RHO-BW-CR-131 P

4106

HYDROLOGY DOCUMENT NUMBER 597

GELHAR

8411080129

Analysis of Two-Well Tracer Tests With a Pulse Input

Lynn W. Gelhar, Consultant

**Prepared for Rockwell Hanford Operations,
a Prime Contractor to the
United States Department of Energy
Under Contract DE-AC06-77RLO1030**

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ANALYSIS OF TWO-WELL TRACER TESTS WITH A PULSE INPUT

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Cambridge, Massachusetts

April 1982

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SUMMARY

Dispersion of a conservative solute, which is introduced as a pulse in the recharge well of a two-well flow system, is analyzed using the general theory for longitudinal dispersion in nonuniform flow along streamlines. Results for the concentration variation at the pumping well are developed using numerical integration, and are presented in the form of dimensionless type-curves, which can be used to design and analyze tracer tests.

Application of the results is illustrated by analyzing the preliminary tracer test run at boreholes DC-7/8 on the Hanford Site by Science Applications, Inc., a subcontractor to Rockwell Hanford Operations, in December 1979.

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1.0 GENERAL THEORY

The objective of this analysis is to describe the tracer concentration which evolves in the pumping well of a two-well (pumping-recharge) flow system (Fig. 1) when an instantaneous pulse (slug) of conservative tracer is introduced in the recharge well. The streamline pattern for steady flow in a homogeneous confined aquifer is used in conjunction with the general theoretical results of Gelhar and Collins (1971) for longitudinal dispersion in nonuniform flows. With a pulse input their general result for the concentration, c, is:

$$c(s,t) = \frac{m}{u(s_o)\sqrt{4\pi\alpha\omega}} \exp\left[-\eta^2/4\alpha\omega\right] \tag{1}$$

where

s = distance along streamline

t = time

α = longitudinal dispersivity

$\eta = \tau(s) - t$

$\tau(s) = \int_{s_o}^{s} ds/u(s)$, traveltime to s

$\omega(t) = \int_{s_o}^{\bar{s}} ds/[u(s)]^2$

$\bar{s}(t)$ = mean location of the pulse at time, t

$u(s)$ = seepage velocity

m = mass of tracer per net area of aquifer injected at $s = s_o$ at time, $t = 0$.

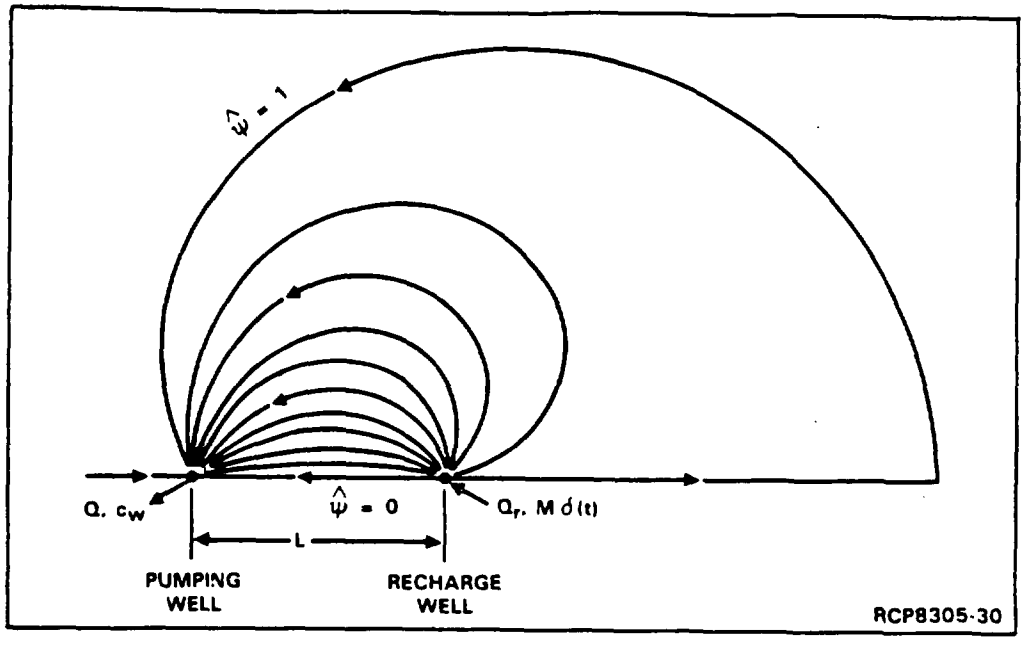

FIGURE 1. Streamline Pattern for Two-Well Flow System with $Q/Q_r = 2/3$.

Equation 1 is applied along each streamline identified by the value of the stream function, ψ; therefore the velocity, u, depends on ψ and as a result, $\tau(s, \psi)$ and $\omega(t, \psi)$. These flow integrals can be evaluated either analytically or graphically as described in the next section. The coefficient $m/u(s_o)$ in Equation 1 is evaluated by noting that at the recharge well:

$$u(s_o) = Q_r/(2\pi r_w nH)$$

Q_r = recharge rate

r_w = well radius

n = effective porosity

H = aquifer thickness

$m = M/2\pi r_w nH$

M = mass of tracer injected

$$m/u(s_o) = M/Q_r.$$

The concentration in the pumping well is found by calculating the flow-weighted concentration as the following integral:

$$c_w = \frac{2H}{Q} \int_{\psi=0}^{Q/2H} \left(\frac{M}{\beta Q}\right)(4\pi\alpha\omega)^{-1/2} \exp\left[-(\tau - t)^2/4\alpha\omega\right] d\psi \tag{2}$$

where $\beta = Q_r/Q$. In this integral, the flow integrals, τ and ω, depend on the stream function, ψ.

2.0 EVALUATION OF FLOW INTEGRALS AND WELL CONCENTRATION

For the case of equal recharge and discharge rates ($\beta = 1$), the integrals for τ and ω can be evaluated analytically from the velocity variation along a given streamline. The details of this analysis are given in Appendix A; the results for τ and ω are given by Equations A3 and A4 expressed in dimensionless form as:

$$a(\hat{\psi}) = \frac{Q\tau_w}{nHL^2}, \quad b(\bar{s},\hat{\psi}) = \left(\frac{Q}{nH}\right)^2 \frac{\omega}{L^3} \tag{3}$$

where t_w = traveltime to the pumping well. The well concentration is evaluated using these dimensionless forms and the variable of integration $\hat{\psi} = \psi/(BQ/2H)$. Then, for the upper half plane in Figure 1, the flow from the recharge well is represented by the range $0 \leq \hat{\psi} \leq 1$. Furthermore, the concentration will always be zero for the streamlines with $\hat{\psi} > 1$ because lateral dispersion is neglected. Then, using Equation 3 in Equation 2,

$$c_w = \frac{M}{Q} \int_{\psi=0}^{1} \frac{Q \exp\left[-(a-T)^2/4\epsilon b\right]}{nHL^2(4\pi\epsilon b)^{1/2}} d\hat{\psi}$$

$$\hat{c} = \frac{nHL^2}{M} c_w = \int_{\hat{\psi}=0}^{1} \frac{\exp\left[-(a-T)^2/4\epsilon b\right]}{(4\pi\epsilon b)^{1/2}} d\hat{\psi}$$

$$T = \frac{Qt}{nHL^2}, \quad \epsilon = \frac{\alpha}{L} \tag{4}$$

The integral in Equation 4 was evaluated numerically using a and b from Appendix A; a listing of the computer program is included in Appendix C.

For the case of unequal flow, τ and ω were determined graphically from a flow net constructed for the case $\beta = 2/3$ as described in Appendix B.

The limiting result for no dispersion in Equation 4 is found by noting that, as $\varepsilon \to 0$,

$$\frac{\exp[-(a-T)^2/4\varepsilon b]}{(4\pi\varepsilon b)^{1/2}} \to \delta(a-T)$$

where $\delta(x)$ = Dirac delta function. Changing the variable of integration to $a(\Phi)$, Equation 4 becomes:

$$\hat{c} = \int_{a(o)}^{\infty} \delta(a-T)\,\frac{d\hat{\psi}}{da}\,da = \begin{cases} \left.\frac{d\hat{\psi}}{d_a}\right|_{a=T}, & T > a(o) \\ 0, & T < a(o) \end{cases} \tag{5}$$

The function $a(\Phi)$ is simply the dimensionless traveltime to the pumping well along a given streamline, Φ; the general form of this function is shown in Figure 2. The non-zero portion of Equation 5 can be evaluated by taking:

$$\frac{d\hat{\psi}}{da} = \left(\frac{da}{d\hat{\psi}}\right)^{-1}$$

and $\hat{c}(T)$ is then determined by taking $T = a(\Phi)$ and $da/d\Phi|\Phi_1$, where Φ_1 is an assigned value of Φ.

3.0 RESULTS

Numerical evaluation of the concentration in the pumping well as given by Equation 4 was carried out using the computer program listed in Appendix C. Several runs were made to test the effects of model parameters and approximations. The results are listed in tabular form in Appendix D.

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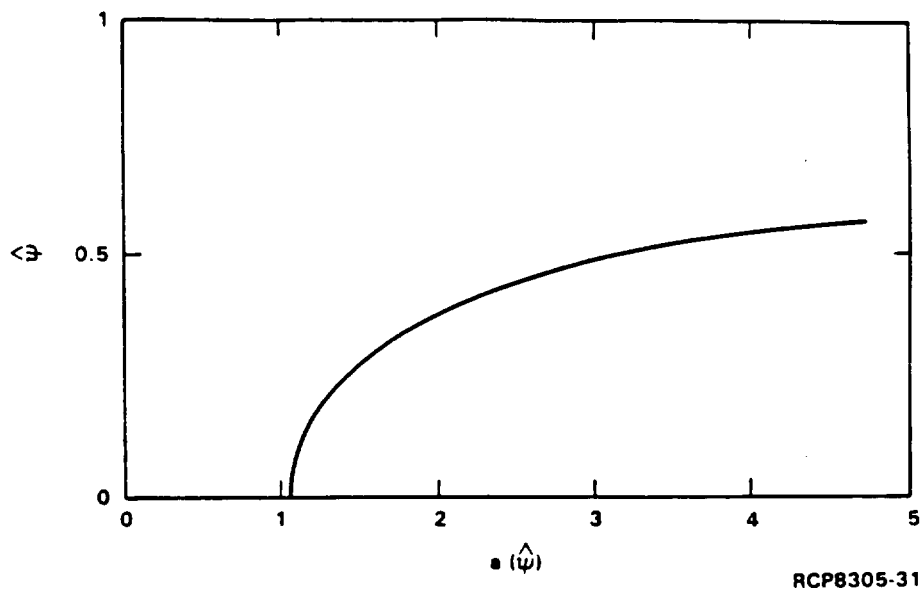

FIGURE 2. Dimensionless Traveltime Function.

Figure 3 shows a comparison of the graphically based results using $m = 1$ (Appendix B) and the exact result using the equations from Appendix A. The excellent agreement demonstrates the adequacy of the graphic approximation with $m = 1$ in Equation B2; that value was used in all subsequent calculations. Figure 4 illustrates the effect of using the approximate form of Equation B2; some difference is observed at lower concentrations for the rising limb of the curve with the large value of $\varepsilon = 0.2$. For smaller ε, the differences are generally smaller, as shown in Figure 3. The effects the increment, $\Delta\Phi$, used to approximate the integral in Equation 4 are illustrated in Figure 5. When $\varepsilon = 0.01$, the larger $\Delta\Phi = 0.05$ produces oscillations in the tail of the curve, but these are eliminated when $\Delta\Phi = 0.01$; for $\varepsilon = 0.2$ the results are nonoscillatory when $\Delta\Phi = 0.05$. Generally, the oscillations are eliminated if $\Delta\Phi \leq \varepsilon$.

The overall results are summarized in Figures 6 and 7; the unequal flow case (Fig. 7 with $\beta = 2/3$) corresponds to the Science Applications, Inc. tracer test of December 1979. These results show that the dispersion parameter, $\varepsilon = \alpha/L$, affects the rising part of the curve and the peak but not the tail. This point is further demonstrated by the behavior of the nondispersive solution using Equations 5 and A5 as shown in Figure 6. This shows that all of the results approach the nondispersive analytical result for large time, and further demonstrates the adequacy of the numerical procedure. Generally, the breakthrough curves are characterized by a steep rising limb and an elongated tail, as shown in the linear plots of Figure 8. The log-log plots (Fig. 6 and 7) are convenient for estimating the dispersivity and effective porosity from tracer test data, as illustrated in the following section.

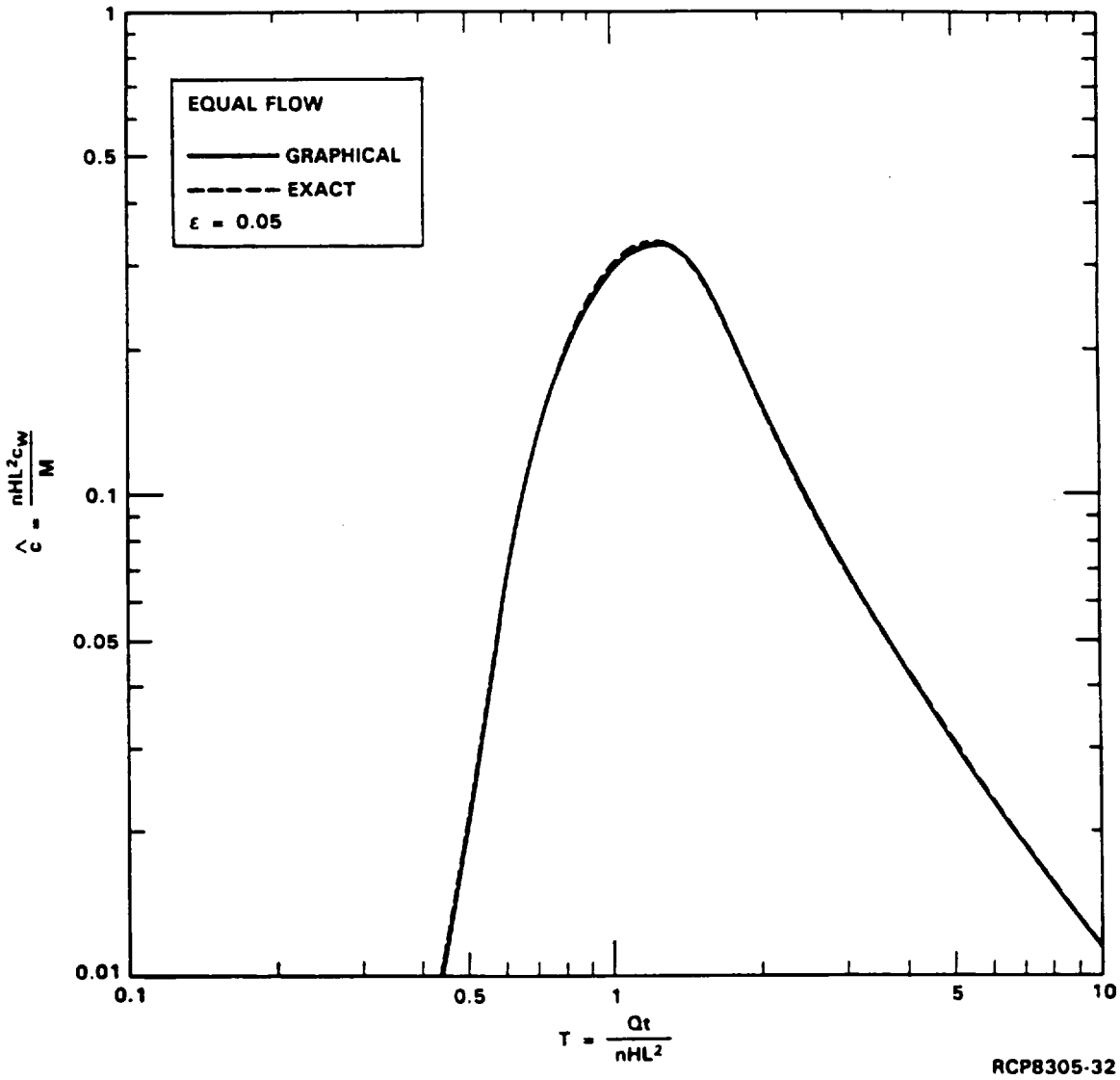

FIGURE 3. Comparison of Exact and Graphic Flow Net Calculations.

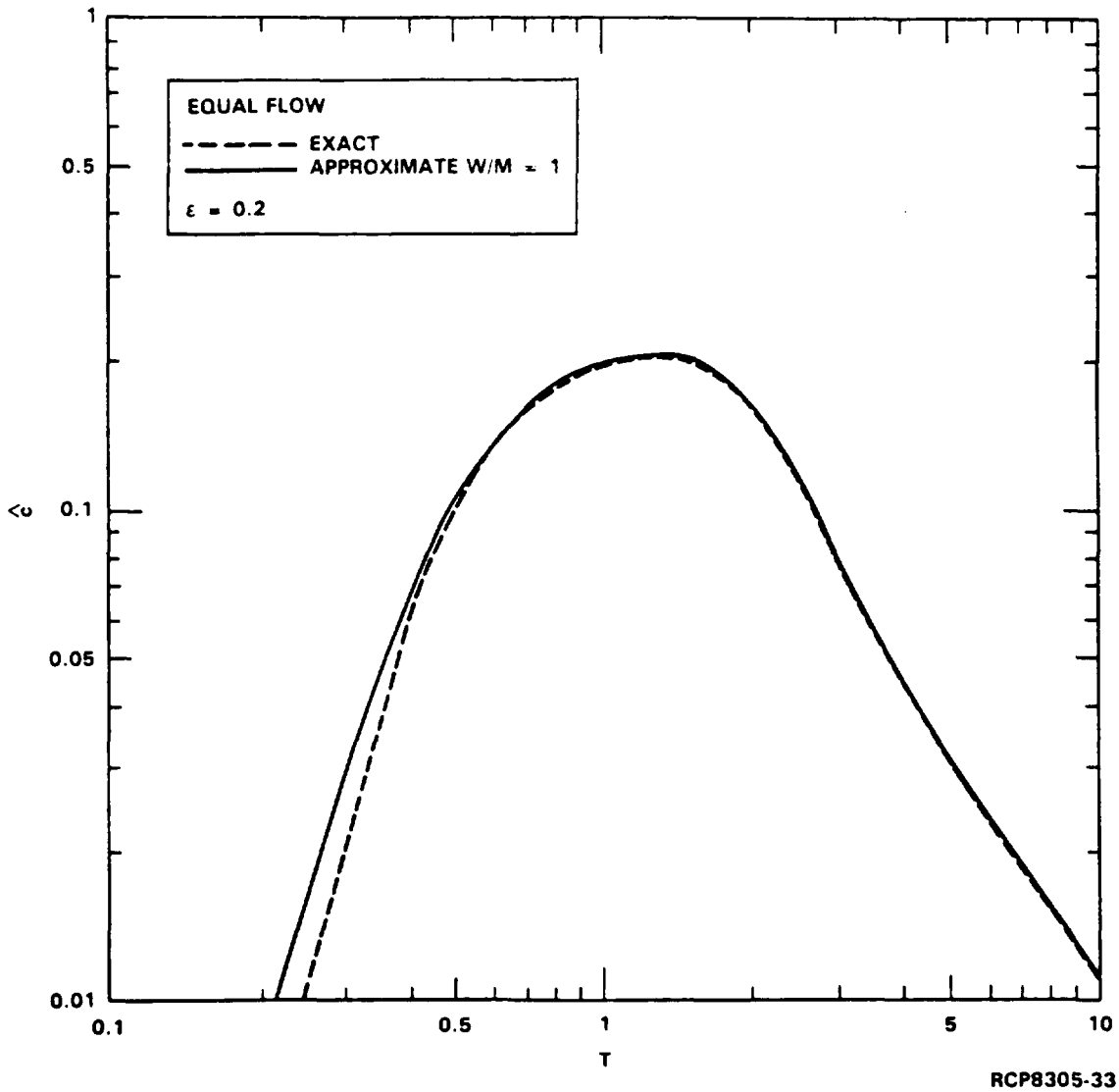

FIGURE 4. Comparison of Exact Calculation With Approximation Using Equation B2.

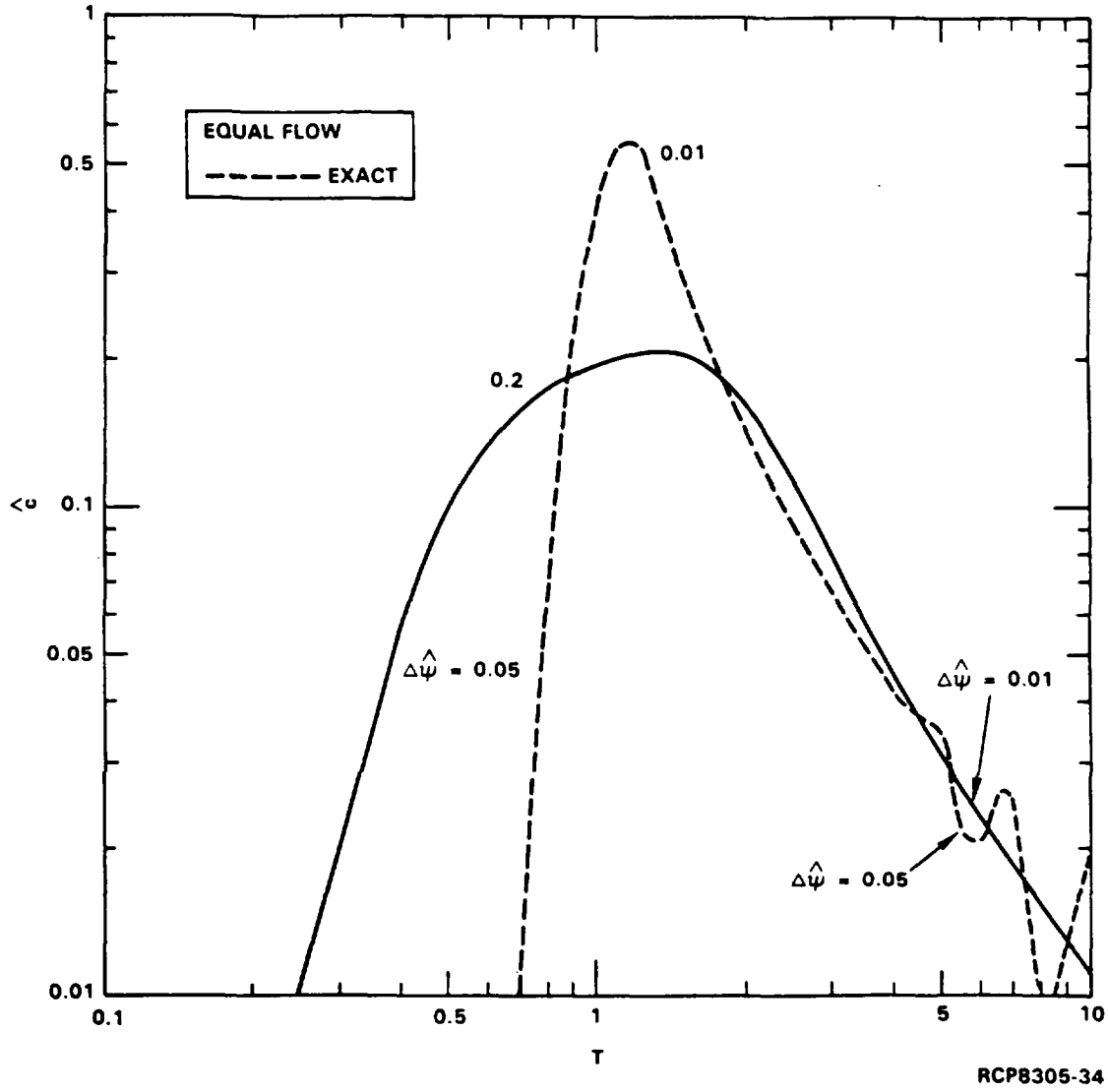

FIGURE 5. Effect of Integration Increment.

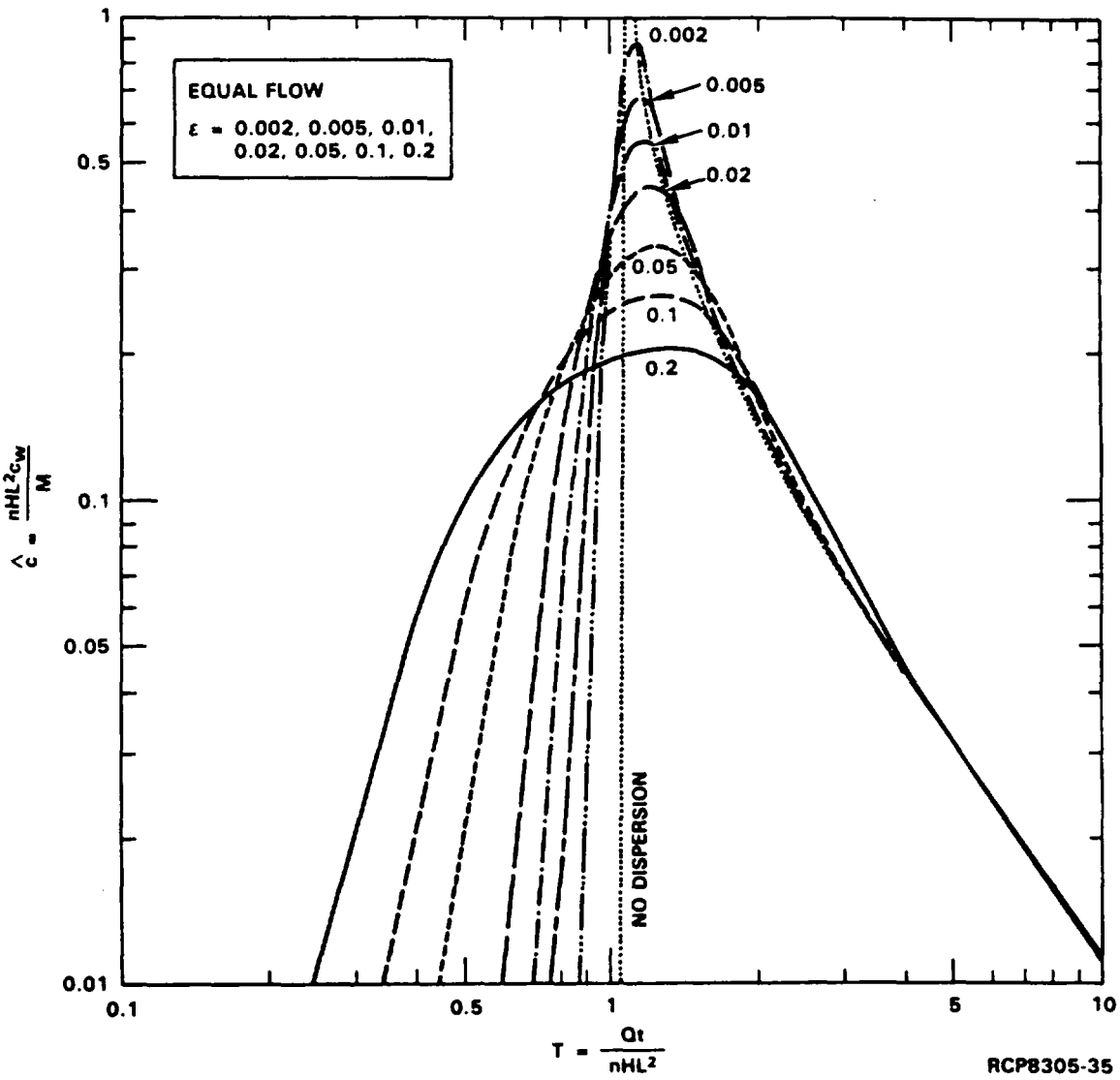

FIGURE 6. Type-Curves for Two-Well Pulse Input Test With Equal Flow.

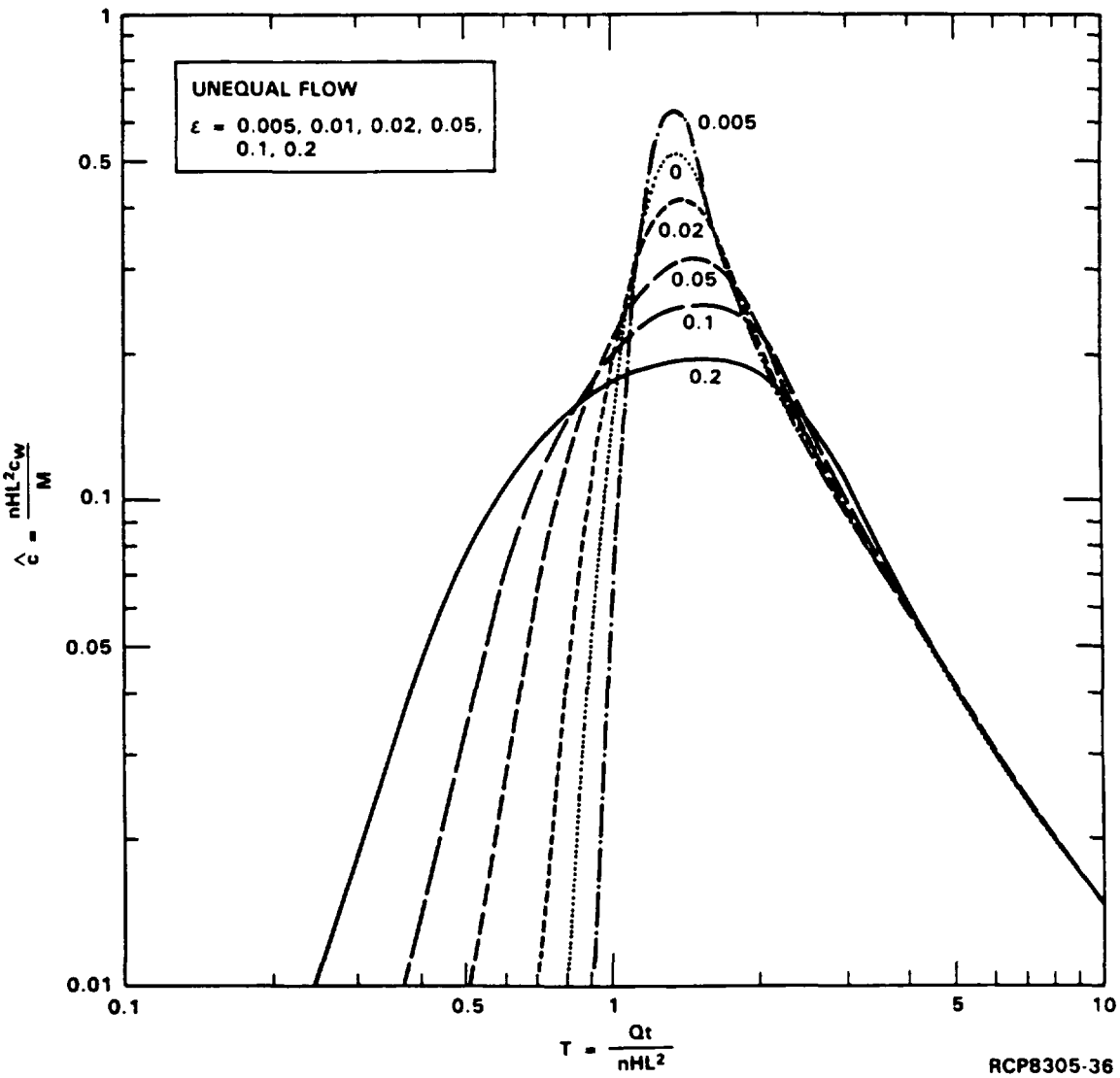

FIGURE 7. Type-Curve for Two-Well Pulse Input When the Recharge Rate is Two-Thirds of the Discharge Rate, Q.

