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SOUTHERN COMPANY
Energy to Serve Your World℠

March 30, 2004

Docket Nos.: 50-321
50-366

NL-04-0392

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant
Request for Additional Information on the Proposed Technical Specifications
Revision to Primary Containment Leakage Rate Testing Program

Ladies and Gentlemen:

By letter dated December 1, 2003 Southern Nuclear Operating Company (SNC) submitted to the NRC a proposed change to the Unit 1 and Unit 2 Technical Specifications (TS) for the Edwin I. Hatch Nuclear Plant. The amendment request proposes a change in the post-accident peak primary containment pressure (P_a) listed in TS section 5.5.12, "Primary Containment Leakage Rate Testing Program." This proposed change supports other efforts by SNC to increase the reactor nominal operating pressure for the Hatch Units. The containment evaluation performed for the pressure increase effort resulted in slightly higher post-accident peak calculated containment pressure values. Since the peak calculated containment pressures are explicitly listed in the Administrative section of the TS, a TS change is required.

Through a teleconference conversation with the NRC/NRR Hatch Project Manager, a request was made for SNC to provide a correspondence describing the additional effort associated with the pressure increase project. Also, an electronic communication (E-mail) was received by SNC requesting responses to three questions from a staff reviewer pertaining to the license amendment request (LAR). By letter dated March 10, 2004 SNC provided a response to question 1 of the E-mail, as well as a more detailed description of the pressure increase project scope as requested. The answers to questions 2 and 3 of the E-mail request are provided as a Request for Additional Information enclosure to this letter.

(Affirmation and signature are on the following page).

A012

Mr. H. L. Sumner, Jr. states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Davis Sumner
H. L. Sumner, Jr.

Sworn to and subscribed before me this 30 *day of* March, *2004.*

Valerie A. O'Brien
Notary Public

My commission expires: 4-28-07

HLS/whc/daj

Enclosure: Request for Additional Information

cc: Southern Nuclear Operating Company
Mr. J. B. Beasley, Jr., Executive Vice President
Mr. G. R. Frederick, General Manager – Plant Hatch
RType: CHA02.004

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Hatch
Mr. D. S. Simpkins, Senior Resident Inspector – Hatch

State of Georgia
Mr. L. C. Barrett, Commissioner – Department of Natural Resources

Enclosure

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NRC Question

(2) Provide a comparison listing of the inputs for the new reactor steam dome nominal pressure to each input listed in the FSAR for the current licensing basis containment analyses (FSAR Table 6.2-6, "DBA-LOCA Initial Conditions, Assumptions, and Calculated Pressure Results"). Provide a comparison of the mass and energy releases and the pressure and temperature responses (current to revised pressure case), in graphical form, and include the suppression pool temperature response. (a) Will the FSAR be revised to reflect these new analyses? (b) If not, how will these analyses be maintained as "the current licensing basis containment analyses?"

SNC Response

Comparison Listing of Inputs

FSAR Table 6.2-6 provides the inputs and results of various containment analyses performed for Plant Hatch Units 1 and 2. These analyses include the Short-Term Containment Analysis (Peak Pressure), Short-Term Containment Analysis for Dynamic Loads Evaluation, Long-Term Containment Analysis (peak temperature) and Long Term Containment Analysis for ECCS NPSH considerations. All the inputs and results of FSAR Table 6.2-6 are not applicable to the Short-Term Containment Evaluations performed for the pressure increase that result in the slight increase in peak calculated containment pressures, Pa provided in the respective Technical Specifications. Table 1 of this enclosure provides a comparison of the relevant existing licensing basis and pressure increase Short-Term Containment Analyses key inputs and results.

Comparison of mass/energy/temperature/pressure

The existing and revised time histories for various parameters (Pressure, Temperature, Mass and Enthalpy) are provided as a comparison in the following enclosed figures:

- Figures 1 and 8 Existing Unit 1 and Unit 2 Short-Term Containment Response Drywell/Wetwell Pressure vs. Time
- Figures 2 and 9 Revised Unit 1 and Unit 2 Short-Term Containment Response Drywell/Wetwell Pressure vs. Time
- Figures 3 and 10 Existing Unit 1 and Unit 2 Short-Term Containment Response Drywell/Wetwell Temperature vs. Time
- Figures 4 and 11 Revised Unit 1 and Unit 2 Short-Term Containment Response-Drywell/Wetwell Temperature vs. Time
- Figures 5 and 12 Existing Unit 1 and Unit 2 Short-Term Containment Response Break Flow vs. Time
- Figures 6 and 13 Revised Unit 1 and Unit 2 Short-Term Containment Response Break Flow vs. Time
- Figures 7 and 14 Unit 1 and Unit 2 Short-Term Containment Response – Energy Addition vs. Time

Figures 7 and 14 represent the energy releases for the pressure increase analyses. The energy time history files were not provided in the current licensing basis engineering reports and are therefore not provided for comparison in this enclosure.

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FSAR Revision

As stated in SNC's letter NL-04-0371, following completion of site implementation, the affected FSAR sections will be revised under the provisions of 10 CFR 50.71(e) to reflect the changes due to the 10 psi nominal operating pressure increase thereby maintaining current, the licensing basis for the containment analyses.

NRC Question

(3) It would appear that the increase in the reactor steam dome pressure would result in a higher suppression pool temperature at the end of the short-term, blowdown, period. The submittal indicates that the suppression pool peak short-term temperatures are 1 F to 2 F higher as a result of the reactor steam dome pressure change (compare Table 6.2-6 of the FSAR to Table 1 of LAR). During the long-term, the temperature (and pressure) response might also be affected. In reviewing the FSAR, it would appear that these reported temperatures are actually the long-term values (see for example FSAR Figure 6.2-23 or 6.2-11), the short-term suppression pool temperature response is not shown. (a) Are the reported temperatures the long-term peak values? (b) On page 6.2-26 (Containment Long-Term Response) of the FSAR, it is stated that after RPV depressurization is complete the suppression pool is the only heat sink in the containment. Provide a discussion of the long-term analysis during the depressurization period which supports your statement that the long-term suppression pool temperature is not affected by the revised reactor steam dome pressure.

SNC Response

The peak pool temperature provided in the December 1, 2003 submittal is the bounding long-term suppression pool temperature resulting from the Extended Power Uprate Long-Term Containment (Peak Temperature) analysis. This analysis used the most conservative inputs (smaller pool volume, lower final feedwater temperature, most limiting core flow...etc.) from either Unit 1 or Unit 2 which produced a peak pool temperature of 208 °F. FSAR Table 6.2-6 lists the peak suppression pool temperatures resulting from the individual units' Long-Term Containment Analysis for ECCS NPSH consideration. The impact of the pressure increase on the peak pool temperature was determined by evaluating the single bounding analysis. This evaluation concluded that conservatively assessing the effect of the increased sensible energy, the effects on the long-term containment DBA-LOCA response of the reactor dome pressure increase are insignificant (less than 0.3 °F increase in peak suppression pool temperature), and therefore the results of the single bound Long-Term (Peak Temperature) analysis remain valid.

On page 6.2-26 (Containment Long-Term Response) of the FSAR states: "During the long-term containment response (after RPV depressurization is complete), the suppression pool is assumed to be the only heat sink in the containment system. The effects of decay energy and stored energy on the suppression pool temperature are considered". The long term analysis is directed primarily at the suppression pool temperature response, considering the decay heat addition to the suppression pool. The long-term heat-up of the suppression pool following a LOCA is governed by the capability of the residual heat system to remove decay heat which is transferred from the

reactor pressure vessel to the suppression pool. The existing Hatch long-term analysis takes no credit for passive structural heat sinks in the drywell, and suppression chamber (airspace and pool). Therefore, after RPV depressurization is complete, the suppression pool is the only heat sink in the containment. Since the decay heat is dependent on the initial power level, which is unchanged with the pressure increase, the long-term containment response will not be significantly impacted by the 10 psi nominal operating pressure increase. The main effect of the pressure increase is on the increase in initial stored sensible energy in the fluid and the solid components within the reactor vessel. The additional sensible energy is an insignificant contribution to the overall peak suppression pool temperature response compared to other more conservative input assumptions for the long-term containment analysis.

Reference:

1. GE-HATCH-PI-016, From Michael Dick (GE) to Timothy W. Long (SNC), "Hatch Pressure Increase Project – Time Histories for Short Term LOCA Containment Response using M3CPT blowdown model" Dated March 15, 2004.

