

Davis-Besse Nuclear Power Station

AEC REGULATORY STAFF'S
PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW
AS MODIFICATIONS TO APPLICANTS'
PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW
IN THE FORM OF AN INITIAL DECISION

The regulatory staff agrees with Applicants' proposed findings and conclusions set forth in paragraphs 1-4, 15-16, 18-27, 29, 30, 32, 34, 35, 37-44, 46-52, 54-56, 58, 60-68, 72-74, 77-80 and 82-107.

The regulatory staff proposes different findings from those proposed by Applicants in paragraph 5-14, 17, 28, 31, 33, 36, 45, 53, 57, 59, 69-71, 75, 76, 81, 108-110. For these, the staff proposes to substitute those findings and conclusions set forth below.

For Applicants' proposed findings paragraphs 5 through 10, substitute the following paragraph:

5. On February 2, 1973, Mrs. Evelyn Stebbins on behalf of the Coalition for Safe Nuclear Power (whose name was subsequently changed to the Coalition for Safe Electric Power) ("the Coalition") filed a "list of contentions". During the prehearing process, the Board admitted the Coalition as an Intervenor and defined 8 issues in controversy from Coalition's contentions. At the prehearing conference, the Applicants moved to strike Issue 3, which dealt with the

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transportation of radioactive wastes and spent fuel, as a challenge to the AEC's regulations without meeting the requirements of 10 CFR § 2.758. Tr. 102-03. Subsequently, the Board struck Issue 3. Prehearing Conference Order, pp. 4-5.

For Applicants' proposed finding paragraph 11, substitute the following:

11. In accordance with a stipulation and the Prehearing Conference Order, all the parties submitted direct written testimony on the issues in advance of the hearing. The Coalition filed no direct testimony on Issues 4 and 5.

For Applicants' proposed findings paragraph 12 through 14 and 17, substitute the following:

12. On July 13, 1973, Applicants moved to strike the testimony of Dr. Ernest Sternglass submitted by the Coalition with respect to Issues 6 and 7 on the grounds that the testimony was irrelevant to these issues. After oral argument, Tr. 209-211, the Board found that Dr. Sternglass' testimony

was irrelevant and immaterial to Issues 6 and 7 and granted Applicants' motion. Tr. 339-B. However, the Board felt that the rejected testimony dealing with issues 6 and 7 had sufficient potential significance to warrant its consideration as a new issue. This issue (referred to herein as Issue 9) claimed that the techniques for estimating environmental dose rates from radioactive releases from nuclear facilities were substantially in error, and was based on Dr. Sternglass' assertions that releases from the Shippingport Power Station and the Plum Brook test reactor, while releasing smaller quantities of radioactive materials than predicted for the Davis-Besse facility, had resulted in radioactive dose levels much higher than predicted for the Davis-Besse facility. Tr. 202-205, 343-348, 627. The Board excluded from this new issue Dr. Sternglass' allegations relating to the biological effect of radiation in that these matters had earlier been resolved adversely to the Coalition (and its witness, Dr. Sternglass) in this proceeding.

Following paragraph 26, add a new paragraph 26A, reading:

26A. The issue, as framed in the special prehearing conference Order, was formulated prior to the issuance of

ALAB-137 by the Atomic Safety and Licensing Appeal Board,^{1/} which states that "[b]road social questions such as this [i.e., 'the entire question of curbing spiralling demand, applying the principles of conservation of energy'] cannot be productively considered in a licensing proceeding involving an individual facility." While the issue as admitted related to conservation of energy, a key part of the issue is a questioning of the need for the projected additional capacity of the facility within the Applicants' service area. The evidence dealt primarily with this projected need for power. Only tangentially did the evidence deal with conservation of energy, and then as unsuccessful attacks upon some of the premises assumed in the need for power evidence (See, proposed findings 30-33).

The regulatory staff proposes that the first sentence of proposed finding 28 be changed to read as follows:

28. The projected CAPCO reserve margins used by the Staff in the Final Environmental Statement ("FES") were

^{1/} Wisconsin Electric Power Company (Point Beach Nuclear Plant, Unit 2), ALAB-137, July 17, 1973, slip opinion at 22-23.

based upon the 1972 East Central Area Reliability coordination agreement ("ECAR") Report.

The regulatory staff has no objection to the adoption of the remainder of proposed finding 28.

For Applicants' proposed finding 31, substitute the following:

31. Although the Coalition asserted that Applicants have always used promotional pricing to encourage demand growth, Morgan Testimony, p. 8, they neither supplied nor elicited any information that such practice now exists or that Applicants' rates reflect anything other than the cost of service. Rates of electric companies, including all-electric and other optional rates, are designed to follow the costs of providing service. Reynolds-Roe Testimony, pp. 5-6, Tr. 369-370.

