



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 6, 1988

Docket Nos.: 50-321/366

MEMORANDUM FOR: Gus C. Lainas, Assistant Director
Region II Reactors
Division of Reactor Projects - I/II

THRU: Lawrence P. Crocker, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II

FROM: Lawrence P. Crocker, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II

SUBJECT: AUDIT OF 10 CFR 50.59 REVIEWS FOR THE HATCH NUCLEAR PLANT

On March 29, 1988, I conducted an audit of the 10 CFR 50.59 reviews performed by the licensee in conjunction with Design Change Request (DCRs) and Test or Experiment Requests (TERs) completed during calendar year 1987 for the Hatch Nuclear Plant. This memorandum reports the results of that audit.

Proposed changes to the Hatch plant are uniformly handled as Design Change Requests. Those changes that are determined to be within the scope of matters that can be handled by the licensee under 10 CFR 50.59 are tracked to completion by the DCR tracking system. For those changes where all or part of the change is outside the scope of 10 CFR 50.59, a formal change to the Technical Specifications is pursued. The work continues to be tracked under the DCR tracking system, but with appropriate hold points established such that a change requiring NRC approval cannot be implemented until that approval is obtained.

DCRs and TERs are physically located in locked filing cabinets under the control of the plant Engineering Support group. Engineers or others working on a particular DCR may check out the DCR package while they are working on it, but the package must be returned to the controlled files when they are done. At such time as the individual actions are completed the DCR and TER packages are inventoried for completeness and then are transferred to the Document Control facility where they are placed on microfiche and become a part of the permanent plant records.

The license's "Annual Operating Report for 1987," submitted on February 29, 1988, listed a total of 94 DCRs and 3 TERs that had been completed during 1987. The DCRs included changes that had been originated as early as 1978. From this listing, I selected a sample of nine DCRs to audit. The sampling was not random. I deliberately selected those DCRs in which I had a particular interest or in which I felt I had the expertise to evaluate the adequacy of the 10 CFR

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P PDR

50.59 evaluations. Four of the packages selected were still physically located in the filing cabinets of the Engineering Support group, while the others had been transferred to Document Control. The latter, however, had not yet been placed on the microfiche files.

The DCRs I reviewed are as follows:

- 80-101 Increase spent fuel storage capacity (high density racks)
- 83-243 Install a fire protection sprinkler system in the east, northwest and southwest sections of the Reactor Building at elevation 130.
- 86-192
REV 1 Install and connect temporary hydrogen and oxygen storage facilities with GE supplied equipment for the hydrogen water chemistry test.
- 86-208 Add normally open maintenance valves to provide for divisional isolation of plant service water.
- 86-283
REV 1 Replace the boron solution in the Standby Liquid Control System with enriched boron to meet the ATWS criteria specified in 10 CFR 50.62. (Unit 1)
- 86-284 Replace the boron solution in the Standby Liquid Control System with enriched boron to meet the ATWS criteria specified in 10 CFR 50.62. (Unit 2)
- 87-078 Replace the existing air tight doors in the steam chase with wire mesh doors to allow for air circulation and reduce temperatures inside the steam chase. Also, cut holes in the grating inside the steam chase to allow for passage of HVAC duct work into the steam chase from the torus room.
- 87-099 Upgrade the transfer canal leak detection system by providing flow routes from both Unit 1 and Unit 2 transfer canal seal assemblies.
- 87-100 Upgrade the transfer canal seal assembly by providing redundant air supplies to the transfer canal seals.

In each case, the safety evaluation prepared for the DCR was adequate to judge the impact of the proposed change or changes on other plant components, systems and structures. Several of the DCRs had particularly thorough safety evaluations, notably 80-101, 86-192 Rev 1, 86-284, and 87-078. The other evaluations were less thorough, but still adequate in my judgement. My general impression is that evaluations for the more recent DCRs tend to be more thorough than those for older DCRs. As a general comment, it is likely that each evaluation could be more all-encompassing and could go into greater detail, thereby providing a more thorough analysis of the effects of the change. However, the evaluations I reviewed were adequate for the task at hand.

