projected number of fish estimated to be impinged per day would increase from 20 to 21 and the number of larvae estimated to be entrained would increase by only 13,000 to 363,000 per day. Biologically, these estimated increases represent a negligible impact to the river ecosystem. Second, the maximum cooling tower blowdown flow after power uprate is estimated to increase by only 5% which amounts to 500 gpm. This amounts to less than .5% of the average river flow.

The cooling blowdown from the cooling tower basin is through a diffuser into the river. The characteristics of the cooling tower are such that there is greater air flow through the tower caused by the higher circulating water return temperature at power uprate conditions. This increased air flow removes the additional heat load resulting in negligible cooling tower basin temperature changes.

Estimates, assuming that both SSES cooling towers are operating at the original 100% power level for a year, would result in 58,000 pounds of solids per year as salt drift, spread over a large area. Modelling indicated the heaviest localized deposition of solids would be 3 pounds/acre/year (SSES Environmental Report Section 5.3.4). The power uprate should have no impact on these estimates, especially with the conservatism built into the model by assuming 100% capacity factor. Note also that the design cooling tower drift is a function of circulating water flow which is not changing for power uprate.

Studies on the possible effects of salt drift have been conducted at the SSES since 1977. These studies have included monthly examination of natural vegetation during the growing season (1977 to date), annual quantitative vegetation studies (1977 to date), a two-year study on the effect of simulated salt drift on corn and soybeans (1985–86), and annual forest inspections since 1982.

The monthly examinations have utilized several transects (salt drift transects) in the vicinity of the power station for possible salt damage to natural vegetation and incidence of parasitic plant diseases. The annual vegetation studies consider possible longterm changes in forest utilized salt spray approximating the composition of the cooling tower drift from the SSES at "worst case" concentration on agricultural crops in two fields.

None of the studies have found evidence for damage to agricultural crops or natural vegetation from salt drift. It should be noted that the water used at the SSES (from the Susquehanna River) does not contain the same salts as brackish water used at estuarine coo[l]ing tower[s]; its effects are more like plant micronutrients. The natural vegetation studies over 15 years have found no salt drift damage and plant diseases in accordance with host presence and location. The simulated salt drift studies utilized concentrations estimated at 5 and 10 times maximum salt drift concentration in the SSES plume. It is therefore unlikely that salt drift damage would occur from an approximate 5% consumptive rise in water usage.

There will be no changes to the cooling tower water chemistry as a result of power uprate. The pre-uprate levels of cycles of concentration will be maintained. Since there will be a 5% increase in blowdown flow, there will be a 5% increase in chemical discharge to the river.

The velocity of the intake water will increase by 5% to .37 ft/sec with power uprate which is below the recommended intake design velocity of 0.5 ft/sec.

Sound level monitoring was conducted at both near site (less than 1 mile) and far site locations (greater than 1 mile) from the Susquehanna SES site from 1972 and 1985. This survey was conducted prior to and during construction and during one and two unit operation. The two Cooling Towers were identified to be one of the major site noise sources. The cumulative effects of all noise sources associated with station operation were determined to be less than the U.S. Environmental Protection Agency recommended day-note equivalent sound level limit of 55 DBA at all monitoring locations. It is not expected that this level will be exceeded at any of the locations with the possible exception of an area approximately 2,200 feed southeast of the Cooling Towers where the measured sound level including a nighttime weighting factor of +10 DBA was 54 DBA. Sound levels will be monitored at power uprate conditions.

As indicated previously, water discharge flow from power uprate may increase 5% above the design discharge rate to 10,800 gpm. This is well below the maximum flow of 16,000 gpm reviewed in the SSES Environmental Report (Table 3.3–1 and, therefore, the additional flow from power uprate is not considered to be an adverse impact to the river.

At the Susquehanna SES cooling tower blowdown discharges into the river through a diffuser pipe located on the river bottom. Velocity of this discharge was calculated in Appendix G, Thermal Discharge, Response 1, pages THE–1.1 and 1.2 of the Environmental Report. Water discharges through 72–4" ports into the river. The velocity associated with a 10,000 gpm discharge was calculated to be 5.83 fps and rounded to 6 fps. This rounded off value was used when preparing [the] SSES Environmental Report. The velocity associated with a 10,800 gpm discharge is also approximate 6 fps.

Thermal plume studies conducted in the fall, winter, and spring of 1986–87 indicated a maximum temperature rise of 1° F within an 80 foot mixing zone from the diffuser pipe. Present Pennsylvania Department of Environmental Resources water quality criteria states that ambient river temperature rise from thermal discharges shall not cause the temperature in the receiving water body to rise more than 2° F in one hour. The thermal discharges from the cooling tower blowdown from power uprate will not exceed this water quality criteria.

Chemical composition of the blowdown after power uprate will not exceed the NPDES permit limits.

The staff reviewed the potential effect of power uprate on plant makeup water usage. There will be no significant increase in makeup water requirements for any plant systems as a result of

power uprate. This includes the reactor coolant system, the condensate, feedwater and steam systems, the emergency service water system, the reactor and turbine building closed cooling water systems or any of the normal service water systems. The only effect of power uprate on the component cooling water system and turbine plant cooling water system from power uprate is an increased heat load. The service water system removes heat from the heat exchangers in the turbine, reactor and radwaste buildings and transfers this heat to the cooling towers where it is dissipated. The increased heat load on intermediate systems is reflected in the discussion of potential impacts from increased cooling tower blowdown and thermal discharges remain acceptable. Inventory makeup is not affected. Makeup requirements for the auxiliary boiler, the fire protection system or other auxiliary systems are unaffected by power uprate.

The licensee has stated that there are no changes required to the SSES Environmental Protection Plan as a result of operation at uprated power. Specifically, the licensee stated:

Chapter 3, Consistency Requirements, Section 3.1, Plant Design Operations, of this plan discusses how proposed changes need to be addressed. Through the PP&L Unreviewed Environmental Question Program, changes such as that of power uprate will be reviewed.

An "Unreviewed Environmental Question" evaluation was conducted in accordance with each unit's "Environmental Protection Plan" to determine if power uprate could cause any significant environmental impacts. This included a review of the National Pollutant Discharge Elimination System (NPDES) Permit and other environmental permits, and indicated that power uprate should not contribute to any new noncompliances. No significant increase in generation of hazardous or nonhazardous waste is expected, except for a 3 to 5% increase in sediment removed from the cooling tower. Nor is any change expected in the load on the sewage treatment plant. River water use will remain within the existing agreement with the Susquehanna River Basi[n] Commission. PP&L has determined that power uprate is not an "unreviewed environmental question.'

The proposed power uprate therefore requires no changes to the "Environmental Protection Plans" since it does not involve:

(a) A significant increase in any adverse environmental impact previously evaluated in the "Environmental Report—Operating License Stage," or the "Final Environmental Statement," or in any decision of the Atomic Safety and Licensing Board;

(b) A significant change in effluents or power levels, or

(c) A matter not previously reviewed and evaluated in the documents specified in paragraph (a) which might have a significant adverse environmental impact.