

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

JUL 10 1975

Honorable John Glenn  
United States Senate

Dear Senator Glenn:

This is in reply to your letter, dated March 28, 1975, relative to allegations made on the television program produced by WKYC-TV, "The Cleveland Connection", concerning the Davis-Besse Nuclear Power Station near Port Clinton, Ohio. Your letter requested the Nuclear Regulatory Commission's evaluation of these allegations and my views on whether the alleged deficiencies could be symptomatic of more serious problems presently existing in nuclear power plants.

On July 17 and 18, 1974, the Atomic Energy Commission (the predecessor of the Nuclear Regulatory Commission) conducted an inspection at the Davis-Besse Nuclear Power Station construction site as a result of allegations received concerning the quality assurance program for painting the inside of the steel containment liner. Based on information provided by Mark Vining, the source of the allegations, and on information developed during the inspection, the AEC staff identified 10 items of noncompliance with applicable quality assurance requirements. These items of noncompliance indicated that deficiencies in the implementation of a program to assure the quality of the painting existed at all levels of responsibility -- Bagwell Coatings, Incorporated, the painting subcontractor; Bechtel Corporation, the contractor; and Toledo Edison Company, the utility holding the construction permit.

The action taken by the licensee, in response to AEC enforcement action, is viewed as adequate to correct this specific matter - i.e., to assure the quality of the containment liner painting - as well as to upgrade the effectiveness of the licensee's quality assurance program in this area.

Although some improvement has been observed in the implementation of Toledo Edison's overall quality assurance program, deficiencies have recently been identified by our inspectors in the area of safety-related electrical work. Enforcement action has been initiated to secure correction and improvement in this area, as well.

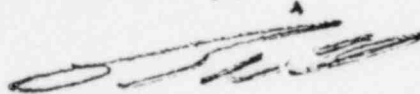
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Honorable John Glenn

In response to your request, the NRC staff has prepared an evaluation of the allegations presented by WKYC-TV which is provided as Enclosure 1. An evaluation of the implications of these allegations on other work at Davis-Besse and throughout the nuclear industry is provided as Enclosure 2.

I regret the delay in responding to your letter. The lateness of the reply is due in part to required input from our Regional Office. I trust the attached analysis will be fully responsive to your concerns, and I appreciate your interest in the NRC inspection program.

Sincerely,

A handwritten signature in dark ink, appearing to read "William A. Anders", with a small upward-pointing arrow above the middle of the signature.

William A. Anders  
Chairman

Enclosures:

1. Evaluation - WKYC Summary
2. Evaluation of Implication of Allegations

ENCLOSURE 1  
EVALUATION -- WKYC SYNOPSIS  
March 12, 1975

Synopsis,  
Page 1

The description of the containment liner coating and its function are essentially correct as stated in the summary. The coating on the steel liner is to prevent corrosion and to facilitate cleaning. There is the possibility, if the coating were grossly defective, that the coating material could flake off under accident conditions and possibly clog the containment sump at the base of the containment building.

We do not agree with the synopsis conclusion that a considerable disaster could occur. Corrosion is not expected to compromise the integrity of the 1-1/2 inch thick steel liner. Adhesion tests of the paint have been performed by the licensee and his contractors to ensure against gross failure and the results of the tests have been reviewed by the NRC. The sump is designed to function during the worst accident even if the screens are 50% plugged.

"Q-list" is Bechtel's terminology for identifying safety related components and systems. Components and systems which have a safety function are required to meet the Nuclear Regulatory Commission's 18 quality assurance criteria contained in Appendix B to 10 CFR 50. The containment liner painting work has identified on the "Q-list" in December 1973.

