UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
DUKE POWER COMPANY	)	Docket No. 70-2623
	)	
(Amendment to Materials License SNM-1773 for Oconee Nuclear Station Spent Fuel Transportation and Storage At McGuire Nuclear Station)	)	

APPLICANT'S BRIEF IN SUPPORT OF EXCEPTIONS

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MISCELLANEOUS

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INTRODUCTION

On October 31, 1980, the Atomic Safety and Licensing Board ("Licensing Board") convened to conduct the instant proceeding issued its Initial Decision denying the request of Duke Power Company ("Applicant") to store 300 spent fuel assemblies from its Oconee Nuclear Station ("Oconee") at its McGuire Nuclear Station ("McGuire"). On November 10, 1980, Applicant filed exceptions to that decision. (See 10 CFR §2.762(a)). The instant brief, which urges this Atomic Safety and Licensing Appeal Board ("Appeal Board") to reverse the Licensing Board's decision below, is filed in support of those exceptions. (Id.).

STATEMENT OF THE ISSUES PRESENTED FOR REVIEW

I. Whether the Licensing Board erred in finding that the proposed action "involving the transfer of 300 spent fuel

assemblies from Oconee to McGuire, is actually the first step in a plan or program to ship excess spent fuel from older nuclear reactors in Duke's system to newer reactors"? [Exceptions 1-6].

II. Whether the Licensing Board erred in holding that "a plan or program to ship excess spent fuel from older nuclear reactors in Duke's system to newer reactors' should have been considered in the Nuclear Regulatory Commission Staff's environmental analysis? [Exceptions 7-25].

III. Whether the Licensing Board erred in finding that the Nuclear Regulatory Commission Staff's environmental analysis inadequately considered the impacts associated with the shipment of 300 Oconee spent fuel assemblies to McGuire for storage? [Exceptions 26-33].

IV. Whether the Licensing Board erred in finding that alternatives were not properly assessed? [Exceptions 34-46, 52-54].

V. Whether the Licensing Board's evaluation of the comparison of alternatives was in error in holding that the transportation of spent fuel was the least desirable option due to the alleged risk involved? [Exceptions 29, 47-52, 56-58].

VI. Whether the Licensing Board erred in finding that the Nuclear Regulatory Commission's "as low as reasonably achievable" requirement set forth in 10 CFR Parts 20 and 50 contemplates a comparison with other alternatives to the proposed action? [Exception 55].

VII. Whether the Licensing Board erred in finding that with regard to a hypothetical cask drop accident in the McGuire spent fuel pool, "it would be a close call" as to whether a criticality accident would result and thus "a physical barrier to positively prevent casks from dropping into the fuel pool" is necessary? [Exceptions 59-63].

BACKGROUND AND STATEMENT OF THE CASE 1/

On March 9, 1978, Applicant applied 2/ to the Nuclear

1/ Applicant's extended Background and Statement of the Case is occasioned by the important role the facts play relative to subsequently discussed law. It is also necessary to demonstrate the Licensing Board's failure to recognize and/or appreciate the nature and impact of changing events. In this regard Transcript ("Tr.") 408-25 provides a useful insight into Applicant's development of spent fuel storage options.

2/ Applicant has received, pursuant to 10 CFR Part 70, a special nuclear materials license (SNM-1773) authorizing the storage of new nuclear fuel at the McGuire Nuclear Station. (Staff Exhibit 28 at p. 1-1). Applicant's March 9, 1978 application seeks to amend the subject special nuclear material license No. SNM-1773. (Applicant Exhibit 2). The application was sought under 10 CFR Part 70 in that it was not known precisely when the McGuire Part 50 operating license would be issued. (Applicant Exhibit 2 at pp. 1-1).

Regulatory Commission ("NRC" or "Commission") for approval to store spent fuel assemblies 3/ from Oconee 4/, located in Oconee County, South Carolina, at McGuire 5/, located in Mecklenburg County, North Carolina, some 170 miles away. (Applicant Exhibit 2). The application sought to

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3/ Applicant sought to store approximately 410 Oconee spent fuel assemblies at McGuire. (Applicant's Exhibit 23E, Attachment). The NRC Staff proposed a license condition of "[n]o more than 300 Oconee spent fuel assemblies." (Staff Exhibit 3, at p. ix). Applicant does not take issue with this condition.

4/ Oconee consists of three 2568 MWt, 860 MWe Babcock and Wilcox pressurized water reactor units. (Applicant Exhibit 2 at p. 1-1). Oconee Units 1, 2 and 3 began commercial operation on July 16, 1973, September 9, 1974, and December 16, 1974, respectively. (Applicant Exhibit 23E, Attachment 1 at p. 1). The reactor core of each Oconee Unit contains 177 nuclear fuel assemblies. (Staff Exhibit 3 at p. 61). Each fuel assembly consists of a 15 x 15 array of fuel pins with 208 of the pin locations containing the actual UO2 fuel enriched in the isotope uranium-235. (Staff Exhibit 28 at p. 3-1). During operation, the fissionable isotope is depleted, thus necessitating periodic refueling which consists of replacing, on the average, approximately one third of the 177 fuel assemblies in each core each year. (Staff Exhibit 3 at p. 61). Storage of the spent fuel removed from the Oconee Units is provided by two separate spent fuel pools, the Units 1 and 2 pool originally designed for 336 storage spaces and the Unit 3 pool originally designed for 216 storage spaces. (Applicant Exhibit 2 at p. 1-1).

5/ McGuire will consist of two 3411 MWt, 1180 MWe Westinghouse pressurized water reactor units. (Applicant Exhibit 2 at p. 1-1). An operating license application is presently pending. (Id.). McGuire has two spent fuel pools, each presently designed to accommodate 500 spent fuel assemblies. (Staff Exhibit 28 at p. 3-1).

alleviate the constrained spent fuel storage situation that was developing at Oconee which rendered reactor shutdown imminent. Grant of the application would also provide Applicant flexibility in meeting future spent fuel storage needs.

The instant application was supported by extensive evidence, which has been updated to reflect current developments. This material was independently reviewed by the NRC Staff. (e.g., Staff Exhibits 3 at p. iv, 24 and 28 at pp. 1-2--1-6). As a result thereof, the NRC Staff, pursuant to the National Environmental Policy Act 6/ ("NEPA") and 10 CFR Part 51, issued an Environmental Impact Appraisal ("EIA") (Staff Exhibit 3) and updates thereto (Staff Exhibits 7 and 24) as well as a Negative Declaration (Staff Exhibit 35). These documents addressed, inter alia, the impacts associated with the storage of the 300 Oconee spent fuel assemblies at McGuire, including the risk associated with transportation, as well as the alternatives thereto. They concluded that, from an environmental standpoint, the activity was consistent with the requirements of NEPA and that an environmental impact statement was not warranted because there would be no environmental impact significantly affecting the quality of the human environment attributable to the proposed action.

6/ 42 U.S.C. §§4321 et seq. (1976).

(Staff Exhibits 3 at p. viii and 35). In addition, the NRC Staff prepared a Safety Evaluation Report ("SER") (Staff Exhibit 28) and updates thereto (Staff Exhibits 7 and 24), as well as a Staff report evaluating the potential for a hypothetical cask drop accident (Staff Exhibit 33). These documents assessed the proposed activity from a safety standpoint, and concluded that such would not be inimical to the common defense and security and would not constitute an unreasonable risk to the public health and safety. (Staff Exhibit 28 at p. 10-1). On the basis of these documents the NRC Staff concluded that the subject application should be granted.

Intervention status was accorded several groups, however only the Carolina Environmental Study Group ("CESG") and the Natural Resources Defense Council ("NRDC") elected to pursue the matter. (Initial Decision ("I.D.") at pp. 3-4). In addition, the State of South Carolina was granted leave to participate as an "interested state" pursuant to 10 CFR §2.715(c). (I.D. at p. 4). Formal hearings were conducted, evidence was presented and full cross-examination of witnesses 7/ was afforded to all participating parties.

7/ Applicant and Staff provided the majority of the witnesses. NRDC provided witnesses on the status of the goverment's away from reactor storage ("AFR") program and health effects; CESG presented a witness on cask drop accidents and radiological impacts during transportation; and the Licensing Board provided a witness from the Department of Energy to discuss the government's AFR program.

Thereafter the record was closed, proposed findings were submitted and the Initial Decision was rendered denying the application. 8/ On November 10, 1980, exceptions to this decision were filed by both the Applicant and NRC Staff. The action is now before this Appeal Board.

The facts relevant to the issues presented, with appropriate references to the record, are set forth below.

At the time of the filing of the application, Oconee was facing reactor shutdown in 1979-1980 due to lack of spent fuel storage space. (Applicant's Exhibit 23F at p. 2 and Table 1). 9/ This constrained spent fuel storage situation resulted from several factors. Applicant, in reliance on reprocessing of its spent nuclear fuel, 10/ originally sized

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8/ It is to be noted that the above process consumed some 2-1/2 years.

9/ At sometime during mid-1979, Oconee would have lost the ability to store one entire core. (Applicant Exhibit 23F at p. 2 and Table 1). This is known as loss of Full Core Reserve. The evidence reflects that such capacity is necessary. (Applicant's Exhibit 3 at p. 12). This capacity, which pertains to the station as a whole, enables Applicant to remove and store the core, if such becomes necessary, so as to permit corrective action to be taken. (Id.). Without FCR, Applicant could be placed in a situation wherein corrective action could not be taken, so as to render the reactor inoperable, thereby giving rise to tremendous replacement power costs. (Applicant Exhibit 3 at pp. 12-13 and Staff Exhibit 18A). It is to be noted that, given the fact that each of the three Oconee Units discharge 1/3 of a core annually, reactor shutdown lags approximately one year behind loss of FCR. (Applicant Exhibit 3 at p. 4).

10/ Applicant has a contract with Allied General Nuclear Services to reprocess Oconee spent fuel at the proposed reprocessing plant in Barnwell, South Carolina. (Tr. 498, and Applicant Exhibit 2 at p. 1-1).

the Oconee spent fuel pools in 1967 to accommodate the discharge of approximately one full core and one reload batch of fuel. (Tr. 412 and 882-3). As the Commission noted, this practice was prevalent in industry at that time.

> From the early days of the nuclear power industry in this country, electric utilities planning to construct and operate light water nuclear power reactors contemplated that the used or spent fuel discharged from the reactors would be chemically reprocessed to recover the remaining quantities of fissile and fertile materials (uranium and plutonium), and that the materials so recovered would be recycled back into fresh reactor fuel. It was contemplated by the nuclear industry that spent fuel would be discharged periodically from operating reactors, stored in onsite fuel storage pools for a period of time to permit decay of radioactive materials contained within the fuel and to cool, and periodically shipped offsite for reprocessing. Typically, space was provided in onsite storage pools for about one and one-third nuclear reactor cores. [40 Fed. Reg. 42801, (September 16, 1975)].

In 1974-1975 delays in the licensing of spent fuel reprocessing facilities signaled a developing nationwide shortage of spent fuel storage space for nuclear facilities. As the Commission stated:

> In light of the status of the three planned commercial reprocessing plants in the United States, as outlined above, the earliest that spent fuel reprocessing could begin on a commercial basis, if authorized, would be late 1976. This assumes that the pending licensing proceedings are completed and licenses issued by this date. However, the spent fuel pools at a number of reactors may soon be filled, and still other reactors will have their pools filled before the end of 1978. Accordingly, even if limited reprocessing should begin in late 1976, there would still be a shortage in spent fuel storage capacity. [40 Fed. Reg., supra., at 42801].

Due to the delays in reprocessing of spent nuclear fuel and the resulting shortage of spent fuel storage space, Applicant, in 1975-1976, reracked the empty Oconee Unit 3 pool with then state of the art high density stainless steel racks thus increasing its storage capacity from 216 to 474 spaces. (Tr. 411-413; Applicant Exhibits 2 at p. 1-1 and 30 at p. 2; Staff Exhibit 3 at p. 1). 11/ This action provided Applicant with adequate on-site storage capability at Oconee until 1979-1980. (Applicant Exhibit 23F at p. 2). At the time the Oconee Unit 3 spent fuel pool was reracked, Applicant still believed that reprocessing would be available in the future. (Tr. 413). However, Applicant began developing near term plans to assure that in the event reprocessing was not available Oconee would not be forced to shut down due to lack of spent fuel storage space in 1979-1980. (Tr. 413 and 419). The potential alternatives available to Applicant at that time were (1) reracking Oconee Units 1 and 2 spent fuel pool (2) construction of an independent spent fuel storage installation ("ISFSI"), and (3) storage of Oconee spent fuel at McGuire. 12/ (Tr. 413, 419, and Applicant Exhibit 7

11/ Without such action the Oconee facility would have lost FCR storage capacity in October, 1977. (Applicant Exhibit 3 at p. 10).

12/ McGuire was the only other facility of Applicant which would be available to receive Oconee spent fuel during the time frame required to assure that the Oconee

(Footnote continued on next page.)

("1976 ISFSI Study"). However, to rerack Oconee Units 1 and 2 spent fuel pool would have required that the entire pool be emptied, drained and cleaned to allow the cutting of the existing racks which, unlike typical racks, were welded to the embedments in the floor of the spent fuel pool. (Tr. 760, 763-7 and Applicant Exhibit 23F at p. 1). There was insufficient time and storage space to accomplish this task. (Tr. 760). Additionally, the technology for underwater cutting within a spent fuel pool was not yet developed. (Id.). Such technology was not available to Applicant until late 1978. (Id. and Applicant Exhibits 23F at pp. 1 and 2 and 30 at p. 2). With regard to construction of an ISFSI, Applicant's 1976 study of the feasibility of construction of an ISFSI determined that such a facility could not be constructed and licensed in time to prevent shutdown of the Oconee facility due to lack of spent fuel storage space without off-site transshipment of spent fuel. (Applicant Exhibit 7 at conclusions). Moreover, no ISFSI had yet been constructed and it was unclear whether such a major

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(Footnote continued from previous page.)

facility would not be shutdown due to lack of spent fuel storage space. (Applicant Exhibit 2 at p. 18-2). Transshipment to existing storage facilities, such as General Electric's Morris, Illinois installation, was considered to be infeasible due to space limitations and outstanding contractual obligations with other utilities. (Staff Exhibit 3 at pp. 49-50).

undertaking would ultimately be successful. (Applicant Exhibit 3 at p. 9). 13/ In short, the only viable alternative during 1976 which would assure that the Oconee facility would not be shut down in the near term due to lack of spent fuel storage space was storage of the Oconee spent fuel at another facility.

Also in 1976, in addition to exploring the immediate spent fuel storage needs of Oconee, Applicant began to develop longer ranged contingency plans that could be implemented, if needed, to assure that none of its facilities would be shut down due to lack of spent fuel storage space. (Tr. 416-17 and 436-7). As noted, at that time such alternatives consisted of reracking, construction of an ISFSI and storage off-site at another reactor's spent fuel pool. (Tr. 413-419, Applicant Exhibit 7 ("1976 ISFSI Study"). From both a public health and safety and environmental viewpoint, the radiological effects of these alternatives were considered to be similar in their impacts. 14/

13/ Applicant notes that draft and final regulations regarding licensing and construction of an ISFSI were not promulgated until October 6, 1978 (43 Fed. Reg. 46309), and November 12, 1980, (45 Fed. Reg. 74693), respectively.

14/ A comparison of the radiological impacts of these alternatives, is set forth in Staff Exhibits 11A and 20 at p. 4-6 and Applicant Exhibits 12 at pp. 6-13 and 15 at pp. 2-5.

Accordingly, flexibility became a controlling consideration. In this regard, Applicant, as it does today, deemed it prudent to select options that would provide it with the greatest degree of flexibility so as to maintain a position that would enable it to take advantage of emerging solutions, such as underwater cutting of spent fuel racks and poison reracking. (Tr. 437). Thus, to provide increased storage within its system to accommodate contingencies, and to provide additional on-site storage for the units themselves, Applicant decided to enlarge the spent fuel storage capacity at both McGuire and Catawba by installing state of the art technology, viz., high density stainless racks, as well as physically expanding the Catawba spent fuel pool. 15/ (Tr. 416, and 1004; Applicant Exhibit 3 at p. 8). These contingency plans placed Applicant in a position such that it could pursue the licensing of the transshipment option at some later date, if such ever became necessary. These long range contingent storage plans were no more than contemplated actions; no firm transportation schedule was prepared. (Tr. 416-418). Further, it was thought that reprocessing would be available in the foreseeable future. (Tr. 412-3).

15/ The construction of the McGuire facility was well advanced at this time (Applicant Exhibit 2 at p. 1-1), and thus, it would have been very difficult to physically expand the McGuire pool.

On April 7, 1977, President Carter announced the indefinite deferral of reprocessing of commercially produced spent nuclear fuel. (Applicant Exhibit 19 at p. 1). Shortly thereafter, on October 18, 1977, the Department of Energy ("DOE") announced a new spent nuclear fuel storage policy under which the federal government proposed "to accept and take title to used, or spent, nuclear reactor fuel from utilities on payment of a one-time storage fee." (Id.). Thus, while Applicant's expectations of a near term reprocessing alternative receded there arose the expectation of an equally near-term DOE away from reactor ("AFR") storage option. (Tr. 419-423). Due to the promising nature of the DOE program, Applicant saw no reason to implement any long term storage options such as extended transshipments or an ISFSI construction program, at that time the only other viable alternative to transshipment. 16/ (Id.).

On March 9, 1978, Applicant filed the instant application seeking authorization to store 300 Oconee spent fuel assemblies at the McGuire facility. (Applicant Exhibit 2). Each shipment would entail the loading of one assembly of at least 270 day old fuel (Staff Exhibit 3 at p. ix) in

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16/ It should be noted that deferral of reprocessing and the new DOE policy had no effect on Applicant's short-term plans to store 300 Oconee spent fuel assemblies at McGuire. (Tr. 422).

a NRC certified shipping cask (Id. at pp. 17 and 33), placing such cask on a truck of a "nationally known hauler of hazardous materials" whose drivers, and security personnel must adhere to strict NRC standards (Applicant Exhibit 3 at p. 14 and Tr. 932-3; see also 10 CFR §73.37), and whose trucks must adhere to strict Department of Transportation ("DOT") and NRC regulations (e.g., 49 CFR Parts 570 and 571, and 10 CFR §73.37), transporting the shipment over one of several NRC and DOT approved routes (Staff Exhibit 24 at p. 3 and 10 CFR §73.37), in a fashion consistent with NRC and DOT regulations (Staff Exhibit 3 at p. 30 and 10 CFR §73.37), over 170 miles of roadway taking approximately 5 hours of actual "driving time" to traverse (Staff Exhibit 3 at p. 30), and unloading the cask, and placing the assembly in the McGuire Unit 1 spent fuel pool. 17/ Such activity would take approximately one day. (Tr. 792).

However, despite its efforts, in late 1978 it became obvious that the hearing process was going to delay the

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17/ Applicant notes that it has conducted numerous on-site shipments of spent fuel between the Oconee spent fuel pools involving similar cask load, truck shipment and cask unloading operations which would be required here. (Tr. 748, 1025 and 1718).

issuance of a license. 18/ Also in late 1978 underwater reracking technology had advanced so as to resolve Applicant's welded rack problems in the Oconee Units 1 and 2 spent fuel pool. 19/ (Applicant Exhibits 23F at p. 2 and 30 at p. 2; Tr. 760 and 762-5). Based upon these developments, and faced with the looming prospect of reactor shutdown due to lack of spent fuel storage space, Applicant decided to rerack Oconee Units 1 and 2 spent fuel pool with high density stainless steel racks. On February 2, 1979, Applicant filed an application with the NRC in this regard. (I.D. at p. 38). Such was subsequently granted on June 19, 1979 and work was essentially completed by November 21, 1979. 20/ The result of this reracking was the expansion of the spent fuel storage capacity of Oconee Units 1 and 2 spent fuel pool from 336 to 750 locations, which will

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18/ An opportunity for public participation was not noticed until July 28, 1978 (43 Fed. Reg. 32905); numerous petitions to intervene were received; a Licensing Board was not established until September 1, 1978 (43 Fed. Reg. 39197); petitions to intervene were ruled upon on November 2, 1978 and January 9, 1979.

19/ On October 18, 1978, Applicant informed the NRC it wished to utilize the new technology. (Applicant Exhibit 23F). The Staff's Environmental Impact Appraisal, issued December 1978, reflected this change. (Staff Exhibit 3 at pp. 52-53).

