The Light company Houston Lighting & Power P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

August 22, 1986
ST-HL-AE-1717
File No.: G9.17

Mr. Vincent S. Noonan, Project Director
PWR Project Directorate #5
U. S. Nuclear Regulatory Commission
Washington, DC 20555

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
Revised LOCA Analysis

Reference: Letter of June 2, 1986 from E. P. Rahe (Westinghouse) to Hugh Thompson (NRC): NS-NRC-86-3130

Dear Mr. Noonan:

Houston Lighting & Power Company (HL&P) has revised the South Texas Project (STP) 10CFR50 Appendix K ECCS analysis. This analysis incorporates revisions in the nominal accumulator water volume as well as in the Westinghouse BART computer program.

This reanalysis utilized the revised BART Evaluation Model (WCAP 9651, Addendum 3, June 1986) which includes modeling of fuel assembly control rod guide thimbles, removal of a hot assembly power adjustment and the metal heat transfer model improvement. These modifications to the BART program are discussed in detail in the June 2, 1986 letter from Westinghouse to the NRC (see reference).

Please note that although the changes in the BART program alone would ordinarily result in a peak clad temperature (PCT) decrease, the revised accumulator volume (from 1580 ft^3 to 1200 ft^3) causes a net increase in PCT from 1981°F to 1991°F. This is still well below the 10CFR50.46 limit of 2200°F.

As discussed with J. Wilson of the NRC during a telephone conversation on August 20, 1986, further review of the analysis determined that a nonconservative assumption has been used with regard to the number of reactor containment fan coolers (RCFCs) that are assumed operable. The present analysis assumes that a maximum of 4 RCFCs would be operating following a large break LOCA with concurrent loss of offsite power to obtain a minimum containment pressure whereas 6 RCFCs could be in operation. An evaluation assuming that 6 RCFCs are operable indicates that a PCT increase on the order of 20°F could occur upon rerunning the calculations.

L1/NRC/to

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Even with incorporation of this change, the South Texas Project ECCS analysis would demonstrate that the PCT is approximately 200°F below the 10CFR50.46 limit of 2200°F. As the completion of plant construction approaches and other as-built information is obtained, there is the possibility that small adjustments of other ECCS analysis parameters may be required. Examples include potential differences between measured safety injection flow rates and calculated values and actual containment heat sink data versus preliminary data developed for calculational purposes. With the large amount of conservatism that is known to exist in the models used to perform the ECCS analyses, we believe that it is not necessary to rerun the calculation to specifically address the impact of having 6 operable RCFCs at this time.

Therefore, the LOCA analysis incorporating lower accumulator volume and BART modifications is hereby submitted for NRC review as discussed with Mr. Wilson. A single, final re-analysis will be performed that will reflect the operability of 6 RCFCs during the transient as well as all other as-built plant parameters during the first quarter 1987.

The changes shown in the attached will be incorporated in an upcoming FSAR amendment. If you should have any questions on this matter, please contact Mr. J. S. Phelps at (713) 993-1367.

Very truly yours,

M. R. Wisenburg
Manager, Nuclear Licensing

JSP/bl

Attachment: Revised FSAR Chapters 6.2.1.5; 15.6.5

Ll/NRC/to

cc:

Hugh L. Thompson, Jr., Director
Division of PWR Licensing - A
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Robert D. Martin
Regional Administrator, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

N. Prasad Kadambi, Project Manager
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, MD 20814

Claude E. Johnson
Senior Resident Inspector/STP
c/o U.S. Nuclear Regulatory
Commission
P.O. Box 910
Bay City, TX 77414

M.D. Schwarz, Jr., Esquire
Baker & Botts
One Shell Plaza
Houston, TX 77002

J.R. Newman, Esquire
Newman & Holtzinger, P.C.
1615 L Street, N.W.
Washington, DC 20036

Director, Office of Inspection
and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

T.V. Shockley/R.L. Range
Central Power & Light Company
P.O. Box 2121
Corpus Christi, TX 78403

H.L. Peterson/G. Pokorny
City of Austin
P.O. Box 1088
Austin, TX 78767

J.B. Poston/A. vonRosenberg
City Public Service Board
P.O. Box 1771
San Antonio, TX 78296

Brian E. Berwick, Esquire
Assistant Attorney General for
the State of Texas
P.O. Box 12548, Capitol Station
Austin, TX 78711

Lanny A. Sinkin
Christic Institute
1324 North Capitol Street
Washington, D.C. 20002

Oreste R. Pirfo, Esquire
Hearing Attorney
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Charles Bechhoefer, Esquire
Chairman, Atomic Safety &
Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dr. James C. Lamb, III
313 Woodhaven Road
Chapel Hill, NC 27514

Judge Frederick J. Shon
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Citizens for Equitable Utilities, Inc.
c/o Ms. Peggy Buchorn
Route 1, Box 1684
Brazoria, TX 77422

Docketing & Service Section
Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555
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Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
1717 H Street
Washington, DC 20555

Changes to Section 6.2.1.5 of FSAR

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Table 6.2.1.5-1

BLOWDOWN MASS AND ENERGY RELEASES

(DECLG, C_D = 0.6 (Max. SI))

Time (s)	Mass Flowrate (lbm/s)	Energy Flowrate (Btu/s)
0.05	64122.	3.56+7
0.1	68643.	3.82+7
0.3	70586.	3.93+7
0.5	70133.	3.90+7
1.0	67861.	3.78+7
2.0	59325.	3.34+7
3.0	51113.	2.92+7
4.0	42058.	2.43+7
6.0	32499.	1.97+7
8.0	27628.	1.76+7
10.	21174.	1.45+7
12.	17035.	1.21+7
14.	13140.	1.01+7
16.	9501.	8.21+6
18.	5738.	5.43+6
20.	3042.	3.14+6
22.	5811.	3.01+6
24.	6146.	2.32+6
26.	4354.	1.29+6
28.246	272.	4.10+4

Table 6.2.1.5-1a

BROKEN LOOP INJECTION SPILL DURING BLOWDOWN

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(DECLG, C_D = 0.6 (MAX. SI))

Time (s)	Mass Flowrate (lbm/s)	Energy Flowrate (Btu/s)	Specific Enthalpy (Btu/lbm)
0.	4462.901	266078.166	59.620
1.	4280.357	255194.879	59.620
2.	4121.916	245748.646	59.620
3.	3981.566	237380.949	59.620
4.	3856.088	229899.974	59.620
5.	3742.951	223154.728	59.620
6.	3639.766	217002.832	59.620
7.	3544.906	211347.271	59.620
8.	3457.123	206113.691	59.620
9.	3375.622	201254.567	59.620
10.	3299.879	196738.766	59.620
11.	3229.272	192529.190	59.620
12.	3163.210	188590.576	59.620
13.	3101.192	184893.042	59.620
14.	3042.740	181408.181	59.620
15.	2987.565	178118.624	59.620
16.	2935.346	175005.334	59.620
17.	2886.008	172063.777	59.620
18.	2839.645	169299.648	59.620
19.	2796.031	166699.387	59.620
20.	2754.813	164241.923	59.620
21.	2715.703	161910.225	59.620
22.	2678.463	159689.966	59.620
23.	608.704	10989.665	18.054
24.	608.834	10992.002	18.054
25.	608.982	10994.688	18.054
26.	609.142	10997.567	18.054
27.	609.299	11000.402	18.054

Replace Entire Table with this change

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Table 6.2.1.5-2

REFLOOD MASS AND ENERGY RELEASES
(DECLG, C_D = 0.6 (MAX. SI))

Time (s)	Mass Flowrate (lbm/s)	Energy Flowrate (Btu/s)
~~36~~	~~1.65~~ 0.862	~~2156~~ 1129.3
~~37~~	~~2.80~~ 1.07	~~2683~~ 1401.9
~~38~~	~~23.16~~ 1.035	~~30942~~ 1356.2
~~39~~	~~31.06~~ 19.014	~~40705~~ 24919.
40	~~43.05~~ 26.71	~~59030~~ 35002.
45	~~6235~~. 3106.11	~~621028~~ 339792
49	~~3881~~. 5002.10	~~392582~~ 528333
54	~~804~~. 1000.64	~~217949~~ 228540
64	~~981~~. 1089.58	~~218174~~ 241505
79	~~513~~. 1110.19	~~215740~~ 240727
99	~~523~~. 1122.76	~~230283~~ 235758
119	~~576~~ 1153.04	~~216065~~ 234480
159	~~398~~ 1197.83	~~213686~~ 232814
199	~~802~~. 1208.24	~~209096~~ 226823
399	~~818~~. 1231.22	~~196351~~ 206286

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TABLE 6.2.1.5-3

ACTIVE HEAT SINK DATA
FOR MINIMUM POST-LOCA CONTAINMENT PRESSURE

Containment Spray System Parameters	
Maximum spray system flow, total	8,700 gpm
Fastest post-LOCA initiation of spray system, assuming off-site power loss at start of LOCA	58.6 sec ~~[illegible]~~
Reactor Containment Fan Coolers	
Maximum number of fan coolers operating	4
Fastest post-LOCA initiation, assuming off-site power loss at start of LOCA	25 ~~25~~ sec
Performance data - see Figure 6.2.1.5-2 for fan cooler atmosphere heat removal rate	

~~*These times are conservative and result in a lower containment pressure.~~

~~Amendment [illegible]~~

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Note: Change Made in SAR CR 936 5/14/86

TABLE 6.3-1

EMERGENCY CORE COOLING SYSTEM
COMPONENT PARAMETERS

Accumulators

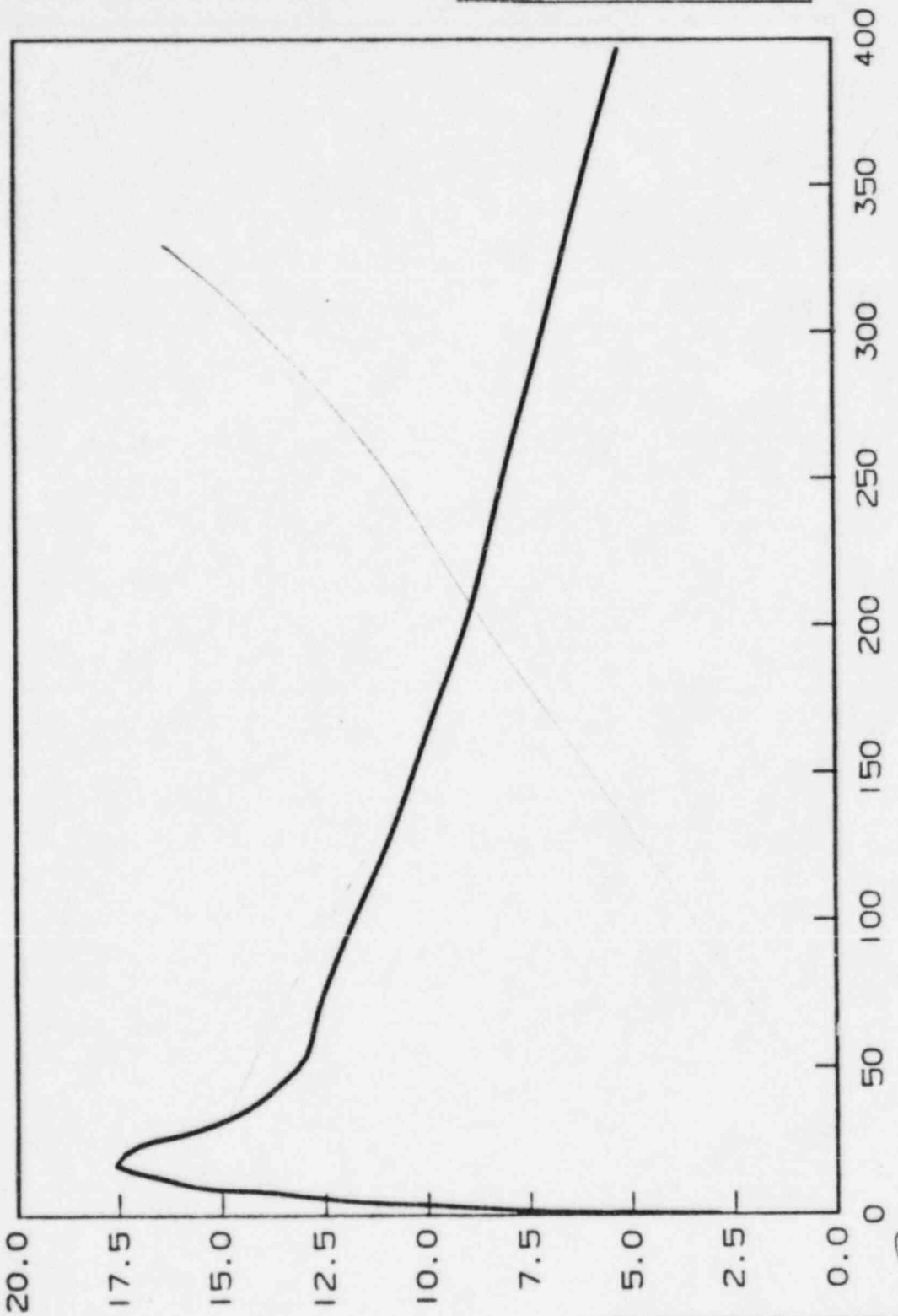
Number	3	
Design Pressure, psig	700	
Design Temperature, °F	300	
Operating Temperature, °F	100-150	36
Normal Operating Pressure, psig	630	
Minimum Operating Pressure, psig	586 ~~600~~	
Total Volume, ft^3	2500 each	
NOMINAL ~~Normal~~ Water Volume, ft^3	~~1580~~ 1600	51
N_2 Gas Volume, ft^3	~~920~~ 1300	7
Boron Concentration (as Boric Acid), ppm	2400-2600	36
Relief Valve Setpoint, psig	700	

High Head Safety Injection Pumps

Number	3
Design Pressure, psig	1750
Design Temperature, °F	300
*Design Flowrate, gal/min	800
Design Head, ft	2850
Max. Flowrate gal/min	1600
Head at Max. Flowrate, ft.	1600
Differential Head at Shutoff, ft. (Max)	3900
+Motor Rating, bhp	975
Required NPSH at Max. Flowrate, ft. (Max)	15
Available NPSH, ft.	17.9

