w \lambda \delta_t \left(\frac{3}{10} - \frac{c}{60} \right) \quad (\text{A-9})$$

where $\Delta = \delta_t / \delta_m$.

If the approximation is made that the variation of $(\lambda + \Gamma C_p)$ with x is

negligible compared to λ , it may be readily shown that $c = \frac{\delta_t^2}{\Sigma^2}$ where

$$\Sigma^2 = \frac{D^2}{3N_{Nu,p} S} \frac{\lambda \tilde{\rho}_p}{\lambda^* \rho_p} \text{ and } \lambda^* = (\lambda + \Gamma C_p).$$

Furthermore, $\Gamma = q_w \delta_t / k(2 + \frac{c}{3})$. Making the substitution for Γ in equation (9) results in equation (10)

$$1 = \frac{d}{dx} \left[\frac{\rho_v C_p U}{k(2 + \frac{c}{3})} \delta_t^2 \left\{ \Delta \left(\frac{2}{15} + \frac{17}{90} c \right) - \Delta^3 \left(\frac{3}{140} - \frac{3}{1260} c \right) + \Delta^4 \left(\frac{1}{180} - \frac{98}{27,216} c \right) \right\} \right] + \frac{2c}{(2 + c/3)} \frac{\lambda}{\lambda^*} \left(\frac{3}{10} - \frac{c}{60} \right) \quad (\text{A-10})$$

It will be noticed that if c is put to zero in equation (10) and ρ_p to zero in equation (6), i. e., $\rho_t = \rho_v$, then the equations reduce to the single phase case and by integration the familiar results are derived:

$$\delta_m^o = 5.83 x^{1/2} \left(\frac{\mu}{\rho_v U} \right)^{1/2} \quad (\text{A-11a})$$

$$\delta_t^o = 4.44 x^{1/2} N_{Pr}^{-1/3} \left(\frac{\mu}{\rho_v U} \right)^{1/2} \quad (\text{A-11b})$$

$$\text{and } \Delta^o = 0.761 N_{Pr}^{-1/3}. \quad (\text{A-11c})$$

If c is put to zero but ρ_p is not put to zero, the results are:

$$\delta_m^1 = \left(1 + \frac{\rho_p}{\rho_v} \right)^{-1/2} \delta_m^o \quad (\text{A-12a})$$

$$\delta_t^1 = \left(1 + \frac{\rho_p}{\rho_v} \right)^{-1/6} \delta_t^o \quad (\text{A-12b})$$

$$\Delta^1 = \left(1 + \frac{\rho_p}{\rho_v}\right)^{1/3} \Delta^0. \quad (\text{A-12c})$$

Finally, the terms in c may be regarded as a small perturbation and, considering only terms of first order of smallness, equation (10) becomes

$$1 = \frac{d}{dx} \left[\frac{\rho_v C_p U}{2k} \delta_t^2 \Delta \left(\frac{2}{15} + \frac{17}{90} c \right) \right] + \frac{3}{10} \frac{\lambda}{\lambda^*} c \quad (\text{A-13})$$

Integrating and substituting for x from equation (12) results in

$$\delta_t = \delta_t^1 \left[1 - \frac{1}{x} \int_0^x \frac{3}{10} \frac{\lambda}{\lambda^*} c \, dx - \frac{17}{90} \left(\frac{15}{34} \right)^{2/3} \frac{34}{2} N_{Pr}^{1/3} \left(1 + \frac{\rho_p}{\rho_v} \right)^{-1/3} c \right]^{1/3}.$$

Since c is regarded as a small perturbation, we may substitute $c = (\delta_t^1 / \Sigma)^2$. Then

$$\delta_t = \delta_t^1 \left[1 - (\delta_t^1 / \Sigma)^2 \left(\frac{1}{5} \frac{\lambda}{\lambda^*} - 0.186 N_{Pr}^{1/3} \left(1 + \frac{\rho_p}{\rho_v} \right)^{-1/3} \right) \right]^{1/3} \quad (\text{A-14})$$

or
$$\delta_t = \delta_t^1 \left[1 - \epsilon \right]^{1/3}.$$

The requirement $\delta_t < \delta_m$ is now seen to be satisfied since $\delta_t^1 / \delta_m < 1$ for $p_p / p_v < 1$. The local heat transfer coefficient is

$$h = \frac{2k}{\delta_t} + \frac{kc}{3\delta_t} \approx \frac{2k}{\delta_t} + \frac{k\delta_t^1^2}{3\delta_t \Sigma^2}. \quad (\text{A-15})$$

Whereas for the single phase case we have

$$h^o = \frac{2k}{\delta_t^o}$$

Then the enhancement factor, f , defined as h/h^o is

$$f = \frac{\delta_t^o}{\delta_t} + \frac{\delta_t^o}{6\delta_t} \left(\frac{\delta_t^1}{\Sigma} \right)^2 \approx \frac{\delta_t^o}{\delta_t} + \frac{\delta_t^o \delta_t^1}{6\Sigma^2}$$

or

$$f = (1 + \rho_p/\rho_v)^{1/6} \left[1/(1 - \epsilon)^{1/3} + \frac{1}{6} (\delta_t^1/\Sigma)^2 \right] \quad (\text{A-16})$$

where

$$\epsilon = (\delta_t^1/\Sigma)^2 \left[\frac{1}{5} \frac{\lambda}{\lambda^*} - 0.186 N_{Pr}^{1/3} (1 + \rho_p/\rho_v)^{-1/3} \right]$$

and δ_t^1 is given by equation (12).

A simple solution may be obtained for $c \gg 1$ if it is assumed that heat transfer from gas to solid is so effective that negligible heat goes toward raising the temperature of the vapor. This has already been considered by Simpson[8] using third order polynomials to represent velocity and temperature; a very similar result is obtained in the present case. The approximation implies that the derivative in equation (3) is zero. Thus,

$$q_w = \int_0^{\delta_t} G \lambda dy. \quad (\text{A-17})$$

This may be evaluated immediately from equation (10) by again neglecting the derivative, whence

$$1 = \frac{2c}{2 + c/3} \frac{\lambda}{\lambda^*} \left(\frac{3}{10} - \frac{c}{60} \right) \quad (\text{A-18})$$

or since $c \gg 1$,

$$\begin{aligned}\delta_t &= \left(\frac{10\lambda}{\lambda^*} \right)^{1/2} \Sigma \\ \delta_t &= \left(\frac{10}{3} \right)^{1/2} \left(\frac{\tilde{\rho}_p}{\rho_p} / N_{Nu,p} S \right)^{1/2} D_p.\end{aligned}\quad (A-19)$$

Then, from equation (15) neglecting the first term

$$h = \left(\frac{10}{3} \right)^{1/2} \left[\frac{\rho_p}{\tilde{\rho}_p} N_{Nu,p} S \right]^{1/2} \frac{\lambda^*}{\lambda} \frac{k}{D_p} \quad (A-20)$$

and

$$f = \left(\frac{5}{6} \right)^{1/2} \left[\frac{\rho_p}{\tilde{\rho}_p} N_{Nu,p} S \right]^{1/2} \frac{\lambda^*}{\lambda} \frac{\delta_t^o}{D_p} \quad (A-21)$$

Case 2. - Vapor Film ($\rho_p = 0, y < \delta_t; \rho_p = \text{const}, y \geq \delta_t$)

In order to make this case tractable it is assumed from the outset that the velocity profile and momentum boundary layer thickness are still given by equations (4) and (11a) respectively.

Since now, however, all vaporization is concentrated at the edge of the thermal boundary layer, the second integral in equation (3) is zero and in its place appears q_v , the heat flux at the edge of the thermal boundary layer. Thus

$$q_w - q_v = \frac{d}{dx} \int_0^{\delta_v} \rho_v C_p U (T - T_s) dy \quad (A-22)$$

where δ_v is the new thermal boundary layer thickness or vapor film thickness.

The following temperature profile is now introduced:

$$\frac{\theta}{\Gamma_1} = 1 - 2\eta + 2\eta^3 - \eta^4 + \Gamma_2/\Gamma_1 (1 - \eta), \quad \eta = y/\delta_v \quad (\text{A-23})$$

where

$$\Gamma_1 = (q_w - q_v) \delta_v / 2k$$

$$\Gamma_2 = q_v \delta_v / k.$$

This profile reduces to the usual single phase case when $q_v = 0$. It will be seen that this temperature profile satisfies all important boundary conditions although q_v remains as yet an undetermined function of x .

$$\text{At } \eta = 0, \quad \theta = \Gamma_1 + \Gamma_2, \quad \frac{-k}{\delta_v} \frac{\partial \theta}{\partial \eta} = q_w, \quad \frac{\partial^2 \theta}{\partial \eta^2} = 0.$$

$$\text{At } \eta = 1, \quad \theta = 0, \quad \frac{-k}{\delta_v} \frac{\partial \theta}{\partial \eta} = q_v, \quad \frac{\partial^2 \theta}{\partial \eta^2} = 0.$$

Substituting the temperature profile of equation (23) and the velocity profile equation (4) into equation (22) and integrating yields equation (24).

$$q_w - q_v = \frac{\rho_v C_p U}{k} \frac{d}{dx} \left[\frac{\delta_v^2 (q_w - q_v)}{2} \left(\frac{2\Delta}{15} - \frac{3\Delta^3}{140} + \frac{\Delta^4}{180} \right) + q_v \delta_v^2 \left(\frac{\Delta}{3} - \frac{\Delta^3}{10} + \frac{\Delta^4}{30} \right) \right] \quad (\text{A-24})$$

Integrating and dividing through by x

$$q_w - \frac{1}{x} \int_0^x q_v dx = \frac{\rho_v C_p U}{kx} \left[\delta_v^2 \frac{(q_w - q_v)}{2} \left(\frac{2\Delta}{15} - \frac{3\Delta^3}{140} + \frac{\Delta^4}{180} \right) + q_v \delta_v^2 \left(\frac{\Delta}{3} - \frac{\Delta^3}{10} + \frac{\Delta^4}{30} \right) \right]. \quad (\text{A-25})$$

An approximate solution of (25) for δ_v may be obtained by neglecting all but the terms in Δ . Then, if equation (11a) is used to eliminate x ,

$$1 - \frac{1}{x} \int_0^x \frac{q_v}{q_w} dx = 34 N_{Pr} \left[\frac{1}{15} + \frac{4}{15} \frac{q_v}{q_w} \right] \Delta^3. \quad (A-26)$$

Now

$$q_v = u \Big|_{y = \delta_v} \rho_p \lambda \frac{d\delta_v}{dx} = U \rho_p \lambda (2\Delta - 2\Delta^3 + \Delta^4) \frac{d\delta_v}{dx} \quad (A-27)$$

and if q_v/q_w is regarded as a small perturbation, it may be evaluated from equation (27) using δ_t^0 and Δ^0 from equations (11). The result is

$$q_v/q_w = \frac{U \rho_p \lambda}{q_w} (2\Delta^0 - 2\Delta^{03} + \Delta^{04}) \delta_t^0 / 2x \quad (A-28)$$

and

$$\frac{1}{x} \int_0^x \frac{q_v}{q_w} dx = 2q_v/q_w. \quad (A-29)$$

From (26) and (29)

$$\Delta = \left(\frac{15}{34} \right)^{1/3} N_{Pr}^{-1/3} \left[\frac{1 - 2q_v/q_w}{1 + 4q_v/q_w} \right]^{1/3}$$

and finally,

$$\delta_v = \delta_t^0 \left[\frac{1 - 2q_v/q_w}{1 + 4q_v/q_w} \right]^{1/3}. \quad (A-30)$$

Again the assumption that $\delta_v < \delta_m$ is confirmed. Introducing the Serman parameter, $N_{Sr} = \frac{q_w}{\rho_v U \lambda}$, and writing $\Pi = (2\Delta^0 - 2\Delta^{03} + \Delta^{04})$, noting that this is a function of the Prandtl number only, the perturbation term may be written

$$q_v/q_w = N_{Sr}^{-1} \Pi(\delta_t^0/2x) (\rho_p/\rho_v) \quad (A-31)$$

The local heat transfer coefficient is given by

$$h = \frac{q_w}{\Gamma_1 + \Gamma_2} = \left(\frac{2k}{\delta_v} \right) / \left(1 + q_v/q_w \right)$$

and the corresponding single phase heat transfer coefficient is again

$$h_o = 2k/\delta_t^0.$$

Hence, the enhancement factor is

$$f = \left(\frac{\delta_t^0}{\delta_v} \right) / \left(1 + q_v/q_w \right)$$

or

$$f = \left[1 + q_v/q_w \right]^{-1} \left[\left(1 - 2q_v/q_w \right) / \left(1 + 4q_v/q_w \right) \right]^{-1/3}. \quad (A-32)$$

The resulting enhancement factors, equations (16), (21), and (32), for the cases considered have been derived for a distance x from the commencement of the boundary layer for flow over a flat plate. The equations will also apply for some distance in the entrance region of a straight tube. For this case the more familiar Reynolds number form may be used for δ_t^0 by introducing the tube diameter, D , thus,

$$\delta_t^0/x = 4.44 N_{Pr}^{-1/3} (x/D)^{-1/2} (N_{Re,v})^{-1/2}. \quad (A-33)$$

Appendix B

A Similarity Criterion for Particle-Wall Interaction

Consider a particle diameter D_p and mass m , which has entered the boundary layer due to a radial velocity component v . The reactive force F , acting on the particle due to vaporization over the hemisphere away from the wall is given by

$$F_1 \approx \left(\frac{dm}{dt} \right)_1 V_1$$

where V_1 is the relative velocity of the evolved vapor at the surface of the particle in the y direction. But V_1 may be expressed as

$$V_1 = \left(\frac{dm}{dt} \right)_1 \frac{4}{\rho_v \pi D_p^2}$$

and

$$\left(\frac{dm}{dt} \right)_1 \approx \frac{h_p}{\lambda} \frac{\pi D_p^2}{2} (T - T_s) \Big|_{y + D_p/4}$$

whence

$$F_1 \approx \left(\frac{h_p}{\lambda} \right)^2 \frac{\pi D_p^2}{\rho_v} (T - T_s)^2 \Big|_{y + D_p/4}$$

Similarly, the reactive force due to vaporization over the hemisphere facing the wall is

$$F_2 \approx \left(\frac{h_p}{\lambda} \right)^2 \frac{\pi D_p^2}{\rho_v} (T - T_s)^2 \Big|_{y - D_p/4}$$

and the net reactive force in the y direction is

$$F_y = (F_2 - F_1) \approx - \left(\frac{h_p}{\lambda} \right)^2 \frac{\pi D_p}{2 \rho_v} \frac{d}{dy} (T - T_s)^2. \quad (B-1)$$

Now if it is assumed as is reasonable that the particle heat transfer coefficient is given by a constant Nusselt number $\frac{h_p D_p}{k} \approx 2$, we may substitute for h_p and arrive at

$$F_y \approx \frac{4 \pi D_p}{\rho_v} \left(\frac{k}{\lambda} \right)^2 \frac{dT}{dy} (T - T_s),$$

and for an assumed linear temperature profile, approximations now being understood,

$$F_y = \frac{4 \pi D_p}{\rho_v} \left(\frac{k}{\lambda} \frac{dt}{dy} \right)^2 (\delta_t - y)$$

or

$$F_y = \frac{4 \pi D_p}{\rho_v} \left(\frac{q_w}{\lambda} \right)^2 (\delta_t - y).$$

Let $s = (\delta_t - y)$; then the force in the s direction may be written

$$F_s = - \alpha s$$

or

$$\frac{d^2 s}{dt^2} = - \frac{\alpha}{m} s$$

whence

$$s = \delta_t \sin \left(\frac{\alpha}{m} \right)^{1/2} t, \quad 0 < \left(\frac{\alpha}{m} \right)^{1/2} t < \pi$$

and

$$F_s = - \alpha \delta_t \sin \left(\frac{\alpha}{m} \right)^{1/2} t$$

or

$$F_s = - \alpha \delta_t \sin \omega t, \quad 0 < \omega t < \pi. \quad (B-2)$$

If a particle has just sufficient momentum to rebound before striking the wall, the reactive impulse experienced up to the time it stops is, neglecting gravity,

$$\begin{aligned}
 I &= \int_0^{\pi/2} \frac{F_s}{\omega} d(\omega t) \\
 &= \frac{\alpha}{\omega} \cdot \delta_t \\
 &= (\alpha m)^{1/2} \delta_t.
 \end{aligned}
 \tag{B-3}$$

But this is equal to the $-y$ momentum the particle had at the point of entering the boundary layer. Therefore, we have

$$mv = (\alpha m)^{1/2} \delta_t. \tag{B-4}$$

Thus, the criterion for a particle to have just sufficient momentum to strike the wall and no more is

$$\begin{aligned}
 1 &= \left(\frac{\alpha}{m}\right)^{1/2} \frac{\delta_t}{v} \\
 1 &= \left(\frac{24 \rho_v}{\tilde{\rho}_p}\right)^{1/2} \frac{\delta_t}{D_p} \left(\frac{q_w}{\rho_v v \lambda}\right).
 \end{aligned}
 \tag{B-5}$$

Now particle-wall interaction may only occur at low heat fluxes and in this case the uniform particle density model, Case 1, would be expected to apply. Then, an upper limit to the value of δ_t/D_p may be set by taking the asymptotic solution which would represent the behavior of small particles.

Substituting for δ_t from equation (19), Appendix A,

$$K = \left(\frac{10 \times 24}{3}\right)^{1/2} \left(\frac{\rho_v}{\rho_p}\right)^{1/2} \left(\frac{1}{N_{Nu,p} S}\right)^{1/2} \frac{q_w}{\rho_v v \lambda} \tag{B-6}$$

where K is a constant > 1 .

Again, assuming the constancy of the particle Nusselt number, $N_{Nu,p}$ and the shape factor S , and scaling the radial velocity component v with the free stream velocity U , we may write the criterion as

$$K = \left(\frac{\rho_v}{\rho_p} \right)^{1/2} N_{Sr} \quad (B-7)$$

where the constant terms have been incorporated into K . Now (ρ_v/ρ_p) is a function of the quality, and at low heat flux remains fairly constant along the tube. Furthermore, in expanding a near-saturated liquid to a sub-triple point pressure, one nearly always arrives at about the same quality for isenthalpic expansion (25-30%), the precise value being relatively insensitive to discharge pressure. Finally, then, the similarity criterion for particle-wall interaction may be written

$$N_{Sr} = K \quad (B-8)$$

where K is a constant to be determined empirically.

Appendix C
Tabular Results

Explanation

MIXTURE SAT
TEMP
K

Saturation Temperature based
on static pressure ($^{\circ}$ K)

QUALITY
VAP/MIX

Mass rate of flow of vapor per
unit mass rate of flow of mixture

REYNOLDS
NUMBER

N_{Re} (see Nomenclature)

EXP/FPSP
H-T COEF

Enhancement factor based on
Sieder-Tate, single phase heat
transfer coefficient

Experimental runs numbered 101-367 are for nitrogen. Experimental runs numbered 500-654 are for hydrogen. Runs numbered 173-182 and 621-654 are for non-uniform heat input (heat input to lower 8 cm. reduced while upper section held at constant heat input). All other runs are for uniform heat input to whole tube.

STA NO	TURE TEMP	WALL SAT	MIXTURE TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-	-
RUN NO 101 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W														
1	350.9	58.3	32.2	0.000686	0.361	54.51	63619	0.05556	9.337	0.03191	*****	14.065		
2	61.7	58.2	31.1	0.000563	0.426	70.30	63741	0.00409	0.812	0.23183	*****	72.197		
3	58.5	58.1	30.5	0.000548	0.430	71.22	63801	0.00213	0.428	1.00234	*****	308.058		
4	59.4	58.1	30.0	0.000536	0.433	71.84	63861	0.00204	0.413	0.31010	*****	95.010		
5	58.8	57.9	29.0	0.000512	0.439	73.05	63993	0.00405	0.419	0.44668	*****	135.462		
6	80.2	57.0	26.8	0.000462	0.453	76.09	64292	0.00197	0.416	0.01840	*****	5.675		
7	166.3	57.1	23.7	0.000378	0.493	85.20	64731	0.00180	0.413	0.00378	*****	5.594		
8	184.5	56.8	21.8	0.000324	0.531	94.25	65048	0.00167	0.414	0.00324	*****	4.434		
9	187.1	56.6	20.9	0.000300	0.552	99.04	65209	0.00161	0.414	0.00317	*****	4.301		
10	191.2	56.5	20.4	0.000289	0.562	101.40	65290	0.00156	0.410	0.00304	*****	4.056		
RUN NO 102 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.1 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W														
1	348.0	58.5	33.3	0.000718	0.356	53.53	63496	0.05566	9.225	0.03208	*****	14.252		
2	62.5	58.3	32.0	0.000584	0.422	69.34	63641	0.00472	0.928	0.22335	*****	70.192		
3	58.9	58.2	31.3	0.000567	0.427	70.44	63713	0.00280	0.557	0.78890	*****	244.129		
4	60.4	58.1	30.7	0.000551	0.430	71.25	63784	0.00268	0.538	0.24203	*****	74.638		
5	60.3	58.1	29.5	0.000522	0.438	72.83	63923	0.00266	0.543	0.23376	*****	71.207		
6	68.9	57.0	27.1	0.000464	0.456	76.82	64250	0.00256	0.544	0.04805	*****	14.444		
7	202.5	57.1	23.8	0.000370	0.507	88.77	64715	0.00227	0.538	0.00370	*****	5.144		
8	244.8	56.6	21.8	0.000310	0.557	100.57	65039	0.00206	0.538	0.00286	*****	3.449		
9	256.5	56.6	20.9	0.000284	0.584	106.80	65206	0.00197	0.537	0.00269	*****	3.129		
10	261.9	56.5	20.4	0.000272	0.597	109.88	65289	0.00191	0.532	0.00259	*****	2.967		
RUN NO 103 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.0 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W														
1	345.1	58.5	33.8	0.000731	0.354	53.26	63443	0.05562	9.179	0.03203	*****	14.266		
2	63.0	58.3	32.3	0.000592	0.420	69.08	63601	0.00503	0.985	0.21147	*****	66.662		
3	59.1	58.3	31.6	0.000573	0.426	70.28	63679	0.00313	0.620	0.71184	*****	220.657		
4	61.0	58.2	30.9	0.000556	0.430	71.18	63757	0.00298	0.598	0.20817	*****	64.316		
5	61.2	58.1	29.6	0.000523	0.438	72.95	63906	0.00299	0.610	0.19338	*****	58.951		
6	103.7	57.0	27.2	0.000463	0.458	77.41	64238	0.00282	0.602	0.01308	*****	4.150		
7	226.9	57.1	23.9	0.000364	0.515	90.68	64711	0.00249	0.598	0.00352	*****	4.583		
8	274.0	56.6	21.8	0.000303	0.570	103.79	65039	0.00224	0.596	0.00274	*****	3.099		
9	287.4	56.6	20.9	0.000277	0.599	110.69	65207	0.00212	0.593	0.00257	*****	2.802		
10	281.6	56.5	20.4	0.000265	0.614	114.11	65290	0.00208	0.597	0.00265	*****	2.935		
RUN NO 104 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.0 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W														
1	345.3	58.6	34.4	0.000745	0.354	53.21	63373	0.05543	9.129	0.03184	*****	14.193		
2	63.4	58.4	32.8	0.000601	0.420	69.02	63549	0.00526	1.028	0.20721	*****	65.400		
3	59.3	58.3	32.0	0.000580	0.425	70.28	63636	0.00335	0.653	0.65506	*****	203.147		
4	61.3	58.2	31.3	0.000561	0.430	71.24	63723	0.00320	0.640	0.20957	*****	64.746		
5	61.4	58.0	29.8	0.000526	0.439	73.15	63886	0.00324	0.652	0.19454	*****	59.247		
6	150.7	57.7	27.3	0.000462	0.460	77.95	64225	0.00298	0.639	0.00587	*****	2.280		
7	235.9	57.1	23.9	0.000361	0.521	92.12	64707	0.00263	0.641	0.00359	*****	4.585		
8	295.9	56.8	21.8	0.000298	0.580	106.15	65040	0.00235	0.636	0.00266	*****	2.863		
9	305.8	56.6	20.9	0.000271	0.611	113.50	65209	0.00221	0.632	0.00254	*****	2.662		
10	287.1	56.5	20.4	0.000259	0.626	117.19	65291	0.00221	0.647	0.00281	*****	3.090		
RUN NO 105 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.0 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W														
1	342.1	58.4	32.6	0.000708	0.355	53.11	63568	0.05496	9.080	0.03201	*****	14.255		
2	61.8	58.2	31.5	0.000579	0.419	68.57	63700	0.00439	0.857	0.23894	*****	75.436		
3	59.0	58.2	30.4	0.000563	0.423	69.57	63765	0.00248	0.490	0.56634	*****	176.442		
4	60.4	58.1	30.3	0.000549	0.427	70.28	63830	0.00237	0.472	0.20693	*****	64.279		
5	58.9	57.4	29.2	0.000522	0.433	71.67	63965	0.00237	0.478	0.52772	*****	161.693		
6	64.2	57.6	27.0	0.000468	0.449	75.17	64276	0.00228	0.479	0.07255	*****	21.882		
7	183.9	57.1	23.8	0.000378	0.495	85.68	64727	0.00205	0.474	0.00374	*****	5.372		
8	219.7	56.8	21.8	0.000320	0.539	96.08	65046	0.00188	0.474	0.00291	*****	3.652		
9	226.6	56.6	20.9	0.000295	0.562	101.55	65210	0.00179	0.470	0.00277	*****	3.395		
10	204.2	56.5	20.4	0.000283	0.574	104.29	65292	0.00180	0.483	0.00319	*****	4.170		
RUN NO 107 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.0 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W														
1	341.7	58.2	31.4	0.000682	0.355	53.07	63703	0.05501	9.110	0.03214	*****	14.310		
2	60.6	58.1	30.5	0.000563	0.419	68.39	63810	0.00378	0.738	0.29272	*****	92.314		
3	59.0	58.1	30.0	0.000550	0.423	69.21	63863	0.00183	0.361	0.36884	*****	115.214		
4	59.2	58.1	29.5	0.000538	0.425	69.73	63915	0.00178	0.354	0.29266	*****	91.671		
5	58.3	57.9	28.6	0.000517	0.430	70.76	64042	0.00177	0.356	0.77375	*****	238.461		
6	60.2	57.6	26.6	0.000470	0.442	73.35	64324	0.00173	0.357	0.13440	*****	40.776		
7	148.8	57.1	23.6	0.000390	0.476	81.14	64747	0.00159	0.353	0.00385	*****	6.151		
8	169.6	56.8	21.7	0.000338	0.510	88.87	65059	0.00148	0.354	0.00313	*****	4.547		
9	170.4	56.6	20.9	0.000314	0.527	92.95	65217	0.00143	0.354	0.00311	*****	4.497		
10	168.0	56.5	20.4	0.000303	0.536	94.99	65296	0.00142	0.356	0.00319	*****	4.669		

STA NO	TURB K	WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 108 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.1 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W													
1	342.8	58.2	30.8	0.000667	0.357	53.28	63776	0.05521	9.179	0.03225	*****	14.329	
2	60.1	58.1	30.0	0.000552	0.420	68.60	63869	0.00342	0.670	0.32163	*****	101.156	
3	58.8	58.0	29.6	0.000541	0.423	69.31	63915	0.00146	0.288	0.36786	*****	114.747	
4	58.8	57.9	29.1	0.000531	0.425	69.73	63972	0.00143	0.283	0.32831	*****	102.083	
5	58.0	57.8	28.3	0.000513	0.429	70.55	64084	0.00142	0.284	1.47985	*****	579.875	
6	59.4	57.5	26.4	0.000470	0.439	72.60	64351	0.00139	0.285	0.15489	*****	47.177	
7	128.6	57.1	23.6	0.000347	0.467	78.79	64759	0.00130	0.283	0.00395	*****	6.775	
8	144.4	56.8	21.7	0.000348	0.494	84.94	65066	0.00123	0.283	0.00323	*****	5.047	
9	143.9	56.0	20.8	0.000326	0.508	88.20	65221	0.00119	0.283	0.00324	*****	5.091	
10	143.2	56.5	20.4	0.000315	0.515	89.82	65298	0.00118	0.283	0.00327	*****	5.149	
RUN NO 109 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.1 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W													
1	345.4	58.1	30.4	0.000657	0.357	53.38	63821	0.05545	9.240	0.03216	*****	14.285	
2	59.8	58.1	29.6	0.000545	0.421	68.74	63906	0.00322	0.631	0.35523	*****	111.519	
3	58.5	58.1	29.3	0.000535	0.424	69.39	63955	0.00123	0.243	0.41394	*****	128.981	
4	58.5	57.9	28.9	0.000527	0.426	69.74	64007	0.00120	0.239	0.38832	*****	120.665	
5	57.7	57.8	28.2	0.000510	0.429	70.43	64110	0.00120	0.240	*****	*****	*****	
6	59.0	57.5	26.3	0.000470	0.437	72.14	64367	0.00118	0.240	0.16202	*****	49.480	
7	115.3	57.1	23.5	0.000401	0.461	77.34	64766	0.00111	0.238	0.00409	*****	7.412	
8	130.1	56.8	21.7	0.000355	0.484	82.51	65071	0.00106	0.239	0.00325	*****	5.353	
9	129.2	56.0	20.8	0.000333	0.496	85.25	65223	0.00103	0.239	0.00329	*****	5.454	
10	128.6	56.5	20.4	0.000323	0.502	86.60	65300	0.00102	0.239	0.00331	*****	5.171	
RUN NO 110 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.1 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W													
1	347.1	58.1	30.2	0.000652	0.358	53.43	63848	0.05554	9.265	0.03205	*****	14.236	
2	59.4	58.1	29.4	0.000542	0.421	68.77	63930	0.00302	0.543	0.42124	*****	132.106	
3	58.4	57.9	29.1	0.000532	0.424	69.35	63979	0.00101	0.200	0.47709	*****	148.640	
4	58.2	57.9	28.8	0.000525	0.425	69.64	64027	0.00099	0.197	0.52447	*****	194.064	
5	57.5	57.8	28.0	0.000509	0.428	70.20	64125	0.00099	0.198	*****	*****	*****	
6	58.5	57.5	26.3	0.000471	0.435	71.60	64376	0.00098	0.198	0.19240	*****	58.943	
7	96.1	57.1	23.5	0.000406	0.455	75.86	64770	0.00093	0.197	0.00505	*****	10.247	
8	116.5	56.7	21.7	0.000362	0.474	80.10	65073	0.00089	0.197	0.00329	*****	5.749	
9	115.7	56.0	20.8	0.000341	0.484	82.34	65224	0.00087	0.197	0.00333	*****	5.847	
10	112.5	56.5	20.4	0.000332	0.489	83.46	65300	0.00087	0.199	0.00355	*****	6.380	
RUN NO 111 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.1 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W													
1	347.8	58.0	29.8	0.000642	0.359	53.51	63893	0.05578	9.322	0.03217	*****	14.277	
2	59.1	57.9	29.1	0.000535	0.422	68.87	63975	0.00279	0.548	0.45831	*****	143.544	
3	58.1	57.9	28.8	0.000527	0.424	69.39	64019	0.00078	0.154	0.62728	*****	195.294	
4	58.0	57.8	28.5	0.000520	0.425	69.60	64062	0.00076	0.150	0.84749	*****	263.353	
5	57.2	57.7	27.9	0.000507	0.428	70.03	64151	0.00076	0.151	*****	*****	*****	
6	58.1	57.5	26.1	0.000472	0.433	71.07	64392	0.00075	0.151	0.23116	*****	71.045	
7	76.9	57.1	23.4	0.000411	0.448	74.28	64779	0.00072	0.151	0.00761	*****	17.384	
8	100.1	56.7	21.6	0.000370	0.463	77.48	65077	0.00069	0.150	0.00346	*****	6.515	
9	99.6	56.0	20.8	0.000351	0.471	79.17	65226	0.00068	0.150	0.00348	*****	6.584	
10	95.4	56.5	20.4	0.000341	0.475	80.01	65301	0.00069	0.153	0.00392	*****	7.681	
RUN NO 112 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 82.3 K LIQ PRESS 3.04 ATM CART HTR PWR 0.000 W													
1	354.4	58.0	29.6	0.000634	0.362	54.25	63911	0.05683	9.583	0.03233	*****	14.279	
2	59.0	57.9	29.0	0.000527	0.426	69.99	63994	0.00265	0.528	0.46810	*****	145.327	
3	58.0	57.9	28.7	0.000520	0.429	70.46	64035	0.00061	0.121	0.75646	*****	233.527	
4	57.8	57.8	28.4	0.000513	0.430	70.63	64076	0.00059	0.118	*****	*****	*****	
5	57.0	57.7	27.8	0.000501	0.431	70.96	64162	0.00059	0.119	*****	*****	*****	
6	57.8	57.5	26.1	0.000468	0.436	71.76	64399	0.00058	0.118	0.31649	*****	90.111	
7	68.5	57.1	23.4	0.000411	0.448	74.24	64779	0.00057	0.118	0.01033	*****	24.669	
8	86.5	56.7	21.6	0.000372	0.460	76.72	65079	0.00055	0.118	0.00396	*****	8.030	
9	87.6	56.0	20.8	0.000354	0.466	78.03	65227	0.00054	0.118	0.00380	*****	7.652	
10	84.4	56.5	20.4	0.000345	0.469	78.68	65302	0.00055	0.120	0.00426	*****	8.797	
RUN NO 113 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 82.1 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	355.1	58.6	34.6	0.000744	0.354	53.38	64275	0.05555	9.295	0.03135	*****	13.835	
2	61.3	58.6	34.5	0.000635	0.417	68.61	64288	0.00303	0.597	0.21890	*****	68.481	
3	59.6	58.6	34.5	0.000630	0.419	69.20	64294	0.00048	0.193	0.19499	*****	60.338	
4	59.2	58.6	34.4	0.000627	0.420	69.49	64300	0.00045	0.189	0.32546	*****	100.560	
5	58.3	58.6	34.2	0.000621	0.423	70.05	64320	0.00045	0.190	*****	*****	*****	
6	59.5	58.4	33.1	0.000592	0.429	71.43	64449	0.00043	0.189	0.17598	*****	53.501	
7	77.7	58.2	31.0	0.000534	0.448	75.59	64691	0.00049	0.189	0.01145	*****	3.465	
8	111.6	58.0	29.4	0.000489	0.466	79.74	64872	0.00045	0.188	0.00351	*****	6.160	
9	110.4	57.9	28.7	0.000468	0.476	81.94	64972	0.00043	0.188	0.00357	*****	6.333	
10	102.6	57.8	28.3	0.000458	0.480	83.05	65023	0.00045	0.193	0.00430	*****	8.078	

STA NO	TUBE TEMP	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 114 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 82.1 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	346.6	58.6	34.7	0.000751	0.354	53.30	64266	0.05522	9.229	0.03206	*****		14.121
2	60.5	58.6	34.6	0.000637	0.416	68.49	64279	0.00324	0.637	0.33191	*****		103.476
3	59.4	58.6	34.5	0.000632	0.419	69.15	64286	0.00125	0.246	0.30007	*****		92.867
4	59.3	58.6	34.5	0.000629	0.420	69.51	64292	0.00122	0.242	0.33141	*****		102.257
5	58.7	58.6	34.3	0.000621	0.424	70.23	64312	0.00122	0.243	2.99604	*****		918.012
6	59.9	58.4	33.1	0.000590	0.432	72.02	64443	0.00120	0.244	0.17191	*****		52.066
7	108.7	58.2	31.0	0.000525	0.455	77.39	64687	0.00113	0.242	0.00440		8.905	1.515
8	127.9	58.0	29.4	0.000476	0.478	82.73	64870	0.00107	0.242	0.00346		5.649	1.075
9	125.8	57.9	28.7	0.000454	0.490	85.57	64972	0.00105	0.243	0.00357		5.910	1.085
10	124.7	57.8	28.3	0.000443	0.497	86.99	65022	0.00103	0.242	0.00362		6.043	1.090
RUN NO 115 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 82.1 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	347.1	58.7	35.5	0.000769	0.353	53.30	64177	0.05551	9.260	0.03212	*****		14.157
2	60.9	58.7	35.3	0.000650	0.416	68.61	64196	0.00347	0.682	0.31132	*****		97.052
3	59.6	58.7	35.3	0.000644	0.419	69.34	64205	0.00149	0.294	0.34794	*****		107.566
4	60.0	58.7	35.2	0.000639	0.421	69.77	64215	0.00144	0.286	0.22863	*****		70.496
5	58.8	58.7	34.9	0.000630	0.425	70.62	64241	0.00144	0.289	1.60848	*****		491.609
6	60.2	58.5	33.6	0.000594	0.434	72.75	64390	0.00141	0.290	0.16781	*****		50.587
7	125.7	58.2	31.2	0.000522	0.462	79.13	64658	0.00131	0.287	0.00425		7.210	1.352
8	141.3	58.0	29.5	0.000467	0.489	85.47	64853	0.00124	0.287	0.00345		5.328	1.065
9	134.3	57.9	28.8	0.000443	0.504	88.85	64963	0.00121	0.288	0.00354		5.533	1.067
10	139.9	57.8	28.4	0.000431	0.511	90.53	65018	0.00118	0.286	0.00349		5.432	1.040
RUN NO 116 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 82.0 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	345.0	58.8	35.9	0.000779	0.352	53.08	64132	0.05540	9.210	0.03218	*****		14.209
2	61.5	58.8	35.7	0.000658	0.415	68.40	64155	0.00379	0.742	0.27091	*****		84.695
3	59.3	58.8	35.6	0.000650	0.418	69.23	64167	0.00184	0.363	0.62367	*****		142.909
4	60.0	58.7	35.5	0.000645	0.421	69.76	64178	0.00177	0.351	0.28351	*****		87.437
5	59.1	58.7	35.2	0.000634	0.425	70.81	64208	0.00176	0.354	0.82173	*****		250.952
6	60.7	58.5	33.8	0.000594	0.437	73.42	64365	0.00172	0.355	0.16433	*****		49.333
7	144.2	58.2	31.4	0.000514	0.471	81.26	64644	0.00158	0.352	0.00409		6.390	1.304
8	161.6	58.0	29.6	0.000455	0.504	89.04	64846	0.00148	0.352	0.00340		4.895	1.043
9	158.8	57.9	28.8	0.000426	0.522	93.19	64959	0.00143	0.353	0.00350		5.100	1.043
10	159.5	57.8	28.4	0.000416	0.530	95.26	65016	0.00140	0.350	0.00344		5.005	1.014
RUN NO 117 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 81.9 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	344.8	58.8	36.4	0.000791	0.351	52.95	64079	0.05552	9.204	0.03218	*****		14.230
2	61.9	58.8	36.1	0.000666	0.414	68.36	64107	0.00412	0.805	0.25770	*****		80.671
3	59.2	58.8	36.0	0.000658	0.418	69.28	64120	0.00218	0.431	1.02410	*****		316.605
4	60.2	58.8	35.9	0.000651	0.421	69.91	64134	0.00209	0.416	0.28808	*****		88.794
5	59.4	58.7	35.6	0.000638	0.426	71.16	64169	0.00208	0.420	0.65557	*****		199.791
6	61.3	58.6	34.1	0.000594	0.440	74.26	64334	0.00203	0.421	0.15611	*****		46.625
7	161.8	58.2	31.5	0.000506	0.480	83.55	64628	0.00184	0.417	0.00403		5.903	1.281
8	183.2	58.0	29.7	0.000442	0.519	92.78	64838	0.00170	0.417	0.00333		4.454	1.013
9	180.3	57.9	28.8	0.000414	0.540	97.69	64954	0.00164	0.418	0.00341		4.615	1.004
10	176.3	57.8	28.4	0.000401	0.550	100.14	65014	0.00160	0.417	0.00352		4.851	1.019
RUN NO 118 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 81.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	345.5	58.9	36.6	0.000798	0.350	52.80	64052	0.05516	9.123	0.03183	*****		14.098
2	62.3	58.8	36.4	0.000671	0.414	68.16	64082	0.00439	0.858	0.24544	*****		77.014
3	59.3	58.8	36.2	0.000662	0.418	69.16	64097	0.00245	0.483	1.01406	*****		313.859
4	60.2	58.8	36.1	0.000655	0.421	69.87	64112	0.00236	0.468	0.33570	*****		103.503
5	59.6	58.8	35.8	0.000641	0.427	71.27	64149	0.00234	0.471	0.55676	*****		149.608
6	61.7	58.6	34.2	0.000594	0.442	74.76	64319	0.00227	0.473	0.15140	*****		45.091
7	176.8	58.3	31.6	0.000500	0.487	85.22	64619	0.00204	0.469	0.00395		5.611	1.257
8	203.0	58.0	29.7	0.000433	0.531	95.58	64834	0.00187	0.469	0.00323		4.133	0.978
9	202.0	57.9	28.8	0.000404	0.554	101.10	64952	0.00179	0.469	0.00326		4.179	0.952
10	200.9	57.8	28.4	0.000390	0.565	103.85	65013	0.00175	0.467	0.00327		4.211	0.939
RUN NO 119 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 81.8 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	345.6	58.9	37.0	0.000807	0.350	52.68	64008	0.05537	9.136	0.03187	*****		14.136
2	62.8	58.9	36.7	0.000678	0.413	68.16	64042	0.00471	0.919	0.23407	*****		73.520
3	59.4	58.9	36.6	0.000668	0.418	69.26	64059	0.00278	0.548	1.04475	*****		323.201
4	60.4	58.9	36.4	0.000660	0.421	70.06	64076	0.00267	0.531	0.33669	*****		103.709
5	60.0	58.8	36.1	0.000643	0.428	71.65	64116	0.00264	0.534	0.46754	*****		142.120
6	62.7	58.6	34.5	0.000593	0.445	75.61	64294	0.00255	0.536	0.13032	*****		38.644
7	192.9	58.3	31.7	0.000493	0.496	87.46	64606	0.00226	0.531	0.00394		5.349	1.247
8	227.7	58.0	29.8	0.000422	0.545	99.20	64827	0.00206	0.530	0.00313		3.751	0.937
9	228.8	57.9	28.9	0.000392	0.571	105.43	64948	0.00196	0.529	0.00310		3.706	0.896
10	220.6	57.8	28.4	0.000378	0.585	108.54	65011	0.00192	0.532	0.00327		4.020	0.925

STA NO	TUBE TEMP	WALL SAT TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMERER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEFF	M-T PWR	EXP/FPSH H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-	-
RUN NO 120 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 81.8 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W														
1	349.2	59.0	37.8	0.000823	0.350	52.82	63923	0.05602	9.242	0.03185	*****		14.130	
2	63.7	59.0	37.5	0.000688	0.414	68.59	63961	0.00512	1.002	0.21326	*****		46.877	
3	59.7	59.0	37.3	0.000677	0.420	69.81	63982	0.00316	0.626	0.87440	*****		269.538	
4	60.4	58.9	37.1	0.000667	0.423	70.73	64002	0.00305	0.609	0.40250	*****		123.366	
5	60.3	58.9	36.7	0.000648	0.431	72.55	64050	0.00301	0.612	0.43206	*****		130.544	
6	66.3	58.7	34.9	0.000593	0.451	77.09	64244	0.00288	0.614	0.08054	*****		23.783	
7	216.9	58.3	32.0	0.000484	0.509	90.65	64578	0.00252	0.607	0.00383	*****	4.999	1.203	
8	260.6	58.0	29.9	0.000409	0.565	104.07	64813	0.00227	0.606	0.00299	*****	3.403	0.884	
9	269.7	57.9	28.9	0.000377	0.595	111.18	64939	0.00215	0.604	0.00285	*****	3.162	0.813	
10	260.9	57.8	28.4	0.000362	0.610	114.74	65007	0.00211	0.610	0.00300	*****	3.412	0.837	
RUN NO 121 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 81.9 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W														
1	347.3	59.1	38.3	0.000834	0.349	52.85	63880	0.05543	9.139	0.03170	*****		14.054	
2	64.4	59.0	37.9	0.000696	0.414	68.55	63918	0.00544	1.062	0.19604	*****		61.588	
3	60.0	59.0	37.7	0.000684	0.420	69.87	63937	0.00352	0.696	0.71038	*****		219.031	
4	61.9	59.0	37.5	0.000673	0.424	70.89	63959	0.00336	0.671	0.23004	*****		70.621	
5	61.2	58.9	37.0	0.000652	0.433	72.91	64011	0.00337	0.688	0.29919	*****		90.311	
6	120.1	58.7	35.2	0.000592	0.455	77.97	64214	0.00315	0.675	0.01100	*****		3.503	
7	239.0	58.3	32.1	0.000477	0.518	92.94	64562	0.00275	0.672	0.00372	*****	4.616	1.165	
8	294.5	58.1	30.0	0.000399	0.580	107.78	64805	0.00244	0.669	0.00283	*****	3.002	0.829	
9	302.6	57.9	29.0	0.000366	0.613	115.62	64934	0.00229	0.664	0.00271	*****	2.825	0.765	
10	282.3	57.8	28.5	0.000351	0.629	119.55	65004	0.00229	0.681	0.00303	*****	3.324	0.831	
RUN NO 123 ORIF DIA 0.0567 CM FLOW RATE 2.85 G/S LIQ TEMP 81.8 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W														
1	343.3	58.9	37.1	0.000812	0.348	52.37	63999	0.05501	9.042	0.03180	*****		14.134	
2	63.3	58.9	36.8	0.000682	0.411	67.71	64034	0.00472	0.917	0.20652	*****		65.167	
3	59.6	58.9	36.7	0.000672	0.416	68.80	64051	0.00282	0.553	0.75993	*****		236.031	
4	61.0	58.9	36.5	0.000664	0.419	69.61	64068	0.00269	0.533	0.25055	*****		77.528	
5	60.2	58.8	36.1	0.000647	0.426	71.21	64110	0.00267	0.537	0.38980	*****		118.945	
6	62.9	58.6	34.5	0.000596	0.444	75.20	64289	0.00258	0.540	0.12468	*****		37.100	
7	195.1	58.3	31.7	0.000495	0.495	87.12	64603	0.00228	0.534	0.00390	*****	5.345	1.240	
8	231.2	58.0	29.8	0.000423	0.544	98.93	64825	0.00207	0.534	0.00304	*****	3.721	0.927	
9	234.5	57.9	28.9	0.000393	0.571	105.20	64947	0.00197	0.532	0.00301	*****	3.594	0.875	
10	223.9	57.8	28.4	0.000378	0.584	108.34	65011	0.00195	0.539	0.00324	*****	4.016	0.921	
RUN NO 125 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 82.1 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W														
1	340.8	58.2	30.9	0.000670	0.356	53.17	65846	0.05428	9.305	0.03292	*****		14.262	
2	60.9	57.8	28.0	0.000518	0.420	68.28	66230	0.00394	0.798	0.25049	*****		77.075	
3	57.9	57.5	26.5	0.000487	0.425	69.10	66439	0.00210	0.430	1.09515	*****		332.463	
4	58.3	57.3	25.1	0.000459	0.428	69.63	66650	0.00203	0.418	0.41544	*****		125.858	
5	58.4	56.9	22.5	0.000409	0.434	70.63	67047	0.00200	0.420	0.27582	*****		82.937	
6	64.6	56.4	19.6	0.000349	0.448	73.32	67578	0.00194	0.421	0.05097	*****		15.194	
7	165.9	55.7	16.4	0.000273	0.486	81.64	68238	0.00178	0.417	0.00379	*****	5.954	1.210	
8	201.9	55.2	14.4	0.000225	0.521	89.71	68727	0.00165	0.417	0.00285	*****	3.855	0.885	
9	214.1	55.0	13.6	0.000206	0.539	93.93	68916	0.00159	0.415	0.00261	*****	3.387	0.797	
10	209.5	54.9	13.3	0.000199	0.548	96.05	69010	0.00159	0.422	0.00273	*****	3.594	0.820	
RUN NO 126 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 82.1 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W														
1	337.0	58.2	31.0	0.000672	0.356	53.10	65835	0.05439	9.315	0.03341	*****		14.467	
2	61.4	57.8	28.0	0.000519	0.420	68.31	66220	0.00421	0.853	0.23436	*****		72.161	
3	58.1	57.5	26.6	0.000488	0.425	69.22	66430	0.00241	0.494	0.82045	*****		249.381	
4	58.4	57.3	25.1	0.000459	0.429	69.84	66642	0.00233	0.482	0.43615	*****		131.951	
5	58.9	56.9	22.5	0.000408	0.436	71.02	67040	0.00230	0.483	0.24724	*****		74.204	
6	64.2	56.4	19.6	0.000346	0.452	74.16	67573	0.00222	0.485	0.06225	*****		18.435	
7	183.2	55.7	16.4	0.000268	0.495	83.82	68234	0.00201	0.480	0.00377	*****	5.629	1.200	
8	230.0	55.2	14.4	0.000219	0.535	93.17	68725	0.00185	0.479	0.00274	*****	3.454	0.847	
9	244.9	55.0	13.6	0.000200	0.556	98.04	68914	0.00177	0.476	0.00251	*****	3.010	0.758	
10	235.4	54.9	13.3	0.000192	0.566	100.48	69009	0.00177	0.485	0.00269	*****	3.324	0.798	
RUN NO 127 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 81.8 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W														
1	343.2	58.3	31.9	0.000695	0.353	52.63	65734	0.05508	9.362	0.03295	*****		14.323	
2	62.0	57.9	28.7	0.000533	0.419	68.03	66118	0.00461	0.928	0.22364	*****		69.093	
3	58.3	57.6	27.2	0.000500	0.424	69.05	66340	0.00274	0.560	0.81431	*****		247.816	
4	58.8	57.4	25.7	0.000469	0.428	69.76	66564	0.00265	0.546	0.38221	*****		115.791	
5	59.3	57.0	22.9	0.000414	0.436	71.16	66971	0.00268	0.565	0.24771	*****		74.317	
6	147.5	56.4	19.4	0.000348	0.454	74.80	67530	0.00247	0.542	0.00595	*****		1.962	
7	206.9	55.7	16.6	0.000266	0.502	85.76	68204	0.00224	0.546	0.00361	*****	5.044	1.152	
8	261.5	55.2	14.4	0.000214	0.548	96.40	68715	0.00204	0.543	0.00263	*****	3.044	0.869	
9	276.8	55.0	13.6	0.000195	0.571	101.94	68910	0.00185	0.539	0.00243	*****	2.732	0.728	
10	267.0	54.9	13.3	0.000187	0.583	104.70	69006	0.00194	0.548	0.00254	*****	2.941	0.754	