2. GE-HATCH-PI-018, From Michael Dick (GE) to Timothy W. Long (SNC), "Hatch Pressure Increase Project – Time Histories for Short Term LOCA Containment Mass and Energy Release using M3CPT blowdown model" Dated March 19, 2004.

3. NEDC-32749P Extended Power Uprate Safety Analysis Report for Edwin I. Hatch Nuclear Plants Units 1 and 2, July 1997.

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Table - 1

Short-Term Containment Analysis
Key Inputs

Initial Conditions	HNP – 1 Existing	HNP-1 10 PSI INCREASE Containment Evaluation	HNP – 2 Existing	HNP-2 10 PSI INCREASE Containment Evaluation
Reactor power level	2818.3 MWt	2818.3 MWt	2818.3 MWt	2818.3 MWt
Initial Core Flow	78.5 Mlb/hr	78.5 Mlb/hr	77.0 Mlb/hr	77.0 Mlb/hr
Steam Dome Temperature	551.0 °F	552.0°F	551.0°F	552.0°F
Feedwater Temperature at Vessel Inlet	399.5 °F	399.5 °F	427.3 °F	427.3 °F
Break Enthalpy	525.6 BTU/lb	527.0 BTU/lb	528.8 BTU/lb	530.2 BTU/lb
RPV Dome Pressure	1053 psia	1063 psia	1053 psia	1063 psia
Drywell Free Airspace Volume (Including Vent System)	146,010 ft^3	146,010 ft^3	146,266 ft^3	146,266 ft^3
Drywell Pressure	1.75 psig	1.75 psig	1.75 psig	1.75 psig
Drywell Temperature (drywell air)	150 °F	150 °F	150 °F	150 °F
Drywell Relative Humidity	20%	20%	20%	20%
Wetwell Free Airspace Volume	112,900 ft^3	112,900 ft^3	109,800 ft^3	109,800 ft^3
Wetwell Pool Volume	88,192 ft^3	88,190 ft3	89,670 ft^3	89,670 ft^3
Wetwell Pressure	1.75 psig	1.75 psig	1.75 psig	1.75 psig
Wetwell Pool Temperature	100 °F	100 °F	100 °F	100 °F
Wetwell Airspace Temperature	100 °F	100 °F	100 °F	100 °F
Wetwell Airspace Relative Humidity	100%	100%	100%	100%
Operating Drywell to Wetwell Differential Pressure	0 psid	0 psid	0 psid	0 psid
Wetwell Pool Surface Area in contact with Wetwell Airspace	9,500 ft^2	9,500 ft^2	9,500 ft^2	9,500 ft^2

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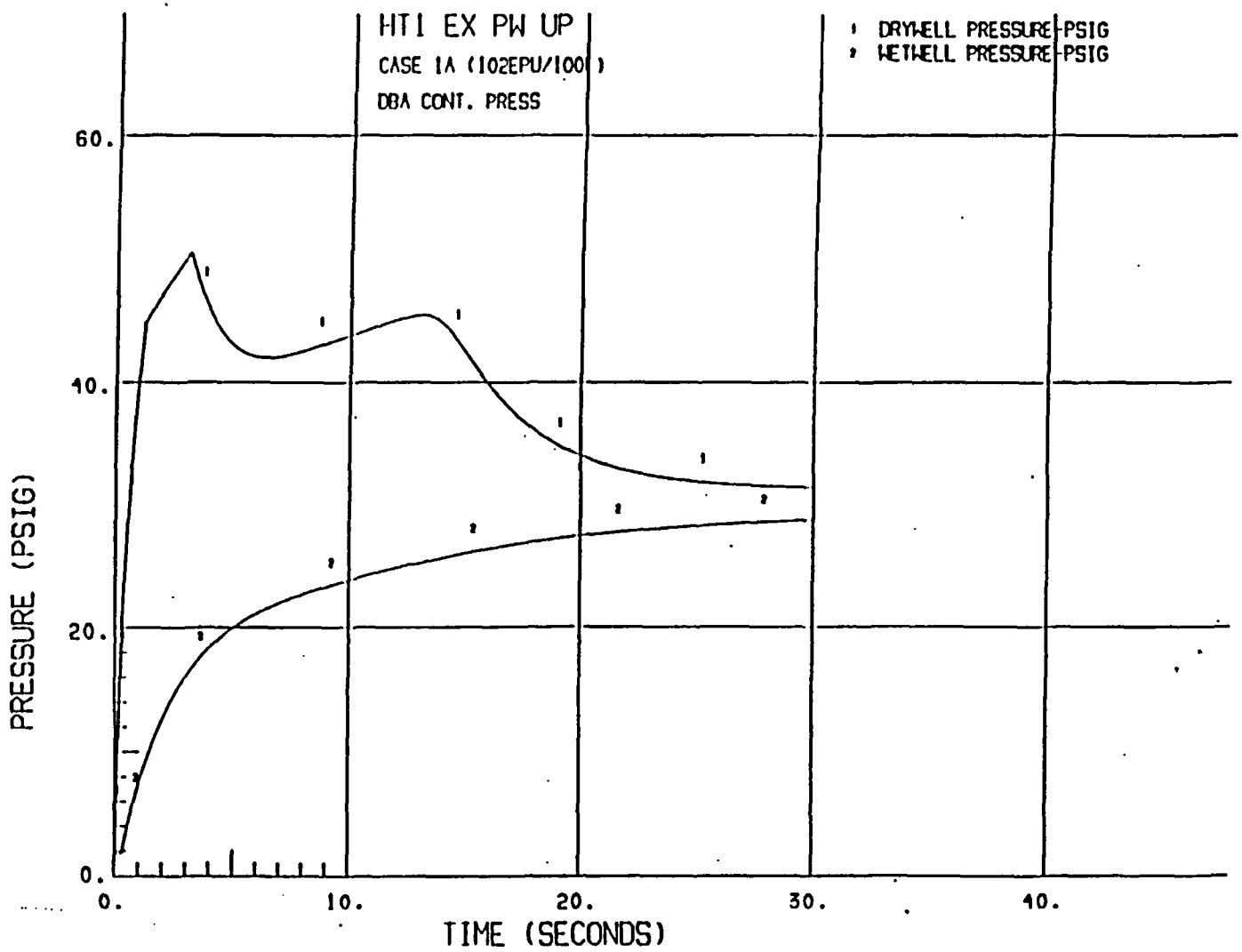
Figure 1
Existing



Hatch Unit 1 Short-Term Containment Response - Drywell/Wetwell Pressure vs Time
(FSAR FIGURE 6.2-17)