20/ Applicant has installed 11 of the 14 high density modules. (Applicant Exhibit 30 at p. 1). The remaining three modules were not installed due to possible installation of poison racks. (Id.).

provide for full core reserve ("FCR") for the Oconee facility until September 1982. (Applicant Exhibit 6 at p. 3; Staff Exhibit 36 at p. 4 and Table). 21/

During 1979, it continued to be obvious that the hearing process was going to be an extended one. 22/

21/ The application was approved on June 19, 1979, and installation began the next day. (Tr. 729). Applicant notes that it had requested and received expedited consideration in licensing this option and expedited delivery of the racks, and the application was unopposed. (I.D. n.2 at p. 2, and Tr. 2691). Thus, the time for licensing was decreased from the expected 12 months, as was typical in other storage expansion applications (Tr. 2692), to approximately 4-1/2 months. (The application was filed on February 2, 1979. I.D. at p. 38). During the course of the work, as Applicant had anticipated and so noted (Applicant Exhibit 23F at pp. 2-3), full core reserve capability at Oconee was lost. (Tr. 729). It should be noted that Applicant on several occasions has had to utilize the full core reserve capacity at its Oconee Units (Applicant Exhibit 3 at p. 12), and was thus understandably concerned over its loss. Fortunately, full core reserve capacity was not needed during the approximately 3-1/2 months required to install the high density modules.

22/ Hearings commenced on June 19, 1979, and were adjourned on June 29, 1979; hearings reconvened on August 6, 1979 and were again adjourned on August 8, 1979; hearings reconvened on September 10, 1979 and were indefinitely adjourned on September 13, 1979 when the NRC Staff decided to take its exception to a Licensing Board ruling regarding the protective nature of sabotage information to the Commission. As of December 31, 1979, the Commission had yet to rule on the matter.

Faced with the continuing prospect of reactor shutdown, Applicant decided to rerack Oconee Units 1 and 2 spent fuel pool with poison racks. 23/ (Applicant Exhibit 30 at p. 2). A license application for such activities was submitted on July 1, 1980, and is unopposed. (45 Fed. Reg. 62948 (September 22, 1980); I.D. n.2 at p. 2). It is anticipated that such reracking will be completed in March-April 1981. (Applicant Exhibit 30 at p. 2). If the poison racking of Units 1 and 2 spent fuel pool is approved the result will be the expansion of the spent fuel storage capacity from 750 to 1312 locations, which will provide for FCR until late 1986. (Id.; Tr.4762).

Upon approval and completion of the poison reracking of the Unit 1 and 2 spent fuel pool, Applicant's plans call for the storage of 300 Oconee spent fuel assemblies at McGuire. This storage at McGuire would enable Applicant to pursue the reracking of Oconee Unit 3 spent fuel pool with poison racks, thereby providing Oconee with yet additional storage

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23/ Poison racks refer to use of high neutron absorbing material in the storage racks thus allowing closer spacing of the as ıblies in the racks. (Tr. 1205-6).

capacity. (Applicant Exhibit 30 at p. 2; Tr. 4762-3). Coupled together, reracking of Unit 3 spent fuel pool and storage of 300 Oconee assemblies at McGuire would provide spent fuel storage capacity at Oconee until 1991. 24/ (Tr. 4762).

24/ To assist the Appeal Board, the projected status of the spent fuel storage capacity at each of the Applicant's current and planned facilities is set forth below:

(1) Oconee: Will not lose full core reserve until approximately 1991 (Staff Exhibit 36 at Table).

Assumptions

- Reracking of Units 1 and 2 pool with poison racks.
- Transshipment of 300 fuel assemblies to McGuire is approved thus facilitating reracking of Unit 3 pool with poison racks.
- Unit 3 pool is reracked with poison racks.

(2) McGuire: Will not lose full core reserve until 1993 (Applicant Exhibit 30 at p. 3).

Assumptions

- Transshipment of 300 Oconee assemblies to McGuire.
- Reracking Units 1 and 2 pools with poison racks.

(3) Catawba: Commercial operation dates for Units 1 and 2 have been delayed to 1983 and 1985 respectively. (Staff Exhibit 36 at p. 3)

(Footnote continued on next page.)

SUMMARY OF ARGUMENT

This Board should reverse the decision of the Licensing Board which denied Applicant's request to store 300 Oconee spent fuel assemblies at McGuire. The Licensing Board's decision is based upon two faulty factual premises: first, that there exists a definite corporate plan to transship additional spent fuel from Applicant's older reactors to its new ones (viz., an alleged cascade plan or program); second, that transportation of spent fuel is so inherently dangerous as to render it an undesirable alternative to resolving the spent fuel storage problem of Oconee. Such premises have influenced the overwhelming majority of negative findings rendered by the Licensing Board.

The record clearly demonstrates that, despite internal company memoranda cited by the Licensing Board, which indicate the consideration of a cascade plan, a firm cascade plan does not exist. The storage of 300 Oconee spent fuel

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(Footnote continued from previous page.)

It should be noted that further postponement of the McGuire facility will extend the date when FCR is lost. (Tr. 3066-7). Other facilities of Applicant are not scheduled to begin commercial operation until the 1990's. (Staff Exhibit 36 at p. 3).

assemblies at McGuire is not the first step in such a cascade program. Rather, the evidence shows that a cascade plan was a contingency which, due to subsequent events, is now further remote. The current record reflects that with the approval of this application storage capability at Oconee would extend beyond 1988. Further, the record shows that instead of immediately seeking permission to make additional shipments, Applicant intends to pursue the poison racking of Oconee Unit 3 spent fuel pool thereby providing adequate on-site storage including maintenance of FCR capability until 1991.

The evidence also shows, contrary to the findings of the Licensing Board, that the NRC Staff was informed of Applicant's contingency plans, that Applicant's witnesses were responsive and credible and that no corporate ratification of internal memoranda should be inferred.

An examination of the pertinent law, together with the facts of this case, clearly reveals that the environmental analysis associated with this application should be properly limited to the "federal action" involved viz., NRC approval of the application to store 300 Oconee spent fuel assemblies at McGuire. Further, the scope of environmental inquiry is,

as a matter of law, properly limited to such 300 shipments due to the uncertainty of any additional shipments. Even if the scope is determined to encompass a cascade program, the very fact that the Licensing Board found that the instant activity was the "first step" in that plan renders it susceptible to segmented environmental review. The Licensing Board recognized the possibility of segmented environmental review. In this regard, the Licensing Board utilized the five factors set forth in the Commission's 1975 Spent Fuel Storage Statement and determined such could not be segmented. However, the Licensing Board's treatment of the five factors was in error.

The Licensing Board's treatment of the scope of the environmental analysis was premised upon a further erroneous basis, viz., that this would be the only time a series of transshipments could be reviewed. In fact, future transshipment, if any, would be considered and either approved or disapproved in later proceedings. The Licensing Board misread the record in this regard and was, as a matter of law, simply incorrect in its supposition.

Inasmuch as the instant application for the storage of 300 Oconee spent fuel assemblies at McGuire is the proper

scope for environmental review, the NRC Staff's EIA which focused upon the 300 shipments, was properly directed. The EIA's consideration of impacts associated with activities related to the storage of the 300 Oconee spent fuel assemblies, was in accord with the evidence; the "intense shipping program" developed by the Licensing Board is non-existent. The EIA concluded that there were no significant environmental impacts associated with the proposed action, and thus, preparation of an environmental impact statement was not necessary. Moreover, pursuant to Commission regulations and relevant case law no consideration of alternatives was likewise necessary. However, the EIA addressed alternatives. The EIA's treatment of alternatives, including reracking and ISFSI, and additional record testimony, satisfies NEPA. In particular, the NRC Staff presented evidence which properly found that the risks associated with transshipment, viz., radioactive releases to public resulting from traffic accidents or sabotage, were remote.

With respect to other matters, the Licensing Board misconstrued dose comparisons of alternatives, finding

such to be required by the "as low as reasonably achievable standard" of 10 CFR Parts 20 and 50, rather than Part 51. Also the Licensing Board's finding that a cask drop accident could very well result in a criticality event is simply not supported by the preponderance of the evidence and accordingly the physical barrier condition imposed in the Initial Decision is without a supporting basis.

ARGUMENT

Standard of Review

Duke Power Company (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 402-405 (1976) serves as the leading case with regard to the standard that this Board is to utilize in its review of the Licensing Board's decision.

25/ Therein, the Appeal Board stated:

> To reiterate, the APA does not bind any agency to accede to its examiner's - or licensing board's - initial decision because it is supported by "substantial evidence" or is not "clearly erroneous." Where the administrative record considered as a whole will fairly sustain a result deemed preferable by the agency to the one selected by its initial decision maker, the law is clear that the agency may substitute

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25/ See the Commission's Final Rule regarding "Changes in Rules of Practice Governing Discipline in Adjudicatory Proceedings," 45 Fed. Reg. 69877 (October 22, 1980), wherein recognition is given to the Catawba case.

> its judgment for its subordinate's. [4 NRC at 403 (footnote omitted)]. 26/

See also Northern Indiana Public Service Company (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858 (1975) wherein this Appeal Board stated:

> As we have previously ruled, the test -- laid down by the courts -- which we follow allows us to reject or modify a board's findings "if, after giving its decision the probative force it intrinsically commands," we are convinced that the record warrants a different result. [2 NRC at 867 (citations omitted)]

Thus it is clear that pursuant to this standard the Appeal Board can reverse any of the Licensing Board's findings if so inclined. 27/

Sufficiency of Licensing Board Decision

The Appeal Board in Public Service Company of New

26/ Applicant is cognizant that the Catawba Appeal Board went on to state that it "attaches significance to a licensing board's evaluation of the evidence and to its disposition of the issues." (4 NRC at 404). However, as noted above, the ultimate decision rests with the Appeal Board. See Northern States Power Company (Monticello Nuclear Generating Plant, Unit 1) ALAB-611 ___ NRC ___ (Slip op. September 3, 1980).

27/ Applicant found the Licensing Board's finding regarding the "appearance and demeanor" of its witnesses to be initially troublesome. (I.D. at p. 13). However, an examination of administrative case law reveals that, while deference is extended lower body findings in this regard, such findings may be overturned by the agency. See pp. 43-45, infra.

Hampshire, et al. (Seabrook Station, Units 1 and 2),

ALAB-422, 6 NRC 33 (1977) stated:

> We long ago reminded licensing boards of their duty not only to resolve contested issues but "to articulate in reasonable detail the basis" for the course of action chosen. Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-104, 6 AEC 179 (1973). We, as well as the parties, should be able "readily to apprehend the foundation for the [Board's] ruling" (id., at fn. 2). For it is a well accepted principle of administrative law that "the orderly functioning of the process of review requires that the grounds upon which the administrative agency acted be clearly disclosed and adequately sustained." SEC v. Chenery Corp., 318 U.S. 80, 94 (1943). Cf. Greater Boston Television Corp. v. F.C.C., 444 F.2d 841, 851-3 (D.C. Cir 1970), certiorari denied, 403 U.S. 923 (1971); WAIT Radio v. FCC, 418 F.2d 1153, 1156 (D.C. Cir. 1969). See also Permian Basin Area Rate Cases, 390 U.S. 747, 792 (1968). A board must do more than reach conclusions; it must "confront the facts." Wingo v. Washington, 395 F.2d 633, 636 (D.C. Cir. 1968). [6 NRC at 41].

The Appeal Board also found in Consolidated Edison Company of New York, Inc. (Indian Point Station, Unit No. 2),

ALAB-188, 7 AEC 323 (1974) that

> The issues must be resolved on the basis of the evidentiary record developed in the proceeding conducted by the Licensing Board. With regard to whether an applicant has sustained its burden of proof on contested issues, the quantum of proof which must be adduced is a preponderance of the evidence. Whether or not the record evidence on contested issues satisfies the preponderance rule is a judgmental process which is often of the highest order and complexity. [7 AEC at 356-57].

See also Catawba, supra, 4 NRC n.19 at 405, and Sierra Club v. Froehlke, 534 F.2d 1289, 1300 (8th Cir. 1976). This

standard was recently affirmed by the Appeal Board in Commonwealth Edison Company (Zion Station, Units 1 and 2), ALAB-616, ___ NRC ___ (Slip op. October 2, 1980).

As will be discussed herein many of the Licensing Board's adverse findings are not supported by a preponderance of the evidence. In addition, in several instances the Licensing Board has failed to "confront the facts" so as to render its findings unsupported by any evidence. Rather, such findings are based on mere supposition. As such, these findings can and should be reversed.

Case law also requires that when a Licensing Board decides a case on a ground different than any advanced at the hearing, the Licensing Board must have put the parties on notice so as to afford them an opportunity to present evidence. See Niagara Mohawk Power Corporation (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347 (1975) wherein the Appeal Board stated:

> However, when the Board (or any administrative agency) elects to decide a case on a basis different from that on which it was brought and tried, it has a concomitant obligation to bring this fact to the attention of the parties before it and to afford them a fair opportunity to present argument and, where appropriate, evidence on the new issues. The cases hold it to be "well settled that an agency may not change theories in midstream without giving respondents reasonable notice of the change." [1 NRC at 354 (footnote omitted)].

In the instant matter the Licensing Board has made findings on issues that were not raised by any party nor enunciated by the Licensing Board at any time prior to the Initial Decision. Such is contrary to the above case law and works to prejudice Applicant's application.

ISSUES

I. Whether the Licensing Board erred in finding that the proposed action "involving the transfer of 300 spent fuel assemblies from Oconee to McGuire, is actually the first step in a plan or program to ship excess spent fuel from older nuclear reactors in Duke's system to newer reactors." [Exceptions 1-6].

The Licensing Board found that the proposed action "involving the transfer of 300 spent fuel assemblies from Oconee to McGuire, is actually the first step in a plan or program to ship excess spent fuel from older nuclear reactors in Duke's system to newer reactors." (I.D. at p. 11). The Appeal Board need not address the question of whether the Licensing Board was correct in this regard for the existence or non-existence of a cascade plan has no bearing on the ultimate decision. As discussed in Issue II, infra, NRC regulation and case law clearly reflect that NEPA's reach is limited to the federal action at hand, i.e., NRC approval of Applicant's application; additional shipments would be the subject of subsequent NEPA reviews.

However, since Applicant's testimony on this topic has been called into question, Applicant has briefed the issue so as to enable the Appeal Board an opportunity to reach the matter if it so chooses.

As the basis for its finding, the Licensing Board relied, in large measure, on portions of the contents of five internal memoranda each of which contained statements regarding a "cascade" or "transshipment" "plan," "scheme," "program," or "approach." (I.D. at pp. 10-15). In attempting to analyze the commitment of Applicant to implement such plans, the Licensing Board rejected the sworn testimony of Applicant's witnesses who authored the documents in question. The Licensing Board found that Applicant's witnesses distorted "the plain meaning of various documents" and were not "credible or persuasive." (I.D. at pp. 13-14). Thus, the Licensing Board found, on the basis of these memoranda, that Applicant was firmly committed to a corporate-approved plan or program regarding transshipment of spent fuel throughout Applicant's system. In making this finding, the Licensing Board drew "strong-negative" inferences from statements in various documents that the Licensing Board asserts are indicative of "deliberate," "devious" actions by Applicant to keep secret from the NRC its transshipment plans. (I.D. at pp. 12, 15, and 23). As will be

addressed below, Applicant submits that the Licensing Board's findings regarding this issue are contrary to the only sworn testimony in the record. As such, the Licensing Board's findings in this regard are not supported by the preponderance of the evidence in the record. Further, these findings are in conflict with the reality of the changing conditions surrounding the issue of spent fuel storage shortages at Applicant's facilities, and are contrary to sound public policy regarding corporate planning.

At the outset, Applicant strongly objects to the finding of the Licensing Board that Applicant was attempting to actively withhold from the NRC, required information regarding its activities. Simply stated, this is not the case.

As the basis for its findings the Licensing Board relies upon two internal memoranda prepared by non-policy making personnel of Applicant:

(1) An internal memorandum for file dated August 16, 1976 entitled "Spent Fuel Storage Review 8/11/76" (Applicant's Exhibit 4) wherein the following statement is made:

> Transportation aspects should be handled internally and should not be addressed in discussions in expansion plans with NRC. Each plant is expanded solely on the basis of meeting its own need for storage space. No mention of the cascade approach in licensing documents.

(2) An internal memorandum dated November 10, 1977 entitled "Spent Fuel Storage Moss Subcommittee" (not admitted into evidence) the following portion of which was read into the record:

> I am particularly concerned that our response to the questionnaire [proposed by the Moss Subcommittee] will give information on our shipping program providing for transfer of spent fuel assemblies from Oconee to McGuire and from McGuire and Oconee to Catawba. 28/

These memoranda were prepared prior to the filing of the subject application. After the application was filed, and during the review process, Applicant submitted documents to the NRC setting forth the possible alternative of transshipment of spent fuel to Catawba from Oconee and McGuire. (See Applicant Exhibits 2 at p. 18-2, wherein Applicant notes the possibility of a transshipment alternative to other facilities within Applicant's system, and 23E at handwritten attachment entitled "Schedule of Discharges and Transfers-1984" wherein possible transfer of spent fuel to Catawba is noted). Indeed, the NRC Staff testified that it was well aware of the transshipment option in 1978, well

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28/ While the Licensing Board quotes liberally from this document only that portion noted above is made a part of the record of this proceeding. (Tr. 442).

before publication of its EIA, and the Staff opted, after due consideration, to limit the scope of its assessment to the proposed action (i.e., shipment to McGuire of 300 Oconee spent fuel assemblies):

> I was aware of [Duke's] intentions to ship [Oconee and McGuire spent] fuel [to Catawba] back in the early stages of the review. I cannot recall a specific date. It was as a result of communication with Duke. [Tr. 572].
>
> * * * * *
>
> To put a rough time on it, it was six or seven months prior to the issuance of the [EIA] document. [Tr. 572].
>
> * * * * *
>
> ...we decided to evaluate the 300 assemblies by themselves. If at some later date, Duke decided to go on with this cascade plan, that would have to be evaluated at that time and the impacts would have to be determined. [Tr. 577. See also Tr. 572-6].

In this context, it was (and still remains) Applicant's position that the only instant subject of "federal action" is the storage of 300 spent fuel assemblies at McGuire. Accordingly, only information on that limited subject need have been submitted. If additional transfers are sought, further permission is necessary and further information must and will be provided. The Staff is of the same view. (Tr. 577).

In finding that the instant application was the first step in a cascade plan or program to which Applicant is

firmly committed, the Licensing Board, as noted, relied on five internal memoranda (two of which were discussed on pp. 29-32 supra.) prepared during the 1976-1979 time frame by three Duke employees regarding the spent fuel storage problem:

(1) An August 16, 1976 memorandum For File entitled "Spent Fuel Storage Review 8/11/76" written by H.T. Snead, Nuclear Fuels Engineer. (Applicant Exhibit 4). ("1976 memorandum").

(2) A November 10, 1977 internal memorandum entitled "Spent Fuel Storage Moss Subcommittee" written by R.W. Bostian, Manager of System Results and Fuel Management Group. (Not admitted in evidence, see Tr. 441-3). ("1977 memorandum").

(3) An October 17, 1978 handwritten internal memorandum entitled "Cost Comparison-Reracking 01, 02 Pool (Its Related Transfers and Doses vs. Cascade Present Scheme)" written by R.M. Glover, an Assistant Engineer (NRDC Exhibit 9). ("October 1978 memorandum").

(4) A December 1978 handwritten internal memorandum entitled "Alternatives to Keep Oconee Running" written by R.M. Glover, an Assistant Engineer (NRDC Exhibit 3). ("December 1978 memorandum").

(5) An April 25, 1979 memorandum to file entitled "Cascade Program Cost" written by R.M. Glover, an Assistant Engineer (NRDC Exhibit 7). ("1979 memorandum").

The memoranda are addressed seriatim below:

(1) The 1976 memorandum

The 1976 memorandum, written before reprocessing was indefinitely deferred, did indeed make reference to a "cascade approach." However, the document did not set

forth a specific "plan" regarding shipment of spent fuel throughout Applicant's system and did not note any commitment to do so. Indeed, in that reprocessing was still expected (Tr. 412-3), it would have been unnecessary for Applicant to have made such a long-term, firm commitment.

Applicant submits that the 1976 memorandum is evidence that it was considering a cascade approach, but that such was not a definitive plan. The tentative nature of a cascade plan is best seen in item 6 of the memorandum wherein it is stated:

> Steam Production Licensing group is to pursue potential roadblocks to the transfer of Oconee fuel to McGuire. There was a brief discussion of the impact of certain legal rulings on Price-Anderson in this area.

Clearly, one would not proceed with a definitive plan until the "roadblocks" had been explored and evaluated.

The Licensing Board attempts to dispel the tentative aspect of the "cascade approach" language by intimating, on the basis of the 1976 memorandum, that there was corporate approval of a firm commitment to a cascade plan. The 1976 memorandum indicated that upper management attended the subject August 11, 1976 meeting. 29/ The memorandum went

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29/ The Licensing Board's representation that in 1976 Mr. Lee, Mr. Thies and Mr. Owen, three attendees at the meeting, were the President and Senior Vice Presidents of Duke Power Company respectively is inaccurate. (I.D. n.33 at p. 14). In 1976 Mr. Lee was not President and Mr. Owen was not a Senior Vice President.

on to state "Management concurred with the study group recommendation of adding additional spent fuel storage to the system" (emphasis added). Importantly, the memorandum did not say that Management concurred with a recommendation to cascade.

