

STN 50-470F

November 6, 1984
LD-84-064

Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: CESSAR Inconsistencies

- References: (A) NRC Letter, C. O. Thomas to A. E. Scherer, dated October 22, 1984
- (B) C-E Letter LD-84-061, A. E. Scherer to D. G. Eisenhut, dated October 22, 1984

Dear Mr. Eisenhut:

Reference (A) requested a description of the measures C-E was undertaking to address apparent inconsistencies noted between the Palo Verde Technical Specifications and CESSAR-F. Additionally, C-E's actions to verify design control adequacy were requested with a schedule for submittal of requested design changes. In response to these requests, the following information is provided.

At a meeting with the NRC Staff on October 4, 1984, C-E presented a discussion of verified and possible inconsistencies between the Palo Verde Technical Specifications and CESSAR-F. Attached is a copy of the slides used in that meeting. These provide a summary of how the specific inconsistencies occurred. Specifically, these inconsistencies dealt with response times which appeared in the Technical Specifications being nonconservative with respect to those used in the Safety Analyses. These problems were discovered in a Technical Specification review effort by C-E which began in August 1984 and is currently in its completion stages. While several inconsistencies were noted, none constituted significant safety hazards and, indeed, most were overwhelmed by conservatisms used in the various analyses. To eliminate these inconsistencies, however, the following actions are in progress.

- (1) C-E is revising the CESSAR interface requirements for MSIV and MFIV closure time to ensure consistency with safety analysis assumptions.
- (2) C-E is revising the CESSAR Chapter 15 Sequence of Events tables and supporting text to avoid the appearance of any inconsistency with Technical Specifications and interface requirements.

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An additional inconsistency between a CESSAR interface requirement on Emergency Feedwater System response time and the safety analyses assumptions was identified to the Staff by a telephone call just after the October 4, 1984 meeting. The related Technical Specification, however, was correct. The inconsistency will be corrected in C-E's quality assurance files for the safety analyses, but will not require any changes to CESSAR-F.

These revisions are currently expected to be submitted on the CESSAR docket on or about November 16, 1984. As was also mentioned at the October 4, 1984 meeting, some other minor CESSAR-F corrections are resulting from the Technical Specification review effort [some of which have already been submitted under Reference (B)]. Additionally, an updating of CESSAR resulting from the normal revision process is being prepared. These changes are expected to be submitted on or about November 16, 1984.

Independent of the Palo Verde Technical Specification verification effort and in order to reinforce C-E's management confidence in our design control program, C-E is conducting an independent audit of the process used to generate the CESSAR/Palo Verde Technical Specifications. This audit is being performed by C-E's Systems Engineering Department using senior engineers who were not involved in performing the CESSAR or Palo Verde specific safety analyses they are to audit. This audit will independently assure that the FSAR analyses are consistent with C-E design specifications, interface requirements, Technical Specifications and reasonable engineering judgement. The results of this audit will be discussed with the NRC Staff upon completion of that program (which is expected during November). We will, of course, immediately inform the Staff of any significant finding.

If you have any further questions or comments on this issue, please contact me or Mr. G. A. Davis of my staff at (203) 285-5207.

Very truly yours,

COMBUSTION ENGINEERING, INC.



A. E. Scherer
Director
Nuclear Licensing

AES:las
cc: K. Eccleston (NRC Project Manager)

AGENDA

INTRODUCTION

C-E TECH SPEC VERIFICATION PROGRAM

RSB QUESTION #6 REMAINING CONCERN

RESPONSE TIMES

RECENT CHANGES DUE TO STARTUP TESTING

ACTION PLAN

CONCLUSIONS

COMBUSTION ENGINEERING

TECHNICAL SPECIFICATION VERIFICATION PROGRAM

FOR PALO VERDE NUCLEAR GENERATING STATION

TASK

CE ENGINEERING TO VERIFY CONSISTENCY AND TECHNICAL
ACCURACY BETWEEN TECHNICAL SPECIFICATIONS, PVNGS
FSAR AND SER, AND CESSAR FSAR AND SER

PRODUCTS

1. VERIFICATION LETTER TO APS (PVNGS)
2. LIST OF RECOMMENDED PVNGS FSAR AND SER CHANGES TO APS
3. VERIFICATION LETTER TO NRC (CESSAR)
4. LIST OF RECOMMENDED CESSAR FSAR AND SER CHANGES TO NRC

