

*Alternate Use of Resources*

This action does not involve the use of any resources not considered previously in the Final Environmental Statements for Dresden, Units 2 and 3, dated November 1973.

*Agencies and Persons Consulted*

The staff consulted with the State of Illinois regarding the environmental impact of the proposed action. The State had no comments.

**Finding of No Significant Impact**

The Commission has determined not to prepare an environmental impact statement for the proposed exemption.

Based upon the foregoing environmental assessment, the NRC staff concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this Action, see the Licensee's request for exemption dated November 23, 1994, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, N.W., Washington, D.C., and at the Morris Public Library, 604 Liberty Street, Morris, Illinois 60451.

Dated at Rockville, Maryland, this 9th day of January 1995.

For the Nuclear Regulatory Commission.  
**John F. Stang,**

*Acting Director, Project Directorate III-2,  
Division of Reactor Projects—III/IV Office of  
Nuclear Reactor Regulation.*

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[Docket No. 50-387]

**Pennsylvania Power & Light Co.,  
Allegheny Electric Cooperative, Inc.,  
Susquehanna Steam Electric Station,  
Unit 1; Environmental Assessment and  
Finding of No Significant Impact**

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-14, issued to Pennsylvania Power and Light Company (PP&L, the licensee), for operation of the Susquehanna Steam Electric Station, Unit 1, located in Luzerne County, Pennsylvania.

**Environmental Assessment***Identification of Proposed Action*

This environmental assessment has been prepared to address potential environmental issues related to the licensee's application of July 27, 1994, as supplemented September 16, October 27, and November 17, 1994, to amend the Susquehanna, Unit 1 operating

license. The letter of February 7, 1994, provided responses to the staff's questions regarding this action. The proposed amendment would increase the licensed core thermal power from 3293 MWt to 3441 MWt, which represents an approximate increase of 4.5% over the current licensed power level.

The proposed action involves NRC issuance of a license amendment to uprate the authorized power level by changing the operating license, including Appendix A of the license (Technical Specifications). No change is needed to Appendix B of the license (Environmental Protection Plan—Non-radiological).

*The Need for the Proposed Action*

The proposed action is needed to permit an increase in the licensed core thermal power from 3293 MWt to 3441 MWt and provide the licensee with the flexibility to increase the potential electrical output of Susquehanna, Unit 1, providing additional electrical power to service domestic and commercial areas of the Pennsylvania Power and Light (PP&L) Company and Allegheny Electric Cooperative, Inc. grid.

*Environmental Impacts of the Proposed Action*

The "Final Environmental Statement (FES) related to operation of Susquehanna Steam Electric Station, Units 1 and 2" was issued June 1981 (NUREG-0564). By letter of June 15, 1992, the licensee submitted "Licensing Topical Report NE-092-001 for Power Uprate with Increased Core Flow" for Susquehanna Steam Electric Station (SSES), Units 1 and 2. The report was submitted to support future proposed amendments to Units 1 and 2 licenses to permit up to a 4.5-percent increase in reactor thermal power and an 8-percent increase in core flow for each unit. The NRC approved the topical report by letter of November 30, 1993. The licensee submitted a proposed amendment to implement power uprate for Unit 2 by a letter of November 24, 1993, which was addressed in an environmental assessment issued by the staff on March 11, 1994. The amendment for power uprate and increased core flow for Unit 2 was issued on April 11, 1994. The subject of this assessment is the power uprate and increased core flow for Unit 1.

Section II.4 of the above Topical Report provided an environmental assessment of the proposed power uprate, including projected non-radiological environmental effects and radiological effects from postulated accidents.

Sections 8.1, 8.2, and 8.3 of the Topical Report discussed the potential effect of power uprate on the liquid, gaseous, and solid radwaste systems. Sections 8.4, 8.5, and 8.6 discussed the potential effect of power uprate on radiation sources within the plant and radiation levels from normal and post-accident operation. Section 9.2 of the Topical Report presented the results of the calculated whole body and thyroid doses at uprated power versus current authorized power conditions at the exclusion area boundary and the low population zone (LPZ) that might result from the postulated design basis radiological accidents [i.e., loss-of-coolant accident (LOCA), main steam line break accident (MSLBA) outside containment, fuel handling accident (FHA) and control rod drop accident (CRDA)]. Other accidents (non-LOCA) that were previously analyzed in the licensee's Final Safety Analysis Report (FSAR) were also reassessed. All off-site radiological doses remain well below established regulatory limits for power uprate operation.

Supplemental information related to the non-radiological environmental assessment was also presented in the licensee's letter of February 7, 1994.

The licensee summarized their reassessment of potential radiological and non-radiological impacts of station operation at a slightly higher power level as follows:

*Non-Radiological Environmental Assessment*

Since power uprate will not significantly change the methods of generating electricity, nor of handling any influents from the environment or effluents to it, no new or different environmental impacts are expected. The conservative models and methods used in the environmental assessments of the original design, confirmed by studies conducted during actual operation, show that more than adequate margin exists for the proposed power uprate without exceeding the non-radiological environmental effects estimated in the original estimates and analyses and cited in the original permit applications and impact statements.

The maximum withdrawal rate from the river will increase from the current value of 38,800 gpm to 40,700 gpm after power uprate, an increase of 5%. The maximum blowdown rate will increase from the current value of 10,300 gpm to 10,800 gpm, an increase of 5%.