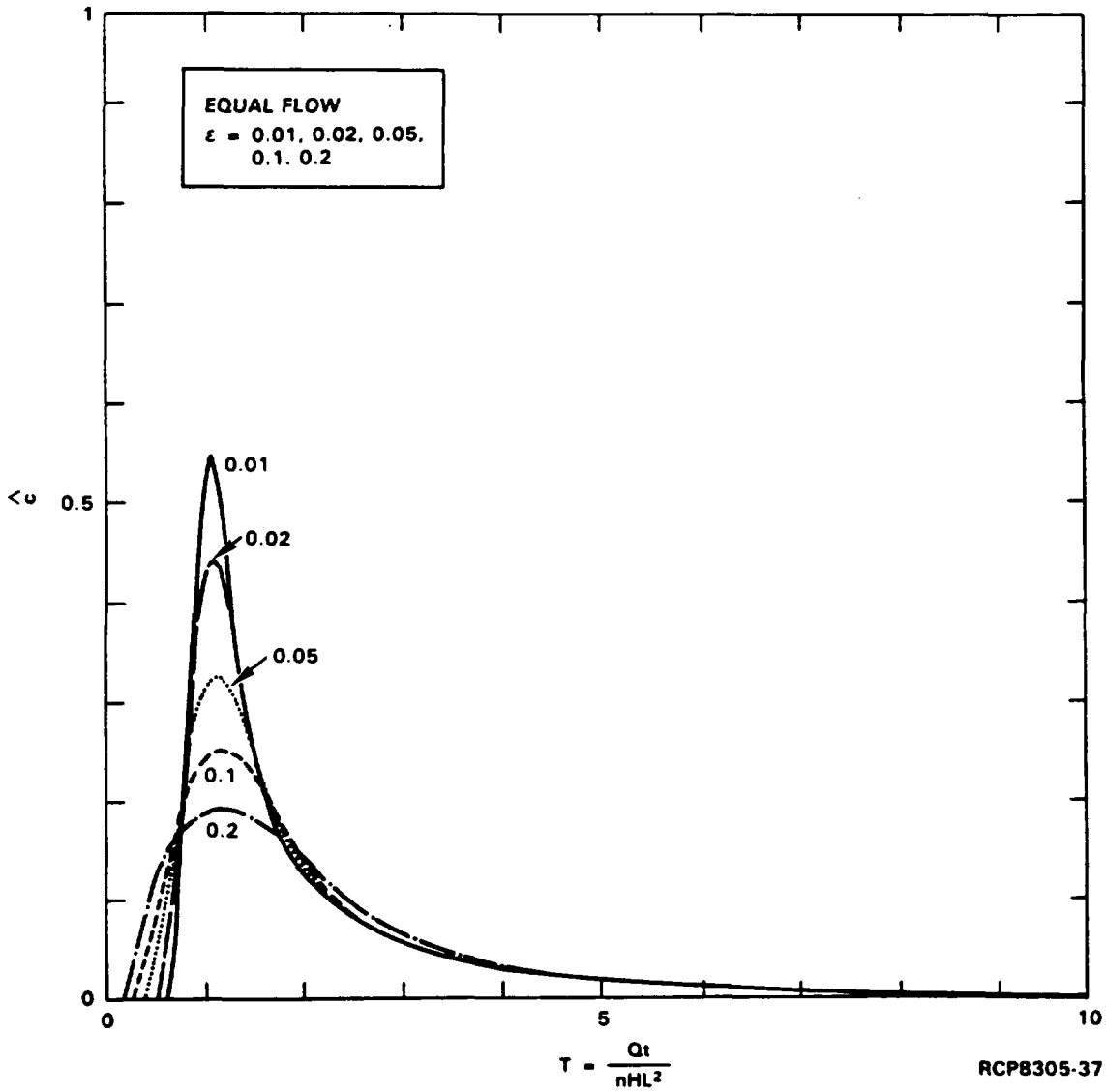

FIGURE 8. Pulse Input Type-Curves Plotted With Linear Scales.

4.0 APPLICATION METHODOLOGY

The procedure for interpretation of tracer test data using the results of the above analysis is illustrated by analyzing the test conducted by Science Applications, Inc. at DC-7/8 in December 1979. Since some of the conditions of that test were not fully defined, the results of this interpretation are considered to be preliminary; this example is present primarily to illustrate the procedures which can be used to analyze such tests.

The Science Applications, Inc. tests were reanalyzed using the type-curves in Figure 7. The flow rates for the test were estimated using the average rates implied for the period 15:13-23:00 (see Appendix E, Table E-4); $Q_r = 2.31$ gal/min (injection rate) and $Q = 3.42$ gal/min (pumping rate) or $Q_r/Q = \beta \simeq 2/3$. Based on these rates and estimates of the volume in the borehole flow conduits and connecting plumbing, the following traveltimes within the tubing to and from the test horizon were estimated:

- Time down in injection well = 153 min.
- Time up in pumping well = 258 min.

These times were subtracted from the observed times to give the actual elapsed time since the tracer entered the formation. Also, the elapsed time was corrected to correspond to a constant pumping rate of 3.42 gal/min, based on the actual metered volume in Table E-6. After these time corrections were made, the actual data points in Figure E-2 were plotted with the estimated background of 20 counts subtracted; the corrected data are shown in Figure 9, along with two of the dimensionless type-curves in Figure 7 for $\beta = 2/3$. Overlaying the data on the type-curve, we find a reasonable fit for ε in the range 0.02 to 0.05; using $\varepsilon = 0.035 = \alpha/L$ and $L = 56$ ft, the indicated longitudinal dispersivity is $\alpha = 0.035(56) = 1.96$ ft. Matching the time scales in Figure 9, $T = 1 = Qt/nHL^2$, t(hours) = 1.18 hr yields the effective thickness $nH = Qt/L^2 = 0.0105$ ft.

The data in Figure 9 seem to show some systematic departures from the theoretical type-curve. This could be a reflection of experimental ambiguities such as the following:

1. The background concentration is not clearly determined, and small changes in this level could drastically alter the low concentration parts of the curve.
2. Unobserved flow rate variations during the period that the tracer was passing the sensor would distort the shape of the curve.
3. Uncertainty about the volume in the connecting conduits could introduce errors in the traveltime correction and alter the shape of the curves.

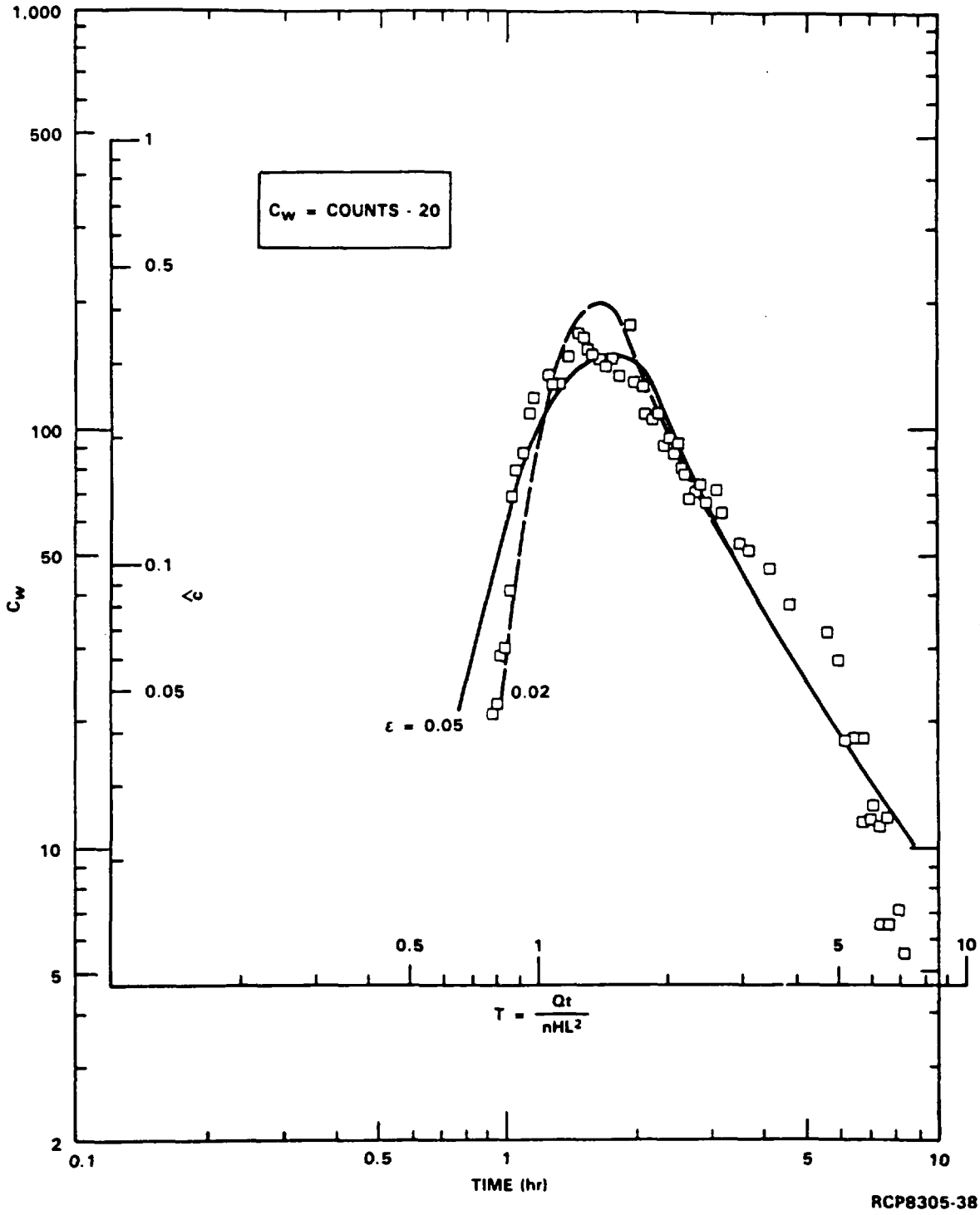

FIGURE 9. Type-Curve Matching.

The differences in Figure 9 could also indicate that the tested zone does not behave as a homogeneous, constant-thickness aquifer. If other sources of errors were eliminated, departures on the tail of the curve would be diagnostic of that possibility because that part of the type-curves is determined solely by convection; i.e., the traveltime distribution.

Calculations for the Science Applications, Inc. test were also made using the approximate method developed in Appendix E. From Figure 9 the peak time t = 1.5 hr and the time to rise from one-half of the peak is t = 0.45 hr. Then using Equation E35 with F = 0.202, G = 0.0488 (β = 2/3):

$$\frac{\alpha}{L} = \frac{1}{4\ln^2} \frac{F^2 (\Delta t)^2}{G\, t_p^2} = 0.0271$$

$$\alpha = 1.52 \text{ ft}$$

and from Equation E22 with Q = 3.42 gal/min:

$$nH = \frac{Qt_p}{2\pi L^2 F} = 0.0103 \text{ ft.}$$

These results show good agreement with those from the type-curve approach and indicate that the approximate method in Appendix E is reliable. Of course, the type-curve method has the advantage, in that it uses the complete breakthrough curve.

The type-curves of Figure 6 and 7 can also be used to design tracer tests; using estimates of $\varepsilon = \alpha/L$, the actual concentration level that will result from a given mass of tracer M can be determined in terms of the effective thickness nH and the well spacing L; i.e., $c_w = M\hat{c}/nHL^2$.

5.0 COMMENTS AND RECOMMENDATIONS

These results demonstrate the feasibility of the two-well tracer test with a pulse input as a method of determining effective porosity and dispersivity. This type of test has the advantage that the shape of the breakthrough curve is very sensitive to the dispersivity. This is in contrast to the more frequently used step input (Webster et al., 1970; Grove and Beetem, 1971; Robson, 1974; Mercer and Gonzalez, 1981) in which dispersion affects the shape of the curve only in the initial low concentration portion of the curve.

The type-curves developed here provide a simple method of designing and analyzing two-well pulse input tracer tests.

The method of analysis used here presumes that α/L is relatively small; results in Gelhar and Collins (1971) indicate that the method should be reasonably accurate for $\alpha/L < 0.1$. If the method is to be used for larger values of α/L, some comparative testing with numerical solutions is suggested. However, it should be recognized that, under those conditions (large α/L), other factors such as displacement-dependent dispersivity and non-Fickian effect (Gelhar et al., 1979) may complicate the interpretation. Also, transverse dispersion is neglected in this analysis; this assumption is reasonable for small α/L because then the dispersion effect occurs primarily along the more direct streamlines for which the fronts will be nearly perpendicular to the streamlines. For larger α/L, the dispersion effect along a wider range of streamlines becomes important; numerical testing would also be required in this case. When α/L is large, a finite-difference or finite-element solution should be routine because a relatively coarse grid could be used.

The type-curves for the pulse input can also be used to treat other inputs by convolution. In particular, this would apply to recirculating tests in which the pulse is routed through the aquifer several times. This aspect is important in the Hanford tests because analysis of the secondary peaks would provide a check on the borehole traveltime. Some preliminary work has been done on numerical convolution of the pulse input results. It is recommended that this be developed for analysis of the Hanford data.

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APPENDIX A

τ AND ω FOR EQUAL FLOW CASE

APPENDIX A

τ AND ω FOR THE EQUAL FLOW CASE

When $Q = Q_r$, it is easily shown that the streamlines are circular arcs. In that case the flow is conveniently described in the polar coordinate system shown in Figure A-1. The piezometric head, h, for steady flow in this system is:

$$h = \frac{Q}{4\pi T_r} \ln(r_1/r_2)^2$$

T_r = transmissivity

$r_1^2 = (x + \ell)^2 + y^2, \; x = -R \sin\gamma$

$r_2^2 = (x - \ell)^2 + y^2, \; y = R \cos\gamma - B$

and using the Darcy equation, seepage velocity along the streamline is:

$$v_\gamma = \frac{T_r}{nHR} \frac{\partial h}{\partial \gamma} = - \frac{Q}{4\pi nHR} \left(\frac{1}{r_1^2} \frac{\partial r_1^2}{\partial \gamma} - \frac{1}{r_2^2} \frac{\partial r_2^2}{\partial \gamma} \right)$$

After extensive algebraic manipulation, this reduces to:

$$v_\gamma = \frac{2QR \sin^3\phi}{\pi nHL^2 (\cos\gamma - \cos\phi)} \tag{A1}$$

Using this velocity in the traveltime integral:

$$\tau = \int_{s_0}^{s} \frac{ds}{u(s)} = \int_{\gamma=-\phi}^{\gamma} \frac{R d\gamma}{v_\gamma}$$

$$= \frac{nHL^2}{Q} \frac{\pi}{2\sin^3\phi} (\sin\gamma + \sin\phi - (\gamma + \phi)\cos\phi) \tag{A2}$$

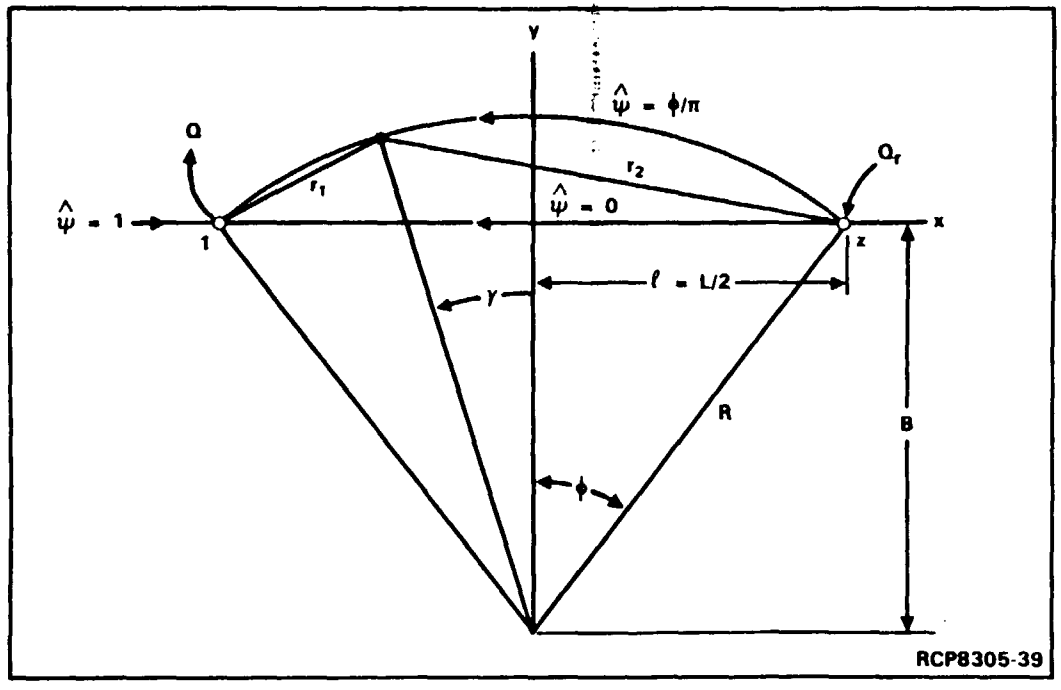

FIGURE A-1. Polar Coordinate System for the Equal Flow Case.

When $\gamma = \phi$, Equation A2 gives the traveltime to the pumping well or:

$$a(\hat{\psi}) = \frac{Q\tau\omega}{nHL^2} = \frac{\pi}{\sin^3\phi}(\sin\phi - \phi\cos\phi) \tag{A3}$$

Equation A3 gives the dimensionless traveltime between the wells as a function of $\hat{\psi}$; this result is used for a in Equation 4. Similarly, the ω flow integral is evaluated from Equation A1 as:

$$\omega = \int_{s_0}^{\bar{s}} \frac{ds}{[u(s)]^2} = \int_{\gamma=\phi}^{\bar{\gamma}} \frac{R d\gamma}{v_\gamma^2} = \frac{1}{L}\left(\frac{nHL^2}{Q}\right)^2 b(\bar{\gamma}, \phi)$$

$$b(\bar{\gamma},\phi) = \frac{\pi^2}{2\sin^5\phi}\left[\frac{\bar{\gamma}+\phi}{2} + \frac{\sin\bar{\gamma}\cos\bar{\gamma}}{2} + \frac{\sin\phi\cos\phi}{2}\right.$$

$$\left. - 2\cos\phi(\sin\bar{\gamma} + \sin\phi) + (\bar{\gamma} + \phi)\cos^2\phi\right] \tag{A4}$$

Here $\bar{\gamma}$ indicates the position of the pulse along the streamline corresponding to $\phi = \pi\hat{\psi}$. At a given time the position $\bar{\gamma}$ is found by solving Equation A2 for $\gamma = \bar{\gamma}$ when $\tau = t$; this is done iteratively using the program listed in Appendix C. When $\bar{\gamma} > \phi$ the pulse for a given streamline has moved into the pumping well; in this case ω (or b in Equation 4) was calculated from Equation A4 using $\bar{\gamma} = \phi$.

If dispersion is neglected, the concentration is found from Equation 5 using Equation A3 to find $d\hat{\psi}/da|_{a=T}$,

$$\frac{da}{d\hat{\psi}} = -3\pi^2\csc^2\pi\hat{\psi}\cot\pi\hat{\psi} + 2\pi^3\hat{\psi}\csc^2\pi\hat{\psi}\cot^2\pi\hat{\psi} + \pi^3\hat{\psi}\csc^4\pi\hat{\psi} \tag{A5}$$

The concentration $\hat{c}$ is then found by assigning values of $\hat{\psi}$ between 0 and 1, calculating T = a from Equation A3 and $d\hat{\psi}/da$ from Equation A5.

APPENDIX B

GRAPHIC EVALUATION OF τ AND ω

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GRAPHIC EVALUATION OF τ AND ω

The flow integrals τ and ω can be determined from a graphic construction of the streamline pattern. This approach is necessary in the unequal flow case where the analytical description of the flow field is very complicated. The streamline pattern for $Q_r/Q = \beta = 2/3$ (see Fig. 1) was constructed by standard superposition of the ray streamlines of the appropriate source and sink strength. If each streamtube has a flow, Q_o, and a width, $w(s)$, as a function of the distance along the centerline of the streamtube, s, the velocity is:

$$u(s) = Q/(nHw(s))$$

and then the flow integrals are expressed as:

$$\tau = \int \frac{ds}{u} = \frac{nH}{Q_o} \int \omega ds$$

$$\omega = \int \frac{ds}{u^2} = \left(\frac{nH}{Q_o}\right)^2 \int \omega^2 ds$$

These integrals were approximated by measuring the width of the streamtubes at intervals, Δs, along each of the streamtubes and summing the appropriate quantities ($w\Delta s$ or $w^2\Delta s$). The integrals were evaluated for each streamtube for intervals in the $\hat{\Phi}$ of 0.1 at the pumping and well normalized as in Equation 3. These data for a ($\hat{\Phi}$) and b ($\hat{\Phi}$) at the pumping well were then fit to polynomials of the form:

$$\ln a = \sum_{n=o}^{4} a_n \hat{\psi}^{2n}$$

$$\ln b = \sum_{n=o}^{4} b_n \hat{\psi}^{2n} \qquad \text{(B1)}$$

These expressions were then used in the integrations of Equation 4 to find the concentration in the pumping well. Note that Equation B1 gives only the value of b at the pumping well, b_w. In general, b will increase with time as the pulse approaches the well along a given streamline; this behavior was represented in the form:

$$b/b_w = \begin{cases} (T/a)^m, & T \leq a \\ 1, & T > a \end{cases} \tag{B2}$$

where m is a positive exponent to be specified. a and b from Equations B1 and B2 were then used in Equation 4 to find $\hat{c}$.

In order to evaluate the above graphic procedure, the flow net evaluation was done first for the equal flow case $\beta = 1$ and the results were compared with the exact analytical approach in Appendix A.

APPENDIX C

LISTING OF FORTRAN PROGRAM FOR NUMERICAL INTEGRATION OF EQUATION 4

```
c           Well
c           David Gelhar
c           December 1981
c       This program calculates the concentration (Cw) of
c       tracer appearing in a well as a function of the time
c       elapsed since the tracer was pumped down another well.
c       The user is asked to supply several initializing parameters,
c       and the values of T (time) desired.  First, the all-purpose
c       parameter epsilon (which accounts for dispersion effects) is
c       input  Then, you are asked to input the last value
c       of psi and the increment of psi to use.  (Psi
c       has something to do with what direction the tracer is
c       coming from.)  Using a smaller delta psi can be more
c       accurate, and definitely takes longer.  (We are
c       approximating an integral here, so using smaller steps tends
c       to be more accurate.  Good results are obtained in a
c       reasonable amount of time with dpsi between 0.05 and 0.2
c       (use smaller dpsi for smaller values of epsilon.))
c       The output of the program, a table of values of time (T)
c       and concentration (Cw), can be sent either to a file
c       (for further processing, plotting etc.) or directly to
c       the line printer.
c       For each value of T, a set of values for the parameter Y
c       must be found.  You can choose from two methods:  'Exact'
c       (equal flow only!) which analytically determines y (a
c       function of psi and T); and 'Nice', in which Y is set to
c       (T/a)**m where m is a user-supplied constant. (usually 1.0)
c       Next, the program asks how to get the magic sets of values
c       A and B, used in the concentration integral.  For the equal
c       flow case, these can be found directly as a simple
c       analytical function of psi.  In unequal flow problems,
c       however, these values cannot be determined exactly, so you
c       must supply instead five coefficients for a polynomial
c       approximation to the functinons.  Now that initialization is
c       completed the program will read in values of T from the
c       terminal and calculate and display Cw.  When a negative T is
c       input, the program will write out the results (on the
c       printer or to a file called Table.dat) and stop.  To look at
c       the A and B values, or to see T and Cw to more significant
c       figures, you can look at the files A.dat, B.dat, Cw.dat,
c       T.dat, respectively.
```

```
c         Initialize useful variables and open output files
c         FILES USED:
c           A.dat:        A values
c           B.dat:        B values
c           Cw.dat:        calculated Cws
c           T.dat:        T values input by user
c           W.dat:        temporary storage of Ws
      real last,m
      double precision pi
      dimension a(0:4),b(0:4),iflag(2)
      open(unit=36,file='t.dat',access='seqout') ! store results here
      open(unit=37,file='cw.dat',access='seqout') !    for table
      pi = 3.141592653589793
      innum = -1          ! counts number of Ts supplied
c          Read in user-supplied parameters
      write(5,1)
1      format(t5,'Input epsilon:   ',$)
      read(5,2) eps
2      format(f6.4)
c         find out what range of psi values to use
      write(5,3)
3     format(t5,'Input last psi, and delta psi:   ',$)
      read(5,4) last,dpsi
4     format(3(f6.4))
c         step evenly, starting at stepsize/2
      first = dpsi/2
      number = (last-first+dpsi)/dpsi ! how many values of psi
c         Output, in table form, can go either to a file or to the
c         line printer.  Here, we find out which is desired, and open
c         the appropriate device as unit 38.
40    write(5,13)
13    format(t5,'Where do you want the output to go?',/,t10,
     1  '(0=file,1=printer):   ',$)
      read(5,6)ians
      if((ians.lt.0).or.(ians.gt.1)) goto 40 ! ignore invalid response
      if(ians.eq.0)        open(unit=38,file='table.dat',access='seqout')
      if(ians.eq.1)        open(unit=38,device='lpt',access='seqout')
```

```
c         Y can be calculated in two ways:  a nice, simple method
c         (using a user-specified fudge factor); or a more complex
c         exact method (which works only for the equal flow case).
c         Find out which method is required and set a flag.  If the
c         nice process is to be used, read in the fudge factor now.
80      write(5,14)
14      format(t5,'Exact or nice values for y?',/,t10,
     1        '(0=exact,1=nice):  ',$)
        read(5,6)iyflag ! set iyflag:  0 exact, 1 nice
        if((iyflag.lt.0).or.(iyflag.gt.1)) goto 80 ! bad response
        if (iyflag.eq.0)goto 50 ! exact, no fudge factor
        write(5,15)
15      format(t5,'input fudge factor M:  ',$)
        read(5,2)m
c         Find which values of a and b to use and set flag
50      write(5,5)
5       format(t5,'Exact or curve fit values for a?',/,t10,
     1  '(0=exact,1=fit):  ',$)
        read(5,6)ians
6       format(i)
        if((ians.lt.0).or.(ians.gt.1)) goto 50 !ignore invalid response
        if(ians.eq.0) call Aexact(number,first,dpsi,pi,iflag(1))!call
        if(ians.eq.1) call Afit(number,first,dpsi,iflag(1),a) ! proc
60      write(5,7)
7       format(t5,'Exact or curve fit values for b?',/,t10,
     1  '(0=exact,1=fit):  ',$)
        read(5,6) ians
        if((ians.lt.0).or.(ians.gt.1)) goto 60 !ignore invalid response
        if(ians.eq.0) call Bexact(number,iflag(2),first,dpsi,pi)
        if(ians.eq.1) call Bfit(number,first,dpsi,iflag(2),b)
```

```
      write(5,8)
8     format(t5,'To stop, input a negative value for t')
c        MAIN LOOP:
c        Keep calculating until a negative t is input,
c        storing values of t and cw in data files
70    write(5,9)
9     format(t5,'t = ',$)
      read(5,10) t
10    format(f21.10)
      innum = innum + 1 ! increment counter
      write(36,10)t  ! write t to file
c        as soon as a negative t is input, call a routine
c        to print the results and terminate
      if (t.lt.0) call output(eps,dpsi,first,last,innum,iflag,a,b,
     1  m,iyflag)
c        get y values for this t
      if (iyflag.eq.1) Call Ynice(number,m,t)
      if (iyflag.eq.0) Call Yexact(first,dpsi,number,t,pi)
c        Here we finally call the routine to get the
c        number we are after.
      result = Cw(t,dpsi,number,pi,eps)
      write(37,10)result ! write Cw to file
      write(5,11) result ! and terminal
11      format(t10,'Cw = ',f9.5)
      goto 70 ! loop forever until negative t is input
      end ! end of main program
```

```
      Subroutine Aexact(number,first,dpsi,pi,ifl)
c        This routine calculates values for the parameter a
c        using an exact equation.  The As, one for each value
c        of psi used, are written to file a.dat for use later
c        in the program.  The user specifies whether this routine
c        or the approximate version 'Afit' is to be used.  Note
c        that the exact method works ONLY for equal flow problems.
c        initialize variables and open output file
      double precision pi
      open(unit=33,file='a.dat',access='seqout') ! open data file
      ifl = 0 ! set flag indicating exact method
      psi = first ! initialize psi
c        loop through all values of psi, calculating an a for each
      do 1 i = 1,number ! how many values we need
      a = pi * (1/sin(pi*psi)**2)*(1-pi*psi*(cos(pi*psi)/sin(pi*psi)))
      write(33,2)a ! write it to the file
2     format(f21.10)
      psi = psi + dpsi !increment psi
1     continue
      close(unit=33) ! close file
      return
      end
```

```
      Subroutine Bexact(number,ifl,first,dpsi,pi)
c        Bexact gets values for b with an exact equation.
c        Bs are written to the file B.dat for later use.
c        Flag 'ifl' is set so the output routine knows that
c        exact b values were used.  Remember, the exact
c        method can be used only for equal flow.
      double precision phi,b,pi
      ifl = 0 ! set flag:  exact values
      open (unit=34,file='b.dat',access='seqout') ! open b.dat
c        loop:  get a b; write it out
      do 1 i = 1,number
      phi = pi*(first+(i-1)*dpsi) ! phi = psi*pi
      b = pi**2*(phi-3*cos(phi)*sin(phi)+2*phi*(cos(phi))**2)
     1       /(2*(sin(phi))**3)
      write (34,2)b ! output b to file
2     format(f21.10)
1      continue
      close(unit=34) ! close output file b.dat
      return
      end
```

```
      Subroutine Afit(number,first,dpsi,ifl,a)
c        This routine opens the file a.dat and calls
c        the routine 'Fit', which does a polynomial curve
c        fit using user-supplied coefficients.  The five
c        coefficients are passed back up to the main program
c        in the array 'a', and flag ifl is set to indicate
c        the use of approximate values.
      dimension a(0:4) ! coefficient array
      open (unit=32,file='a.dat',access='seqout') ! open output file
      ifl = 1  ! flag approximate a values
      call Fit(number,first,dpsi,a) ! call routine to generate As
      close(unit=32) !clean up
      return
      end
```

```
      Subroutine Bfit(number,first,dpsi,ifl,b)
c        This routine is identical to Afit, but the file b.dat
c        is opened instead of a.dat.  Coefficients are returned in
c        the array 'b'.
      dimension b(0:4) ! array to hold 5 coefficients
      open(unit=32,file='b.dat',access='seqout') ! output to b.dat
      ifl = 1  ! flag approximate b values
      call Fit(number,first,dpsi,b) ! get b values
      close(unit=32)
      return
      end
```

```
      Subroutine Fit(number,first,dpsi,c)
c        Fit reads in 5 coefficients and uses them to approximate
c        either a or b, depending on whether it was called by Afit
c        or Bfit (in the first case, data goes to a.dat, in the
c        second, b.dat).  The variable c is equivalent to either
c        a or b, whichever is appropriate.
      dimension c(0:4) ! array of curve fit coefficients
      do 10 i=0,4 ! get them one at a time
      write(5,1)
1     format(t5,'Input a coefficient')
      read(5,2) c(i) ! read one in
2     format(f8.4)
10    write(5,2) c(i) !write it to the terminal to confirm
c        calculate c and write it to file
c        unit 32 has been opened by our caller
c        as the correct output file (a.dat or b.dat)
      psi = first ! go through all psis
      do 3 i = 1,number
      temp = 0
      do 4 n = 0,4
c        the coefficients are for a polynomial fit in
c        psi squared
4     temp = temp + c(n)*psi**(2*n)
c        the natural log of the data was used to determine
c        coefficients, so we must take the exponential of
c        the result
      result = exp(temp)
      write(32,5)result ! write to a.dat or b.dat
5     format(f21.10)
      psi = psi + dpsi
3     continue
      return
      end
```

```
      Subroutine Ynice(number,m,t)
c        Here we calculate y values with sleazy-but-nice formula.
c        (using only a and a user-supplied fudge factor).  Actually,
c        we write out not Y itself but a close relative W (=b*y).
c        The w values are put in (guess what?) w.dat.
c        define variables and open useful data files
      real m
      double precision y,b
      open(unit=33,file='a.dat',access='seqin')
      open(unit=34,file='b.dat',access='seqin')
      open(unit=35,file='w.dat',access='seqout')
      ifl = 1 ! set flag: approximate y values
      Do 1 i = 1,number ! 1 y for each psi
      read(33,2)a ! read in a
      read(34,2)b ! and b
2     format(f21.10)
      y = (t/a)**m ! m is fudge factor
      if((t/a).gt.1) y = 1
      w = b*y ! get w
      write(35,2)w ! write w to w.dat
1     continue
c        tidily close all files...
      close(unit=33)
      close(unit=34)
      close(unit=35)
      return
      end
```

```
      Subroutine Yexact(first,dpsi,number,t,pi)
c        This routine gets exact values for y (and w)
c        using a rather messy equation (equal flow only).
c        define variables and open files
      double precision phi,temp1,temp2,w,gamma
      open(unit=33,file='a.dat',access='seqin') ! a values
      open(unit=34,file='b.dat',access='seqin') ! b values
      open(unit=35,file='w.dat',access='seqout') ! put Ws here
      ifl = 0 ! flag exact y values
      Do 1 i = 1,number ! loop through all psis
      read(33,2)a ! get a
      read(34,2)b ! and b
2     format(f21.10)
      phi = pi*(first+(i-1)*dpsi) ! phi = pi*psi
      if((t/a).gt.1.0)goto 999 ! special case, w = b
c        invoke function to find gamma, used in
c        calculating y (w)
      gamma = Gappr(phi,a,t)
      temp1 = ((gamma+phi)/2+(sin(gamma)*cos(gamma)/2)+sin(phi)*
     1  cos(phi)/2 - 2*cos(phi)*(sin(gamma)+sin(phi))+(gamma+phi)*
     2  cos(phi)**2)
      temp2 = pi**2/(2*sin(phi)**5)
      w = temp1*temp2
      goto 1000
999   w = b
1000  if (w.le.0.001)w = 0.001 ! ugly things happen if w = 0
      write(35,2)w ! write to w.dat
1     continue ! get next w
      return
      end
```

```
      Function Gappr(phi,a,t)
c        returns an approximation to gamma
      double precision gamma
      oldf = t/a
      oldx = 0
      x = 2*oldf - 1
10    if(abs(oldx-x).lt.0.0001) goto 20 ! close enough yet?
      g = phi*x
      f = (sin(phi)+sin(g)-(phi+g)*cos(phi))
     1  /(2*(sin(phi)-phi*cos(phi)))
      oldx = x
      x = x + (oldf - f)/2 ! get new x
      goto 10 ! check again
20    Gappr = phi*x
      return
      end
```

```
      Function Cw(t,dpsi,number,pi,eps)
c        Approximate the integral for the concentration Cw
      double precision temp,c,pi,w,aaa
      c = 0
      open(unit=33,file='a.dat',access='seqin')
      open(unit=34,file='b.dat',access='seqin')
      open(unit=35,file='w.dat',access='seqin')
      do 1 i = 1,number
      read(33,2) a
      read(34,2) b
      read(35,2) w
2     format(f21.10)
      temp = exp(-((a-t)**2. / (4.*eps*w)))
      c = c + dpsi*temp/sqrt(4.*pi*eps*w)
1     continue
      cw = c
      return
      end
```

```
      Subroutine Output(eps,dpsi,first,last,innum,iflag,a,b,m,
     1  iyflag)
c        Output prints the results in a table, either
c        in a file (table.dat) or on the line printer
      dimension iflag(2) ! flags for a & b:  exact or approx
      dimension a(0:4) ! a coefficients
      dimension b(0:4) ! b coefficients
c        open files with results
      close(unit=36)
      close(unit=37)
      open(unit=36,file='t.dat',access='seqin')
      open(unit=37,file='cw.dat',access='seqin')
c        unit 38 has already been opened as either
c        table.dat or Lpt:
c        Display the parameters input by user:
      write(38,1)eps,dpsi,first,last
1     format(///,10x,'epsilon = ',f8.4,5x,'dpsi = ',f8.4,5x,
     1  'first psi = ',f8.4,5x,'last psi = ',f8.4,/,t10)
c        if exact a & b values, say so
      if(iflag(1).eq.0) write(38,5)
5     format(t10,'Exact a values')
      if(iflag(2).eq.0) write(38,6)
6     format(t10,'Exact b values')
c        if curve fit was used, print coefficients
      if(iflag(1).eq.1) write(38,7)(a(i),i=0,4)
7     format(t10,'A coefficients are:  ',5(f10.4,2x))
      if(iflag(2).eq.1) write(38,8)(b(i),i=0,4)
8     format(t10,'B coefficients are:  ',5(f10.4,2x))
c        tell how y was calculated
      if(iyflag.eq.0)write(38,10)
10    format(t10,'Exact y values',//)
      if(iyflag.eq.1)write(38,11)m
11    format(t10,'Approximate y values, m is:  ',f8.4,//)
c        print header for table
      write(38,9)
9     format(t31,'T',12x,'Cw',/)
c        read in t and Cw from t.dat and Cw.dat;
c        write them out together
      do 2 i = 1,innum ! innum = # of Ts supplied
      read(36,4)t ! get t
4     format(f21.10)
      read(37,4)cw ! get Cw
      write(38,3)t,cw ! make table
3     format(25x,f8.4,5x,f8.4)
2     continue
c        execution stops here
      stop 'Hydrology is all wet.'
      end
```

