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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD PANEL

In the Matter of	)	
VERMONT YANKEE NUCLEAR POWER CORPORATION	)	
(Vermont Yankee Nuclear Power Station)	)	Docket No. 50-271
PUBLIC SERVICE ELECTRIC & GAS COMPANY	)	
(Salem Nuclear Generating Station, Units 1 & 2)	)	Docket Nos. 50-272 50-311
PHILADELPHIA ELECTRIC COMPANY	)	
(Peach Bottom Atomic Power Station, Units 2 & 3)	)	Docket Nos. 50-277 50-278
✓ METROPOLITAN EDISON COMPANY, <u>et al.</u>	)	
(Three Mile Island Nuclear Station, Units 1 & 2)	)	Docket Nos. <u>50-289</u> 50-320
DUQUESNE LIGHT COMPANY, <u>et al.</u>	)	
(Beaver Valley Power Station, Units 1 & 2)	)	Docket Nos. 50-334 50-412
PHILADELPHIA ELECTRIC COMPANY	)	
(Limerick Generating Station, Units 1 & 2)	)	Docket Nos. 50-352 50-353
PUBLIC SERVICE ELECTRIC AND GAS COMPANY and ATLANTIC CITY ELECTRIC COMPANY	)	
(Hope Creek Generating Station, Units 1 & 2)	)	Docket Nos. 50-354 50-355
PENNSYLVANIA POWER AND LIGHT COMPANY	)	
(Susquehanna Steam Electric Station, Units 1 & 2)	)	Docket Nos. 50-387 50-388

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PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, <u>et al.</u>	)	
(Seabrook Station, Units 1 & 2)	)	Docket Nos. 50-443
	)	50-444
UNION ELECTRIC COMPANY	)	
(Callaway Plant, Units 1 & 2)	)	Docket Nos. STN 50-483
	)	STN 50-486
DUKE POWER COMPANY	)	
(Catawba Nuclear Station, Units 1 & 2)	)	Docket Nos. 50-413
	)	50-414
GEORGIA POWER COMPANY	)	
(Alvin W. Vogtle Nuclear Plant, Units 1 & 2)	)	Docket Nos. 50-424
	)	50-425
TENNESSEE VALLEY AUTHORITY	)	
(Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B)	)	Docket Nos. 50-518
	)	50-519
	)	50-520
	)	50-521

NRC STAFF VIEWS ON CONSIDERATION OF UNCERTAINTIES  
IN USE OF VALUES SET FORTH IN TABLE S-3 OF 10 CFR PART 51

Background

On March 14, 1977, the Commission promulgated a new interim rule governing consideration of environmental impacts of the fuel cycle in individual reactor licensing proceedings, including revised impact values attributable to reprocessing and waste management (42 F.R. 13803). On April 1, 1977, the Commission directed the presiding Appeal Boards to determine the impact of the interim rule on the cost/benefit balances

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which had been struck for each of the captioned facilities.<sup>1/</sup>

The Appeal Boards, on April 21, 1977, provided the parties involved in the proceedings with the opportunity to file further submissions limited to an assignment of reasons why, in light of the interim rule, the cost/benefit balance for the facility in question tips, or might tip, in favor of abandonment of the facility.<sup>2/</sup> The Appeal Boards provided parties with the opportunity to respond to submissions filed by another party.

The Staff does not believe that the effect of the interim rule would be to tip the cost/benefit balance in favor of abandonment for any of the listed facilities;<sup>3/</sup> accordingly, we will not file an initial submission in response to ALAB-392. However, the Appeal Board Panel indicated that it nevertheless would appreciate the views of all parties with respect to one point, set out at length in footnote 7 of ALAB-392, relating to the weight that should be

<sup>1/</sup> The order encompassed the first ten proceedings captioned above. For each of these facilities, petitions had been filed by various persons requesting suspension of operation or construction. All but seven of the facilities were otherwise involved in a proceeding pending before Licensing Boards, Appeal Boards, or the Commission in adjudicatory licensing proceedings.

<sup>2/</sup> The Appeal Board Panel Order also encompassed the last three captioned proceedings.

<sup>3/</sup> The Staff has prepared, and adapts for individual proceedings a characterization of the impacts set forth in Table S-3, quantified to the extent possible in the same units and descriptive terms used in the applicable FES or other evidence of record with respect to similar plant-specific impacts. Comparison of fuel cycle effects with similar plant-specific impacts and with the background upon which such effects are imposed, we believe, provides valuable perspective on the nature of such impacts. If relevant to matters raised by other parties, the Staff would file such information along with our response.

attributed, in striking the cost/benefit balance for individual reactors, to the value assigned to solidified waste which would be generated during the reactor's operation, in light of the uncertainties discussed by the Commission at 41 F.R. 45850 which accompanied the Commission's proposed revision of Table S-3. (41 F.R. 48549, Oct. 18, 1976). The Staff views are set forth below:

The Values Set Forth in the Interim Rule Are  
to be Used as Given, Without Further Consideration of Uncertainties

In the statement of considerations accompanying the notice of promulgation of an effective interim rule (42 F.R. 13803), the Commission has addressed the question of uncertainties and has considered the effect of such uncertainties on the validity of the values in the interim rule.

