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FROM: Florida Power & Light Co. Miami, Fla. 33101 R.E. Uhrig	DATE OF DOC	DATE REC'D	LTR	TWX	RPT	OTHER
	7-29-75	8-4-75	XX			

TO:	ORIG	CC	OTHER	SENT NRC PDR	XX
Mr. A. Giambusso	3 signed	40		SENT LOCAL PDR	XX

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	XXX			43	50-250/251

DESCRIPTION: Ltr notarized 7-30-75 requesting for amdt to App. A of OL/DPR-31 & DPR-41 concerning the definition of the parameter "P" used in the Tech Specs to determine the limiting values of the hot channel factors & trans the following:

ENCLOSURES: Revised Tech Spec. Change Pages 3.2-3 & B3.2-4 ....

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ACKNOWLEDGED

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PLANT NAME: Turkey Pt. Units 3 & 4

FOR ACTION/INFORMATION DHL 8-4-75

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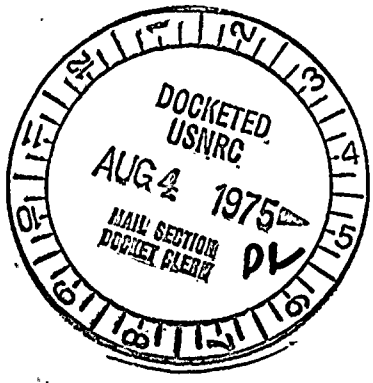
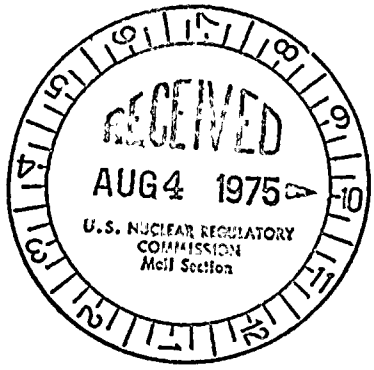


FLORIDA POWER & LIGHT COMPANY

July 29, 1975
L-75-380

Regulatory Docket File



Mr. Angelo Giambusso, Director
Division of Reactor Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Giambusso:

Re: Turkey Point Plant Unit Nos. 3 and 4
Docket Nos. 50-250 and 50-251
Proposed Amendment to Facility
Operating Licenses DPR-31 and DPR-41

In accordance with 10 CFR 50.30, Florida Power & Light Company submits herewith three (3) signed originals and forty (40) conformed copies of a request to amend Appendix A of the Facility Operating Licenses DPR-31 and DPR-41.

An ECCS analysis was submitted by Florida Power & Light Company to the Regulatory Staff on March 10, 1975. It considered a loss-of-coolant accident under worst break conditions while operating the plant at the design power of 2300 MWt with a peaking factor of 2.32. However, as described by Unusual Event Report No. 251-75-1 of July 7, 1975, the analysis used fuel pellet data which was not applicable to Turkey Point Unit No. 4 and resulted in an incorrect calculated value for peak clad temperature. As a result, a revised analysis has been performed to determine the peak clad temperature for Unit No. 4, Cycle 2, under worst break conditions while operating the plant at the rated power of 2200 MWt with a peaking factor of 2.32. An appendix to this letter contains the results of this analysis. For the three break sizes analyzed, the highest clad temperature was 2158°F, well below the 2200°F FAC limit. Also, further analysis has shown that after a Cycle 2 exposure of 5000 EFPH, there will be a sufficient reduction of fuel stored energy such that the original ECCS analysis will again be applicable to Unit No. 4.

To reflect the results of these analyses, we propose to change the definition of the parameter "P", used in the Technical Specifications to determine the limiting values of the hot channel factors, from fraction of design power to fraction of rated power. A revision of the corresponding Basis is also proposed.

8244

The proposed changes are set forth in the attached revised Technical Specification pages bearing the date of this letter in the lower right-hand corner and as described below.

Page 3.2-3

In subsection 6.a, change the word "design" to "rated".

Page B3.2-4

Add the following sentence to the end of the first paragraph: "An exception is the period from 0 to 5000 EFPH of the second cycle for Unit No. 4, when, due to fuel pellet characteristics distinct for this cycle, a peak clad temperature of 2158°F is calculated at rated power."

This proposed change to the Technical Specifications represents an increase in conservatism; therefore, we believe that it requires no significant hazards consideration nor does it require prenoticing pursuant to 10 CFR 50.91.

Very truly yours,

Robert E. Uhrig

Robert E. Uhrig
Vice President

REU:MAS:nch
attachment

cc: Mr. Norman C. Moseley
Jack R. Newman, Esquire

STATE OF FLORIDA)
) SS
COUNTY OF DADE)

ROBERT E. UHRIG, being first duly sworn, deposes and says:

That he is a Vice President of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing instrument, that the statements made in this said instrument are true and correct to the best of his knowledge, information and belief; and that he is authorized to execute the instrument of said Licensee.

Robert E. Uhrig

Robert E. Uhrig

Subscribed and sworn to before me this

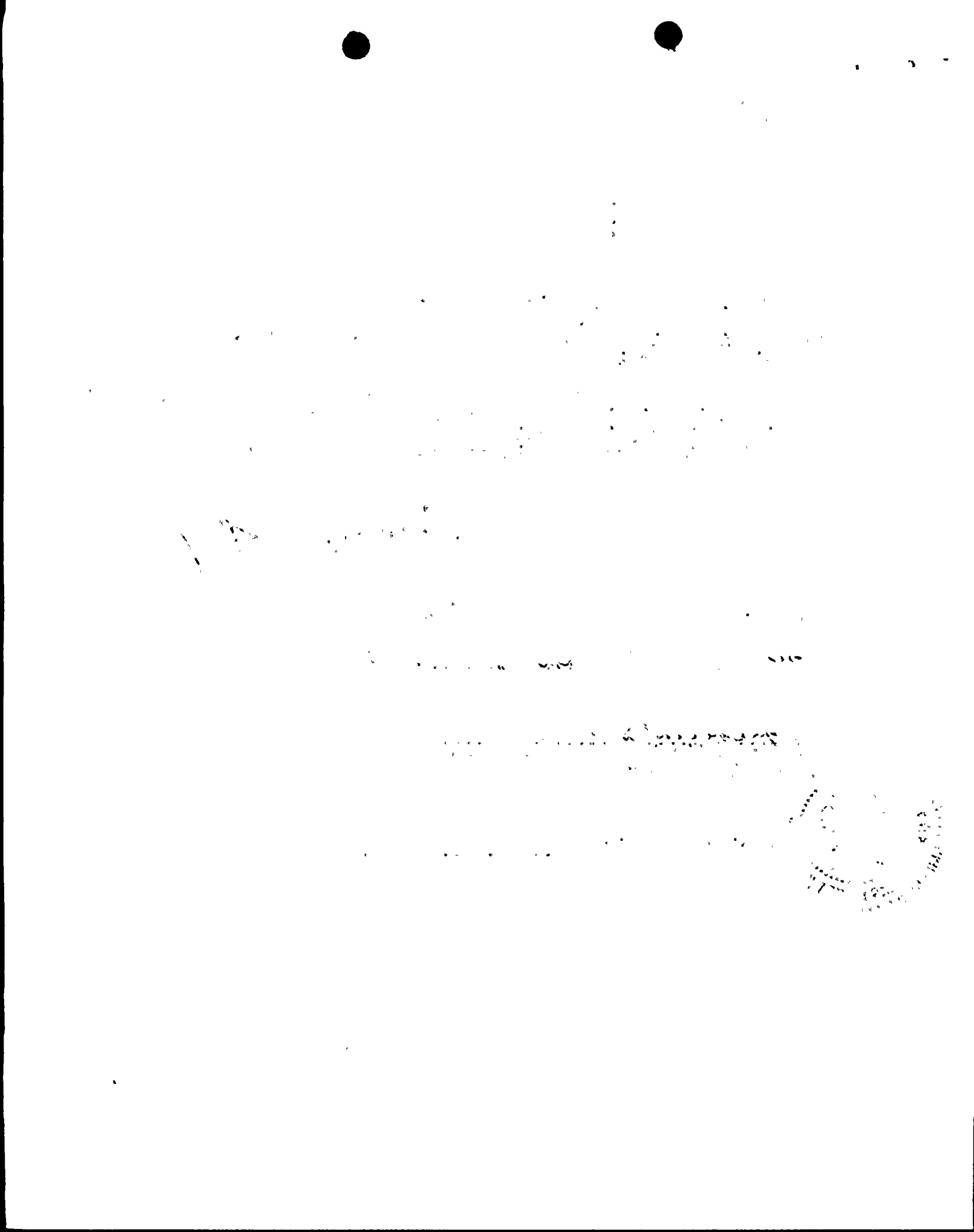
30th day of July, 1975

Rebecca N. Powell

Notary Public in and for the State of Florida at Large

NOTARY PUBLIC, STATE of FLORIDA at LARGE
MY COMMISSION EXPIRES APRIL 2, 1976
BONDED THRU MAYNARD BONDING AGENCY

My Commission expires _____



reactivity insertion upon ejection greater than 0.3% Δ k/k at rated power. Inoperable rod worth shall be determined within 4 weeks.

b. A control rod shall be considered inoperable if
   (a) the rod cannot be moved by the CRDM, or
   (b) the rod is misaligned from its bank by more than 15 inches, or
   (c) the rod drop time is not met.

c. If a control rod cannot be moved by the drive mechanism, shutdown margin shall be increased by boron addition to compensate for the withdrawn worth of the inoperable rod.