APPENDIX D

TABLES OF TYPE-CURVE DATA

epsilon = 0.2000 dpsi = 0.0200 first psi = 0.0100 last psi = 0.9700

A coefficients are: 0.2010 3.3090 -0.9750 3.2250 -1.3020
B coefficients are: 0.6570 4.9770 -1.1240 4.6500 -1.4520
Approximate y values, m is: 1.0000

T	Cw
0.1000	0.0000
0.2000	0.0029
0.3000	0.0189
0.4000	0.0468
0.5000	0.0784
0.6000	0.1082
0.7000	0.1332
0.8000	0.1533
0.9000	0.1683
1.0000	0.1791
1.1000	0.1861
1.2000	0.1904
1.3000	0.1934
1.4000	0.1957
1.5000	0.1968
1.8000	0.1914
2.0000	0.1814
2.5000	0.1443
3.0000	0.1068
3.5000	0.0790
4.0000	0.0612
4.5000	0.4930
5.0000	0.0413
5.5000	0.0352
6.0000	0.0308
6.5000	0.0271
7.0000	0.0241
7.5000	0.0218
8.0000	0.0198
9.0000	0.0167
10.0000	0.0143

epsilon = .2000 dpsi = .0500 first psi = .0250 last psi = .97500

beta = 1.0000

Exact a values

Exact b values

Exact y values

T	Cw
0.1000	0.0000
0.2000	0.0013
0.3000	0.0205
0.4000	0.0608
0.5000	0.1031
0.6000	0.1373
0.7000	0.1619
0.8000	0.1786
0.9000	0.1895
1.0000	0.1963
1.1000	0.2012
1.2000	0.2045
1.3000	0.2055
1.4000	0.2041
1.5000	0.2005
1.8000	0.1787
2.0000	0.1590
2.5000	0.1099
3.0000	0.0760
3.5000	0.0562
4.0000	0.0444
4.5000	0.0364
5.0000	0.0308
5.5000	0.0266
6.0000	0.0232
6.5000	0.0206
7.0000	0.0184
7.5000	0.0167
8.0000	0.0152
9.0000	0.0128
10.0000	0.0110

epsilon = .2000 dpsi = .0500 first psi = .0250 last psi = .9750

beta = 1.0000

Exact a values

Exact b values

Approximate y values, m is: 1.0000

T	Cw
0.1000	0.0000
0.2000	0.0056
0.3000	0.0308
0.4000	0.0689
0.5000	0.1076
0.6000	0.1404
0.7000	0.1656
0.8000	0.1833
0.9000	0.1947
1.0000	0.2011
1.1000	0.2035
1.2000	0.2029
1.3000	0.2001
1.4000	0.1956
1.5000	0.1901
1.8000	0.1698
2.0000	0.1555
2.5000	0.1225
3.0000	0.0961
3.5000	0.0762
4.0000	0.0614
4.5000	0.0503
5.0000	0.0420
5.5000	0.0357
6.0000	0.0307
6.5000	0.0269
7.0000	0.0237
7.5000	0.0212
8.0000	0.0191
9.0000	0.0159
10.0000	0.0135

epsilon = .0100 dpsi = .0500 first psi = .0250 last psi = .9750

beta = 1.0000

Exact a values

Exact b values

Exact y values

T	Cw	T	Cw
0.1000	0.0000	7.0000	0.0249
0.2000	0.0000	7.5000	0.0150
0.3000	0.0000	8.0000	0.0077
0.4000	0.0000	9.0000	0.0130
0.5000	0.0000	10.0000	0.0198
0.6000	0.0004		
0.6500	0.0027		
0.7000	0.0113		
0.7500	0.0337		
0.8000	0.0778		
0.8500	0.1471		
0.9000	0.2369		
0.9500	0.3354		
1.0000	0.4277		
1.0500	0.5010		
1.1000	0.5470		
1.1500	0.5608		
1.2000	0.5447		
1.3000	0.4577		
1.4000	0.3588		
1.4500	0.3183		
1.5000	0.2850		
1.6000	0.2356		
1.7000	0.2022		
1.8000	0.1771		
1.9000	0.1577		
2.0000	0.1423		
2.5000	0.0941		
3.0000	0.0687		
3.5000	0.0544		
4.0000	0.0415		
4.5000	0.0373		
5.0000	0.0343		
5.5000	0.0215		
6.0000	0.0209		
6.5000	0.0270		

epsilon = .0100 dpsi = .0100 first psi = .0050 last psi = .9750

beta = 1.0000

Exact a values

Exact b values

Exact y values

T	Cw	T	Cw
0.1000	0.0000	8.0000	0.0156
0.2000	0.0000	9.0000	0.0132
0.3000	0.0000	10.0000	0.0114
0.4000	0.0000		
0.5000	0.0000		
0.6000	0.0004		
0.7000	0.0113		
0.8000	0.0778		
0.8500	0.1471		
0.9000	0.2369		
0.9500	0.3354		
1.0000	0.4277		
1.0500	0.5010		
1.1000	0.5470		
1.1500	0.5608		
1.2000	0.5446		
1.2500	0.5068		
1.3000	0.4576		
1.4000	0.3589		
1.5000	0.2849		
1.6000	0.2358		
1.7000	0.2021		
1.8000	0.1772		
1.9000	0.1578		
2.0000	0.1421		
2.5000	0.0937		
3.0000	0.0687		
3.5000	0.0536		
4.0000	0.0435		
4.5000	0.0363		
5.0000	0.0310		
5.5000	0.0269		
6.0000	0.0236		
6.5000	0.0210		
7.0000	0.0189		
7.5000	0.0171		

epsilon = .0500 dpsi = .0200 first psi = .0100 last psi = .9700
beta = 1.0000
Exact a values
Exact b values
Exact y values

T	Cw	T	Cw
0.1000	0.0000	7.0000	0.0186
0.2000	0.0000	7.5000	0.0168
0.3000	0.0000	8.0000	0.0153
0.4000	0.0024	9.0000	0.0130
0.5000	0.0200	10.0000	0.0112
0.6000	0.0647		
0.6500	0.0955		
0.7000	0.1292		
0.7500	0.1635		
0.8000	0.1966		
0.9000	0.2543		
0.9500	0.2775		
1.0000	0.2966		
1.0500	0.3120		
1.1000	0.3241		
1.1500	0.3323		
1.2000	0.3363		
1.2500	0.3363		
1.3000	0.3325		
1.4000	0.3152		
1.5000	0.2889		
1.6000	0.2583		
1.7000	0.2275		
1.8000	0.1993		
1.9000	0.1748		
2.0000	0.1544		
2.2000	0.1242		
2.5000	0.0958		
3.0000	0.0690		
3.5000	0.0533		
4.0000	0.0431		
4.5000	0.0359		
5.0000	0.0306		
5.5000	0.0265		
6.0000	0.0233		
6.5000	0.0207		

epsilon = 0.0500 dpsi = 0.0200 first psi = 0.0100 last psi = 0.9700

beta = 1.0000

A coefficients are: 0.0480 3.7756 3.3016 -4.9376 7.0424

B coefficients are: 0.2730 6.7200 3.9700 -7.3120 13.3020

Approximate y values, m is: 1.0000

T	Cw	T	Cw
0.1000	0.0000	6.0000	0.0235
0.2000	0.0000	6.5000	0.0209
0.3000	0.0001	7.0000	0.0187
0.4000	0.0035	7.5000	0.0170
0.5000	0.0216	8.0000	0.0154
0.6000	0.0649	9.0000	0.0130
0.6500	0.0951	10.0000	0.0112
0.7000	0.1290		
0.7500	0.1643		
0.8000	0.1989		
0.8500	0.2312		
0.9000	0.2597		
0.9500	0.2836		
1.0000	0.3025		
1.0500	0.3163		
1.1000	0.3272		
1.1500	0.3346		
1.2000	0.3380		
1.2500	0.3374		
1.3000	0.3331		
1.4000	0.3149		
1.5000	0.2880		
1.6000	0.2569		
1.7000	0.2259		
1.8000	0.1975		
1.9000	0.1731		
2.0000	0.1528		
2.2000	0.1229		
2.5000	0.0950		
3.0000	0.0687		
3.5000	0.0534		
4.0000	0.0433		
4.5000	0.0361		
5.0000	0.0308		
5.5000	0.0268		

epsilon = 0.0200 dpsi = 0.0200 first psi = 0.0100 last psi = 0.9700

A coefficients are: 0.2010 3.3090 -0.9750 3.2250 -1.3020
B coefficients are: 0.6570 4.9770 -1.1240 4.6500 -1.4520
Approximate y values, m is: 1.0000

T	Cw
0.1000	0.0000
0.2000	0.0000
0.3000	0.0000
0.4000	0.0000
0.5000	0.0000
0.6000	0.0014
0.7000	0.0110
0.8000	0.0438
0.9000	0.1105
1.0000	0.2033
1.1000	0.2983
1.2000	0.3722
1.3000	0.4160
1.4000	0.4278
1.5000	0.4092
1.8000	0.2796
2.0000	0.2112
2.5000	0.1294
3.0000	0.0927
3.5000	0.0711
4.0000	0.0570
4.5000	0.0471
5.0000	0.0399
5.5000	0.0345
6.0000	0.0302
6.5000	0.0269
7.0000	0.0240
8.0000	0.0196
9.0000	0.0167
10.0000	0.0144

epsilon = 0.0020 dpsi = 0.0100 first psi = 0.0050 last psi = 0.9750

Exact a values
Exact b values
Exact y values

T	Cw	T	Cw
0.1000	0.0000	3.0000	0.0692
0.2000	0.0000	3.5000	0.0540
0.3000	0.0000	4.0000	0.0438
0.4000	0.0000	4.5000	0.0366
0.5000	0.0000	5.0000	0.0312
0.6000	0.0000	5.5000	0.0271
0.7000	0.0000	6.0000	0.0238
0.8000	0.0003	6.5000	0.0212
0.8500	0.0054	7.0000	0.0190
0.9000	0.0452	7.5000	0.0172
0.9500	0.1944	8.0000	0.0157
0.9750	0.3265	9.0000	0.0133
1.0000	0.4854	10.0000	0.0115
1.0250	0.6464		
1.0500	0.7804		
1.0750	0.8642		
1.1000	0.8871		
1.1250	0.8556		
1.1500	0.7883		
1.1750	0.7065		
1.2000	0.6265		
1.2250	0.5572		
1.2500	0.5007		
1.3000	0.4194		
1.2500	0.5007		
1.4000	0.3244		
1.5000	0.2671		
1.6000	0.2274		
1.8000	0.1750		
2.0000	0.1415		
2.2000	0.1182		
2.5000	0.0941		

epsilon = 0.0500 dpsi = 0.0200 first psi = 0.0100 last psi = 0.9700

A coefficients are: 0.2010 3.3090 -0.9750 3.2250 -1.3020
B coefficients are: 0.6570 4.9770 -1.1240 4.6500 -1.4520
Approximate y values, m is: 1.0000

T	Cw
0.1000	0.0000
0.2000	0.0000
0.3000	0.0000
0.4000	0.0009
0.5000	0.0077
0.6000	0.0279
0.7000	0.0652
0.8000	0.1157
0.9000	0.1705
1.0000	0.2214
1.1000	0.2627
1.2000	0.2915
1.3000	0.3102
1.4000	0.3201
1.5000	0.3196
1.6000	0.3101
1.7000	0.2934
1.8000	0.2719
2.0000	0.2247
2.5000	0.1364
3.0000	0.0945
3.5000	0.0717
4.0000	0.0573
4.5000	0.0473
5.0000	0.0399
5.5000	0.0345
6.0000	0.0302
6.5000	0.0267
7.0000	0.0239
7.5000	0.0216
8.0000	0.0196
9.0000	0.0165
10.0000	0.0143

epsilon = 0.1000 dpsi = 0.0200 first psi = 0.0100 last psi = 0.9700

A coefficients are:	0.2010	3.3090	-0.9750	3.2250	-1.3020
B coefficients are:	0.6570	4.9770	-1.1240	4.6500	-1.4520

Approximate y values, m is: 1.0000

T	Cw
0.1000	0.0000
0.2000	0.0000
0.3000	0.0021
0.4000	0.0134
0.5000	0.0378
0.6000	0.0726
0.7000	0.1115
0.8000	0.1489
0.9000	0.1814
1.0000	0.2072
1.1000	0.2262
1.2000	0.2386
1.3000	0.2472
1.4000	0.2529
1.5000	0.2546
1.6000	0.2521
1.7000	0.2463
1.8000	0.2373
2.0000	0.2132
2.5000	0.1458
3.0000	0.0998
3.5000	0.0738
4.0000	0.0584
4.5000	0.0478
5.0000	0.0403
5.5000	0.0347
6.0000	0.0303
6.5000	0.0267
7.0000	0.0239
7.5000	0.0216
8.0000	0.0196
9.0000	0.0165
10.0000	0.0143

epsilon = 0.0200 dpsi = 0.0200 first psi = 0.0100 last psi = 0.9700
beta = 1.0000
Exact a values
Exact b values
Exact y values

T	Cw
0.1000	0.0000
0.2000	0.0000
0.3000	0.0000
0.4000	0.0000
0.5000	0.0006
0.6000	0.0102
0.7000	0.0543
0.8000	0.1475
0.9000	0.2667
1.0000	0.3721
1.1000	0.4378
1.2000	0.4523
1.3000	0.4202
1.4000	0.3628
1.5000	0.3021
1.8000	0.1827
2.0000	0.1441
2.5000	0.0939
3.0000	0.0686
3.5000	0.0534
4.0000	0.0432
4.5000	0.0361
5.0000	0.0308
5.5000	0.0267
6.0000	0.0235
6.5000	0.0209
7.0000	0.0188
7.5000	0.0170
8.0000	0.0155
9.0000	0.0131
10.0000	0.0113