STA NO	TUBE TEMP	WALL SAT TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 128 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 81.9 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W													
1	345.0	58.4	32.5	0.000708	0.354	52.80	65659	0.05495	9.343	0.03259	*****		14.198
2	62.6	58.0	29.3	0.000541	0.419	68.26	66044	0.00485	0.980	0.20892	*****		64.508
3	58.8	57.7	27.7	0.000506	0.425	69.35	66275	0.00300	0.614	0.58754	*****		178.542
4	60.6	57.5	26.0	0.000474	0.429	70.14	66507	0.00288	0.596	0.18887	*****		57.252
5	65.2	57.0	23.2	0.000417	0.438	71.69	66926	0.00291	0.615	0.07515	*****		22.709
6	168.4	56.4	20.0	0.000348	0.458	75.67	67498	0.00266	0.589	0.00526	*****		1.752
7	223.4	55.8	16.7	0.000263	0.510	87.63	68181	0.00241	0.594	0.00354	*****	4.758	1.127
8	289.0	55.2	14.5	0.000210	0.559	99.21	68707	0.00217	0.589	0.00252	*****	2.788	0.769
9	302.6	55.0	13.7	0.000191	0.585	105.22	68905	0.00206	0.584	0.00236	*****	2.524	0.700
10	286.2	54.9	13.3	0.000182	0.597	108.22	69003	0.00207	0.598	0.00259	*****	2.887	0.752
RUN NO 129 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 81.9 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W													
1	337.9	58.3	32.0	0.000699	0.352	52.37	65723	0.05401	9.151	0.03273	*****		14.280
2	62.0	57.9	28.8	0.000537	0.416	67.41	66107	0.00445	0.891	0.21809	*****		67.706
3	58.6	57.7	27.3	0.000504	0.421	68.37	66331	0.00263	0.534	0.55144	*****		168.796
4	60.0	57.4	25.7	0.000473	0.425	69.05	66556	0.00254	0.520	0.20097	*****		61.356
5	63.9	57.0	22.9	0.000418	0.433	70.37	66933	0.00257	0.536	0.07817	*****		23.796
6	156.6	56.4	19.9	0.000352	0.450	73.81	67525	0.00236	0.513	0.00512	*****		1.714
7	197.5	55.7	16.6	0.000269	0.496	84.18	68199	0.00216	0.518	0.00368	*****	5.333	1.172
8	254.6	55.2	14.5	0.000218	0.539	94.27	68713	0.00197	0.515	0.00258	*****	3.112	0.802
9	273.1	55.0	13.7	0.000198	0.562	99.51	68907	0.00187	0.510	0.00234	*****	2.669	0.709
10	257.1	54.9	13.3	0.000190	0.573	102.14	69004	0.00189	0.525	0.00260	*****	3.110	0.772
RUN NO 130 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 82.2 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W													
1	340.3	58.3	31.9	0.000691	0.355	53.11	65731	0.05387	9.208	0.03266	*****		14.160
2	61.9	57.9	28.7	0.000532	0.419	68.19	66116	0.00427	0.863	0.21675	*****		66.864
3	58.6	57.6	27.2	0.000500	0.424	69.11	66338	0.00245	0.500	0.55099	*****		167.405
4	59.6	57.4	25.7	0.000469	0.428	69.74	66562	0.00238	0.491	0.22228	*****		67.456
5	66.6	57.0	22.9	0.000415	0.435	70.97	66969	0.00238	0.501	0.05234	*****		15.940
6	152.0	56.4	19.9	0.000350	0.452	74.15	67528	0.00220	0.480	0.00503	*****		1.672
7	187.5	55.7	16.6	0.000270	0.495	83.82	68201	0.00203	0.485	0.00368	*****	5.468	1.177
8	231.2	55.2	14.4	0.000220	0.535	93.25	68713	0.00187	0.484	0.00275	*****	3.482	0.849
9	248.6	55.0	13.6	0.000200	0.556	98.16	68907	0.00178	0.480	0.00248	*****	2.972	0.750
10	239.5	54.9	13.3	0.000192	0.566	100.61	69003	0.00179	0.490	0.00265	*****	3.277	0.789
RUN NO 131 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 82.1 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W													
1	340.5	58.1	30.1	0.000655	0.356	52.85	65935	0.05386	9.218	0.03264	*****		14.175
2	60.8	57.7	27.3	0.000509	0.419	67.77	66319	0.00376	0.758	0.24073	*****		74.350
3	58.6	57.5	26.0	0.000480	0.423	68.52	66517	0.00189	0.384	0.34121	*****		104.310
4	59.0	57.2	24.6	0.000453	0.426	68.99	66717	0.00183	0.376	0.21257	*****		64.805
5	58.3	56.8	22.2	0.000406	0.432	69.88	67106	0.00185	0.385	0.26552	*****		80.269
6	93.9	56.3	19.4	0.000348	0.444	72.29	67613	0.00175	0.377	0.01003	*****		3.175
7	156.9	55.7	16.3	0.000275	0.478	79.71	68261	0.00163	0.376	0.00372	*****	6.023	1.195
8	184.5	55.2	14.4	0.000229	0.510	86.97	68732	0.00153	0.377	0.00292	*****	4.187	0.912
9	211.2	55.0	13.6	0.000211	0.526	90.76	68916	0.00145	0.370	0.00237	*****	3.069	0.737
10	193.2	54.9	13.3	0.000204	0.534	92.66	69009	0.00149	0.385	0.00279	*****	3.864	0.847
RUN NO 132 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 81.5 K LIQ PRESS 3.50 ATM CART HTR PWR 0.000 W													
1	336.9	57.9	28.8	0.000627	0.356	52.70	65545	0.05423	9.216	0.03303	*****		14.440
2	59.9	57.5	26.3	0.000490	0.419	67.59	65904	0.00334	0.668	0.27925	*****		86.804
3	58.4	57.3	25.0	0.000464	0.422	68.23	66083	0.00148	0.298	0.26677	*****		82.275
4	58.5	57.1	23.8	0.000440	0.425	68.57	66262	0.00144	0.292	0.20901	*****		64.303
5	57.9	56.7	21.6	0.000398	0.430	69.23	66634	0.00143	0.293	0.25736	*****		78.661
6	59.2	56.3	19.1	0.000346	0.440	71.04	67096	0.00140	0.295	0.09920	*****		29.979
7	130.3	55.6	16.1	0.000279	0.466	76.77	67719	0.00130	0.292	0.00391	*****	7.050	1.261
8	150.8	55.2	14.3	0.000237	0.491	82.39	68156	0.00124	0.292	0.00306	*****	4.924	0.969
9	158.4	55.0	13.6	0.000220	0.504	85.34	68330	0.00121	0.292	0.00282	*****	4.383	0.883
10	158.6	54.9	13.3	0.000213	0.511	86.83	68419	0.00121	0.297	0.00286	*****	4.440	0.887
RUN NO 133 ORIF DIA 0.0567 CM FLOW RATE 2.90 G/S LIQ TEMP 81.8 K LIQ PRESS 3.10 ATM CART HTR PWR 0.000 W													
1	338.2	57.8	28.1	0.000617	0.354	52.19	66206	0.05408	9.233	0.03292	*****		14.362
2	59.2	57.4	25.7	0.000484	0.416	66.89	66550	0.00303	0.607	0.34310	*****		106.356
3	58.1	57.2	24.6	0.000460	0.420	67.42	66721	0.00115	0.232	0.27332	*****		84.183
4	58.1	57.1	23.4	0.000437	0.421	67.66	66893	0.00112	0.228	0.21083	*****		64.818
5	57.4	56.7	21.3	0.000397	0.425	68.13	67263	0.00111	0.229	0.30792	*****		94.164
6	58.4	56.2	18.9	0.000348	0.434	69.46	67709	0.00110	0.230	0.10429	*****		31.622
7	109.4	55.6	16.0	0.000285	0.454	73.77	68328	0.00104	0.228	0.00424	*****	8.211	1.355
8	128.4	55.2	14.3	0.000245	0.474	78.00	68754	0.00099	0.228	0.00311	*****	5.313	0.988
9	131.3	55.0	13.6	0.000229	0.483	80.24	68926	0.00097	0.228	0.00299	*****	5.017	0.937
10	130.7	54.9	13.3	0.000222	0.488	81.36	69014	0.00097	0.230	0.00303	*****	5.111	0.944

STA NO	TUBE NO	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/G-T H-T COEF
RUN NO 134 ORIF DIA 0.0567 CM FLOW RATE 2.89 G/S LIQ TEMP 81.8 K LIQ PRESS 3.08 ATM CART HTR PWR 0.000 W													
1	335.7		57.9	28.8	0.000631	0.354	52.19	65895	0.05413	9.194	0.03310	*****	14.470
2	59.6		57.3	25.1	0.000471	0.417	66.91	66434	0.00334	0.670	0.28959	*****	90.061
3	57.5		57.0	23.2	0.000435	0.421	67.48	66702	0.00152	0.308	0.63454	*****	195.623
4	58.6		56.7	21.4	0.000400	0.424	67.75	67029	0.00145	0.295	0.15841	*****	48.822
5	57.7		56.1	18.2	0.000339	0.429	68.16	67626	0.00144	0.299	0.17989	*****	55.147
6	59.0		55.4	15.2	0.000281	0.438	69.62	68317	0.00142	0.300	0.08260	*****	25.127
7	130.5		54.5	11.9	0.000211	0.462	74.42	69234	0.00133	0.297	0.00301	*****	1.280
8	155.8		53.8	9.7	0.000168	0.483	78.51	69641	0.00127	0.297	0.00292	*****	0.949
9	165.0		53.4	8.8	0.000150	0.494	80.28	70341	0.00124	0.298	0.00267	*****	0.864
10	172.4		53.3	8.4	0.000142	0.498	81.06	70509	0.00121	0.294	0.00247	*****	0.799
RUN NO 135 ORIF DIA 0.0567 CM FLOW RATE 2.89 G/S LIQ TEMP 81.7 K LIQ PRESS 3.09 ATM CART HTR PWR 0.000 W													
1	333.5		57.9	28.7	0.000630	0.354	52.17	65899	0.05470	9.290	0.03371	*****	14.731
2	59.9		57.3	25.0	0.000469	0.418	67.08	66436	0.00351	0.705	0.27140	*****	84.342
3	57.5		57.0	23.2	0.000433	0.422	67.71	66703	0.00172	0.349	0.68185	*****	209.865
4	58.6		56.7	21.3	0.000398	0.425	68.03	67030	0.00164	0.335	0.17418	*****	53.572
5	58.0		56.1	18.1	0.000337	0.431	68.56	67625	0.00163	0.339	0.17777	*****	54.365
6	59.4		55.4	15.1	0.000278	0.441	70.29	68315	0.00160	0.340	0.08578	*****	25.923
7	143.4		54.5	11.8	0.000208	0.468	75.91	69230	0.00149	0.337	0.00379	*****	1.243
8	172.7		53.8	9.7	0.000165	0.492	80.75	69956	0.00141	0.337	0.00284	*****	0.921
9	184.3		53.4	8.8	0.000146	0.504	82.88	70334	0.00138	0.337	0.00258	*****	0.831
10	191.4		53.3	8.4	0.000139	0.509	83.83	70502	0.00134	0.333	0.00241	*****	0.776
RUN NO 136 ORIF DIA 0.0567 CM FLOW RATE 2.89 G/S LIQ TEMP 81.8 K LIQ PRESS 3.09 ATM CART HTR PWR 0.000 W													
1	336.8		58.0	29.8	0.000654	0.353	52.23	65747	0.05432	9.205	0.03302	*****	14.444
2	60.4		57.4	25.9	0.000485	0.417	67.11	66310	0.00377	0.756	0.25562	*****	79.501
3	57.7		57.1	23.9	0.000446	0.422	67.82	66594	0.00195	0.395	0.70908	*****	214.143
4	58.5		56.8	22.0	0.000408	0.425	68.21	66918	0.00187	0.382	0.21930	*****	67.360
5	58.4		56.2	18.5	0.000343	0.432	68.87	67550	0.00185	0.384	0.16984	*****	51.864
6	59.9		55.5	15.5	0.000282	0.444	70.95	68240	0.00180	0.386	0.08709	*****	26.276
7	156.4		54.5	12.0	0.000208	0.475	77.52	69176	0.00167	0.382	0.00375	*****	6.210
8	192.3		53.8	9.8	0.000162	0.502	83.19	69928	0.00157	0.382	0.00276	*****	0.894
9	204.6		53.5	8.8	0.000144	0.515	85.70	70321	0.00153	0.382	0.00253	*****	0.811
10	211.1		53.3	8.4	0.000136	0.521	86.81	70496	0.00149	0.377	0.00239	*****	0.763
RUN NO 137 ORIF DIA 0.0567 CM FLOW RATE 2.89 G/S LIQ TEMP 82.1 K LIQ PRESS 3.09 ATM CART HTR PWR 0.000 W													
1	337.0		58.1	30.5	0.000662	0.355	52.87	65673	0.05398	9.202	0.03299	*****	14.351
2	61.0		57.5	26.2	0.000487	0.420	67.86	66265	0.00416	0.839	0.23548	*****	72.900
3	58.0		57.2	24.1	0.000445	0.425	68.68	66572	0.00234	0.478	0.55833	*****	170.737
4	58.4		56.8	21.9	0.000404	0.429	69.18	66919	0.00226	0.467	0.29573	*****	40.134
5	58.8		56.1	18.2	0.000335	0.437	70.03	67600	0.00223	0.469	0.17249	*****	52.258
6	72.1		55.4	15.2	0.000273	0.451	72.66	68306	0.00216	0.469	0.02812	*****	8.565
7	183.2		54.4	11.6	0.000197	0.488	80.71	69290	0.00197	0.465	0.00361	*****	5.543
8	228.9		53.6	9.3	0.000150	0.521	87.45	70116	0.00184	0.464	0.00265	*****	3.437
9	243.4		53.3	8.3	0.000131	0.536	90.35	70520	0.00178	0.464	0.00244	*****	0.776
10	251.3		53.1	7.9	0.000123	0.542	91.58	70699	0.00173	0.456	0.00230	*****	0.729
RUN NO 138 ORIF DIA 0.0567 CM FLOW RATE 2.89 G/S LIQ TEMP 81.8 K LIQ PRESS 3.09 ATM CART HTR PWR 0.000 W													
1	337.9		58.2	31.2	0.000681	0.353	52.44	65590	0.05439	9.209	0.03293	*****	14.391
2	61.6		57.6	26.7	0.000498	0.418	67.55	66184	0.00451	0.906	0.22367	*****	49.490
3	58.3		57.2	24.5	0.000454	0.424	68.47	66502	0.00268	0.545	0.50749	*****	155.526
4	58.6		56.9	22.3	0.000412	0.428	69.08	66847	0.00259	0.534	0.30062	*****	91.754
5	59.2		56.2	18.5	0.000339	0.437	70.14	67552	0.00257	0.541	0.17775	*****	53.849
6	95.1		55.4	15.4	0.000275	0.453	73.27	68258	0.00244	0.534	0.01346	*****	4.252
7	204.1		54.5	11.8	0.000195	0.496	82.68	69254	0.00222	0.532	0.00355	*****	5.156
8	260.9		53.7	9.3	0.000147	0.533	90.60	70098	0.00205	0.529	0.00255	*****	3.079
9	277.0		53.3	8.3	0.000128	0.550	94.03	70511	0.00197	0.528	0.00236	*****	2.724
10	281.6		53.1	7.9	0.000120	0.558	95.50	70694	0.00192	0.521	0.00228	*****	2.601
RUN NO 140 ORIF DIA 0.0567 CM FLOW RATE 2.89 G/S LIQ TEMP 81.8 K LIQ PRESS 3.09 ATM CART HTR PWR 0.000 W													
1	336.3		58.3	32.2	0.000705	0.352	52.37	65467	0.05413	9.132	0.03286	*****	14.372
2	63.0		57.7	27.5	0.000513	0.418	67.58	66064	0.00518	1.040	0.19439	*****	60.544
3	59.2		57.3	25.2	0.000465	0.424	68.71	66399	0.00339	0.692	0.37724	*****	115.609
4	61.4		57.0	22.9	0.000420	0.429	69.53	66740	0.00326	0.674	0.15286	*****	44.748
5	67.4		56.2	18.9	0.000343	0.440	71.02	67480	0.00328	0.694	0.06215	*****	18.994
6	183.5		55.5	15.7	0.000275	0.460	75.17	68185	0.00299	0.665	0.00519	*****	1.761
7	252.1		54.5	11.9	0.000191	0.515	87.33	69200	0.00269	0.669	0.00339	*****	4.312
8	326.9		53.7	9.4	0.000140	0.562	97.66	70069	0.00243	0.661	0.00247	*****	2.536
9	337.5		53.3	8.4	0.000121	0.583	102.13	70495	0.00232	0.658	0.00231	*****	2.368
10	323.5		53.1	7.9	0.000113	0.592	104.09	70685	0.00230	0.665	0.00244	*****	2.599

STA NO	TURE WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 141	ORIF DIA 0.0567 CM	FLOW RATE 2.89 G/S	LIQ TEMP 81.4 K	LIQ PRESS 3.09 ATM	CART HTR PWR 0.000 W							
1	336.3	58.3	31.8	0.000697	0.352	52.27	65512	0.05387	9.087	0.03269	*****	14.308
2	62.9	57.6	27.2	0.000508	0.417	67.34	66108	0.00498	0.997	0.19447	*****	60.653
3	59.1	57.3	25.0	0.000462	0.423	68.41	66437	0.00318	0.647	0.36612	*****	112.435
4	61.0	56.9	22.7	0.000418	0.428	69.16	66780	0.00306	0.630	0.15533	*****	47.602
5	65.9	56.2	18.7	0.000342	0.438	70.52	67506	0.00308	0.650	0.06668	*****	20.402
6	177.6	55.5	15.5	0.000275	0.457	74.36	68212	0.00282	0.622	0.00509	*****	1.730
7	236.5	54.5	11.9	0.000192	0.508	85.65	69219	0.00255	0.627	0.00344	4.602	1.124
8	304.2	53.7	9.4	0.000142	0.552	95.25	70078	0.00232	0.621	0.00244	2.668	0.772
9	323.3	53.3	8.4	0.000123	0.572	99.41	70500	0.00221	0.615	0.00228	2.406	0.708
10	307.8	53.1	7.9	0.000115	0.581	101.24	70687	0.00221	0.627	0.00246	2.699	0.753
RUN NO 142	ORIF DIA 0.0567 CM	FLOW RATE 2.89 G/S	LIQ TEMP 81.4 K	LIQ PRESS 3.09 ATM	CART HTR PWR 0.000 W							
1	162.8	58.0	29.3	0.000643	0.353	52.14	65803	0.05654	9.582	0.09138	*****	36.854
2	60.6	57.4	25.3	0.000474	0.418	67.26	66385	0.00271	0.546	0.16570	*****	51.500
3	59.4	57.0	23.3	0.000435	0.422	67.83	66675	0.00215	0.436	0.31218	*****	96.176
4	59.1	56.7	21.3	0.000397	0.426	68.27	67026	0.00207	0.425	0.17377	*****	53.410
5	58.5	56.0	17.8	0.000331	0.433	69.00	67668	0.00205	0.427	0.17504	*****	53.406
6	60.9	55.3	14.9	0.000271	0.446	71.32	68375	0.00200	0.429	0.07641	*****	23.043
7	170.8	54.4	11.5	0.000198	0.480	78.56	69338	0.00183	0.425	0.00365	5.873	1.201
8	212.1	53.6	9.2	0.000152	0.510	84.62	70138	0.00172	0.425	0.00268	3.655	0.869
9	228.0	53.3	8.3	0.000134	0.523	87.22	70527	0.00165	0.421	0.00241	3.119	0.775
10	217.6	53.1	7.9	0.000126	0.529	88.37	70700	0.00168	0.432	0.00263	3.523	0.834
RUN NO 143	ORIF DIA 0.0567 CM	FLOW RATE 2.89 G/S	LIQ TEMP 82.0 K	LIQ PRESS 3.09 ATM	CART HTR PWR 0.000 W							
1	339.4	57.8	28.1	0.000612	0.357	52.78	65983	0.05379	9.214	0.03271	*****	14.238
2	59.2	57.2	24.5	0.000458	0.420	67.43	66500	0.00303	0.612	0.31709	*****	98.138
3	58.2	57.0	22.8	0.000424	0.423	67.90	66765	0.00115	0.233	0.19327	*****	59.472
4	58.0	56.6	21.0	0.000391	0.426	68.06	67086	0.00112	0.230	0.17269	*****	53.034
5	57.3	56.0	17.9	0.000334	0.430	68.28	67659	0.00111	0.231	0.18393	*****	56.293
6	58.6	55.3	15.0	0.000278	0.437	69.23	68349	0.00110	0.231	0.07075	*****	21.569
7	111.5	54.5	11.7	0.000213	0.455	72.62	69253	0.00104	0.230	0.00402	8.176	1.307
8	130.9	53.8	9.7	0.000171	0.471	75.44	69963	0.00101	0.230	0.00298	5.331	0.968
9	137.3	53.4	8.8	0.000154	0.479	76.59	70333	0.00098	0.229	0.00273	4.707	0.865
10	136.3	53.3	8.4	0.000146	0.482	77.10	70497	0.00101	0.236	0.00285	4.945	0.918
RUN NO 144	ORIF DIA 0.0567 CM	FLOW RATE 2.89 G/S	LIQ TEMP 82.3 K	LIQ PRESS 3.09 ATM	CART HTR PWR 0.000 W							
1	330.6	57.3	24.7	0.000536	0.362	53.29	66472	0.05332	9.269	0.03391	*****	14.635
2	58.8	56.8	21.7	0.000405	0.424	67.82	66954	0.00268	0.547	0.26963	*****	83.112
3	57.9	56.5	20.2	0.000377	0.427	68.18	67224	0.00090	0.184	0.13226	*****	40.571
4	57.7	56.2	18.8	0.000350	0.429	68.23	67495	0.00088	0.181	0.11785	*****	36.116
5	57.2	55.6	16.2	0.000302	0.432	68.24	68059	0.00087	0.182	0.11639	*****	35.635
6	58.1	55.0	13.6	0.000254	0.437	68.71	68689	0.00086	0.182	0.05842	*****	17.869
7	79.0	54.2	10.8	0.000198	0.450	70.86	69566	0.00083	0.182	0.00730	17.816	2.287
8	111.3	53.5	9.0	0.000163	0.462	72.52	70255	0.00081	0.181	0.00312	5.868	1.013
9	113.6	53.2	8.2	0.000148	0.467	73.10	70581	0.00079	0.180	0.00298	5.522	0.964
10	107.2	53.1	7.8	0.000141	0.469	73.34	70725	0.00082	0.187	0.00346	6.727	1.108
RUN NO 243	ORIF DIA 0.0831 CM	FLOW RATE 4.58 G/S	LIQ TEMP 80.3 K	LIQ PRESS 1.71 ATM	CART HTR PWR 0.000 W							
1	326.8	59.5	42.9	0.000991	0.327	47.91	102008	0.04951	12.251	0.04584	*****	14.519
2	63.8	59.2	39.3	0.000787	0.379	60.28	102526	0.00295	0.850	0.18532	*****	42.602
3	59.2	59.0	37.6	0.000748	0.383	60.84	102785	0.00178	0.518	2.70546	*****	613.392
4	59.9	58.8	35.8	0.000710	0.385	61.22	103102	0.00171	0.499	0.45529	*****	102.952
5	59.8	58.4	32.6	0.000642	0.391	61.96	103674	0.00172	0.511	0.35507	*****	79.685
6	110.2	57.9	29.0	0.000559	0.402	63.96	104368	0.00163	0.499	0.00954	*****	2.287
7	189.5	57.2	24.6	0.000449	0.431	70.14	105362	0.00152	0.499	0.00377	4.203	0.921
8	205.7	56.8	21.9	0.000379	0.458	76.21	106042	0.00143	0.499	0.00335	3.516	0.791
9	215.0	56.6	20.9	0.000351	0.472	79.41	106353	0.00139	0.501	0.00316	3.208	0.733
10	228.8	56.5	20.4	0.000339	0.479	80.95	106485	0.00130	0.473	0.00274	2.660	0.634
RUN NO 244	ORIF DIA 0.0831 CM	FLOW RATE 4.58 G/S	LIQ TEMP 80.8 K	LIQ PRESS 1.71 ATM	CART HTR PWR 0.000 W							
1	325.6	59.7	44.7	0.001031	0.326	48.04	101755	0.04998	12.744	0.04642	*****	14.691
2	64.1	59.3	40.8	0.000813	0.380	60.56	102322	0.00316	0.909	0.18830	*****	43.226
3	59.6	59.1	38.8	0.000769	0.383	61.18	102604	0.00199	0.579	1.74505	*****	304.371
4	60.3	58.9	36.9	0.000727	0.386	61.62	102912	0.00193	0.565	0.40374	*****	91.103
5	62.8	58.5	33.4	0.000653	0.392	62.47	103537	0.00194	0.578	0.10892	*****	24.530
6	146.2	58.0	29.4	0.000563	0.405	64.75	104264	0.00181	0.558	0.00633	*****	1.562
7	207.5	57.3	24.9	0.000446	0.437	71.73	105305	0.00168	0.560	0.00373	3.951	0.910
8	231.4	56.8	22.8	0.000373	0.467	78.57	106019	0.00157	0.560	0.00321	3.138	0.754
9	238.5	56.6	20.9	0.000343	0.483	82.17	106343	0.00153	0.562	0.00309	2.958	0.712
10	256.1	56.5	20.4	0.000331	0.491	83.90	106480	0.00141	0.526	0.00264	2.390	0.605

STA NO	TIME K	WALL SAT TEMP K	MIXTURE PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 245 ORIF DIA 0.0831 CM FLOW RATE 4.58 G/S LIQ TEMP 80.8 K LIQ PRESS 1.71 ATM CART HTR PWR 0.000 W												
1	322.9	59.8	45.5	0.001051	0.325	47.89	101643	0.04963	12.215	0.04643	*****	14.707
2	64.5	59.4	41.4	0.000827	0.378	60.35	102231	0.00334	0.959	0.18813	*****	43.301
3	59.8	59.2	39.4	0.000781	0.382	61.01	102524	0.00219	0.636	1.09680	*****	248.673
4	60.9	59.0	37.3	0.000738	0.386	61.51	102827	0.00214	0.627	0.32556	*****	73.626
5	71.7	58.5	33.7	0.000660	0.392	62.47	103477	0.00213	0.634	0.04806	*****	10.976
6	173.5	58.4	29.6	0.000566	0.406	65.00	104221	0.00198	0.610	0.00529	*****	1.330
7	215.8	57.3	25.0	0.000444	0.441	72.70	105279	0.00183	0.616	0.00388	4.057	0.945
8	252.7	56.8	22.1	0.000368	0.474	80.24	106009	0.00170	0.614	0.00313	2.906	0.735
9	259.3	56.6	20.9	0.000338	0.491	84.20	106338	0.00164	0.616	0.00304	2.766	0.697
10	275.7	56.5	20.4	0.000325	0.500	86.10	106478	0.00151	0.577	0.00263	2.289	0.600
RUN NO 246 ORIF DIA 0.0831 CM FLOW RATE 4.58 G/S LIQ TEMP 80.9 K LIQ PRESS 1.70 ATM CART HTR PWR 0.000 W												
1	320.0	59.9	46.1	0.001062	0.325	48.03	101560	0.04923	12.124	0.04661	*****	14.734
2	64.8	59.4	41.9	0.000835	0.379	60.44	102164	0.00351	1.006	0.16061	*****	37.019
3	60.1	59.2	39.8	0.000788	0.383	61.16	102465	0.00240	0.696	0.82007	*****	185.825
4	61.7	59.1	37.7	0.000743	0.386	61.73	102767	0.00251	0.734	0.26947	*****	60.930
5	117.4	58.5	34.0	0.000662	0.393	62.82	103432	0.00222	0.662	0.01126	*****	2.750
6	193.2	58.4	29.8	0.000565	0.408	65.53	104194	0.00215	0.667	0.00493	*****	1.252
7	235.0	57.3	25.1	0.000441	0.446	73.97	105261	0.00197	0.670	0.00377	3.741	0.918
8	275.9	56.8	22.1	0.000362	0.482	82.21	106002	0.00182	0.667	0.00305	2.678	0.712
9	283.0	56.6	20.9	0.000332	0.501	86.52	106335	0.00175	0.669	0.00296	2.553	0.674
10	295.0	56.5	20.5	0.000319	0.510	88.60	106477	0.00162	0.629	0.00264	2.207	0.595
RUN NO 247 ORIF DIA 0.0831 CM FLOW RATE 4.58 G/S LIQ TEMP 80.8 K LIQ PRESS 1.70 ATM CART HTR PWR 0.000 W												
1	324.8	59.7	44.1	0.001020	0.326	47.82	101840	0.04943	12.188	0.04597	*****	14.571
2	64.8	59.3	40.3	0.000806	0.378	60.19	102391	0.00318	0.911	0.16351	*****	37.700
3	59.8	59.1	38.4	0.000764	0.382	60.81	102664	0.00204	0.592	0.86961	*****	197.460
4	62.3	58.9	36.5	0.000723	0.385	61.28	102976	0.00210	0.613	0.17760	*****	40.336
5	105.8	58.4	33.1	0.000651	0.391	62.17	103584	0.00189	0.581	0.01185	*****	2.869
6	173.7	58.4	29.3	0.000562	0.404	64.42	104299	0.00183	0.562	0.00486	*****	1.229
7	205.8	57.3	24.8	0.000446	0.436	71.48	105325	0.00171	0.566	0.00381	4.094	0.931
8	233.5	56.8	22.0	0.000373	0.467	78.40	106027	0.00159	0.565	0.00320	3.131	0.754
9	251.3	56.6	20.9	0.000344	0.483	82.03	106347	0.00153	0.563	0.00289	2.677	0.670
10	253.7	56.5	20.4	0.000331	0.490	83.79	106483	0.00144	0.539	0.00273	2.513	0.627
RUN NO 248 ORIF DIA 0.0831 CM FLOW RATE 4.58 G/S LIQ TEMP 80.7 K LIQ PRESS 1.70 ATM CART HTR PWR 0.000 W												
1	328.9	59.3	40.6	0.000939	0.327	47.77	102347	0.04966	12.322	0.04571	*****	14.495
2	64.4	59.1	37.5	0.000752	0.379	59.97	102806	0.00214	0.615	0.08288	*****	19.189
3	61.0	58.8	35.9	0.000719	0.382	60.30	103081	0.00097	0.280	0.12922	*****	29.512
4	59.8	58.6	34.4	0.000687	0.383	60.47	103357	0.00092	0.267	0.21377	*****	48.617
5	58.2	58.3	31.6	0.000630	0.387	60.78	103858	0.00091	0.267	*****	*****	*****
6	61.8	57.8	28.4	0.000560	0.393	61.71	104508	0.00089	0.267	0.06646	*****	14.984
7	114.4	57.2	24.7	0.000466	0.409	64.79	105439	0.00085	0.265	0.00433	6.424	1.040
8	130.4	56.8	21.8	0.000408	0.424	67.84	106074	0.00082	0.266	0.00361	4.967	0.857
9	134.1	56.6	20.8	0.000383	0.431	69.46	106368	0.00081	0.266	0.00344	4.633	0.809
10	134.8	56.5	20.4	0.000373	0.435	70.26	106493	0.00078	0.259	0.00311	4.045	0.730
RUN NO 249 ORIF DIA 0.0831 CM FLOW RATE 4.58 G/S LIQ TEMP 80.8 K LIQ PRESS 1.70 ATM CART HTR PWR 0.000 W												
1	333.3	59.2	39.8	0.000921	0.328	47.75	102461	0.04902	12.180	0.04443	*****	14.106
2	64.0	58.9	36.8	0.000742	0.379	59.98	102916	0.00205	0.588	0.11559	*****	26.640
3	59.3	58.7	35.4	0.000710	0.381	60.09	103177	0.00084	0.242	0.42501	*****	96.909
4	59.1	58.5	33.9	0.000680	0.383	60.23	103439	0.00078	0.227	0.41187	*****	93.713
5	58.0	58.2	31.3	0.000626	0.386	60.47	103914	0.00078	0.228	*****	*****	*****
6	59.8	57.8	28.2	0.000559	0.391	61.23	104550	0.00077	0.229	0.11126	*****	25.088
7	105.6	57.2	24.7	0.000469	0.405	63.79	105461	0.00074	0.227	0.00469	7.278	1.117
8	118.8	56.8	21.8	0.000413	0.418	66.36	106081	0.00071	0.227	0.00366	5.201	0.869
9	120.9	56.6	20.8	0.000389	0.424	67.71	106371	0.00070	0.228	0.00355	4.973	0.834
10	125.4	56.5	20.4	0.000379	0.428	68.38	106444	0.00068	0.220	0.00320	4.355	0.752
RUN NO 251 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.5 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W												
1	336.0	59.6	43.6	0.001051	0.312	44.51	103349	0.04824	11.570	0.04186	*****	13.622
2	64.4	59.1	38.3	0.000813	0.362	56.01	104130	0.00302	0.841	0.15827	*****	37.398
3	59.4	58.8	35.6	0.000744	0.366	56.50	104585	0.00175	0.494	0.91254	*****	189.123
4	59.8	58.4	33.0	0.000686	0.370	56.81	105065	0.00181	0.516	0.37033	*****	85.925
5	55.3	57.8	28.4	0.000587	0.375	57.34	105976	0.00164	0.474	0.01267	*****	3.110
6	162.5	57.1	23.8	0.000485	0.385	58.86	107048	0.00158	0.471	0.00447	*****	1.161
7	191.4	56.2	18.8	0.000385	0.411	63.83	108473	0.00149	0.475	0.00352	4.326	0.892
8	208.4	55.5	15.6	0.000292	0.433	68.30	109607	0.00142	0.475	0.00310	3.586	0.769
9	216.5	55.2	14.2	0.000261	0.443	70.37	110149	0.00139	0.477	0.00299	3.389	0.733
10	229.8	55.1	13.6	0.000248	0.447	71.30	110390	0.00134	0.463	0.00265	2.850	0.649

STA NO	TURE NO	WALL TEMP	MIXTURE SAT TEMP	STATIC PRFSSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 252 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.6 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	343.7	59.7	44.8	0.001072	0.314	45.07	103179	0.05016	12.091	0.04257	*****		13.813
2	65.7	59.2	39.2	0.000811	0.367	57.13	103997	0.00326	0.919	0.14033	*****		32.910
3	59.4	58.9	36.4	0.000750	0.371	57.69	104444	0.00198	0.566	0.97135	*****		223.810
4	60.2	58.5	33.6	0.000690	0.374	58.08	104948	0.00209	0.604	0.35262	*****		80.996
5	113.6	57.9	28.8	0.000587	0.381	58.73	105881	0.00181	0.531	0.00954	*****		2.370
6	178.1	57.2	24.1	0.000483	0.392	60.52	106973	0.00178	0.538	0.00445	*****		1.152
7	214.4	56.2	19.0	0.000360	0.421	66.32	108420	0.00166	0.541	0.00342	*****	3.915	0.863
8	235.4	55.5	15.7	0.000284	0.446	71.51	109581	0.00156	0.540	0.00300	*****	3.210	0.736
9	238.1	55.2	14.2	0.000253	0.457	73.92	110138	0.00153	0.543	0.00297	*****	3.150	0.717
10	252.9	55.0	13.6	0.000240	0.462	75.01	110384	0.00147	0.527	0.00266	*****	2.698	0.642
RUN NO 253 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.6 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	347.7	59.8	45.2	0.001077	0.315	45.37	103123	0.05085	12.295	0.04269	*****		13.827
2	66.2	59.2	39.5	0.000812	0.369	57.71	103955	0.00355	1.006	0.14399	*****		33.627
3	59.8	58.9	36.7	0.000750	0.373	58.34	104398	0.00225	0.646	0.73533	*****		148.588
4	60.6	58.5	33.9	0.000689	0.377	58.80	104909	0.00237	0.689	0.33112	*****		75.662
5	118.8	57.9	28.9	0.000584	0.384	59.59	105850	0.00206	0.610	0.01002	*****		2.486
6	191.6	57.2	24.2	0.000479	0.397	61.73	106948	0.00201	0.617	0.00459	*****		1.187
7	233.9	56.2	19.0	0.000354	0.430	68.51	108460	0.00186	0.620	0.00340	*****	3.801	0.874
8	263.7	55.5	15.7	0.000277	0.458	74.60	109573	0.00174	0.618	0.00297	*****	3.954	0.721
9	264.4	55.2	14.2	0.000246	0.471	77.44	110134	0.00170	0.621	0.00297	*****	2.950	0.707
10	277.6	55.0	13.6	0.000233	0.477	78.73	110383	0.00163	0.603	0.00271	*****	2.600	0.644
RUN NO 254 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.6 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	347.5	59.9	44.3	0.001066	0.314	45.31	102954	0.05074	12.230	0.04252	*****		13.785
2	65.9	59.3	40.4	0.000831	0.368	57.65	103820	0.00375	1.061	0.15976	*****		37.321
3	60.2	59.0	37.4	0.000765	0.372	58.34	104258	0.00244	0.699	0.57276	*****		131.480
4	61.3	58.6	34.5	0.000702	0.377	58.85	104792	0.00262	0.759	0.28320	*****		64.767
5	132.8	58.0	29.3	0.000591	0.384	59.75	105754	0.00222	0.657	0.00878	*****		2.208
6	205.4	57.2	24.5	0.000483	0.398	62.13	106873	0.00218	0.671	0.00453	*****		1.176
7	253.4	56.3	19.2	0.000353	0.434	69.60	108349	0.00200	0.673	0.00341	*****	3.541	0.855
8	283.2	55.5	15.7	0.000274	0.465	76.30	109546	0.00186	0.671	0.00295	*****	3.817	0.712
9	283.9	55.2	14.3	0.000242	0.479	79.41	110122	0.00181	0.673	0.00294	*****	2.811	0.697
10	294.4	55.0	13.6	0.000229	0.486	80.83	110378	0.00174	0.656	0.00274	*****	2.546	0.645
RUN NO 255 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.5 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	345.9	59.7	44.3	0.001062	0.314	44.91	103254	0.04989	12.015	0.04198	*****		13.646
2	64.4	59.1	38.4	0.000802	0.366	56.83	104082	0.00302	0.850	0.15903	*****		37.304
3	59.9	58.8	35.8	0.000740	0.370	57.32	104555	0.00171	0.487	0.43679	*****		101.035
4	61.9	58.4	33.0	0.000681	0.373	57.61	105065	0.00170	0.487	0.14062	*****		32.526
5	84.3	57.8	28.1	0.000577	0.379	58.07	106038	0.00162	0.472	0.01779	*****		4.259
6	159.3	57.1	23.5	0.000476	0.388	59.54	107114	0.00154	0.461	0.00450	*****		1.159
7	182.1	56.1	18.4	0.000357	0.413	64.26	108583	0.00146	0.465	0.00369	*****	4.704	0.928
8	202.6	55.4	15.1	0.000283	0.434	68.41	109788	0.00138	0.465	0.00316	*****	3.715	0.779
9	221.5	55.0	13.7	0.000253	0.443	70.26	110340	0.00135	0.463	0.00278	*****	3.062	0.684
10	223.5	54.9	13.1	0.000240	0.447	71.08	110631	0.00132	0.459	0.00272	*****	2.978	0.666
RUN NO 256 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.5 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	343.7	59.5	43.6	0.001033	0.314	44.78	103438	0.04969	11.977	0.04215	*****		13.703
2	65.0	59.0	37.8	0.000787	0.365	56.63	104202	0.00287	0.807	0.13409	*****		31.540
3	59.8	58.7	35.2	0.000730	0.369	57.08	104662	0.00158	0.449	0.42666	*****		98.850
4	60.8	58.4	32.7	0.000675	0.372	57.33	105132	0.00149	0.426	0.17477	*****		40.436
5	59.8	57.8	28.1	0.000579	0.377	57.74	106037	0.00153	0.445	0.22260	*****		51.121
6	136.8	57.1	23.6	0.000480	0.386	59.08	107095	0.00142	0.424	0.00532	*****		1.348
7	169.3	56.2	18.7	0.000365	0.409	63.42	108507	0.00135	0.428	0.00378	*****	5.019	0.949
8	188.0	55.5	15.5	0.000293	0.429	67.32	109629	0.00129	0.428	0.00323	*****	3.965	0.796
9	196.1	55.2	14.2	0.000264	0.438	69.11	110162	0.00127	0.429	0.00305	*****	3.625	0.745
10	210.4	55.0	13.6	0.000251	0.442	69.93	110397	0.00122	0.419	0.00270	*****	3.041	0.661
RUN NO 257 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.5 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	341.2	59.5	42.4	0.001021	0.313	44.62	103525	0.04941	11.898	0.04224	*****		13.741
2	63.7	59.0	37.3	0.000780	0.364	56.35	104284	0.00273	0.765	0.16202	*****		38.103
3	59.7	58.7	34.8	0.000724	0.368	56.76	104741	0.00142	0.402	0.37688	*****		87.540
4	60.7	58.3	32.3	0.000670	0.371	56.96	105202	0.00135	0.386	0.20535	*****		47.598
5	58.8	57.7	27.4	0.000577	0.376	57.30	106102	0.00138	0.401	0.38117	*****		83.104
6	120.2	57.1	23.4	0.000479	0.384	58.46	107143	0.00130	0.385	0.00609	*****		1.525
7	157.3	56.2	18.4	0.000367	0.405	62.29	108542	0.00124	0.387	0.00383	*****	5.249	0.960
8	172.9	55.5	15.5	0.000297	0.422	65.72	109654	0.00118	0.387	0.00330	*****	4.222	0.814
9	179.6	55.1	14.1	0.000268	0.430	67.29	110174	0.00117	0.389	0.00313	*****	3.894	0.766
10	193.2	55.0	13.5	0.000255	0.434	68.00	110404	0.00113	0.380	0.00275	*****	3.236	0.676

STA NO	TURF TEMP	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPHY J/G	REYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 248 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.5 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	343.2	59.5	42.2	0.001015	0.314	44.77	103554	0.04963	11.979	0.04222	*****		13.719
2	64.6	58.9	37.2	0.000775	0.365	56.54	104313	0.00259	0.729	0.12809	*****		30.121
3	59.8	58.6	34.7	0.000720	0.369	56.91	104767	0.00129	0.366	0.30464	*****		70.672
4	59.9	58.3	32.2	0.000667	0.371	57.09	105225	0.00122	0.349	0.21701	*****		50.217
5	58.6	57.7	27.7	0.000574	0.376	57.36	106123	0.00125	0.361	0.40480	*****		93.056
6	110.9	57.0	24.3	0.000479	0.383	58.34	107159	0.00117	0.348	0.00645	*****		1.601
7	147.1	56.2	18.5	0.000368	0.402	61.68	108554	0.00112	0.350	0.00385	5.433		0.961
8	160.0	55.5	15.5	0.000299	0.418	64.66	109661	0.00108	0.350	0.00335	4.460		0.826
9	165.4	55.1	14.1	0.000271	0.425	66.02	110178	0.00107	0.351	0.00319	4.147		0.781
10	178.1	55.0	13.5	0.000258	0.428	66.63	110406	0.00103	0.344	0.00279	3.437		0.688
RUN NO 259 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.4 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	343.4	59.4	41.4	0.000994	0.315	44.87	103669	0.05046	12.216	0.04302	*****		13.959
2	63.6	58.9	36.5	0.000759	0.367	56.85	104429	0.00259	0.732	0.15661	*****		36.176
3	59.7	58.6	34.1	0.000706	0.370	57.22	104871	0.00128	0.364	0.32414	*****		74.949
4	59.9	58.3	31.7	0.000655	0.373	57.39	105316	0.00121	0.349	0.21834	*****		50.371
5	58.4	57.7	27.4	0.000565	0.377	57.65	106209	0.00123	0.359	0.46800	*****		107.261
6	97.0	57.0	23.0	0.000472	0.385	58.62	107221	0.00117	0.349	0.00873	*****		2.124
7	146.2	56.1	18.4	0.000364	0.404	61.96	108599	0.00112	0.350	0.00388	5.487		0.968
8	159.4	55.4	15.4	0.000297	0.419	64.94	109692	0.00108	0.350	0.00337	4.476		0.829
9	164.5	55.1	14.1	0.000269	0.426	66.30	110192	0.00106	0.352	0.00322	4.183		0.786
10	177.0	55.0	13.5	0.000257	0.429	66.93	110413	0.00103	0.344	0.00282	3.468		0.692
RUN NO 260 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.4 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	344.2	59.4	41.2	0.000989	0.315	44.96	103697	0.05073	12.301	0.04318	*****		14.002
2	63.0	58.8	36.4	0.000755	0.368	56.97	104458	0.00243	0.689	0.16458	*****		38.425
3	59.6	58.5	34.0	0.000702	0.371	57.30	104897	0.00111	0.316	0.30877	*****		71.324
4	59.6	58.2	31.5	0.000652	0.373	57.43	105339	0.00105	0.303	0.22648	*****		52.202
5	58.3	57.7	27.3	0.000563	0.377	57.60	106230	0.00105	0.306	0.45812	*****		105.021
6	64.8	57.0	23.0	0.000472	0.384	58.35	107238	0.00103	0.306	0.03923	*****		9.037
7	132.6	56.1	18.3	0.000367	0.400	61.12	108610	0.00098	0.303	0.00397	5.926		0.983
8	147.4	55.4	15.4	0.000301	0.413	63.54	109700	0.00095	0.304	0.00341	4.756		0.837
9	148.9	55.1	14.1	0.000273	0.419	64.64	110196	0.00094	0.306	0.00326	4.461		0.797
10	159.7	55.0	13.5	0.000262	0.422	65.14	110415	0.00092	0.300	0.00286	3.724		0.704
RUN NO 261 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.4 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	344.9	59.3	40.6	0.000976	0.315	44.79	103783	0.05028	12.180	0.04264	*****		13.850
2	65.6	58.8	35.0	0.000747	0.367	56.63	104545	0.00223	0.630	0.09315	*****		21.909
3	59.4	58.5	33.5	0.000696	0.370	56.92	104975	0.00095	0.271	0.31132	*****		72.115
4	59.0	58.2	31.2	0.000647	0.372	57.00	105407	0.00088	0.252	0.32013	*****		73.969
5	58.0	57.6	27.0	0.000561	0.375	57.07	106294	0.00088	0.254	0.47137	*****		154.494
6	67.0	57.0	22.8	0.000472	0.381	57.59	107296	0.00086	0.253	0.02510	*****		5.842
7	118.0	56.1	18.2	0.000370	0.395	59.49	108644	0.00082	0.251	0.00406	6.449		1.002
8	128.8	55.4	15.3	0.000306	0.405	61.51	109722	0.00080	0.252	0.00343	5.099		0.844
9	131.9	55.1	14.0	0.000279	0.410	62.31	110207	0.00079	0.253	0.00329	4.816		0.808
10	140.2	55.0	13.5	0.000268	0.412	62.67	110422	0.00078	0.249	0.00292	4.064		0.721
RUN NO 262 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.4 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	344.6	59.3	40.6	0.000977	0.315	44.76	103783	0.05026	12.169	0.04266	*****		13.859
2	65.6	58.8	35.0	0.000748	0.366	56.53	104545	0.00202	0.568	0.08285	*****		19.508
3	59.1	58.5	33.5	0.000698	0.369	56.76	104975	0.00074	0.211	0.33710	*****		78.160
4	58.7	58.2	31.2	0.000649	0.371	56.79	105407	0.00067	0.191	0.36175	*****		83.698
5	57.7	57.6	27.0	0.000563	0.374	56.75	106294	0.00067	0.193	0.20642	*****		476.154
6	61.5	57.0	22.8	0.000475	0.379	57.01	107296	0.00066	0.192	0.04197	*****		9.719
7	90.8	56.1	18.2	0.000375	0.389	58.34	108644	0.00063	0.191	0.00470	8.298		1.143
8	110.2	55.4	15.3	0.000312	0.397	59.44	109722	0.00062	0.191	0.00349	5.590		0.856
9	113.0	55.1	14.0	0.000286	0.400	59.87	110207	0.00062	0.192	0.00332	5.227		0.814
10	118.6	55.0	13.5	0.000275	0.402	60.06	110422	0.00061	0.190	0.00299	4.527		0.736
RUN NO 263 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.3 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	344.2	59.2	40.1	0.000965	0.314	44.54	103870	0.05010	12.110	0.04250	*****		13.834
2	63.4	58.7	35.4	0.000741	0.365	56.21	104633	0.00185	0.520	0.11136	*****		26.183
3	58.8	58.4	33.1	0.000692	0.368	56.39	105053	0.00054	0.152	0.42730	*****		99.317
4	58.6	58.2	30.8	0.000644	0.369	56.36	105476	0.00048	0.137	0.32861	*****		76.280
5	57.4	57.6	26.7	0.000560	0.372	56.23	106359	0.00048	0.139	*****	*****		*****
6	58.5	56.4	22.6	0.000474	0.376	56.25	107354	0.00048	0.139	0.08947	*****		20.777
7	76.9	56.1	18.1	0.000378	0.383	56.91	108678	0.00047	0.138	0.00605	11.768		1.444
8	93.1	55.4	15.2	0.000318	0.389	57.38	109746	0.00046	0.138	0.00346	6.323		0.892
9	96.4	55.1	14.0	0.000293	0.391	57.51	110218	0.00046	0.138	0.00335	5.645		0.819
10	100.0	55.0	13.5	0.000282	0.391	57.55	110429	0.00045	0.137	0.00304	4.996		0.749

STA NO	TURE K	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 264 ORIF DIA 0.0831 CM FLOW RATE 4.65 G/S LIQ TEMP 79.4 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W													
1	345.2		59.2	39.9	0.000960	0.315	44.64	103899	0.04996	12.096	0.04230	*****	13.758
2	63.8		58.7	35.2	0.000737	0.366	56.26	104662	0.00173	0.488	0.09599	*****	22.572
3	58.7		58.4	33.0	0.000689	0.368	56.40	105079	0.00043	0.121	0.47683	*****	110.778
4	58.4		58.1	30.7	0.000641	0.369	56.35	105499	0.00037	0.105	0.40708	*****	94.467
5	57.1		57.6	26.6	0.000559	0.372	56.16	106380	0.00037	0.106	*****	*****	*****
6	58.2		56.9	22.5	0.000474	0.375	56.03	107374	0.00036	0.106	0.08330	*****	19.325
7	71.0		56.1	18.1	0.000380	0.381	56.27	108689	0.00036	0.105	0.00707	14.301	1.673
8	83.0		55.4	15.2	0.000321	0.384	56.35	109753	0.00035	0.105	0.00381	6.924	0.921
9	86.3		55.1	14.0	0.000296	0.386	56.28	110222	0.00035	0.105	0.00339	5.992	0.823
10	88.5		55.0	13.5	0.000285	0.386	56.23	110431	0.00035	0.105	0.00313	5.432	0.763
RUN NO 265 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	346.6		59.4	41.4	0.000982	0.319	45.75	98278	0.05276	12.246	0.04264	*****	14.324
2	62.1		58.7	35.5	0.000724	0.375	58.48	99170	0.00296	0.808	0.24251	*****	58.184
3	58.6		58.4	32.6	0.000662	0.379	58.92	99674	0.00157	0.435	2.33305	*****	553.162
4	60.2		58.0	29.7	0.000602	0.382	59.12	100183	0.00148	0.414	0.19372	*****	45.938
5	58.6		57.2	24.6	0.000499	0.387	59.37	101292	0.00148	0.420	0.30114	*****	70.964
6	63.2		56.5	20.4	0.000410	0.396	60.57	102362	0.00145	0.421	0.06300	*****	14.807
7	161.6		55.5	15.6	0.000304	0.417	64.51	103880	0.00136	0.417	0.00393	5.501	1.014
8	185.6		54.7	12.5	0.000236	0.433	67.44	105170	0.00131	0.417	0.00319	4.030	0.818
9	193.1		54.3	11.1	0.000209	0.440	68.49	105804	0.00130	0.419	0.00302	3.709	0.774
10	209.2		54.1	10.5	0.000198	0.442	68.85	106085	0.00125	0.407	0.00262	3.026	0.676
RUN NO 266 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	341.8		59.4	41.7	0.000991	0.318	45.71	98226	0.05299	12.285	0.04351	*****	14.605
2	62.3		58.7	35.4	0.000723	0.374	58.46	99182	0.00292	0.799	0.22070	*****	52.986
3	58.9		58.3	32.3	0.000656	0.379	58.88	99724	0.00157	0.433	0.72195	*****	171.337
4	60.0		57.9	29.2	0.000592	0.382	59.06	100288	0.00149	0.416	0.20119	*****	47.716
5	58.7		57.1	23.7	0.000483	0.387	59.23	101484	0.00149	0.421	0.25838	*****	60.962
6	64.6		56.4	19.6	0.000395	0.396	60.35	102587	0.00145	0.421	0.05139	*****	12.128
7	161.7		55.3	14.8	0.000289	0.416	63.98	104200	0.00136	0.417	0.00392	5.497	1.017
8	184.7		54.4	11.5	0.000220	0.430	66.24	105637	0.00132	0.418	0.00321	4.076	0.830
9	190.3		54.0	10.1	0.000194	0.434	66.76	106293	0.00131	0.420	0.00308	3.835	0.798
10	205.0		53.7	9.5	0.000183	0.436	66.76	106660	0.00127	0.408	0.00270	3.170	0.704
RUN NO 267 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	349.7		59.5	42.7	0.001018	0.317	45.45	98091	0.05192	11.974	0.04126	*****	13.925
2	65.2		58.8	36.2	0.000742	0.372	57.97	99051	0.00318	0.863	0.13548	*****	32.849
3	59.0		58.4	32.9	0.000673	0.376	58.45	99612	0.00181	0.497	0.87468	*****	208.428
4	59.6		58.0	29.7	0.000605	0.380	58.70	100178	0.00170	0.473	0.29074	*****	49.131
5	59.0		57.2	24.1	0.000491	0.386	59.01	101406	0.00175	0.495	0.27322	*****	64.620
6	152.9		56.4	19.9	0.000400	0.396	60.43	102511	0.00162	0.469	0.00486	*****	1.288
7	186.6		55.3	14.9	0.000289	0.419	64.78	104145	0.00154	0.474	0.00361	4.671	0.947
8	210.6		54.4	11.5	0.000219	0.436	67.68	105609	0.00147	0.473	0.00303	3.580	0.788
9	216.1		54.0	10.2	0.000192	0.441	68.47	106277	0.00146	0.476	0.00293	3.405	0.761
10	230.5		53.7	9.6	0.000180	0.444	68.57	106652	0.00141	0.461	0.00261	2.884	0.680
RUN NO 268 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	344.0		59.5	42.7	0.001016	0.317	45.58	98091	0.05274	12.182	0.04282	*****	14.409
2	63.7		58.8	36.2	0.000739	0.373	58.36	99051	0.00337	0.918	0.18781	*****	45.260
3	59.2		58.4	32.9	0.000669	0.378	58.90	99612	0.00200	0.553	0.73018	*****	173.393
4	59.6		58.0	29.7	0.000602	0.382	59.19	100178	0.00192	0.536	0.33012	*****	78.160
5	59.3		57.2	24.1	0.000488	0.388	59.62	101406	0.00196	0.556	0.25695	*****	60.504
6	151.5		56.4	19.9	0.000397	0.399	61.32	102511	0.00182	0.532	0.00559	*****	1.470
7	203.9		55.3	14.9	0.000285	0.426	66.45	104145	0.00171	0.535	0.00360	4.471	0.942
8	236.4		54.4	11.5	0.000214	0.445	70.00	105609	0.00163	0.534	0.00293	3.268	0.761
9	241.2		54.0	10.2	0.000187	0.452	71.08	106277	0.00161	0.536	0.00286	3.145	0.739
10	254.1		53.7	9.6	0.000176	0.455	71.29	106652	0.00155	0.522	0.00261	2.750	0.674
RUN NO 269 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	344.8		59.5	42.3	0.001006	0.318	45.64	98145	0.05267	12.186	0.04272	*****	14.365
2	63.5		58.8	35.9	0.000732	0.374	58.44	99103	0.00348	0.950	0.20193	*****	48.598
3	59.2		58.4	32.7	0.000663	0.379	59.01	99657	0.00211	0.585	0.75646	*****	179.428
4	60.3		58.0	29.5	0.000597	0.383	59.33	100218	0.00202	0.564	0.24387	*****	57.737
5	59.4		57.1	23.9	0.000484	0.389	59.81	101437	0.00206	0.586	0.25809	*****	60.883
6	151.6		56.4	19.8	0.000393	0.401	61.63	102542	0.00191	0.562	0.00590	*****	1.546
7	207.7		55.3	14.9	0.000282	0.429	67.14	104167	0.00179	0.565	0.00371	4.559	0.967
8	239.9		54.4	11.5	0.000212	0.449	71.02	105620	0.00170	0.564	0.00304	3.362	0.783
9	247.7		54.1	10.2	0.000185	0.456	72.24	106283	0.00168	0.566	0.00292	3.156	0.749
10	261.6		53.7	9.6	0.000174	0.460	72.53	106655	0.00162	0.551	0.00265	2.745	0.681