* Includes miniflow
+ 1.15 service factor not included

51



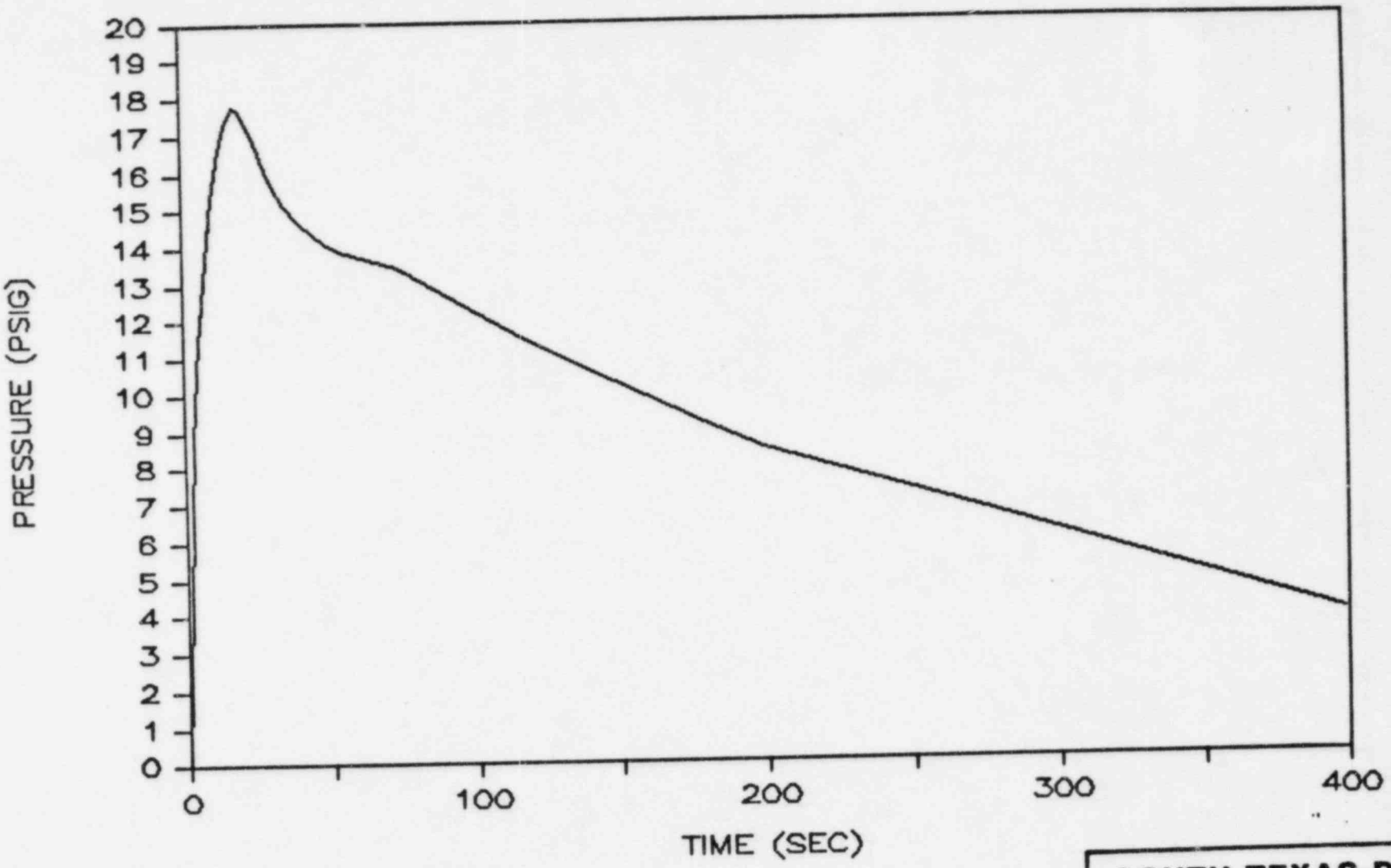
Replace with attached

SOUTH TEXAS PROJECT
UNITS 1 & 2

TGX LARGE-BREAK LOCA ANALYSIS
DECLG CD=0.6 MAX. SI
CONTAINMENT BACKPRESSURE

Figure 6.2.1.5-1

Amendment 51



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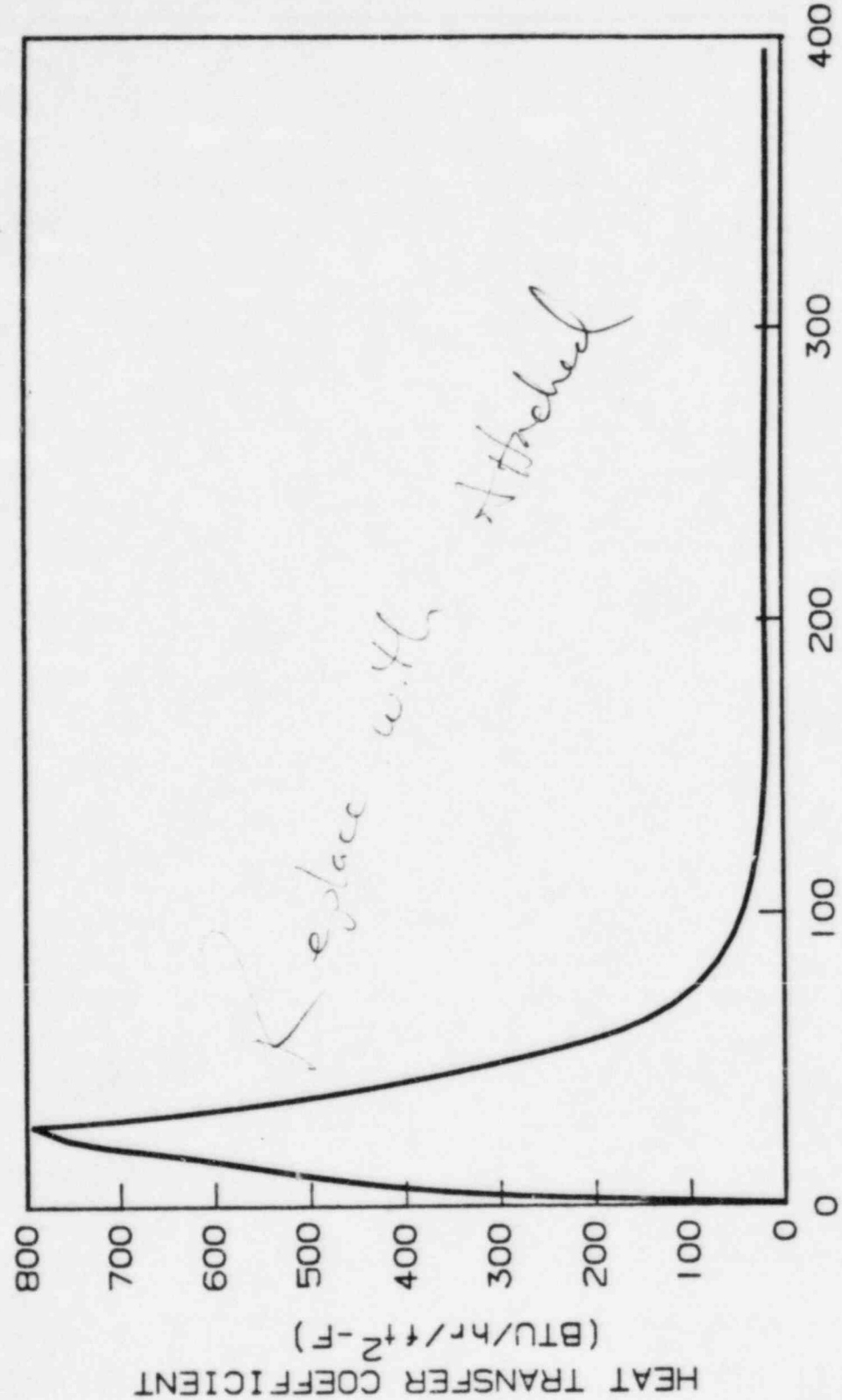
SOUTH TEXAS PROJECT
UNITS 1 & 2

TGX LARGE-BREAK LOCA ANALYS
DECLG CD=0.6 MAX. SI
CONTAINMENT BACKPRESSURE

Figure 6.2.1.5-1 **Amendment**

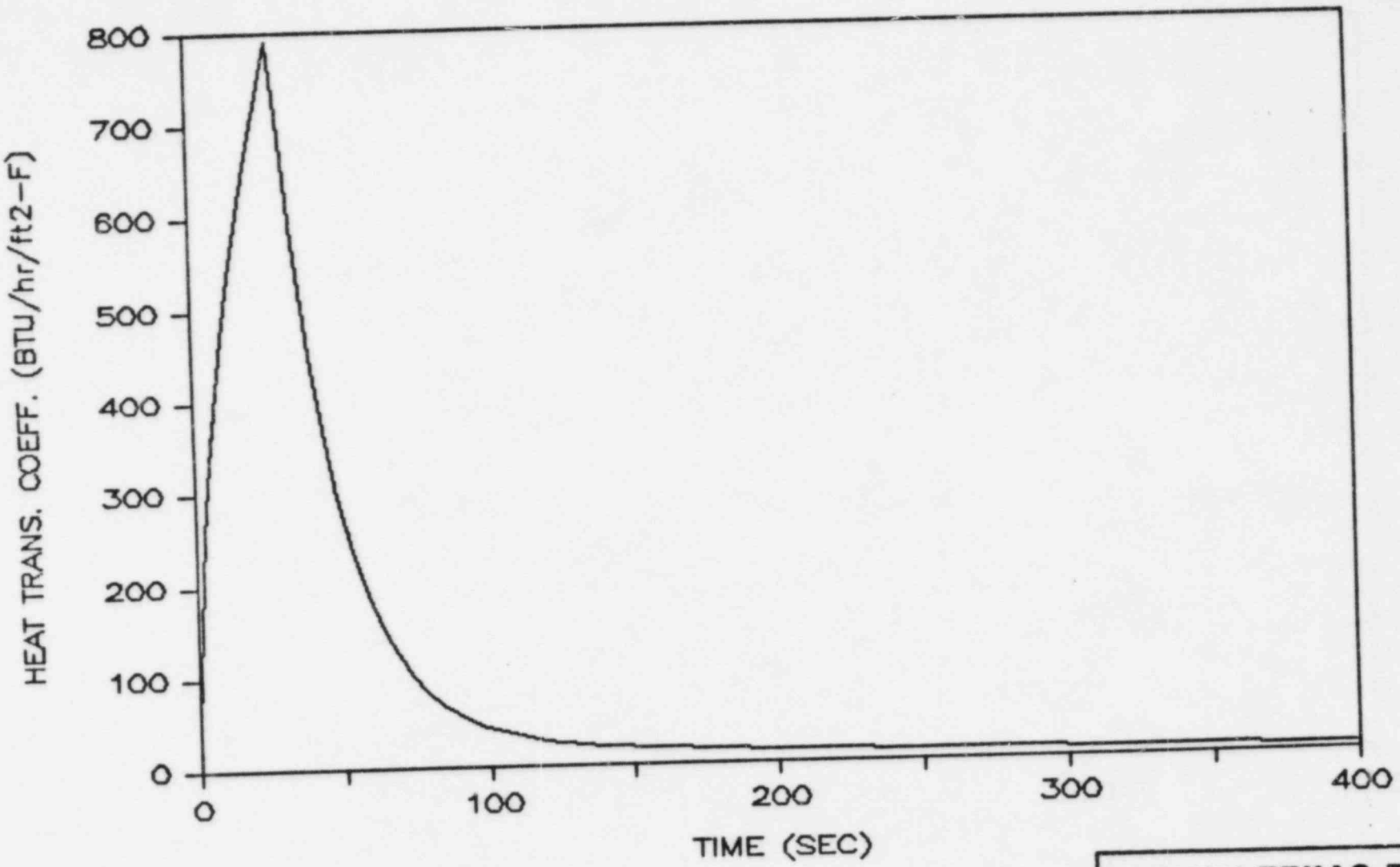


Replace w/ Attached

SOUTH TEXAS PROJECT
UNITS 1 & 2

DECLG CD=0.6 (MAX. SI)
CONTAINMENT CONDENSING HEAT
TRANSFER COEFFICIENT

Figure 6.2.1.5-3 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

DECLG CD=0.6 (MAX. SI)
CONTAINMENT CONDENSING HEAT TRANSFER COEFFICIENT

Figure 6.2.1.5-3 **Amendment**

Changes to Section 15.6.5 of FSAR

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2. Reactor core pressure

3. Reflood transient core and downcomer levels

4. Core inlet fluid velocity

5. Thermal power during blowdown

6. Containment Pressure

The minimum Containment pressure analysis used in the ECCS evaluation is presented in Section 6.2.1.5.

For the limiting break analyzed, the following additional transient parameters are presented:

1. Core flow during blowdown (inlet and outlet)

2. Core heat transfer coefficients

3. Hot spot fluid temperature

4. Mass released to Containment during blowdown

5. Energy released to Containment during blowdown

6. Quality of hot assembly during blowdown

7. Mass velocity during blowdown

8. Accumulator water flow rate during blowdown

9. Pumped safety injection water flow rate during reflood

3.88 The maximum clad temperature calculated for a large break is ~~1981~~ 1991°F which meets the Acceptance Criteria limit of 2200°F of 10CFR50.46. The maximum local metal water reaction is ~~4.24~~ percent, which is well below the embrittlement limit of 17 percent as required by 10CFR50.46. The total core metal-water reaction is less than 0.3 percent for all breaks, as compared with the 1 percent criterion of 10CFR50.46, and the clad temperature transient is terminated at a time when the core geometry is still amenable to cooling. As a result the core temperature will continue to drop and the ability to remove decay heat generated in the fuel for an extended period of time will be provided.

Small Break Results

As noted previously, the calculated peak clad temperature resulting from a small break LOCA is less than that calculated for a large break. Based on the results of the LOCA sensitivity studies (Ref. 15.6-18), the limiting small break was found to be less than a 10 in. diameter rupture of the RCS cold leg. Therefore, a range of small break analyses are presented which establishes the most limiting break size. The results of these analyses are summarized in Tables 15.6-8 and 15.6-9.

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REFERENCES

Section 15.6 (Continued)

15.6-11a Deleted.

15.6-11b Deleted.

15.6-11c Deleted.

15.6-11d Deleted.

15.6-11e Young, M.Y., et.al., "BART-A1: A Computer Code for the Best Estimate Analysis of REFLOOD Transients", WCAP-9561-P, ~~A, March 1984.~~ Addendum 3, June 1986.

15.6-11f Chiou, J.S., et.al., "Models for PWR Reflood Calculations Using the BART Code", WCAP-10062

15.6-11g Letter from C.O. Thomas (NRC) to E.P. Rahe (Westinghouse), dated December 21, 1983.

15.6-11h Letter, E.P. Rahe (Westinghouse) to James R. Miller (USNRC), NS-EPRS-2679, November 8, 1982.

15.6-12 Porsching, T. A., Murphy, J. H., Redfield, J. A. and Davis, V. C., "FLASH-4: A Fully Implicit FORTRAN-IV Program for the Digital Simulation of Transients in a Reactor Plant," WAPD-TM-84; Bettis Atomic Power Laboratory (March, 1969).

15.6-13 Esposito, V. J., Kesavan, K. and Maul, B. A., "WFLASH-A FORTRAN IV Computer Program for Simulation of Transients in a Multi-Loop PWR," WCAP-8200, Revision 2, July, 1974 (Proprietary) and WCAP-8261, Revision 1, July, 1974 (Non-Proprietary).

15.6-14 Skwarek, R., Johnson, S., Meyer, P., "Westinghouse Emergency Core Cooling System Small Break October 1975 Model," WCAP-8970 April, 1977 (Proprietary).

15.6-15 Letter from C. Eicheldinger of Westinghouse Electric Corporation to V. Stello of the Nuclear Regulatory Commission, Letter Number NS-CF-1163 dated August 13, 1976.

15.6-16 Beck, H.S., Kemper, R.M." Westinghouse ECCS - Four Loop Plant Sensitivity Studies With Upper Head Fluid Temperature at T_{HOT}, WCAP-8865, October, 1976.

15.6-16a Letter, E.P. Rahe (Westinghouse) to R.L. Tedesco (USNRC), Letter Number NS-EPR-2538, December 22, 1981.

15.6-17 "Westinghouse ECCS Evaluation Model Sensitivity Studies," WCAP-8341, July, 1974 (Proprietary), WCAP-8342, July, 1974 (Non-Proprietary).

15.6-18 Salvatori, R., "Westinghouse ECCS - Plant Sensitivity Studies," WCAP-8340, July, 1974 (Proprietary) and WCAP-8356, July, 1974 (Non-Proprietary).

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TABLE 15.6-6

LARGE BREAK - TIME SEQUENCE OF EVENTS

EVENT	OCCURRENCE TIME (SECONDS) C_D=0.4 (min.SI)	C_D=0.6 (min.SI)	C_D=0.8 (min.SI)	C_D=0.6 (MAX.SI)
Accident Initiation	0.0	0.0	0.0	0.0
Reactor Trip Signal	0.565	~~0.549~~ 0.547	0.539	~~0.549~~ 0.547
Safety Injection Signal	2.59	~~2.06~~ 2.07	1.79	~~2.06~~ 2.07
Start Accumulator Injection	21.8	16.8	13.8	16.8
End of ECC Bypass	34.986	~~27.950~~ 28.246	24.245	~~27.950~~ 28.246
Start Pumped ECC Injection	27.59	~~27.06~~ 27.07	26.79	~~27.06~~ 27.07
End of Blowdown	35.055	~~27.950~~ 28.246	24.339	~~27.950~~ 28.246
Bottom of Core Recovery	41.575	~~34.286~~ 35.956	30.437	~~34.861~~ 35.775
Accumulators Empty	56.191	~~30.059~~ 48.909	46.687	~~50.178~~ 50.111

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Table 15.6-7

LARGE BREAK ANALYSIS RESULTS

	DECLG C_D=0.4 (min. SI)	DECLG C_D=0.6 (min SI)	DECLG C_D=0.8 (min. SI)	DECLG C_D=0.6 (Max. SI)
		1967		1991
Peak clad temperature (°F)	1720	~~1967~~	1941	~~1981~~
Elevation (ft)	7.75	8.00	8.00	8.00
Max. local Zr/H_2O reaction (%)	2.37	4.18 ~~3.94~~	3.84	3.88 ~~4.24~~
Elevation (ft)	8.00	7.75	7.75	7.50 ~~7.75~~
Total Zr/H_2O reaction (%)	<0.3	<0.3	<0.3	<0.3
Hot rod burst time (s)	84.4	46.4 ~~44.8~~	57.6	46.6 ~~44.8~~
Elevation (ft)	8.00	7.00	7.25	7.00

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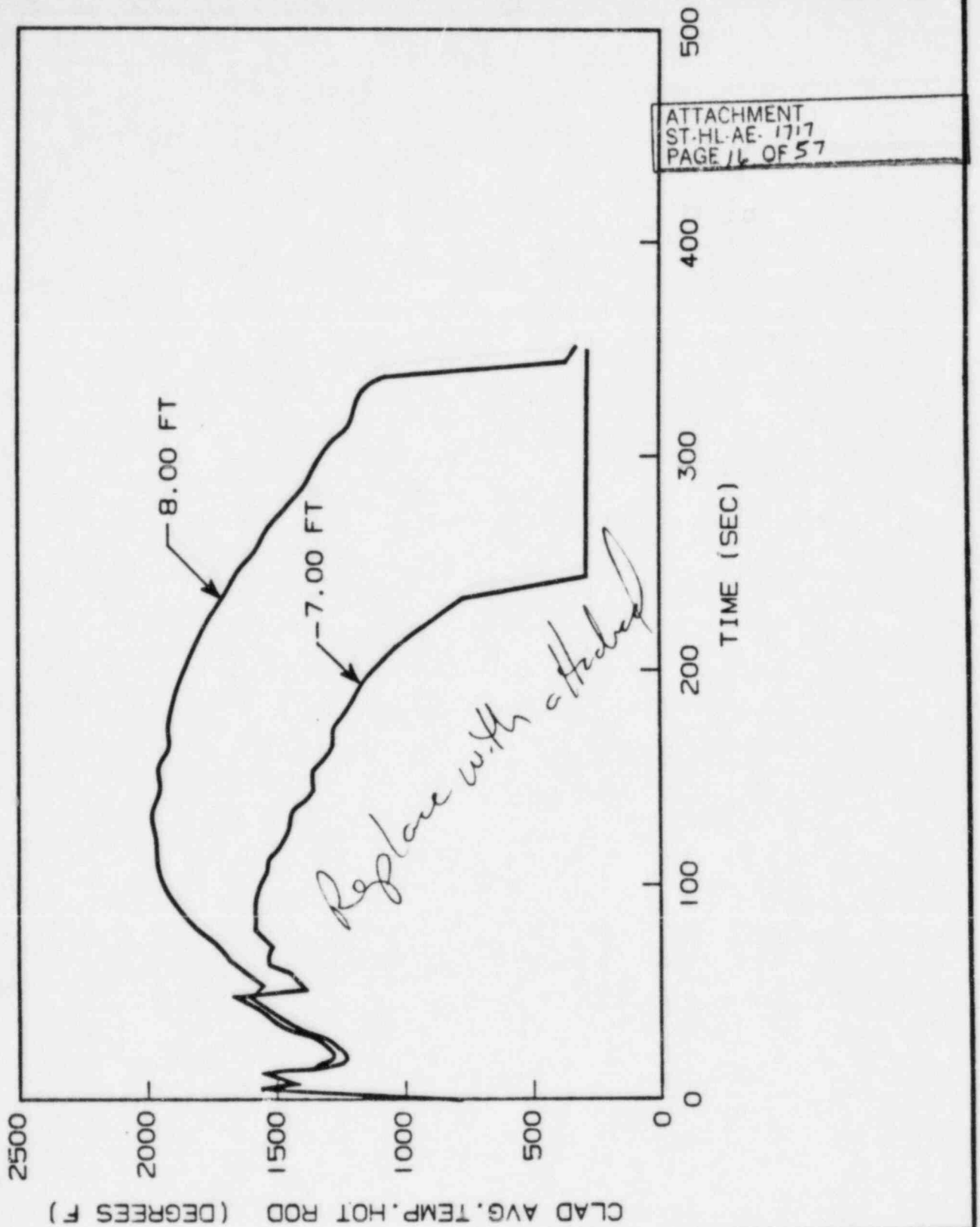
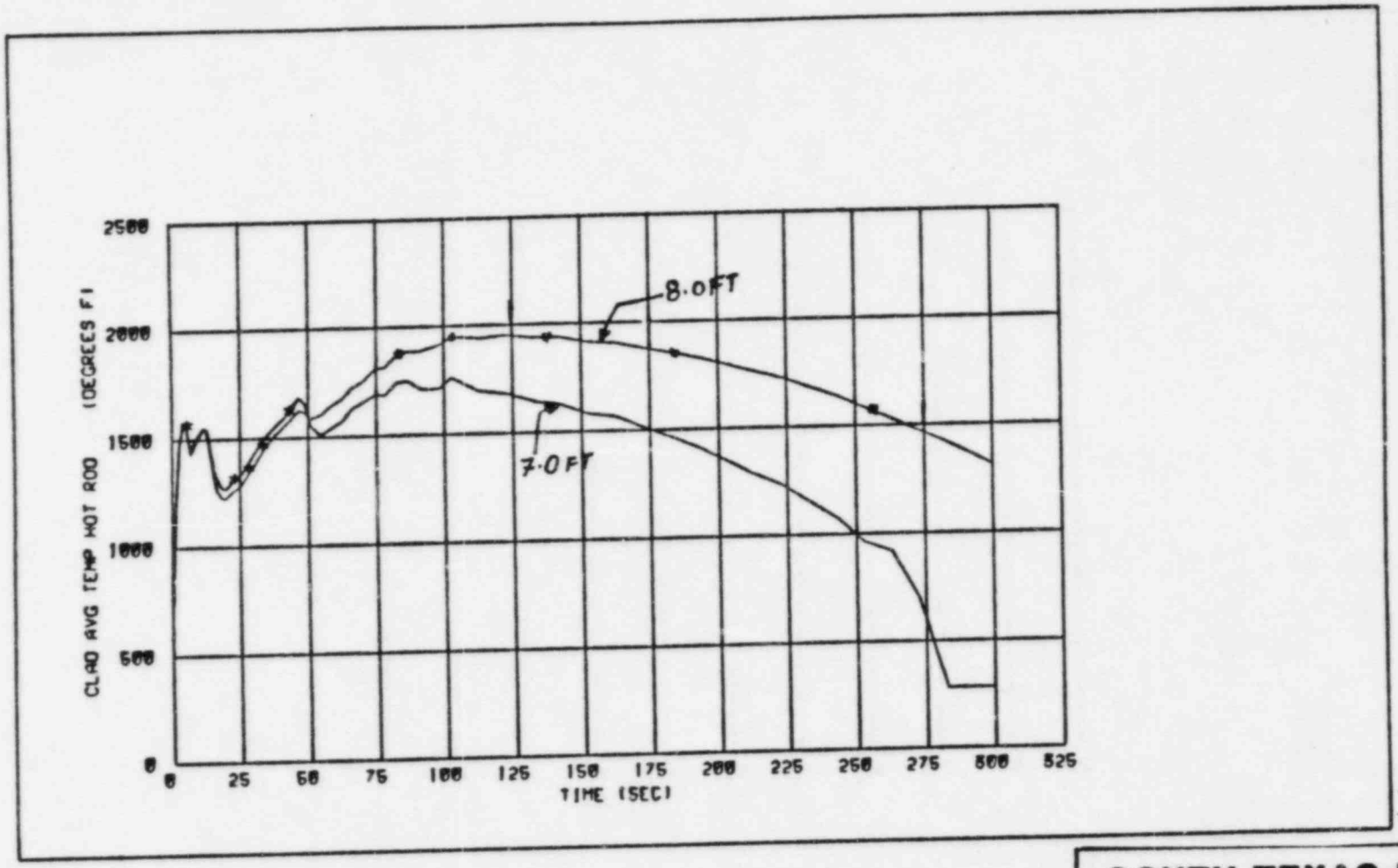