The Licensing Board incorrectly reasons that since the highest levels of management attended the meeting and no corporate disavowal of a cascade program was presented in the record, 30/ that Applicant has a corporate cascade policy or program to which it is firmly committed. Such is not factual.

The Board has attempted to impose upon Duke theories of estoppel as found in contract law. It claims that there was ratification by acquiescence in the failure to repudiate an action by an agent for the corporation. In appropriate circumstances these principles might be applicable and bind a corporation to a contract with another party, but these principles are inapplicable here because there was no other party involved to which the corporation could be bound by its alleged acquiescence or failure to repudiate.

Even if the theory of contract relied on by the Licensing

30/ Applicant notes that through its witnesses, designated official corporate representatives, the record is replete with corporate disavowal. (e.g., Tr. 417-18, 424, 438, 443-4, 565-6).

Board were accepted, Fletcher Cyclopedia Corporations, Vol. II, §769, p. 1106 states:

> ..., silence and failure to repudiate which does not harm the opposite party does not constitute ratification by estoppel. Where such ratification is sought to be established by a third person it must clearly appear that he has been misled thereby, or induced to forego some advantage he would nave otherwise enjoyed. Accordingly, it is held that the duty promptly to affirm unauthorized acts, on knowledge thereof being acquired is less imperative, or does not exist, where the corporation has received no benefit from the act and no loss is caused to the other party and his position is not in any way changed by the failure to notify him.

The Licensing Board totally misconceives the method by which any corporation such as Duke operates. It naturally has many experts and committees at work exploring various problems and studying methods for the more efficient operation of the company. There may be many meetings where minutes are kept, recommendations made and discussed, with the participation therein by various levels of management. Frequently no further action is taken and nothing may be done to implement recommendations by one or more employees. No formal action to repudiate minutes of such a meeting is necessary. They are, and remain, internal and unofficial deliberations of the company. Manifestly in a matter such as the "cascade plan," it remains only a possibility until and unless it is given approbation by the Executive Committee. No such approval has ever been given and the record does not reflect otherwise.

In sum, there is no evidence in the record that as a matter of corporate policy, Applicant is firmly committed to proceed with a cascade plan. On the contrary, the record fully reflects that Applicant does not have a corporate policy or program that firmly commits it to a cascade approach in dealing with spent fuel storage in its system. (e.g., Tr. 417-18, 424, 438, 443-4, and 565-6). 31/ In short, the Licensing Board erred in concluding that the evidence reflected the existence of a firm corporate commitment to a policy or program regarding cascading of spent fuel throughout the Applicant's system.

(2) The 1977 memorandum

The 1977 memorandum makes reference to "our program providing for transfer of spent fuel assemblies from Oconee to McGuire and from McGuire and Oconee to Catawba." This memorandum was written after deferral of reprocessing and the announcement of the governmental AFR storage policy, and thus reflects Applicant's view that only temporary storage plans were needed until DOE implemented its announced program. (Tr. 421-2). Applicant testified that its "enthusiasm" regarding the transshipment option was highest during

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31/ See pp. 41-2 infra., regarding the applicability of oral record statements explaining documentary evidence.

this time. (Tr. 420). The proposed federal program looked very promising and Applicant felt that storage alternatives such as transshipment would be adequate until the DOE program was implemented. (Tr. 420-1). However, Applicant stated that, even then, it was never firmly committed to proceeding with the transshipment option. (Tr. 442-3).

(3) The October 1978 memorandum 32/

Prior to discussing the third memorandum, Mr. Glover's October 17, 1978 memorandum to the file, it is helpful to examine a September 27, 1978 handwritten memorandum entitled "Schedule of Discharges and Transfers-1984" written by R.M. Glover, an Assistant Engineer. (Applicant Exhibit 23E Appendix). Therein Mr. Glover set forth a schedule of transfers of spent fuel for the period 1979-1984 which, when compiled, are as follows:

- Oconee to McGuire - 410
- Oconee to Catawba - 406
- McGuire to Catawba - 257

32/ The three remaining memoranda were written by an assistant engineer whose job it was to develop and consider various solutions to problems, (see e.g., Tr. 470). These were written after the subject application had been filed and more importantly, after NRDC had raised the cascade issue. The testimony reflects that these memoranda serve as the author's exploration of questions raised by the Contention. (See e.g., Tr. 892, 1145).

Subsequent to this September memorandum, the technology for underwater reracking Oconee Units 1 and 2 spent fuel pool with high density stainless steel racks became available. (Tr. 760-2 and Applicant Exhibit 30 at p. 2). Mr. Glover's October 1978 memorandum assumes the high density reracking of the Oconee Unit 1 and 2 pool. (NRDC Exhibit 9 at p. 3 and Tr. 1141). For the purposes of the Licensing Board's finding this October 1978 memorandum simply established a schedule of discharges and transfers for the period 1979-1984. The transfers set forth therein are:

- Oconee to McGuire - 99
- Oconee to Catawba - 46
- McGuire to Catawba - 92

It is to be noted that such document is not an in-depth analysis of a cascade plan, but rather consists of a three page graph paper presentation of cost comparisons which were derived solely for the purpose of assisting the author in exploring alternatives. (Tr. 1140-1 and 1146-7).

(4) The December 1978 memorandum

The December 1978 memorandum is an undated handwritten graph paper memorandum developed in approximately the December 1978 time frame. (Tr. 463). At this time underwater reracking had become technologically feasible and Applicant was considering the possible alternatives occasioned by

this development. (Tr. 760-2). Given this background, the Licensing Board quotes the following sentences in the memorandum:

> "Duke's plan to alleviate the problem of an overabundance of spent fuel assemblies, until the government develops a program of its own, is to ship these assemblies to the most recently completed Duke facility." [I.D. at pp. 11-12].

Significantly, the Licensing Board chose not to include the following sentence of the memorandum:

> Alternatives to transshipment exist and most likely will be considered in the near future to solve storage problems which may arise. [Tr. 463-4; NRDC Exhibit 3].

The first alternative that this memorandum discusses is the reracking of Oconee using either poison or non-poison racks. (Id.).

In short, this memorandum does not support the Licensing Board's position that Applicant is firmly committed to any expansive transshipment scheme or plan.

(5) The 1979 memorandum

The 1979 memorandum of Mr. Glover is a three page "Memorandum to File". It sets forth a "Summary of Projected Transfers" assuming the high density reracking of the Units 1 and 2 pool. (Tr. 891-2). Such transfers for the period 1979-1984 are as follows:

. Oconee to McGuire - 112
. Oconee to Catawba - 289
. McGuire to Catawba - 0

In sum, neither the above discussed documents, nor, more importantly, the testimony of the authors of such documents, demonstrate that Applicant is committed to implementing a cascade program; rather, they are indicative that cascading is one option available to Applicant which could be utilized if necessary, i.e., a contingency plan. (e.g., Tr. 417-8, 424, 438, 442-4, 446-53 and 1005-8). Significantly, the only three documents in the record which set forth what could be viewed as a specific "plan" regarding cascading were written by an Assistant Engineer (Mr. Glover) and vary widely in their results. Indeed, even the "Plans" set forth in the October 1978 memorandum and the 1979 memorandum which both have the same assumptions (i.e., reracking Oconee Units 1 and 2 pool with high density racks) and are written approximately 6 months apart are disparate. It would be expected that if Applicant was committed to implementing a "cascade plan" the specifics of the "plan" would be firmly established rather than varying significantly month to month.

The Licensing Board refused to accept explanatory sworn testimony of Applicant's witnesses. Rather, the Licensing

Board, in essence, maintained that the documentary evidence and the "plain meaning" thereof, was controlling. Simply put, the Licensing Board was critical of Applicant's witnesses who would not state that a cascade plan is a firm plan to which Applicant is totally committed.

Applicant maintains that the Licensing Board's ruling denigrating the oral testimony of Applicant's witnesses and disregarding that testimony in the Board's interpretation of certain internal planning memoranda was in error. An examination of the record reveals that the Licensing Board was more concerned with ascertaining the definitional meaning of terms used by Applicant witnesses in those memoranda than with attempting to gleen the intent of the terms in relationship to the facts (See e.g., Tr. 447-51). Applicant maintains that the Board improperly applied the rationale calling for strict definition of terms, a rationale associated with formal and legally-binding documents such as statutues, contractual agreements and wills. The purpose of the rationale is to disallow deviation from the plain meaning of commonly used phrases in legislation and to confine interpretation of legally-binding written contracts and wills to the four corners of the document. See S.W.

Aircraft Inc. v. U.S., 551 F.2d 1208, 1212 (Ct. Cl. 1977) wherein the Court stated:

> Ordinarily in interpreting a contract or statute, we look to the plain meaning of the provision in question. Selman v. United States, 498 F.2d 1354, 1356, 204 Ct.Cl. 675, 680 (1974); Guarriello v. United States, 475 F.2d 640, 642, 201 Ct.Cl. 129, 134 (1873); Hotpoint Co. v. United States, 117 F.Supp. 572, 127 Ct.Cl. 402, cert. denied, 348 U.S. 820, 75 S.Ct. 32, 99 L.Ed. 647 (1954).

Such a rationale is inapplicable to the informal, non-binding nature of the memoranda at hand. Rather, it is necessary and appropriate with such memoranda to ascertain the interpretation of them by the authors and thereafter to relate that interpretation to the facts. Applicant submits that if this course had been followed, there would have been no basis upon which the Licensing Board could have made its adverse findings. What in essence has resulted due to the Licensing Board's erroneous approach to interpretation of the memoranda is that the Board has assumed a meaning of the term "plan" which is inconsistent with the intent of the authors. Since there is no evidence to support the Licensing Board's interpretation, and no evidence contradicting the testimony of the authors, it is clear that the author's interpretation should control.

To overcome the above, the Licensing Board relied upon its observance of Applicant's witnesses' "appearance and demeanor" as a basis for discrediting their testimony. It is a legal maxim that the fact finder has discretion in judging the credibility of witnesses who appear before him. However, this rule has its exceptions, and credibility findings may be subjected to review. (MEZINES, STEIN & GRUFF, 4 ADMINISTRATIVE LAW §27.03[2], at 27-76 (rev. perm. ed. 1980)). So, although the fact finder's determinations are accorded considerable weight, they are not final. Breeden v. Weinberger, 493 F.2d 1002, 1010 (4th Cir. 1974); N.L.R.B. v. Treasure Lake, Inc., 453 F.2d 202, 204 (3rd Cir. 1971); Acme Products, Inc. v. N.L.R.B., 389 F.2d 104, 106 (8th Cir. 1968); Hillard v. C.I.R., 281 F.2d 279, 282 (5th Cir. 1960).

Different appellate courts have applied different standards in deciding whether to accept the conclusions of the fact finder. One reviewing body has found the refusal to credit a witness to be "clearly erroneous." See Hillard v. C.I.R., supra., 281 F.2d at 282. Traditional deference has been denied when the fact finder acted arbitrarily. Gee Chee On v. Brownell, 253 F.2d 814, 817 (5th Cir. 1958); Breeden v. Weinberger, supra, 493 F.2d at 1008. The Gee Chee On case is a particularly apt precedent for

this proceeding because there the Appeals Court reversed the findings of District Court finding that the trial judge had determined the case largely on the grounds of his conviction concerning an isolated factor in the case and had essentially ignored all of the evidence in the plaintiff's favor. A finding has also been criticized because it was "based on improper or irrational criteria" Breeden v. Weinberger, supra, 493 F.2d at 1010. And one court has stated that the standard is whether the trier was "incorrect and that there is substantial evidence for a contrary conclusion." N.L.R.B. v. Treasure Lake, supra, 453 F.2d at 204. Many courts have adopted the Administrative Procedure Act's "substantial evidence" standard, rejecting the fact finder's conclusions as to credibility when they were not supported by substantial evidence. Acme Products v. N.L.R.B., supra, at 389 F.2d 106; N.L.R.B. v. Treasure Lake, supra, 453 F.2d at 204; Breeden v. Weinberger, supra, 493 F.2d at 1008.

In analogizing the above cases to the present situation it is important to note that a court review of agency action is more limited than the Appeal Board's review of action within the agency. See, Indian Point, supra, 7 AEC at 357. The Appeal Board has final responsibility for weighing the evidence, making the findings and selecting the decision. 5 U.S.C. §557(b); Catawba, supra., 4 NRC at 403.

As previously noted (see pp. 23-4, supra), findings of the Licensing Board may be rejected or modified "if, after giving its decision the probative force it intrinsically commands," the record warrants a different result. Bailly, supra, 2 NRC at 867; Nine Mile Point, supra, 1 NRC at 357. This allows the Appeal Board more freedom than the "clearly erroneous" or "substantial evidence" standards. See, Catawba, supra, 4 NRC at 403. Therefore, although the Appeal Board has traditionally accorded "great deference" to the credibility findings of the Licensing Boards (Id. at 404) it should be less constrained than the courts in challenging those findings.

On the basis of the record, as discussed herein, Applicant's witnesses' testimony should not have been discredited and the Licensing Board's finding in this regard should thus be found to be unsupported by the preponderance of the evidence and reversed. 33/

33/ In this regard, Applicant notes that the Licensing Board apparently found one of Applicant's witnesses credible when stating that if "the opposition [to transshipment] that we have seen developing subsides, then we would certainly consider transshipment, but if it continues to develop we would certainly have to consider other alternatives." (I.D. at p. 62). It should be noted that such testimony, which the Licensing Board heartily embraces, clearly indicates that Applicant has no firm commitment to proceed with an extended transshipment alternative.

Applicant submits that the Licensing Board's position, as to the credibility of Applicant's witnesses, also fails to recognize the reality of the spent fuel storage shortage issue. Since 1974, when the spent fuel issue arose, there have been numerous proposed alternatives regarding resolution of the problem. These "emerging solutions" have included high density racks, poison racks, pin compaction, dry storage, caisson burial, ISFSI construction, transshipment, spent fuel pool expansion, reprocessing, and governmental AFR storage. (Tr. 409-10, 2685, 2705, and 2771). In short, the technology and political environment regarding spent fuel storage has been dynamic. (Tr. 414). Indeed, Applicant testified that in the 6 1/2 years of Oconee operation Applicant had pursued 5 different spent fuel storage options. (Id.). Thus, if history teaches anything, there will undoubtedly be numerous technological advancements and political changes affecting this volatile area in the next ten years that will completely alter the entire spent fuel storage shortage issue. 34/

34/ Applicant notes that the record is replete with references to Applicant's examination, analysis and, if appropriate, implementation of technological advances in the spent fuel storage field (e.g., pin compaction Tr. 424-5 and 1155-8, ISFSI construction (Applicant Exhibits 1 and 7), and poison reracking (Applicant Exhibit 30 at p. 2)). (See also Tr. 410-1). Such actions are not consistent with the position that Applicant is firmly committed to pursuing a cascade plan which is independent of such options.

Such position takes on added significance when subsequent facts are considered, i.e., (1) the reracking of Oconee Units 1 and 2 pool with poison racks increasing the storage spaces from 750 to 1312 (I.D. n.2 at p. 3, and Applicant Exhibit 30 at pp. 2-3), (2) Applicant's intention, upon completion of the instant transshipment activity, to pursue the reracking of the Oconee Unit 3 pool with poison racks increasing its storage spaces from 474 (Tr. 412) to 841 spaces (Applicant Exhibit 30 at p. 2-3), (3) the delay of commercial operation of McGuire Units 1 and 2 until 1981 and 1982, respectively (Staff Exhibit 36 at p. 3), 35/ and (4) the election defeat of the President who opposed commercial reprocessing.

In conclusion, Applicant maintains that the preponderance of the evidence, as well as the realities of the entire complex situation regarding storage of spent fuel, supports its position that it was never committed to, and is not now committed to, implementing any transshipment activities other than the transshipment of 300 Oconee spent fuel

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35/ Although Staff Exhibit 36 indicates that McGuire Unit 1 will begin commercial operation in November 1980, Applicant requests that the Appeal Board take official notice that this is not the case. McGuire Units 1 is scheduled for commercial operation in 1981 and Unit 2 in 1983.

delving into contingency plans that Applicant might have considered. Such an action imposes an enormous burden to defend long-term planning concepts on a near term basis and in essence would require Applicant to seek licensing authority for activities not presently needed, thereby foreclosing other technologically superior options which may rise in the future. Accordingly, regulatory bodies must acknowledge the flexibility needed in such planning and refrain from attempting to regulate the planning process. As the Supreme Court noted in Kleppe v. Sierra Club, 427 U.S. 390 (1976) in discussing judicial intervention in the federal government's planning process:

> Such an assertion of judicial authority would leave the agencies uncertain as to their procedural duties under NEPA, would invite judicial involvement in the day-to-day decisionmaking process of the agencies, and would invite litigation. [427 U.S. at 406].

See also Portland General Electric Company (Trojan Nuclear Plant), LBP-78-32, 8 NRC 413, 454 (1978) wherein the Licensing Board in determining that the adverse environmental impacts associated with a spent fuel pool enlargement will be negligibly small, stated:

> We therefore believe that we need not consider alternatives or the need for modification in any detail. Indeed, in the opinion of this Board, not only is such consideration unnecessary, it is very inadvisable, since it infringes upon those very prerogatives and duties of corporate management which we should eschew usurping.

II. Whether the Licensing Board erred in holding that "a plan or program to ship excess spent fuel from older nuclear reactors in Duke's system to newer reactors" should have been considered in the Nuclear Regulatory Commission Staff's environmental analysis? [Exceptions 7-25].

The Licensing Board determined Applicant to have a cascade plan and that such should have been considered by the NRC Staff in its environmental analysis. Applicant maintains that (aside from the erroneous factual premise) as a matter of law the Licensing Board erred on three accounts: first, NRC's NEPA review is limited to the federal action before it, viz., the storage of 300 Oconee spent fuel assemblies at McGuire; two, even if NRC could look beyond the federal action, the speculative nature of a cascade plan is such that NEPA obligations do not attach; and third, even if NRC could look beyond the federal action and found such not to be speculative, federal action could be properly segmented for NEPA purposes.

(1) Federal Action

NEPA requires that "all agencies of the Federal Government prepare detailed environmental statements on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment." (10 CFR §51.1(a)). Fundamental to an assessment of environmental

impact is a determination of the scope of such review. The Licensing Board found that "the scope of the environmental statement or appraisal must be at least as broad as the scope of the action being taken." (I.D. at p. 18). With this proposition there is no quarrel. The question becomes however, what is "the action being taken" in the context of NEPA and it is this that we now address. The Licensing Board held that the "action being taken" was a cascade plan. (I.D. at pp. 21-2). Applicant maintains that such a conclusion is both factually and legally incorrect. It is Applicant's position that the proper scope of "the action being taken" is the approval of the storage of 300 Oconee spent fuel assemblies at McGuire, and, as will be discussed, this action has been properly assessed by the Staff in its EIA. (See Sections III-V, infra).

In Susquehanna Valley Alliance v. Three Mile Island, 619 F.2d 231 (3rd Cir. 1980), the Court stated that NEPA is a statute that "is directed toward the activities not of private parties but of the federal government." 619 F.2d at 239. The activity of the federal government as it relates to the instant proceeding, viz., the "Federal action," is the issuance of a license. (10 CFR §51.5). The

license that is being sought herein concerns the storage of 300 Oconee spent fuel assemblies at McGuire; Applicant's application does not seek approval to store any additional spent fuel assemblies. Accordingly, NEPA limits federal review to the storage activity in question, i.e., the 300 Oconee spent fuel assemblies at McGuire. The logic underlying this legal tenet is that upon the filing of an application for a related subsequent action, the impacts of the first and second action will be collectively assessed. See Kleppe v. Sierra Club, supra., 427 U.S. n.20 at 410, wherein the court stated:

> At some points in their brief respondents appear to seek a comprehensive impact statement covering contemplated projects in the region as well as those that already have been proposed. The statute [NEPA], however, speaks solely in terms of proposed actions; it does not require an agency to consider the possible environmental impacts of less imminent actions when preparing the impact statement on proposed actions. Should contemplated actions later reach the stage of actual proposals, impact statements on them will take into account the effect of their approval upon the existing environment; and the condition of that environment presumably will reflect earlier proposed actions and their effects. 37/

37/ That NRC practice subscribes to Kleppe see Minnesota v. NRC, 602 F.2d 412, 416, n. 5 (D.C. Cir. 1979),

(footnote con't on next page)

In the instant case there is a concrete proposal for 300 shipments; the most that can be said for a cascade plan is that it was contemplated. Under such circumstances the above language is precisely on point and is dispositive of the issue.

(footnote con't from previous page)

37/ wherein the Court stated:

> Minnesota has not pointed to any consequence of future expansion that could not be adequately considered at the time of any requests for further expansion.

