Exception No. 1

The Board erred in considering benefits versus costs before evidentiary hearings on emergency planning and TMI-2 related issues.

Striking a cost-benefit analysis in piecemeal fashion - pro or con - negates the impact of emergency planning and TMI-2 issues. Both issues are crucial.

A workable emergency plan may not be possible in the area under consideration, in which case all other matters are moot. Traffic jams are commonplace under ordinary conditions. An emergency would compound the problems.

The TMI-2 related issues are not yet thoroughly understood. The issue and problems continue. We are concerned that there were 2,300 accidents at nuclear installations in 1979. TMI-2 is a warning to us all. Must we wait until a terrible, life-destroying nuclear catastrophe occurs?

Without thorough study of these two issues, all the time and taxpayer money spent on the Partial Initial Decision is wasted.

Exception No. 2

The Board erred in not determining the effect of unsolved generic matters on the issuing of a construction permit.

Human health and safety considerations demand the elimination of the numerous uncertainties before further construction is allowed. It is unconscionable to go ahead,with generic questions unanswered.

Exception No. 3

The Board erred in its findings of fact and conclusions of law by using such unspecific language as "At this time the Board has a responsibility to judge the likelihood of a predictive satisfactory timely solution."

When the Board states that ..."solutions to these generic items become important at times more near to the operation of Unit 2 than at this review of a construction permit application" it reminds us of a similar type of reasoning shown by the Board in 1975, when they stated that consideration of emergency planning becomes "ripe" at the time the licensing to operate is being reviewed. This is comparable to saying we will determine if a building foundation can support the building after the building is constructed. As we have seen, this point of view has been shown to be in error, as it clearly does not stand the test of logic.

It is logical, and necessary that it be determined whether or not generic matters are indeed solvable, before more money is sunk into Pilgrim 2. (Par. 96)

Exception No. 4

The Board erred in allowing the untimely entrance into the proceedings of the Governor of the Commonwealth of Massachusetts through his newly created Office of Energy. (Par. 205)

Since the Board did not permit PCNIC to enter into the proceedings, stating that the Cleetons, who live 39 miles from the proposed site, adequately represented the concerns of people immediately adjacent to the

site, it is inconsistent to allow the Governor to enter into the proceedings. The Commonwealth is already represented through the Attorney General. (Par. 205)

Exception No. 5

The Board erred in stating that the testimony proffered by Martha Drake was ruled inadmissible on grounds of relevance. (Par. 266)

The reason given for rejection of Ms. Drake's report was that she did not have the sophisticated equipment which would be necessary to reach thoroughly reliable conclusions from the statistics she gathered. Nothing could be more relevant than the appearance of statistically significant increases in leukemia cases around nuclear fission plants. The government does have the kind of equipment necessary for valid conclusions. What possible reason can there be for not doing this potentially crucial study?

Exception No. 6

The Board erred in stating that 'No evidence was presented to show that the Cleetons would be at any greater risk from the doses of radiation from the routine operation of Unit 2 than are other similarly situated members of the public. (Par. 267)

Three experts, Mrs. Cleeton's family doctor, and Drs. Caldicot and Bertell testified that Mrs. Cleeton is highly at risk from any additional radiation due to her past exposure to many x-rays and the fact that cancer is prevalent on both sides of her family.

Exception No. 7

The Board erred in accepting as fact the projections of Staff witness Gotchy on the risk of death from cancer which an individual living on the site boundary for thirty (30) years would incur. (Par. 278)

No one, not even one with much more training and experience than Dr. Gotchy (who did no original research at all), could possibly say what such risk would be without knowing the state of health of the individual's parents and the individual's biological make-up, whether he or she was x-rayed in utero or otherwise, what other environmental pollutants were present, and what the health history of other family members was. It would also be necessary to know how much radiation was given out by the plant over 30 years, what the wind conditions were each day, and whether there were accidents that released additional radiation (beyond routine.) To attempt to predict what the risk of cancer would be without knowing all this is mere theorizing. In contrast to this speculating by Dr. Gotchy, the Drake Report had some actual facts about the leukemia rate around the three oldest operating nuclear fission plants.

Exception No. 8

The Board erred in allowing unsubstantiated data from the BEIR Report to be admitted into evidence in attempting to establish risks associated with various levels of radiation. (Par. 279) Nowhere in the BEIR Reports (1972 and 1980) is there anything on the effect on populations of exposure to low levels of ionizing radiation from an 1150 Mg reactor over

a thirty year period. On the contrary, the Reports are replete with such modifications as

"In the absence of human data" (p. 44, 1972)

"For accurate estimates there must be field studies" (p. 33, 1972)

"These are crude, uncertain estimates" (p. 59, 1972)

"There is a lack of knowledge of irradiation" (p. 168, 1972)

"No allowance is made for failure to meet expected levels of per formance" (p. 50, 1972)

"Radiation protection may not be adequate" (p. 111, 1972)

" ...risk estimates presented here...are based on incomplete data and involve a large degree of uncertainty, especially in the low-dose region. These estimates may well change as new information becomes available." (p. 1, 1980)

"There were unresolvable differences among the members of the Subcommittee on Somatic Effects concerning the methods of interpretation of human data to arrive at an estimate of health risks of low-dose, low LET, whole-body radiation exposure." (p. x)1980