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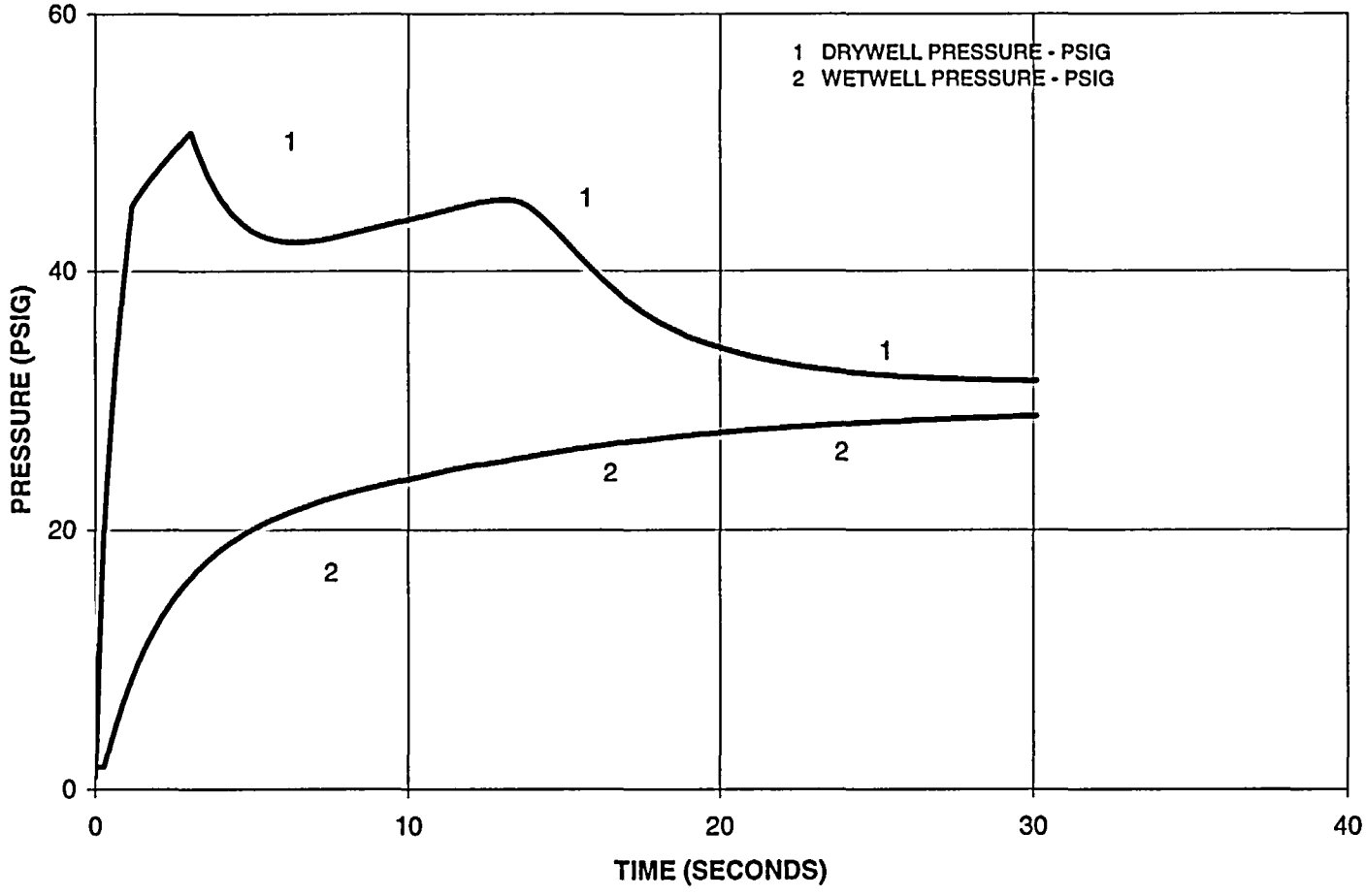
Figure 2
10 PSI NOMINAL OPERATING PRESSURE INCREASE



Hatch Unit 1 Short-Term Containment Response - Drywell/Wetwell Pressure vs Time

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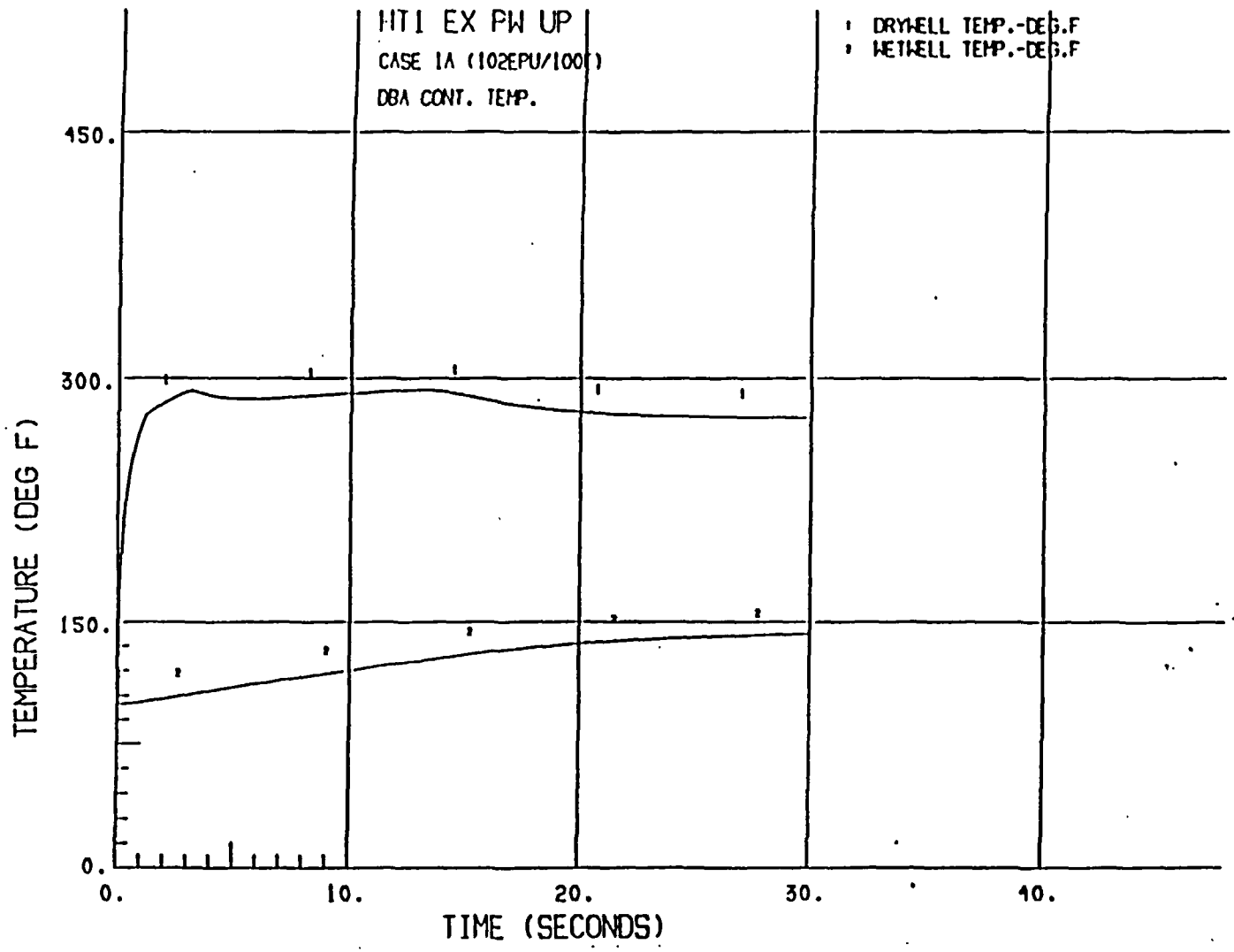
Figure 3
Existing



Hatch Unit 1 Short-Term Containment Response - Drywell/Wetwell Temperature vs Time (FSAR FIGURE 6.2-19)

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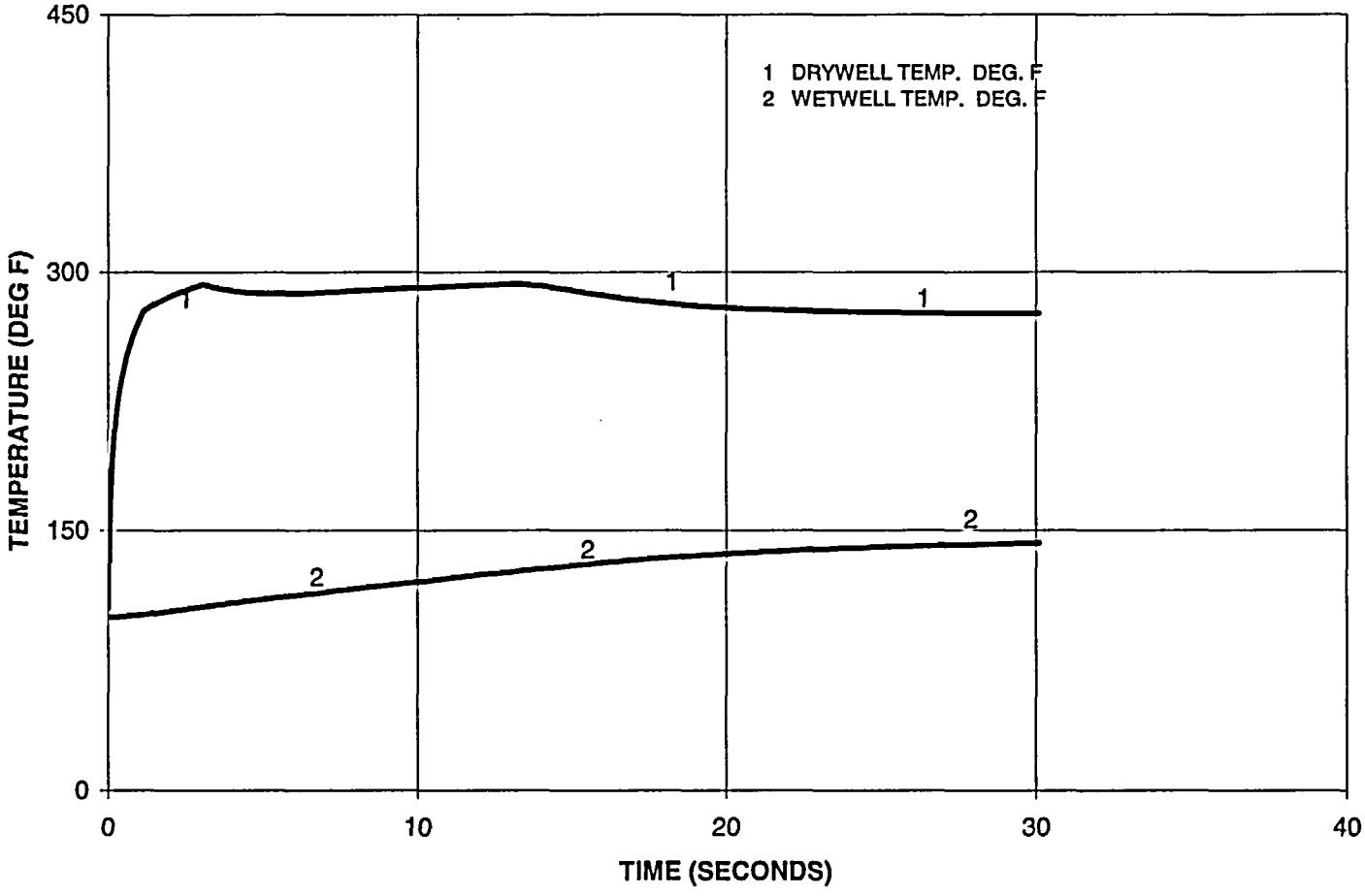
Figure 4
10 PSI NOMINAL OPERATING PRESSURE INCREASE



