DOCKET NO. 50-213

ATTACHMENT 1

HADDAM NECK PLANT

PROPOSED CHANGES TO

ENVIRONMENTAL TECHNICAL SPECIFICATIONS

SEPTEMBER, 1980

PROPOSED CHANGES

Section 4.2 of the Haddam Neck Plant Environmental Technical Specifications (ETS) requires that tagging of the Connecticut River shad population takes place in the spring in order to estimate the annual shad run. This ETS requirement was based on the concern by both Northeast Utilities and the Connecticut Department of Environmental Protection that the Haddam Neck Plant's thermal plume might adversely influence the up river migration, larval development, and/or spawning success of shad. Because no detrimental effect due to plant operation has been observed over a twelve-year period of study, it is proposed that Section 4.2 be deleted in its entirety.

REASON FOR CHANGE

Shad studies began in 1965, prior to the operation of the plant. From 1965 to 1973, over 34,000 adult shad were tagged in the lower three kilometers of the Connecticut River by the Essex Marine Laboratory. A tag return rate of over 20% was realized with full detail on the time and place of capture provided. In 1967, 1968, and 1969, an additional 230 adult shad were fitted with ultrasonic tags. These fish were subsequently tracked by boat-mounted receivers and shore-based recording systems.

Comparison of pre-operational and operational studies clearly demonstrated that no thermal block or effect existed to impede the up river migration of shad or to in any way reduce reproductive success. Analysis of the tagging data has revealed: (1) similarity of rates and patterns of river migration; (2) agreement in the annual percentage of tag recoveries above the plant from fish released in the lower three kilometers of the river; and (3) the absence of significant changes in behavior or migration rates of shad tracked by ultrasonic means in the immediate area of the thermal discharge. The studies on age distribution conducted by the State of Connecticut, Department of Environmental Protection reveal a consistency in the age composition of male and female shad each year.

Further, there is consistency in the length and weight distribution by age as reported in Population Dynamics of the American Shad (Alosa sapidissima) in the Connecticut River, 1940 - 1977, by Victor Crecco, State of Connecticut,

Department of Environmental Protection, Marine Region, 1978. The average length by age for both male and female shad had a range of from ± .24 to ± .59 cm. from 1974 to 1977; the average weight by age varied by from ± .039 to ± .133 kg. from 1974 to 1977.

Population trend analysis of the annual variations from 1935 to 1973 in the size of the shad run demonstrates that large scale, year-to-year fluctuations in population size are common. The estimates for the years 1935 to 1964 taken from data of earlier studies indicate that the number of Connecticut River shad varied between 247,000 (1955) and 990,000 (1944). The population fluctuations during the period 1965 - 1973 were of the same order -- 275,000 in 1972, and 428,000 in 1971.

Although a population size of 1,470,000 was estimated for 1965, it had been reported by Crecco that this number is actually an over-estimate.

Population analysis by the State of Connecticut had resulted in the development of an alternative method of population estimation. This method, termed the "Fredin Method", utilizes catch and effort data in order to estimate population size. The population estimates using this method are in good agreement with those obtained using tagging and re-capture methods, and thus, we believe the catch-effort method will give comparable results to those of a tagging program. The State of Connecticut, Department of Environmental Protection, will continue to generate population estimates each year, and, therefore, tagging studies need no longer be continued by Connecticut Yankee Atomic Power Company.

After twelve years of continuous study, it appears that sufficient data are available to document the lack of any adverse effect resulting from the operation of the Haddam Neck Plant on shad. Therefore, it is requested that Section 4.2 of the Environmental Technical Specifications be deleted.

TABLE OF CONTENTS (continued)

4.2 Shad Monitoring Program

(DELETED)