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MAY 23 1978

Mr. William H. Regan, Jr., Chief
Environmental Projects Branch 3
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Docket Nos. 50-387
50-388

SUSQUEHANNA STEAM ELECTRIC STATION
MISSING ER PAGES
ER 100450 FILE 991-2
PLA-258

Dear Mr. Regan:

Attached are pages 11.1-2 and 11.2-2 which were inadvertently left blank in the original submittal of the Environmental Report - Operating License Stage for the Susquehanna SES. Please insert these pages in your copy.

Very truly yours,

N. W. Curtis

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Vice President - Engineering and Construction

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 Superseded per Ltr. dated 5/23/78 G.A. to E.R., 50-387

CHAPTER 11

SUMMARY BENEFIT-COST ANALYSIS

The importance of Susquehanna SES in providing an economic and reliable power supply for the Applicant, the Cooperative and the PJM Interconnection was demonstrated in Chapter 1. The economic and social effects of station construction and operation were discussed in Chapter 8. Other benefit-cost information has been provided throughout this report. It is the purpose of this chapter to summarize and weigh the overall benefits and costs of operating the completed station. This final balancing must, of necessity, be qualitative, since it is not possible to quantify all of the station's benefits and costs in comparable units of measure.

11.1 BENEFITS

11.1.1 DIRECT BENEFITS

The primary benefits resulting from operation of the Susquehanna SES are those inherent in the value of the generated electricity which will be delivered to meet customer needs. The station will provide an average annual generation of 12.9 billion KWH based on a 70% capacity factor for the 2100 MWe station Distribution of the energy based on projected 1981 data is 4.1 billion KWH - Residential, 2.7 billion KWH -Commercial, 4.5 billion KWH - Industrial, 0.5 billion KWH - Other and 1.1 billion KWH - System Use and Losses. As noted previously, the value of this energy cannot be readily monetized, since its true worth relates to customer needs, safety, convenience, etc., that it provides.

Operating cost savings that result from operation of the station as planned have been demonstrated in Chapter 1. For example, in 1983 with both Susquehanna units in-service, operating costs for the Applicant were projected to be from $70 million to $285 million lower than would be possible if the station were not operating. Also as detailed in Chapter 1 and Appendix A, delays from current in-service schedules for the station are likely to add substantially to the Applicant's overall cost of service over the life of the station. For example, if both of the Susquehanna units were delayed one year, and if load growth were as low as the Very Low load projection, then the Applicant's cost of service was estimated to increase by about $850 million ($130 million - 1980 present worth) over the assumed station life. Furthermore, it has also been noted that station operation will conserve oil, provide advantages of a diversified capacity mix

11.2 COSTS INCURRED

The costs of the project include economic costs, in terms of dollars, and environmental costs, expressed in a variety of units. As detailed in Chapter 8 the 1981 present worth of the station's primary internal costs over its first 30 years of operation is projected to be approximately $3.6 billion.

The environmental effects are discussed below with respect to the three major divisions of the biosphere: the aquatic, atmospheric and terrestrial regions. The environmental impact (costs) must be considered for both absolute magnitude and degree of importance. In the following discussions of environmental costs, an attempt has been made to evaluate these factors.

11.2.1 AQUATIC

The aquatic environmental effect of the station includes the effect on surface waters and on ground water. In both instances the physical effects of the station water intake and the chemical, radiological, thermal and physical effects of liquid discharges must be considered.

11.2.1.1 Surface Water

Water for cooling and domestic use for Susquehanna SES is obtained from the Susquehanna River.

The cooling water for the station is passed through the condensers into cooling towers where rejected heat is dissipated. Make-up for water lost by evaporation, drift and blowdown is taken from the river. A chlorine biocide and anti-fouling agent is added to the cooling water to work in conjunction with a mechanical system to prevent micro organism buildup on the condenser tubes.

The cooling tower blowdown is returned to the river. The blowdown is treated and monitored to maintain chlorine residuals and dissolved solid concentrations within the applicable water quality standards of the Commonwealth of Pennsylvania.

Liquid radioactive wastes are treated in a separate system. The calculated exposures from Susquehanna SES are within limits of Appendix I to 10CFR50.

Domestic water is supplied via the makeup water treatment system. Appropriate treatment and storage is provided. This domestic