



in the safety analysis, plus increased inspection, maintenance, and testing procedures required by the Staff, provide adequate protection from turbine missiles (Supplement No. 2 to North Anna 1 & 2 Safety Evaluation Report, Staff Ex. 3, at 10-2 to 10-3).<sup>1</sup>

The Staff filed its "Response to Atomic Safety and Licensing Appeal Board's Request for Information on the North Anna Units 1 and 2 Regarding Missiles" on September 15, 1978. On October 16 the Union of Concerned Scientists (UCS) asked permission to file a brief amicus curiae on the issue of the turbine missile damage. No party having objected to that request, the Appeal Board granted the UCS motion and ordered the parties to respond by November 16, 1978 (Appeal Board Order of October 26, 1978).

#### UCS's Two Arguments

The UCS brief asks the Appeal Board to suspend the North Anna operating license until appropriate protection against turbine missiles has been provided (UCS amicus brief 8). The UCS brief does not argue the inadequacy of the existing protective measures at North Anna. Rather:

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<sup>1</sup>The turbine missile question is also addressed in "Vepco's Response to the Limited Appearances of Mrs. Allen and Mr. Pollard" 54-57 (July 5, 1977) and "Staff Responses to Board's Request for Additional Information" 1-2 (November 23, 1977).

UCS wishes only to address a very narrow question: may the Staff validly base continued operation of North Anna, in the face of the unresolved turbine missile question, upon the purported "low probability" of a turbine missile accident, particularly when the probability relied upon is specifically derived from WASH-1400, the Reactor Safety Study?

(UCS "Motion to File a Brief Amicus Curiae," October 16, 1978, at 2.) In addressing this issue UCS makes two arguments, one of law and one of fact.

The principal UCS argument (Part II.B of its brief) is the legal one: UCS says that the NRC Staff, using as its rationale the low probability of turbine missile damage, has licensed North Anna 1 even though it cannot yet conclude that the plant meets General Design Criterion (GDC) 4. This, says UCS, is an indirect attack on the Commission's regulations such as was disapproved in Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520 (1973).

The other UCS argument (Part II.B of its brief) is the factual one: quite apart from the unlawfulness of licensing a plant that may not comply with the regulations, UCS says, the Staff's reliance on low probability is unacceptable, because it is based on the

Rasmussen Report.<sup>2</sup> UCS points out that the Commission has said the Rasmussen Report is "not an appropriate basis for licensing decisions" (Interim General Statement of Policy on "Protection against Accidents in Nuclear Power Reactors," 39 Fed. Reg. 39064, 39065 (Aug. 27, 1974)). The recent "Lewis Report,"<sup>3</sup> a critique of the Rasmussen Report, only reinforces the point, says UCS, because it points out that the Rasmussen Report is flawed.

Veeco's Response to the UCS Arguments

Veeco believes that both UCS arguments are wrong. In replying to them, we take UCS at its word and address only the "narrow question" argued in the amicus brief; we do not deal with the question whether the Staff's analysis of missile protection is adequate.<sup>4</sup> Our argument will be, first, that the NRC Staff has found that North Anna 1 and 2 do meet GDC 4 -- that the Staff has done a

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<sup>2</sup>Reactor Safety Study -- An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants, WASH-1400, NUREG-75/014 (October 1975).

<sup>3</sup>Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission, NUREG/CR-0400 (Date Published: September 1978).

<sup>4</sup>Veeco does believe, however, that the Staff's nine-page Response of September 15 is on its face sufficiently persuasive to meet the Appeal Board's standard of review of the missile question. The issue was not a contested one, and so, according to ALAB-491, what the Appeal Board must do is look "to see whether . . . [the issue has] . . . been taken into account in a manner that is at least plausible and that, if proven to be of substance, would be adequate to justify operation" (ALAB-491 at 6 n.7).

plant-specific safety analysis and concluded that North Anna 1 and 2 are adequately protected from missile damage. This case is therefore quite unlike Vermont Yankee, where the Staff sought to allow operation without really knowing whether the facility complied with the regulations. The difference is that in Vermont Yankee the Staff tried to use probabilities to justify a suspension of the rules, whereas here the Staff has used probabilities to show that the rules are met. Second, we will argue that the Staff's reference to the Rasmussen Report, because it is in the generic part of the Staff's analysis, is not material to the plant-specific analysis.

The Staff has found the North Anna design adequate. UCS's basic argument is that the Staff has not concluded that North Anna 1 and 2 meet the Commission's General Design Criterion 4, and that the units may not be licensed until it has done so. GDC 4 gives missile design bases:

Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit.

10 CFR Part 50, Appendix A, ¶ I (1978) (emphasis added).

The reason UCS thinks North Anna may not meet GDC 4 is simply that the Staff is doing generic studies on missiles, the results of which may bear on the licensing of individual plants. But this is beside the point, because the Staff has done a plant-specific safety analysis of North Anna 1 and 2 themselves and pronounced them satisfactory, based on present information.<sup>5</sup> The Staff relies, not on the probabilities in the Rasmussen Report, but on the multiple conservatisms in the analysis of North Anna itself. For example, samples of the concrete taken during the pouring operations at North Anna show an actual strength greater than the minimum design strength (Staff Response of September 15 at 3); missile effects

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<sup>5</sup>Of course, the ongoing generic studies could prove the Staff wrong in some cases; such is always the case with attempts to get more information, else there would be little point in making the attempts in the first place. The Staff says:

Should the analysis of the overall probability of damage indicate that, for some plants, turbine missile risks are not acceptably low, various measures can be taken to reduce this probability of damage.

Task Action Plan A-37 at A-37/3. Nevertheless, the thrust of the explanations in the Task Action Plans is that the present licensing requirements appear adequate for the time being.

have been evaluated assuming perfectly normal incidence and the most penetrating missile orientation (id.); the probability of generation of turbine missiles has been based on experience over the last 20 years or so, ignoring modern improvements in materials and overspeed protection systems (id. 5); and so on. Having found all those conservatisms, the Staff nevertheless has required Vepco to further reduce the risks by turbine valve inspection, maintenance, and testing procedures and turbine inspection measures (id. 5-6). As a result, the Staff concludes as follows:

These measures, in the Staff's view, constitute an acceptable level of protection for North Anna. In the case of North Anna, it is the Staff's view that completion of Task A-37 will not result in additional requirements for that facility and we consider the matter resolved.

(Id. 6.)

In the face of the Staff's plant-specific analysis of North Anna, UCS's argument boils down to the old familiar claim that individual facilities should not be licensed so long as generic proceedings are going on. The Commission has rejected this argument many times. See Natural Resources Defense Council, Inc. v. NRC, 582 F.2d 166, 169 (2d Cir. 1978); Nader v. NRC, 513 F.2d 1045, 1054 (D.C. Cir. 1975); Union of Concerned Scientists

v. AEC, 499 F.2d 1069, 1080-86 (D.C. Cir. 1974).

UCS has added something to the usual argument, though, by attacking the Staff's references to the low probability of missile damage. In doing so it has tried to fit this proceeding under the Vermont Yankee case.

The Vermont Yankee case. That case, however, was entirely different from this one. In Vermont Yankee the Staff wanted to permit the plant to operate for a short time without knowing whether it met the regulations, because the chance of accident during that time was so low. In North Anna the Staff has concluded that, in part because the probability of damage is so low, the regulation calling for "appropriate" protection has been met. The difference is no less fundamental than that between showing compliance with the regulations and failing to show it. Let us examine Vermont Yankee carefully.

In Vermont Yankee the ASLB had authorized a full-power, full-term operating license for the facility, when the Appeal Board remanded the proceeding so that the ASLB could decide whether to consider several new issues raised by the intervenor. As a result the ASLB reopened the proceeding but ruled that the plant could continue to operate. The principal parties filed exceptions to the ASLB order, the intervenor objecting to the board's refusal to shut down the plant.

The Appeal Board considered the question of interim operation, among others, in ALAB-138. The question on which interim operation turned was fuel densification and whether it precluded a finding that the interim emergency core cooling system (ECCS) acceptance criteria had been met (specifically, the requirement that the peak cladding temperature in the case of a LOCA not exceed 2300°F). As the Appeal Board summarized the matter:

The Licensing Board had before it three essential factors for consideration:  
(1) The reactor has a predicted peak cladding temperature in the event of a LOCA of 2280°F, calculated without reference to the effects of densification.  
(2) GE [the reactor vendor] has made a claim, which is unsworn, untested, and unendorsed by the staff, that densification has no effect on peak cladding temperature.  
(3) The staff asserts that it has no analysis of its own to show that densification will or will not have an effect substantial enough to raise the peak cladding temperature above 2300°F.

(6 AEC at 530).

As UCS says, the Appeal Board in Vermont Yankee rejected the Staff's argument that, since the probability of a LOCA in the time required for the reopened proceeding was very low, continuing operation was justified. The Appeal Board said that this constituted an indirect challenge to the ECCS criteria and could not be accepted (6 AEC at 529). Nevertheless, the Appeal Board found

that the ASLB had reached the correct result in permitting continued plant operation pending the outcome of the reopened proceeding:

The GE report, which was the most probative evidence on the record before the Board, would demonstrate the facility's compliance with the ECCS criteria. Since neither the staff nor NECNP [the intervenor] made any showing of unlikelihood that the GE report would be accepted, that report furnished the basis for an interim finding of compliance with the criteria and thus justified continued plant operation.

(Id. 531). The Appeal Board was not, however, prepared to say that plant operation could continue through the entire pendency of the reopened proceeding, because the Staff had failed to submit to the ASLB information which the Appeal Board thought might well have a crucial bearing on interim plant operation. The Appeal Board ordered the Staff to supply that information to the ASLB so that the ASLB could, on an expedited schedule, make another interim determination whether plant operation could continue.

The first thing to note about Vermont Yankee is that the plant was permitted to continue operating -- a poor precedent for what UCS seeks here.<sup>6</sup> Apart from that,

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<sup>6</sup>It is true, however, that after the record had been supplemented the Appeal Board decided that Vermont Yankee could not be said to comply with the Interim Acceptance Criteria without a derating. Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-141, 6 AEC 576, 584 (1973).

moreover, the North Anna situation is altogether different from that in Vermont Yankee. The issue in Vermont Yankee was whether the plant complied with a precise numerical standard (2300°F), and probability had nothing to do with meeting it. In North Anna the question is whether the plant meets a "general" design criterion<sup>7</sup> -- whether it is "appropriately" protected -- and that issue depends on the probability of accident as well as on the protective measures used.<sup>8</sup> In Vermont Yankee the Staff simply did not know whether the plant complied with the regulation; in North Anna the Staff has analyzed the plant and found it acceptable. If anything, Vermont Yankee supports Vepco's rather than UCS's position.

The Staff's reference to the Rasmussen Report does not taint the North Anna analysis. UCS's second argument, that basing a finding of low probability on the Rasmussen Report is improper, is also unpersuasive. The Staff does not rely on the Rasmussen Report in the plant-

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<sup>7</sup> See In the Matter of Petition for Remedial Action, CLI-78-6, 7 NRC 400, 406-07 (1978), for a discussion of the character of general design criteria.

<sup>8</sup> The use of probabilities to determine compliance with NRC regulations is a long-accepted practice. Cf. Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 2), ALAB-486, 8 NRC 9, 28 (1978); Public Service Elec. and Gas Co. (Hope Creek Generating Station, Units 1 & 2), ALAB-429, 6 NRC 229, 234 (1977); Long Island Lighting Co. (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 845-46 (1973).

specific, as distinguished from the generic, analysis.<sup>9</sup> The Rasmussen Report is not mentioned in the nine-page plant-specific analysis at all, and the discussion of "Turbine Missiles" at pages 4-6 of that analysis refers to generic Task Action Plan A-37 (which does mention the Rasmussen Report) only after concluding, on the basis of the North Anna design, that there is an acceptable level of protection at North Anna.

Conclusion.

The UCS amicus brief has missed its mark by making a case against something that hasn't occurred. UCS's request for a suspension of the North Anna operating license should be denied, and the Appeal Board should find satisfactory the Staff's treatment of turbine missiles insofar as North Anna 1 and 2 are concerned.

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<sup>9</sup>We must remember that the Staff has done both a generic and a specific analysis of why plant operation may continue pending the outcome of the generic missile studies. In the nine pages of its September 15 Response proper it deals solely with North Anna. In each of the attachments to the Response, "Task Action Plans" A-32, A-37, and A-38, it has included a Section 3 called "Basis for Continued Plant Operation and Licensing Pending Completion of Task," which shows why, as a generic matter, licensing need not cease.

Respectfully submitted,

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DATED: November 16, 1978

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DATED: November 16, 1978