Synopsis,  
Page 2

The synopsis includes allegations that the reports of the sub-contractor's quality control inspector Mr. Vining, were ignored or disregarded, and that the inspector was subjected to pressure in various forms to suppress his findings. The AEC investigators found no evidence confirming the allegations of a "cover-up". The investigation revealed that evidence of Mr. Vining's concerns was to be found in Bagwell's files, including a copy of the letter to Mobil Oil Company mentioned on page 3 of the WKYC synopsis. The containment coating work was Bagwell's only Q-listed work at the site, and AEC inspectors reported that some of Mr. Vining's allegations dealt with non-safety related work and therefore were not subject to the quality assurance requirements. The AEC investigators did not find evidence of possibly criminal behavior,

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and consequently did not refer the matter to the Department of Justice or any other agency. The inspection did, however, show that the subcontractor, Bagwell, had an inadequate program for verifying the quality of its work.

Synopsis,  
Page 3

As stated in the WKYC summary, the television crew, guided by Vining, found two areas where the coating could be removed with a penknife. The area where larger quantities of the coating could be removed was on a partner's trolley at the top of the containment. This trolley is not part of the containment liner and has no nuclear safety function.

A temporary lug had been cut off the trolley at the point where the peeling took place, thus weakening the coating's adhesion. The second area shown was actually on the containment liner in an area that could have been damaged during the installation of a nearby vent. It is not unusual for areas of paint to be damaged during movement of heavy equipment during construction activities. As a rule, construction plans provide for the repair of such damaged areas once the major construction inside the containment liner is completed.

The AEC inspectors found that the original handwritten quality assurance inspection reports for the Bagwell coating work had been destroyed after typewritten copies were made.

The NRC believes that the WKYC summary was in serious error when it stated that the AEC "shrugged off their citations against TECO and Bagwell as just being technicalities over paperwork and procedures," and was "satisfied that the coating in question were actually up to standards." On the contrary, the AEC staff took the position that the items of non-compliance identified were significant deficiencies in the quality assurance program. As a result of these deficiencies, the staff informed the licensee that before the operating license may be issued, the NRC must be satisfied that the paint work is acceptable. This can be accomplished by licensee tests which prove the quality of the liner coating and its application. The final inspection of the paint work will not take place until later this year, after the work is completed and the containment overpressure test has been performed.

There has been no Commission order discontinuing Bagwell's work. The coating job has been about 90 percent complete since December 1973. The remaining 10 percent includes areas which could not be painted earlier and areas damaged during construction activities.

Synopsis,  
Page 4

The NRC staff does not agree with the synopsis' statements that AEC inspectors failed to find discrepancies which the TV staff located in a matter of minutes, that the AEC was seriously negligent in running its own tests and audits, and that the effectiveness of future NRC testing is therefore dubious. The AEC did not inspect the coatings until it received notice of the allegations of deficiencies, but once notified, its inspectors found the deficiencies alleged as well as still other quality assurance deficiencies. It should be noted that normally, such paint is not inspected until after the containment building has been subjected to the over-pressure test, which in the case of Davis-Besse is scheduled for late 1975. The NRC (like the AEC before it) does not duplicate the licensee's testing program, but instead inspects a sample of the licensee's records, test results, and construction work. The NRC believes its inspection program is effective as a check and audit on the utility's quality assurance program for identifying potential problems well in advance of any hazard to public health and safety. In the Davis-Besse case, inspections have resulted in significant improvements in the quality assurance program of the licensee.

As noted above, the quality assurance deficiencies associated with the coating work that were the subject of the WKYC television program are not the only quality assurance deficiencies that have been identified at the Davis-Besse site. The source of all these deficiencies NRC has found, was Toledo Edison's over-reliance on the quality assurance program of its contractor and subcontractors, and on its failure to audit their performance adequately. Earlier this year, because of previously identified quality assurance deficiencies and because Toledo Edison had scheduled additional safety-related electrical and piping work, the Regional Director of the NRC Chicago Office of Inspection and Enforcement met with top management of Toledo Edison to emphasize the staff's concerns with the past deficiencies in the company's quality assurance program. Although some improvement has been observed in the licensee's implementation of this program, NRC inspectors have recently identified further problems with respect to safety-related electrical

work. These problems and those concerning the coating work seem to have resulted from the same cause--that is, over-reliance on the contractor and subcontractors. The licensee has taken steps to improve quality assurance and quality control efforts in this area and is committed to a complete audit of installed safety-related cables. The NRC staff plans to continue close inspection of Toledo Edison's quality assurance performance during the remainder of construction and will take appropriate action should weaknesses be found in the implementation of the quality assurance program.

