

10/30/06



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To: Dyer, NRR
Ref. G20060793

Cyo:
EDO
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Jones, OGC

Antinuclear groups files petition to shut down the Harris Plant

The N.C. Waste Awareness and Reduction Network, Union of Concerned Scientists and Nuclear Information and Resource Service recently filed a "2.206" petition with the Nuclear Regulatory Commission (NRC) to shut down the Harris Nuclear Plant due to alleged safety violations. The 2.206 petition is a mechanism NRC established to allow the public to be involved and engaged in its oversight process. If warranted, the NRC can take action to modify, suspend, or revoke a license, or take other appropriate enforcement action to resolve a problem identified in a 2.206 petition.

What happens next?

Progress Energy and the Harris Plant will work with the NRC in the appropriate manner to address this petition. The NRC will hold a meeting at NRC headquarters in Maryland to allow petitioners to present their case to NRC officials. Based on the petition and meeting materials, the NRC will determine the petition's merit. It could take six months or more for the NRC to make a decision.

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What is the basis of the petition?

The basis of the petition is fire safety. The antinuclear groups' claim is that the plant should be shut down due to a false assumption that the plant is unable to protect plant equipment from fire.

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What are the facts about fire safety at the Harris Plant?

Allegations of inadequate fire safety at the Harris Plant are simply not true. As the NRC has stated publicly, we are meeting the safety standard to which the NRC expects us to adhere. The NRC allows only safe plants to operate.

Over the last several years, the NRC's criteria for fire safety have changed -- the Harris Plant has been responsive to the NRC's requests every step of the way and is making modifications to meet new NRC requirements in the time allowed by the NRC.

The Harris Plant operates its fire safety program, as NRC regulations require, under a multi-layered fire safety philosophy. The fire safety program is three-tiered: 1) Fire prevention 2) Fire detection and suppression 3) Fire barriers

When one aspect of the three-tiered program has a deficiency, the NRC requires us to strengthen the other aspects of the program. The NRC has identified a deficiency with the fire barrier tier, so we've strengthened the fire prevention and fire detection tiers through the fire watch program.

Members of the fire watch program strengthen the fire prevention aspect by watching for and taking action to eliminate fire hazards. They've strengthened the fire detection aspect by walking the plant 24 hours a day, watching for fires.

Members of the fire watch program are subject to extensive background checks, drug screening, and other requirements necessary for anyone to become employed at the Harris Plant. They are required to participate in a fire watch training program, and successfully complete testing at the conclusion of that training in order to become a member of the program. That training includes understanding how to detect fires, knowing the appropriate actions to take if a fire is detected, and being proficient in the operation of fire extinguishers.

Within these three tiers there are multiple layers of fire safety measures in place at the Harris Plant, including the use of fire retardant material, automatic detection devices, sprinkler systems, and, in some cases, separating equipment by thick concrete walls to prevent the spread of fire. The plant also has a team of 85 personnel qualified to serve in the on-site fire brigade, which is available 24 hours a day, seven days a week. Members of the fire brigade train alongside firemen and, in many cases, serve as volunteer firemen in the community. In addition to the on-site brigade, off-site fire departments participate in plant drills and have proven they can be at the plant to assist within 10 minutes if necessary.

Also, the fire protection wraps that we are in the process of modifying are still effective fire barriers. In cases where the wrap is required to last one hour under more than 1500 degree heat, the material lasted

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no less than approximately 30 minutes during tests. In cases where the wrap is required to last three hours under more than 1500 degree heat, some of the material lasted the full three hours during tests, and none lasted less than approximately two hours. The fact that the wraps protect against fire for significant periods of time still qualifies them to be one of several fire safety measures.

An enormous amount of responsibility is placed on nuclear plant employees. The NRC and the public have entrusted a significant resource to our care, and we take that seriously. The number one priority of the nearly 650 highly qualified and experienced individuals who work at the plant is to ensure the health and safety of the public. We work here and raise our families in this community. The last thing we would accept is an operating condition that presents a danger to ourselves, our families or the public.