5. CONTROL ROD POSITION INDICATION

If either the power range channel deviation alarm or the rod deviation monitor alarm are not operable rod positions shall be logged once per shift and after a load change greater than 10% of rated power. If both alarms are inoperable for two hours or more, the nuclear overpower trip shall be reset to 93% of rated power.

6. POWER DISTRIBUTION LIMITS

a. At all times except during low power physics tests, the hot channel factors defined in the basis must meet the following limits:

$$F_q(Z) \leq (2.32/P) \times K(Z) \text{ for } P > .5$$

$$F_q(Z) \leq (4.64) \times K(Z) \text{ for } P \leq .5$$

$$F^N_{\Delta H} \leq 1.55\ [1 + 0.2\ (1-P)]$$

where P is the fraction of rated power at which the core is operating. K(Z) is the function given in Figure 3.2-3 and Z is the core height location of Fq.

b. Following initial loading before the reactor is operated above 75% of rated power and at regular effective full rated power monthly intervals thereafter, power distribution maps, using the movable detector system shall be made, to conform that the hot channel factor limits of the specification are satisfied. For the purpose of this comparison,

An upper bound envelope of 2.32 times the normalized peaking factor axial dependence of Figure 3.2-3 has been determined (from extensive analyses at design power considering all operating maneuvers) to be consistent with the technical specifications on power distribution control as given in Section 3.2. The results of the loss of coolant accident analyses based on this upper bound envelope indicate a peak clad temperature of 2150°F at design power, corresponding to a 50°F margin to the 2200°F FAC limit. An exception is the period from 0 to 5000 EFPH of the second cycle for Unit 4, when due to fuel pellet characteristics distinct for this cycle, a peak clad temperature of 2158 F is calculated at rated power.

When an F_q measurement is taken, both experimental error and manufacturing tolerance must be allowed for. Five percent is the appropriate experimental uncertainty allowance for a full core map taken with the movable incore detector flux mapping system and three percent is the appropriate allowance for manufacturing tolerance.

In the specified limit of $F^N_{\Delta H}$, there is an 8 percent allowance for uncertainties which means that normal operation of the core is expected to result in $F^N_{\Delta H} \leq 1.55/1.08$. The logic behind the larger uncertainty in this case is that (a) normal perturbations in the radial power shape (e.g., rod misalignment) affect $F^N_{\Delta H}$, in most cases without necessarily affecting F_q, (b) the operator has a direct influence on F_q through movement of rods, and can limit it to the desired value, he has no direct control over $F^N_{\Delta H}$ and (c) an error in the predictions for radial power shape, which may be detected during startup physics tests can be compensated for in F_q by tighter axial control, but compensation for $F^N_{\Delta H}$ is less readily available. When a measurement of $F^N_{\Delta H}$ is taken, experimental error must be allowed for and 4% is the appropriate allowance for a full core map taken with the movable incore detector flux mapping system.

Measurements of the hot channel factors are required as part of start-up physics tests, at least once each full rated power month of operation, and whenever abnormal power distribution conditions require a reduction of core power to a level based on measured hot channel factors. The incore map taken following initial loading provides confirmation of the basic nuclear

APPENDIX
TURKEY POINT UNIT NO. 4, CYCLE 2
REVISED ECCS ANALYSIS

An FAC ECCS analysis has been performed for a core power level of 2200 MWt using precise fuel data for Turkey Point Unit 4, Cycle 2, Region 3, under BOC conditions. The general methods and procedures used for the analysis were those given in the Turkey Point FSAR, Section 14.3.2. The hot rod thermal transients were re-analyzed for the three large break sizes using the March 15, 1975, version of LOCTA-IV computer code. The results of the re-analysis are given in Table 1 and Figures 1 to 15. The highest clad temperature of 2158°F occurs with a double-ended cold leg guillotine (DECLG) break and a discharge coefficient, C_D, of 0.4. These results show that Unit 4 is in compliance with Appendix K ECCS criteria for full licensed power operation (rated power).

As fuel burnup progresses, there is a reduction in fuel stored energy. A series of LOCTA runs for operation at 2300 MWt (design power) and reduced fuel stored energy values has shown that after a burnup of 6500 MWD/MTU, corresponding to 5000 EFPH of operation at the licensed power, the peak clad temperature during a LOCA would be 2150°F, the value reported in the Turkey Point FSAR ECCS analysis for 2300 MWt operation.

TABLE 1

RESULTS OF LOCTA RUNS, LARGE BREAK ECCS ANALYSIS
TURKEY POINT UNIT 4

	DECL	0.6 DECL	0.4 DECL
Results			
Peak Clad Temp. °F	1734.	1853.	2158.
Peak Clad Location Ft.	6.5	6.75	6.0
Local Zr/H_2O Rxn(max)%	1.8	2.2	9.0
Local Zr/H_2O Location Ft.	6.25	5.75	5.75
Total Zr/H_2O Rxn %	<0.3	<0.3	<0.3
Hot Rod Burst Time sec	57.2	36.4	26.5
Hot Rod Burst Location Ft.	6.25	5.75	5.75

Calculation	
NSSS Power Mwt 102% of	2200
Peak Linear Power kw/ft 102% of	13.20
Peaking Factor (At License Rating of 2200 MW_t)	2.32
Accumulator Water Volume	825

Fuel region + cycle analyzed	Cycle	Region
Unit 4 FLA	2	3 (Limiting Region)

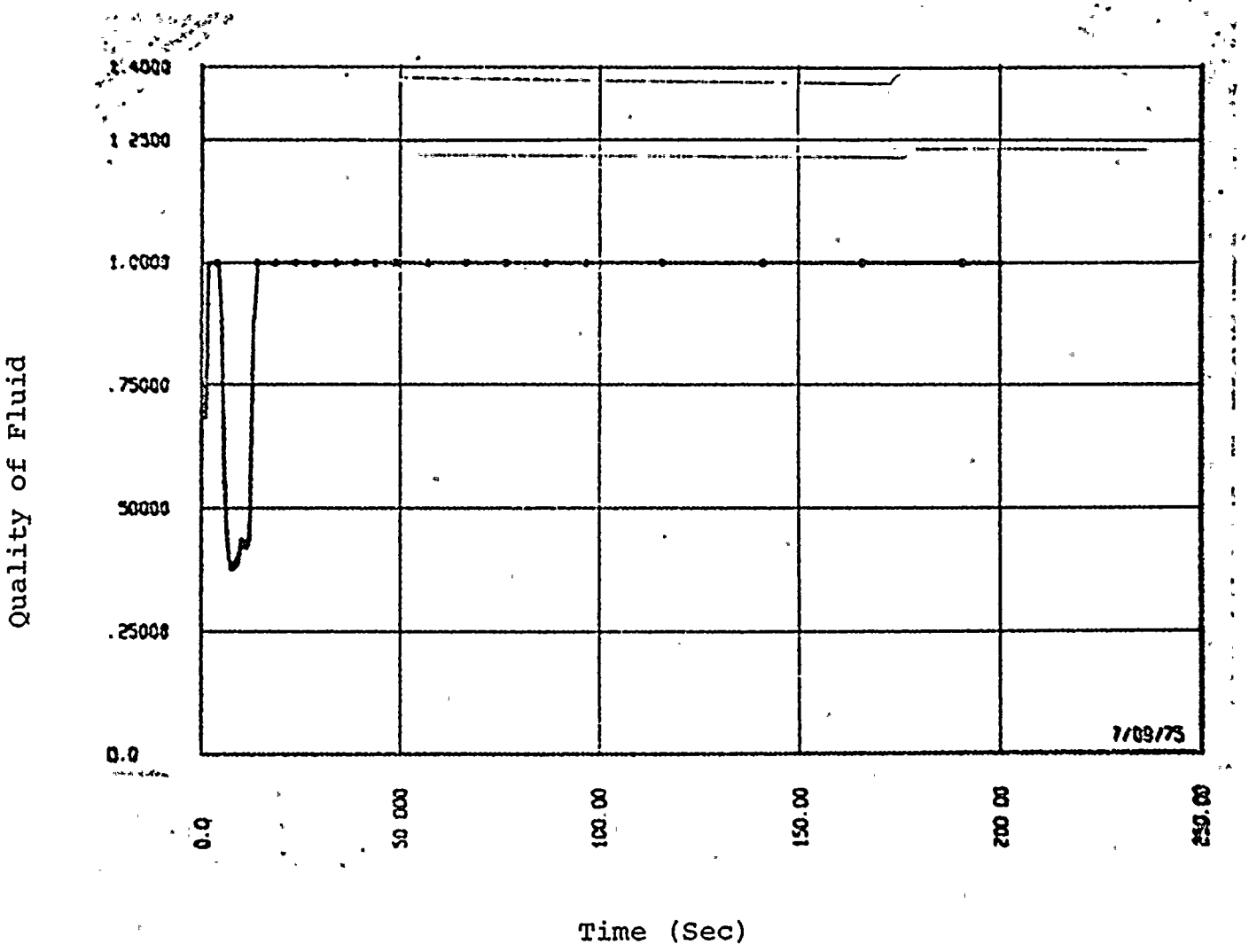


Figure 1 Fluid Quality - (DECLG (C_d=1.0)