STA NO	TUBE NO	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEFF W/CM2-K	EXP/FPSP H-T COEFF	EXP/S-T H-T COEFF
RUN NO 270 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	345.4	59.6	43.9	0.001043	0.317	45.68	97928	0.05266	12.150	0.04252	*****	14.307	
2	64.3	58.9	37.1	0.000756	0.373	58.51	98895	0.00363	0.989	0.18587	*****	44.795	
3	59.4	58.5	33.7	0.000683	0.378	59.12	99477	0.00226	0.623	0.69658	*****	185.220	
4	59.8	58.1	36.3	0.000613	0.383	59.49	100065	0.00217	0.606	0.36667	*****	86.632	
5	59.7	57.2	24.5	0.000494	0.390	60.06	101314	0.00221	0.630	0.25642	*****	40.201	
6	171.0	56.5	20.2	0.000400	0.402	62.10	102420	0.00203	0.599	0.00523	*****	1.387	
7	225.2	55.4	15.1	0.000283	0.433	68.15	104078	0.00190	0.604	0.00354	*****	4.177	
8	261.4	54.4	11.6	0.000211	0.455	72.42	105576	0.00180	0.602	0.00291	*****	3.053	
9	265.8	54.0	10.2	0.000183	0.463	73.79	106257	0.00177	0.605	0.00285	*****	2.962	
10	278.7	53.7	9.6	0.000172	0.466	74.11	106642	0.00171	0.588	0.00261	*****	2.619	
0.669													
RUN NO 271 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.6 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	344.5	59.7	44.3	0.001050	0.317	45.86	97875	0.05265	12.165	0.04271	*****	14.345	
2	64.9	59.0	37.4	0.000760	0.374	58.77	98843	0.00387	1.055	0.17934	*****	43.178	
3	59.5	58.5	34.0	0.000686	0.380	59.45	99432	0.00251	0.696	0.72898	*****	172.472	
4	60.4	58.1	36.6	0.000615	0.384	59.89	100027	0.00241	0.677	0.29679	*****	69.981	
5	63.5	57.3	24.6	0.000494	0.392	60.58	101283	0.00245	0.702	0.11292	*****	26.585	
6	194.2	56.5	20.3	0.000399	0.405	62.95	102390	0.00224	0.666	0.00484	*****	1.293	
7	250.5	55.4	15.2	0.000280	0.439	69.87	104056	0.00208	0.672	0.00344	*****	3.777	
8	290.6	54.4	11.6	0.000207	0.465	74.86	105564	0.00195	0.669	0.00283	*****	2.782	
9	289.4	54.0	10.2	0.000179	0.474	76.51	106250	0.00192	0.672	0.00285	*****	2.816	
10	298.7	53.8	9.6	0.000168	0.477	76.95	106639	0.00186	0.655	0.00267	*****	2.519	
0.677													
RUN NO 272 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	345.4	59.5	42.5	0.001007	0.319	45.93	98118	0.05343	12.403	0.04339	*****	14.551	
2	63.7	58.8	36.0	0.000731	0.376	58.93	99077	0.00338	0.926	0.18994	*****	45.540	
3	59.5	58.4	32.8	0.000663	0.381	59.47	99634	0.00201	0.557	0.50195	*****	118.678	
4	60.3	58.0	29.6	0.000596	0.384	59.77	100197	0.00193	0.543	0.23672	*****	55.838	
5	63.3	57.2	24.0	0.000483	0.390	60.19	101422	0.00196	0.561	0.09047	*****	21.456	
6	163.5	56.4	19.8	0.000393	0.402	61.90	102526	0.00182	0.535	0.00499	*****	1.318	
7	202.8	55.3	14.9	0.000282	0.428	67.06	104156	0.00172	0.640	0.00366	*****	4.576	
8	236.9	54.4	11.5	0.000213	0.448	70.62	105615	0.00163	0.638	0.00295	*****	3.291	
9	244.7	54.0	10.2	0.000186	0.454	71.70	106280	0.00161	0.650	0.00283	*****	3.085	
10	257.6	53.7	9.6	0.000175	0.457	71.92	106653	0.00156	0.526	0.00258	*****	2.702	
0.665													
RUN NO 273 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	348.3	59.4	41.7	0.000989	0.319	45.91	98226	0.05352	12.440	0.04305	*****	14.450	
2	62.9	58.7	35.4	0.000720	0.376	58.78	99122	0.00278	0.763	0.18459	*****	44.238	
3	59.3	58.3	32.3	0.000654	0.380	59.15	99724	0.00138	0.783	0.38385	*****	90.951	
4	59.8	57.9	29.2	0.000591	0.383	59.29	100288	0.00132	0.369	0.20134	*****	47.636	
5	59.1	57.1	23.7	0.000482	0.387	59.37	101484	0.00131	0.371	0.18397	*****	43.391	
6	61.7	56.4	19.6	0.000396	0.395	60.26	102587	0.00128	0.372	0.06978	*****	16.393	
7	150.2	55.3	14.8	0.000291	0.413	63.25	104200	0.00122	0.369	0.00389	*****	5.788	
8	168.9	54.4	11.5	0.000223	0.425	64.95	105637	0.00118	0.370	0.00323	*****	4.424	
9	179.3	54.0	10.1	0.000197	0.428	65.22	106293	0.00118	0.371	0.00296	*****	3.881	
10	191.6	53.7	9.5	0.000186	0.430	65.11	106660	0.00115	0.366	0.00265	*****	3.307	
0.695													
RUN NO 274 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	339.8	59.4	41.4	0.000986	0.317	45.41	98281	0.05192	11.999	0.04280	*****	14.398	
2	61.7	58.3	35.1	0.000722	0.372	57.77	99234	0.00254	0.689	0.22794	*****	54.984	
3	59.3	58.3	32.0	0.000657	0.375	58.08	99769	0.00116	0.718	0.30665	*****	73.331	
4	59.5	57.9	28.9	0.000594	0.378	58.16	100335	0.00112	0.308	0.19470	*****	46.886	
5	58.4	57.1	23.6	0.000485	0.382	58.14	101515	0.00111	0.311	0.23310	*****	55.477	
6	59.9	56.3	19.5	0.000400	0.389	58.16	102617	0.00109	0.311	0.08869	*****	21.021	
7	130.4	55.3	14.7	0.000296	0.404	61.00	104222	0.00104	0.309	0.00411	*****	6.542	
8	147.9	54.4	11.4	0.000229	0.413	62.07	105648	0.00102	0.309	0.00331	*****	4.765	
9	154.1	54.0	10.1	0.000203	0.415	62.08	106300	0.00101	0.311	0.00310	*****	4.349	
10	164.6	53.7	9.5	0.000191	0.417	61.87	106663	0.00099	0.305	0.00275	*****	3.677	
0.726													
RUN NO 275 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	338.6	59.3	40.8	0.000972	0.317	45.34	98362	0.05181	11.979	0.04289	*****	14.430	
2	61.3	58.6	34.7	0.000714	0.372	57.62	99313	0.00235	0.638	0.24203	*****	58.397	
3	59.2	58.3	31.6	0.000650	0.375	57.89	99837	0.00097	0.267	0.27777	*****	66.511	
4	59.1	57.9	28.6	0.000589	0.377	57.91	100405	0.00094	0.260	0.21553	*****	51.520	
5	58.2	57.1	23.4	0.000483	0.381	57.80	101561	0.00094	0.261	0.23602	*****	56.303	
6	59.5	56.3	19.4	0.000399	0.387	58.18	102663	0.00092	0.262	0.08228	*****	19.582	
7	116.3	55.3	14.6	0.000298	0.399	59.78	104256	0.00089	0.260	0.00426	*****	7.230	
8	132.6	54.4	11.4	0.000232	0.406	60.32	105665	0.00087	0.260	0.00333	*****	5.102	
9	137.2	54.0	10.1	0.000207	0.407	60.10	106310	0.00087	0.262	0.00314	*****	4.492	
10	145.9	53.7	9.5	0.000195	0.408	59.79	106668	0.00085	0.258	0.00280	*****	3.972	
0.739													

STA NO	TUBE NO	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 276 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	341.7	59.3	40.4	0.000959	0.319	45.65	98417	0.05277	12.259	0.04341	*****	14.570	
2	61.0	58.6	34.3	0.000704	0.374	58.17	99365	0.00220	0.602	0.24531	*****	58.873	
3	59.0	58.2	31.4	0.000642	0.377	58.39	99882	0.00081	0.224	0.28951	*****	68.984	
4	58.8	57.8	28.4	0.000582	0.379	58.37	100451	0.00078	0.217	0.21502	*****	51.172	
5	57.8	57.0	23.2	0.000478	0.383	58.16	101592	0.00078	0.219	0.27462	*****	65.262	
6	59.0	56.3	19.3	0.000396	0.388	58.34	102693	0.00077	0.219	0.07951	*****	18.882	
7	98.7	55.2	14.0	0.000298	0.397	59.35	104278	0.00075	0.218	0.00501	9.272	1.266	
8	118.6	54.4	11.4	0.000234	0.402	59.39	105676	0.00073	0.218	0.00339	5.445	0.876	
9	122.3	54.0	10.1	0.000209	0.403	58.93	106316	0.00074	0.219	0.00320	5.034	0.834	
10	129.1	53.7	9.5	0.000198	0.403	58.53	106671	0.00072	0.216	0.00287	4.316	0.753	
RUN NO 277 ORIF DIA 0.0831 CM FLOW RATE 4.40 G/S LIQ TEMP 79.5 K LIQ PRESS 1.53 ATM CART HTR PWR 0.000 W													
1	337.6	59.1	38.6	0.000922	0.318	45.28	98662	0.05161	11.976	0.04300	*****	14.455	
2	60.5	58.4	33.0	0.000682	0.372	57.41	99601	0.00188	0.512	0.25146	*****	60.647	
3	58.6	58.1	30.2	0.000624	0.375	57.54	100086	0.00051	0.140	0.27426	*****	65.750	
4	58.4	57.7	27.5	0.000568	0.376	57.43	100662	0.00049	0.134	0.19964	*****	47.838	
5	57.3	56.9	22.0	0.000471	0.379	57.07	101752	0.00049	0.136	0.40002	*****	95.822	
6	58.4	56.2	18.8	0.000392	0.382	56.85	102830	0.00048	0.135	0.06184	*****	14.850	
7	74.0	55.2	14.3	0.000300	0.387	56.78	104377	0.00047	0.135	0.00718	15.450	1.773	
8	91.5	54.3	11.3	0.000240	0.388	55.94	105726	0.00047	0.135	0.00362	6.709	0.930	
9	96.5	53.9	10.0	0.000216	0.387	55.11	106346	0.00047	0.135	0.00318	5.665	0.827	
10	100.2	53.7	9.5	0.000205	0.387	54.55	106685	0.00047	0.135	0.00291	5.053	0.765	
RUN NO 351 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.9 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	393.0	57.9	28.7	0.000609	0.365	54.88	64502	0.05410	9.274	0.02768	*****	12.205	
2	59.7	57.5	26.0	0.000472	0.431	70.50	64870	0.00460	0.931	0.42102	*****	129.602	
3	59.1	57.3	24.8	0.000446	0.436	71.46	65053	0.00224	0.460	0.25044	*****	76.456	
4	62.0	57.1	23.5	0.000421	0.439	72.03	65237	0.00214	0.442	0.08975	*****	27.435	
5	61.8	56.7	21.2	0.000376	0.446	73.15	65631	0.00222	0.467	0.09055	*****	27.439	
6	153.2	56.2	18.6	0.000322	0.461	76.14	66099	0.00204	0.443	0.00456	*****	1.528	
7	201.7	55.5	15.6	0.000253	0.501	85.18	66739	0.00189	0.447	0.00306	4.491	0.997	
8	249.7	55.1	13.8	0.000209	0.539	94.02	67176	0.00175	0.445	0.00229	2.858	0.723	
9	264.7	54.9	13.1	0.000192	0.559	98.65	67375	0.00169	0.446	0.00212	2.539	0.658	
10	278.3	54.8	12.8	0.000184	0.569	100.92	67467	0.00162	0.436	0.00195	2.250	0.601	
RUN NO 352 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.7 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	393.4	57.7	27.6	0.000591	0.364	54.41	64648	0.05376	9.193	0.02738	*****	12.124	
2	59.5	57.3	25.2	0.000461	0.429	69.82	64988	0.00437	0.881	0.40353	*****	124.824	
3	58.8	57.2	24.0	0.000436	0.433	70.69	65157	0.00200	0.407	0.24985	*****	76.666	
4	61.0	57.0	22.8	0.000413	0.436	71.19	65332	0.00193	0.396	0.09722	*****	29.849	
5	64.2	56.6	20.7	0.000372	0.443	72.17	65711	0.00198	0.413	0.05420	*****	16.615	
6	145.5	56.1	18.3	0.000322	0.456	74.78	66149	0.00182	0.392	0.00439	*****	1.473	
7	185.0	55.5	15.5	0.000255	0.491	82.74	66773	0.00171	0.396	0.00306	4.674	1.003	
8	221.7	55.1	13.8	0.000214	0.525	90.56	67187	0.00159	0.395	0.00237	3.158	0.756	
9	233.8	54.9	13.1	0.000197	0.543	94.66	67382	0.00154	0.396	0.00221	2.834	0.693	
10	246.8	54.8	12.8	0.000190	0.551	96.69	67470	0.00149	0.388	0.00202	2.485	0.630	
RUN NO 353 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.6 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	395.0	57.7	27.4	0.000588	0.363	54.09	64682	0.05394	9.197	0.02726	*****	12.108	
2	59.3	57.3	25.0	0.000459	0.427	69.42	65016	0.00412	0.828	0.41639	*****	129.134	
3	58.8	57.1	23.9	0.000435	0.431	70.21	65181	0.00171	0.347	0.20868	*****	64.268	
4	60.0	56.9	22.7	0.000412	0.434	70.63	65358	0.00167	0.342	0.11217	*****	34.515	
5	63.0	56.6	20.6	0.000373	0.440	71.44	65729	0.00170	0.353	0.05507	*****	16.933	
6	127.6	56.1	18.2	0.000324	0.451	73.64	66160	0.00158	0.337	0.00471	*****	1.471	
7	165.6	55.5	15.5	0.000260	0.482	80.40	66781	0.00150	0.340	0.00304	4.878	1.015	
8	192.2	55.1	13.7	0.000219	0.511	87.06	67190	0.00141	0.340	0.00248	3.497	0.794	
9	202.7	54.9	13.1	0.000203	0.526	90.54	67383	0.00135	0.337	0.00228	3.088	0.720	
10	192.1	54.8	12.8	0.000196	0.534	92.30	67471	0.00138	0.347	0.00253	3.579	0.786	
RUN NO 354 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.5 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	394.5	57.6	27.2	0.000588	0.361	53.65	64702	0.05347	9.074	0.02694	*****	12.010	
2	59.3	57.3	25.0	0.000462	0.424	68.72	65014	0.00388	0.774	0.39262	*****	122.415	
3	58.8	57.1	24.0	0.000440	0.428	69.44	65169	0.00144	0.291	0.17790	*****	55.107	
4	59.2	57.0	22.9	0.000419	0.431	69.78	65329	0.00141	0.286	0.12733	*****	39.375	
5	59.1	56.6	20.9	0.000381	0.435	70.45	65676	0.00145	0.297	0.12143	*****	37.339	
6	109.3	56.2	18.7	0.000335	0.445	72.29	66086	0.00136	0.285	0.05535	*****	1.765	
7	147.1	55.5	15.9	0.000273	0.472	77.97	66677	0.00129	0.286	0.00313	5.610	1.030	
8	164.7	55.2	14.2	0.000234	0.496	83.61	67073	0.00122	0.287	0.00262	4.164	0.842	
9	176.2	55.0	13.6	0.000217	0.509	86.59	67235	0.00120	0.288	0.00238	3.606	0.754	
10	192.8	54.9	13.3	0.000210	0.516	88.07	67320	0.00116	0.282	0.00205	2.894	0.653	

STA NO	TUBE TEMP K	WALL SAT TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T CUEF	EXP/S-T H-T COEF
RUN NO 355 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.4 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	394.8	57.4	25.8	0.000558	0.362	53.48	64905	0.05386	9.158	0.02715	*****		12.117
2	59.8	57.1	23.9	0.000442	0.425	68.58	65177	0.00358	0.716	0.26399	*****		82.494
3	58.3	57.0	23.0	0.000423	0.428	69.21	65312	0.00118	0.239	0.18894	*****		58.569
4	58.8	56.8	22.0	0.000405	0.430	69.48	65479	0.00114	0.230	0.11339	*****		35.116
5	58.7	56.5	20.3	0.000372	0.434	69.98	65781	0.00115	0.236	0.10757	*****		33.166
6	83.0	56.1	18.3	0.000331	0.442	71.41	66150	0.00111	0.231	0.00861	*****		2.745
7	128.5	55.5	15.7	0.000275	0.463	75.91	66720	0.00105	0.231	0.00316	*****	5.878	1.038
8	140.1	55.2	14.2	0.000239	0.483	80.40	67086	0.00101	0.231	0.00272	*****	4.724	0.877
9	144.6	55.0	13.5	0.000224	0.494	82.77	67240	0.00100	0.232	0.00259	*****	4.388	0.826
10	154.0	54.9	13.3	0.000217	0.499	83.97	67323	0.00099	0.234	0.00237	*****	3.823	0.754
RUN NO 356 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.3 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	397.1	57.5	26.0	0.000564	0.361	53.40	64871	0.05382	9.137	0.02690	*****		12.024
2	59.9	57.2	24.1	0.000446	0.424	68.39	65151	0.00336	0.670	0.24432	*****		76.493
3	58.1	57.0	23.1	0.000426	0.427	68.96	65289	0.00094	0.189	0.17516	*****		54.388
4	58.5	56.8	22.1	0.000408	0.429	69.15	65457	0.00089	0.180	0.10948	*****		33.964
5	57.9	56.5	20.4	0.000375	0.432	69.50	65768	0.00090	0.184	0.12874	*****		39.781
6	69.8	56.1	18.3	0.000335	0.439	70.55	66143	0.00088	0.182	0.01334	*****		4.179
7	111.3	55.5	15.7	0.000280	0.455	73.98	66716	0.00084	0.181	0.00325	*****	6.596	1.061
8	120.8	55.2	14.2	0.000245	0.471	77.41	67086	0.00081	0.181	0.00276	*****	5.269	0.892
9	124.1	55.0	13.5	0.000231	0.479	79.22	67241	0.00080	0.182	0.00264	*****	4.920	0.843
10	130.5	54.9	13.3	0.000224	0.483	80.15	67323	0.00082	0.187	0.00248	*****	4.437	0.792
RUN NO 357 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.4 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	392.2	57.3	24.7	0.000534	0.363	53.47	65065	0.05367	9.151	0.02732	*****		12.181
2	68.4	57.0	23.1	0.000428	0.424	68.31	65296	0.00284	0.567	0.04982	*****		15.844
3	57.7	56.9	22.3	0.000412	0.427	68.77	65436	0.00072	0.145	0.16718	*****		51.937
4	57.9	56.7	21.5	0.000397	0.428	68.88	65578	0.00054	0.109	0.09389	*****		29.148
5	57.1	56.4	20.0	0.000370	0.431	69.04	65838	0.00055	0.111	0.15769	*****		48.813
6	58.3	56.1	18.1	0.000334	0.435	69.58	66183	0.00054	0.111	0.05016	*****		15.496
7	40.9	55.5	15.7	0.000285	0.445	71.48	66735	0.00052	0.110	0.00434	*****	10.814	1.380
8	92.3	55.2	14.2	0.000254	0.455	73.42	67084	0.00051	0.110	0.00297	*****	6.721	0.950
9	47.1	55.0	13.5	0.000241	0.460	74.44	67236	0.00051	0.111	0.00263	*****	5.731	0.841
10	100.9	54.9	13.3	0.000235	0.462	74.97	67321	0.00055	0.119	0.00259	*****	5.476	0.830
RUN NO 358 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.3 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	393.0	57.1	24.0	0.000519	0.363	53.33	65168	0.05361	9.144	0.02723	*****		12.156
2	67.4	56.9	22.3	0.000419	0.424	68.10	65390	0.00267	0.533	0.05074	*****		16.134
3	57.5	56.8	21.8	0.000405	0.427	68.51	65516	0.00052	0.105	0.15112	*****		47.012
4	57.6	56.6	21.1	0.000392	0.428	68.57	65642	0.00036	0.072	0.07341	*****		22.832
5	57.0	56.4	19.8	0.000368	0.429	68.63	65875	0.00036	0.073	0.12608	*****		39.135
6	57.5	56.1	18.0	0.000334	0.432	68.90	66203	0.00036	0.073	0.05182	*****		16.065
7	74.2	55.5	15.6	0.000288	0.439	70.00	66744	0.00035	0.073	0.00390	*****	1.236	1.236
8	81.3	55.2	14.2	0.000259	0.446	71.14	67084	0.00035	0.073	0.00280	*****	6.789	0.891
9	85.5	55.0	13.6	0.000247	0.449	71.74	67234	0.00034	0.073	0.00240	*****	5.611	0.766
10	87.8	54.9	13.3	0.000241	0.451	72.07	67319	0.00039	0.082	0.00251	*****	5.768	0.804
RUN NO 359 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.2 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	389.4	57.2	24.3	0.000529	0.360	52.87	65122	0.05340	9.055	0.02726	*****		12.211
2	64.3	57.0	22.8	0.000426	0.421	67.51	65347	0.00266	0.527	0.07228	*****		22.960
3	57.5	56.8	22.0	0.000411	0.424	67.90	65480	0.00044	0.088	0.12035	*****		37.624
4	57.7	56.7	21.3	0.000397	0.425	67.94	65614	0.00033	0.065	0.06292	*****		19.668
5	57.1	56.4	19.9	0.000372	0.426	67.98	65858	0.00033	0.067	0.10372	*****		32.362
6	57.7	56.1	18.1	0.000337	0.429	68.19	66194	0.00033	0.067	0.04177	*****		13.024
7	73.5	55.5	15.6	0.000290	0.436	69.15	66740	0.00032	0.066	0.00368	*****	9.381	1.173
8	79.1	55.2	14.2	0.000262	0.442	70.15	67084	0.00032	0.066	0.00277	*****	6.715	0.886
9	82.5	55.0	13.6	0.000249	0.445	70.68	67235	0.00032	0.066	0.00241	*****	5.669	0.773
10	84.3	54.9	13.3	0.000243	0.446	70.96	67320	0.00035	0.074	0.00253	*****	5.862	0.812
RUN NO 360 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.2 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	394.5	57.1	23.7	0.000517	0.361	52.85	65202	0.05297	8.992	0.02665	*****		11.955
2	65.6	56.9	22.3	0.000419	0.421	67.39	65422	0.00268	0.531	0.06056	*****		19.303
3	57.5	56.7	21.7	0.000405	0.424	67.78	65542	0.00045	0.089	0.12070	*****		37.761
4	57.5	56.6	21.0	0.000392	0.425	67.83	65664	0.00031	0.063	0.06744	*****		21.990
5	56.9	56.4	19.8	0.000369	0.426	67.87	65887	0.00032	0.064	0.13274	*****		41.435
6	57.1	56.1	18.0	0.000336	0.429	68.07	66210	0.00031	0.064	0.06064	*****		18.902
7	71.4	55.5	15.6	0.000290	0.435	68.46	66747	0.00031	0.063	0.00398	*****	10.171	1.267
8	76.7	55.2	14.2	0.000262	0.441	69.91	67083	0.00030	0.063	0.00294	*****	7.159	0.939
9	79.6	55.0	13.6	0.000250	0.443	70.41	67233	0.00030	0.063	0.00258	*****	6.112	0.824
10	81.0	54.9	13.3	0.000244	0.445	70.68	67319	0.00034	0.071	0.00271	*****	6.336	0.855

STA NO	TUBE TEMP	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 362 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.2 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	402.6	57.2	24.4	0.000531	0.360	52.75	65110	0.05287	8.950	0.02591	*****	11.659	
2	72.5	57.0	22.8	0.000428	0.421	67.33	65337	0.00302	0.598	0.03847	*****	12.414	
3	57.7	56.8	22.1	0.000412	0.424	67.84	65471	0.00090	0.180	0.19903	*****	62.272	
4	57.8	56.7	21.3	0.000397	0.425	68.00	65607	0.00066	0.131	0.11476	*****	35.865	
5	57.6	56.4	19.9	0.000371	0.427	68.23	65854	0.00067	0.134	0.11123	*****	34.678	
6	71.5	56.1	18.1	0.000335	0.432	68.94	66192	0.00065	0.132	0.00852	*****	2.710	
7	95.8	55.5	15.6	0.000285	0.445	71.31	66739	0.00063	0.132	0.00327	*****	6.803	
8	101.6	55.2	14.2	0.000253	0.456	73.71	67084	0.00061	0.132	0.00283	*****	5.653	
9	102.1	55.0	13.6	0.000240	0.462	74.98	67235	0.00061	0.132	0.00281	*****	5.594	
10	105.4	54.9	13.3	0.000233	0.465	75.61	67320	0.00061	0.134	0.00265	*****	5.136	
RUN NO 361 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.1 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	404.2	57.2	24.1	0.000528	0.359	52.49	65145	0.05290	8.935	0.02574	*****	11.614	
2	63.5	56.9	22.8	0.000426	0.420	67.04	65369	0.00302	0.596	0.09073	*****	28.886	
3	57.7	56.8	21.9	0.000410	0.422	67.51	65498	0.00061	0.121	0.12999	*****	40.771	
4	57.8	56.7	21.2	0.000397	0.423	67.60	65628	0.00051	0.102	0.09085	*****	28.475	
5	57.2	56.4	19.9	0.000372	0.426	67.75	65867	0.00052	0.104	0.12712	*****	39.745	
6	63.2	56.1	18.0	0.000336	0.430	68.24	66199	0.00051	0.102	0.01440	*****	4.536	
7	85.8	55.5	15.6	0.000288	0.439	69.98	66742	0.00049	0.102	0.00337	*****	7.546	
8	91.7	55.2	14.2	0.000258	0.448	71.76	67084	0.00048	0.102	0.00279	*****	5.962	
9	93.9	55.0	13.6	0.000244	0.453	72.69	67235	0.00048	0.102	0.00264	*****	5.536	
10	96.3	54.9	13.3	0.000238	0.455	73.17	67320	0.00049	0.105	0.00254	*****	5.244	
RUN NO 363 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 81.9 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	404.8	57.2	24.5	0.000538	0.358	52.23	65088	0.05311	8.933	0.02570	*****	11.626	
2	61.0	57.0	22.9	0.000432	0.418	66.78	65316	0.00300	0.590	0.14553	*****	46.216	
3	57.6	56.8	22.2	0.000416	0.421	67.22	65454	0.00050	0.100	0.12772	*****	40.144	
4	57.8	56.7	21.4	0.000402	0.422	67.29	65593	0.00044	0.087	0.08212	*****	25.802	
5	57.1	56.4	20.0	0.000375	0.424	67.39	65846	0.00045	0.089	0.12394	*****	38.851	
6	59.6	56.1	18.1	0.000339	0.428	67.77	66187	0.00044	0.089	0.02505	*****	7.865	
7	80.8	55.5	15.7	0.000290	0.436	69.21	66737	0.00043	0.088	0.00348	*****	8.069	
8	86.6	55.2	14.2	0.000260	0.444	70.68	67084	0.00042	0.088	0.00280	*****	6.180	
9	89.0	55.0	13.6	0.000247	0.448	71.46	67236	0.00042	0.088	0.00260	*****	5.618	
10	91.0	54.9	13.3	0.000241	0.450	71.86	67320	0.00043	0.092	0.00254	*****	5.413	
RUN NO 364 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 82.0 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	414.6	57.2	24.4	0.000536	0.358	52.34	65099	0.05297	8.923	0.02569	*****	11.607	
2	61.3	57.0	22.9	0.000431	0.419	66.85	65326	0.00294	0.580	0.13559	*****	43.052	
3	57.6	56.8	22.1	0.000415	0.421	67.28	65463	0.00046	0.092	0.11481	*****	36.070	
4	57.8	56.7	21.3	0.000401	0.422	67.34	65600	0.00039	0.078	0.06796	*****	21.347	
5	57.1	56.4	20.0	0.000375	0.424	67.41	65850	0.00040	0.080	0.11902	*****	37.300	
6	58.4	56.1	18.1	0.000339	0.427	67.73	66189	0.00040	0.080	0.03394	*****	10.636	
7	77.8	55.5	15.7	0.000291	0.435	68.97	66738	0.00039	0.079	0.00356	*****	8.380	
8	83.3	55.2	14.2	0.000261	0.442	70.26	67084	0.00038	0.079	0.00282	*****	6.320	
9	85.7	55.0	13.6	0.000248	0.446	70.94	67236	0.00038	0.080	0.00259	*****	5.689	
10	87.4	54.9	13.3	0.000242	0.447	71.28	67320	0.00039	0.083	0.00255	*****	5.527	
RUN NO 365 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 81.9 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	416.3	57.2	24.2	0.000532	0.357	52.12	65133	0.05316	8.937	0.02560	*****	11.594	
2	61.8	56.9	22.7	0.000428	0.418	66.64	65358	0.00290	0.570	0.11671	*****	37.157	
3	57.5	56.8	22.0	0.000413	0.420	67.06	65489	0.00041	0.082	0.12171	*****	38.289	
4	57.6	56.7	21.2	0.000399	0.421	67.10	65621	0.00034	0.067	0.06841	*****	21.520	
5	57.0	56.4	19.9	0.000374	0.423	67.14	65863	0.00034	0.068	0.12078	*****	37.918	
6	57.2	56.1	18.0	0.000339	0.426	67.38	66196	0.00034	0.068	0.05872	*****	18.407	
7	73.5	55.5	15.6	0.000292	0.433	68.37	66741	0.00033	0.067	0.00375	*****	9.070	
8	79.1	55.2	14.2	0.000263	0.439	69.41	67084	0.00033	0.068	0.00282	*****	6.508	
9	81.7	55.0	13.6	0.000251	0.442	69.95	67235	0.00032	0.068	0.00253	*****	5.709	
10	83.0	54.9	13.3	0.000245	0.443	70.23	67320	0.00034	0.071	0.00253	*****	5.643	
RUN NO 366 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 81.8 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	407.7	57.2	24.5	0.000540	0.357	51.98	65088	0.05349	8.972	0.02560	*****	11.615	
2	60.8	57.0	22.9	0.000433	0.417	66.56	65316	0.00289	0.568	0.14749	*****	46.900	
3	57.4	56.8	22.2	0.000417	0.420	66.97	65454	0.00036	0.072	0.12839	*****	40.417	
4	57.5	56.7	21.4	0.000403	0.421	66.99	65593	0.00030	0.059	0.07105	*****	22.366	
5	57.0	56.4	20.0	0.000376	0.422	67.01	65846	0.00030	0.060	0.10863	*****	34.142	
6	57.1	56.1	18.1	0.000341	0.425	67.19	66187	0.00030	0.061	0.05907	*****	18.540	
7	71.1	55.5	15.7	0.000294	0.431	68.01	66737	0.00030	0.060	0.00386	*****	9.484	
8	76.6	55.2	14.2	0.000265	0.437	68.89	67084	0.00029	0.060	0.00280	*****	6.556	
9	79.4	55.0	13.6	0.000252	0.439	69.35	67236	0.00029	0.060	0.00247	*****	5.627	
10	80.4	54.9	13.3	0.000246	0.441	69.59	67320	0.00031	0.064	0.00249	*****	5.640	

STA NO	TIME	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 367 ORIF DIA 0.0635 CM FLOW RATE 2.83 G/S LIQ TEMP 81.8 K LIQ PRESS 1.98 ATM CART HTR PWR 0.000 W													
1	407.8	57.2	24.5	0.000540	0.356	51.96	65088	0.05351	8.972	0.02559	*****		11.615
2	60.0	57.0	22.9	0.000433	0.417	66.53	65316	0.00288	0.566	0.18650	*****		59.226
3	57.4	56.4	22.2	0.000417	0.420	66.93	65854	0.00032	0.064	0.11805	*****		37.172
4	57.4	56.7	21.4	0.000403	0.421	66.94	65993	0.00028	0.055	0.07571	*****		23.833
5	56.9	56.4	20.0	0.000377	0.422	66.95	65846	0.00028	0.056	0.12096	*****		38.028
6	57.0	56.1	18.1	0.000341	0.425	67.09	66187	0.00028	0.056	0.06222	*****		19.536
7	69.5	55.5	15.7	0.000294	0.430	67.81	66737	0.00027	0.055	0.00395	*****		1.263
8	75.0	55.2	14.2	0.000265	0.435	68.59	67084	0.00027	0.055	0.00279	*****		0.896
9	77.8	55.0	13.6	0.000253	0.438	68.99	67236	0.00027	0.055	0.00242	*****		0.780
10	78.7	54.9	13.3	0.000247	0.439	69.21	67320	0.00028	0.059	0.00247	*****		0.795
RUN NO 173 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.9 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	332.8	58.1	29.7	0.000635	0.362	54.41	66886	0.05271	9.316	0.03390	*****		14.321
2	58.8	57.6	27.0	0.000497	0.424	68.88	67275	0.00244	0.504	0.41331	*****		125.002
3	57.7	57.4	25.7	0.000472	0.426	69.26	67470	0.00067	0.140	0.49675	*****		149.094
4	58.1	57.2	24.4	0.000448	0.428	69.36	67667	0.00064	0.133	0.14616	*****		43.871
5	57.5	56.4	22.0	0.000404	0.430	69.53	68058	0.00064	0.135	0.19221	*****		57.540
6	58.1	56.3	19.3	0.000353	0.436	70.15	68559	0.00063	0.135	0.07642	*****		22.789
7	66.7	55.7	16.3	0.000293	0.448	72.38	69210	0.00061	0.135	0.01218	*****		3.633
8	68.4	55.2	14.3	0.000254	0.460	74.58	69679	0.00060	0.135	0.00406	*****		1.239
9	77.0	55.0	13.6	0.000239	0.465	75.74	69863	0.00058	0.132	0.00314	*****		0.966
10	77.8	54.9	13.3	0.000232	0.468	76.32	69956	0.00058	0.134	0.00287	*****		0.884
RUN NO 174 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.8 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	334.2	58.0	29.7	0.000636	0.362	54.31	66886	0.05287	9.334	0.03380	*****		14.298
2	58.6	57.6	27.0	0.000498	0.423	68.81	67275	0.00245	0.507	0.51729	*****		156.088
3	57.6	57.4	25.7	0.000472	0.426	69.19	67470	0.00067	0.140	0.78899	*****		236.884
4	57.9	57.2	24.4	0.000448	0.427	69.29	67667	0.00064	0.134	0.18737	*****		56.247
5	57.3	56.8	22.0	0.000404	0.430	69.46	68058	0.00064	0.136	0.28262	*****		84.610
6	57.9	56.3	19.3	0.000353	0.436	70.08	68559	0.00063	0.135	0.08302	*****		24.763
7	66.8	55.7	16.3	0.000293	0.448	72.32	69210	0.00062	0.135	0.01215	*****		3.626
8	68.6	55.2	14.3	0.000254	0.459	74.53	69679	0.00060	0.135	0.00404	*****		1.236
9	74.1	55.0	13.6	0.000239	0.465	75.66	69863	0.00056	0.127	0.00324	*****		0.992
10	76.9	54.9	13.3	0.000233	0.467	76.19	69956	0.00052	0.120	0.00266	*****		0.876
RUN NO 175 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.7 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	335.6	58.0	29.7	0.000637	0.361	54.15	66886	0.05334	9.401	0.03387	*****		14.354
2	58.5	57.6	27.0	0.000498	0.423	68.76	67275	0.00247	0.511	0.56435	*****		170.323
3	57.5	57.4	25.7	0.000472	0.426	69.15	67470	0.00067	0.140	1.08361	*****		325.415
4	57.8	57.2	24.4	0.000448	0.427	69.25	67667	0.00065	0.135	0.22902	*****		68.756
5	57.3	56.8	22.0	0.000404	0.430	69.43	68058	0.00065	0.137	0.25729	*****		77.058
6	57.8	56.3	19.3	0.000354	0.436	70.05	68559	0.00064	0.136	0.09253	*****		27.597
7	66.9	55.7	16.3	0.000293	0.448	72.32	69210	0.00062	0.136	0.01216	*****		3.629
8	68.7	55.2	14.3	0.000254	0.459	74.55	69679	0.00060	0.136	0.00405	*****		1.239
9	71.9	55.0	13.6	0.000239	0.465	75.66	69863	0.00054	0.123	0.00334	*****		1.020
10	72.8	54.9	13.3	0.000233	0.467	76.15	69956	0.00048	0.109	0.00289	*****		0.879
RUN NO 176 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.6 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	336.7	58.0	29.7	0.000638	0.361	54.10	66886	0.05342	9.409	0.03376	*****		14.321
2	58.6	57.6	27.0	0.000498	0.423	68.73	67275	0.00248	0.513	0.54543	*****		164.675
3	57.5	57.4	25.7	0.000472	0.426	69.11	67470	0.00068	0.141	2.07863	*****		624.331
4	57.8	57.2	24.4	0.000448	0.427	69.22	67667	0.00065	0.135	0.24212	*****		72.705
5	57.4	56.4	22.0	0.000404	0.430	69.39	68058	0.00065	0.136	0.24717	*****		74.051
6	57.7	56.3	19.3	0.000354	0.436	70.01	68559	0.00064	0.136	0.09540	*****		28.457
7	66.8	55.7	16.3	0.000293	0.448	72.28	69210	0.00062	0.136	0.01220	*****		3.641
8	68.6	55.2	14.3	0.000254	0.459	74.51	69679	0.00060	0.136	0.00406	*****		1.243
9	71.8	55.0	13.6	0.000239	0.464	75.58	69863	0.00051	0.116	0.00345	*****		1.046
10	72.2	54.9	13.3	0.000233	0.467	76.01	69956	0.00041	0.093	0.00288	*****		0.870
RUN NO 177 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	340.1	58.0	29.7	0.000638	0.361	54.01	66886	0.05394	9.491	0.03365	*****		14.299
2	58.6	57.6	27.0	0.000498	0.423	64.77	67275	0.00252	0.520	0.55300	*****		166.904
3	57.5	57.4	25.7	0.000472	0.426	69.16	67470	0.00068	0.142	1.09945	*****		330.142
4	57.8	57.2	24.4	0.000448	0.427	69.27	67667	0.00065	0.136	0.21396	*****		64.234
5	57.4	56.4	22.0	0.000404	0.430	69.44	68058	0.00065	0.138	0.24810	*****		74.298
6	57.8	56.3	19.3	0.000353	0.436	70.08	68559	0.00064	0.138	0.09048	*****		26.982
7	67.8	55.7	16.3	0.000293	0.448	72.37	69210	0.00063	0.138	0.01136	*****		3.343
8	69.3	55.2	14.3	0.000254	0.460	74.62	69679	0.00061	0.137	0.00401	*****		1.226
9	77.2	55.0	13.6	0.000239	0.465	75.68	69863	0.00050	0.114	0.00354	*****		1.070
10	74.0	54.9	13.3	0.000233	0.467	76.08	69956	0.00037	0.084	0.00290	*****		0.870

STA NO	TUBE TEMP	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	-	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 178 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	331.1	58.0	29.7	0.000642	0.358	53.45	66886	0.05229	9.143	0.03348	*****		14.259
2	58.5	57.6	27.0	0.000503	0.419	67.67	67275	0.00245	0.502	0.56096	*****		170.739
3	57.5	57.4	25.7	0.000477	0.421	68.05	67470	0.00068	0.140	1.64349	*****		497.704
4	57.8	57.2	24.4	0.000452	0.423	68.16	67667	0.00065	0.134	0.22348	*****		67.663
5	57.3	56.8	22.0	0.000408	0.426	68.33	68058	0.00065	0.136	0.27641	*****		83.470
6	57.8	56.3	19.3	0.000357	0.431	68.96	68559	0.00064	0.136	0.09242	*****		27.789
7	67.4	55.7	16.3	0.000296	0.444	71.22	69210	0.00062	0.136	0.01151	*****	28.070	3.467
8	88.9	55.2	14.3	0.000257	0.455	73.44	69679	0.00060	0.135	0.00400	*****	4.010	1.232
9	84.1	55.0	13.6	0.000242	0.460	74.45	69863	0.00046	0.104	0.00358	*****	7.498	1.088
10	78.4	54.9	13.3	0.000235	0.462	74.76	69956	0.00028	0.064	0.00273	*****	6.012	0.817
RUN NO 179 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	331.5	58.0	29.7	0.000640	0.359	53.68	66886	0.05305	9.299	0.03401	*****		14.457
2	58.4	57.6	27.0	0.000501	0.420	68.13	67275	0.00246	0.505	0.63872	*****		193.671
3	57.4	57.4	25.7	0.000475	0.423	68.52	67470	0.00069	0.142	6.22850	*****		1879.220
4	57.8	57.2	24.4	0.000450	0.425	68.62	67667	0.00066	0.136	0.24336	*****		73.412
5	57.2	56.8	22.0	0.000407	0.428	68.80	68058	0.00066	0.138	0.32841	*****		98.805
6	57.8	56.3	19.3	0.000356	0.433	69.44	68559	0.00065	0.138	0.09285	*****		27.818
7	67.9	55.7	16.3	0.000294	0.446	71.74	69210	0.00063	0.138	0.01129	*****	26.908	3.390
8	89.5	55.2	14.3	0.000255	0.457	74.00	69679	0.00061	0.137	0.00399	*****	7.817	1.227
9	82.5	55.0	13.6	0.000240	0.462	75.00	69863	0.00045	0.101	0.00368	*****	7.668	1.110
10	75.3	54.9	13.3	0.000234	0.464	75.28	69956	0.00024	0.054	0.00264	*****	5.883	0.783
RUN NO 180 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	335.3	58.0	29.7	0.000640	0.359	53.74	66886	0.05339	9.367	0.03378	*****		14.367
2	58.5	57.6	27.0	0.000500	0.421	68.31	67275	0.00249	0.513	0.61138	*****		185.149
3	57.5	57.4	25.7	0.000474	0.424	68.70	67470	0.00069	0.143	1.91563	*****		577.223
4	57.8	57.2	24.4	0.000450	0.425	68.80	67667	0.00066	0.137	0.24655	*****		74.270
5	57.1	56.8	22.0	0.000406	0.428	68.98	68058	0.00066	0.139	0.41996	*****		126.147
6	57.8	56.3	19.3	0.000355	0.434	69.63	68559	0.00065	0.139	0.09116	*****		27.275
7	68.1	55.7	16.3	0.000294	0.447	71.95	69210	0.00063	0.139	0.01115	*****	26.081	3.342
8	89.8	55.2	14.3	0.000255	0.458	74.24	69679	0.00061	0.138	0.00398	*****	7.651	1.222
9	81.2	55.0	13.6	0.000240	0.463	75.23	69863	0.00043	0.099	0.00376	*****	7.810	1.131
10	72.9	54.9	13.3	0.000234	0.464	75.47	69956	0.00020	0.046	0.00254	*****	5.709	0.750
RUN NO 181 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	337.7	58.0	29.7	0.000640	0.359	53.66	66886	0.05350	9.376	0.03352	*****		14.280
2	58.4	57.6	27.0	0.000500	0.421	68.25	67275	0.00252	0.518	0.62573	*****		189.571
3	57.5	57.4	25.7	0.000474	0.424	68.64	67470	0.00069	0.144	3.62387	*****		1092.324
4	57.7	57.2	24.4	0.000450	0.425	68.75	67667	0.00066	0.138	0.26638	*****		80.267
5	57.2	56.8	22.0	0.000406	0.428	68.93	68058	0.00067	0.140	0.34364	*****		103.278
6	57.7	56.3	19.3	0.000355	0.434	69.58	68560	0.00066	0.139	0.09759	*****		29.205
7	68.3	55.7	16.3	0.000294	0.447	71.92	69211	0.00064	0.139	0.01106	*****	25.479	3.318
8	90.0	55.2	14.3	0.000255	0.458	74.21	69679	0.00062	0.138	0.00397	*****	7.513	1.220
9	79.1	55.0	13.6	0.000240	0.463	75.18	69863	0.00041	0.094	0.00349	*****	8.112	1.164
10	69.3	54.9	13.3	0.000234	0.464	75.38	69956	0.00014	0.033	0.00228	*****	5.241	0.670
RUN NO 182 ORIF DIA 0.0567 CM FLOW RATE 2.94 G/S LIQ TEMP 82.5 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	335.7	58.0	29.7	0.000641	0.359	53.54	66886	0.05299	9.274	0.03340	*****		14.234
2	58.4	57.6	27.0	0.000502	0.420	67.97	67275	0.00251	0.514	0.67168	*****		203.907
3	57.4	57.4	25.7	0.000476	0.422	68.37	67471	0.00070	0.144	5.94231	*****		1794.960
4	57.8	57.2	24.4	0.000451	0.424	68.47	67668	0.00067	0.138	0.23401	*****		70.676
5	57.2	56.8	22.0	0.000407	0.427	68.66	68058	0.00067	0.140	0.32672	*****		98.406
6	57.7	56.3	19.3	0.000356	0.432	69.31	68560	0.00066	0.139	0.09950	*****		29.836
7	68.2	55.7	16.3	0.000295	0.445	71.65	69211	0.00064	0.139	0.01112	*****	25.430	3.343
8	89.9	55.2	14.3	0.000256	0.457	73.94	69679	0.00062	0.138	0.00398	*****	7.474	1.225
9	78.4	55.0	13.6	0.000241	0.462	74.90	69863	0.00041	0.092	0.00394	*****	8.198	1.179
10	68.1	54.9	13.3	0.000235	0.463	75.08	69956	0.00012	0.028	0.00215	*****	4.950	0.631
RUN NO 201 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 83.9 K LIQ PRESS 3.05 ATM CART HTR PWR 0.000 W													
1	321.8	58.4	32.8	0.000680	0.371	57.14	63548	0.05364	9.270	0.03520	*****		15.023
2	61.4	58.3	31.6	0.000559	0.436	72.74	63683	0.00369	0.749	0.24167	*****		73.845
3	58.4	58.2	31.0	0.000544	0.440	73.60	63749	0.00204	0.418	1.71011	*****		516.184
4	59.4	58.1	30.4	0.000531	0.443	74.20	63816	0.00196	0.404	0.30916	*****		93.076
5	59.6	58.0	29.3	0.000506	0.448	75.37	63952	0.00194	0.406	0.24477	*****		73.077
6	60.9	57.6	27.0	0.000455	0.462	78.33	64267	0.00189	0.408	0.12501	*****		36.635
7	154.3	57.1	23.8	0.000373	0.501	87.23	64721	0.00173	0.404	0.00416	*****	6.461	1.300
8	179.4	56.8	21.8	0.000320	0.539	96.06	65042	0.00161	0.404	0.00330	*****	4.584	0.994
9	183.4	56.6	20.9	0.000297	0.559	100.74	65206	0.00155	0.406	0.00320	*****	4.380	0.942
10	192.5	56.5	20.4	0.000286	0.569	103.04	65289	0.00150	0.399	0.00293	*****	3.865	0.856

STA NO	TUBE NO	WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 202 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 84.2 K LIQ PRESS 3.05 ATM CAHT HTR PWR 1.769 W													
1	321.7	58.4	33.1	0.000680	0.374	57.91	63512	0.05351	9.318	0.03540	*****	15.005	
2	61.4	58.3	31.8	0.000559	0.439	73.58	63654	0.00367	0.751	0.24243	*****	73.614	
3	58.4	58.2	31.2	0.000544	0.443	74.45	63724	0.00204	0.421	2.62816	*****	788.261	
4	59.8	58.1	30.0	0.000530	0.446	75.05	63794	0.00194	0.404	0.24668	*****	73.856	
5	59.5	58.0	29.4	0.000504	0.452	76.23	63932	0.00194	0.408	0.27031	*****	80.186	
6	60.8	57.6	27.1	0.000453	0.466	79.19	64254	0.00189	0.409	0.13103	*****	38.157	
7	154.7	57.1	23.8	0.000371	0.505	88.12	64716	0.00172	0.406	0.00416	6.399	1.292	
8	178.7	56.8	21.8	0.000318	0.543	96.98	65038	0.00160	0.406	0.00333	4.611	0.998	
9	182.2	56.6	20.4	0.000295	0.563	101.67	65204	0.00155	0.408	0.00325	4.430	0.948	
10	191.3	56.5	20.4	0.000284	0.573	103.98	65288	0.00149	0.400	0.00297	3.903	0.861	
RUN NO 203 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 84.9 K LIQ PRESS 3.05 ATM CAHT HTR PWR 6.662 W													
1	315.8	58.5	33.5	0.000676	0.381	59.65	63468	0.05334	9.458	0.03675	*****	15.322	
2	61.3	58.3	32.2	0.000554	0.447	75.53	63619	0.00358	0.746	0.24697	*****	73.922	
3	58.4	58.2	31.5	0.000539	0.451	76.39	63694	0.00202	0.425	2.33481	*****	690.484	
4	59.4	58.2	30.8	0.000525	0.454	77.00	63769	0.00194	0.410	0.32170	*****	94.901	
5	59.3	58.0	29.6	0.000498	0.460	78.19	63911	0.00193	0.413	0.30815	*****	90.105	
6	60.9	57.6	27.2	0.000447	0.474	81.18	64242	0.00188	0.415	0.12688	*****	36.452	
7	153.2	57.1	23.9	0.000365	0.513	90.22	64711	0.00172	0.411	0.00428	6.569	1.310	
8	178.1	56.8	21.8	0.000313	0.552	99.18	65037	0.00160	0.411	0.00339	4.657	1.002	
9	181.7	56.6	20.4	0.000290	0.572	103.92	65204	0.00154	0.413	0.00330	4.469	0.951	
10	190.3	56.5	20.4	0.000279	0.582	106.26	65288	0.00149	0.406	0.00303	3.965	0.868	
RUN NO 204 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 86.3 K LIQ PRESS 3.05 ATM CAHT HTR PWR 14.954 W													
1	374.1	58.5	33.8	0.000661	0.392	62.43	63441	0.05160	9.417	0.03834	*****	15.553	
2	61.3	58.3	32.3	0.000544	0.458	78.20	63599	0.00338	0.719	0.24158	*****	70.923	
3	58.4	58.3	31.6	0.000528	0.462	79.04	63677	0.00195	0.420	3.07418	*****	892.033	
4	59.5	58.2	30.4	0.000514	0.464	79.63	63755	0.00187	0.405	0.31623	*****	91.559	
5	59.3	58.0	29.6	0.000488	0.470	80.80	63903	0.00186	0.407	0.31271	*****	89.771	
6	60.9	57.6	27.2	0.000438	0.484	83.74	64236	0.00181	0.409	0.12707	*****	35.869	
7	146.4	57.1	23.9	0.000359	0.523	92.65	64709	0.00166	0.406	0.00455	7.105	1.363	
8	173.5	56.8	21.8	0.000308	0.561	101.47	65037	0.00155	0.406	0.00348	4.803	1.011	
9	177.7	56.6	20.4	0.000286	0.581	106.14	65204	0.00150	0.407	0.00336	4.557	0.954	
10	182.8	56.5	20.4	0.000275	0.591	108.44	65288	0.00146	0.403	0.00319	4.237	0.897	
RUN NO 205 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 88.2 K LIQ PRESS 3.05 ATM CAHT HTR PWR 26.457 W													
1	293.5	58.6	34.0	0.000640	0.407	66.14	63415	0.04898	9.285	0.03952	*****	15.485	
2	61.3	58.4	32.5	0.000530	0.472	81.11	63579	0.00316	0.695	0.23448	*****	67.164	
3	58.4	58.3	31.8	0.000515	0.476	82.52	63660	0.00186	0.412	2.59939	*****	736.225	
4	59.4	58.2	31.1	0.000501	0.479	83.10	63742	0.00179	0.398	0.32335	*****	91.391	
5	59.6	58.0	29.7	0.000475	0.484	84.24	63896	0.00177	0.400	0.25193	*****	70.479	
6	60.8	57.7	27.3	0.000427	0.498	87.12	64231	0.00173	0.402	0.12886	*****	35.561	
7	139.7	57.1	23.9	0.000350	0.536	95.84	64707	0.00159	0.399	0.00483	7.665	1.412	
8	167.8	56.8	21.8	0.000301	0.573	104.49	65037	0.00149	0.399	0.00359	4.996	1.022	
9	172.5	56.6	20.4	0.000280	0.593	109.07	65205	0.00144	0.400	0.00345	4.706	0.961	
10	180.2	56.5	20.4	0.000270	0.602	111.32	65288	0.00140	0.395	0.00319	4.208	0.882	
RUN NO 206 ORIF DIA 0.0567 CM FLOW RATE 2.81 G/S LIQ TEMP 86.4 K LIQ PRESS 3.05 ATM CAHT HTR PWR 15.134 W													
1	305.9	58.5	33.3	0.000652	0.392	62.42	63494	0.05101	9.317	0.03765	*****	15.280	
2	61.2	58.3	32.0	0.000539	0.457	78.03	63639	0.00339	0.721	0.24447	*****	71.992	
3	58.3	58.2	31.3	0.000524	0.461	78.87	63711	0.00195	0.418	4.59645	*****	1335.049	
4	59.4	58.1	30.7	0.000511	0.464	79.46	63783	0.00186	0.403	0.31024	*****	89.929	
5	59.2	58.0	29.5	0.000486	0.470	80.63	63921	0.00185	0.406	0.33841	*****	96.667	
6	60.7	57.6	27.1	0.000437	0.483	83.56	64248	0.00181	0.407	0.13349	*****	37.717	
7	150.2	57.1	23.8	0.000359	0.522	92.43	64713	0.00166	0.404	0.00434	6.647	1.307	
8	173.9	56.8	21.8	0.000309	0.560	101.21	65037	0.00154	0.404	0.00345	4.748	1.004	
9	176.8	56.6	20.4	0.000286	0.580	105.87	65204	0.00150	0.406	0.00338	4.593	0.960	
10	187.0	56.5	20.4	0.000276	0.590	108.16	65287	0.00144	0.398	0.00305	3.975	0.861	
RUN NO 207 ORIF DIA 0.0567 CM FLOW RATE 2.70 G/S LIQ TEMP 83.8 K LIQ PRESS 3.04 ATM CAHT HTR PWR 9.000 W													
1	319.0	58.2	31.3	0.000646	0.373	57.43	61331	0.05504	9.216	0.03534	*****	15.487	
2	60.0	58.1	30.4	0.000534	0.439	73.33	61431	0.00310	0.610	0.32851	*****	102.739	
3	58.1	58.0	29.9	0.000523	0.442	74.01	61480	0.00140	0.278	7.58319	*****	2350.795	
4	59.2	58.0	29.4	0.000513	0.444	74.42	61531	0.00133	0.265	0.21439	*****	66.405	
5	58.2	57.8	28.6	0.000495	0.448	75.22	61650	0.00134	0.269	0.69354	*****	213.159	
6	59.5	57.5	26.6	0.000453	0.458	77.23	61918	0.00131	0.269	0.13750	*****	41.763	
7	107.7	57.1	23.6	0.000383	0.485	83.31	62321	0.00123	0.268	0.00530	10.591	1.674	
8	133.7	56.8	21.7	0.000336	0.512	89.37	62620	0.00116	0.268	0.00348	5.857	1.087	
9	134.9	56.6	20.4	0.000315	0.526	92.58	62771	0.00114	0.269	0.00344	5.750	1.054	
10	142.1	56.5	20.4	0.000305	0.533	94.17	62847	0.00112	0.268	0.00313	5.016	0.956	

