

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9001030187 DOC. DATE: 89/12/28 NOTARIZED: NO DOCKET #
 FACIL: 50-260 Browns Ferry Nuclear Power Station, Unit 2, Tennessee 05000260
 AUTH. NAME AUTHOR AFFILIATION
 RAY, M.J. Tennessee Valley Authority
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Forwards response to NRC 891107 request for addl info re NUREG-0737.

DISTRIBUTION CODE: A046D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 9
 TITLE: OR Submittal: TMI Action Plan Rgmt NUREG-0737 & NUREG-0660.

NOTES: 1 Copy each to: S.Black, D.M. Crutchfield, B.D. Liaw, 05000260
 R. Pierson, B. Wilson

| | RECIPIENT | | COPIES | | | RECIPIENT | | COPIES | |
|-----------|-----------------|--|--------|------|-----------------|--------------|---|--------|------|
| | ID CODE/NAME | | LTR | ENCL | | ID CODE/NAME | | LTR | ENCL |
| | LA | | 1 | 0 | PD | | 5 | 5 | |
| | GEARS, G | | 1 | 1 | | | | | |
| INTERNAL: | ACRS | | 6 | 6 | AEOD/DSP/TPAB | | 1 | 1 | |
| | NRR/DREP/PEPB9D | | 1 | 1 | NRR/DREP/PRPB11 | | 1 | 1 | |
| | NRR/DST 8E2 | | 1 | 0 | NUDOCS-ABSTRACT | | 1 | 1 | |
| | OC/LEMB | | 1 | 0 | OGC/HDS2 | | 1 | 0 | |
| | REG-FILE 01 | | 1 | 1 | RES/DSIR/EIB | | 1 | 1 | |
| | RES/DSR-DEPY | | 1 | 1 | | | | | |
| EXTERNAL: | LPDR | | 1 | 1 | NRC PDR | | 1 | 1 | |
| | NSIC | | 1 | 1 | | | | | |
| NOTES: | | | 5 | 5 | | | | | |

NOTE TO ALL "RIDS" RECIPIENTS:

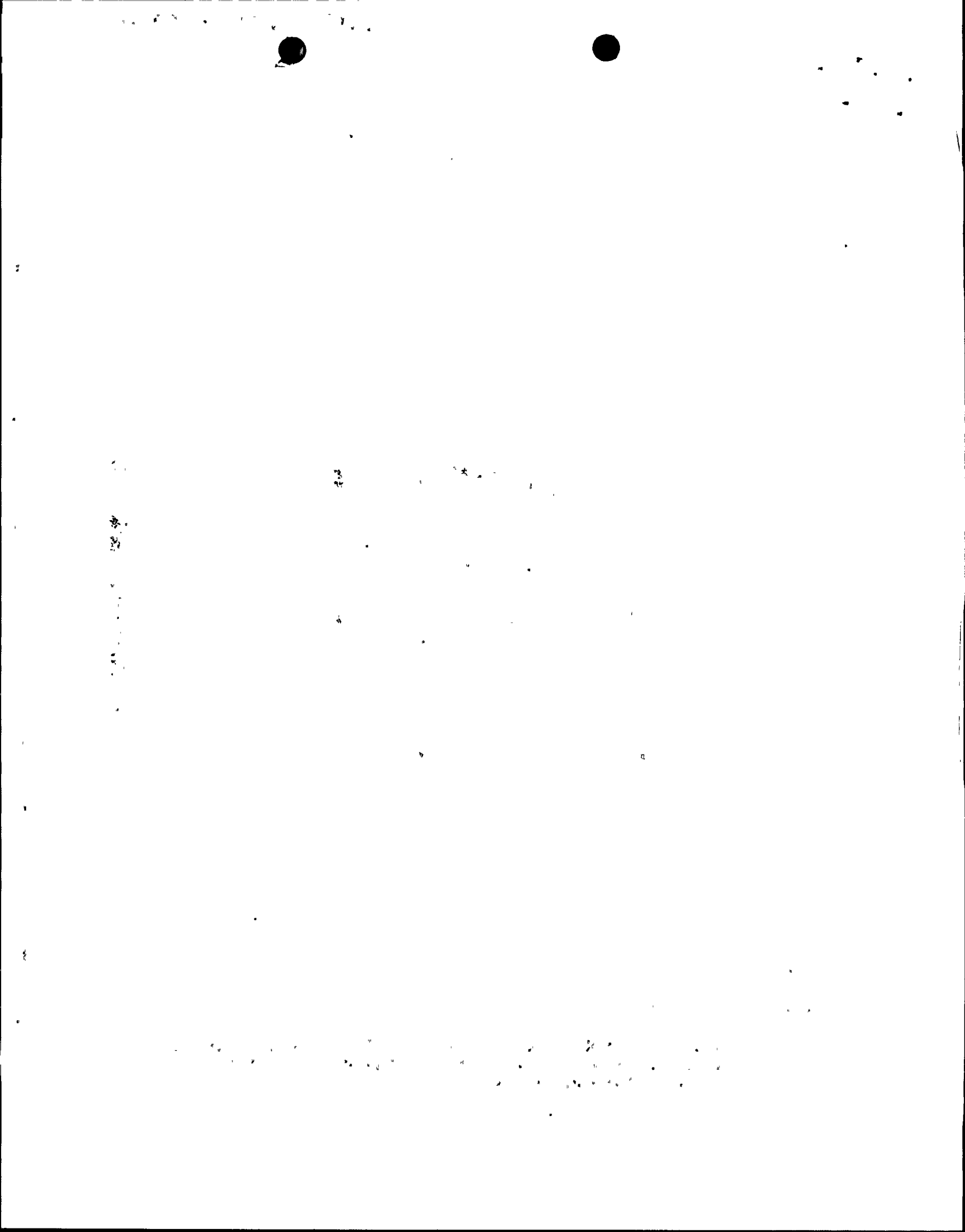
PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTR 31 ENCL 27

