UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	:	
	:	
PUBLIC SERVICE ELECTRIC AND GAS COMPANY,	:	Docket Nos. 50-354
	:	50-355
and	:	
	:	
ATLANTIC CITY ELECTRIC COMPANY (Hope Creek Generating Station, Units 1 and 2).	:	

PETITION FOR REVIEW

STANLEY C. VAN NESS,
PUBLIC ADVOCATE OF NEW JERSEY

Counsel for Intervenors
Stanley C. Van Ness,
Public Advocate of New Jersey,
the Boroughs of Swedesboro and
Paulsboro, New Jersey and
Citizens on Logan Township
Safety; and David A. Caccia

On the Brief:

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I. SUMMARY OF DECISION BELOW

Intervenors seek review, pursuant to 10 C.F.R. §2.786(b), of the decision in ALAB-518 which affirmed the grant of construction permits for operation of the Hope Creek Generating Station, Units 1 and 2. This opinion discounts the likelihood that ships on the Delaware River carrying flammable gases will accidentally release their cargo and pose a threat to the Hope Creek Nuclear Generating Station. At issue has been the number of ships carrying flammable gases, the likelihood of an accident, the likelihood of a spill given an accident, the likelihood of ignition before the spill and its associated plume can reach the nuclear power plant and pose a danger to it, and the likelihood that, given an unignited plume, meterological conditions will permit the plume to reach the plant. It is agreed that each of these factors has a significant impact on the overall probability that a hazardous cargo ship will pose a danger to Hope Creek.

The Appeal Board, multiplying the probabilities of each of these events found the conservatively calculated probability of an accident endangering the units, to be 2.97 x 10-7/yr. and held that a risk of this size need not be considered in designing the plant. In reaching the decision that the hazard was sufficiently improbable to be discounted, the Board relied on the guideline probability values set forth in the NRC Standard Review Plan (NUREG-75/087, §2.2.3 (1975)) of 10-6 for conservatively calculated probabilities. See ALAB-518, slip opinion at 2-3.

The Appeal Board, in its opinion, quantified each of the elements, identified above, of the total probability of a river traffic accident affecting Hope Creek. With respect to two of those elements -- the number of flammable gas transits and the probability of ignition -- the Board's analysis is fundamentally flawed, since it (1) quantified the number of ship transits without taking into

account the potential for future traffic increases in two of the four gases of concern, or in other dangerous cargoes; and (2) quantified the likelihood of ignition while simultaneously and explicitly acknowledging that the record was inadequate for doing so. ALAB-518, at 37. In these respects, the Board's decision raises critical policy questions regarding the need to take the potential for future hazards into account, and the proper methodology for assigning probabilities to events that cannot be quantified. These aspects of the decision also raise issues as to what are "reasonably foreseeably" hazards to which the NRC should address itself. Swain v. Brineger, 542 F.2d 364, 368 (7th Cir. 1976).

Part II of the Appeal Board's decision rejected intervenors' contention that in cases of borderline risk under NUREG guidelines, there should be an EIS examining the costs of benefits of additional safety precautions which could reduce the risk to clearly acceptable levels.[1] On this issue, the Board held ALAB-518 at 51-53 that hazards which could be excluded from consideration under the NUREG probability guides could also be eliminated from NEPA consideration under NEPA.

II. STATEMENT AS TO ISSUES RAISED BELOW

The erroneous failure to file an EIS was raised as a legal issue in intervenors Brief in Support of Exceptions to Supplemental Initial Decision at pp.64-65. It was treated by the Appeal Board in ALAB-518 at pages 51-53 of the slip opinion.

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1. The liquefied flammable gas issue was initially remanded to the Licensing Board in 1974. ALAB-251, 8 AEC 993 (1974). The Licensing Board's resolution of the issue was unsatisfactory to the Appeal Board, ALAB-429, GNRC 229 (1977) which remanded for a second supplemental initial decision. This decision, LBP 78-15, 7 NRC 642 (1978) was affirmed in ALAB-518, the deicsion challenged here.

The intervenors also raised issues concerning the risk of oil and gasoline fires which might be ignited at the powerplant intake structure. While these risked were discussed in Applicant's exhibit 9, they were totally ignored by the Appeal Board in ALAB-518.