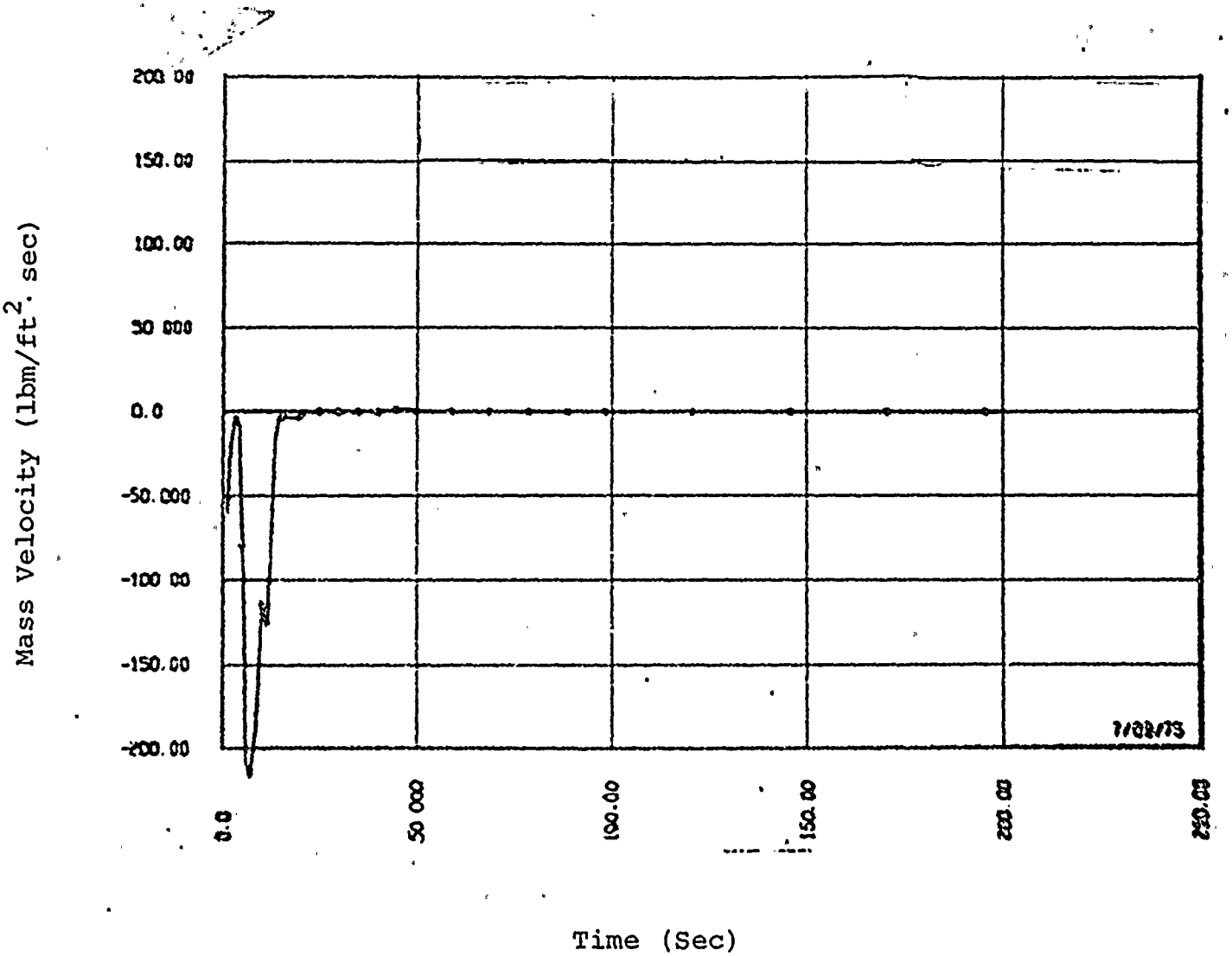


Figure 2 Mass Velocity - DECLG (C_d=1.0)

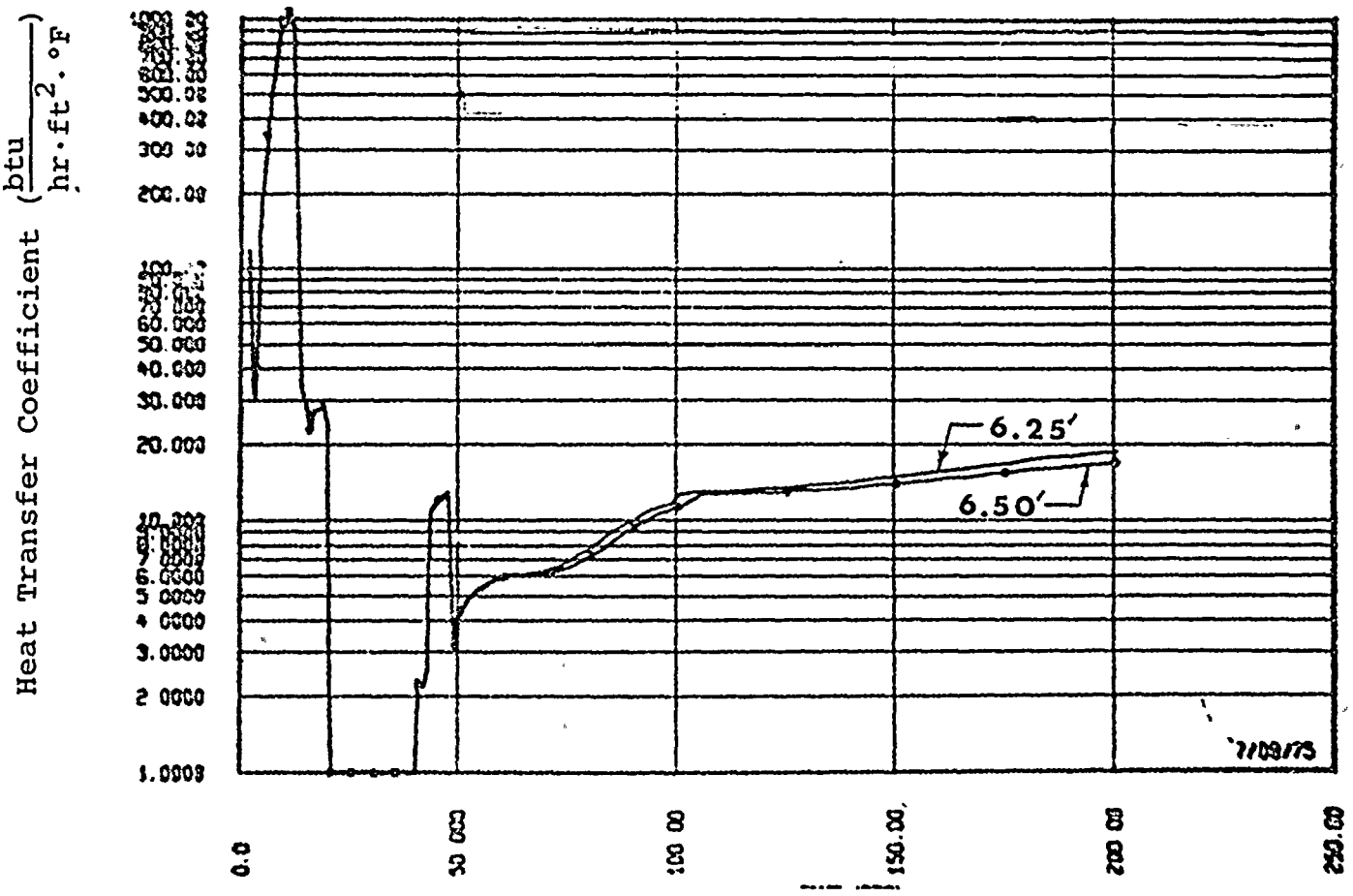


Figure 3 Heat Transfer Coefficient - DECLG (C_d=1.0)

