UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ILLINOIS POWER COMPANY, et al.	)	Docket No. 50-461 OL
	)	
(Clinton Power Station, Unit 1)	)	

AFFIDAVIT OF MICHAEL E. WANGLER
CONCERNING CONTENTION V(b)

I, Michael E. Wangler, being duly sworn, do depose and state as follows:

1. I am employed as a health physicist by the United States Nuclear Regulatory Commission in the Division of Systems Integration, Radiological Assessment Branch. A copy of my professional qualifications is attached.

2. I wrote the section dealing with radiological impacts from routine operations in the Final Environmental Statement (FES) for the Clinton Power Station, Unit No. 1.

3. The purpose of my affidavit is to address the matter raised in Contention V(b) in this proceeding which states:

> The effects of the low-level radiation to be released from Clinton Unit 1 has not been adequately assessed and considered in the following respects: the residual risks of low-level radiation which will result from the release of radionuclides from Clinton Unit 1 have not been, but should be, adequately assessed and factored into the NEPA cost-benefit analysis for Clinton Unit 1.

4. The Staff has assessed and included in its cost-benefit analysis the incremental risks associated with the impacts and dose commitments to

the public from liquid and gaseous releases from Clinton Unit 1. These incremental risks are those which are attributable solely to the operation of the plant, over and above the risk associated with natural background radioactivity and other environmental factors.

5. In Section 5.9.3 and associated Appendices C & D of the Clinton FES (NUREG-0854) these incremental risks are discussed. Radiation doses due to liquid and gaseous effluents from Clinton are assessed for the population residing within 50 miles of the plant. In addition radiation doses due to gaseous effluents from Clinton are assessed for the rest of the U.S. population.

6. Estimates of dose commitments were calculated and presented in Appendix C of the FES. Total body doses for the U.S. population are not expected to exceed 0.04 person-rems from liquid effluents and 27 person-rems from gaseous effluents. For the population within 50 miles of the plant, total body doses are not expected to exceed 0.04 person-rems from liquid effluents and 0.89 person-rems from gaseous effluents.

7. These doses were used to determine the incremental risk of releases of radioactive materials. In estimating the incremental risk, risk estimates based on BEIR I models[1/] were used. Values of 135 potential cancer deaths per million person-rems and 258 potential cases of all forms of genetic disorders per million person-rems were used as risk estimators.

1/ "The Effects on Populations of Exposure to Low Levels of Ionizing Radiation" (BEIR I), Advisory Committee on the Biological Effects of Ionizing Radiations, National Academy of Sciences/National Research Council, November 1972. A risk estimator is an empirically determined value for estimating the number of cancers or genetic effects for a given amount of radiation.

8. Accordingly, for the U.S. population the estimated number of expected cancer deaths is 0.004 and the estimated number of genetic disorders is 0.008 due to annual effluent releases at Clinton Unit 1. This is the incremental risk over and above the risk associated with natural background radiation of 3510 cancer deaths and 6708 genetic disorders per year.

9. For the population within 50 miles of the plant, the incremental risk resulting from annual effluent releases at Clinton Unit 1 is 0.00013 cancer deaths and 0.00025 genetic disorders per year, over and above the 12.8 cancer deaths and 24.4 genetic disorders to be expected as a result of exposure to natural background radiation.

10. Thus, it is concluded that the incremental risk to the public health and safety from exposure to radiation released in the normal operation of Clinton Unit 1 will be very small. Additionally, because of the small risk involved, it is also concluded that the costs associated with adverse radiological health effects will also be small, as indicated in Table 6.1 in the Clinton FES.

I attest that the foregoing affidavit is true and correct to the best of my knowledge and belief.

Michael E. Wangler

Subscribed and sworn to before me
this 16 day of December 1982

Notary Public

My commission expires: 7/1/86

Michael E. Wangler

Professional Qualifications

Radiological Assessment Branch

Division of Systems Integration

My name is Michael E. Wangler, I am a health physicist employed by the Radiological Assessment Branch in the Office of Nuclear Reactor Regulation. I am responsible for reviewing and evaluating the radiological impacts on the environment from proposed and existing nuclear power plants.

I received a B.A. degree in Physics from University of Dallas in 1969, and a M.S. degree in physics from University of Massachusetts at Amherst in 1971.

I have had over 10 years of professional experience in health physics. From 1971 to 1973 I was employed as a technical assistant to the Radiation Safety officer at the University of Massachusetts at Amherst where my principal duty was to ensure that the campus radioisosotope users complied with University and federal standards for radiation safety. In that capacity I performed routine surveys of user facilities and conducted periodic training sessions for users. In addition, I monitored environmental radiation in and evaluated the impact on the environs near the Vermont Yankee reactor site at Vernon, VT.

For the period 1973 to 1979 I was employed as a Radiological Health Specialist for the New York State Department of Health. My principal duties were in the radiation equipment control program where I investigated radiation exposure to workers and the public, consulted with county health organizations in radiological health matters, and inspected facilities using radiation equipment and radioactive materials.

In 1979 I accepted a position with the U.S. Nuclear Regulatory Commission in the Office of Standards Development where my principal duties included developing rules and guides in the safe handling and use of medical, industrial, and consumer products, and managing technical contracts and performing risk analyses in these areas. In January of 1982 I joined the staff of the Radiological Assessment Branch where I have had responsibilities in dose assessment calculations, analysis of radiological impacts of both operating and proposed nuclear power plants on the environment, assessment of radiation exposure consequences of accidents at operating reactors, and development of a dose assessment system for radiological emergency conditions.

I am a member of the Health Physics Society.

Cite as 8 NRC 102 (1978) LBP-78-26

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD —

Sheldon J. Wolfe, Esq., Chairman
Dr. Paul W. Purdom
Frederick J. Shon

In the Matter of

PUBLIC SERVICE COMPANY
OF OKLAHOMA
ASSOCIATED ELECTRIC
COOPERATIVE, INC.
WESTERN FARMERS ELECTRIC
COOPERATIVE, INC.

(Black Fox Station, Units 1 and 2)

Docket Nos. STN 50-556
STN 50-557

July 24, 1978

Upon consideration of relevant environmental and site suitability issues, the Licensing Board authorizes the Director of Nuclear Reactor Regulation to issue a limited work authorization for the subject units, subject to certain conditions.

LIMITED WORK AUTHORIZATION: REQUIRED DETERMINATIONS

Applicants are not required to have every permit in hand before a Limited Work Authorization is authorized.

ATOMIC ENERGY ACT: APPENDIX I

Compliance with Appendix I is *not* tantamount to full consideration of the genetic and somatic effects of radioactive discharges from the plant. Despite such compliance, a licensing board may review such effects.

NEPA: RULE OF REASON

The National Environmental Policy Act requires that a Federal agency make a "good faith" effort to predict reasonably foreseeable environmental impacts (*Scientists' Institute For Public Information, Inc.* v. *AEC*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)), and that the agency apply a "rule o

reason" after taking a "hard look" at potential environmental impacts (*Sierra Club* v. *Morton*, 458 F.2d 827, 834, 838 (D.C. Cir. 1972)). But an agency need not have complete information on all issues before proceeding (*Alaska* v. *Andrus*, 11 ERC 1321, 1327 (D.C. Cir. 1978)).

NEPA: CONSIDERATION OF ALTERNATIVES

Unless a proposed nuclear unit has environmental disadvantages when compared to alternatives, differences in financial cost are of little concern. *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-458, 7 NRC 155 (1978).

TECHNICAL ISSUES DISCUSSED: Site suitability; seismic design criteria; probability of postulated barge explosion in river; transportation of nuclear material; capacity factor and plant lifetime; construction effects; condenser cooling system effects; effects of spoils from dredging on river during flood conditions; air quality; radon-222; release of radioactive materials in effluents to unrestricted areas; population health surveys; radiological and bioaccumulation monitoring; occupational radiation exposures; need for power; alternatives; efficiency of utilization of uranium fuel; uranium availability and fuel costs.