See also the unpublished Licensing Board Memorandum and Order in Philadelphia Electric Company (Peach Bottom Atomic Power Station, Units Nos. 2 and 3), Docket Nos. 50-277, 50-278, August 3, 1973, wherein it is stated:

> Consideration of the impact of future facilities in the Peach Bottom area which are only in the planning stage would involve speculation that would not be appropriate for resolving the issues in this proceeding. Further, the proper forum for consideration of the issues raised by the intervenors would be the construction permit proceedings or other licensing proceedings involving the proposed new facilities.

This issue was raised by intervenors before the U.S. Court of Appeals for the District of Columbia. The Court chose not to specifically reach the issue, but stated:

> Petitioners have raised a host of objections to the Commission's procedures, interpretations of its own regulations, and findings of fact. We have considered each of these objectives, and we find no flaws in most aspects of the Commission proceedings. [York Committee For a Safe Environment v. NRC, 527 F.2d 812, 814 (1975)].

In this regard, it is recognized that with respect to federal proposals, rather than private actions, NEPA is more demanding. See the separate opinion of Justice Marshall, concurring in part and dissenting in part in Kleppe v. Sierra Club, supra. 427 U.S. n.1 at 419, wherein it is stated:

> [The] distinction [between federal approval of private action and federal initiation of its own project] has been recognized before, Aberdeen & Rockfish R. Co. v. SCRAP, 422 U.S. 289, 320, 45 L. Ed. 2d 191, 95 S. Ct. 2336 (1975), and is recognized by the Court today. When the federal agency is initiating its own proposal, NEPA is more demanding. In such circumstances, NEPA is "intended to assure [environmental] consideration during the development of [the] proposal," whereas when private action is to be approved, NEPA seeks only to assure such consideration "during the formulation of a position on [the] proposal submitted by private parties." (emphasis added).

Inasmuch as this case does not involve a federal propo al, but rather is focused upon federal approval of private action, NEPA's requirement of "environmental consideration during the development of the proposal" is not applicable.

The Licensing Board has misconstrued the meaning of "action being taken." Rather than addressing the subject matter of the federal action as statutorily required, the Board, in contradiction to NEPA, has focused upon activities of a private party which are beyond that set forth in the initiating application.

(2) Speculative Nature of Cascade Plan

Even assuming that the Licensing Board was correct in

its determination to go beyond the specific private action being sought, such a finding does not per se necessitate that a cascade plan be the subject of environmental review. Rather, one must examine the nature of the alleged plan in relationship to relevant case law to determine the scope of environmental review. The Licensing Board recognized the propriety of such an inquiry. (I.D. at pp. 15-24). However, as discussed herein, the Licensing Board's treatment of this subject was in error.

An examination of this question properly begins with a discussion of the leading case, Kleppe v. Sierra Club, supra. 38/ Therein the Court was confronted with the issue of "whether NEPA requires petitioners to prepare an environmental impact statement on the entire Northern Great Plains region." 427 U.S. at 398. 39/ The Court held that such a statement is necessary "only if there has been a report or recommendation on a proposal for major federal action with

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38/ Applicant is cognizant of the Appeal Board's familiarity with Kleppe. See Northern States Power Company (Prairie Island Nuclear Generating Plant, Units 1 and 2) and Vermont Yankee Nuclear Power Corporation (Vermont Yankee Nuclear Power Station), ALAB-455, 7 NRC 41 (1978). Accordingly, Applicant does not intend its extensive discussion of the case to be viewed merely as background. Rather, the length of the treatment of Kleppe is dictated by the numerous issues raised therein and their significant bearing upon the instant case.

respect to the Northern Great Plains region." 427 U.S. at 399. The Court found that "there is no evidence in the record of an action or a proposal for an action of regional scope." 427 U.S. at 400. Continuing, it stated that "[i]n the absence of a proposal for a regional plan of development, there is nothing that could be the subject of the analysis envisioned by the statute for an impact statement." 427 U.S. at 401. Importantly, it stated "[a]bsent an overall [federal] plan for regional development, it is impossible to predict the level of coal-related activity that will occur in the region identified by respondents, and thus impossible to analyze the environmental consequences and the resource commitments involved in, and the alternatives to, such activity." 427 U.S. at 402. In sum, the Court stated, "[w]here no such plan exists, any attempt to produce an impact statement would be little more than a study...containing estimates of potential development and attendant environmental consequences." (Id.).

The Court in Kleppe proceeded to address the program-

39/ Petitioners, federal agencies, are "responsible for issuing coal leases, approving mining plans, granting right-of-way, and taking the other actions necessary to enable private companies and public utilities to develop coal reserves on land owned or controlled by the Federal Government." 427 U.S. at 395. Such land in question is designated as the Northern Great Plains region which encompasses portions of, Wyoming, Montana, and North and South Dakota.

matic nature of the issue. The Court of Appeals had found that a regional plan was "contemplated." The Supreme Court stated that "[e]ven had the record justified a finding that a regional program was contemplated by the petitioners, the legal conclusion drawn by the Court of Appeals cannot be squared with the Act [NEPA]." 40/ 427 U.S. at 404. The Court found that NEPA requires that an agency must have a final statement ready at "the time at which it makes a recommendation or report on a proposal for federal action." 427 U.S. at 406 citing Aberdeen and Rockfish R. Co. v. SCRAP, 422 U.S. 289 (1975). Continuing the Court emphatically stressed that

> A court has no authority to depart from the statutory language and, by a balancing of court-devised factors, determine a point during the germination process of a potential proposal at which an impact statement should be prepared. Such an assertion of judicial authority would leave the agencies uncertain as to their procedural duties under NEPA, would invite judicial involvement in the day-to-day decisionmaking process of the agencies, and would invite litigation. [427 U.S. at 406].

The Court then focused its attention on the factual circumstance which parallels the instant case. The Court stated:

> Respondents insist that, even without a comprehensive federal plan for the development of the Northern Great Plains, a "regional" impact statement nevertheless is

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40/ The Court of Appeals had devised a four-part balancing test for "determining when, during the contemplation of a plan or other type of federal action, an agency must begin a statement." Kleppe 427 U.S. at 404-405.

> required on all coal-related projects in the region because they are intimately related. [427 U.S. at 408]. 41/

The Court viewed this contention as follows:

> It also is possible to view the respondents' argument as an attack upon the decision of the petitioners not to prepare one comprehensive impact statement on all proposed projects in the region. This contention properly is before us, for the petitioners have made it clear they do not intend to prepare such a statement. [427 U.S. at 408-9].

The Court found that NEPA "may require a comprehensive impact statement in certain situations where several proposed actions are pending at the same time." 42/ (427 U.S. at 409) (emphasis supplied). Expanding upon this point the Court stated that:

> Thus, when several proposals for coal-related actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action. [427 U.S. at 410].

However, in this instance, the Court rejected the argument of respondents and stated:

> Agreement to this extent with respondents premise, however, does not require acceptance of their conclusion that all proposed coal-related actions in the

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41/ The record in Kleppe reflects that several individual coal-leases had been sought and that environmental impact statements were prepared for each.

42/ While Applicant maintains that such language is not applicable to the instant case inasmuch as only one application is pending, Applicant would note, as discussed infra, the NRC has issued a final generic impact statement concerning spent fuel storage including transshipment.

> Northern Great Plains region are so "related" as to require their analysis in a single comprehensive impact statement. [427 U.S. at 410].

Continuing, the Court stated:

> Nor is it necessary that petitioners always complete a comprehensive impact statement on all proposed action in an appropriate region before approving any of the projects. As petitioners have emphasized, and respondents have not disputed, approval of one lease or mining plan does not commit the Secretary to approval of any others; nor, apparently, do single approvals by the other petitioners commit them to subsequent approvals. [427 U.S. n.26 at 414].

So it is with the instant case; an application for a cascade plan is not pending, nor is the NRC committed to approval of any further shipments.

The Licensing Board held that its finding of a cascade plan "distinguishes the factual situation in this proceeding from that found by the Court in Kleppe..." (I.D. at p. 22). However, such reasoning, while superficially attractive, is in error. Specifically, the underlying basis of the Court's finding that an overall impact statement was not required stemmed from the present inability to "predict the level of coal-related activity." 427 U.S. at 401. The Court was of the view that, absent "specific action of known dimensions" (427 U.S. n.14 at 402), the ageny was correct in not conducting an overall environmental analysis. Such is the case here. The Licensing Board did not find that a federal program (a cascade plan) was in existence; rather, it found

that the instant application to transship 300 spent fuel assemblies from Oconee to McGuire for storage was the "first step in a [private] plan or program to transship excess spent fuel from older to newer reactors in Duke's system." (I.D. at pp. 21-22; see also pp. 1[illegible] and 34). The Licensing Board did not set forth the particulars of a cascade plan, nor could it, for the record is simply silent on this point. Rather, the Licensing Board in conclusory fashion, simply characterized the plan as one

> which proposes multiple future transshipments of spent fuel assemblies within the Duke system successively from the older to the new reactors. This transportation plan or program is like a game of musical chairs, which goes on and on until the government develops and provides nuclear waste storage facilities. In the meantime, numerous spent fuel assemblies are to be transported by truck on the highways of South Carolina and North Carolina. [footnotes omitted] [I.D. at pp. 22-23].

Applicant maintains that the above description of a cascade plan cannot be characterized as a "specific action of known dimensions." This position is further emphasized by the record which, as previously discussed, reveals that a specific description of a cascade plan would be extremely difficult inasmuch as actions subsequent to the filing of the application have rendered further transshipment an extremely speculative option which would not appear to be necessary until the early 1990's, if then. (See pp. 14-8, 46-8, supra.) Clearly, with the ever changing advancements in technology, as well as changes in the political climate,

much can happen in this 10 years so as to totally eliminate the need to pursue any alternative, including transshipment, currently available to Applicant. Under such circumstances a cascade plan is speculative, within the contemplated language of Kleppe, and thereby not the proper subject for environmental review.

It should be noted that the "contemplated" nature of the instant action is no different than that advanced in Minnesota v. NRC, 602 F.2d 412 (D.C. Cir. 1979). 43/ Therein it was alleged "that because the present expansion of the spent fuel pool will accommodate the spent fuel assemblies produced at Prairie Island only until 1982, a request for further expansion is inevitable." 602 F.2d n.5 at 416. The Court rejected this argument and reasoned that environmental consequences could be considered at the time of future requests for further expansion and that the licensing action currently considered did not foreclose other alternatives which might be available in the future. Specifically the Court stated that:

> We find this argument without substance. Minnesota has not pointed to any consequence of future expansion that

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43/ This case involved an appeal of the Appeal Board's decision in Northern States Power Company (Prairie Island Nuclear Generating Plant, Units 1 & 2) and Vermont Yankee Power Corporation (Vermont Yankee Nuclear Station), ALAB-455, 7 NRC 41 (1978). The Court remanded the case for further consideration of a concern raised by the Appeal Board, viz., "[t]he complex and vexing question of the disposal of nuclear waste." [602 F.2d at 419].

> could not be adequately considered at the time of any requests for further expansion. Indeed, the NRC Staff in its environmental impact analysis of the proposed expansion expressly considered five factors articulated by the NRC for consideration of individual license amendment applications pending preparation of a generic EIS on the question of interim on-site storage of spent fuel assemblies. See 40 Fed. Reg. 42,802 (1975). The Staff specifically found that the licensing action here would not foreclose alternatives available with respect to other licensing actions designed to ameliorate a possible shortage of spent fuel capacity (noting that "taking this action would not necessarily commit the NRC to repeat this action or a related action") and that addressing the environmental impact associated with the proposed licensing action would not overlook any cumulative environmental impacts. [Id.].

It is to be emphasized that the grant of this license does not automatically result in additional shipments. Applicant has only sought permission to store 300 Oconee spent fuel assemblies at McGuire. The NRC can only approve what is before it. If Applicant seeks to move the 301st assembly it must seek further approval. 44/ The NRC will have to review the matter to determine if it is sound from both an environmental and safety standpoint. Only then could the NRC approve the subsequent request. Accordingly, it cannot be said that the NRC is committed to subsequent approvals. A finding of a cascade plan would not disturb this conclusion;

44/ Applicant is aware that a similar argument was rejected by the Appeal Board in the Prairie Island-Vermont Yankee case. (Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2) and Vermont Yankee Power Corp. (Vermont Yankee Nuclear Station), ALAB-455, 7 NRC 41 (1978)). As will be discussed, the factual setting of that case is distinct from the instant case. (See pp. 63-6, infra.)

rather, the finding of a cascade plan would be evidence that Duke considered further shipments to be a contingency, not that such is a mandatory outgrowth of the proposed action.

In furtherance of its assessment of the proper definition of "scope of the action being taken," the Licensing Board relied heavily on Northern States Power Company (Prairie Island Nuclear Generating Plant, Units 1 and 2) and Vermont Yankee Nuclear Power Corporation (Vermont Yankee Nuclear Power Station), ALAB-455, 7 NRC 41 (1978) ("Prairie Island-Vermont Yankee"). If anything, this case suggests that the Licensing Board's conclusion was incorrect even assuming the existence of a cascade plan.

In Prairie Island-Vermont Yankee, Applicants were seeking amendments to operating licenses which would have authorized the expansion of spent fuel storage facilities. Intervenors argued that one question to be resolved in the environmental assessment is the effect of long-term (or permanent) storage of such wastes in the authorized facilities. Applicants responded that if such long-term storage would be required, NRC authorization of that activity could be later sought and the appropriate environmental and safety evaluations would follow.

The Board rejected the Applicants' argument in Prairie Island-Vermont Yankee, but nonetheless accepted its position

that an overall impact statement was not presently required. Its reasons for so doing are critical. Implicit in the position of both the Intervenors and Applicants was the assumption that long-term or permanent waste storage at the facility was a possibility. The Intervenors, consequently, believed that the impact of such storage should be considered immediately. The Applicants took the position that the matter could be dealt with should authorization for it become necessary. Importantly, the Applicants based their argument on Kleppe. 45/

The Appeal Board factually distinguished Kleppe, suggesting in the process however, that the existence vel non of a program is not alone a sufficient basis to require an impact statement. Rather, the critical inquiry goes to whether a specific event is reasonably probable. The Board then focused on whether it would be reasonable to assume, in the assessment of proposals to enlarge the capacity of spent fuel pools, that off-site repositories

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45/ In those cases it was argued that Kleppe enabled that decision to be deferred until the termination of the license. The Appeal Board properly rejected that line of reasoning in that long-term on-site storage may be a fait accompli at the expiration of the license. When, however, the action is not a fait accompli, and when there are no unavoidable consequences associated with the activity, as is the case herein, (See discussion at pp. 81-3, infra.) the Kleppe line of reasoning is appropriate.

would be unavailable at the end of the licensing term. The Board found that the assumption was unreasonable and therefore rejected Intervenors' argument that the long-term storage had to be considered.

If the rationale of Prairie Island-Vermont Yankee is applied to this case, the issue before this Board is not simply whether a cascade program exists. It is whether there is a reasonable probability that such a strategy will be implemented. Indeed, as the Appeal Board stated, "[w]hat must be decided instead is whether it is reasonably probable that [a] situation will obtain." (7 NRC at 49). 46/

As previously noted, a review of the Licensing Board decision strongly suggests that assuming arguendo that a cascade plan exists, it exists only on paper and will not, in all likelihood, be implemented. Applicant has changed its strategy numerous times for dealing with spent fuel. (Tr. 414). It has initiated high density racking and is seeking approval for poison racking. (Applicant Exhibit 30 at pp. 1-3). Thus, storage for much of the spent fuel involved in the so-called cascade plan has already been provided for.

Accordingly, on the basis of Prairie Island-Vermont

46/ The "reasonably probable" standard equates with the "reasonably foreseeable" standard enunciated in Carolina Environmental Study Group v. United States, 510 F.2d 796, 798-99 (D.C. Cir. 1975). See Swain v. Brinegar, 542 F.2d 364, 368 (7th Cir. 1976).

Yankee, the Licensing Board erred in finding that NEPA required an examination of a cascade plan.

Prairie Island-Vermont Yankee can also be read for the proposition that if unavoidable consequences are associated with a licensible activity, such consequences should be factored into an overall environmental review. Specifically, the Appeal Board stated:

> Thus, insofar as it is of any possible relevance to the cases before us, Kleppe stands for no more than that, under the plain terms of NEPA, the environmental assessment of a particular proposed Federal action coming within the statutory reach may be confined to that action together with, inter alia, its unavoidable consequences. [7 NRC at 48].

Clearly, the transshipment of the 301st spent fuel assembly is not an unavoidable consequence of the shipment of the first 300 shipments.

As an alternative to Prairie Island-Vermont Yankee, the Licensing Board cited three cases wherein overall NEPA statements were found to be required even though limited specific actions were sought. Each case is readily distinguishable from the instant proceeding.

In the Cady case "massive capital investment and extended contractual commitments present a situation in which 'it would be irrational, or at least unwise, to undertake the first phase if subsequent phases were not also undertaken.'" Cady v. Morton, 527 F.2d 786, 795, (9th Cir. 1975). In the instant proceeding, transportation

is the lowest cost alternative (Applicant Exhibits 3 at Table 1 and 6 at pp. 2-5; Tr. 424; Staff Exhibit 13) and in comparison to the amounts discussed in Cady, is extremely small. Accordingly, it cannot be said, on the basis of cost, that it would be "irrational" to undertake the first phase (i.e., 300 shipments) without undertaking remaining phases. Importantly, in Cady, the Secretary of Interior had approved private party leases to mine a specific area. Immediately thereafter, licensing approval was sought to mine a limited portion of the specific leased area. Given the Secretary's grant of leasehold rights, coupled with the prompt application for mining approval and the large expenditure of funds, it was reasonable to assume that subsequent work in other portions of the leased area would follow. Here we have no action of the Commission which is comparable to that of the Secretary, which action defined the scope. As such, Cady is readily distinguishable.

The Henry case cited by the Licensing Board is inapposite. Henry v. FPC, 513 F.2d 395 (D.C. Cir. 1975). Henry involves the question of the extent to which a secondary agency can rely upon a lead agency, when the secondary agency eventually will be called upon to approve a license which is critical to the project being reviewed by the lead agency. Therein the Court simply held that prior to issuing a license the secondary agency was required to consider all pertinent

environmental effects, including those addressed by the lead agency. The Court held that the secondary agency could accept, reject, or modify the work product of the lead agency. As such, Henry is not helpful in resolving the question before the Appeal Board. It is interesting to note that in Henry the Court found that it would be premature for the secondary agency to issue its impact statement.

In Scientists' Institute for Public Information, Inc. v. AEC, 481 F.2d 1079 (D.C. Cir. 1973), the third case relied upon by the Licensing Board, the Court went to great lengths to explain that ongoing research of the magnitude presented therein would likely lead to eventual commercial utilization. The Court stressed there had been "irretrievable commitment of resources." (Id. at 1090-2). Such is not the case herein, for the Licensing Board specifically found that "it is not likely that the commitment of such resources [i.e., casks, trucks, fuel, men and materials, use of space and environmental resources and construction and operation of fixed-based facilities] in the physical sense would tend to significantly foreclose available alternatives." (I.D. at p. 37). 47/

47/ Scientists' Institute involved a federal program; the instant case concerns itself with private action. See p. 54 supra.

In its ultimate paragraph concerning the scope of the environmental review, the Licensing Board raises what in essence is the linch pin of its decision on this particular aspect, viz., that the instant proceeding provides the only forum wherein a cascade plan can be reviewed inasmuch as the ability to store Oconee fuel at other reactors will not be subject to further NRC review and public scrutiny. (I.D. at pp. 23-24) The Licensing Board is simply in error. In support of its position the Licensing Board stated

> The Staff's witness who was the project manager for the Duke licensing action (Brett S. Spitalny), testified that if the Catawba [operating] license application was approved, Catawba in the future could receive Oconee spent fuel and there would be no need to have a proceeding such as this. 61/

61/ Tr. 588, 590-92; Staff Exhibit 16A, at 3. 48/ Contrary to the Licensing Board's position, this statement does not support its conclusion. The obtaining of an

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48/ That the Licensing Board even relied on this aspect of Mr. Spitalny's testimony is called into question. The transcript clearly reflects that Mr. Spitalny was not in a position to give a legal opinion. (Tr. 588-91). Indeed, with respect to NRC Staff's objection to the line of questioning in this regard, the Chairman stated:

> If we felt it prejudiced the Staff or counsel, we would give you solace. I don't think it would be harmful -- the facts are established by the affidavit anyway. It is not earthshaking. We will not rewrite history. [Tr. 591].

