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SUBJECT:
FORWARDING APPLICANT"S OBJECTION TO THE IMPOSITION OF A 5 MAN FIRE BRIGADE IN REGARDS TO AMEND NO 9, CONSISTING OF REVISIONS TO TECH SPEC, TO INCORPORATE LIMITING CONDITIONS FOR OPERATIONAL & SURVEILLANCE REQUIREMENTS OF SUBJECT FACILITY"S FIRE PROTECTIO

PLANT NAME: DAVIS BESSE - UNIT 1

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Docket No. 50-346

Operating License No. NPF- 3

Serial No. 427

April 11, 1978

TOLEDO EDISON

LOWELL E. ROE
Vice President
Facilities Development
(419) 259-5242

Director of Nuclear Reactor Regulations
Attention: John F. Stolz, Chief
Light Water Reactors, Branch 1
Division of Project Management
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Stolz:

On March 28, 1978 we received Amendment 9 to the Davis-Besse Nuclear Power Station, Unit No. 1, Operating License. It consisted of revisions to the Technical Specifications, to incorporate limiting conditions for the operational and surveillance requirements of our fire protection systems and administrative controls.

You requested--should Toledo Edison object to the Commission's Safety Evaluation that the minimum size of a shift fire brigade be 5 persons--our response; giving specific reasons and bases.

Toledo Edison does object to the imposition of a 5 man brigade. We believe that a 3 man fire brigade at Davis-Besse Nuclear Power Station, Unit 1, can perform all the functions identified in the Commission's Appendix A, Staff Position Letter.

Attached to this letter are the reasons--based on the assessment of our facility and its requirements--underlying our position in support of an interim specification.

If you have any questions concerning the bases of our objection--please do not hesitate to contact me.

We respectfully request that interim specification 6.2.2.f. be finalized--as currently written--for a shift fire bridage of 3 persons.

Very truly yours,

Lowell E. Roe /Ea

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~~7810410218~~

Attachment

1. PRELIMINARY COMMENT

In the TECo submittal of December 12, 1977, a minimum size of 2 persons for the shift fire brigade was presented. Subsequently, we agreed to modify this to 3 persons.

Since the initial fire brigade training in January, 1975, we have approached fire suppression with emphasis on an initial 2 man thrust.

Now that we are operating, and special attention must be paid to Table 6.2-1 "Minimum Shift Crew Composition," we have determined that a better response would be manifested in the addition of another member to the shift fire brigade; however, it remains to be seen if there are any bases for the inclusion of yet 2 more persons.

II. THE POSTULATED FIRE

A. Fire Reporting

The best means of combatting any fire is immediate notification as to type, location and severity. Everyone at Davis-Besse Nuclear Power Station, Unit No. 1, is made fully aware of the correct fire reporting procedure, and the unit paging system is readily available throughout the unit to ensure quick reporting. This, we believe, fully meets the requirements for an effective fire suppression response.

B. History of Fires at Nuclear Power Plants

The Committee discussed the history of fires at nuclear power plants, and the Brown's Ferry Incident.

Better than 60% of the fires at nuclear power plants have occurred as a direct result of non-operational construction, maintenance or testing functions. This indicates to us, that fires are less likely to occur on a routine shift during normal facility operation.

While this period of time is the time when the fewest people would be on-site, we do not agree with the proposed requirement of a 5 man brigade.

C. Reference to NFPA Standards

NFPA No. 27, Private Fire Brigades, states; "the equipment that must be put into service at a fire will determine the number of men required for each operating unit or company into which the brigade is organized and the total number of men needed in the brigade.

Operating units or companies must be composed of two or more men to operate a specific item of equipment or a larger group to perform more complicated operations. Each company should have a leader and each brigade should have a chief."

The equipment that must be put into service, for an initial attack team--portable fire extinguishers; 1½ inch attach hose and a backup hose--can be easily handled, and smoothly coordinated--with a 3 man team.

There is no stated minimum acceptable complement in NFPA Standard No. 27. Manning requirements--as stated in this standard--must necessarily be determined by equipment and the operation of that equipment.

Taking this into account, we have recently modified our strike force, from a 2 man team to a 3 man team.

In the initial fire response stage, the only equipment to be used is disbursed or permanently installed in Davis-Besse Nuclear Power Station, Unit No. 1. This being so--it is incomprehensible what 5 men could accomplish that could not be accomplished by 3.

Our fire brigade requirement of 3 immediate response personnel--in this light--is sufficient, and should be allowed, properly, to stand.