CURRENT
BASIS

1. PROOF & REVIEW TECH SPECS
2. PVNGS FSAR THROUGH AMENDMENT 13
3. PVNGS SER THROUGH SUPPLEMENT 5
4. CESSAR FSAR THROUGH AMENDMENT 9
5. CESSAR SER THROUGH SUPPLEMENT 2
6. PROOF & REVIEW AGREED CHANGES

TECHNICAL SPECIFICATION CROSS REFERENCE

PVNGS TECH SPEC NUMBER

CESSAR TECH SPEC NUMBER

TITLE

PVNGS FSAR SECTION (S)

PVNGS SER SECTION (S)

CESSAR FSAR SECTION (S)

CESSAR SER SECTION (S)

PRIMARY REVIEWER

SECONDARY REVIEWER (S)

CHRONOLOGY

DISCUSSION	LATE SPRING
MEETING	JUNE
START REVIEW	8/2
PROOF & REVIEW ISSUED	8/14
CE ENGINEERING COMMENTS RECEIVED PHASE 1	8/31
APS/BECHTEL/CE REVIEW MEETING	9/6, 7 & 8
APS COMMENTS TO PROOF & REVIEW	9/14
CE ENGINEERING REVIEW START PHASE 2	9/17
DRAFT RSB QUESTIONS (20)	9/18
FIRST RSB MEETING	9/20
DRAFT RSB RESPONSES	9/25
SECOND RSB MEETING	9/27 & 28

CURRENT STATUS

VERIFICATION

ISSUED OVER 400 PACKAGES

COMMENTS RECEIVED

COMMENT RESOLUTION IN PROCESS

WEEKLY MEETINGS TO RESOLVE MPC BRANCH QUESTIONS

CHANGE PACKAGES TO BE ISSUED OVER
NEXT THREE WEEKS

RSB QUESTIONS (20)

14 RESOLVED - APPLICANT TO SUBMIT LETTER
RESPONSE

5 EXPECTED TO BE RESOLVED THIS WEEK

1 QUESTION #6 REMAINING CONCERNS

RESPONSE TIMES

CPC

VARIABLE OVERPOWER

MSIV

MFIV

RECENT CHANGES

MFIV

AUXILIARY FEEDWATER

FLOW

START TIME

LOCKOUT

TECHNICAL SPECIFICATION
RESPONSE TIME

- DIFFERENCES BETWEEN FSAR AND TECH SPEC VALUE OF RESPONSE TIMES FOR:
 - CPC'S
 - VARIABLE OVERPOWER TRIP (VOPT)
 - MSIV
 - MFIV
- NO SIGNIFICANT IMPACT ON EVENT CONSEQUENCES

ACTIONS TAKEN

- RESOLVED DIFFERENCES BETWEEN VALUES IN FSAR AND IN TECH SPECS
- REVIEWED DOCUMENTATION PROCESS USED TO DERIVE VALUES USED

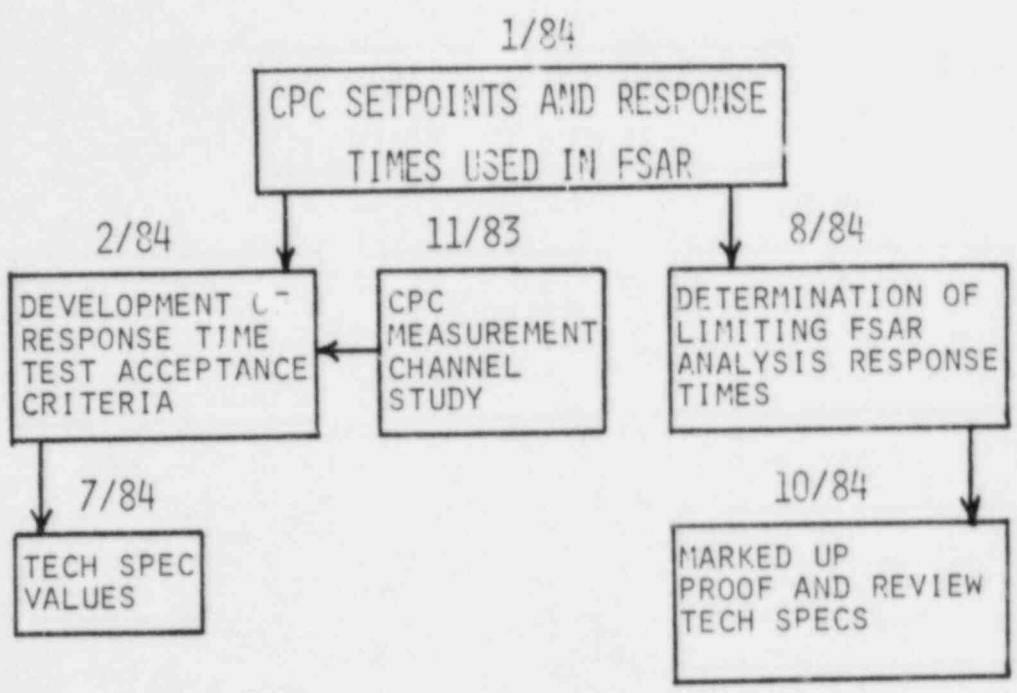
- o DESCRIBE DIFFERENCES
- o TRACE REASONS
- o PRESENT RESOLUTION
 - CPCs
 - VOPT
 - MSIV/MFIV