Hatch Unit 1 Short-Term Containment Response - Drywell/Wetwell Temperature vs Time

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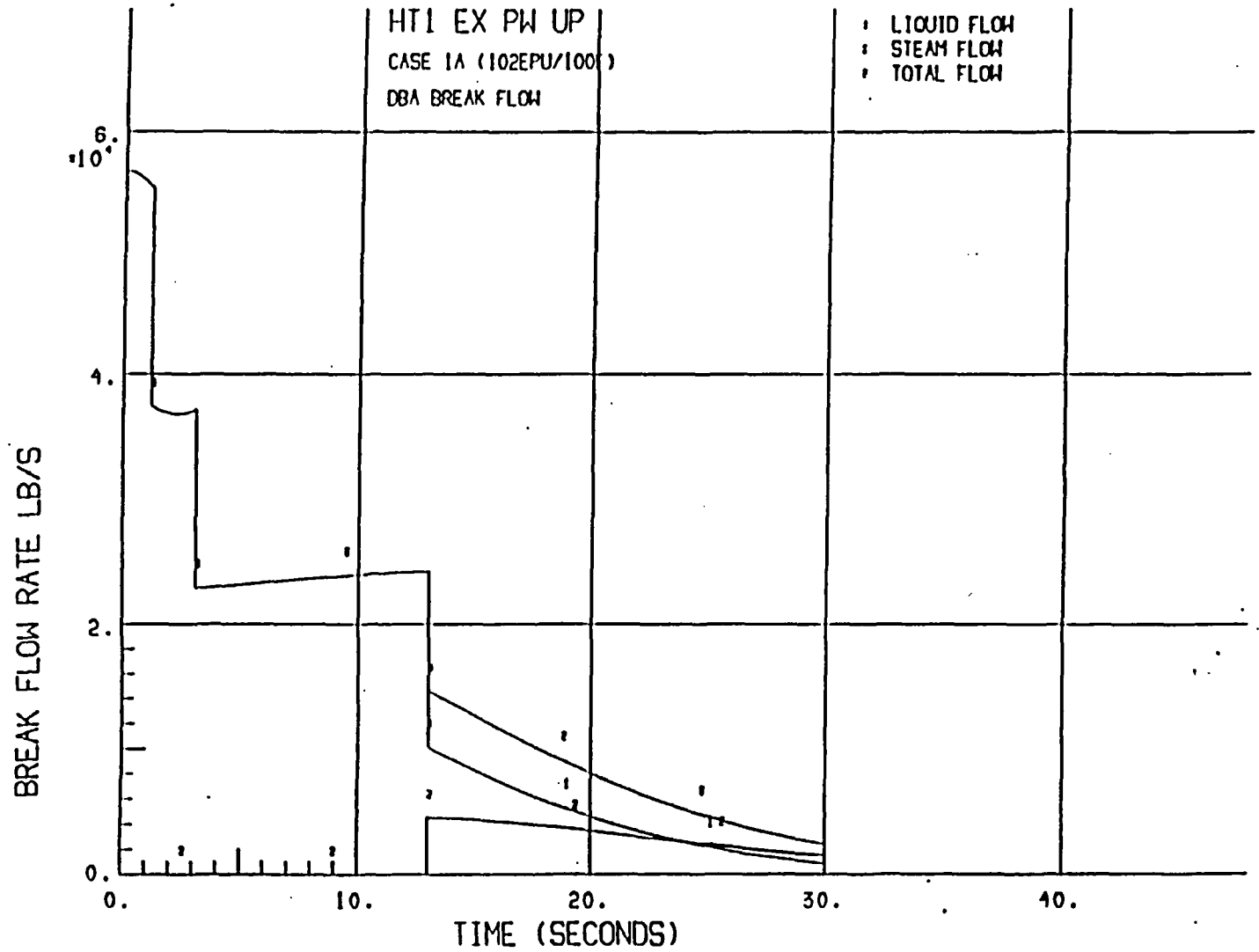
Figure 5
Existing



Hatch Unit 1 Short-Term Containment Response - Break Flow vs Time

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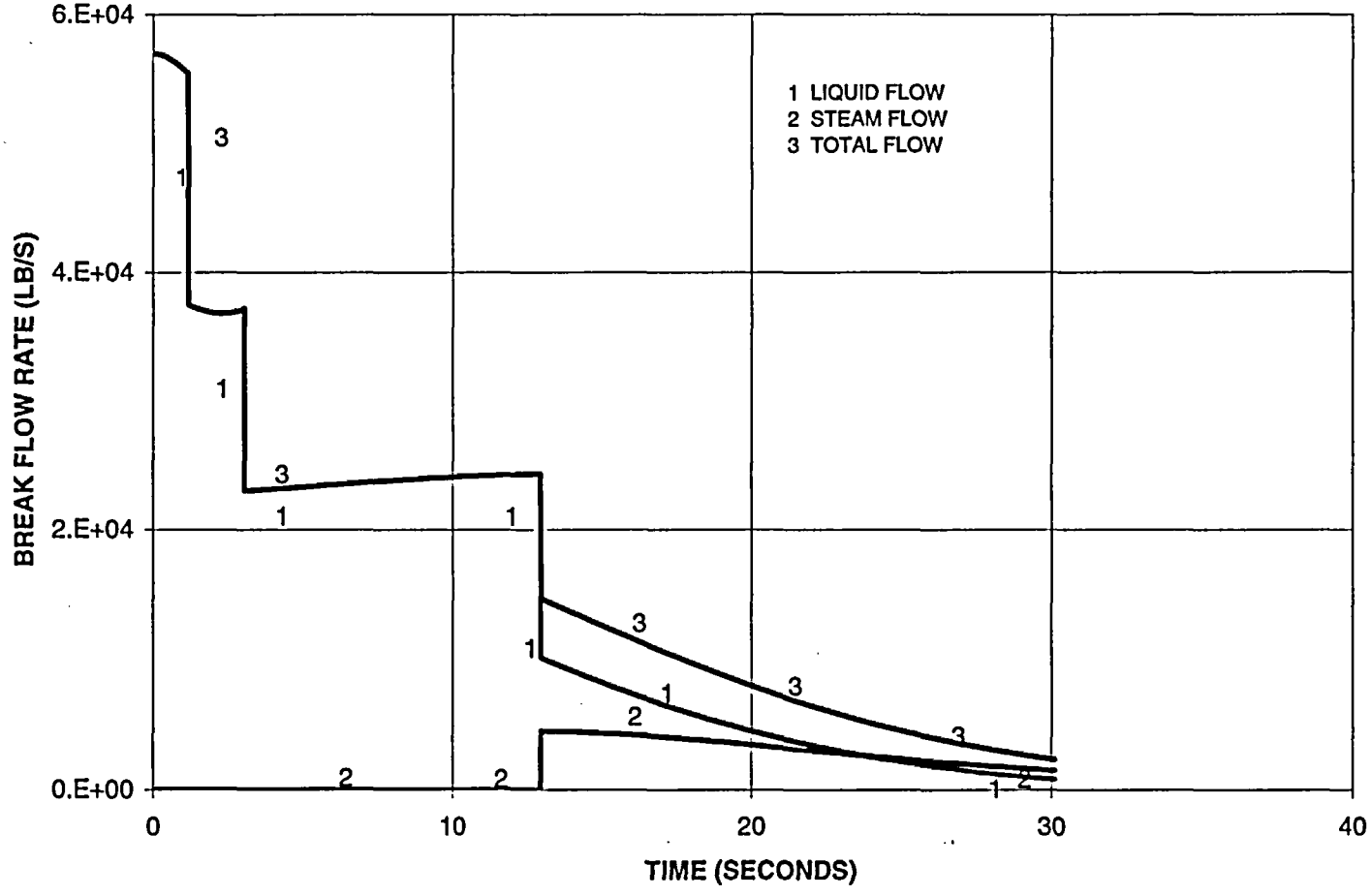
Figure 6
10 PSI NOMINAL OPERATING PRESSURE INCREASE



