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DOC DT: 11/21/00
FINAL REPLY:

David A. Lochbaum
Union of Concerned Scientists

TO:

Commission

FOR SIGNATURE OF : ** GRN ** CRC NO: 00-0700

DESC:

Concerns Another Example of Unmonitored Spent Fuel Pool Heatup -- Duane Arnold Nuclear Power Plant

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For Appropriate Action.

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AFFILIATION:	UCS		
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SUBJECT:	Concerns another example of unmonitored spent fuel pool heatup		
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Union of Concerned Scientists

November 21, ~~1999~~ 2000

Chairman Richard A. Merserve
Commissioner Nils J. Diaz
Commissioner Greta J. Dicus
Commissioner Edward McGaffigan, Jr.
Commissioner Jeffrey S. Merrifield
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: ANOTHER EXAMPLE OF UNMONITORED SPENT FUEL POOL HEATUP

Dear Chairman and Commissioners:

By letter dated September 3, 1999, I supplied you with a copy of a TVA internal report of an unmonitored spent fuel pool heat-up at the Browns Ferry nuclear plant. According to the Institute for Nuclear Power Operations and their Operational Experience (OE) Report No. 11631 (summarized in the attachment), it happened again, this time at the Duane Arnold nuclear plant.

While the actual safety significance of this recent event is minimal, the potential safety implications are very significant. As in the Browns Ferry event, this operating nuclear power plant experienced degraded cooling of irradiated fuel assemblies that remained undetected for two days (48 hours). The time-to-boil for spent fuel pools can be less than 48 hours under some routine conditions. Because it can take many hours to restore spent fuel pool cooling after the loss or degradation is known, few plants can afford to waste two days of their time-to-boil on merely detecting the problem.

The Duane Arnold event is also significant from the standpoint of nuclear plants that have permanently shut down. Industry representatives have criticized the NRC staff because they had assumed the identification and correction of degraded spent fuel pool cooling conditions might last longer than a single shift (12 hours). Clearly, the Browns Ferry and Duane Arnold events – which occurred at operating plants receiving much more attention from far more workers than that proposed for permanently shutdown plants – demonstrate beyond any reasonable doubt that the staff's position is indeed justified. The report on spent fuel pool problems presented to the Commission by the then-AEOD staff in November 1996 provides amply other events which prove that the Brown Ferry case was not an isolated one.

As UCS monitors the move towards risk-informed regulation, we continue to be troubled by industry initiatives which toss out r ignore reality. We hope that the NRC staff will be as diligent in guarding against these unwarranted erosions of safety margins as they have been thus far in the spent fuel pool issue at plants being decommissioned.

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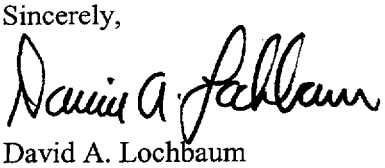
We also hope that the Commission, as it guides the NRC down the road to risk-informed regulation, will consider all industry experience – drawing from both good and bad events – before rendering safety decisions. Please note that as best I can determine from ADAMS, this event at Duane Arnold was not reported to the NRC as a Licensee Event Report (LER). We find that the staff and the industry often rely on the LER database to ascertain how often events occur. As this INPO report demonstrates, reliance on the LER database will result in non-conservative initiating event frequencies.

Sincerely,



David A. Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists

Attachment: as stated

Attachment

Summary of OE 11631
Duane Arnold: Loss of Fuel Pool Cooling Due to Procedural Non-Compliance

On 1/11/00, during the performance of a pre-planned maintenance activity, two relief operators were assigned to clear a tagout and restore the "A" fuel pool cooling pump and heat exchanger. The operators did not verify Reactor Building Closed Cooling Water (RBCCW) was valved into the "A" heat exchanger as required by the Operating Instructions (OI). The operator assumed RBCCW was valved in to both heat exchangers. During shift turnover on nights, two days later, it was noticed that fuel pool temperature was ~141°F. There is no alarm or annunciator to alert operators to abnormal fuel pool temperature, and Updated Final Safety Analyses Report (UFSAR) Section 9.1.2.3.2.1 lists an operational limit of 150°F.

The cause of the event was failure to line up RBCCW system per OI-435 while restoring the "A" fuel pool cooling pump and heat exchanger to service. The in-plant operator following OI-435 section 4.2 assumed both fuel pool cooling heat exchangers had RBCCW cooling valved in at all times. The individual performance was less than adequate, because he considered step 4.2 to verify RBCCW valved in as not applicable.

Root Cause :

The operator did not perform the verification steps in OI-435.

Contributing Factors:

1) There are no alarms or annunciators associated with fuel pool cooling temperatures. This latent weakness was identified when temperature increased after RBCCW had been isolated for ~2 days.

2) The heatup from this event was about one degree per hour. The change of 4-5 degrees between the time the operator swapped fuel pool cooling pumps and the end of his shift would be considered a small change to capture a credible trend. This latent weakness has existed from the original system design.

3) Because the UFSAR limit of 150°F and resin protection limit of 130°F are not Tech Specs (TS) omitted them from operations daily surveillance. The potential exists that other design limits exist that were not TS and not being monitored or trended.

4) Communication between the duty second assistant and the two relief operators did not occur. Plant configuration had changed and the duty second assistant was unaware of those changes. This removed the opportunity for the duty second assistant to perform follow-up monitoring of the fuel pool system.

Corrective Actions:

Corrective actions include trending of fuel pool temperatures, review of control room and plant indications to identify if other plant parameters are not being trended, re-enforce procedural use and adherence, and develop communication expectations.

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Chairman Richard A. Meserve
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