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 4 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934340585	12. 9	11:16:25	211	0.000	1389.698	0.000
7934341186	12. 9	11:26:26	212	0.000	1389.693	0.000
7934341788	12. 9	11:36:28	213	0.000	1389.681	0.000
7934342389	12. 9	11:46:29	214	0.000	1389.688	0.000
7934342991	12. 9	11:56:31	215	0.000	1389.760	0.000
7934343592	12. 9	12: 6:32	216	0.000	1389.782	0.000
7934344193	12. 9	12:16:33	217	0.000	1389.784	0.000
7934344795	12. 9	12:26:35	218	0.000	1389.738	0.000
7934345396	12. 9	12:36:36	219	0.000	1389.829	0.000
7934345998	12. 9	12:46:38	220	0.000	1389.839	0.000
7934346599	12. 9	12:56:39	221	0.000	1389.792	0.000
7934347201	12. 9	13: 6:41	222	0.000	1389.784	0.000
7934347802	12. 9	13:16:42	223	0.000	1389.843	0.000
7934348403	12. 9	13:26:43	224	0.000	1389.794	0.000
7934349005	12. 9	13:36:45	225	0.000	1389.770	0.000
7934349606	12. 9	13:46:46	226	0.000	1389.824	0.000
7934350208	12. 9	13:56:48	227	0.000	1389.839	0.000
7934350809	12. 9	14: 6:49	228	0.000	1389.787	0.000
7934351410	12. 9	14:16:50	229	0.000	1389.831	0.000
7934352012	12. 9	14:26:52	230	0.000	1389.849	0.000
7934352613	12. 9	14:36:53	231	0.000	1389.804	0.000
7934353215	12. 9	14:46:55	232	0.000	1389.784	0.000
7934353816	12. 9	14:56:56	233	0.000	1389.811	0.000
7934354417	12. 9	15: 6:57	234	0.000	1389.849	0.000
7934356748	12. 9	15:45:48	235	0.000	1389.775	0.000
7934358552	12. 9	16:15:52	236	0.000	1389.821	0.000
7934360356	12. 9	16:45:56	237	0.000	1389.728	0.000
7934362160	12. 9	17:16: 0	238	0.000	1389.678	0.000
7934363965	12. 9	17:46: 5	239	0.000	1389.676	0.000
7934365769	12. 9	18:16: 9	240	0.000	1389.713	0.000
7934367573	12. 9	18:46:13	241	0.000	1389.636	0.000
7934369377	12. 9	19:16:17	242	0.000	1389.651	0.000
7934371181	12. 9	19:46:21	243	0.000	1389.623	0.000
7934372986	12. 9	20:16:26	244	0.000	1389.641	0.000
7934374790	12. 9	20:46:30	245	0.000	1389.562	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934376594	12. 9	21:16:34	246	0.000	1389.552	0.000
7934378398	12. 9	21:46:38	247	0.000	1389.603	0.000
7934380202	12. 9	22:16:42	248	0.000	1389.542	0.000
7934382007	12. 9	22:46:47	249	0.000	1389.587	0.000
7934383811	12. 9	23:16:51	250	0.000	1389.641	0.000
7934385615	12. 9	23:46:55	251	0.000	1389.612	0.000
7934401019	12.10	0:16:59	252	0.000	1389.673	0.000
7934402823	12.10	0:47: 3	253	0.000	1389.611	0.000
7934404628	12.10	1:17: 8	254	0.000	1389.653	0.000
7934406432	12.10	1:47:12	255	0.000	1389.656	0.000
7934408236	12.10	2:17:16	256	0.000	1389.700	0.000
7934410040	12.10	2:47:20	257	0.000	1389.653	0.000
7934411844	12.10	3:17:24	258	0.000	1389.668	0.000
7934413649	12.10	3:47:29	259	0.000	1389.604	0.000
7934415453	12.10	4:17:33	260	0.000	1389.614	0.000
7934418460	12.10	5: 7:40	261	0.000	1389.591	0.000
7934420264	12.10	5:37:44	262	0.000	1389.616	0.000
7934422068	12.10	6: 7:48	263	0.000	1389.572	0.000
7934423872	12.10	6:37:52	264	0.000	1389.636	0.000
7934425677	12.10	7: 7:57	265	0.000	1389.572	0.000
7934427481	12.10	7:38: 1	266	0.000	1389.547	0.000
7934429285	12.10	8: 8: 5	267	0.000	1389.445	0.000
7934431089	12.10	8:38: 9	268	0.000	1389.493	0.000
7934432894	12.10	9: 8:14	269	0.000	1389.471	0.000
7934434698	12.10	9:38:18	270	0.000	1389.599	0.000
7934436502	12.10	10: 8:22	271	0.000	1389.309	0.000
7934438306	12.10	10:38:26	272	0.000	1388.951	0.000
7934440110	12.10	11: 8:30	273	0.000	1388.755	0.000
7934441915	12.10	11:38:35	274	0.000	1388.599	0.000
7934443719	12.10	12: 8:39	275	0.000	1380.475	0.000
7934445523	12.10	12:38:43	276	0.000	1376.506	0.000
7934447327	12.10	13: 8:47	277	0.000	1380.400	0.000
7934449131	12.10	13:38:51	278	0.000	1381.135	0.000
7934450935	12.10	14: 8:55	279	0.000	1381.552	0.000
7934452739	12.10	14:38:59	280	0.000	1381.839	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 5 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934455030	12.10	15:17:10	281	0.000	1382.089	0.000
7934456834	12.10	15:47:14	282	0.000	1382.886	0.000
7934458638	12.10	16:17:18	283	0.000	1384.544	0.000
7934460442	12.10	16:47:22	284	0.000	1385.549	0.000
7934462246	12.10	17:17:26	285	0.000	1383.613	0.000
7934464051	12.10	17:47:31	286	0.000	1385.495	0.000
7934465855	12.10	18:17:35	287	0.000	1385.944	0.000
7934467659	12.10	18:47:39	288	0.000	1386.326	0.000
7934469463	12.10	19:17:43	289	0.000	1386.715	0.000
7934471267	12.10	19:47:47	290	0.000	1387.037	0.000
7934473071	12.10	20:17:51	291	0.000	1387.308	0.000
7934474876	12.10	20:47:56	292	0.000	1387.626	0.000
7934476680	12.10	21:18: 0	293	0.000	1387.801	0.000
7934478484	12.10	21:48: 4	294	0.000	1387.980	0.000
7934480288	12.10	22:18: 8	295	0.000	1388.250	0.000
7934482092	12.10	22:48:12	296	0.000	1388.422	0.000
7934483897	12.10	23:18:17	297	0.000	1388.544	0.000
7934485701	12.10	23:48:21	298	0.000	1388.728	0.000
7934501105	12.11	0:18:25	299	0.000	1388.793	0.000
7934502909	12.11	0:48:29	300	0.000	1388.950	0.000
7934504713	12.11	1:18:33	301	0.000	1389.096	0.000
7934506518	12.11	1:48:38	302	0.000	1389.191	0.000
7934508322	12.11	2:18:42	303	0.000	1389.257	0.000
7934510126	12.11	2:48:46	304	0.000	1389.408	0.000
7934511930	12.11	3:18:50	305	0.000	1389.525	0.000
7934513734	12.11	3:48:54	306	0.000	1389.639	0.000
7934515539	12.11	4:18:59	307	0.000	1389.703	0.000
7934517343	12.11	4:49: 3	308	0.000	1389.756	0.000
7934519147	12.11	5:19: 7	309	0.000	1389.767	0.000
7934520951	12.11	5:49:11	310	0.000	1389.892	0.000
7934522755	12.11	6:19:15	311	0.000	1389.922	0.000
7934524560	12.11	6:49:20	312	0.000	1391.098	0.000
7934526364	12.11	7:19:24	313	0.000	1389.690	0.000
7934529722	12.11	8:15:22	314	0.000	1386.834	0.000
7934532027	12.11	8:53:47	315	0.000	1387.258	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934532153	12.11	8:55:53	316	0.000	1387.304	0.000
7934532278	12.11	8:57:58	317	0.000	1387.330	0.000
7934532403	12.11	9: 0: 3	318	0.000	1387.365	0.000
7934532528	12.11	9: 2: 8	319	0.000	1387.353	0.000
7934532654	12.11	9: 4:14	320	0.000	1387.404	0.000
7934532779	12.11	9: 6:19	321	0.000	1387.418	0.000
7934532904	12.11	9: 8:24	322	0.000	1387.411	0.000
7934533030	12.11	9:10:30	323	0.000	1387.453	0.000
7934533155	12.11	9:12:35	324	0.000	1387.491	0.000
7934534696	12.11	9:38:16	325	0.000	1387.670	0.000
7934535599	12.11	9:53:19	326	0.000	1387.818	0.000
7934536501	12.11	10: 8:21	327	0.000	1387.892	0.000
7934537403	12.11	10:23:23	328	0.000	1387.995	0.000
7934538305	12.11	10:38:25	329	0.000	1388.076	0.000
7934539207	12.11	10:53:27	330	0.000	1388.222	0.000
7934540109	12.11	11: 8:29	331	0.000	1388.331	0.000
7934541011	12.11	11:23:31	332	0.000	1388.398	0.000
7934541913	12.11	11:38:33	333	0.000	1388.490	0.000
7934542815	12.11	11:53:35	334	0.000	1388.575	0.000
7934543717	12.11	12: 8:37	335	0.000	1388.671	0.000
7934544620	12.11	12:23:40	336	0.000	1388.724	0.000
7934545522	12.11	12:38:42	337	0.000	1388.754	0.000
7934546424	12.11	12:53:44	338	0.000	1388.813	0.000
7934547326	12.11	13: 8:46	339	0.000	1388.817	0.000
7934548228	12.11	13:23:48	340	0.000	1388.899	0.000
7934549857	12.11	13:50:57	341	0.000	1388.971	0.000
7934550759	12.11	14: 5:59	342	0.000	1389.028	0.000
7934551661	12.11	14:21: 1	343	0.000	1389.060	0.000
7934552563	12.11	14:36: 3	344	0.000	1389.099	0.000
7934553390	12.11	14:49:50	345	0.000	1389.058	0.000
7934553415	12.11	14:50:15	346	0.000	1389.070	0.000
7934553440	12.11	14:50:40	347	0.000	1389.141	0.000
7934553465	12.11	14:51: 5	348	0.000	1389.142	0.000
7934553490	12.11	14:51:30	349	0.000	1389.100	0.000
7934553515	12.11	14:51:55	350	0.000	1389.134	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 6 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934553540	12.11	14:52:20	351	0.000	1389.176	0.000
7934553565	12.11	14:52:45	352	0.000	1389.161	0.000
7934553590	12.11	14:53:10	353	0.000	1388.912	0.000
7934553615	12.11	14:53:35	354	0.000	1388.059	0.000
7934553641	12.11	14:54: 1	355	0.000	1387.344	0.000
7934553666	12.11	14:54:26	356	0.000	1386.846	0.000
7934553691	12.11	14:54:51	357	0.000	1386.317	0.000
7934553716	12.11	14:55:16	358	0.000	1385.888	0.000
7934553741	12.11	14:55:41	359	0.000	1385.433	0.000
7934553766	12.11	14:56: 6	360	0.000	1385.068	0.000
7934553791	12.11	14:56:31	361	0.000	1384.737	0.000
7934553816	12.11	14:56:56	362	0.000	1384.422	0.000
7934553841	12.11	14:57:21	363	0.000	1384.103	0.000
7934553866	12.11	14:57:46	364	0.000	1383.852	0.000
7934553891	12.11	14:58:11	365	0.000	1383.572	0.000
7934553916	12.11	14:58:36	366	0.000	1383.296	0.000
7934553941	12.11	14:59: 1	367	0.000	1383.112	0.000
7934553966	12.11	14:59:26	368	0.000	1382.832	0.000
7934553991	12.11	14:59:51	369	0.000	1382.647	0.000
7934554016	12.11	15: 0:16	370	0.000	1382.477	0.000
7934554041	12.11	15: 0:41	371	0.000	1382.327	0.000
7934554067	12.11	15: 1: 7	372	0.000	1382.157	0.000
7934554092	12.11	15: 1:32	373	0.000	1381.986	0.000
7934554117	12.11	15: 1:57	374	0.000	1381.759	0.000
7934554142	12.11	15: 2:22	375	0.000	1381.622	0.000
7934554167	12.11	15: 2:47	376	0.000	1381.422	0.000
7934554192	12.11	15: 3:12	377	0.000	1381.257	0.000
7934554217	12.11	15: 3:37	378	0.000	1381.094	0.000
7934554242	12.11	15: 4: 2	379	0.000	1380.961	0.000
7934554267	12.11	15: 4:27	380	0.000	1380.821	0.000
7934554292	12.11	15: 4:52	381	0.000	1380.724	0.000
7934554317	12.11	15: 5:17	382	0.000	1380.565	0.000
7934554342	12.11	15: 5:42	383	0.000	1380.458	0.000
7934554367	12.11	15: 6: 7	384	0.000	1380.349	0.000
7934554392	12.11	15: 6:32	385	0.000	1380.237	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934554417	12.11	15: 6:57	386	0.000	1380.160	0.000
7934554442	12.11	15: 7:22	387	0.000	1380.047	0.000
7934554467	12.11	15: 7:47	388	0.000	1379.913	0.000
7934554493	12.11	15: 8:13	389	0.000	1379.851	0.000
7934554518	12.11	15: 8:38	390	0.000	1379.747	0.000
7934554543	12.11	15: 9: 3	391	0.000	1379.646	0.000
7934554568	12.11	15: 9:28	392	0.000	1379.544	0.000
7934554593	12.11	15: 9:53	393	0.000	1379.411	0.000
7934554618	12.11	15:10:18	394	0.000	1379.327	0.000
7934554643	12.11	15:10:43	395	0.000	1379.238	0.000
7934554693	12.11	15:11:33	396	0.000	1379.073	0.000
7934554718	12.11	15:11:58	397	0.000	1378.991	0.000
7934554743	12.11	15:12:23	398	0.000	1378.931	0.000
7934554768	12.11	15:12:48	399	0.000	1378.810	0.000
7934554793	12.11	15:13:13	400	0.000	1378.842	0.000
7934554818	12.11	15:13:38	401	0.000	1378.834	0.000
7934554843	12.11	15:14: 3	402	0.000	1378.744	0.000
7934554868	12.11	15:14:28	403	0.000	1378.753	0.000
7934554893	12.11	15:14:53	404	0.000	1378.760	0.000
7934554918	12.11	15:15:18	405	0.000	1378.678	0.000
7934554943	12.11	15:15:43	406	0.000	1378.565	0.000
7934554969	12.11	15:16: 9	407	0.000	1378.569	0.000
7934554994	12.11	15:16:34	408	0.000	1379.093	0.000
7934555019	12.11	15:16:59	409	0.000	1379.485	0.000
7934555044	12.11	15:17:24	410	0.000	1379.969	0.000
7934555069	12.11	15:17:49	411	0.000	1380.400	0.000
7934555094	12.11	15:18:14	412	0.000	1380.625	0.000
7934555119	12.11	15:18:39	413	0.000	1380.909	0.000
7934555144	12.11	15:19: 4	414	0.000	1381.175	0.000
7934555169	12.11	15:19:29	415	0.000	1381.417	0.000
7934555194	12.11	15:19:54	416	0.000	1381.479	0.000
7934555219	12.11	15:20:19	417	0.000	1381.516	0.000
7934555244	12.11	15:20:44	418	0.000	1381.477	0.000
7934555269	12.11	15:21: 9	419	0.000	1381.464	0.000
7934555294	12.11	15:21:34	420	0.000	1381.479	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01. (Sheet 7 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934555319	12.11	15:21:59	421	0.000	1381.439	0.000
7934555344	12.11	15:22:24	422	0.000	1381.444	0.000
7934555369	12.11	15:22:49	423	0.000	1381.455	0.000
7934555395	12.11	15:23:15	424	0.000	1381.454	0.000
7934555420	12.11	15:23:40	425	0.000	1381.454	0.000
7934555445	12.11	15:24: 5	426	0.000	1381.448	0.000
7934555470	12.11	15:24:30	427	0.000	1381.375	0.000
7934555495	12.11	15:24:55	428	0.000	1381.358	0.000
7934555520	12.11	15:25:20	429	0.000	1381.361	0.000
7934555545	12.11	15:25:45	430	0.000	1381.377	0.000
7934555570	12.11	15:26:10	431	0.000	1381.412	0.000
7934555595	12.11	15:26:35	432	0.000	1381.354	0.000
7934555620	12.11	15:27: 0	433	0.000	1381.317	0.000
7934555645	12.11	15:27:25	434	0.000	1381.294	0.000
7934555670	12.11	15:27:50	435	0.000	1381.279	0.000
7934555695	12.11	15:28:15	436	0.000	1381.302	0.000
7934555720	12.11	15:28:40	437	0.000	1381.338	0.000
7934555745	12.11	15:29: 5	438	0.000	1381.310	0.000
7934555770	12.11	15:29:30	439	0.000	1381.296	0.000
7934555795	12.11	15:29:55	440	0.000	1381.254	0.000
7934555820	12.11	15:30:20	441	0.000	1381.271	0.000
7934555846	12.11	15:30:46	442	0.000	1381.294	0.000
7934556246	12.11	15:37:26	443	0.000	1380.946	0.000
7934556547	12.11	15:42:27	444	0.000	1380.742	0.000
7934556848	12.11	15:47:28	445	0.000	1380.517	0.000
7934557875	12.11	16: 4:35	446	0.000	1379.668	0.000
7934558477	12.11	16:14:37	447	0.000	1382.459	0.000
7934559078	12.11	16:24:38	448	0.000	1382.434	0.000
7934559679	12.11	16:34:39	449	0.000	1384.175	0.000
7934560281	12.11	16:44:41	450	0.000	1383.570	0.000
7934560882	12.11	16:54:42	451	0.000	1384.054	0.000
7934561483	12.11	17: 4:43	452	0.000	1384.318	0.000
7934562085	12.11	17:14:45	453	0.000	1384.640	0.000
7934562686	12.11	17:24:46	454	0.000	1384.974	0.000
7934563288	12.11	17:34:48	455	0.000	1385.222	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934563889	12.11	17:44:49	456	0.000	1385.477	0.000
7934564490	12.11	17:54:50	457	0.000	1385.764	0.000
7934565092	12.11	18: 4:52	458	0.000	1385.974	0.000
7934565693	12.11	18:14:53	459	0.000	1386.135	0.000
7934566295	12.11	18:24:55	460	0.000	1386.399	0.000
7934566896	12.11	18:34:56	461	0.000	1386.567	0.000
7934567497	12.11	18:44:57	462	0.000	1386.760	0.000
7934568099	12.11	18:54:59	463	0.000	1386.942	0.000
7934568700	12.11	19: 5: 0	464	0.000	1387.123	0.000
7934569302	12.11	19:15: 2	465	0.000	1387.322	0.000
7934569903	12.11	19:25: 3	466	0.000	1387.499	0.000
7934570504	12.11	19:35: 4	467	0.000	1387.696	0.000
7934571106	12.11	19:45: 6	468	0.000	1387.847	0.000
7934571707	12.11	19:55: 7	469	0.000	1388.019	0.000
7934572309	12.11	20: 5: 9	470	0.000	1388.215	0.000
7934572910	12.11	20:15:10	471	0.000	1388.388	0.000
7934573511	12.11	20:25:11	472	0.000	1388.429	0.000
7934574113	12.11	20:35:13	473	0.000	1388.610	0.000
7934574714	12.11	20:45:14	474	0.000	1388.845	0.000
7934575315	12.11	20:55:15	475	0.000	1388.914	0.000
7934575917	12.11	21: 5:17	476	0.000	1389.032	0.000
7934576518	12.11	21:15:18	477	0.000	1389.235	0.000
7934577120	12.11	21:25:20	478	0.000	1389.298	0.000
7934577721	12.11	21:35:21	479	0.000	1389.461	0.000
7934578322	12.11	21:45:22	480	0.000	1389.542	0.000
7934578924	12.11	21:55:24	481	0.000	1389.643	0.000
7934579525	12.11	22: 5:25	482	0.000	1389.662	0.000
7934580127	12.11	22:15:27	483	0.000	1389.814	0.000
7934580728	12.11	22:25:28	484	0.000	1389.945	0.000
7934581329	12.11	22:35:29	485	0.000	1389.988	0.000
7934581931	12.11	22:45:31	486	0.000	1390.123	0.000
7934582532	12.11	22:55:32	487	0.000	1390.101	0.000
7934583134	12.11	23: 5:34	488	0.000	1390.188	0.000
7934583735	12.11	23:15:35	489	0.000	1390.945	0.000
7934584336	12.11	23:25:36	490	0.000	1391.891	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 8 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934584938	12.11	23:35:38	491	0.000	1392.655	0.000
7934585539	12.11	23:45:39	492	0.000	1393.359	0.000
7934586141	12.11	23:55:41	493	0.000	1393.995	0.000
7934600342	12.12	0: 5:42	494	0.000	1394.577	0.000
7934600944	12.12	0:15:44	495	0.000	1395.162	0.000
7934601545	12.12	0:25:45	496	0.000	1395.726	0.000
7934602146	12.12	0:35:46	497	0.000	1396.320	0.000
7934602748	12.12	0:45:48	498	0.000	1396.819	0.000
7934603349	12.12	0:55:49	499	0.000	1397.309	0.000
7934603951	12.12	1: 5:51	500	0.000	1397.792	0.000
7934604552	12.12	1:15:52	501	0.000	1398.274	0.000
7934605154	12.12	1:25:54	502	0.000	1398.888	0.000
7934605755	12.12	1:35:55	503	0.000	1399.298	0.000
7934606356	12.12	1:45:56	504	0.000	1399.783	0.000
7934606958	12.12	1:55:58	505	0.000	1400.220	0.000
7934607559	12.12	2: 5:59	506	0.000	1400.630	0.000
7934608161	12.12	2:16: 1	507	0.000	1401.051	0.000
7934608762	12.12	2:26: 2	508	0.000	1401.419	0.000
7934609364	12.12	2:36: 4	509	0.000	1401.834	0.000
7934609965	12.12	2:46: 5	510	0.000	1402.248	0.000
7934610566	12.12	2:56: 6	511	0.000	1402.627	0.000
7934611168	12.12	3: 6: 8	512	0.000	1403.044	0.000
7934611769	12.12	3:16: 9	513	0.000	1403.371	0.000
7934612371	12.12	3:26:11	514	0.000	1403.677	0.000
7934612972	12.12	3:36:12	515	0.000	1404.060	0.000
7934613574	12.12	3:46:14	516	0.000	1404.456	0.000
7934614175	12.12	3:56:15	517	0.000	1404.722	0.000
7934614777	12.12	4: 6:17	518	0.000	1405.041	0.000
7934615378	12.12	4:16:18	519	0.000	1405.288	0.000
7934615979	12.12	4:26:19	520	0.000	1405.627	0.000
7934616581	12.12	4:36:21	521	0.000	1405.916	0.000
7934617182	12.12	4:46:22	522	0.000	1406.235	0.000
7934617784	12.12	4:56:24	523	0.000	1406.539	0.000
7934618385	12.12	5: 6:25	524	0.000	1406.766	0.000
7934618987	12.12	5:16:27	525	0.000	1407.049	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934619588	12.12	5:26:28	526	0.000	1407.334	0.000
7934620190	12.12	5:36:30	527	0.000	1407.631	0.000
7934620791	12.12	5:46:31	528	0.000	1407.953	0.000
7934621393	12.12	5:56:33	529	0.000	1408.147	0.000
7934621994	12.12	6: 6:34	530	0.000	1408.426	0.000
7934622595	12.12	6:16:35	531	0.000	1408.623	0.000
7934623197	12.12	6:26:37	532	0.000	1408.909	0.000
7934623798	12.12	6:36:38	533	0.000	1409.089	0.000
7934624400	12.12	6:46:40	534	0.000	1409.323	0.000
7934625001	12.12	6:56:41	535	0.000	1409.645	0.000
7934625603	12.12	7: 6:43	536	0.000	1409.765	0.000
7934626204	12.12	7:16:44	537	0.000	1410.008	0.000
7934627182	12.12	7:33: 2	538	0.000	1410.352	0.000
7934627784	12.12	7:43: 4	539	0.000	1410.611	0.000
7934628385	12.12	7:53: 5	540	0.000	1410.803	0.000
7934628986	12.12	8: 3: 6	541	0.000	1411.085	0.000
7934629588	12.12	8:13: 8	542	0.000	1411.204	0.000
7934630189	12.12	8:23: 9	543	0.000	1411.423	0.000
7934630791	12.12	8:33:11	544	0.000	1411.563	0.000
7934631392	12.12	8:43:12	545	0.000	1411.677	0.000
7934631994	12.12	8:53:14	546	0.000	1411.935	0.000
7934632595	12.12	9: 3:15	547	0.000	1412.170	0.000
7934633197	12.12	9:13:17	548	0.000	1412.345	0.000
7934633798	12.12	9:23:18	549	0.000	1412.498	0.000
7934634400	12.12	9:33:20	550	0.000	1412.677	0.000
7934635001	12.12	9:43:21	551	0.000	1412.725	0.000
7934635603	12.12	9:53:23	552	0.000	1412.992	0.000
7934636204	12.12	10: 3:24	553	0.000	1413.152	0.000
7934636806	12.12	10:13:26	554	0.000	1413.275	0.000
7934637407	12.12	10:23:27	555	0.000	1413.397	0.000
7934638009	12.12	10:33:29	556	0.000	1413.555	0.000
7934638610	12.12	10:43:30	557	0.000	1413.619	0.000
7934640715	12.12	11:18:35	558	0.000	1414.133	0.000
7934642520	12.12	11:48:40	559	0.000	1414.505	0.000
7934644324	12.12	12:18:44	560	0.000	1414.826	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01. (Sheet 9 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934646129	12.12	12:48:49	561	0.000	1415.146	0.000
7934647933	12.12	13:18:53	562	0.000	1415.488	0.000
7934649737	12.12	13:48:57	563	0.000	1415.602	0.000
7934651542	12.12	14:19: 2	564	0.000	1415.907	0.000
7934653346	12.12	14:49: 6	565	0.000	1416.160	0.000
7934655151	12.12	15:19:11	566	0.000	1416.494	0.000
7934656955	12.12	15:49:15	567	0.000	1416.650	0.000
7934658760	12.12	16:19:20	568	0.000	1416.805	0.000
7934660564	12.12	16:49:24	569	0.000	1417.054	0.000
7934662369	12.12	17:19:29	570	0.000	1417.177	0.000
7934664173	12.12	17:49:33	571	0.000	1417.296	0.000
7934665977	12.12	18:19:37	572	0.000	1417.634	0.000
7934667782	12.12	18:49:42	573	0.000	1417.671	0.000
7934669586	12.12	19:19:46	574	0.000	1417.896	0.000
7934671391	12.12	19:49:51	575	0.000	1418.041	0.000
7934673195	12.12	20:19:55	576	0.000	1418.162	0.000
7934675000	12.12	20:50: 0	577	0.000	1418.298	0.000
7934676804	12.12	21:20: 4	578	0.000	1418.360	0.000
7934678609	12.12	21:50: 9	579	0.000	1418.481	0.000
7934680413	12.12	22:20:13	580	0.000	1418.600	0.000
7934682218	12.12	22:50:18	581	0.000	1418.648	0.000
7934684022	12.12	23:20:22	582	0.000	1418.805	0.000
7934685827	12.12	23:50:27	583	0.000	1418.860	0.000
7934701231	12.13	0:20:31	584	0.000	1418.926	0.000
7934703036	12.13	0:50:36	585	0.000	1419.035	0.000
7934704840	12.13	1:20:40	586	0.000	1419.090	0.000
7934706644	12.13	1:50:44	587	0.000	1419.152	0.000
7934708449	12.13	2:20:49	588	0.000	1419.183	0.000
7934710253	12.13	2:50:53	589	0.000	1419.272	0.000
7934712058	12.13	3:20:58	590	0.000	1419.327	0.000
7934713862	12.13	3:51: 2	591	0.000	1419.380	0.000
7934715667	12.13	4:21: 7	592	0.000	1419.475	0.000
7934717471	12.13	4:51:11	593	0.000	1419.468	0.000
7934719276	12.13	5:21:16	594	0.000	1419.566	0.000
7934721080	12.13	5:51:20	595	0.000	1419.649	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934722885	12.13	6:21:25	596	0.000	1419.693	0.000
7934724689	12.13	6:51:29	597	0.000	1419.734	0.000
7934726494	12.13	7:21:34	598	0.000	1419.807	0.000
7934728298	12.13	7:51:38	599	0.000	1419.855	0.000
7934730103	12.13	8:21:43	600	0.000	1419.873	0.000
7934731907	12.13	8:51:47	601	0.000	1419.881	0.000
7934733712	12.13	9:21:52	602	0.000	1419.947	0.000
7934738849	12.13	10:47:29	603	0.000	1420.106	0.000
7934738925	12.13	10:48:45	604	0.000	1419.987	0.000
7934739000	12.13	10:50: 0	605	0.000	1419.985	0.000
7934741454	12.13	11:30:54	606	0.000	1420.171	0.000
7934742358	12.13	11:45:58	607	0.000	1420.242	0.000
7934743260	12.13	12: 1: 0	608	0.000	1420.147	0.000
7934744163	12.13	12:16: 3	609	0.000	1420.127	0.000
7934745065	12.13	12:31: 5	610	0.000	1420.193	0.000
7934745967	12.13	12:46: 7	611	0.000	1420.226	0.000
7934746869	12.13	13: 1: 9	612	0.000	1420.171	0.000
7934747771	12.13	13:16:11	613	0.000	1420.236	0.000
7934748674	12.13	13:31:14	614	0.000	1420.256	0.000
7934749574	12.13	13:46:16	615	0.000	1420.214	0.000
7934750278	12.13	13:57:58	616	0.000	1420.322	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 1 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934243740	12. 8	12: 9: 0	1	0.000	1424.024	0.000
7934243765	12. 8	12: 9:25	2	0.000	1424.051	0.000
7934243790	12. 8	12: 9:50	3	0.000	1424.019	0.000
7934243815	12. 8	12:10:15	4	0.000	1423.536	0.000
7934243839	12. 8	12:10:39	5	0.000	1422.458	0.000
7934243864	12. 8	12:11: 4	6	0.000	1421.561	0.000
7934243889	12. 8	12:11:29	7	0.000	1420.887	0.000
7934243914	12. 8	12:11:54	8	0.000	1420.346	0.000
7934243939	12. 8	12:12:19	9	0.000	1419.817	0.000
7934243964	12. 8	12:12:44	10	0.000	1419.417	0.000
7934243989	12. 8	12:13: 9	11	0.000	1419.010	0.000
7934244014	12. 8	12:13:34	12	0.000	1418.755	0.000
7934244039	12. 8	12:13:59	13	0.000	1418.504	0.000
7934244064	12. 8	12:14:24	14	0.000	1418.270	0.000
7934244089	12. 8	12:14:49	15	0.000	1417.952	0.000
7934244113	12. 8	12:15:13	16	0.000	1417.826	0.000
7934244138	12. 8	12:15:38	17	0.000	1417.531	0.000
7934244163	12. 8	12:16: 3	18	0.000	1417.380	0.000
7934244188	12. 8	12:16:28	19	0.000	1417.131	0.000
7934244213	12. 8	12:16:53	20	0.000	1416.960	0.000
7934244238	12. 8	12:17:18	21	0.000	1416.762	0.000
7934244263	12. 8	12:17:43	22	0.000	1416.612	0.000
7934244288	12. 8	12:18: 8	23	0.000	1416.439	0.000
7934244313	12. 8	12:18:33	24	0.000	1416.240	0.000
7934244338	12. 8	12:18:58	25	0.000	1416.022	0.000
7934244363	12. 8	12:19:23	26	0.000	1415.970	0.000
7934244387	12. 8	12:19:47	27	0.000	1415.705	0.000
7934244412	12. 8	12:20:12	28	0.000	1415.636	0.000
7934244437	12. 8	12:20:37	29	0.000	1415.383	0.000
7934244462	12. 8	12:21: 2	30	0.000	1415.232	0.000
7934244487	12. 8	12:21:27	31	0.000	1415.202	0.000
7934244512	12. 8	12:21:52	32	0.000	1415.059	0.000
7934244562	12. 8	12:22:42	33	0.000	1414.757	0.000
7934244587	12. 8	12:23: 7	34	0.000	1414.708	0.000
7934244612	12. 8	12:23:32	35	0.000	1414.611	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934244637	12. 8	12:23:57	36	0.000	1414.482	0.000
7934244661	12. 8	12:24:21	37	0.000	1414.262	0.000
7934244686	12. 8	12:24:46	38	0.000	1414.226	0.000
7934244711	12. 8	12:25:11	39	0.000	1414.005	0.000
7934244736	12. 8	12:25:36	40	0.000	1413.911	0.000
7934244761	12. 8	12:26: 1	41	0.000	1413.873	0.000
7934244786	12. 8	12:26:26	42	0.000	1413.704	0.000
7934244811	12. 8	12:26:51	43	0.000	1413.689	0.000
7934244836	12. 8	12:27:16	44	0.000	1413.562	0.000
7934244861	12. 8	12:27:41	45	0.000	1413.366	0.000
7934244886	12. 8	12:28: 6	46	0.000	1413.364	0.000
7934244911	12. 8	12:28:31	47	0.000	1413.248	0.000
7934244935	12. 8	12:28:55	48	0.000	1413.114	0.000
7934244960	12. 8	12:29:20	49	0.000	1412.980	0.000
7934244985	12. 8	12:29:45	50	0.000	1412.950	0.000
7934245010	12. 8	12:30:10	51	0.000	1412.820	0.000
7934245035	12. 8	12:30:35	52	0.000	1412.836	0.000
7934245060	12. 8	12:31: 0	53	0.000	1412.644	0.000
7934245085	12. 8	12:31:25	54	0.000	1412.494	0.000
7934245110	12. 8	12:31:50	55	0.000	1412.462	0.000
7934245135	12. 8	12:32:15	56	0.000	1412.412	0.000
7934245160	12. 8	12:32:40	57	0.000	1412.341	0.000
7934245185	12. 8	12:33: 5	58	0.000	1412.241	0.000
7934245210	12. 8	12:33:30	59	0.000	1412.123	0.000
7934245234	12. 8	12:33:54	60	0.000	1412.098	0.000
7934245259	12. 8	12:34:19	61	0.000	1412.032	0.000
7934245284	12. 8	12:34:44	62	0.000	1411.875	0.000
7934245309	12. 8	12:35: 9	63	0.000	1411.963	0.000
7934245334	12. 8	12:35:34	64	0.000	1411.828	0.000
7934245359	12. 8	12:35:59	65	0.000	1411.745	0.000
7934245384	12. 8	12:36:24	66	0.000	1411.655	0.000
7934245409	12. 8	12:36:49	67	0.000	1411.525	0.000
7934245434	12. 8	12:37:14	68	0.000	1411.535	0.000
7934245459	12. 8	12:37:39	69	0.000	1411.415	0.000
7934245483	12. 8	12:38: 3	70	0.000	1411.272	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 2 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934245508	12. 8	12:38:28	71	0.000	1411.193	0.000
7934245533	12. 8	12:38:53	72	0.000	1411.090	0.000
7934245807	12. 8	12:43:27	73	0.000	1410.363	0.000
7934246007	12. 8	12:46:47	74	0.000	1409.763	0.000
7934246206	12. 8	12:50: 6	75	0.000	1409.163	0.000
7934246405	12. 8	12:53:25	76	0.000	1408.597	0.000
7934246604	12. 8	12:56:44	77	0.000	1408.011	0.000
7934246804	12. 8	13: 0: 4	78	0.000	1407.457	0.000
7934247003	12. 8	13: 3:23	79	0.000	1406.964	0.000
7934247202	12. 8	13: 6:42	80	0.000	1406.666	0.000
7934247401	12. 8	13:10: 1	81	0.000	1407.815	0.000
7934247601	12. 8	13:13:21	82	0.000	1407.947	0.000
7934247800	12. 8	13:16:40	83	0.000	1408.030	0.000
7934248647	12. 8	13:30:47	84	0.000	1407.291	0.000
7934249270	12. 8	13:41:10	85	0.000	1406.583	0.000
7934249892	12. 8	13:51:32	86	0.000	1405.873	0.000
7934250515	12. 8	14: 1:55	87	0.000	1405.273	0.000
7934251138	12. 8	14:12:18	88	0.000	1404.457	0.000
7934251760	12. 8	14:22:40	89	0.000	1403.930	0.000
7934252860	12. 8	14:41: 0	90	0.000	1402.728	0.000
7934253482	12. 8	14:51:22	91	0.000	1402.125	0.000
7934254105	12. 8	15: 1:45	92	0.000	1401.449	0.000
7934254728	12. 8	15:12: 8	93	0.000	1401.006	0.000
7934255350	12. 8	15:22:30	94	0.000	1400.408	0.000
7934255973	12. 8	15:32:53	95	0.000	1399.848	0.000
7934256596	12. 8	15:43:16	96	0.000	1399.452	0.000
7934257218	12. 8	15:53:38	97	0.000	1398.832	0.000
7934257841	12. 8	16: 4: 1	98	0.000	1398.322	0.000
7934258464	12. 8	16:14:24	99	0.000	1397.958	0.000
7934259086	12. 8	16:24:46	100	0.000	1397.479	0.000
7934259709	12. 8	16:35: 9	101	0.000	1396.968	0.000
7934260332	12. 8	16:45:32	102	0.000	1396.589	0.000
7934260954	12. 8	16:55:54	103	0.000	1396.112	0.000
7934261577	12. 8	17: 6:17	104	0.000	1395.803	0.000
7934262200	12. 8	17:16:40	105	0.000	1395.331	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934262822	12. 8	17:27: 2	106	0.000	1395.067	0.000
7934263445	12. 8	17:37:25	107	0.000	1394.587	0.000
7934264068	12. 8	17:47:48	108	0.000	1394.283	0.000
7934264690	12. 8	17:58:10	109	0.000	1393.945	0.000
7934265313	12. 8	18: 8:33	110	0.000	1393.589	0.000
7934265936	12. 8	18:18:56	111	0.000	1393.293	0.000
7934266558	12. 8	18:29:18	112	0.000	1392.967	0.000
7934267181	12. 8	18:39:41	113	0.000	1392.617	0.000
7934267804	12. 8	18:50: 4	114	0.000	1392.335	0.000
7934268426	12. 8	19: 0:26	115	0.000	1392.059	0.000
7934269049	12. 8	19:10:49	116	0.000	1391.710	0.000
7934269672	12. 8	19:21:12	117	0.000	1391.373	0.000
7934270294	12. 8	19:31:34	118	0.000	1391.233	0.000
7934270917	12. 8	19:41:57	119	0.000	1390.987	0.000
7934271540	12. 8	19:52:20	120	0.000	1390.688	0.000
7934272162	12. 8	20: 2:42	121	0.000	1390.518	0.000
7934272785	12. 8	20:13: 5	122	0.000	1390.354	0.000
7934273408	12. 8	20:23:28	123	0.000	1390.031	0.000
7934274030	12. 8	20:33:50	124	0.000	1390.008	0.000
7934274653	12. 8	20:44:13	125	0.000	1389.694	0.000
7934275276	12. 8	20:54:36	126	0.000	1389.485	0.000
7934275898	12. 8	21: 4:58	127	0.000	1389.275	0.000
7934276521	12. 8	21:15:21	128	0.000	1389.164	0.000
7934277144	12. 8	21:25:44	129	0.000	1388.920	0.000
7934277766	12. 8	21:36: 6	130	0.000	1388.659	0.000
7934278389	12. 8	21:46:29	131	0.000	1388.503	0.000
7934279012	12. 8	21:56:52	132	0.000	1388.396	0.000
7934279884	12. 8	22:11:24	133	0.000	1388.244	0.000
7934280506	12. 8	22:21:46	134	0.000	1388.003	0.000
7934281129	12. 8	22:32: 9	135	0.000	1387.798	0.000
7934281752	12. 8	22:42:32	136	0.000	1387.647	0.000
7934282374	12. 8	22:52:54	137	0.000	1387.497	0.000
7934282997	12. 8	23: 3:17	138	0.000	1387.338	0.000
7934283620	12. 8	23:13:40	139	0.000	1387.308	0.000
7934284242	12. 8	23:24: 2	140	0.000	1387.085	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 3 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934284865	12. 8	23:34:25	141	0.000	1386.886	0.000
7934285487	12. 8	23:44:47	142	0.000	1386.779	0.000
7934286110	12. 8	23:55:10	143	0.000	1386.609	0.000
7934300333	12. 9	0: 5:33	144	0.000	1386.541	0.000
7934300955	12. 9	0:15:55	145	0.000	1386.391	0.000
7934301578	12. 9	0:26:18	146	0.000	1386.197	0.000
7934302201	12. 9	0:36:41	147	0.000	1386.129	0.000
7934302823	12. 9	0:47: 3	148	0.000	1386.072	0.000
7934303446	12. 9	0:57:26	149	0.000	1385.847	0.000
7934304069	12. 9	1: 7:49	150	0.000	1385.709	0.000
7934304691	12. 9	1:18:11	151	0.000	1385.718	0.000
7934305314	12. 9	1:28:34	152	0.000	1385.466	0.000
7934305936	12. 9	1:38:56	153	0.000	1385.459	0.000
7934306559	12. 9	1:49:19	154	0.000	1385.378	0.000
7934307182	12. 9	1:59:42	155	0.000	1385.220	0.000
7934307804	12. 9	2:10: 4	156	0.000	1385.105	0.000
7934308427	12. 9	2:20:27	157	0.000	1385.053	0.000
7934309050	12. 9	2:30:50	158	0.000	1384.906	0.000
7934309672	12. 9	2:41:12	159	0.000	1384.764	0.000
7934310295	12. 9	2:51:35	160	0.000	1384.784	0.000
7934310918	12. 9	3: 1:58	161	0.000	1384.710	0.000
7934311540	12. 9	3:12:20	162	0.000	1384.554	0.000
7934312163	12. 9	3:22:43	163	0.000	1384.477	0.000
7934312785	12. 9	3:33: 5	164	0.000	1384.418	0.000
7934313408	12. 9	3:43:28	165	0.000	1385.395	0.000
7934314031	12. 9	3:53:51	166	0.000	1385.957	0.000
7934314653	12. 9	4: 4:13	167	0.000	1386.075	0.000
7934315276	12. 9	4:14:36	168	0.000	1386.418	0.000
7934315899	12. 9	4:24:59	169	0.000	1386.618	0.000
7934316521	12. 9	4:35:21	170	0.000	1386.809	0.000
7934317144	12. 9	4:45:44	171	0.000	1386.998	0.000
7934317767	12. 9	4:56: 7	172	0.000	1387.174	0.000
7934318389	12. 9	5: 6:29	173	0.000	1387.337	0.000
7934319012	12. 9	5:16:52	174	0.000	1387.530	0.000
7934319635	12. 9	5:27:15	175	0.000	1387.733	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934320257	12. 9	5:37:37	176	0.000	1387.929	0.000
7934320880	12. 9	5:48: 0	177	0.000	1388.105	0.000
7934321502	12. 9	5:58:22	178	0.000	1388.167	0.000
7934322125	12. 9	6: 8:45	179	0.000	1388.392	0.000
7934322748	12. 9	6:19: 8	180	0.000	1388.542	0.000
7934323370	12. 9	6:29:30	181	0.000	1388.560	0.000
7934323993	12. 9	6:39:53	182	0.000	1388.707	0.000
7934324616	12. 9	6:50:16	183	0.000	1388.897	0.000
7934325238	12. 9	7: 0:38	184	0.000	1388.962	0.000
7934325861	12. 9	7:11: 1	185	0.000	1389.126	0.000
7934326484	12. 9	7:21:24	186	0.000	1389.198	0.000
7934327106	12. 9	7:31:46	187	0.000	1389.336	0.000
7934327729	12. 9	7:42: 9	188	0.000	1389.354	0.000
7934328352	12. 9	7:52:32	189	0.000	1389.460	0.000
7934328974	12. 9	8: 2:54	190	0.000	1389.616	0.000
7934329597	12. 9	8:13:17	191	0.000	1389.662	0.000
7934330220	12. 9	8:23:40	192	0.000	1389.756	0.000
7934330842	12. 9	8:34: 2	193	0.000	1389.829	0.000
7934331465	12. 9	8:44:25	194	0.000	1389.844	0.000
7934332088	12. 9	8:54:48	195	0.000	1390.025	0.000
7934332710	12. 9	9: 5:10	196	0.000	1390.018	0.000
7934333333	12. 9	9:15:33	197	0.000	1390.103	0.000
7934333980	12. 9	9:26:20	198	0.000	1390.149	0.000
7934334603	12. 9	9:36:43	199	0.000	1390.169	0.000
7934335226	12. 9	9:47: 6	200	0.000	1390.167	0.000
7934335848	12. 9	9:57:28	201	0.000	1390.179	0.000
7934336471	12. 9	10: 7:51	202	0.000	1390.163	0.000
7934337094	12. 9	10:18:14	203	0.000	1390.174	0.000
7934337716	12. 9	10:28:36	204	0.000	1390.188	0.000
7934338339	12. 9	10:38:59	205	0.000	1390.270	0.000
7934338962	12. 9	10:49:22	206	0.000	1390.245	0.000
7934339584	12. 9	10:59:44	207	0.000	1390.292	0.000
7934340207	12. 9	11:10: 7	208	0.000	1390.225	0.000
7934340830	12. 9	11:20:30	209	0.000	1390.259	0.000
7934341452	12. 9	11:30:52	210	0.000	1390.323	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 4 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934342075	12. 9	11:41:15	211	0.000	1390.236	0.000
7934342698	12. 9	11:51:38	212	0.000	1390.281	0.000
7934343320	12. 9	12: 2: 0	213	0.000	1390.288	0.000
7934343943	12. 9	12:12:23	214	0.000	1390.288	0.000
7934344566	12. 9	12:22:46	215	0.000	1390.210	0.000
7934345188	12. 9	12:33: 8	216	0.000	1390.291	0.000
7934345811	12. 9	12:43:31	217	0.000	1390.305	0.000
7934346434	12. 9	12:53:54	218	0.000	1390.322	0.000
7934347056	12. 9	13: 4:16	219	0.000	1390.304	0.000
7934347679	12. 9	13:14:39	220	0.000	1390.404	0.000
7934348301	12. 9	13:25: 1	221	0.000	1390.333	0.000
7934348924	12. 9	13:35:24	222	0.000	1390.343	0.000
7934349547	12. 9	13:45:47	223	0.000	1390.349	0.000
7934350169	12. 9	13:56: 9	224	0.000	1390.323	0.000
7934350792	12. 9	14: 6:32	225	0.000	1390.287	0.000
7934351415	12. 9	14:16:55	226	0.000	1390.374	0.000
7934352037	12. 9	14:27:17	227	0.000	1390.300	0.000
7934352660	12. 9	14:37:40	228	0.000	1390.330	0.000
7934353283	12. 9	14:48: 3	229	0.000	1390.354	0.000
7934353905	12. 9	14:58:25	230	0.000	1390.372	0.000
7934354528	12. 9	15: 8:48	231	0.000	1390.391	0.000
7934356969	12. 9	15:49:29	232	0.000	1390.307	0.000
7934358787	12. 9	16:19:47	233	0.000	1390.254	0.000
7934360605	12. 9	16:50: 5	234	0.000	1390.283	0.000
7934362423	12. 9	17:20:23	235	0.000	1390.257	0.000
7934364241	12. 9	17:50:41	236	0.000	1390.181	0.000
7934366060	12. 9	18:21: 0	237	0.000	1390.261	0.000
7934367878	12. 9	18:51:18	238	0.000	1390.142	0.000
7934369696	12. 9	19:21:36	239	0.000	1390.214	0.000
7934371514	12. 9	19:51:54	240	0.000	1390.112	0.000
7934373332	12. 9	20:22:12	241	0.000	1390.075	0.000
7934375150	12. 9	20:52:30	242	0.000	1390.241	0.000
7934376969	12. 9	21:22:49	243	0.000	1390.091	0.000
7934378787	12. 9	21:53: 7	244	0.000	1390.093	0.000
7934380605	12. 9	22:23:25	245	0.000	1390.118	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934382423	12. 9	22:53:43	246	0.000	1390.203	0.000
7934384241	12. 9	23:24: 1	247	0.000	1390.138	0.000
7934386059	12. 9	23:54:19	248	0.000	1390.051	0.000
7934401477	12.10	0:24:37	249	0.000	1390.243	0.000
7934403296	12.10	0:54:56	250	0.000	1390.216	0.000
7934405114	12.10	1:25:14	251	0.000	1390.237	0.000
7934406932	12.10	1:55:32	252	0.000	1390.264	0.000
7934408750	12.10	2:25:50	253	0.000	1390.255	0.000
7934410568	12.10	2:56: 8	254	0.000	1390.107	0.000
7934412386	12.10	3:26:26	255	0.000	1390.098	0.000
7934414205	12.10	3:56:45	256	0.000	1390.130	0.000
7934416023	12.10	4:27: 3	257	0.000	1390.207	0.000
7934417841	12.10	4:57:21	258	0.000	1390.141	0.000
7934419659	12.10	5:27:39	259	0.000	1390.059	0.000
7934421477	12.10	5:57:57	260	0.000	1390.107	0.000
7934423295	12.10	6:28:15	261	0.000	1390.146	0.000
7934425113	12.10	6:58:33	262	0.000	1390.054	0.000
7934426932	12.10	7:28:52	263	0.000	1389.991	0.000
7934428750	12.10	7:59:10	264	0.000	1390.093	0.000
7934430568	12.10	8:29:28	265	0.000	1389.980	0.000
7934432386	12.10	8:59:46	266	0.000	1390.157	0.000
7934434204	12.10	9:30: 4	267	0.000	1390.130	0.000
7934436022	12.10	10: 0:22	268	0.000	1390.016	0.000
7934437840	12.10	10:30:40	269	0.000	1389.518	0.000
7934439659	12.10	11: 0:59	270	0.000	1389.291	0.000
7934442423	12.10	11:47: 3	271	0.000	1389.111	0.000
7934444241	12.10	12:17:21	272	0.000	1380.012	0.000
7934446059	12.10	12:47:39	273	0.000	1376.795	0.000
7934447877	12.10	13:17:57	274	0.000	1381.305	0.000
7934449695	12.10	13:48:15	275	0.000	1381.737	0.000
7934451538	12.10	14:18:58	276	0.000	1382.087	0.000
7934453356	12.10	14:49:16	277	0.000	1382.338	0.000
7934455175	12.10	15:19:35	278	0.000	1382.605	0.000
7934456993	12.10	15:49:53	279	0.000	1383.325	0.000
7934458811	12.10	16:20:11	280	0.000	1385.235	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 5 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934460629	12.10	16:50:29	281	0.000	1386.227	0.000
7934462447	12.10	17:20:47	282	0.000	1384.880	0.000
7934464265	12.10	17:51: 5	283	0.000	1386.111	0.000
7934466083	12.10	18:21:23	284	0.000	1386.554	0.000
7934467901	12.10	18:51:41	285	0.000	1386.948	0.000
7934469719	12.10	19:21:59	286	0.000	1387.281	0.000
7934471537	12.10	19:52:17	287	0.000	1387.606	0.000
7934473356	12.10	20:22:36	288	0.000	1387.901	0.000
7934475174	12.10	20:52:54	289	0.000	1388.124	0.000
7934476992	12.10	21:23:12	290	0.000	1388.374	0.000
7934478810	12.10	21:53:30	291	0.000	1388.581	0.000
7934480628	12.10	22:23:48	292	0.000	1388.745	0.000
7934482446	12.10	22:54: 6	293	0.000	1388.910	0.000
7934484264	12.10	23:24:24	294	0.000	1389.102	0.000
7934486083	12.10	23:54:43	295	0.000	1389.247	0.000
7934501501	12.11	0:25: 1	296	0.000	1389.379	0.000
7934503319	12.11	0:55:19	297	0.000	1389.436	0.000
7934505137	12.11	1:25:37	298	0.000	1389.575	0.000
7934506955	12.11	1:55:55	299	0.000	1389.705	0.000
7934508773	12.11	2:26:13	300	0.000	1389.900	0.000
7934510591	12.11	2:56:31	301	0.000	1389.990	0.000
7934512410	12.11	3:26:50	302	0.000	1390.072	0.000
7934514228	12.11	3:57: 8	303	0.000	1390.146	0.000
7934516046	12.11	4:27:26	304	0.000	1390.216	0.000
7934517864	12.11	4:57:44	305	0.000	1390.367	0.000
7934519682	12.11	5:28: 2	306	0.000	1390.382	0.000
7934521500	12.11	5:58:20	307	0.000	1390.486	0.000
7934523318	12.11	6:28:38	308	0.000	1390.696	0.000
7934525137	12.11	6:58:57	309	0.000	1391.830	0.000
7934526955	12.11	7:29:15	310	0.000	1386.836	0.000
7934529723	12.11	8:15:23	311	0.000	1392.210	0.000
7934532064	12.11	8:54:24	312	0.000	1387.922	0.000
7934532189	12.11	8:56:29	313	0.000	1387.966	0.000
7934532313	12.11	8:58:33	314	0.000	1387.946	0.000
7934532438	12.11	9: 0:38	315	0.000	1387.892	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934532562	12.11	9: 2:42	316	0.000	1387.859	0.000
7934532687	12.11	9: 4:47	317	0.000	1388.003	0.000
7934532811	12.11	9: 6:51	318	0.000	1387.955	0.000
7934532936	12.11	9: 8:56	319	0.000	1388.080	0.000
7934533060	12.11	9:11: 0	320	0.000	1388.095	0.000
7934534741	12.11	9:39: 1	321	0.000	1388.323	0.000
7934536433	12.11	10:10:33	322	0.000	1388.563	0.000
7934537555	12.11	10:25:55	323	0.000	1388.631	0.000
7934538476	12.11	10:41:16	324	0.000	1388.691	0.000
7934539398	12.11	10:56:38	325	0.000	1388.805	0.000
7934540319	12.11	11:11:59	326	0.000	1388.864	0.000
7934541241	12.11	11:27:21	327	0.000	1389.056	0.000
7934542162	12.11	11:42:42	328	0.000	1389.052	0.000
7934543084	12.11	11:58: 4	329	0.000	1389.144	0.000
7934544006	12.11	12:13:26	330	0.000	1389.133	0.000
7934544927	12.11	12:28:47	331	0.000	1389.337	0.000
7934545849	12.11	12:44: 9	332	0.000	1389.286	0.000
7934546770	12.11	12:59:30	333	0.000	1389.357	0.000
7934547692	12.11	13:14:52	334	0.000	1389.371	0.000
7934548613	12.11	13:30:13	335	0.000	1389.524	0.000
7934549908	12.11	13:51:48	336	0.000	1389.466	0.000
7934550830	12.11	14: 7:10	337	0.000	1389.643	0.000
7934551751	12.11	14:22:31	338	0.000	1389.608	0.000
7934552673	12.11	14:37:53	339	0.000	1389.636	0.000
7934553420	12.11	14:50:20	340	0.000	1389.764	0.000
7934553445	12.11	14:50:45	341	0.000	1389.652	0.000
7934553470	12.11	14:51:10	342	0.000	1389.709	0.000
7934553495	12.11	14:51:35	343	0.000	1389.607	0.000
7934553520	12.11	14:52: 0	344	0.000	1389.700	0.000
7934553545	12.11	14:52:25	345	0.000	1389.491	0.000
7934553569	12.11	14:52:49	346	0.000	1389.834	0.000
7934553594	12.11	14:53:14	347	0.000	1389.770	0.000
7934553619	12.11	14:53:39	348	0.000	1389.426	0.000
7934553644	12.11	14:54: 4	349	0.000	1389.098	0.000
7934553669	12.11	14:54:29	350	0.000	1388.274	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 6 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934553918	12.11	14:58:38	351	0.000	1384.744	0.000
7934553943	12.11	14:59: 3	352	0.000	1384.567	0.000
7934553968	12.11	14:59:28	353	0.000	1384.273	0.000
7934553993	12.11	14:59:53	354	0.000	1384.080	0.000
7934554018	12.11	15: 0:18	355	0.000	1383.853	0.000
7934554043	12.11	15: 0:43	356	0.000	1383.728	0.000
7934554068	12.11	15: 1: 8	357	0.000	1383.411	0.000
7934554092	12.11	15: 1:32	358	0.000	1383.288	0.000
7934554117	12.11	15: 1:57	359	0.000	1383.043	0.000
7934554142	12.11	15: 2:22	360	0.000	1383.105	0.000
7934554167	12.11	15: 2:47	361	0.000	1382.934	0.000
7934554192	12.11	15: 3:12	362	0.000	1382.679	0.000
7934554217	12.11	15: 3:37	363	0.000	1382.485	0.000
7934554242	12.11	15: 4: 2	364	0.000	1382.408	0.000
7934554267	12.11	15: 4:27	365	0.000	1382.309	0.000
7934554292	12.11	15: 4:52	366	0.000	1382.175	0.000
7934554317	12.11	15: 5:17	367	0.000	1382.049	0.000
7934554341	12.11	15: 5:41	368	0.000	1381.849	0.000
7934554366	12.11	15: 6: 6	369	0.000	1381.838	0.000
7934554391	12.11	15: 6:31	370	0.000	1381.561	0.000
7934554416	12.11	15: 6:56	371	0.000	1381.554	0.000
7934554441	12.11	15: 7:21	372	0.000	1381.378	0.000
7934554466	12.11	15: 7:46	373	0.000	1381.361	0.000
7934554491	12.11	15: 8:11	374	0.000	1381.175	0.000
7934554516	12.11	15: 8:36	375	0.000	1381.060	0.000
7934554541	12.11	15: 9: 1	376	0.000	1380.954	0.000
7934554566	12.11	15: 9:26	377	0.000	1380.907	0.000
7934554591	12.11	15: 9:51	378	0.000	1380.931	0.000
7934554615	12.11	15:10:15	379	0.000	1380.823	0.000
7934554640	12.11	15:10:40	380	0.000	1380.605	0.000
7934554665	12.11	15:11: 5	381	0.000	1380.565	0.000
7934554765	12.11	15:12:45	382	0.000	1380.202	0.000
7934554790	12.11	15:13:10	383	0.000	1380.103	0.000
7934554815	12.11	15:13:35	384	0.000	1380.109	0.000
7934554840	12.11	15:14: 0	385	0.000	1380.087	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934554864	12.11	15:14:24	386	0.000	1380.146	0.000
7934554889	12.11	15:14:49	387	0.000	1380.010	0.000
7934554914	12.11	15:15:14	388	0.000	1380.095	0.000
7934554939	12.11	15:15:39	389	0.000	1379.827	0.000
7934554964	12.11	15:16: 4	390	0.000	1379.862	0.000
7934554989	12.11	15:16:29	391	0.000	1379.977	0.000
7934555014	12.11	15:16:54	392	0.000	1382.631	0.000
7934555039	12.11	15:17:19	393	0.000	1383.705	0.000
7934555064	12.11	15:17:44	394	0.000	1384.415	0.000
7934555089	12.11	15:18: 9	395	0.000	1384.345	0.000
7934555114	12.11	15:18:34	396	0.000	1384.434	0.000
7934555138	12.11	15:18:58	397	0.000	1383.888	0.000
7934555163	12.11	15:19:23	398	0.000	1383.733	0.000
7934555188	12.11	15:19:48	399	0.000	1383.730	0.000
7934555213	12.11	15:20:13	400	0.000	1383.163	0.000
7934555238	12.11	15:20:38	401	0.000	1382.943	0.000
7934555263	12.11	15:21: 3	402	0.000	1382.832	0.000
7934555288	12.11	15:21:28	403	0.000	1382.683	0.000
7934555313	12.11	15:21:53	404	0.000	1382.721	0.000
7934555338	12.11	15:22:18	405	0.000	1382.742	0.000
7934555363	12.11	15:22:43	406	0.000	1382.864	0.000
7934555387	12.11	15:23: 7	407	0.000	1382.725	0.000
7934555412	12.11	15:23:32	408	0.000	1382.753	0.000
7934555437	12.11	15:23:57	409	0.000	1382.817	0.000
7934555462	12.11	15:24:22	410	0.000	1382.846	0.000
7934555487	12.11	15:24:47	411	0.000	1382.746	0.000
7934555512	12.11	15:25:12	412	0.000	1382.639	0.000
7934555537	12.11	15:25:37	413	0.000	1382.721	0.000
7934555562	12.11	15:26: 2	414	0.000	1382.748	0.000
7934555587	12.11	15:26:27	415	0.000	1382.686	0.000
7934555612	12.11	15:26:52	416	0.000	1382.618	0.000
7934555637	12.11	15:27:17	417	0.000	1382.723	0.000
7934555661	12.11	15:27:41	418	0.000	1382.609	0.000
7934555686	12.11	15:28: 6	419	0.000	1382.729	0.000
7934555711	12.11	15:28:31	420	0.000	1382.592	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01. (Sheet 4 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934340585	12. 9	11:16:25	211	0.000	1389.698	0.000
7934341186	12. 9	11:26:26	212	0.000	1389.693	0.000
7934341788	12. 9	11:36:28	213	0.000	1389.681	0.000
7934342389	12. 9	11:46:29	214	0.000	1389.688	0.000
7934342991	12. 9	11:56:31	215	0.000	1389.760	0.000
7934343592	12. 9	12: 6:32	216	0.000	1389.782	0.000
7934344193	12. 9	12:16:33	217	0.000	1389.784	0.000
7934344795	12. 9	12:26:35	218	0.000	1389.738	0.000
7934345396	12. 9	12:36:36	219	0.000	1389.829	0.000
7934345998	12. 9	12:46:38	220	0.000	1389.839	0.000
7934346599	12. 9	12:56:39	221	0.000	1389.792	0.000
7934347201	12. 9	13: 6:41	222	0.000	1389.784	0.000
7934347802	12. 9	13:16:42	223	0.000	1389.843	0.000
7934348403	12. 9	13:26:43	224	0.000	1389.794	0.000
7934349005	12. 9	13:36:45	225	0.000	1389.770	0.000
7934349606	12. 9	13:46:46	226	0.000	1389.824	0.000
7934350208	12. 9	13:56:48	227	0.000	1389.839	0.000
7934350809	12. 9	14: 6:49	228	0.000	1389.787	0.000
7934351410	12. 9	14:16:50	229	0.000	1389.831	0.000
7934352012	12. 9	14:26:52	230	0.000	1389.849	0.000
7934352613	12. 9	14:36:53	231	0.000	1389.804	0.000
7934353215	12. 9	14:46:55	232	0.000	1389.784	0.000
7934353816	12. 9	14:56:56	233	0.000	1389.811	0.000
7934354417	12. 9	15: 6:57	234	0.000	1389.849	0.000
7934356748	12. 9	15:45:48	235	0.000	1389.775	0.000
7934358552	12. 9	16:15:52	236	0.000	1389.821	0.000
7934360356	12. 9	16:45:56	237	0.000	1389.728	0.000
7934362160	12. 9	17:16: 0	238	0.000	1389.678	0.000
7934363965	12. 9	17:46: 5	239	0.000	1389.676	0.000
7934365769	12. 9	18:16: 9	240	0.000	1389.713	0.000
7934367573	12. 9	18:46:13	241	0.000	1389.636	0.000
7934369377	12. 9	19:16:17	242	0.000	1389.651	0.000
7934371181	12. 9	19:46:21	243	0.000	1389.623	0.000
7934372986	12. 9	20:16:26	244	0.000	1389.641	0.000
7934374790	12. 9	20:46:30	245	0.000	1389.562	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934376594	12. 9	21:16:34	246	0.000	1389.552	0.000
7934378398	12. 9	21:46:38	247	0.000	1389.603	0.000
7934380202	12. 9	22:16:42	248	0.000	1389.542	0.000
7934382007	12. 9	22:46:47	249	0.000	1389.587	0.000
7934383811	12. 9	23:16:51	250	0.000	1389.641	0.000
7934385615	12. 9	23:46:55	251	0.000	1389.612	0.000
7934401019	12.10	0:16:59	252	0.000	1389.673	0.000
7934402823	12.10	0:47: 3	253	0.000	1389.611	0.000
7934404628	12.10	1:17: 8	254	0.000	1389.653	0.000
7934406432	12.10	1:47:12	255	0.000	1389.656	0.000
7934408236	12.10	2:17:16	256	0.000	1389.700	0.000
7934410040	12.10	2:47:20	257	0.000	1389.653	0.000
7934411844	12.10	3:17:24	258	0.000	1389.668	0.000
7934413649	12.10	3:47:29	259	0.000	1389.604	0.000
7934415453	12.10	4:17:33	260	0.000	1389.614	0.000
7934418460	12.10	5: 7:40	261	0.000	1389.591	0.000
7934420264	12.10	5:37:44	262	0.000	1389.616	0.000
7934422068	12.10	6: 7:48	263	0.000	1389.572	0.000
7934423872	12.10	6:37:52	264	0.000	1389.636	0.000
7934425677	12.10	7: 7:57	265	0.000	1389.572	0.000
7934427481	12.10	7:38: 1	266	0.000	1389.547	0.000
7934429285	12.10	8: 8: 5	267	0.000	1389.445	0.000
7934431089	12.10	8:38: 9	268	0.000	1389.493	0.000
7934432894	12.10	9: 8:14	269	0.000	1389.471	0.000
7934434698	12.10	9:38:18	270	0.000	1389.599	0.000
7934436502	12.10	10: 8:22	271	0.000	1389.309	0.000
7934438306	12.10	10:38:26	272	0.000	1388.951	0.000
7934440110	12.10	11: 8:30	273	0.000	1388.755	0.000
7934441915	12.10	11:38:35	274	0.000	1388.599	0.000
7934443719	12.10	12: 8:39	275	0.000	1380.475	0.000
7934445523	12.10	12:38:43	276	0.000	1376.506	0.000
7934447327	12.10	13: 8:47	277	0.000	1380.400	0.000
7934449131	12.10	13:38:51	278	0.000	1381.135	0.000
7934450935	12.10	14: 8:55	279	0.000	1381.552	0.000
7934452739	12.10	14:38:59	280	0.000	1381.839	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 5 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934455030	12.10	15:17:10	281	0.000	1382.089	0.000
7934456834	12.10	15:47:14	282	0.000	1382.886	0.000
7934458638	12.10	16:17:18	283	0.000	1384.564	0.000
7934460442	12.10	16:47:22	284	0.000	1385.549	0.000
7934462246	12.10	17:17:26	285	0.000	1383.613	0.000
7934464051	12.10	17:47:31	286	0.000	1385.495	0.000
7934465855	12.10	18:17:35	287	0.000	1385.944	0.000
7934467659	12.10	18:47:39	288	0.000	1386.326	0.000
7934469463	12.10	19:17:43	289	0.000	1386.715	0.000
7934471267	12.10	19:47:47	290	0.000	1387.037	0.000
7934473071	12.10	20:17:51	291	0.000	1387.308	0.000
7934474876	12.10	20:47:56	292	0.000	1387.626	0.000
7934476680	12.10	21:18: 0	293	0.000	1387.801	0.000
7934478484	12.10	21:48: 4	294	0.000	1387.980	0.000
7934480288	12.10	22:18: 8	295	0.000	1388.250	0.000
7934482092	12.10	22:48:12	296	0.000	1388.422	0.000
7934483897	12.10	23:18:17	297	0.000	1388.544	0.000
7934485701	12.10	23:48:21	298	0.000	1388.728	0.000
7934501105	12.11	0:18:25	299	0.000	1388.793	0.000
7934502909	12.11	0:48:29	300	0.000	1388.950	0.000
7934504713	12.11	1:18:33	301	0.000	1389.094	0.000
7934506518	12.11	1:48:38	302	0.000	1389.191	0.000
7934508322	12.11	2:18:42	303	0.000	1389.257	0.000
7934510126	12.11	2:48:46	304	0.000	1389.408	0.000
7934511930	12.11	3:18:50	305	0.000	1389.525	0.000
7934513734	12.11	3:48:54	306	0.000	1389.639	0.000
7934515539	12.11	4:18:59	307	0.000	1389.703	0.000
7934517343	12.11	4:49: 3	308	0.000	1389.756	0.000
7934519147	12.11	5:19: 7	309	0.000	1389.767	0.000
7934520951	12.11	5:49:11	310	0.000	1389.892	0.000
7934522755	12.11	6:19:15	311	0.000	1389.922	0.000
7934524560	12.11	6:49:20	312	0.000	1391.098	0.000
7934526364	12.11	7:19:24	313	0.000	1389.690	0.000
7934529722	12.11	8:15:22	314	0.000	1386.834	0.000
7934532027	12.11	8:53:47	315	0.000	1387.258	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934532153	12.11	8:55:53	316	0.000	1387.304	0.000
7934532278	12.11	8:57:58	317	0.000	1387.330	0.000
7934532403	12.11	9: 0: 3	318	0.000	1387.365	0.000
7934532528	12.11	9: 2: 8	319	0.000	1387.353	0.000
7934532654	12.11	9: 4:14	320	0.000	1387.404	0.000
7934532779	12.11	9: 6:19	321	0.000	1387.418	0.000
7934532904	12.11	9: 8:24	322	0.000	1387.411	0.000
7934533030	12.11	9:10:30	323	0.000	1387.453	0.000
7934533155	12.11	9:12:35	324	0.000	1387.491	0.000
7934534696	12.11	9:38:16	325	0.000	1387.670	0.000
7934535599	12.11	9:53:19	326	0.000	1387.818	0.000
7934536501	12.11	10: 8:21	327	0.000	1387.892	0.000
7934537403	12.11	10:23:23	328	0.000	1387.995	0.000
7934538305	12.11	10:38:25	329	0.000	1388.076	0.000
7934539207	12.11	10:53:27	330	0.000	1388.222	0.000
7934540109	12.11	11: 8:29	331	0.000	1388.331	0.000
7934541011	12.11	11:23:31	332	0.000	1388.398	0.000
7934541913	12.11	11:38:33	333	0.000	1388.490	0.000
7934542815	12.11	11:53:35	334	0.000	1388.575	0.000
7934543717	12.11	12: 8:37	335	0.000	1388.671	0.000
7934544620	12.11	12:23:40	336	0.000	1388.724	0.000
7934545522	12.11	12:38:42	337	0.000	1388.754	0.000
7934546424	12.11	12:53:44	338	0.000	1388.813	0.000
7934547326	12.11	13: 8:46	339	0.000	1388.817	0.000
7934548228	12.11	13:23:48	340	0.000	1388.899	0.000
7934549857	12.11	13:50:57	341	0.000	1388.971	0.000
7934550759	12.11	14: 5:59	342	0.000	1389.028	0.000
7934551661	12.11	14:21: 1	343	0.000	1389.060	0.000
7934552563	12.11	14:36: 3	344	0.000	1389.099	0.000
7934553390	12.11	14:49:50	345	0.000	1389.058	0.000
7934553415	12.11	14:50:15	346	0.000	1389.070	0.000
7934553440	12.11	14:50:40	347	0.000	1389.141	0.000
7934553465	12.11	14:51: 5	348	0.000	1389.142	0.000
7934553490	12.11	14:51:30	349	0.000	1389.100	0.000
7934553515	12.11	14:51:55	350	0.000	1389.134	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 6 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934553540	12.11	14:52:20	351	0.000	1389.176	0.000
7934553565	12.11	14:52:45	352	0.000	1389.161	0.000
7934553590	12.11	14:53:10	353	0.000	1388.912	0.000
7934553615	12.11	14:53:35	354	0.000	1388.059	0.000
7934553641	12.11	14:54: 1	355	0.000	1387.344	0.000
7934553666	12.11	14:54:26	356	0.000	1386.846	0.000
7934553691	12.11	14:54:51	357	0.000	1386.317	0.000
7934553716	12.11	14:55:16	358	0.000	1385.888	0.000
7934553741	12.11	14:55:41	359	0.000	1385.433	0.000
7934553766	12.11	14:56: 6	360	0.000	1385.068	0.000
7934553791	12.11	14:56:31	361	0.000	1384.737	0.000
7934553816	12.11	14:56:56	362	0.000	1384.422	0.000
7934553841	12.11	14:57:21	363	0.000	1384.103	0.000
7934553866	12.11	14:57:46	364	0.000	1383.852	0.000
7934553891	12.11	14:58:11	365	0.000	1383.572	0.000
7934553916	12.11	14:58:36	366	0.000	1383.296	0.000
7934553941	12.11	14:59: 1	367	0.000	1383.112	0.000
7934553966	12.11	14:59:26	368	0.000	1382.832	0.000
7934553991	12.11	14:59:51	369	0.000	1382.647	0.000
7934554016	12.11	15: 0:16	370	0.000	1382.477	0.000
7934554041	12.11	15: 0:41	371	0.000	1382.327	0.000
7934554067	12.11	15: 1: 7	372	0.000	1382.157	0.000
7934554092	12.11	15: 1:32	373	0.000	1381.986	0.000
7934554117	12.11	15: 1:57	374	0.000	1381.759	0.000
7934554142	12.11	15: 2:22	375	0.000	1381.622	0.000
7934554167	12.11	15: 2:47	376	0.000	1381.422	0.000
7934554192	12.11	15: 3:12	377	0.000	1381.257	0.000
7934554217	12.11	15: 3:37	378	0.000	1381.094	0.000
7934554242	12.11	15: 4: 2	379	0.000	1380.961	0.000
7934554267	12.11	15: 4:27	380	0.000	1380.821	0.000
7934554292	12.11	15: 4:52	381	0.000	1380.724	0.000
7934554317	12.11	15: 5:17	382	0.000	1380.565	0.000
7934554342	12.11	15: 5:42	383	0.000	1380.458	0.000
7934554367	12.11	15: 6: 7	384	0.000	1380.349	0.000
7934554392	12.11	15: 6:32	385	0.000	1380.237	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934554417	12.11	15: 6:57	386	0.000	1380.160	0.000
7934554442	12.11	15: 7:22	387	0.000	1380.047	0.000
7934554467	12.11	15: 7:47	388	0.000	1379.913	0.000
7934554493	12.11	15: 8:13	389	0.000	1379.851	0.000
7934554518	12.11	15: 8:38	390	0.000	1379.747	0.000
7934554543	12.11	15: 9: 3	391	0.000	1379.646	0.000
7934554568	12.11	15: 9:28	392	0.000	1379.544	0.000
7934554593	12.11	15: 9:53	393	0.000	1379.411	0.000
7934554618	12.11	15:10:18	394	0.000	1379.327	0.000
7934554643	12.11	15:10:43	395	0.000	1379.238	0.000
7934554693	12.11	15:11:33	396	0.000	1379.073	0.000
7934554718	12.11	15:11:58	397	0.000	1378.991	0.000
7934554743	12.11	15:12:23	398	0.000	1378.931	0.000
7934554768	12.11	15:12:48	399	0.000	1378.810	0.000
7934554793	12.11	15:13:13	400	0.000	1378.842	0.000
7934554818	12.11	15:13:38	401	0.000	1378.834	0.000
7934554843	12.11	15:14: 3	402	0.000	1378.744	0.000
7934554868	12.11	15:14:28	403	0.000	1378.753	0.000
7934554893	12.11	15:14:53	404	0.000	1378.760	0.000
7934554918	12.11	15:15:18	405	0.000	1378.678	0.000
7934554943	12.11	15:15:43	406	0.000	1378.565	0.000
7934554969	12.11	15:16: 9	407	0.000	1378.569	0.000
7934554994	12.11	15:16:34	408	0.000	1379.093	0.000
7934555019	12.11	15:16:59	409	0.000	1379.485	0.000
7934555044	12.11	15:17:24	410	0.000	1379.969	0.000
7934555069	12.11	15:17:49	411	0.000	1380.400	0.000
7934555094	12.11	15:18:14	412	0.000	1380.625	0.000
7934555119	12.11	15:18:39	413	0.000	1380.909	0.000
7934555144	12.11	15:19: 4	414	0.000	1381.175	0.000
7934555169	12.11	15:19:29	415	0.000	1381.417	0.000
7934555194	12.11	15:19:54	416	0.000	1381.479	0.000
7934555219	12.11	15:20:19	417	0.000	1381.516	0.000
7934555244	12.11	15:20:44	418	0.000	1381.477	0.000
7934555269	12.11	15:21: 9	419	0.000	1381.464	0.000
7934555294	12.11	15:21:34	420	0.000	1381.479	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 7 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934555319	12.11	15:21:59	421	0.000	1381.439	0.000
7934555344	12.11	15:22:24	422	0.000	1381.444	0.000
7934555369	12.11	15:22:49	423	0.000	1381.455	0.000
7934555395	12.11	15:23:15	424	0.000	1381.454	0.000
7934555420	12.11	15:23:40	425	0.000	1381.454	0.000
7934555445	12.11	15:24: 5	426	0.000	1381.448	0.000
7934555470	12.11	15:24:30	427	0.000	1381.375	0.000
7934555495	12.11	15:24:55	428	0.000	1381.358	0.000
7934555520	12.11	15:25:20	429	0.000	1381.361	0.000
7934555545	12.11	15:25:45	430	0.000	1381.377	0.000
7934555570	12.11	15:26:10	431	0.000	1381.412	0.000
7934555595	12.11	15:26:35	432	0.000	1381.354	0.000
7934555620	12.11	15:27: 0	433	0.000	1381.317	0.000
7934555645	12.11	15:27:25	434	0.000	1381.294	0.000
7934555670	12.11	15:27:50	435	0.000	1381.279	0.000
7934555695	12.11	15:28:15	436	0.000	1381.302	0.000
7934555720	12.11	15:28:40	437	0.000	1381.338	0.000
7934555745	12.11	15:29: 5	438	0.000	1381.310	0.000
7934555770	12.11	15:29:30	439	0.000	1381.296	0.000
7934555795	12.11	15:29:55	440	0.000	1381.254	0.000
7934555820	12.11	15:30:20	441	0.000	1381.271	0.000
7934555846	12.11	15:30:46	442	0.000	1381.294	0.000
7934556246	12.11	15:37:26	443	0.000	1380.946	0.000
7934556547	12.11	15:42:27	444	0.000	1380.742	0.000
7934556848	12.11	15:47:28	445	0.000	1380.517	0.000
7934557875	12.11	16: 4:35	446	0.000	1379.668	0.000
7934558477	12.11	16:14:37	447	0.000	1382.459	0.000
7934559078	12.11	16:24:38	448	0.000	1382.434	0.000
7934559679	12.11	16:34:39	449	0.000	1384.175	0.000
7934560281	12.11	16:44:41	450	0.000	1383.570	0.000
7934560882	12.11	16:54:42	451	0.000	1384.054	0.000
7934561483	12.11	17: 4:43	452	0.000	1384.318	0.000
7934562085	12.11	17:14:45	453	0.000	1384.640	0.000
7934562686	12.11	17:24:46	454	0.000	1384.974	0.000
7934563288	12.11	17:34:48	455	0.000	1385.222	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934563889	12.11	17:44:49	456	0.000	1385.477	0.000
7934564490	12.11	17:54:50	457	0.000	1385.764	0.000
7934565092	12.11	18: 4:52	458	0.000	1385.974	0.000
7934565693	12.11	18:14:53	459	0.000	1386.135	0.000
7934566295	12.11	18:24:55	460	0.000	1386.399	0.000
7934566896	12.11	18:34:56	461	0.000	1386.567	0.000
7934567497	12.11	18:44:57	462	0.000	1386.760	0.000
7934568099	12.11	18:54:59	463	0.000	1386.942	0.000
7934568700	12.11	19: 5: 0	464	0.000	1387.123	0.000
7934569302	12.11	19:15: 2	465	0.000	1387.322	0.000
7934569903	12.11	19:25: 3	466	0.000	1387.499	0.000
7934570504	12.11	19:35: 4	467	0.000	1387.696	0.000
7934571106	12.11	19:45: 6	468	0.000	1387.847	0.000
7934571707	12.11	19:55: 7	469	0.000	1388.019	0.000
7934572309	12.11	20: 5: 9	470	0.000	1388.215	0.000
7934572910	12.11	20:15:10	471	0.000	1388.388	0.000
7934573511	12.11	20:25:11	472	0.000	1388.429	0.000
7934574113	12.11	20:35:13	473	0.000	1388.610	0.000
7934574714	12.11	20:45:14	474	0.000	1388.845	0.000
7934575315	12.11	20:55:15	475	0.000	1388.914	0.000
7934575917	12.11	21: 5:17	476	0.000	1389.032	0.000
7934576518	12.11	21:15:18	477	0.000	1389.235	0.000
7934577120	12.11	21:25:20	478	0.000	1389.298	0.000
7934577721	12.11	21:35:21	479	0.000	1389.461	0.000
7934578322	12.11	21:45:22	480	0.000	1389.542	0.000
7934578924	12.11	21:55:24	481	0.000	1389.643	0.000
7934579525	12.11	22: 5:25	482	0.000	1389.662	0.000
7934580127	12.11	22:15:27	483	0.000	1389.814	0.000
7934580728	12.11	22:25:28	484	0.000	1389.945	0.000
7934581329	12.11	22:35:29	485	0.000	1389.988	0.000
7934581931	12.11	22:45:31	486	0.000	1390.123	0.000
7934582532	12.11	22:55:32	487	0.000	1390.101	0.000
7934583134	12.11	23: 5:34	488	0.000	1390.188	0.000
7934583735	12.11	23:15:35	489	0.000	1390.945	0.000
7934584336	12.11	23:25:36	490	0.000	1391.891	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01.
(Sheet 8 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934584938	12.11	23:35:38	491	0.000	1392.655	0.000
7934585539	12.11	23:45:39	492	0.000	1393.359	0.000
7934586141	12.11	23:55:41	493	0.000	1393.995	0.000
7934600342	12.12	0: 5:42	494	0.000	1394.577	0.000
7934600944	12.12	0:15:44	495	0.000	1395.162	0.000
7934601545	12.12	0:25:45	496	0.000	1395.726	0.000
7934602146	12.12	0:35:46	497	0.000	1396.320	0.000
7934602748	12.12	0:45:48	498	0.000	1396.819	0.000
7934603349	12.12	0:55:49	499	0.000	1397.309	0.000
7934603951	12.12	1: 5:51	500	0.000	1397.792	0.000
7934604552	12.12	1:15:52	501	0.000	1398.274	0.000
7934605154	12.12	1:25:54	502	0.000	1398.888	0.000
7934605755	12.12	1:35:55	503	0.000	1399.298	0.000
7934606356	12.12	1:45:56	504	0.000	1399.783	0.000
7934606958	12.12	1:55:58	505	0.000	1400.220	0.000
7934607559	12.12	2: 5:59	506	0.000	1400.630	0.000
7934608161	12.12	2:16: 1	507	0.000	1401.051	0.000
7934608762	12.12	2:26: 2	508	0.000	1401.419	0.000
7934609364	12.12	2:36: 4	509	0.000	1401.834	0.000
7934609965	12.12	2:46: 5	510	0.000	1402.248	0.000
7934610566	12.12	2:56: 6	511	0.000	1402.627	0.000
7934611168	12.12	3: 6: 8	512	0.000	1403.044	0.000
7934611769	12.12	3:16: 9	513	0.000	1403.371	0.000
7934612371	12.12	3:26:11	514	0.000	1403.677	0.000
7934612972	12.12	3:36:12	515	0.000	1404.060	0.000
7934613574	12.12	3:46:14	516	0.000	1404.456	0.000
7934614175	12.12	3:56:15	517	0.000	1404.722	0.000
7934614777	12.12	4: 6:17	518	0.000	1405.041	0.000
7934615378	12.12	4:16:18	519	0.000	1405.288	0.000
7934615979	12.12	4:26:19	520	0.000	1405.627	0.000
7934616581	12.12	4:36:21	521	0.000	1405.916	0.000
7934617182	12.12	4:46:22	522	0.000	1406.235	0.000
7934617784	12.12	4:56:24	523	0.000	1406.539	0.000
7934618385	12.12	5: 6:25	524	0.000	1406.766	0.000
7934618987	12.12	5:16:27	525	0.000	1407.049	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934619588	12.12	5:26:28	526	0.000	1407.334	0.000
7934620190	12.12	5:36:30	527	0.000	1407.631	0.000
7934620791	12.12	5:46:31	528	0.000	1407.953	0.000
7934621393	12.12	5:56:33	529	0.000	1408.147	0.000
7934621994	12.12	6: 6:34	530	0.000	1408.426	0.000
7934622595	12.12	6:16:35	531	0.000	1408.623	0.000
7934623197	12.12	6:26:37	532	0.000	1408.909	0.000
7934623798	12.12	6:36:38	533	0.000	1409.089	0.000
7934624400	12.12	6:46:40	534	0.000	1409.323	0.000
7934625001	12.12	6:56:41	535	0.000	1409.645	0.000
7934625603	12.12	7: 6:43	536	0.000	1409.765	0.000
7934626204	12.12	7:16:44	537	0.000	1410.008	0.000
7934627182	12.12	7:33: 2	538	0.000	1410.352	0.000
7934627784	12.12	7:43: 4	539	0.000	1410.611	0.000
7934628385	12.12	7:53: 5	540	0.000	1410.803	0.000
7934628986	12.12	8: 3: 6	541	0.000	1411.085	0.000
7934629588	12.12	8:13: 8	542	0.000	1411.204	0.000
7934630189	12.12	8:23: 9	543	0.000	1411.423	0.000
7934630791	12.12	8:33:11	544	0.000	1411.563	0.000
7934631392	12.12	8:43:12	545	0.000	1411.677	0.000
7934631994	12.12	8:53:14	546	0.000	1411.935	0.000
7934632595	12.12	9: 3:15	547	0.000	1412.170	0.000
7934633197	12.12	9:13:17	548	0.000	1412.345	0.000
7934633798	12.12	9:23:18	549	0.000	1412.498	0.000
7934634400	12.12	9:33:20	550	0.000	1412.677	0.000
7934635001	12.12	9:43:21	551	0.000	1412.725	0.000
7934635603	12.12	9:53:23	552	0.000	1412.992	0.000
7934636204	12.12	10: 3:24	553	0.000	1413.152	0.000
7934636806	12.12	10:13:26	554	0.000	1413.275	0.000
7934637407	12.12	10:23:27	555	0.000	1413.397	0.000
7934638009	12.12	10:33:29	556	0.000	1413.555	0.000
7934638610	12.12	10:43:30	557	0.000	1413.619	0.000
7934640715	12.12	11:18:35	558	0.000	1414.133	0.000
7934642520	12.12	11:48:40	559	0.000	1414.505	0.000
7934644324	12.12	12:18:44	560	0.000	1414.826	0.000

TABLE E-2. Raw Data For Test DC-7/IF/z9/Tt01. (Sheet 9 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934646129	12.12	12:48:49	561	0.000	1415.146	0.000
7934647933	12.12	13:18:53	562	0.000	1415.488	0.000
7934649737	12.12	13:48:57	563	0.000	1415.602	0.000
7934651542	12.12	14:19: 2	564	0.000	1415.907	0.000
7934653346	12.12	14:49: 6	565	0.000	1416.160	0.000
7934655151	12.12	15:19:11	566	0.000	1416.494	0.000
7934656955	12.12	15:49:15	567	0.000	1416.650	0.000
7934658760	12.12	16:19:20	568	0.000	1416.805	0.000
7934660564	12.12	16:49:24	569	0.000	1417.054	0.000
7934662369	12.12	17:19:29	570	0.000	1417.177	0.000
7934664173	12.12	17:49:33	571	0.000	1417.296	0.000
7934665977	12.12	18:19:37	572	0.000	1417.634	0.000
7934667782	12.12	18:49:42	573	0.000	1417.671	0.000
7934669586	12.12	19:19:46	574	0.000	1417.896	0.000
7934671391	12.12	19:49:51	575	0.000	1418.041	0.000
7934673195	12.12	20:19:55	576	0.000	1418.162	0.000
7934675000	12.12	20:50: 0	577	0.000	1418.298	0.000
7934676804	12.12	21:20: 4	578	0.000	1418.360	0.000
7934678609	12.12	21:50: 9	579	0.000	1418.481	0.000
7934680413	12.12	22:20:13	580	0.000	1418.600	0.000
7934682218	12.12	22:50:18	581	0.000	1418.648	0.000
7934684022	12.12	23:20:22	582	0.000	1418.805	0.000
7934685827	12.12	23:50:27	583	0.000	1418.860	0.000
7934701231	12.13	0:20:31	584	0.000	1418.926	0.000
7934703036	12.13	0:50:36	585	0.000	1419.035	0.000
7934704840	12.13	1:20:40	586	0.000	1419.090	0.000
7934706644	12.13	1:50:44	587	0.000	1419.152	0.000
7934708449	12.13	2:20:49	588	0.000	1419.183	0.000
7934710253	12.13	2:50:53	589	0.000	1419.272	0.000
7934712058	12.13	3:20:58	590	0.000	1419.327	0.000
7934713862	12.13	3:51: 2	591	0.000	1419.380	0.000
7934715667	12.13	4:21: 7	592	0.000	1419.475	0.000
7934717471	12.13	4:51:11	593	0.000	1419.468	0.000
7934719276	12.13	5:21:16	594	0.000	1419.566	0.000
7934721080	12.13	5:51:20	595	0.000	1419.649	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934722885	12.13	6:21:25	596	0.000	1419.693	0.000
7934724689	12.13	6:51:29	597	0.000	1419.734	0.000
7934726494	12.13	7:21:34	598	0.000	1419.807	0.000
7934728298	12.13	7:51:38	599	0.000	1419.855	0.000
7934730103	12.13	8:21:43	600	0.000	1419.873	0.000
7934731907	12.13	8:51:47	601	0.000	1419.881	0.000
7934733712	12.13	9:21:52	602	0.000	1419.947	0.000
7934738849	12.13	10:47:29	603	0.000	1420.106	0.000
7934738925	12.13	10:48:45	604	0.000	1419.987	0.000
7934739000	12.13	10:50: 0	605	0.000	1419.985	0.000
7934741454	12.13	11:30:56	606	0.000	1420.171	0.000
7934742358	12.13	11:45:58	607	0.000	1420.242	0.000
7934743260	12.13	12: 1: 0	608	0.000	1420.147	0.000
7934744163	12.13	12:16: 3	609	0.000	1420.127	0.000
7934745065	12.13	12:31: 5	610	0.000	1420.193	0.000
7934745967	12.13	12:46: 7	611	0.000	1420.226	0.000
7934746869	12.13	13: 1: 9	612	0.000	1420.171	0.000
7934747771	12.13	13:16:11	613	0.000	1420.236	0.000
7934748674	12.13	13:31:14	614	0.000	1420.256	0.000
7934749576	12.13	13:46:16	615	0.000	1420.214	0.000
7934750278	12.13	13:57:58	616	0.000	1420.322	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTtO1.
(Sheet 1 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934243740	12. 8	12: 9: 0	1	0.000	1424.024	0.000
7934243765	12. 8	12: 9:25	2	0.000	1424.051	0.000
7934243790	12. 8	12: 9:50	3	0.000	1424.019	0.000
7934243815	12. 8	12:10:15	4	0.000	1423.536	0.000
7934243839	12. 8	12:10:39	5	0.000	1422.458	0.000
7934243864	12. 8	12:11: 4	6	0.000	1421.561	0.000
7934243889	12. 8	12:11:29	7	0.000	1420.887	0.000
7934243914	12. 8	12:11:54	8	0.000	1420.346	0.000
7934243939	12. 8	12:12:19	9	0.000	1419.817	0.000
7934243964	12. 8	12:12:44	10	0.000	1419.417	0.000
7934243989	12. 8	12:13: 9	11	0.000	1419.010	0.000
7934244014	12. 8	12:13:34	12	0.000	1418.755	0.000
7934244039	12. 8	12:13:59	13	0.000	1418.504	0.000
7934244064	12. 8	12:14:24	14	0.000	1418.270	0.000
7934244089	12. 8	12:14:49	15	0.000	1417.952	0.000
7934244113	12. 8	12:15:13	16	0.000	1417.826	0.000
7934244138	12. 8	12:15:38	17	0.000	1417.531	0.000
7934244163	12. 8	12:16: 3	18	0.000	1417.380	0.000
7934244188	12. 8	12:16:28	19	0.000	1417.131	0.000
7934244213	12. 8	12:16:53	20	0.000	1416.960	0.000
7934244238	12. 8	12:17:18	21	0.000	1416.762	0.000
7934244263	12. 8	12:17:43	22	0.000	1416.612	0.000
7934244288	12. 8	12:18: 8	23	0.000	1416.439	0.000
7934244313	12. 8	12:18:33	24	0.000	1416.240	0.000
7934244338	12. 8	12:18:58	25	0.000	1416.022	0.000
7934244363	12. 8	12:19:23	26	0.000	1415.970	0.000
7934244387	12. 8	12:19:47	27	0.000	1415.705	0.000
7934244412	12. 8	12:20:12	28	0.000	1415.636	0.000
7934244437	12. 8	12:20:37	29	0.000	1415.383	0.000
7934244462	12. 8	12:21: 2	30	0.000	1415.232	0.000
7934244487	12. 8	12:21:27	31	0.000	1415.202	0.000
7934244512	12. 8	12:21:52	32	0.000	1415.059	0.000
7934244562	12. 8	12:22:42	33	0.000	1414.757	0.000
7934244587	12. 8	12:23: 7	34	0.000	1414.708	0.000
7934244612	12. 8	12:23:32	35	0.000	1414.611	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934244637	12. 8	12:23:57	36	0.000	1414.482	0.000
7934244661	12. 8	12:24:21	37	0.000	1414.262	0.000
7934244686	12. 8	12:24:46	38	0.000	1414.226	0.000
7934244711	12. 8	12:25:11	39	0.000	1414.005	0.000
7934244736	12. 8	12:25:36	40	0.000	1413.911	0.000
7934244761	12. 8	12:26: 1	41	0.000	1413.873	0.000
7934244786	12. 8	12:26:26	42	0.000	1413.704	0.000
7934244811	12. 8	12:26:51	43	0.000	1413.689	0.000
7934244836	12. 8	12:27:16	44	0.000	1413.562	0.000
7934244861	12. 8	12:27:41	45	0.000	1413.366	0.000
7934244886	12. 8	12:28: 6	46	0.000	1413.364	0.000
7934244911	12. 8	12:28:31	47	0.000	1413.248	0.000
7934244935	12. 8	12:28:55	48	0.000	1413.114	0.000
7934244960	12. 8	12:29:20	49	0.000	1412.980	0.000
7934244985	12. 8	12:29:45	50	0.000	1412.950	0.000
7934245010	12. 8	12:30:10	51	0.000	1412.820	0.000
7934245035	12. 8	12:30:35	52	0.000	1412.836	0.000
7934245060	12. 8	12:31: 0	53	0.000	1412.644	0.000
7934245085	12. 8	12:31:25	54	0.000	1412.694	0.000
7934245110	12. 8	12:31:50	55	0.000	1412.462	0.000
7934245135	12. 8	12:32:15	56	0.000	1412.412	0.000
7934245160	12. 8	12:32:40	57	0.000	1412.341	0.000
7934245185	12. 8	12:33: 5	58	0.000	1412.241	0.000
7934245210	12. 8	12:33:30	59	0.000	1412.123	0.000
7934245234	12. 8	12:33:54	60	0.000	1412.098	0.000
7934245259	12. 8	12:34:19	61	0.000	1412.032	0.000
7934245284	12. 8	12:34:44	62	0.000	1411.875	0.000
7934245309	12. 8	12:35: 9	63	0.000	1411.963	0.000
7934245334	12. 8	12:35:34	64	0.000	1411.828	0.000
7934245359	12. 8	12:35:59	65	0.000	1411.745	0.000
7934245384	12. 8	12:36:24	66	0.000	1411.655	0.000
7934245409	12. 8	12:36:49	67	0.000	1411.525	0.000
7934245434	12. 8	12:37:14	68	0.000	1411.535	0.000
7934245459	12. 8	12:37:39	69	0.000	1411.415	0.000
7934245483	12. 8	12:38: 3	70	0.000	1411.272	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 2 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934245508	12. 8	12:38:28	71	0.000	1411.193	0.000
7934245533	12. 8	12:38:53	72	0.000	1411.090	0.000
7934245807	12. 8	12:43:27	73	0.000	1410.363	0.000
7934246007	12. 8	12:46:47	74	0.000	1409.763	0.000
7934246206	12. 8	12:50: 6	75	0.000	1409.163	0.000
7934246405	12. 8	12:53:25	76	0.000	1408.597	0.000
7934246604	12. 8	12:56:44	77	0.000	1408.011	0.000
7934246804	12. 8	13: 0: 4	78	0.000	1407.457	0.000
7934247003	12. 8	13: 3:23	79	0.000	1406.964	0.000
7934247202	12. 8	13: 6:42	80	0.000	1406.666	0.000
7934247401	12. 8	13:10: 1	81	0.000	1407.815	0.000
7934247601	12. 8	13:13:21	82	0.000	1407.947	0.000
7934247800	12. 8	13:16:40	83	0.000	1408.030	0.000
7934248647	12. 8	13:30:47	84	0.000	1407.291	0.000
7934249270	12. 8	13:41:10	85	0.000	1406.583	0.000
7934249892	12. 8	13:51:32	86	0.000	1405.873	0.000
7934250515	12. 8	14: 1:55	87	0.000	1405.273	0.000
7934251138	12. 8	14:12:18	88	0.000	1404.457	0.000
7934251760	12. 8	14:22:40	89	0.000	1403.930	0.000
7934252860	12. 8	14:41: 0	90	0.000	1402.728	0.000
7934253482	12. 8	14:51:22	91	0.000	1402.125	0.000
7934254105	12. 8	15: 1:45	92	0.000	1401.449	0.000
7934254728	12. 8	15:12: 8	93	0.000	1401.006	0.000
7934255350	12. 8	15:22:30	94	0.000	1400.408	0.000
7934255973	12. 8	15:32:53	95	0.000	1399.848	0.000
7934256596	12. 8	15:43:16	96	0.000	1399.452	0.000
7934257218	12. 8	15:53:38	97	0.000	1398.832	0.000
7934257841	12. 8	16: 4: 1	98	0.000	1398.322	0.000
7934258464	12. 8	16:14:24	99	0.000	1397.958	0.000
7934259086	12. 8	16:24:46	100	0.000	1397.479	0.000
7934259709	12. 8	16:35: 9	101	0.000	1396.968	0.000
7934260332	12. 8	16:45:32	102	0.000	1396.589	0.000
7934260954	12. 8	16:55:54	103	0.000	1396.112	0.000
7934261577	12. 8	17: 6:17	104	0.000	1395.803	0.000
7934262200	12. 8	17:16:40	105	0.000	1395.331	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934262822	12. 8	17:27: 2	106	0.000	1395.067	0.000
7934263445	12. 8	17:37:25	107	0.000	1394.587	0.000
7934264068	12. 8	17:47:48	108	0.000	1394.283	0.000
7934264690	12. 8	17:58:10	109	0.000	1393.945	0.000
7934265313	12. 8	18: 8:33	110	0.000	1393.589	0.000
7934265936	12. 8	18:18:56	111	0.000	1393.293	0.000
7934266558	12. 8	18:29:18	112	0.000	1392.967	0.000
7934267181	12. 8	18:39:41	113	0.000	1392.617	0.000
7934267804	12. 8	18:50: 4	114	0.000	1392.335	0.000
7934268426	12. 8	19: 0:26	115	0.000	1392.059	0.000
7934269049	12. 8	19:10:49	116	0.000	1391.710	0.000
7934269672	12. 8	19:21:12	117	0.000	1391.373	0.000
7934270294	12. 8	19:31:34	118	0.000	1391.233	0.000
7934270917	12. 8	19:41:57	119	0.000	1390.987	0.000
7934271540	12. 8	19:52:20	120	0.000	1390.688	0.000
7934272162	12. 8	20: 2:42	121	0.000	1390.518	0.000
7934272785	12. 8	20:13: 5	122	0.000	1390.354	0.000
7934273408	12. 8	20:23:28	123	0.000	1390.031	0.000
7934274030	12. 8	20:33:50	124	0.000	1390.008	0.000
7934274653	12. 8	20:44:13	125	0.000	1389.694	0.000
7934275276	12. 8	20:54:36	126	0.000	1389.485	0.000
7934275898	12. 8	21: 4:58	127	0.000	1389.275	0.000
7934276521	12. 8	21:15:21	128	0.000	1389.164	0.000
7934277144	12. 8	21:25:44	129	0.000	1388.920	0.000
7934277766	12. 8	21:36: 6	130	0.000	1388.659	0.000
7934278389	12. 8	21:46:29	131	0.000	1388.503	0.000
7934279012	12. 8	21:56:52	132	0.000	1388.396	0.000
7934279884	12. 8	22:11:24	133	0.000	1388.244	0.000
7934280506	12. 8	22:21:46	134	0.000	1388.003	0.000
7934281129	12. 8	22:32: 9	135	0.000	1387.798	0.000
7934281752	12. 8	22:42:32	136	0.000	1387.647	0.000
7934282374	12. 8	22:52:54	137	0.000	1387.497	0.000
7934282997	12. 8	23: 3:17	138	0.000	1387.338	0.000
7934283620	12. 8	23:13:40	139	0.000	1387.308	0.000
7934284242	12. 8	23:24: 2	140	0.000	1387.085	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 3 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934284865	12. 8	23:34:25	141	0.000	1386.886	0.000
7934285487	12. 8	23:44:47	142	0.000	1386.779	0.000
7934286110	12. 8	23:55:10	143	0.000	1386.609	0.000
7934300333	12. 9	0: 5:33	144	0.000	1386.541	0.000
7934300955	12. 9	0:15:55	145	0.000	1386.391	0.000
7934301578	12. 9	0:26:18	146	0.000	1386.197	0.000
7934302201	12. 9	0:36:41	147	0.000	1386.129	0.000
7934302823	12. 9	0:47: 3	148	0.000	1386.072	0.000
7934303446	12. 9	0:57:26	149	0.000	1385.847	0.000
7934304069	12. 9	1: 7:49	150	0.000	1385.709	0.000
7934304691	12. 9	1:18:11	151	0.000	1385.718	0.000
7934305314	12. 9	1:28:34	152	0.000	1385.466	0.000
7934305936	12. 9	1:38:56	153	0.000	1385.459	0.000
7934306559	12. 9	1:49:19	154	0.000	1385.378	0.000
7934307182	12. 9	1:59:42	155	0.000	1385.220	0.000
7934307804	12. 9	2:10: 4	156	0.000	1385.105	0.000
7934308427	12. 9	2:20:27	157	0.000	1385.053	0.000
7934309050	12. 9	2:30:50	158	0.000	1384.906	0.000
7934309672	12. 9	2:41:12	159	0.000	1384.764	0.000
7934310295	12. 9	2:51:35	160	0.000	1384.784	0.000
7934310918	12. 9	3: 1:58	161	0.000	1384.710	0.000
7934311540	12. 9	3:12:20	162	0.000	1384.554	0.000
7934312163	12. 9	3:22:43	163	0.000	1384.477	0.000
7934312785	12. 9	3:33: 5	164	0.000	1384.418	0.000
7934313408	12. 9	3:43:28	165	0.000	1385.395	0.000
7934314031	12. 9	3:53:51	166	0.000	1385.957	0.000
7934314653	12. 9	4: 4:13	167	0.000	1386.075	0.000
7934315276	12. 9	4:14:36	168	0.000	1386.418	0.000
7934315899	12. 9	4:24:59	169	0.000	1386.618	0.000
7934316521	12. 9	4:35:21	170	0.000	1386.809	0.000
7934317144	12. 9	4:45:44	171	0.000	1386.998	0.000
7934317767	12. 9	4:56: 7	172	0.000	1387.176	0.000
7934318389	12. 9	5: 6:29	173	0.000	1387.337	0.000
7934319012	12. 9	5:16:52	174	0.000	1387.530	0.000
7934319635	12. 9	5:27:15	175	0.000	1387.733	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934320257	12. 9	5:37:37	176	0.000	1387.929	0.000
7934320880	12. 9	5:48: 0	177	0.000	1388.105	0.000
7934321502	12. 9	5:58:22	178	0.000	1388.167	0.000
7934322125	12. 9	6: 8:45	179	0.000	1388.392	0.000
7934322748	12. 9	6:19: 8	180	0.000	1388.542	0.000
7934323370	12. 9	6:29:30	181	0.000	1388.560	0.000
7934323993	12. 9	6:39:53	182	0.000	1388.707	0.000
7934324616	12. 9	6:50:16	183	0.000	1388.897	0.000
7934325238	12. 9	7: 0:38	184	0.000	1388.962	0.000
7934325861	12. 9	7:11: 1	185	0.000	1389.126	0.000
7934326484	12. 9	7:21:24	186	0.000	1389.198	0.000
7934327106	12. 9	7:31:46	187	0.000	1389.336	0.000
7934327729	12. 9	7:42: 9	188	0.000	1389.354	0.000
7934328352	12. 9	7:52:32	189	0.000	1389.460	0.000
7934328974	12. 9	8: 2:54	190	0.000	1389.616	0.000
7934329597	12. 9	8:13:17	191	0.000	1389.662	0.000
7934330220	12. 9	8:23:40	192	0.000	1389.756	0.000
7934330842	12. 9	8:34: 2	193	0.000	1389.829	0.000
7934331465	12. 9	8:44:25	194	0.000	1389.844	0.000
7934332088	12. 9	8:54:48	195	0.000	1390.025	0.000
7934332710	12. 9	9: 5:10	196	0.000	1390.018	0.000
7934333333	12. 9	9:15:33	197	0.000	1390.103	0.000
7934333980	12. 9	9:26:20	198	0.000	1390.149	0.000
7934334603	12. 9	9:36:43	199	0.000	1390.169	0.000
7934335226	12. 9	9:47: 6	200	0.000	1390.167	0.000
7934335848	12. 9	9:57:28	201	0.000	1390.179	0.000
7934336471	12. 9	10: 7:51	202	0.000	1390.163	0.000
7934337094	12. 9	10:18:14	203	0.000	1390.174	0.000
7934337716	12. 9	10:28:36	204	0.000	1390.188	0.000
7934338339	12. 9	10:38:59	205	0.000	1390.270	0.000
7934338962	12. 9	10:49:22	206	0.000	1390.245	0.000
7934339584	12. 9	10:59:44	207	0.000	1390.292	0.000
7934340207	12. 9	11:10: 7	208	0.000	1390.225	0.000
7934340830	12. 9	11:20:30	209	0.000	1390.259	0.000
7934341452	12. 9	11:30:52	210	0.000	1390.323	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 4 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934342075	12. 9	11:41:15	211	0.000	1390.236	0.000
7934342698	12. 9	11:51:38	212	0.000	1390.281	0.000
7934343320	12. 9	12: 2: 0	213	0.000	1390.288	0.000
7934343943	12. 9	12:12:23	214	0.000	1390.288	0.000
7934344566	12. 9	12:22:46	215	0.000	1390.210	0.000
7934345188	12. 9	12:33: 8	216	0.000	1390.291	0.000
7934345811	12. 9	12:43:31	217	0.000	1390.305	0.000
7934346434	12. 9	12:53:54	218	0.000	1390.322	0.000
7934347056	12. 9	13: 4:16	219	0.000	1390.304	0.000
7934347679	12. 9	13:14:39	220	0.000	1390.404	0.000
7934348301	12. 9	13:25: 1	221	0.000	1390.333	0.000
7934348924	12. 9	13:35:24	222	0.000	1390.343	0.000
7934349547	12. 9	13:45:47	223	0.000	1390.349	0.000
7934350169	12. 9	13:56: 9	224	0.000	1390.323	0.000
7934350792	12. 9	14: 6:32	225	0.000	1390.287	0.000
7934351415	12. 9	14:16:55	226	0.000	1390.374	0.000
7934352037	12. 9	14:27:17	227	0.000	1390.300	0.000
7934352660	12. 9	14:37:40	228	0.000	1390.330	0.000
7934353283	12. 9	14:48: 3	229	0.000	1390.354	0.000
7934353905	12. 9	14:58:25	230	0.000	1390.372	0.000
7934354528	12. 9	15: 8:48	231	0.000	1390.391	0.000
7934356969	12. 9	15:49:29	232	0.000	1390.307	0.000
7934358787	12. 9	16:19:47	233	0.000	1390.254	0.000
7934360605	12. 9	16:50: 5	234	0.000	1390.283	0.000
7934362423	12. 9	17:20:23	235	0.000	1390.257	0.000
7934364241	12. 9	17:50:41	236	0.000	1390.181	0.000
7934366060	12. 9	18:21: 0	237	0.000	1390.241	0.000
7934367878	12. 9	18:51:18	238	0.000	1390.142	0.000
7934369696	12. 9	19:21:36	239	0.000	1390.214	0.000
7934371514	12. 9	19:51:54	240	0.000	1390.112	0.000
7934373332	12. 9	20:22:12	241	0.000	1390.075	0.000
7934375150	12. 9	20:52:30	242	0.000	1390.241	0.000
7934376969	12. 9	21:22:49	243	0.000	1390.091	0.000
7934378787	12. 9	21:53: 7	244	0.000	1390.093	0.000
7934380605	12. 9	22:23:25	245	0.000	1390.118	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934382423	12. 9	22:53:43	246	0.000	1390.203	0.000
7934384241	12. 9	23:24: 1	247	0.000	1390.138	0.000
7934386059	12. 9	23:54:19	248	0.000	1390.051	0.000
7934401477	12.10	0:24:37	249	0.000	1390.243	0.000
7934403296	12.10	0:54:56	250	0.000	1390.216	0.000
7934405114	12.10	1:25:14	251	0.000	1390.237	0.000
7934406932	12.10	1:55:32	252	0.000	1390.264	0.000
7934408750	12.10	2:25:50	253	0.000	1390.255	0.000
7934410568	12.10	2:56: 8	254	0.000	1390.107	0.000
7934412386	12.10	3:26:26	255	0.000	1390.098	0.000
7934414205	12.10	3:56:45	256	0.000	1390.130	0.000
7934416023	12.10	4:27: 3	257	0.000	1390.207	0.000
7934417841	12.10	4:57:21	258	0.000	1390.141	0.000
7934419659	12.10	5:27:39	259	0.000	1390.059	0.000
7934421477	12.10	5:57:57	260	0.000	1390.107	0.000
7934423295	12.10	6:28:15	261	0.000	1390.146	0.000
7934425113	12.10	6:58:33	262	0.000	1390.054	0.000
7934426932	12.10	7:28:52	263	0.000	1389.991	0.000
7934428750	12.10	7:59:10	264	0.000	1390.093	0.000
7934430568	12.10	8:29:28	265	0.000	1389.980	0.000
7934432386	12.10	8:59:46	266	0.000	1390.157	0.000
7934434204	12.10	9:30: 4	267	0.000	1390.130	0.000
7934436022	12.10	10: 0:22	268	0.000	1390.016	0.000
7934437840	12.10	10:30:40	269	0.000	1389.518	0.000
7934439659	12.10	11: 0:59	270	0.000	1389.291	0.000
7934442423	12.10	11:47: 3	271	0.000	1389.111	0.000
7934444241	12.10	12:17:21	272	0.000	1380.012	0.000
7934446059	12.10	12:47:39	273	0.000	1376.795	0.000
7934447877	12.10	13:17:57	274	0.000	1381.305	0.000
7934449695	12.10	13:48:15	275	0.000	1381.737	0.000
7934451538	12.10	14:18:58	276	0.000	1382.087	0.000
7934453356	12.10	14:49:16	277	0.000	1382.338	0.000
7934455175	12.10	15:19:35	278	0.000	1382.605	0.000
7934456993	12.10	15:49:53	279	0.000	1383.325	0.000
7934458811	12.10	16:20:11	280	0.000	1385.235	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 5 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934460629	12.10	16:50:29	281	0.000	1386.227	0.000
7934462447	12.10	17:20:47	282	0.000	1384.880	0.000
7934464265	12.10	17:51: 5	283	0.000	1386.111	0.000
7934466083	12.10	18:21:23	284	0.000	1386.554	0.000
7934467901	12.10	18:51:41	285	0.000	1386.948	0.000
7934469719	12.10	19:21:59	286	0.000	1387.281	0.000
7934471537	12.10	19:52:17	287	0.000	1387.606	0.000
7934473356	12.10	20:22:36	288	0.000	1387.901	0.000
7934475174	12.10	20:52:54	289	0.000	1388.124	0.000
7934476992	12.10	21:23:12	290	0.000	1388.374	0.000
7934478810	12.10	21:53:30	291	0.000	1388.581	0.000
7934480628	12.10	22:23:48	292	0.000	1388.745	0.000
7934482446	12.10	22:54: 6	293	0.000	1388.910	0.000
7934484264	12.10	23:24:24	294	0.000	1389.102	0.000
7934486083	12.10	23:54:43	295	0.000	1389.247	0.000
7934501501	12.11	0:25: 1	296	0.000	1389.379	0.000
7934503319	12.11	0:55:19	297	0.000	1389.436	0.000
7934505137	12.11	1:25:37	298	0.000	1389.575	0.000
7934506955	12.11	1:55:55	299	0.000	1389.705	0.000
7934508773	12.11	2:26:13	300	0.000	1389.900	0.000
7934510591	12.11	2:56:31	301	0.000	1389.990	0.000
7934512410	12.11	3:26:50	302	0.000	1390.072	0.000
7934514228	12.11	3:57: 8	303	0.000	1390.146	0.000
7934516046	12.11	4:27:26	304	0.000	1390.216	0.000
7934517864	12.11	4:57:44	305	0.000	1390.367	0.000
7934519682	12.11	5:28: 2	306	0.000	1390.382	0.000
7934521500	12.11	5:58:20	307	0.000	1390.486	0.000
7934523318	12.11	6:28:38	308	0.000	1390.696	0.000
7934525137	12.11	6:58:57	309	0.000	1391.830	0.000
7934526955	12.11	7:29:15	310	0.000	1386.836	0.000
7934529723	12.11	8:15:23	311	0.000	1392.210	0.000
7934532064	12.11	8:54:24	312	0.000	1387.922	0.000
7934532189	12.11	8:56:29	313	0.000	1387.966	0.000
7934532313	12.11	8:58:33	314	0.000	1387.946	0.000
7934532438	12.11	9: 0:38	315	0.000	1387.892	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934532562	12.11	9: 2:42	316	0.000	1387.859	0.000
7934532687	12.11	9: 4:47	317	0.000	1388.003	0.000
7934532811	12.11	9: 6:51	318	0.000	1387.955	0.000
7934532936	12.11	9: 8:56	319	0.000	1388.080	0.000
7934533060	12.11	9:11: 0	320	0.000	1388.095	0.000
7934534741	12.11	9:39: 1	321	0.000	1388.323	0.000
7934536433	12.11	10:10:33	322	0.000	1388.563	0.000
7934537555	12.11	10:25:55	323	0.000	1388.631	0.000
7934538476	12.11	10:41:16	324	0.000	1388.691	0.000
7934539398	12.11	10:56:38	325	0.000	1388.805	0.000
7934540319	12.11	11:11:59	326	0.000	1388.864	0.000
7934541241	12.11	11:27:21	327	0.000	1389.056	0.000
7934542162	12.11	11:42:42	328	0.000	1389.052	0.000
7934543084	12.11	11:58: 4	329	0.000	1389.144	0.000
7934544006	12.11	12:13:26	330	0.000	1389.133	0.000
7934544927	12.11	12:28:47	331	0.000	1389.337	0.000
7934545849	12.11	12:44: 9	332	0.000	1389.286	0.000
7934546770	12.11	12:59:30	333	0.000	1389.357	0.000
7934547692	12.11	13:14:52	334	0.000	1389.371	0.000
7934548613	12.11	13:30:13	335	0.000	1389.526	0.000
7934549908	12.11	13:51:48	336	0.000	1389.466	0.000
7934550830	12.11	14: 7:10	337	0.000	1389.643	0.000
7934551751	12.11	14:22:31	338	0.000	1389.608	0.000
7934552673	12.11	14:37:53	339	0.000	1389.636	0.000
7934553420	12.11	14:50:20	340	0.000	1389.764	0.000
7934553445	12.11	14:50:45	341	0.000	1389.652	0.000
7934553470	12.11	14:51:10	342	0.000	1389.709	0.000
7934553495	12.11	14:51:35	343	0.000	1389.607	0.000
7934553520	12.11	14:52: 0	344	0.000	1389.700	0.000
7934553545	12.11	14:52:25	345	0.000	1389.691	0.000
7934553569	12.11	14:52:49	346	0.000	1389.834	0.000
7934553594	12.11	14:53:14	347	0.000	1389.770	0.000
7934553619	12.11	14:53:39	348	0.000	1389.426	0.000
7934553644	12.11	14:54: 4	349	0.000	1389.098	0.000
7934553669	12.11	14:54:29	350	0.000	1388.274	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 6 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934553918	12.11	14:58:38	351	0.000	1384.744	0.000
7934553943	12.11	14:59: 3	352	0.000	1384.567	0.000
7934553968	12.11	14:59:28	353	0.000	1384.273	0.000
7934553993	12.11	14:59:53	354	0.000	1384.080	0.000
7934554018	12.11	15: 0:18	355	0.000	1383.853	0.000
7934554043	12.11	15: 0:43	356	0.000	1383.728	0.000
7934554068	12.11	15: 1: 8	357	0.000	1383.411	0.000
7934554092	12.11	15: 1:32	358	0.000	1383.288	0.000
7934554117	12.11	15: 1:57	359	0.000	1383.043	0.000
7934554142	12.11	15: 2:22	360	0.000	1383.105	0.000
7934554167	12.11	15: 2:47	361	0.000	1382.934	0.000
7934554192	12.11	15: 3:12	362	0.000	1382.679	0.000
7934554217	12.11	15: 3:37	363	0.000	1382.485	0.000
7934554242	12.11	15: 4: 2	364	0.000	1382.408	0.000
7934554267	12.11	15: 4:27	365	0.000	1382.309	0.000
7934554292	12.11	15: 4:52	366	0.000	1382.175	0.000
7934554317	12.11	15: 5:17	367	0.000	1382.049	0.000
7934554341	12.11	15: 5:41	368	0.000	1381.849	0.000
7934554366	12.11	15: 6: 6	369	0.000	1381.838	0.000
7934554391	12.11	15: 6:31	370	0.000	1381.561	0.000
7934554416	12.11	15: 6:56	371	0.000	1381.554	0.000
7934554441	12.11	15: 7:21	372	0.000	1381.378	0.000
7934554466	12.11	15: 7:46	373	0.000	1381.361	0.000
7934554491	12.11	15: 8:11	374	0.000	1381.175	0.000
7934554516	12.11	15: 8:36	375	0.000	1381.060	0.000
7934554541	12.11	15: 9: 1	376	0.000	1380.954	0.000
7934554566	12.11	15: 9:26	377	0.000	1380.907	0.000
7934554591	12.11	15: 9:51	378	0.000	1380.931	0.000
7934554615	12.11	15:10:15	379	0.000	1380.823	0.000
7934554640	12.11	15:10:40	380	0.000	1380.605	0.000
7934554665	12.11	15:11: 5	381	0.000	1380.565	0.000
7934554765	12.11	15:12:45	382	0.000	1380.202	0.000
7934554790	12.11	15:13:10	383	0.000	1380.103	0.000
7934554815	12.11	15:13:35	384	0.000	1380.109	0.000
7934554840	12.11	15:14: 0	385	0.000	1380.087	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934554864	12.11	15:14:24	386	0.000	1380.146	0.000
7934554889	12.11	15:14:49	387	0.000	1380.010	0.000
7934554914	12.11	15:15:14	388	0.000	1380.095	0.000
7934554939	12.11	15:15:39	389	0.000	1379.827	0.000
7934554964	12.11	15:16: 4	390	0.000	1379.862	0.000
7934554989	12.11	15:16:29	391	0.000	1379.977	0.000
7934555014	12.11	15:16:54	392	0.000	1382.631	0.000
7934555039	12.11	15:17:19	393	0.000	1383.705	0.000
7934555064	12.11	15:17:44	394	0.000	1384.415	0.000
7934555089	12.11	15:18: 9	395	0.000	1384.345	0.000
7934555114	12.11	15:18:34	396	0.000	1384.434	0.000
7934555138	12.11	15:18:58	397	0.000	1383.888	0.000
7934555163	12.11	15:19:23	398	0.000	1383.733	0.000
7934555188	12.11	15:19:48	399	0.000	1383.730	0.000
7934555213	12.11	15:20:13	400	0.000	1383.163	0.000
7934555238	12.11	15:20:38	401	0.000	1382.943	0.000
7934555263	12.11	15:21: 3	402	0.000	1382.832	0.000
7934555288	12.11	15:21:28	403	0.000	1382.683	0.000
7934555313	12.11	15:21:53	404	0.000	1382.721	0.000
7934555338	12.11	15:22:18	405	0.000	1382.742	0.000
7934555363	12.11	15:22:43	406	0.000	1382.864	0.000
7934555387	12.11	15:23: 7	407	0.000	1382.725	0.000
7934555412	12.11	15:23:32	408	0.000	1382.753	0.000
7934555437	12.11	15:23:57	409	0.000	1382.817	0.000
7934555462	12.11	15:24:22	410	0.000	1382.846	0.000
7934555487	12.11	15:24:47	411	0.000	1382.746	0.000
7934555512	12.11	15:25:12	412	0.000	1382.639	0.000
7934555537	12.11	15:25:37	413	0.000	1382.721	0.000
7934555562	12.11	15:26: 2	414	0.000	1382.748	0.000
7934555587	12.11	15:26:27	415	0.000	1382.686	0.000
7934555612	12.11	15:26:52	416	0.000	1382.618	0.000
7934555637	12.11	15:27:17	417	0.000	1382.723	0.000
7934555661	12.11	15:27:41	418	0.000	1382.609	0.000
7934555686	12.11	15:28: 6	419	0.000	1382.729	0.000
7934555711	12.11	15:28:31	420	0.000	1382.592	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 7 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934555736	12.11	15:28:56	421	0.000	1382.623	0.000
7934555761	12.11	15:29:21	422	0.000	1382.730	0.000
7934555786	12.11	15:29:46	423	0.000	1382.638	0.000
7934555811	12.11	15:30:11	424	0.000	1382.547	0.000
7934555836	12.11	15:30:36	425	0.000	1382.623	0.000
7934555861	12.11	15:31: 1	426	0.000	1382.517	0.000
7934556284	12.11	15:38: 4	427	0.000	1382.269	0.000
7934556608	12.11	15:43:28	428	0.000	1382.107	0.000
7934556932	12.11	15:48:52	429	0.000	1381.712	0.000
7934557903	12.11	16: 5: 3	430	0.000	1380.991	0.000
7934558526	12.11	16:15:26	431	0.000	1384.912	0.000
7934559148	12.11	16:25:48	432	0.000	1384.458	0.000
7934559771	12.11	16:36:11	433	0.000	1385.840	0.000
7934560393	12.11	16:46:33	434	0.000	1385.858	0.000
7934561016	12.11	16:56:56	435	0.000	1386.072	0.000
7934561639	12.11	17: 7:19	436	0.000	1386.410	0.000
7934562261	12.11	17:17:41	437	0.000	1386.807	0.000
7934562884	12.11	17:28: 4	438	0.000	1387.178	0.000
7934563507	12.11	17:38:27	439	0.000	1387.320	0.000
7934564129	12.11	17:48:49	440	0.000	1387.633	0.000
7934564752	12.11	17:59:12	441	0.000	1387.927	0.000
7934565375	12.11	18: 9:35	442	0.000	1388.151	0.000
7934565997	12.11	18:19:57	443	0.000	1388.546	0.000
7934566620	12.11	18:30:20	444	0.000	1388.722	0.000
7934567242	12.11	18:40:42	445	0.000	1388.988	0.000
7934567865	12.11	18:51: 5	446	0.000	1389.026	0.000
7934568488	12.11	19: 1:28	447	0.000	1389.206	0.000
7934569110	12.11	19:11:50	448	0.000	1389.496	0.000
7934569733	12.11	19:22:13	449	0.000	1389.590	0.000
7934570356	12.11	19:32:36	450	0.000	1390.048	0.000
7934570978	12.11	19:42:58	451	0.000	1389.976	0.000
7934571601	12.11	19:53:21	452	0.000	1390.345	0.000
7934572224	12.11	20: 3:44	453	0.000	1390.308	0.000
7934572846	12.11	20:14: 6	454	0.000	1390.650	0.000
7934573469	12.11	20:24:29	455	0.000	1390.800	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934574092	12.11	20:34:52	456	0.000	1390.743	0.000
7934574714	12.11	20:45:14	457	0.000	1390.901	0.000
7934575337	12.11	20:55:37	458	0.000	1391.132	0.000
7934575960	12.11	21: 6: 0	459	0.000	1391.247	0.000
7934576582	12.11	21:16:22	460	0.000	1391.387	0.000
7934577205	12.11	21:26:45	461	0.000	1391.613	0.000
7934577828	12.11	21:37: 8	462	0.000	1391.631	0.000
7934578450	12.11	21:47:30	463	0.000	1391.974	0.000
7934579073	12.11	21:57:53	464	0.000	1392.015	0.000
7934579696	12.11	22: 8:16	465	0.000	1391.915	0.000
7934580318	12.11	22:18:38	466	0.000	1392.099	0.000
7934580941	12.11	22:29: 1	467	0.000	1392.075	0.000
7934581563	12.11	22:39:23	468	0.000	1392.274	0.000
7934582186	12.11	22:49:46	469	0.000	1392.366	0.000
7934582809	12.11	23: 0: 9	470	0.000	1392.412	0.000
7934583431	12.11	23:10:31	471	0.000	1395.067	0.000
7934584054	12.11	23:20:54	472	0.000	1397.391	0.000
7934584677	12.11	23:31:17	473	0.000	1398.100	0.000
7934585300	12.11	23:41:40	474	0.000	1398.960	0.000
7934585922	12.11	23:52: 2	475	0.000	1399.951	0.000
7934600145	12.12	0: 2:25	476	0.000	1400.905	0.000
7934600768	12.12	0:12:48	477	0.000	1401.486	0.000
7934601390	12.12	0:23:10	478	0.000	1401.979	0.000
7934602013	12.12	0:33:33	479	0.000	1402.433	0.000
7934602636	12.12	0:43:56	480	0.000	1403.209	0.000
7934603258	12.12	0:54:18	481	0.000	1403.882	0.000
7934603881	12.12	1: 4:41	482	0.000	1404.526	0.000
7934604504	12.12	1:15: 4	483	0.000	1404.983	0.000
7934605126	12.12	1:25:26	484	0.000	1405.801	0.000
7934605749	12.12	1:35:49	485	0.000	1405.986	0.000
7934606372	12.12	1:46:12	486	0.000	1406.661	0.000
7934606995	12.12	1:56:35	487	0.000	1407.128	0.000
7934607617	12.12	2: 6:57	488	0.000	1407.737	0.000
7934608240	12.12	2:17:20	489	0.000	1407.807	0.000
7934608863	12.12	2:27:43	490	0.000	1408.712	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 8 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934609485	12.12	2:38: 5	491	0.000	1409.024	0.000
7934610108	12.12	2:48:28	492	0.000	1409.501	0.000
7934610731	12.12	2:58:51	493	0.000	1410.011	0.000
7934611354	12.12	3: 9:14	494	0.000	1410.542	0.000
7934611976	12.12	3:19:36	495	0.000	1410.530	0.000
7934612599	12.12	3:29:59	496	0.000	1411.352	0.000
7934613222	12.12	3:40:22	497	0.000	1411.717	0.000
7934613844	12.12	3:50:44	498	0.000	1412.139	0.000
7934614467	12.12	4: 1: 7	499	0.000	1412.488	0.000
7934615090	12.12	4:11:30	500	0.000	1412.911	0.000
7934615713	12.12	4:21:53	501	0.000	1413.416	0.000
7934616335	12.12	4:32:15	502	0.000	1413.781	0.000
7934616958	12.12	4:42:38	503	0.000	1413.870	0.000
7934617581	12.12	4:53: 1	504	0.000	1414.361	0.000
7934618204	12.12	5: 3:24	505	0.000	1414.520	0.000
7934618826	12.12	5:13:46	506	0.000	1414.897	0.000
7934619449	12.12	5:24: 9	507	0.000	1415.389	0.000
7934620072	12.12	5:34:32	508	0.000	1415.389	0.000
7934620695	12.12	5:44:55	509	0.000	1415.708	0.000
7934621317	12.12	5:55:17	510	0.000	1416.128	0.000
7934621940	12.12	6: 5:40	511	0.000	1416.607	0.000
7934622563	12.12	6:16: 3	512	0.000	1416.780	0.000
7934623186	12.12	6:26:26	513	0.000	1416.876	0.000
7934623808	12.12	6:36:48	514	0.000	1417.073	0.000
7934624431	12.12	6:47:11	515	0.000	1417.605	0.000
7934625054	12.12	6:57:34	516	0.000	1417.739	0.000
7934625677	12.12	7: 7:57	517	0.000	1417.880	0.000
7934626299	12.12	7:18:19	518	0.000	1418.285	0.000
7934627146	12.12	7:32:26	519	0.000	1418.516	0.000
7934627769	12.12	7:42:49	520	0.000	1418.562	0.000
7934628392	12.12	7:53:12	521	0.000	1418.812	0.000
7934629014	12.12	8: 3:34	522	0.000	1419.445	0.000
7934629637	12.12	8:13:57	523	0.000	1419.679	0.000
7934630260	12.12	8:24:20	524	0.000	1419.645	0.000
7934630883	12.12	8:34:43	525	0.000	1419.770	0.000