After reviewing the additional water withdrawal requirements and increased blowdown rate from the natural draft cooling towers at the Susquehanna SES (SSES) associated with power uprate, PP&L determined that there will be no adverse effects to the river flow or river biota. This conclusion is based on two factors. First, the

projected number of fish estimated to be impinged per day would increase from 20 to 21 and 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 long-term 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 cool[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 feet 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 Basin 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.

### *Radiological Environmental Assessment*

As discussed previously, the licensee addressed potential radiological impacts attributable to operation at uprated power conditions in Sections 8, 9, and 11 of the initial Topical Report. The licensee concluded:

Adequate margin also exists for the proposed power uprate without exceeding regulatory limits for radiological effects. Current operating experience indicates that actual releases and waste disposal after power uprate will continue to be significantly less than the original estimates. For these reasons, power uprate is not expected to have an adverse effect on the routine operation "dose commitment" estimated by previous radiological environmental analyses, and no revision of these analyses is required.

The environmental assessment includes an estimate of potential exposure from all accident types combined. Regulatory Guide 1.49 requires calculation of accident doses at 102% of uprated thermal power, or 3510 MWt. Although direct comparison with the original analyses is not meaningful because of changes in methodology, a comparison on a consistent basis would show that the expected dose is approximately proportional to power. The original calculation was done at 3439 MWt. The estimated potential exposure from all accident types combined will therefore change by about the ratio of 3510/3439, or about 2 percent, which is not a significant change compared to the uncertainty in the probability estimates. No revision of these analyses is therefore required.

[Liquid radwaste throughput may increase up to 5% to a level which is within the processing capability of the system.] The activity levels of some radwaste streams containing coolant activation products may increase up to 10%, due to the 4.5% core flux increase and a 5% crud increase to the reactor which are assumed to occur.

Since the power uprate level of 3441 MWt is not significantly different from that analyzed previously, it is not anticipated there will be a significant increase in radiological effluents. Also, pre-power uprate technical specification limits will be maintained.

The Commission has completed its evaluation of the proposed action and the licensee's evaluation of the potential radiological and non-radiological impacts. The Commission found that the FES (NUREG-0564) is valid for operation at the proposed uprated power conditions for SSES Unit 1 (the second uprated unit at the site). The Commission also concluded that the plant operating parameters impacted by the proposed uprate would remain within the bounding conditions on which the conclusions of the FES are based.

The change will not increase the probability or consequences of accidents, no changes are being made in

the types of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that this proposed action would result in no significant radiological environmental impacts.

With regard to potential non-radiological impacts, the proposed action will not have a significant impact on the environs located outside the restricted area as defined in 10 CFR Part 20 or significantly affect non-radiological plant effluent or other environmental impacts. Therefore, the Commission concludes that this proposed action would result in no significant non-radiological environmental impacts.

### *Alternatives to the Proposed Action*

Since the Commission has concluded there is no significant environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated.

The principal alternative to the action would be to deny the request. Such action would not enhance the protection of the environment and would result in preventing the facility from having the flexibility to generate the approximately additional 50 megawatts that are obtainable from the existing plant.

### *Alternative Use of Resources*

This action does not involve the use of any resources not previously considered in the "Final Environmental Statement related to the operation of Susquehanna Steam Electric Station, Units 1 and 2," dated June 1981.

### *Agencies and Persons Consulted*

The Commission's staff reviewed the licensee's request and consulted with the Bureau of Radiation Protection, Pennsylvania Department of Environmental Resources. The State Liaison Officer had no comment regarding the NRC's proposed action.

### *Finding of No Significant Impact*

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to this action, see the application for amendment dated July 27, 1994, as supplemented September 16, October 27, and November 17, 1994, and letter

dated February 7, 1994. These documents are available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC and at the Osterhout Free Library, Reference Department, 71 South Franklin Street, Wilkes-Barre, Pennsylvania 18701.

Dated at Rockville, Maryland, this 9th day of January 1995.

For the Nuclear Regulatory Commission.

### **Chester Poslusny,**

*Acting Director, Project Directorate I-2, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulation.*

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### **Regulatory Guide; Issuance, Availability**

The Nuclear Regulatory Commission has issued for public comment a proposed revision to a guide in its Regulatory Guide Series. This series has been developed to describe and make available to the public such information as methods acceptable to the NRC staff for implementing specific parts of the Commission's regulations, techniques used by the staff in evaluating specific problems or postulated accidents, and data needed by the staff in its review of applications for permits and licenses.

The draft guide, temporarily identified by its task number, DG-8012 (which should be mentioned in all correspondence concerning this draft guide), is a proposed Revision 1 to Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure." This guide is being revised to provide guidance on the instructions and information that should be provided to workers by licensees about health risks from occupational radiation exposure.

This draft guide is being issued to involve the public in the early stages of the development of a regulatory position in this area. It has not received complete staff review and does not represent an official NRC staff position.

Public comments are being solicited on the draft guide. Comments should be accompanied by supporting data. Written comments may be submitted to the Rules Review and Directives Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Comments will be most helpful if received by March 15, 1995.

Comments may be submitted electronically, in either ASCII text or Wordperfect format (version 5.1 or later), by calling the NRC Electronic