And yet the Licensing Board proceeded to rest a large part of its decision upon this point.

operating license for Catawba requires NRC review and approval. (10 CFR §§50.50). In addition, an opportunity for public participation is provided for in the Commission's regulations. (10 CFR §2.714). As the Staff witness in responding to the following question stated:

> Q. Is it your understanding that there is no further licensing required for the shipment of spent fuel from Oconee to Catawba if the Catawba application results in an approval of this storage at Catawba? [Tr. 591].
>
> * * * * *
>
> A. Let me address it this way. As far as I know, it is my opinion that is a true statement. However, the review for the Catawba OL will involve addressing that issue. That is handled under Part 50 in contrast to this particular action being handled under Part 70.
>
> There may be other obstacles that the reviewer may come up with as a result of actually going through that application. If the final verdict is the application is approved, my opinion is yes. [Tr. 591-2].

Indeed, it was this very review process and the speculative nature of future transshipment plans which caused the Staff to decline to pursue the "so called" cascade option in its review of the instant application:

> ...we did take a look to see what the cascade plan was going to result in. [Tr. 576].
>
> * * * * *
>
> On that judgment we decided to evaluate the 300 assemblies by themselves. If at some later date, Duke decided to go on with this cascade plan, that would have to be evaluated at that time and the impacts would have to be determined. [Tr. 576-7].

Accordingly, if any future shipments are sought to be made to Catawba, or any other location, such would be scrutinized on the appropriate docket contrary to the Licensing Board's position.

In sum, the speculative nature of contingent transshipment coupled with the Licensing Board's misstatement of NRC practice, renders its findings regarding the scope of environmental review in error.

(3) Segmentation

If the Appeal Board determines that the "scope of the action being taken" is a cascade plan such is not dispositive of the question of whether the 300 shipments can be analyzed independently for environmental purposes. Rather one must then turn to the issue of whether this segment of a plan can be independently analyzed. This brings into play the segmentation theory of NEPA.

The Courts, as well as the Licensing Board (I.D. at p. 32) recognize that, in certain instances, ventures involving overall plans may be properly segmented for NEPA purposes. 49/ An examination of the leading cases reveals that certain basic characteristics have guided the Courts. In Swain v. Brinegar,

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49/ Applicant is familiar with the Appeal Board's awareness of the segmentation theory. See i.e., Philadelphia Electric Company (Limerick Generating Station, Units 1 and 2), ALAB-262, 1 NRC 163 (1975).

542 F.2d 364, 369 (7th Cir. 1976), the following considerations were employed by the Court in its segmentation determination:

1. Does the proposed segment have a substantial utility independent of future expansion?

2. Would its construction foreclose significant alternative routes or locations for an extension from the segment?

3. If, as here, the proposed segment is part of a larger plan, has that plan become concrete enough to make it highly probable that the entire plan will be carried out in the near future?

Under this test the Court found that a 1800 mile highway trunk system to connect major cities within the State of Illinois was visionary and subject to revision, thereby making the requirement of an environmental impact statement undesirable at that time. However, the Court found that a 42 mile stretch, which was the subject in controversy, to be sufficiently final so as to warrant an environmental impact statement.

In Sierra Club v. Froehlke, 534 F.2d 1289 (8th Cir. 1976),the Court stated:

> The courts have been presented with the issue of "segmentation" of impact statements in various contexts and we do not propose to attempt the impossible, namely, the enunciation of a general rule that will cover all cases. The crucial dependence is upon the facts before the court in the particular case sub judice. Where it is found that the project before the court is an essentially independent one, an EIS for that project alone has been found sufficient compliance with the act. In such case there is no irretrievable commitment of resources beyond what is actually expended in an individual project. [534 F.2d at 1297].

In Trout Unlimited v. Morton, 509 F.2d 1276 (9th Cir. 1974), the Court stated:

> The appellants contend that the EIS is fatally inadequate because it does not discuss the environmental impact of the Second Phase. They rely upon cases which hold that a series of interrelated steps constituting an integrated plan must be covered in a single impact statement. We believe these authorities are inapposite and that the failure of the EIS to discuss the Second Phase does not render it inadequate. The distinction between those situations in which it has been held that the EIS must cover subsequent phases and that before us is that here the First Phase is substantially independent of the Second while in those in which the EIS must extend beyond the current project, that project was dependent on subsequent phases. The dependency is such that it would be irrational, or at least unwise, to undertake the first phase if subsequent phases were not also undertaken. This is not the case here. [Footnotes omitted.] [509 F.2d at 1285].

See also 509 F.2d 1285, n.13 wherein the Court distinguishes cases relied upon by the Licensing Board.

In Indian Lookout Alliance v. Volpe, 484 F.2d 11 (8th Cir. 1973) the Court stated that "if the major objective of a proposal is to connect two cities by expressway, then these two terminii should determine the proper scope of the EIS." 484 F.2d at 18. Clearly, the instant shipments of 300 Oconee spent fuel between "two terminii" is the "major objective" of Applicant's proposal and is thus susceptible to segmentation.

To address the factors raised by the cited cases the Licensing Board turned to the 5 factor balancing test set forth in the Commission's "Intent to Prepare Generic

Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel" ("Spent Fuel Storage Statement"). (40 Fed. Reg. 42801 (1975)). Such a course is perplexing inasmuch as the balancing test goes to the issue of whether licensing can continue during the preparation of the generic impact statement. The Licensing Board failed to make a finding regarding the relationship between licensing and the generic impact statement. Accordingly, one is left to surmise that the test was utilized because it references the various segmentation factors set forth in the above cited cases.

Before addressing each aspect of the 5 factor test it is to be noted that the final generic impact statement, which was the subject of the Spent Fuel Storage Statement, has been completed. 50/ This generic impact statement ("GEIS") addresses, inter alia, transshipment and concludes that "the environmental impact increment from this spent fuel transportation is insignificant." (GEIS at pp.

50/ NUREG-0575: "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel" (August 1979) ("GEIS"). See 44 Fed. Reg. 49317. (August 22, 1979).

ES-9. See also GEIS pp. ES-10 and Section 4.2.4). 51/ Such being the case there is no need to evaluate these 5 factors in a generic impact sense. At most, these factors should be viewed as considerations warranting segmentation of this private action. It is with these views in mind that we turn to the 5 factors.

(a) Independent Utility

The Licensing Board found that "the transshipment of spent fuel elements from Oconee to McGuire does not have independent utility..." (I.D. at p. 36). However, the Licensing Board's entire discussion of the subject focused not on the 300 shipments but rather on a cascade plan. Accordingly, the discussion does not support the conclusion. Regardless, this brief will examine the Licensing Board's reasoning regarding independent utility. Basically, this can be accomplished by focusing upon the two areas raised by the Licensing Board; EPICOR-II, 52/ and the Commission's 1975 Spent Fuel Storage Statement. (40 Fed. Reg., supra, at 42801).

51/ The Licensing Board is of the view that the GEIS must be considered by the Commission before becoming final. (I.D. at pp. 27-28). In this regard, Applicant maintains that the GEIS is final and its import will be to assist the Commission in its deliberations regarding spent fuel storage options. The Commission's use of the GEIS is recognized in n.5 of its recently promulgated ISFSI regulations. 45 Fed. Reg. 74698 (November 12, 1980).

52/ Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit 2), Docket No. 50-320, CLI-80-25, 11 NRC 781 (1980).

In its EPICOR-II decision, the Commission relied upon information from the Council on Environmental Quality that "prompt decontamination of the intermediate-level waste water through the EPICOR-II System was an operation necessary to control the immediate impacts of an emergency situation..." (I.D. at p. 29). The Commission also found that EPICOR-II "appears by a considerable margin to be the best available response" and that it will also result in a "reduction of occupational exposure..." (I.D. at p. 30). The Licensing Board attempts to utilize this case as being dispositive of the matter, implying that the urgency and commensurate reduction in risk is the high standard one must satisfy in order to be entitled to a finding of independent utility. That such is not the case is seen in an examination of the numerous cases involving the enlargement of spent fuel storage capacity. 53/ Applicant maintains that the EPICOR-II decision is merely illustrative of the Commission's recognition that segmentation is appropriate in certain circumstances. 54/

53/ As of June 20, 1979, there had been 52 applicatic regarding enlargement of spent fuel storage capac which 40 have been approved. (Tr. 568-9).

54/ The Court of Appeals in reviewing the Commission's decision gave credence to the "fragmentation" of environmental analyses upon a proper demonstration. (Susquehanna Valley Alliance v. Three Mile Island, supra, 619 F.2d at 241).

In the instant case a determination of independent utility is best made by an examination of industry's response to the spent fuel storage problem, which after all is the subject of the instant case. Indeed, the Licensing Board recognized this fact; it focused upon the Commission's 1975 Spent Fuel Storage Statement and in a most contorted reasoning process concluded that only spent fuel pool enlargements and independent spent fuel pools have independent utility. One need only read the Statement to find the error in this position. The Statement, in addressing "licensing actions intended to ameliorate a possible shortage of spent fuel storage capacity," specified them as "including such actions as" (emphasis added) spent fuel pool enlargements and ISFSI's. (40 Fed. Reg. at 42802). Implicit is the fact that other actions could be considered and could have independent utility. Indeed, as noted by the Licensing Board, the Statement informed that "[t]he Commission expects that any licensing action intended to ameliorate a possible shortage of spent fuel storage capacity" be environmentally reviewed. (emphasis added) (I.D. at p. 26).

This point is further emphasized by the Statement's specific recognition of transshipment, i.e., "[s]torage of spent fuel from one or more reactors at the storage pools of other reactors." (40 Fed. Reg., supra, at 42802). The

Licensing Board attempts to discount this language by implying that such option was not one recognized as being viable during the pendency of the preparation of the generic impact statement; rather, such option was referenced simply to alert the public that it was one of many options to be addressed in the GEIS. While couched in terms of alternatives to be considered in the GEIS, the significance of the referenced language is its illumination as to other actions the Commission contemplated as alternatives. 55/ More to the point, the Commission has authorized transshipment in another proceeding. 56/ This approval was obtained during the ongoing NRC Staff preparation of the GEIS.

The Commission itself recognized that a variety of spent fuel storage options could be pursued, including transportation, and for this reason stated that the five

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55/ The categorizing of this option with reactor shutdown, as the Licensing Board has done (I.D. at p.34) does not detract from its importance in that the Commission, in its Spent Fuel Storage Statement specifically found that reactor shutdown was not a viable option. It made no such finding with regard to transshipment. Indeed, the Commission specifically stated that there should be no general deferral of options such as "increases in the storage capacity of...reprocessing plant spent fuel storage pools" in which transshipment is inherent. (40 Fed. Reg., supra, at 42802).

56/ Carolina Power & Light Company (Brunswick Steam Electric Plant, Unit Nos. 1 and 2), Docket Nos. 50-325, 50-324, license amendments 8 and 30, respectively (August 26, 1977) and 9 and 34, respectively (October 14, 1977).

factors "may not fit the actual circumstances of particular licensing actions" and thus such should be weighed and balanced "within the context of" the required environmental review.(40 Fed. Reg., supra, at 42802. 57/

Regardless of the above, it should be noted that ISFSI assumes transshipment. This fact was only recently confirmed in the NRC's final regulations regarding ISFSI. See 45 Fed. Reg. 74693, 74698 (November 12, 1980). See in particular §72.70 entitled "Spent Fuel Transportation." Id. at 74709. Accordingly, the Licensing Board's interpretation of the Spent Fuel Storage Statement as excluding transshipment is in error. Further, inasmuch as the Licensing Board found that ISFSI has independent utility and inasmuch as transshipment is a part of ISFSI, such should be dispositive of the independent utility question.

Having dispelled the notion that the Spent Fuel Storage Statement is to be read as holding that transshipment has no

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57/ It is to be noted that the Licensing Board determined that it was crucial that the spent fuel storage options of pool enlargement and ISFSI have independent utility so as to avoid the "fait accompli" nature of such modifications. Specifically, the Licensing Board stated "[t]hese types of construction could indeed constitute accomplished facts by the time a generic impact statement was approved, if it were not for the Commission's general findings of independent utility..." (I.D. at pp. 33-34). Transshipment need not be addressed in this context since it does not commit resources (See I.D. at p. 37) and given the fact that it can be halted at any time.

independent utility, it is readily seen that transshipment is no different than other spent fuel storage options in terms of end results, i.e., it accommodates spent fuel storage so as to permit continued plant operation.

The Licensing Board raised three other matters in this regard. First, it was found that a cascade plan's

> utility is interdependent with other factors. While its first step may temporarily remove spent fuel assemblies from Oconee Units 1, 2 and 3, this is accomplished only at the expense of prematurely using up equivalent spent fuel storage space at the McGuire facility. [I.D. at p. 34].

The Licensing Board also found that a cascade plan "depends upon the interim or ultimate availability to Duke of government waste management or storage facilities." (I.D. at p. 35). Lastly, the Licensing Board was of the view that "the multiple transshipments of the Cascade Plan do not operate to reduce or eliminate radioactive waste." (I.D. at p. 36).

The simple answer to these propositions is that the transshipment option would be no different than the spent fuel pool enlargements which provide storage for a finite period with additional action being necessary; yet, these actions have been found to have independent utility. (Tr. 568-9). See also Minnesota v. NRC, supra., 602 F.2d n.5 at 416. With specific reference to transshipment, the NRC has already found that there was independent utility in storing spent fuel from Carolina Power & Light Company's Brunswick

facility at its Robinson facility. 58/ See also the NRC's GEIS regarding spent fuel storage wherein the acceptibility of the transshipment option is recognized. (GEIS, supra., at pp. ES-6--ES-10 and Section 4.2.4).

The independent utility of the proposed action was at the time of the application, and continues to be, the ability to store 300 spent fuel assemblies, thereby providing approximately 2 to 2-1/2 years of additional storage space for all Oconee units. (Staff Exhibit 16A at p. 3 and Tr. 415). Such storage provides Applicant with the flexibility to avail itself of emerging technologies so as to assure that Oconee will not be shut down due to spent fuel storage constraints.

(b) Foreclosure of Options

The Licensing Board found that "the Duke transshipment plan would tend to significantly foreclose other alternatives..." (I.D. at p. 40). The Licensing Board's basis is premised upon supposition and not fact. For instance, the Licensing Board states "[if] transshipments were licensed, it is probable that Duke would simply pursue its Cascade Plan..." (I.D. at p. 37); or that "[i]t is thus reasonable to infer that Duke's various reracking decisions have been made reluctantly..." (I.D. at p. 40).

58/ See n. 56 supra.

The controlling characteristic of foreclosure is whether material resources will be committed. (See Spent Fuel Statement). Importantly, the Licensing Board recognized that they would not be. (I.D at p. 37). Undeterred, the Licensing Board, unbeknownst to Applicant, raised the need to consider "nonmaterial resources." 59/ Applicant surmises that a nonmaterial resource must be a "mindset" to elect transshipment over other alternatives, i.e., implementation of a cascade plan. As previously noted, upon completion of the instant transshipment Duke intends to do precisely what the Licensing Board found it would not do, i.e., pursue another option, to wit the reracking of Oconee Unit 3 spent fuel pool. (Applicant Exhibit 30 at 2-3 and Tr. 4761, 4769). Further, the grant of the instant application will not open the flood gate for future transshipments for, as previously noted, transshipment of the instant 300 shipments could assure on-site storage at Oconee until 1988. (Id. and Staff Exhibit 16A at p. 3). Accordingly, there is no basis to the Licensing Board's conclusion that the cascade plan would be pursued by [Duke] as a "'quick fix' preferred to other available alternatives." (I.D. at p. 40).

59/ The Licensing Board has failed to explain the meaning of such term. Applicant is familiar with the disincentive language of Trojan, supra, 8 NRC at 447 and assumes it is this point that the Licensing Board has raised.

In sum, the Licensing Board erred in concluding that the instant application foreclosed options.

(c) Cumulative Impacts

The Licensing Board, without any extended discussion, simply found that, inasmuch as the Staff limited its review to 300 shipments, "any 'cumulative environmental impacts' which could be associated with the Duke Cascade Plan, supra, have been overlooked..." (I.D. at p. 40). The Licensing Board failed to articulate what those impacts might be, or if they would be markedly different from those assessed in the EIA. Regardless, it is Applicant's position that any impact associated with future transshipments can be assessed at the time, if ever, a subsequent application to transship is sought. (See pp. 52-3 supra). With respect to the instant application concerning 300 Oconee spent fuel assemblies, the NRC Staff did address cumulative impacts and found that they do not weigh against approval of the application. (Staff Exhibit 3 at pp. 63-64). The Licensing Board did not find otherwise.

(d) Resolution of Technical Issues

This matter was not contested and thus the Licensing Board found in Applicant's favor.

(e) Risk of Reactor Shutdown

The Licensing Board found that "[d]enial of licensing of spent fuel assembly multiple transshipments will not

jeopardize the continued operation of the Oconee nuclear facility." (I.D. at pp. 41-42). The basis for the Licensing Board's decision was that various reracking options have eased the near term burden of Oconee. While this may ultimately be true, to date the poison reracking of Oconee Units 1 and 2 pool has yet to be approved by the NRC and accomplished by Applicant. Thus September 1982 remains a critical date with respect to continued Oconee operation. 59/ If the reracking of the Oconee Units 1 and 2 pool with poison racks is implemented, Oconee will be able to store spent fuel on site without loss of FCR until late 1986. (Applicant Exhibit 30 at p. 3 and Staff Exhibit 36 at Table).

The record reflects that to accommodate the reracking of Oconee Unit 3 with poison racks, the spent fuel assemblies presently contained therein will have to be shipped off-site commencing in the 1981-82 time frame. (Applicant's Exhibit 30 at p. 2-3; Staff Exhibit 36 at p. 4; Tr. 468-9). Further, to avoid potential reactor shutdown in the 1986 time frame due to lack of FCR, it is necessary to commence transshipment of the 300 spent fuel assemblies

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59/ Currently, the Oconee facility has adequate spent fuel storage space to provide FCR until mid-1982. (Tr. 415 and Staff Exhibit 36 at Table).

at least one year in advance of that date, i.e., approximately 1985. 60/ Applicant maintains that such period is within the window acknowledged by the Appeal Board as warranting the issuance of a license. See Catawba, supra, 4 NRC at 410; See also Cleveland Electric Illuminating Company, et al. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 750-51 (1977); Trojan, supra, 8 NRC 454. 61/

Indeed, in Trojan, supra, 8 NRC at 448, the Licensing Board found that the reactor shutdown criterion was satisfied in that the Trojan spent fuel pool would be filled by 1982. The Licensing Board issued its decision in October, 1978. Thus some 3-4 years lead time was implicitly

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60/ While the record does not specify the date when such shipments must begin, Applicant notes that shipment schedules must be developed around refueling periods (approximately 3 months per year per plant) during which no shipments can occur. (Tr. 4779-80 and Applicant Exhibits 31 and 30 at p. 3). Further Applicant notes that to minimize double handling of spent fuel at Oconee, such transshipments should begin as soon as possible. (Applicant Exhibit 30 at p. 3).

61/ Applicant acknowledges that the principle relied upon in the above cases relates to need for power and the inherent uncertainty associated with forecasting. Similar forecasting is applicable in the instant case.

recognized as being satisfactory with regard to the reactor shutdown criterion. The Trojan Licensing Board further stated

> But where, as here, the proposed action has no such impacts, we can leave considerations such as economic advantage, capacity requirements, and the vigor with which offsite storage should be pursued to those within the company to whom such decisions are normally entrusted. [8 NRC at 454 (emphasis added)].

In the instant case Applicant chose to vigorously pursue the matter in 1978 and such remains the case today. In this regard see Portland General Electric Co. (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 270-71, wherein the Appeal Board stated:

> ...there are affirmative indications that the Commission's purpose was not to restrict pool capacity expansion authorizations to those situations in which, absent such an authorization, the reactor would have to shut down immediately for want of available onsite spent fuel storage space. Among other things, the notice refers to licensing actions to ameliorate "possible shortage(s)" of spent fuel storage capacity--actions which, if deferred, "could result in reactor shutdowns." 40 Fed. Reg. at 42802 (emphasis supplied). This language scarcely comports with the notion that pool capacity expansion is to be permitted only in circumstances where needed to avert an immediate crisis.

On the above basis, Applicant submits that it has satisfied the reactor shutdown criterion.

(f) Balancing the 5 Factors

The Commission has instructed that all factors are to be applied, weighed and balanced. The Appeal Board has further recognized that no one factor controls. See Trojan, supra, 9 NRC at 271 wherein the Appeal Board stated:

> In sum, we hold that the duty of the Board below was to determine whether, on a weighing and balancing of all of the five factors, expansion of the spent fuel pool's capacity should be permitted prior to the issuance of the GEIS. In the discharge of his responsibility, the Board analyzed the evidence bearing upon each factor. 8 NRC at 447-48. Upon that analysis, the Board endorsed the staff's conclusion in its environmental impact appraisal that, in combination, the five factors pointed in the direction of granting the proposed license amendment at this time. Id. at 448.
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> We have been given insufficient cause to overturn that result. More particularly, irrepective of how one assesses the degree of harm to the public interest which might be occasioned by a deferral of pool capacity expansion to await the GEIS (i.e., the fifth factor), we are persuaded that the four other factors were properly evaluated and found to favor an accomplishment of the expansion without undue delay. Thus, so long as the fifth factor is not to be deemed controlling of itself (as we have determined it is not), no warrant exists for precluding the expansion on the strength of the Commission's 1975 notice.