Hatch Unit 1 Short-Term Containment Response - Break Flow vs Time

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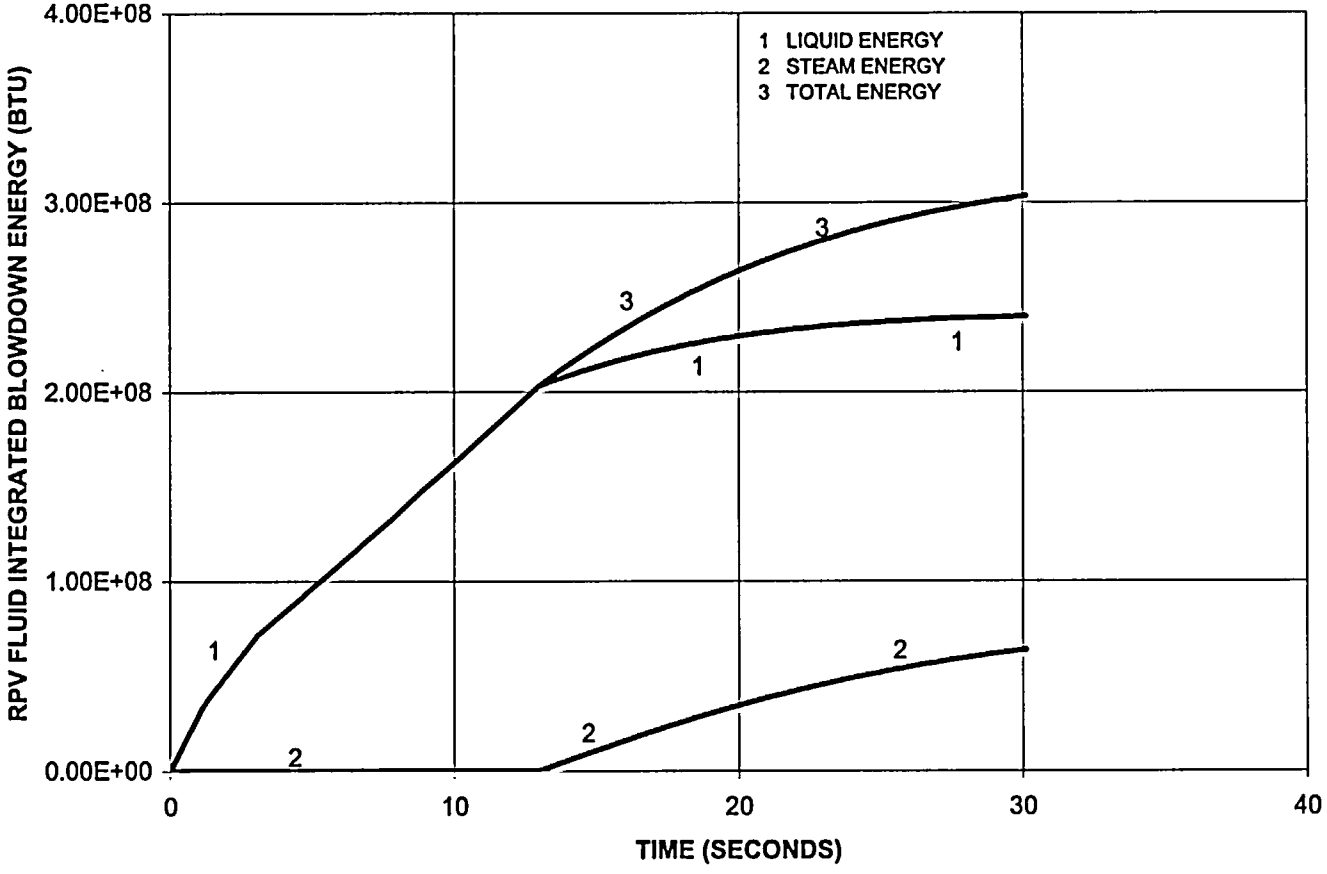
Figure 7
10 PSI NOMINAL OPERATING PRESSURE



Hatch Unit 1 Short-Term Containment Response - Energy Addition vs Time

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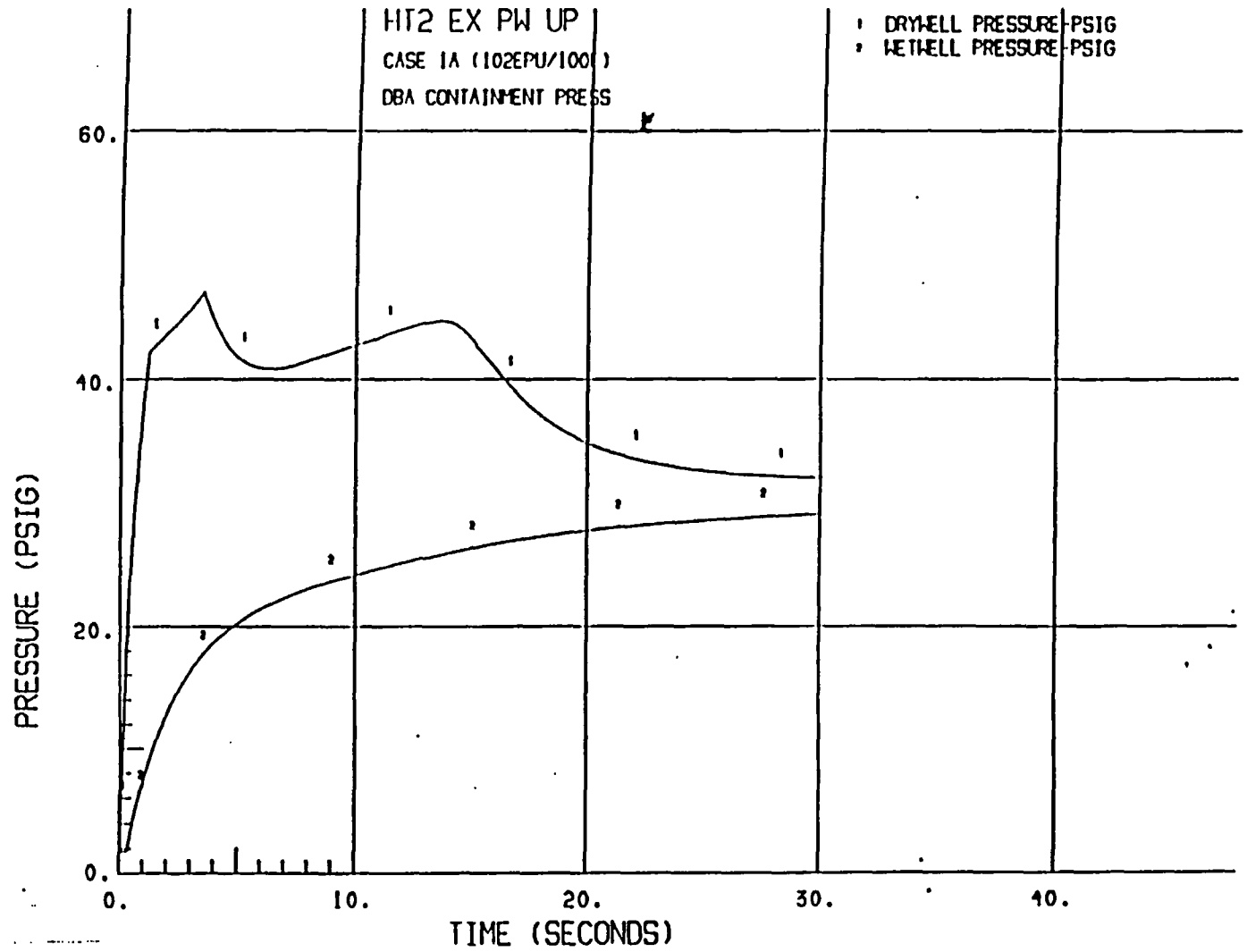
Figure 8
Existing