Discussions with licensee representatives indicated an awareness of the importance of having adequate safety evaluations for each DCR and TER and a continuing effort to upgrade the quality of the evaluations. Indicative of this effort, the licensee is including training on safety evaluation preparation for plant engineers whose jobs involve such activities. I had the opportunity to sit in on one such training session. It consisted of a two-hour block of instruction presented to about 15 of the plant engineers. Reportedly, this was one of five such sessions presented to different groups. The instruction was aimed specifically at 10 CFR 50.59 evaluations and had been developed originally for presentation to the Plant Review Board. A copy of the instructor's outline for the training is attached. The training session I attended was effective - well presented and with active participation by the students. I was impressed with the licensee's efforts.

Overall, I am satisfied that the 10 CFR 50.59 reviews conducted by the licensee for the Hatch plant are adequate and are getting better. The system for handling DCRs and TERs seems to be working well.

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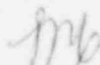
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PDII-3 Reading

See next page


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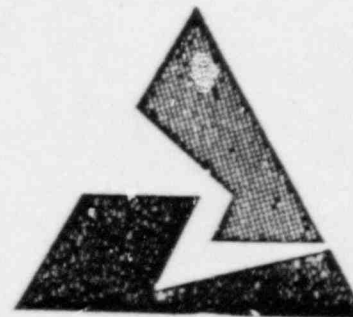
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E. I. HATCH NUCLEAR PLANT

Georgia Power



PLANT REVIEW BOARD TRAINING INSTRUCTOR HANDBOOK

TITLE: SAFETY EVALUATIONS		
AUTHOR: <i>Steve Bellamy</i>	MEDIA NUMBER: PR-IH-10002-00	TIME: 2 HOURS
RECOMMENDED BY: <i>JLE</i>	APPROVED BY: <i>CJG</i>	DATE: 1-22-88

INSTRUCTOR DATA SHEET

REFERENCES:

- o 10CFR50:59
- o NRC Inspection and Enforcement Manual, Part 9800 CFR Discussions

CONTACT HOURS: 1.5

MATERIALS:

Instructor:

- o Lesson Plan
- o Transparencies

Student:

INSTRUCTIONAL METHODS:

- o Lecture
- o Discussion

OBJECTIVES

4

The student who completes this module will:

1. STATE the 3 major components of IOCFR50.59 [Paragraphs (a), (b), and (c)].
2. STATE the criteria for an unreviewed safety question as defined by IOCFR50.59 (a) (2).
3. BRIEFLY DESCRIBE what needs to be documented in an acceptable IOCFR50.59 evaluation for each of the following examples:
 - a. Design Change (DCR)
 - b. Procedure Change
 - c. Test or Experiment Request (TER)
 - d. Temporary Modification

I. INTRODUCTION

A. Establish contact

B. Establish reason for study

1. Identify the major components of 10CFR50.59 (Safety Evaluations) and define importance of documentation in PRB deliberations and decisions.

C. Present Objectives

Handout 1

II. MAJOR COMPONENTS OF 10CFR50.59

Handout 2

(Copy of
10CFR50.59)
EO# 1

A. 10CFR50.59 (Safety Evaluations) delineates those proposed changes, tests, or experiments which require a documented review for the existence of an unreviewed safety question.

B. Three Major Components

1. Paragraph (a)

a. Paragraph (a) (1) - allows licensee to make changes in facility and procedures described in the FSAR and conduct test or experiments without prior NRC approval provided:

(1) A change in Technical Specifications is not involved.

-AND-

(2) No unreviewed safety question exists.

b. Paragraph (a) (2) - a proposed change, test, or experiment shall be deemed to constitute an unreviewed safety question if:

(1) Probability of occurrence or consequences of an accident or malfunction of equipment important to safety previously evaluated in FSAR may be increased.

-OR-

(2) Possibility of an accident or malfunction of a different type than any evaluated previously in the FSAR may be created.