Joint Intervenors additionally claim that the Appeal Board (a) failed properly to evaluate future river traffic hazards, the probability of ignition and oil and gasoline transits dangers and thereby to follow its own mandate in ALAB-492; (b) that it made findings on these issues which are unsound as a matter of policy since they allow insufficient analysis of future risks; (c) that it violated NEPA by failing to consider these reasonably foreseeable risks. These underlying issues of compliance with ALAB-429's mandate and the policy and legal need for consideration of those risks was raised in our response to the Licensing Board's second Supplemental Initial Decision. Our Brief on Exceptions, supra, assert that we expected full compliance with the Appeal Board's initial order for "an examination of the 'expected magnitude of the traffic during the life of the plant.' " Brief on Exceptions, supra, at 5, quoting ALAB-429 at 30, 6 NRC at 243. (emphasis added). We set forth the same policy and legal support for, and the same expectations for fulfillment of the initial mandate for investigating the probability that an LNG spill not igniting and forming a vapor cloud. Brief on Exceptions, supra, at 54. Finally, we raised the oil and gasoline shipment issue in our Brief on Exceptions, pp.62-63.

III. ERRORS FOR WHICH REVIEW IS SOUGHT

A. TREATMENT OF HAZARDOUS TRAFFIC AND IGNITION

In ALAB-429, the Appeal Board mandated an examination of the "expected magnitude of the (LPG) traffic over the life of the plant." ALAB-429 at 30. However, as the Appeal Board itself noted, this express mandate, was not fulfilled despite the obvious necessity of this data for a complete analysis of river hazards. While some traffic projections over the next few years were made for propane and butane, the Board said that butadiene traffic data "is clearly based on current traffic without any serious consideration having been given to future prospects for the shipment of this material." ALAB-518 at 13. Similarly, traffic figures

for vinyl chloride shipments were also based exclusively on current traffic. Despite the absence of any projections of future growth for two of the four flammable gases considered as potential threats to Hope Creek, and the complete lack of forty year projections, the Appeals Board concluded that the estimate of total LPG traffic adopted by the Licensing Board reasonably described the "potential for hazard at Hope Creek." ALAB-518 at 13.

Nothing in the record justifies ignoring the potential for future traffic growth in butadiene and vinyl chloride, two of the four gases at issue. In fact, the record demonstrates substantial growth in flammable gas traffic on the Delaware in the last four years both as to volumes and variety of cargo. Estimates of propane shipments have increased from approximately 2 per year to 40; vinyl chloride shipments, non-existent in 1975, now number 25 per year; and butadiene shipments, also non-existent in 1975, now run at a rate of 10 per year. LPB 78-15, supra, 7 NRC at 676-679. All told, there has been a 700 percent expansion and a doubling of the kinds of gases shipped in flammable gas transits since Commission staff first looked at the question in 1975. Had the commission adopted in 1975 the policy that the Appeals Board accepted in ALAB-518, it would have disregarded butadiene and vinyl chloride as threats to the plant, since they were not being shipped, and would have estimated butane and propane shipments at only 10 percent of current levels. There is no more reason to ignore the potential for future growth now than there was in 1975. Indeed, in view of this recent history of substantial growth in hazardous traffic, there is even less reason now.

Sound policy requires the Commission to assess the safety of a nuclear power plant in terms of the potential for threats over the full life of the plant. The Board's failure to insist on compliance with its own mandate for fact-finding and the failure of the record to shed any light on future increases in butadiene and vinyl chloride traffic render the Board's conclusion deficient as a matter of policy.

Item 3 - Continued

This failure to deal with reasonably ascertainable hazards violates NEPA as well as sound public policy. Although remote and highly speculative consequences need not be considered, "reasonably foreseeable" ones must be. Swain v. Brineger, 542 F.2d 364, 368 (7th Cir. 1976). Compare Environmental Defense Fund v. Hoffman, 566 F.2d 1060, 1067 (8 Cir. 1977); cf. Vermont Yankee Nuclear Power Corp., v. N.R.D.C., 98 S.Ct. 1197, 1215 (1978). The recent history of traffic on the Delaware makes future growth "reasonably foreseeable." Failure to analyze such growth potential thoroughly thus violates NEPA as well as the sound planning principles embodied in the Appeal Board's initial mandate.

This error also extends to the Board's treatment of future rammable objects on the Delaware. The Tower 97 issue was first introduced into the record by Intervenors. Tr. 3621. Applicants had known about this object but, incredibly, had failed to disclose it to the parties or the Board. Tr. 3794-3795. Under this circumstance the Appeal Board's assertion that consideration of future construction would "be an exercise in uninformed speculation" cannot be pass NEPA muster. Nor can its reliance on monitoring of future river traffic by the applicant be credited, given the past disclosure record. ALAB-518 at 17. The risk is thus foreseeable and has been demonstrated by this record to require present, not future action.

