

# UNION OF CONCERNED SCIENTISTS

January 12, 1998

Mr. L. Joseph Callan  
Executive Director for Operations  
United States Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT: ADDENDUM TO PETITION PURSUANT TO 10 CFR 2.206, DONALD C. COOK  
NUCLEAR PLANTS UNITS 1 AND 2, DOCKET NOS. 50-315 AND 50-316**

Dear Mr. Callan:

The Union of Concerned Scientists submits this addendum to the petition pursuant to 10 CFR 2.206 we submitted on October 9, 1997 regarding Donald C. Cook Units 1 and 2. This addendum was requested by Ms. Elinor Adensam of your staff following my oral presentation this morning of our safety concerns. Enclosed is the prepared statement which I read during that presentation.

Sincerely,



David A. Lochbaum  
Nuclear Safety Engineer

cc: Chairman Shirley Ann Jackson  
United States Nuclear Regulatory Commission  
Washington, DC 20555-0001

Honorable Spencer Abraham  
United States Senate  
Washington, DC 20510-2203

Mr. A. B. Beach, Regional Administrator  
United States Nuclear Regulatory Commission  
801 Warrenville Road  
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Honorable Carl Levin  
United States Senate  
Washington, DC 20510-2202

Honorable Fred Upton  
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This is a public meeting, not the public hearing that we requested when we submitted our 2.206 petition over three months ago. There have not been many public hearings held for 2.206 petitions. In fact, it is my understanding that I have attended every 2.206 public hearing ever held. One. That public hearing was held on the Millstone petition filed by We.The People and Mr. George Galatis. Mr. Galatis was featured on the cover of TIME in March 1996. The first, and only, public hearing for a 2.206 petition was held the following month. Coincidence? I honestly doubt it. But I will get into statistics and how they are used by the NRC later.

You agreed to this meeting to see if I have "new" information about D C Cook. Before I present my information, I will briefly discuss some "old" information. You have heard this information before, but maybe not yet in 1998 – the 2.206 petition process is seriously and fundamentally broken. It isn't bent, it's broke.

You revised the 2.206 process 3 or 4 years ago and think it is fixed. The process was indeed changed, but it is not fixed. The old 2.206 process was broken. The new 2.206 process is broken. It needs to be fixed, or eliminated.

I suspect that the NRC's difficulty in stemming declining performance by its licensees offers a close parallel with the history of the 2.206 petition process. Your inspectors detect a performance problem at a plant. Its owner implements corrective actions. You conduct a followup inspection. If you find that things are the same, you correctly assume that the problem has not been fixed. If you find that things are different, you assume that the problem has been fixed. However, things can be different but still not fixed. That's your trouble with the 2.206 process and may have been the trouble you had preventing performance declines during the early stages of Salem and Millstone.

UCS submitted its 2.206 petition on October 9, 1997. We asked for two things: specific actions regarding D C Cook and a public hearing to present our concerns. To date, UCS has received one piece of paper from you concerning our petition – a letter dated December 9, 1997, acknowledging its receipt. All of the few telephone discussions we've had regarding the petition have been originated by me.

But enough on the 2.206 process. Today's meeting is for UCS to convey its concerns regarding D C Cook to you. Normally, I distribute copies of the slides or handouts to accompany my oral remarks. Since I thought, in good faith, that we would be granted a public hearing and assumed that I'd have at least 10 days to prepare for it, and since that did not happen, I am unable to provide any written documentation to you.

There are six concerns that I would like to discuss with you today.

My first concern involves D C Cook's ice condenser containment. The NRC Inspector General's office was informed last summer about alleged problems in the configuration and testing of the ice condenser at Watts Bar. Problems with the bay doors and components of the ice baskets were specifically identified. The allegations also suggested that many of the problems were generic and therefore affected the other ice condenser plants, including D C Cook. Finally, it was alleged that the problems were known, but not properly reported, by the Watts Bar licensee, the D C Cook licensee, the McQuire licensee, and even Westinghouse.

I refer you to Mr. George Mulley in the IG's office for the technical issues. I don't want to compromise IG's investigation, but these allegations exist and they may affect D C Cook. You recently issued an amendment to D C Cook's technical specifications involving the amount of ice in the ice condenser. The ice condenser licensing bases were changed, albeit to a limited extent. It provided another opportunity for the licensee to identify and report any ice condenser problems. I did not see any such report. Are the Watts Bar ice condenser problems valid? Do they apply to D C Cook? I can't answer that -- at this time. Can you?

My second concern involves the licensee's 50.59 safety evaluation process. From the material I've reviewed, it appeared that you felt the licensee's 50.59 safety evaluation process needed improvements. I understand that the licensee made changes to its process. I am concerned that it is not evident that the licensee made any attempt to determine if safety evaluations prepared under the old process led to inappropriate conclusions. In other words, did the bad process cause bad products?

Before joining UCS in 1996, I was a consultant on a UFSAR vertical slice project for Salem Unit 2. We looked at every safety evaluation written for every modification to the systems we examined. Prior to that assignment, I was a consultant on the power update project for Susquehanna. Although that licensee did not have a suspect 50.59 process, the effect of increasing the plant's licensed power level might have invalidated the conclusions from prior safety evaluations. Therefore, we reviewed the summary for every safety evaluation written. Prior to that assignment, I was a consultant on the Browns Ferry Restart Project. TVA did have a configuration management problem. We reviewed every safety evaluation written for every modification to the systems we examined.