The regulatory staff proposes that the following paragraph be substituted for Applicants' proposed finding 33:

33. Applicants supplied testimony showing their efforts in promoting the conservation of energy by encouraging residential builders to use proper insulation, promoting efficient use of electricity by commercial and industrial customers, upgrading transmission and distribution systems, and promoting efficient electricity use by residential customers. Reynolds-Roe

Testimony, pp. 12-13; Tr. 254-258, 302-303. All three parties presented evidence on the effect on system demand of energy conservation programs, particularly the 'Save a Watt' program of Consolidated Edison Company. The Coalition's witness, Richard Morgan, discussed the claimed effectiveness of this program in reducing peak demand, but for his conclusions relied on those in the prepared testimony of Dennis J. Nightengale, a witness for the regulatory staff.^{2/} Tr. 333. (Mr. Nightengale is an employee of the Division of Power Supply and Reliability, Bureau of Power, Federal Power Commission, who appeared as a witness for the regulatory staff.) Mr. Morgan conceded that there was no real way to determine the accuracy of these conclusions. Tr. 323, 33-34. The Nightengale testimony, as clarified when Mr. Nightengale was questioned by the Board, indicated that the 'Save a Watt' campaign of Consolidated Edison is probably as effective as it is because the New York area has had a series of power failures (voltage reductions and complete load shedding), and the public has consequently been made highly aware of the need to

^{2/} Testimony of Dennis J. Nightengale, following Tr. 683 (hereinafter "Nightengale testimony").

conserve energy. Mr. Nightengale contrasted this public awareness in New York to the situation in the Applicants' service areas, where the service record has been good, and the public consequently less aware of the Applicants' conservation program. Tr. 691-693. The Applicants' witness, on the other hand, testified that any reductions in peak demand due to the 'Save a Watt' program were due to involuntary voltage reductions as well as its advertising program, without differentiating the present attributable to either factor. Tr. 292-96. Despite this apparent discrepancy, the evidence indicates that conservation programs would not be likely to eliminate the actual need for power which the Applicants are likely to be called upon to meet, and which is to be produced by the Davis-Besse facility.

For Applicants' proposed finding 36, the regulatory staff proposes that the following be substituted:

36. The Board finds that the actual need for electrical power to be supplied by the Davis-Besse facility is well established by the evidence and that conservation programs would not be likely to obviate the need for the capacity to be supplied by the Davis-Besse facility. The FES adequately evaluates the actual need for power which the Applicants are likely to

be called upon to meet, and which is to be supplied by the Davis-Besse facility.

For Applicants' finding 45, the regulatory staff recommends that the following be substituted:

45. The Board therefore finds that there is reasonable assurance that the high ground level elevation and the wave protection dike assure that the Davis-Besse facility is adequately protected against all credible floods and high lake levels and that the wave protection dike is designed and constructed to withstand the erosive action of storm-generated waves and wind-driven ice. Accordingly, no special consideration of damages resulting from such events was required in the FES.

For Applicants' proposed finding 53, substitute the following paragraph:

53. The Board finds that cumulative and synergistic effects, if any, on Lake Erie of the effluents from the Davis-Besse facility, together with effluents from nuclear reactors operating on Lakes Michigan, Superior and Huron will be undetectable on biota. Accordingly, no special consideration of these effects was required in the FES.

For Applicants' proposed finding 57, the regulatory staff proposes that the following be substituted:

57. The record shows that, after the first few years of plant life, both gaseous and liquid radioactive releases reach a "quasi-equilibrium". Goldman Testimony, p. 2; Tr. 736, 749. This conclusion is based upon an analysis of all operating U.S. nuclear power plants for which data was available. Goldman Testimony, Tables 1-3, Figures 1-6. Although the Coalition pointed to two reactors in which releases per unit power increased between 1968 and 1970, Tr. 744, these increases are attributable

to steam generator tube leaks which were subsequently repaired, and to lower energy generation resulting from plant shutdowns. Tr. 745. Since the curves representing energy generated by individual plants have tended to parallel the curves representing gaseous and liquid radioactive releases from the respective plants over the same period of time, the indication is that releases tend not to increase with age. Tr. 747-749.

For Applicants' finding 59, substitute the following paragraph:

59. The Board finds that the FES has adequately considered operating experience with reactors and any effects due to aging in evaluating the effects of radioactivity upon the environment.

For Applicants' finding 69, substitute the following:

69. The Staff Testimony, presented by Dr. Norman A. Frigerio of Argonne National Laboratory, verified that the doses to biota set forth in the FES (§5.6) were somewhat conservative and that even at those conservative values, no deleterious effects would be expected. Tr. 601-604, 617-618.