SOUTH TEXAS PROJECT
UNITS 1 & 2

PEAK CLAD TEMPERATURE
DECLG, $C_D = 0.6$

Figure 15.6-14 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

PEAK CLAD TEMPERATURE
DECLG, C_D = 0.6

Figure 15.6-14 **Amendment**

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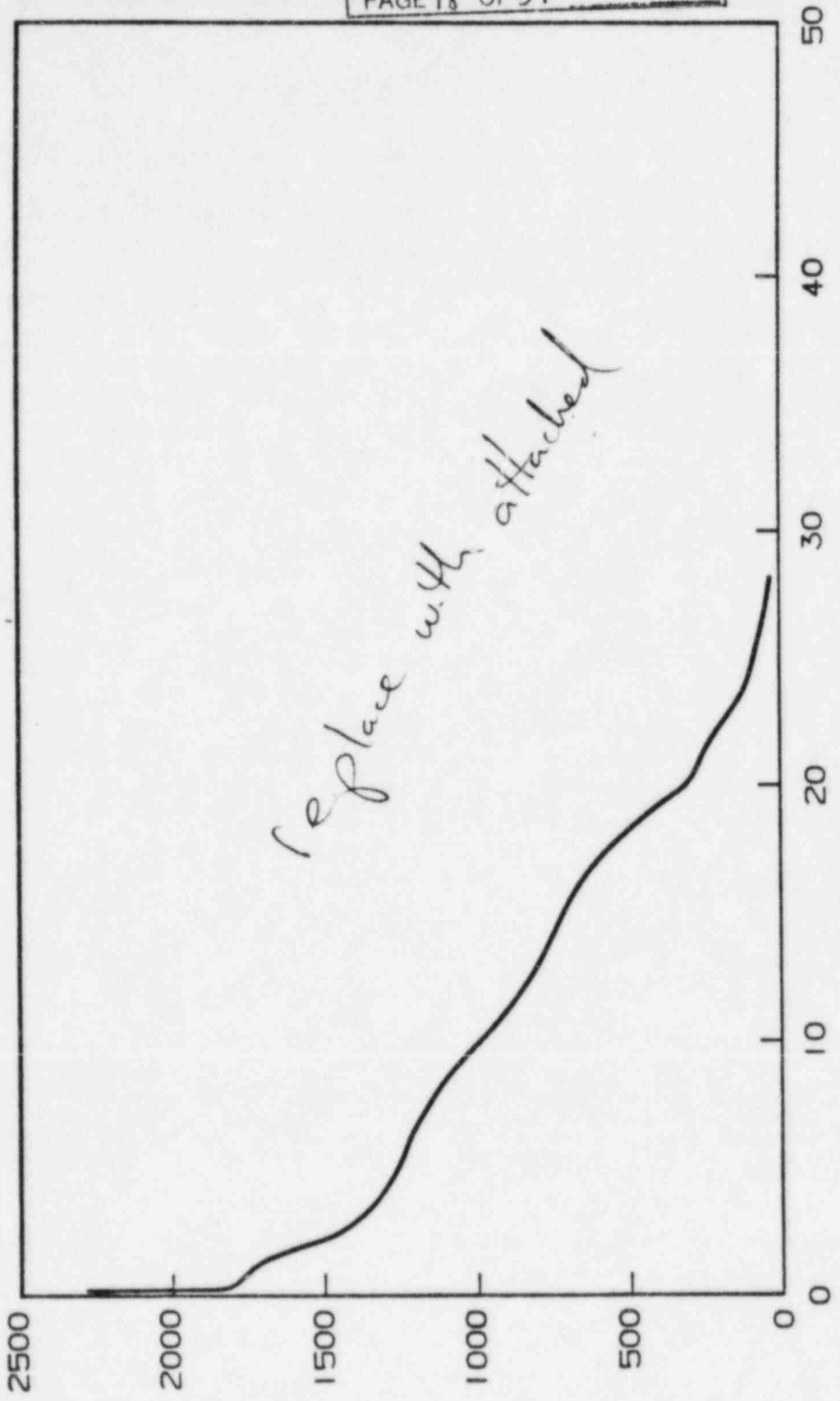
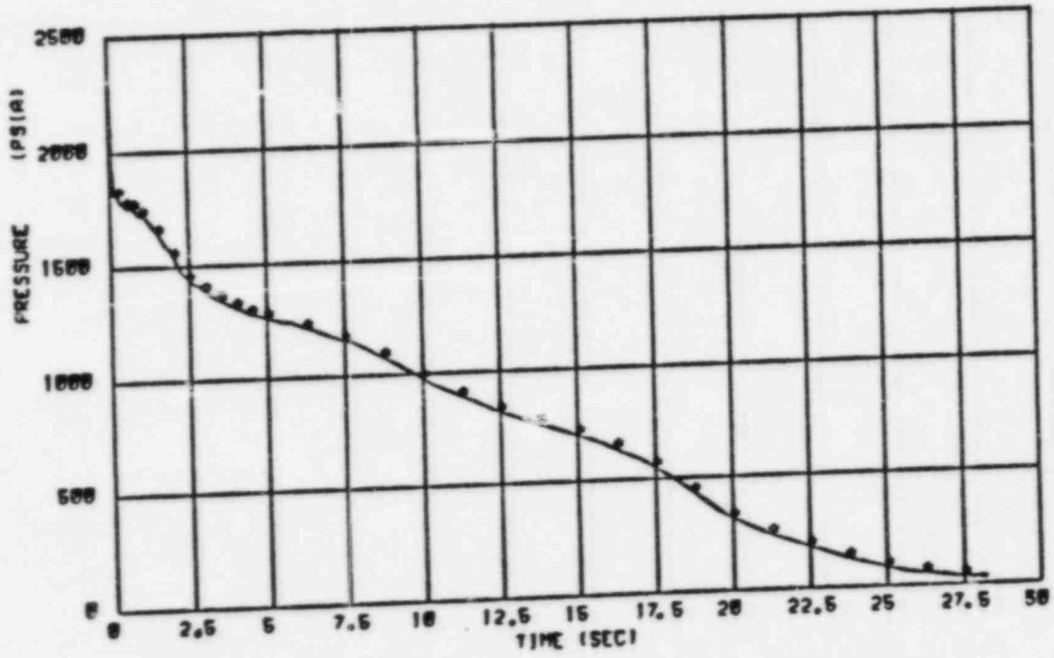


replace with attached

SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE PRESSURE
DECLG, $C_D = 0.6$

Figure 15.6-15 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

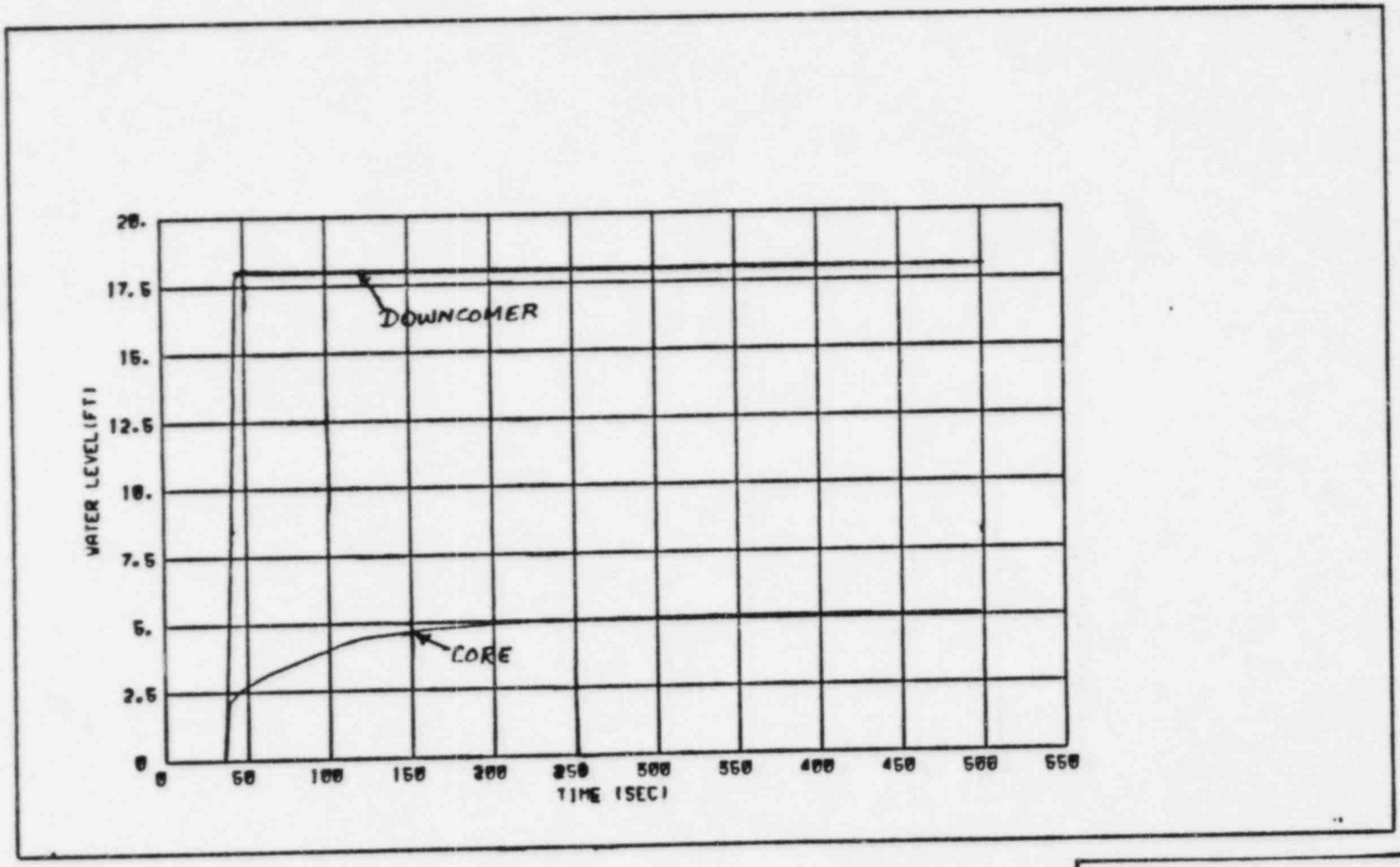
CORE PRESSURE
DECLG, C_D = 0.6

Figure 15.6-15 **Amendment**

SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT DOWNCOMER AND CORE WATER LEVELS DECLG, $C_D = 0.6$

Figure 15.6-16 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT DOWNCOMER AND CORE WATER LEVELS DECLG, C_D = 0.6

Figure 15.6-16 **Amendment**

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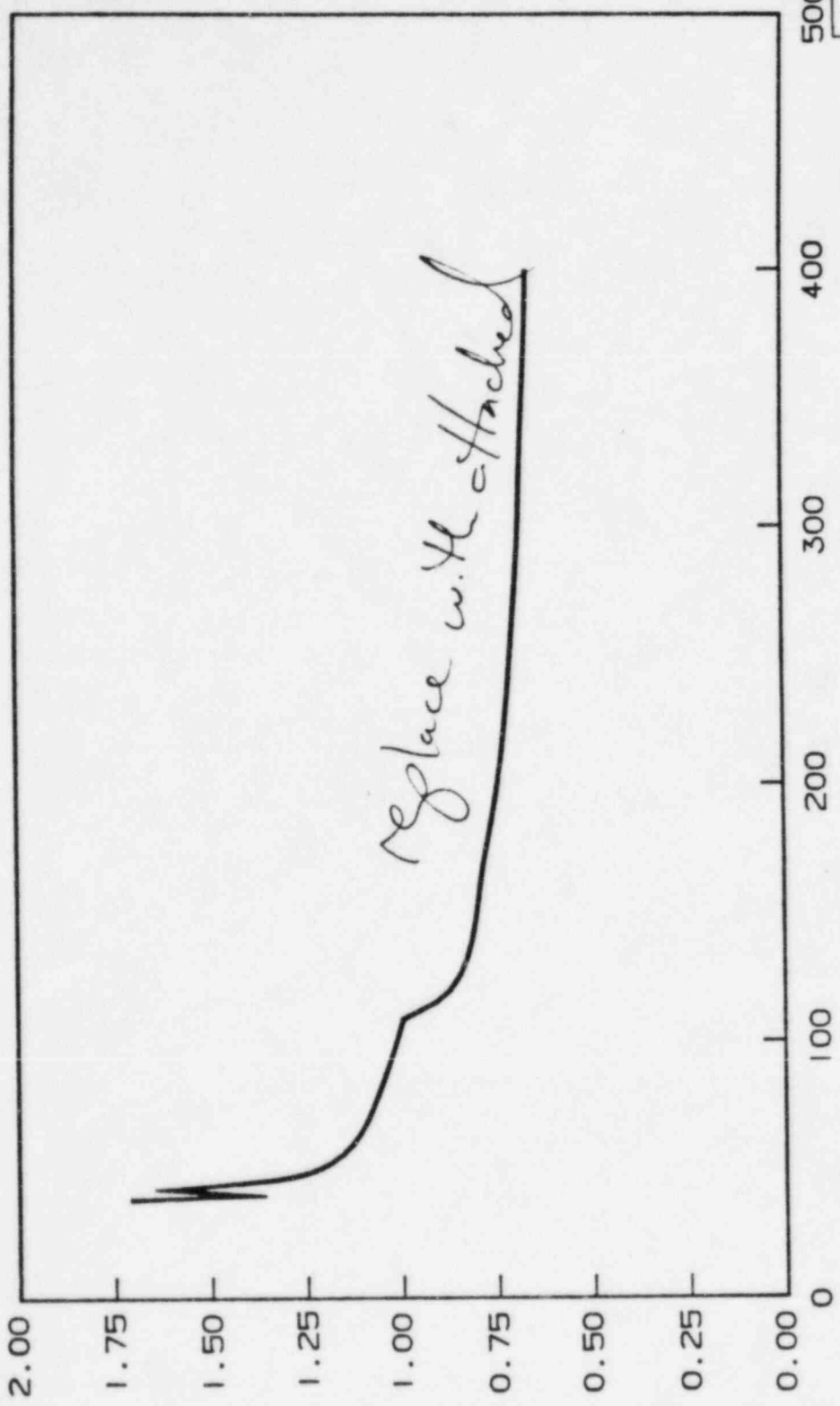
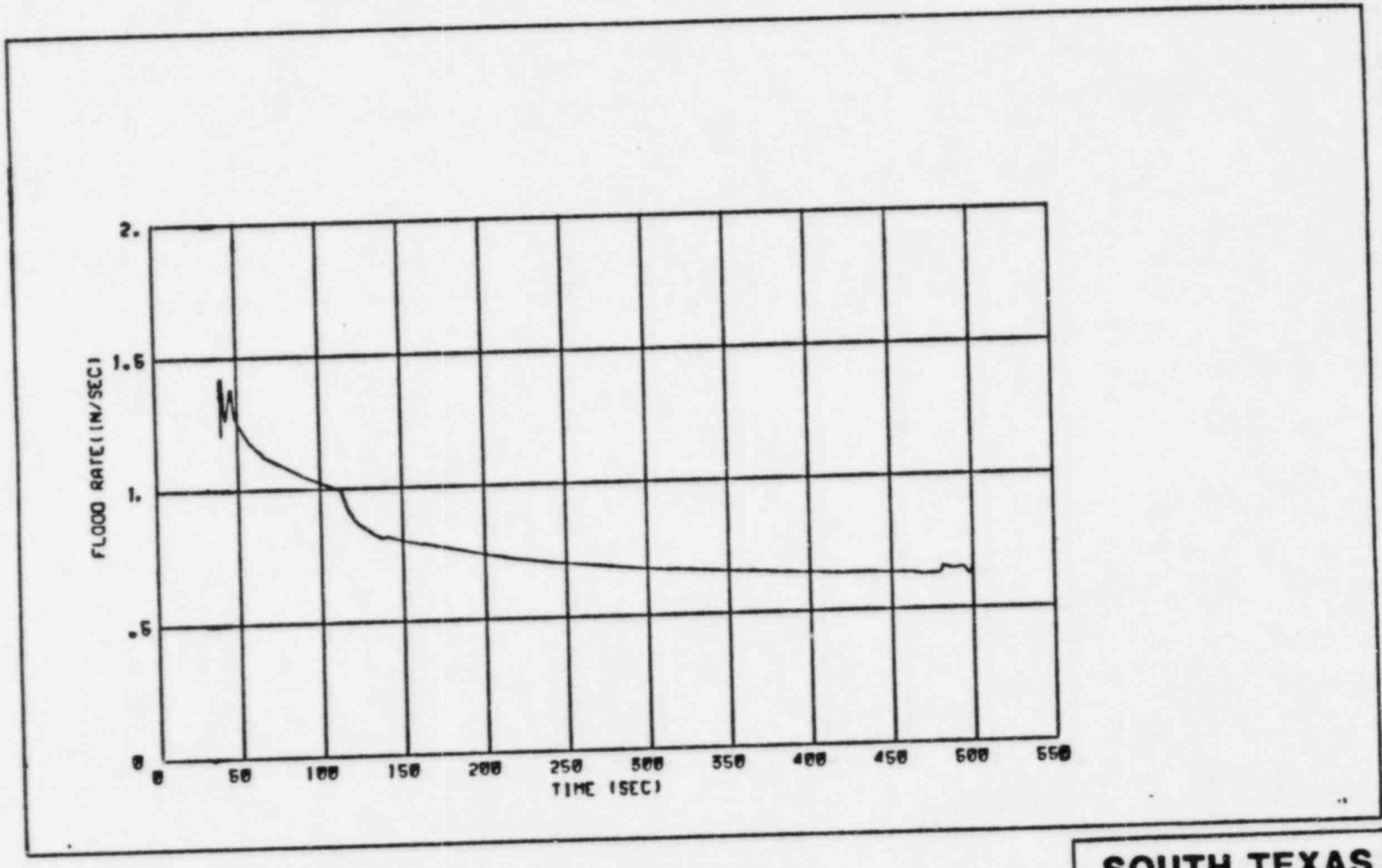


SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT CORE
INLET FLUID VELOCITY
DECLG, $C_D = 0.6$

Figure 15.6-17 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT CORE INLET FLUID VELOCITY DECLG, C_D = 0.6

Figure 15.6-17 **Amendment**

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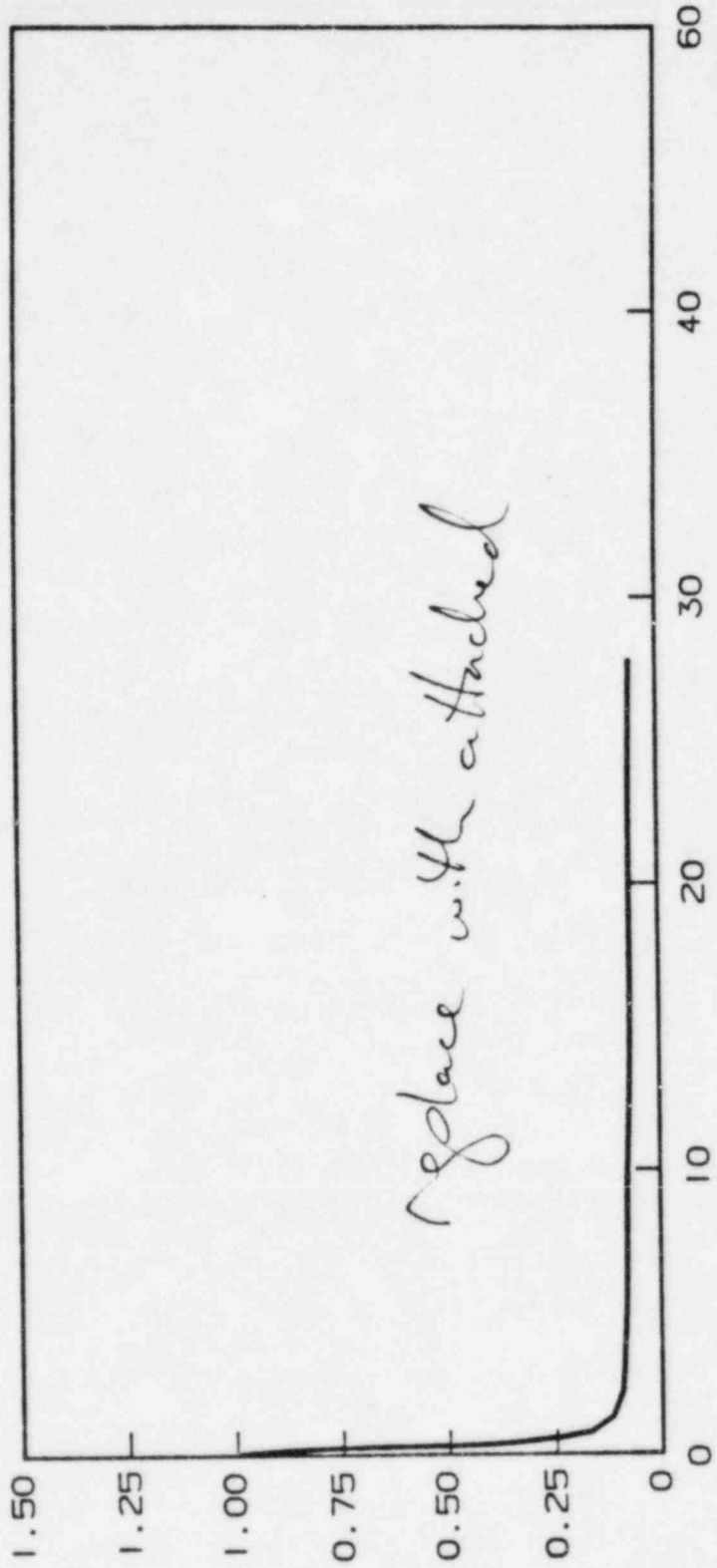
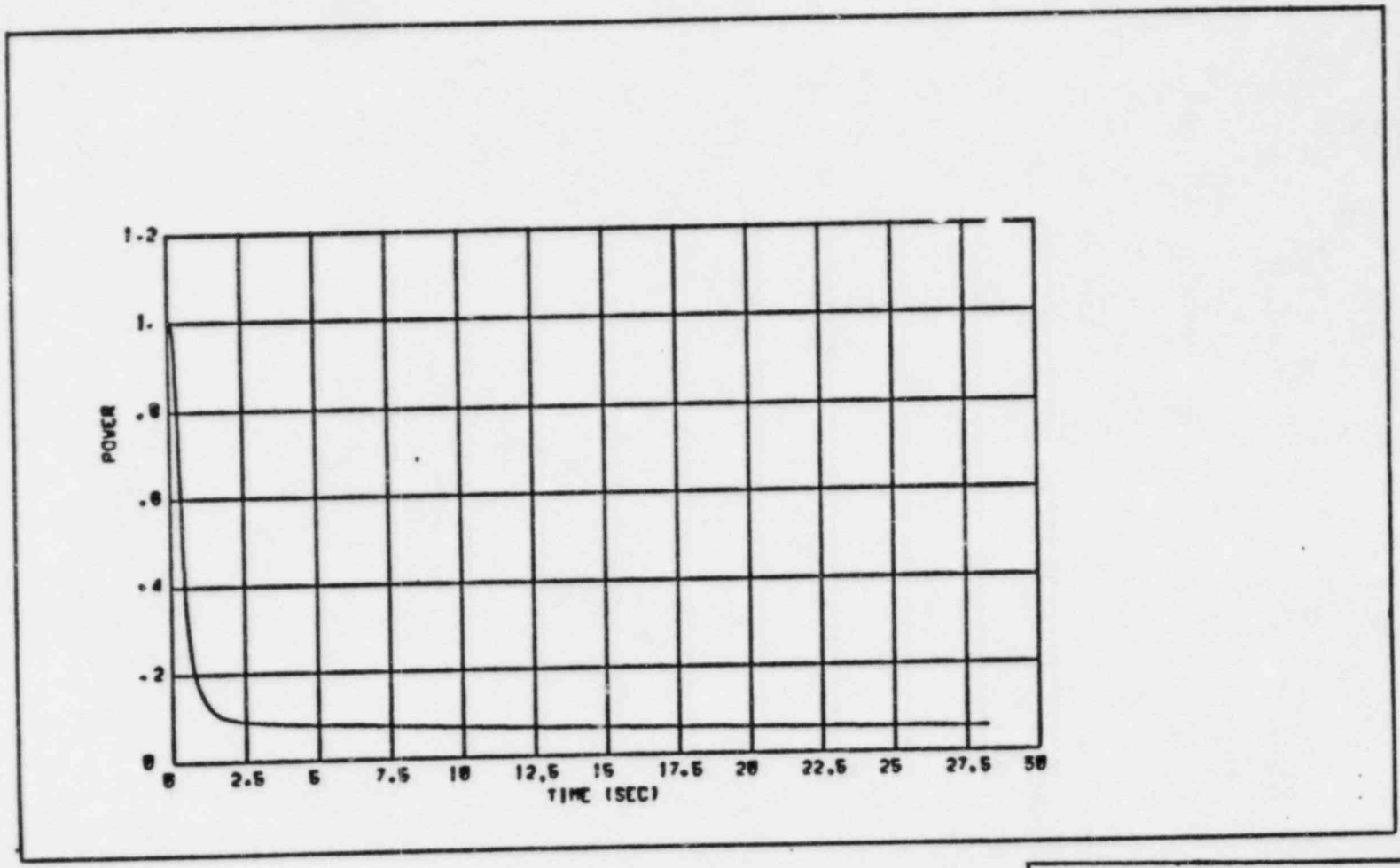


SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE POWER TRANSIENT
DECLG, $C_D = 0.6$

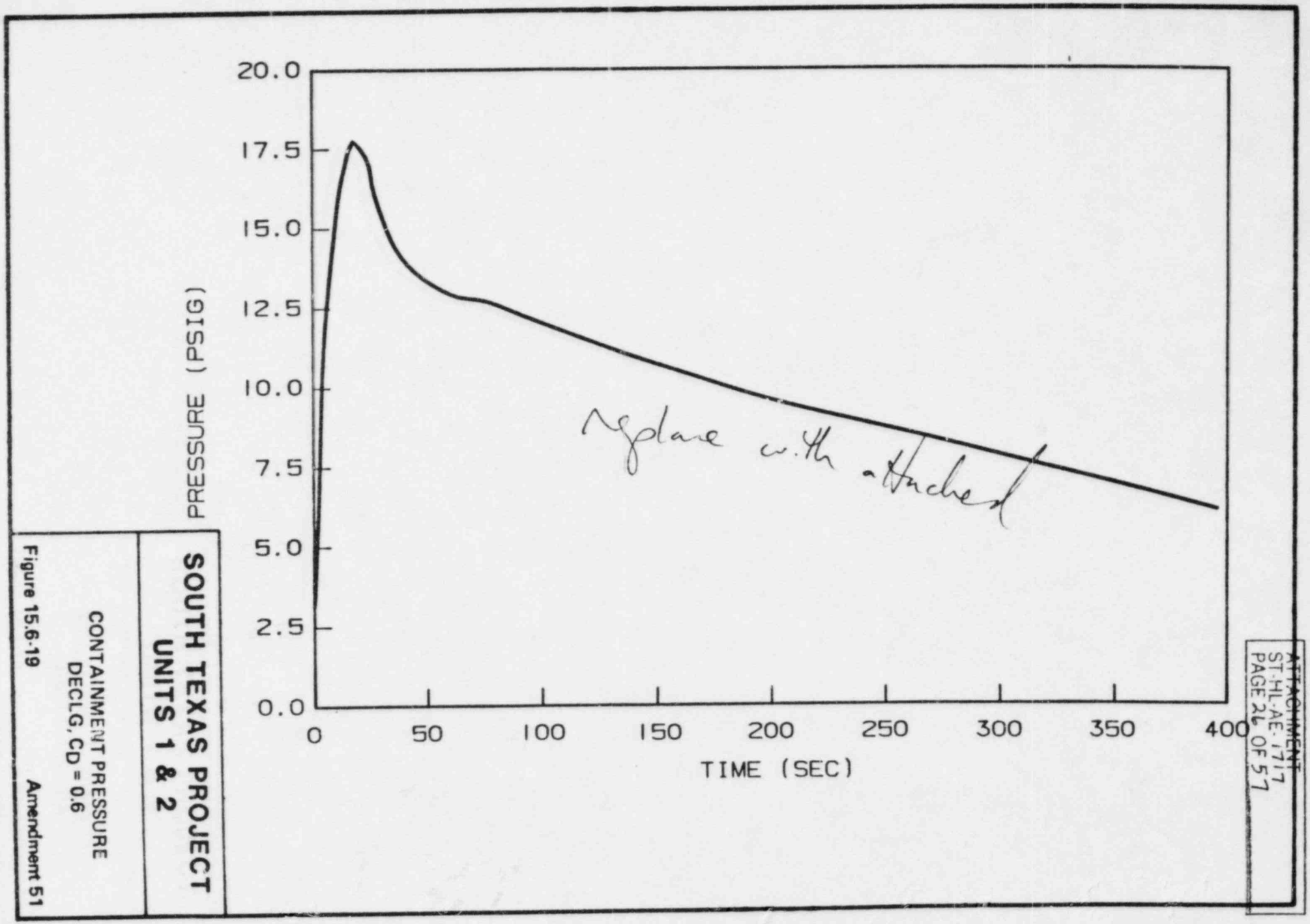
Figure 15.6-18 Amendment 51



SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE POWER TRANSIENT
DECLG, C_D = 0.6

Figure 15.6-18 Amendment



SOUTH TEXAS PROJECT
UNITS 1 & 2

CONTAINMENT PRESSURE
DECLG, $C_D = 0.6$

Figure 15.6-19

Amendment 51

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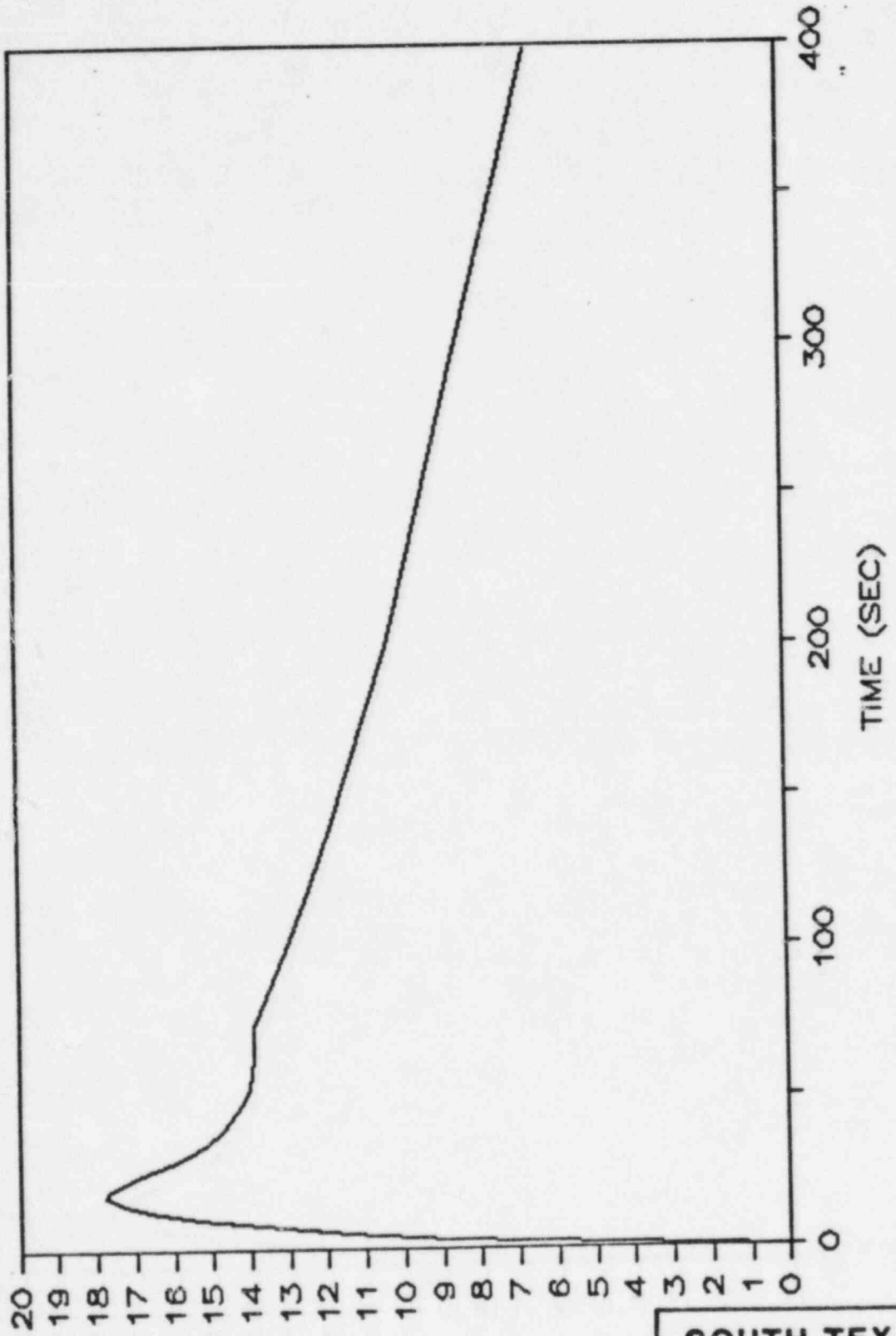


SOUTH TEXAS PROJECT
UNITS 1 & 2

CONTAINMENT PRESSURE
DECLG, $C_D = 0.6$

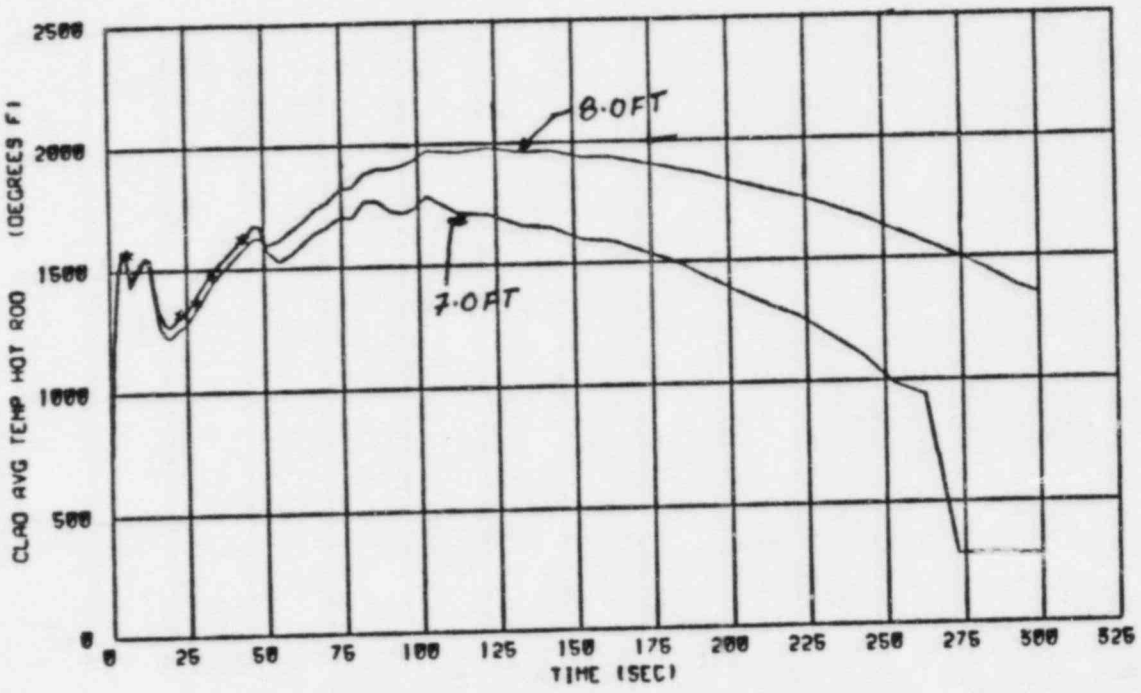
Figure 15.6-19 Amendment

SOUTH TEXAS PROJECT
UNITS 1 & 2

PEAK CLAD TEMPERATURE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-26

Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

PEAK CLAD TEMPERATURE
DECLG, C_D = 0.6 (MAX. SI)