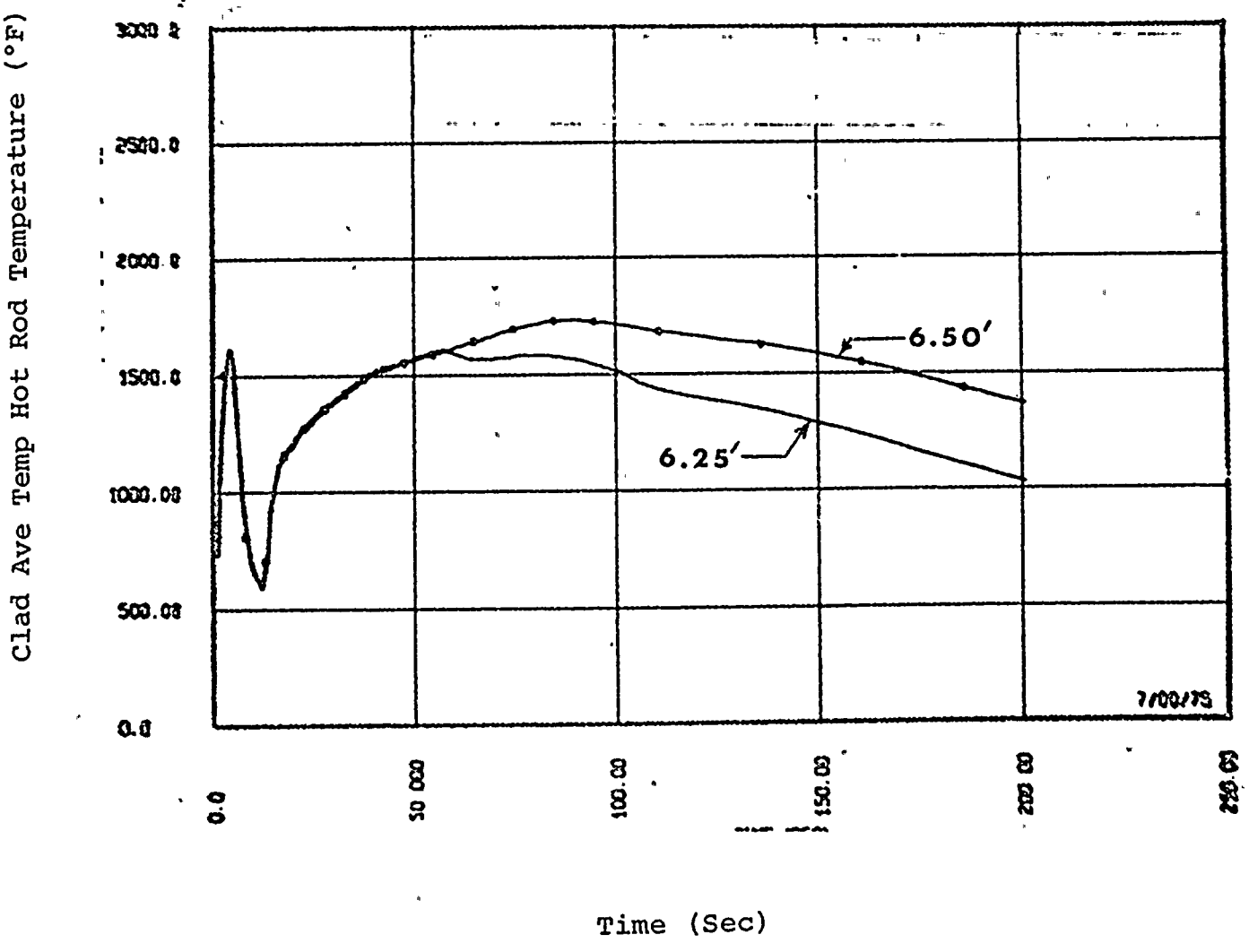


Figure 4 Peak Clad Temperature - DECLG (C_d=1.0)

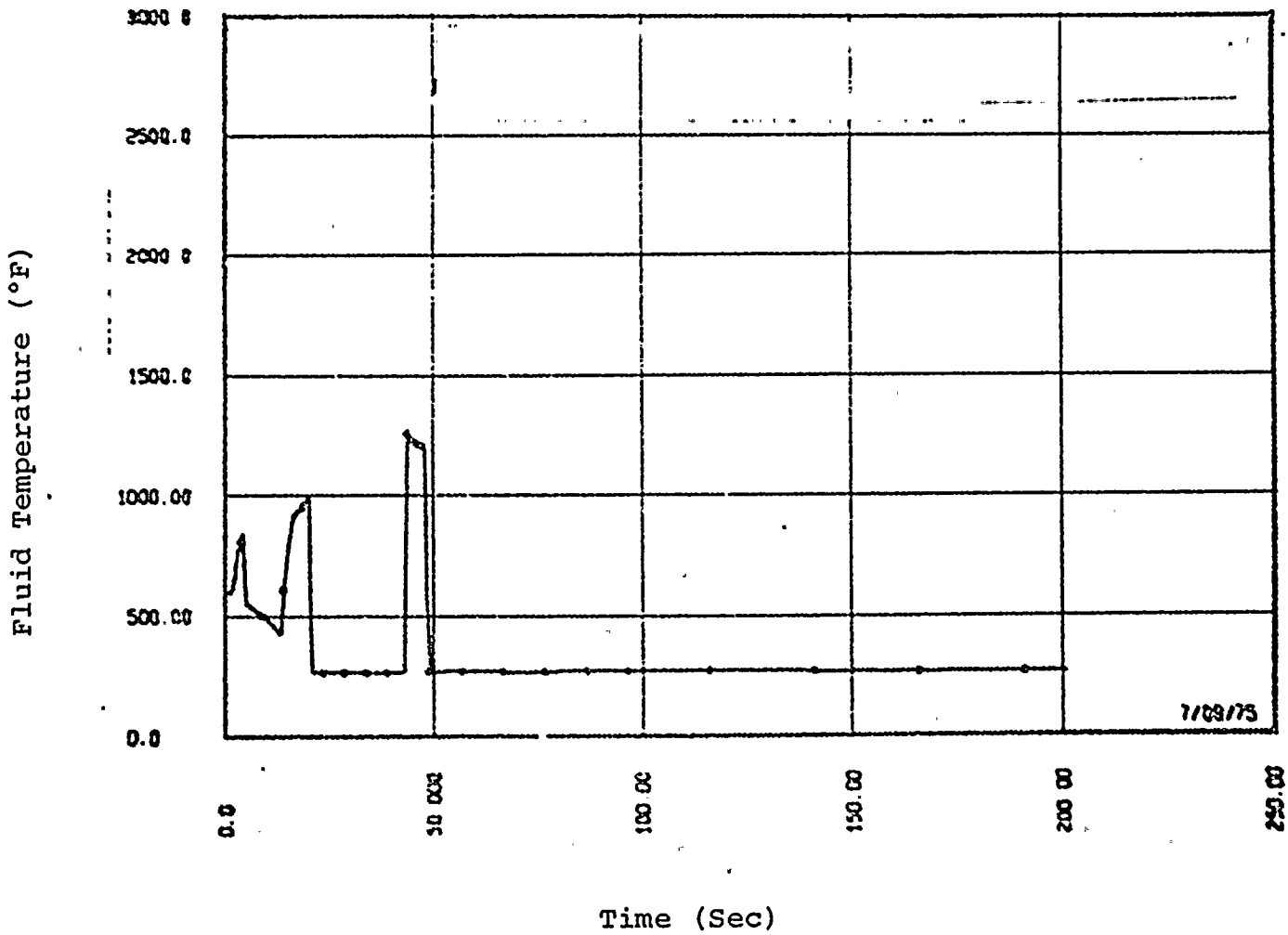


Figure 5 Fluid Temperature - DECLG (C_d=1.0)