STA NO	TUBE NO	WALL K	MIXTURE SAT K	TFMP	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FFSP H-T COEF	EXP/S-T H-T COEF
RUN NO 208 ORIF DIA 0.0567 CM FLOW RATE 2.70 G/S LIQ TEMP 84.1 K LIQ PRESS 3.04 ATM CART HTR PWR 1.760 W														
1	320.9	58.2	31.4	0.000642	0.377	58.25	61323	0.05545	9.367	0.03566	*****	15.527		
2	59.9	58.1	30.4	0.000530	0.443	74.40	61424	0.00309	0.614	0.33732	*****	104.652		
3	58.1	58.1	30.0	0.000519	0.447	75.09	61473	0.00138	0.277	3.03033	*****	932.099		
4	58.9	58.0	29.5	0.000509	0.449	75.49	61525	0.00133	0.267	0.29985	*****	92.085		
5	58.2	57.9	28.6	0.000490	0.453	76.30	61645	0.00133	0.269	0.68764	*****	209.697		
6	59.4	57.5	26.0	0.000449	0.462	78.31	61915	0.00130	0.270	0.14220	*****	42.855		
7	106.7	57.1	23.5	0.000379	0.490	84.41	62320	0.00122	0.269	0.05542	*****	10.720		
8	133.5	56.8	21.7	0.000333	0.516	90.47	62620	0.00115	0.268	0.00350	*****	5.794		
9	134.1	56.6	20.9	0.000312	0.530	93.69	62771	0.00113	0.270	0.00348	*****	5.754		
10	140.9	56.5	20.4	0.000302	0.537	95.28	62847	0.00110	0.267	0.00317	*****	5.027		
10.960														
RUN NO 209 ORIF DIA 0.0567 CM FLOW RATE 2.70 G/S LIQ TEMP 84.9 K LIQ PRESS 3.04 ATM CART HTR PWR 6.745 W														
1	315.5	58.2	31.4	0.000632	0.384	60.03	61314	0.05433	9.354	0.03636	*****	15.561		
2	60.0	58.1	30.5	0.000523	0.451	76.14	61417	0.00299	0.603	0.32671	*****	100.088		
3	58.1	58.1	30.0	0.000512	0.454	76.81	61467	0.00136	0.276	6.50379	*****	1975.418		
4	59.0	58.0	29.5	0.000502	0.456	77.22	61518	0.00130	0.265	0.27241	*****	82.638		
5	58.2	57.9	28.6	0.000484	0.460	78.02	61640	0.00130	0.268	0.69647	*****	209.791		
6	59.5	57.6	26.0	0.000443	0.469	80.01	61912	0.00127	0.268	0.13760	*****	40.980		
7	91.4	57.1	23.6	0.000374	0.496	86.07	62319	0.00120	0.268	0.00780	*****	16.974		
8	132.0	56.8	21.7	0.000329	0.523	92.10	62619	0.00113	0.267	0.00354	*****	5.787		
9	132.5	56.6	20.9	0.000308	0.537	95.30	62771	0.00111	0.269	0.00354	*****	5.768		
10	139.0	56.5	20.4	0.000298	0.544	96.87	62847	0.00108	0.264	0.00320	*****	5.024		
0.960														
RUN NO 211 ORIF DIA 0.0567 CM FLOW RATE 2.70 G/S LIQ TEMP 88.2 K LIQ PRESS 3.04 ATM CART HTR PWR 26.468 W														
1	300.3	58.3	31.9	0.000595	0.413	67.29	61262	0.05073	9.399	0.03883	*****	15.581		
2	60.2	58.2	30.9	0.000497	0.480	83.41	61375	0.00268	0.576	0.29017	*****	84.495		
3	58.1	58.1	30.4	0.000486	0.483	84.06	61430	0.00128	0.277	14.62759	*****	4223.805		
4	58.9	58.0	29.8	0.000476	0.485	84.46	61486	0.00122	0.266	0.29756	*****	85.824		
5	58.2	57.9	28.9	0.000458	0.489	85.25	61611	0.00122	0.269	1.03093	*****	295.362		
6	59.4	57.6	26.0	0.000418	0.499	87.23	61893	0.00120	0.268	0.14632	*****	41.495		
7	78.2	57.1	23.7	0.000354	0.526	93.26	62311	0.00114	0.269	0.01276	*****	29.867		
8	128.8	56.8	21.8	0.000312	0.552	99.27	62614	0.00107	0.267	0.00371	*****	5.922		
9	129.3	56.6	20.9	0.000293	0.566	102.44	62768	0.00106	0.269	0.00370	*****	5.900		
10	135.7	56.5	20.4	0.000283	0.573	104.01	62846	0.00102	0.264	0.00333	*****	5.110		
0.955														
RUN NO 212 ORIF DIA 0.0567 CM FLOW RATE 2.70 G/S LIQ TEMP 88.2 K LIQ PRESS 3.04 ATM CART HTR PWR 33.670 W														
1	293.5	58.3	32.2	0.000584	0.424	69.94	61237	0.04960	9.427	0.04008	*****	15.714		
2	60.4	58.2	31.1	0.000489	0.491	86.09	61354	0.00257	0.566	0.25534	*****	73.059		
3	58.1	58.1	30.5	0.000478	0.494	86.73	61412	0.00126	0.279	*****	*****	*****		
4	59.0	58.1	30.0	0.000468	0.496	87.13	61469	0.00119	0.266	0.28330	*****	80.282		
5	58.1	57.9	29.0	0.000449	0.500	87.91	61596	0.00120	0.269	1.37422	*****	386.802		
6	59.3	57.6	26.0	0.000411	0.510	89.89	61884	0.00117	0.269	0.15402	*****	42.927		
7	76.0	57.1	23.7	0.000348	0.536	95.92	62307	0.00112	0.269	0.01427	*****	33.637		
8	127.3	56.8	21.8	0.000306	0.563	101.92	62612	0.00106	0.267	0.00379	*****	6.029		
9	127.8	56.6	20.9	0.000287	0.577	105.09	62767	0.00104	0.269	0.00378	*****	6.001		
10	134.3	56.5	20.4	0.000278	0.583	106.65	62845	0.00101	0.264	0.00340	*****	5.187		
0.959														
RUN NO 213 ORIF DIA 0.0567 CM FLOW RATE 2.82 G/S LIQ TEMP 83.4 K LIQ PRESS 3.13 ATM CART HTR PWR 0.000 W														
1	320.8	58.1	30.4	0.000636	0.369	56.22	64051	0.05388	9.303	0.03542	*****	15.173		
2	59.2	58.0	29.6	0.000531	0.432	71.46	64136	0.00261	0.527	0.43051	*****	131.839		
3	58.3	58.0	29.3	0.000522	0.434	71.98	64185	0.00090	0.184	0.59558	*****	181.323		
4	58.4	57.9	28.9	0.000514	0.436	72.24	64237	0.00088	0.180	0.38373	*****	116.622		
5	57.8	57.8	28.2	0.000499	0.438	72.75	64341	0.00088	0.181	3.50774	*****	1060.928		
6	58.7	57.5	26.3	0.000462	0.445	74.00	64598	0.00087	0.180	0.15260	*****	45.808		
7	69.1	57.1	23.5	0.000400	0.463	77.85	64999	0.00083	0.181	0.01508	*****	4.449		
8	104.6	56.8	21.7	0.000357	0.480	81.69	65305	0.00080	0.180	0.00375	*****	6.907		
9	106.4	56.6	20.8	0.000338	0.490	83.72	65458	0.00079	0.181	0.00363	*****	6.605		
10	110.8	56.5	20.4	0.000328	0.494	84.72	65535	0.00077	0.178	0.00327	*****	5.779		
0.995														
RUN NO 219 ORIF DIA 0.0567 CM FLOW RATE 2.66 G/S LIQ TEMP 83.7 K LIQ PRESS 3.11 ATM CART HTR PWR 0.000 W														
1	313.7	58.5	33.4	0.000689	0.372	57.59	60122	0.05611	9.215	0.03610	*****	15.992		
2	62.0	58.3	32.1	0.000560	0.441	74.14	60263	0.00435	0.846	0.22671	*****	71.697		
3	48.7	58.2	31.4	0.000544	0.446	75.22	60333	0.00271	0.533	1.23901	*****	386.154		
4	59.9	58.2	30.8	0.000528	0.450	76.04	60403	0.00260	0.517	0.28942	*****	89.879		
5	61.3	58.0	29.5	0.000500	0.457	77.64	60537	0.00256	0.517	0.15897	*****	48.916		
6	61.7	57.6	27.2	0.000445	0.476	81.67	60849	0.00248	0.521	0.12733	*****	38.133		
7	103.8	57.1	23.8	0.000355	0.528	93.78	61292	0.00221	0.516	0.00407	*****	5.968		
8	226.8	56.8	21.8	0.000299	0.578	105.76	61600	0.00201	0.515	0.00303	*****	3.793		
9	239.5	56.6	20.9	0.000274	0.605	112.10	61758	0.00193	0.517	0.00283	*****	3.395		
10	254.8	56.5	20.4	0.000263	0.618	115.20	61838	0.00183	0.501	0.00253	*****	2.894		
0.743														

STA NO	TUBE TEMP	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/B	-	-	W/CM2	W/CM2-K	-	-
RUN NO 220 ORIF DIA 0.0567 CM FLOW RATE 2.66 G/S LIQ TEMP 84.2 K LIQ PRESS 3.11 ATM CAHT HTR PWR 1.822 W													
1	316.6	58.6	34.3	0.000698	0.377	58.82	60030	0.05605	9.310	0.03608	*****	15.833	
2	62.1	58.4	32.8	0.000564	0.446	75.54	60194	0.00435	0.855	0.23404	*****	73.263	
3	48.7	58.3	32.0	0.000546	0.451	76.63	60275	0.00270	0.537	1.38568	*****	427.503	
4	60.1	58.2	31.2	0.000529	0.455	77.45	60357	0.00261	0.525	0.27756	*****	85.351	
5	65.4	58.0	29.8	0.000498	0.463	79.08	60510	0.00258	0.527	0.07176	*****	22.024	
6	102.7	57.7	27.3	0.000442	0.482	83.15	60830	0.00245	0.522	0.01158	*****	3.685	
7	188.1	57.1	23.9	0.000352	0.534	95.32	61285	0.00220	0.521	0.00397	5.751	1.262	
8	226.7	56.8	21.8	0.000295	0.585	107.39	61600	0.00201	0.520	0.00306	3.850	0.926	
9	240.4	56.6	20.4	0.000271	0.612	113.78	61760	0.00192	0.521	0.00284	3.418	0.836	
10	257.4	56.5	20.4	0.000260	0.625	116.91	61838	0.00183	0.506	0.00252	2.881	0.736	
RUN NO 221 ORIF DIA 0.0567 CM FLOW RATE 2.66 G/S LIQ TEMP 84.9 K LIQ PRESS 3.11 ATM CAHT HTR PWR 6.891 W													
1	310.0	58.5	33.9	0.000680	0.383	60.17	60071	0.05543	9.351	0.03719	*****	16.091	
2	42.1	58.5	32.5	0.000552	0.452	76.94	60225	0.00424	0.846	0.22626	*****	70.110	
3	58.7	58.3	31.7	0.000535	0.457	78.03	60301	0.00268	0.540	1.21615	*****	371.454	
4	60.2	58.2	31.0	0.000519	0.461	78.85	60377	0.00257	0.524	0.25923	*****	78.937	
5	62.8	58.0	29.7	0.000490	0.469	80.47	60521	0.00253	0.523	0.10966	*****	33.171	
6	61.8	57.6	27.2	0.000436	0.487	84.54	60838	0.00245	0.527	0.01271	*****	37.343	
7	143.3	57.1	23.9	0.000348	0.540	96.79	61288	0.00219	0.522	0.00414	6.120	1.300	
8	224.6	56.8	21.8	0.000292	0.591	108.91	61600	0.00199	0.522	0.00311	3.947	0.933	
9	240.7	56.6	20.4	0.000268	0.618	115.32	61759	0.00191	0.524	0.00284	3.426	0.831	
10	258.8	56.5	20.4	0.000257	0.632	118.46	61837	0.00182	0.509	0.00252	2.867	0.729	
RUN NO 222 ORIF DIA 0.0567 CM FLOW RATE 2.66 G/S LIQ TEMP 86.0 K LIQ PRESS 3.11 ATM CAHT HTR PWR 14.956 W													
1	114.5	58.6	34.0	0.000659	0.395	63.32	60063	0.05668	9.883	0.17664	*****	66.146	
2	62.2	58.4	32.5	0.000536	0.467	80.54	60219	0.00283	0.584	0.15314	*****	46.260	
3	58.8	58.3	31.8	0.000520	0.471	81.42	60296	0.00261	0.543	1.14398	*****	341.181	
4	60.2	58.2	31.1	0.000505	0.475	82.25	60373	0.00251	0.527	0.25785	*****	76.678	
5	62.2	58.0	29.7	0.000476	0.483	83.88	60519	0.00247	0.527	0.12547	*****	37.038	
6	61.8	57.7	27.3	0.000424	0.501	87.97	60836	0.00240	0.531	0.01270	*****	36.475	
7	179.6	57.1	23.9	0.000339	0.554	100.28	61287	0.00215	0.526	0.00430	6.361	1.318	
8	220.6	56.8	21.8	0.000285	0.606	112.46	61600	0.00196	0.526	0.00321	4.068	0.942	
9	238.0	56.6	20.9	0.000262	0.633	118.90	61759	0.00188	0.527	0.00291	3.483	0.833	
10	256.8	56.5	20.4	0.000251	0.646	122.06	61837	0.00179	0.512	0.00256	2.891	0.727	
RUN NO 223 ORIF DIA 0.0567 CM FLOW RATE 2.66 G/S LIQ TEMP 88.1 K LIQ PRESS 3.11 ATM CAHT HTR PWR 26.981 W													
1	113.1	58.7	34.4	0.000643	0.414	68.09	59979	0.05487	10.023	0.18408	*****	66.235	
2	62.4	58.4	33.1	0.000522	0.487	85.54	60156	0.00274	0.589	0.15004	*****	43.810	
3	58.8	58.3	32.3	0.000506	0.491	86.43	60243	0.00254	0.551	1.28812	*****	371.329	
4	60.2	58.2	31.5	0.000490	0.495	87.26	60331	0.00244	0.534	0.26512	*****	76.225	
5	61.6	58.0	29.9	0.000460	0.503	88.90	60495	0.00241	0.535	0.15219	*****	43.398	
6	61.9	57.7	27.4	0.000409	0.522	93.03	60819	0.00233	0.538	0.01268	*****	35.261	
7	176.0	57.1	23.9	0.000327	0.575	105.49	61281	0.00210	0.533	0.00449	6.591	1.333	
8	215.4	56.8	21.8	0.000275	0.627	117.81	61600	0.00192	0.533	0.00336	4.239	0.957	
9	232.6	56.6	20.9	0.000253	0.655	124.33	61761	0.00184	0.535	0.00304	3.618	0.845	
10	252.3	56.5	20.4	0.000243	0.668	127.55	61838	0.00176	0.520	0.00266	2.971	0.733	
RUN NO 224 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 83.2 K LIQ PRESS 3.06 ATM CAHT HTR PWR 0.000 W													
1	323.8	58.4	32.9	0.000693	0.365	55.55	65154	0.05365	9.338	0.03518	*****	14.939	
2	42.1	58.2	31.5	0.000567	0.429	70.96	65310	0.00402	0.822	0.21324	*****	64.818	
3	58.7	58.2	30.8	0.000550	0.433	71.90	65388	0.00238	0.442	0.83864	*****	251.440	
4	60.5	58.1	30.1	0.000534	0.436	72.59	65465	0.00228	0.474	0.19625	*****	58.730	
5	62.0	57.9	28.9	0.000506	0.443	73.93	65631	0.00225	0.476	0.11563	*****	34.354	
6	61.7	57.5	26.5	0.000452	0.458	77.31	65966	0.00218	0.479	0.01148	*****	33.090	
7	175.3	57.0	23.3	0.000365	0.502	85.49	66439	0.00197	0.474	0.00401	6.077	1.246	
8	211.5	56.7	21.3	0.000309	0.546	97.57	67877	0.00181	0.475	0.00307	4.034	0.915	
9	229.6	56.5	20.4	0.000285	0.568	102.90	68955	0.00174	0.475	0.00274	3.396	0.802	
10	244.6	56.4	19.9	0.000274	0.579	105.51	67039	0.00167	0.465	0.00247	2.916	0.717	
RUN NO 225 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 83.4 K LIQ PRESS 3.06 ATM CAHT HTR PWR 1.801 W													
1	321.9	58.5	33.5	0.000705	0.365	55.83	65079	0.05323	9.281	0.03523	*****	14.916	
2	42.0	58.3	32.2	0.000577	0.429	71.15	65234	0.00398	0.816	0.21960	*****	66.658	
3	58.7	58.2	31.5	0.000561	0.433	72.09	65310	0.00236	0.489	1.07710	*****	322.495	
4	60.3	58.2	30.8	0.000545	0.436	72.77	65387	0.00226	0.472	0.22301	*****	66.625	
5	62.2	58.1	29.6	0.000517	0.443	74.11	65533	0.00223	0.472	0.11189	*****	33.213	
6	61.7	57.6	27.2	0.000462	0.458	77.47	65872	0.00217	0.476	0.011781	*****	34.098	
7	173.8	57.1	23.9	0.000373	0.502	87.61	66353	0.00196	0.471	0.00404	6.092	1.252	
8	209.7	56.8	21.8	0.000317	0.546	97.64	66687	0.00180	0.471	0.00308	4.034	0.918	
9	223.0	56.6	20.9	0.000292	0.568	102.94	68859	0.00174	0.473	0.00284	3.553	0.827	
10	239.0	56.5	20.4	0.000281	0.579	105.55	66945	0.00166	0.461	0.00253	3.003	0.731	

STA NO	TUBE TEMP K	WALL SAT TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 226 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 84.1 K LIQ PRESS 3.06 ATM CART HTR PWR 6.935 W													
1	315.3	58.5	33.5	0.000693	0.372	57.40	65079	0.05240	9.296	0.03620	*****	15.084	
2	61.9	58.3	32.5	0.000569	0.435	72.72	65234	0.00387	0.804	0.22499	*****	67.469	
3	58.7	58.2	31.5	0.000552	0.440	73.65	65310	0.00232	0.488	1.11789	*****	330.807	
4	60.2	58.2	30.8	0.000537	0.443	74.33	65387	0.00223	0.471	0.23465	*****	69.281	
5	61.7	58.0	29.6	0.000509	0.449	75.66	65533	0.00220	0.472	0.12649	*****	37.088	
6	61.6	57.6	27.2	0.000456	0.465	79.02	65872	0.00214	0.476	0.11972	*****	34.268	
7	172.6	57.1	23.9	0.000369	0.509	89.15	66353	0.00193	0.471	0.00408	6.131	1.251	
8	207.9	56.8	21.8	0.000313	0.551	99.17	66687	0.00178	0.471	0.00312	4.072	0.920	
9	220.6	56.6	20.9	0.000289	0.574	104.47	66859	0.00172	0.473	0.00288	3.602	0.830	
10	236.7	56.5	20.4	0.000278	0.585	107.07	66945	0.00164	0.461	0.00256	3.038	0.733	
RUN NO 227 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 85.4 K LIQ PRESS 3.06 ATM CART HTR PWR 14.901 W													
1	307.9	58.6	34.3	0.000682	0.383	60.19	65024	0.05138	9.385	0.03764	*****	15.273	
2	61.9	58.4	32.5	0.000560	0.447	75.62	65193	0.00372	0.794	0.22811	*****	66.945	
3	58.7	58.3	31.8	0.000543	0.451	76.54	65276	0.00228	0.491	1.18074	*****	342.075	
4	60.3	58.2	31.1	0.000527	0.455	77.23	65360	0.00219	0.475	0.22772	*****	65.843	
5	62.0	58.0	29.7	0.000498	0.461	78.56	65518	0.00216	0.475	0.12033	*****	34.570	
6	61.7	57.7	27.3	0.000445	0.477	81.94	65861	0.00210	0.479	0.11870	*****	33.301	
7	170.2	57.1	23.9	0.000360	0.521	92.11	66349	0.00190	0.474	0.00420	6.248	1.251	
8	204.9	56.8	21.8	0.000307	0.564	102.18	66688	0.00176	0.474	0.00320	4.143	0.927	
9	220.2	56.6	20.9	0.000293	0.586	107.51	66860	0.00169	0.476	0.00291	3.567	0.824	
10	237.0	56.5	20.4	0.000272	0.598	110.11	66945	0.00161	0.462	0.00256	2.971	0.721	
RUN NO 228 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 87.3 K LIQ PRESS 3.06 ATM CART HTR PWR 26.621 W													
1	297.1	58.6	34.3	0.000660	0.398	64.09	64988	0.04936	9.386	0.03935	*****	15.396	
2	61.9	58.4	32.8	0.000545	0.463	79.49	65166	0.00350	0.774	0.22344	*****	63.775	
3	58.7	58.3	32.0	0.000528	0.467	80.39	65253	0.00219	0.489	1.11789	*****	315.135	
4	60.1	58.2	31.2	0.000512	0.470	81.07	65342	0.00211	0.473	0.24480	*****	68.868	
5	62.0	58.0	29.8	0.000484	0.477	82.40	65507	0.00208	0.473	0.11948	*****	33.422	
6	61.7	57.7	27.3	0.000432	0.492	85.74	65854	0.00203	0.477	0.11903	*****	32.545	
7	165.0	57.1	23.9	0.000350	0.536	95.85	66347	0.00184	0.473	0.00438	6.551	1.283	
8	198.5	56.8	21.8	0.000299	0.579	105.87	66688	0.00170	0.473	0.00334	4.336	0.942	
9	210.8	56.6	20.9	0.000276	0.601	111.16	66861	0.00165	0.475	0.00308	3.822	0.850	
10	227.0	56.5	20.4	0.000265	0.612	113.76	66946	0.00158	0.463	0.00272	3.192	0.746	
RUN NO 229 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 88.3 K LIQ PRESS 3.06 ATM CART HTR PWR 33.602 W													
1	291.4	58.6	34.5	0.000647	0.408	66.50	64970	0.04812	9.372	0.04026	*****	15.416	
2	61.9	58.4	32.9	0.000535	0.472	81.86	65152	0.00339	0.764	0.22131	*****	62.130	
3	58.7	58.3	32.1	0.000519	0.476	82.75	65242	0.00214	0.488	1.40242	*****	388.876	
4	60.1	58.2	31.3	0.000503	0.480	83.42	65332	0.00206	0.472	0.25064	*****	69.373	
5	61.5	58.0	29.8	0.000475	0.486	84.74	65502	0.00203	0.472	0.13630	*****	37.490	
6	61.5	57.7	27.3	0.000424	0.502	88.07	65850	0.00198	0.475	0.12516	*****	33.689	
7	161.7	57.1	23.9	0.000345	0.545	98.14	66345	0.00181	0.471	0.00451	6.711	1.298	
8	194.0	56.8	21.8	0.000294	0.588	108.10	66688	0.00167	0.472	0.00344	4.460	0.956	
9	205.1	56.6	20.9	0.000272	0.610	113.37	66861	0.00162	0.473	0.00318	3.961	0.866	
10	217.0	56.5	20.4	0.000261	0.621	115.97	66946	0.00156	0.465	0.00290	3.455	0.782	
RUN NO 230 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 88.3 K LIQ PRESS 3.06 ATM CART HTR PWR 37.101 W													
1	284.2	58.6	34.4	0.000639	0.412	67.54	64979	0.04760	9.369	0.04152	*****	15.725	
2	61.8	58.4	32.8	0.000530	0.476	82.88	65159	0.00331	0.752	0.21963	*****	61.222	
3	58.6	58.3	32.0	0.000514	0.481	83.76	65248	0.00212	0.486	1.45118	*****	399.614	
4	60.1	58.2	31.3	0.000498	0.484	84.43	65337	0.00203	0.470	0.25452	*****	69.962	
5	61.4	58.0	29.8	0.000470	0.490	85.74	65505	0.00201	0.471	0.13980	*****	38.186	
6	61.5	57.7	27.3	0.000421	0.506	89.06	65852	0.00196	0.474	0.12495	*****	33.417	
7	160.1	57.1	23.9	0.000342	0.549	99.08	66346	0.00179	0.470	0.00457	6.811	1.305	
8	192.0	56.8	21.8	0.000292	0.592	109.01	66688	0.00166	0.470	0.00348	4.524	0.961	
9	202.5	56.6	20.9	0.000270	0.614	114.26	66861	0.00160	0.472	0.00324	4.042	0.875	
10	218.0	56.5	20.4	0.000260	0.625	116.84	66946	0.00154	0.461	0.00285	3.376	0.768	
RUN NO 231 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 85.3 K LIQ PRESS 3.06 ATM CART HTR PWR 15.136 W													
1	304.7	58.6	34.1	0.000686	0.381	59.71	65017	0.05094	9.255	0.03760	*****	15.303	
2	61.7	58.4	32.4	0.000561	0.444	74.93	65208	0.00370	0.785	0.23654	*****	69.749	
3	58.5	58.2	31.0	0.000543	0.448	75.84	65302	0.00227	0.487	1.87670	*****	546.292	
4	60.0	58.1	30.7	0.000525	0.452	76.51	65397	0.00219	0.472	0.24938	*****	72.447	
5	62.9	57.9	29.2	0.000494	0.458	77.83	65583	0.00215	0.471	0.09570	*****	27.686	
6	61.5	57.6	26.7	0.000440	0.474	81.16	65938	0.00210	0.475	0.12004	*****	33.849	
7	171.4	57.1	23.3	0.000355	0.518	91.23	66429	0.00190	0.471	0.00412	6.093	1.245	
8	205.4	56.7	21.3	0.000301	0.560	101.20	66788	0.00175	0.471	0.00317	4.083	0.922	
9	216.3	56.5	20.4	0.000278	0.583	106.46	66958	0.00169	0.472	0.00296	3.671	0.840	
10	230.7	56.4	19.9	0.000267	0.594	109.05	67040	0.00162	0.461	0.00264	3.131	0.747	

STA NO	TIME TEMP K	WALL SAT TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 232	ORIF DIA 0.0567 CM	FLOW RATE 2.8d G/S	LIQ TEMP 82.7 K	LIQ PRESS 3.06 ATM	CART HTR PWR 0.000 W								
1	327.4	58.3	31.6	0.000676	0.360	54.29	65298	0.05385	9.268	0.03444	*****	14.797	
2	60.5	58.1	30.6	0.000559	0.423	69.40	65411	0.00344	0.694	0.29506	*****	90.476	
3	58.4	58.1	30.1	0.000547	0.426	70.15	65466	0.00171	0.348	1.09012	*****	330.958	
4	59.4	58.1	29.6	0.000536	0.429	70.63	65522	0.00164	0.335	0.24331	*****	73.734	
5	58.6	57.9	28.7	0.000514	0.433	71.58	65653	0.00163	0.339	0.44916	*****	134.928	
6	60.1	57.6	26.7	0.000468	0.445	73.97	65946	0.00160	0.340	0.13190	*****	39.042	
7	138.1	57.1	23.6	0.000390	0.476	81.17	66384	0.00148	0.337	0.00416	6.931	1.308	
8	157.8	56.8	21.7	0.000339	0.507	88.32	66705	0.00139	0.337	0.00334	5.041	1.014	
9	160.6	56.6	20.9	0.000316	0.524	92.11	66867	0.00135	0.339	0.00326	4.857	0.973	
10	170.0	56.5	20.4	0.000305	0.532	93.98	66949	0.00131	0.334	0.00294	4.206	0.875	
RUN NO 233	ORIF DIA 0.0567 CM	FLOW RATE 2.88 G/S	LIQ TEMP 82.9 K	LIQ PRESS 3.06 ATM	CART HTR PWR 1.774 W								
1	326.4	58.3	31.7	0.000674	0.362	54.81	65289	0.05351	9.263	0.03454	*****	14.769	
2	60.4	58.1	30.7	0.000558	0.425	69.91	65403	0.00341	0.692	0.29994	*****	91.602	
3	58.4	58.1	30.2	0.000545	0.428	70.66	65460	0.00169	0.347	1.07891	*****	326.244	
4	59.4	58.1	29.7	0.000534	0.431	71.14	65516	0.00162	0.334	0.23820	*****	71.909	
5	58.7	57.9	28.7	0.000512	0.435	72.09	65648	0.00162	0.338	0.41854	*****	125.265	
6	60.2	57.6	26.7	0.000466	0.447	74.46	65943	0.00159	0.339	0.12953	*****	38.202	
7	137.4	57.1	23.7	0.000389	0.478	81.64	66383	0.00147	0.336	0.00418	6.923	1.311	
8	157.1	56.8	21.8	0.000338	0.509	88.77	66704	0.00138	0.336	0.00335	5.018	1.019	
9	159.4	56.6	20.9	0.000315	0.525	92.54	66867	0.00134	0.338	0.00329	4.872	0.978	
10	168.6	56.5	20.4	0.000304	0.534	94.40	66948	0.00130	0.332	0.00296	4.207	0.877	
RUN NO 234	ORIF DIA 0.0567 CM	FLOW RATE 2.88 G/S	LIQ TEMP 83.7 K	LIQ PRESS 3.06 ATM	CART HTR PWR 6.907 W								
1	319.8	58.2	31.4	0.000654	0.370	56.57	65325	0.05294	9.352	0.03575	*****	15.012	
2	60.5	58.1	30.4	0.000543	0.433	71.78	65433	0.00330	0.682	0.28954	*****	87.176	
3	58.4	58.1	30.0	0.000532	0.436	72.52	65486	0.00168	0.349	1.06855	*****	318.606	
4	59.4	58.0	29.5	0.000521	0.438	73.01	65540	0.00161	0.337	0.24360	*****	72.508	
5	58.7	57.9	28.6	0.000501	0.443	73.96	65669	0.00160	0.340	0.39322	*****	116.069	
6	60.2	57.5	26.6	0.000457	0.454	76.35	65956	0.00157	0.341	0.13037	*****	37.928	
7	135.7	57.1	23.6	0.000382	0.486	83.57	66388	0.00145	0.338	0.00430	7.091	1.328	
8	156.1	56.8	21.7	0.000333	0.517	90.74	66707	0.00137	0.338	0.00341	5.055	1.022	
9	158.3	56.6	20.9	0.000310	0.534	94.53	66868	0.00133	0.340	0.00335	4.920	0.983	
10	167.0	56.5	20.4	0.000299	0.542	96.40	66949	0.00129	0.334	0.00302	4.267	0.883	
RUN NO 235	ORIF DIA 0.0567 CM	FLOW RATE 2.88 G/S	LIQ TEMP 85.4 K	LIQ PRESS 3.06 ATM	CART HTR PWR 15.248 W								
1	318.0	58.3	32.2	0.000646	0.383	60.00	65234	0.05124	9.378	0.03757	*****	15.256	
2	60.4	58.2	31.1	0.000537	0.446	75.22	65358	0.00310	0.661	0.29966	*****	87.940	
3	58.4	58.1	30.5	0.000525	0.450	75.94	65420	0.00162	0.349	1.29761	*****	377.300	
4	59.3	58.1	30.0	0.000513	0.452	76.42	65482	0.00156	0.337	0.27878	*****	80.912	
5	58.7	57.9	29.0	0.000492	0.457	77.37	65517	0.00156	0.340	0.41769	*****	120.274	
6	60.2	57.6	26.8	0.000447	0.468	79.75	65924	0.00152	0.341	0.13172	*****	37.411	
7	131.2	57.1	23.7	0.000373	0.500	86.94	66374	0.00141	0.338	0.00456	7.595	1.374	
8	153.7	56.8	21.8	0.000325	0.531	94.09	66699	0.00133	0.338	0.00349	5.138	1.024	
9	156.1	56.6	20.9	0.000303	0.547	97.88	66864	0.00130	0.340	0.00342	4.979	0.982	
10	164.7	56.5	20.4	0.000292	0.555	99.74	66947	0.00125	0.334	0.00309	4.321	0.883	
RUN NO 236	ORIF DIA 0.0567 CM	FLOW RATE 2.88 G/S	LIQ TEMP 87.0 K	LIQ PRESS 3.06 ATM	CART HTR PWR 26.573 W								
1	297.8	58.4	32.7	0.000634	0.397	63.40	65169	0.04980	9.434	0.03941	*****	15.502	
2	60.5	58.2	31.5	0.000528	0.460	78.67	65306	0.00292	0.643	0.28375	*****	81.243	
3	58.4	58.2	30.9	0.000515	0.463	79.38	65373	0.00157	0.348	1.39139	*****	394.766	
4	59.3	58.1	30.3	0.000504	0.466	79.86	65441	0.00151	0.336	0.28023	*****	79.372	
5	58.6	58.1	29.2	0.000481	0.470	80.80	65580	0.00151	0.339	0.50083	*****	140.741	
6	60.1	57.6	27.6	0.000436	0.482	83.16	65901	0.00148	0.341	0.13640	*****	37.835	
7	131.4	57.1	23.8	0.000364	0.514	90.32	66365	0.00137	0.338	0.00455	7.390	1.339	
8	150.9	56.8	21.8	0.000317	0.544	97.44	66693	0.00130	0.338	0.00359	5.249	1.031	
9	152.6	56.6	20.9	0.000296	0.561	101.21	66861	0.00126	0.340	0.00354	5.131	0.994	
10	161.0	56.5	20.4	0.000285	0.569	103.06	66945	0.00122	0.333	0.00319	4.442	0.892	
RUN NO 237	ORIF DIA 0.0567 CM	FLOW RATE 2.88 G/S	LIQ TEMP 88.1 K	LIQ PRESS 3.06 ATM	CART HTR PWR 33.504 W								
1	291.9	58.4	33.0	0.000624	0.406	65.75	65142	0.04899	9.501	0.04070	*****	15.675	
2	60.6	58.3	31.7	0.000520	0.470	81.11	65284	0.00283	0.635	0.27314	*****	76.891	
3	58.4	58.2	31.1	0.000507	0.473	81.81	65354	0.00155	0.350	1.46790	*****	409.479	
4	59.3	58.1	30.5	0.000495	0.476	82.29	65424	0.00149	0.338	0.28179	*****	78.482	
5	58.6	58.1	29.3	0.000473	0.480	83.23	65564	0.00149	0.341	0.54201	*****	149.778	
6	60.1	57.6	27.0	0.000429	0.492	85.59	65891	0.00145	0.342	0.13919	*****	37.980	
7	129.3	57.1	23.9	0.000357	0.524	92.78	66361	0.00135	0.339	0.00470	7.672	1.360	
8	170.0	56.8	21.0	0.000311	0.555	99.91	66690	0.00128	0.340	0.00364	5.294	1.029	
9	171.9	56.6	20.9	0.000290	0.571	103.69	66860	0.00125	0.341	0.00358	5.159	0.991	
10	180.4	56.5	20.4	0.000281	0.579	105.55	66945	0.00121	0.335	0.00322	4.462	0.889	

STA NO	TUBE TEMP K	WALL SAT TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 238 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 88.3 K LIQ PRESS 3.06 ATM CART HTR PWR 37.011 W													
1	291.1	58.5	33.3	0.000623	0.410	66.86	65105	0.04826	9.458	0.04066	*****	15.517	
2	60.6	58.3	32.0	0.000520	0.474	82.14	65253	0.00279	0.631	0.27330	*****	76.390	
3	58.4	58.2	31.3	0.000506	0.477	82.84	65327	0.00152	0.348	2.12040	*****	587.278	
4	59.3	58.1	30.7	0.000494	0.480	83.31	65400	0.00146	0.335	0.29681	*****	82.040	
5	58.6	58.0	29.5	0.000471	0.484	84.24	65543	0.00146	0.338	0.53900	*****	147.924	
6	50.0	57.6	27.1	0.000427	0.496	86.58	65877	0.00143	0.339	0.14104	*****	38.232	
7	128.4	57.1	23.8	0.000355	0.527	93.70	66354	0.00133	0.337	0.00472	*****	7.709	
8	148.7	56.8	21.8	0.000310	0.558	100.77	66686	0.00126	0.337	0.00367	*****	5.334	
9	150.6	56.6	20.9	0.000289	0.574	104.51	66857	0.00123	0.339	0.00360	*****	5.195	
10	159.1	56.5	20.4	0.000279	0.582	106.35	66943	0.00119	0.332	0.00324	*****	4.487	
11													0.888
RUN NO 239 ORIF DIA 0.0567 CM FLOW RATE 2.88 G/S LIQ TEMP 83.5 K LIQ PRESS 3.06 ATM CART HTR PWR 7.012 W													
1	317.9	58.3	32.0	0.000669	0.368	56.35	65251	0.05365	9.441	0.03637	*****	15.299	
2	60.4	58.2	30.9	0.000553	0.432	71.70	65372	0.00329	0.680	0.30468	*****	91.784	
3	58.4	58.1	30.4	0.000540	0.435	72.44	65432	0.00168	0.350	1.36375	*****	406.901	
4	59.3	58.0	29.9	0.000528	0.438	72.92	65492	0.00162	0.338	0.27316	*****	81.347	
5	58.7	57.9	28.9	0.000506	0.442	73.88	65626	0.00161	0.341	0.43027	*****	127.074	
6	60.1	57.6	28.8	0.000460	0.454	76.28	65929	0.00158	0.343	0.13588	*****	39.547	
7	137.7	57.1	23.7	0.000383	0.486	83.53	66376	0.00146	0.340	0.00421	*****	6.829	
8	156.9	56.8	21.8	0.000333	0.517	90.72	66699	0.00137	0.340	0.00339	*****	4.990	
9	158.2	56.6	20.9	0.000310	0.534	94.54	66864	0.00134	0.342	0.00336	*****	4.919	
10	167.1	56.5	20.4	0.000300	0.542	96.41	66946	0.00129	0.334	0.00302	*****	4.247	
11													0.884
RUN NO 290 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.2 K LIQ PRESS 1.58 ATM CART HTR PWR 0.000 W													
1	347.7	59.5	42.7	0.001003	0.321	46.57	100515	0.05029	12.057	0.04183	*****	13.680	
2	65.5	59.0	37.4	0.000759	0.375	58.95	101279	0.00331	0.928	0.14229	*****	33.580	
3	59.1	58.6	34.8	0.000702	0.379	59.53	101740	0.00199	0.566	1.22426	*****	283.742	
4	59.4	58.3	32.2	0.000647	0.383	59.89	102206	0.00190	0.544	0.52816	*****	121.956	
5	59.6	57.7	27.6	0.000551	0.389	60.52	103123	0.00193	0.564	0.30062	*****	68.972	
6	155.2	57.0	23.1	0.000454	0.400	62.42	104142	0.00179	0.538	0.00548	*****	1.406	
7	193.2	56.1	18.2	0.000339	0.430	68.34	105541	0.00168	0.543	0.00396	*****	4.887	
8	216.7	55.4	15.0	0.000268	0.455	73.66	106675	0.00158	0.542	0.00336	*****	3.813	
9	226.5	55.0	13.7	0.000239	0.467	76.11	107193	0.00155	0.544	0.00317	*****	3.485	
10	242.1	54.9	13.1	0.000227	0.472	77.22	107470	0.00149	0.531	0.00283	*****	2.959	
11													0.686
RUN NO 291 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.3 K LIQ PRESS 1.58 ATM CART HTR PWR 1.687 W													
1	341.9	59.8	45.2	0.001057	0.321	46.83	100170	0.05045	12.074	0.04279	*****	13.949	
2	64.2	59.2	39.5	0.000798	0.375	59.25	100976	0.00328	0.920	0.18505	*****	43.474	
3	59.3	58.9	36.7	0.000737	0.379	59.83	101408	0.00198	0.561	1.22328	*****	283.123	
4	60.0	58.5	33.9	0.000679	0.383	60.21	101905	0.00191	0.546	0.36850	*****	85.025	
5	64.0	57.9	28.9	0.000576	0.389	60.87	102818	0.00192	0.560	0.09261	*****	21.369	
6	154.4	57.2	24.2	0.000474	0.401	62.81	103885	0.00175	0.537	0.00593	*****	1.411	
7	193.9	56.7	19.0	0.000352	0.431	68.84	105298	0.00167	0.542	0.00394	*****	4.860	
8	218.1	55.5	15.7	0.000278	0.457	74.28	106434	0.00157	0.541	0.00333	*****	3.769	
9	229.0	55.2	14.2	0.000247	0.469	76.81	106980	0.00154	0.543	0.00312	*****	3.411	
10	244.2	55.0	13.6	0.000234	0.474	77.97	107222	0.00148	0.530	0.00280	*****	2.916	
11													0.675
RUN NO 292 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.9 K LIQ PRESS 1.58 ATM CART HTR PWR 6.848 W													
1	335.0	59.6	44.0	0.001013	0.327	48.08	100335	0.04955	12.078	0.04387	*****	14.082	
2	74.2	59.1	38.6	0.000770	0.380	60.45	101106	0.00308	0.876	0.05806	*****	13.731	
3	59.1	58.8	35.9	0.000713	0.385	61.02	101545	0.00207	0.594	2.01259	*****	460.712	
4	60.2	58.5	33.2	0.000657	0.388	61.40	102019	0.00189	0.548	0.31051	*****	70.942	
5	68.7	57.8	28.5	0.000561	0.394	62.05	102912	0.00184	0.555	0.05115	*****	11.784	
6	152.7	57.1	23.9	0.000462	0.406	63.95	103959	0.00176	0.536	0.00561	*****	1.417	
7	189.7	56.2	18.8	0.000346	0.435	69.92	105350	0.00165	0.540	0.00405	*****	5.037	
8	213.0	55.5	15.6	0.000274	0.461	75.31	106461	0.00155	0.540	0.00343	*****	3.915	
9	224.9	55.2	14.2	0.000244	0.473	77.83	106992	0.00152	0.541	0.00319	*****	3.500	
10	240.7	55.0	13.6	0.000232	0.478	78.98	107228	0.00147	0.529	0.00285	*****	2.972	
11													0.681
RUN NO 293 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 15.387 W													
1	323.2	59.7	45.0	0.001013	0.334	49.89	100199	0.04890	12.167	0.04618	*****	14.513	
2	65.5	59.2	39.3	0.000769	0.388	62.35	100999	0.00304	0.881	0.13893	*****	31.859	
3	59.2	58.9	36.5	0.000711	0.392	62.91	101433	0.00193	0.566	1.49127	*****	336.171	
4	60.1	58.5	33.8	0.000655	0.395	63.27	101925	0.00186	0.549	0.34768	*****	78.189	
5	67.1	57.9	28.9	0.000557	0.402	63.91	102836	0.00186	0.559	0.06101	*****	13.804	
6	155.4	57.2	24.1	0.000459	0.413	65.81	103899	0.00173	0.537	0.00547	*****	1.365	
7	185.1	56.2	19.0	0.000342	0.443	71.76	105309	0.00163	0.542	0.00421	*****	5.269	
8	206.4	55.5	15.7	0.000271	0.468	77.11	106441	0.00154	0.542	0.00359	*****	4.145	
9	219.2	55.2	14.2	0.000241	0.480	79.58	106984	0.00150	0.543	0.00331	*****	3.656	
10	234.8	55.0	13.6	0.000229	0.485	80.71	107225	0.00145	0.532	0.00296	*****	3.105	
11													0.697

STA NO	TUBE TEMP K	WALL MIXTURE SAT TEMP K	MIXTURE PRESSURE MM HG	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX -	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER -	STERMAN PARAMETER -	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF -	EXP/S-T H-T COEF -
RUN NO 294 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.0 K LIQ PRESS 1.58 ATM CAHT HTR PWR 0.000 W													
1	350.7	59.5	42.0	0.001005	0.320	46.20	100533	0.05066	12.092	0.04153	*****		13.641
2	63.5	59.0	37.5	0.000764	0.373	58.57	101270	0.00310	0.864	0.19166	*****		45.220
3	59.4	58.7	34.9	0.000709	0.377	59.08	101717	0.00172	0.485	0.70531	*****		164.190
4	60.0	58.4	32.4	0.000655	0.381	59.38	102167	0.00167	0.475	0.29423	*****		68.322
5	66.0	57.8	27.9	0.000563	0.386	59.90	103043	0.00166	0.481	0.05847	*****		13.644
6	134.1	57.1	23.4	0.000466	0.396	61.48	104060	0.00157	0.466	0.00605	*****		1.534
7	174.5	56.2	18.6	0.000352	0.422	66.55	105423	0.00148	0.469	0.00396	*****	5.179	0.995
8	196.3	55.5	15.5	0.000282	0.444	71.14	106506	0.00140	0.468	0.00333	*****	3.983	0.819
9	203.9	55.1	14.1	0.000253	0.455	73.29	107016	0.00137	0.469	0.00315	*****	3.672	0.769
10	213.6	55.0	13.6	0.000241	0.459	74.28	107241	0.00134	0.463	0.00292	*****	3.284	0.711
RUN NO 295 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.2 K LIQ PRESS 1.58 ATM CAHT HTR PWR 1.870 W													
1	349.2	59.7	44.2	0.001036	0.321	46.67	100311	0.05034	12.050	0.04162	*****		13.611
2	63.3	59.1	38.7	0.000785	0.374	59.01	101088	0.00307	0.860	0.20643	*****		48.514
3	59.3	58.8	36.0	0.000727	0.378	59.52	101526	0.00171	0.483	0.93888	*****		217.810
4	60.1	58.5	33.3	0.000671	0.382	59.82	102003	0.00165	0.471	0.29490	*****		68.267
5	65.1	57.9	28.6	0.000573	0.387	60.35	102900	0.00165	0.479	0.06544	*****		15.303
6	132.5	57.1	23.9	0.000473	0.398	61.92	103950	0.00155	0.464	0.00616	*****		1.554
7	173.8	56.2	18.9	0.000356	0.423	66.97	105345	0.00147	0.467	0.00397	*****	5.232	0.994
8	195.5	55.5	15.6	0.000284	0.446	71.52	106460	0.00139	0.466	0.00333	*****	4.023	0.818
9	203.0	55.2	14.2	0.000254	0.456	73.62	106994	0.00136	0.469	0.00317	*****	3.725	0.771
10	220.8	55.0	13.6	0.000241	0.460	74.57	107230	0.00132	0.457	0.00276	*****	3.040	0.672
RUN NO 296 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.7 K LIQ PRESS 1.58 ATM CAHT HTR PWR 7.162 W													
1	334.4	59.6	43.8	0.001012	0.326	47.80	100367	0.04984	12.110	0.04407	*****		14.141
2	64.0	59.1	38.4	0.000770	0.379	60.16	101132	0.00293	0.831	0.17056	*****		39.733
3	59.3	58.8	35.8	0.000713	0.383	60.65	101572	0.00170	0.487	0.89510	*****		205.613
4	60.8	58.4	33.1	0.000658	0.386	60.95	102042	0.00162	0.469	0.19999	*****		45.906
5	64.7	57.8	28.4	0.000563	0.392	61.46	102931	0.00163	0.479	0.07013	*****		16.120
6	129.9	57.1	23.8	0.000466	0.402	63.03	103976	0.00154	0.464	0.00638	*****		1.591
7	171.0	56.2	18.8	0.000351	0.428	68.05	105363	0.00145	0.467	0.00407	*****	5.349	1.008
8	191.8	55.5	15.6	0.000281	0.450	72.56	106469	0.00138	0.467	0.00342	*****	4.133	0.842
9	198.6	55.2	14.2	0.000251	0.460	74.65	106999	0.00135	0.469	0.00327	*****	3.849	0.787
10	214.7	55.0	13.6	0.000239	0.465	75.60	107233	0.00131	0.458	0.00287	*****	3.181	0.692
RUN NO 297 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CAHT HTR PWR 15.882 W													
1	323.6	59.5	42.2	0.000957	0.333	49.35	100589	0.04894	12.160	0.04604	*****		14.530
2	63.1	58.9	37.2	0.000732	0.386	61.71	101327	0.00282	0.813	0.19495	*****		44.729
3	59.5	58.6	34.7	0.000680	0.390	62.19	101768	0.00164	0.480	0.56166	*****		127.345
4	59.6	58.3	32.2	0.000630	0.393	62.47	102212	0.00160	0.471	0.35753	*****		80.921
5	63.2	57.7	27.7	0.000541	0.399	62.95	103085	0.00157	0.469	0.08602	*****		19.474
6	77.7	57.0	23.3	0.000449	0.408	64.47	104091	0.00153	0.469	0.02269	*****		5.204
7	165.9	56.2	18.5	0.000341	0.434	69.46	105446	0.00143	0.466	0.00425	*****	5.602	1.038
8	187.0	55.5	15.5	0.000275	0.456	73.93	106522	0.00136	0.467	0.00355	*****	4.282	0.852
9	193.4	55.1	14.1	0.000247	0.466	76.03	107023	0.00134	0.469	0.00339	*****	3.992	0.796
10	209.0	55.0	13.5	0.000235	0.470	76.99	107245	0.00129	0.457	0.00297	*****	3.295	0.704
RUN NO 298 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CAHT HTR PWR 20.244 W													
1	315.1	59.5	42.6	0.000950	0.339	50.77	100534	0.04800	12.128	0.04744	*****		14.727
2	63.5	59.0	37.5	0.000728	0.392	63.08	101271	0.00271	0.795	0.17566	*****		39.875
3	59.3	58.7	34.9	0.000676	0.396	63.55	101717	0.00162	0.480	0.71152	*****		159.476
4	59.6	58.4	32.4	0.000626	0.399	63.83	102168	0.00157	0.468	0.36200	*****		80.927
5	62.5	57.8	27.9	0.000538	0.404	64.30	103044	0.00155	0.468	0.09950	*****		22.252
6	82.1	57.1	23.4	0.000446	0.414	65.79	104060	0.00150	0.467	0.01863	*****		4.265
7	164.5	56.2	18.6	0.000339	0.439	70.72	105424	0.00141	0.464	0.00429	*****	5.651	1.037
8	185.6	55.5	15.5	0.000272	0.460	75.13	106507	0.00134	0.465	0.00357	*****	4.306	0.849
9	192.1	55.1	14.1	0.000245	0.470	77.17	107016	0.00131	0.465	0.00340	*****	3.991	0.800
10	197.3	55.0	13.6	0.000233	0.475	78.11	107242	0.00129	0.463	0.00326	*****	3.750	0.755
RUN NO 299 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 79.9 K LIQ PRESS 1.58 ATM CAHT HTR PWR 0.000 W													
1	348.0	59.5	42.4	0.001004	0.319	45.93	100562	0.05031	11.971	0.04148	*****		13.653
2	62.0	59.0	37.3	0.000764	0.372	58.14	101299	0.00296	0.823	0.27379	*****		64.611
3	59.7	58.7	34.8	0.000709	0.376	58.61	101743	0.00156	0.439	0.41766	*****		97.674
4	60.7	58.3	32.3	0.000657	0.379	58.87	102190	0.00150	0.426	0.18013	*****		42.047
5	60.0	57.7	27.8	0.000564	0.384	59.30	103065	0.00150	0.431	0.19268	*****		44.743
6	69.5	57.1	23.4	0.000468	0.393	60.69	104076	0.00145	0.430	0.03462	*****		8.569
7	160.7	56.2	18.6	0.000356	0.417	65.27	105435	0.00136	0.427	0.00408	*****	5.595	1.027
8	180.7	55.5	15.5	0.000287	0.437	69.37	106515	0.00130	0.428	0.00342	*****	4.296	0.864
9	186.2	55.1	14.1	0.000258	0.446	71.29	107020	0.00128	0.430	0.00324	*****	4.039	0.853
10	203.1	55.0	13.5	0.000245	0.451	72.17	107244	0.00123	0.419	0.00283	*****	3.257	0.696