D. Davis-Besse Nuclear Power Station Design Features, Relevant to Brigade Size

The Davis-Besse Nuclear Power Station, Unit No. 1, approach to fire protection is:

1) to prevent conditions from existing, which might conceivably result in a fire

2) to promptly detect fires through the use of installed features, and through frequent operating shift inspection & observation activities

3) to promptly correct any hazardous condition

4) to utilize efficient fire training & fire pre-planning, as the best provisions for minimizing the effects of a fire.

The use of the shift fire brigade is primarily for the extinguishing of fires in their incipient stage--well below the major hazard level; and secondarily--to deal with fires not automatically suppressed.

To operate water hoses requires a minimum of 2 persons--to don protective equipment and to enter the area. Since the fire hoses are permanently installed and are of a size (1-1½ diameter) a single person could handle, the prime reasons for 2 persons entering the area is for personnel safety and aid in the advancement of the 1.5 inch hose.

The remaining member of the brigade--the Fire Captain--then provides communication with management, arranges for, and can often, himself, supply extra equipment to the hose team, and act as the backup to the initial hose team.

Since all equipment being utilized in the initial phases of fire fighting is pre-installed, we believe that additional fire fighting personnel are not required for an initial response.

III. REPLY TO APPENDIX A, STAFF POSITION/MINIMUM FIRE BRIGADE SHIFT SIZE

A. Introduction

We have full confidence in the response of our Station Fire Brigade for defense against the effects of a fire on safe facility shutdown.

Unquestionably, in some areas, actions by the fire brigade will be the only means of suppressing a fire. In other areas, protected by automatic detection and suppression systems, manual fire fighting efforts will be directed to extinguish:

1) fires too small to actuate the automatic system.
2) well developed fires, should automatic response fail to actuate.
3) fires that are not completely controlled by automatic actuation equipment.

Our position is that an adequate fire brigade is essential to fulfill the defense in depth requirements for the protection of Davis-Besse Nuclear Power Station, Unit 1, safe shutdown systems--from the effects of fires and combustion byproducts.

We have established our minimum fire brigade shift size with particular attention to the following factors:

1) unit geometry and size.
2) detection and suppression equipment--in both quantity and quality.
3) implementation of fire pre-planning strategies.
4) fire brigade training.
5) supplementary support by station personnel and local fire departments--

Appendix A Staff Position States, QUOTE: "In all plants,

a) the majority of postulated fires are in enclosed, windowless structures. In such areas, the working environment of the brigade created by the heat and smoke buildup within the enclosure, will require the use of
b) self-contained breathing apparatus, smoke ventilation equipment, and a
c) personnel replacement capability." UNQUOTE

(a) postulated fires in enclosed, windowless structures. . .we concur. . .

In addition, it is our contention that the involved area would be small--compared to what is found in professional fire fighting situations--due to the Davis-Besse Nuclear Power Station, Unit No. 1, construction and to fire loads isolable with fireproof, actuating dampers and fire-resistant penetrations.

Also, it is our contention that the Davis-Besse Fire Brigade, because of its training, familiarity with the unit and exposure of the Davis-Besse, Unit No. 1 Fire Hazard Analysis Report (giving them a detailed understanding of fire loads in every area of the unit will have a much better knowledge of an fire area, type of fires, fire loading, fire hazards and the best attack method--than would an outside force going into an unfamiliar area.

(b) self-contained breathing aparatus (S.C.B.A.) and ventilation equipment. . .we take exception. . .

Use of S.C.B.A. definitely assures the best preparation for a safe attack. We have numerous Scott Air Paks strategically located throughout the facility and train our brigade members to always respond with a S.C.B.A.

As to whether ventilation equipment may or may not be necessary--we believe it would be imprudent to burden the initial response team with this question.

Coping with a fire in its incipient state is paramount to effect the most positive fire fighting attack to subdue that fire. An information exchange between the Fire Captain and the Shift Foreman would determine if supplemental station personnel need to be mobilized.

(c) personnel replacement capability. . .we do not agree--for an initial attack. . .

This assumes that a large fire has occurred, and that a man is severely injured to the point of incapacity to function--in any respect--at the scene.

Now allowing that a man is injured, we would perform according to the Staff Position statement that: If the brigade is composed of a small number of personnel, the fire attack may be stopped whenever new equipment is needed or a person is injured or fatigued. This affords us the flexibility to alter our response by either employing the Fire Captain in direction action, after he has assured the safety of the injured, or. . .

It is too difficult to say that you must take this course of action, or that. Every fire presents itself with its own unique set of circumstances and the "situation at that time" limits itself to response in only certain, suitable alternatives.