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CPC RESPONSE TIME

- DIFFERENCES DUE TO CHANGE IN RESPONSE TIME TEST PROCEDURES
- ADDITIONAL DIFFERENCE FOR TWO VALUES DUE TO RESOLUTION OF EQUIPMENT PERFORMANCE
- VERIFIED TECH SPEC VALUES AGREE WITH FSAR VALUES

CPC RESPONSE TIME



USED:
 RESPONSE TIME
 TESTING ACCEPTANCE
 CRITERIA

USED:
 SAFETY ANALYSIS
 RESPONSE TIMES

CPC RESPONSE TIMES

FUNCTIONAL UNIT	7/3/84 (Seconds)	10/1/84 (Seconds)
A. PROCESS		
1. Local Power Density - High		
a. Neutron Flux Power from Excores	0.61	0.75
b. CEA Positions	0.22	1.35
c. CEA positions: CEAC Penalty Factor	0.41	0.75
2. DNBR - Low		
a. Neutron Flux Power from Excores	0.61	0.75
b. CEA positions	0.22	1.35
c. Cold Leg Temperature	0.81	0.75
d. Hot Leg Temperature	0.81	0.75
e. Primary Coolant Pump Shaft Speed	0.52	0.75
f. Reactor Coolant Pressure from Press	0.48	0.75
g. CEA Positions: CEAC Penalty Factor	0.41	0.75

CPC RESPONSE TIME

- DIFFERENCES DUE TO CHANGE IN RESPONSE TIME TEST PROCEDURES
- ADDITIONAL DIFFERENCE FOR TWO VALUES DUE TO RESOLUTION OF EQUIPMENT PERFORMANCE
- VERIFIED TECH SPEC VALUES AGREE WITH FSAR VALUES
- NO FURTHER ACTION REQUIRED