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934631505	12.12	8:45: 5	526	0.000	1420.152	0.000
7934632128	12.12	8:55:28	527	0.000	1420.315	0.000
7934632751	12.12	9: 5:51	528	0.000	1420.276	0.000
7934633374	12.12	9:16:14	529	0.000	1420.610	0.000
7934633997	12.12	9:26:37	530	0.000	1420.919	0.000
7934634619	12.12	9:36:59	531	0.000	1421.007	0.000
7934635242	12.12	9:47:22	532	0.000	1421.382	0.000
7934635865	12.12	9:57:45	533	0.000	1421.191	0.000
7934636488	12.12	10: 8: 8	534	0.000	1421.457	0.000
7934637110	12.12	10:18:30	535	0.000	1422.022	0.000
7934637733	12.12	10:28:53	536	0.000	1421.758	0.000
7934638356	12.12	10:39:16	537	0.000	1421.965	0.000
7934640548	12.12	11:15:48	538	0.000	1422.346	0.000
7934642366	12.12	11:46: 6	539	0.000	1423.093	0.000
7934644185	12.12	12:16:25	540	0.000	1423.211	0.000
7934646003	12.12	12:46:43	541	0.000	1423.630	0.000
7934647822	12.12	13:17: 2	542	0.000	1424.125	0.000
7934649640	12.12	13:47:20	543	0.000	1424.384	0.000
7934651459	12.12	14:17:39	544	0.000	1424.813	0.000
7934653277	12.12	14:47:57	545	0.000	1424.882	0.000
7934655096	12.12	15:18:16	546	0.000	1425.331	0.000
7934656914	12.12	15:48:34	547	0.000	1425.417	0.000
7934658733	12.12	16:18:53	548	0.000	1425.462	0.000
7934660551	12.12	16:49:11	549	0.000	1425.833	0.000
7934662370	12.12	17:19:30	550	0.000	1426.166	0.000
7934664188	12.12	17:49:48	551	0.000	1426.435	0.000
7934666007	12.12	18:20: 7	552	0.000	1426.633	0.000
7934667825	12.12	18:50:25	553	0.000	1426.866	0.000
7934669644	12.12	19:20:44	554	0.000	1426.750	0.000
7934671462	12.12	19:51: 2	555	0.000	1427.163	0.000
7934673281	12.12	20:21:21	556	0.000	1426.963	0.000
7934675100	12.12	20:51:40	557	0.000	1427.419	0.000
7934676918	12.12	21:21:58	558	0.000	1427.337	0.000
7934678737	12.12	21:52:17	559	0.000	1427.329	0.000
7934680555	12.12	22:22:35	560	0.000	1427.531	0.000