MA-4

R
I
D
S
/
A
D
D
S

R
I
D
S
/
A
D
D
S



TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

DEC 28 1989

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

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-260

BROWNS FERRY NUCLEAR PLANT (BFN) - BROWNS FERRY NUCLEAR PERFORMANCE PLAN,
ATTACHMENT IV-4, RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (TAC NO. 62268)

This letter provides TVA's response to the staff's November 7, 1989 request for additional information on NUREG-0737 (TMI Action Items). TVA fully recognizes the importance of implementing outstanding TMI Action Items. TVA management has (1) put increased emphasis on the completion of these items, (2) has accelerated the schedule for their completion, and (3) has strengthened compensatory actions which will be in place until these items are completed. An item by item summary is provided as Enclosure 1. This letter provides sufficient information to allow the NRC to issue an acceptable Safety Evaluation Report covering Attachment IV-4 of the Browns Ferry Nuclear Performance Plan.

A summary list of commitments contained in this letter is provided in Enclosure 2. If you have any questions, please contact Patrick P. Carier, Manager of Site Licensing, at (205) 729-3570.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

W. J. Ray Jr.
Manager, Nuclear Licensing
and Regulatory Affairs

Enclosures
cc: See page 2

9001030187 891228
PDR ADOCK 05000260
P PDC

AOAK
11

1958

U.S. Nuclear Regulatory Commission

DEC 28 1989

cc (Enclosures):

Ms. S. C. Black, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Mr. B. A. Wilson, Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

NRC Resident Inspector
Browns Ferry Nuclear Plant
Route 12, Box 637
Athens, Alabama 35609-2000



11

ENCLOSURE 1
EVALUATION ON NUREG-0737, ITEM I.D.1
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)

SUMMARY OF ITEM:

All licensees and applicants for operating licenses were required to conduct a detailed control room design review to identify and correct design deficiencies. This review consisted of:

- i) The establishment of a qualified multidisciplinary review team and a review program incorporating accepted human engineering principles.
- ii) The use of function and task analysis (that had been used as the basis for developing emergency operating procedures Technical Guidelines and plant specific emergency operating procedures) to identify control room operator tasks and information and control requirements during emergency operations.
- iii) A comparison of the display and control requirements with a control room inventory to identify missing displays and controls.
- iv) A control room survey to identify deviations from accepted human factors principles. This survey included, among other things, an assessment of the control room layout, the usefulness of audible and visual alarm systems, the information recording and recall capability, and the control room environment.

STATUS OF ITEM:

TVA and the NRC have reviewed the Human Engineering Deficiencies (HEDs) against the Browns Ferry Nuclear Performance Plan restart criteria. All HEDs which meet the restart criteria will be completed prior to restart. An additional 108 HEDs have been completed.

SCHEDULE FOR FULL IMPLEMENTATION:

TVA will accelerate the completion schedule for this item. All safety significant HEDs (Categories 1 and 2) will be completed prior to restart from the next refueling outage (Cycle 6). This is estimated to require 191,000 man/hours. Non-safety significant HEDs (Categories 3 and 4) will be implemented prior to restart from the second refueling outage (Cycle 7), only if they are determined to have a positive cost/benefit ratio.



ENCLOSURE 1 (Continued)
EVALUATION ON NUREG-0737, ITEM I.D.1
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)

COMPENSATORY ACTIONS:

The objective of the control room design review is to "improve the ability of nuclear power plant control room operators to prevent accidents or cope with accidents if they occur by improving the information provided to them" (from NUREG-0660, Item I.D.1). As an enhancement to the plant operating staff's capabilities to respond to transients and other abnormal conditions, BFN has or will:

- 1) Resolve all HEDs which met the restart criteria prior to restart.
- 2) Completed an additional 108 HEDs.