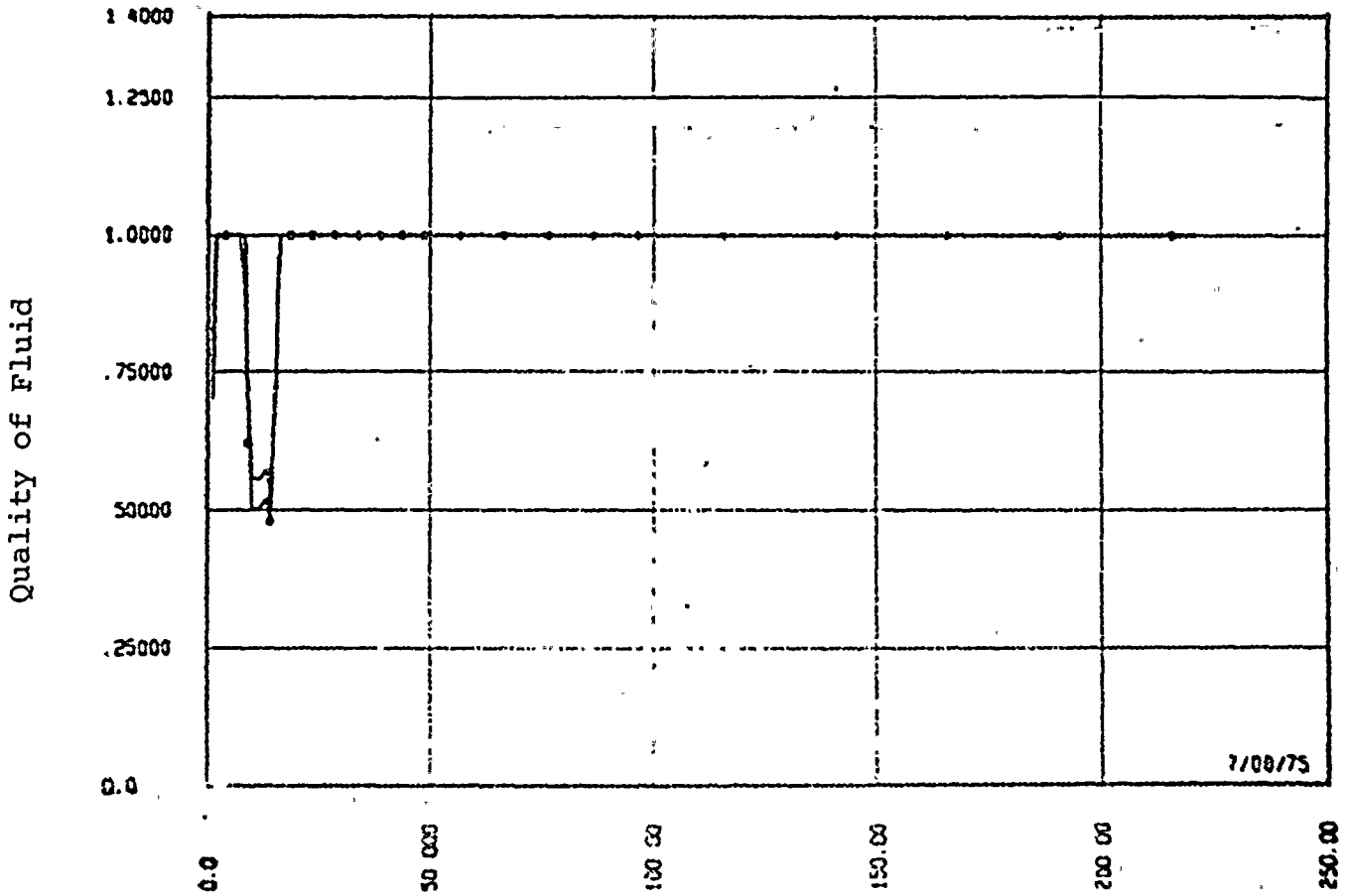


Figure 6 Fluid Quality - DECLG (C_d=0.6)

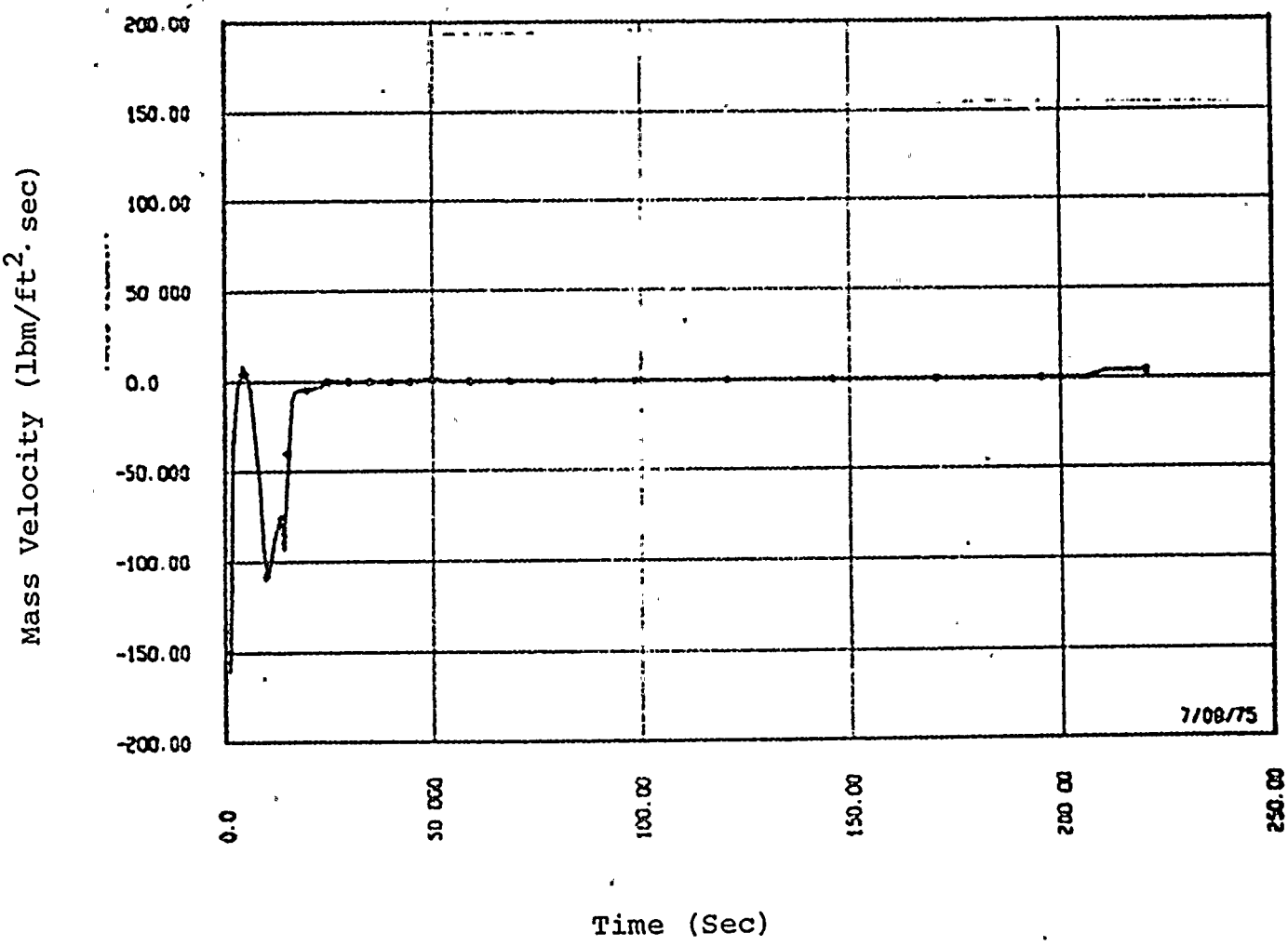


Figure 7 Mass Velocity - DECLG (C_d=0.6)

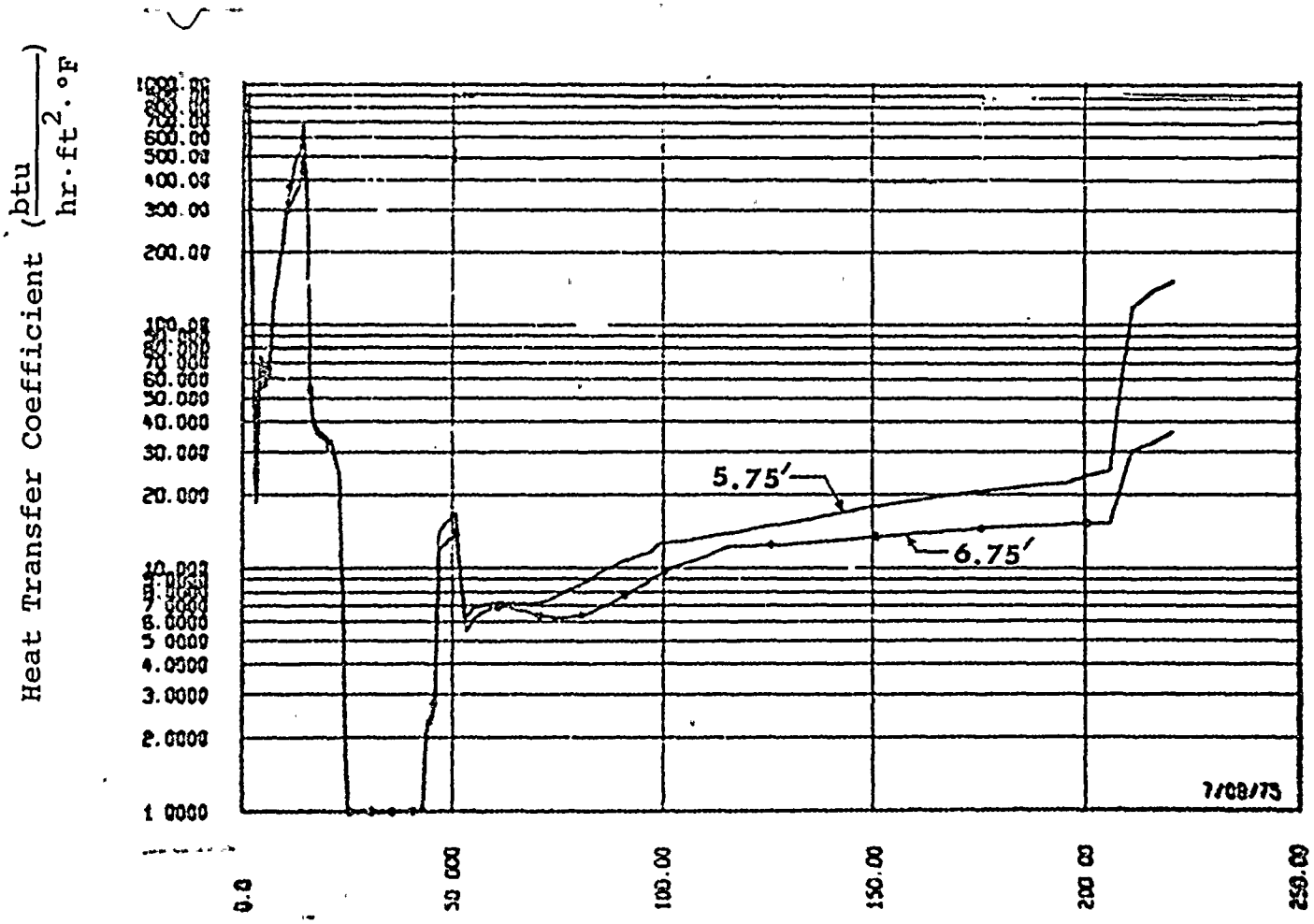


Figure 8 Heat Transfer Coefficient - DECLG (C_d=0.6)