-OR-

EO# 2

Study 7 questions -

*Parts of accident
malfunction
Consequence of accident
malfunction*

*Parts of accident
malfunction*

- (3) Margin of safety as defined in basis for any Technical Specifications is reduced.
- (4) Criteria for determining whether "unreviewed safety question" exists:
 - (a) Potential safety hazards are identified.
 - (b) Corrective actions are not taken to eliminate, mitigate, or control hazards to an acceptable level.
 - (c) All realistic failure modes and/or malfunctions must be considered and protection provide commensurate with potential consequences.
 - (d) All applicable regulatory requirements, including Tech. Specs. must be complied with so that change does not represent an "unreviewed safety question."
- (e) Margin of safety as defined in bases of Tech. Specs. shall not be reduced by proposed change.

2. Paragraph (b)

- a. Paragraph (b) (1) - requires that licensee maintain records of changes in facility and procedures made pursuant to this section, to the extent that:
 - (1) Changes constitute changes in facility as described in FSAR.

-OR-

- (2) Changes to the extent that they constitute changes in the procedures as described in the FSAR.
 - (3) Maintain records of tests and experiments carried out pursuant to paragraph (a).
 - (4) Records must include a written safety evaluation which provides bases for determination that change, test, or experiment does not involve unreviewed safety question.
- b. Paragraph b (2) - requires submission of an annual report containing a brief description of any changes, tests, and experiments including a summary of the safety evaluation of each - must be submitted more frequently if so specified in FSAR.
- c. Paragraph (b) (3) - requires records of changes to be maintained until date of termination of license, and records of changes in procedures and records of tests and experiments maintained for five years.
- d. Criteria for determination
- (1) SAFETY EVALUATION NOT REQUIRED; Maintenance activities that:
- don't result in a permanent or temporary change to a system
 - OR-
 - replace components with replacement parts procured with the same or equivalent purchase specification

- (2) SAFETY EVALUATION REQUIRED under following circumstances:
 - (a) Components described in FSAR are removed.
 - (b) Component functions are altered.
 - (c) Substitute components are used.
 - (d) Changes remain following completion of the maintenance activity.
- (3) Additional specific criteria to be reviewed prior to modification of any radioactive waste systems.
 - (a) System modifications should be evaluated against quality group and quality assurance criteria in Reg. Guide 1.143 and control of releases of radioactive liquids in Reg. Guide 1.143.
 - (b) Radiological controls should be evaluated against criteria in Reg. Guide 1.21 and Standard Review Plan Section 11.5, "Process and Effluent Radiological Monitoring and Sampling Systems".
 - (c) Systems involving potentially explosive mixtures should be evaluated against criteria in Standard Review Plan Section 11.3, "Gaseous Waste Management System", Subsection II, Item 6.

- (d) System design and operation should be evaluated to assure that radiological consequences of unexpected releases of radioactivity that is stored or transferred in a waste system are a small fraction of the 10CFR100 guidelines (less than 0.5 REM whole body dose; 1.5 REM thyroid from gaseous releases; less than radionuclide concentrations of 10CFR20, Appendix B, Table II, Column 2).
- (e) If modification represents departure from criteria in 1) through 4) following actions should be taken:
 - o Proposal should be modified to meet intent of the criteria.
 - o Evaluation/determination must present sufficient analyses to demonstrate acceptability of departure.
 - o Commission approval must be received prior to implementing the modification.

3. Paragraph (c)

- a. Requires that proposed change in Tech. Specs. be submitted to NRC as an application for license amendment.
- b. Proposed changes to facility or procedures and proposed conduct of tests which involve and "unreviewed safety question" must be submitted to NRC as an application for license amendment.