TABLE E-3. Raw Data For Test DC-8/IF/z9/OTt01.
(Sheet 9 of 9)

RAW DATA FROM 12. 8 12: 9: 0 TO 12.13 14: 0: 0

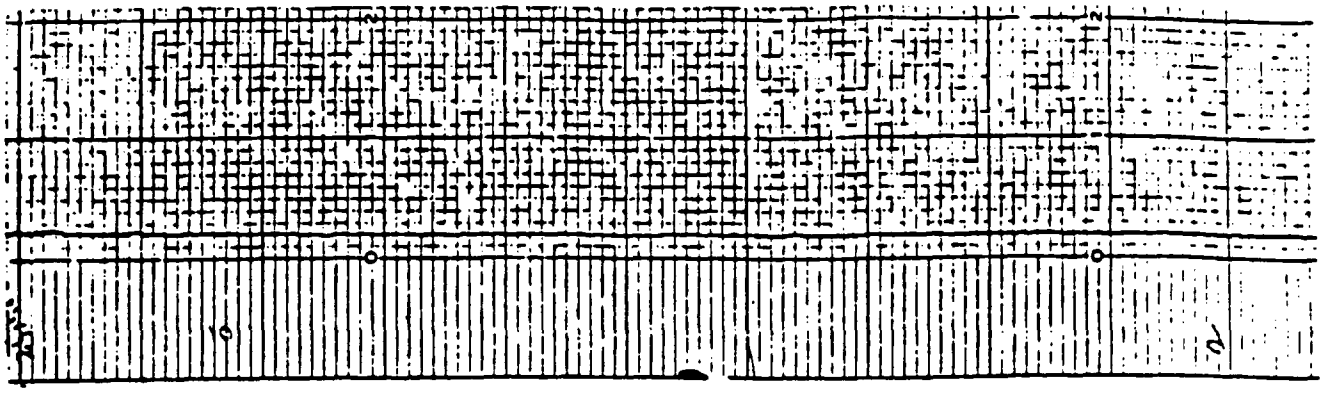
YYDDDSSSSS	DATE	TIME	INDEX	PRES P1	PRES P2	PRES P3
7934682374	12.12	22:52:54	561	0.000	1427.860	0.000
7934684192	12.12	23:23:12	562	0.000	1427.706	0.000
7934686011	12.12	23:53:31	563	0.000	1427.807	0.000
7934701429	12.13	0:23:49	564	0.000	1428.018	0.000
7934703248	12.13	0:54: 8	565	0.000	1427.950	0.000
7934705066	12.13	1:24:26	566	0.000	1428.222	0.000
7934706885	12.13	1:54:45	567	0.000	1428.188	0.000
7934708703	12.13	2:25: 3	568	0.000	1428.699	0.000
7934710522	12.13	2:55:22	569	0.000	1428.300	0.000
7934712340	12.13	3:25:40	570	0.000	1428.703	0.000
7934714159	12.13	3:55:59	571	0.000	1428.816	0.000
7934715978	12.13	4:26:18	572	0.000	1428.700	0.000
7934717796	12.13	4:56:36	573	0.000	1428.804	0.000
7934719615	12.13	5:26:55	574	0.000	1428.796	0.000
7934721433	12.13	5:57:13	575	0.000	1429.032	0.000
7934723252	12.13	6:27:32	576	0.000	1428.944	0.000
7934725070	12.13	6:57:50	577	0.000	1428.932	0.000
7934726889	12.13	7:28: 9	578	0.000	1429.002	0.000
7934728707	12.13	7:58:27	579	0.000	1428.876	0.000
7934730526	12.13	8:28:46	580	0.000	1428.765	0.000
7934732344	12.13	8:59: 4	581	0.000	1429.039	0.000
7934734163	12.13	9:29:23	582	0.000	1429.239	0.000
7934741412	12.13	11:30:12	583	0.000	1429.641	0.000
7934742334	12.13	11:45:34	584	0.000	1429.410	0.000
7934743256	12.13	12: 0:56	585	0.000	1429.459	0.000
7934744177	12.13	12:16:17	586	0.000	1429.482	0.000
7934745099	12.13	12:31:39	587	0.000	1429.445	0.000
7934746021	12.13	12:47: 1	588	0.000	1429.477	0.000
7934746943	12.13	13: 2:23	589	0.000	1429.383	0.000
7934747864	12.13	13:17:44	590	0.000	1429.962	0.000
7934748786	12.13	13:33: 6	591	0.000	1429.445	0.000
7934749708	12.13	13:48:28	592	0.000	1429.621	0.000

TABLE E-4. Discharge/Injection Flow Rates for Test DC-7/IF/z9zTt01. (Sheet 1 of 2)

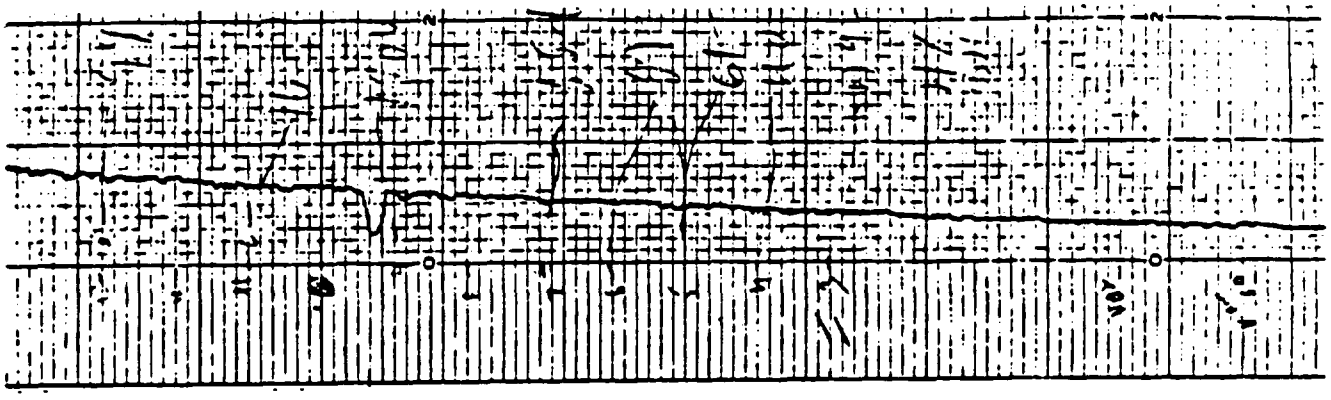
DATE	TIME	METER READING (Gallons)	FLOW RATES (gpm) Q_o	$Q_{div.}$	REMARKS
12/08/79	12:10	3530	-	-	Pump on at DC7
	12:16	-	4.3	-	
	12:20	-	4.3	-	
	12:22	3585	4.12	-	
	12:27	3617	4.12	-	
	12:31	3624	4.0	-	
	12:34	3637	4.0	-	
	12:43	3678	4.0	-	
	12:53	3711	4.0	-	
	13:05	3755	4.0	-	
	13:06	-	2.4	-	
	13:07	-	2.4	-	
	13:08	-	2.07	-	
	13:09	-	2.0	-	
	13:10	-	2.14	-	
	13:11	-	2.61	-	
	13:12	-	2.61	-	
	13:13	-	2.4	-	
	13:24	3803	2.3	-	
	13:50	3860	2.3	-	
	15:45	4127	2.07	-	
	16:49	4252	2.07	-	
	20:20	4676	1.88	-	
	22:05	4886	1.88	-	
12/09/79	01:18	5246	1.82	-	
	03:22	5472	1.82	-	
	03:41	5492	1.15	-	
	05:25	5623	1.33	-	
	09:05	-	1.33	-	
	15:10	-	1.4	-	
	16:55	6547	1.4	-	
	18:50	6704	1.4	-	
	21:03	6892	1.4	-	
	23:02	7068	1.36	-	
12/10/79	01:14	7326	1.36	-	
	02:11	7327	1.4	-	
	04:30	7510	1.3	-	
	19:23	8704	1.3	-	
	20:40	8809	1.28	-	
	22:06	8908	1.22	-	
	23:20	9088	1.3	-	

TABLE E-4. Discharge/Injection Flow Rates for Test DC-7/IF/z9/Tt01. (Sheet 2 of 2)

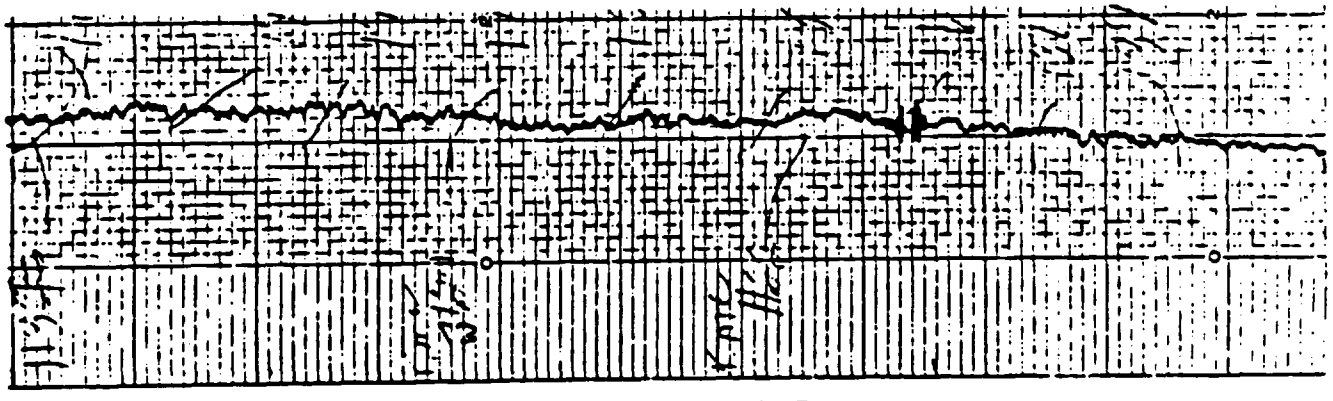
DATE	TIME	METER READING (Gallons)	FLOW RATES (gpm) Q_o	$Q_{div.}$	REMARKS
12/11/79	02:00	9222	1.28	-	
	04:30	9426	1.3	-	
	09:40	-	1.33	-	
	10:11	9878	1.28	-	
	12:15	10039	1.33	-	
	12:50	10086	1.36	-	
	13:55	10172	1.33	-	
	14:52	10248	1.33	-	
	15:05	-	-	-	Tracer injected in DC8
	15:13	10353	-	-	
	15:16	-	-	-	Start injecting part of water into DC8
	15:24	10371	.98	-	
	15:34	10381	.97	-	
	15:39	-	-	1.12	
	15:50	-	-	1.12	
	15:58	10401	.94	-	
	16:05	10407	.91	-	
	16:22	10442	2.31	-	Pit valve closed
	16:34	-	-	-	Pit valve opened
	16:35	10475	2.0	-	
	17:17	10570	-	1.04	
	18:12	10708	2.4	1.05	
	19:14	10874	2.48	1.08	
	20:27	11041	2.43	1.11	
	21:17	11166	2.56	1.13	
	22:32	11361	2.43	1.23	
	23:00	11434	2.61	-	Tracer showing at DC7
	23:05	-	-	-	Recirculation: All water pumped is injected into DC8
	23:17	11493	5.2	-	
	23:47	11676	4.62	-	
12/12/79	01:19	11840	-	-	
	03:45	13064	-	-	
	03:53	-	6.45	-	
	10:21	15739	6.76	-	
	11:47	16322	6.78	-	
	14:45	17615	7.26	-	
12/13/79	13:59	27617	-	-	Pump off at DC7



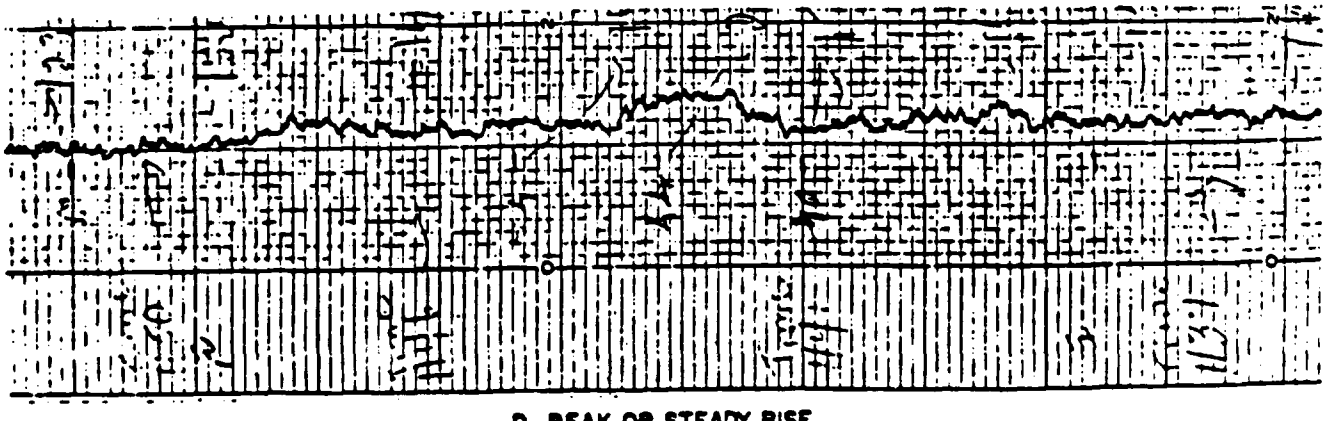
A-BACKGROUND



B-ARRIVAL



C-STEADY RISE OF ACTIVITY



D-PEAK OR STEADY RISE

FIGURE E-2. Part of the Record of ^{131}I at DC-7 During the Tracer Test.