Similarly, the Board utterly ignored the future risks of oil and gasoline spills which could spread to the plant and ignite on water adjacent to it. These spills involve a hazard mechanism -- ignition and fire at the power plant intake structure -- which is almost identical to the risk from flammable gas vapor clouds. See Applicant's exhibit 9, at 3,5. However, applicants made no attempt to update the shipping traffic data, in such cargoes, Tr. 3044, even though an annual untoward event probability of 1.7 x 10-7 from this traffic was deemed conceivable

by the applicant from this source of risk.[2] Id. This failure to project future traffic in such cargoes, or to consider the risk at all, was raised in Intervenor's Brief on Exceptions, supra, at 62-63. Yet the subject was not even mentioned by the Appeal Board. Surely this ignoring of an extant hazard which could foreseeably intensify cannot be squared with NEPA or constitute sound policy for protecting the public.

The Appeal Board's treatment of ignition and vapor cloud formation also violates sound public policy and NEPA. While ALAB-429 clearly and justifiably called for source density studies to support the proffered 10% ignition rate estimate, no such evidence was forthcoming. The Appeal Board in ALAB-518 recognized this lack of data on the 10-1 assertion and concluded that:

> "It does not, however, provide any basis for quantification of that proportion."

ALAB-518 at 37. Nonetheless, its risk calculation unaccountably used the 10-1 figure. Use of this factor was critical since without it the risk estimate would have been 2.97 x 10-6 and the design basis threshold would have been violated. Surely the use of a crucial figure explicitly found to be unreliable is unsound public policy. Just as surely must it violates NEPA in failing to take a "hard look" at an element of risk that is critical to the administrative determination as to foreseeability of the hazard.

The Appeal Board attempts to meet these public policy and NEPA concerns through a monitoring program which would supposedly disclose increased traffic or the construction of rammable objects. This step, while useful, does not sufficiently address intervenors' policy and NEPA claims.

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2. The applicant's estimate 4.6 x 10-8 as the risk from oil or gas ship and barges was based on an assumption that only 1% of such spills would ignite. However, the applicant did admit that the consensus view of ignition was 5% exhibit 9, p.5. The 1.7 x 10-7 figure is based on that figure.

First, the Appeal Board's treatment of some elements of risk, namely ignition probability and oil or gasoline spills, must be corrected now. Since these errors resulted in the under-estimate of the present risk, they cannot be cured by future monitoring.

As to prediction of future risks, applicant's failure to disclose Tower 97 casts doubts on the enthusiasm with which it will disclose future events that could conceivably cost it tens of millions of dollars to construct additional plant safety protection. We note that the record is devoid of information as to costs of future retro-fitting. Given the sparse record on costs, the Appeal Board's promise, ALAB-518, at 49, that costs will be no object if public safety demands additional protection, provides a shaky assurance. The precise level of risk to the public will always be subject to question and it will be humanly impossible to insulate these safety and risk guesses from the influence of cost considerations which will be exacerbated by the extra difficulties involved with retro-fitting already built plants. The time to deal with projected risks is now. Sound policy and the N.E.P.A. authorities cited above require a concrete present response to these present and reasonably foreseeable hazards.

B. FAILURE TO WRITE AN EIS

Intervenors believe that the Appeal Board erred in strictly equating N.E.P.A. requirements and the NRC design basis requirement. The test of a "reasonably foreseeable" incident should not be the same under N.E.P.A. as under the NUREG probability guideline. Therefore, even if the Appeal Board had properly found that NRC design basis standards had been met, the Board still should have ordered an EIS to examine the costs and benefits of additional plant protection.

We base our argument on the near congruence between the probability standard 1 x 10-6 and the Board's risk estimate, 2.97 x 10-7. The need to weigh the costs and benefits of further risk reduction should not be ignored when a mere three-fold increase of a risk estimate in the millionths would explicitly transgress the design basis requirements. Surely, where the risk estimate approaches the design threshold and the calculations involve great uncertainties, some attempt must be made to determine the cost-effectiveness of greater protection to the public.

The very structure of the draft regulatory guide probability standards manifests that the Board's use of it as a rigid bright line standard was incorrect. As the Appeal Board noted, ALAB-518 at 2-3, NUREG-75/087 contains two standards, one (10-7) for realistic estimates, another (10-6), for conservative estimates. Since the estimate here falls between the two, it can be accepted only if based on a qualitative judgment with respect to the conservatism of the calculation. The very need for such judgment to find compliance with the 10-6 standard argues against its use as a bright line test to be employed for the purpose of excluding cost-benefit analyses of the kind required by NEPA.