III. DEVELOPING AND DOCUMENTING A SAFETY EVALUATION

A. Once proposed changes is clearly identified as a minimum, following need to be reviewed:

1. FSAR and amendments
2. Tech. Specs.
3. Previous, related safety evaluations
4. Codes and Standards
5. Regulatory Guides
6. Licensing commitments

B. Review of the documents in A serves to determine how proposed change would affect safety functions by considering the following issues:

1. System interactions
2. Containment Integrity
3. Single Failure criteria
4. HELB criteria
5. Electrical Separation criteria
6. Control Room Habitability
7. Fire Protection Requirements
8. Missile Protection
9. Environmental Qualification

10. Operator error
11. Flooding potential
12. Design assumptions
13. Security

EO# 3

C. Documentation Required

1. Full description of proposed change and why change is desired.
2. Answers to the 10CFR50.59 questions and provision of clear and complete basis for each answer.
3. Explanation of why each question is answered as it is referencing applicable FSAR sections, code requirements, Tech. Spec. section, etc -
4. Comprehensive answers so that an independent reviewer can draw the same conclusions and arrive at same answer.
5. Maintenance as a permanent plant record along with documentation which supports proposed change.

50.59 Changes, tests and experiments

- (a)(1) The holder of a license authorizing operation of a production or utilization facility may (i) make changes in the facility as described in the safety analysis report, (ii) make changes in the procedures as described in the safety analysis report, and (iii) conduct tests or experiments not described in the safety analysis report, without prior Commission approval, unless the proposed change, test or experiment involves a change in the technical specifications incorporated in the license or an unreviewed safety question.
- (2) A proposed change, test, or experiment shall be deemed to involve an unreviewed safety question (i) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or (ii) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or (iii) if the margin of safety as defined in the basis for any technical specification is reduced.
- (b) The licensee shall maintain records of changes in the facility and of changes in procedures made pursuant to this section, to the extent that such changes constitute changes in the facility as described in the safety analysis report or constitute changes in procedures as described in the safety analysis report. The licensee shall also maintain records of tests and experiments carried out pursuant to paragraph (a) of this section. These records shall include a written safety evaluation which provides the bases for the determination that the change, test or experiment does not involve an unreviewed safety question. The licensee shall furnish to the appropriate NRC Regional Office shown in Appendix D of Part 20 of this chapter with a copy to the Director of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, annually or at such shorter intervals as may be specified in the license, a report containing a brief description of such changes, tests, and experiments, including a summary of the safety evaluation of each. Any report submitted by a licensee pursuant to this paragraph will be made a part of the public record of the licensing proceeding. In addition to a signed original, 39 copies of each report of changes in a facility of the type described in § 50.21(b) or § 50.22 or a testing facility, and 12 copies of each report of changes in any other facility, shall be filed. The records of changes in the facility shall be maintained until the date of termination of the license, and records of changes in procedures and records of tests and experiments shall be maintained for a period of five years.

- (b) The holder of a license authorizing operation of a production or utilization facility who desires (1) a change in technical specifications or (2) to make a change in the facility or the procedures described in the safety analysis report or to conduct tests or experiments not described in the safety analysis report, which involve an unreviewed safety question or a change in technical specifications, shall submit an application for amendment of his license pursuant to § 50.90.

**THREE MAJOR COMPONENTS
OF 10CFR50.59**

- 1. PARAGRAPH (A)- allows changes in facility and procedures described in FSAR and conduct tests or experiments without prior NRC approval provided:**
 - a. No changes to Technical Specifications are required**
 - b. No unreviewed safety question exists**
- 2. PARAGRAPH (B)- maintain record of changes.**
- 3. PARAGRAPH (C)- proposed changes in Tech Specs be submitted to NRC.**

PR-TP-10002-01

DOCUMENTS TO BE REVIEWED WHEN CONDUCTING SAFETY EVALUATION

FSAR and Amendments

Technical Specifications

Previous Safety Evaluations

Codes and Standards

Regulatory Guides

Licensing Commitments

PR-TP-10002-02

DOCUMENTATION REQUIRED FOR A SAFETY EVALUATION

- Full description of proposed change and why change is desired.
- Comprehensive answers to 10CFR50.59 questions and clear, complete basis for each answer.
- Explanation of why each question is answered as it is.
- Maintenance as a permanent plant record.

DISTRIBUTION FOR TRIP REPORT DATED: April 6, 1988

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