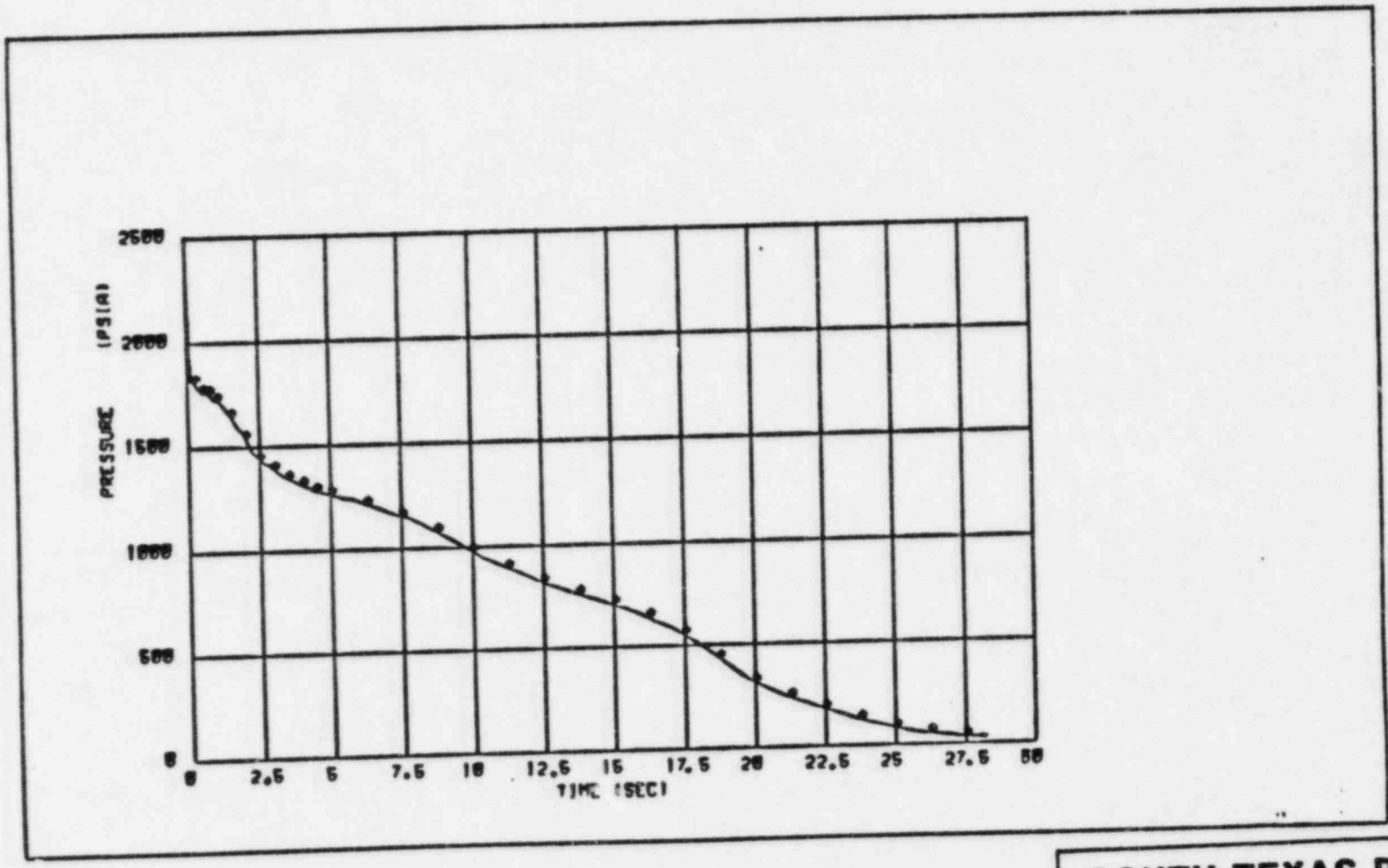
Figure 15.6-26 **Amendment**

SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE PRESSURE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-27

Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE PRESSURE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-27

Amendment

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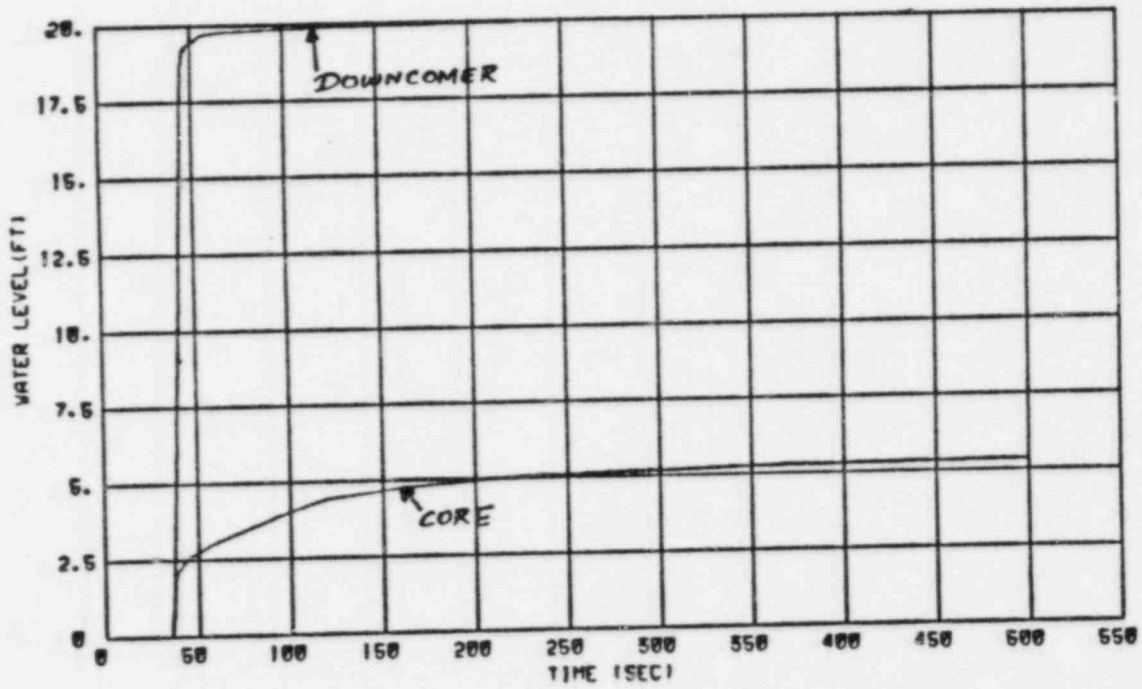
SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT DOWNCOMER AND CORE WATER LEVELS DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-28 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT DOWNCOMER AND CORE WATER LEVELS DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-28 Amendment

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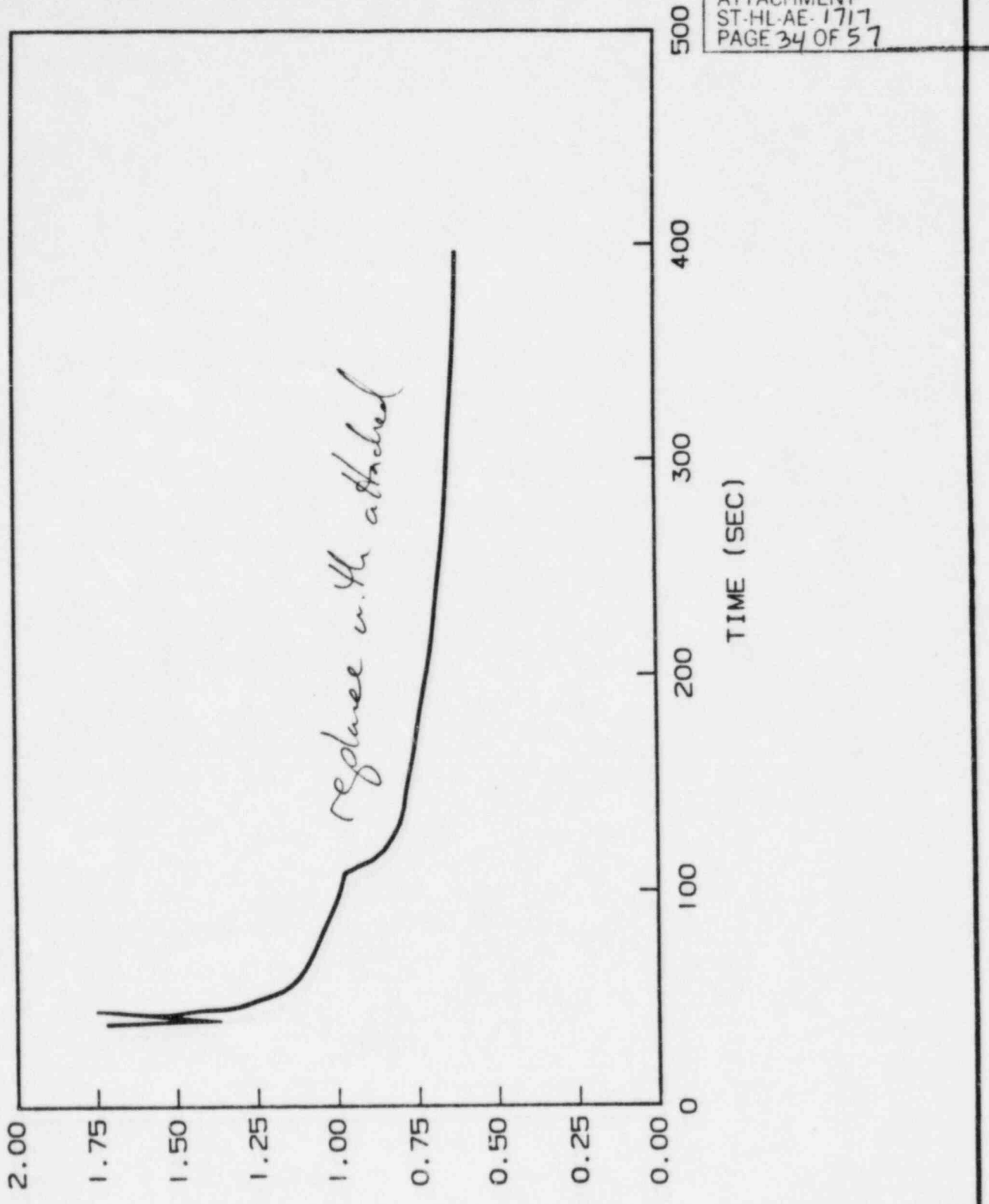
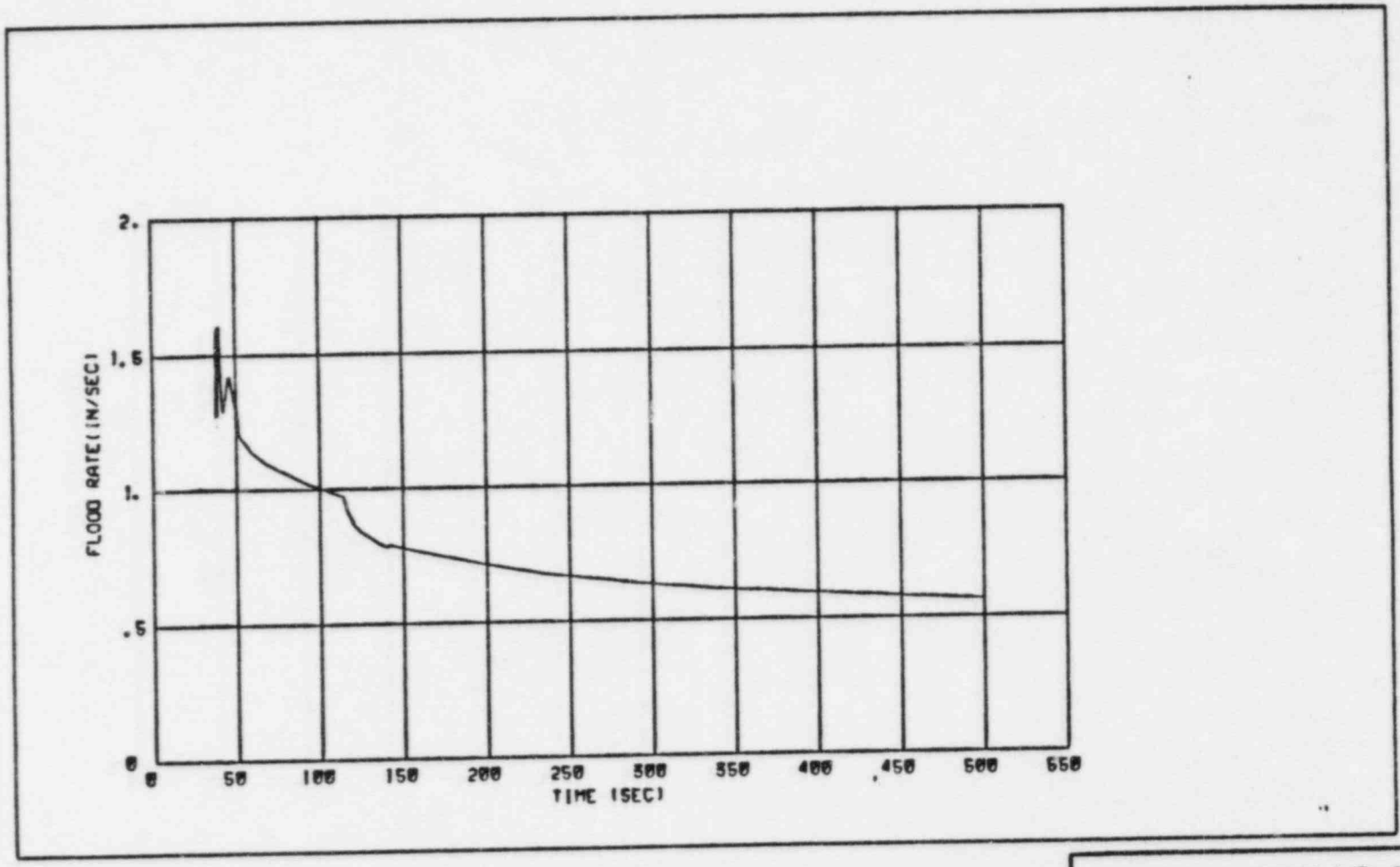


SOUTH TEXAS PROJECT
UNITS 1 & 2

REFLOOD TRANSIENT CORE
INLET FLUID VELOCITY
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-29

Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

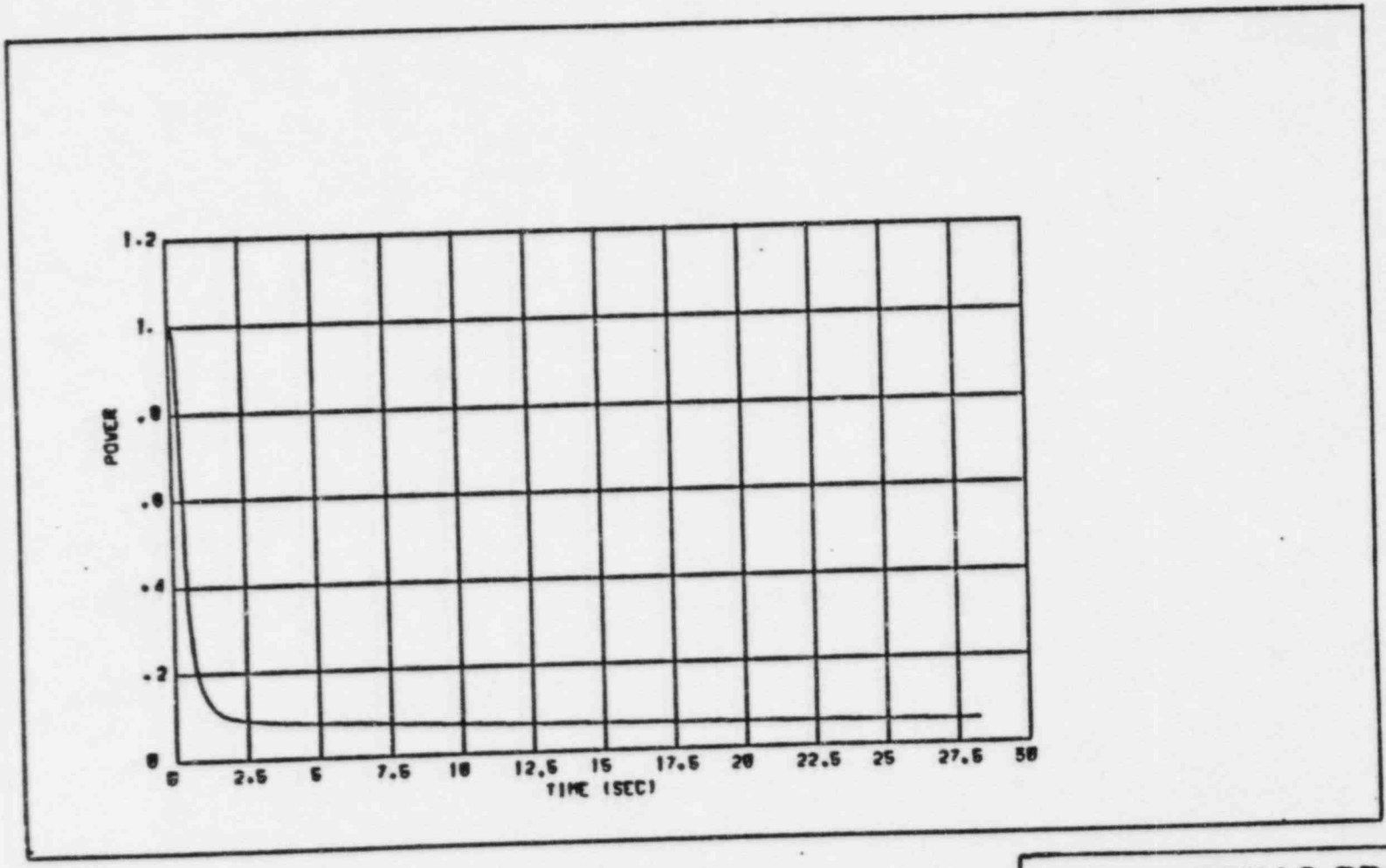
REFLOOD TRANSIENT CORE INLET FLUID VELOCITY DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-29 **Amendment**

SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE POWER TRANSIENT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-30 Amendment 51