PARTIAL INITIAL DECISION AUTHORIZING LIMITED WORK AUTHORIZATION*

Appearances

Michael I. Miller, Esq., and **Paul M. Murphy, Esq.**, of Isham, Lincoln & Beale, One First National Plaza, Suite 4200, Chicago, Illinois 60603 and **Charles Crane, Esq.**, Public Services Company of Oklahoma, for the Applicants, Public Service Company of Oklahoma, Associated Electric Cooperative, Inc., and Western Farmers Electric Cooperative, Inc.

Andrew T. Dalton, Jr., Esq., 1437 South Main Street, Tulsa, Oklahoma 74119 for the Intervenors, Ilene Younghein, Lawrence Burrell, and Citizens' Action for Safe Energy

L. Dow Davis, Esq., and **William Paton, Esq.**, Office of the Executive Legal Director, U. S. Nuclear Regulatory Commission, Washington, D.C. 20555

*Portions of this Initial Decision were the subject of an "Order Granting Applicants' Motion for Reconsideration and Clarification" of August 24, 1978, LBP-78-28, 8 NRC _____.

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I. PRELIMINARY STATEMENT OF UNCONTESTED FACTS

On January 23, 1976, the Nuclear Regulatory Commission (NRC) issued a Notice of Hearing on Application for Construction Permits which was published on that date in the FEDERAL REGISTER (41 Fed. Reg. 3515) concerning the application filed by Public Service Company of Oklahoma

leaching (Tr. at 4144-4145). This process is one in which uranium is leached directly from the ore body and brought to the surface as a solution. Thus no large tailings pile is created, and radon emissions from the mining and milling phases are greatly reduced (Wilde, Tr. 3810-3811, 3858-3859). While this is a practice that may reduce the radon impacts, we note that the present commitment covers only about ten percent of the lifetime fuel requirement for Black Fox (Zink, Tr. 4146), and accordingly we cannot give the information any great weight in this decision.

125. After careful consideration of all the evidence, we find that the environmental impact of radon-222 emissions is negligibly small and has no effect on the environmental cost-benefit balance. Further, we see no reason to believe that consideration of radon-222 would change the conclusions in the FES (Staff Ex. 1) to the effect that the adverse health effects of an alternative coal-fired plant would be greater than those of the proposed nuclear station.

2. Somatic and Genetic Effects

Contention 36:

Intervenors contend that the Applicants and Regulatory Staff have not adequately assessed the somatic and genetic effects of the low level gaseous and liquid radioactive discharges which will result from the normal operation of Black Fox 1 and 2 on humans, including but not limited to, persons engaged in shipping operations on the McClellan-Kerr Navigation Channel, as well as the plants, fish, waterfowl, and wildlife.

126. Applicants have argued in several submissions that this contention constitutes an inadmissible challenge to 10 CFR Part 50, Appendix I (Applicants' Motion for Summary Disposition on the Pleadings (Environmental); Applicants' Proposed Findings; Applicants' Brief in Support of Proposed Findings). Their position is that once compliance with Appendix I is established, this Board, in making its cost-benefit analysis, is precluded from considering somatic and genetic effects of radioactive discharges because the Environmental Impact Statement that accompanied RM 50-2 (the rulemaking hearing that produced Appendix I) looked into these effects and established them for all time. They also argue that the following decisions of the Commission and the Appeal Board preclude our consideration of these effects and limit our consideration of residual environmental impacts to consideration of the radiological doses themselves, regardless of whether later data may show some change in the health effects

of those doses—*Maine Yankee Atomic Power Company* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1012 (1973), remanded on other grounds, CLI-74-2, 7 AEC 2 (1974); *further statement of Appeal Board views*, ALAB-175, 7 AEC 62 (174), *aff'd sub. nom. Citizens for Safe Power* v. *NRC*, 524 F.2d 1291, 1301 (D.C. Cir. 1975); *Tennessee Valley Authority* (Hartsville Nuclear Plant), ALAB-367, 5 NRC 92, 103, n. 52 (1977).

127. The Staff has asserted that compliance with Appendix I is not tantamount to full consideration of the genetic and somatic effects of radioactive discharges from the plant.

128. We denied Applicants' Motion for Summary Disposition for the reasons set forth in our Order of July 20, 1977, 6 NRC 167 (1977). We have read the cases currently cited and see no reason to disturb our previous ruling. In the *Hartsville* case, in fact, we note that the Appeal Board said that, where a coal plant would be a viable alternative, an explicit statement of the risk of diseases and genetic effects is "imperative." Nowhere did the Appeal Board suggest that the existence of Appendix I precludes review of these effects.

129. Intervenors presented Dr. Rosalie Bertell (Intervenors' Exhibit 1). The Staff presented Dr. Marvin Goldman (written testimony, pp. 1-10, fol. Tr. 1022). Applicants presented Dr. G. Hoyt Whipple (Tr. 1215, *et seq.*).

130. There was no dispute over the fact that the Black Fox Station will comply with Appendix I to 10 CFR Part 50. Nor did Intervenors' witness have any opinion contradicting the technique used to estimate emission rates for radionuclides, transport of radionuclides, or doses due to radionuclides emitted by the plant. The chief disagreement between the Staff's witness and the Intervenors' witness centered about the health effects expected from the doses which were predicted (Bertell, Tr. 820, 821).

131. Dr. Goldman assessed the somatic effects of proposed releases from Black Fox in terms of the increase over natural radioactive background and the possibility of an altered cancer rate as a result. He dealt with statistics applicable to the one million people who reside within about 50 miles of the plant (Goldman, p. 3). He noted that there would be about 1,704 cancer deaths per year expected in this population, that current estimates of cancers caused by radiation would suggest the approximately 100,000 man-rem[14] per year which this population receives from the natural background radiation is responsible for about ten of these deaths, and that Black Fox, which he assumed would add about 2[15] man-rem to this

[14]For a definition of "man-rem" see footnote 2 to Summary Table S-4, 10 CFR Part 51.

[15]The Board notes that the FES suggests the value for the population dose within 50 miles

(Continued on next page.)

burden, would result in about 0.0002 additional deaths, thus yielding a total of 1704.0002 (Goldman, p. 4). He also stated that recent data lead him to believe that even this estimate is too high (Goldman, pp. 4, 5).

132. Dr. Bertell testified that the diseases associated with exposures to ionizing radiation were diseases associated with old age and lowered immunocompetency, that this affected the ability of an exposed person to cope with other environmental hazards, and that the effects of ionizing radiation can be statistically accounted for by an upward shift in age proportional to exposure (Intervenors' Exhibit 1 at p. 8). She made no quantitative estimates of the increase in cancer incidence due to Black Fox Station effluents, but did append to her testimony two tables prepared by others purporting to show that accepted estimates of risk for given radiation levels were low, perhaps by a factor of more than ten (Intervenors' Exhibit 1 at p. 7). Her own work, primarily a statistical analysis of epidemiological data, suggested to her that there might be a small group of very radiation-sensitive people, and that, for very low doses, the effects might be much larger than would be assumed by extrapolation from high dose levels (Tr. 823-829). Again she gave no quantitative values for this increase. We note, however, that when pressed for quantitative estimates and led through such a calculation under cross-examination, she agreed to values that were, if anything, slightly smaller than those computed by the Staff's witness for expected cancer-related mortality due to Black Fox (Tr. 852-853; 858-859).

133. Applicants' witness, Dr. Whipple, testified that the risk coefficients used in Dr. Goldman's analysis were such as to overestimate the adverse effects caused by the plant (Tr. 1221). He alleged that these effects would be so small that to detect them in a systematized statistical survey of population health would require that one study the health records over thousands of years (Tr. 1225).

134. The Board has considered all the testimony presented and the qualifications of the witnesses. Dr. Goldman is Director of the Radiobiology Laboratory of the University of California at Davis; Dr. Whipple is a Professor of Radiological Health at the University of Michigan. Dr. Bertell's degree is in mathematics, and although without formal medical qualification, she has worked "in a medical community" (Tr. 818). She appears not to be familiar with nuclear reactors and their effluents (Tr. 768, 770, 884). Further Dr. Bertell's views seem, at present, so unquantified as to be of limited use in constructing a cost-benefit analysis, and when quantification is attempted, her views do not seem to yield data that suggest the other witnesses' estimates are far too small.