STA NO	TUBE TEMP K	WALL SAT K	MIXTURE TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FHSP H-T COEF	EXP/S-T H-T COEF
RUN NO 300 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.0 K LIQ PRESS 1.58 ATM CART HTR PWR 1.755 W													
1	343.7	59.5	42.6	0.001004	0.320	46.27	100535	0.05034	12.026	0.04231	*****	13.862	
2	61.9	59.0	37.5	0.000764	0.373	58.52	101272	0.00293	0.816	0.27527	*****	64.786	
3	59.5	58.7	34.9	0.000709	0.377	58.99	101718	0.00156	0.441	0.51556	*****	120.142	
4	60.6	58.4	32.4	0.000656	0.380	59.25	102169	0.00150	0.426	0.19315	*****	44.952	
5	58.9	57.8	27.9	0.000564	0.385	59.68	103045	0.00150	0.432	0.39060	*****	90.129	
6	68.0	57.1	23.4	0.000468	0.395	61.08	104061	0.00146	0.432	0.03952	*****	9.154	
7	160.4	56.2	18.6	0.000355	0.418	65.66	105425	0.00136	0.428	0.00411	5.612	1.030	
8	180.7	55.5	15.5	0.000286	0.439	69.77	106508	0.00130	0.429	0.00343	4.286	0.844	
9	185.9	55.1	14.1	0.000257	0.448	71.68	107017	0.00128	0.431	0.00330	4.045	0.805	
10	201.7	55.0	13.6	0.000245	0.452	72.56	107243	0.00123	0.421	0.00287	3.301	0.702	
RUN NO 301 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.5 K LIQ PRESS 1.58 ATM CART HTR PWR 6.699 W													
1	336.8	59.5	42.6	0.000991	0.324	47.31	100535	0.05003	12.109	0.04367	*****	14.125	
2	62.6	59.0	37.5	0.000755	0.378	59.63	101272	0.00285	0.803	0.22239	*****	51.901	
3	59.5	58.7	34.9	0.000701	0.382	60.09	101719	0.00156	0.445	0.50801	*****	117.272	
4	60.5	58.4	32.4	0.000649	0.384	60.35	102169	0.00149	0.428	0.20224	*****	46.619	
5	58.8	57.8	27.9	0.000557	0.390	60.77	103045	0.00149	0.435	0.40667	*****	92.972	
6	70.5	57.1	23.4	0.000462	0.399	62.16	104062	0.00145	0.433	0.03222	*****	7.434	
7	159.3	56.2	18.6	0.000352	0.423	66.74	105425	0.00135	0.430	0.00417	5.683	1.036	
8	179.1	55.5	15.5	0.000283	0.443	70.84	106508	0.00129	0.431	0.00349	4.358	0.851	
9	184.1	55.1	14.1	0.000255	0.452	72.74	107018	0.00127	0.433	0.00336	4.118	0.812	
10	199.7	55.0	13.6	0.000242	0.457	73.62	107243	0.00123	0.423	0.00292	3.366	0.710	
RUN NO 302 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 15.047 W													
1	321.4	58.7	35.5	0.000809	0.336	49.09	101611	0.04854	12.193	0.04643	*****	14.631	
2	62.4	58.3	31.7	0.000628	0.389	61.34	102292	0.00266	0.775	0.18807	*****	43.137	
3	59.5	58.0	29.8	0.000589	0.392	61.75	102631	0.00151	0.443	0.29772	*****	67.632	
4	60.2	57.8	28.0	0.000551	0.395	61.98	103039	0.00145	0.429	0.17554	*****	39.839	
5	59.0	57.2	24.6	0.000484	0.399	62.35	103796	0.00145	0.434	0.24305	*****	54.838	
6	65.6	56.6	21.1	0.000410	0.407	63.62	104717	0.00142	0.434	0.04848	*****	10.951	
7	156.9	55.9	17.2	0.000322	0.430	68.08	105857	0.00133	0.430	0.00426	5.729	1.045	
8	176.6	55.3	14.8	0.000267	0.449	72.18	106776	0.00127	0.431	0.00355	4.384	0.858	
9	181.7	55.1	13.8	0.000245	0.459	74.25	107145	0.00125	0.433	0.00342	4.132	0.817	
10	197.7	55.0	13.4	0.000236	0.463	75.25	107318	0.00120	0.420	0.00295	3.335	0.706	
RUN NO 303 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 22.820 W													
1	316.2	59.5	43.0	0.000956	0.339	51.00	100480	0.04843	12.261	0.04776	*****	14.802	
2	62.4	59.0	37.5	0.000732	0.393	63.41	101222	0.00262	0.768	0.22731	*****	51.355	
3	59.5	58.7	35.2	0.000679	0.397	63.85	101669	0.00150	0.446	0.53137	*****	118.857	
4	60.6	58.4	32.7	0.000629	0.400	64.10	102125	0.00144	0.430	0.19669	*****	43.955	
5	59.1	57.8	28.1	0.000540	0.405	64.50	103004	0.00144	0.436	0.33946	*****	75.390	
6	64.6	57.1	23.6	0.000448	0.414	65.85	104031	0.00140	0.436	0.05833	*****	12.929	
7	155.6	56.2	18.7	0.000341	0.437	70.37	105040	0.00131	0.432	0.00435	5.861	1.047	
8	175.7	55.5	15.5	0.000275	0.457	74.38	106494	0.00126	0.433	0.00360	4.446	0.856	
9	181.0	55.2	14.2	0.000247	0.466	76.22	107011	0.00124	0.435	0.00346	4.181	0.815	
10	197.2	55.0	13.6	0.000235	0.470	77.05	107240	0.00119	0.423	0.00298	3.367	0.705	
RUN NO 304 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 75.9 K LIQ PRESS 1.58 ATM CART HTR PWR 0.000 W													
1	348.6	59.4	41.6	0.000985	0.319	46.00	100674	0.05062	12.073	0.04175	*****	13.727	
2	61.6	58.9	36.7	0.000750	0.373	58.26	101412	0.00281	0.782	0.28995	*****	68.326	
3	59.4	58.6	34.2	0.000697	0.376	58.69	101844	0.00141	0.396	0.47699	*****	111.390	
4	60.1	58.3	31.8	0.000646	0.379	59.00	102280	0.00135	0.383	0.20891	*****	48.711	
5	58.7	57.7	27.5	0.000557	0.384	59.25	103148	0.00135	0.388	0.39009	*****	90.305	
6	62.9	57.0	23.1	0.000464	0.392	60.43	104137	0.00132	0.388	0.06580	*****	15.190	
7	148.7	56.1	18.4	0.000356	0.414	64.44	105480	0.00124	0.385	0.00416	5.904	1.042	
8	167.1	55.4	15.4	0.000289	0.432	68.02	106545	0.00119	0.385	0.00345	4.510	0.854	
9	171.4	55.1	14.1	0.000261	0.440	69.70	107035	0.00117	0.388	0.00333	4.279	0.817	
10	185.8	55.0	13.5	0.000249	0.444	70.47	107251	0.00113	0.379	0.00290	3.497	0.713	
RUN NO 305 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.0 K LIQ PRESS 1.58 ATM CART HTR PWR 1.777 W													
1	347.7	59.5	42.2	0.000996	0.320	46.24	100590	0.05029	12.017	0.04169	*****	13.675	
2	61.5	58.9	37.2	0.000759	0.373	58.44	101328	0.00279	0.779	0.29873	*****	70.292	
3	59.3	58.6	34.7	0.000705	0.377	58.87	101769	0.00140	0.395	0.58951	*****	137.442	
4	60.2	58.3	32.2	0.000653	0.379	59.09	102213	0.00134	0.381	0.20450	*****	47.621	
5	58.7	57.7	27.7	0.000562	0.384	59.43	103086	0.00134	0.386	0.38298	*****	88.534	
6	62.6	57.0	23.3	0.000467	0.393	60.61	104042	0.00131	0.386	0.07005	*****	16.139	
7	148.0	56.2	18.5	0.000358	0.414	64.60	105447	0.00123	0.384	0.00417	5.921	1.043	
8	166.2	55.5	15.5	0.000290	0.432	68.15	106523	0.00118	0.384	0.00346	4.525	0.855	
9	170.3	55.1	14.1	0.000261	0.440	69.80	107025	0.00116	0.386	0.00335	4.307	0.820	
10	184.4	55.0	13.5	0.000249	0.444	70.56	107246	0.00113	0.377	0.00292	3.527	0.717	

STA NO	TUBE NO	WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 306 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.6 K LIQ PRESS 1.58 ATM CART HTR PWR 6.530 W													
1	337.5	59.3	40.3	0.000939	0.326	47.47	100841	0.04973	12.114	0.04354	*****		14.051
2	62.6	58.8	35.7	0.000719	0.379	59.72	101581	0.00267	0.758	0.19669	*****		45.835
3	59.3	58.5	33.4	0.000670	0.383	60.13	101995	0.00139	0.399	0.51292	*****		118.224
4	60.1	58.2	31.1	0.000622	0.385	60.33	102413	0.00133	0.383	0.20260	*****		46.646
5	58.6	57.6	26.9	0.000538	0.390	60.66	103273	0.00133	0.388	0.40462	*****		92.523
6	65.6	56.9	22.7	0.000450	0.398	61.81	104244	0.00130	0.387	0.04497	*****		10.314
7	146.9	56.1	18.2	0.000347	0.419	65.76	105546	0.00122	0.384	0.00423	5.977		1.048
8	164.4	55.4	15.3	0.000283	0.437	69.31	106590	0.00117	0.385	0.00353	4.603		0.864
9	168.1	55.1	14.0	0.000257	0.445	70.99	107056	0.00115	0.387	0.00343	4.399		0.830
10	182.2	55.0	13.5	0.000246	0.449	71.77	107264	0.00112	0.379	0.00298	3.592		0.724
RUN NO 307 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 15.338 W													
1	323.0	59.4	41.4	0.000938	0.334	49.52	100700	0.04859	12.116	0.04596	*****		14.472
2	63.5	58.9	36.5	0.000720	0.387	61.74	101439	0.00251	0.727	0.15607	*****		35.817
3	59.2	58.6	34.1	0.000669	0.391	62.14	101868	0.00137	0.399	0.60441	*****		136.989
4	59.7	58.3	31.7	0.000621	0.393	62.34	102301	0.00130	0.382	0.27072	*****		61.255
5	58.6	57.7	27.4	0.000536	0.398	62.66	103168	0.00129	0.386	0.43227	*****		97.233
6	64.6	57.0	23.0	0.000447	0.406	63.79	104151	0.00127	0.386	0.05070	*****		11.424
7	144.4	56.1	18.4	0.000344	0.427	67.68	105489	0.00119	0.383	0.00434	6.122		1.056
8	161.3	55.4	15.4	0.000280	0.444	71.14	106551	0.00115	0.383	0.00362	4.724		0.872
9	164.7	55.1	14.1	0.000254	0.452	72.75	107037	0.00113	0.386	0.00352	4.529		0.840
10	178.7	55.0	13.5	0.000242	0.456	73.49	107252	0.00110	0.378	0.00305	3.694		0.732
RUN NO 308 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 23.305 W													
1	312.8	59.4	42.0	0.000931	0.341	51.29	100617	0.04790	12.191	0.04813	*****		14.849
2	62.6	58.9	37.0	0.000715	0.394	63.57	101355	0.00242	0.712	0.19154	*****		43.224
3	59.2	58.6	34.5	0.000665	0.398	63.96	101792	0.00134	0.399	0.65164	*****		145.502
4	60.3	58.3	32.0	0.000616	0.400	64.16	102234	0.00127	0.381	0.19461	*****		43.435
5	58.8	57.7	27.7	0.000531	0.405	64.47	103106	0.00127	0.386	0.36494	*****		80.925
6	62.7	57.0	23.2	0.000443	0.413	65.58	104106	0.00125	0.387	0.06797	*****		15.046
7	143.2	56.1	18.5	0.000341	0.434	69.45	105456	0.00118	0.384	0.00441	6.189		1.058
8	159.9	55.5	15.4	0.000277	0.451	72.86	106529	0.00113	0.384	0.00368	4.777		0.874
9	162.8	55.1	14.1	0.000250	0.459	74.43	107027	0.00112	0.387	0.00359	4.602		0.845
10	176.7	55.0	13.5	0.000239	0.463	75.14	107246	0.00108	0.378	0.00311	3.749		0.736
RUN NO 309 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 79.8 K LIQ PRESS 1.58 ATM CART HTR PWR 0.000 W													
1	351.2	59.1	39.1	0.000925	0.321	45.90	101036	0.05087	12.180	0.04170	*****		13.721
2	177.5	58.6	34.6	0.000710	0.373	57.96	101778	0.00178	0.496	0.00417	*****		1.132
3	129.8	58.4	32.4	0.000663	0.376	58.32	102171	0.00192	0.541	0.00757	*****		1.968
4	128.9	58.1	30.2	0.000616	0.379	58.58	102567	0.00126	0.356	0.00503	*****		1.302
5	130.0	57.5	26.3	0.000535	0.383	58.86	103417	0.00123	0.354	0.00468	*****		1.261
6	140.5	56.9	22.3	0.000450	0.391	59.86	104374	0.00120	0.351	0.00420	*****		1.046
7	145.8	56.0	17.9	0.000350	0.410	63.39	105621	0.00114	0.352	0.00392	5.527		0.949
8	154.3	55.4	15.1	0.000288	0.426	66.59	106640	0.00110	0.352	0.00356	4.822		0.881
9	157.0	55.1	14.0	0.000263	0.434	68.12	107080	0.00108	0.354	0.00367	4.653		0.852
10	170.6	55.0	13.5	0.000252	0.437	68.85	107277	0.00105	0.346	0.00299	3.770		0.738
RUN NO 310 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.0 K LIQ PRESS 1.58 ATM CART HTR PWR 1.779 W													
1	348.3	59.3	40.3	0.000947	0.322	46.46	100868	0.05106	12.284	0.04250	*****		13.898
2	180.9	58.7	35.6	0.000725	0.375	58.62	101608	0.00173	0.484	0.00396	*****		1.072
3	131.6	58.5	33.2	0.000675	0.378	58.98	102019	0.00193	0.547	0.00747	*****		1.936
4	129.9	58.2	30.9	0.000627	0.381	59.24	102434	0.00126	0.360	0.00501	*****		1.293
5	130.2	57.6	26.8	0.000543	0.385	59.53	103292	0.00123	0.357	0.00491	*****		1.263
6	139.7	56.9	22.0	0.000454	0.393	60.55	104261	0.00120	0.354	0.00427	*****		1.098
7	144.3	56.1	18.1	0.000352	0.413	64.10	105555	0.00114	0.355	0.00402	5.666		1.005
8	153.3	55.4	15.3	0.000288	0.429	67.31	106596	0.00110	0.354	0.00362	4.901		0.891
9	155.8	55.1	14.0	0.000262	0.436	68.82	107058	0.00108	0.356	0.00354	4.745		0.864
10	169.1	55.0	13.5	0.000251	0.440	69.52	107264	0.00105	0.349	0.00306	3.852		0.749
RUN NO 313 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 79.8 K LIQ PRESS 1.58 ATM CART HTR PWR 0.000 W													
1	350.9	59.3	40.3	0.000954	0.320	45.85	100868	0.05122	12.226	0.04193	*****		13.809
2	62.3	58.7	35.6	0.000729	0.373	58.11	101608	0.00233	0.648	0.18372	*****		43.382
3	59.2	58.5	33.2	0.000679	0.376	58.41	102019	0.00092	0.260	0.32899	*****		74.955
4	59.0	58.2	30.9	0.000632	0.378	58.50	102434	0.00088	0.250	0.29054	*****		67.817
5	58.0	57.6	26.8	0.000548	0.382	58.59	103292	0.00088	0.251	0.61411	*****		142.753
6	60.7	56.9	22.6	0.000461	0.387	59.14	104261	0.00086	0.252	0.06742	*****		15.664
7	114.8	56.1	18.1	0.000362	0.401	61.36	105555	0.00083	0.250	0.00425	6.907		1.056
8	126.9	55.4	15.3	0.000300	0.413	63.29	106596	0.00080	0.250	0.00350	5.262		0.867
9	129.0	55.1	14.0	0.000274	0.418	64.16	107058	0.00080	0.252	0.00340	5.050		0.840
10	137.8	55.0	13.5	0.000263	0.420	64.56	107264	0.00078	0.248	0.00299	4.217		0.742

STA NO	TUBE K	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 314 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 79.9 K LIQ PRESS 1.58 ATM CART HTR PWR 1.718 W													
1	346.6		59.2	39.7	0.000940	0.320	45.87	100951	0.05012	11.982	0.04170	*****	13.708
2	62.1		58.7	35.1	0.000721	0.372	57.87	101693	0.00228	0.636	0.18832	*****	44.534
3	59.2		58.4	32.8	0.000672	0.375	58.16	102095	0.00090	0.254	0.31584	*****	74.920
4	59.1		58.1	30.6	0.000626	0.377	58.24	102500	0.00087	0.244	0.26234	*****	61.362
5	57.9		57.5	26.5	0.000544	0.381	58.32	103355	0.00086	0.246	0.65620	*****	152.851
6	61.4		56.9	22.5	0.000459	0.386	58.85	104318	0.00085	0.246	0.05430	*****	12.665
7	113.6		56.1	18.9	0.000361	0.400	61.00	105588	0.00081	0.245	0.00425	6.903	1.057
8	125.5		55.4	15.2	0.000300	0.411	62.88	106618	0.00079	0.245	0.00350	5.264	0.868
9	127.2		55.1	14.0	0.000274	0.416	63.73	107069	0.00079	0.246	0.00342	5.100	0.845
10	135.5		55.0	13.5	0.000263	0.418	64.13	107271	0.00077	0.242	0.00301	4.260	0.747
RUN NO 315 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 80.4 K LIQ PRESS 1.58 ATM CART HTR PWR 6.510 W													
1	336.0		59.3	40.5	0.000944	0.325	47.08	100840	0.04986	12.085	0.04368	*****	14.146
2	62.5		58.8	35.7	0.000724	0.377	59.17	101580	0.00218	0.616	0.16478	*****	38.574
3	59.3		58.5	33.4	0.000675	0.380	59.45	101994	0.00090	0.256	0.32340	*****	74.979
4	58.9		58.2	31.1	0.000627	0.382	59.53	102412	0.00086	0.246	0.35120	*****	81.233
5	58.0		57.6	26.9	0.000544	0.386	59.61	103272	0.00086	0.248	0.70081	*****	161.492
6	61.2		56.9	22.7	0.000458	0.391	60.13	104242	0.00084	0.248	0.05877	*****	13.555
7	113.1		56.1	18.2	0.000359	0.405	62.27	105544	0.00081	0.246	0.00431	6.976	1.061
8	125.0		55.4	15.3	0.000298	0.416	64.12	106588	0.00079	0.246	0.00354	5.301	0.869
9	126.5		55.1	14.0	0.000272	0.421	64.95	107055	0.00078	0.248	0.00347	5.157	0.849
10	134.8		55.1	13.5	0.000261	0.423	65.33	107262	0.00076	0.244	0.00305	4.311	0.751
RUN NO 316 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 15.568 W													
1	325.5		59.3	41.0	0.000932	0.333	49.27	100756	0.04958	12.336	0.04635	*****	14.642
2	62.1		58.8	36.2	0.000715	0.387	61.59	101495	0.00208	0.602	0.18439	*****	42.252
3	59.2		58.5	33.8	0.000666	0.390	61.86	101918	0.00089	0.259	0.41047	*****	93.233
4	58.9		58.2	31.4	0.000619	0.392	61.93	102345	0.00085	0.250	0.35729	*****	80.993
5	57.9		57.6	27.2	0.000536	0.395	62.01	103209	0.00085	0.252	0.87641	*****	197.945
6	60.2		57.0	22.9	0.000450	0.401	62.53	104186	0.00084	0.252	0.07771	*****	17.545
7	112.3		56.1	18.3	0.000353	0.415	64.67	105511	0.00080	0.250	0.00445	7.136	1.074
8	124.5		55.4	15.3	0.000292	0.426	66.50	106566	0.00078	0.250	0.00362	5.369	0.874
9	125.8		55.1	14.1	0.000266	0.430	67.30	107044	0.00078	0.252	0.00356	5.241	0.855
10	134.0		55.0	13.5	0.000255	0.432	67.66	107256	0.00076	0.248	0.00313	4.382	0.756
RUN NO 317 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 22.821 W													
1	315.5		59.3	41.0	0.000913	0.340	50.95	100756	0.04888	12.411	0.04845	*****	15.006
2	62.3		58.8	36.2	0.000702	0.394	63.31	101495	0.00200	0.588	0.16866	*****	38.109
3	59.3		58.5	33.8	0.000654	0.397	63.57	101918	0.00089	0.264	0.34708	*****	77.736
4	59.0		58.2	31.4	0.000608	0.399	63.65	102345	0.00085	0.255	0.35382	*****	79.082
5	58.1		57.6	27.2	0.000527	0.402	63.71	103209	0.00085	0.256	0.62078	*****	138.298
6	59.9		57.0	22.9	0.000443	0.408	64.23	104186	0.00084	0.256	0.08693	*****	19.325
7	111.9		56.1	18.3	0.000347	0.422	66.39	105511	0.00080	0.254	0.00456	7.263	1.084
8	124.4		55.4	15.3	0.000287	0.433	68.23	106566	0.00078	0.255	0.00369	5.424	0.878
9	125.7		55.1	14.1	0.000262	0.437	69.03	107044	0.00078	0.256	0.00363	5.306	0.860
10	133.9		55.0	13.5	0.000251	0.439	69.38	107256	0.00076	0.252	0.00319	4.434	0.761
RUN NO 318 ORIF DIA 0.0831 CM FLOW RATE 4.51 G/S LIQ TEMP 81.1 K LIQ PRESS 1.58 ATM CART HTR PWR 26.624 W													
1	312.9		59.4	41.6	0.000916	0.343	51.80	100672	0.04860	12.454	0.04914	*****	15.087
2	62.8		58.9	36.7	0.000704	0.397	64.20	101411	0.00196	0.582	0.15030	*****	33.744
3	59.1		58.6	34.2	0.000656	0.400	64.46	101843	0.00089	0.267	0.48965	*****	108.848
4	59.1		58.3	31.8	0.000609	0.402	64.54	102278	0.00085	0.255	0.32824	*****	72.855
5	58.0		57.7	27.5	0.000527	0.406	64.60	103147	0.00084	0.257	0.70894	*****	156.806
6	59.9		57.0	23.1	0.000443	0.411	65.12	104136	0.00083	0.257	0.08827	*****	19.506
7	111.7		56.1	18.4	0.000346	0.425	67.28	105478	0.00080	0.255	0.00459	7.297	1.085
8	124.3		55.4	15.4	0.000286	0.436	69.10	106544	0.00078	0.256	0.00371	5.436	0.877
9	125.6		55.1	14.1	0.000261	0.441	69.88	107034	0.00077	0.257	0.00365	5.317	0.860
10	133.8		55.0	13.5	0.000250	0.443	70.22	107250	0.00076	0.253	0.00321	4.435	0.760

STA NO	TUBE NO	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 500 ORIF DIA 0.0635 CM FLOW RATE 1.17 G/S LIQ TEMP 22.2 K LIQ PRESS 3.22 ATM CAHT HTR PWR 0.000 W													
1	143.3	12.0	13.5	0.000118	0.310	-218.69	173512	0.03829	4.658	0.03547	*****	4.927	
2	13.2	12.0	13.5	0.000105	0.347	-200.75	173691	0.00161	0.219	0.17380	*****	16.638	
3	13.4	12.0	13.4	0.000104	0.348	-200.16	173780	0.00085	0.116	0.08038	*****	7.692	
4	15.6	12.0	13.4	0.000104	0.349	-199.77	173869	0.00084	0.115	0.03168	*****	3.102	
5	20.3	11.9	13.3	0.000102	0.351	-198.99	174096	0.00083	0.114	0.01363	*****	1.386	
6	23.0	11.9	12.7	0.000098	0.355	-197.18	175254	0.00083	0.115	0.01025	*****	7.917	
7	26.7	11.8	11.8	0.000088	0.367	-191.57	177337	0.00080	0.115	0.00767	*****	5.392	
8	25.6	11.7	11.1	0.000081	0.379	-185.97	178857	0.00077	0.115	0.00822	*****	0.812	
9	25.8	11.6	10.8	0.000078	0.386	-183.00	179562	0.00076	0.114	0.00808	*****	0.789	
10	24.8	11.6	10.6	0.000076	0.389	-181.53	179916	0.00076	0.115	0.00870	*****	0.840	
RUN NO 504 ORIF DIA 0.0635 CM FLOW RATE 1.17 G/S LIQ TEMP 22.3 K LIQ PRESS 3.22 ATM CAHT HTR PWR 0.000 W													
1	200.7	12.4	20.7	0.000174	0.310	-217.05	165914	0.03728	4.557	0.02421	*****	3.446	
2	15.3	12.4	20.3	0.000150	0.351	-196.33	166329	0.00729	1.011	0.34758	*****	33.381	
3	15.1	12.4	20.1	0.000146	0.358	-192.90	166535	0.00632	0.894	0.32387	*****	30.574	
4	39.4	12.4	19.9	0.000142	0.365	-189.77	166740	0.00586	0.844	0.03122	*****	3.307	
5	59.2	12.3	19.5	0.000135	0.377	-183.69	167163	0.00570	0.847	0.01807	*****	1.938	
6	73.2	12.3	18.3	0.000118	0.409	-168.53	168343	0.00531	0.853	0.01400	*****	1.450	
7	134.6	12.2	16.4	0.000087	0.501	-123.19	170267	0.00433	0.851	0.00696	*****	0.653	
8	131.2	12.1	15.1	0.000068	0.592	-78.51	171558	0.00367	0.853	0.00716	*****	0.587	
9	141.2	12.0	14.6	0.000061	0.640	-55.09	172172	0.00338	0.848	0.00657	*****	0.511	
10	119.4	12.0	14.3	0.000058	0.663	-43.46	172480	0.00330	0.859	0.00800	*****	0.595	
RUN NO 505 ORIF DIA 0.0635 CM FLOW RATE 1.17 G/S LIQ TEMP 22.4 K LIQ PRESS 3.22 ATM CAHT HTR PWR 0.000 W													
1	220.6	12.6	24.0	0.000198	0.311	-215.41	162724	0.03660	4.509	0.02168	*****	3.091	
2	18.1	12.6	23.2	0.000168	0.356	-193.21	163483	0.01030	1.450	0.26279	*****	25.555	
3	17.0	12.6	22.8	0.000160	0.366	-188.16	163859	0.00927	1.343	0.30157	*****	28.398	
4	53.7	12.5	22.4	0.000154	0.376	-183.50	164238	0.00833	1.238	0.03004	*****	1.809	
5	72.8	12.5	21.7	0.000142	0.394	-174.48	164973	0.00811	1.263	0.02094	*****	2.219	
6	94.7	12.4	20.1	0.000119	0.441	-151.77	166530	0.00729	1.268	0.01540	*****	1.539	
7	184.3	12.2	17.8	0.000081	0.579	-84.15	168851	0.00556	1.265	0.00735	*****	0.633	
8	159.6	12.2	16.3	0.000061	0.714	-17.68	170326	0.00453	1.268	0.00860	*****	0.616	
9	167.1	12.1	15.7	0.000053	0.784	17.13	171028	0.00410	1.263	0.00815	*****	0.545	
10	148.2	12.1	15.3	0.000050	0.819	34.35	171382	0.00395	1.271	0.00934	*****	0.597	
RUN NO 506 ORIF DIA 0.0635 CM FLOW RATE 1.17 G/S LIQ TEMP 22.4 K LIQ PRESS 3.22 ATM CAHT HTR PWR 0.000 W													
1	212.7	12.6	23.9	0.000197	0.310	-216.11	162873	0.03703	4.542	0.02270	*****	3.236	
2	17.4	12.6	23.1	0.000168	0.354	-194.49	163604	0.00900	1.258	0.25921	*****	25.202	
3	16.7	12.5	22.7	0.000161	0.362	-190.13	163967	0.00804	1.152	0.27406	*****	25.969	
4	49.8	12.5	22.3	0.000155	0.371	-186.14	164332	0.00722	1.058	0.02840	*****	1.764	
5	65.9	12.5	21.6	0.000145	0.387	-178.44	165042	0.00709	1.082	0.02026	*****	9.902	
6	85.2	12.4	20.0	0.000123	0.427	-159.01	166573	0.00646	1.086	0.01491	*****	5.961	
7	152.5	12.2	17.8	0.000086	0.545	-101.06	168868	0.00506	1.084	0.00772	*****	1.841	
8	149.9	12.2	16.3	0.000066	0.661	-44.01	170333	0.00418	1.085	0.00787	*****	1.919	
9	148.0	12.1	15.6	0.000058	0.721	-14.06	171031	0.00383	1.084	0.00794	*****	1.977	
10	141.2	12.1	15.3	0.000054	0.752	0.75	171382	0.00368	1.085	0.00840	*****	2.174	
RUN NO 507 ORIF DIA 0.0635 CM FLOW RATE 1.17 G/S LIQ TEMP 22.3 K LIQ PRESS 3.22 ATM CAHT HTR PWR 0.000 W													
1	204.6	12.5	22.2	0.000185	0.310	-216.44	164474	0.03739	4.583	0.02386	*****	3.393	
2	16.8	12.5	21.7	0.000160	0.352	-195.53	164911	0.00738	1.027	0.23692	*****	23.015	
3	16.7	12.5	21.5	0.000155	0.359	-191.99	165128	0.00655	0.929	0.22090	*****	21.092	
4	50.1	12.5	21.3	0.000151	0.366	-188.82	165344	0.00572	0.827	0.02194	*****	2.367	
5	58.5	12.4	20.8	0.000143	0.378	-182.74	165790	0.00577	0.862	0.01868	*****	10.249	
6	72.1	12.4	19.6	0.000125	0.410	-167.29	167041	0.00534	0.863	0.01445	*****	6.754	
7	121.9	12.2	17.6	0.000092	0.504	-121.19	169065	0.00435	0.862	0.00786	*****	2.375	
8	135.3	12.1	16.2	0.000072	0.597	-75.71	170429	0.00368	0.862	0.00700	*****	1.926	
9	130.2	12.1	15.6	0.000065	0.646	-51.77	171079	0.00341	0.863	0.00731	*****	2.083	
10	127.9	12.1	15.3	0.000061	0.670	-39.91	171405	0.00328	0.862	0.00744	*****	2.156	
RUN NO 508 ORIF DIA 0.0635 CM FLOW RATE 1.17 G/S LIQ TEMP 22.3 K LIQ PRESS 3.22 ATM CAHT HTR PWR 0.000 W													
1	191.8	12.3	19.2	0.000162	0.311	-216.98	167373	0.03769	4.615	0.02571	*****	3.643	
2	18.0	12.3	18.8	0.000141	0.351	-196.92	167766	0.00645	0.782	0.13737	*****	13.577	
3	18.4	12.3	18.7	0.000137	0.356	-194.31	167960	0.00480	0.674	0.11090	*****	10.867	
4	42.8	12.3	18.5	0.000134	0.361	-192.02	168154	0.00427	0.608	0.01995	*****	14.019	
5	52.4	12.3	18.1	0.000128	0.370	-187.61	168553	0.00432	0.630	0.01569	*****	9.517	
6	75.5	12.2	17.3	0.000114	0.393	-176.50	169672	0.00406	0.628	0.00992	*****	4.541	
7	97.1	12.1	15.2	0.000088	0.461	-143.30	171480	0.00347	0.629	0.00740	*****	2.763	
8	112.7	12.0	14.1	0.000072	0.528	-110.54	172695	0.00304	0.629	0.00624	*****	2.056	
9	111.3	12.0	13.5	0.000065	0.564	-93.29	173545	0.00285	0.630	0.00634	*****	2.113	
10	115.0	11.9	13.3	0.000062	0.581	-84.77	174126	0.00275	0.626	0.00608	*****	1.967	

STA NO	TUBE TEMP	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 510 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.7 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W													
1	173.0	12.2	16.8	0.000138	0.321	-212.42	162920	0.03787	4.586	0.02851	*****		4.036
2	15.6	12.2	16.8	0.000123	0.360	-192.98	162923	0.00313	0.425	0.12332	*****		12.106
3	13.9	12.2	16.8	0.000122	0.363	-191.60	162925	0.00225	0.307	0.17993	*****		17.223
4	24.4	12.2	16.8	0.000122	0.365	-190.48	162926	0.00209	0.288	0.02367		16.052	2.448
5	30.7	12.2	16.7	0.000120	0.370	-188.29	162941	0.00210	0.292	0.01575		9.191	1.661
6	35.4	12.2	16.6	0.000115	0.381	-182.82	163108	0.00204	0.293	0.01260		6.705	1.322
7	42.5	12.1	15.9	0.000102	0.414	-166.48	163736	0.00188	0.293	0.00965		4.537	0.968
8	42.7	12.1	15.5	0.000092	0.447	-150.18	164195	0.00174	0.293	0.00959		4.497	0.905
9	41.1	12.1	15.2	0.000088	0.465	-141.52	164438	0.00168	0.293	0.01011		4.870	0.922
10	41.4	12.1	15.1	0.000085	0.474	-137.23	164559	0.00163	0.290	0.00987		4.727	0.888
RUN NO 511 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.6 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W													
1	178.4	12.2	17.3	0.000144	0.318	-213.63	162390	0.03768	4.527	0.02724	*****		3.896
2	13.5	12.2	17.3	0.000127	0.359	-193.53	162428	0.00484	0.656	0.52058	*****		50.003
3	14.8	12.2	17.2	0.000125	0.363	-191.29	162446	0.00387	0.530	0.20850	*****		20.127
4	24.0	12.2	17.2	0.000124	0.367	-189.31	162465	0.00376	0.521	0.04421		31.944	4.540
5	37.6	12.2	17.2	0.000121	0.375	-185.41	162526	0.00366	0.518	0.02039		10.998	2.179
6	49.2	12.2	16.7	0.000112	0.395	-175.74	162953	0.00349	0.519	0.01404		6.263	1.479
7	69.6	12.1	15.8	0.000093	0.454	-146.79	163870	0.00304	0.519	0.00904		3.097	0.888
8	74.2	12.1	15.1	0.000079	0.512	-118.05	164545	0.00270	0.520	0.00836		2.722	0.752
9	76.2	12.1	14.8	0.000073	0.543	-102.86	164866	0.00253	0.517	0.00806		2.570	0.694
10	57.0	12.1	14.6	0.000070	0.559	-95.30	165027	0.00247	0.519	0.01156		4.625	0.939
RUN NO 512 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.5 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W													
1	191.4	12.4	20.5	0.000169	0.316	-214.07	159301	0.03873	4.628	0.02586	*****		3.732
2	14.7	12.4	20.3	0.000147	0.359	-192.61	159513	0.00654	0.888	0.38695	*****		37.538
3	18.4	12.4	20.2	0.000144	0.365	-189.50	159618	0.00552	0.763	0.12612	*****		20.127
4	36.1	12.4	20.1	0.000141	0.371	-186.68	159723	0.00521	0.731	0.03087		20.999	3.298
5	52.6	12.4	19.8	0.000135	0.382	-181.17	159962	0.00507	0.732	0.01818		9.468	1.972
6	62.5	12.3	18.8	0.000121	0.410	-167.44	160891	0.00476	0.737	0.01469		6.717	1.534
7	118.5	12.2	17.2	0.000092	0.494	-126.31	162495	0.00395	0.735	0.00692		1.876	0.670
8	119.2	12.1	16.0	0.000074	0.577	-85.65	163625	0.00339	0.737	0.00688		1.858	0.590
9	127.1	12.1	15.5	0.000067	0.621	-64.22	164157	0.00314	0.733	0.00637		1.626	0.519
10	110.5	12.1	15.2	0.000063	0.642	-53.63	164424	0.00303	0.731	0.00743		2.148	0.581
RUN NO 513 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.5 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W													
1	198.9	12.5	21.2	0.000175	0.315	-214.07	158627	0.03862	4.612	0.02474	*****		3.583
2	15.5	12.4	21.0	0.000151	0.360	-191.88	158898	0.00802	1.093	0.35728	*****		34.846
3	21.2	12.4	20.8	0.000147	0.368	-187.99	159032	0.00695	0.967	0.11012	*****		11.072
4	42.5	12.4	20.7	0.000143	0.375	-184.42	159166	0.00648	0.920	0.03061		18.000	3.299
5	58.9	12.4	20.4	0.000136	0.389	-177.46	159460	0.00630	0.927	0.01996		9.237	2.155
6	69.2	12.3	19.3	0.000119	0.425	-160.04	160505	0.00581	0.933	0.01641		6.704	1.688
7	127.4	12.2	17.4	0.000087	0.531	-107.99	162281	0.00465	0.931	0.00808		1.987	0.744
8	128.4	12.1	16.2	0.000068	0.635	-56.63	163517	0.00390	0.932	0.00802		1.959	0.641
9	137.0	12.1	15.6	0.000060	0.690	-29.63	164104	0.00357	0.928	0.00743		1.713	0.560
10	117.3	12.1	15.3	0.000057	0.717	-16.29	164399	0.00343	0.927	0.00881		2.335	0.634
RUN NO 514 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.5 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W													
1	209.0	12.5	22.0	0.000184	0.316	-213.63	157441	0.03829	4.581	0.02332	*****		3.388
2	16.5	12.5	22.0	0.000157	0.362	-190.61	157915	0.00977	1.340	0.33208	*****		32.542
3	26.1	12.5	21.8	0.000151	0.372	-185.80	158149	0.00858	1.207	0.08888	*****		9.078
4	50.8	12.5	21.5	0.000146	0.381	-181.36	158384	0.00792	1.142	0.02975		15.265	3.218
5	67.1	12.4	21.0	0.000137	0.398	-172.69	158660	0.00769	1.160	0.02120		8.798	2.282
6	87.3	12.4	19.7	0.000116	0.443	-150.92	160111	0.00695	1.164	0.01552		5.241	1.587
7	165.7	12.2	17.6	0.000081	0.575	-86.05	162102	0.00535	1.161	0.00756		1.402	0.668
8	143.7	12.2	16.2	0.000061	0.705	-22.16	163429	0.00439	1.164	0.00885		1.941	0.658
9	155.6	12.1	15.6	0.000054	0.773	11.36	164061	0.00398	1.158	0.00808		1.620	0.561
10	138.1	12.1	15.3	0.000051	0.806	27.88	164378	0.00380	1.153	0.00915		2.083	0.610
RUN NO 516 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.4 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W													
1	187.1	12.2	17.1	0.000143	0.316	-214.86	162608	0.03862	4.605	0.02632	*****		3.806
2	15.8	12.2	17.1	0.000127	0.355	-195.29	162621	0.00326	0.437	0.12248	*****		12.166
3	19.4	12.2	17.1	0.000126	0.358	-193.90	162627	0.00221	0.298	0.04121	*****		4.205
4	28.3	12.2	17.1	0.000125	0.360	-192.81	162634	0.00207	0.281	0.01743		11.576	1.856
5	30.6	12.2	17.0	0.000124	0.365	-190.67	162662	0.00210	0.288	0.01567		9.911	1.669
6	35.8	12.2	16.8	0.000118	0.376	-185.29	162906	0.00203	0.288	0.01222		6.985	1.297
7	42.7	12.1	16.1	0.000105	0.409	-169.21	163623	0.00187	0.288	0.00943		4.773	0.956
8	43.9	12.1	15.5	0.000094	0.441	-153.19	164148	0.00174	0.288	0.00906		4.497	0.866
9	44.2	12.1	15.3	0.000089	0.459	-144.67	164416	0.00167	0.289	0.00898		4.440	0.834
10	46.1	12.1	15.1	0.000087	0.467	-140.46	164550	0.00162	0.285	0.00837		4.020	0.769

STA NO	TUBE WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 517 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.5 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W												
1	173.5	11.9	12.9	0.000110	0.318	-215.08	167636	0.03876	4.632	0.02867	*****	4.115
2	14.4	11.9	12.8	0.000098	0.357	-196.22	167923	0.00221	0.296	0.11839	*****	11.641
3	15.9	11.9	12.7	0.000097	0.358	-195.39	168064	0.00125	0.168	0.04135	*****	4.119
4	21.4	11.9	12.7	0.000096	0.360	-194.80	168206	0.00119	0.160	0.01678	11.178	1.742
5	23.7	11.8	12.5	0.000094	0.362	-193.67	168530	0.00120	0.163	0.01378	8.609	1.441
6	26.8	11.8	11.9	0.000089	0.368	-190.94	169811	0.00118	0.163	0.01087	6.267	1.141
7	31.1	11.6	10.9	0.000078	0.387	-182.57	172040	0.00113	0.163	0.00841	4.416	0.868
8	30.8	11.6	10.2	0.000070	0.404	-174.24	173622	0.00108	0.163	0.00850	4.498	0.847
9	31.8	11.5	9.8	0.000067	0.414	-169.85	174368	0.00106	0.163	0.00805	4.176	0.792
10	32.3	11.5	9.7	0.000065	0.418	-167.71	174744	0.00103	0.161	0.00774	3.979	0.756
RUN NO 518 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.5 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W												
1	176.6	11.9	13.2	0.000113	0.317	-215.61	167098	0.03844	4.576	0.02780	*****	4.010
2	15.3	11.9	13.1	0.000100	0.356	-196.38	167320	0.00332	0.444	0.13220	*****	13.134
3	19.5	11.9	13.0	0.000099	0.359	-194.99	167429	0.00230	0.310	0.04117	*****	4.224
4	26.1	11.9	13.0	0.000098	0.361	-193.87	167539	0.00223	0.302	0.02130	14.272	2.256
5	31.0	11.9	12.9	0.000096	0.366	-191.67	167803	0.00222	0.305	0.01594	9.545	1.709
6	36.1	11.8	12.3	0.000089	0.377	-186.27	168984	0.00216	0.305	0.01258	6.830	1.343
7	43.4	11.7	11.3	0.000076	0.412	-170.00	171075	0.00198	0.305	0.00964	4.615	0.983
8	44.3	11.6	10.6	0.000066	0.445	-153.91	172581	0.00184	0.305	0.00934	4.405	0.897
9	44.4	11.6	10.3	0.000062	0.463	-145.42	173285	0.00177	0.305	0.00931	4.391	0.869
10	46.5	11.6	10.1	0.000060	0.472	-141.25	173639	0.00171	0.301	0.00860	3.924	0.795
RUN NO 519 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.4 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W												
1	183.2	12.1	15.4	0.000134	0.315	-215.96	163793	0.03839	4.549	0.02660	*****	3.860
2	15.5	12.1	15.6	0.000117	0.355	-195.98	164049	0.00472	0.631	0.18363	*****	18.258
3	17.3	12.1	15.5	0.000115	0.359	-193.86	164175	0.00377	0.510	0.09819	*****	9.837
4	32.6	12.1	15.4	0.000113	0.363	-192.04	164302	0.00349	0.477	0.02324	15.463	2.511
5	39.1	12.1	15.1	0.000109	0.370	-188.50	164571	0.00350	0.487	0.01804	10.633	1.964
6	44.1	12.0	14.2	0.000098	0.389	-179.66	165440	0.00334	0.488	0.01353	6.889	1.446
7	63.4	11.9	12.8	0.000079	0.444	-153.16	167862	0.00293	0.488	0.00947	3.920	0.940
8	64.6	11.8	11.9	0.000066	0.498	-127.03	169867	0.00262	0.488	0.00844	3.228	0.775
9	70.3	11.7	11.4	0.000060	0.526	-113.30	170827	0.00248	0.488	0.00833	3.182	0.734
10	74.5	11.7	11.2	0.000057	0.540	-106.57	171310	0.00238	0.480	0.00764	2.790	0.665
RUN NO 520 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.4 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W												
1	195.3	12.2	16.6	0.000141	0.314	-216.07	163041	0.03833	4.536	0.02477	*****	3.618
2	13.5	12.2	16.4	0.000123	0.356	-195.16	163238	0.00653	0.877	0.66434	*****	64.293
3	16.2	12.2	16.3	0.000120	0.362	-192.11	163336	0.00553	0.756	0.18817	*****	18.504
4	36.8	12.2	16.2	0.000117	0.368	-189.37	163434	0.00513	0.711	0.02887	18.556	3.129
5	47.6	12.1	16.0	0.000113	0.379	-184.03	163652	0.00507	0.723	0.02039	10.941	2.218
6	63.2	12.1	15.2	0.000100	0.406	-170.70	164469	0.00474	0.724	0.01415	6.127	1.501
7	98.6	12.0	13.8	0.000076	0.487	-130.94	165866	0.00395	0.724	0.00835	2.536	0.808
8	113.7	11.9	12.9	0.000062	0.568	-91.78	167776	0.00340	0.723	0.00711	1.912	0.618
9	110.7	11.8	12.4	0.000056	0.610	-71.21	168705	0.00317	0.724	0.00732	2.019	0.600
10	109.2	11.8	12.2	0.000053	0.631	-61.11	169173	0.00301	0.711	0.00730	2.037	0.582
RUN NO 521 ORIF DIA 0.0635 CM FLOW RATE 1.12 G/S LIQ TEMP 22.3 K LIQ PRESS 3.24 ATM CART HTR PWR 0.000 W												
1	210.9	12.5	21.8	0.000181	0.312	-215.75	158087	0.03820	4.512	0.02274	*****	3.342
2	14.3	12.5	21.5	0.000157	0.356	-193.92	158355	0.00813	1.095	0.61113	*****	59.344
3	18.7	12.5	21.4	0.000152	0.363	-190.04	158487	0.00693	0.953	0.15169	*****	15.127
4	38.0	12.5	21.2	0.000149	0.371	-186.52	158619	0.00649	0.910	0.03558	21.872	3.825
5	48.5	12.4	20.9	0.000141	0.385	-179.59	158911	0.00635	0.924	0.02563	13.281	2.740
6	74.2	12.4	19.8	0.000123	0.420	-162.26	159962	0.00581	0.923	0.01493	5.597	1.563
7	119.3	12.3	18.0	0.000090	0.525	-110.58	161754	0.00466	0.923	0.00863	2.181	0.795
8	131.1	12.2	16.7	0.000070	0.629	-59.52	163004	0.00389	0.923	0.00776	1.804	0.626
9	125.3	12.1	16.1	0.000063	0.684	-32.63	163597	0.00358	0.922	0.00814	1.971	0.612
10	111.2	12.1	15.8	0.000059	0.711	-19.34	163895	0.00343	0.916	0.00925	2.490	0.667
RUN NO 526 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W												
1	113.3	12.0	14.4	0.000122	0.317	-215.06	117025	0.05204	4.396	0.04342	*****	7.893
2	10.9	12.0	14.3	0.000101	0.373	-187.71	117275	0.00583	0.578	*****	*****	*****
3	13.3	12.0	13.9	0.000099	0.379	-184.81	117398	0.00515	0.519	0.39448	*****	48.008
4	24.2	12.0	13.7	0.000096	0.384	-182.11	117587	0.00489	0.500	0.03080	31.941	4.127
5	45.0	11.9	13.3	0.000091	0.395	-176.85	118083	0.00473	0.497	0.01506	11.443	2.085
6	54.0	11.8	12.5	0.000081	0.423	-163.76	119348	0.00447	0.501	0.01135	7.339	1.524
7	114.6	11.7	11.2	0.000061	0.504	-124.54	121356	0.00375	0.500	0.00467	1.643	0.594
8	124.8	11.6	10.3	0.000049	0.584	-85.85	122695	0.00324	0.500	0.00442	1.485	0.503
9	123.0	11.5	9.9	0.000044	0.626	-65.52	123335	0.00302	0.498	0.00447	1.522	0.481
10	107.8	11.5	9.7	0.000042	0.647	-55.42	123658	0.00295	0.503	0.00522	2.001	0.541

STA NO	TIME	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	-	-	-	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 527 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	114.0	12.0	13.8	0.000117	0.317	-215.31	117445	0.05176	4.368	0.04284	*****		7.801
2	11.5	12.0	13.4	0.000094	0.372	-188.16	117955	0.00584	0.578	*****			*****
3	13.9	11.9	13.3	0.000095	0.378	-185.26	118215	0.00515	0.518	0.26650	*****		32.723
4	29.0	11.9	13.1	0.000092	0.344	-182.59	118476	0.00487	0.497	0.02914		29.737	3.926
5	44.8	11.9	12.7	0.000088	0.395	-177.37	118997	0.00473	0.496	0.01508		11.494	2.093
6	54.0	11.8	11.9	0.000077	0.422	-164.37	120259	0.00446	0.500	0.01081		6.803	1.460
7	115.5	11.6	10.0	0.000059	0.503	-125.45	122235	0.00375	0.498	0.00479		1.723	0.610
8	107.0	11.5	9.8	0.000047	0.582	-87.07	123538	0.00325	0.499	0.00523		2.016	0.589
9	110.5	11.5	9.4	0.000042	0.624	-66.91	124161	0.00302	0.497	0.00502		1.881	0.537
10	103.0	11.4	9.2	0.000040	0.645	-56.92	124475	0.00295	0.501	0.00547		2.178	0.567
RUN NO 528 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	117.2	12.1	15.6	0.000132	0.316	-215.11	116144	0.05167	4.359	0.04148	*****		7.567
2	12.8	12.1	15.2	0.000108	0.374	-186.76	116468	0.00797	0.794	1.10016	*****		134.113
3	17.1	12.1	14.9	0.000105	0.382	-182.69	116629	0.00722	0.735	0.14556	*****		18.284
4	34.8	12.1	14.7	0.000101	0.390	-178.87	116789	0.00679	0.705	0.03094		26.370	4.200
5	51.0	12.0	14.3	0.000095	0.405	-171.39	117105	0.00655	0.707	0.01813		11.810	2.485
6	67.7	11.9	13.3	0.000081	0.444	-152.70	118183	0.00602	0.710	0.01273		6.676	1.677
7	110.5	11.8	11.8	0.000058	0.559	-96.86	120378	0.00479	0.710	0.00719		2.536	0.834
8	123.7	11.6	10.9	0.000045	0.672	-41.84	121810	0.00399	0.709	0.00633		2.018	0.642
9	119.3	11.6	10.4	0.000040	0.732	-12.96	122496	0.00366	0.708	0.00658		2.168	0.622
10	116.4	11.6	10.2	0.000037	0.761	1.38	122842	0.00355	0.714	0.00753		2.748	0.683
RUN NO 529 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	121.4	12.2	16.8	0.000141	0.316	-215.01	115344	0.05160	4.353	0.03978	*****		7.279
2	14.3	12.1	16.1	0.000114	0.376	-185.59	115819	0.00994	0.996	0.47021	*****		58.047
3	24.7	12.1	15.7	0.000109	0.386	-180.45	116055	0.00908	0.935	0.07445	*****		9.739
4	44.1	12.1	15.4	0.000104	0.396	-175.60	116292	0.00843	0.890	0.02616		18.336	3.612
5	66.0	12.1	14.8	0.000095	0.416	-166.15	116744	0.00806	0.892	0.01654		8.841	2.283
6	61.5	12.0	13.0	0.000079	0.464	-142.46	117734	0.00732	0.903	0.01826		10.330	2.290
7	134.4	11.8	11.9	0.000054	0.610	-71.58	120188	0.00556	0.900	0.00709		2.038	0.784
8	128.3	11.7	10.9	0.000040	0.753	-1.97	121721	0.00453	0.902	0.00773		2.387	0.719
9	143.6	11.6	10.5	0.000035	0.828	34.44	122453	0.00410	0.897	0.00679		1.893	0.592
10	124.9	11.6	10.2	0.000033	0.865	52.47	122821	0.00397	0.907	0.00800		2.531	0.666
RUN NO 531 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	124.4	12.2	17.7	0.000148	0.316	-214.85	114665	0.05168	4.360	0.03754	*****		6.900
2	14.3	12.2	16.8	0.000119	0.376	-185.35	115308	0.00996	0.999	0.46193	*****		57.021
3	23.9	12.2	16.4	0.000112	0.386	-180.16	115628	0.00923	0.951	0.08125	*****		10.571
4	42.1	12.1	15.9	0.000107	0.396	-175.32	115949	0.00826	0.873	0.02184		14.341	3.047
5	67.4	12.1	15.1	0.000097	0.416	-165.98	116548	0.00809	0.896	0.01620		8.727	2.241
6	43.9	12.0	13.7	0.000080	0.464	-142.29	117511	0.00728	0.900	0.01251		5.671	1.630
7	134.8	11.8	12.0	0.000054	0.610	-71.64	120107	0.00556	0.898	0.00707		2.080	0.782
8	144.2	11.7	10.9	0.000040	0.753	-2.25	121729	0.00452	0.899	0.00678		1.929	0.638
9	144.5	11.6	10.4	0.000035	0.827	34.10	122475	0.00411	0.898	0.00676		1.919	0.590
10	139.6	11.6	10.2	0.000033	0.864	52.06	122832	0.00393	0.898	0.00701		2.055	0.590
RUN NO 532 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	124.3	12.2	16.5	0.000139	0.316	-214.98	115512	0.05166	4.359	0.03889	*****		7.130
2	13.0	12.1	15.9	0.000113	0.374	-186.45	115953	0.00827	0.825	0.97537	*****		118.990
3	22.2	12.1	15.6	0.000109	0.383	-182.15	116171	0.00774	0.790	0.07813	*****		10.162
4	43.8	12.1	15.3	0.000104	0.391	-178.23	116391	0.00664	0.691	0.01658		10.905	2.347
5	60.7	12.1	14.7	0.000097	0.406	-170.71	116811	0.00674	0.730	0.01499		8.990	2.085
6	71.8	12.0	13.5	0.000082	0.446	-151.45	117816	0.00616	0.731	0.01181		6.085	1.567
7	121.4	11.8	11.9	0.000058	0.565	-94.02	120222	0.00488	0.730	0.00666		2.268	0.773
8	130.1	11.7	10.9	0.000044	0.681	-37.45	121734	0.00405	0.730	0.00616		1.974	0.622
9	128.3	11.6	10.4	0.000039	0.742	-7.73	122459	0.00372	0.730	0.00626		2.031	0.590
10	124.2	11.6	10.2	0.000037	0.773	6.95	122824	0.00357	0.729	0.00624		2.027	0.570
RUN NO 533 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	121.1	12.1	14.9	0.000126	0.317	-215.15	116643	0.05170	4.364	0.04003	*****		7.327
2	13.8	12.0	14.0	0.000105	0.372	-187.75	116875	0.00620	0.615	0.35846	*****		44.416
3	20.9	12.1	14.4	0.000102	0.379	-184.61	116989	0.00563	0.567	0.06367	*****		8.309
4	45.8	12.0	14.3	0.000100	0.384	-181.79	117104	0.00485	0.496	0.01471		11.141	2.082
5	50.9	12.0	14.0	0.000095	0.395	-176.39	117338	0.00498	0.524	0.01349		9.459	1.886
6	54.7	11.9	13.1	0.000084	0.424	-162.58	118472	0.00466	0.525	0.01123		7.078	1.508
7	41.7	11.7	11.7	0.000063	0.510	-121.30	120502	0.00389	0.525	0.00750		3.650	0.911
8	49.0	11.6	10.0	0.000051	0.594	-80.51	121472	0.00334	0.525	0.00600		2.496	0.659
9	122.2	11.5	10.4	0.000045	0.638	-59.01	122528	0.00312	0.525	0.00580		2.350	0.603
10	107.4	11.5	10.2	0.000043	0.660	-48.36	122858	0.00300	0.523	0.00543		2.104	0.553