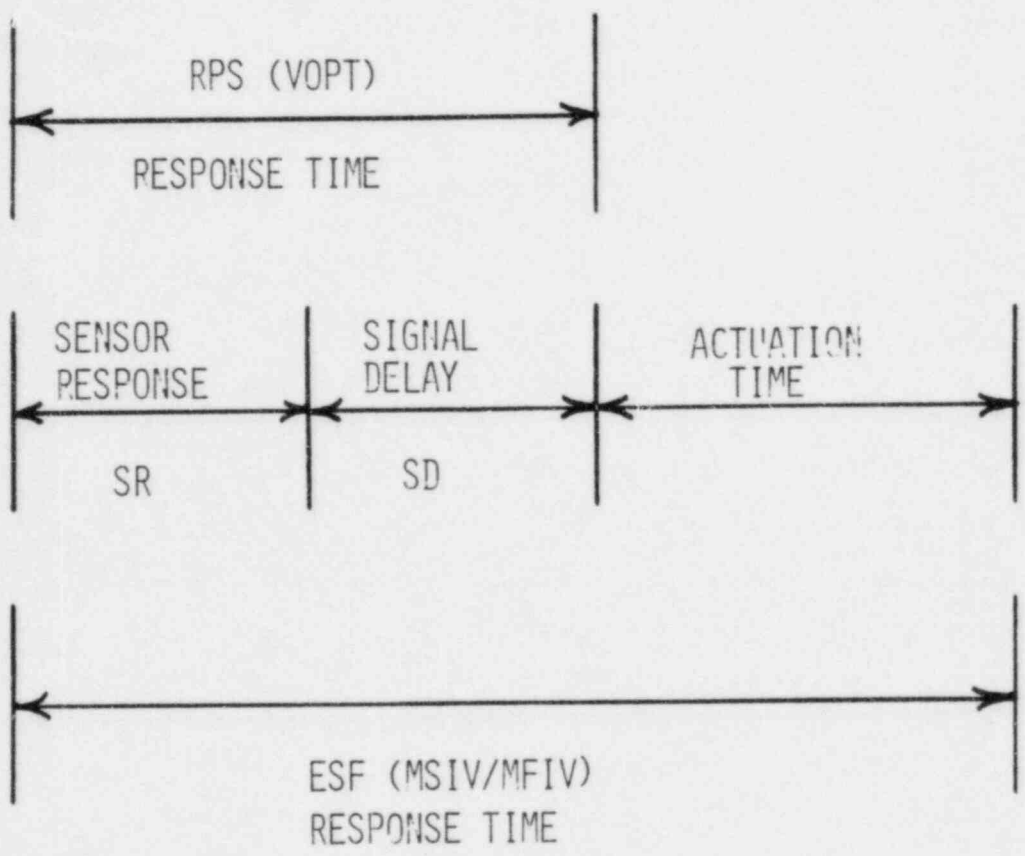
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o BEFORE DETAILS ON VOPT & MSIV/MFIV