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October 20, 2006

Mr. C. J. Gannon, Vice President
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
Post Office Box 165, Mail Code: Zone 1
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - NRC RECEIPT OF
CAROLINA POWER & LIGHT COMPANY'S RESPONSE TO GENERIC
LETTER 2006-03, "POTENTIALLY NONCONFORMING HEMYC AND MT FIRE
BARRIER CONFIGURATIONS (TAC NO. MD1585)

Dear Mr. Gannon:

The Nuclear Regulatory Commission (NRC) acknowledges the receipt of your responses, dated April 28 and June 9, 2006, to Generic Letter 2006-03, "Potentially Nonconforming Hemyc and MT Fire Barrier Configurations." Under oath and affirmation, your responses state that Shearon Harris Nuclear Power Plant, Unit 1, relies on the Hemyc and MT fire barrier systems, and you have submitted documentation that you plan to disposition any nonconforming conditions in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.48(c) process. Also, compensatory measures will remain in place until nonconforming conditions have been resolved.

Under oath and affirmation, your responses also state that other 1 or 3-hour fire barriers that separate redundant safe shutdown trains located within the same fire area have been designed and installed in accordance with current NRC guidance. Based on your response, the basis for stating that these other fire barriers have been designed and installed in accordance with current NRC guidance should be maintained on site, and will be subject to inspection during the normal NRC inspection process.

If you have any questions regarding this matter, please contact me at 301 415-2020.

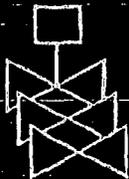
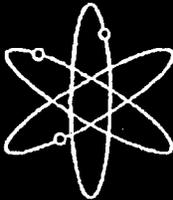
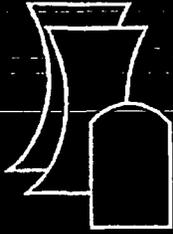
Sincerely,

/RA/

Brenda L. Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

cc: See next page



Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire

Draft Report for Comment

**U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Washington, DC 20555-0001**



Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire

Draft Report for Comment

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FOREWORD

This report provides criteria and associated technical bases for use in evaluating the feasibility and reliability of post-fire operator manual actions implemented in nuclear power plants. The U.S. Nuclear Regulatory Commission (NRC) developed this report as a reference guide for agency staff who evaluate the acceptability of manual actions as a means of achieving and maintaining hot shutdown conditions during and after fire events. The work was performed by the NRC's Office of Nuclear Regulatory Research (RES) and Office of Nuclear Reactor Regulation (NRR), with support from Sandia National Laboratories and its contractor.

This report was developed on the basis of NRC and contractor experience in evaluating plans at nuclear power plants for human performance during fire events (e.g., inspections of plants' fire protection programs) and the review of work related to modeling human behavior in response to fires and other accident conditions in nuclear power plants. Reviewed documents include, but are not limited to, fire analyses conducted as part of individual plant examinations of external events (IPEEEs), the IPEEE summary report (NUREG-1742), fire-related operational events, the fire requantification work conducted jointly by the NRC and the Electric Power Research Institute (EPRI) (NUREG/CR-6850 [EPRI TR-1011989]), and the "American National Standard Time Response Design Criteria for Safety-Related Operator Actions" (ANSI/ANS Standard 58.8-1994).

The technical guidance provided in this report is aimed at ensuring that operator manual actions are both feasible and reliable. Among the criteria provided is the need for time-authenticated demonstrations of the manual actions (involving actual execution of the actions to the extent possible) and adequate time available to complete the actions before fire-induced consequences occur that would otherwise prevent achieving and maintaining hot shutdown.

This report focuses on *unique* aspects of the hazard involved (fire), as well as the potentially unique characteristics of subsequent manual actions during the operators' response. Hence, it does not address all the various facets of programs that could potentially impact human performance during a fire. For instance, this report does not specify in detail what constitutes "adequate procedures"; other guidance documents address this issue. Nonetheless, this report addresses the unique aspects of fire and associated operator manual actions to guide NRC staff in determining whether operator manual actions, proposed by operating plants for use in achieving and maintaining hot shutdown, are feasible and can reliably be performed in response to fire.



Brian W. Sheron, Director
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission

1. INTRODUCTION

The primary objective of fire protection programs at U.S. nuclear plants is to minimize the effects of fires and explosions on structures, systems, and components (SSCs) important to safety. To meet this objective, fire protection programs for operating nuclear power plants are designed to provide reasonable assurance, through defense-in-depth, that (1) a fire will not prevent the performance of necessary safe shutdown functions, and (2) radioactive releases to the environment in the event of a fire will be minimized.