STA NO	TUBE TEMP K	WALL SAT TEMP K	MIXTURE PRESSURE MM HG	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 534 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	117.9	11.9	12.9	0.000111	0.318	-215.44	118683	0.05171	4.365	0.04116	*****	7.526	
2	14.2	11.9	12.9	0.000094	0.370	-189.36	118807	0.00385	0.379	0.16493	*****	20.688	
3	19.2	11.9	12.8	0.000093	0.374	-187.55	118868	0.00307	0.305	0.04192	*****	5.474	
4	29.8	11.9	12.8	0.000092	0.377	-185.98	118929	0.00284	0.284	0.01591	14.880	2.182	
5	33.1	11.8	12.7	0.000090	0.384	-182.92	119084	0.00287	0.293	0.01378	12.028	1.891	
6	38.2	11.8	12.1	0.000083	0.400	-175.25	119855	0.00276	0.293	0.01112	8.837	1.506	
7	49.0	11.7	11.2	0.000069	0.448	-152.24	121239	0.00247	0.293	0.00785	5.230	0.998	
8	54.4	11.6	10.6	0.000060	0.495	-129.39	122246	0.00224	0.293	0.00686	4.228	0.814	
9	57.3	11.6	10.3	0.000055	0.520	-117.28	122713	0.00214	0.293	0.00642	3.808	0.737	
10	60.7	11.6	10.1	0.000053	0.533	-111.25	122948	0.00209	0.294	0.00598	3.392	0.678	
RUN NO 536 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	98.1	12.4	20.5	0.000169	0.314	-214.75	112825	0.05220	4.398	0.05132	*****	9.188	
2	12.9	12.4	20.5	0.000146	0.366	-189.13	112825	0.00219	0.215	0.42574	*****	52.481	
3	12.7	12.4	20.5	0.000145	0.368	-188.13	112825	0.00155	0.152	0.45408	*****	55.610	
4	15.2	12.4	20.5	0.000144	0.369	-187.31	112825	0.00153	0.151	0.05459	63.905	6.856	
5	21.8	12.4	20.5	0.000143	0.373	-185.69	112826	0.00150	0.149	0.01599	15.200	2.105	
6	26.1	12.4	20.4	0.000140	0.381	-181.65	112854	0.00147	0.150	0.01099	9.299	1.454	
7	30.4	12.4	20.2	0.000130	0.405	-169.51	112965	0.00138	0.150	0.00834	6.403	1.071	
8	30.1	12.4	20.1	0.000122	0.430	-157.38	113047	0.00131	0.150	0.00848	6.545	1.037	
9	30.0	12.4	20.1	0.000118	0.443	-150.91	113090	0.00127	0.150	0.00855	6.625	1.021	
10	30.7	12.4	20.0	0.000116	0.449	-147.67	113112	0.00125	0.150	0.00821	6.265	0.972	
RUN NO 537 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	130.8	12.4	20.7	0.000171	0.315	-214.62	112691	0.05190	4.375	0.03696	*****	6.797	
2	14.6	12.4	20.7	0.000146	0.368	-188.14	112691	0.00400	0.394	0.17714	*****	22.198	
3	15.4	12.4	20.7	0.000145	0.371	-186.25	112691	0.00308	0.306	0.10315	*****	12.925	
4	21.9	12.4	20.7	0.000143	0.375	-184.62	112691	0.00298	0.299	0.03149	31.346	4.130	
5	30.6	12.4	20.7	0.000141	0.381	-181.39	112694	0.00292	0.298	0.01640	13.191	2.212	
6	37.4	12.4	20.6	0.000135	0.397	-173.34	112733	0.00281	0.299	0.01199	8.459	1.604	
7	46.6	12.4	20.4	0.000119	0.446	-149.15	112893	0.00251	0.299	0.00875	5.289	1.092	
8	48.7	12.4	20.2	0.000106	0.495	-124.99	113010	0.00226	0.299	0.00825	4.837	0.952	
9	47.8	12.4	20.1	0.000101	0.521	-112.10	113072	0.00215	0.300	0.00846	5.024	0.936	
10	50.5	12.4	20.0	0.000098	0.534	-105.68	113103	0.00209	0.298	0.00781	4.459	0.852	
RUN NO 538 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	139.5	12.4	21.1	0.000174	0.314	-214.56	112399	0.05184	4.370	0.03440	*****	6.366	
2	15.6	12.4	21.1	0.000148	0.369	-187.48	112399	0.00514	0.508	0.16122	*****	20.351	
3	16.3	12.4	21.1	0.000146	0.374	-184.96	112399	0.00423	0.424	0.11000	*****	13.833	
4	29.3	12.4	21.1	0.000145	0.378	-182.74	112399	0.00394	0.399	0.02375	21.490	3.202	
5	37.8	12.4	21.1	0.000141	0.387	-178.41	112404	0.00390	0.404	0.01593	12.201	2.179	
6	45.7	12.4	21.0	0.000133	0.409	-167.49	112468	0.00370	0.405	0.01221	8.200	1.629	
7	60.8	12.4	20.6	0.000113	0.475	-134.73	112734	0.00319	0.405	0.00839	4.555	1.021	
8	68.9	12.4	20.3	0.000098	0.541	-102.02	112928	0.00280	0.405	0.00717	3.532	0.801	
9	69.7	12.4	20.1	0.000091	0.576	-84.59	113032	0.00264	0.406	0.00709	3.461	0.754	
10	74.0	12.4	20.1	0.000088	0.593	-75.90	113084	0.00254	0.403	0.00654	3.051	0.685	
RUN NO 539 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	140.0	12.5	21.7	0.000178	0.314	-214.45	112017	0.05199	4.384	0.03437	*****	6.360	
2	15.5	12.5	21.7	0.000152	0.370	-186.82	112017	0.00601	0.596	0.19847	*****	24.951	
3	16.5	12.5	21.7	0.000149	0.376	-183.81	112017	0.00515	0.519	0.12978	*****	16.268	
4	33.8	12.5	21.7	0.000147	0.381	-181.10	112017	0.00471	0.481	0.02256	20.672	3.077	
5	42.7	12.5	21.7	0.000143	0.392	-175.85	112024	0.00468	0.491	0.01644	12.701	2.227	
6	52.9	12.5	21.5	0.000133	0.418	-162.58	112121	0.00439	0.493	0.01219	8.168	1.618	
7	76.1	12.4	20.9	0.000109	0.499	-122.79	112526	0.00369	0.493	0.00774	3.921	0.933	
8	95.8	12.4	20.5	0.000092	0.579	-83.10	112821	0.00318	0.492	0.00591	2.484	0.648	
9	99.7	12.4	20.2	0.000085	0.621	-61.95	112979	0.00297	0.493	0.00565	2.300	0.588	
10	106.2	12.4	20.1	0.000082	0.642	-51.43	113059	0.00284	0.489	0.00521	2.013	0.532	
RUN NO 540 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W													
1	143.0	12.5	22.7	0.000186	0.314	-214.43	111324	0.05194	4.377	0.03355	*****	6.215	
2	12.8	12.5	22.7	0.000158	0.371	-185.79	111335	0.00789	0.786	3.86859	*****	468.958	
3	13.1	12.5	22.7	0.000154	0.379	-181.73	111340	0.00705	0.718	1.37499	*****	164.492	
4	36.3	12.5	22.7	0.000151	0.387	-177.97	111345	0.00649	0.674	0.02839	24.689	3.856	
5	53.3	12.5	22.7	0.000145	0.401	-170.66	111369	0.00630	0.679	0.01665	11.019	2.282	
6	70.6	12.5	22.3	0.000131	0.438	-152.30	111580	0.00580	0.682	0.01176	6.278	1.552	
7	114.1	12.5	21.4	0.000101	0.549	-97.22	112208	0.00463	0.682	0.00671	2.420	0.780	
8	136.4	12.4	20.7	0.000082	0.660	-42.35	112659	0.00386	0.681	0.00550	1.689	0.562	
9	133.8	12.4	20.3	0.000074	0.719	-13.15	112904	0.00355	0.683	0.00562	1.757	0.536	
10	135.7	12.4	20.2	0.000070	0.748	1.36	113022	0.00338	0.676	0.00548	1.692	0.507	

STA NO	TIME	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP COEF	H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-	-
RUN NO 541 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W														
1	140.0	12.6	23.9	0.000195	0.313	-214.40	110564	0.05190	4.370	0.03228	*****	5.990		
2	14.3	12.6	23.9	0.000164	0.373	-184.57	110599	0.01010	1.012	0.61519	*****	75.564		
3	15.1	12.6	23.9	0.000159	0.383	-179.29	110616	0.00912	0.940	0.37334	*****	45.282		
4	38.8	12.6	23.9	0.000155	0.393	-174.35	110633	0.00840	0.888	0.03392	*****	26.927		4.578
5	52.6	12.6	23.7	0.000147	0.413	-164.68	110690	0.00814	0.903	0.02259	*****	14.441		3.020
6	86.4	12.6	23.1	0.000129	0.462	-140.27	111086	0.00727	0.901	0.01219	*****	5.299		1.580
7	143.7	12.5	21.8	0.000093	0.608	-67.69	111928	0.00552	0.900	0.00686	*****	1.921		0.750
8	156.8	12.4	20.9	0.000072	0.754	4.66	112550	0.00446	0.900	0.00623	*****	1.580		0.578
9	147.5	12.4	20.4	0.000064	0.832	43.09	112846	0.00404	0.900	0.00666	*****	1.822		0.569
10	135.0	12.4	20.2	0.000061	0.870	62.29	112995	0.00388	0.903	0.00736	*****	2.182		0.603
RUN NO 543 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W														
1	149.8	12.6	24.3	0.000198	0.313	-214.32	110346	0.05200	4.380	0.03194	*****	5.929		
2	15.5	12.6	24.2	0.000166	0.373	-184.37	110388	0.01019	1.022	0.36315	*****	45.152		
3	17.9	12.6	24.2	0.000161	0.384	-178.97	110409	0.00946	0.976	0.18433	*****	22.941		
4	52.3	12.6	24.1	0.000157	0.394	-173.96	110429	0.00829	0.878	0.02215	*****	14.855		3.070
5	86.0	12.6	24.0	0.000149	0.413	-164.33	110495	0.00814	0.904	0.01631	*****	8.940		2.242
6	140.4	12.6	23.3	0.000129	0.463	-139.89	110944	0.00732	0.909	0.01340	*****	5.449		1.722
7	144.5	12.5	21.9	0.000093	0.610	-66.60	111847	0.00554	0.907	0.00687	*****	2.001		0.749
8	150.0	12.4	20.9	0.000072	0.757	6.34	112516	0.00448	0.908	0.00660	*****	1.849		0.608
9	140.3	12.4	20.5	0.000064	0.836	45.05	112829	0.00405	0.905	0.00612	*****	1.578		0.524
10	148.9	12.4	20.2	0.000060	0.875	64.36	112987	0.00389	0.909	0.00666	*****	1.883		0.547
RUN NO 544 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W														
1	144.8	12.5	22.2	0.000182	0.314	-214.45	111690	0.05191	4.375	0.03309	*****	6.133		
2	13.2	12.5	22.2	0.000155	0.370	-186.48	111690	0.00671	0.666	0.97243	*****	118.916		
3	13.6	12.5	22.2	0.000152	0.377	-183.01	111690	0.00610	0.617	0.55525	*****	67.252		
4	45.9	12.5	22.2	0.000149	0.383	-179.92	111690	0.00513	0.528	0.01580	*****	12.436		2.218
5	52.6	12.5	22.2	0.000145	0.395	-174.05	111699	0.00527	0.558	0.01393	*****	9.930		1.933
6	48.7	12.5	22.0	0.000133	0.425	-158.96	111824	0.00491	0.560	0.01214	*****	7.969		1.605
7	98.3	12.4	21.2	0.000106	0.517	-113.74	112347	0.00404	0.559	0.00652	*****	2.842		0.784
8	114.0	12.4	20.6	0.000088	0.607	-68.65	112730	0.00344	0.560	0.00551	*****	2.118		0.591
9	122.1	12.4	20.3	0.000081	0.656	-44.66	112935	0.00319	0.560	0.00510	*****	1.844		0.518
10	126.4	12.4	20.1	0.000077	0.680	-32.70	113038	0.00306	0.558	0.00489	*****	1.715		0.485
RUN NO 545 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.61 ATM CART HTR PWR 0.000 W														
1	141.8	12.5	21.4	0.000176	0.315	-214.46	112228	0.05196	4.383	0.03389	*****	6.275		
2	14.8	12.5	21.4	0.000150	0.369	-187.22	112228	0.00532	0.527	0.22594	*****	28.245		
3	16.3	12.5	21.4	0.000148	0.374	-184.57	112228	0.00454	0.456	0.11927	*****	14.971		
4	37.5	12.5	21.4	0.000146	0.379	-182.24	112228	0.00401	0.407	0.01629	*****	13.913		2.262
5	47.8	12.5	21.4	0.000143	0.388	-177.77	112234	0.00403	0.419	0.01185	*****	8.526		1.655
6	53.9	12.5	21.2	0.000134	0.411	-166.44	112313	0.00383	0.422	0.01018	*****	6.703		1.373
7	65.2	12.4	20.7	0.000112	0.479	-132.37	112642	0.00328	0.422	0.00799	*****	4.545		0.974
8	75.8	12.4	20.4	0.000097	0.548	-98.35	112881	0.00287	0.422	0.00665	*****	3.366		0.744
9	80.4	12.4	20.2	0.000090	0.584	-80.23	113009	0.00270	0.422	0.00621	*****	2.999		0.665
10	84.6	12.4	20.1	0.000087	0.603	-71.17	113073	0.00262	0.422	0.00569	*****	2.593		0.599
RUN NO 660 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 24.0 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W														
1	112.9	12.2	17.6	0.000134	0.346	-199.68	171074	0.03048	4.203	0.04175	*****	5.115		
2	16.8	12.2	17.5	0.000122	0.380	-183.11	171147	0.00209	0.315	0.06858	*****	6.251		
3	15.5	12.2	17.5	0.000121	0.382	-182.12	171184	0.00160	0.243	0.07548	*****	6.759		
4	19.4	12.2	17.5	0.000120	0.383	-181.27	171220	0.00156	0.238	0.03339	*****	30.454		3.088
5	26.3	12.2	17.4	0.000119	0.387	-179.60	171326	0.00154	0.237	0.01686	*****	12.676		1.608
6	29.5	12.2	16.7	0.000112	0.395	-175.54	171983	0.00151	0.238	0.01375	*****	9.611		1.310
7	35.5	12.1	15.0	0.000099	0.421	-163.27	173183	0.00142	0.238	0.01018	*****	6.319		0.946
8	38.4	12.1	14.7	0.000089	0.444	-151.06	174065	0.00134	0.238	0.01018	*****	6.329		0.903
9	42.2	12.1	14.4	0.000084	0.459	-144.68	174469	0.00127	0.231	0.00999	*****	6.245		0.866
10	33.8	12.1	14.2	0.000082	0.466	-141.60	174671	0.00121	0.224	0.01027	*****	6.594		0.877
RUN NO 661 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 24.1 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W														
1	107.5	12.2	17.5	0.000133	0.349	-198.39	171156	0.03035	4.218	0.04428	*****	5.368		
2	15.6	12.2	17.5	0.000121	0.382	-181.97	171222	0.00169	0.257	0.07675	*****	6.877		
3	14.5	12.2	17.4	0.000120	0.384	-181.18	171255	0.00123	0.187	0.08239	*****	7.272		
4	16.6	12.2	17.4	0.000119	0.385	-180.53	171288	0.00121	0.185	0.04197	*****	40.057		3.777
5	22.6	12.2	17.3	0.000118	0.388	-179.24	171387	0.00119	0.183	0.01770	*****	14.077		1.655
6	25.4	12.2	16.7	0.000112	0.394	-176.13	172030	0.00117	0.184	0.01398	*****	10.322		1.309
7	30.5	12.1	15.6	0.000100	0.414	-166.68	173209	0.00112	0.184	0.01003	*****	6.564		0.926
8	30.0	12.1	14.7	0.000091	0.434	-157.27	174078	0.00107	0.184	0.01026	*****	6.812		0.913
9	30.1	12.1	14.4	0.000087	0.444	-152.33	174475	0.00103	0.181	0.01001	*****	6.640		0.875
10	28.9	12.1	14.2	0.000085	0.449	-149.92	174674	0.00099	0.177	0.01048	*****	7.128		0.903

STA NO	TUBE NO	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 662 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 24.2 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	102.8	12.2	17.8	0.000134	0.351	-197.37	170827	0.03014	4.211	0.04652	*****	5.590	
2	15.0	12.2	17.7	0.000122	0.384	-181.08	170922	0.00149	0.227	0.08192	*****	7.269	
3	14.3	12.2	17.7	0.000121	0.385	-180.39	170970	0.00105	0.161	0.07911	*****	6.942	
4	16.2	12.2	17.7	0.000121	0.386	-179.83	171017	0.00104	0.159	0.04021	38.071	3.593	
5	21.4	12.2	17.5	0.000119	0.389	-178.73	171144	0.00102	0.158	0.01718	13.812	1.593	
6	23.1	12.2	16.9	0.000113	0.394	-176.09	171843	0.00101	0.158	0.01447	11.087	1.340	
7	28.2	12.1	15.6	0.000101	0.411	-168.03	173106	0.00097	0.158	0.00985	6.640	0.905	
8	27.6	12.1	14.8	0.000092	0.428	-160.00	174026	0.00093	0.158	0.01021	6.985	0.907	
9	27.8	12.0	14.4	0.000088	0.437	-155.78	174450	0.00089	0.155	0.00980	6.675	0.859	
10	26.5	12.0	14.2	0.000086	0.441	-153.74	174662	0.00086	0.151	0.01037	7.288	0.896	
RUN NO 663 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 24.0 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	102.7	12.4	21.0	0.000158	0.345	-199.23	167685	0.03051	4.209	0.04665	*****	5.652	
2	14.5	12.4	20.9	0.000141	0.378	-183.07	168149	0.00120	0.182	0.08873	*****	7.888	
3	14.0	12.4	20.3	0.000139	0.379	-182.57	168379	0.00075	0.114	0.07289	*****	6.430	
4	15.1	12.4	20.0	0.000137	0.380	-182.20	168609	0.00075	0.113	0.04126	39.672	3.682	
5	19.2	12.4	19.6	0.000134	0.382	-181.47	169077	0.00074	0.112	0.01632	13.727	1.509	
6	20.3	12.3	18.4	0.000125	0.386	-179.68	170318	0.00073	0.113	0.01403	11.443	1.298	
7	24.6	12.2	16.4	0.000109	0.398	-174.13	172299	0.00071	0.113	0.00905	6.557	0.83H	
8	24.0	12.1	15.2	0.000099	0.410	-168.57	173621	0.00069	0.113	0.00946	6.988	0.854	
9	24.4	12.0	14.6	0.000094	0.417	-165.68	174249	0.00067	0.110	0.00891	6.505	0.797	
10	23.2	12.0	14.3	0.000091	0.420	-164.28	174565	0.00065	0.108	0.00966	7.307	0.855	
RUN NO 664 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 23.8 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	102.2	12.3	19.4	0.000148	0.341	-201.69	169282	0.03092	4.210	0.04684	*****	5.738	
2	14.2	12.3	19.1	0.000134	0.374	-185.53	169513	0.00122	0.181	0.09637	*****	8.634	
3	13.8	12.3	19.0	0.000133	0.375	-185.02	169627	0.00076	0.114	0.07729	*****	6.877	
4	15.0	12.3	18.9	0.000132	0.376	-184.63	169741	0.00076	0.114	0.04244	40.798	3.822	
5	19.7	12.3	18.7	0.000130	0.377	-183.87	169997	0.00074	0.112	0.01524	12.576	1.428	
6	20.8	12.2	17.7	0.000122	0.382	-182.06	170962	0.00074	0.113	0.01323	10.580	1.240	
7	24.8	12.1	16.1	0.000109	0.394	-176.45	172619	0.00072	0.113	0.00888	6.356	0.831	
8	24.2	12.1	15.0	0.000099	0.406	-170.85	173780	0.00070	0.113	0.00933	6.805	0.851	
9	24.6	12.0	14.5	0.000094	0.412	-167.92	174328	0.00068	0.110	0.00877	6.324	0.793	
10	23.2	12.0	14.2	0.000092	0.415	-166.50	174603	0.00066	0.108	0.00969	7.272	0.864	
RUN NO 665 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 23.4 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	105.1	12.3	18.1	0.000143	0.332	-206.53	170564	0.03173	4.201	0.04524	*****	5.687	
2	14.0	12.2	17.8	0.000129	0.365	-190.52	170873	0.00114	0.165	0.09471	*****	8.650	
3	13.5	12.2	17.6	0.000127	0.366	-190.08	171025	0.00066	0.096	0.07629	*****	6.914	
4	15.0	12.2	17.5	0.000126	0.366	-189.77	171178	0.00065	0.095	0.03407	32.490	3.137	
5	18.8	12.2	17.2	0.000124	0.368	-189.16	171503	0.00064	0.094	0.01424	11.973	1.356	
6	19.7	12.1	16.2	0.000116	0.371	-187.73	172529	0.00064	0.094	0.01243	10.173	1.186	
7	23.5	12.0	14.6	0.000103	0.381	-183.23	174234	0.00062	0.094	0.00826	6.079	0.789	
8	22.4	12.0	13.5	0.000093	0.391	-178.71	175697	0.00061	0.094	0.00901	6.845	0.841	
9	23.4	11.9	13.0	0.000089	0.397	-176.34	176807	0.00059	0.092	0.00805	5.966	0.747	
10	21.8	11.9	12.7	0.000087	0.399	-175.21	177367	0.00057	0.090	0.00910	7.063	0.834	
RUN NO 666 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 23.3 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	115.8	12.2	17.5	0.000140	0.330	-207.95	171221	0.03187	4.185	0.04040	*****	5.162	
2	14.5	12.2	17.2	0.000126	0.362	-192.04	171448	0.00107	0.154	0.06775	*****	6.266	
3	13.7	12.2	17.1	0.000125	0.363	-191.65	171560	0.00053	0.076	0.05153	*****	4.713	
4	14.5	12.2	17.0	0.000124	0.363	-191.41	171672	0.00052	0.075	0.03263	31.252	3.010	
5	17.6	12.2	16.8	0.000122	0.364	-190.93	171922	0.00051	0.074	0.01357	11.670	1.289	
6	17.1	12.1	15.9	0.000115	0.367	-189.83	172835	0.00051	0.075	0.01498	13.132	1.409	
7	21.0	12.0	14.4	0.000103	0.375	-186.35	174393	0.00050	0.074	0.00833	6.490	0.796	
8	20.5	12.0	13.4	0.000095	0.383	-182.84	175857	0.00049	0.074	0.00875	6.936	0.821	
9	21.2	11.9	13.0	0.000091	0.387	-181.01	176886	0.00047	0.072	0.00777	6.039	0.727	
10	19.8	11.9	12.7	0.000089	0.389	-180.15	177405	0.00045	0.069	0.00870	7.048	0.805	
RUN NO 668 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 24.3 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	102.9	12.6	23.9	0.000173	0.354	-194.10	164832	0.02979	4.222	0.04678	*****	5.537	
2	14.5	12.6	23.2	0.000154	0.386	-178.05	165455	0.00080	0.123	0.06501	*****	5.659	
3	12.9	12.6	22.9	0.000152	0.387	-177.76	165764	0.00037	0.057	0.16363	*****	13.961	
4	14.0	12.5	22.6	0.000150	0.388	-177.59	166073	0.00035	0.055	0.03689	33.158	3.189	
5	16.2	12.5	22.0	0.000146	0.389	-177.27	166688	0.00035	0.054	0.01482	12.370	1.310	
6	15.6	12.4	20.5	0.000136	0.391	-176.50	168147	0.00035	0.055	0.01706	14.553	1.494	
7	19.2	12.3	18.3	0.000121	0.398	-173.97	170404	0.00035	0.055	0.00789	6.008	0.707	
8	18.2	12.2	16.8	0.000110	0.404	-171.40	171879	0.00034	0.055	0.00912	7.191	0.802	
9	18.8	12.1	16.1	0.000106	0.407	-170.07	172582	0.00033	0.053	0.00807	6.256	0.709	
10	17.5	12.1	15.8	0.000103	0.408	-169.44	172936	0.00032	0.052	0.00958	7.736	0.832	

STA NO	TUBE TEMP K	WALL SAT TEMP K	MIXTURE PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPS H-T COEF	EXP/S-T H-T COEF
RUN NO 669 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 24.6 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W												
1	122.9	12.7	24.7	0.000175	0.359	-191.47	164109	0.02911	4.185	0.03797	*****	4.517
2	14.7	12.6	23.6	0.000155	0.391	-175.55	165134	0.00086	0.135	0.06294	*****	5.449
3	14.8	12.6	23.1	0.000151	0.392	-175.27	165644	0.00031	0.048	0.02196	*****	1.896
4	14.8	12.5	22.5	0.000148	0.393	-175.16	166157	0.00031	0.049	0.02152	*****	1.858
5	16.1	12.5	21.5	0.000142	0.394	-174.94	167131	0.00031	0.048	0.01319	*****	1.154
6	14.1	12.4	19.8	0.000130	0.396	-174.35	168882	0.00031	0.048	0.02858	*****	2.439
7	16.8	12.2	17.3	0.000114	0.402	-172.28	171371	0.00030	0.048	0.01060	*****	0.924
8	16.7	12.1	15.8	0.000104	0.407	-170.15	172911	0.00030	0.048	0.01066	*****	0.920
9	17.6	12.1	15.2	0.000099	0.410	-169.05	173635	0.00029	0.047	0.00846	*****	0.734
10	16.5	12.1	14.8	0.000097	0.411	-168.54	173993	0.00028	0.046	0.01031	*****	0.883
RUN NO 672 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 25.1 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W												
1	132.9	13.5	43.1	0.000281	0.367	-183.24	152642	0.02808	4.181	0.03500	*****	4.048
2	14.0	13.3	38.2	0.000232	0.400	-167.32	155022	0.00067	0.109	0.15302	*****	12.675
3	14.1	13.2	35.7	0.000218	0.402	-167.18	156222	0.00009	0.014	0.01594	*****	1.322
4	14.8	13.1	33.3	0.000204	0.402	-167.22	157440	0.00008	0.014	0.00817	*****	0.683
5	16.4	12.9	29.1	0.000180	0.404	-167.35	160051	0.00008	0.013	0.00390	*****	0.332
6	13.5	12.7	24.6	0.000155	0.407	-167.45	164127	0.00008	0.014	0.01635	*****	1.348
7	14.7	12.4	19.9	0.000127	0.410	-167.35	168759	0.00008	0.014	0.00598	*****	0.500
8	13.1	12.2	16.8	0.000108	0.412	-167.33	171872	0.00008	0.014	0.01585	*****	1.300
9	14.7	12.1	15.6	0.000101	0.413	-167.37	173199	0.00008	0.014	0.00526	*****	0.440
10	13.4	12.1	15.0	0.000097	0.413	-167.39	173782	0.00009	0.014	0.01029	*****	0.849
RUN NO 673 ORIF DIA 0.0635 CM FLOW RATE 1.18 G/S LIQ TEMP 25.1 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W												
1	133.1	13.5	43.1	0.000281	0.367	-183.20	152642	0.02816	4.193	0.03504	*****	4.052
2	13.9	13.3	38.2	0.000231	0.401	-167.25	155022	0.00065	0.105	0.16227	*****	13.427
3	14.2	13.2	35.7	0.000218	0.402	-167.12	156222	0.00006	0.010	0.00958	*****	0.795
4	15.0	13.1	33.3	0.000204	0.402	-167.18	157440	0.00006	0.009	0.00503	*****	0.421
5	16.5	12.9	29.1	0.000179	0.404	-167.33	160051	0.00006	0.009	0.00253	*****	0.216
6	13.8	12.7	24.6	0.000155	0.407	-167.51	164127	0.00006	0.009	0.00804	*****	0.666
7	14.1	12.4	19.9	0.000127	0.409	-167.64	168759	0.00006	0.009	0.00559	*****	0.465
8	12.5	12.2	16.8	0.000109	0.411	-167.85	171872	0.00006	0.009	0.03278	*****	2.675
9	14.0	12.1	15.6	0.000101	0.411	-168.01	173199	0.00006	0.009	0.00474	*****	0.395
10	12.9	12.1	15.0	0.000098	0.412	-168.09	173782	0.00005	0.009	0.01107	*****	0.909

STA NO	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY	MIXTURE ENTHALPY	REYNOLDS NUMBER	STEFAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEFF	EXP/FPSP H-T COEFF	EXP/S-T H-T COEFF
-	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 544 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 0.000 W												
1	100.7	11.8	11.8	0.000101	0.321	-274.47	120437	0.05223	4.442	0.04907	*****	8.959
2	12.9	11.8	11.7	0.000087	0.373	-188.99	120469	0.00202	0.200	0.17248	*****	21.274
3	12.7	11.8	11.7	0.000086	0.374	-188.09	120484	0.00139	0.138	0.15156	*****	18.561
4	17.5	11.7	11.7	0.000086	0.376	-187.38	120500	0.00132	0.132	0.02290	*****	23.414
5	21.3	11.7	11.7	0.000085	0.379	-185.98	120553	0.00132	0.132	0.01383	*****	12.545
6	23.8	11.7	11.4	0.000082	0.386	-182.54	120646	0.00130	0.133	0.01100	*****	9.310
7	29.0	11.6	10.8	0.000074	0.408	-172.18	121852	0.00123	0.133	0.00767	*****	5.698
8	29.7	11.6	10.4	0.000068	0.429	-161.84	122521	0.00117	0.133	0.00734	*****	5.375
9	31.0	11.6	10.2	0.000065	0.441	-156.35	122846	0.00114	0.133	0.00684	*****	4.880
10	29.4	11.6	10.1	0.000063	0.446	-153.62	123009	0.00112	0.132	0.00742	*****	5.473
RUN NO 547 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 0.478 W												
1	100.1	11.8	11.8	0.000101	0.322	-273.80	120316	0.05214	4.453	0.05043	*****	9.007
2	12.9	11.8	11.8	0.000087	0.374	-188.26	120352	0.00201	0.200	0.17438	*****	21.438
3	12.8	11.8	11.8	0.000086	0.376	-187.36	120369	0.00138	0.138	0.13320	*****	16.289
4	17.7	11.8	11.8	0.000086	0.377	-186.65	120387	0.00132	0.132	0.02223	*****	21.944
5	21.7	11.8	11.8	0.000085	0.380	-185.25	120445	0.00132	0.133	0.01337	*****	11.661
6	23.8	11.7	11.5	0.000082	0.387	-181.80	120667	0.00130	0.133	0.01107	*****	9.107
7	29.1	11.6	10.9	0.000074	0.409	-171.43	121807	0.00123	0.133	0.00765	*****	5.510
8	29.9	11.6	10.4	0.000067	0.431	-161.07	122502	0.00117	0.133	0.00729	*****	5.166
9	30.9	11.6	10.2	0.000064	0.442	-155.57	122836	0.00114	0.133	0.00684	*****	4.771
10	29.5	11.6	10.1	0.000063	0.448	-152.84	123004	0.00112	0.132	0.00736	*****	5.263
RUN NO 548 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 1.768 W												
1	98.7	11.8	11.9	0.000101	0.326	-272.04	120165	0.05188	4.479	0.05154	*****	9.112
2	12.7	11.8	11.9	0.000087	0.378	-186.36	120206	0.00199	0.199	0.21309	*****	25.916
3	13.4	11.8	11.9	0.000086	0.380	-185.47	120225	0.00136	0.137	0.07531	*****	9.227
4	17.8	11.8	11.9	0.000086	0.381	-184.75	120245	0.00131	0.133	0.02189	*****	21.666
5	21.9	11.8	11.8	0.000085	0.384	-183.35	120310	0.00131	0.133	0.01312	*****	11.651
6	24.0	11.7	11.5	0.000081	0.391	-179.89	120769	0.00129	0.134	0.01094	*****	9.018
7	29.6	11.6	10.9	0.000073	0.413	-169.48	121751	0.00122	0.134	0.00747	*****	5.366
8	30.7	11.6	10.4	0.000067	0.435	-159.10	122478	0.00116	0.134	0.00701	*****	4.928
9	31.8	11.6	10.2	0.000064	0.446	-153.58	122825	0.00113	0.134	0.00661	*****	4.543
10	30.5	11.6	10.1	0.000063	0.452	-150.84	122999	0.00111	0.133	0.00702	*****	4.953
RUN NO 549 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 3.760 W												
1	100.0	11.7	10.9	0.000092	0.331	-279.87	121691	0.05100	4.468	0.05056	*****	8.857
2	12.1	11.7	10.9	0.000079	0.383	-184.33	121710	0.00197	0.200	0.43527	*****	52.077
3	11.7	11.7	10.9	0.000079	0.385	-183.44	121719	0.00136	0.138	2.52849	*****	299.646
4	16.9	11.7	10.9	0.000078	0.386	-182.72	121729	0.00129	0.132	0.02525	*****	25.970
5	20.4	11.6	10.9	0.000078	0.389	-181.32	121765	0.00129	0.133	0.01515	*****	13.893
6	21.8	11.6	10.7	0.000075	0.396	-177.86	122056	0.00128	0.134	0.01317	*****	11.615
7	28.7	11.6	10.2	0.000068	0.418	-167.49	122829	0.00121	0.134	0.00791	*****	5.739
8	30.9	11.5	9.9	0.000063	0.440	-157.13	123397	0.00115	0.134	0.00591	*****	4.857
9	32.3	11.5	9.7	0.000060	0.451	-151.64	123682	0.00112	0.134	0.00643	*****	4.392
10	31.2	11.5	9.6	0.000059	0.457	-148.91	123824	0.00110	0.133	0.00672	*****	4.691
RUN NO 553 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 2.033 W												
1	100.1	12.0	14.5	0.000120	0.324	-271.87	114911	0.05076	4.375	0.04967	*****	8.783
2	12.0	12.0	14.3	0.000101	0.378	-184.72	117092	0.00556	0.560	0.00556	*****	*****
3	15.6	12.0	14.2	0.000099	0.384	-181.88	117182	0.00496	0.408	0.14075	*****	17.366
4	28.8	12.0	14.0	0.000097	0.390	-179.23	117272	0.00474	0.492	0.02930	*****	3.888
5	44.8	12.0	13.8	0.000093	0.400	-174.04	117463	0.00448	0.488	0.01487	*****	9.440
6	52.2	11.9	13.0	0.000082	0.427	-161.15	118626	0.00433	0.492	0.01222	*****	6.945
7	74.0	11.7	11.7	0.000063	0.507	-122.48	126566	0.00346	0.492	0.00790	*****	3.427
8	89.2	11.6	10.8	0.000051	0.586	-84.26	121902	0.00317	0.492	0.00634	*****	2.369
9	91.1	11.6	10.4	0.000046	0.628	-64.13	122541	0.00296	0.491	0.00581	*****	2.274
10	88.1	11.6	10.2	0.000044	0.648	-64.21	122863	0.00283	0.485	0.00634	*****	2.398
RUN NO 554 ORIF DIA 0.0635 CM FLOW RATE 0.66 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 4.064 W												
1	94.0	12.0	14.1	0.000111	0.342	-272.74	97323	0.05835	4.415	0.05387	*****	10.508
2	11.6	12.0	13.9	0.000092	0.409	-149.69	97437	0.00815	0.856	0.00815	*****	*****
3	12.5	12.0	13.9	0.000090	0.416	-146.25	97494	0.00556	0.611	1.05623	*****	136.834
4	26.0	12.0	13.8	0.000088	0.423	-143.01	97562	0.00530	0.495	0.03544	*****	34.360
5	40.8	12.0	13.6	0.000084	0.436	-136.67	97810	0.00511	0.492	0.01788	*****	12.291
6	45.3	11.9	12.8	0.000074	0.469	-120.88	98695	0.00479	0.495	0.01325	*****	8.331
7	76.9	11.7	11.8	0.000056	0.566	-67.56	106212	0.00308	0.495	0.00748	*****	3.454
8	97.4	11.6	10.8	0.000045	0.663	-46.69	101775	0.00340	0.495	0.00576	*****	2.119
9	98.7	11.6	10.4	0.000041	0.714	-21.93	101782	0.00316	0.495	0.00567	*****	2.060
10	96.4	11.6	10.2	0.000039	0.739	-9.73	100038	0.00301	0.487	0.00574	*****	2.134

STA NO	TURE WAIL	MIXTURE SAT	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STFRMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	FXP/FRSP H-T COEF	FXO/S-T H-T COEF
-	-	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 555 ORIF DIA 0.0635 CM FLOW RATE 1.52 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CART HTR PWR 7.397 W												
1	106.4	11.8	12.1	0.000087	0.378	-186.25	78326	0.06739	4.406	0.04658	*****	10.356
2	11.8	11.8	11.9	0.000070	0.463	-144.13	78489	0.00709	0.568	0.03810	*****	2416.632
3	14.1	11.8	11.8	0.000069	0.472	-139.70	78570	0.00622	0.509	0.22035	*****	12.070
4	25.6	11.8	11.7	0.000067	0.481	-135.58	78651	0.00596	0.495	0.03564	38.354	5.577
5	39.4	11.7	11.6	0.000064	0.497	-127.48	78828	0.00573	0.493	0.01782	14.429	2.867
6	49.7	11.7	10.9	0.000056	0.539	-107.32	79457	0.00533	0.496	0.01304	8.953	2.014
7	88.0	11.5	9.9	0.000042	0.664	-46.94	80528	0.00433	0.495	0.00647	2.842	0.906
8	113.8	11.4	9.2	0.000033	0.787	12.81	81276	0.00366	0.495	0.00483	1.709	0.607
9	114.8	11.4	8.8	0.000029	0.852	44.38	81632	0.00338	0.495	0.00479	1.679	0.565
10	113.3	11.4	8.7	0.000028	0.884	89.90	81812	0.00319	0.485	0.00476	1.689	0.544
RUN NO 556 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CAPT HTR PWR 0.000 W												
1	111.5	12.2	14.3	0.000136	0.318	-274.10	115636	0.05162	4.381	0.04411	*****	7.967
2	13.2	12.1	14.9	0.000113	0.376	-185.59	115965	0.00794	0.795	0.07994	*****	86.592
3	17.0	12.1	15.6	0.000109	0.384	-181.49	116128	0.00727	0.745	0.15227	*****	19.007
4	36.0	12.1	15.4	0.000105	0.392	-177.61	116292	0.00682	0.712	0.02979	22.052	4.039
5	55.0	12.1	15.0	0.000098	0.408	-170.05	116614	0.00655	0.712	0.01659	9.080	2.277
6	67.2	12.0	13.0	0.000084	0.446	-151.18	117352	0.00603	0.717	0.01300	6.096	1.701
7	106.1	11.8	12.4	0.000060	0.563	-94.66	119502	0.00480	0.716	0.00760	2.466	0.872
8	121.2	11.7	11.4	0.000046	0.677	-38.92	120979	0.00399	0.716	0.00654	1.886	0.657
9	117.7	11.7	10.9	0.000041	0.738	-9.62	121687	0.00367	0.715	0.00674	1.999	0.632
10	107.5	11.6	10.7	0.000039	0.767	4.83	122044	0.00350	0.710	0.00741	2.380	0.667
RUN NO 557 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CAPT HTR PWR 0.482 W												
1	110.6	12.1	15.9	0.000132	0.320	-273.45	115945	0.05159	4.397	0.04467	*****	8.035
2	13.4	12.1	15.4	0.000109	0.377	-184.87	116306	0.00793	0.797	0.02448	*****	76.057
3	18.0	12.1	15.1	0.000105	0.386	-180.76	116484	0.00728	0.748	0.12552	*****	15.782
4	37.7	12.1	14.0	0.000101	0.394	-176.48	116664	0.00679	0.712	0.02773	19.993	3.773
5	55.9	12.0	14.4	0.000094	0.409	-169.34	117012	0.00654	0.713	0.01627	8.840	2.231
6	63.9	11.9	13.4	0.000081	0.448	-150.47	118067	0.00603	0.719	0.01385	6.791	1.796
7	106.2	11.8	11.8	0.000058	0.565	-93.96	120328	0.00480	0.718	0.00761	2.470	0.872
8	121.9	11.6	10.9	0.000044	0.679	-38.31	121785	0.00400	0.718	0.00651	1.880	0.655
9	120.2	11.6	10.4	0.000039	0.740	-9.11	122483	0.00367	0.716	0.00650	1.927	0.619
10	106.9	11.6	10.2	0.000037	0.769	5.29	122835	0.00351	0.714	0.00749	2.429	0.674
RUN NO 558 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CAPT HTR PWR 2.044 W												
1	105.5	12.1	15.9	0.000131	0.323	-271.64	115973	0.05080	4.380	0.04688	*****	8.321
2	13.5	12.1	15.4	0.000108	0.381	-183.20	116329	0.00778	0.789	0.02559	*****	49.687
3	18.9	12.1	15.1	0.000104	0.389	-179.12	116505	0.00717	0.743	0.10857	*****	13.650
4	38.3	12.1	14.9	0.000100	0.397	-175.28	116681	0.00669	0.708	0.02695	19.335	3.649
5	54.2	12.0	14.4	0.000094	0.413	-167.79	117025	0.00644	0.707	0.01603	8.717	2.185
6	56.1	11.9	13.3	0.000080	0.451	-149.04	118083	0.00596	0.716	0.01620	8.834	2.060
7	106.7	11.8	11.8	0.000057	0.567	-92.86	120335	0.00475	0.714	0.00751	2.451	0.859
8	122.5	11.6	10.9	0.000044	0.681	-37.54	121789	0.00397	0.714	0.00644	1.860	0.644
9	131.2	11.6	10.4	0.000039	0.741	-8.56	122485	0.00363	0.710	0.00594	1.612	0.561
10	111.9	11.6	10.2	0.000037	0.770	5.73	122836	0.00349	0.710	0.00707	2.214	0.639
RUN NO 559 ORIF DIA 0.0635 CM FLOW RATE 0.61 G/S LIQ TEMP 21.9 K LIQ PRESS 1.65 ATM CAPT HTR PWR 5.697 W												
1	92.8	12.1	15.7	0.000119	0.351	-197.68	90017	0.06003	4.363	0.05407	*****	10.867
2	13.0	12.1	15.2	0.000096	0.426	-161.08	90279	0.00878	0.772	0.03418	*****	112.659
3	14.6	12.1	15.0	0.000092	0.436	-155.85	90408	0.00824	0.743	0.29687	*****	40.059
4	35.4	12.1	14.8	0.000089	0.446	-150.85	90538	0.00762	0.703	0.03014	24.082	4.510
5	50.5	12.0	14.3	0.000082	0.466	-141.14	90792	0.00734	0.707	0.01839	11.439	2.758
6	56.0	11.9	13.3	0.000070	0.517	-116.75	91621	0.00669	0.713	0.01617	9.314	2.262
7	112.8	11.8	11.9	0.000049	0.667	-43.72	93342	0.00519	0.711	0.00704	2.307	0.871
8	131.8	11.6	10.9	0.000037	0.815	28.43	94460	0.00426	0.711	0.00592	1.689	0.635
9	136.9	11.6	10.4	0.000033	0.893	46.41	94995	0.00387	0.708	0.00545	1.558	0.567
10	120.3	11.6	10.2	0.000031	0.932	85.16	95264	0.00370	0.705	0.00648	2.010	0.621
RUN NO 560 ORIF DIA 0.0635 CM FLOW RATE 0.52 G/S LIQ TEMP 21.9 K LIQ PRESS 1.64 ATM CAPT HTR PWR 8.738 W												
1	102.2	12.0	14.4	0.000103	0.380	-183.66	76300	0.06633	4.387	0.04865	*****	10.651
2	13.1	12.0	14.1	0.000081	0.469	-139.82	76540	0.00964	0.786	0.02599	*****	108.903
3	16.5	12.0	13.8	0.000077	0.482	-133.55	76658	0.00883	0.740	0.16299	*****	23.827
4	33.7	12.0	13.6	0.000074	0.494	-127.59	76878	0.00828	0.710	0.03270	30.084	5.153
5	49.3	11.9	13.1	0.000068	0.519	-115.93	77337	0.00791	0.712	0.01907	13.470	3.016
6	60.2	11.8	12.1	0.000057	0.579	-86.74	78289	0.00715	0.716	0.01479	8.991	2.191
7	127.9	11.6	10.7	0.000039	0.759	0.57	79703	0.00546	0.715	0.00615	2.006	0.799
8	146.5	11.5	9.8	0.000029	0.936	86.80	80600	0.00443	0.715	0.00529	1.528	0.591
9	142.8	11.5	9.4	0.000027	0.990	132.93	81029	0.00419	0.714	0.00543	1.606	0.579
10	132.5	11.4	9.2	0.000026	0.990	156.24	81245	0.00414	0.705	0.00583	1.843	0.617

STA NO	TURF TEMP	WALL SAT TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 541 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.64 ATM CART HTR PWR 0.000 W													
1	112.8	12.2	17.4	0.000147	0.317	-214.63	114748	0.05142	4.359	0.04336	*****	*****	7.840
2	14.8	12.2	16.7	0.000118	0.377	-184.57	115371	0.00987	0.993	0.38405	*****	*****	47.493
3	26.4	12.2	16.3	0.000112	0.388	-179.54	115680	0.00967	0.938	0.04561	*****	*****	8.624
4	47.7	12.1	15.8	0.000106	0.398	-174.69	115992	0.00841	0.892	0.02509	*****	*****	3.461
5	67.3	12.1	15.0	0.000096	0.417	-165.21	116572	0.00809	0.899	0.01628	*****	*****	2.245
6	83.9	12.0	13.7	0.000079	0.466	-141.41	117539	0.00729	0.905	0.01258	*****	*****	1.635
7	136.2	11.8	12.0	0.000054	0.613	-70.36	120118	0.00556	0.903	0.00726	*****	*****	0.799
8	132.8	11.7	12.9	0.000040	0.756	-0.54	121728	0.00453	0.905	0.00747	*****	*****	0.695
9	147.8	11.6	10.4	0.000035	0.831	35.97	122473	0.00410	0.900	0.00661	*****	*****	0.575
10	128.2	11.6	10.2	0.000033	0.868	53.94	122831	0.00392	0.898	0.00770	*****	*****	0.640
RUN NO 544 ORIF DIA 0.0635 CM FLOW RATE 0.79 G/S LIQ TEMP 21.9 K LIQ PRESS 1.64 ATM CART HTR PWR 3.580 W													
1	100.8	11.6	10.9	0.000092	0.329	-210.73	121757	0.05001	4.358	0.04890	*****	*****	8.607
2	12.3	11.6	10.8	0.000079	0.380	-185.79	121854	0.00204	0.205	0.28928	*****	*****	76.940
3	15.7	11.6	10.8	0.000079	0.382	-184.89	121902	0.00137	0.138	0.03401	*****	*****	4.256
4	20.1	11.6	10.8	0.000078	0.383	-184.14	121950	0.00132	0.134	0.01591	*****	*****	2.064
5	22.6	11.6	10.7	0.000077	0.386	-182.78	122075	0.00133	0.136	0.01239	*****	*****	1.621
6	24.2	11.6	10.3	0.000073	0.394	-179.36	122736	0.00131	0.136	0.01081	*****	*****	1.406
7	29.9	11.5	9.5	0.000064	0.416	-149.01	123927	0.00124	0.136	0.00738	*****	*****	0.946
8	31.1	11.4	9.0	0.000058	0.438	-148.69	124796	0.00118	0.136	0.00691	*****	*****	0.856
9	32.8	11.4	8.7	0.000055	0.449	-153.23	125197	0.00115	0.136	0.00637	*****	*****	0.778
10	33.3	11.4	8.6	0.000054	0.455	-150.54	125398	0.00112	0.134	0.00610	*****	*****	0.740
RUN NO 545 ORIF DIA 0.0635 CM FLOW RATE 0.61 G/S LIQ TEMP 21.9 K LIQ PRESS 1.64 ATM CART HTR PWR 7.370 W													
1	103.5	11.6	10.1	0.000078	0.361	-195.61	95397	0.05911	4.371	0.04765	*****	*****	9.577
2	11.1	11.6	10.1	0.000066	0.427	-163.16	95397	0.00235	0.206	0.15242	*****	*****	70.541
3	12.5	11.6	10.1	0.000066	0.429	-161.97	95397	0.00159	0.140	0.02352	*****	*****	3.331
4	17.3	11.6	10.1	0.000065	0.431	-161.02	95397	0.00153	0.135	0.01540	*****	*****	2.249
5	20.3	11.6	10.1	0.000063	0.435	-159.15	95402	0.00153	0.136	0.01560	*****	*****	2.249
6	22.1	11.5	10.0	0.000063	0.445	-154.48	95466	0.00150	0.137	0.01299	*****	*****	1.859
7	29.5	11.5	9.8	0.000058	0.474	-140.49	95735	0.00141	0.137	0.00760	*****	*****	1.073
8	31.5	11.5	9.7	0.000054	0.502	-129.51	95931	0.00132	0.137	0.00684	*****	*****	0.930
9	33.4	11.5	9.4	0.000052	0.517	-119.07	96036	0.00129	0.137	0.00624	*****	*****	0.835
10	34.2	11.5	9.3	0.000051	0.525	-119.40	96088	0.00125	0.134	0.00590	*****	*****	0.782
RUN NO 547 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 24.9 K LIQ PRESS 3.45 ATM CART HTR PWR 0.000 W													
1	129.6	12.1	15.7	0.000112	0.373	-187.18	165834	0.03083	4.375	0.03725	*****	*****	4.526
2	16.7	12.1	15.7	0.000102	0.409	-169.06	165838	0.00242	0.178	0.04186	*****	*****	7.286
3	16.6	12.1	15.7	0.000102	0.412	-167.82	165840	0.00188	0.295	0.06598	*****	*****	5.835
4	24.3	12.1	15.7	0.000101	0.414	-166.75	165842	0.00179	0.282	0.02304	*****	*****	2.141
5	31.3	12.1	15.7	0.000100	0.418	-164.67	165857	0.00178	0.283	0.01475	*****	*****	1.403
6	34.4	12.1	15.5	0.000096	0.429	-159.48	166027	0.00174	0.284	0.01275	*****	*****	1.203
7	41.5	12.1	14.9	0.000087	0.460	-144.00	166638	0.00162	0.284	0.00964	*****	*****	0.881
8	42.0	12.0	14.4	0.000079	0.492	-128.57	167085	0.00152	0.284	0.00949	*****	*****	0.823
9	44.4	12.0	14.2	0.000075	0.508	-120.40	167320	0.00146	0.283	0.00875	*****	*****	0.743
10	32.9	12.0	14.1	0.000073	0.517	-116.32	167437	0.00146	0.287	0.01374	*****	*****	1.113
RUN NO 548 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 24.5 K LIQ PRESS 3.45 ATM CART HTR PWR 1.841 W													
1	130.1	12.1	16.0	0.000118	0.362	-192.36	165512	0.03170	4.372	0.03707	*****	*****	4.610
2	15.9	12.1	16.0	0.000107	0.399	-174.22	165526	0.00249	0.178	0.09985	*****	*****	8.999
3	16.0	12.1	16.0	0.000106	0.401	-172.98	165533	0.00192	0.293	0.07586	*****	*****	6.809
4	23.5	12.1	16.0	0.000105	0.403	-171.91	165540	0.00184	0.282	0.02492	*****	*****	2.353
5	30.9	12.1	15.9	0.000104	0.407	-169.82	165570	0.00182	0.283	0.01507	*****	*****	1.460
6	33.9	12.1	15.7	0.000100	0.418	-164.65	165818	0.00178	0.284	0.01304	*****	*****	1.255
7	40.9	12.1	15.0	0.000089	0.450	-149.18	166521	0.00166	0.284	0.00987	*****	*****	0.916
8	41.4	12.0	14.5	0.000081	0.481	-133.76	167035	0.00155	0.284	0.00964	*****	*****	0.853
9	44.3	12.0	14.2	0.000077	0.498	-125.60	167295	0.00149	0.283	0.00877	*****	*****	0.757
10	32.7	12.0	14.1	0.000075	0.506	-121.51	167426	0.00149	0.287	0.01384	*****	*****	1.139
RUN NO 549 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 24.4 K LIQ PRESS 3.45 ATM CART HTR PWR 7.080 W													
1	122.2	12.1	16.1	0.000118	0.361	-192.68	165432	0.03179	4.376	0.03977	*****	*****	4.922
2	15.3	12.1	16.1	0.000107	0.398	-174.55	165448	0.00245	0.171	0.11590	*****	*****	10.388
3	15.6	12.1	16.1	0.000107	0.400	-173.32	165457	0.00192	0.293	0.08540	*****	*****	7.642
4	23.0	12.1	16.0	0.000106	0.402	-172.26	165465	0.00184	0.282	0.02611	*****	*****	2.461
5	30.6	12.1	15.7	0.000105	0.407	-170.17	165498	0.00182	0.282	0.01527	*****	*****	1.480
6	33.2	12.1	15.7	0.000101	0.417	-165.00	165766	0.00179	0.284	0.01365	*****	*****	1.292
7	40.0	12.1	15.0	0.000090	0.449	-149.54	166491	0.00166	0.284	0.01018	*****	*****	0.944
8	41.2	12.1	14.5	0.000081	0.480	-134.13	167022	0.00156	0.284	0.00975	*****	*****	0.860
9	44.9	12.0	14.3	0.000077	0.497	-125.97	167299	0.00150	0.283	0.00861	*****	*****	0.745
10	32.6	12.1	14.1	0.000075	0.505	-121.89	167423	0.00149	0.286	0.01392	*****	*****	1.146