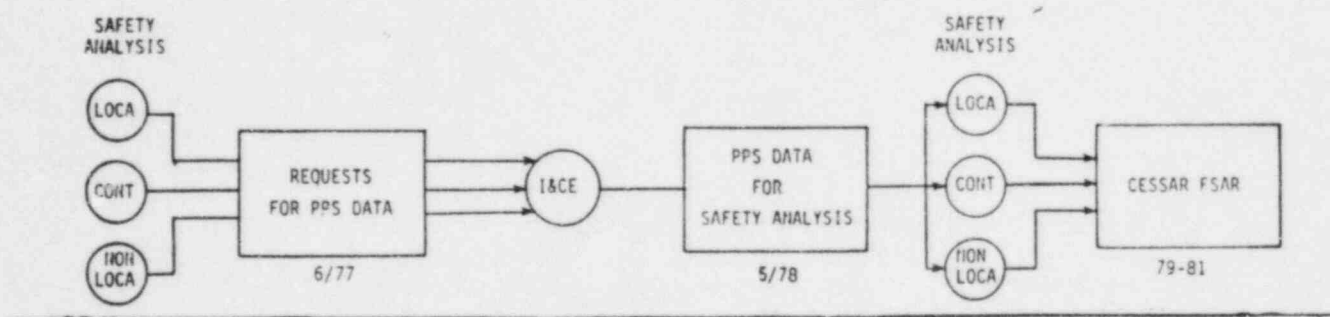
-DEFINITION OF RESPONSE TIMES

-GENERAL PROCESS FOR GENERATION OF RESPONSE TIMES

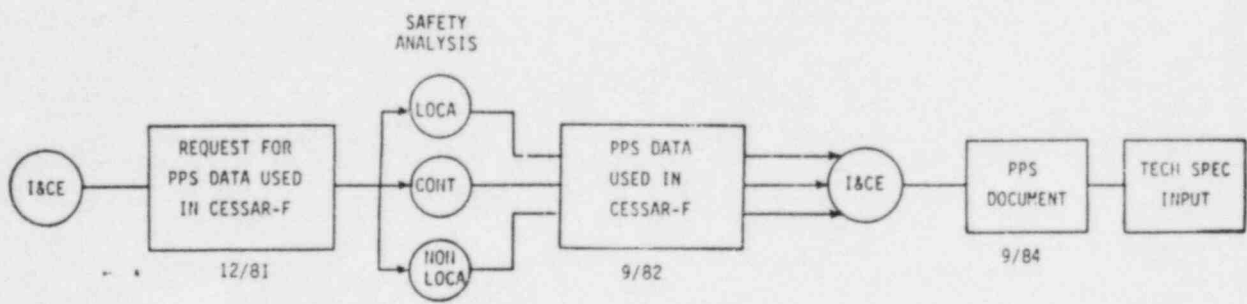
VOPT AND MSIV/MFIV
RESPONSE TIME



PROCESS FOR INCORPORATING PPS DATA INTO SAFETY ANALYSIS



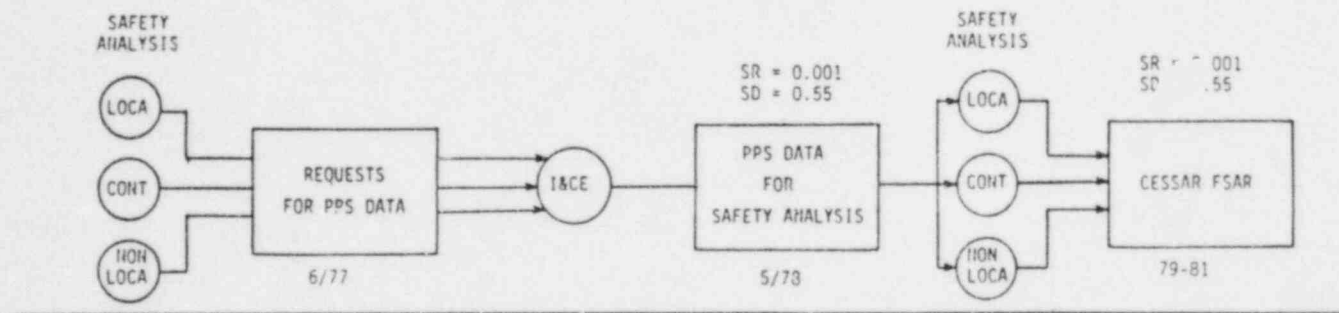
PROCESS FOR ESTABLISHING PPS TECH SPECS



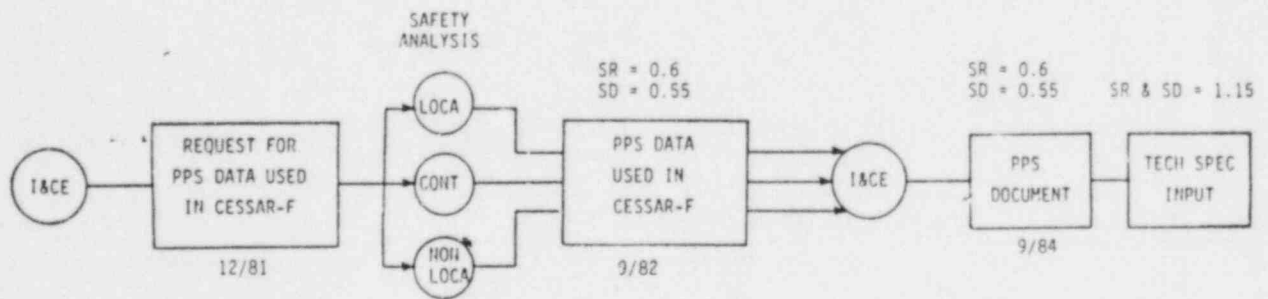
VOPT RESPONSE TIME

- DIFFERENCES DUE TO ERROR IN REPORTING OF VALVE USED IN FSAR ANALYSIS FOR EX-CORE NEUTRON DETECTOR RESPONSE TIME

VOPT
PROCESS FOR INCORPORATING PPS DATA INTO SAFETY ANALYSIS



PROCESS FOR ESTABLISHING PPS TECH SPECS



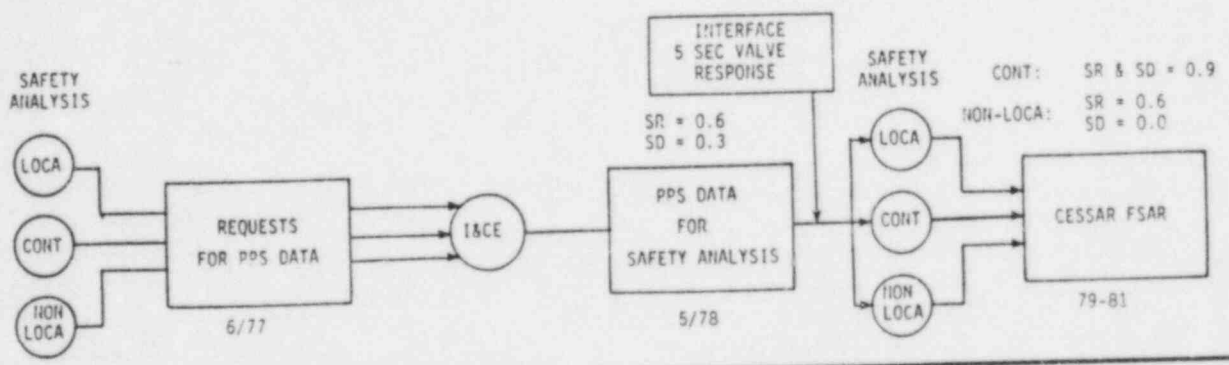
VOPT RESPONSE TIME

- DIFFERENCES DUE TO ERROR IN REPORTING OF VALVE USED IN FSAR ANALYSIS FOR EX-CORE NEUTRON DETECTOR RESPONSE TIME
- NEED TO REVISE TECH SPEC VALUE
- NO CHANGE IN FSAR ANALYSES

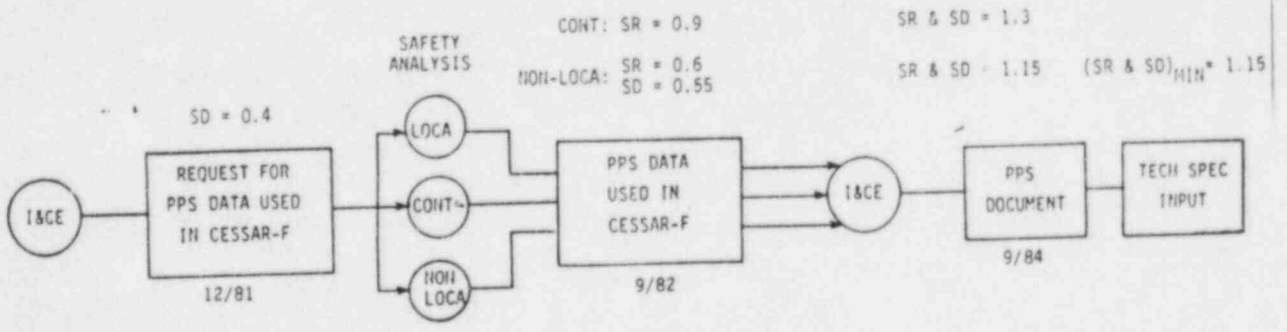
MSIV RESPONSE TIME

- DIFFERENCES DUE TO ERROR IN REPORTING OF DATA USED IN FSAR ANALYSIS FOR MSIV SIGNAL DELAY