For Applicants' finding 70, substitute the following:

70. In evaluating the evidence presented by the parties on Issue 8, the Board has given it what weight it deserves. In this connection, the Board notes important deficiencies in

the Intervenor's testimony submitted on Issue 8. We note, for example, that the whitefish and walleye population were used to demonstrate a decline in Lake Erie fisheries; however, other evidence addressed by the parties tended to show that total commercial production in Lake Erie during the 1950's remained near the long-term average, Hartman Testimony, pp. 4, 11, that other species such as smelt increased dramatically during the 1950's, Hartman Testimony, pp. 9-11, Figure 7, and that the walleye production in the Eastern basin of Lake Erie increased from the 1940's to 1965 and has remained at a constant level since that time. Hartman Testimony, pp. 10-11; Tr. 394-395. If fallout had been the cause of the drop of walleye population as claimed by Dr. Sternglass, the effect would have been uniform in both the Eastern and Western basins. Tr. 399-401. Dr. Frigerio demonstrated that, using Dr. Sternglass' own methodology for the statistical analyses of populations, one could even show that, contrary to Dr. Sternglass' allegations, the fish catch in Lake Erie increased from 37 million pounds in 1960 to 41 million pounds in 1970 notwithstanding an increase in fallout and radioactivity in Lake Erie. Tr. 604-606.

The regulatory staff proposes that the first three lines of Applicants' proposed finding 71 be changed to read:

71. The worth of the Sternglass Testimony was also damaged by his apparent misreading of at least one source that he cites, and by his repetition of that misreading in his testimony. For instance, the Testimony states that, except for a causal connection between nuclear testing and disastrous declines in fish population, sharp drops in certain valuable fish species in Lake Erie, such as whitefish and walleye, followed an "otherwise unexplained pattern."

The regulatory staff has no objection to the adoption of the remainder of Applicants' proposed finding 71.

For Applicants' findings 75 and 76, substitute the following:

75. Evidence was also elicited from the Applicants and the regulatory staff on the compliance with applicable water quality standards, including the nondegradation clause of the Water Quality Standards of Ohio as approved by the Environmental Protection Agency (EPA). The Coalition introduced no evidence on this matter. The parties stipulated that the state water quality standards do not apply to the radioactive effluents from the Davis-Besse facility. Tr. 139-40. For other criteria, all the various standards which may be applicable were considered and the evidence indicates that discharges from the facility would comply with each of these criteria. On March 4, 1968, the U. S. Department of the Interior (DOI) (the predecessor of EPA) approved applicable water quality criteria, with the exception of temperature and dissolved oxygen criteria, that had been adopted in April, 1967, (and revised in October, 1967) by the Water Pollution Control Board of the Ohio Department of Health, and subsequently submitted to DOI for approval. Effluents from the Davis-Besse facility are expected to meet these standards, FES §5.2.3. Tr. 767. The Applicants have received a Water Quality Certification from the State of Ohio under the provision of §21(b) of the Federal Water Pollution Control Act, as amended by the Water Quality Improvement Act of 1970, that there is reasonable assurance that the Davis-Besse facility will meet applicable water quality standards. Initial Decision, July 9, 1972 (Section E proceeding), p. 11; FES §1.3.2; Tr. 77. The discharges are also expected to be in compliance with those specific water quality objectives set forth in Annex 1 to the Great Lakes Agreement which was entered into force in

April, 1972, between the governments of the United States and Canada. FES pp. 12-19 through 12-21. Tr. 767-68. Finally, the staff has independently performed a study, pursuant to its responsibilities under NEPA, on the expected impacts on Lake Erie from the discharges from this facility. Tr. 767. Its conclusions are that subject to the adoption of the conditions set forth on page iv of the FES, these impacts are acceptable. FES pp. iii-iv.

76. The Board finds that the effects of effluents from the Davis-Besse facility have been properly assessed in the FES. Such effluents will not significantly affect Lake Erie, its fish, wildlife, spawning grounds and biota. Nor will the effluents from the Davis-Besse facility adversely affect recreational aspects or water supplies, or violate any water quality standards applicable to Lake Erie waters at the location of the facility.

