

*FORKED RIVER NUCLEAR*

*SALT WATER  
Cooling Tower  
02-10  
Formal panel*

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September 29, 1977

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Rocco D. Ricci  
Commissioner  
State of New Jersey  
Department of Environmental Protection  
P.O. Box 1390  
Trenton, New Jersey 08625

RE: Application for Permit to Construct, Install or  
Alter Control Apparatus or Equipment and Request  
for Amendment of Section 6.2 of N.J.A.C. 7:27-6  
and the New Jersey State Implementation Plan to  
Meet National Air Quality Standards

Dear Commissioner Ricci:

Jersey Central Power & Light Company (JCP&L) is planning to construct and operate a salt water natural draft cooling tower in connection with the Forked River Nuclear Generating Station in Lacey Township, Ocean County, New Jersey. The cooling tower will dissipate heat from the operation of the Station's recirculating condenser cooling water system.

Representatives of GPU Service Corporation (GPUSC) and JCP&L have discussed the applicability of N.J.A.C. 7:27-8 (Permits and Certificates ("Subchapter 8")) and N.J.A.C. 7:27-6 (Control and Prohibition of Particles From Manufacturing Processes ("Subchapter 6")) with representatives of the New Jersey Department of Environmental Protection (DEP) over a period of years. The discussion resulted from the DEP's determination that the natural sea salt emissions from the operation of the cooling tower would be "particles" as defined in Subchapters 6 and 8 and thus subject to the permit requirements of Subchapter 8 and the 30 lbs/hour particulate emission limitation imposed in

Section 6.2 of Subchapter 6. 1/

JCP&L had questioned whether the tower would emit an "air contaminant" as that term is defined in Subchapter 6. In JCP&L's view, the salt water emitted from the cooling tower would not consist of "particles" as defined in Subchapters 6 and 8 because salt water is uncombined water and Section 6.1 of Subchapter 6 defines "particles" as "any material, except uncombined water." Consequently, JCP&L had suggested that the emissions from the tower should not be subject to the present emission limitation requirements of Section 6.2 of the regulations and, in any event, it is apparent that the drafters of Section 6.2 could not have considered sources the size of salt water cooling towers when establishing the maximum allowable emission rate. A resolution of this question has not been accomplished to date.

Representatives of JCP&L recently have had discussions with the Bureau of Air Pollution Control and the Environmental Protection Section of the Department of Laws and Public Safety about the various options available to the DEP and JCP&L to resolve the question concerning the applicability of Subchapters 6 and 8 to the construction and operation of the cooling tower. During these discussions, JCP&L made it clear that the salt water emissions from the tower would comply with the requirements of Subchapter 6, except for the maximum allowable emission rate of 30 lbs/hour. For example, the tower would be operated to comply with the opacity limitation (not to exceed 20%) of Section 6.2(b). Additionally, JCP&L calculations demonstrate that the tower's emission rate would be proportionately lower, by a factor of 58, than the .02 grains per SCF, which is the basis for the allowable emission rates contained in Section 6.2(a). The tower only exceeds the maximum allowable emission rate because the quantities of air and water handled are so much greater than those originally contemplated by the drafters of Subchapter 6. Furthermore, from the data and information in the Environmental Report covering the Forked River Station, prepared by JCP&L in support of its application to the Nuclear Regulatory Commission (NRC) for a construction permit and the final environmental impact statement

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1/ Assuming a drift rate of .001% -- the corresponding collection efficiency is 99.75% and thus is much less than the 99% collection efficiency requirement of Section 6.2 -- the tower would emit approximately 133 lbs/hour of natural sea salt (based on the salinity of the cooling water and cycles of concentration to be achieved in the cooling tower basin) --even though state-of-the-art drift control technology would be employed.

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issued by the NRC, the construction and operation of the proposed tower will not have an adverse impact on the environment. (Exhibit I, attached hereto).