(Continued from previous page.)

would be 12 man-rem (FES Table 5.9 at p. 5-23). Even at this level the change would only be from 1,704 to 1704.0011.

135. We have also considered the absolute size of the estimated effects. Even were the estimates too low by a factor of ten or more, as the tables in Dr. Bertell's testimony might be taken to imply, the somatic effects would be miniscule. Health effects would not only be an indistinguishably small fraction of those occurring without the plant, they would be a small fraction of those anticipated from the coal alternative (*cf* FES Table 9.12 at 9-15). We see no reason to believe that these effects tip the environmental balance against the plant, or that they would support selection of a coal alternative.

136. The Staff's witness, Dr. Goldman, assessed the genetic effects of radioeffluents from Black Fox. He computed that, at Appendix I limits, the normal mutation rate of 52,000 per million live births would be raised to 52,006 (Goldman, p. 7) in the first generation. He also calculated the risk of genetic effects on plant personnel, who, the Staff calculates, may receive as much as 500 man-rem per year at each unit (FES at p. 5-21). He assumed that the 1,000 man-rem is a total body dose and that only one parent is occupationally exposed. He found that the genetic frequency would be raised above spontaneous effects by one one-thousandth (Goldman, pp. 7, 8).

137. Dr. Bertell asserted that there existed an increased risk of certain diseases for offspring of persons who had x-ray exposure (Tr. 829, 830) where such exposure was enough to deliver several tens of millirads to bone marrow (Tr. 830). She asserted that this genetic effect would cause this increased risk in "a small one percent" of the next generation (Tr. 829). She made no further attempt to quantify the risk.

138. As with the somatic effects, we observe that, while Dr. Bertell and Dr. Goldman may differ in theory the practical effect of their difference is not large, and any assessment of expertise must weigh in Dr. Goldman's favor.

139. We see no reason why the genetic effects anticipated should weigh strongly against Black Fox either in the environmental balance or in the comparison with alternatives.[16]

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[16]Although the matter is not directly mentioned in Contention 36, Intervenors' witness Dr. Bertell, made extensive reference to her belief that a health monitoring program was necessary in the population surrounding Black Fox to detect possible radiological health effects (Intervenors' Exhibit 1 at pp. 10-12; Tr. 879-880). The Board felt this matter might bear upon health effects in the cost-benefit analysis and admitted the testimony over Applicants' objection (Tr. at 897-898). Dr. Goldman also addressed this matter (Tr. 1102-1185), as did Dr. Whipple (Tr. 1223-1226).

Because of the latency period inherent in many health effects, and because of the total amount of data which must be gathered to establish the existence of such effects, the response time of such a system is long. Dr. Whipple thought the studies would require thousands of years (Tr. 1225). He felt that the matching of proper sets of control individuals would be im-

(Continued on next page.)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman
Dr. W. Reed Johnson[1]

In the Matter of

PUBLIC SERVICE COMPANY OF OKLAHOMA, et al. **Docket Nos. STN-50-556 STN 50-557**

(Black Fox Station, Units 1 and 2) **December 7, 1979**

The Appeal Board affirms the Licensing Board's decision in LBP-78-26, 8 NRC 102 (1978), *modified* LBP-78-28, 8 NRC 281 (1978), authorizing the issuance of a limited work authorization (except for a retained issue involving the environmental effects of radon emissions attributable to the mining and milling of uranium fuel for nuclear power reactors). The Appeal Board (1) certifies to the Commission the question of the role of Appendix I to 10 CFR Part 50 in individual licensing proceedings; and (2) directs the staff to apprise the Commission whether it believes "Class 9" accidents should be considered in this case.

LWA: REQUIRED DETERMINATIONS

Before an LWA may be authorized, a licensing board must first determine whether there has been compliance with the requirements of section 102(2)(A), (C), and (E) of NEPA. 10 CFR 50.10(e)(2) and 51.52 (c)(1).

NEPA: RULE OF REASON

Section 102 of NEPA requires that agencies explore the environmental ramifications of their proposed actions to the fullest extent possible. The "rule of reason" standard for judging compliance with this requirement is not limited in its application to evaluating alternatives; it applies to the entire NEPA evaluation process. *NRDC* v. *Morton*, 458 F.2d 827, 834 (D.C. Cir. 1972).

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[1] The third member of the board, Mr. Jerome E. Sharfman, resigned from the panel subsequent to oral argument and did not participate in this decision.

intelligently. Disregarding similarly vague contentions in an appellant's brief, the Court of Appeals for the Seventh Circuit cogently observed that "[i]t is impossible for a [tribunal] to consider general allegations such as these." *United States Steel Corp.* v. *Train, supra,* 556 F.2d at 837.[48] We have no choice but to follow that course here. Because inadequate briefing has made their arguments "impossible of resolution," we dismiss intervenors' exceptions on this point.

6. Health Effects of Low Level Emissions. Light-water-cooled nuclear power reactors like Black Fox must be designed and built so that during normal operation the release of radioactive effluents is "as low as is reasonably achievable." 10 CFR 50.34a. That standard is explained and quantified in Commission guidelines published as Appendix I to 10 CFR Part 50.[49] Applications to construct a plant of this type must describe the equipment to be installed to control radioactive effluents and identify the design objectives and the means to be employed to meet the standards. *Ibid.* In addition, section I of Appendix I provides that nuclear power reactor "[d]esign objectives and limiting conditions for operation conforming to the guidelines of this Appendix shall be deemed a conclusive showing of compliance with the 'as low as is reasonably achievable' requirements of 10 CFR 50.34a . . . ." Where it applies, Appendix I is a binding Commission regulation notwithstanding its denomination as an appendix.[50]

(a) In the hearing below, intervenors challenged the representation that Black Fox would comply with the requirements of Appendix I (Contention 11). Intervenors also asserted that neither the applicants nor the staff had adequately assessed the somatic and genetic effects of low-level gaseous and liquid radioactive discharges expected to be emitted during normal operation of the nuclear plant (Contention 36).

With the staff's backing, the applicants moved for summary disposition of Contention 11. The motion was supported with affidavits evidencing compliance with Appendix I.[51] The Board granted it on the ground that intervenors' response failed to raise a genuine issue of material fact for trial on this contention.[52]

Applicants also sought summary disposition of Contention 36. They pointed out that the Commission itself had determined the somatic and

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[48] *Accord, Duke Power Company* (Catawba Station, Units 1 and 2), ALAB-355, 4 NRC 397, 413-14 (1976) and cases there cited.

[49] Hereinafter cited as Appendix I.

[50] *Rulemaking Hearing* (Docket No. RM-50-2), CLI-75-5, 1 NRC 277, 328 (1975).

[51] Commission Rules of Practice governing motions for summary disposition, 10 CFR Section 2.749, are modelled on Rule 56 of the Federal Rules of Civil Procedure (summary judgment).

[52] LBP-77-46, 6 NRC 167, 168-69 (1977) (rulings on summary disposition motions).

genetic consequences of low-level emissions in the ru emaking proceeding that led to its promulgation of Appendix I.[53] From this premise they reasoned that once compliance with that Appendix had been demonstrated, no occasion remained to litigate the nature and extent of health effects resulting from emissions at those levels. The applicants acknowledged that the impact of anticipated health effects must be factored into the NEPA cost/benefit balance for the plant. However, they insisted that the Commission's determinations should be used for that purpose. The applicants told the Board that those determinations form an integral part of Appendix I and that the proposed reconsideration of them would challenge the validity of the Appendix in violation of 10 CFR 2.758(a), the rule prohibiting attacks on Commission regulations in individual licensing proceedings.[54]

The other parties opposed applicants' motion for summary disposition of Contention 36 as resting on a misconception of Appendix I. The Licensing Board agreed and denied the motion.[55] Instead, it heard witnesses, took evidence and made its own determination of the health and environmental consequences of routine low-level emissions. Finding those releases so small that any adverse health effects (if detectable at all) would be miniscule and substantially less than would be created by the alternative of a coal-fired plant of comparable size, the Board concluded that these health effects would not "weigh strongly against Black Fox either in the environmental balance or in the comparison with alternatives." 8 NRC at 147.