Applicant maintains that all five factors weigh in its favor (See Staff Exhibit 3 at pp. 61-64) and thus the Licensing Board's finding to the contrary should be reversed.

Returning to the overall issue of segmentation, based upon the above discussion of relevant factors, Applicant maintains that the instant action can be properly segmented for NEPA purposes. See Minnesota v. NRC, supra, 602 F.2d n.5 at 416, wherein the Court stated:

> The Minnesota Pollution Control Agency makes an additional argument. It contends that NRC violated NEPA by improperly "segmenting" its consideration of the environmental impact of expansion of onsite storage capacity at Prairie Island. The theory is that because the present expansion of the spent fuel pool will accommodate the spent fuel assemblies produced at

> Prairie Island only until 1982, a request for further expansion is inevitable. Citing Kleppe v. Sierra Club, 427 U.S. 390,96 S.Ct. 2718, 49 L.Ed. 2d 576 (1976), Minnesota argues that the NRC was required to take into account the environmental impact of this "unavoidable consequence" of the current expansion. We find this argument without substance.

In conclusion, the above discussion demonstrates that the storage of 300 Oconee spent fuel assemblies at McGuire was the proper subject of the NRC's environmental review. Kleppe has stated that for the Licensing Board's contrary findings to be sustained it must be demonstrated that the NRC has "acted arbitrarily in refusing to prepare one comprehensive statement..." 427 U.S. at 412. 62/ Applicant submits that, given the facts of this case, i.e., the contingent nature of any cascade plan, the reasonable probability that such will not be implemented in the near term and the ability to evaluate any additional transshipments at the time they are sought, it was not improper for the Staff to limit its environmental consideration to the instaant 300 shipments. (See Tr. 573-9). As the Court in Indian Lookout Alliance v. Volpe, supra, 484 F.2d at 17 stated:

> It would be impractical to require the expenditure of considerable amounts of time and money by the federal government on indefinite or tentative proposals before

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62/ See also Sierra Club v. Froehlke, supra, 534 F.2d at 1300 wherein the Court stated:

> In the courts the burden is upon the plaintiffs to establish by a preponderance of the evidence that the EIS was inadequate and that the decision to proceed was arbitrary and capricious.

it can be said that they have become a major federal action. 63/

III. Whether the Licensing Board erred in finding that the Nuclear Regulatory Commission Staff's environmental analysis inadequately considered the impacts associated with the shipment of 300 Oconee spent fuel assemblies to McGuire for storage? [Exception 26-33].

The Licensing Board found that the NRC Staff's environmental analysis inadequately considered the impacts associated with the shipment of 300 Oconee spent fuel assemblies to McGuire for storage. 64/ As the basis for its finding the Licensing Board raises the following two issues which it states have received inadequate consideration: 65/

63/ In this regard, it should be noted that most of the cases cited in Section II, involved circumstances requiring the preparation of an EIS, whether it be programmatic or individual. In the instant case the NRC Staff has concluded that an EIS is not warranted inasmuch as a major federal action significantly affecting the environment is not at issue. Accordingly, if the above discussed major federal action cases support the EIA's focus on the instant 300 shipments rather than to a cascade plan, clearly, situations which do not even involve major federal action significantly affecting the environment support the scope of the NRC Staff's environmental analysis.

64/ Applicant notes that an environmental analysis of transshipment activities other than that proposed here is not required in that Applicant is not firmly committed to proceed with such activities and they can be adequately evaluated when applications are submitted for their authorization (see Issue I, supra.), and, in any event, NEPA does not require such considerations here (see Issue II, supra.).

65/ The Licensing Board, in latter sections of the Initial Decision, also appears to question whether risk of accidents and sabotage were adequately considered. (I.D. at pp. 59-62). Applicant submits, and as is discussed in Section V, infra, such were adequately considered.

(1) the impacts associated with "an unusually intensive shipping program to be established by Duke", viz., "300 shipments are to be made within a year, at a rate of 25 per month" (I.D. at pp. 45-47) 66/ and

(2) the "potential social consequences of transshipment" (I.D. at pp. 47-51).

These considerations are addressed seriatim below.

(1) Intensive Shipping Schedule

The Licensing Board states that "it was proposed that 300...shipments of high-level radioactive waste [from Oconee to McGuire] would be made in the period of one year at a frequency of one per day." (footnote omitted) (I.D. at pp. 45-46). The Licensing Board submits that such

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66/ The Licensing Board also apparently questions the basis for some of the NRC Staff's calculations which involve use of the number of hours that a driver spends in the cab of the truck transporting the cask. (I.D. at p. 45). In view of the Staff's assumption that "two drivers would probably not spend more than five hours in the truck cab," the Licensing Board states, "[o]ddly the Staff also assumed that each shipment 'would travel the 270 km (170 mi.) in 6 hours." (I.D. at p. 45). It, of course, is not odd when reading the very next sentence which the Licensing Board chose to ignore, viz., "[I]n addition, about 1 hour would be spent outside the truck visually checking safety-related items, at an average distance of 1 m (3 ft.) from the cask." (Staff Exhibit 3 at p. 30). Though admittedly a minor point, Applicant maintains that such misstatement is indicative of the Licensing Board's treatment of this case.

a shipment schedule is "unusually intensive" (i.e, such a schedule would be almost "10% of all shipments of spent fuel for 30 years prior to 1972") and maintains, without explanation or record support, that such a schedule "might or could intensify some of the risks and problems associated with the transportation of...spent fuel." (footnote omitted) (I.D. at p. 47). As to the "risks and problems" which could be intensified by such an "unusual schedule," the Licensing Board mentions only the possible risk of accidents. (I.D. at p. 47). Significantly, the Licensing Board does not even intimate how risk of accidents could be affected by such a schedule. Applicant submits that (1) the Licensing Board's statement that the proposed 300 shipments will be accomplished in one yearhas no record support, (2) a shipment of 300 assemblies on any reasonable schedule is not unusually intensive when compared to shipments anticipated by Commission regulations, and (3) there is no record support for the Licensing Board's finding that accident risk is affected by the duration of reasonable shipping schedules. 67/

As the record basis for its statement that the proposed action involves the shipment of 300 spent fuel assemblies

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67/ Accident risk is addressed under Issue V, infra.

during a period of one year, the Licensing Board cites the "Staff's Proposed Findings, para. 118, p. 69." (I.D. at p. 46, note 111). This paragraph is quoted in full below:

> Turning to CESG Contention 2(b), the NRC Staff has examined the radiation dose to persons traveling over the transportation routes concurrently with the spent fuel shipments, which is the scenario put forth in this part of the Contention. The doses were calculated based on NUREG 0170, Appendix D. For travel in the directon opposite to that of the shipments, the cumulative population dose, assuming 300 shipments in one year, was calculated to be about 0.04 person-rem. The average dose to an individual per shipment would be 0.00000003 rem and the dose to a hypothetical individual who passes each of the 300 shipments would be about 0.00001 rem. This latter dose represents about 0.01 percent of the background dose received by such an individual during one year. These impacts are not affected by routing changes. [footnotes omitted].

It is clear that this paragraph does not support the Licensing Board's position that 300 shipments in one year was proposed, rather, it demonstrates that the one year figure was assumed for calculational purposes. 68/ Indeed, one of the two references noted in this above quoted paragraph (i.e., Staff Exhibit 6 at Table 1) contains the following explanatory footnote regarding dose calculations:

68/ The Licensing Board's citations to other portions of the record for tangential support provides no more support. (i.e., Tr. 571 assumes one shipment per day for a bounding heat-up rate calculation, Tr. 4753 and 4781 addresses primarily on-site movements of assemblies between pools and does not address an annual shipment schedule). (See I.D. at p. 46).

a. For comparison with dose received from annual background radiation, the estimated dose [from 300 shipments] is assumed to be received in one year.

In incorrectly relying on the above cited language, the Licensing Board has ignored, inter alia, the following three record citations, two of which were referenced extensively in the Initial Decision, which clearly illustrate that, while a shipment schedule of Oconee spent fuel to McGuire is not settled, it is to be much longer than the one year that the Licensing Board predicts:

(1) Attachment to Applicant Exhibit 23E dated September 27, 1978 (a total of 410 shipments from Oconee to McGuire; 154 in 1979, 200 in 1980 and 56 in 1981),

(2) NRDC Exhibit 9 dated October 17, 1978 (99 shipments from Oconee to McGuire in 1980; no other such shipments scheduled),

(3) NRDC Exhibit 7 dated April 26, 1979 (a total of 112 shipments from Oconee to McGuire; 56 in 1980 and 56 in 1981).

In sum, the record clearly contradicts the Licensing Board's speculation that the action proposed here involves the scheduled shipment of 300 spent fuel assemblies in one year. In any event, the above cited proposed finding of the NRC Staff demonstrates that the NRC Staff's environmental review did indeed consider the impacts of 300 shipments of spent

fuel in one year. 69/

(2) Social Consequences

The issue of social consequences focuses upon the alleged potential psychological distress caused to people living along the routes to be used for the transshipment of spent fuel. (I.D. 47-51). In the instant matter the Licensing Board has raised an issue which was not raised or pursued by the parties nor enunciated by the Board at any time prior to the Initial Decision. So postured, Applicant has been prejudiced. 70/ Furthermore, there was no evidence whatsoever which could form the basis of the Licensing Board's decision; rather such was based upon non-evidentiary

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69/ It is to be noted that, in any event, Commission regulations and policy prior to the deferral of reprocessing envisioned transshipment to reprocessing facilities of approximately 60-70 spent fuel assemblies each year from every operating reactor in the United States (i.e., assuming 70 such reactors, a total of 4300 shipments each year or 180-210 shipments per year from the 3 Unit Oconee Station). Compared to such a figure, 300 shipments does not appear to be large. In this regard, see 10 CFR §51.20(g)(1) and Table S-4 to 10 CFR Part 51.

70/ See pp. 26-7 supra.

limited appearance statements of the public. 71/ Accordingly, there was no record basis whatsoever for the Licensing Board's decision. More importantly, at the time of the Licensing Board's ruling in this regard, the question of the propriety of the consideration of psychological distress contentions in an NRC proceeding was pending before the Commission. 72/ Under such circumstances it was inappropriate for the Licensing Board to premise its decision, in part, upon a matter which was under consideration by the Commission. Regardless, the Commission on December 5, 1980, ruled that such a contention was not a proper subject in the

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71/ See Iowa Electric Light & Power Company, et al. (Duane Arnold Energy Center), ALAB-108, 6 AEC 195, 196, n.4 (1973), wherein the Appeal Board stated:

> Our approval of the result reached by the Licensing Board should not be taken as signifying agreement with that Board's comment (Memorandum and Order, p. 8) to the effect that, if Mr. Laitner chooses to make a limited appearance at the hearing, the Board "will be obligated to take [his] position into account" in issuing its final ruling. A limited appearance statement is not evidence. Its impact upon the decisionmaking process is much less direct -- it serves to alert the Board and the parties to areas in which evidence may need to be adduced. It can be taken into account only to that extent.

72/ Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit 1), CLI-79-8, 10 NRC 141, 148 (1979)

Three Mile Island restart proceeding. (CLI-80-39,___ NRC___). So postured, the Licensing Board's findings in this regard are contrary to law. 73/

In conclusion, Applicant submits that the above discussion clearly demonstrates that there is no supporting basis for the Licensing Board's findings relative to the adequacy with which the storage of the 300 Oconee spent fuel assemblies at McGuire was environmentally assessed. Such findings should be reversed.

73/ It is to be noted that the Commission's decision was a split decision. Therein the Commission stated that "[F]urther the Commission decided that it will reconsider and vote on the question when the makeup of the Commission is altered by the appointment and confirmation of a fifth Commissioner. In the meantime, there is no authorization for the Board to admit psychological stress contentions." Applicant points out that issue is whether a reasonable basis for such fear exists. See the discussion in Hanly v. Mitchell, 460 F.2d 640 (2nd Cir.) cert. denied, 409 U.S. 990 (1972) ("Hanly I"); Hanly v. Kliendienst, 471 F.2d 823 (2nd Cir. 1972), cert. denied, 412 U.S. 908 (1973)("Hanly II"); and Hanly v. Kleindienst, 484 F.2d 448 (2d Cir. 1973), cert. denied, 416 U.S. 936 (1974) ("Hanly III"). See also, Nucleus of Chicago Homeowners Association v. Lynn, 524 F.2d 225, (7th Cir. 1975), cert. denied, 424 U.S. 967 (1976); and First National Bank of Chicago v. Richardson, 484 F.2d 1369 (7th Cir. 1973); and Trinity Episcopal School Corporation v. Romney, 387 F. Supp. 1044, (S.D.N.Y. 1974), aff'd in part, rev'd in part and remanded, 523 F.2d 88 (2d. Cir. 1975), on remand Trinity Episcopal School Corporation v. Harris, 445 F. Supp. 204 (S.D.N.Y. 1978), rev'd and remanded sub. nom. Karlen v. Harris, 590 F.2d 39 (2d Cir. 1978), rev'd sub nom. Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223 (1980). The Three Mile Island decision aside, the facts in this case clearly demonstrate that such basis does not exist.

IV. Whether the Licensing Board erred in finding that alternatives were not properly assessed? [Exceptions 34-46, 52-54].

The Licensing Board found that alternatives were not properly assessed. Specifically, the Licensing Board contended that the Staff's rejection of reracking was erroneous in that such has been contradicted by later events. (I.D. at p. 54). The Board also maintained that the ISFSI had received only superficial consideration. (I.D. at p. 58). 74/ Applicant maintains the Licensing Board's consideration of alternatives was unnecessary and, in any event, such findings are unsupported by the evidence.

(1) Standard of Review

Commission regulations implementing NEPA do not require an examination of alternatives to the proposed action when preparing an EIA. (10 CFR §51.7). If the results of the EIA are such that the environmental consequences of the proposed action are not significant (i.e., insignificant or

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74/ The Licensing Board also intimates that pin compaction and dry storage should have been considered. (I.D. at pp. 54-55). The record reflects that such measures are emerging technologies requiring solutions of outstanding problems. (Tr. 1155-60). NEPA requires consideration of reasonable alternatives. Given the developmental nature of this option, the NRC Staff should not be viewed as derelict in not addressing the matter in the December 1978 EIA. In any event, the record reflects that pin compaction was considered by Aplicant, thoroughly explored by the NRC Staff and exhaustively discussed. (Tr. 3997-4044).

negligible) then, unless otherwise required by Commission regulations (i.e., 10 CFR §51.5), there is no requirement to prepare an Environmental Impact Statement wherein alternatives to the proposed action must be considered. (10 CFR §51.20 and 51.23). To hold otherwise would require the Commission to consider alternatives to a proposed action which itself will not result in a significant impact upon the environment. Such is contrary to the Appeal Board's teachings. See Trojan, supra., 9 NRC at 266, wherein it is stated:

> As we read it, the NEPA mandate that alternatives to the proposed licensing action be explored and evaluated does not come into play in such circumstances--in short, there is no obligation to search out possible alternatives to a course which itself will not either harm the environment or bring into serious question the manner in which this country's resources are being expended. 75/

75/ Applicant notes the Appeal Board's holding in Trojan, supra, affirmed the Licensing Board's decision to refrain from considering alternatives. The Trojan Licensing Board reasoned:

> It is not necessary, however, to choose among alternatives or to predict needs on the basis of the present evidence. In our findings, supra, we have determined that the adverse environmental impacts of this license amendment will be negligibly small. Clearly, if the adverse impacts of the proposed action are negligible, the impacts of any alternative must be equal or greater, and it has been held that "an alternative which would result in similar or greater harm need not be discussed." (Sierra Club v. Morton, 510 F.2d 813, 825 (5th Cir. 1975)). As to the question of need for power, as we view it,

(Footnote continued on next page.)

Applicant submits that here the record clearly establishes that the proposed action (i.e., shipment to and storage at McGuire of 300 Oconee spent fuel assemblies) will not result in significant adverse environmental impacts, 76/ and thus, there is no requirement that alternatives to the proposed action be evaluated.

(Footnote continued from previous page.)

> that question can only be considered against the background of a cost-benefit balance, and absent any substantial environmental costs, any benefit whatever would tip the scale. We therefore believe that we need not consider alternatives or the need for the modification in any detail. Indeed, in the opinion of this Board, not only is such consideration unnecessary, it is very inadvisable, since it infringes upon those very prerogatives and duties of corporate management which we should eschew usurping. To be sure, were there substantial adverse environmental impacts, our duties under NEPA would require us to balance them against benefits and examine less damaging alternatives. But where, as here, the proposed action has no such impacts, we can leave considerations such as economic advantage, capacity requirements, and the vigor with which offsite storage should be pursued to those within the company to whom such decisions are normally entrusted. [Trojan, supra, 8 NRC at 454].

76/ With the exception of (1) a purported intensive shipment schedule (see Issue III, Section (1), supra) (2) alleged social consequences (see Issue III, Section (2), supra) (3) risk of sabotage (see Issue V, Section (2), infra) and (4) risk of accidents, (see Issue V, Section (3) infra), the Licensing Board does not find otherwise. As to these items, as noted herein, Applicant submits that the Licensing Board is in error.

While Applicant submits that neither NEPA nor Commission regulations require, in this instance, consideration of alternatives to the proposed action, the Licensing Board finds that the "alternatives of reracking or construction of an ISFSI are preferable..." (emphasis added) to the propcsed action. (I.D. at 62). Applicant submits that, if comparison of alternatives is required, the Licensing Board erred in its finding. The facts show that the alternatives of reracking and ISFSI were properly considered within the context of an environmental impact appraisal and that neither is "preferable" to transshipment. 77/ Each will be discussed below.

77/ In this regard, if alternatives are to be considered, the "preferable" test of the Licensing Board is inappropriate. Rather NRC case law sets fort' the "obviously superior" standard. See (Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 526-530 (1977), aff'd sub nom., New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87, 95-96 (1st Cir. 1978). See also Rochester Gas and Electric Corporation et al. (Sterling Power Project, Nuclear Unit No. 1), ALAB-502, 8 NRC 383, 393-8 (1978) aff'd, CLI-80-23, 11 NRC 731 (1980); Florida Power & Light Co. (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-435, 6 NRC 541, 1542-3 (1978)). In this regard, the Court in New England Coalition, stated:

> Given the necessary imprecision of the cost-benefit analyses involved and the fact that the proposed site will inevitably have been subjected to far closer scrutiny than any alternate site, we cannot say that it is unreasonable to insist on a high degree of assurance that the extreme action of denying an application is appropriate. [emphasis added]. [582 F.2d at 95].

(2) Reracking

The Licensing Board does not maintain that reracking was not properly assessed. Accordingly, it cannot be said that the EIA was defective in this regard. Indeed, the EIA found reracking to be a viable option. 78/ (Staff Exhibit 3 at p. 53). Rather, the Licensing Board's concern was the EIA's rejection of the reracking option on the basis of timeliness (i.e., the option could not be implemented prior to loss of full core reserve capacity at the Oconee facility). Specifically, the Licensing Board found that inasmuch as the high density reracking was indeed sought and implemented after the issuance of the EIA, the EIA's conclusion was erroneous. Such a concern does not call into question the adequacy of the EIA's consideration of alternatives; rather, it addresses the appropriateness of the recommendations set forth. Such is a management decision and not a NEPA consideration, and thus, the Licensing Board was in error in suggesting that such recommendation rendered

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78/ While the EIA found high density reracking to be viable, it determined that based upon Applicant's analysis and the NRC Staff's independent review, greater impacts may result "e.g., 150 man-rem occupational exposure from reracking plus additional exposure from transshipping [to Oconee Unit 3 spent fuel pool] approximately 250 fuel assemblies at an estimated exposure of 0.4 man-rem per assembly..." (Staff Exhibit 3 at pp. 53-54)

"consideration of alternatives" defective. 79/

In any event, the pertinent facts relative to the timing of the reracking of Oconee Units 1 and 2 spent fuel pool with high density racks demonstrate there was a reasonable basis for the EIA's recommendation in this regard. These facts are as follows: reracking of the Oconee Units 1 and 2 pool in a timely manner required underwater reracking techniques (Tr. 760, 763-7, Applicant Exhibits 23F at pp. 2-3, and 30 at p. 2); Applicant did not consider underwater reracking for its facilities to be technically viable until late 1978 (Id.); the EIA was

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79/ See New England Coalition on Nuclear Pollution v. NRC supra., 582 F.2d at 95 wherein the Court stated:

> "The requirement for a thorough study and a detailed description of alternatives...is the linchpin of the entire impact statement." Monroe County Conservation Council, Inc. v. Volpe, 472 F.2d 693, 697-98 (2d Cir. 1972). But the requirement for thorough study does not determine the result of the comparison. The ultimate decision is left to the discretion of the agency. "Neither [NEPA] nor its legislative history contemplates that a court should substitute its judgment for that of the agency as to the environmental consequences of its actions...The only role for a court is to insure that the agency has taken a 'hard look' at the environmental consequences; it cannot 'interject itself within the area of discretion of the executive as to the choice of the action to be taken.'" Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21, 96 S.Ct. 2718, 2730, 49 L.Ed.2d 576 (1976) (citations omitted).