So, based on industry experience and common sense, I expected to see at least some screening of safety evaluations written at D C Cook using the bad process. Has an assessment of D C Cook's safety evaluations been performed? If not, could "bad" safety evaluations prepared using the "bad" 50.59 process mean that unidentified safety problems remain at D C Cook?



My third concern involves engineering calculations. From the material I've reviewed, it appears that the quality of the licensee's calculations was suspect. In fact, the licensee's response to the confirmatory action letter (CAL) dated December 2, 1997, stated that a root cause for its problems was that "Some analyses were found to contain errors and incorrect assumptions." The licensee said a peer review process was used to spot check its calculations. According to the licensee's response, a total of 191 calculations were peer reviewed. Sounds like a broad review. But it's not, for the following reason.

171 calculations were reviewed to resolve the concerns you raised during the design inspection. The remaining 20 calculations covered the auxiliary feedwater, component cooling water, chemical volume and control, containment spray, essential service water, residual heat removal, and electrical distribution systems. 20 calculations for 7 safety systems. That's an average of fewer than 3 calculations reviewed per safety system. Even given this tiny sample, the licensee reported that "some administrative and minor technical concerns were identified."

Is the NRC satisfied that a review of merely 20 calculations is an adequate extent of condition assessment? If so, why?

My fourth concern also involves engineering calculations. Between the time we submitted our petition and the time the licensee responded to the CAL, I received allegations involving net positive suction head (NPSH) calculations performed for D C Cook. The individual making the allegations was at D C Cook and told me there were problems with more than one NPSH calculation. The alleged problems involved both "missing" and inaccurate calculations. I do not know which pumps were affected, but it should not be too difficult for you to check. I am unable to check myself since these documents are not publicly available. Do the safety-related pumps at D C Cook have adequate NPSH as shown by quality calculations?



My fifth concern involves the credibility of the licensee's response to your CAL. By letter dated February 6, 1997, the licensee submitted, under oath, its response to the NRC's 50.54(f) request dated October 9, 1996. I think it is fair to state that the licensee, in that response, told you that there were no major problems with the two safety systems you examined in the subsequent design inspection. Each of these safety systems had been the subject of a design bases document recently issued by the licensee. Essentially, the licensee gave both of these safety systems a clean bill of health. Your subsequent design inspection clearly showed otherwise. Both units have been shut down for over three months to fix the problems you identified in the allegedly "clean" systems.

Since the shutdown, the licensee has expended considerable effort fixing the many problems you identified. Numerous physical plant changes were necessary. However, the licensee has expended less effort examining whether the programmatic problems you found affected other systems as well. The licensee was unable to identify the problems in the two systems you examined during a thorough design bases documentation program. It appears that the licensee applied less effort, per system, on the recent extent of condition assessment than it applied during the design bases document process. Since the larger effort failed, can you be sure that the smaller effort succeeded?

My sixth concern involves the NRC's own inspection process. You came in, looked at two safety systems, and found enough problems to force both units to shut down. The licensee maintains that these problems were confined to these two systems and everything else is well. Sound familiar? In 1996, you examined 4 systems at Maine Yankee and documented over 70 pages of problems. That licensee claimed the problems were limited to just those systems. Last year, you examined 2 systems at Vermont Yankee and found a serious problem affecting 1 system and lesser problems affecting the other. That licensee claimed the problems were limited to just those systems. If these licensees are correct, then you are the best regulator on the planet. You consistently find the needles in the haystacks. You find the only significant system problems that exist at the plants.

Were these licensees correct? I don't know. More importantly, you don't know either. You've never expanded the scope for system sampling inspections. If you had examined another system or two, then you'd really know whether you found the only problems or not.

You make sure that the licensees fix the problems you find in the few systems. That obviously needs to be done. But much more needs to be done. The true purpose of the your inspection of sample systems is not to ensure the operability of these few systems. Your inspections are intended to assess the licensee's programs and controls for maintaining all safety systems. Your findings tell you something about the material condition of the plant, but they also provide you information on the licensee's general safety management ability. Theoretically, you should not find anything during an inspection. Thus, any finding actually represents two problems – a nonconforming condition as well as a failure of the licensee's Quality Assurance (QA) process. Too often, you allow licensees to simply fix half of the problem – the nonconforming

condition. For example, when you find a broken widget, you make sure that the licensee changes the widget. You also need to find out why the licensee did not identify the broken widget and if they have any other broken widgets. The licensee's programmatic failures must be fixed. Otherwise, problems in other systems will remain undetected and future problems may be introduced.

What would it take for you to expand the sample size? This should not be a rhetorical question. You should develop and issue clearly defined criteria on when you will require additional system assessments based on findings from your system inspections.

**These are my concerns.**

I think UCS asked for very reasonable actions in our petition. The significant problems you found raise valid questions about the other safety systems at D C Cook. To date, I do not think those questions have been adequately answered. It is clearly the licensee's burden to answer these questions. It is your burden not to permit D C Cook to restart until these questions are answered and the answers indicate the plant will be operated safely.

To be perfectly candid, I never expected our petition to be granted. The NRC's record is such that a public petition has very little chance of being granted. My fallback position is to monitor daily event reports, LERs, and inspection reports after the plants restart. When I see a significant problem reported that might have been identified and corrected before restart had the NRC granted our petition, you can be sure I'll let you know.