Based on this, representatives of the Bureau of Air Pollution Control have suggested that JCP&L request a variance under Section 6.5 of Subchapter 6 from the emission limitation requirements. Unfortunately, JCP&L does not consider this a viable option. In order to proceed with construction, JCP&L must be assured that the salt water cooling tower, as constructed, would be allowed to operate for a period longer than five years. Under Section 6.5, however, a variance may not "exceed five years from the date of issuance" and may not be renewed if the DEP were to determine that during the interim period "advances in the art of control for the kind and amount of particles emitted" had been developed. Thus, JCP&L would have to renew the variance every five years for the life of the Forked River Station and the DEP would have to conduct public hearings and submit each variance to EPA for its approval in accordance with the Requirements for Preparation, Adoption and Submittal of Implementation Plans (40 C.F.R. Section 51.34). Additionally, if the variance were not renewed, the Station possibly would have to be shut down. The operation of the Forked River Station with the concomitant obligation of large sums of money cannot be jeopardized. Consequently, a variance is not a viable option because of the financial risk and the impact on system reliability from the potential loss of 1,120 MWe (15% of the 1983 projected summer peak load). Under a variance, an unfair burden of potentially enormous consequences would be placed on New Jersey consumers of electric power and JCP&L as a regulated public utility may be prevented from fulfilling its legal obligation of providing "safe, adequate and proper service" to its customers.

Because JCP&L must proceed with construction of the Forked River Station without undue delay, we are submitting with this letter an application pursuant to Sections 6.6(a) and 8.4(a) of N.J.A.C. 7:27-6, 8 for a Permit to Construct, Install or Alter Control Apparatus or Equipment. As demonstrated in the attachments and exhibits to the application, it is JCP&L's intention to construct and subsequently operate the salt water cooling tower on sound environmental, technological, engineering and economic bases. In order to proceed with construction, however, JCP&L must have an assurance that the salt water cooling tower, as constructed, will be allowed to operate for a period longer than five (5) years from commencement of operation.

In order to accomplish this, JCP&L herewith requests, in accordance with 26 N.J.S.A. 2C-8 and N.J.A.C. 7:27-1.2(b),

an amendment of the emission limitation requirements of Section 6.2 and the New Jersey State Implementation Plan to meet National Ambient Air Quality Standards to reflect the unique characteristics of the emissions which result from the operation of salt water cooling towers. An amendment to Section 6.2 would eliminate the necessity for repeated variances and would provide JCP&L an opportunity to demonstrate, at a hearing conducted by the DEP pursuant to 40 C.F.R. Section 51.4, that the tower would employ state-of-the-art drift elimination technology. 1/ It also would assure that the cooling tower would be allowed to operate for a period longer than five (5) years. JCP&L also has prepared data (Exhibit II, attached hereto) comparing predicted ground level concentrations of salt particles attributable to the operation of the Forked River cooling tower with background particulate matter data gathered by the DEP. This comparison demonstrates that ambient concentrations attributable to the operation of the tower would be virtually undetectable. The air quality analyses in Exhibit II demonstrate that an amendment to Subchapter 6 to reflect the actual operation of salt water cooling towers would not interfere with the attainment or maintenance of the National or New Jersey Ambient Air Quality Standards. Thus, the amendment would be approved by the Administrator, EPA under 40 C.F.R. Section 51.8 as a revision of the New Jersey State Implementation Plan. From 1971 to 1974, JCP&L conducted detailed studies on the environmental impact associated with the cooling tower along with ambient monitoring of sea salt. (Exhibit III, attached hereto).

Accordingly, we request that Section 6.2 of N.J.A.C. 7:27-6 be amended to establish a new subcategory which would recognize the necessity of developing separate emission limitations for salt water cooling towers due to the fact that cooling towers utilize air pollution control technologies that are different from those employed by Subchapter 6 "Manufacturing Processes." The emission limitations set out in the cooling tower subcategory would not restrict emissions to an absolute limit as do present regulations, but would restrict emissions to a technologically achievable percentage (as opposed to a specific numerical limitation) of the salt passing through the specific cooling system

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1/ As used here, the term "state-of-the-art" means towers with drift less than or equal to .001% of the circulating water flow rate and an associated drop size distribution.

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which is the subject of a permit application.

Respectfully submitted,

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