See also Scenic Hudson Preservation Conference v. Federal Power Commission, 453 F.2d 463 (2nd Cir. 1971), cert. denied 92 S. Ct. 2453, 407 U.S. 926, 32 L.Ed.2d 813 (1972), wherein the Court stated:

(Footnote continued on next page)

published in December 1978 (Staff Exhibit 3); Oconee was facing the loss of FCR in mid-1979 and shutdown in 1980 (Applicant Exhibit 23F at p. 2. See n. 9, supra Tr. 419); the NRC Staff concluded, based on experience, that 15 months would be required to implement this option (Staff Exhibit 3 at p. 53 and Tr. 2689-92). As can be seen from the above, fifteen months would jeopardize FCR and reactor shutdown, and thus the alternative was deemed to be untimely. While the fact that the option was completed in November 1979 appears to call into question the reasonableness of the NRC Staff conclusion, the Staff's experience in numerous other cases supports the number. 80/ More importantly, during the reracking exercise Applicant, as anticipated, did indeed lose FCR. (Tr. 729). Fortunately, it was not necessary to unload a core in this time frame, although Oconee has had to do so four times in the past. (Applicant Exhibit 3 at p. 12).

(Footnote continued from previous page)

> Like our remand, the Act does not require that a particular decision be reached but only that all factors be fully explored. The eventual decision still remains the duty of the responsible agency. [453 F.2d at 481].

80/ e.g., Trojan, supra, 9 NRC 263; Prairie Island-Vermont Yankee, supra, 7 NRC 41; see also Tr. 2689-92. Applicant would note that its experience in numerous licensing proceedings is that applications are not timely acted upon. Witness the 2 1/2 years devoted to the instant case.

On the basis above it cannot be said that the NRC Staff's treatment of reracking warrants denial of the application. 81/

(3) ISFSI

With respect to the alternative of construction of an ISFSI, such was considered in the EIA as well as at the evidentiary hearings (e.g., Staff Exhibits 3 at pp. 50-52, 13 at p. 2, 19B at pp. 6-7, 27A; Applicant Exhibits 1, 2 at p. 18-1, 3 at p. 9, and 7 at attachment; NRDC Exhibit 10; Tr. 1095-1127, 1226-33, and 2859-62). The EIA found the ISFSI to be viable, in the long-term, 82/ but did not find it a preferable alternative to transshipment due to time delays and costs. (Staff Exhibit 3 at pp. viii and 50-52). As stated in the above discussion of reracking, the EIA's recommendation is not subject to attack provided the alternatives under review were properly considered, if indeed such consideration was necessary in the first instance.

82/ In any event, as previously noted, reracking the Oconee Units 1 and 2 spent fuel pool is no longer an alternative.

83/ The NRC Staff stated that there may be significant impacts associated with an ISFSI. (Staff Exhibit 19B at p. 6-7). Specifically, the NRC testified that the construction effort, inherent in any such large endeavor, may have impacts upon the aquatic and terrestial environment of "greater significance." (Id.).

With regard to time delay, the record clearly indicates that it will take 4-5 years to bring an ISFSI on line. (Staff Exhibit 3 at p. 52, and Applicant Exhibit 6 at p. 4). The Licensing Board does not dispute this figure. Inasmuch as at the time the EIA was published additional spent fuel storage capacity was necessary within the next several months, there was a reasonable basis to recommend against the ISFSI. However, the Licensing Board focuses on the additional lead time now available to build an ISFSI that has resulted from reracking. The Board argues that based upon this fact, an ISFSI should be pursued over the instant transshipment option. (I.D. at p. 59). Applicant does not dispute that an ISFSI appears to be a viable option, provided the reracking of Oconee Units 1 and 2 spent fuel pool is implemented in the near term. However, even then an ISFSI does not become the chosen alternative unless the facts demonstrate that an ISFSI is obviously superior to transshipment. As previously noted, the record does not reflect this.

With regard to costs, the Licensing Board implies that given the wide variations in the figures and the fact that such were ever changing, the Staff had not taken a hard look at ISFSI. (I.D. at p. 58). An examination of the record demonstrates that the bases of such costs were examined in

detail. (e.g., Applicant Exhibits 1, 6 at p. 4 and 7 at question 7; Staff Exhibits 3 at p. 52, 13 at p. 2 and 19B). 83/ Indeed, the Staff addressed this very point in written testimony and concluded that when examining the costs in detail, they were all "very much in line." (Staff Exhibit 27A). So postured, it cannot be said that the NRC Staff failed to adequately consider ISFSI. 84/

On the basis of the above, the Licensing Board's findings regarding the EIA's consideration of alternatives should be reversed.

83/ The Licensing Board has suggested that "the many hundreds of millions of dollars that Oconee or other Duke nuclear facilities have cost or will cost" must be added to transportation when comparing such to ISFSI. (I.D. at p. 58). There is no merit to this position. In previous instances intervenors have argued that consideration of spent fuel pool enlargments subjects the entire facility to reevaluation of such matters as energy conservation. (Consideration of total facility costs is no different.) The Appeal Board rejected such arguments. Trojan, supra., 9 NRC at n. 6, 266.

84/ The Licensing Board has commented that "in weighing alternatives the cheapest is not necessarily the best or safest." (I.D. at p. 58). If, as in this case, the environmental assessment shows no obviously superior alternative to exist, then Applicant has the option of using any reasonable criteria, including cost, to make its selection. Seabrook, supra, 5 NRC at 527-9.

V. Whether the Licensing Board's evaluation of the comparison of alternatives was in err in holding that the transportation of spent fuel was the least desirable option due to the alleged risk involved? [Exceptions 29, 47-52, 56-68].

In comparing alternatives, 85/ the Licensing Board found that the residual risk of potential accidents and sabotage associated with transshipment renders it the least desirable alternative. 86/ Disavowing probabilistic decision-making, the Licensing Board stated, as the basis for its findings, that "[t]he evidence in this proceeding was not persuasive in proving by statistical analyses or engineering studies, that serious spent fuel transportation accidents or malevolent conduct could not occur."

85/ Applicant maintains that a comparison of alternatives is unnecessary. See Issue IV, Section (1), supra.

86/ The Licensing Board apparently also takes issue with the NRC Staff's comparison of the occupational radiation exposure of the various alternatives. (I.D. at 61). The Licensing Board noted that calculations regarding occupational radiation exposure "were substantially lacking in precision or certainty." (Id.) Applicant notes that such calculations are extremely conservative, thus bounding the issue. (e.g., Staff Exhibits 3 at p. 30 and 20 at pp. 2-4, and Applicant Exhibit 15 at p. 3 wherein it is noted that Applicant's calculations are conservatively based on a 400 assembly hypothetical action). Further, even with such extremely conservative calculations, the health effects, if any, expected to result from occupational exposure involving transshipment are, as the Licensing Board states, "negligiable." (I.D. at p. 69). Thus,even if more precise calculations could be made, it would only have the effect of reducing the undisputed "negligible" health effects currently accepted.

(emphasis added). (I.D. at p. 59). Thus, the Licensing Board held that "[o]n balance, the evidence shows that the alternatives of reracking or construction of an ISFSI are perferable to Duke's transshipment proposals, whether involving the Cascade Plan or the one-a-day transportation of 300 casks of spent fuel in one year." (I.D. at p. 62). 87/

Applicant submits that the Licensing Board (1) applies the incorrect standard regarding alternative comparison; (2) erred in raising the issue of sabotage and, in any event, without explanation distorts or ignores the record regarding sabotage; and (3) distorts or ignores the record regarding risk of accident. These issues will be addressed seriatim below:

(1) Appropriate Standard Regarding Comparison of Alternatives

The Licensing Board's exclusion of transshipment from consideration on the basis that it cannot be demonstrated that accidents or acts of sabotage "could not occur" (I.D. at 59 and 78-9) has, in fact, established a zero risk requirement for

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87/ To the extent the Licensing Board's holding that transshipment is not preferred is limited to transshipment situations involving a cascade plan or 300 assemblies in one year at a rate of one-a-day, Applicant submits that neither situation is applicable here. (See Issues I and III, supra.).

this alternative. Such a course is contrary to law.

Neither the Atomic Energy Act ("AEA") (42 U.S.C. §§2011 et seq.) nor the regulations require totally risk-free actions. North Anna Environmental Coalition v. NRC, 533 F.2d 655, 665 (D.C. Cir. 1976). To require a "risk-free" option allegedly under the banner of NEPA, as the Licensing Board proposes here, would place NEPA in conflict with the Atomic Energy Act. In such a situation, it is clear that NEPA must yield. Flint Ridge Development Co. v. Scenic Rivers Assoc., 426 U.S. 776, 788, reh. den. 429 U.S. 875 (1976); Texas Committee on Natural Resources v. Bergland, 573 F.2d 201, 206-7 (5th Cir. 1978). That NEPA does not require a "risk-free" alternative is seen in the case law which provides that the environmental review required by NEPA is "subject to a 'rule of reason' and as such need not 'include all theoretically possible environmental effects arising out of an action;' but rather 'may be limited to effects which are shown to have some likelihood of occurring.'" Prairie Island-Vermont Yankee, supra, 7 NRC at 48 quoting from Long Island Lighting Co. (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 836 (1973). This concept of acceptable risk is grounded in judicial precedent. As stated in Environmental Defense Fund v. Hoffman,

566 F.2d 1060, 1067 (8th Cir. 1977): 88 /

> However, "[a]n EIS need not discuss remote and highly speculative consequences. EDF v. Corps of Engineers, 348 F.Supp 916, 933 (N.D. Miss. 1972), aff'd 492 F.2d 1123 (5th Cir. 1974). *** A reasonably thorough discussion of the significant aspects of the probable environmental consequences is all that is required by an EIS." Trout Unlimited v. Morton, supra, at 1283. [emphasis added].

In short, it is clear that the Licensing Board's position that the proposed action must be rejected because "serious spent fuel transportation accidents or malevolent conduct could occur" (emphasis added) (I.D. at 59) is contrary to NEPA, the AEA and pertinent case law. Indeed, if the Licensing Board's position was correct, inter alia, nuclear power reactors with the attendant remote risk of large-scale radioactive release would never be licensed; the Civil Aeronautics Board would not authorize airline routes due to the risk of major accidents; the Federal Energy Regulatory Commission would not license hydroelectric

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88/ The D.C. Circuit in Trident v. Rumsfeld, 555 F.2d 817, 829 (D.C. Cir. 1977) also discussed this issue:

> Similarly, the appellants raise the remote possibility that Trident might face early termination and therefore this aspect of the Program should have been analyzed in the Final EIS. However, the appellants fail to cite any evidence whatsoever to show that there is any likelihood of early termination occurring here. As far as the Navy is concerned, Trident is "a permanent naval installation and as such has no foreseeable close down date." Final EIS, vol. II at 4-5. NEPA does not mandate that every conceivable possibility which someone might dream up must be explored in an EIS.

See also, Carolina Environmental Study Group v. NRC, 510 F.2d 796, 800-01 (D.C. Cir. 1975).

projects due to potential dam failures. 89/

With respect to the extent of NEPA's consideration of risk, Applicant acknowledges it is appropriate to consider residual risk. 90/ See Citizens For Safe Power v. NRC, 524 F.2d 1291, 1299-1300 (D.C. Cir. 1975). In such a circumstance, of concern is whether the residual risk associated with the storage of 300 Oconee spent fuel assemblies at McGuire renders its impact significant, so as to warrant denial of the application. As discussed below, Applicant submits that the residual risk is de minimis. Accordingly, the record clearly supports a finding that the benefit to be derived from the proposed action justifies the insignificant environmental impacts associated therewith.

(2) Sabotage

The Licensing Board states that the evidence in this "proceeding was not persuasive in proving by statistical analysis or engineering studies, that... malevolent conduct could not occur." (I.D. at 59). The Licensing Board uses as an example of the alleged deficiency in the NRC Staff's analysis of sabotage the fact that the "EIA analysis of possible sabotage of spent fuel in transit was rendered at

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89/ See Environmental Defense Fund v. Corps of Engineers, 492 F.2d 1123, 1131 (5th Cir. 1974) wherein the Court stated that NEPA "does not intend to impose an impossible standard on the agency."

90/ Residual risk has been defined as that risk remaining after compliance with appropriate Commission regulations. (Citizens For Safe Power v. NRC, supra, 524 F.2d at 1300).

least partially obsolete and invalid by the Commission's subsequent (June 15, 1979) actions instituting regulations requiring safeguard measures to be applied to spent fuel shipments." (Id). The Licensing Board quoted from sections of the Statement of Considerations of such new regulations for the proposition that the probability of a successful sabotage cannot be estimated with any degree of confidence and the consequences of the release of a small fraction of the inventory of a spent fuel assembly as respirable particles could produce serious consequences in heavily populated areas. 91/ (I.D. at 60). The Licensing Board thus concluded that the risk of sabotage of transshipments was unacceptable when compared to other alterantives. 92/ Applicant submits that the Licensing Board erred in raising the sabotage issue and distorts the record regarding the issue.

Initially in this proceeding, NRDC raised as an issue the possibility of sabotage. Accordingly, Applicant and Staff prepared and submitted, pursuant to 10 CFR §2.743(b), extensive testimony to address the issue and had witnesses available to testify at the hearings. However, on the first

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91/ Applicant notes that the underlying basis for the subject regulations was the imposition of strict safeguard measures which act to render the risk of sabotage remote. This point, as discussed infra, is recognized in the EIA (Staff Exhibit 24 at pp. 3-6) and the GEIS (see n. 93 infra).

92/ Risk is equated to the product of the probability of an event and the event's consequences. 45 Fed. Reg. 37399, 37402 (June 3, 1980).

day of the hearings NRDC redrafted its sabotage contention to read "Applicant has failed to demonstrate that it is in compliance with applicable Commission regulations with regard to safeguarding spent fuel shipments." (Tr. 343-344). Applicant committed to comply with the appropriate regulations (Tr. 347, 4725-6, 4738, and 5106-9) and NRDC did not choose to pursue the matter. During the latter stages of the hearing, CESG attempted to raise the issue of sabotage and again Applicant and Staff marshalled its witnesses in preparation to respond. However, the Licensing Board specifically and unequivocally denied CESG's attempts to raise sabotage. As Mr. Miller, the Board Chairman, stated:

> Mr. Riley, you're trying to bootstrap yourself on any contention. . . . There is no one who has presented us with an issue. . . . I don't quite see how you're going to bootstrap yourself into making an issue of a nonissue. [Tr. 4933-4. See also Tr. 5108].

Now, the Licensing Board raises sabotage as an issue and makes a finding thereon without opportunity for Applicant to respond, thereby prejudicing its position. See pp. 26-7 supra. In any event, with regard to sabotage, the EIA thoroughly examined the matter. (Staff Exhibit 3 at pp. 17-19). The EIA concluded that during transit "the risks are sufficiently small as to constitute no major adverse impact on the environment." (EIA at p. 19). As noted, the Licensing Board makes much of the fact that such finding has been invalidated by subsequent Commission regulations. (I.D. at p. 59). However, the Licensing Board has totally over-

looked or chosen to ignore, Staff testimony which completely updates the record in this regard. (See Staff Exhibit 24 at pp. 3-6). Such a gross error calls for the immediate rejection of the Licensing Board findings in this regard. 93/

On the basis of the above, there is no major or significant adverse impact on the environment resulting from sabotage; rather, the risk associated with such activity is de minimis.

(3) Accident Analysis

The Licensing Board states that inasmuch as reported data reflects that two highway accidents occurred in 3600 shipments of spent fuel, the probability of such accidents is not insignificant. (I.D. at p. 47, note 117 and p. 61). Further, the Licensing Board states that in view of the lack of physical testing of spent fuel casks used to transport the fuel, the possibility of significant consequences resulting from an accident weighs heavily against the application. (I.D. at p. 78-79). The Licensing Board concludes that "the

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93/ It is to be noted that the GEIS has considered the issue of sabotage and found

> Regarding the potential sabotage of shipments of aged spent fuel, the staff has concluded that the shipments do not constitute a serious risk to the public health and safety because of: (1) the difficulty of breaching a spent fuel cask and fragmenting the spent fuel, (2) the magnitude of the estimated consequences of successful sabotage, (3) the applicable protection measures delineated in §73.37 of 10 CFR Part 73, and (4) the absence of an identifiable threat to such activities. [GEIS at ES-10].

risks of truck highway accidents involving some release of radioactive material...cannot be ruled out solely by statistical analyses or engineering studies." (I.D. at p. 61). Accordingly, the Licensing Board finds that the risk of serious highway accidents weighs heavily against the proposed action. (I.D. at p. 62).

Applicant submits that the Licensing Board misconstrues the record regarding the probability of spent fuel accidents, and bases its finding that the probability of highway accidents is not insignificant on evidence that is marginally applicable here while ignoring the pertinent evidence presented in this case.

The Licensing Board states that during the 3600 shipments of spent fuel reported before 1972, there were two reported accidents. The Licensing Board calculates that the probability of an accident is 5.6×10^{-4} per shipment, and the probability of one accident occurring in one of the 300 proposed shipments is 1.7×10^{-1} (i.e., if there are 300 shipments per year, theoretically there will be one accident every six years). (I.D. at p. 47, note 117). Thus, the Licensing Board concludes that the risk of highway accidents is not insignificant. (I.D. at p. 61). While superficially appealing, the Licensing Board's conclusions distort the record. At the outset, it is clear that only one of the accidents reported by the Licensing Board occurred in the

3600 shipments before 1972. The other accident occurred in 1978. (See Staff Exhibit 9 at p. 6). Further, as reported by the Licensing Board, neither accident resulted in a release of radioactive material. (I.D. at p. 61). Moreover, the probability calculations derived by the Licensing Board from such figures are marginally relevant to the case at hand in that such figures do not consider, inter alia, the length of travel involved in each of the shipments, the type of roadway traveled, improvements in truck safety standards and inspection requirements since the pre-1972 time-frame, reduction in the speed limits since this time, improved training of drivers and improvements in cask designs.

Interestingly, the data used by the Licensing Board was simply presented by the NRC Staff as background. Yet, the Licensing Board chose to use such data as opposed to the more relevant data presented by both the Staff and Applicant regarding accident probability. For example, in NRC Staff Exhibit 9, the Staff sets forth tabulated probabilities of accidents based upon the 1972 statistics as applied, as much as possible, to the case at hand (i.e., mileage figures were incorporated into the analyses). These probabilities, quoted below, totally contradict the Licensing Board's calculations. (Staff Exhibit 9 at p. 7; See also Staff

Exhibit 3 at pp. 33-37). 94/

> Assuming the campaign year consists of 300 shipments in one year of 170 miles each the number of years between accidents of the same severity is given by:
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> | | |
> |---|---|
> | Minor | 14 years |
> | Moderate | 50 years |
> | Severe | 2,500 years |
> | Extra Severe | 25,000,000 years |
> | Extreme | 1,000,000,000 years |

Applicant presented similar testimony. (Applicant Exhibit 9 and 25).

As to the consequences of potential accidents, the NRC Staff and Applicant presented extensive, uncontradicted testimony regarding the protection afforded by the spent fuel shipping casks. (See Applicant Exhibits 8 and 10; and Staff Exhibits 3 at pp. 16-17 and 33-37, 9 at pp. 2-12, and 28 at pp. 4-1--4-2.). Therein, the Staff and Applicant set forth the extensive licensing requirements regarding such casks. (See I.D. at pp. 77-78). The Staff concluded that "[t]esting, accident experience, and intensive review of cask designs assure us that no significant radioactive releases will occur because of transportation accidents involving these

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94/ It should be noted that these accident categories were developed in 1972 before the lower speed limit was implemented. All categories of accidents except minor accidents include impacts at speeds up to 70 mph. (Staff Exhibit 3 at p. 34). Thus, the postulated accidents may be even more remote in probability in view of reduced speed limits.

packages." (Staff Exhibit 9 at p. 13). Further, the Staff stated that even in the unlikely event of an accident resulting in a "release of radioactivity, the release would be limited to noble gases and possibly small quantities of volatile solid radionuclides such as cesium and tellurium; the incremental burden of radiation dose would not be significant." (Staff Exhibit 9 at p. 13; See also Applicant Exhibits 12 and 24). 95/

The Licensing Board, however, chose to ignore such evidence. Rather, the Licensing Board simply stated that spent fuel shipping casks were not physically tested to determine if they pass the requirements of Commission regulations, and as such, there was no "real assurance" that the consequences of an accident could not be

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95/ See Table S-4 in 10 CFR Part 51 which references that the radiological effects associated with accidents in a defined transport activity are small. See also the GEIS which states that

> Based on the cumulative experience of 30 years of spent fuel shipments, both military and commercial, and extensive analyses of potential accidents, the risk to the health and safety of the public from spent fuel shipping accidents is very small. [ES-10].

significant. 96/ (I.D. at p. 78-79). To the extent that the Licensing Board questions the bases for Commission regulations regarding licensing of spent fuel shipping casks, the Licensing Board's finding must fail as an attack on the regulations. (10 CFR §2.758).