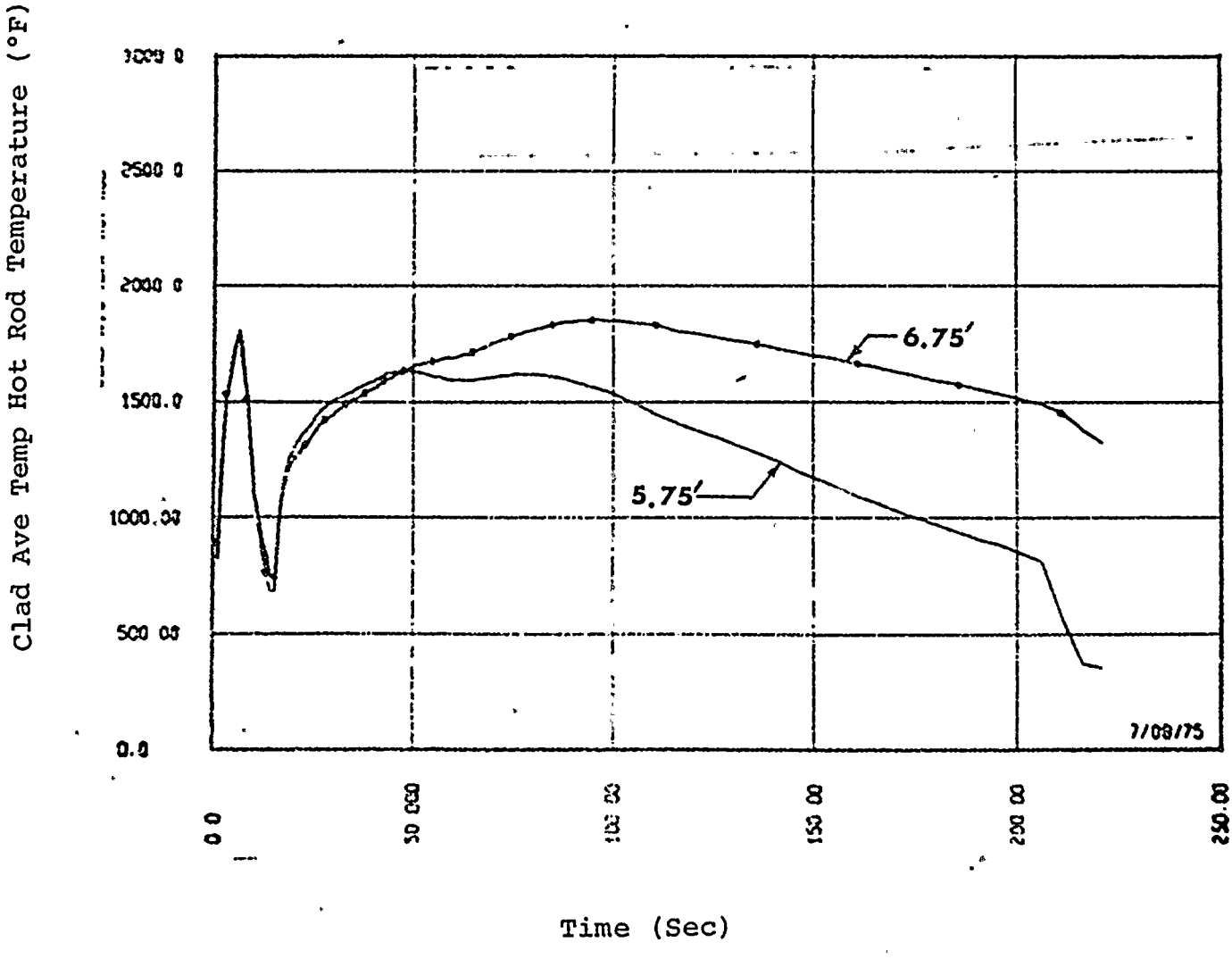


Figure 9 Peak Clad Temperature - DECLG (C_d=0.6)

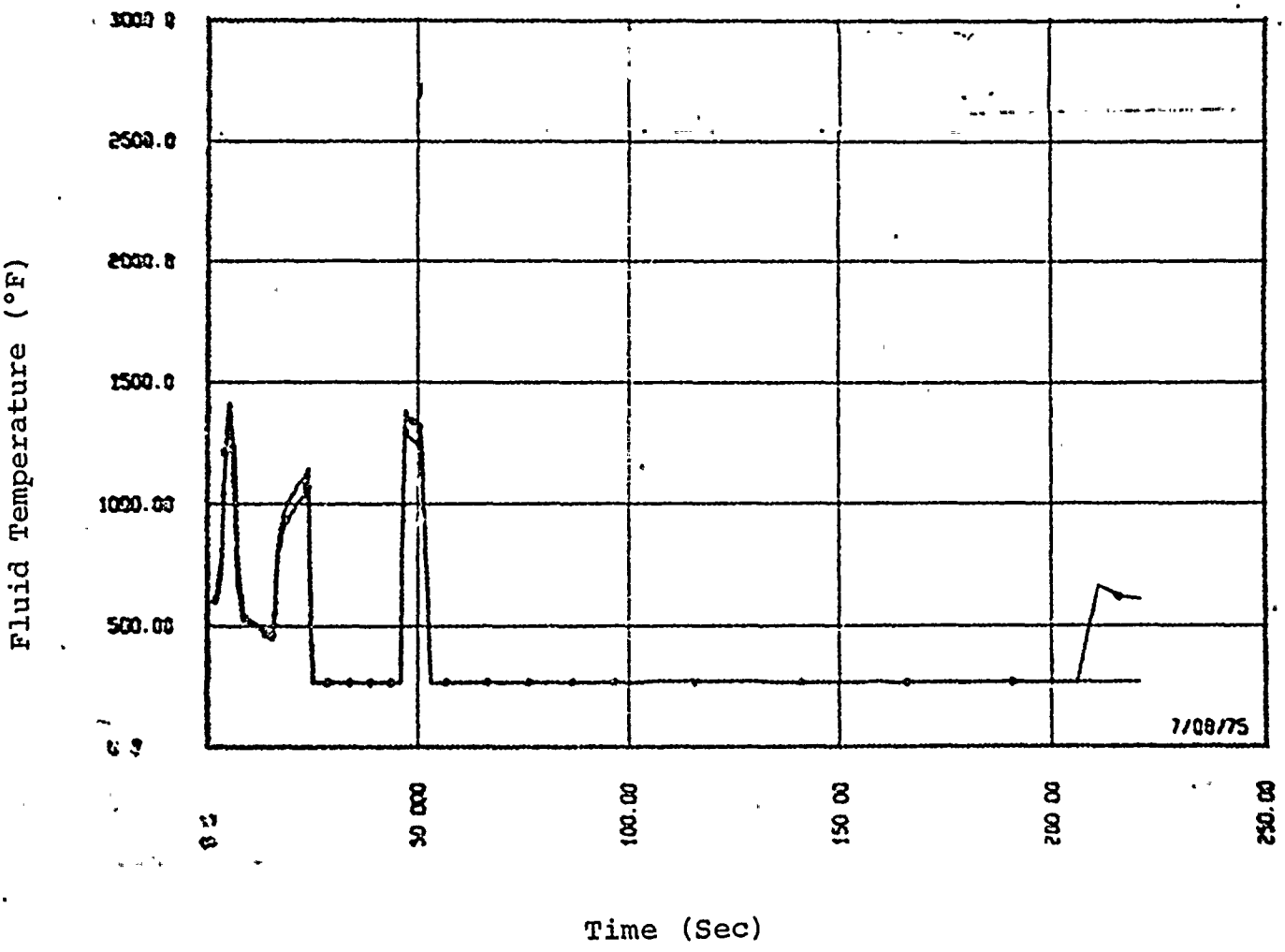


Figure 10 Fluid Temperature - DECLG (C_d=0.6)

