PSE&G

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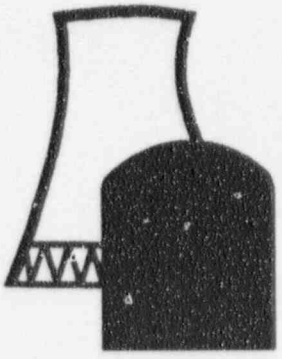
HOPE CREEK GENERATING STATION

CORE OPERATING LIMITS REPORT

CYCLE 7 / RELOAD 6

January 25, 1996



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1.0 INTRODUCTION

The purpose of this report is to provide the Core Operating Limits for the Hope Creek Generating Station Unit 1 Cycle 7 / Reload 6 operation. The limits presented here correspond to the core thermal limits for Average Planar Linear Heat Generation Rate (APLHGR), Minimum Critical Power Ratio (MCPR), MCPR Flow Adjustment Factor (K_f), and Linear Heat Generation Rate (LHGR).

These operating limit values have been determined using NRC approved methods contained in GESTAR-II, NEDE-24011-P-A, (latest approved version), and are established such that all applicable fuel thermal-mechanical, core thermal-hydraulic, ECCS, and nuclear limits such as shutdown margin, and transient and accident analysis limits are met.

Hope Creek Technical Specifications section 3.2 references this report as the source for certain LIMITING CONDITIONS FOR OPERATION. These are included in section 2 of this document. Hope Creek Technical Specifications section 6.9.1.9 also requires that this report, including any mid-cycle revisions, shall be provided, upon issuance, to the NRC.

This document is specific to Hope Creek Unit 1 Cycle 7 / Reload 6 and shall not be applicable to any other core or cycle design. The current revision of this report covers the operation from the beginning of cycle 7 to the end of cycle exposure of 9368 MWD/STU, or to the end of effective full power capability, whichever comes first. End of effective full power capability is reached when 100% rated power can no longer be maintained by increasing core flow (up to 105% of rated core flow), at rated feewdater temperatures, in the all-rods-out configuration.

2.0 LIMITING CONDITIONS FOR OPERATION

The LIMITING CONDITIONS FOR OPERATION presented in this section are referenced by the Hope Creek Technical Specifications.

Tech. Spec	Title
3/4.2.1	Average Planar Linear Heat Generation Rate
3/4.2.3	Minimum Critical Power Ratio
3/4.2.4	Linear Heat Generation Rate

2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE

LIMITING CONDITION FOR OPERATION:

All AVERAGE PLANAR LINEAR HEAT GENERATION RATES (APLHGRs) for each type of fuel as a function of AVERAGE PLANAR EXPOSURE shall not exceed the limits specified in Appendix A, Table A-1, Appendix B, Table B-1, and Appendix C, Table C-1. The limits specified shall be reduced to a value of 0.86 times the two recirculation loop operation limit when in single recirculation loop operation.

NOTE

The APLHGRs for the P8CWB (GE9B) fuel types are included in Appendix A, B and C to accommodate GE proprietary considerations. The Appendices will be identified to contain GE proprietary data and handled accordingly by the NRC when they receive their copy of the COLR report.

The APLHGR LCOs contained in Appendix A, B and C shall have the same consideration and treatment by PSE&G personnel as if they were in the body of the COLR. In addition, note that the APLHGR LCOs in the appendices are established in the NSSS computer for thermal limits monitoring via approved plant procedures.

When hand calculations are required, all AVERAGE PLANAR LINEAR HEAT GENERATION RATES (APLHGRs) for each type of fuel as a function of AVERAGE PLANAR EXPOSURE shall not exceed the limits specified in Figures 2-1 through 2-3. The limits specified shall be reduced to a value of 0.86 times the two recirculation loop operation limit when in single recirculation loop operation.

The accompanying figures graphically present the "Limiting" column of Tables A-1, B-1 and C-1.