Hatch Unit 2 Short-Term Containment Response - Drywell/Wetwell Pressure vs Time
(FSAR FIGURE 6.2-18)

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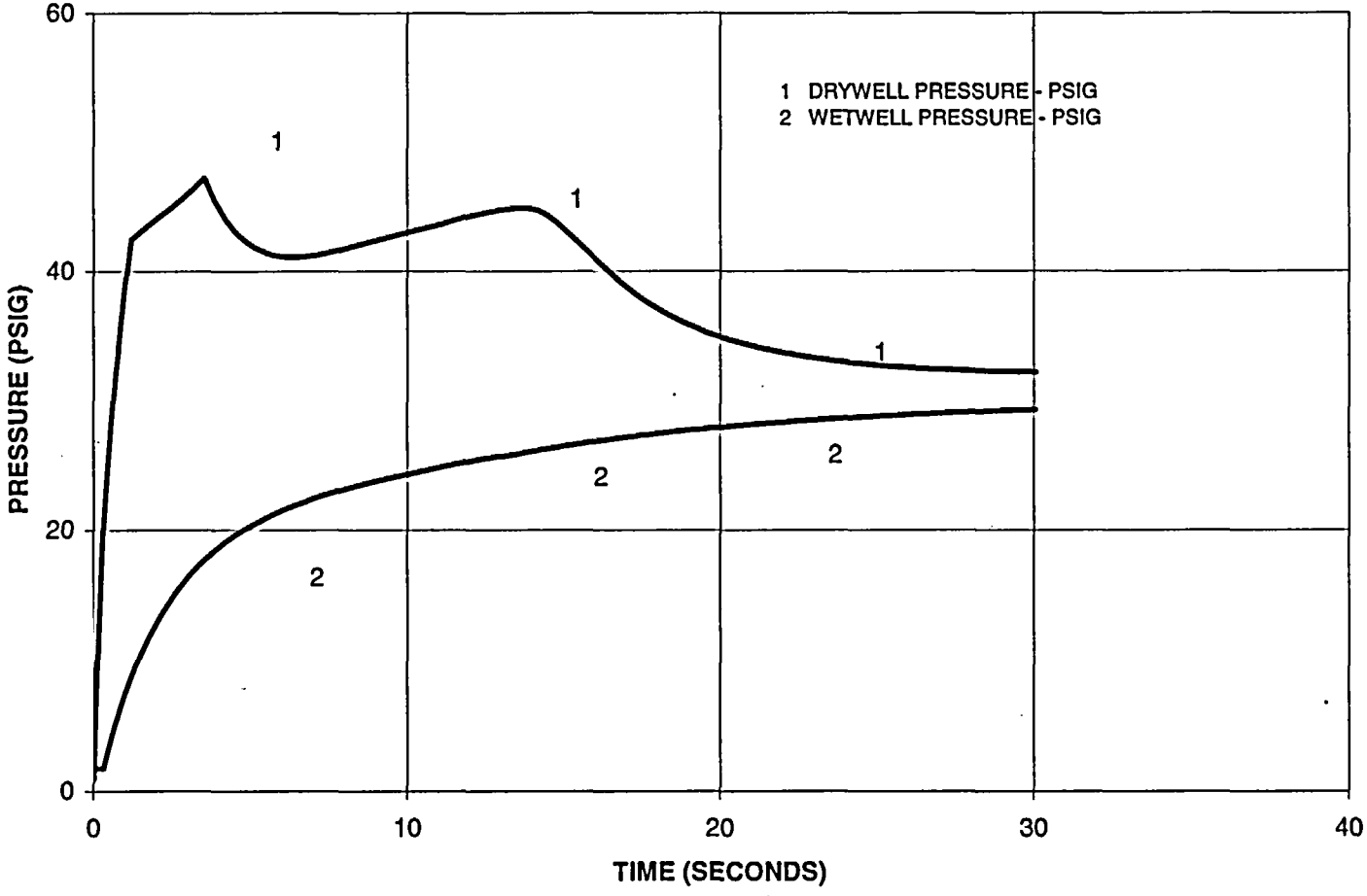
Figure 9
10 PSI NOMINAL OPERATING PRESSURE INCREASE



Hatch Unit 2 Short-Term Containment Response - Drywell/Wetwell Pressure vs Time

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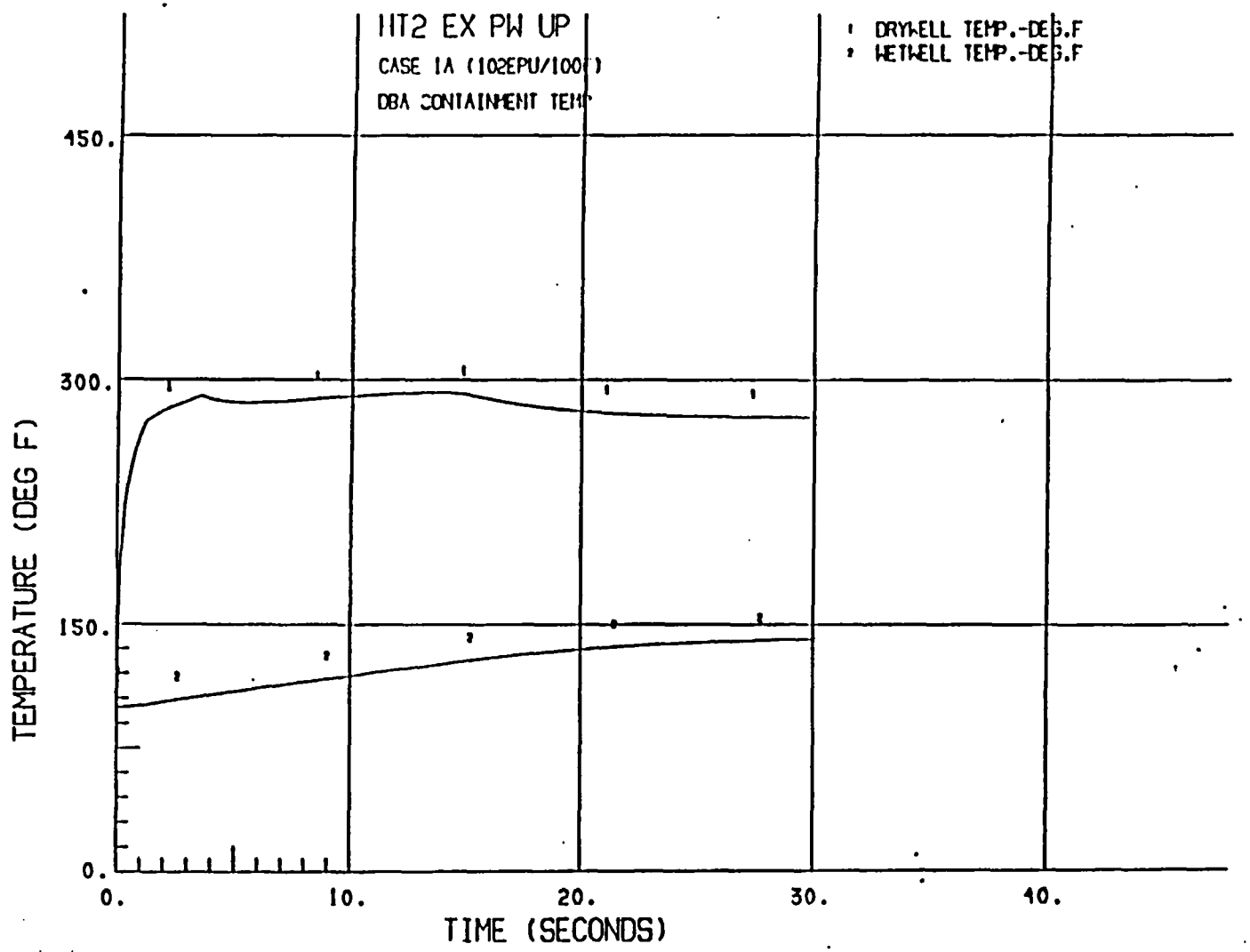
Figure 10
Existing