(b) Intervenors excepted to the Licensing Board's rulings on both contentions. With respect to Contention II (compliance with Appendix I), their brief is mainly devoted to a generalized discussion of the legal standards applicable to summary disposition motions. But intervenors do not specify how the Board departed from those standards. Neither do they point to evidence suggesting the existence of a genuine issue of material fact that should have caused the Board to deny the motion.[56] As in judicial proceedings, there is no occasion to conduct a trial in these circumstances.[57]

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[53] Docket No. RM-50-2, *supra*, fn. 50.

[54] 10 CFR 2.758(a) provides in pertinent part that "any rule or regulation of the Commission, or any provision thereof, issued in its program for the licensing and regulation of production and utilization facilities, . . . shall not be subject to attack by way of discovery, proof, argument or other means in any adjudicatory proceeding involving initial licensing . . .."

[55] 6 NRC at 169-70.

[56] Intervenors' argument that the applicants' affidavits were insufficient because based only "on information and belief" is not well taken. It is clear from examining those documents that each affiant was "competent to testify about the matters stated therein" as contemplated by the summary disposition rule, 10 CFR 2.749(b).

[57] We have, nevertheless, reviewed the record on our own initiative for compliance with Appendix I and we are satisfied that this has been established.

Summary disposition of the contention was therefore appropriate.[58]

Intervenors make even less of an attempt to persuade us that the Licensing Board erred in ruling that the health effects of routine emissions would be negligible. The decision below explains the basis for that ruling at some length. Intervenors's exceptions challenge virtually all the Board's findings on the point. Nevertheless, here, as elsewhere, they simply fail to "flesh out the bare bones of their exceptions" with information and discussion adequate to allow an intelligent disposition of their arguments.[59] Notwithstanding the lack of assistance from intervenors, we have explored the basis for these findings on our own initiative. For purposes of deciding this appeal, we think it sufficient to state that the findings reflect the record made before the Board and we perceive no reasons to disturb its conclusions based upon that record.

(c) As we noted, the Licensing Board disagreed with the applicants' interpretation of Appendix I and made a *de novo* determination of the health effects of low level emissions—albeit reaching a result in the applicants' favor. The applicants, however, were not satisfied; they would prefer to have the point resolved on their own theory. Applicants therefore excepted to the ruling in order to seek our review not of the result but of the rationale employed in reaching it.

The intervenors responded, "The short answer to Applicants' position is that, having won the ultimate issue, they are not an aggrieved party." The staff agrees with the intervenors that the applicants as the prevailing party may not appeal from a ruling in their favor, citing, *inter alia*, our decision in *Public Service Company of Indiana* (Marble Hill Station, Units 1 and 2), ALAB-459, 7 NRC 179, 202 (1978).

It is correct that parties satisfied with the result on an issue may not themselves appeal. But if the other side appeals they are free to defend a result in their favor on any ground presented in the record, including one rejected below. *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-282, 2 NRC 9, 10 fn. 1 (1975); *Niagara Mohawk Power Corp.* (Nine Mile Station, Unit 2), ALAB-264, 1 NRC 347, 357 (1975). The role of Appendix I

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[58] Intervenors also object to the Licensing Board's summary disposition of a number of other unspecified contentions. We affirm the Board's actions for the same reasons we have approve its disposition of Contention II.

[59] See, *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-270, 1 NRC 473, 475 (1975). By way of illustration, the Board found the health effects of low level emissions from normal operation of Black Fox to amount to no more than "an indistinguishably small fraction of those occurring without the plant." The finding was made in the course of an extensive exploration of the subject with appropriate citations to the record, including testimony of two indisputably qualified medical radiobiologists with broad research experience in this area. 8 NRC 145-147. In the face of this, intervenors assert without supporting references or further elucidation that "[t]here is ample evidence that low levels of radiation cause and contribute to adverse health effects now and for future generations." (Brief at 38-39.) An *ipse dixit* is no substitute for reasoned discourse based on the record of the case.

was litigated in this case and the intervenors as well as the applicants excepted to the Licensing Board's decision on the effects of routine low-level emissions. The applicants consequently may defend the result by renewing on appeal their arguments about the intendment of Appendix I.

We therefore may reach the question and Dr. Johnson would do so. For reasons explained in his concurring opinion (pp. 808 *ff. infra*), he would basically adopt the applicants' interpretation of Appendix I. Mr. Salzman, however, is not of like mind. Without rehearsing all the counter arguments here, he notes that the staff marshalled substantial reasons why the Appendix I guidelines should not be understood to bar the litigation in individual licensing cases of the anticipated health effects of routine emissions. Because an alternate ground of decision requires affirmance of the ruling below on this point in any event (see pp. 788-789 *supra*), it is unnecessary to construe Appendix I in this appeal; Mr. Salzman believes it the wiser course to refrain from doing so.

The Appendix I issue accordingly is not decided by this Board. However, whether to proceed by generic rule applicable to all power reactors or to allow case-by-case adjudication of the health effects of routine low-level emissions is a policy judgment.[60] In our view, it is a significant one for the conduct of future proceedings and one that will undoubtedly recur unless it is authoritatively resolved. These circumstances make its certification in order under 10 CFR 2.785(d))[61] and we submit the following question to the Commission:

> Where routine radioactive emissions from a nuclear power plant will be kept 'as low as is reasonably achievable' in accordance with Appendix I, is litigation of the health effects of those emissions in an adjudicatory proceeding involving initial licensing barred by 10 CFR 2.758 as an impermissible attack on Commission regulations?[62]

7. Consideration of "Class 9 Accidents.

With our permission,[63] intervenors filed a supplemental brief raising as an additional ground for reversal the Licensing Board's failure to consider the

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[60] *Cf., Offshore Power Systems* (Floating Nuclear Plants), CLI-79-9, 10 NRC 260 (September 14, 1979).

[61] 10 CFR 2.785(d) provides that an "Appeal Board may, either in its discretion or on direction of the Commission, certify to the Commission for its determination major or novel questions of policy, law or procedure." *See, Offshore Power Systems* (Floating Nuclear Plants), ALAB-500, 8 NRC 323, 324-25 (1978), *on certification*, CLI-79-9, 10 NRC 257 (see fn. 60, *supra*).

[62] 10 CFR 2.758(a) provides in pertinent part that, with exceptions not applicable to this case, "any rule or regulation of the Commission, or any provision thereof, issued in its program for the licensing and regulation of production and utilization facilities . . . shall not be subject to attach by way of discovery, proof, argument, or other means in any adjudicatory proceeding involving initial licensing subject to this subpart . . .." Appendix I is a binding Commission regulation where it applies. See fn. 50, *supra*.

[63] App. Bd. Tr. 136.

Cite as 12 NRC 264 (1980) CLI-80-31

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS

John F. Ahearne, Chairman
Victor Gilinsky
Joseph M. Hendrie
Peter A. Bradford

In the Matter of **Docket No. 50-556**
50-557

PUBLIC SERVICE COMPANY OF OKLAHOMA
(Black Fox Station, Units 1 and 2)

September 22, 1980

Upon consideration of a certified question raised in ALAB-573, 10 NRC 775, 790 (1979), the Commission holds that the health effects associated with routine radioactive emissions from a nuclear power plant in compliance with the design objectives of 10 CFR Part 50, Appendix I may be litigated in individual licensing proceedings.

NEPA: AGENCY RESPONSIBILITIES

The National Environmental Policy Act, which mandates that federal agencies study the environmental consequences of major federal actions to the fullest extent possible, is an essential element of an agency's decision-making process. It "places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action." *Vermont Yankee Nuclear Power Corp.* v. *NRDC,* 435 U.S. 519, 553 (1978).

NEPA: ENVIRONMENTAL IMPACT STATEMENT

The environmental impact statement required by Section 102(2)(C) of NEPA does not simply accompany an agency recommendation for action in the sense of having some independent significance in isolation from the deliberative process; rather, it is an integral part of the Commission's

decision and forms a vital part of the decisional record, such that in a licensing proceeding, the agency's decision would be fundamentally flawed without it. *Calvert Cliffs' Coordinating Committee, Inc.* v. *AEC*, 449 F.2d 1109 (D.C. Cir. 1971).