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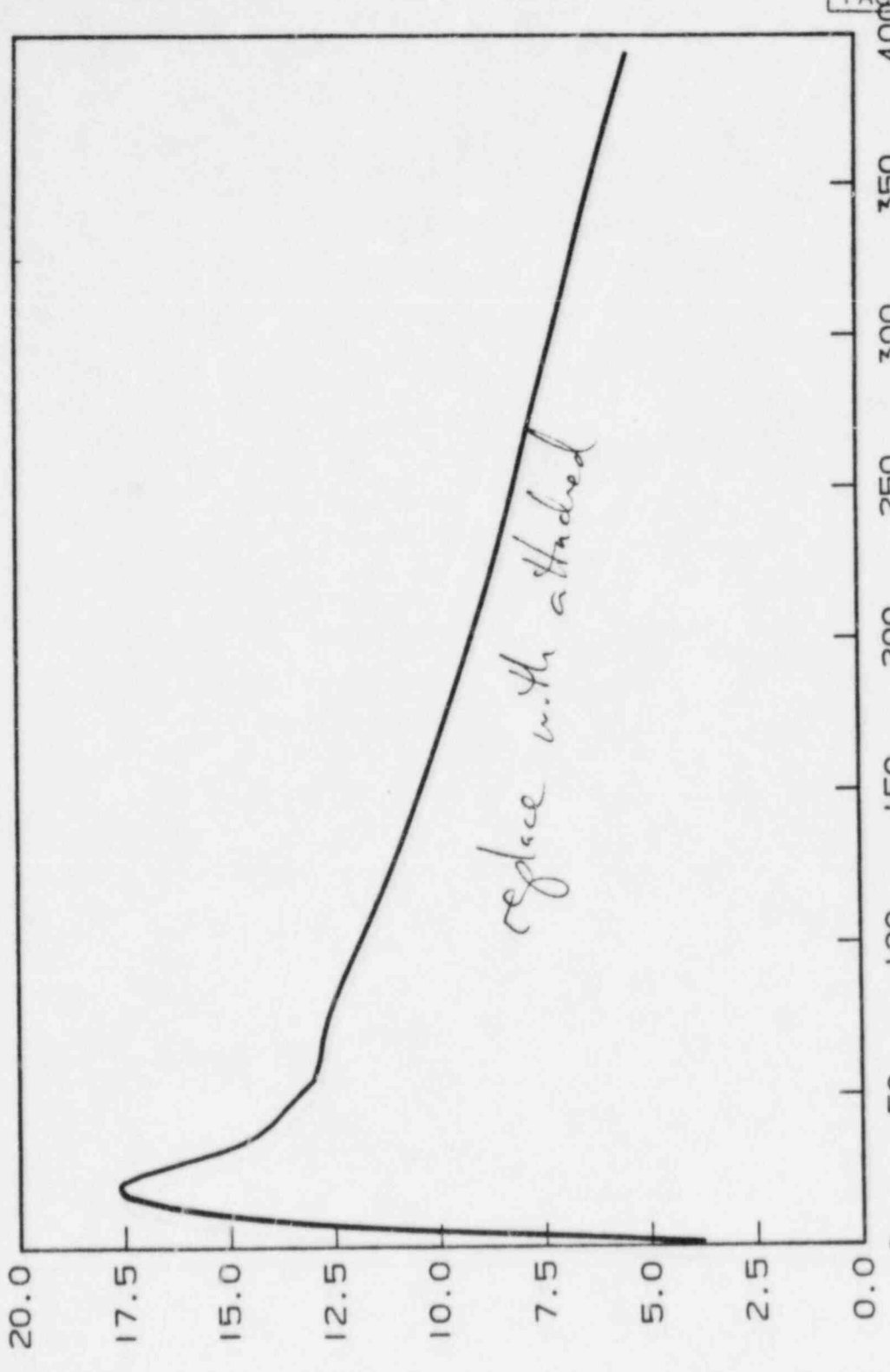
SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE POWER TRANSIENT
DECLG, C_D = 0.6 (MAX. SI)

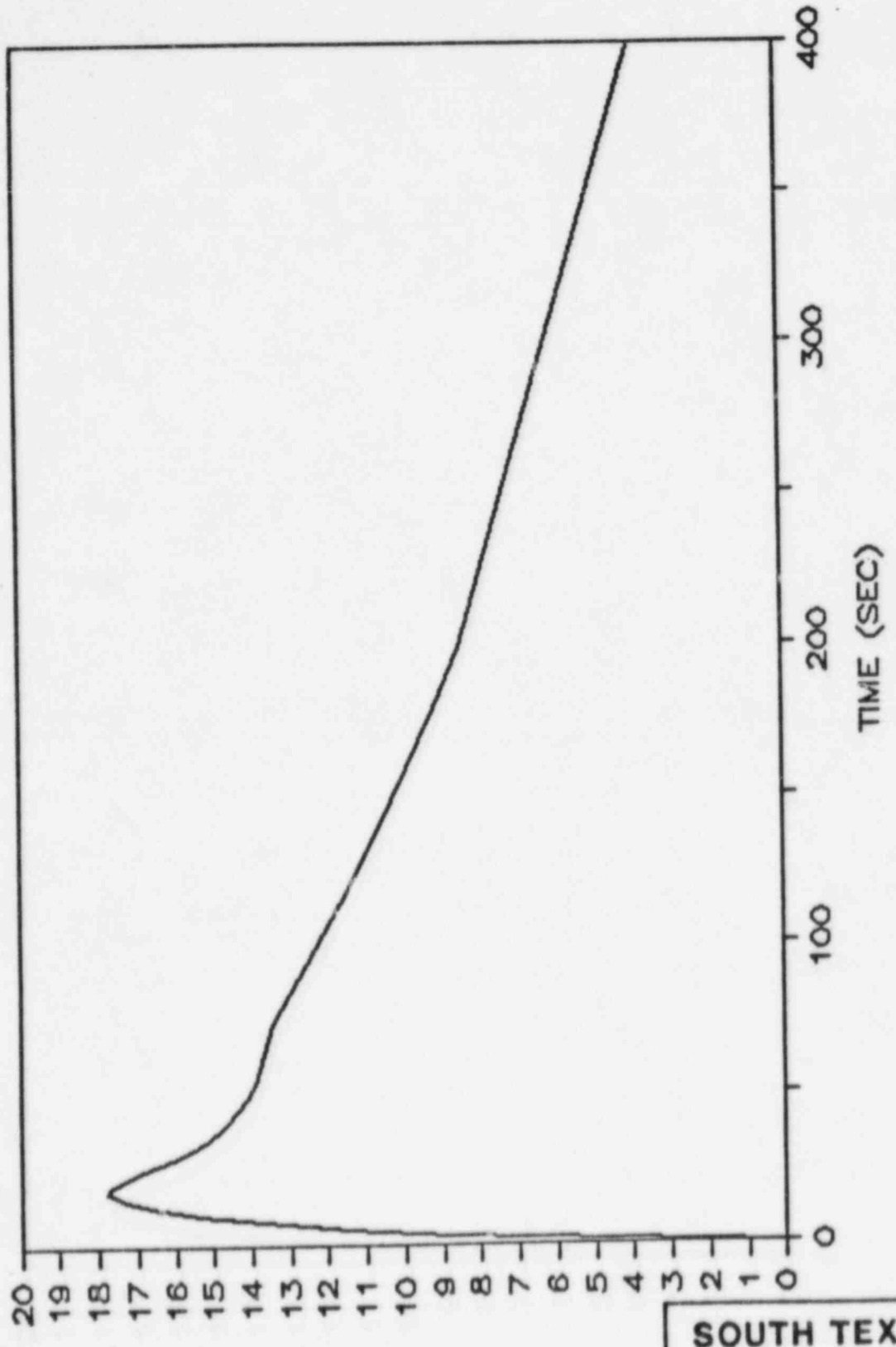
Figure 15.6-30 Amendment



SOUTH TEXAS PROJECT
UNITS 1 & 2

CONTAINMENT PRESSURE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-31 Amendment 51



SOUTH TEXAS PROJECT
UNITS 1 & 2

CONTAINMENT PRESSURE
DECLG, C_D = 0.6 (MAX. SI)

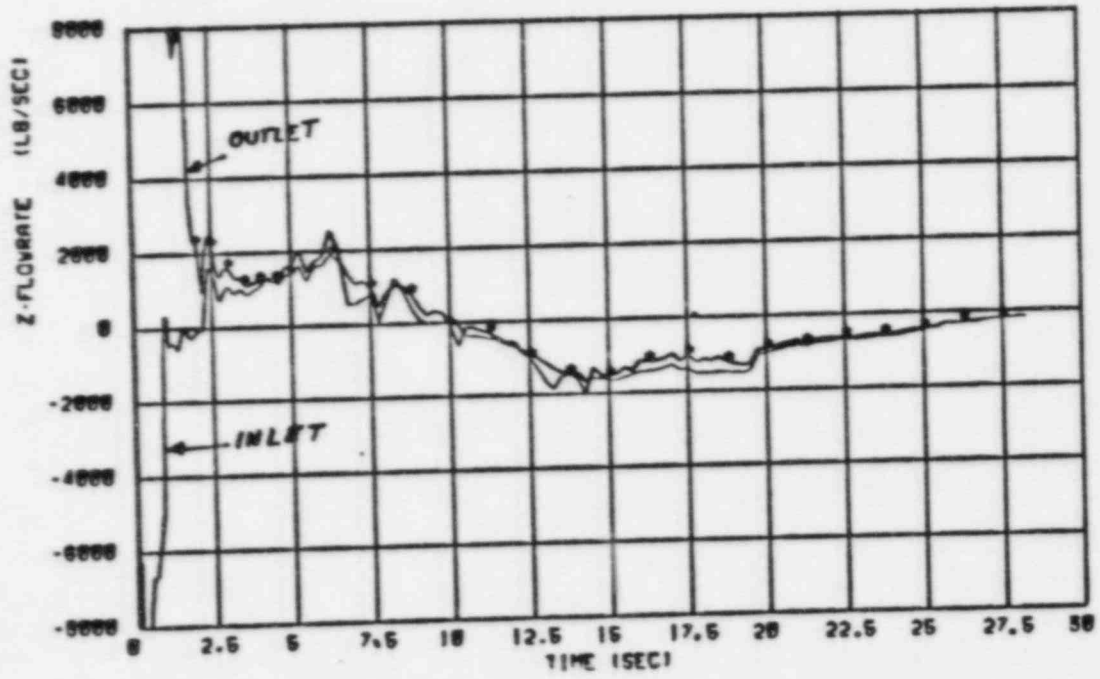
Figure 15.6-31

Amendment

SOUTH TEXAS PROJECT
UNITS 1 & 2

CORE FLOW, INLET AND OUTLET
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-32 Amendment 51



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SOUTH TEXAS PROJEC
UNITS 1 & 2

CORE FLOW, INLET AND OUTLE
DECLG, C_D = 0.6 (MAX. SI)

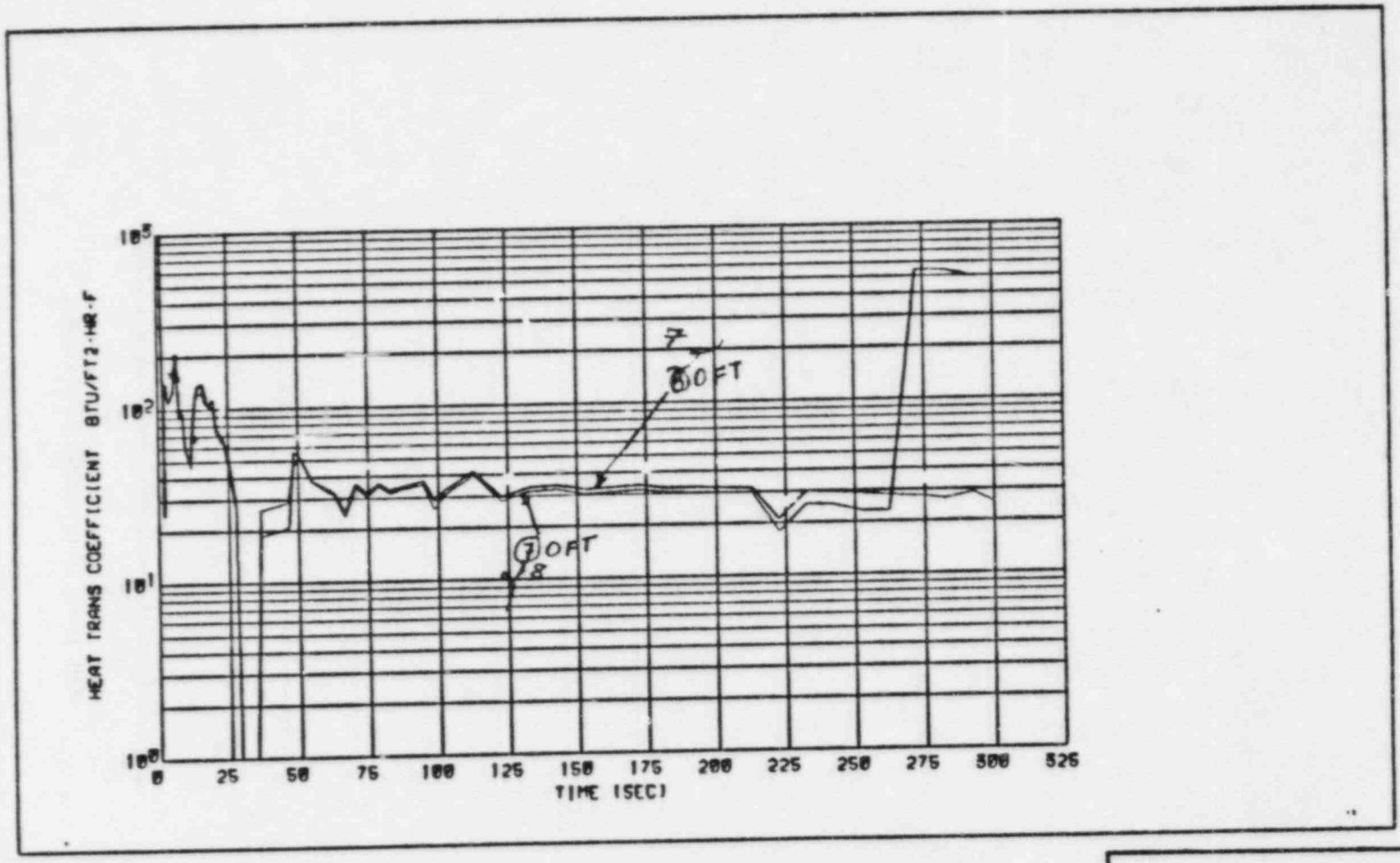
Figure 15.6-32 Amendment

SOUTH TEXAS PROJECT
UNITS 1 & 2

HEAT TRANSFER COEFFICIENTS
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-33

Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

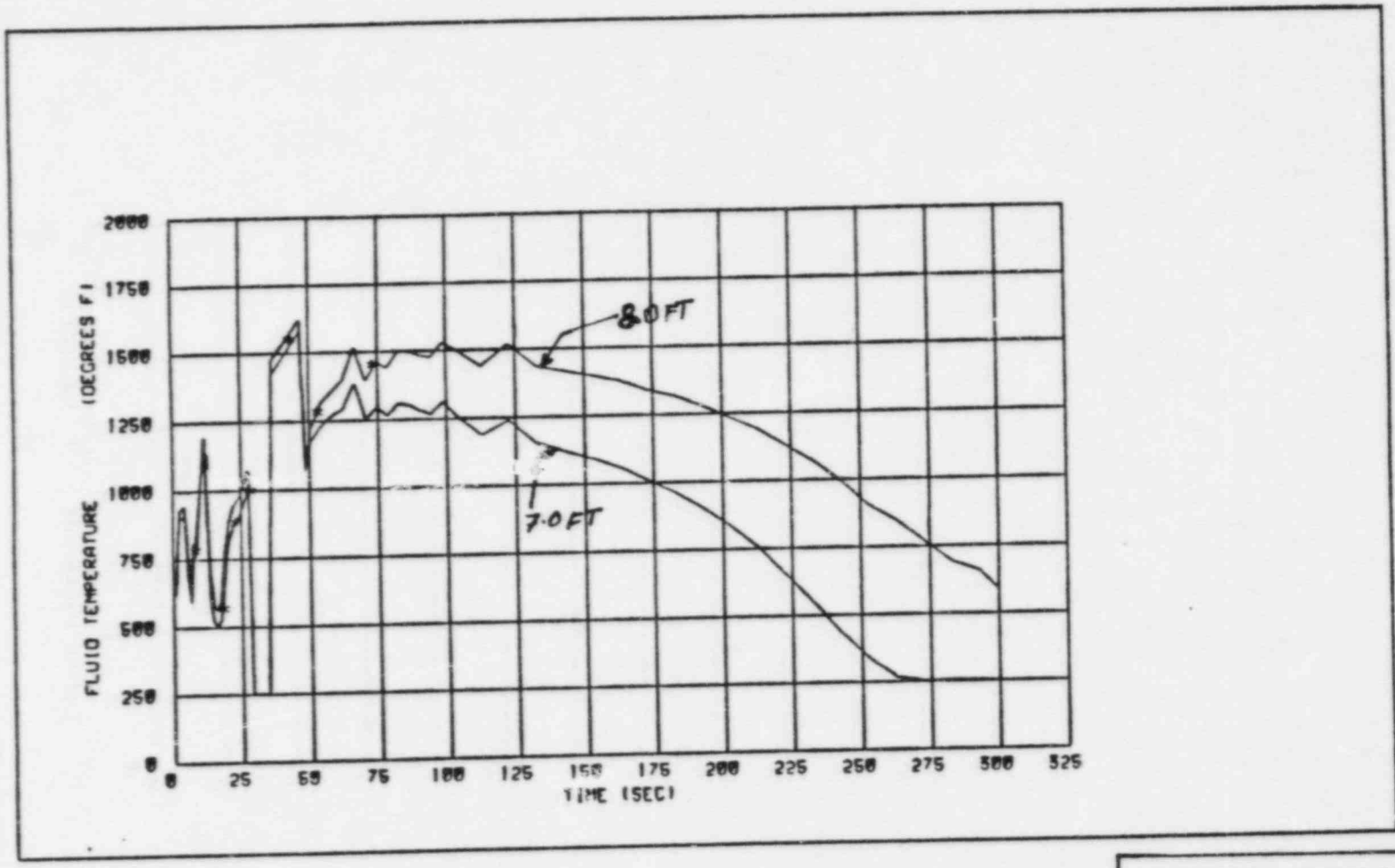
HEAT TRANSFER COEFFICIENTS
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-33 **Amendment**

SOUTH TEXAS PROJECT
UNITS 1 & 2

FLUID TEMPERATURE AT HOT SPOT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-34 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