In sum, Applicant submits that the record reflects an adequate analysis of the potential risk associated with possible accidents resulting from the transshipment of spent fuel as proposed here. A preponderance of such evidence, as noted above, clearly demonstrates that (1) the probability of any accident is extremely remote, (2) even in the event of an accident no significant radioactive release will occur, and (3) even in the event of such release the incremental burden of radiation dose will not be significant.

96/ The Licensing Board further states that, even if an accident occurs which results in no release of radioactivity, "it could. . . become a widely publicized media event with serious social, political and economic consequences for the public as well as the entire industry." (I.D. at p. 79). There is simply no record evidence to support this proposition. To the contrary, the record reflects that two accidents have occurred. To the extent that the Licensing Board is concerned with the potential for psychological stress, see Issue III (3), supra. As to any undefined political and economic consequences in this case in which there is no primary impacct, such are not within the considerations envisioned by either the Atomic Energy Act or NEPA and thus are of no moment to this proceeding. See Comc-Falcon Community Coalition v. U.S. Department of Labor, 609 F.2d 342, 345-6 (8th Cir. 1979); Image of Greater San Antonio, Texas v. Brown, 570 F.2d 517, 522 (5th Cir. 1978).

In conclusion, the Licensing Board was in error in finding transshipment the least desirable alternative. In this regard it should be noted that spent fuel is presently being shipped from various facilities to General Electric's, Morris, Illinois installation. (GEIS at ES-5--ES-6). While it is likely that other spent fuel options could be pursued at these facilities, transshipment has been considered acceptable. Such a view is consistent with the Spent Fuel Storage Statement which recognized that spent fuel could be "periodically shipped offsite". (40 Fed. Reg., supra, at 42801).

VI. Whether the Licensing Board erred in finding that the Nuclear Regulatory Commission's "as low as reasonably achievable" requirement set forth in 10 CFR Parts 20 and 50 contemplates a comparison with other alternatives to the proposed action? [Exception 55].

The Licensing Board found that "ALARA contemplates a comparison with other alternatives to determine whether a proposed method of handling spent fuel storage does indeed maintain radiation exposures to levels 'as low as is reasonably achievable.'" ("ALARA") (I.D. at 64-65). As the basis for its finding, the Licensing Board analyzed Prairie Island-Vermont Yankee, supra, 7 NRC 41, a principal case cited by all parties, and stated simply that the "case does not preclude an ALARA analysis of the viable alternatives here for spent fuel transshipment, namely reracking of Oconee pools or construction of an ISFSI." (I.D. at 64). The Licensing Board then proceeded to set forth the Applicant's

and Staff's consideration of alternatives, and concluded that "[t]he choices among the alternatives considered must be made on a basis other than radiation doses, since the record shows that the alternatives do not differ much among themselves in this respect, because accurate estimates are very difficult to make." (I.D. at 66-67). 96/ While the Licensing Board's final ruling regarding the ALARA issue was not contrary to issuance of the requested amendment, Applicant submits that the Licensing Board erred in its interpretation of the ALARA criterion. Applicant maintains that the application of the ALARA standard is limited to the option selected and alternative methods of implementing that option, and does not pertain to alternatives to that option.

The definition of ALARA is contained in 10 CFR §20.1(c) and quoted below:

> (c) In accordance with recommendations of the Federal Radiation Council, approved by the President, persons engaged in activities under licenses issued by the Nuclear Regulatory Commission. . . should, in addition to complying with the requirements set forth in this part, make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as low as is reasonably achievable. The term 'as low as is reasonably achievable' means as low as is reasonably achievable taking into account the state of technology, and

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96/ Applicant submits, and the record supports, that the reason the alternatives do not differ much regarding radiation dose is not "because accurate estimates are very difficult to make" as the Licensing Board suggests, but rather because indeed all alternatives have approximately the same general dose committments. (Applicant Exhibit 15 at p. 3 and Staff Exhibits 11A at Table entitled "Projected Occupational Doses Based on Duke Power Estimates" and 20 at p. 5).

> the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

(See also 10 CFR §50.34(a). To assure that any activity meets the ALARA criterion as imposed by Commission regulations detailed analyses of that activity are required. Such analyses require, inter alia, detailed designs, construction procedures, operational parameters, siting analyses, operating procedures, manning requirements, and surveillance and inspection procedures. (Staff Exhibit 12). To require this type of in-depth analysis for each possible alternative is unwarranted.

This, of course, does not mean that where a proposed action has a significant impact on the environment there is no requirement to evaluate the various alternatives in light of their relative costs and impacts upon the environment, including radiation related impacts. Indeed, such a requirement exists. However, this requirement stems from NEPA and not from the definition of ALARA. The Commission has imposed under NEPA the requirement that, under certain circumstances, a NEPA comparison of alternatives must be performed, consistent with a rule of reason. 97/ Such a NEPA comparison, however, does not require a detailed ALARA type analysis for each alternative to the proposed action.

97/ See Prairie Island-Vermont Yankee, supra, 7 NRC at 48 and cases there cited.

It is only when the appropriate alternative is selected that ALARA comes into play. At that stage, as an additional measure of protection, the actions under the selected alternative must be analyzed in detail and appropriate licensing conditions imposed (i.e., "improvements") where needed, to assure that the ALARA criterion is met. As the Appeal Board in Prairie Island-Vermont Yankee stated:

> "It bears emphasis that the ALARA standard comes into play only after it has been determined that the Applicant's proposal will comply with all other requirements imposed by Part 20...." [7 NRC note 13 at 56. (emphasis added)].

In other words, the ALARA standard only addresses the activity under question in any proceeding (e.g., in the instant proceeding this activity is shipment of Oconee fuel to McGuire) and not all alternatives under consideration. Both the Applicant and Staff subscribe to this position. (Tr. 1752-56, 2533-35). On the basis of the above, Applicant submits that the Licensing Board erred in interpreting the ALARA criterion as requiring a detailed analysis and comparison of all alternatives to the proposed action. 98/

98/ With respect to Applicant's interpretation of ALARA, the record reflects that the procedures to be employed in the proposed transportation activity satisfies the requirement. (Applicant Exhibit 2 at p. 9-1; Staff Exhibits 11A and 20; Tr. 1715-19, 1752-6).

VII. Whether the Licensing Board erred in finding that with regard to a hypothetical cask drop accident in the McGuire spent fuel pool "it would be a close call" as to whether a criticality accident would result and thus "a physical barrier to positively prevent casks from dropping into the fuel pool" is necessary? [Exceptions 59-63].

The Licensing Board found that the risk of a cask tipping incident weighs against the proposed action. (I.D. at 84-85). 99/ As the basis therefore, the Licensing Board states that in the event of a cask tipping incident which results in a cask falling into the spent fuel pool and impacting on new fuel stored therein, it would be a "close call" as to whether criticality would be achieved. (I.D. at 85). The Licensing Board states that avoidance of criticality would depend mainly "on having the boron level in the pool water. . . at or very near the specified level of 2000 parts per million". (Id.). The Licensing Board notes that, at the very least, such an incident would "create a large

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99/ The CESG contention giving rise to this issue is as follows:

> With respect to case three of the cask drop analysis of Applicant's FSAR 9.1.2.3.2, submitted involving a postulated cask drop accident at the spent fuel pool, the Applicant's analysis and Staff's review are inadequate. Case three involves tipping or dropping and tipping the cask located above the floor or in contact with the floor level of the pit wall opposite the fuel pool side. [Tr. 4181].

radioactive mess in an uncontained building." (Id.). Thus, the Licensing Board reasoned that transshipment of spent fuel as proposed here 100/ should be avoided. (Id.). 101/ Applicant submits, and the record clearly shows, that (1) the possibility of a cask tipping incident is extremely remote, (2) in the event of such an incident the cask would not fall into the pool, and (3) even in the event that a cask hypothetically fell into the spent fuel pool there would not be a criticality incident. 102/

100/ Applicant notes that each of the alternatives (i.e., reracking and construction of an ISFSI) would require at least as many fuel transfers and thus cask movements in and/or around spent fuel pools as the action proposed here. (See Applicant Exhibits 30 at p. 3 and 31; Tr. 749-51 and 4761).

101/ The Licensing Board states that if such transshipments cannot be avoided "emphasis should be placed on using a physical barrier to positively prevent casks from dropping into the fuel pool." (I.D. at p. 85). However, there is no evidence in the record that a physical barrier will be effective in stopping a 25 ton shipping cask. However, there is evidence that a physical barrier may be a safety hazard in that it will restrict vision of crane operators. (Tr. 4319-20).

102/ As to the Licensing Board's lesser concern that notwithstanding a criticality event a "radioactive mess" would be created in an uncontained building, Applicant notes that the atmosphere of the building housing the spent fuel pool is controlled such that air flowing from the spent fuel pool area is extensively filtered prior to release. See McGuire FSAR §9.4.2.2 which is incorporated by reference in the Application. (Applicant's Exhibit 2 at p. 7.1). In any event, even with extremely conservative assumptions regarding occupational and population doses in such an event, applicable regulatory limits would not be exceeded. (Applicant Exhibit 33 and Staff Exhibit 42 and 43).

Applicant notes that for a hypothetical incident involving dropping of the 25 ton spent fuel cask there must first be a failure of the overhead crane supporting the cask. The crane's rated load capability is 125 tons and it is load tested at 125% of this rated load. (Tr. 4342). The crane is designed and constructed in accordance with strict specifications regarding allowable loads and stresses. (Id.). Neither Applicant nor Staff is aware of any instance when a cask has ever been dropped. (Tr. 4308 and 4342-3). In addition, the cask must be in a position such that if the crane failed the cask would strike the edge of the pit wall causing the cask to tumble toward the spent fuel pool wall. (Staff Exhibit 33 at p. 1; Tr. 4301-2). For the cask to be in such a position administrative controls and procedures regarding the exact travel path of the cask must be violated. (Staff Exhibit 33 at p. 2). In this regard, Applicant notes that such detailed, written procedures are audited for compliance and each crane operator receives training to assure compliance. (Tr. 4332-3). In addition, such violations of procedures must go unnoticed by the several personnel observing the crane operator's actions. (Tr. 4303). 103/

103/ In this regard Applicant notes that a movable handrail is located along the edge of the pit and serves to clearly define the limits of the cask travel path. (Tr. 4419-21). Thus, the crane operator and observers have a readily observable point of reference as to the relative location of the cask. (Tr. 4303). Further, the maximum speed that the cask can travel is 50 feet per minute. (Tr. 4311-2). At this speed, there would be sufficient time to take corrective action in the event of errors in cask movement.

With regard to such admininstrative controls the NRC Staff testified as follows:

> Additionally, the Applicant has proposed, and the Staff has accepted, administrative control procedures restricting the traveling path of the cask to insure that the cask will not fall into the spent fuel pool. These procedures will be incorporated into the Applicant's operating procedures and will be validated by NRC Inspection and Enforcement (I&E) personnel. We conclude that with the proposed administrative procedures established, the cask will not fall into the spent fuel pool when it breaks free during the postulated cask drop accidents. [NRC Staff Exhibit 33 at p. 2].

Applicant testified that based on extensive engineering analysis, even in the event of a cask tipping incident the cask would not fall into the spent fuel pool. (Applicant Exhibit 28; Tr. 4339-41). 104/

Regarding the possibility of criticality, Applicant and Staff testified that even pursuing the hypothetical assumption that a spent fuel cask fell into the spent fuel pool and impacted upon Oconee or McGuire spent fuel, the resultant k-effective, assuming worst case unrealistic structural

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104/ In an attempt to contradict Applicant's evidence, CESG presented evidence of the results of a limited study (CESG Exhibit 13) which based on preliminary calculations questioned whether a cask could tip so as to fall into the spent fuel pool. Cross-examination revealed extensive inaccuracies and erroneous calculations involving CESG testimony. (Tr. 4474-7, 4486-95). CESG also presented supplemental testimony regarding the results of a test involving an "accurate model of the cask, cask pit, and pit pool wall." (CESG Exhibit 15 at p. 1). Cross-examination, however, revealed significant inaccuracies so as to call the results of any such test into question. (Tr. 4877-4884). Accordingly, there is no credible evidence to support the Licensing Board's finding.

conditions, 105/ would be only 0.92 and 0.95, respectively, well below the value of 1.0 necessary to achieve criticality. (Applicant Exhibit 33 at pp. 5-6, Staff Exhibit 40 at Figure 1, and Tr. 4928). The Licensing Board, however, assumes that the spent fuel cask impacts upon fresh McGuire fuel resulting in a k-effective of 0.98. (I.D. at 83). The Licensing Board states that "regarding criticality it would be a close call in the case of the cask dropping on new fuel in storage." (I.D. at 85). Applicant notes that while the Staff performed a criticality calculation regarding fresh McGuire fuel, Applicant has testified that there will be no shipments of Oconee spent fuel to McGuire during periods of new fuel delivery or subsequent refuelings. (Tr. 4777).

105/ Applicant's analysis indicated that significant structural damage to the spent fuel racks and fuel assemblies would result from a hypothetical fall of the 25 ton cask into the McGuire spent fuel pool. (Applicant Exhibit 33 at p. 3). Any such structural damage to the fuel assemblies would result in a significant decrease in the actual value of k-effective. (Tr. 4953 and 4988 and Applicant Exhibit 30 at pp. 5-6). This decrease has been established by actual experiments. (Id.). However, for the purpose of achieving a bounding level of conservatism, both Applicant and Staff assumed that when the 25 ton cask impacted upon the racks in the pool the fuel assemblies simply repositioned themselves to a closely spaced configuration optimal for criticality without damage. (Tr. 4987-8, Applicant Exhibit 33 at pp. 5-6). If Applicant had assumed realistic fuel assembly damage the result would have been a sharp reduction in the calculated k-effective of 0.95 to an actual k-effective of 0.45. (Applicant Exhibit 33 at pp. 5-6).

Thus, the Licensing Board's concerns regarding fresh McGuire fuel are unwarranted. In any event, with respect to McGuire fresh fuel, the NRC Staff very conservatively calculated the k-effective associated with a cask drop on such fuel as 1.06. (Staff Exhibit 40 at Figure 2). However, taking into account the actual situation at the McGuire spent fuel pool (e.g., separation between fuel assemblies, actual enrichment percent of fresh fuel, angle iron separating assemblies, and burnable poisons) and considering a 2% factor for uncertainties, Staff calculations would result in a k-effective of 0.98. (Tr. 4943-4945).

To put such criticality figures in perspective, the Staff testified that a reactor completely shut down has a k-effective of approximately 0.94-0.95. (Tr. 4984). A k-effective of 0.98 is considered a safe value in that each succeeding generation of neutrons would be smaller and smaller. (Tr. 4946-4947). Further, as previously noted, the Staff testified that in the event of such an incident, in all probability, the fuel pins would be damaged and the lattice structure of the assemblies would be disrupted which would result in a significant decrease in k effective. (Tr. 4983). Thus, the Staff concluded that even if a cask fell into the McGuire spent fuel pool impacting McGuire

fresh fuel, it is highly unlikely (i.e., approximately 10 to the -7 or 10 to the -8) that criticality would be achieved. (Tr. 4987). 106/

The Licensing Board noted that for the purposes of calculations, both the Staff and Applicant assumed the boron concentration in the spent fuel pool to be 2000 parts per million ("ppm"), and if such concentration decreased by 100 ppm the results would be a corresponding increase in k-effective of approximately 1%. (I.D. at p. 84). Hypothetically, then, criticality could be achieved if there was a significant reduction in the boron concentration at the same time that the cask fell into the McGuire spent fuel pool, perfectly compacting spent fuel contained therein. However, Applicant's witness testified that the boron concentration in the spent fuel pool is governed by station limits set at 2000 ppm plus or minus 5 ppm. (Tr. 5082 and 5092). Further, surveillance requirements mandate that such concentrations be checked twice a week. (Tr. 5082). Applicant's witness testified that, during the operation of the Oconee Units, the boron concentration in the spent fuel pools has never been out of specification. (Tr. 5081). The McGuire spent

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106/ The NRC Staff testified that the highest value it associated with the theoretical cask drop accident, viz., k-effective of 0.98, is actually lower than the 0.99 NRC limit following a stuck reactor control rod. (Tr. 4984).

fuel pool is essentially the same as the Oconee spent fuel pool, and thus, similar results should be expected. (Tr. 5082). Applicant's witness also testified that the only method of lowering the boron concentration would be to dilute the spent fuel pool water with unborated water (i.e., increase the water level). (Tr. 5084). However, level alarms on the pool would alert the operator in the event of such an occurrence. (Tr. 5084-5). In conclusion, Applicant testified that an inadvertent decrease in the concentration of boron in the spent fuel pool was virtually impossible. (Tr. 5084-5). Staff testimony was consistent with this conclusion. (Tr. 4985). Thus, it is clear that the Licensing Board's conclusion, that maintenance of boron concentration is crucial to avoidance of criticality, while correct, is misleading in that it is virtually impossible to decrease such concentration.

In conclusion, Applicant submits that with regard to the CESG contention giving rise to this issue, consideration of the "cask tipping incident" has been adequate and that the preponderance of the evidence is clearly supportive of the position of the Applicant and NRC Staff. Further, Applicant maintains that the risk associated with the probability of a criticality event resulting from a cask

tipping incident is virtually non-existent and does not weigh against the proposed action. 107/

CONCLUSION

On the basis of the above, Applicant maintains that the excepted to Findings of Fact of the Licensing Board are unsupported by the record and should be reversed. Further, Applicant takes issue with the Licensing Board's Conclusion of Law. In this regard Applicant requests the Appeal Board to find that

1. The Licensing Board erred in concluding that "there is not a reasonable assurance that the activities authorized or encompassed by the license amendment can be conducted without endangering the health and safety of the public." (I.D. at p. 90) [Exception 64].

107/ In sum, for such an event to occur, the following unrealistic and inconceivable assumptions must be made:

(1) administrative procedures regarding cask movement are violated by the crane operator moving the fuel cask such that the cask is placed in a position where tipping is possible, (2) such actions are not discovered and rectified by the crane operator's supervisor or others observing the operation, (3) the cask is placed in a position where it could tip and the crane fails at the same instant, (4) the cask falls into the spent fuel pool, (5) the impact of the cask on spent fuel racks causes the fuel assemblies to move extremely close together without damaging such assemblies, and (6) the boron concentration in the spent fuel pool has significantly decreased without being noticed.

2. The Licensing Board erred in concluding that "the issuance of the license amendment could be inimical to the health and safety of the public." (I.D. at p. 90) [Exception 65].

3. The Licensing Board erred in concluding that issuance of the license amendment would significantly affect the quality of the human environment, and therefore preparation of an environmental impact statement is required. (I.D. at p. 91) [Exception 66].

4. The Licensing Board erred in concluding that "the Staff's Environmental Impact Appraisal and Negative Declaration are improperly segmented and unduly limited in scope, inadequate in the consideration of reasonably predictable environmental impacts, and fail to properly evaluate and give weight to preferable alternatives, as required by NEPA and the Commission's Regulations." (I.D. at p. 91) [Exception 67].

5. The Licensing Board erred in finding that the "appropriate course of action from an environmental and safety standpoint is the denial of the requested license amendment." (I.D. at p.. 91) [Exception 68].

Applicant maintains that a remand is unnecessary; rather, the existing record is sufficient to enable the

Appeal Board to take the action requested, viz., reversal of the excepted to findings and conclusions of the Licensing Board. 108/

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108/ Applicant is cognizant of the Appeal Board's notice to the Bar that, with regard to the length of an appellate brief, great effort should be taken to limit such to 70 pages. Public Service Company of Oklahoma et al. (Black Fox Station, Units 1 and 2), ALAB-498, 8 NRC 315, 316 (1978). Applicant has diligently attempted to conform to this notice, however, given the nature of the Licensing Board's Initial Decision, the length thereof and the numerous issues raised therein, Applicant has found it necessary to file a brief in excess of 70 pages. Applicant respectfully requests the Appeal Board's indulgence in this regard and trusts the length of the brief will be offset by the assistance it provides the Appeal Board in resolving the issues at hand.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
DUKE POWER COMPANY	)	
	)	Docket No. 70-2623
(Amendment to Materials License SNM-1773 for Oconee Nuclear Station Spent Fuel Transportation and Storage at McGuire Nuclear Station)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicant's Brief in Support of Exceptions" dated December 10, 1980, in the captioned matter have been served upon the following by deposit in the United States mail this 10th day of December, 1980.

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