In fact, an effective 1.5 inch hose can be maintained in service by only 2 men. This leads us to a most important point concerning response and availability of replacement personnel. We have formulated a policy which will be followed by all Fire Brigade members that: should fires suppression methods require the utilization of our 1.5 inch hose, there will be an immediate notification to call for a backup from the Oak Harbor Volunteer Fire Department. This cannot be over emphasized. The response time factor for the Oak Harbor VFD has been proven to be approx. 7 minutes to the Davis-Besse site. Mobilization of onsite additional fire brigade memmbers, in places remote from the fire scene, would still require that they don the required equipment and get to the scene. Time being of the essence, the Oak Harbor VFD response time is as expeditious as a remotely positioned Fire Brigade Member when one considers the fact they they arrive at the site, in full gear, ready to fight the fire.

Appendix A further states, QUOTE: "Certain functions must be performed for all fires, e.e.,
1) command brigade actions,
2) inform plant management
3) fire suppression,
4) ventilation control; provide extra equipment, and
5) account for possible injuries." UNQUOTE.

1) One fire captain per shift is designated to be in charge of that shift fire brigade. He is not a supervisor of the Operating Shift.

2) Initially, plant management will be informed by the Fire Captain. Follow-up fire scene reports will come during the initial evaluation and preparation for attack. These reports will be made to the Shift Foreman by the Fire Brigade Captain from the scene. Additional reports will be made after first action has commenced and an assessment of its effectiveness can be made. This would mean that the Fire Brigade Captain would need to spend only short periods of time reporting and this would free him to lend assistance to the strike force.

3) The Davis-Besse Unit 1 Fire System is maintained functional by numerous surveillance procedures which ensure high reliability. If an automatic action fails to activate, which is highly improbable, or if the fire is located in an area without automatic functioning then the primary method of fire suppression would be a 1.5 inch fire hose manned by 2 fire brigade members. All fire brigade members would utilize the Scott Air Paks (S.C.B.A.'s) and lay two hoses, (one a backup, charged and ready for use).

   Facility layout for fire extinguishers and hose stations is such as to maximize readily available sources for fire suppression. Our fire training continually emphasizes the locations of fire equipment, as related to an areas greatest possible fire hazard, so that this pre-plan approach and the accessibility of fire and personal protection equipment assure a positive attack.

4) When contemplating an initial fire fighting attack, the prime consideration is to respond to the fire with dispatch to combat its spread during the incipient stage. Again, there are qualifiers (with respect to a particular fire having a particular immediate need for ventilation control) which could demand ventilation control activity to coincide with the first approach. However, it must be re-emphasized that fire reporting would indicate this. In almost every foreseeable instance, it is not compelling to commit a specific person.

   In the case of a detector alarm, an Operator must be sent to investigate the alarm. He then would be in a position analogous to an Eyewitness. The reporting sequence would follow:
   1) what's on fire;
   2) the location; and
   3) the severity.

   Immediately, the response phase is set into motion. It is the responsibility of the person detecting the fire to stay with that fire. This assures us a means of rapid update should conditions change and/or should a reassessment be

required to formulate the initial course of fire suppression response; in this point, with particular attention to ventilation requirements.

It would also be of benefit here to discuss station manning outside of the normal Operating Shift. The Security Force is on duty 24 hours a day.

Security Force personnel should not be arbitrarily excluded from assisting in fire fighting. Their exclusion due to the diversionary tactic argument needs critical evaluation. The Security Force could assist in some fire fighting tasks or other miscellaneous tasks, such as communications, without detracting from their ability to respond to a security emergency, if such an event should present itself.

In the event of either a diversionary tactic fire (granting that it was set by a single insider as a basic sabotage event) or a fire from other causes, we still believe that supportive fire fighting activities by Security personnel that is, on call assistance and communications support, would still afford them the ability to respond to emergency security requirement. As a matter of fact, it could be an asset as a good security measure, to have a member of security on the scene for observation and to handle possible security problems.

One Chemistry-Health Physics Tester (most times there are two) is onsite day and night. Instrument & Control and Maintenance personnel are usually working 20-22 hours a day. We don't claim credit for these available persons. For ventilation control and providing extra equipment functions, these people could be easily utilized to perform as specifically instructed, when we keep in mind that the implementation of the Station Emergency Plan establishes this body of "emergency reserves," in a fire emergency. This is not to imply that they would be utilized as nozzlemen. When the response is measured and indicates the use of a hose, the Oak Harbor Volunteer Fire Department will be on the way.