Hatch Unit 2 Short-Term Containment Response - Drywell/Wetwell Temperature vs Time (FSAR FIGURE 6.2-20)

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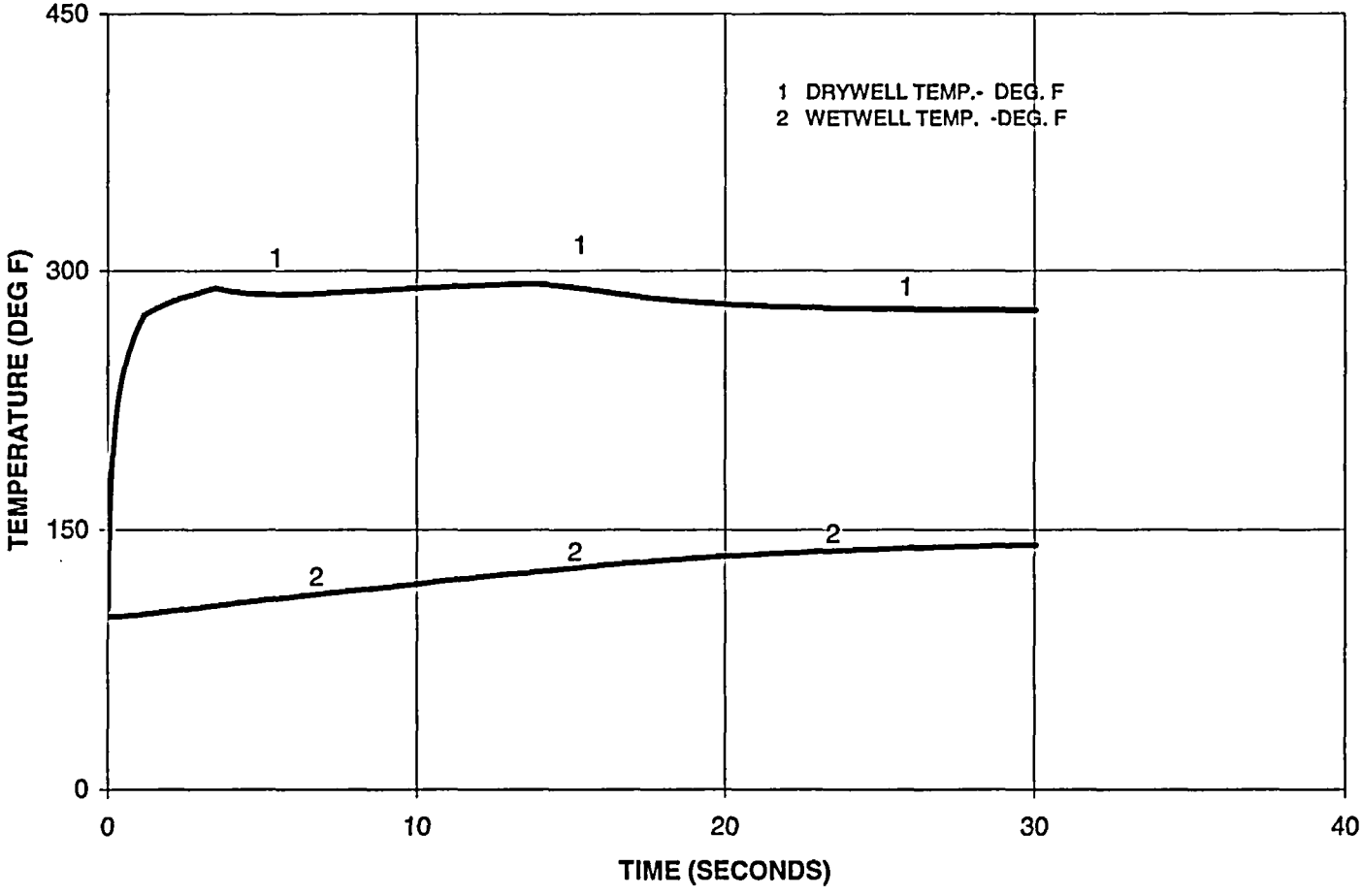
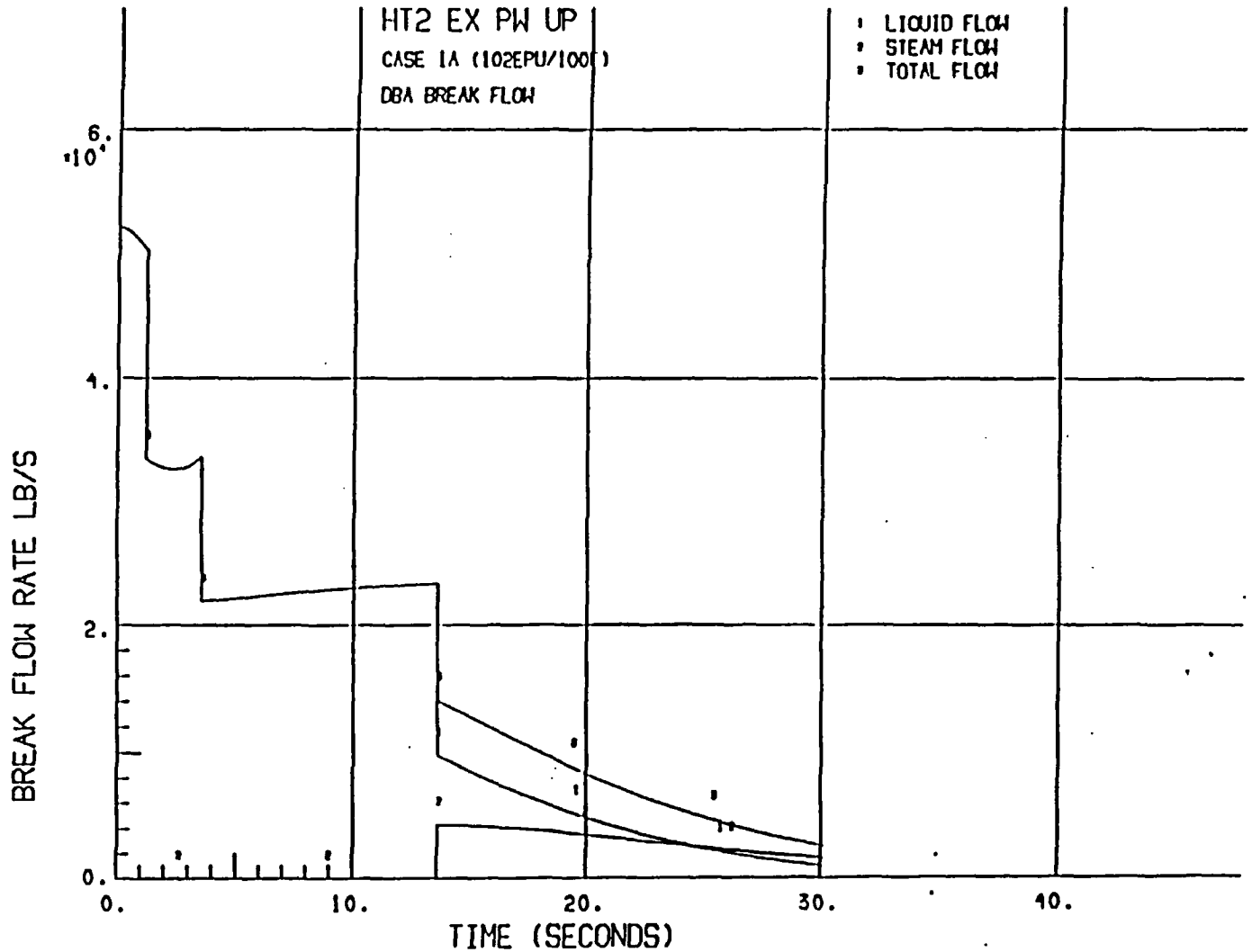
Figure 11
10 PSI NOMINAL OPERATING PRESSURE INCREASE