Although full implementation of DCRDR is a desirable enhancement to the control room, completion of the HEDs which do not meet the restart criteria is not required for safe operation of the plant. Plant operators have been thoroughly trained and have demonstrated during emergency drills that they can effectively cope with an emergency situation without full implementation of DCRDR corrective actions. Therefore, operation of Unit 2 during the next cycle does not pose an undue risk to public health and safety or the safe operation of the plant.



ENCLOSURE 1 (Continued)
EVALUATION ON NUREG-0737, ITEMS I.D.2.1, I.D.2.2 AND I.D.2.3
PLANT SAFETY PARAMETER DISPLAY SYSTEM (SPDS)

SUMMARY OF ITEM:

NUREG-0737 tracks SPDS as three separate items: Item I.D.2.1 - Description of System Design, Item I.D.2.2 - Installation, and Item I.D.2.3 - Declaring the System Operational.

The objective of SPDS is to provide a concise display of critical plant variables to the control room operators to aid them in rapidly and reliably determining the safety status of the plant. The principal purpose and function of the SPDS is to aid the control room personnel during abnormal and emergency conditions in determining the safety status of the plant and in assessing whether abnormal conditions warrant corrective action by operators to avoid a degraded core.

STATUS OF ITEM:

As discussed in TVA's December 19, 1989 letter to NRC, TVA will accelerate the implementation schedule for SPDS by having a functional Phase I Safety Parameter Display System (PSPDS) prior to restart. The design of the PSPDS is fifty percent complete. Design is scheduled to be completed by the end of January 1990. Installation and training are scheduled to be completed by the end of March 1990.

SCHEDULE FOR FULL IMPLEMENTATION:

The final SPDS installation will be performed in conjunction with the upgrade of the plant process computer and the addition of transient recording analysis capability, an advanced core monitoring system and rod worth minimizer. Negotiations for the process computer and final SPDS are ongoing. Since contract negotiations are still in progress, public release of cost or man/hour estimates is not permitted. The estimated contract award date is March, 1990. Current schedule milestones for the final system as submitted by proposed vendors are as follows:

ENCLOSURE 1 (Continued)
EVALUATION ON NUREG-0737, ITEMS I.D.2.1, I.D.2.2 AND I.D.2.3
PLANT SAFETY PARAMETER DISPLAY SYSTEM (SPDS)

- Submit detailed description of the final SPDS design in order to satisfy the requirements of Item I.D.2.1 - Prior to restart.
- Hardware and software design to start upon contract award - March 1990.
- Procurement of long lead time equipment - Three months after the start of design, June 1990.
- Complete detailed design - July 1991.
- Complete installation of plant process computer and SPDS - July 1992 (Prior NRC commitment).
- Declare SPDS operable during Unit 2 Cycle 7 operation - December 1992 (Prior NRC commitment). The duration for testing SPDS prior to declaring the system operational is based upon past experience of other utilities.

COMPENSATORY ACTIONS:

The PSPDS will provide information to operations and Technical Support Center personnel. The PSPDS user will be able to monitor the status of five critical safety functions by monitoring the entry conditions for the Emergency Operating Instructions associated with Reactor Control, Primary Containment Control and Radioactive Release Control (except for conditions requiring an MSIV closure).

Although full implementation of SPDS is a desirable enhancement to the control room, it is not required for safe operation of the plant. The current control room instrumentation and the PSPDS will provide the operators with the information necessary for safe reactor operation under normal, transient, and accident conditions. The PSPDS will partially implement the requirements of these TMI Action Items and will provide a central display of critical information during Cycle 6. The information which will be incorporated into the final SPDS but is not included on the PSPDS is readily available to the operators on the Unit 2 main control room panels. Therefore, operation of Unit 2 during the next cycle does not pose an undue risk to public health and safety or the safe operation of the plant.



ENCLOSURE 1 (Continued)
EVALUATION ON NUREG-0737, ITEM II.B.3.4
POST-ACCIDENT SAMPLING SYSTEM (PASS)

SUMMARY OF ITEM:

The objective of PASS is to provide the capability to analyze post-accident reactor coolant and containment atmosphere samples. The samples shall be analyzed to quantify certain radionuclides that are indicators of the degree of core damage.

STATUS OF ITEM:

(See Schedule for Full Implementation).