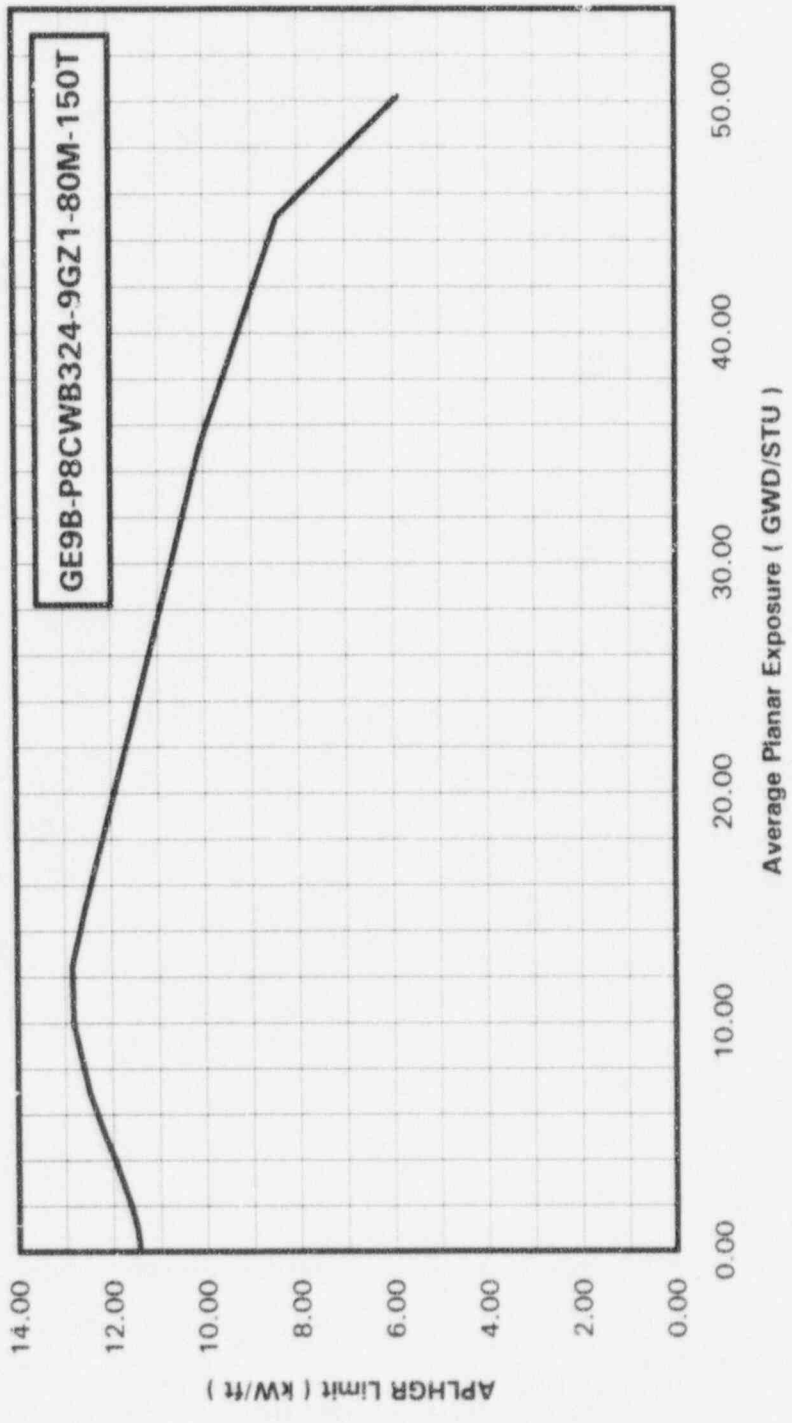

Figure 2-1 APLHGR Limit for Fuel Bundle GE9B-P8CWB324-9GZ1-80M-150T

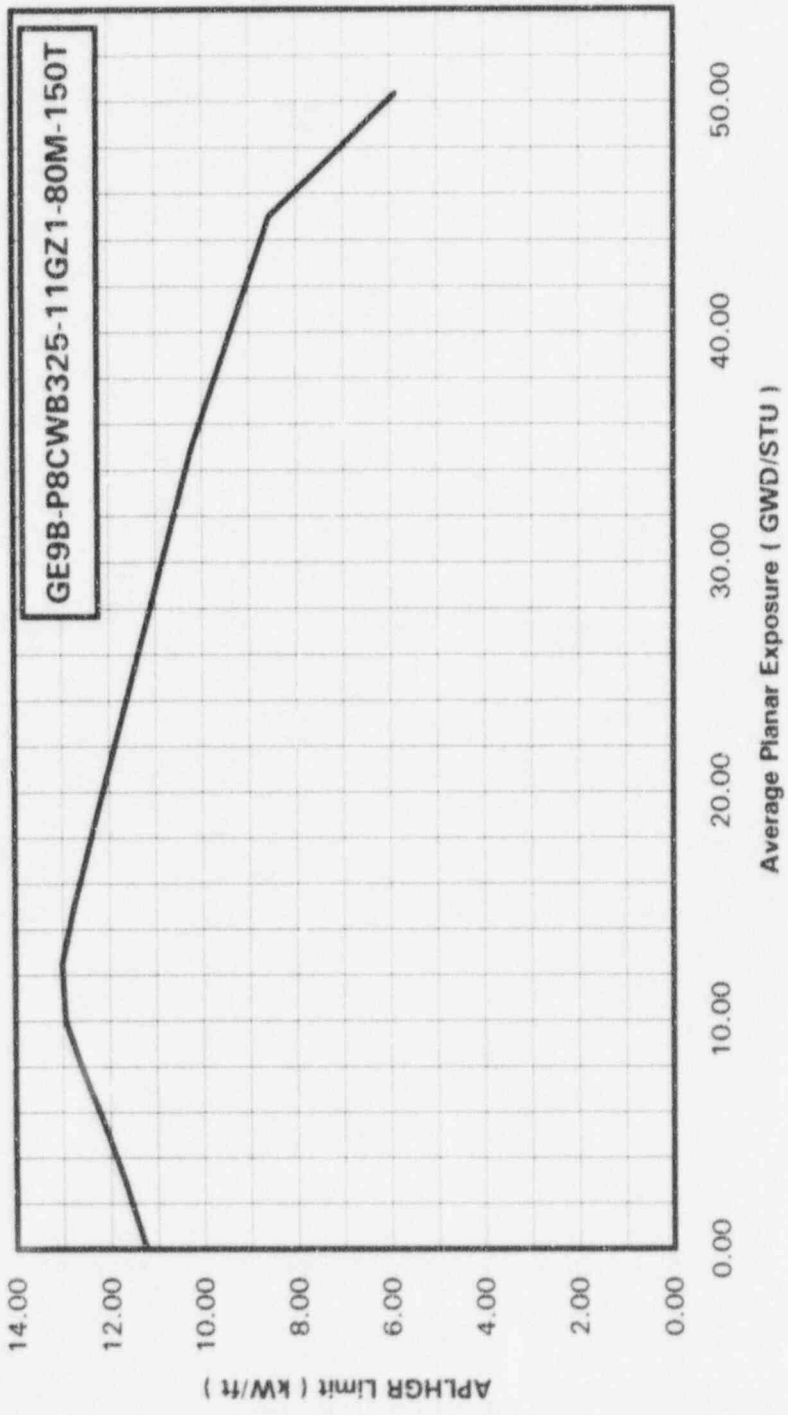

Figure 2-2 APLHGR Limit for Fuel Bundle GE9B-P8CWB325-11GZ1-80M-150T

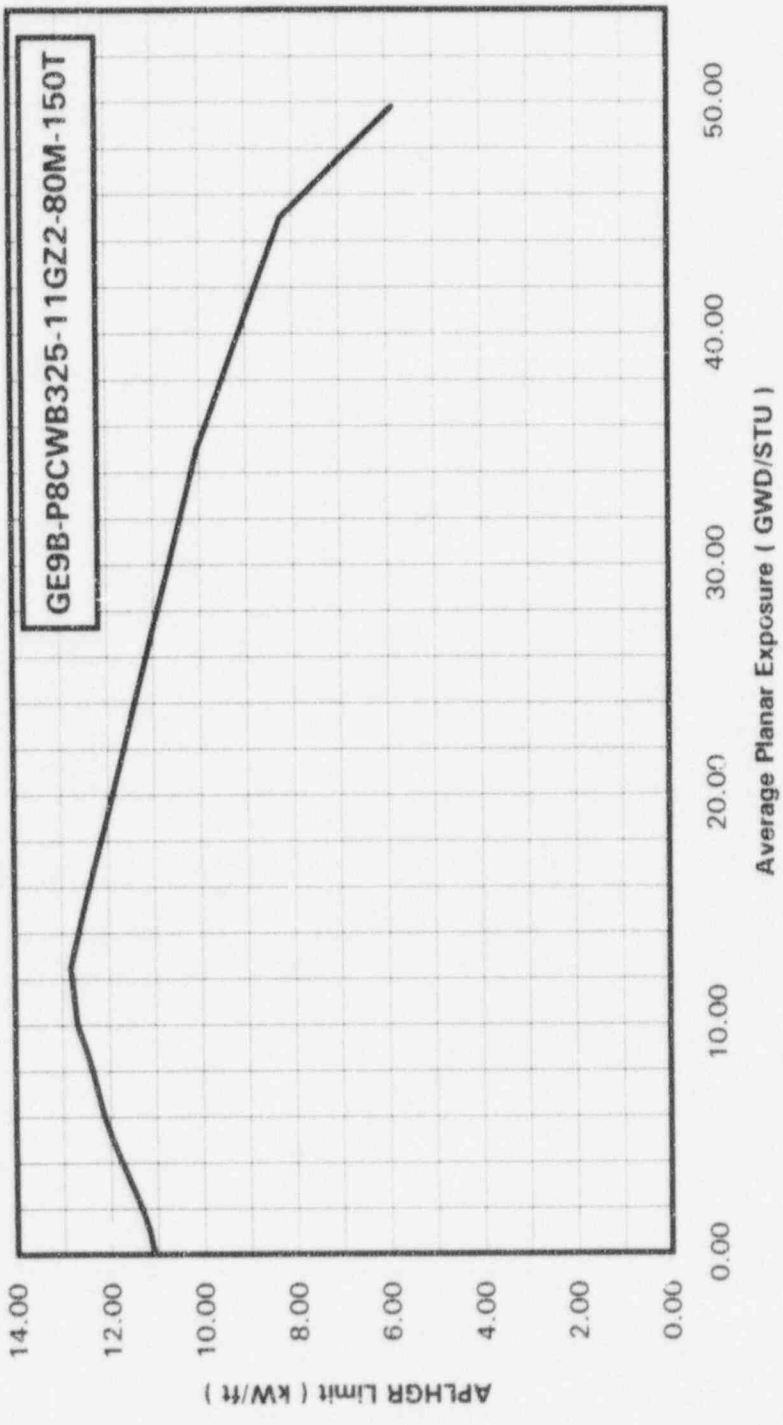

Figure 2-3 APLHGR Limit for Fuel Bundle GE9B-P8CWB325-11GZ2-80M-150T

2.2 MINIMUM CRITICAL POWER RATIO

LIMITING CONDITION FOR OPERATION

The MINIMUM CRITICAL POWER RATIO (MCPR) shall be equal to or greater than the MCPR limit specified in Figure 2-4 times the K_f curve value specified in Figure 2-5.

The Kf curve requires an adjustment be made to the MCPR limit for bundle flows below 0.4 Mlb/ft^2-hr. This adjustment has been incorporated in Fig. 2-5.

The MCPR limit must be increased by 3% if the core inlet subcooling exceeds 70 BTU/lbm.

The MCPR limit is a function core average scram speed, EOC-RPT operability, and Main Turbine Eypass operability.

Core average scram speed, τ (Tau), is defined by Hope Creek Technical Specification 3.2.3.

End-of-Cycle Recirculation Pump Trip system operability is defined per Hope Creek Technical Specification 3.3.4.2.

Main Turbine Bypass operability is defined per Hope Creek Technical Specification 3.7.7.