RULES OF PRACTICE: OFFICIAL NOTICE (RECORD OF RULEMAKING)

Licensing Boards may take official notice of the environmental record compiled in the 10 CFR Part 50, Appendix I rulemaking in reaching conclusions as to the health effects from releases within Appendix I, but compliance with that Appendix does not conclusively establish the insignificance of the associated health effects.

TECHNICAL ISSUES DISCUSSED:

Radioactivity releases; as low as reasonably achievable (ALARA); 10 CFR Part 50, Appendix I.

MEMORANDUM ON CERTIFIED QUESTION

The Atomic Safety and Licensing Appeal Board in ALAB-573 certified to the Commission for its consideration the question:

> Where routine radioactive emissions from a nuclear power plant will be kept "as low as is reasonably achievable" in accordance with 10 CFR Part 50, App. I, is litigation of the health effects of those emissions in an adjudicatory proceeding involving initial licensing barred by 10 CFR 2.758 as an impermissible attack on Commission regulations? *Public Service Company of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-575, 10 NRC 775, 790 (1979).

On February 21, 1980, the Commission accepted the certified question because it raised important legal and policy considerations with respect to every NRC adjudication. The parties to the proceeding were directed to file written views on the question. The Commission has before it the views of the NRC staff, the Public Service Company of Oklahoma, the Intervenors, and the Texas Utilities Generating Company, which was permitted to file a brief *amicus curiae*. [1] The matter before the Commission essentially involves

[1] The views of the participants are contained in the following documents:
NRC Staff Brief on Certified Appendix I Issue (Apr. 7, 1980) [hereinafter Staff Brief];
Memorandum Setting Forth the Views of Public Service Company of Oklahoma, et al., on the Question Certified in ALAB-573 (Apr. 7, 1980) [hereinafter Public Service Company Memorandum];

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a determination whether, in promulgating 10 CFR Part 50, Appendix I, the Commission intended that if a utility complies with the design objectives for effluent systems as described by that rule, the health effects of emissions from plants in compliance should be deemed insignificant for purposes of striking the environmental cost-benefit analysis. If the Commission did so intend, then it now must determine whether such compliance may nevertheless be subject to adjudication or whether adjudication should be barred as an impermissible attack on the rule under 10 CFR 2.758.

Resolution of this question, thus, requires identification of the Commission's intent regarding the promulgation of Appendix I and a policy judgment about the continuing validity of an environmental record compiled seven years ago. As described more fully below, the Commission holds that the environmental health effects associated with compliance with Appendix I design objectives for effluent releases may be litigated in licensing proceedings.

I. Background

In 1975, the Commission concluded a rulemaking proceeding intended to quantify design objectives and limiting conditions for operation for the release of radioactive material in light-water-cooled nuclear power reactor effluents.[2] In this proceeding (hereinafter referred to as the Appendix I rulemaking proceeding), the Commission adopted quantitative guidelines to assure compliance with the "as low as practicable" (ALAP) requirements of 10 CFR 50.34a and 50.36a "by (1) defining design objectives for, and establishing limiting conditions for operation of, light-water-cooled power reactors to limit radiation doses or dose commitments to individuals in unrestricted areas from (a) liquid effluents, (b) gaseous effluents, and (c) radioactive iodine and particulate emissions, and by (2) imposing a requirement that radwaste systems include all items of reasonably demonstrated technology that, with a favorable cost-benefit ratio, can effect a

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Statement of Intervenors Concerning Certified Issue Relating to Appendix I, 10 CFR 50 (Apr. 1, 1980) [hereinafter Intervenors' Statement]. Intervenors include Ilene Younghein, Lawrence Burrell, and Citizens' Action for Safe Energy (CASE);

Brief *Amicus Curiae* of Texas Utilities Generating Company on Certified Issue (Apr. 7, 1980) [hereinafter Brief *Amicus Curiae*] The Commission invited participation *amicus curiae* in this review; only Texas Utilities responded.

[2] *See In re Rulemaking Hearing*, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low As Practicable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents, CLI-75-5, 1 NRC 277, 278 (1975). In its decision, the Commission reported that in the future it intended to substitute "as low as is reasonably achievable" (ALARA) for "as low as practicable" (ALAP). The Commission noted that this change in terminology would not affect the numerical values established for 10 CFR 50, Appendix I. *Id.* at 280-81.

reduction in the radiation dose to the general population." *In re Rulemaking Hearing*, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low As Practicable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents, CLI-75-5, 1 NRC 277 (1975). At that time the Commission also proposed "to conduct a rulemaking hearing to establish appropriate monetary values for the worth of reduction of radiation doses to the population." *Id.* [3] These determinations concluded almost five years of consideration of these issues by the Commission.

On December 3, 1970, the Commission published 10 CFR 50.34a and 50.36a, which specified design and operating requirements for nuclear power reactors to keep levels of radioactivity in effluents "as low as practicable." *See* 35 FR 18385. Although these new sections provided "qualitative guidance," they did not establish numerical criteria for ascertaining when design objectives and operations met the Commission's requirements. At that time, the Commission noted the desirability of developing more specific guidelines. With the promulgation of the Appendix I guidelines, the Commission set forth criteria which, if met, provided an acceptable method of meeting the ALAP requirement.

The proposed amendment to consider whether to add Appendix I to the Commission's regulations was published by the Commission for public comment on June 9, 1971. 36 FR 11113. A public rulemaking hearing on the proposed amendment began on January 20, 1972 before a three-member Hearing Board. *See* 36 FR 22775 (November 30, 1971). The major participants included the Commission's regulatory staff, a consolidated utility group, the Consolidated National Intervenors, the General Electric Corporation, and the State of Minnesota. In addition, 18 persons or organizations, including the U.S. Environmental Protection Agency, made limited appearances during the rulemaking hearing.

The hearing was suspended in May 1972 pending the preparation of an Environmental Impact Statement concerning the proposed guidelines. After a Draft Statement was circulated for comment to various federal agencies and members of the public, including the hearing participants, and after agency and public comments had been reviewed, a Final Environmental Statement was issued on July 26, 1973. The hearing was reconvened in November 1973 to review the Statement. The rulemaking hearing concluded on December 6, 1973 after 25 days of hearings had occurred, 4172 pages of hearing transcript had been recorded, and the thousands of pages of

[3] As an interim measure, the Commission accepted $1000 per total-body man-rem for making the necessary cost-benefit analysis pursuant to 10 CFR 50.34a. At the time the Commission indicated that this figure represented a "conservative value" subject to modification at a later date. *Id.* at 284. The adequacy of that particular figure is not at issue in this proceeding.

prepared written direct testimony and exhibits had been received. The Commission heard oral arguments on the major issue raised in the proceeding — the feasibility and cost of compliance compared to the proposed benefits — on June 6, 1974. The record clearly demonstrated the need to define the ALAP requirement with numerical criteria. After weighing the feasibility of achieving the proposed numerical criteria against the cost of compliance with and the perceived benefits of the criteria, the Commission adopted the Appendix I guidelines.

In adopting Appendix I, the Commission stated that the new criteria, "if met, provide one acceptable method of establishing compliance with the 'as low as practicable' requirements of section 50.34a and 50.36a." CLI-75-5, *supra,* 1 NRC at p. 278. The Commission emphasized that the Appendix I guidelines were not "radiation protection standards," but rather represented a "quantitative expression" of ALAP. *Id.* at 279.[4] The radiation protection standards, contained in 10 CFR Part 20, were based on the recommendations of the Federal Radiation Council. In its Appendix I decision, the Commission expressed its belief that "the record clearly indicates that any biological effects that might occur at the low levels of these [Part 20] standards have such a low probability of occurrence that they would escape detection by present-day methods of observation and measurement." *Id.* at 280. The Appendix I guidelines established design objectives and limiting conditions for operation based on the "principle that, within established radiation protection guides [Part 20], radiation exposures to the public should be kept 'as low as practicable.' This precept has been a central one in the field of radiation protection for many years." *Id.* The Appendix I guidelines were selected because the record before the Commission demonstrated that the limits would be "practicably achievable for almost all cases" in which the Commission considered them applicable. Furthermore, in recognizing the conservative nature of the figures, the Commission felt that no additional expense could be justified in attempting to reduce further the exposure of an individual to radioactive material in effluents released to unrestricted areas from light-water-cooled reactors. Thus, in describing the actual implementation of the numerical Appendix I guidelines, the Commission stated that, with respect to section 50.34a, any facility conforming to the criteria would be "acceptable without further question." *Id.* at 333.