Hatch Unit 2 Short-Term Containment Response - Drywell/Wetwell Temperature vs Time

Figure 12
Existing



Hatch Unit 2 Short-Term Containment Response - Break Flow vs Time

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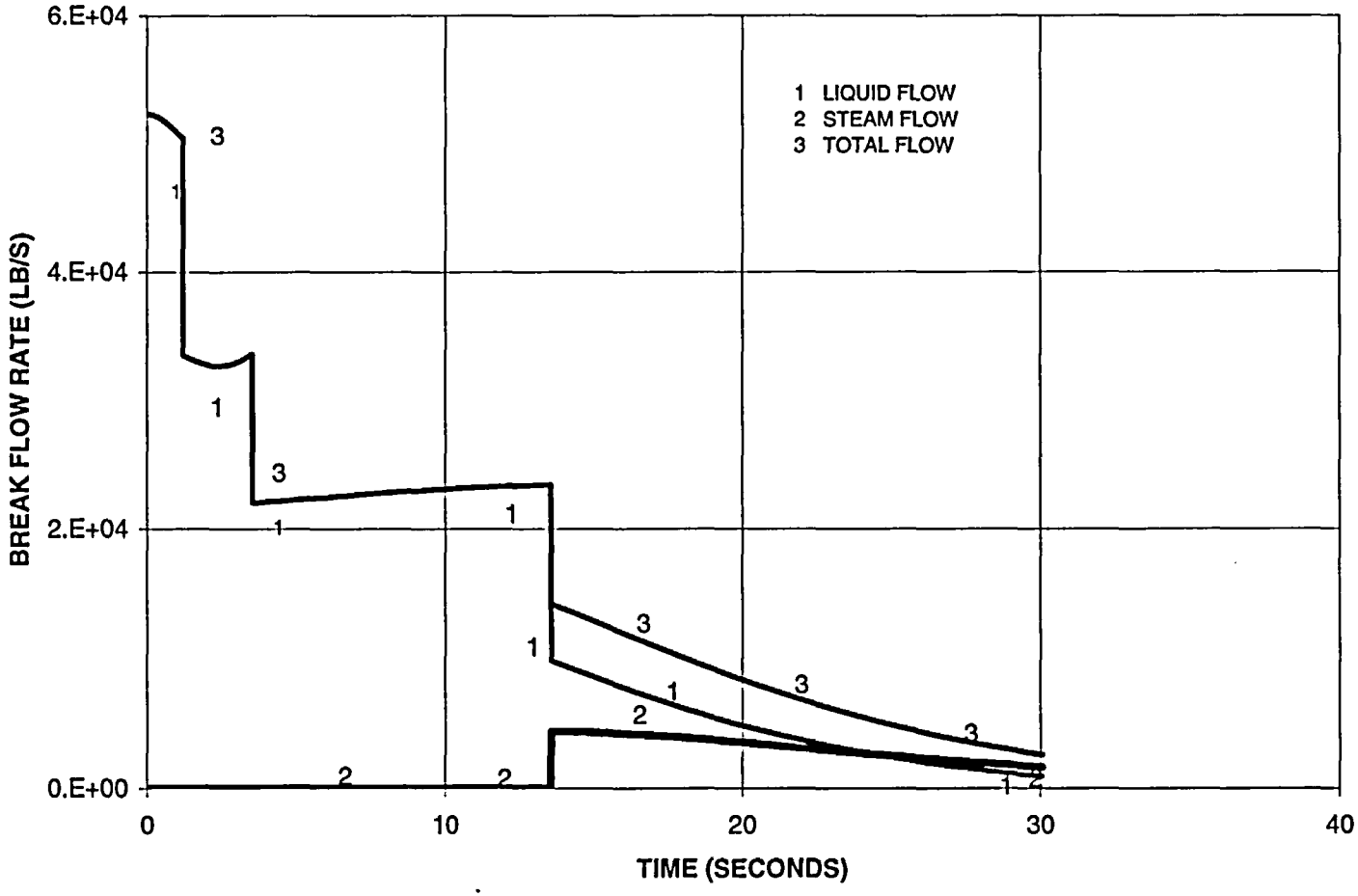
Figure 13
10 PSI NOMINAL OPERATING PRESSURE INCREASE



Hatch Unit 2 Short-Term Containment Response - Break Flow vs Time

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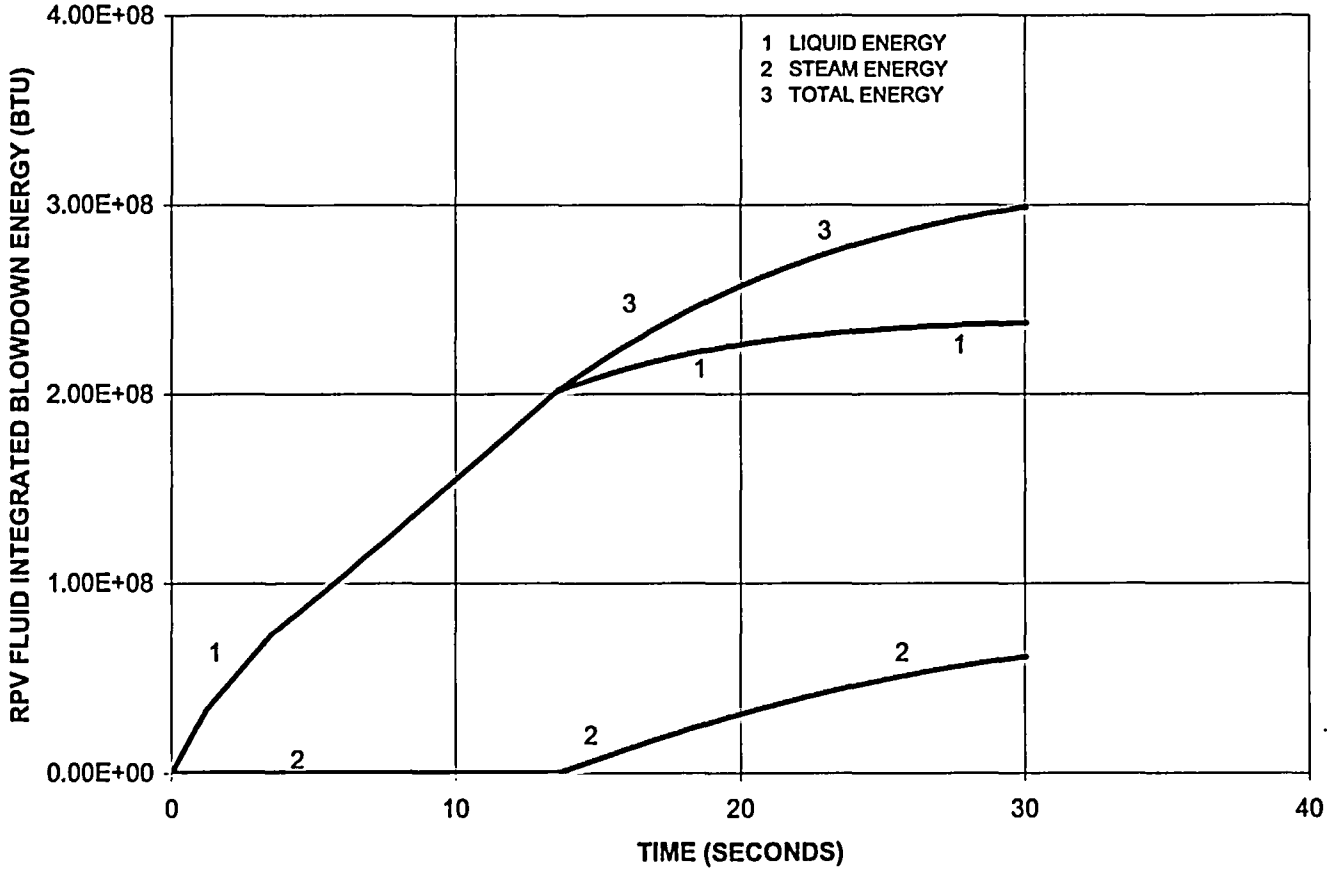
Figure14
10 PSI NOMINAL OPERATING PRESSURE



Hatch Unit 2 Short-Term Containment Response - Energy Addition vs Time