In the statement of considerations the Commission noted that:

"There are gaps in the information needed for detailed assessment of waste management and disposal technology."  
(42 F.R. 13805).

The Commission analogized the promulgation of an interim rule to the issuance of criteria for emergency core cooling systems which was reviewed in Union of Concerned Scientists v. AEC, 499 F. 2d 1069 (D. C. Cir. 1974). It quoted from that decision saying that:

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"In the absence of such perfection, adequate assurance of safety can be obtained from an appropriately conservative analysis based on available experimental information. In areas of incomplete knowledge, conservative assumptions or procedures must be applied. When further experimental information or improved calculational techniques become available, the conservatisms presently imposed will be reevaluated and a more realistic approach will be taken." (499 F. 2d 1069, at 1086).

and went on to state that:

"'Conservative analysis based on available experimental information' is even more appropriate in such a case where the goal is not to reach a conclusion whether a level of safety has been met, but rather to develop values for use in environmental cost benefit analyses." (42 F.R. 13805).

The Commission recognized that the Task Force which prepared the Environmental Survey supporting the values in the rule exercised its expert judgment to reach a best estimate in some cases where it could not otherwise reach a conclusion.

With respect to these matters, the Commission stated:

"/S/ince a calculation could not be made, the conservatism of these few judgments cannot be absolutely established. However, it is the Commission's view that the impacts estimated on expert judgments are quite small in any case and that adequate conservatism has been applied." (42 F.R. 13805).

The matter of uncertainties with regard to risks from long-term repository failures is one instance in which the Task Force exercised its expert judgment. In §2.4.2 of the Task Force Report the Task Force analysed the risks of repository failure and concluded that "possible releases in the long-term (after repository decommissioning)

will be negligible per reference reactor year." (Environmental Survey of the Reprocessing and Waste Management Portions of the LWR Fuel Cycle, NUREG-0116, at 2-12; hereinafter "Survey"). The Task Force's assessment is discussed at some length in its responses to comments received from the public, NUREG-0216, particularly section 3.3.

In short, the Commission recognized that uncertainties existed with regard to values in the Table S-3 including but not limited to values with regard to solidified waste which would be generated during reactor operation. However, the Commission decided to proceed with the promulgation of an interim rule stating:

"In summary, the Commission has decided to proceed with promulgation of the interim rule. It has looked at the uncertainties and unknowns identified in the Supplement. It has weighed the risks of proceeding with licensing on the basis of the interim rule against the costs of not proceeding. The Commission has found that the costs of not proceeding outweigh the risks of proceeding by interim rule especially given the fact that a relatively short period of time, eighteen months, may pass before a more thorough discussion of the issues will be completed in the final rulemaking proceeding. There is no perceived need for the Commission to wait for site specific information or to wait for ERDA's generic environmental impact statement on high-level waste management. In some areas--including critical areas where a substantial measure of expert judgment had to be applied--it is unlikely that substantial new information of a quantitative nature will be available for years. As the Court said in Citizens for Safe Power v. NRC, 524 F.2d 1291, 1297 (D.C. Cir. 1975):

'Absolute or perfect assurances are not required by (the Atomic Energy Act), and neither present technology nor public policy admit of such a standard. It was for the Commission to arrive at a rational, practical and principled conclusion upon the basis of reasonably available evidence.'" (42 F.R. 13805).

Thus, the values set forth in the rule meet the criteria of NEPA and may be used to complete the cost/benefit balances for individual reactors. They represent the best available information of a quantitative nature regarding the environmental impacts from waste management and reprocessing. Any uncertainties that may exist were weighed by the Commission in its determination to promulgate the interim rule. For proceedings conducted using the interim rule, all of the values set forth in the interim rule are to be used as given, without further need to consider the effect of uncertainties mentioned by the Commission in its determination to issue the interim rule.

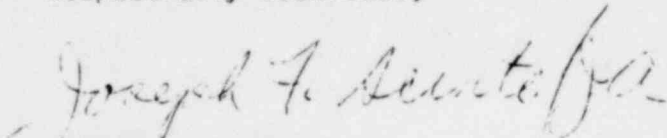
#### Conclusions

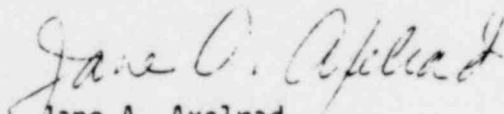
Table S-3 identifies solidified high level wastes as buried at a Federal repository, and, under the rule, no release to the environment is associated with such disposal. In licensing proceedings

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conducted during the period of the interim rule, this is the impact value to be attributed to such waste, which is to be used without further consideration of uncertainties in these values.

Respectfully submitted,

  
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Dated at Bethesda, Maryland  
this 20th day of May, 1977.

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