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Date: 03/08/2007 3:16:20 PM
Subject: Licensee Draft Investigation Ssummary for NEIL Eexpressed Concern for Potential Safety Issue

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Subject: Licensee Draft Investigation Ssummary for NEIL Eexpressed Concern
for Potential Safety Issue
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LICENSEE DRAFT

Site: G201

INVESTIGATION SUMMARY

CR Number:

NOP-LP-2001-06

AS OF 3/8/07 1615hrs

07-15077

Category / Eval: CF

Assigned Organization: DBDM

Quality Followup Req'd: Yes No

For Fix Investigations Only:

Hardware / Degraded Condition Resolution Required? Yes No If Yes: Repair Scrap Rework Use-As-Is

Acceptance of the CR Investigation signifies acceptance of the following items, as applicable:

Corrective Actions (listed below)	Originator Identification (listed below, if any)	Date (listed below, if any)
Cause Analysis		
Generic Implications		
10 CFR 21 Decision Checklist		

Acceptance of Investigation:

Date:

Quality Approval:

Date:

Site-VP Acceptance:

Date:

Closure Comments:

Problem Statement:

FENOC received a letter from Nuclear Electric Insurance Limited (NEIL) that a potential safety concern arose out of the filings made by FENOC in the arbitration with NEIL on the Davis-Besse Reactor Vessel Head claim. The potential safety concern centers on information that was provided in Exponent Failure Analysis Associates report dated December 15, 2006. NEIL's concern is that Exponent has stated 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 inspections of reactor pressure vessel heads during refueling outages and periodic volumetric examination of penetrations. If the information provided in the report is correct and the NRC has not considered it in their requirements, than significant degradation of a reactor vessel head and other affected components could occur prior to being caught by licensee programs.

Resolution:

The key to determining whether Exponent's report identifies a new potential safety concern is whether or not this report identifies new information regarding crack growth rates and degradation that can occur from small through wall cracks in susceptible Alloy 600 material and Alloy 82/182 weld filler metal that would not be known to the NRC or the Nuclear Industry. Exponent has provided the following information on this topic:

"It is important to note that industry evaluations of potential crack growth rates in Alloy 600 materials used for various components in the reactor coolant system are not typically based on the highest crack growth rates ever determined from either laboratory tests or plant experience. Rather, as pointed out in the Exponent report (Exponent Report at pages 8-12, 8-13 and Figure 8.4), the industry uses a "disposition curve" for crack growth rates that envelops 75 percent of the industry data base for Alloy 600 crack growth rates. Implicit in this approach, which is accepted by the NRC, is that 25 percent of the available industry data on alloy 600 crack growth rates lie above this "disposition curve." Inspection requirements and inspection intervals, both visual for leakage and non-visual NDE for crack detection, are based on such evaluations. In this context then, the high crack growth rate reported in the November 2006 NRC/ANL report for Davis-Besse Nozzle 3 Alloy 600 material is but one of many data sets for Alloy 600 crack growth rates that lie above the 75 percent disposition curve, and none of the existing industry analyses for Alloy 600 components that are based on the industry disposition curve are invalidated by the experimental

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results for Davis-Besse Nozzle 3 determined by the NRC/ANL program. Moreover, clearly both the NRC and the industry are well aware of the NRC/ANL data that show high crack growth rates for the Davis-Besse Nozzle 3 Alloy 600 material. The Exponent Report adds nothing new to this data, but simply uses the NRC/ANL data to develop the timeline of Nozzle 3 cracking at Davis-Besse."

The heat of Alloy 600 material, M3935 used in the manufacture of Davis-Besse's CRDM nozzle 3 is also known by the Industry to be highly susceptible to cracking from it's performance at Oconee-3 and it's unexpected cracking morphology in the ANL tests.

The NRC is also aware that small amounts of RCS leakage can cause significant degradation and can be tell tale indications of significant pressure boundary cracks. This is evident from the NRC's request to the Industry to commit to RCS unidentified leakage criteria that is much more restrictive than current Technical Specification limits for plants with unmitigated Alloy 82/182 welds.

Therefore, based on the above we do not believe that either the existing industry analyses for Alloy 600 RCS components at Davis-Besse, or the inspection requirements for the detection of cracks in such components, are affected by the high crack growth rates theorized in Exponent's report.

Note that the Exponent Report referenced in this Condition Report was prepared at the request of FirstEnergy Legal Counsel as part of the litigation between FirstEnergy and Nuclear Electric Insurance Limited (NEIL) regarding the Davis-Besse Reactor Head event. Therefore, this report and all related correspondence (including the letter from NEIL transmitting the potential safety concern to FENOC) are considered attorney-client communications, and as such are privileged and confidential. For those individuals with a need to know, contact Regulatory Compliance or the Legal Department to review a copy of the Exponent Report and the NEIL letter.

Quality Comments:

CORRECTIVE ACTIONS

CA Number:	Sched Type:	CA Type:	Cause Code:	Resp Org. Codes:	CA Acceptance:	Accept Date:	Due Date:	Completed Date: