



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Mr. Joel Sohn  
Museum of Comparative Zoology  
Harvard University  
Cambridge, Massachusetts 02138

Dear Mr. Sohn:

Your letter of March 25, 1979 to John M. Deutch, relative to the velocity cap at Seabrook, has been referred to me for comment.

The Nuclear Regulatory Commission has had some experience related to use of velocity caps at nuclear power plants. Velocity caps have been used at offshore submerged intakes as an effective means of reducing the passage of fish through the plant cooling system.

The capability of the velocity cap at Seabrook to withstand northeasters or other damaging storms has not been specifically reviewed by the NRC. A primary objective of our safety review was to determine that water would be available from the ultimate heat sink complex during any severe natural phenomenon and following the postulated failure of any man-made structure.

If the velocity cap were to fail, resulting in total blockage of the intake, water can be delivered by reverse flow through the discharge tunnel to the onshore pump structure (SER Section 9.2.3). Total loss of this flow would result only if the several ports of the multiport diffuser were blocked. If both intake and discharge tunnels were completely blocked, cooling would be provided by an onsite mechanical draft cooling tower. The cooling tower storage basin will provide a minimum of seven days supply of cooling water (SER Section 9.2.3). In Section 2.4.9 of the SER, four separate means of obtaining makeup water for the cooling tower basin are identified. If the event which caused the damage were a severe northeaster, and the velocity cap were to be completely destroyed, the safety of the plant would not be compromised.

Since the velocity cap is not safety-related, the operational dependability of the cap was not analyzed by the NRC. In general, individual applicants are responsible for structural design of such nonsafety systems. These analyses determine the structural engineering requirements for withstanding particular ocean waves and currents. In general, structures such

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Mr. Joel Sohn

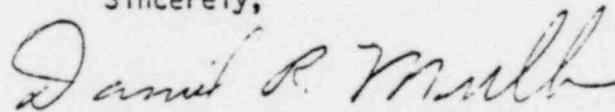
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as these are designed to meet appropriate building codes. Although our review did not specifically consider the capability of the intake system to assure continuous operation of the plant during Northeastern storms, we would note that in Section 3.4.1 of the Environmental Report the applicant stated that one objective included in the selection of the heat dissipation system is that it incorporate a maximum amount of proven and reliable technology. The applicant also stated that the structure is firmly attached to the tunnel riser shaft to provide stability from wave induced forces. Should you desire specific information on the design of the velocity cap, you should contact Public Service Company of New Hampshire.

With regard to the apparent indefensibility of the intake system to sabotage, the discharge system and the cooling tower serve as backup systems. During the operating license stage of review, the applicant will have to demonstrate compliance with the Commission's regulations pertaining to sabotage, i.e., Section 73.55 of 10 CFR Part 73. During that review we will make certain that the security system and plant features will ensure that a source of water will always be available from the ultimate heat sink complex.

I trust that this information is responsive to your inquiry.

Sincerely,



Richard C. DeYoung, Director  
Division of Site Safety and  
Environmental Analysis  
Office of Nuclear Reactor Regulation



APR 17 1979

Department of Energy  
Washington, D.C. 20545

Mr. Joel Sohn  
Museum of Comparative Zoology  
Harvard University  
Cambridge, Massachusetts 02138

Dear Mr. Sohn:

Your letter of March 25, 1979 to John M. Deutch expressing concern about the velocity cap of the Seabrook plant has been referred to this office for reply.

Inasmuch as matters pertaining to Seabrook are under the cognizance of the Nuclear Regulatory Commission, we are referring this letter to them for appropriate action by copy of this letter.

Sincerely,

*Robert L. Ferguson*  
Robert L. Ferguson  
Program Director  
for Nuclear Energy

cc:  
L. Gossick, NRC

MUSEUM OF COMPARATIVE ZOOLOGY

The Agassiz Museum



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March 25, 1979

Dear John,

I apologize for writing but I have not been able to reach you by phone. Back in September, Harley Laing, Deputy Counsel for Region I EPA Administrator Adams requested that I write a report concerning the scientific irregularities in the Seabrook Case. I have spent some of my time trying to track down the scientific irregularities, and some of my time trying to figure out how they occurred. The study has allowed me to "chart the causes of error making, error suppression, and the suppression of the detection of error" during the decision making process.

I have communicated some of my results on the irregularities to Richard Dowd (I think he is Scientific Counsel to the Administrator), and to Dave Burrmaster at CEQ as well as to Herbert Perlman, Chief Administrative Law Judge for EPA. These gentlemen are, of course, concerned with environmental problems. There appears to be one outstanding error which must be examined. The error appears to be one of design which is probably easily rectified. I suggest that the correction of the error will help assure a more continuous flow of energy from the plant.

I will now bother you with a few details. I am concerned about the structural integrity of the Velocity Cap which is to be placed on top of the intake pipe to the cooling water system. There seems to be real doubt about the ability of this platform to withstand stress during Northeastern storms. The platform is to be placed just below mid-depth in sixty feet of water about one mile from shore. I have been unable to find any engineering reports on the stability of the platform.

Simple removal of the velocity cap from the specifications may remove this error. The alleged reason for the velocity cap is protect the environment, particularly benthic fishes from capture by the intake system.

I am concerned about one other problem concerning the intake system. It concerns the apparent indefensibility of the intake system to sabotage. As the installation is more than a mile offshore the problem is very real. Having worked with the ONR UTV in the Bahamas I am familiar with the problems of underwater surveillance. UTV will not be very useful in these waters.

I am told that you are trying hard to rid of the waste! Would you kindly move this letter to the right person?

Sincerely yours,

Joel Sohn