STA NO	TURF K	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX -	MIXTURE ENTHALPY J/G	REYNOLDS NUMBR	STFRMAN PARAMETER -	HEAT FLUX AT WALL W/CM2	EXP H-T COFF W/CM2-K	EXP/FPSP H-T COEF -	EXP/S-T H-T COEF -
RUN NO 570 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 24.7 K LIQ PRESS 3.45 ATM CART HTR PWR 14.391 W													
1	111.3	12.2	14.3	0.000118	0.367	-189.88	165191	0.03119	4.759	0.04396	*****		5.325
2	15.0	12.2	14.3	0.000107	0.403	-171.86	165216	0.00233	0.758	0.12538	*****		11.088
3	15.2	12.2	14.3	0.000107	0.406	-170.66	165228	0.00187	0.789	0.09368	*****		8.265
4	22.3	12.2	14.3	0.000106	0.408	-169.61	165240	0.00180	0.780	0.02749	*****		2.556
5	30.3	12.1	14.2	0.000105	0.412	-167.54	165283	0.00178	0.780	0.01544	*****		1.474
6	32.2	12.1	14.2	0.000100	0.422	-162.45	165610	0.00175	0.781	0.01400	*****		1.325
7	38.7	12.1	14.1	0.000089	0.454	-147.16	166403	0.00163	0.781	0.01058	*****		0.969
8	40.5	12.0	14.5	0.000080	0.485	-131.92	166985	0.00153	0.781	0.00988	*****		0.864
9	50.7	12.0	14.3	0.000076	0.501	-123.88	167271	0.00146	0.779	0.00721	*****		0.627
10	32.8	12.0	14.1	0.000075	0.509	-119.85	167414	0.00147	0.784	0.01370	*****		1.121
RUN NO 571 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 25.3 K LIQ PRESS 3.45 ATM CART HTR PWR 28.104 W													
1	92.4	12.2	14.4	0.000113	0.386	-190.39	165111	0.02985	4.490	0.05456	*****		6.236
2	14.8	12.2	14.4	0.000103	0.422	-162.34	165138	0.00212	0.442	0.13025	*****		11.071
3	14.9	12.2	14.4	0.000102	0.425	-161.17	165151	0.00179	0.490	0.10399	*****		8.815
4	22.0	12.2	14.3	0.000102	0.427	-160.12	165165	0.00172	0.480	0.02837	*****		2.539
5	29.4	12.2	14.3	0.000101	0.431	-158.05	165212	0.00171	0.480	0.01627	*****		1.497
6	30.8	12.1	14.0	0.000096	0.441	-152.97	165558	0.00168	0.482	0.01510	*****		1.372
7	37.4	12.1	14.1	0.000086	0.473	-137.71	166374	0.00157	0.482	0.01112	*****		0.981
8	40.1	12.0	14.6	0.000078	0.504	-122.49	166973	0.00147	0.482	0.01006	*****		0.852
9	52.2	12.0	14.3	0.000074	0.520	-114.47	167264	0.00141	0.479	0.00694	*****		0.587
10	33.2	12.0	14.1	0.000072	0.528	-110.45	167411	0.00142	0.485	0.01348	*****		1.073
RUN NO 572 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 25.3 K LIQ PRESS 3.45 ATM CART HTR PWR 41.618 W													
1	70.1	12.2	14.9	0.000110	0.406	-170.06	164632	0.02854	4.421	0.07639	*****		8.113
2	14.4	12.2	14.8	0.000101	0.443	-161.97	164675	0.00190	0.321	0.14619	*****		11.901
3	14.7	12.2	14.8	0.000100	0.445	-160.84	164695	0.00171	0.289	0.11349	*****		9.238
4	21.9	12.2	14.8	0.000100	0.447	-159.79	164716	0.00164	0.280	0.02878	*****		2.477
5	28.8	12.2	14.7	0.000098	0.451	-147.74	164784	0.00163	0.280	0.01683	*****		1.488
6	30.0	12.2	14.3	0.000094	0.462	-142.71	165247	0.00160	0.281	0.01580	*****		1.379
7	36.6	12.1	14.3	0.000083	0.493	-127.55	166198	0.00160	0.281	0.01147	*****		0.976
8	39.7	12.1	14.4	0.000075	0.524	-112.45	166898	0.00141	0.282	0.01017	*****		0.834
9	51.5	12.0	14.3	0.000071	0.540	-104.48	167228	0.00136	0.279	0.00706	*****		0.579
10	32.9	12.0	14.1	0.000069	0.548	-100.50	167393	0.00136	0.284	0.01363	*****		1.053
RUN NO 577 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.6 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	143.2	12.2	17.7	0.000148	0.316	-214.50	167788	0.03543	4.279	0.03268	*****		4.553
2	14.9	12.2	17.5	0.000130	0.356	-194.88	169975	0.00623	0.846	0.31731	*****		30.898
3	17.6	12.2	17.4	0.000127	0.362	-191.89	164057	0.00553	0.764	0.14304	*****		14.111
4	34.5	12.2	17.3	0.000125	0.368	-189.12	164159	0.00523	0.733	0.03299	*****		3.510
5	49.5	12.2	17.1	0.000120	0.379	-183.68	164370	0.00509	0.735	0.01970	*****		2.128
6	58.0	12.2	16.3	0.000107	0.406	-170.18	165199	0.00477	0.739	0.01614	*****		1.675
7	98.2	12.1	14.9	0.000082	0.489	-129.80	166630	0.00397	0.739	0.00857	*****		0.818
8	111.1	12.0	13.9	0.000066	0.570	-90.00	167637	0.00341	0.738	0.00745	*****		0.637
9	106.7	12.0	13.4	0.000059	0.613	-69.07	168460	0.00317	0.737	0.00778	*****		0.626
10	93.3	11.9	13.2	0.000056	0.634	-58.71	168935	0.00306	0.735	0.00904	*****		0.699
RUN NO 579 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 24.5 K LIQ PRESS 3.33 ATM CART HTR PWR 24.205 W													
1	99.7	12.3	18.5	0.000134	0.361	-192.05	163053	0.03162	4.761	0.04990	*****		6.040
2	15.4	12.3	18.3	0.000120	0.401	-172.27	167260	0.00529	0.810	0.26007	*****		23.125
3	16.5	12.3	18.2	0.000117	0.407	-169.34	163358	0.00497	0.771	0.18028	*****		16.031
4	35.0	12.3	18.1	0.000115	0.413	-166.56	163455	0.00467	0.735	0.03236	*****		3.144
5	49.5	12.2	17.8	0.000111	0.424	-161.12	163677	0.00457	0.738	0.01984	*****		1.957
6	55.3	12.2	17.0	0.000100	0.452	-147.60	164541	0.00432	0.743	0.01725	*****		1.637
7	81.2	12.1	14.5	0.000077	0.534	-127.11	166031	0.00365	0.742	0.01074	*****		0.936
8	89.4	12.0	14.4	0.000063	0.615	-87.17	167079	0.00318	0.743	0.00961	*****		0.756
9	102.8	12.0	14.0	0.000057	0.658	-66.21	167572	0.00295	0.739	0.00813	*****		0.615
10	83.3	12.0	13.7	0.000054	0.679	-55.84	167878	0.00287	0.741	0.01040	*****		0.752
RUN NO 580 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.5 K LIQ PRESS 3.33 ATM CART HTR PWR 0.000 W													
1	147.7	12.4	19.7	0.000164	0.314	-215.20	158219	0.03660	4.294	0.03173	*****		4.526
2	15.5	12.3	19.5	0.000143	0.356	-194.21	158412	0.00787	1.448	0.33721	*****		33.533
3	20.2	12.3	19.4	0.000139	0.364	-190.35	158508	0.00713	0.869	0.12290	*****		12.532
4	41.5	12.3	19.3	0.000136	0.371	-186.74	158603	0.00664	0.821	0.03155	*****		3.460
5	56.1	12.3	19.1	0.000130	0.386	-179.69	158823	0.00646	0.831	0.03129	*****		2.327
6	71.2	12.3	18.1	0.000113	0.422	-162.03	159695	0.00594	0.834	0.01585	*****		1.665
7	125.4	12.2	14.4	0.000083	0.529	-129.33	161206	0.00474	0.833	0.00824	*****		0.768
8	118.3	12.1	14.5	0.000065	0.634	-87.31	16274	0.00396	0.835	0.00880	*****		0.706
9	136.7	12.1	14.2	0.000058	0.690	-59.97	162775	0.00362	0.828	0.00745	*****		0.567
10	114.2	12.1	14.7	0.000055	0.717	-54.46	163026	0.00348	0.829	0.00910	*****		0.660

STA NO	TURE NO	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COFF	EXP/FPSP H-T COEF	EXP/R-T H-T COFF
-	K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 5R1 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.2 K LIQ PRESS 3.33 ATM CART HTR PWR 9.25 W													
1	133.1	12.4	21.5	0.000161	0.332	-216.20	157473	0.03479	4.314	0.03575	*****		4.837
2	15.8	12.4	21.2	0.000141	0.374	-185.19	157732	0.00738	1.032	0.29932	*****		28.721
3	18.1	12.4	21.1	0.000137	0.382	-181.36	157860	0.00683	0.874	0.17029	*****		16.423
4	41.7	12.4	19.9	0.000134	0.389	-177.75	157988	0.00631	0.918	0.03128	*****		3.304
5	56.0	12.4	19.6	0.000127	0.403	-170.71	158269	0.00618	0.931	0.02130	*****		2.248
6	73.0	12.3	18.6	0.000111	0.439	-153.09	159269	0.00569	0.934	0.01537	*****		1.567
7	134.8	12.2	14.8	0.000082	0.546	-100.52	160972	0.00458	0.932	0.00760	*****		0.694
8	119.7	12.1	15.4	0.000064	0.652	-48.65	162156	0.00385	0.934	0.00868	*****		0.682
9	135.3	12.1	15.0	0.000057	0.707	-21.41	162718	0.00353	0.929	0.00754	*****		0.562
10	115.8	12.1	14.8	0.000054	0.735	-7.96	163001	0.00340	0.928	0.00894	*****		0.637
RUN NO 5R2 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.1 K LIQ PRESS 3.33 ATM CART HTR PWR 44.361 W													
1	77.6	12.5	21.5	0.000141	0.394	-174.63	156530	0.02990	4.411	0.06771	*****		7.556
2	16.4	12.4	21.9	0.000124	0.437	-153.49	157060	0.00602	0.885	0.24762	*****		21.076
3	19.1	12.4	21.7	0.000121	0.445	-149.78	157322	0.00588	0.878	0.14718	*****		12.656
4	42.3	12.4	21.4	0.000117	0.452	-146.20	157566	0.00545	0.920	0.03074	*****		2.882
5	55.3	12.4	19.8	0.000111	0.466	-139.22	158109	0.00536	0.933	0.02174	*****		2.040
6	63.4	12.3	18.5	0.000097	0.522	-121.71	159362	0.00500	0.938	0.01834	*****		1.649
7	107.3	12.2	14.5	0.000072	0.609	-69.39	161305	0.00413	0.936	0.00985	*****		0.807
8	116.6	12.1	15.2	0.000057	0.714	-17.86	162574	0.00353	0.938	0.00887	*****		0.654
9	138.4	12.0	14.6	0.000051	0.749	9.10	163179	0.00326	0.932	0.00738	*****		0.514
10	121.1	12.0	14.3	0.000048	0.796	22.37	163483	0.00314	0.930	0.00852	*****		0.572
RUN NO 5R4 ORIF DIA 0.0635 CM FLOW RATE 1.15 G/S LIQ TEMP 24.1 K LIQ PRESS 3.35 ATM CART HTR PWR 21.671 W													
1	105.7	12.2	14.5	0.000125	0.351	-197.73	168619	0.03219	4.400	0.04703	*****		5.772
2	15.8	12.2	14.5	0.000113	0.387	-179.92	168619	0.00240	0.362	0.09861	*****		8.933
3	16.4	12.2	14.5	0.000113	0.389	-178.71	168619	0.00199	0.301	0.07071	*****		6.411
4	25.3	12.2	14.5	0.000112	0.391	-177.65	168619	0.00186	0.284	0.02156	*****		2.067
5	29.0	12.2	14.5	0.000111	0.396	-175.57	168629	0.00188	0.289	0.01716	*****		1.658
6	33.2	12.2	14.4	0.000107	0.406	-170.35	168766	0.00183	0.290	0.01379	*****		1.328
7	39.1	12.1	13.8	0.000096	0.438	-154.80	169334	0.00170	0.290	0.01075	*****		0.994
8	43.0	12.1	15.4	0.000088	0.469	-139.28	169748	0.00159	0.290	0.00938	*****		0.830
9	40.9	12.1	15.2	0.000084	0.484	-131.05	169970	0.00153	0.290	0.01006	*****		0.863
10	42.0	12.1	15.1	0.000082	0.494	-126.96	170082	0.00149	0.287	0.00958	*****		0.812
RUN NO 5R5 ORIF DIA 0.0635 CM FLOW RATE 1.15 G/S LIQ TEMP 24.9 K LIQ PRESS 3.35 ATM CART HTR PWR 35.361 W													
1	84.3	12.2	14.9	0.000120	0.373	-186.52	168212	0.03048	4.433	0.06145	*****		7.020
2	15.6	12.2	14.9	0.000110	0.409	-168.66	168220	0.00215	0.344	0.10099	*****		8.711
3	17.6	12.2	14.9	0.000109	0.412	-167.50	168224	0.00185	0.296	0.05453	*****		4.779
4	23.9	12.2	14.9	0.000108	0.414	-166.44	168228	0.00178	0.287	0.02440	*****		2.221
5	28.0	12.2	14.9	0.000107	0.418	-164.35	168250	0.00178	0.290	0.01828	*****		1.682
6	31.1	12.2	14.7	0.000103	0.428	-159.15	168463	0.00174	0.290	0.01530	*****		1.399
7	37.4	12.1	14.7	0.000093	0.460	-143.64	169158	0.00162	0.290	0.01138	*****		1.008
8	38.0	12.1	15.5	0.000084	0.492	-129.16	169667	0.00152	0.290	0.01119	*****		0.942
9	37.5	12.1	15.2	0.000080	0.508	-119.95	169930	0.00147	0.290	0.01143	*****		0.935
10	38.9	12.1	15.1	0.000078	0.517	-115.89	170062	0.00143	0.287	0.01071	*****		0.869
RUN NO 5R6 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	105.9	12.7	25.9	0.000175	0.376	-182.58	152636	0.03118	4.403	0.04725	*****		5.618
2	14.4	12.7	25.9	0.000159	0.413	-163.70	152636	0.00231	0.359	0.21305	*****		18.439
3	14.7	12.7	25.9	0.000158	0.416	-162.45	152636	0.00187	0.292	0.15174	*****		13.104
4	19.2	12.7	25.9	0.000157	0.418	-161.33	152636	0.00183	0.288	0.04442	*****		3.988
5	27.7	12.7	25.9	0.000155	0.422	-159.12	152641	0.00180	0.286	0.01905	*****		1.777
6	31.3	12.7	25.8	0.000151	0.434	-153.61	152709	0.00176	0.287	0.01545	*****		1.434
7	37.7	12.7	25.5	0.000134	0.467	-137.07	152990	0.00164	0.287	0.01150	*****		1.030
8	40.1	12.7	25.2	0.000128	0.500	-120.53	153195	0.00153	0.287	0.01048	*****		0.894
9	49.6	12.7	25.1	0.000124	0.518	-111.74	153304	0.00147	0.285	0.00771	*****		0.644
10	35.7	12.7	25.1	0.000121	0.527	-107.30	153359	0.00149	0.284	0.01277	*****		1.033
RUN NO 5R7 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 4.525 W													
1	99.5	12.7	25.9	0.000169	0.387	-176.73	152636	0.03029	4.410	0.05086	*****		5.867
2	14.2	12.7	25.9	0.000154	0.425	-157.86	152636	0.00221	0.356	0.24622	*****		20.782
3	14.6	12.7	25.9	0.000153	0.427	-156.62	152636	0.00181	0.291	0.15528	*****		13.111
4	19.0	12.7	25.9	0.000153	0.430	-155.50	152636	0.00178	0.288	0.04599	*****		4.033
5	27.4	12.7	25.9	0.000151	0.434	-153.29	152641	0.00175	0.285	0.01944	*****		1.775
6	30.4	12.7	25.8	0.000147	0.445	-147.79	152709	0.00171	0.287	0.01610	*****		1.446
7	36.4	12.7	25.5	0.000135	0.478	-131.24	152990	0.00160	0.287	0.01190	*****		1.050
8	39.0	12.7	25.2	0.000126	0.512	-115.74	153195	0.00149	0.287	0.01093	*****		0.914
9	48.4	12.7	25.1	0.000121	0.529	-108.94	153304	0.00143	0.285	0.00794	*****		0.660
10	35.2	12.7	25.1	0.000119	0.538	-101.53	153359	0.00145	0.283	0.01304	*****		1.034

STA NO	TURE WALL	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBR	STFRMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COFF	EXP/FRSO H-T COFF	EXP/S-T H-T COFF
- K	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 588 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 26.351 W												
1	72.4	12.8	26.7	0.000159	0.422	-158.90	151940	0.02803	4.453	0.07468	*****	7.759
2	14.1	12.8	26.7	0.000146	0.460	-139.96	151940	0.00190	0.329	0.25791	*****	20.381
3	14.3	12.8	26.7	0.000146	0.463	-138.76	151940	0.00167	0.291	0.19227	*****	15.173
4	17.5	12.8	26.7	0.000145	0.465	-137.64	151940	0.00166	0.291	0.06155	*****	4.999
5	27.5	12.8	26.7	0.000144	0.469	-135.42	151949	0.00162	0.288	0.01950	*****	1.688
6	29.8	12.8	26.5	0.000140	0.480	-129.91	152078	0.00159	0.288	0.01691	*****	1.435
7	35.6	12.7	25.9	0.000128	0.514	-113.36	152611	0.00149	0.288	0.01259	*****	1.037
8	36.9	12.7	25.5	0.000118	0.547	-96.82	153000	0.00140	0.288	0.01190	*****	0.937
9	43.6	12.7	25.2	0.000114	0.565	-88.03	153208	0.00135	0.287	0.00924	*****	0.724
10	33.8	12.7	25.1	0.000111	0.574	-83.61	153313	0.00136	0.293	0.01390	*****	1.047
RUN NO 589 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	100.0	12.7	25.9	0.000175	0.376	-182.52	152636	0.03132	4.424	0.05069	*****	5.994
2	14.1	12.7	25.9	0.000158	0.415	-162.69	152636	0.00375	0.585	0.42531	*****	26.538
3	14.8	12.7	25.9	0.000156	0.420	-160.55	152636	0.00334	0.526	0.25827	*****	22.171
4	22.2	12.7	25.9	0.000155	0.424	-158.53	152636	0.00327	0.521	0.05518	*****	4.995
5	36.0	12.7	25.9	0.000152	0.432	-154.54	152641	0.00318	0.515	0.02215	*****	2.094
6	41.2	12.7	25.8	0.000145	0.452	-144.60	152709	0.00305	0.518	0.01820	*****	1.691
7	61.5	12.7	25.5	0.000127	0.511	-114.74	152990	0.00270	0.518	0.01062	*****	0.928
8	57.2	12.7	25.2	0.000112	0.571	-84.97	153195	0.00242	0.518	0.01164	*****	0.925
9	54.2	12.7	25.1	0.000106	0.603	-69.12	153304	0.00229	0.517	0.01244	*****	0.942
10	46.2	12.7	25.1	0.000103	0.619	-61.17	153359	0.00224	0.521	0.01553	*****	1.135
RUN NO 590 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.5 K LIQ PRESS 3.30 ATM CART HTR PWR 9.644 W												
1	107.5	12.7	26.0	0.000182	0.362	-189.47	152567	0.03271	4.450	0.04699	*****	5.763
2	14.2	12.7	26.0	0.000164	0.402	-169.58	152567	0.00393	0.594	0.40473	*****	25.744
3	14.5	12.7	26.0	0.000162	0.406	-167.32	152567	0.00349	0.533	0.29741	*****	26.138
4	25.2	12.7	26.0	0.000160	0.410	-165.29	152567	0.00338	0.520	0.04145	*****	3.931
5	39.3	12.7	26.0	0.000157	0.418	-161.30	152572	0.00329	0.516	0.01944	*****	1.911
6	41.1	12.7	25.9	0.000150	0.438	-151.31	152646	0.00316	0.521	0.01837	*****	1.748
7	88.6	12.7	25.5	0.000130	0.498	-121.34	152982	0.00277	0.519	0.00683	*****	0.638
8	51.5	12.7	25.3	0.000115	0.558	-91.41	153175	0.00249	0.521	0.01344	*****	0.777
9	66.6	12.7	25.1	0.000108	0.590	-75.48	153295	0.00234	0.518	0.00961	*****	0.758
10	59.2	12.7	25.1	0.000105	0.606	-67.53	153354	0.00229	0.521	0.01121	*****	0.852
RUN NO 591 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.0 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	115.8	12.7	26.0	0.000189	0.348	-196.21	152567	0.03415	4.474	0.04341	*****	5.527
2	14.0	12.7	26.0	0.000169	0.389	-176.10	152567	0.00414	0.604	0.40906	*****	45.124
3	14.3	12.7	26.0	0.000167	0.393	-173.89	152567	0.00364	0.538	0.34893	*****	21.301
4	25.9	12.7	26.0	0.000166	0.397	-171.85	152567	0.00350	0.523	0.03965	*****	3.853
5	39.5	12.7	26.0	0.000162	0.405	-167.82	152572	0.00342	0.520	0.01944	*****	1.961
6	43.7	12.7	25.9	0.000154	0.425	-157.77	152646	0.00328	0.524	0.01691	*****	1.657
7	88.4	12.7	25.5	0.000133	0.486	-127.57	152982	0.00286	0.523	0.00691	*****	0.658
8	73.6	12.7	25.3	0.000118	0.546	-97.45	153175	0.00255	0.524	0.00860	*****	0.731
9	65.1	12.7	25.1	0.000111	0.578	-81.39	153295	0.00241	0.524	0.01000	*****	0.799
10	64.4	12.7	25.1	0.000107	0.594	-73.38	153354	0.00234	0.522	0.01011	*****	0.789
RUN NO 592 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.5 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	108.3	12.8	27.0	0.000189	0.360	-190.02	151663	0.03319	4.498	0.04712	*****	5.797
2	15.6	12.8	27.0	0.000169	0.402	-168.95	151663	0.00545	0.825	0.29664	*****	26.535
3	15.1	12.8	27.0	0.000167	0.408	-165.86	151663	0.00507	0.779	0.34513	*****	20.332
4	33.3	12.8	27.0	0.000164	0.414	-162.92	151663	0.00478	0.745	0.03637	*****	3.521
5	48.3	12.8	27.0	0.000160	0.426	-157.17	151674	0.00466	0.747	0.02101	*****	2.073
6	55.7	12.8	26.8	0.000149	0.455	-149.74	151827	0.00439	0.751	0.01751	*****	1.662
7	90.4	12.8	26.1	0.000122	0.541	-99.48	152460	0.00369	0.751	0.00946	*****	0.945
8	104.5	12.7	25.6	0.000103	0.628	-66.37	152922	0.00318	0.750	0.00818	*****	0.845
9	100.2	12.7	25.3	0.000095	0.674	-53.44	153170	0.00296	0.749	0.00854	*****	0.875
10	88.3	12.7	25.1	0.000092	0.697	-41.99	153294	0.00288	0.754	0.00997	*****	0.712
RUN NO 593 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.7 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	102.1	12.8	27.4	0.000190	0.365	-187.22	151181	0.03210	4.416	0.04945	*****	5.978
2	16.1	12.8	27.4	0.000170	0.408	-165.77	151181	0.00656	1.007	0.30544	*****	27.133
3	16.0	12.8	27.4	0.000167	0.416	-161.94	151181	0.00625	0.979	0.30592	*****	26.740
4	39.6	12.8	27.4	0.000164	0.423	-158.26	151181	0.00581	0.925	0.03454	*****	3.360
5	55.0	12.8	27.5	0.000158	0.437	-151.09	151195	0.00567	0.934	0.02214	*****	2.162
6	65.8	12.8	27.3	0.000145	0.473	-133.06	151389	0.00527	0.930	0.01772	*****	1.859
7	110.7	12.8	26.4	0.000115	0.582	-79.04	152194	0.00429	0.938	0.00957	*****	0.905
8	125.7	12.7	25.7	0.000095	0.690	-55.24	152786	0.00362	0.938	0.00834	*****	0.820
9	131.2	12.7	25.3	0.000086	0.747	-33.30	153103	0.00333	0.934	0.00788	*****	0.853
10	111.9	12.7	25.2	0.000083	0.776	-17.58	153262	0.00324	0.943	0.00951	*****	0.837

STA NO	TURF WALL	MIXTURE SAT	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEF	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
-	-	-	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 594 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 24.6 K LIQ PRESS 3.28 ATM CART HTR PWR 0.000 W												
1	123.4	12.7	24.6	0.000172	0.363	-189.14	150184	0.03265	4.349	0.03928	*****	4.970
2	16.5	12.7	24.6	0.000156	0.402	-169.96	150184	0.00266	0.377	0.09728	*****	9.040
3	16.4	12.7	24.6	0.000155	0.404	-168.63	150184	0.00201	0.298	0.08016	*****	7.359
4	23.0	12.7	24.6	0.000154	0.407	-167.48	150184	0.00103	0.288	0.02798	*****	21.327
5	24.6	12.7	24.6	0.000152	0.411	-165.20	150187	0.00191	0.288	0.01609	*****	10.999
6	32.7	12.7	24.6	0.000148	0.423	-158.51	150230	0.00187	0.290	0.01446	*****	8.799
7	34.9	12.0	24.3	0.000136	0.457	-142.40	150407	0.00173	0.290	0.01064	*****	5.679
8	40.9	12.0	24.2	0.000126	0.491	-125.31	150536	0.00141	0.290	0.01024	*****	5.371
9	34.8	12.0	24.1	0.000121	0.509	-116.20	150605	0.00155	0.290	0.01047	*****	5.703
10	41.5	12.0	24.0	0.000119	0.519	-111.66	150639	0.00152	0.288	0.00996	*****	5.168
RUN NO 595 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 24.6 K LIQ PRESS 3.28 ATM CART HTR PWR 6.800 W												
1	118.1	12.7	25.0	0.000174	0.365	-188.21	149838	0.03256	4.358	0.04133	*****	5.185
2	15.6	12.7	25.0	0.000158	0.403	-169.01	149838	0.00252	0.373	0.12870	*****	11.702
3	16.1	12.7	25.0	0.000157	0.406	-167.69	149838	0.00200	0.297	0.08804	*****	8.027
4	22.7	12.7	25.0	0.000156	0.408	-166.53	149838	0.00192	0.288	0.02867	*****	21.342
5	29.4	12.7	25.0	0.000154	0.413	-164.26	149843	0.00190	0.288	0.01704	*****	10.743
6	32.7	12.7	24.9	0.000149	0.424	-158.56	149916	0.00186	0.290	0.01443	*****	8.541
7	38.9	12.7	24.5	0.000136	0.459	-141.47	150219	0.00172	0.290	0.01103	*****	5.827
8	39.7	12.0	24.3	0.000126	0.493	-124.39	150439	0.00160	0.290	0.01071	*****	5.585
9	38.3	12.0	24.1	0.000121	0.511	-115.29	150557	0.00155	0.290	0.01127	*****	6.015
10	40.1	12.0	24.1	0.000118	0.520	-110.75	150616	0.00151	0.288	0.01046	*****	5.413
RUN NO 596 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 24.9 K LIQ PRESS 3.28 ATM CART HTR PWR 14.538 W												
1	108.1	12.7	25.3	0.000173	0.371	-185.11	149562	0.03226	4.390	0.04600	*****	5.646
2	15.2	12.7	25.3	0.000157	0.410	-165.81	149562	0.00243	0.365	0.14426	*****	12.945
3	15.7	12.7	25.3	0.000156	0.412	-164.50	149562	0.00197	0.298	0.09845	*****	8.835
4	22.0	12.7	25.3	0.000155	0.414	-163.34	149562	0.00191	0.290	0.03135	*****	23.033
5	29.4	12.7	25.3	0.000149	0.419	-161.05	149569	0.00188	0.289	0.01733	*****	10.578
6	32.2	12.7	25.2	0.000145	0.431	-155.34	149666	0.00184	0.291	0.01490	*****	8.584
7	38.3	12.7	24.7	0.000135	0.465	-138.18	150089	0.00171	0.291	0.01133	*****	5.828
8	39.0	12.0	24.4	0.000125	0.500	-121.05	150362	0.00159	0.291	0.01104	*****	5.613
9	37.7	12.0	24.2	0.000119	0.518	-111.91	150519	0.00153	0.291	0.01141	*****	6.044
10	39.6	12.0	24.1	0.000117	0.527	-107.37	150598	0.00149	0.289	0.01070	*****	5.388
RUN NO 597 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 25.0 K LIQ PRESS 3.28 ATM CART HTR PWR 26.020 W												
1	99.0	12.7	25.3	0.000166	0.388	-176.47	149562	0.03167	4.425	0.05127	*****	6.019
2	15.1	12.7	25.3	0.000151	0.427	-157.05	149562	0.00229	0.359	0.15163	*****	13.137
3	15.6	12.7	25.3	0.000150	0.430	-155.75	149562	0.00190	0.300	0.10401	*****	9.016
4	22.2	12.7	25.3	0.000149	0.432	-154.59	149562	0.00184	0.291	0.03069	*****	21.698
5	29.5	12.7	25.3	0.000147	0.437	-152.29	149569	0.00182	0.291	0.01730	*****	10.205
6	31.5	12.7	25.2	0.000143	0.448	-146.54	149666	0.00178	0.293	0.01556	*****	8.813
7	37.0	12.7	24.7	0.000130	0.483	-129.30	150069	0.00165	0.293	0.01203	*****	6.141
8	37.7	12.0	24.4	0.000120	0.518	-112.06	150362	0.00154	0.293	0.01167	*****	5.884
9	36.3	12.0	24.2	0.000115	0.536	-102.98	150519	0.00149	0.293	0.01240	*****	6.419
10	38.1	12.0	24.1	0.000113	0.545	-98.31	150598	0.00145	0.290	0.01138	*****	5.697
RUN NO 598 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 25.0 K LIQ PRESS 3.28 ATM CART HTR PWR 38.810 W												
1	86.4	12.7	25.4	0.000158	0.409	-166.17	149425	0.02974	4.459	0.06048	*****	6.723
2	14.8	12.7	25.4	0.000144	0.448	-146.67	149425	0.00212	0.348	0.16404	*****	13.648
3	15.4	12.7	25.4	0.000144	0.450	-145.39	149425	0.00183	0.302	0.11038	*****	9.202
4	22.4	12.7	25.4	0.000143	0.453	-144.22	149425	0.00174	0.292	0.03014	*****	20.491
5	29.3	12.7	25.4	0.000141	0.457	-141.92	149433	0.00174	0.292	0.01763	*****	10.102
6	31.1	12.7	25.3	0.000137	0.469	-126.15	149542	0.00171	0.294	0.01594	*****	8.795
7	36.4	12.7	24.4	0.000125	0.504	-118.85	149994	0.00159	0.294	0.01227	*****	6.103
8	37.3	12.0	24.4	0.000116	0.538	-101.56	150364	0.00149	0.294	0.01194	*****	5.867
9	35.8	12.0	24.2	0.000111	0.557	-92.35	150520	0.00144	0.294	0.01247	*****	6.396
10	37.7	12.0	24.1	0.000109	0.566	-87.77	150589	0.00141	0.292	0.01163	*****	5.672
RUN NO 599 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 23.2 K LIQ PRESS 3.28 ATM CART HTR PWR 0.000 W												
1	163.9	12.0	24.4	0.000188	0.331	-225.49	150323	0.03587	4.349	0.02875	*****	4.015
2	15.3	12.0	24.4	0.000167	0.373	-184.40	150323	0.00028	0.458	0.12182	*****	11.184
3	15.8	12.0	24.4	0.000164	0.379	-181.22	150323	0.00054	0.752	0.23564	*****	22.850
4	20.0	12.0	24.4	0.000162	0.385	-178.29	150323	0.000519	0.733	0.04490	*****	28.393
5	26.4	12.0	24.4	0.000157	0.397	-172.52	150325	0.000501	0.729	0.02292	*****	10.909
6	26.4	12.0	24.4	0.000146	0.426	-158.09	150356	0.000471	0.735	0.02237	*****	10.442
7	30.4	12.0	24.2	0.000121	0.472	-114.74	150482	0.000390	0.733	0.00885	*****	2.015
8	28.6	12.0	24.1	0.000103	0.509	-71.57	150574	0.000335	0.734	0.00941	*****	2.593
9	28.6	12.0	24.1	0.000095	0.545	-48.60	150624	0.000310	0.732	0.00950	*****	2.644
10	28.1	12.0	24.0	0.000092	0.568	-37.16	150648	0.000298	0.729	0.01147	*****	3.738

STA NO	TURE NO	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REFYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEFF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 600 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 23.4 K LIQ PRESS 3.28 ATM CART HTR PWR 6.49A W													
1	143.8	12.7	25.0	0.000190	0.335	-253.42	149769	0.03551	4.958	0.07324	*****		4.551
2	15.8	12.7	25.0	0.000169	0.377	-182.37	149769	0.00606	0.837	0.26912	*****		25.981
3	16.3	12.7	25.0	0.000166	0.383	-179.22	149769	0.00540	0.759	0.21227	*****		20.318
4	34.4	12.7	25.0	0.000164	0.389	-176.29	149769	0.00506	0.722	0.03327	*****		3.477
5	47.5	12.7	25.0	0.000159	0.400	-170.57	149775	0.00496	0.727	0.02090	*****		2.210
6	58.0	12.7	24.9	0.000148	0.429	-156.19	149854	0.00465	0.731	0.01611	*****		1.643
7	101.7	12.7	24.6	0.000122	0.515	-113.08	150181	0.00386	0.730	0.00819	*****		0.770
8	109.5	12.6	24.3	0.000103	0.601	-70.08	150420	0.00332	0.731	0.00754	*****		0.631
9	120.4	12.6	24.1	0.000095	0.647	-47.25	150548	0.00307	0.727	0.00674	*****		0.537
10	104.3	12.6	24.1	0.000092	0.670	-35.89	150612	0.00296	0.725	0.00791	*****		0.604
RUN NO 601 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 24.0 K LIQ PRESS 3.28 ATM CART HTR PWR 14.66R W													
1	129.7	12.7	24.0	0.000189	0.348	-196.18	148949	0.03395	4.743	0.03714	*****		4.872
2	14.1	12.7	24.0	0.000169	0.390	-175.25	148949	0.00572	0.819	0.24774	*****		23.277
3	16.2	12.7	24.0	0.000166	0.396	-172.15	148949	0.00518	0.753	0.22058	*****		20.488
4	34.0	12.7	24.0	0.000164	0.402	-169.24	148949	0.00486	0.718	0.03382	*****		3.430
5	47.6	12.7	24.0	0.000159	0.414	-163.56	148959	0.00476	0.722	0.02074	*****		2.133
6	57.4	12.7	25.8	0.000148	0.442	-149.29	149110	0.00447	0.725	0.01626	*****		1.614
7	96.3	12.7	25.1	0.000121	0.528	-106.51	149735	0.00374	0.725	0.00866	*****		0.794
8	105.2	12.7	24.6	0.000102	0.614	-63.86	150192	0.00323	0.725	0.00784	*****		0.643
9	119.2	12.6	24.3	0.000094	0.649	-41.23	150437	0.00299	0.721	0.00677	*****		0.530
10	103.2	12.6	24.1	0.000091	0.682	-29.97	150560	0.00289	0.720	0.00796	*****		0.599
RUN NO 602 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 24.8 K LIQ PRESS 3.28 ATM CART HTR PWR 25.89A W													
1	107.8	12.7	25.8	0.000177	0.349	-185.79	149154	0.03221	4.767	0.04596	*****		5.655
2	16.0	12.7	25.8	0.000159	0.411	-164.87	149154	0.00529	0.798	0.24143	*****		21.764
3	16.2	12.7	25.8	0.000157	0.417	-161.80	149154	0.00492	0.753	0.21541	*****		19.227
4	34.4	12.7	25.8	0.000154	0.423	-158.90	149154	0.00461	0.716	0.03307	*****		3.227
5	47.7	12.7	25.7	0.000150	0.444	-153.23	149163	0.00452	0.721	0.02067	*****		2.041
6	54.8	12.7	25.6	0.000140	0.463	-148.99	149296	0.00427	0.724	0.01721	*****		1.641
7	82.9	12.7	25.5	0.000116	0.549	-96.28	149847	0.00360	0.724	0.01031	*****		0.907
8	93.7	12.7	24.5	0.000099	0.634	-53.70	150250	0.00312	0.724	0.00894	*****		0.706
9	102.4	12.6	24.2	0.000091	0.679	-31.09	150465	0.00290	0.722	0.00804	*****		0.606
10	91.3	12.6	24.1	0.000088	0.702	-19.83	150573	0.00280	0.720	0.00915	*****		0.665
RUN NO 603 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 25.0 K LIQ PRESS 3.28 ATM CART HTR PWR 40.40E W													
1	87.3	12.8	24.5	0.000169	0.396	-172.41	148523	0.03024	4.793	0.05897	*****		6.724
2	16.2	12.8	24.5	0.000153	0.437	-151.45	148523	0.00486	0.780	0.23087	*****		19.809
3	16.3	12.8	24.5	0.000151	0.443	-148.42	148523	0.00462	0.753	0.21387	*****		18.177
4	34.0	12.8	24.5	0.000149	0.449	-145.52	148523	0.00435	0.717	0.03373	*****		3.130
5	46.7	12.8	24.5	0.000145	0.461	-139.85	148534	0.00427	0.721	0.02127	*****		2.003
6	50.6	12.8	24.3	0.000136	0.489	-125.50	148684	0.00404	0.725	0.01918	*****		1.735
7	76.5	12.7	25.4	0.000113	0.575	-82.86	149305	0.00344	0.725	0.01136	*****		0.949
8	85.5	12.7	25.1	0.000097	0.660	-40.25	149760	0.00300	0.725	0.00995	*****		0.754
9	89.2	12.7	24.8	0.000089	0.704	-17.61	150003	0.00280	0.724	0.00945	*****		0.681
10	81.4	12.7	24.4	0.000086	0.729	-6.34	150125	0.00270	0.721	0.01048	*****		0.731
RUN NO 604 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 22.9 K LIQ PRESS 3.28 ATM CART HTR PWR 0.000 W													
1	146.7	12.7	24.0	0.000205	0.321	-209.95	148949	0.03622	4.269	0.02773	*****		3.968
2	15.9	12.7	24.0	0.000181	0.364	-188.34	148949	0.00797	1.065	0.33994	*****		23.698
3	17.5	12.7	24.0	0.000177	0.372	-184.31	148949	0.00713	0.974	0.20330	*****		20.122
4	39.7	12.7	24.0	0.000173	0.380	-180.56	148949	0.00662	0.923	0.03419	*****		3.705
5	53.2	12.7	24.0	0.000167	0.394	-173.22	148959	0.00645	0.934	0.02307	*****		2.492
6	68.2	12.7	25.8	0.000152	0.431	-154.77	149110	0.00592	0.937	0.01690	*****		1.748
7	127.9	12.7	25.1	0.000118	0.542	-99.51	149735	0.00471	0.935	0.00812	*****		0.748
8	126.5	12.7	24.6	0.000096	0.652	-44.48	150192	0.00392	0.936	0.00822	*****		0.653
9	126.1	12.6	24.3	0.000087	0.711	-15.24	150437	0.00359	0.935	0.00824	*****		0.611
10	116.7	12.6	24.1	0.000083	0.740	-0.72	150560	0.00342	0.927	0.00891	*****		0.635
RUN NO 605 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 23.5 K LIQ PRESS 3.28 ATM CART HTR PWR 6.48A W													
1	152.9	12.8	27.2	0.000274	0.335	-202.32	147899	0.03552	4.381	0.03128	*****		4.277
2	16.4	12.8	27.2	0.000181	0.380	-180.22	147899	0.00768	1.072	0.30333	*****		29.178
3	18.8	12.8	27.2	0.000177	0.388	-176.14	147899	0.00697	0.994	0.16656	*****		16.103
4	41.5	12.8	27.2	0.000174	0.395	-172.32	147899	0.00647	0.939	0.03281	*****		3.450
5	54.1	12.8	27.2	0.000167	0.410	-164.84	147911	0.00632	0.952	0.02253	*****		2.362
6	72.6	12.8	27.0	0.000152	0.448	-146.02	148077	0.00580	0.955	0.01596	*****		1.613
7	131.7	12.8	26.2	0.000118	0.561	-89.68	148768	0.00463	0.953	0.00802	*****		0.720
8	130.5	12.7	25.4	0.000097	0.673	-37.53	149273	0.00387	0.955	0.00811	*****		0.629
9	144.6	12.7	25.3	0.000088	0.733	-7.73	149544	0.00354	0.950	0.00721	*****		0.527
10	129.8	12.7	25.1	0.000084	0.763	11.06	149680	0.00338	0.945	0.00806	*****		0.566

STA NO	TURE TEMP	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STEFAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEFF W/CM2-K	EXP/FRSD H-T COEFF	EXP/S-T H-T COEFF
RUN NO 606 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 24.2 K LIQ PRESS 3.2R ATM CART HTR PWR 14.44R W													
1	129.1		12.9	27.7	0.00019R	0.352	-197.71	147496	0.03340	4.780	0.03747	*****	4.485
2	16.6		12.9	27.7	0.000176	0.396	-171.74	147496	0.00715	1.042	0.27827	*****	25.934
3	16.7		12.9	27.7	0.000172	0.404	-167.72	147496	0.00669	0.994	0.25923	*****	23.775
4	42.1		12.9	27.7	0.000169	0.412	-163.91	147496	0.00616	0.932	0.03197	18.799	3.251
5	57.0		12.9	27.7	0.000163	0.427	-156.49	147511	0.00603	0.945	0.02140	10.100	2.180
6	73.3		12.8	27.5	0.000149	0.464	-137.80	147711	0.00556	0.945	0.01570	6.109	1.543
7	124.7		12.8	26.5	0.000116	0.576	-81.84	148547	0.00448	0.947	0.00846	2.117	0.740
8	127.8		12.7	25.8	0.000095	0.688	-26.09	149159	0.00376	0.944	0.00256	2.010	0.828
9	144.1		12.7	25.4	0.000086	0.748	7.44	149488	0.00345	0.944	0.00198	1.574	0.917
10	128.3		12.7	25.2	0.000082	0.777	78.1R	149653	0.00330	0.939	0.00192	1.982	0.962
RUN NO 607 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 25.0 K LIQ PRESS 3.2R ATM CART HTR PWR 24.56R W													
1	101.6		12.8	27.6	0.000184	0.378	-180.94	147563	0.03230	4.487	0.05057	*****	6.061
2	16.8		12.8	27.6	0.000164	0.422	-158.58	147563	0.00665	1.032	0.25891	*****	22.957
3	17.2		12.8	27.6	0.000161	0.430	-154.54	147563	0.00638	1.010	0.23082	*****	20.234
4	42.8		12.8	27.6	0.000159	0.438	-150.68	147563	0.00587	0.946	0.03155	17.654	3.063
5	57.4		12.8	27.6	0.000153	0.453	-143.15	147577	0.00576	0.960	0.02155	9.741	2.093
6	71.7		12.8	27.4	0.000140	0.491	-124.1R	147772	0.00534	0.963	0.01636	6.231	1.533
7	109.2		12.8	26.4	0.000110	0.605	-67.37	148584	0.00474	0.963	0.00998	2.702	0.828
8	117.9		12.7	25.7	0.000091	0.719	-10.76	149178	0.00366	0.964	0.00917	2.322	0.969
9	137.5		12.7	25.4	0.000083	0.779	19.25	149497	0.00336	0.958	0.00768	1.694	0.933
10	119.1		12.7	25.2	0.000079	0.809	74.1R	149657	0.00323	0.957	0.00900	2.259	0.984
RUN NO 608 ORIF DIA 0.0635 CM FLOW RATE 1.0R G/S LIQ TEMP 25.0 K LIQ PRESS 3.2R ATM CART HTR PWR 38.86R W													
1	75.7		12.9	28.0	0.000173	0.405	-167.09	147296	0.02999	4.469	0.07115	*****	7.820
2	18.7		12.9	28.0	0.000156	0.449	-144.96	147301	0.00663	0.994	0.17186	*****	14.737
3	17.7		12.9	28.0	0.000153	0.457	-141.02	147303	0.00595	1.001	0.20844	*****	17.493
4	42.9		12.9	27.9	0.000151	0.465	-137.20	147306	0.00546	0.933	0.03103	17.151	2.873
5	54.7		12.9	27.9	0.000146	0.480	-129.76	147327	0.00539	0.950	0.02273	10.550	2.099
6	64.3		12.8	27.6	0.000134	0.517	-111.01	147549	0.00502	0.953	0.01884	7.608	1.642
7	108.9		12.8	26.6	0.000107	0.630	-54.84	148465	0.00412	0.952	0.00990	2.661	0.796
8	113.6		12.7	25.8	0.000088	0.742	1.09	149122	0.00360	0.954	0.00946	2.449	0.869
9	137.8		12.7	25.4	0.000081	0.802	30.75	149470	0.00322	0.948	0.00788	1.651	0.914
10	120.2		12.7	25.2	0.000077	0.832	45.49	149644	0.00311	0.946	0.00880	2.168	0.973
RUN NO 609 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.5 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	120.8		12.7	24.5	0.000173	0.361	-190.59	158884	0.03182	4.706	0.03982	*****	4.964
2	18.0		12.7	24.5	0.000157	0.398	-172.05	158884	0.00250	0.974	0.07047	*****	6.529
3	16.5		12.7	24.5	0.000156	0.400	-170.76	158884	0.00198	0.998	0.07752	*****	7.049
4	22.5		12.7	24.5	0.000155	0.402	-169.63	158884	0.00191	0.988	0.02920	25.554	2.765
5	29.6		12.7	24.5	0.000154	0.407	-167.42	158887	0.00188	0.988	0.01689	12.481	1.648
6	34.3		12.7	24.4	0.000149	0.418	-161.88	159225	0.00184	0.989	0.01331	8.901	1.289
7	42.4		12.6	24.3	0.000137	0.451	-145.24	150800	0.00170	0.989	0.00949	5.618	0.905
8	43.2		12.6	24.1	0.000127	0.485	-128.61	151193	0.00159	0.989	0.00944	5.400	0.934
9	41.8		12.6	24.1	0.000123	0.502	-119.75	152524	0.00153	0.989	0.00909	5.797	0.848
10	43.8		12.6	24.0	0.000120	0.511	-115.31	152884	0.00151	0.991	0.00931	5.279	0.790
RUN NO 610 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.4 K LIQ PRESS 3.30 ATM CART HTR PWR 6.500 W													
1	130.5		12.7	24.7	0.000176	0.359	-191.50	159671	0.03195	4.702	0.03652	*****	4.606
2	15.6		12.7	24.7	0.000159	0.396	-172.94	159671	0.00258	0.984	0.13067	*****	11.880
3	16.0		12.7	24.7	0.000158	0.398	-171.63	159671	0.00199	0.997	0.09030	*****	8.196
4	22.5		12.7	24.7	0.000157	0.400	-170.50	159671	0.00192	0.988	0.02924	24.461	2.778
5	29.4		12.7	24.7	0.000156	0.405	-168.28	159675	0.00190	0.988	0.01684	11.910	1.644
6	33.8		12.7	24.7	0.000151	0.416	-162.73	159732	0.00185	0.989	0.01369	8.919	1.327
7	40.5		12.6	24.4	0.000139	0.450	-146.05	159965	0.00171	0.989	0.01039	6.000	0.969
8	40.6		12.6	24.2	0.000128	0.483	-129.39	151134	0.00160	0.989	0.01035	5.966	0.912
9	39.0		12.6	24.1	0.000123	0.501	-120.51	152225	0.00154	0.990	0.01097	6.496	0.935
10	41.1		12.6	24.0	0.000121	0.510	-116.06	152870	0.00152	0.990	0.01020	5.828	0.862
RUN NO 611 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.4 K LIQ PRESS 3.30 ATM CART HTR PWR 14.634 W													
1	113.6		12.7	24.0	0.000179	0.368	-186.45	159545	0.03130	4.730	0.04291	*****	5.222
2	15.3		12.7	24.0	0.000163	0.405	-167.82	159545	0.00242	0.969	0.14594	*****	12.956
3	15.6		12.7	24.0	0.000162	0.408	-166.54	159545	0.00194	0.997	0.14380	*****	9.200
4	21.9		12.7	24.0	0.000161	0.410	-165.41	159545	0.00188	0.989	0.03149	26.387	2.940
5	30.0		12.7	24.0	0.000159	0.414	-163.18	159556	0.00185	0.988	0.01671	11.391	1.598
6	32.9		12.7	24.0	0.000154	0.426	-157.63	159710	0.00181	0.990	0.01440	9.267	1.364
7	38.7		12.7	24.1	0.000139	0.459	-140.94	159351	0.00168	0.990	0.01114	6.442	1.015
8	39.3		12.7	24.4	0.000127	0.493	-124.31	158119	0.00157	0.990	0.01088	6.235	0.940
9	37.7		12.6	24.3	0.000121	0.511	-115.44	158070	0.00151	0.990	0.01140	6.437	0.968
10	39.4		12.6	24.1	0.000119	0.520	-111.00	154195	0.00149	0.991	0.01087	6.217	0.900

STA NO	TUBE TEMP K	WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEFF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 612 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 25.90A W													
1	99.6	12.8	27.0	0.000177	0.384	-178.08	151712	0.03001	4.737	0.04994	*****		5.793
2	15.0	12.8	27.0	0.000161	0.421	-169.47	151720	0.00225	0.356	0.16412	*****		14.060
3	15.5	12.8	26.9	0.000160	0.424	-168.21	151724	0.00186	0.297	0.10929	*****		9.372
4	22.3	12.8	26.9	0.000160	0.426	-167.08	151728	0.00180	0.288	0.10553	24.425		2.760
5	30.0	12.8	26.9	0.000158	0.430	-164.86	151753	0.00178	0.288	0.11674	11.087		1.551
6	32.4	12.8	26.6	0.000152	0.442	-149.33	152019	0.00174	0.289	0.11474	9.301		1.352
7	37.8	12.7	25.5	0.000136	0.475	-132.72	152940	0.00162	0.289	0.11152	6.577		1.018
8	38.4	12.7	24.8	0.000124	0.509	-116.13	153616	0.00151	0.289	0.11123	6.345		0.942
9	36.8	12.6	24.4	0.000118	0.527	-107.29	153969	0.00146	0.290	0.11198	6.972		0.972
10	38.6	12.6	24.2	0.000115	0.536	-102.87	154147	0.00144	0.290	0.11119	6.318		0.902
RUN NO 613 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 40.60P W													
1	86.8	12.8	26.3	0.000164	0.407	-166.67	152266	0.02850	4.764	0.05894	*****		6.442
2	14.8	12.8	26.3	0.000150	0.444	-148.02	152266	0.00206	0.344	0.16741	*****		13.727
3	15.3	12.8	26.3	0.000149	0.447	-146.78	152266	0.00177	0.297	0.11916	*****		9.773
4	21.4	12.8	26.3	0.000148	0.449	-145.55	152266	0.00171	0.289	0.10333	26.280		2.867
5	29.2	12.8	26.3	0.000147	0.454	-143.43	152279	0.00169	0.288	0.10756	11.390		1.556
6	31.0	12.8	26.1	0.000142	0.465	-137.88	152457	0.00166	0.290	0.10159	9.944		1.393
7	36.8	12.7	25.3	0.000129	0.499	-121.25	153198	0.00155	0.290	0.10204	6.744		1.021
8	37.3	12.7	24.6	0.000118	0.532	-104.64	153740	0.00145	0.290	0.10178	6.545		0.950
9	35.6	12.6	24.3	0.000113	0.550	-95.79	154031	0.00141	0.290	0.10261	7.216		0.985
10	37.3	12.6	24.2	0.000110	0.559	-91.37	154177	0.00138	0.290	0.10178	6.542		0.914
RUN NO 614 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.3 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	147.2	12.6	24.3	0.000188	0.330	-255.87	154027	0.03450	4.776	0.03177	*****		4.326
2	14.7	12.6	24.3	0.000169	0.368	-186.96	154027	0.00362	0.400	0.24099	*****		23.015
3	15.2	12.6	24.3	0.000167	0.371	-185.22	154027	0.00288	0.402	0.15685	*****		14.947
4	24.4	12.6	24.3	0.000166	0.374	-183.70	154027	0.00277	0.389	0.10304	26.899		3.348
5	33.8	12.6	24.3	0.000163	0.380	-180.70	154028	0.00273	0.389	0.01840	12.177		1.917
6	39.6	12.6	24.3	0.000157	0.395	-173.19	154054	0.00263	0.391	0.01452	8.656		1.497
7	51.7	12.6	24.2	0.000140	0.441	-140.64	154157	0.00236	0.391	0.00999	4.919		0.969
8	52.5	12.6	24.1	0.000127	0.486	-128.12	154233	0.00214	0.391	0.00979	4.766		0.880
9	48.8	12.6	24.0	0.000121	0.510	-116.12	154273	0.00205	0.391	0.01082	5.565		0.929
10	49.8	12.6	24.0	0.000118	0.522	-110.12	154293	0.00200	0.391	0.01051	5.318		0.887
RUN NO 615 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.1 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	157.1	12.6	24.0	0.000188	0.326	-288.17	154312	0.03510	4.790	0.02970	*****		4.104
2	14.6	12.6	24.0	0.000168	0.365	-188.64	154312	0.00472	0.446	0.37146	*****		20.897
3	15.4	12.6	24.0	0.000166	0.369	-186.37	154312	0.00385	0.433	0.19275	*****		18.494
4	20.5	12.6	24.0	0.000164	0.373	-184.32	154312	0.00378	0.430	0.06724	59.017		6.686
5	31.0	12.6	24.0	0.000161	0.381	-180.25	154312	0.00368	0.427	0.02884	19.388		2.950
6	43.6	12.6	24.0	0.000153	0.402	-170.09	154312	0.00350	0.428	0.01703	9.163		1.750
7	71.4	12.6	24.0	0.000133	0.463	-139.64	154312	0.00304	0.428	0.00898	3.341		0.869
8	80.6	12.6	24.0	0.000117	0.523	-109.27	154312	0.00269	0.427	0.00775	2.618		0.691
9	68.1	12.6	24.0	0.000111	0.556	-93.11	154312	0.00253	0.426	0.00949	3.659		0.789
10	49.6	12.6	24.0	0.000107	0.572	-84.99	154312	0.00248	0.433	0.01442	7.078		1.131
RUN NO 616 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.1 K LIQ PRESS 3.30 ATM CART HTR PWR 5.22P W													
1	150.0	12.6	24.3	0.000189	0.328	-286.87	154029	0.03548	4.770	0.03182	*****		4.358
2	15.0	12.6	24.3	0.000169	0.368	-187.00	154029	0.00470	0.448	0.27541	*****		26.388
3	15.6	12.6	24.3	0.000167	0.372	-184.69	154029	0.00397	0.455	0.18715	*****		17.868
4	28.9	12.6	24.1	0.000165	0.377	-182.59	154029	0.00376	0.432	0.09270	24.026		3.367
5	40.6	12.6	24.3	0.000161	0.385	-178.49	154031	0.00369	0.433	0.01908	11.239		2.016
6	45.3	12.6	24.1	0.000153	0.405	-168.19	154056	0.00353	0.437	0.01641	8.940		1.679
7	67.6	12.6	24.2	0.000132	0.467	-137.25	154160	0.00306	0.436	0.00975	3.936		0.929
8	71.2	12.6	24.1	0.000116	0.529	-106.38	154236	0.00270	0.436	0.00917	3.557		0.796
9	75.8	12.6	24.0	0.000109	0.562	-89.99	154276	0.00253	0.433	0.00844	3.118		0.705
10	56.7	12.6	24.0	0.000106	0.578	-81.75	154296	0.00250	0.442	0.01228	5.617		0.967
RUN NO 617 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.8 K LIQ PRESS 3.30 ATM CART HTR PWR 14.62P W													
1	132.8	12.7	24.7	0.000183	0.343	-199.08	153674	0.03394	4.778	0.03644	*****		4.765
2	15.1	12.7	24.7	0.000165	0.383	-179.27	153674	0.00437	0.428	0.26175	*****		24.284
3	15.8	12.7	24.7	0.000163	0.388	-177.00	153674	0.00378	0.450	0.17821	*****		16.497
4	28.8	12.7	24.7	0.000161	0.392	-174.92	153674	0.00359	0.428	0.09275	23.837		3.265
5	40.4	12.7	24.7	0.000158	0.400	-170.85	153678	0.00352	0.429	0.01907	11.127		1.952
6	45.5	12.7	24.7	0.000150	0.420	-160.65	153734	0.00337	0.432	0.01621	8.707		1.611
7	65.4	12.6	24.4	0.000129	0.482	-130.00	153967	0.00294	0.431	0.01007	4.121		0.933
8	67.3	12.6	24.2	0.000114	0.543	-99.42	154137	0.00261	0.432	0.00973	3.896		0.822
9	69.6	12.6	24.1	0.000107	0.575	-83.16	154228	0.00245	0.430	0.00929	3.424		0.753
10	57.3	12.6	24.0	0.000104	0.592	-75.02	154273	0.00241	0.435	0.01198	5.434		0.927