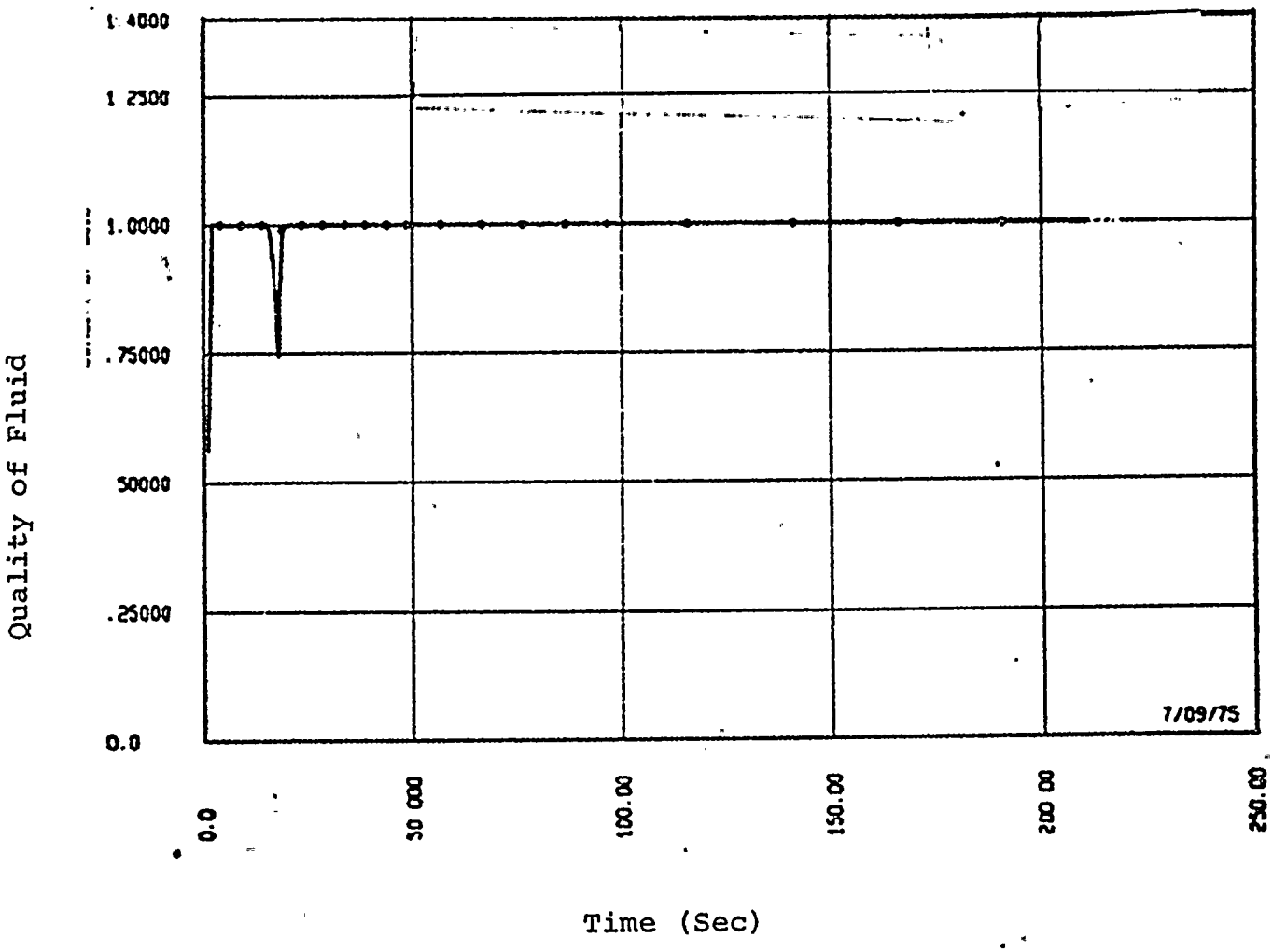


Figure 11 Fluid Quality - DECLG (C_d=0.4)

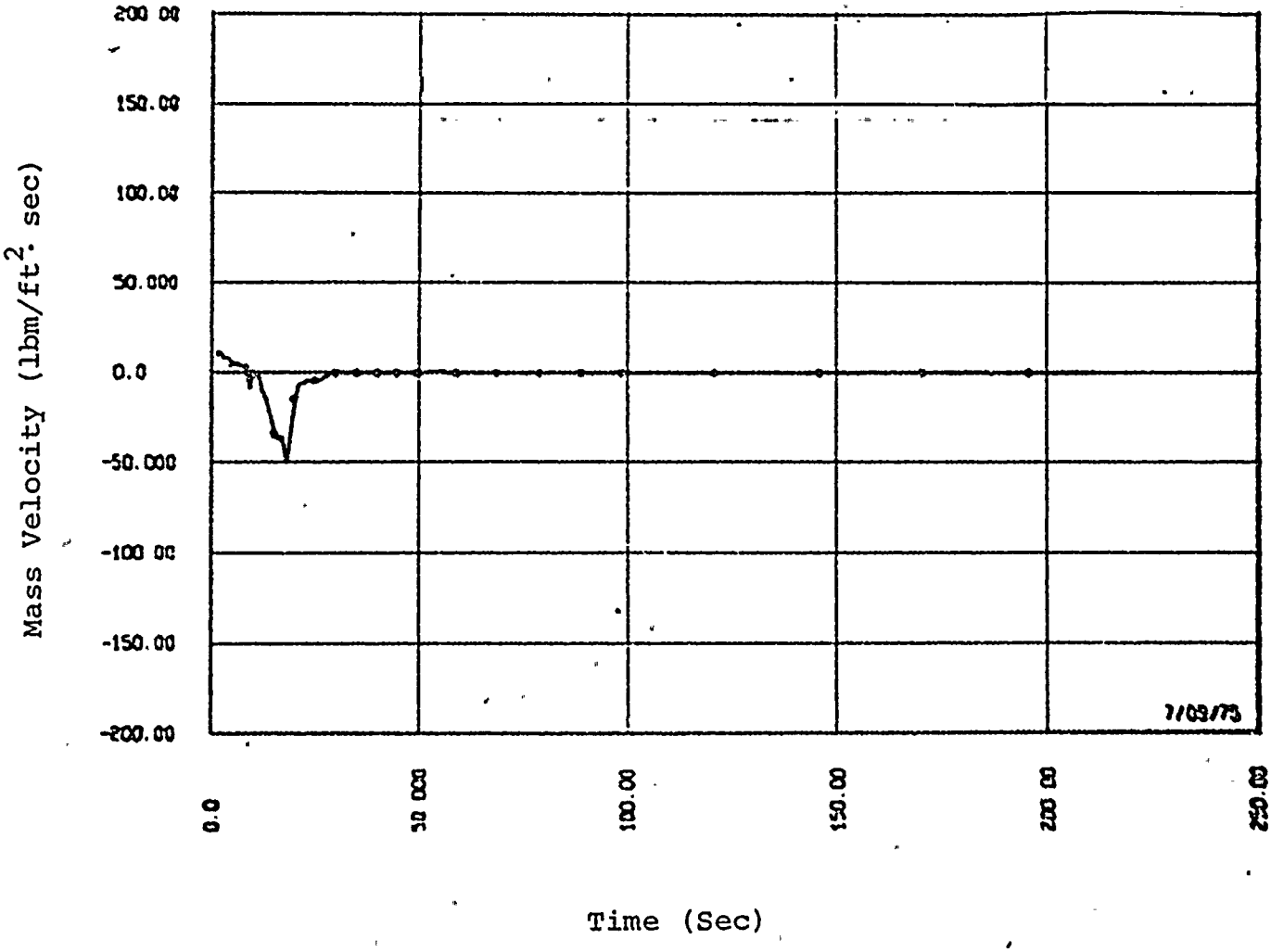


Figure 12 Mass Velocity - DECLG (C_d=0.4)

