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William R. Robinson
Vice President
Harris Nuclear Plant

Serial: HNP-95-062

Mr. S. D. Ebneter, Regional Administrator
United States Nuclear Regulatory Commission
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
COMMENTS ON NRC REACTOR OPERATOR EXAM

Dear Mr. Ebneter:

On June 26, 1995, Shearon Harris Nuclear Power Plant received NRC Reactor Operator (RO) and Senior Reactor Operator (SRO) written examinations. The written exams were reviewed by members of the Harris Operations and Training staffs at the NRC Region II offices in Atlanta the week of June 5, 1995. We would like to take this opportunity to express our appreciation for the assistance provided by Mr. Charles Payne and the NRC examination team during the initial review of the exam. Minor problems were identified and corrected prior to examination administration. During the on-site post-exam review, one examination question was considered to be misleading to the exam candidates. The following is a recommendation concerning resolution of this issue.

> Recommend that for question #93 on the RO examination that answer "c" be accepted in addition to answer "a" due to construction of the question stem.
>
> An ionization type fire detector (choice "a") is designed to detect smoke and products of combustion at an early stage of a fire prior to flames. The stem of the question asks which detector "is designed to detect fire before significant heat and visible smoke are detected?" When interpreted that smoke has yet to be generated and detected, the candidate would be encouraged to exclude choice "a" in favor of choice "c" (ultraviolet detector) as the correct answer, since the ultraviolet detector will detect the presence of flames. (Reference attached: SD-149 Rev. 3, Pages 18 and 19, Paragraphs 4.3.1.1 and 4.3.1.3)

These comments are provided in accordance with Examination Standard (ES-402) paragraph E, and Attachment 3 of NUREG-1021 Rev. 7. If you have any questions or need additional information, please contact Mr. Joe Collins, Manager, Harris Training at (919) 362-3332.

MV

Sincerely,

Wm R Robinson

Attachment

c: Mr. S. A. Elrod
Mr. T. A. Peebles
Mr. D. C. Payne
NRC Document Control Desk

H005

bc: T. A. Baxter, Esq.
Mr. R. K. Buckles (LIS)
Mr. W. R. Campbell
Mr. J. W. Donahue
Mr. H. W. Habermeyer, Jr.
Ms. T. A. Head (GLS File)
Mr. M. D. Hill
Mr. G. Honma (BNP)
Mr. R. M. Krich (HBR)
Mr. C. W. Martin (BNP)
Mr. R. D. Martin
Admiral K. R. McKee
Mr. P. M. Odom (HBR)
Mr. W. S. Orser
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Mr. R. S. Stancil
Mr. T. D. Walt
Nuclear Records
File: HI/A-2D

4.3.1 Types of Detectors and Alarms (continued)

Thermal detectors interfaced with a fire extinguishing system (preaction or multi-cycle automatically reset themselves after an alarm-condition dissipates. This action resets the multi-cycle system automatically after a preset time delay. The preaction sprinkler system is manually reset at the valve. Any electrical circuit associated with the preaction sprinkler system is reset manually from the LFDCP. Loss of supervisory current activates sprinkler control valves allowing water flow into the sprinkler distribution piping. The loss of power for Water Spray Systems (transformers and TB areas) does not activate these systems. They must be manually activated upon loss of power.

Detectors require no replacements after a fire alarm to restore them to normal operation. They are continually supervised and de-energized to alarm. Detectors are not adversely affected by short-term high radioactivity exposures.

Thermal detectors used outdoors (transformer bays) or near equipment in large ceiling areas (reactor coolant pumps) have a heat collecting canopy.

3. Ultraviolet Flame Detection systems are provided in areas where oil is present, for example, Diesel Generator Building and fuel oil pump area.

Flame detectors operate on a principle using a Geiger-Mueller gas-type cathode tube designed to detect flame-radiated rays in the extreme low end of the radiation spectrum. They are of split-architecture construction having NEMA 7, explosion-proof housing. They use a quartz lens, have a built-in checking system for optical integrity, and have the capability to reject high intensity ultraviolet radiation emitted from sources such as lightning by using an internal time-delay circuit. Each has a swivel mounting assembly suitable for vertical or horizontal mounting.

Each flame detector controller is capable of operating up to eight flame detectors and is mounted in the associated LFDCP for the fire detection zone.

4. Manual Fire Alarm Stations are provided throughout plant operating areas, located to be readily accessible for employee use in signaling the existence of an observed fire condition. To the extent feasible, manual fire alarm stations are grouped with fire extinguishers and hose stations. In addition to initiating a fire alert, manual fire alarm stations are used to activate water flow to associated sprinklers or water sprays.

4.3 General Operations (continued)

e. Operation of water flow detection devices.

f. A common trouble alarm is provided in the Main Control Room for the Main Fire Pumps.

g. All detectors are readily removable to facilitate periodic testing and maintenance. Detectors are designed in a way that in-place testing can be accomplished by means of a portable testing kit or apparatus.

4.3.1 Types of Detectors and Alarms

Fire detection systems (heat, smoke, or flame) are provided in safety-related areas or in areas that present potential fire exposure to safety-related systems or equipment, unless noted, as a deviation in the Safe Shutdown Analysis in Case of Fire. Annunciators and alarms are transmitted to the MFDIC, located in the Communications Room, which in turn, alerts the Control Room.

Selection of detectors was done on the basis of suitability for the postulated fire. Where cables are present and smoldering, insulation was postulated, ionization type smoke detectors, sensitive to products of combustion, are provided. Where charcoal or combustible liquids are present and high heat release was postulated, rate compensated type heat detectors are provided. In areas where flames could be present, ultraviolet fire detectors are provided.

1. Ionization Detection Systems are provided in areas where it is advisable to detect smoke and products of combustion at an early stage of a fire. Ionization detectors are provided on an area basis which is less than the maximums given in NFPA Standard 72E. Not less than two detectors are provided in any single area. Detectors are equipped with an integral signal lamp to indicate alarm condition. Except for loss of sensitivity, detectors are not adversely affected by short-term high radioactivity exposures. Detectors in the Containment Building are capable of operation in a high level radiation environment.

2. Thermal Detection Systems are generally provided in the same areas where automatic sprinkler systems are installed and are used for activation of sprinklers. Thermal detectors are provided on an area spacing basis, which is less than the maximum specified in NFPA Standard 72E, and are of a rate compensated or rate anticipated/fixed temperature type. Each thermal detector has a minimum temperature setting of 30°F above environmental conditions for the location in which they are used. Sensitivity of detectors is not field adjustable.