

New England Coalition on Nuclear Pollution, Inc.

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September 15, 1992

Ivan Selin, Chairman
U.S. Nuclear Regulatory Commission
Washington, DC

Dear Chairman Selin:

We wish to alert you to a situation at the Vermont Yankee Nuclear Power Station that requires your immediate attention and corrective action.

Vermont Yankee routinely operates turbine building roof exhaust fans in contradiction of its Final Safety Analysis Report (FSAR). This practice may have resulted in an inadequately monitored release of radioactive materials (particulate and gaseous) to the environment during an incident on January 13, 1992 (see the Feb. 21, '92 NRC inspection report No. 50-271/92-01, hereafter NRC report, and Licensee Event Report LER 92-003: AOG RUPTURE DISC TEMPORARY REPAIR NOT WITHIN SYSTEM DESIGN BASES Feb. 13, '92).

On Monday, January 13, 1992 at approximately 1:30 PM, with the reactor at 100% power, maintenance personnel inadvertently shut off the Advanced Dif-Gas System (AOG) which caused a rapid build-up of pressure bursting the steam jet air ejector rupture disc and releasing radioactive gases and particles into the turbine building.

Because of poor design, the release from the rupture disc was not immediately contained. Instead, the gases and particles migrated throughout the turbine building and eventually into the reactor building, before apparently entering the plant exhaust.

Because the plant was operating with leaky fuel, workers were needlessly exposed to radiation levels as high as 38% of Maximum Permissible Concentrations during this incident. This is the second fuel cycle in a row that management has decided to operate the plant with leaky fuel, a practice in conflict with keeping radiation doses as low as reasonably achievable. In a July 1990 letter, plant workers warned your Staff about this potentially dangerous condition at the plant. Concentrations of radioactive gases and particles in this uncontrolled release were at least ten times higher than they would have been under normal operating conditions.

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PDR COMMS NRCC
CORRESPONDENCE PDR

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Counts per minutes at the stack went from a pre-event level of 250 cpm to 130,000 cpm (NRC report), indicating considerable exhaust activity that by-passed the charcoal filter system and catalytic converter. These systems are designed to reduce radiation levels of reactor off-gas by a factor of 10,000 before release to the environment.

In addition to this monitored and recognized release pathway, we suspect that significant amounts of the radioactive materials released from the steam jet air ejector rupture disc were vented directly to the environment through the unfiltered turbine building roof exhaust fans. These exhaust fans have no automatic emergency stop system to assure that this direct pathway is sealed during releases of this type (FSAR 10.12-4 and Fig 10.12).

Considering the close proximity of the plant to the Vernon Elementary school (within 540 yards), and the presence of particulates in the release, it is surprising to find no discussion of this pathway in either NRC or Vermont Yankee reports.

Yet there is every reason to believe these fans were in operation during this incident. Year-round operation has become common practice in recent years to reduce elevated levels of radioactive gases in the turbine building because of the leaky fuel. This practice contradicts the plant FSAR which indicates summer operation only. Complaints from concerned workers had alerted Vermont Yankee management and your Staff to this questionable practice, as well as to the practice of leaving turbine building doors open in all seasons.

The turbine building exhaust fans are a known pathway for uncontrolled radioactive releases. This pathway was the subject of considerable discussion 9 years ago in association with contamination of Connecticut River sediment with Co-60 (see Memo for Darrell Eisenhut from Richard W. Starostecki re: LOW LEVEL RADIOACTIVE EMISSIONS FROM BWR TURBINE ROOF VENTS 11/7/83).

Further, the NRC report notes particulate levels in the reactor building higher than levels measured in the turbine building where the release took place. The buildings are divided by airlocks and have separate ventilation systems. Neither NRC nor Vermont Yankee reports explain how the release crossed the boundary between the buildings. However, in a past incident freon released on the roof entered the control room air supply (LER 85-012-00: CONTROL ROOM HABITABILITY SYSTEM ACTIVATION). Did releases via the turbine building roof exhaust fans contaminate the reactor building intake air supply?

Vermont Yankee claims that the releases associated with this

incident didn't exceed any limits (LER 92-003, NRC report). We seriously question the reliability of this claim, given the nature of the release and the existence of the roof exhaust pathway. Specifically, were Radiation Protection or Health Physics personnel aware of the beyond-FSAR practice of operating the turbine building roof exhaust fans? Did they adequately understand the probable flow paths of the release from the rupture disc? Since particulates were involved, has Vermont Yankee adequately assessed the long-term leaching of radioactivity off the roof and its effect on the environment and the public. The NRC report notes only that "The surveys taken appear to be properly documented and of adequate detail to assess conditions within the plant." (emphasis added).

Within six minutes of the discovery of the rupture, the AOG was restored to service and leakage out the ruptured disc was minimized by placing a metal bucket over it. However, the plant then continued operation for two days instead of immediately shutting down to repair the ruptured disc.

The steam jet air ejector rupture disc has burst many times in the past twenty years. Until this incident, the plant has never continued to operate or attempted an on-line repair. Records from 1973 demonstrate that the plant moved to shut down within 5-7 hours of discovery of a steam jet air ejector rupture disc rupture (Abnormal Occurrence Nos. AO-73-27, AO-73-26, AO-73-25).

Yet, plant management deliberated for two days about whether an on-line repair could be done, or if they could continue operations in a degraded mode (ie. with a bucket over the leak). Meanwhile, control room operators were required to perform constant surveillance of the degraded AOG to prevent further uncontrolled releases (LER 92-003: AOG RUPTURE DISC TEMPORARY REPAIR NOT WITHIN SYSTEM DESIGN BASES Feb. 13, '92).

We understand that management had decided it was possible to continue operations in the degraded mode until your Staff, in private consultation at Corporate Offices, forced management to take the plant off-line and make repairs.

Given these facts and uncertainties, we feel that Vermont Yankee operated in a manner that recklessly endangered workers, and represented a significant increased risk to the public.

We require you to:

1. Determine why there was a two day delay in making repairs and whether this was a violation of operating procedures in force at the time. If so, to identify those responsible and carry out disciplinary action.


2. Conduct a public investigation of the release to determine the full extent of worker and public exposure, and to make available (with supporting documents): total curies released, radiation doses to workers and public including pathway analysis, and stack monitor data for the period just before and twelve hours after the event.

3. Require Vermont Yankee to accelerate its plans to isolate all turbine building exhaust points and vent them into a filtered and monitored system.

4. Conduct a plant-wide design study to identify any other inadequately filtered and monitored pathways to the environment and require Vermont Yankee to correct these flaws.

We look forward to your prompt attention to this situation.

Sincerely,



Michael J. Daley for the Board
of the New England Coalition
on Nuclear Pollution

cc. Vermont Yankee
Governor Howard Dean
media