MSIV / MFIV
 PROCESS FOR INCORPORATING PPS DATA INTO SAFETY ANALYSIS



PROCESS FOR ESTABLISHING PPS TECH SPECS



MSIV RESPONSE TIME

- DIFFERENCES DUE TO ERROR IN REPORTING OF DATA USED IN FSAR ANALYSIS FOR MSIV SIGNAL DELAY
- NEED TO REVISE TECH SPEC VALUES OF MSIV RESPONSE TIME AND INTERFACE REQUIREMENTS ON MSIV CLOSURE TIME
- NO CHANGE NEEDED IN FSAR ANALYSIS

MFIV RESPONSE TIME

- o ISSUE AND RESOLUTION SAME AS THAT FOR MSIV

- o ADDITIONAL ISSUE TO BE COVERED UNDER RECENT CHANGES

CONCLUSIONS

- EXCEPT AS NOTED IN THIS MEETING, ALL RESPONSE TIMES USED IN CESSAR/PVNGS SAFETY ANALYSES WERE REVIEWED AND FOUND TO CONSERVATIVELY BOUND TECHNICAL SPECIFICATIONS AND INTERFACE REQUIREMENTS
- INCONSISTENCIES UNCOVERED BY THE TECH SPEC VERIFICATION PROGRAM DO NOT INVOLVE SIGNIFICANT SAFETY HAZARDS AND ARE MINOR, ISGLATED CASES
- ALL IDENTIFIED CASES WILL BE CORRECTED (BY REVISING THE APPLICABLE TECHNICAL SPECIFICATIONS TO MATCH ANALYSES ASSUMPTIONS) AND SUBMITTED TO THE STAFF