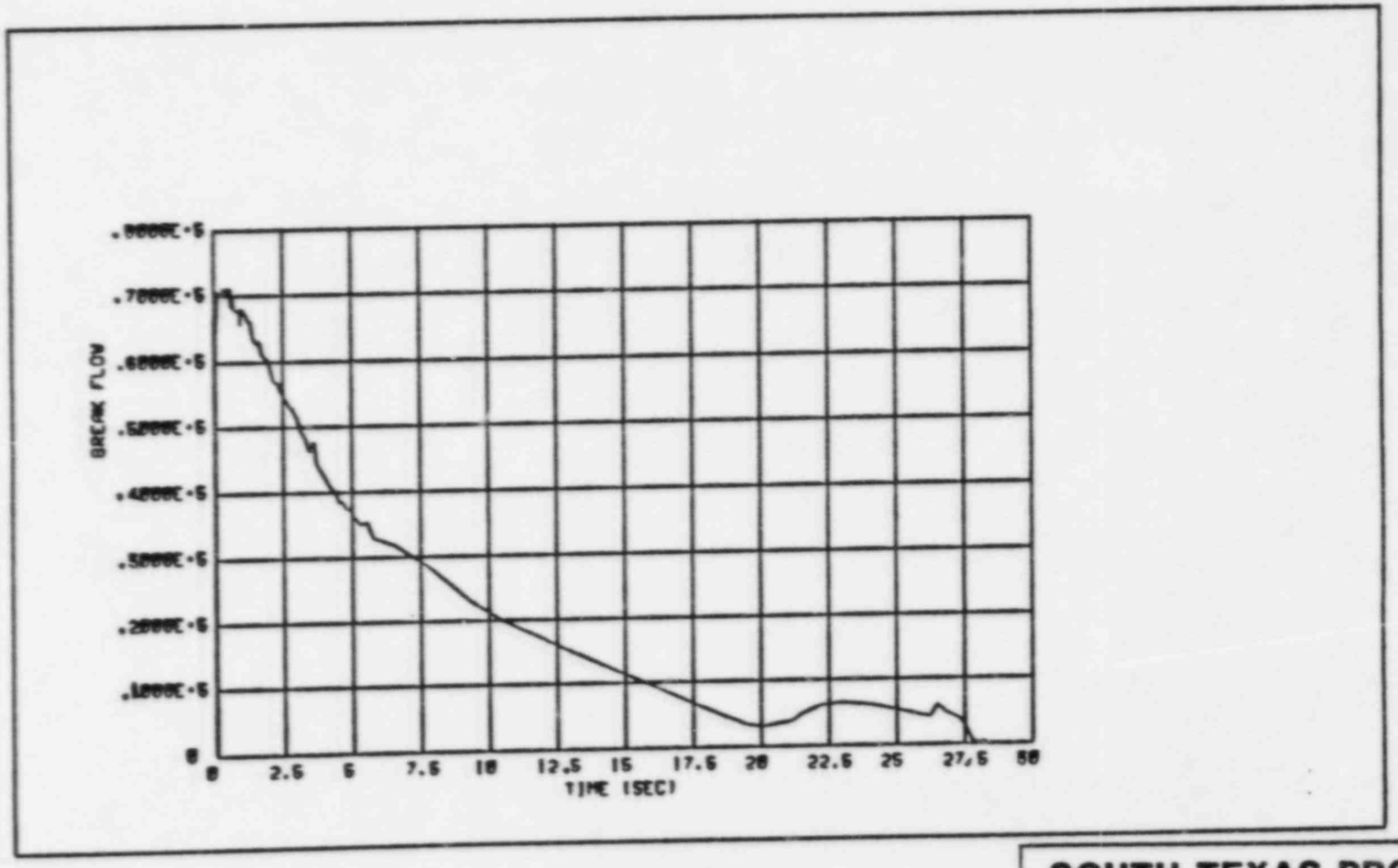
FLUID TEMPERATURE AT HOT SPOT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-34 **Amendment**

SOUTH TEXAS PROJECT
UNITS 1 & 2

BREAK MASS FLOWRATE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-35 Amendment 51



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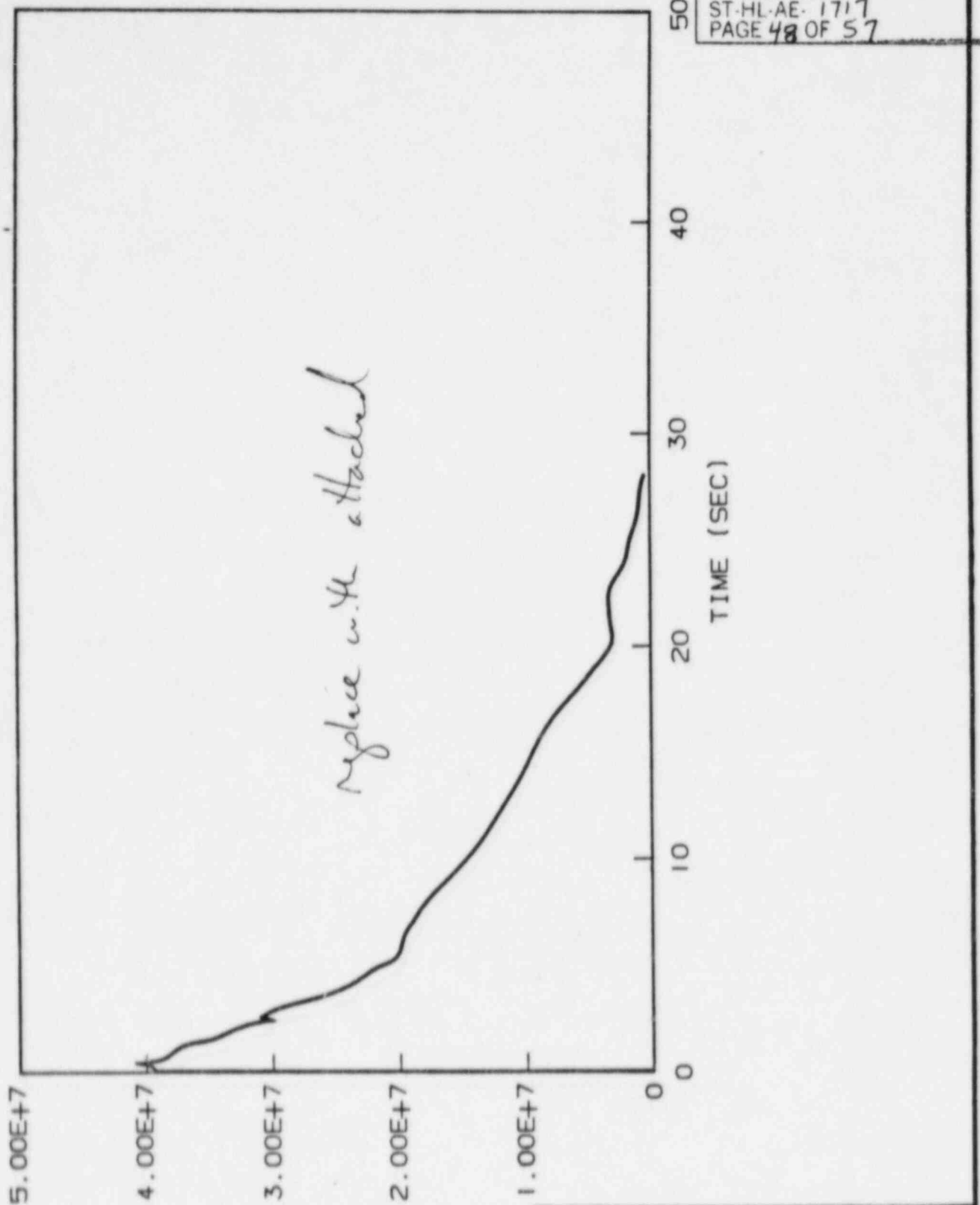
SOUTH TEXAS PROJECT
UNITS 1 & 2

BREAK MASS FLOWRATE
DECLG, C_D = 0.6 (MAX. SI)

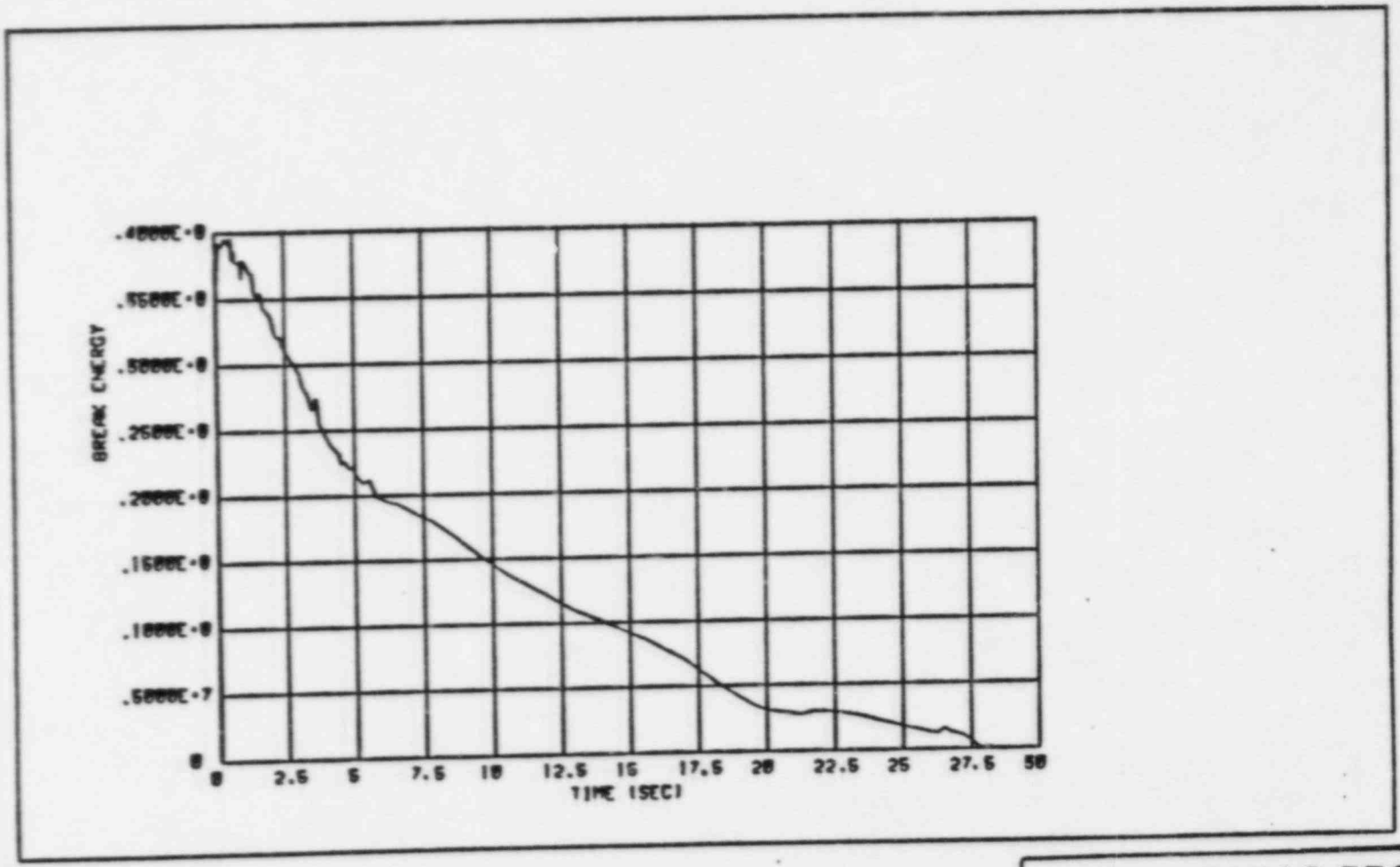
Figure 15.6-35 **Amendment**



SOUTH TEXAS PROJECT
UNITS 1 & 2

BREAK ENERGY FLOWRATE TO CONTAINMENT DECLG. $C_D = 0.6$ (MAX. SI)

Figure 15.6-36 Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

BREAK ENERGY FLOWRATE TO CONTAINMENT DECLG. C_D = 0.6 (MAX. SI)

Figure 15.6-36 **Amendment**

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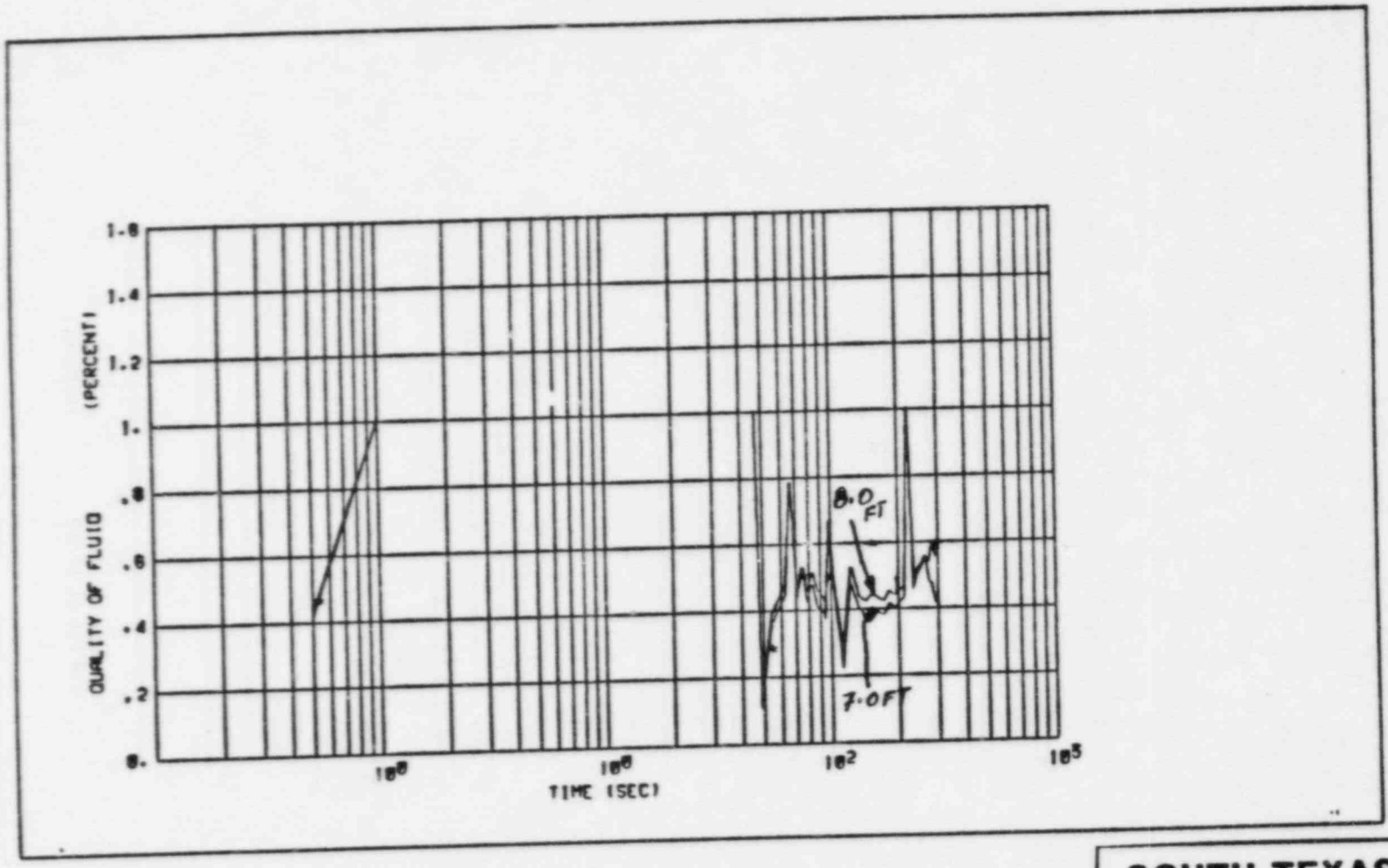
SOUTH TEXAS PROJECT
UNITS 1 & 2

FLUID QUALITY AT HOT SPOT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-37 Amendment 51



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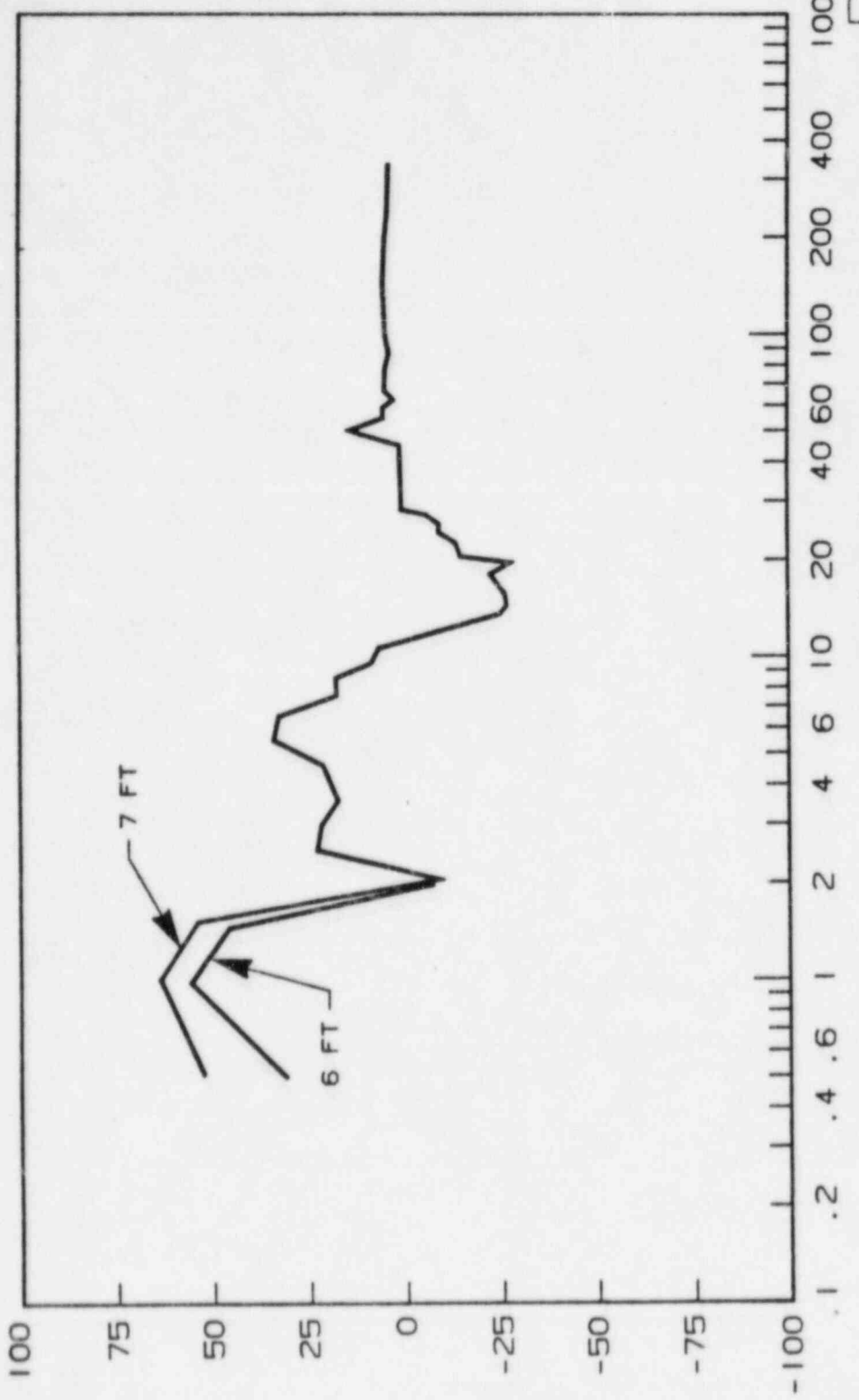
UNITS 1 & 2

FLUID QUALITY AT HOT SPOT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-37 **Amendment**