SCHEDULE FOR FULL IMPLEMENTATION:

TVA will accelerate the completion schedule for this item. TVA will install the final PASS sample panel prior to restart. All required procedures will be in place, all necessary training completed and provisions made for maintenance of sampling and analysis equipment. This system will meet all eleven criteria of NUREG-0737, Item II.B.3.4 and the clarifications which were transmitted by letter from D. B. Vassalo to H. G. Parris (TVA) dated July 13, 1982. Technical Specifications consistent with the guidance provided by Generic Letter 83-36, NUREG-0737 Technical Specifications, and changes to the Technical Specifications to reflect the new containment isolation and 10 CFR 50, Appendix J valves will be submitted prior to restart. The PASS will be tested during the power ascension test program.

COMPENSATORY ACTIONS:

No compensatory actions are required. As discussed above, TVA will complete the PASS prior to restart.

ENCLOSURE 1 (Continued)
EVALUATION ON NUREG-0737, ITEM II.K.3.28
QUALIFICATION OF AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) ACCUMULATORS

SUMMARY OF ITEM:

The objective of this action item was to verify safety analysis assumptions that the accumulators for the ADS are provided with sufficient capacity to cycle the valves open five times at design pressure, designed to withstand a hostile environment and still perform their function for 100 days following an accident.

STATUS OF ITEM:

(See Schedule for Full Implementation).

SCHEDULE FOR FULL IMPLEMENTATION:

TVA will accelerate the completion schedule for this item. TVA will perform modifications to complete the qualification of the ADS accumulators to the NUREG-0737 requirements prior to restart. This commitment is contingent upon the availability of qualified materials and prompt NRC approval of TVA's revised design. TVA is in the process of finalizing an alternate design to allow completion of the required modifications prior to restart. TVA will provide a revised response to this TMI Action Item as soon as possible but no later than ninety days prior to restart. This should allow sufficient time for the staff to review this proposed modification and issue a supplemental Safety Evaluation in order to support plant restart.

COMPENSATORY ACTIONS:

No compensatory actions are required. As discussed above, TVA will complete the final ADS modifications prior to restart subject to the availability of qualified materials and prompt NRC approval of TVA's revised design.



ENCLOSURE 2
EVALUATION OF NUREG-0737 ACTION ITEMS
SUMMARY OF COMMITMENTS

- 1) NUREG-0737, Item I.D.1, Detailed Control Room Design Review (DCRDR) - TVA will complete all Human Engineering Deficiencies (HEDs) which meet the restart criteria prior to restart (Previous NRC commitment).
- 2) NUREG-0737, Item I.D.1, Detailed Control Room Design Review (DCRDR) - Non-safety significant HED's (Categories 3 and 4) will be implemented prior to restart from the second refueling outage (Cycle 7), only if they are determined to have a positive cost/benefit ratio.
- 3) NUREG-0737, Item I.D.1, Detailed Control Room Design Review (DCRDR) - All safety significant HEDs (Categories 1 and 2) will be completed prior to restart from the next refueling outage (Cycle 6).
- 4) NUREG-0737, Item I.D.2.1, Safety Parameter Display System (SPDS) - TVA will have a functional Phase I SPDS prior to restart.
- 5) NUREG-0737, Item I.D.2.1, Safety Parameter Display System (SPDS) - Description of System Design - TVA will submit the detailed description of the final SPDS design, in order to satisfy the requirements of Item I.D.2.1, prior to restart.
- 6) NUREG-0737, Item II.B.3.4, Post-Accident Sampling System (PASS) - TVA will install the final PASS sample panel prior to restart.
- 7) NUREG-0737, Item II.B.3.4, Post-Accident Sampling System (PASS) - All required procedures will be in place, all necessary training completed and provisions made for maintenance of sampling and analysis equipment prior to restart.
- 8) NUREG-0737, Item II.B.3.4, Post-Accident Sampling System (PASS) - The PASS will be tested during the power ascension test program.
- 9) NUREG-0737, Item II.B.3.4, Post-Accident Sampling System (PASS) - PASS Technical Specifications consistent with the guidance provided by Generic Letter 83-36, NUREG-0737 Technical Specifications, and changes to the Technical Specifications to reflect the new containment isolation and 10 CFR 50, Appendix J valves will be submitted prior to restart.
- 10) NUREG-0737, Item II.K.3.28, Qualification of Automatic Depressurization System (ADS) Accumulators - TVA will perform modifications to complete the qualification of the ADS accumulators to the NUREG-0737 requirements prior to restart subject to the availability of qualified materials and prompt NRC approval of TVA's revised design.
- 11) NUREG-0737, Item II.K.3.28, Qualification of Automatic Depressurization System (ADS) Accumulators - TVA will provide a revised response to this TMI Action Item as soon as possible but no later than ninety days prior to restart.



Handwritten marks or scribbles in the top right corner.

Small handwritten mark or symbol in the lower right quadrant.