The Board's response, ALAB-518 at 53, that cost-benefit analysis of future plant protection is unnecessary because the risk is too small, ignores the special problem posed by risks that approach, but do not quite meet the numerical threshold of foreseeability established by the N.R.C. At such a threshold, the "rule of reason" applied in NEPA cases, and cited by the Board, ALAB-518, at 51-52, requires an examination of the cost and benefit of protective measures which would put some clear breathing space between the risks to the facility and the design basis guidelines.

Carolina Environmental Study Group v. United States, 510 F.2d 796, 799 (D.C. Cir. 1975) does not undercut the proposition urged here. That case stands for the proposition, unchallenged by Intervenors, that an agency may find some risks

too remote for consideration. It gives no guidance here, when the agency has declared a certain level of risk to require design changes and it must decide, against a background of factual uncertainty and mathematical conjecture, how to deal with hazards that approach but do not quite meet that administratively defined risk level. Intervenors contend that in such circumstances NEPA requires a cost benefit review of additional safety measures. It may be that risk can be substantially reduced to clearly acceptable levels with modest expenditures. This record, given the approach taken by the Appeal Board, will never let us know if such an opportunity to strengthen the protection of the public is in fact present.

IV. REASONS FOR EXERCISE OF COMMISSION REVIEW

The importance of this case is attested to by the opinion which is under review. Footnote 11 of ALAB-518, acknowledges the participation of the Public Advocate's Office in this case and concludes that intervenors' efforts:

> "have contributed substantially to the development of the record on an important public issue and were appreciated by this Board." ALAB-518, at 5, N.11. (emphasis added).

Irrespective of this public recognition by the Board of the intervenors' efforts in developing the record, the Public Advocate in this petition has candidly acknowledged the Appeals Board's sizable effort to fill the gaps in the record made by the licensee and Licensing Board. Unfortunately, the Appeals Board relied upon supposition and unwarranted extrapolations in attempting to complete the unfinished work of the Licensing Board. This frustration by the Appeals Board is, at least, understandable. Two remands should be sufficient for compiling a minimally satisfactory factual record on the hazards to the Hope Creek Nuclear Generating facility presented by LNG/LGP river traffic. However, the Commission must take this opportunity to reject the cramped adherence to its initial probability guidelines evidenced by the Appeals Board in ALAB-518 and direct that the licensee forthwith examine the cost effectiveness of design alternatives in the Hope Creek facility which will provide the necessary assurances that this power plant

will be adequately protected from the potential consequences of a major LPG spill on the Delaware River.[3.]

The voluminous record in this case also reflects the enormous concern of Federal agencies for LNG/LPG traffic. Extensive Federal Power Commission analyses have been placed into this record, in addition to the efforts of the United States Department of Energy alluded to by the Appeals Board.[4.]

The situation here will recur, as both nuclear facilities and hazardous material transportation are oriented to watercourses. Thus the NRC must ensure a proper relationship between the two.

This case is important for another reason, one more oriented to the internal procedures followed by the N.R.C. The use of the NUREG 75/087 risk standards and their relationship to NEPA requirements are presented as matters of first impression herein. Therefore, the Commission in this case, can with reference to these guidelines, determine what it regards as a foreseeable accident, for both design review and NEPA purposes.

Finally, this case offers an opportunity for response to Carolina Environmental Study Group, supra, 510 F.2d 796, since it affords the Commission an opportunity to decisively address the potential dangerous risks on the threshold of foreseeability.

For the aforesaid reasons, Intervenors respectfully request that the full Nuclear Regulatory Commission grant the urgently need review set forth herein above.

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3. Intervenors do not contest the Appeal Board's findings with respect to LNG traffic. We have attached the order of the Federal Energy Regulatory Commission rejecting the Tenneco application for and LNG import facility at West Deptford.

4. There has also been much concern at the state level. Intervenors were involved in a FPC proceedings, RM76-13, seeking site selection criteria for LNG import facilities. Four state governments, New York, New Jersey, Delaware, and Pennsylvania joined the initial petition while two others, Alaska and California, sought to intervene.

Respectfully submitted,

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BY: _____
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Assistant Deputy Public Advocate

BY: _____
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In a letter order issued July 31, 1978, after providing notice of this deficiency, the Commission directed Tenneco to file within 30 days the omitted exhibits as well as necessary updates of other specified exhibits 3/ or a timetable as to when each exhibit would be filed. The Commission further provided that in the event that a contemplated filing date for any exhibits could not be provided, a detailed explanation as to the reason therefor should be given.