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[4]The Commission's radiation protection standards, which remained unaffected by the Commission's decision, are contained in 10 CFR Part 20, "Standards for Protection Against Radiation."

II. Decision Below

The two-member Appeal Board, in affirming the application below, presented two different rationales about the effect of Appendix I compliance. *See Public Service Company of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-573, 10 NRC 775, 787-90, 808-20 (1979), *vacated on other issue*, CLI-80-8, 11 NRC 433 (1980).[5] Because this difference of opinion forms the basis of the matter certified, a review of the Appeal Board members' positions below would be useful here.

Generally agreeing with the position set forth by the NRC staff, Chairman Salzman indicated that "Appendix I guidelines should not be understood to bar the litigation in individual licensing cases of the anticipated health effects of routine emissions." ALAB-573, 10 NRC at 790. The staff's arguments have been repeated in its brief before the Commission and will be outlined below.

For the reasons he set forth in his concurring opinion, Member Johnson "would hold that in individual licensing cases, Appendix I precludes litigation of the health effects or radioactive emissions from a nuclear plant whose liquid and gaseous effluents are in compliance with the Appendix I guidelines." *Id.* at 820. In explaining his position, Member Johnson indicated that he found precedential support in the Appeal Board's decision in *Potomac Electric Power Company* (Douglas Point Nuclear Generating

[5]The Appeal Board in *Black Fox* also ordered the NRC staff to inform the Commission *in every case* whether or not the staff believed further consideration of Class 9 accidents was appropriate. *Public Service Company of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-573, 10 NRC 775, 790-92 (1979). The Commission did not believe that generic policy on consideration of Class 9 accidents should be developed by ruling on a case-by-case basis and vacated the Appeal Board order on that point. CLI-80-8, 11 NRC 433 (1980). In so doing, the Commission, pending the adoption of a new generic policy (*see* 45 FR 40101 (June 13, 1980)), intended that it would address only those cases in which the staff believed that special circumstances were present.

Station, Units 1 and 2), ALAB-218, 8 AEC 79 (1974) [hereinafter *Douglas Point*].[6]

In *Douglas Point* the Appeal Board concluded that the environmental consequences of the uranium fuel cycle had to be considered in the construction permit proceeding to the extent contemplated by 10 CFR Part 50, Appendix D, A 15. ALAB-218, 8 AEC at 88. Because an individual demanding intervention in the proceeding sought to challenge the validity of the environmental costs quantified by the Commission in subsection 15, the Board denied his request to intervene. *Id.* Noting that the challenged figures formed "an integral part of the new regulation," the Board held that "[t]o go behind them and challenge the basis on which they rest is in effect a challenge to the regulation itself." *Id.* at 89.[7] Member Johnson believes that the situation here is analogous to that which formed the basis for the *Douglas Point* holding. In his view, the Commission must have promulgated Appendix I to minimize the radiation-induced health effects from exposure, based on a set of findings that necessarily were incorporated into Appendix I. ALAB-573, 10 NRC at 814-16.

In the case at bar, the staff argued to the Appeal Board that whereas the underlying raw data used to quantify the environmental costs of the uranium fuel cycle attributable to each nuclear power plant ultimately became a part of Table S-3, the Final Environmental Statement setting forth the health effects for Appendix I (WASH-1258) was not so integrated; thus, *Douglas Point* was inapposite. Member Johnson rejected that

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[6]In the *Douglas Point* case, an individual appealed an order that denied him leave to intervene in a construction permit proceeding because his "generic" contentions regarding the adverse effects of the uranium fuel cycle could not be entertained in such a licensing proceeding. *Potomac Electric Power Company* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 79 (1974). The petitioner asserted that he had no desire to participate in the fuel cycle aspects of the proceeding unless he would be free to challenge the validity of certain substantive provisions of the regulation. *Id.* at pp. 79-80. Had he not made such an assertion, the Appeal Board noted that it would have allowed him to intervene. *Id.*

Prior to the Board's decision, the Commission had completed a rulemaking proceeding for evaluating the consequences of the use of uranium as fuel. The results of that proceeding included the publishing of a detailed report on the Commission's findings. *See Environmental Survey of the Uranium Fuel Cycle* (WASH 1248) (Apr. 1974). The findings also were included in one of the Commission's regulations (10 CFR Part 50, Appendix D, A 15(a)) implementing the National Environmental Policy Act of 1969. The Appeal Board stated that "[s]ubsection 15(a) requires the introduction into the cost-benefit analysis prepared for each proposed nuclear facility quantified environmental effects of the uranium fuel cycle developed in the Commission's rulemaking procedure and states that '[n]o further discussion of such environmental effects shall be required.' " 8 AEC at p. 82. In 1974, 10 CFR Part 50, Appendix D was recodified as Part 51. 39 FR 26279 (July 18, 1974).

[7]As the Board recognized, Commission rules or regulations are not subject to attack in an adjudicatory proceeding involving initial licensing under 10 CFR 2.758 except under special circumstances.

argument and concluded that the differences between Table S-3 and Appendix I tended to support, not detract from, the relevance of *Douglas Point* to this case. ALAB-573, 10 NRC at 815. For example, he noted that Appendix I — promulgated only after a lengthy rulemaking hearing — explicity was defined "in terms of a balance that involves, *inter alia*, 'the public health and safety.' " *Id.* Because the Appendix I guidelines were designed specifically to limit the maximu. exposure of radiation a person might receive, Member Johnson stated he could "conceive of no purpose for the Commission's promulgating Appendix I other than that of minimizing the radiation-induced health effects resulting from the operation of nuclear power plants by limiting the direct cause of such effects—radiation exposure." *Id.* at 816.[8]

Finally, Member Johnson indicated that the Commission's characterization of these radiation effects as being very low should apply in NEPA deliberations. *Id.* at 819. Recognizing that these health effects should be considered on the cost side, he concluded that when a nuclear plant meets the ALARA standard of Appendix I, "the magnitude of population radiation doses and their resultant health effects is small enough that the cost/benefit balance would indeed have to be in 'virtual equipoise' before the impact of releases of radioactive effluents would be sufficient to require abandonment of the plant." *Id.* at 820 [footnote omitted].

III. Positions of the Parties

A. NRC Staff.

The NRC staff argues that neither Appendix I nor its administrative history supports the Applicant's position that Appendix I established generically the quantity of the health effects impacts resulting from release at Appendix I levels to be used in cost-benefit assessments for individual facilities under the National Environmental Policy Act of 1969 (NEPA), 42 USC 4321-4361 (1976). Staff Brief at 9. Thus, the staff concludes that litigating the health effects of radiation emissions in an adjudicatory proceeding involving initial licensing is *not* barred by 10 CFR 2.758 as an impermissible attack on a Commission regulation. Staff Brief at 29. The staff marshalls six arguments to support its conclusion.

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[8]Member Johnson also stated that the Commission, in establishing a means for evaluating these health effects, must have adopted the BEIR Committee's recommendations on reducing the effects of ionizing radiation. As he noted, the Commission specifically had referred to the BEIR Report in its Appendix I decision. As a result, Member Johnson indicated that "there remains little doubt that the Commission intended to adopt the BEIR Committee's recommendations as a means of evaluating health effects." *Id.* at 818.

First, the staff asserts that Appendix I is not challenged directly by litigation of health effects. Staff Brief at 10. Because the staff does not believe that the Commission established by rule the quantity of health effects from releases at Appendix I levels, it argues that the Applicant's position can only be accepted if evidence of health effects "in effect" constitutes an attack on Appendix I. Staff Brief at 13.[9]

Second, the staff contends that the health effects data described in the Black Fox Final Environmental Impact Statement (FES) were not incorporated by either reference or implication into Appendix I. The staff contends that, under the Applicat's rationale, health effects data discussed in the Black Fox FES is not easily distinguished from the remainder of the information gathered in connection with the rulemaking and the decisional record would include a great mass of information. Staff Brief at 16. The staff concludes that acceptance of the Applicant's position not only would treat the data contained in the Appendix I FES (WASH-1258) as "frozen in time," but also would require importing that data into each FES in every licensing proceeding when no such incorporation was intended. Staff Brief at 17.