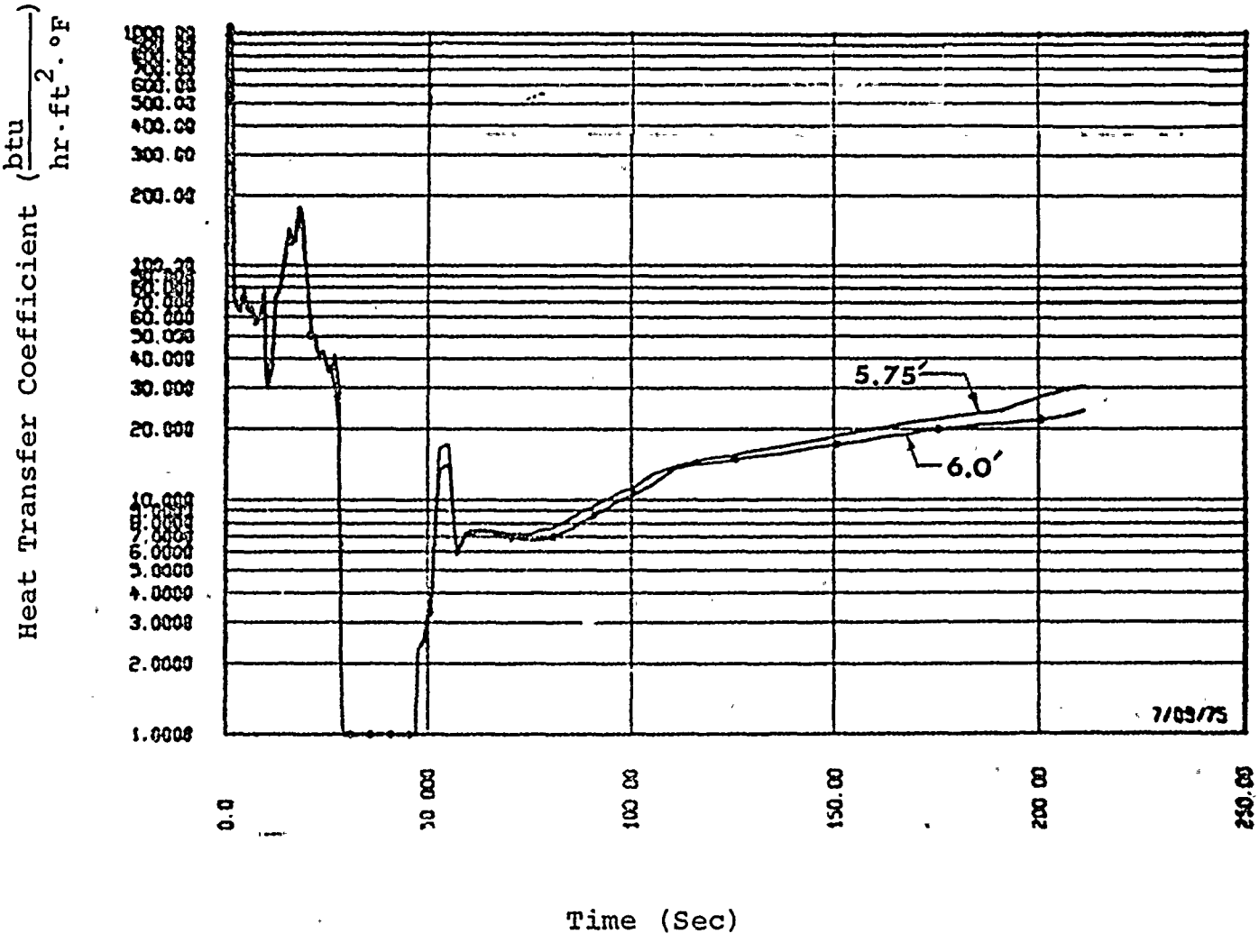


Figure 13 Heat Transfer Coefficient - DECLG (C_d=0.4)

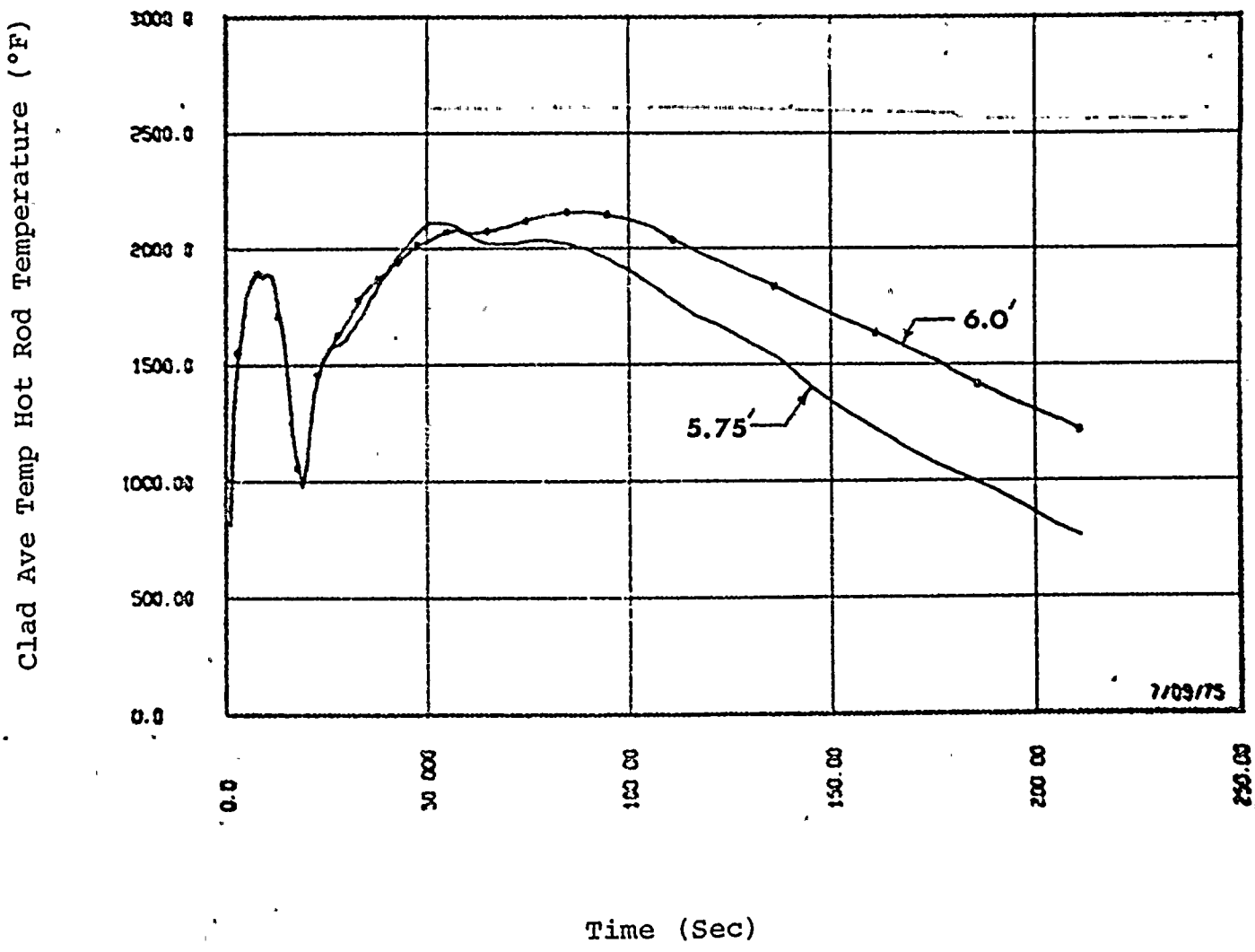


Figure 14 Peak Clad Temperature - DECLG (C_d=0.4)

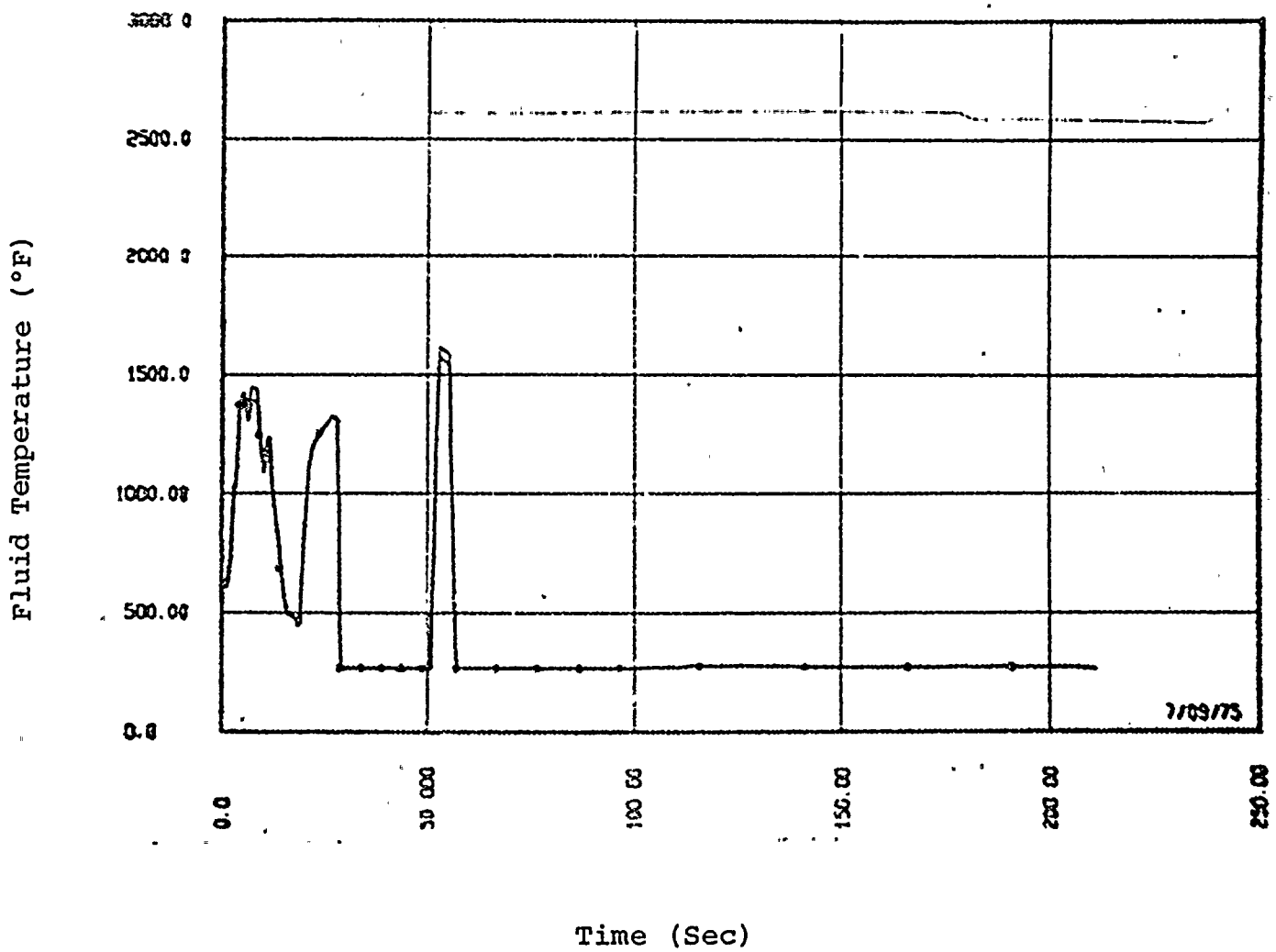


Figure 15 Fluid Temperature - DECLG (C_d=0.4)