On August 30, 1978, Tenneco filed with this Commission a letter in which it stated its inability to specify a filing date for any of the requested exhibits. Instead, Tenneco conveyed its assurances that all these exhibits would be submitted in one filing as soon as reasonably possible after execution of a final agreement for a supply of LNG to be landed at the proposed West Deptford site. Tenneco anticipated it would make this filing by spring or early summer of 1979.

We believe rejection of Tenneco's application is appropriate under §157.8 of the Commission's regulations. Under this section, applications not amended within 20 days of the notice of deficiency, or such longer period as may be specified in the notice of deficiency, will be rejected by the Secretary of the Commission. While it perhaps can be argued that Tenneco's August 30, 1978 filing is in technical compliance with our July 31, 1978 letter order, the filing clearly establishes that there will be substantial delay -- at least until spring or early summer -- before these proceedings could be revived. Further, even this delay is couched in tentative terms. Faced with this prospect of substantial, if not indefinite delay, we believe that Tenneco's application should be rejected.

3/ The exhibits which needed to be updated were:

Exhibit E (related pending applications and filings)
Exhibit F (location of facilities)
Exhibit G (environmental report)

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Charles B. Curtis, Chairman;
Georgiana Sheldon, Matthew Holden, Jr.,
and George R. Hall.

Tenneco LNG Inc.) Docket No. CP76-16

ORDER REJECTING APPLICATION

(Issued January 25, 1979)

For the reasons discussed below, we hereby reject pursuant to Section 157.8 of our regulations the application filed in this proceeding by Tenenco LNG Inc. (Tenneco) on July 15, 1975 requesting a certificate of public convenience and necessity to construct and operate an LNG terminal to be located in West Deptford, New Jersey. 1/ As acknowledged by Tenneco, its application is incomplete, inasmuch as exhibits required by Section 157.14 of our regulations have been omitted. 2/

1/ This proceeding was commenced before the Federal Power Commission. By the joint regulation of October 1, 1977 (10 CFR 1000.1), it was transferred to the FERC. The term "Commission", when used in the context of action taken prior to October 1, 1977, refers to the FPC; when used otherwise, the reference is to the FERC.

2/ The omitted exhibits include the following:

Exhibit G (flow diagrams)
Exhibit H (total gas supply)
Exhibit I (market data)
Exhibit K (cost of facilities)
Exhibit L (financing)
Exhibit M (construction operation and management)
Exhibit N (revenues, expenses and income)
Exhibit O (depreciation and depletion)
Exhibit P (tariff)

The Commission orders:

(A) Pursuant to Section 157.8 of the Regulations under the Natural Gas Act, the Secretary shall reject the application of Tenneco LNG Inc. in Docket No. CP76-16 without prejudice to any future filing of Tenneco LNG Inc.

(B) These proceedings are terminated upon the Secretary's rejection of the application of Tenneco LNG, Inc. as ordered by paragraph (A) above.

By the Commission.

(S E A L)

Kenneth F. Plumb,
Secretary.

This Commission unquestionably has the authority to reject an application, such as Tenneco's, which is patently deficient. Municipal Light Boards, Etc., Mass. v. F.P.C., 450 F.2d 1341, 1346 (D.C. Cir. 1971). Further, it is clear to us that no useful purpose would be served by continuing to analyze or otherwise process Tenneco's application in its present, incomplete form. Rejection of this application, however, is without prejudice to Tenneco's later filing a satisfactory application for a similar, or identical, LNG terminal facility.

We should note that on September 25, 1978, the Public Advocate and the Commonwealth of Pennsylvania (Public Advocate) filed a motion seeking dismissal of Tenneco's application, or, in the alternative, the establishment of a date certain for dismissal. On October 11, 1978, Tenneco filed its response. Our dismissal today of Tenneco's application is strictly limited to the basis stated herein. Accordingly, any other basis for or against dismissal contained in either the filing of Public Advocate or of Tenneco is not deemed material to the decision reached herein.

Finally, we note that this action is consistent with recent action by this Commission in NGP-LNG, Inc., Docket No. CP77-448 (June 15, 1978) wherein we dismissed a similar certificate application.4/

The Commission finds:

Tenneco LNG Inc. is in default of Section 157.8 of the Regulations under the Natural Gas Act.

4/ An application for rehearing of this order was denied by operation of law. An appeal of the order is pending before the U. S. Court of Appeals for the District of Columbia Circuit in NGP-LNG, Inc. and Natural Gas Pipeline Co. v. FERC, D. C. Cir. No. 78-1936.