**From:** Eric Duncan
**To:** David Hills
**Date:** 03/08/2007 2:54:29 PM
**Subject:** Fwd: NEIL Letter

See attached NEIL letter.

F-11

**Mail Envelope Properties** (45F07805.2E1 : 4 : 3672)

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**Creation Date** 03/08/2007 2:54:29 PM
**From:** Eric Duncan

**Created By:** ERD@nrc.gov

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| **To Be Delivered:** | Immediate |
| **Status Tracking:** | All Information |

**From:** "JER7@NRC.GOV" <jer7@nrc.gov>
**To:** "ERD@NRC.GOV" <erd@nrc.gov>
**Date:** 03/08/2007 2:32:30 PM
**Subject:** Letter

**CC:** "JER7@NRC.GOV" <jer7@nrc.gov>

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Tel: +1 212 891 3518
David.Zaslowsky@bakernet.com

Via E-Mail

February 23, 2007

Thomas A. Schmutz, Esq.
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

RE: Davis-Besse – Exponent Report

Dear Tom :

I am sending to you for your information the copy of a letter sent earlier today by David Ripsom to Gary Leidich. At Mr. Leidich's request, I am sending a copy to David Jenkins as well.

Sincerely yours,

(GH)

David Zaslowsky

Cc: Ken Manne (by e-mail)
John H. O'Neill (by e-mail)
David Jenkins (by e-mail)

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dripsom@nmlnel.com

February 23, 2007

*Via email and First Class Mail*

Mr. Gary R. Leidich
President and Chief Nuclear Officer
FirstEnergy Nuclear Operating Company
76 South Main Street
Akron, Ohio 44308

Re: Potential Safety Concern Arising From Exponent Failure Analysis Associates and Altran Solutions Corporation, December 15, 2006 Report entitled "Review and Analysis of the Davis-Besse March 2002 Reactor Pressure Vessel Head Wastage Event"

Dear Gary:

I am writing as a follow up to our telephone conversation earlier today. Under ordinary circumstances, I would not be contacting you regarding matters associated with a pending claim. However, we identified a potential safety concern that has arisen out of the filings made by FirstEnergy Nuclear Operating Company ("FENOC") in the arbitration with NEIL on the Davis-Besse claim. The matter has been discussed with NEIL Board members (two with nuclear operating experience) and with former senior NRC officials. Because the concern has potential impact on Members other than FENOC, and because NEIL, as a mutual company, must take into consideration the concerns of all its Members (not to mention potential underwriting risks for NEIL itself), it was agreed that I should contact you directly.

On December 15, 2006, FENOC, through its counsel, submitted to NEIL a report prepared by Exponent Failure Analysis Associates and Altran Solutions Corporation, entitled "Review and Analysis of the Davis-Besse March 2002 Reactor Pressure Vessel Head Wastage Event" ("Exponent Report"). The Exponent Report disagrees in a number of ways with the analysis presented in the Root Cause Analysis Report entitled "Significant Degradation of the Reactor Pressure Vessel Head" (CR 2002-0891) that FENOC submitted to the Nuclear Regulatory Commission ("NRC"). As just two examples, the Exponent Report states that the crack growth rate was significantly higher than that stated in the Root Cause Report and suggests higher metal removal rates under certain thermal hydraulic conditions than that presented in the Root Cause Report.

Indeed, in a number of places, the Exponent Report contains statements that directly call into question FENOC's conclusions in the Root Cause Report (and other submissions by FENOC to the NRC) with regard to the cause and timeline of the damage to the Davis-Besse reactor pressure vessel head. As an example, FENOC stated on page 24 of the Root Cause Report (August 27, 2002) that "the corrosion rate began to increase significantly starting at about 11 RFO [April 1998] and acted for a four year period of time." In contrast, the Exponent Report stated as follows:

◊ "[w]e have concluded that the large wastage cavity found during the 13RFO inspection in March 2002 at Nozzle 3 could have formed in as little as a few weeks in the extreme of complete fluid cutting of the head." Exponent Report at 2-14.

◊ "[t]he development of the large crack at Davis-Besse Nozzle 3 and the subsequent wastage cavity development occurred in a much shorter time frame than the root cause report concluded." Exponent Report at 4-13.

NEIL has not yet had time to analyze in detail the assumptions, methodologies, models, analyses and conclusions reached in the 757 pages of the Exponent Report. However, we are concerned that if the theories postulated in the Exponent Report are indeed true, then there could be current implications for operating reactors at other NEIL Members, as well as FENOC's other PWRs.