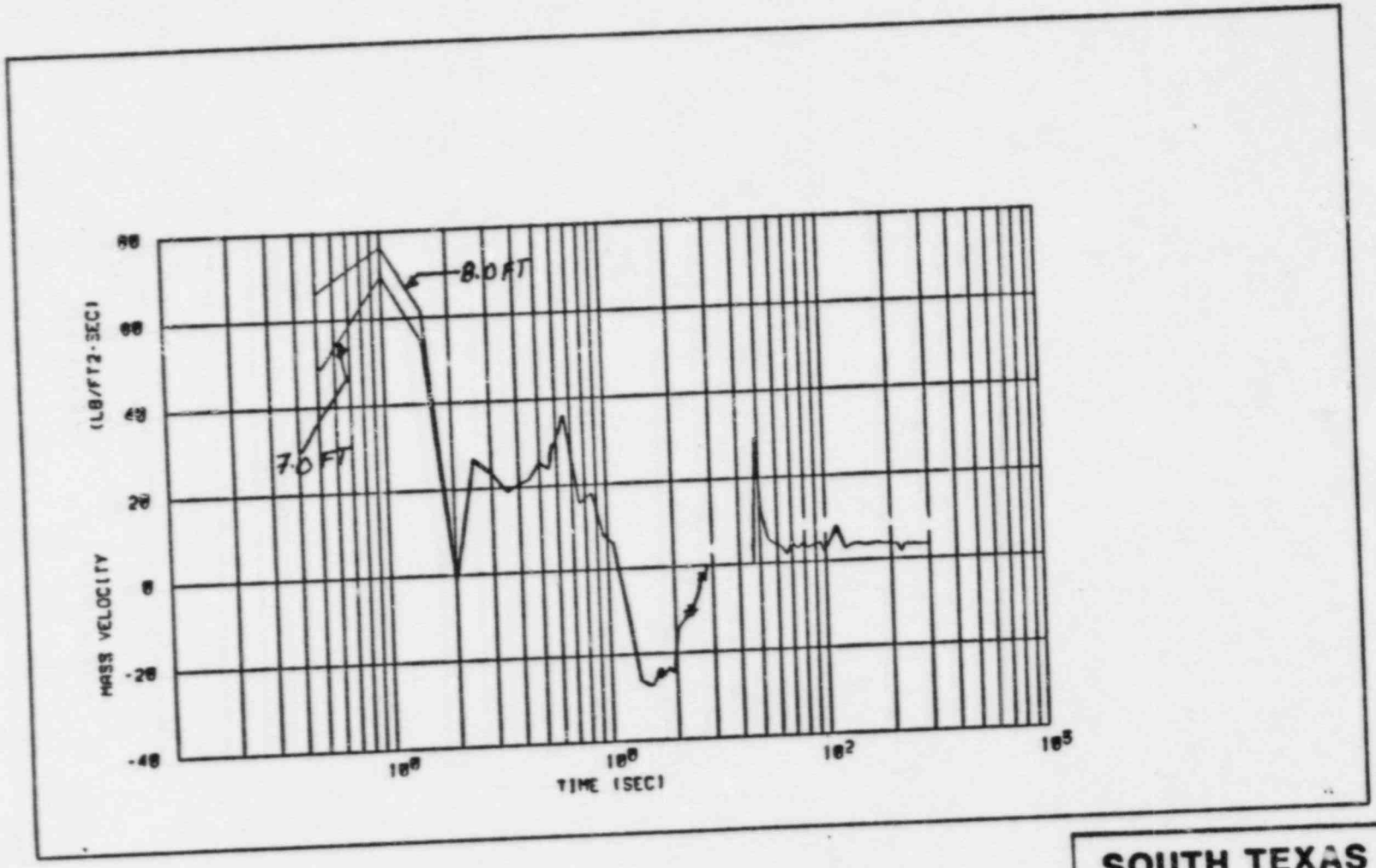


replace with attached

SOUTH TEXAS PROJECT
UNITS 1 & 2

MASS VELOCITY AT HOT SPOT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-38 Amendment 51



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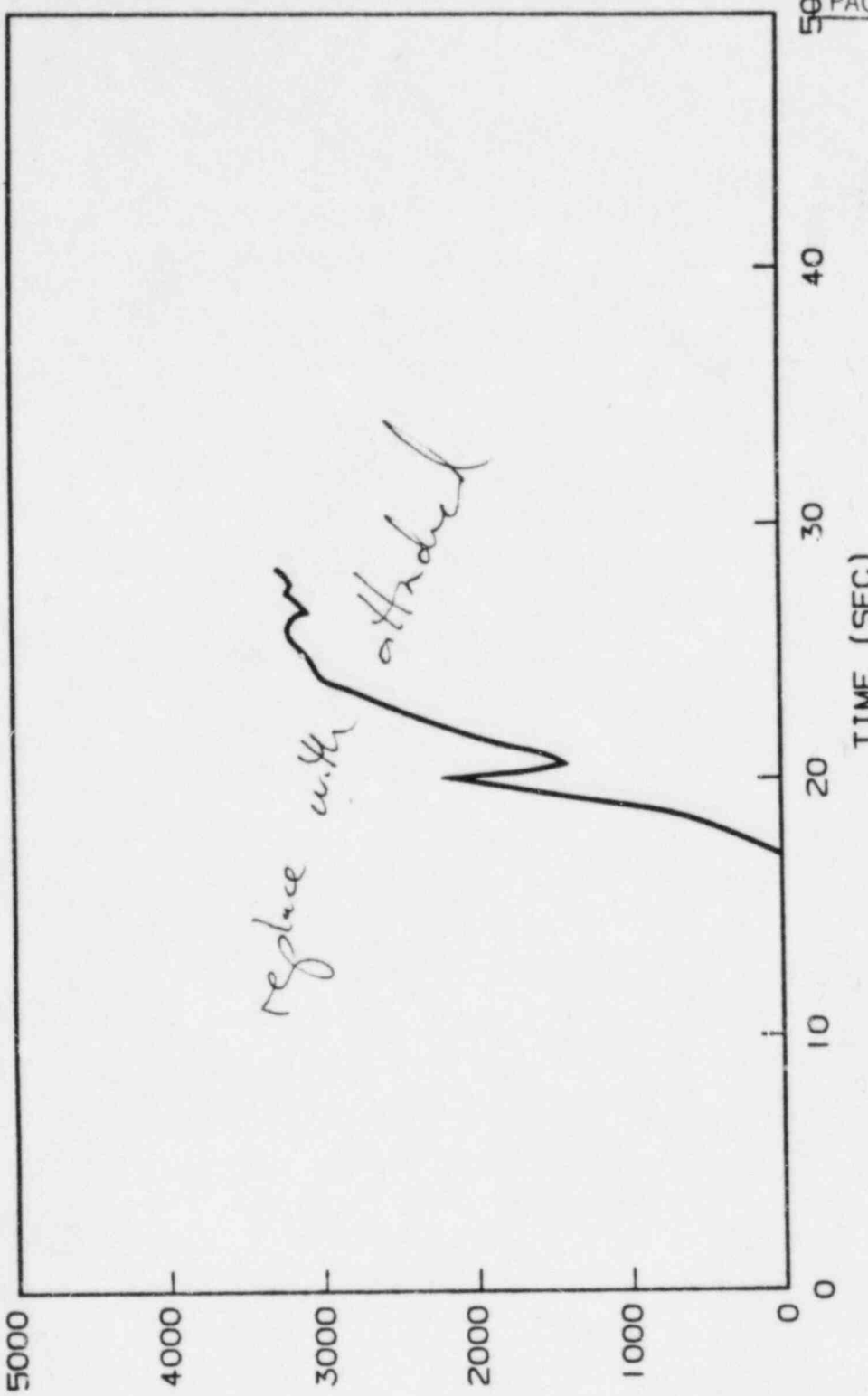
UNITS 1 & 2

MASS VELOCITY AT HOT SPOT
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-38 **Amendment**

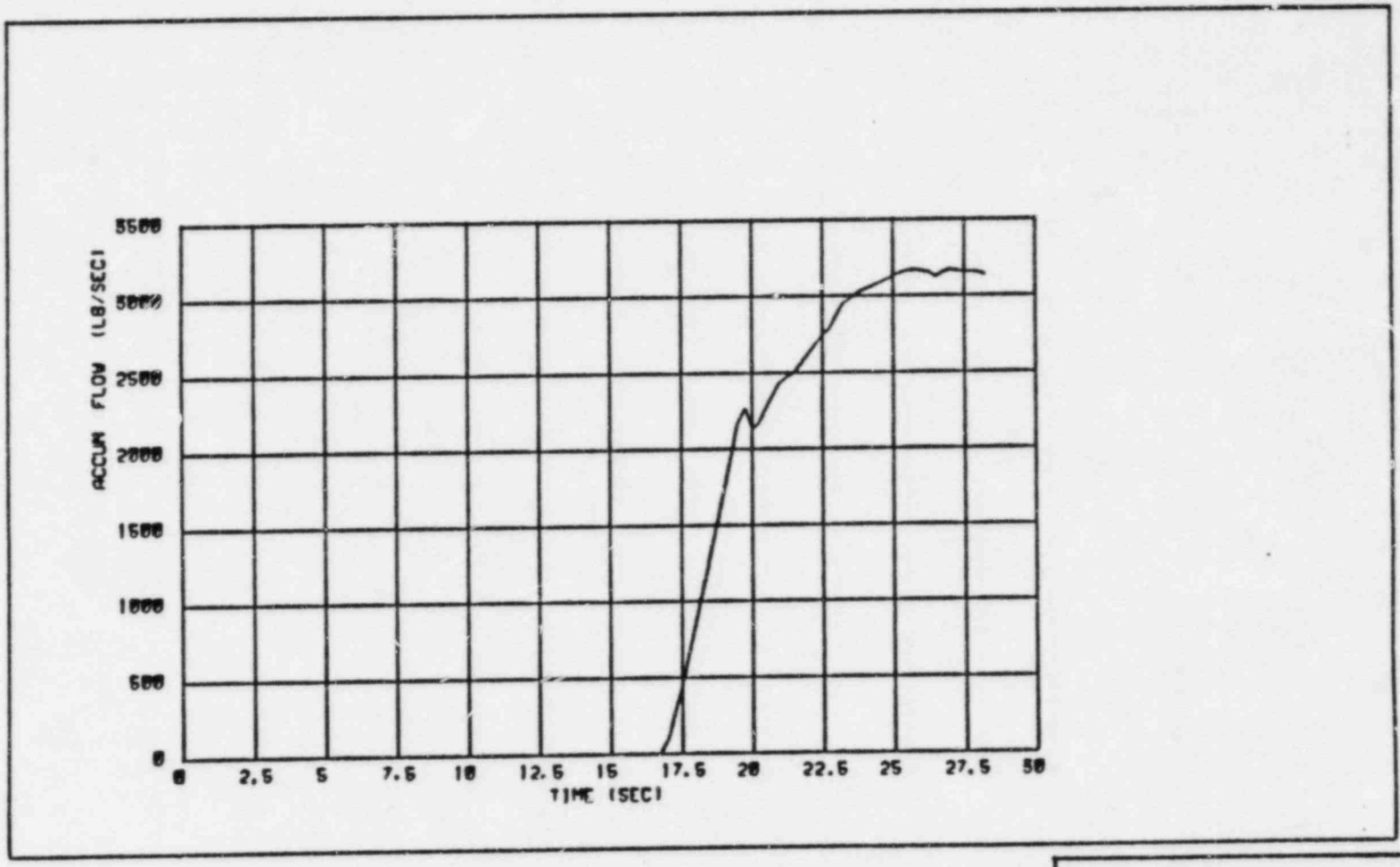


SOUTH TEXAS PROJECT
UNITS 1 & 2

ACCUMULATER FLOWRATE
(BLOWDOWN) DECLG C_D = 0.6
(MAX. SI)

Figure 15.6-39

Amendment 51



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SOUTH TEXAS PROJECT
UNITS 1 & 2

ACCUMULATER FLOWRATE
(BLOWDOWN) DECLG $C_D = 0.6$
(MAX. SI)

Figure 15.6-39 Amendment

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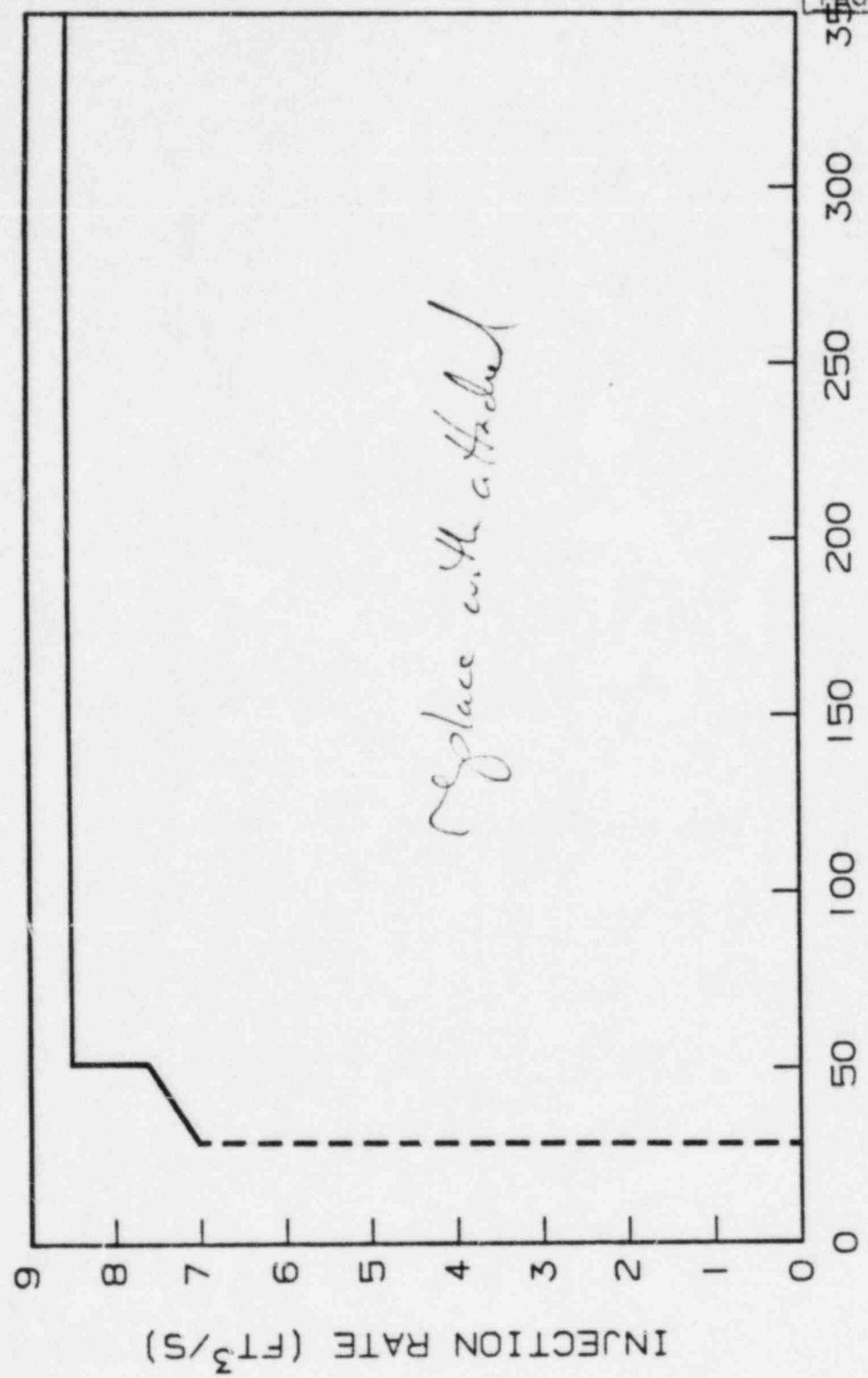
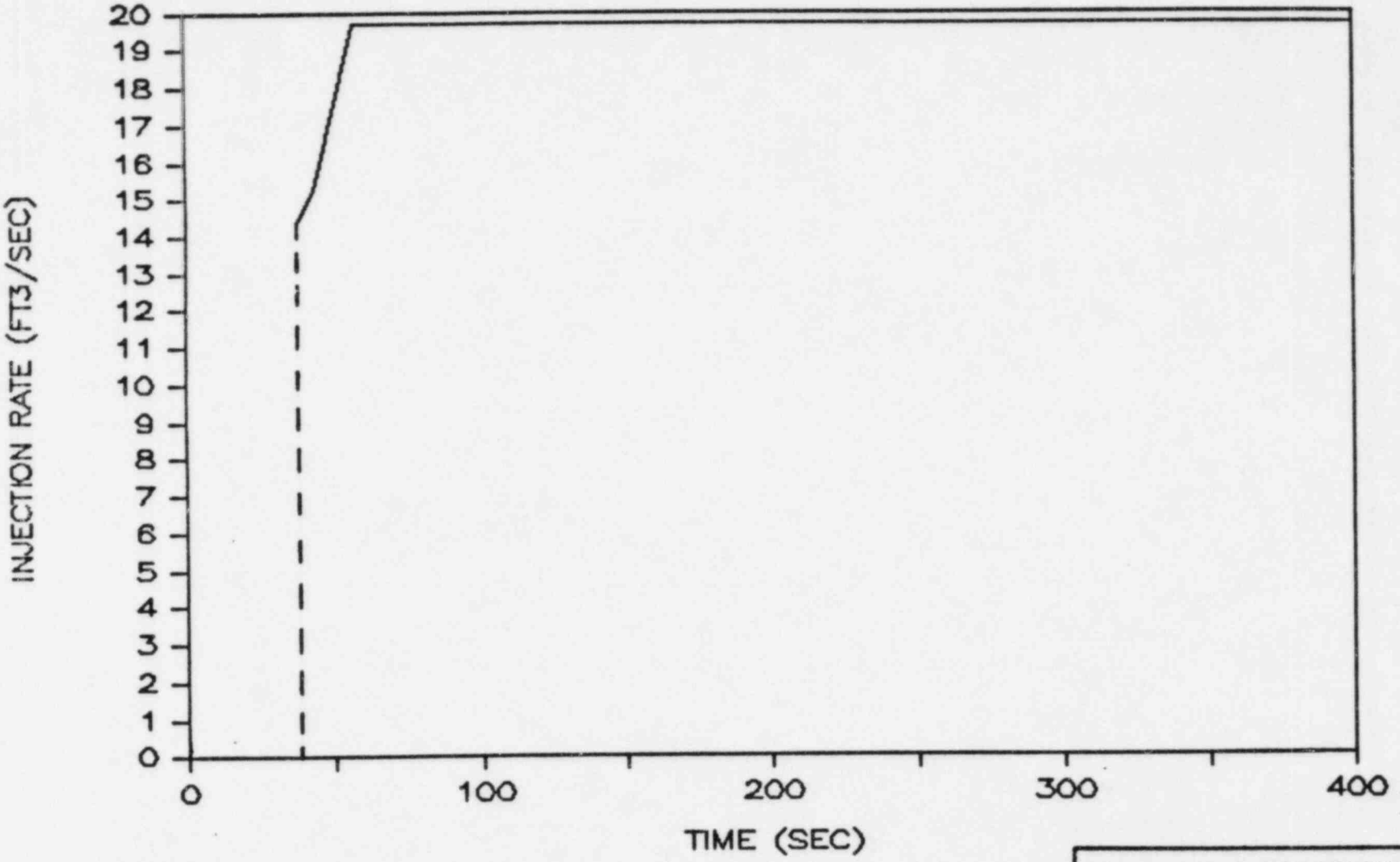


Replace with updated

SOUTH TEXAS PROJECT
UNITS 1 & 2

PUMPED ECCS INJECTION RATE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-40 Amendment 51



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UNITS 1 & 2

PUMPED ECCS INJECTION RATE
DECLG, C_D = 0.6 (MAX. SI)

Figure 15.6-40 **Amendment**