

August 8, 2003

Mr. Barry Quigley
3512 Louisiana Road
Rockford, IL 61108

Dear Mr. Quigley:

As the Acting Director of the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Reactor Regulation (NRR), I am responding to the letter you wrote to Samuel J. Collins, dated May 19, 2003. In your letter, you discussed certain information, which you considered to be misleading, in the response to a rulemaking petition under Title 10, Section 2.206, of the *Code of Federal Regulations* (10 CFR 2.206), as submitted on April 11, 2003, by FirstEnergy Nuclear Operating Company (FENOC), the licensee for the Davis-Besse Nuclear Power Station.

According to your letter, the submitted information that concerns you is FENOC's statement that "...the existing containment airborne particulate monitor and the containment radioactive gas monitor are each capable of detecting a 1 gpm leak within 1 hour assuming 0.1 percent failed fuel." Specifically, you stated that containment radiation monitors do not provide a sufficient capability to detect leakage from the reactor coolant system, and you asked the NRC staff to perform a review of Davis-Besse's compliance with General Design Criterion (GDC) 30, "Quality of Reactor Coolant Pressure Boundary," as defined in Appendix A to 10 CFR Part 50.

The NRC staff has had previous dialogue with you regarding the leak detection sensitivity of containment airborne radiation monitors. In our letter to you dated July 18, 2002, the staff acknowledged that airborne particulate and gaseous radioactivity monitors that are designed in accordance with the sensitivities specified in Regulatory Guide (RG) 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," may, at times, not be capable of detecting a 1 gpm leak within 1 hour. However, we explained to you in that letter why we believed licensees remained in compliance with GDC 30 and why strict adherence to criteria in RG 1.45 was not necessary to assure adequate leak detection. Also in that letter we indicated that we would consider an interim revision to RG 1.45 to address the detector sensitivities associated with the actual coolant activity levels existing at power plants today. This was evaluated by our staff and we are pursuing the issue as part of our follow-on efforts to address the Davis-Besse reactor vessel head degradation event. Since that letter to you, the staff has issued four "Action Plans for Addressing Davis-Besse Lessons Learned Task Force Recommendations." One of these plans, entitled "Assessment of Barrier Integrity Requirements," includes a milestone to reevaluate the bases for reactor coolant system leakage requirements and reassess the capabilities of leakage detection systems. This milestone is supported by a research program that will establish a technical basis for any improvements needed with respect to barrier integrity requirements. Possible new requirements could include continuously monitoring the reactor coolant pressure boundary (RCPB) at critical locations by advanced methods capable of detecting material degradation before leakage occurs. The NRC will also be developing

improved inspection requirements for RCPB components to reduce their failure probabilities. It is the intent of the NRC that emphasis be placed on being able to identify the source of unknown leaks. Further, research efforts will include the development of the appropriate regulatory tools to implement the improved requirements. This effort includes the assessment of the need for, and possible revision to RG 1.45. These efforts are ongoing and will extend at least into the year 2005. This staff activity will address your general concern regarding the reactor coolant system leakage detection capability at nuclear power plants.

Upon receiving your letter, the NRC staff telephoned you twice on Monday, May 19, 2003. During the first conversation, you informed the staff that you did not have information specific to Davis-Besse, other than the information contained in the petition and the associated licensee responses. Additionally, you stated that you did not want the NRC to consider your letter as a comment on the petition.

In the second conversation, the staff clarified that independent of your request, the staff's evaluation of the 2.206 petition will address the requirements for Davis-Besse with respect to GDC 30. The staff's review of this issue has determined that the literal requirements of GDC 30 do not apply to Davis-Besse because their construction permit was issued prior to May 21, 1971 (see SECY-92-223, dated September 18, 1992, ADAMS No. ML003763736 for further discussion). However, the staff's review of Davis-Besse's leak detection systems during licensing determined that the plant design conformed sufficiently to the recommendations of RG 1.45 to satisfy the intent of GDC 30 (NUREG-0136, Supplement 1, April 1977).

In reviewing the FENOC letter, the staff took FENOC's statement to mean that containment radiation monitors at Davis-Besse are designed in accordance with the sensitivities specified in RG 1.45, and not as a statement that the monitors will always be able to detect a 1 gpm leak within 1 hour. Consequently, from the above information, the staff concludes that it was not misled by FENOC's statement and does not plan to perform a detailed reconciliation review of the Davis-Besse plant design against GDC 30 requirements.

Finally, the NRC Davis-Besse Oversight Panel has issued a restart checklist of items that the licensee needs to address before the NRC will consider allowing restart of the plant. One of the checklist items that may be of interest to you is Item 3.e, "Reactor Coolant System Unidentified Leakage Monitoring Program." While this area does not refer directly to your question, it does describe the licensee's response when evidence of leakage exists. The program consists of six main phases including data collection, data analysis, triggers and adverse condition recognition, preliminary investigation, condition reports, and leakage impact evaluation. Further details can be found in NRC Inspection Report #50-346/03-09, issued July 7, 2003. This report is posted to the NRC's public web page for Davis-Besse, which is available at <http://www.nrc.gov/reactors/operating/ops-experience/vessel-head-degradation.html>.

B. Quigley

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Thank you for expressing your concerns to the NRC. I trust that the information provided is responsive to your concerns.

Sincerely,

/RA by Brian W. Sheron for/

R. William Borchardt, Acting Director
Office of Nuclear Reactor Regulation

Docket No. 50-346

B. Quigley

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Thank you for expressing your concerns to the NRC. I trust that the information provided is responsive to your concerns.

Sincerely,

/RA by Brian W. Sheron for/

R. William Borchardt, Acting Director
Office of Nuclear Reactor Regulation

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