The NRC regulatory effort at Davis-Besse follows our approach of regulation at other nuclear power plants. The quality of construction is not entrusted solely to the companies involved. Rather, NRC regulations require that the licensee establish a quality assurance program, which, through successive layers of audit and inspection, is intended to assure that an appropriate level of quality exists in the nuclear plant. The licensee is required to perform audits of its contractors. The NRC inspection effort is directed primarily at determining that the licensee's quality assurance program is implemented. Although an experimental resident inspector program is under way, the NRC does not now utilize such an approach to inspection. Periodic inspection by teams of technical specialists is the method used. The NRC inspectors determine, through observations of a sample of work performance, interviews with employees, and a sampling of records, whether the licensee has fully implemented a quality assurance program as required by NRC regulations and his license. In this case, based on the allegations received, the inspection confirmed that full implementation had not been achieved. Enforcement action -- and licensee corrective action -- has been taken.

ENCLOSURE 2

EVALUATION OF IMPLICATION OF ALLEGATIONS

The integrity and independence of quality assurance inspections have been and remain a subject of great concern to the NRC, and any allegations of infringements thereon will continue to be investigated closely. The NRC will continue to take enforcement and other appropriate actions, within the limits of our jurisdiction, where this is warranted. However, where information developed during an NRC investigation indicates the possibility of criminal violations, which are not within our jurisdiction, the NRC refers the matter to the appropriate authority. In the present case, the information developed by AEC investigators was not deemed such as to warrant a referral.

Nevertheless, the NRC considers the quality assurance deficiencies at Davis-Besse to be significant because they revealed inadequacies in Toledo Edison's over-all implementation of its quality assurance program.

With regard to the total industry, the AEC, since 1970, with the publication of quality assurance criteria as a part of its regulations, has required a formalized program to assure that nuclear power plants are of acceptable quality. This requirement was emphasized by a series of AEC-industry conferences on quality assurance in 1973-1974. Upgrading of quality assurance programs resulted from this AEC initiative, which the NRC has continued.

The NRC approach to quality is to require licensees to develop formalized quality assurance programs which must be approved by NRC prior to the issuance of a permit or license. The NRC inspection effort is aimed largely at determining that the licensee has implemented his NRC-approved program. This is done by a series of periodic, preplanned, on-site inspections conducted by teams - usually one to three inspectors - who inspect the licensee's actions.

In the case of the containment liner painting at Davis-Besse, the painting was identified as a "Q-list" - safety related item - after approximately 90 percent of the painting had been accomplished. The remaining 10 percent still is to be accomplished. Hence, the 90 percent was not required to be subjected to the formalized quality assurance program at time of application. This necessarily means that the licensee and his contractors by tests must establish the quality of the painting. The license to operate this plant will not be issued until this quality is established by test of the finished coating.

This situation is not typical. Usually, the component or system is identified as a "Q-list" item early in design and the formalized quality assurance program applied sufficiently early to provide a higher level of confidence in quality. We do not believe that the Davis-Besse situation is symptomatic of more serious problems.

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A misconception is that the quality assurance approach will eliminate errors and problems. We believe that when the concept is properly emphasized down to the workman level that it does reduce - but not eliminate - errors and problems. However, in any undertaking of the magnitude and complexity as the construction of a nuclear power plant, errors and problems will occur. One of the functions of the quality assurance program is to detect and provide for correction of the problems. Even this system will not provide perfection. The design of these plants recognizes this absence of perfection. We believe that the quality assurance approach reduces the probability of significant problems. The design approach of conservative "defense in depth" and redundancy in systems important to safety--coupled with quality assurance--provides the protection to the public with which this agency is charged. We do not believe that situations - such as the Davis-Besse painting matter - indicates the existence of serious problems in the nuclear industry.