5) Should an injury occur, there is no reason why the Fire Brigade Captain could not help in that situation, keeping in mind, as previously stated, the limited area involved in a postulated fire. Given the propinquity required to supervise a strike force and the fact that professional fire service units often employ the fire officer as a backup on a second hose, the shift Fire Captain could direct from a participatory standpoint. If one man is injured, he can be replaced in a short period of time--(Refer to (c) personnel replacement capability discussion). During the intervening time, the hose can still be manned with an effective stream by the remaining 2 brigade members.

Staff Position 1: The minimum fire brigade should be justified by an analysis of the plant specific factors stated above for the plant, after modifications are complete.

TECo Position: It is perplexing to note that the 5 man requirement is an interim measure, while the Fire Hazard Analysis Report is still under review. This report, we feel, best substantiates our contention that a fire brigade shift size of 3 would be as effective for an initial response as one of 5.

- the lay-out of plant fire zones;

- installed detection equipment and Amendment 9 requirements to assure maintaining operability;

- detailed fire load analysis for every plant area;

- our fire suppression system, constructed for both automatic action and planned individual response with hose stations and houses, and strategically placed portable fire extinguishing equipment; .....

with all of these - we see no need to alter our current response.

To add two more people is not so much a matter of can they be of help, but is really a question of whether or not they are actually necessary. Our opinion is that there are no bases to judge our current manning insufficient.

Staff Position 2

One Supervisor - This supervisor should not be actively engaged in the fighting of the fire. His total function should be to survey the fire area, command the brigade, and keep the upper levels of plant management informed.

Two Hose Men - A 1.5 inch fire hose being handled within a windowless enclosure would require two trained individuals. The two team members are required to physically handle the active hose line and to protect each other while in the adverse environment of the fire.

Two Additional Team Members - One of these individuals would be required to supply filled air cylinders to the fire fighting members of the brigade and the second to establish smoke ventilation and aid in filling the air cylinder. These two individuals would also act as the first backup to the engaged team.

TECo Position;

One Supervisor - We do not believe the supervisor should be actively engaged on the hose team. However, there is no reason to believe he cannot function to

a) survey the fire area (which due to three hour rated fire walls will be limited);
b) command the brigade;
c) keep the Shift Foreman informed while performing simple tasks such as changing air bottles and passing on equipment; and, in the event of extenuating circumstances, become a hose team member to a limited extent and for such time as is required by the immediacy of the situation to assure personnel protection and ability to regroup.

Two Hose Men - We concur that two men are needed to effectively handle and manuever a 1.5 inch hose and provide each other protection while fighting a fire.

Two Additional Team Members - With reference to our statement on "ventilation equipment and extra equipment supply," we can see no dire need to dictate the two extra individuals be specifically assigned for supplying air cylinders and establishing smoke ventilation in the initial response stage. Beyond that, we have the capability to perform these tasks by utilizing those persons so assembled, under the Station Emergency Plan.

In addition, the utilization of a shift crew personnel must not be repudiated, in a fire emergency.

The NRC position excludes the use of any of the 5 members of the minimum shift crew necessary for safe shutdown of the plant. However, this exclusion is based on the assumption that the location of the fire requires shutdown of the plant from outside the Control Room. If the fire occurs in a location where shutdown from outside the Control Room is not required, then only 3 operators are required to safely shut down the plant. In this case, two additional operators would be free to respond to the fire. Therefore, the minimum shift crew of 5 could be qualified as necessary only when shutdown from outside the Control Room is required.

In revision 1 to the Fire Hazard Analysis Report for Davis-Besse, Unit 1, Section 4, COMPLIANCE MATRIX TO APPENDIX A, A4, "Single Failure Criterion," of Table 4-1 (Sheet 3) states:

> QUOTE: "Postulated fires or fire protection system failures need not be considered concurrent with other plant accidents or the most severe natural phenomena," UNQUOTE.

With respect to the statement--it is our belief that even though Specification 6.2.2.f and Table 6.2-1 will not allow for crediting other shift personnel to shift fire brigade size, this does not limit their ability to, as a matter of course, be normally employed in a limited fire assistance capacity.

CONCLUSION

Based on all the above reasons, it is our belief that a 3 man fire brigade at Davis-Besse, Unit 1, can perform all the required functions identified in your Appendix A Staff Position. Therefore this to request that Section 6.2.2.f of the Interim Technical Specifications for DB#1 be finalized as currently written to require a shift Fire Brigade of at least (3) members instead of the proposed five members.

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