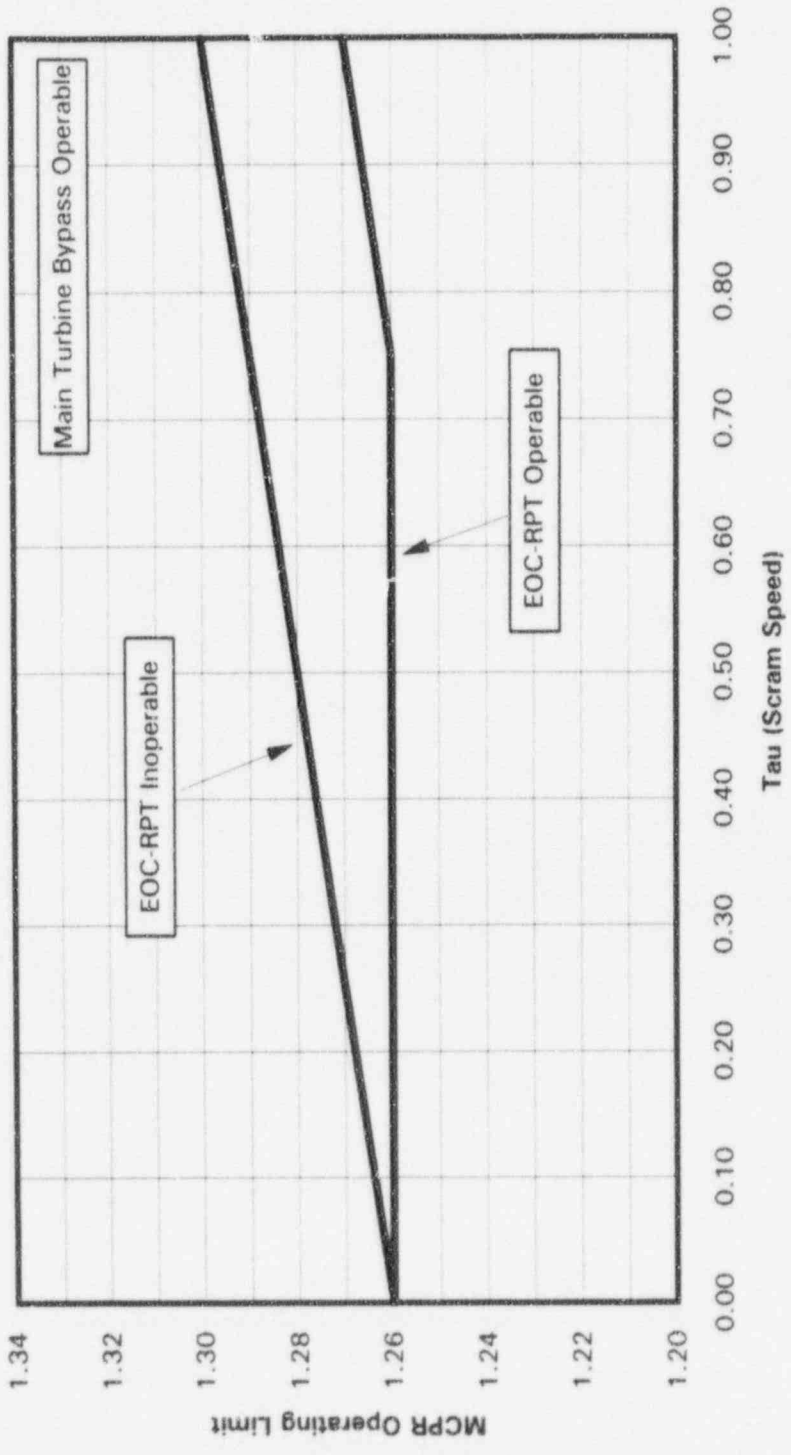

Figure 2-4 Minimum Critical Power Ratio Operating Limit

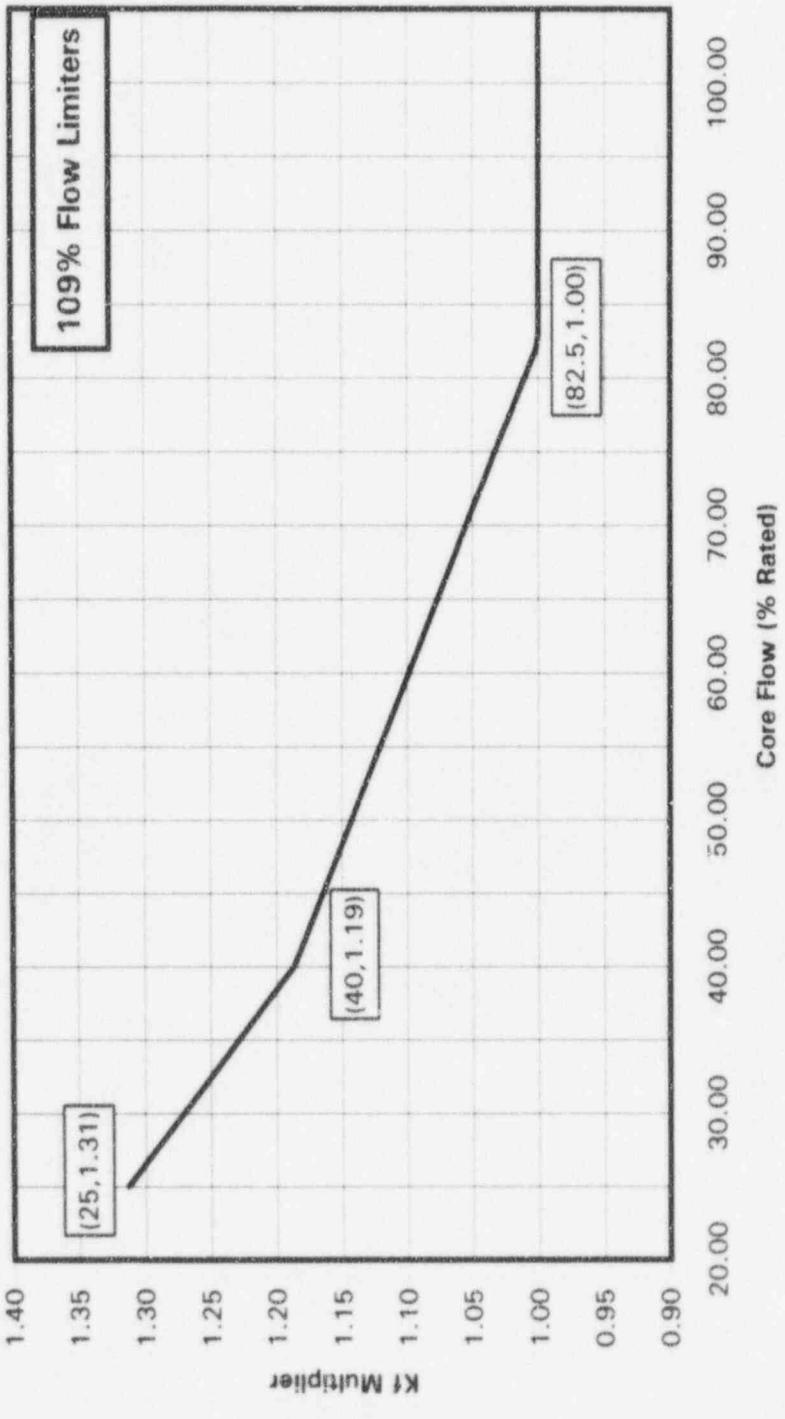

Figure 2-5 Kf Multiplier Curve

2.3 LINEAR HEAT GENERATION RATE

LIMITING CONDITION FOR OPERATION

The LINEAR HEAT GENERATION RATE (LHGR) shall not exceed the limits specified in Table 2-1.

Table 2-1 LHGR Limits

Fuel Type	LHGR Limit (Kw/ft)
GE9B-P8CWB324-9GZ1	14.4
GE9B-P8CWB325-11GZ1	14.4
GE9B-P8CWB325-11GZ2	14.4

3.0 REFERENCES

1. "General Electric Standard Application For Reactor Fuel", General Electric Company, NEDE-24011-P-A, Revision 10, February, 1991.

2. Nuclear Fuel Section Vendor Technical Document NFU-VTDGE91-040-00 "Supplemental Reload Licensing Submittal for Hope Creek Generating Station Unit 1 Reload 3, Cycle 4, Supplement 1", General Electric Company, 23A6526AA, Rev.0, Supplement 1, January, 1991.

3. Nuclear Fuel Section Vendor Technical Document NFU-VTDGE93-077-00 "Lattice Dependent MAPLHGR Report for Hope Creek Generating Station Unit 1, Reload 5, Cycle 6", General Electric Company, 23A7219AA, Rev.0, November, 1993.

4. Nuclear Fuel Section Vendor Technical Document NFU-VTDGE95-131-00 "Supplemental Reload Licensing Report for Hope Creek Generating Station Unit 1, Reload 6 Cycle 7", General Electric Company, 24A5173, Rev 0, November, 1995.

5. DEF # DEH 93-00183, "Resolution of the TVAPS issue".

6. Nuclear Fuel Section Safety Evaluation HCR.8-0003, approved 1/18/96.