STA NO	TURE TEMP K	WALL SAT TEMP K	MIXTURE PRESSURE MM HG	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COFF W/CM2-K	EXP/FPSP H-T COFF	EXP/S-T H-T COFF
RUN NO 618 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 24.4 K LIQ PRESS 3.30 ATM CART HTR PWR 26.07A W													
1	110.9	12.7	24.9	0.000175	0.363	-149.32	153532	0.03229	4.400	0.04478	*****		5.506
2	15.3	12.7	24.9	0.000157	0.402	-169.50	153532	0.00403	0.410	0.23554	*****		21.047
3	15.6	12.7	24.9	0.000156	0.407	-167.27	153532	0.00360	0.451	0.19146	*****		17.009
4	28.4	12.7	24.9	0.000154	0.411	-165.19	153532	0.00343	0.429	0.03357	*****		23.817
5	40.0	12.7	24.9	0.000151	0.419	-161.11	153537	0.00337	0.430	0.01938	*****		11.020
6	43.4	12.7	24.8	0.000144	0.440	-150.89	153606	0.00323	0.433	0.01733	*****		9.308
7	68.4	12.7	24.5	0.000125	0.501	-120.21	153890	0.00283	0.432	0.00955	*****		3.652
8	62.8	12.6	24.2	0.000110	0.563	-89.59	154097	0.00253	0.433	0.01063	*****		4.349
9	65.9	12.6	24.1	0.000104	0.595	-73.30	154208	0.00238	0.431	0.00998	*****		3.934
10	56.7	12.6	24.1	0.000101	0.612	-65.15	154263	0.00233	0.435	0.01215	*****		5.375
RUN NO 619 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 25.0 K LIQ PRESS 3.30 ATM CART HTR PWR 40.620 W													
1	93.1	12.7	25.6	0.000167	0.388	-176.42	152898	0.03048	4.446	0.05531	*****		6.330
2	15.2	12.7	25.6	0.000152	0.428	-146.47	152898	0.00371	0.497	0.23949	*****		20.341
3	16.3	12.7	25.6	0.000150	0.432	-144.26	152898	0.00340	0.452	0.19649	*****		13.324
4	28.5	12.7	25.6	0.000149	0.437	-142.17	152898	0.00324	0.432	0.03381	*****		22.932
5	39.6	12.7	25.6	0.000146	0.445	-140.07	152907	0.00319	0.432	0.01993	*****		10.948
6	41.5	12.7	25.4	0.000139	0.465	-137.80	153031	0.00307	0.434	0.01863	*****		9.956
7	67.3	12.7	24.9	0.000120	0.527	-107.00	153545	0.00270	0.435	0.00979	*****		3.657
8	61.0	12.7	24.4	0.000106	0.589	-76.27	153920	0.00242	0.436	0.01109	*****		4.476
9	62.7	12.6	24.2	0.000100	0.622	-59.92	154121	0.00229	0.434	0.01067	*****		4.215
10	54.7	12.6	24.1	0.000097	0.638	-51.75	154221	0.00224	0.437	0.01277	*****		5.595
RUN NO 620 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.6 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	174.0	12.7	24.5	0.000198	0.315	-213.57	153887	0.03668	4.933	0.02685	*****		3.861
2	15.4	12.7	24.5	0.000176	0.355	-193.36	153887	0.00581	0.775	0.28360	*****		28.061
3	16.0	12.7	24.8	0.000173	0.361	-190.58	153887	0.00491	0.665	0.19997	*****		19.652
4	31.9	12.7	24.5	0.000171	0.366	-188.08	153887	0.00463	0.435	0.03305	*****		25.934
5	44.7	12.7	24.5	0.000166	0.375	-183.17	153890	0.00453	0.438	0.01991	*****		12.440
6	53.0	12.7	24.4	0.000156	0.400	-170.85	153927	0.00427	0.442	0.01592	*****		8.790
7	111.6	12.6	24.3	0.000131	0.474	-133.90	154083	0.00360	0.440	0.00646	*****		1.972
8	96.4	12.6	24.1	0.000113	0.548	-97.05	154196	0.00312	0.441	0.00745	*****		2.644
9	97.4	12.6	24.1	0.000105	0.587	-77.43	154257	0.00291	0.440	0.00754	*****		2.583
10	91.3	12.6	24.0	0.000101	0.607	-67.62	154287	0.00282	0.442	0.00816	*****		2.948
RUN NO 621 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 23.0 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	123.0	12.1	14.7	0.000121	0.324	-211.59	166867	0.03215	3.965	0.03574	*****		4.837
2	15.8	12.1	14.7	0.000110	0.357	-195.35	166875	0.00217	0.295	0.07964	*****		7.843
3	15.4	12.1	14.7	0.000110	0.359	-194.40	166879	0.00157	0.214	0.06345	*****		6.201
4	20.6	12.1	14.7	0.000109	0.360	-193.63	166882	0.00151	0.207	0.02407	*****		19.065
5	26.3	12.1	14.4	0.000108	0.363	-192.10	166902	0.00150	0.207	0.01451	*****		9.834
6	29.6	12.0	14.5	0.000105	0.371	-188.33	167092	0.00147	0.208	0.01183	*****		7.429
7	35.1	12.0	13.9	0.000095	0.394	-177.06	167702	0.00139	0.208	0.00900	*****		5.065
8	35.3	12.0	13.4	0.000087	0.417	-165.80	168502	0.00131	0.208	0.00890	*****		4.989
9	34.5	11.9	13.2	0.000083	0.430	-159.91	168963	0.00124	0.203	0.00899	*****		5.127
10	37.5	11.9	13.1	0.000082	0.435	-157.09	169195	0.00116	0.191	0.00748	*****		4.029
RUN NO 622 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.6 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	123.0	12.1	14.7	0.000125	0.315	-216.17	166867	0.03263	3.909	0.03523	*****		4.880
2	15.2	12.1	14.7	0.000113	0.347	-200.13	166875	0.00221	0.292	0.09257	*****		9.265
3	15.4	12.1	14.7	0.000113	0.349	-199.21	166879	0.00158	0.210	0.06299	*****		6.288
4	19.8	12.1	14.7	0.000112	0.351	-198.44	166882	0.00153	0.205	0.02649	*****		23.199
5	25.9	12.1	14.4	0.000111	0.354	-196.93	166902	0.00152	0.204	0.01467	*****		10.805
6	29.3	12.0	14.5	0.000107	0.361	-193.20	167092	0.00149	0.205	0.01185	*****		8.061
7	34.9	12.0	13.9	0.000097	0.384	-182.07	167702	0.00140	0.205	0.00895	*****		5.444
8	35.0	12.0	13.4	0.000089	0.407	-170.96	168502	0.00132	0.205	0.00888	*****		5.398
9	27.2	11.9	13.2	0.000086	0.418	-165.86	168963	0.00095	0.150	0.00984	*****		7.040
10	30.8	11.9	13.1	0.000084	0.421	-164.33	169195	0.00082	0.166	0.00353	*****		2.336
RUN NO 623 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.4 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	123.3	12.0	13.5	0.000117	0.310	-219.04	168410	0.03303	3.889	0.03494	*****		4.913
2	14.8	12.0	13.4	0.000106	0.342	-203.14	168410	0.00225	0.292	0.10389	*****		10.497
3	14.9	12.0	13.4	0.000106	0.344	-202.21	168410	0.00161	0.210	0.07148	*****		7.201
4	19.9	12.0	13.5	0.000105	0.345	-201.44	168410	0.00156	0.204	0.02572	*****		22.104
5	26.0	12.0	13.5	0.000104	0.348	-199.94	168417	0.00154	0.204	0.01451	*****		10.501
6	29.3	12.0	13.4	0.000102	0.356	-196.18	168504	0.00151	0.205	0.01183	*****		7.925
7	34.8	11.9	13.3	0.000095	0.379	-184.92	168868	0.00142	0.205	0.00895	*****		5.364
8	34.9	11.9	13.1	0.000089	0.402	-173.69	169132	0.00134	0.205	0.00890	*****		5.326
9	23.7	11.9	13.1	0.000086	0.412	-168.84	169274	0.00082	0.128	0.01090	*****		8.400
10	28.2	11.9	13.0	0.000085	0.414	-167.83	169345	0.00067	0.111	0.00070	*****		0.463

STA NO	WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/PPSD H-T COEF	EXP/C-T H-T COEF
RUN NO 624 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.1 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	126.1	12.0	14.0	0.000124	0.305	-221.37	167564	0.03404	3.944	0.03459	*****	4.934
2	14.3	12.0	14.0	0.000111	0.337	-215.20	167587	0.00232	0.297	0.13079	*****	13.271
3	14.9	12.0	14.0	0.000111	0.339	-214.26	167597	0.00165	0.212	0.0739A	*****	7.434
4	19.8	12.0	14.0	0.000110	0.341	-213.49	167608	0.00160	0.207	0.02671	23.000	2.431
5	26.0	12.0	13.9	0.000109	0.344	-211.97	167647	0.00158	0.207	0.01472	10.429	1.603
6	29.5	12.0	13.6	0.000105	0.352	-210.24	168084	0.00155	0.208	0.01188	7.913	1.291
7	35.1	11.9	13.0	0.000094	0.375	-187.03	169489	0.00146	0.208	0.00895	5.337	0.947
8	35.3	11.8	12.5	0.000085	0.398	-175.06	170527	0.00137	0.207	0.00884	5.242	0.892
9	23.0	11.8	12.2	0.000082	0.408	-171.13	171038	0.00081	0.126	0.01121	8.423	1.053
10	27.8	11.8	12.1	0.000081	0.410	-170.29	171294	0.00000	0.000	0.00000	0.002	0.000
RUN NO 625 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.0 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	123.5	11.9	13.0	0.000117	0.303	-222.76	169369	0.03422	3.934	0.03525	*****	5.057
2	13.8	11.9	13.0	0.000105	0.335	-216.89	169385	0.00190	0.242	0.13051	*****	13.270
3	13.9	11.9	13.0	0.000105	0.336	-216.15	169393	0.00124	0.159	0.07827	*****	7.947
4	17.8	11.9	13.0	0.000105	0.338	-215.58	169401	0.00121	0.155	0.02612	18.853	2.752
5	23.1	11.9	13.0	0.000104	0.340	-214.44	169440	0.00120	0.154	0.01381	8.507	1.499
6	25.7	11.9	12.8	0.000101	0.346	-211.66	169802	0.00118	0.155	0.01127	6.479	1.223
7	30.2	11.8	12.3	0.000092	0.363	-193.34	170935	0.00113	0.155	0.00845	4.372	0.901
8	30.2	11.8	11.9	0.000086	0.380	-185.03	171768	0.00108	0.155	0.00842	4.361	0.866
9	30.0	11.7	11.7	0.000083	0.390	-180.61	172198	0.00106	0.156	0.00857	4.460	0.864
10	33.3	11.7	11.6	0.000081	0.394	-178.42	172413	0.00103	0.153	0.00710	3.450	0.719
RUN NO 626 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.0 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	122.8	12.0	14.0	0.000125	0.301	-223.24	167585	0.03382	3.871	0.03493	*****	5.021
2	13.6	12.0	13.9	0.000113	0.333	-217.57	167625	0.00189	0.239	0.15213	*****	15.484
3	14.2	12.0	13.9	0.000112	0.334	-216.84	167645	0.00123	0.156	0.07237	*****	7.391
4	17.5	12.0	13.9	0.000112	0.335	-216.28	167664	0.00120	0.153	0.02774	27.049	2.923
5	22.9	12.0	13.8	0.000110	0.337	-215.17	167727	0.00118	0.152	0.01394	11.543	1.517
6	25.5	12.0	13.4	0.000106	0.343	-212.49	168507	0.00117	0.153	0.01126	8.495	1.226
7	30.1	11.9	12.8	0.000095	0.361	-194.36	170198	0.00112	0.153	0.00839	5.838	0.899
8	30.1	11.8	12.0	0.000087	0.378	-186.26	171454	0.00107	0.153	0.00835	5.819	0.864
9	27.3	11.8	11.8	0.000084	0.386	-182.21	172042	0.00093	0.136	0.00877	6.514	0.880
10	30.7	11.7	11.8	0.000082	0.390	-180.50	172338	0.00074	0.109	0.00577	3.974	0.584
RUN NO 627 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.0 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	123.4	11.8	12.4	0.000112	0.302	-223.41	170678	0.03439	3.939	0.03531	*****	5.083
2	13.6	11.8	12.4	0.000101	0.334	-217.58	170766	0.00191	0.242	0.13506	*****	13.757
3	13.9	11.8	12.3	0.000100	0.336	-216.95	170809	0.00125	0.159	0.07548	*****	7.690
4	17.7	11.8	12.3	0.000100	0.337	-216.28	170853	0.00122	0.155	0.02641	24.940	2.789
5	23.0	11.8	11.8	0.000099	0.339	-215.16	170988	0.00120	0.155	0.01386	11.148	1.509
6	25.6	11.8	11.8	0.000094	0.345	-212.51	171881	0.00119	0.155	0.01125	8.443	1.226
7	30.2	11.7	11.7	0.000085	0.362	-194.43	173561	0.00113	0.155	0.00838	5.649	0.899
8	30.1	11.6	10.5	0.000077	0.379	-186.39	174809	0.00108	0.155	0.00840	5.688	0.870
9	23.7	11.6	10.2	0.000074	0.387	-182.71	175383	0.00079	0.115	0.00947	7.512	0.937
10	27.8	11.6	10.1	0.000073	0.389	-181.62	175672	0.00036	0.053	0.00325	2.317	0.326
RUN NO 628 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.0 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	122.2	11.9	13.1	0.000118	0.301	-223.41	169118	0.03453	3.951	0.03583	*****	5.152
2	13.6	11.9	13.1	0.000106	0.334	-217.48	169219	0.00190	0.241	0.14084	*****	14.339
3	13.8	11.9	13.1	0.000106	0.335	-216.75	169268	0.00125	0.160	0.08577	*****	8.714
4	17.8	11.9	13.0	0.000105	0.336	-216.17	169318	0.00122	0.155	0.02624	24.146	2.772
5	23.1	11.9	13.0	0.000104	0.339	-215.06	169470	0.00121	0.155	0.01379	10.813	1.502
6	25.9	11.8	12.5	0.000099	0.345	-212.38	170451	0.00119	0.156	0.01111	8.113	1.212
7	30.3	11.7	11.7	0.000089	0.362	-194.23	172260	0.00114	0.156	0.00837	5.512	0.897
8	30.3	11.7	11.0	0.000081	0.379	-186.12	173604	0.00109	0.156	0.00837	5.532	0.866
9	21.6	11.6	10.8	0.000077	0.387	-182.61	174220	0.00069	0.100	0.01088	8.324	0.985
10	25.1	11.6	10.6	0.000076	0.388	-181.89	174530	0.00011	0.015	0.00107	0.791	0.107
RUN NO 629 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 22.0 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	122.0	12.0	13.7	0.000123	0.301	-223.34	167921	0.03441	3.948	0.03589	*****	5.157
2	13.4	12.0	13.7	0.000111	0.333	-217.39	168020	0.00190	0.241	0.16672	*****	14.923
3	13.9	12.0	13.6	0.000110	0.335	-216.66	168069	0.00125	0.159	0.08360	*****	8.503
4	17.8	12.0	13.4	0.000109	0.336	-216.09	168118	0.00122	0.155	0.02656	24.209	2.804
5	23.1	12.0	13.6	0.000108	0.338	-214.96	168269	0.00120	0.155	0.01392	10.830	1.515
6	25.7	11.9	13.1	0.000103	0.344	-212.27	169262	0.00119	0.156	0.01125	8.161	1.225
7	30.3	11.8	12.2	0.000092	0.362	-194.06	171105	0.00113	0.156	0.00839	5.482	0.899
8	30.2	11.7	11.4	0.000084	0.379	-185.89	172476	0.00108	0.154	0.00842	5.525	0.870
9	20.6	11.7	11.3	0.000081	0.386	-182.45	173105	0.00064	0.094	0.01056	8.494	1.025
10	25.4	11.7	11.1	0.000079	0.388	-181.87	173421	0.00000	0.000	0.00000	0.007	0.001

STA NO	TURF K	WALL TEMP K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COEFF W/CM2-K	EXP/FPSP H-T COEF	EXP/S-T H-T COEF
RUN NO 630 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	122.4	11.9	12.9	0.000116	0.300	-223.99	169669	0.03454	3.939	0.03565	*****		5.143
2	12.8	11.9	12.8	0.000105	0.332	-258.38	169834	0.00140	0.177	0.19235	*****		19.465
3	13.2	11.9	12.8	0.000104	0.333	-257.90	169916	0.00074	0.093	0.06839	*****		6.944
4	15.9	11.9	12.7	0.000104	0.334	-257.57	169998	0.00072	0.091	0.02273	*****		2.374
5	19.4	11.9	12.6	0.000103	0.335	-256.94	170209	0.00071	0.091	0.01214	*****		1.304
6	20.8	11.8	12.1	0.000098	0.339	-255.48	171289	0.00071	0.091	0.01015	*****		1.094
7	24.1	11.7	11.2	0.000089	0.349	-250.92	173234	0.00069	0.091	0.00737	*****		0.792
8	23.5	11.6	10.6	0.000082	0.359	-196.35	174652	0.00067	0.091	0.00767	*****		0.804
9	23.4	11.6	10.3	0.000079	0.364	-193.95	175309	0.00065	0.090	0.00758	*****		0.786
10	26.6	11.6	10.1	0.000077	0.367	-192.86	175640	0.00063	0.087	0.00574	*****		0.602
RUN NO 631 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	122.5	11.8	12.3	0.000112	0.301	-224.24	170854	0.03466	3.938	0.03556	*****		5.138
2	12.8	11.8	12.3	0.000101	0.332	-258.65	170937	0.00141	0.177	0.17351	*****		17.592
3	13.6	11.8	12.3	0.000101	0.333	-258.17	170978	0.00073	0.093	0.05340	*****		5.950
4	15.6	11.8	12.2	0.000100	0.334	-257.84	171019	0.00072	0.092	0.02435	*****		2.538
5	19.3	11.8	12.2	0.000099	0.335	-257.19	171147	0.00072	0.091	0.01299	*****		1.301
6	20.7	11.8	11.8	0.000096	0.339	-255.70	171998	0.00071	0.091	0.01021	*****		1.101
7	23.9	11.7	11.5	0.000088	0.349	-251.09	173631	0.00069	0.091	0.00745	*****		0.800
8	23.3	11.6	10.5	0.000081	0.359	-196.48	174842	0.00067	0.091	0.00779	*****		0.816
9	21.7	11.6	10.2	0.000079	0.364	-194.20	175403	0.00065	0.080	0.00788	*****		0.810
10	25.0	11.6	10.1	0.000077	0.366	-193.29	175685	0.00064	0.081	0.00491	*****		0.470
RUN NO 632 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	123.9	11.8	12.3	0.000111	0.301	-224.15	170982	0.03447	3.930	0.03565	*****		5.068
2	12.8	11.8	12.2	0.000101	0.332	-258.59	171023	0.00141	0.178	0.17894	*****		18.131
3	13.1	11.8	12.2	0.000100	0.333	-258.09	171043	0.00074	0.093	0.07113	*****		7.219
4	15.7	11.8	12.2	0.000100	0.334	-257.76	171063	0.00072	0.091	0.02316	*****		2.417
5	19.4	11.8	12.2	0.000099	0.335	-257.10	171134	0.00071	0.091	0.01197	*****		1.287
6	20.7	11.8	11.9	0.000097	0.339	-255.54	171669	0.00071	0.091	0.01027	*****		1.106
7	23.9	11.7	11.3	0.000090	0.349	-250.84	172956	0.00069	0.091	0.00750	*****		0.804
8	23.3	11.7	10.9	0.000084	0.359	-196.12	173906	0.00067	0.091	0.00785	*****		0.821
9	20.7	11.6	10.7	0.000082	0.364	-193.86	174372	0.00064	0.074	0.00816	*****		0.833
10	24.3	11.6	10.4	0.000081	0.366	-193.05	174606	0.00064	0.067	0.00375	*****		0.389
RUN NO 633 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	125.4	11.8	11.8	0.000108	0.300	-224.54	171883	0.03458	3.934	0.03462	*****		5.021
2	12.7	11.8	11.8	0.000098	0.332	-258.99	171934	0.00143	0.179	0.18379	*****		18.642
3	13.2	11.8	11.8	0.000097	0.333	-258.50	171959	0.00074	0.093	0.06642	*****		6.758
4	15.7	11.8	11.8	0.000097	0.334	-258.16	171984	0.00072	0.091	0.02337	*****		2.443
5	19.5	11.8	11.8	0.000096	0.335	-257.51	172068	0.00072	0.091	0.01170	*****		1.262
6	20.6	11.7	11.5	0.000093	0.338	-255.98	172670	0.00071	0.091	0.01027	*****		1.108
7	23.9	11.6	10.0	0.000086	0.349	-251.32	174014	0.00069	0.091	0.00749	*****		0.805
8	23.2	11.6	10.4	0.000081	0.359	-196.65	175006	0.00068	0.091	0.00788	*****		0.826
9	19.7	11.6	10.2	0.000079	0.363	-194.51	175484	0.00060	0.068	0.00837	*****		0.851
10	23.5	11.6	10.1	0.000077	0.365	-193.87	175724	0.00063	0.062	0.00270	*****		0.280
RUN NO 634 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	125.7	11.9	12.8	0.000117	0.299	-224.51	169753	0.03461	3.933	0.03457	*****		5.014
2	12.7	11.9	12.8	0.000105	0.331	-258.99	169795	0.00143	0.179	0.22737	*****		23.027
3	13.1	11.9	12.8	0.000105	0.332	-258.39	169815	0.00074	0.093	0.07781	*****		7.903
4	15.6	11.9	12.8	0.000105	0.333	-258.05	169836	0.00072	0.091	0.02477	*****		2.585
5	19.3	11.9	12.8	0.000104	0.334	-257.39	169909	0.00072	0.091	0.01224	*****		1.317
6	20.4	11.8	12.5	0.000101	0.338	-255.81	170459	0.00071	0.092	0.01044	*****		1.176
7	23.8	11.8	11.9	0.000094	0.348	-251.05	171787	0.00069	0.092	0.00763	*****		0.818
8	23.0	11.7	11.4	0.000088	0.358	-196.27	172767	0.00068	0.091	0.00809	*****		0.846
9	18.8	11.7	11.2	0.000085	0.363	-194.14	173249	0.00066	0.063	0.00892	*****		0.899
10	22.8	11.7	11.1	0.000084	0.364	-193.60	173490	0.00065	0.060	0.00192	*****		0.188
RUN NO 635 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W													
1	126.7	11.8	12.3	0.000112	0.300	-224.59	170811	0.03464	3.937	0.03466	*****		4.976
2	12.7	11.8	12.3	0.000102	0.331	-258.90	170858	0.00144	0.181	0.19943	*****		20.224
3	13.2	11.8	12.3	0.000101	0.332	-258.49	170880	0.00074	0.094	0.06934	*****		7.055
4	15.6	11.8	12.3	0.000101	0.333	-258.15	170903	0.00073	0.092	0.02395	*****		2.502
5	19.4	11.8	12.3	0.000100	0.334	-257.49	170981	0.00072	0.091	0.01290	*****		1.302
6	20.6	11.8	12.3	0.000097	0.338	-255.93	171558	0.00072	0.092	0.01038	*****		1.120
7	23.7	11.7	11.4	0.000090	0.348	-251.21	172893	0.00070	0.092	0.00762	*****		0.818
8	23.0	11.7	10.0	0.000085	0.358	-196.47	173879	0.00068	0.092	0.00806	*****		0.842
9	18.2	11.6	10.7	0.000082	0.363	-194.41	174359	0.00064	0.060	0.00916	*****		0.920
10	22.6	11.6	10.4	0.000081	0.364	-193.96	174600	0.00069	0.062	0.00109	*****		0.113

STA NO	TURE WALL	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COEFF	EXP/FPSP H-T COEFF	EXP/S-T H-T COEFF
-	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 676 ORIF DIA 0.0635 CM FLOW RATE 1.13 G/S LIQ TEMP 21.9 K LIQ PRESS 3.29 ATM CART HTR PWR 0.000 W												
1	125.7	12.0	14.1	0.000128	0.360	-221.84	167283	0.03479	3.066	0.03447	*****	5.040
2	12.8	12.0	14.2	0.000115	0.332	-218.03	167382	0.00143	0.180	0.24888	*****	25.041
3	13.2	12.0	14.1	0.000114	0.333	-217.53	167431	0.00074	0.093	0.08008	*****	8.109
4	14.9	12.0	14.1	0.000114	0.333	-217.20	167440	0.00073	0.093	0.03238	32.185	3.340
5	19.5	12.0	14.0	0.000112	0.335	-216.55	167603	0.00072	0.092	0.01216	10.354	1.306
6	20.6	12.0	13.4	0.000107	0.338	-215.04	168602	0.00072	0.092	0.01062	8.760	1.140
7	23.9	11.8	12.4	0.000097	0.349	-210.34	176737	0.00070	0.092	0.00762	5.740	0.815
8	23.2	11.7	11.7	0.000089	0.359	-195.63	172290	0.00068	0.092	0.00804	6.194	0.839
9	17.7	11.7	11.3	0.000086	0.364	-193.66	173013	0.00041	0.056	0.00933	8.507	0.929
10	22.3	11.7	11.2	0.000085	0.364	-193.36	173376	0.00060	0.000	0.00002	0.017	0.002
RUN NO 697 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.7 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	120.1	12.1	14.8	0.000116	0.343	-212.37	163005	0.03165	4.033	0.03734	*****	4.912
2	15.6	12.1	14.8	0.000106	0.375	-186.07	163005	0.00099	0.139	0.03903	*****	3.751
3	15.0	12.1	14.8	0.000105	0.376	-185.70	163005	0.00041	0.058	0.01989	*****	1.896
4	17.2	12.1	14.8	0.000105	0.377	-185.49	163005	0.00038	0.054	0.01040	8.981	1.013
5	19.5	12.1	14.8	0.000105	0.377	-185.08	163010	0.00039	0.054	0.00733	5.902	0.727
6	18.8	12.1	14.7	0.000104	0.379	-184.07	163080	0.00039	0.055	0.00806	6.611	0.791
7	21.4	12.0	14.4	0.000100	0.386	-181.07	163372	0.00038	0.055	0.00584	4.436	0.576
8	20.9	12.0	14.2	0.000097	0.392	-178.05	163584	0.00037	0.055	0.00613	4.718	0.596
9	22.7	12.0	14.1	0.000096	0.395	-176.46	163697	0.00036	0.054	0.00501	3.667	0.489
10	23.6	12.0	14.1	0.000095	0.397	-175.69	163754	0.00035	0.052	0.00445	3.177	0.435
RUN NO 698 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.5 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	124.4	12.1	14.9	0.000119	0.336	-215.57	162925	0.03215	4.020	0.03580	*****	4.797
2	15.2	12.1	14.9	0.000108	0.369	-189.29	162925	0.00104	0.142	0.04503	*****	4.372
3	14.7	12.1	14.9	0.000108	0.370	-188.91	162925	0.00041	0.057	0.02129	*****	2.053
4	16.4	12.1	14.9	0.000108	0.370	-188.70	162925	0.00040	0.055	0.01257	11.080	1.232
5	19.1	12.1	14.9	0.000107	0.371	-188.29	162931	0.00039	0.054	0.00764	6.158	0.766
6	18.6	12.1	14.8	0.000106	0.373	-187.28	163008	0.00039	0.055	0.00833	6.430	0.828
7	21.2	12.0	14.5	0.000102	0.379	-184.28	163328	0.00039	0.055	0.00594	4.498	0.594
8	20.7	12.0	14.2	0.000099	0.385	-181.27	163562	0.00038	0.055	0.00630	4.453	0.620
9	21.8	12.0	14.1	0.000098	0.389	-179.73	163686	0.00035	0.050	0.00511	3.805	0.503
10	22.5	12.0	14.1	0.000097	0.390	-179.05	163749	0.00030	0.043	0.00413	3.019	0.406
RUN NO 639 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.3 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	123.7	12.1	15.0	0.000121	0.332	-217.66	162846	0.03259	4.024	0.03605	*****	4.877
2	14.7	12.1	15.0	0.000110	0.365	-191.36	162846	0.00105	0.142	0.05391	*****	5.252
3	14.5	12.1	15.0	0.000110	0.365	-190.98	162846	0.00042	0.056	0.02348	*****	2.277
4	16.1	12.1	15.0	0.000109	0.366	-190.77	162846	0.00040	0.055	0.01339	11.239	1.320
5	18.9	12.1	15.0	0.000109	0.367	-190.36	162852	0.00040	0.054	0.00790	6.058	0.798
6	18.6	12.1	14.9	0.000108	0.369	-189.35	162936	0.00040	0.055	0.00838	6.488	0.840
7	21.2	12.0	14.5	0.000104	0.375	-186.36	163285	0.00039	0.055	0.00599	4.294	0.604
8	20.5	12.0	14.3	0.000100	0.381	-183.34	163539	0.00039	0.055	0.00643	4.698	0.637
9	20.4	12.0	14.1	0.000099	0.384	-181.93	163675	0.00030	0.042	0.00506	3.714	0.498
10	21.2	12.0	14.1	0.000098	0.385	-181.46	163743	0.00016	0.023	0.00246	1.759	0.243
RUN NO 640 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.1 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	123.4	12.1	14.6	0.000120	0.328	-219.84	163185	0.03307	4.031	0.03621	*****	4.949
2	14.5	12.1	14.6	0.000109	0.360	-193.53	163185	0.00106	0.142	0.05784	*****	5.676
3	14.3	12.1	14.6	0.000108	0.361	-193.15	163185	0.00042	0.057	0.02544	*****	2.486
4	16.0	12.1	14.6	0.000108	0.362	-192.94	163185	0.00041	0.055	0.01374	11.201	1.366
5	18.8	12.1	14.6	0.000108	0.363	-192.53	163192	0.00040	0.054	0.00810	6.034	0.824
6	18.4	12.0	14.5	0.000107	0.365	-191.52	163290	0.00040	0.055	0.00859	6.468	0.868
7	21.2	12.0	14.1	0.000102	0.371	-188.55	163700	0.00040	0.055	0.00599	4.153	0.609
8	20.4	12.0	13.8	0.000099	0.377	-185.56	163998	0.00039	0.055	0.00652	4.626	0.652
9	19.6	12.0	13.7	0.000097	0.380	-184.21	164286	0.00027	0.038	0.00508	3.695	0.502
10	20.5	12.0	13.6	0.000096	0.381	-183.85	164445	0.00009	0.013	0.00154	1.093	0.153
RUN NO 641 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 23.0 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	123.7	12.0	14.4	0.000119	0.324	-211.60	163445	0.03318	4.001	0.03582	*****	4.940
2	14.2	12.0	14.4	0.000108	0.357	-195.41	163445	0.00107	0.142	0.06495	*****	6.408
3	14.1	12.0	14.4	0.000108	0.358	-195.04	163445	0.00042	0.056	0.02788	*****	2.663
4	15.7	12.0	14.4	0.000108	0.358	-194.83	163445	0.00041	0.055	0.01486	13.886	1.486
5	18.4	12.0	14.4	0.000107	0.359	-194.44	163453	0.00041	0.054	0.00859	7.344	0.879
6	18.3	12.0	14.2	0.000106	0.361	-193.42	163574	0.00041	0.055	0.00867	7.419	0.883
7	21.0	12.0	13.7	0.000101	0.367	-190.49	164117	0.00040	0.055	0.00607	4.792	0.622
8	20.3	12.0	13.4	0.000097	0.374	-187.52	164843	0.00039	0.055	0.00657	5.304	0.662
9	18.9	11.9	13.2	0.000095	0.376	-186.23	165233	0.00026	0.036	0.00511	4.304	0.507
10	20.3	11.9	13.1	0.000094	0.377	-185.95	165429	0.00005	0.007	0.00087	0.700	0.087

STA NO	TURE TEMP	WALL K	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX -	MIXTURE ENTHALPY J/G	REYNOLDS NUMFR -	STERMAN PARAMETER -	HEAT FLUX AT WALL W/CM2	EXP H-T COEF W/CM2-K	EXP/FPSP H-T COEF -	EXP/S-T H-T COEF -
RUN NO 642 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.9 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	125.3	12.0	13.0	0.000116	0.322	-272.80	163927	0.03370	4.034	0.03560	*****	4.946	
2	14.2	12.0	13.0	0.000105	0.355	-196.50	163927	0.00109	0.144	0.06420	*****	6.367	
3	14.1	12.0	13.0	0.000105	0.356	-196.12	163927	0.00043	0.057	0.02756	*****	2.723	
4	15.3	12.0	13.0	0.000105	0.356	-195.91	163927	0.00042	0.056	0.01689	*****	1.690	
5	18.4	12.0	13.0	0.000105	0.357	-195.50	163933	0.00041	0.055	0.00853	*****	0.878	
6	18.4	12.0	13.8	0.000103	0.359	-194.48	164011	0.00041	0.055	0.00863	*****	0.884	
7	21.0	12.0	13.5	0.000100	0.366	-191.46	164641	0.00041	0.055	0.00608	*****	0.626	
8	20.2	11.9	13.2	0.000096	0.372	-188.43	165113	0.00040	0.055	0.00667	*****	0.675	
9	18.4	11.9	13.1	0.000095	0.375	-187.14	165367	0.00024	0.033	0.00519	*****	0.514	
10	20.0	11.9	13.1	0.000094	0.375	-186.91	164493	0.00000	0.000	0.00004	*****	0.006	
RUN NO 643 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.7 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	132.0	12.1	15.4	0.000128	0.319	-273.77	162448	0.03432	4.079	0.03402	*****	4.774	
2	15.2	12.1	15.4	0.000116	0.354	-196.64	162448	0.00224	0.295	0.09847	*****	9.669	
3	14.9	12.1	15.4	0.000115	0.355	-195.68	162448	0.00155	0.205	0.07416	*****	7.378	
4	19.3	12.1	15.4	0.000115	0.357	-194.91	162448	0.00151	0.200	0.02779	*****	2.871	
5	25.8	12.1	15.4	0.000114	0.360	-193.40	162457	0.00149	0.199	0.01455	*****	1.549	
6	28.9	12.1	15.2	0.000111	0.368	-189.63	162576	0.00146	0.199	0.01189	*****	1.264	
7	34.5	12.1	14.7	0.000101	0.391	-178.39	163069	0.00138	0.199	0.00892	*****	0.924	
8	34.2	12.0	14.4	0.000093	0.414	-167.17	163428	0.00130	0.199	0.00904	*****	0.894	
9	33.5	12.0	14.2	0.000090	0.426	-161.26	163621	0.00124	0.197	0.00919	*****	0.885	
10	35.7	12.0	14.1	0.000088	0.432	-158.41	163717	0.00117	0.188	0.00793	*****	0.763	
RUN NO 644 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.6 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	132.8	12.1	15.7	0.000132	0.317	-274.75	162132	0.03428	4.048	0.03355	*****	4.734	
2	15.0	12.1	15.7	0.000119	0.351	-197.73	162136	0.00225	0.295	0.10200	*****	10.258	
3	15.0	12.1	15.7	0.000118	0.353	-196.78	162138	0.00155	0.204	0.07089	*****	7.097	
4	19.6	12.1	15.7	0.000118	0.355	-196.02	162140	0.00150	0.199	0.02644	*****	2.753	
5	25.8	12.1	15.7	0.000117	0.358	-194.51	162155	0.00149	0.198	0.01446	*****	1.548	
6	29.1	12.1	15.5	0.000113	0.366	-190.78	162321	0.00146	0.199	0.01173	*****	1.253	
7	34.7	12.1	14.9	0.000103	0.388	-179.62	162918	0.00138	0.199	0.00878	*****	0.915	
8	34.4	12.0	14.4	0.000094	0.411	-168.49	163355	0.00130	0.199	0.00888	*****	0.884	
9	30.8	12.0	14.2	0.000090	0.422	-162.98	163585	0.00110	0.173	0.00927	*****	0.885	
10	33.0	12.0	14.1	0.000089	0.427	-160.74	163700	0.00082	0.130	0.00620	*****	0.596	
RUN NO 645 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.6 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	128.2	12.1	15.3	0.000129	0.316	-275.23	162528	0.03449	4.062	0.03409	*****	4.932	
2	15.0	12.1	15.3	0.000116	0.351	-198.19	162528	0.00223	0.291	0.09982	*****	10.060	
3	14.8	12.1	15.3	0.000116	0.353	-197.25	162528	0.00155	0.204	0.07451	*****	7.463	
4	19.2	12.1	15.3	0.000115	0.354	-196.48	162528	0.00151	0.199	0.02785	*****	2.897	
5	25.7	12.1	15.3	0.000114	0.357	-194.97	162536	0.00149	0.198	0.01450	*****	1.555	
6	28.7	12.1	15.2	0.000111	0.365	-191.23	162648	0.00147	0.199	0.01197	*****	1.279	
7	34.7	12.1	14.7	0.000102	0.388	-180.05	163112	0.00138	0.199	0.00880	*****	0.918	
8	34.5	12.0	14.4	0.000094	0.410	-168.89	163450	0.00130	0.199	0.00885	*****	0.893	
9	29.6	12.0	14.2	0.000090	0.421	-163.47	163632	0.00105	0.165	0.00938	*****	0.899	
10	31.8	12.0	14.1	0.000089	0.426	-161.45	163722	0.00069	0.109	0.00554	*****	0.531	
RUN NO 646 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.6 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	130.7	12.1	15.3	0.000130	0.315	-275.88	162528	0.03419	4.009	0.03381	*****	4.790	
2	15.2	12.1	15.3	0.000117	0.349	-199.04	162528	0.00225	0.292	0.09289	*****	9.431	
3	14.7	12.1	15.3	0.000116	0.351	-198.09	162528	0.00157	0.205	0.07704	*****	7.738	
4	19.8	12.1	15.3	0.000116	0.352	-197.33	162528	0.00151	0.198	0.02573	*****	2.699	
5	25.7	12.1	15.3	0.000115	0.355	-195.82	162536	0.00149	0.198	0.01456	*****	1.566	
6	28.9	12.1	15.2	0.000112	0.363	-192.09	162648	0.00147	0.199	0.01180	*****	1.267	
7	34.6	12.1	14.7	0.000102	0.386	-180.93	163112	0.00138	0.199	0.00879	*****	0.921	
8	34.3	12.0	14.4	0.000094	0.409	-169.79	163450	0.00131	0.198	0.00891	*****	0.891	
9	29.1	12.0	14.2	0.000091	0.419	-164.42	163632	0.00104	0.162	0.00950	*****	0.911	
10	31.3	12.0	14.1	0.000089	0.424	-162.46	163722	0.00066	0.104	0.00538	*****	0.517	
RUN NO 647 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.5 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	131.7	12.1	15.4	0.000131	0.314	-276.35	162369	0.03426	4.006	0.03349	*****	4.761	
2	15.0	12.1	15.4	0.000118	0.348	-199.50	162369	0.00226	0.293	0.10053	*****	10.104	
3	15.0	12.1	15.4	0.000117	0.350	-198.56	162369	0.00156	0.204	0.07150	*****	7.214	
4	19.8	12.1	15.4	0.000116	0.354	-196.29	162378	0.00150	0.198	0.02569	*****	2.700	
5	25.8	12.1	15.4	0.000116	0.354	-196.29	162378	0.00150	0.197	0.01444	*****	1.557	
6	29.0	12.1	15.3	0.000113	0.362	-192.56	162504	0.00147	0.198	0.01173	*****	1.263	
7	34.7	12.1	14.8	0.000103	0.385	-181.43	163025	0.00139	0.198	0.00874	*****	0.920	
8	34.4	12.0	14.4	0.000095	0.407	-170.32	163406	0.00131	0.198	0.00888	*****	0.860	
9	29.8	12.0	14.2	0.000091	0.418	-165.22	163610	0.00093	0.145	0.00983	*****	0.936	
10	29.1	12.0	14.1	0.000090	0.421	-163.69	163712	0.00041	0.064	0.00373	*****	0.354	

STA NO	TURE WALL NO	MIXTURE SAT TEMP K	STATIC PRESSURE MM HG	MIXTURE DENSITY G/CM3	QUALITY VAP/MIX	MIXTURE ENTHALPY J/G	REYNOLDS NUMBR	STERMAN PARAMETER	HEAT FLUX AT WALL W/CM2	EXP H-T COFF W/CM2-K	EXP/FPSP H-T COFF	EXP/S-T H-T COFF
RUN NO 648 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.4 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	129.6	12.1	15.2	0.000129	0.312	-217.43	162786	0.03462	4.021	0.03421	*****	4.882
2	14.9	12.1	15.2	0.000116	0.346	-200.55	162786	0.00226	0.292	0.10471	*****	10.652
3	14.6	12.1	15.2	0.000115	0.348	-199.61	162787	0.00157	0.203	0.08206	*****	8.283
4	18.6	12.1	15.2	0.000115	0.350	-198.94	162787	0.00153	0.199	0.03062	*****	3.203
5	25.7	12.1	15.2	0.000114	0.353	-197.33	162797	0.00151	0.198	0.01455	*****	1.576
6	28.9	12.1	14.9	0.000111	0.360	-193.60	162934	0.00148	0.199	0.01179	*****	1.274
7	34.7	12.0	14.3	0.000100	0.383	-182.47	163486	0.00140	0.199	0.00877	*****	0.925
8	34.4	12.0	13.9	0.000092	0.406	-171.36	163889	0.00132	0.199	0.00889	*****	0.895
9	26.2	12.0	13.7	0.000089	0.416	-166.33	164179	0.00091	0.141	0.00996	*****	0.950
10	28.6	12.0	13.6	0.000088	0.419	-164.92	164393	0.00034	0.053	0.00317	*****	0.304
RUN NO 649 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.3 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	128.8	12.1	15.2	0.000131	0.310	-218.28	162627	0.03514	4.058	0.03476	*****	4.980
2	14.7	12.1	15.2	0.000118	0.345	-201.25	162633	0.00227	0.291	0.11136	*****	11.345
3	14.5	12.1	15.2	0.000117	0.346	-200.31	162635	0.00158	0.204	0.08342	*****	8.445
4	18.9	12.1	15.2	0.000116	0.348	-199.54	162638	0.00154	0.199	0.02928	*****	3.080
5	25.7	12.1	15.2	0.000115	0.351	-198.04	162655	0.00151	0.198	0.01454	*****	1.580
6	29.0	12.1	15.0	0.000112	0.359	-194.31	162831	0.00149	0.199	0.01176	*****	1.276
7	34.8	12.0	14.4	0.000101	0.381	-183.19	163428	0.00140	0.199	0.00872	*****	0.923
8	34.5	12.0	13.9	0.000093	0.404	-172.10	163864	0.00132	0.199	0.00884	*****	0.892
9	24.7	12.0	13.7	0.000089	0.414	-167.23	164154	0.00085	0.131	0.01027	*****	0.976
10	27.7	12.0	13.6	0.000088	0.417	-166.09	164382	0.00018	0.027	0.00173	*****	0.166
RUN NO 650 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.3 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	129.0	12.1	15.2	0.000134	0.310	-218.55	162290	0.03518	4.055	0.03468	*****	4.976
2	14.7	12.1	15.2	0.000120	0.344	-201.51	162290	0.00227	0.291	0.11156	*****	11.381
3	14.6	12.1	15.2	0.000120	0.346	-200.56	162290	0.00159	0.204	0.08311	*****	8.427
4	19.5	12.1	15.2	0.000119	0.347	-199.80	162290	0.00153	0.198	0.02684	*****	2.841
5	25.6	12.1	15.2	0.000118	0.350	-198.29	162300	0.00152	0.198	0.01446	*****	1.594
6	28.8	12.1	15.4	0.000115	0.358	-194.55	162432	0.00149	0.199	0.01189	*****	1.291
7	34.7	12.1	14.8	0.000104	0.381	-183.38	162982	0.00140	0.199	0.00879	*****	0.930
8	34.4	12.0	14.4	0.000096	0.404	-172.24	163386	0.00132	0.199	0.00890	*****	0.899
9	23.7	12.0	14.2	0.000092	0.413	-167.42	163599	0.00082	0.126	0.01079	*****	1.020
10	27.0	12.0	14.1	0.000091	0.416	-166.40	163706	0.00010	0.016	0.00183	*****	0.699
RUN NO 651 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.2 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	131.2	12.1	15.4	0.000133	0.308	-219.44	162448	0.03523	4.037	0.03390	*****	4.895
2	14.6	12.1	15.4	0.000120	0.342	-202.48	162448	0.00230	0.292	0.11684	*****	11.958
3	14.6	12.1	15.4	0.000119	0.344	-201.53	162448	0.00159	0.203	0.08073	*****	8.227
4	19.2	12.1	15.4	0.000119	0.345	-200.77	162448	0.00154	0.198	0.02775	*****	2.945
5	25.5	12.1	15.4	0.000118	0.348	-199.27	162457	0.00152	0.197	0.01467	*****	1.602
6	28.8	12.1	15.2	0.000114	0.356	-195.54	162576	0.00149	0.198	0.01188	*****	1.295
7	34.6	12.1	14.7	0.000104	0.379	-184.48	163069	0.00141	0.198	0.00879	*****	0.934
8	34.2	12.0	14.4	0.000096	0.401	-173.29	163428	0.00133	0.198	0.00892	*****	0.904
9	23.3	12.0	14.2	0.000093	0.411	-168.50	163621	0.00081	0.125	0.01090	*****	1.034
10	26.8	12.0	14.1	0.000092	0.413	-167.51	163717	0.00008	0.012	0.00082	*****	0.079
RUN NO 652 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.2 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	131.8	12.1	15.4	0.000134	0.307	-219.97	162369	0.03533	4.035	0.03371	*****	4.883
2	14.4	12.1	15.4	0.000121	0.341	-203.00	162369	0.00231	0.293	0.12597	*****	12.900
3	14.5	12.1	15.4	0.000120	0.343	-202.06	162369	0.00159	0.203	0.08294	*****	8.467
4	18.7	12.1	15.4	0.000120	0.344	-201.30	162369	0.00155	0.199	0.03015	*****	3.193
5	25.5	12.1	15.4	0.000119	0.347	-199.79	162378	0.00152	0.197	0.01467	*****	1.606
6	28.8	12.1	15.3	0.000115	0.355	-196.06	162504	0.00150	0.198	0.01185	*****	1.295
7	34.7	12.1	14.8	0.000105	0.378	-184.92	163025	0.00141	0.198	0.00875	*****	0.933
8	34.3	12.0	14.4	0.000097	0.400	-173.80	163406	0.00133	0.198	0.00891	*****	0.905
9	23.3	12.0	14.2	0.000093	0.410	-169.03	163610	0.00081	0.123	0.01097	*****	1.042
10	26.8	12.0	14.1	0.000092	0.412	-168.08	163712	0.00006	0.009	0.00058	*****	0.056
RUN NO 653 ORIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.1 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W												
1	132.9	12.1	15.4	0.000135	0.305	-220.71	162369	0.03513	3.993	0.03307	*****	4.812
2	14.5	12.1	15.4	0.000122	0.339	-203.91	162369	0.00232	0.293	0.12414	*****	12.772
3	14.4	12.1	15.4	0.000121	0.341	-202.96	162369	0.00160	0.203	0.08655	*****	8.864
4	19.5	12.1	15.4	0.000120	0.343	-202.20	162369	0.00155	0.197	0.02679	*****	2.867
5	25.5	12.1	15.4	0.000119	0.346	-200.70	162378	0.00153	0.197	0.01473	*****	1.619
6	28.7	12.1	15.3	0.000116	0.353	-196.98	162504	0.00150	0.198	0.01193	*****	1.308
7	34.5	12.1	14.8	0.000105	0.376	-185.86	163025	0.00141	0.198	0.00883	*****	0.943
8	34.0	12.0	14.4	0.000097	0.398	-174.77	163406	0.00133	0.198	0.00899	*****	0.916
9	22.6	12.0	14.2	0.000093	0.408	-170.05	163610	0.00079	0.120	0.01139	*****	1.081
10	26.3	12.0	14.1	0.000092	0.410	-169.18	163712	0.00001	0.001	0.00007	*****	0.006

STA NO	TURE NO	WALL TEMP	MIXTURE SAT TEMP	STATIC PRESSURE	MIXTURE DENSITY	QUALITY VAP/MIX	MIXTURE ENTHALPY	REYNOLDS NUMBER	STERMAN PARAMETER	HEAT FLUX AT WALL	EXP H-T COFF	EXP/FPSP H-T COFF	EXP/S-T H-T COEF
-	-	K	K	MM HG	G/CM3	-	J/G	-	-	W/CM2	W/CM2-K	-	-
RUN NO 664 OPIF DIA 0.0635 CM FLOW RATE 1.10 G/S LIQ TEMP 22.1 K LIQ PRESS 3.30 ATM CART HTR PWR 0.000 W													
1	133.3	12.1	15.0	0.000132	0.305	-221.05	162766	0.03519	3.992	0.03293	*****		4.803
2	14.5	12.1	15.0	0.000119	0.339	-254.27	162766	0.00233	0.294	0.12296	*****		12.674
3	14.3	12.1	15.0	0.000118	0.340	-253.33	162766	0.00160	0.203	0.09006	*****		9.227
4	19.2	12.1	15.0	0.000118	0.342	-252.57	162766	0.00155	0.197	0.02768		24.136	2.961
5	25.5	12.1	15.0	0.000117	0.345	-251.07	162772	0.00153	0.197	0.01468		10.709	1.617
6	28.8	12.1	14.9	0.000113	0.353	-197.34	162864	0.00151	0.198	0.01185		7.980	1.302
7	34.5	12.0	14.6	0.000104	0.375	-186.21	163242	0.00142	0.198	0.00881		5.282	0.943
8	34.0	12.0	14.3	0.000096	0.398	-175.09	163517	0.00133	0.197	0.00898		5.439	0.917
9	22.5	12.0	14.1	0.000093	0.408	-170.36	163664	0.00079	0.120	0.01142		9.051	1.086
10	26.4	12.0	14.1	0.000092	0.409	-169.49	163738	0.00000	0.000	0.00001		0.007	0.001