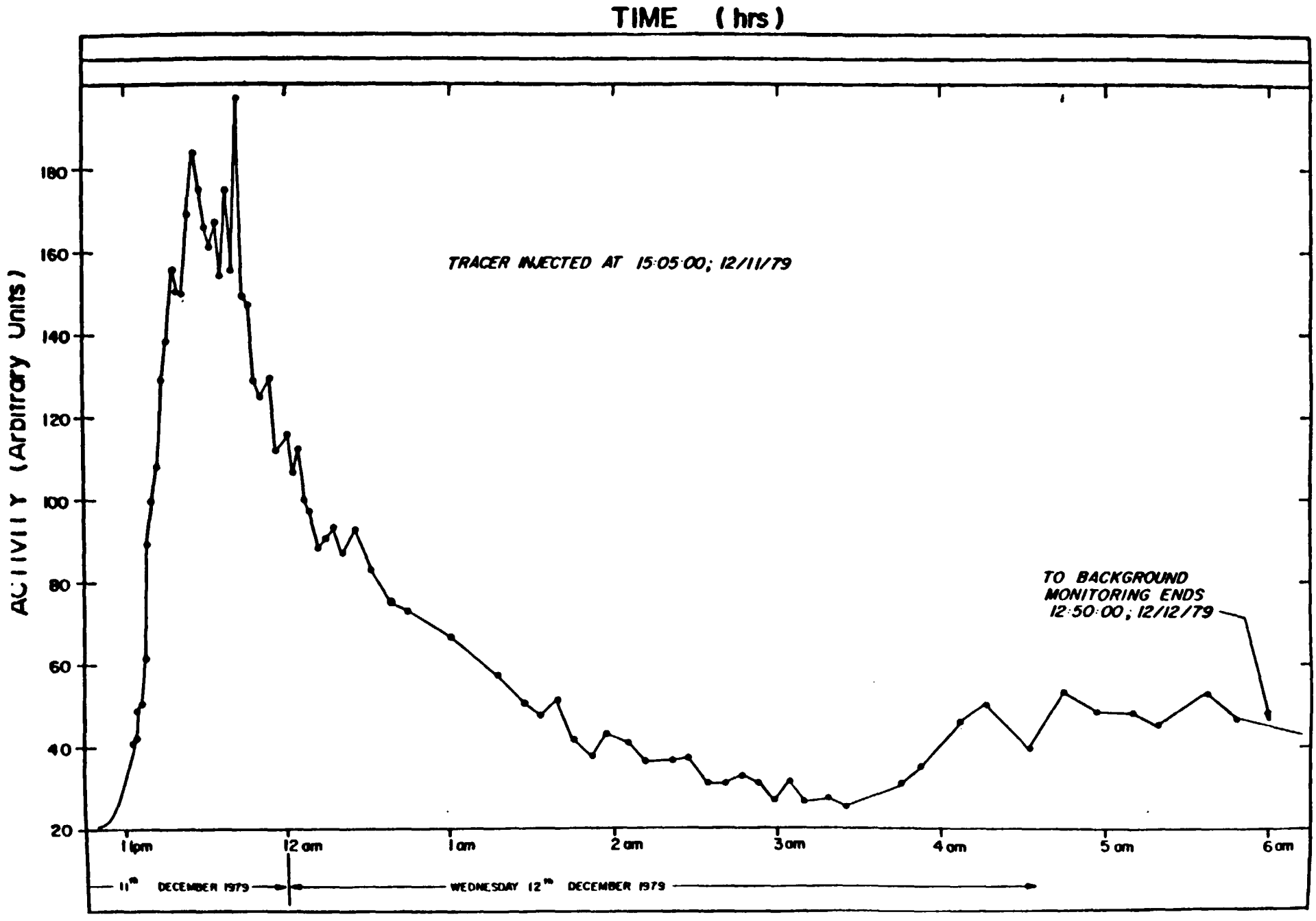


FIGURE E-3. Average Counts Per Inch Versus Time (breakthrough curve of ^{131}I tracer).

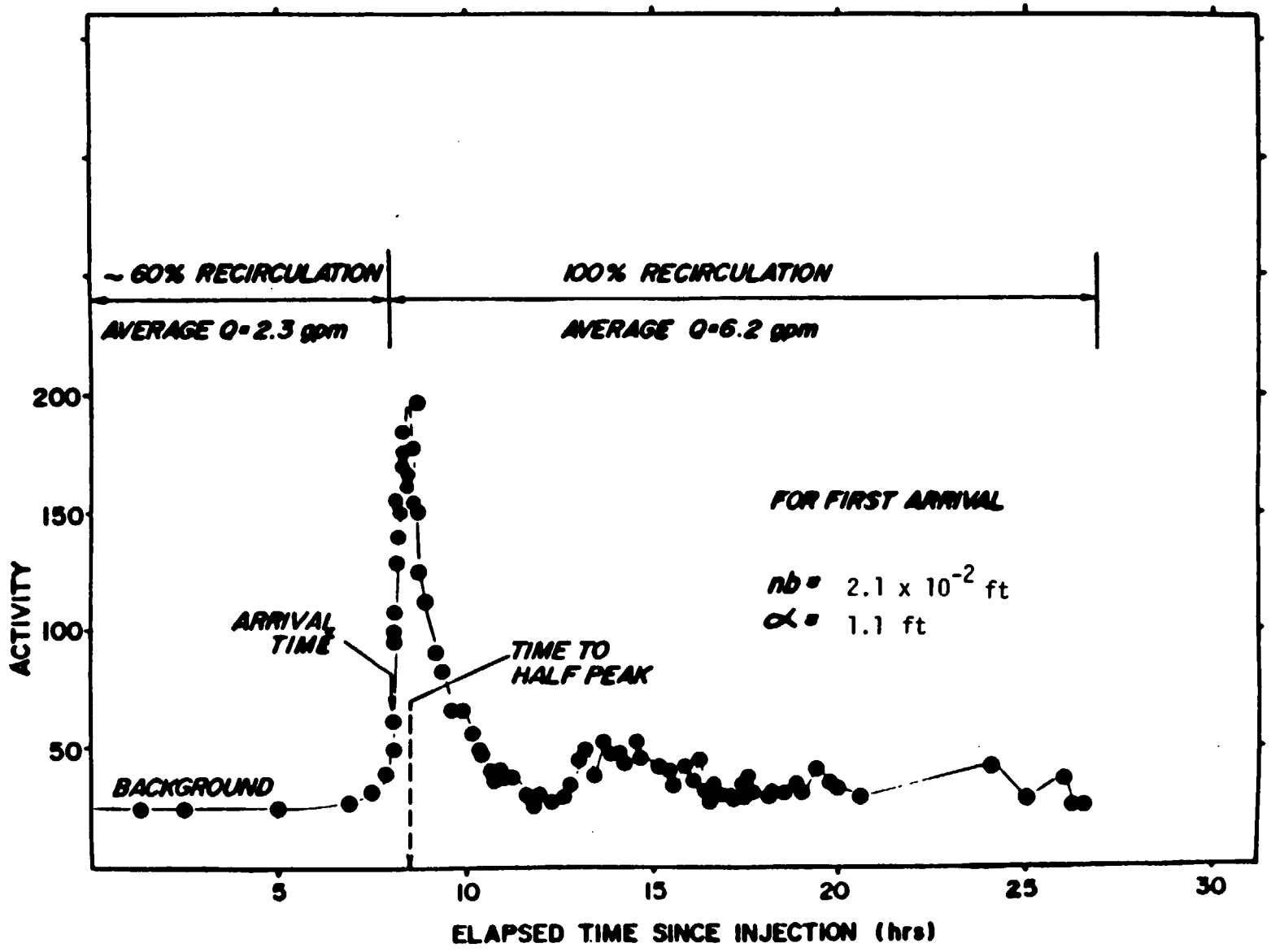


FIGURE E-4. Breakthrough Curve of ^{131}I at Pumping Well (DC-7).

The time of travel of the tracer from DC-8 to DC-7 is actually the sum of three traveltimes:

1. Traveltime from the water level at DC-8 (about 140 ft below ground surface) to the midpoint between the packers; i.e., a distance of about 3,280 ft

2. Traveltime in the formation itself, a distance of about 46.2 ft

3. Traveltime from the midpoint between the packers at DC-7 to the radiation detector at the surface, a distance of about 3,410 ft.

Thus, the tracer material travels through 6,690 ft of pipe and only through 46.2 ft of formation. Therefore, the actual traveltime of radioactive material in IF/9 is cut down considerably.

The various calculations leading to values for the effective porosity and dispersivity of the basalt interval tested are shown in Table E-5. The method used to arrive at these results is a modification of the theory developed in Gelhar and Collins (1971) and is presented in the section entitled Traveltime and Dispersion Analysis.

The following summary tables for the discharge flow rate of pumping out of DC-7 and injection flow rates into DC-8 are obtained from Table E-4.

TABLE E-5. Average Discharge Flow Rates During Pumping Out of DC-7.

Date	Time interval (hr)	Total time (min)	Average Q div.	Flow Q inj.	Rates (gal/min) Q total
12/11/79	1505 - 1516	11	1.1	1.33	2.43
	1516 - 1605	41	1.1	0.95	2.05
	1605 - 1608	3	1.1	0.91	2.02
	1608 - 1634	26	0	2.31	2.31
	1635 - 2305	390	1.12	2.42	3.54

From the above table the weighted average discharge flow rate out of DC-7 is 3.31 gal/min.

Table E-6 shows a summary of the volume of water injected into DC-8, the volume of water diverted to the nearby pit, and the total volume pumped out of DC-7 throughout the tracer test.

TABLE E-6. Summary of the Various Water Volumes During the Tracer Test

Date	Time interval (hr)	Volumes of water (gal)		
		Injected into DC-8	Diverted to pit	Total pumped out of DC-7
12/11/79	1505 - 2305	1,118		
	1516 - 2305		518	1,636
	2300 - 2347	183	6	190
12/11/79	2305 to			
12/12/79	14:45	6,164	--	6,164

Therefore, the ratio (β in the section entitled Traveltime and Dispersion Analysis) of water volume injected to volume pumped is 0.68; i.e., the average injection flow rate into DC-8 prior to the arrival of the tracer is 2.25 gal/min.

Traveltimes of the tracer material through the tubing in DC-7 and DC-8 are obtained from the formula:

$$u = \frac{Q}{A} \tag{E1}$$

where

u = average velocity of fluid moving in the tubing, ft/s

Q = injection (DC-8) or discharge (DC-7) flow rate, ft^3/s

A = cross-sectional area of tubing, ft^2.

For the traveltime of the isotope in DC-8 we use:

Q_i = 2.25 gal/min

$$A = \pi r^2 = \pi \left(\frac{1.61}{2 \times 12}\right)^2 = 0.014 \text{ ft}^2.$$

Thus, the velocity, u, becomes:

$$u = \frac{2.25}{7.48 \times 60 \times 0.014} = 0.36 \text{ ft/s.} \tag{E2}$$

The distance traveled = 3,415 - 140 = 3,275 ft. Therefore, the tracer material takes 2.53 hr to travel from the water level to the top packer. This time becomes 2.55 hr when the distance traveled ends at the midpoint between the packers.

For the traveltime of the tracer in DC-7 we use:

$$Q_o = 3.31 \text{ gal/min}$$

$$A = \pi \left(\frac{2.441}{2 \times 12}\right)^2 = 0.0325 \text{ ft}^2. \tag{E3}$$

Thus the velocity, u, becomes:

$$u = \frac{3.31}{7.48 \times 60 \times 0.0325} = 0.227 \text{ ft/s.} \tag{E4}$$

The distance traveled = 3,414 - 257 = 3,157 ft. Therefore, the isotope takes 3.86 hr to travel from the top packer to the pump. This time becomes 3.91 hr when the distance traveled starts at the midpoint between the packers. The tracer takes about 0.34 hr to travel from the pump through the 1-in.-diameter tubing to the surface, a distance of about 257 ft. Thus, the tracer material spent 8 hr traveling through the tubing in DC-8 and DC-7, leaving about 1.2 hr for it to travel through 46.2 ft of formation. The latter time (1.2 hr) should be corrected for the differences in flow rates following the arrival of the tracer (see discussion following Equation E35). This is done below.

The traveltime, tp, of the peak in activity occurred at 23:30, where tp = observed time of arrival of peak - time spent traveling through tubing in DC-8 and DC-7 - injection time.

To correct observed time of arrival of peak due to variations in flow rate:

$$23 + \frac{6.8}{3.31} \times 0.5 = 24.03 \text{ hr} \tag{E5}$$

$$tp = 24.3 - 6.48 - 15.08 = 2.15 \text{ hr.}$$

The activity reached half its peak level at 23:15.

$$t = 0.25 \times \frac{6.8}{3.31} = 0.51 \text{ hr.} \tag{E6}$$

Using Equation E22

$$nb = \frac{tp}{L^2} \cdot \frac{Qo}{2\pi} \cdot \frac{1}{0.2}$$

$$nb = \frac{2.15 \times 3{,}600 \times 3.31}{(46.2)^2 \times 2\pi \times 448.8 \times 0.2}$$

$$nb = 2.1 \times 10^{-2} \text{ ft.} \tag{E7}$$

Using the thickness of the straddled interval b = 49.8 ft, we get an effective porosity of 4.3×10^{-4}. It is preferred to use the product nb, however, since the flow may be taking place through a much smaller section of the formation.

Using Equation E35, the dispersivity is:

$$= 0.3L \left(\frac{t}{tp}\right)^2$$

$$= 0.3 \times 46.2 \times \left(\frac{0.51}{2.15}\right)^2 = 0.78 \text{ ft.} \tag{E8}$$

Thus, the dispersivity of the straddled interval is 0.78 ft.

DISCUSSION

The tested interval is about 220 ft above the top of the Umtanum flow of the Grande Ronde Basalt. The interval was effectively isolated by the packers in both wells. The packers and electronic equipment performed adequately throughout testing.

No static pressure testing was conducted during this testing sequence in the interval. Results of static pressure testing performed earlier (between July 4 and 10, 1979) in the interval has been reported separately. Hydraulic head values obtained from the earlier static testing for formation conditions were 419.7 and 418.6 ft (mean sea level) for DC-7 and DC-8, respectively.

Transient testing consisted of one slug injection test, one slug withdrawal test, one air lift pump test, three pump tests, and one tracer test. Data from a DST conducted when the interval was straddled earlier were also analyzed and gave a transmissivity of 6.3×10^{-5} ft^2/s for the interval. The slug injection test of DC-7 resulted in a transmissivity of 6.6×10^{-5} ft^2/s. No transmissivity or storage coefficients were calculated from the air lift pump test conducted at DC-8 with DC-7 as an observation well.

In preparation for the tracer test at this double well site, a submersible pump was lowered at DC-7 to a depth of about 257 ft below ground surface. Pumping out of DC-7 continued for ~48 hr. At the end of this period, developing of both wells by intermittent pumping was initiated and, thus, the interval pressure was not allowed to recover to static conditions. However, pressure recovery data in DC-7 for the period December 5 through 7, 1979 were analyzed. Transmissivities calculated from the first two pump tests were 1.3×10^{-5} ft^2/s for DC-7 and 1.2×10^{-5} ft^2/s for DC-8. A storage coefficient value of 1.1×10^{-5} was obtained from the observation well, DC-8, data. The third pump test gave identical transmissivity values for both wells, 7.8×10^{-5} ft^2/s. The observation well, DC-8, data gave a storage coefficient value of 6.0×10^{-6}.

A double well recirculating tracer test was conducted in this interval. Approximately 47 mCi of the water-soluble ^{131}I tracer material were frozen and dropped into DC-8. Pumping DC-7 at a rate of 1.3 gal/min had been initiated 2 days earlier. About 60% of the total volume of water pumped out of DC-7 was recirculated into DC-8 until arrival of the tracer was detected at DC-7. The remaining water was diverted to a nearby pit. A breakthrough curve for the concentration of ^{131}I at DC-7 was constructed and used to determine the effective porosity and dispersivity of the interval. The tracer material was detected at DC-7 after about 8 hr following its injection at DC-8. The activity increased sharply and peaked within <1 hr after it was first detected. Note that the ^{131}I tracer traveled through over 6,690 ft of pipe and only through 46 ft of basalt (see Fig. E-1). The method used to arrive at these results is a modification of the theory developed in Gelhar and Collins (1971). A value of 2.1×10^{-2} ft was obtained for the product nb, where n = effective porosity and b = interval thickness. The dispersivity of the straddled interval is 0.78 ft. These values agree with recent calculations for the same test data.

It is of interest to compare our field-determined longitudinal dispersivity value of 0.78 ft obtained for this formation with similar published results. Unfortunately, field dispersivity values for fractured basalts are not available in the literature. Grove and Beetem (1971) obtained dispersivity of 125 ft from a tracer test using the recharge/discharge well pair method in a fractured carbonate aquifer near Carlsbad, New Mexico. Note, however, that the distance between the two wells was 125 ft at the surface and 190 ft at the depth of the formation; i.e., the dispersivity they obtained is of the same order of magnitude as the spacing between the wells tested. Also, the method presented in their work differs from the method followed in our field test, in that the discharge flow rate from the pumping well in their test was equal to the injection flow rate into the observation well. In our test only part of the water pumped out of DC-7 was injected into DC-8. Thus, comparing the two results may not be appropriate and is only meant to give an idea of the different dispersivity values available in general.

In a study using digital modeling to predict radionuclide migration in groundwater in basalt and sedimentary formations, Robertson (1974) found that a dispersivity of about 300 ft led to the calibration of his model. Thus, the dispersivity of this interflow zone is very small in reference to dispersivities presented above. Recent work by Gelhar et al. (1979) shows that the dispersivity is directly proportional to the distance, r, between wells. Figure 3 in their work indicates that the dispersivity will continue to increase with r until the spacing, r, is increased by a few orders of magnitude, and then it approaches an asymptotic value. For instance, the distance between DC-7 and DC-8 would have to be more than 3,000 ft before a near-constant dispersivity for IF/9 can be obtained.

TRAVELTIME AND DISPERSION ANALYSIS

The following analysis is based on the theory developed in Gelhar and Collins (1971). The subsequent analysis applies to the test period from the time of injection of the tracer material into DC-8 until it was first detected at the DC-7 wellhead. During this time the discharge flow rate, Q_o, out of DC-7 was not equal to the injection flow rate, Q_i, into DC-8. The relationship between the two can be expressed as (see Fig. E-5):

$$Q_i = \beta Q_o \tag{E9}$$

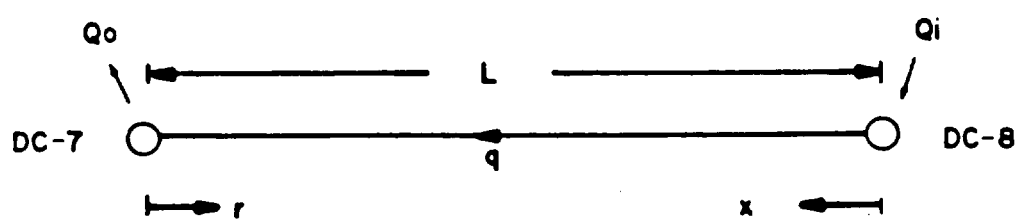


FIGURE E-5. Definition Sketch for Discharge/Injection Set Up at DC-7 and DC-8.

where β = a constant. Assuming quasi-steady radial flow, the specific discharge at some distance, x, along the shortest streamline between the wells is:

$$q\ (x) = q_o + q_i \tag{E10}$$

where

$$q_o = \frac{Q_o}{2\pi rb}\ , \qquad r = L-x$$

and

$$q_i = \frac{Q_i}{2\pi xb}\ . \tag{E11}$$

Figure E-6 is a sketch of the flow lines and the movement of the tracer front in this case (i.e., $q_i \neq q_o$.). The seepage velocity, v, is defined as:

$$v\ (x) = \frac{q(x)}{n} \tag{E12}$$

where n = effective porosity. Substituting Equation E11 into Equation E12 gives:

$$v\ (x) = A\left(\frac{1}{L-x} + \frac{\beta}{x}\right) \tag{E13}$$

in which

$$A = \frac{Q_o}{2\pi nb}\ .$$

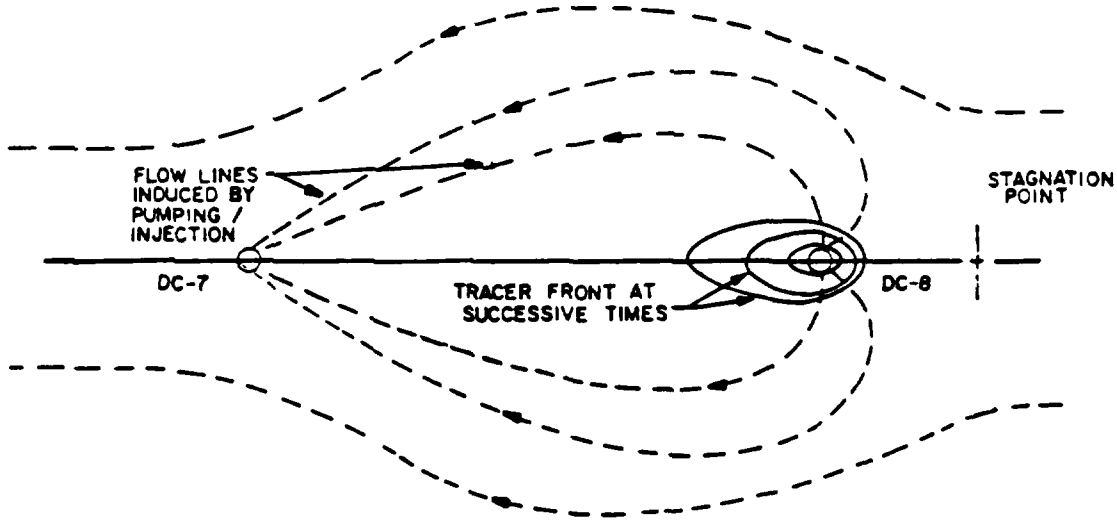


FIGURE E-6. Schematic Diagram Showing Movement of the Tracer Front Induced by Pumping Out of DC-7 and Injection Into DC-8 at Different Flow Rates.

The traveltime, τ, from Equation 21 in Gelhar and Collins (1971) is:

$$\tau = \int_0^x \frac{dx}{v(x)} = \int_0^x \frac{1}{A} \cdot \frac{x(L-x)}{x+\beta(L-x)} \, dx \tag{E14}$$

which can be written in the form

$$\tau = \frac{1}{A} \int_0^x \left\{ \frac{Lu}{(1-\beta)u+\beta L} - \frac{u^2}{(1-\beta)u+\beta L} \right\} du.$$

Performing the integrations and setting $X = \beta L + (1 - \beta)u$ we get:

$$\tau = \frac{1}{A}\left[\frac{L}{(1-\beta)^2}\left\{X - \beta L \ln X\right\} - \frac{1}{(1-\beta)^3}\right.$$

$$\left.\left\{\frac{X^2}{2} - 2\,\beta L\, X + (\beta L)^2 \ln X\right\}\right]_0^X . \qquad \text{(E15)}$$

The expression for the traveltime is given by:

$$\tau = \frac{1}{A}\left[\frac{L}{(1-\beta)^2}\left\{(1-\beta)\,x - \beta L \ln\left[1 + \frac{(1-\beta)x}{\beta L}\right]\right\}\right.$$

$$- \frac{1}{(1-\beta)^3}\left\{\left(\left[(1-\beta)\,x + \beta L\right]^2 - (\beta L)^2\right)/2 - 2\beta L(1-\beta)x + (\beta L)^2 .\right.$$

$$\left.\left.\ln\left[1 + \frac{(1-\beta)x}{\beta L}\right]\right\}\right] . \qquad \text{(E16)}$$

To check the above equation, let us now evaluate it for the case where $\beta = 0$ and $x = L$; i.e., the radial flow case:

$$\tau = \frac{1}{A}\left(L^2 - \frac{L^2}{2}\right) = \frac{L^2}{2A} = \frac{\pi L^2 nb}{Q} . \qquad \text{(E17)}$$

This is the traveltime for the radial flow case. The case where $\beta = 1$ at $x = L$; i.e., the discharge-recharge well pair when the flow rate, Q, is the same, can be checked by evaluating Equation E14 using the following expression for velocity, $v(x)$:

$$v(x) = A\left(\frac{1}{L-x} + \frac{1}{x}\right) = A\left(\frac{L}{x(L-x)}\right) . \qquad \text{(E18)}$$

Thus

$$\tau = \int_0^X \frac{dx}{v(x)} = \frac{1}{AL}\int_0^X \left[uL - u^2\right] du = \frac{1}{AL}\left[\frac{x^2 L}{2} - \frac{x^3}{3}\right] . \qquad \text{(E19)}$$

For x = L, this reduces to:

$$\tau = \frac{L^2}{6A} = \frac{\pi L^2 nb}{3Q}. \tag{E20}$$

This is the traveltime for discharge/recharge well pair. The traveltime can be rewritten as follows:

$$\tau = \frac{L^2}{A} \; F\left(\frac{x}{L};\ \beta\right) \tag{E21}$$

where the function, $F\left(\frac{x}{L};\ \beta\right)$, is defined as:

$$F\left(\frac{x}{L};\ \beta\right) = \left\{\frac{1}{(1-\beta)^2}\left[(1-\beta)\frac{x}{L} - \beta \ln\left(1 + \frac{1-\beta}{\beta}\cdot\frac{x}{L}\right)\right] - \frac{1}{(1-\beta)^3}\left[\left(\left[(1-\beta)\frac{x}{L} + \beta\right]^2 - \beta^2\right)/2 - 2\beta(1-\beta)\frac{x}{L} + \beta^2 \ln\left(1 + \frac{1-\beta}{\beta}\cdot\frac{x}{L}\right)\right]\right\}.$$

Values of $F\left(\frac{x}{L};\ \beta\right)$ for $\frac{x}{L} = 1$ range from 1/6 to 1/2 for β values from 1 to 0.

The dispersion function, ω, neglecting molecular diffusion, is defined in Equation 22 of Gelhar and Collins (1971) as:

$$\omega = \int_0^{\bar{x}(t)} \frac{dx}{[v(x)]^2} \tag{E22}$$

where $\bar{x}(t)$ is the location of the front at time, t, and is obtained from Equation E21 by setting $\tau = t$. Substituting the velocity from Equation E13 into Equation E22 leads to:

$$\omega = \frac{1}{A^2} \int_0^{\bar{x}} \frac{L^2u^2 - 2Lu^3 + u^4}{[\beta L + (1-\beta)u]^2}\, du. \tag{E23}$$

Upon performing the above integrations we obtain:

$$\begin{aligned}
\omega A^2 = {} & \frac{L^2}{(1-\beta)^3}\left[(1-\beta)\bar{x} - 2\beta L \ln\left(1 + \frac{1-\beta}{\beta L}\cdot\bar{x}\right) - \beta^2L^2\left(\frac{1}{\beta L+(1-\beta)\bar{x}} - \frac{1}{\beta L}\right)\right] \\
& - \frac{2L}{(1-\beta)^4}\left[\left(\left[\beta L+(1-\beta)\bar{x}\right]^2 - (\beta L)^2\right)/2 - 3\beta L(1-\beta)\bar{x} + 3\beta^2L^2 \ln\left(1+\frac{1-\beta}{\beta}\cdot\frac{\bar{x}}{L}\right)\right. \\
& \qquad \left. + \beta^3L^3\left(\frac{1}{\beta L+(1-\beta)\bar{x}} - \frac{1}{\beta L}\right)\right] \\
& + \frac{1}{(1-\beta)^5}\left[\left(\left[\beta L+(1-\beta)\bar{x}\right]^3 - (\beta L)^3\right)/3 - 2\beta L\left(\left[\beta L+(1-\beta)\bar{x}\right]^2 - (\beta L)^2\right)\right. \\
& \qquad + 6\beta^2L^2(1-\beta)\bar{x} \\
& \left. - 4(\beta L)^3 \ln\left(1 + \frac{1-\beta}{\beta}\cdot\frac{\bar{x}}{L}\right) - (\beta L)^4\left(\frac{1}{\beta L+(1-\beta)\bar{x}} - \frac{1}{\beta L}\right)\right]
\end{aligned} \tag{E24}$$

The above expression can be reduced to:

$$\frac{\omega A^2}{L^3} = G\left(\frac{x}{L};\ \beta\right) \tag{E25}$$

where the function $G\left(\frac{x}{L};\ \beta\right)$ is the right-hand side of Equation E24 after dividing by L^3.

If $\beta = 0$ and the distance of the front from the pumping well is given by $\bar{r} = L - \bar{x}$, then Equation E24 reduces to:

$$\omega A^2 = L^2\bar{x} - L\bar{x}^2 + \frac{\bar{x}^3}{3} = \frac{1}{3}\left(L^3 - \bar{r}^3\right) \tag{E26}$$

which is the expression for the radial flow analysis. The general pulse solution, Equation 25 in Gelhar and Collins (1971), where $\eta = \tau - t$ is:

$$C = \frac{m}{\rho u(x_o)} \quad \frac{1}{\sqrt{4\pi\alpha\omega}} \quad \exp\left(\frac{-\eta^2}{4\alpha\omega}\right) \tag{E27}$$

where $\frac{m}{\rho u(s_o)}$ is a constant, and α is the longitudinal dispersivity. Note that because of the large traveltime up to the detector, the pulse peak will have moved through the aquifer before the tracer reaches the detector and the flow is increased by complete recirculation. Equation E27 can be written:

$$\frac{C}{Cm} = \tilde{C} = \sqrt{\frac{\omega_o}{\omega(t)}} \quad \exp - \left[\frac{[\tau(x) - t]^2}{4\alpha\omega(t)}\right] \tag{E28}$$

where $Cm = C/t = \tau$ and $\omega_o = \omega(t)/t{=}\tau$. We assume $\omega_o = \omega(t)$ which means that if the tracer peak is narrow then dispersion of the front as it travels through an observation point is small. The peak concentration of the tracer at the pumping well occurs at time, t_p, given by Equation E21 as:

$$t_p = \tau(L) = \frac{L^2}{A} \quad F(1;\beta) \tag{E29}$$

where $\beta = 0.68$ for the test at DC-7 and 8/IF/z9 and $A = Q_o/2\pi nb$. Substituting the value of A in the above expression we obtain:

$$nb = \frac{t_p}{L^2} \cdot \frac{Q_o}{2\pi} \cdot \frac{1}{0.2} \tag{E30}$$

where 0.2 is the value of the function $F(1;\beta)$ for $\beta = 0.68$.

To calculate the dispersivity, we measure the time difference, Δt, defined as:

$$\Delta t = \tau(L) - t \tag{E31}$$

when the concentration is half its value at the peak. Therefore, from Equation E28 with $\omega(t) = \omega_0$,

$$\tilde{C} \approx \exp - \frac{[\tau(L)-t]^2}{4\alpha\omega[\tau(L)]}$$

or

$$\frac{1}{2} = \exp - \frac{(\Delta t)^2}{4\alpha\omega[\tau(L)]}. \tag{E32}$$

Taking the natural logarithm of both sides gives:

$$\ln 2 = \frac{(\Delta t)^2}{4\alpha\omega}. \tag{E33}$$

Using the value of ω from Equation E25, we obtain:

$$\frac{\alpha}{L} = \frac{1}{\ln 2}\left(\frac{\Delta t A}{2L^2}\right)^2 \cdot \frac{1}{G(1;\beta)} \tag{E34}$$

where $A = \frac{L^2}{t_p} F(1;\beta)$ from Equation E21.

Thus,

$$\frac{\alpha}{L} = \frac{1}{4\ln 2}\ \frac{F^2}{G}\left(\frac{\Delta t}{t_p}\right)^2$$

$$= \frac{(0.2)^2}{4\ln 2(.05)}\left(\frac{\Delta t}{t_p}\right)^2$$

$$\frac{\alpha}{L} = 0.3\left(\frac{\Delta t}{t_p}\right)^2. \tag{E35}$$

Note that Δt is the actual time for the concentration to change from half its maximum value up to the maximum.

It is of interest to note that the increase in the flow rate as the pulse gets to the detector causes the pulse to be swept by faster; i.e., in smaller time. We correct for this simply by expanding the time scale after the time of arrival (2300 on December 11, 1979) by the ratio Q_3/Q_2, where Q_3 is the flow rate during complete recirculation (after 2300 hr) and $Q_2 = Q_o$ is the pumping rate from the well (DC-7) up to the time of arrival of the tracer.

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