In particular, Exponent's apparent position is that susceptible materials can have crack growth rates that are significantly higher than previously assumed and small through wall cracks can lead to high rates of erosion and corrosion. Material susceptibility and crack growth rates are one of the bases for the NRC's requirements for monitoring reactor coolant system unidentified leak rates during power operation, visual (bare metal) inspections of reactor pressure vessel heads during refueling outages, and periodic volumetric examination of penetrations. If the theories in the Exponent Report are correct, it could require reevaluation of the adequacy of these NRC requirements and the licensee programs implementing them to ensure that excessive degradation of a reactor pressure vessel head or other components could not occur in less than one operating cycle.

We recognize that the Exponent Report was prepared as part of an ongoing arbitration. At the same time, however, we are concerned about the possible consequences to the industry (as highlighted in the previous paragraph) that the report may cause. We therefore think it is important for NEIL's Members to know whether the opinions and conclusions set forth in the Exponent Report represent the position of FENOC with regard to the cause and timeline of the damage to the Davis-Besse reactor pressure vessel head.

One way of determining whether the Exponent Report represents FENOC's position is to look at the actions taken at Davis-Besse, as well as filings that FENOC may have made, or will make, with the NRC as a result of the Exponent Report. (Based on our search of the public records, we have not identified any such filing as of today) NEIL has retained as consultants a number of former senior NRC officials and obtained their input on FENOC's reporting requirements, if any, in connection with the Exponent Report. We have been informed that, if FENOC concurs with the conclusions in the Exponent Report that the prior root cause evaluation was in error or was non-conservative, the root cause report would have to be revised and resubmitted to NRC and the LER associated with the event would also need to be revised. In that regard, we note that the NRC's Confirmatory Action Letter to Davis-Besse Nuclear Power Station (CAL No. 3-02-001) dated March 13, 2002 imposed six sets of commitments FENOC had to undertake prior to restart, including "determine the root cause of the degradation around the RPV head penetrations." Because this item was closed out based on the root cause reports submitted by FENOC (see, *e.g.*, NRC letter dated September 19, 2003), we are advised that FENOC would have to inform the NRC if it now disagrees with the conclusions that formed the basis for satisfying one of the items of the CAL.

Before deciding on what actions we should take with our other Members about the safety concern discussed in this letter, we thought it prudent to contact you and request additional information on the actions that FENOC has taken in response to the opinions and conclusions in the Exponent Report. We therefore request that FENOC answer the following questions:

1) Has FENOC prepared a Condition Report and entered the Exponent Report into the Davis-Besse Corrective Action Program for analysis?

2) Has FENOC evaluated the opinions and conclusions in the Exponent Report with regard to what potential impact there might be on the various reports and analyses that were generated by FENOC to support restart of Davis-Besse?

3) Has FENOC evaluated its reporting obligations to the NRC with regard to the opinions and conclusions contained in the Exponent Report, and has FENOC contemplated, or is FENOC contemplating, submitting any reports to the NRC (such as a revised root cause report) based on the opinions and conclusions in the Exponent Report?

4) Has FENOC evaluated the opinions and conclusions in the Exponent Report for their potential impact on FENOC's response to the NRC's February 11, 2003 Order EA-03-009 with regard to the inspection plan for the refurbished Midland reactor pressure vessel head that was installed at Davis-Besse?

5) Has FENOC evaluated the opinions and conclusions in the Exponent Report for transportability to other systems and components at Davis-Besse that contain Alloy 600 (such as the pressurizer)?

6) Is FENOC planning on sharing the opinions and conclusions in the Exponent Report with the Institute for Nuclear Power Operations, the technical committees or programs of the Nuclear Energy Institute and the Electric Power Research Institute, or the various reactor owners' groups?

NEIL believes that FENOC's responses to the questions posed in this letter are important so that NEIL can have a better understanding of whether the opinions and conclusions in the Exponent Report present a current safety concern for other NEIL Members and whether NEIL should share the information in the Exponent Report with the NEIL Membership for review. Understanding the response by FENOC to the Exponent Report will assist us in this regard.

This matter will be a topic of substantive discussion at the upcoming NEIL Board meeting on March 9, 2007. We request that you respond before that time so that the Board can take such information into consideration in determining further steps, if any, that may be appropriate for NEIL or its Members.

I await your response, and if you have any questions about this letter, please feel free to give me a call.

Sincerely yours,

David B. Ripsom

David B. Ripsom