The regulatory staff proposes that a new finding 106A be adopted which reads:

106A. In the FES, as modified by testimony at the hearing, the staff proposed certain conditions for the protection of the

environment. FES pp. iii-iv. These were not opposed by the Applicant. The Board finds that they are reasonable and appropriate. Therefore, the construction permit should be conditioned as follows:

- i. A comprehensive, preoperational environmental monitoring program shall be established to provide an adequate baseline for measuring the operational impact of the Davis-Besse facility.
- ii. Applicants shall submit, during the time of the operating license review, proposed environmental Technical Specifications governing the operation of the Davis-Besse facility which assure that the environmental impacts are not significantly different than those described in the FES.
- iii. A monitoring program shall be established to record any kills due to birds hitting the cooling tower and other facility structures, placing emphasis on observations during adverse weather conditions and during the spring and fall migratory seasons.
- iv. The objective of the design of the Davis-Besse facility shall be such that by careful operation the total residual chlorine concentration in the effluent will be 0.1 ppm or less, not to exceed 2 hours/day.
- v. If harmful effects or evidence of irreversible damage are detected by the monitoring programs, Applicants will provide to the Staff an analysis of the problem and plan of action to be taken to eliminate or significantly reduce the detrimental effects or damage.

The staff proposes that the following be substituted for Applicants' finding 108:

108. The Board, on the basis of the entire record, finds that the principal benefits and costs of the Davis-Besse facility may be summarized as follows:

- a. The total site area is 954 acres of which 160 acres have been removed from production of grain crops and converted to industrial use. Approximately 600 acres of the area is marshland which will be maintained as a wildlife refuge.
- b. There will be temporary turbidity, silting, and destruction of bottom organisms due to disturbance of the lake shore and lake bottom during construction of the Station water intake and discharge pipes.
- c. Because of the location of the Station in a migratory bird flyway and close proximity to bird refuges, there is a possibility of occasional occurrences in which birds are killed by flying into the cooling tower and other station structures.
- d. The cooling tower blowdown and service water which the Station discharges to Lake Erie, via a submerged jet, will be heated no more than 20°F above the ambient lake water temperature. Although some small fish and plankton in the discharge water plume will be disabled as a result of thermal shock, exposure to chlorine and buffeting, few adult fish will be affected. The thermal plume resulting from the maximum thermal discharge is calculated to have an area of less than one acre within the 3°F isotherm (above lake ambient).
- e. The Station's natural-draft cooling tower will have a visual impact on the surrounding areas. There is a possibility that the cooling tower may augment natural fog (estimated to be 1 hour/year compared with 831 hours/year natural) within several miles of the Station - particularly in the winter months.

- f. A total of 101 miles of transmission lines are being constructed, primarily over existing farmland, requiring about 1800 acres of land for the rights-of-way. Land use will essentially be unchanged since only the land required for construction of the towers is removed from production. Herbicides will not be used to maintain the rights-of-way.
- g. It is calculated that the Station may discharge approximately 5 curies per year of mixed isotopes in liquid wastes and 1000 curies per year of tritium to Lake Erie. Approximately 3000 curies per year of gaseous radioactive wastes may be discharged to the atmosphere.
- h. The risk associated with accidental radiation exposure is very low.
- i. The Station will provide 6.1 billion kilowatt hours per year (at an average capacity factor of 80%) of the additional electrical power forecast to be required due to the continuing increases in population and industrial development in the region. An improvement in the local economy will result from Station operation and the additional taxes should benefit the State and local governments.
- j. The meteorological, hydrological, biological and radiological monitoring programs initiated for the Station's vicinity will provide data on the impact of the plant and be of interest to the scientific community, particularly in regard to the ecology of Lake Erie.

The regulatory staff proposes that the following be substituted for Applicants' conclusion 109:

109. In accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations, the Board concludes:

- a. The environmental review conducted by the Commission's Regulatory Staff pursuant to Appendix D of the CFR Part 50 has been adequate;
- b. The requirements of Section 102(2)(C) and (D) of NEPA and Appendix D of 10 CFR Part 50 have been complied with in this proceeding;
- c. Having considered and decided all matters in controversy among the parties and having independently considered the final basis among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken, the Board has determined that the Construction Permit should be continued, but that it should be appropriately conditioned to protect environmental values, as set forth hereinabove.

The regulatory staff proposes that for the Applicants' proposed order (para. 110), the following be substituted:

110. Based on the Board's findings and conclusions and pursuant to the Atomic Energy Act and the Commission's regulations, IT IS ORDERED that the Director of Regulation is authorized to continue Construction Permit No. CPPR-80 in effect, and to amend such permit to incorporate the conditions for the protection of the environment as set forth in this Initial Decision. IT IS FURTHER ORDERED, in accordance with 10 CFR §§ 2.760, 2.762, 2.764, 2.785 and 2.786, that this Initial Decision shall be effective immediately upon issuance, and shall constitute the final decision of the Commission subject to the review thereof pursuant to the above-cited rules.