Third, the staff argues that litigating the health effects data would not contravene the *Douglas Point* decision. The staff does not believe that the health effects data forms such an "integral part" of Appendix I that litigation should be precluded. In the staff's view, the present situation is unlike the factual situation underlying *Douglas Point* because the health effects data were not explicity incorporated into Appendix I, but rather merely were contained in an FES, which, in turn, contained data adopted from the BEIR Report. *Id.* at 19-21.

Fourth, the staff does not consider litigating the health effects to be a direct challenge to the $1000 per person-rem value contained in Appendix I. Again, the staff returns to its argument that although the health effects considerations in connection with the Appendix I rulemaking were based on information from the BEIR Report, the Commission did not "adopt" these data as part and parcel of Appendix I, so as to render them unassailable in licensing proceedings. *Id.* at 21-23.

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[9]The staff notes that to promulgate binding rules, the Commission must comply with the Administrative Procedure Act. The staff argues that because the Commission did not publish a notice in the *Federal Register* about establishing by rule quantified values for health effects, the Commission could not have established such values by rule. Staff Brief at 15. The Applicant, however, contends that the staff is wrong in asserting that the notice requirements of the APA were not met. *See* Public Service Company Memorandum at 19. Because it is not germane to the resolution of the certified question posed by the Appeal Board, we need not address this issue.

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Fifth, the staff rejects the Applicant's claim that the present situation is "analogous to reprinting Table S-3 from 10 CFR Part 51 in each FES."[10] The staff argues that unlike Table S-3, which is based on data having a direct asssociation with the value fixed for use in NEPA cost-benefit assessments, the health effects data were not promulgated for use in a NEPA cost-benefit analysis. Rather, the staff contends, the health effects data were derived specifically for the development of Appendix I, a rule not being challenged in this proceeding. Staff Brief at 23.

Finally, the staff believes that the resources saved by not litigating the health effects in each case are offset by policy considerations. In the staff's view, the possibility that low-level radiation might have an adverse impact on humans outweighs the financial costs and Commission resources involved in litigating health effects. The staff argues that parties should be allowed to litigate in individual licensing proceedings as a means for presenting theories and testimony concerning "present thinking" about radiological health effects. Staff Brief at 27-28.

B. Public Service Company of Oklahoma.

The Applicant concludes that both the Commission's regulations and policy considerations require that relitigation of the substantive basis for Commission regulations be prohibited in initial licensing proceedings. Public Service Company Memorandum at 8. The Applicant first asserts that when the Commission established the Appendix I limitations, the risk of health effects from the routine release of radioactive materials in effluents to unrestricted areas was a controlling consideration in the Commission's decision. *Id.* The Applicant contends that the Commission, in setting these guidelines, complied with its duties under both the Atomic Energy Act of 1954 (AEA), 42 USC 2011-2296 (1976) and NEPA. The Applicant states that the Commission, in concluding that routine releases of radioactive materials in effluents which do not exceed the Appendix I guidelines are not inimical to the public health and safety, had weighed the costs and benefits of such releases pursuant to the AEA and had evaluated the health effects of routine releases of radioactive materials in effluents and balanced these effects with environmental and other considerations under NEPA. Public Service Company Memorandum at pp. 12 and 14-15. Thus, these judgments formed an integral part of the Commission's decision.

In addition, the Applicant argues that the Commission prohibits attacks on its own regulations in individual licensing proceedings. In stating that

[10]Table S-3, contained in 10 CFR 51.20, codifies the environmental costs of the uranium fuel cycle attributable to each nuclear power plant.

the *Douglas Point* factual situation is "virtually indistinguishable" from the present proceeding, the Applicant indicates that an attack on the "basis for a regulation" is an attack on the regulation. Application of that principle here would preclude litigation of the basis for the Appendix I decision in individual proceedings.[11]

C. Other Positions.

The Intervenors argue that Appendix I represents "[a] callous disregard for life which has been justified in the name of money." Intervenors' Statement at 3. Intervenors urge that the Commission answer the certified question in the negative and permit litigation of the environmental effects of compliance with Appendix I.[12] *Id.* at 5.

Texas Utilities contends that any attempt to litigate the health effects of radioactive effluent releases in individual licensing cases, in the absence of a showing of special circumstances under 10 CFR 2.758, constitutes an impermissible attack on the Appendix I guidelines. Brief *Amicus Curiae* at 4. Texas Utilities argues that when the Commission promulgated Appendix I, it expressly concluded that releases complying with the guidelines are so low that no adverse health effects will threaten the public. *Id.* at 9. Furthermore, Texas Utilities argues, the *Douglas Point* decision holds that litigation is barred by 2.758 in individual licensing proceedings. *Id.* at 13.

IV. Decision

Resolution of the certified question requires the Commission to decide whether the environmental data compiled for the Appendix I rulemaking was intended to be incorporated into the rulemaking such that the data are shielded from litigation, under 10 CFR 2.758. The proper use of this record is basic to the Commission's discharge of its environmental duties.

It is well-settled that NEPA, which mandates that federal agencies study the environmental consequences of major federal actions "to the fullest extent possible," 42 USC 4332, is an essential element of an agency's decisionmaking process. "NEPA places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed

[11]The Applicant further argues that NEPA permits the consideration in one proceeding of environmental impacts established in a different proceeding. Public Service Company Memorandum at 15-17.

[12]Arguing that the Applicant lacks standing because it has shown no prejudice as a result of the decision of the Appeal Board, Intervenors urge that the Commission "dismiss this inquiry as improvidently started." Intervenors' Statement at 2. As was explained at the outset, the Commission accepted the certified question from the Appeal Board (not the Applicant), because it raised important generic concerns. Intervenors' argument is, therefore, irrelevent to this proceeding.

action...." *Vermont Yankee Nuclear Power Corp.* v. *Natural Resources Defense Council, Inc.*, 435 U.S. 519, 553 (1978). An agency discharges that obligation principally by filing an environmental impact statement. 42 USC 4322(c). The impact statement does not simply "accompany" an agency recommendation for action in the sense of having some independent significance in isolation from the deliberative process. Rather, the impact statement is an integral part of the Commission's decision. It forms as much a vital part of the NRC's decisional record as anything else, such that for reactor licensing, for example, the agency's decision would be fundamentally flawed without it. *Calvert Cliffs' Coordinating Committees, Inc.* v. *AEC*, 449 F.2d 1109 (D.C. Cir. 1971).

In developing the Appendix I guidelines, the Commission fully complied with NEPA as it applied to that rulemaking action by compiling WASH-1258, the three-volume "Final Environmental Statement Concerning Proposed Rule Making Action: Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion 'As Low As Practicable' for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents" (July 1973).[13] In promulgating the Appendix I guidelines, the Commission intended that the radiation exposures that might result from routine releases of radioactive materials to unrestricted areas be reduced equivalent to small fractions of doses from natural background radiation. CLI-75-5, *supra*, 1 NRC at 291. However, there is no specification of health effects in the Appendix I rule itself. There is some discussion of health effects in WASH-1258 and the Commission opinion accompanying the rule. The actual guidelines adopted were quite similar to those suggested by the staff in WASH-1258[14] and it is stated in that document that "[t]he levels of radiation doses resulting from releases of radioactivity in effluents from nuclear power stations discussed in this

[13]The purpose of the statement was two-fold. First, it was prepared so the Commission could "evaluate the practicability and environmental impact of releasing radioactive material in effluents from light-water-cooled nuclear power stations within the levels set forth in the proposed Appendix I guides...." *Id.* § 1.2. Second, it also would help the Commission "evaluate alternatives for providing guidance on limiting levels of radioactive material in effluents from light-water-cooled nuclear power stations to as low as practicable levels." *Id.* Public comments on the Commission's draft environmental impact statement and the staff response to those comments are collected in Volume 3 of the document. As noted above, this Final Environmental Statement was the subject of a public rulemaking hearing that was reopened in November 1973. After the hearing was concluded and the Commission heard oral arguments on June 6, 1974, the Commission adopted specific criteria with the promulgation of the Appendix I guidelines. In developing these guidelines, the Commission took into consideration the comments and suggestions of numerous groups, including representatives of power reactor suppliers, electrical utilities, architect-engineering firms, environmental and conservation groups, and State governments.