To provide those assurances, at least in part, many plants rely on local operator manual actions¹ (i.e., outside the main control room [MCR]), rather than on fire barriers or separation (plus fire detection and automatic suppression, where required), to maintain hot shutdown capability. That is, operators either take preventive, local manual actions upon detecting a fire to protect critical safety equipment that might be failed or spuriously affected and rendered unavailable by the fire, or they locally and manually align critical safety equipment to perform its function when needed. Paragraph III.G.1 of Appendix R to Title 10, Part 50, of the *Code of Federal Regulations* (10 CFR Part 50) [Ref. 1] states that one train of equipment needed to maintain hot shutdown conditions shall be free of fire damage. Paragraph III.G.2 of Appendix R specifies the following three methods, any of which are acceptable, to provide reasonable assurance that at least one means of achieving and maintaining hot shutdown conditions will remain available during and after any postulated fire in the plant², when redundant trains of equipment required for hot shutdown are in the same fire area outside of the primary containment:

- (1) separation of redundant trains by a fire barrier having a 3-hour rating
- (2) separation of redundant trains by a horizontal distance of more than 6.1 meters (20 feet) containing no intervening combustible or fire hazards, together with fire detectors and an automatic fire suppression system
- (3) separation of redundant trains by a barrier having a 1-hour rating, coupled with fire detectors and an automatic fire suppression system.

If any one of the above cannot be met, then Paragraph III.G.3 (Alternative or Dedicated safe shutdown) requirements must be met. Operator manual actions can be used to satisfy Paragraph III.G.1 requirements since these areas contain no redundant safe shutdown trains. Operator manual actions are allowed to satisfy requirements in Paragraph III.G.3 in the performance of alternate or dedicated shutdown activities. The NRC proposed in rulemaking SECY 03-0100 [Ref. 3] that, under certain circumstances, operator manual actions may be a reasonable alternative to separation requirements of Paragraph III.G.2, and many operator actions for operation of a hot shutdown train during a fire would not involve any safety-significant concerns.

¹ "Operator manual actions" are defined in the Glossary of this report. For this report, they do not include the action(s) associated with abandoning the MCR in the case of a fire

² Similar guidance is incorporated into Section 9.5.1 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Rev. 4, October 2003 [Ref. 2], for plants licensed after January 1, 1979. Post-1979 licensees incorporate their fire protection program implementation requirements into their operating license as a license condition and those requirements are largely the same as those from Appendix R that are discussed throughout this report.

The NRC developed Regulatory Issue Summary (RIS) 2006-10 [Ref. 4], "Regulatory Expectations with Appendix R, Paragraph III.G.2, Operator Manual Actions," dated June 30, 2006, which discusses acceptable means for achieving compliance with 10 CFR 50.48 [Ref.5]. Although the title is specific to Appendix R, the RIS considers plants that were licensed to operate both prior and subsequent to January 1, 1979. Therefore, this report provides criteria for demonstrating the feasibility and reliability of operator manual actions in response to fire that are applicable to all plants. The NRC staff recognizes that certain criteria must be met to ensure that adequate safety is maintained as a result of the use of operator manual actions as an alternative to separation/protection. In particular, the NRC staff notes that such actions must be both feasible and reliable, especially considering that these actions are relied upon in lieu of passive fire barriers, distance, separation, and/or automatic fire suppression system each with relatively high reliability.

This document provides technical bases in the form of criteria and related technical guidance for justifying that operator manual actions are feasible and can reliably be performed under a wide range of plant conditions that an operator might encounter during a fire.

This report, as a reference guide, addresses the feasibility and reliability of operator manual actions, from a deterministic approach, when used to achieve and maintain hot shutdown under fire conditions, and will be used by the NRC staff to support the review of operator manual actions. An operator manual action which meets the guidance provided in this report does not necessarily comply with NRC fire protection regulations. Additional considerations to ensure that adequate defense-in-depth such as fire detection and automatic suppression is maintained are addressed in Revision 5 to Section 9.5.1 of the Standard Review Plan [Ref. 6] and should be considered when applying for an exemption or license amendment.

Section 2, "Discussion," explains the use of operator manual actions to ensure post-fire hot shutdown, and discusses the purpose and scope of this report.

Section 3, "Bases for the Feasibility and Reliability Criteria," summarizes each criterion, and discusses the basis for each.

Section 4, "Technical Guidance for Implementing the Feasibility and Reliability Criteria," provides additional discussion of each criterion, as well as technical guidance for meeting the criteria.