[14]*Compare* 1 NRC 281-82 (setting forth numerical design-objective guides) *with* WASH-1258, at 1.4.1 (doses to humans if proposed Appendix I guidelines met).

Statement are substantially below the levels where biological damage has been observed in humans." WASH-1258 at 1.4.2. The Commission also stated in its opinion that the November 1972 BEIR Report represented a "generally accepted evaluation of the effects of ionizing radiation." CLI-75-5, *supra*, 1 NRC at 311. Moreover, in discharging the NEPA duty in the Appendix I rulemaking proceeding, the Commission studied the environmental cost and benefit requirements that would result from the proposed decision. However, the Commission finds no evidence that health effects determinations were ever intended to be incorporated into the rule. The rule had a less ambitious goal — that of setting design objectives for effluent systems. This is made clear in the opening paragraph of the Commission's opinion where it is stated that the proceeding concerns "numerical guides for design objectives and limiting conditions for operation to meet the criterion 'as low as practicable.' " CLI-75-5, *supra*, 1 NRC 278. This is in marked contrast to the Table S-3 and S-4 rulemakings where it was manifest from the outset that the proceedings were intended to lead to generic specifications of environmental impacts. Since the Appendix I rule itself does not specify health effects, and there is no evidence that the purpose of the Appendix I rulemaking was to determine generally health effects from Appendix I releases, it follows that health effects of Appendix I releases must be litigable in individual licensing proceedings.

In so concluding, the Commission notes that this decision is not controlled by *Douglas Point*, given a crucial role by the parties.[15] In *Douglas Point* the Appeal Board was confronted with an attempt by an individual to challenge in a construction permit proceeding the validity of the environmental costs quantified by the Commission in 10 CFR Part 50, Appendix D, A 15. Prior to the Board's decision, the Commission had codified environmental data into Table S-3 to quantify the environmental impacts of the uranium fuel cycle attributable to each nuclear power plant. Thus, the *environmental* data ultimately incorporated into Table S-3, itself included in 10 CFR Part 50, Appendix D, became part of the rule on the *environmental* aspects of the uranium fuel cycle.

The issue before the Commission differs: whereas *Douglas Point* involved environmental data actually contained in the rule itself, the instant proceeding involves environmental data merely used in support of a rule.[16]

[15]In interpreting our promulgation of the Appendix I guidelines, Member Johnson, the staff, the Public Service Company of Oklahoma, and Texas Utilities looked to the Appeal Board's decision in *Douglas Point* for support in resolving this issue below. The issue before us, however, is not controlled by *Douglas Point*.

[16]It would seem reasonable to hold that conclusions not contained in a rule but nevertheless used in support of a rule could operate to resolve issues generally if those conclusions were *essential* to the validity of the rule. However, the validity of the Appendix I rule is premised on

FOOTNOTE CONTINUED ON NEXT PAGE

Even though the Commission did not expressly use the Appendix I FES to quantify generally the significance of the health effects, and, thus, they may be adjudicated, as a matter of policy, the Commission believes that unnecessary adjudication should be avoided. It serves no useful purpose to litigate this issue when there is no serious contest as to the result. The Commission also recognizes that it should be able to make use of a NEPA record already compiled in discharging its duties. *Cf. Offshore Power Systems* (Floating Nuclear Power Plants), CLI-79-9, 10 NRC 257 (1979). Accordingly, it strikes as reasonable that a Licensing Board take official notice of the environmental record compiled in the Appendix I rulemaking in reaching conclusions as to the health effects from releases within Appendix I. In particular, we believe that a Licensing Board could take official notice that releases within Appendix I levels result in radiation exposures that are small fractions of doses from natural background radiation and that the 1972 BEIR Report contains a "generally accepted evaluation of the effects of ionizing radiation." This does not mean of course that health effects of Appendix I releases cannot be contested.[17] It only means that litigation regarding these issues need not begin on a clean slate, and that, for example, the BEIR estimates can be relied on in the absence of a contest and may be used, along with any other evidence, in ruling on summary disposition motions and rendering initial decisions.

The Appendix I environmental record is over five years old and the Commission believes, as does the staff, that it might be crucial that "present thinking" be brought to bear in determining whether radioactive emissions to unrestricted areas from light-water nuclear power plant pose an unacceptable environmental risk. *Allied-General Nuclear Services* (Barnwell Nuclear Fuel Plant Separations Facility), ALAB-296, 2 NRC 671, 680 (1975), *see* Staff Brief at p. 17. By holding that official notice can be taken of conclusions in the Appendix I rulemaking but that compliance with Appendix I does not conclusively establish the insignificance of the associated health effects, the Commission permits other interested parties to present the best available evidence on health effects where this would seem important to the decision. Of course, in this case, the Commission need not decide what weight to accord the conclusions in the Appendix I rulemaking in the face of contradictory evidence since a hearing has already been held on the health effects matter. In a future case we may be able to offer additional guidance.

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a weighing of costs and benefits of reductions in radiation exposure, and is not necessarily premised on any conclusion that health effects are "insignificant" or "small."

[17] See 10 CFR 2.743(i).

V. Conclusion

For the above reasons, the Commission concludes that the certified question must be answered in the negative, as explained in this opinion.

Chairman Ahearne dissented from this Opinion. His comments are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.,
this 22nd day of September 1980.

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CHAIRMAN AHEARNE'S DISSENTING VIEWS:

I believe we should have responded to the certified question by deciding that health effects from normal operation of plants, meeting Appendix I, should not be litigated in individual proceedings.

Basically, I can see no reason to litigate the health effects under these circumstances, and I object to what would be allowing litigation simply for the sake of litigation. NEPA requires us to take into account environmental impacts in making decisions. Potential health effects of radioactive effluents are an impact which we have recognized an obligation to consider. There are two ways in which these impacts could influence our decision: we could require additional measures to reduce the effluent, and we could consider any unavoidable impacts in deciding whether or not to reject an application. With respect to effluents which meet the objectives of Appendix I, these decisions have already been made.

The Commission put a considerable amount of time and effort into developing the numerical limits found in Appendix I. Its decision was based on an EIS and an extensive hearing record. The objective of the entire exercise was to define levels at which no further measures would be justified. The Commission explicitly stated:

> "The numerical guidelines were chosen on the basis that the record shows these limits to be practicably achievable for almost all cases to which we consider them applicable. Furthermore, in view of the elements of conservatism and realism inherent in the evaluations presented in the hearing, we believe the record supports the conclusion that the maximum individual exposure likely to ensue from operation of nuclear power reactors in conformance with Appendix I is sufficiently small that no additional expense could be justified for reducing the exposure of an individual further than required by Appendix I.
>
> It must be understood in discussing the matters of calculational conservatism and realism that Appendix I means, implicity, that any facility that conforms to the numerical and other conditions thereof is acceptable without further question with respect to Section 50.34a. It is just as essential that Appendix I be understood as not implying, conversely, that any facility not conforming is necessarily unacceptable. The numerical guidelines are, in this sense, a conservative set of requirements and are indeed based upon conservative evaluations."

Rulemaking Hearing: Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as Practicable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents, 1 NRC 277, 333 (1975). Thus clearly a Board should not require additional measures to reduce the effluent.

If there is no justification for imposing additional measures to reduce the effluent, then there will be no detectable impact on the overall cost/benefit balance. Theoretical arguments that this might be that final minute cost which tips the balance are just that—totally theoretical. Given the imprecision of the judgments being made, this cost is clearly not going to be determinative.

Finally, the most recent BEIR report has reduced the estimate of health impacts from those of the 1972 BEIR study, which was part of the basis for Appendix I. Thus, to the extent that new information would require a change in Appendix I objectives, a reexamination should produce higher rather than lower acceptance levels.

We should focus staff resources on some of the real problems facing this agency, rather than devote resources to an issue whose resolution is obvious.