"There is great uncertainty in regard to the shape of the dose-response curve for cancer induction by radiation, especially at low doses." (p. 2, 1980)

"The role of constitutional susceptibility to cancer induction is not well enough understood, however, for it to be used as a factor to modify risk estimates." (p. 4, 1980)

Exception No. 9

The Board erred in allowing comparison statistics describing common lifetime risks, all of which, with the exception of cancer, have known avoidance characterisitcs. (Par. 280)

The Individual Lifetime Risk of cancer is one in 5.6, according to 1973 statistics of the Bureau of the Census. This is a very high risk, second

only to cardiovascular disease. To deliberately add to the already high risk, by building nuclear power plants, is contraindicated if human health and safety is a consideration. Life is already hazardous enough, as your figures prove so convincingly. That is the best possible reason for not intentionally adding to the dangers.

Exception No. 10

With respect to Cleeton Contention H, the Board erred in concluding that the Applicants and Staff have demonstrated the need for additional power and...that Unit 2 is needed to meet these future requirements." (Par. 387)

On page 13 of BECo's last report the following statements appear: (Referring to Pilgrim 2) "The Company is continuing to review the feasibility of the project on an ongoing basis and, when a more definitive schedule is determined for the granting of a construction permit, will be able to develop revised cost estimates and financing plans. At that time it will decide whether to cancel or continue construction of the unit. (Exhibit A)

Pilgrim 2 cannot be needed so urgently if the Company is admitting a wait and see attitude.

On February 24, 1981 Boston Edison announced that they are becoming a holding company in order to diversify into the fields of coal extraction and use and oil and gas exploration. This is a direct contradiction of BECo's testimony that nuclear fission is the only viable alternative for the company.

The need for more power is belied by the fact that other countries,

such as Canada, live as well as we do on much less energy than we consume. If we stop wasting power, there will be no need for additional power.

Exception No. 11

The Board erred in concluding that the Applicants are financially qualified to construct the proposed facility. (Par. 391)

There has been no demonstration that BECo is, in the current financial climate, able to finance their share of Pilgrim 2.

The Department of Public Utilities has not made any determination of BECo's capability in this regard. It is not possible at this point to determine the Company's monetary competence w th regard to Pilgrim 2.

Exception No. 12

With respect to Cleeton Contention I, the Board erred in concluding that "There are at present no viable alternative energy sources." (Par. 395)

See response to Exception No. 10.

Exception No. 13

The Board erred in its conclusion that "....from geographic and population viewpoints, the proposed Unit 2 site is suitable for the location of a nuclear plant of the general type and size proposed by the Applicants."

The population in this area has about doubled in the last five years and is continuing to increase rapidly. The summer population doubles that, and with thousands of day visitors makes this national seashore most unsuit-

able for another, or any, nuclear plant.

Exception No. 14

The Board erred in finding "the site suitable from hydrologic, geologic and seismic viewpoints." (Par. 397)

Cape Ann, only slightly more than fifty miles from Plymouth, was the scene of an earthquake so severe that the Massachusetts coast is now classified as a high earthquake zone.

One of the great earthquakes of the world occurred in South Carolina, in 1886. It was felt 950 miles away! (Plymouth is only 720 miles from the earthquake site.) Encyclopaedia Brittannica, 1956.

In 1811 and 1812 earthquakes occurred in New Madrid, Missouri, which affected 40,000 square miles. A region 150 miles long and 40 feet broad sank from three to nine feet, and river water rushed in. Ibid.

It is difficult to predict when and where an earthquake will occur. In the Lisbon earthquake of 1755, 30,000 people were killed, all large public buildings and 12,000 dwellings were demolished. A marble quay at the riverside disappeared into the river bottom laden with people. The total area affected was four times that of Europe. A fire followed which burned for six days. Ibid.

In a world where such things can happen, there is no safe place for nuclear fission operations, particularly in Plymouth, an area known to be in a high earthquake zone.

Exception No. 15

With respect to Cleeton Contention C, the Board erred in concluding that the "probability of an (aircraft) impact on vulnerable portions of the site is so small as not to be credible." (Par. 399)

Occurrences that are not credible do happen, as the following examples illustrate:

In an article summarizing a report by the Government Activities and Transportation Subcommittee it was contended that the failure patterns that led to DC-10 crashes were foreseen in analyses made in initial certification of the plane, but that analyses were not submitted to FAA because they were deemed "extremely improbable." (N. Y. Times Quarterly Index, April-June 1980)

Was it credible that a light plane would crash into a high-voltage line feeding the transformer used to shut down a nuclear power plant in an emergency? It happened in 1972, to a nuclear plant in Waterford, Connecticut. The transformer was knocked out for 8 hours. (Nugget File, USNRC) Suppose there had been an emergency?

Was it credible that repair workers at a nuclear plant would use a basketball to plug a suction pipe? It happened. The ball was sucked through the line, resulting in a spill of 14,000 gallons of radioactive cooling water from a tank holding spent nuclear fuel. (Ibid.)

Was it credible that 21 people in Boston would be smothered to death by a 50 foot wave of molasses? It happened on January 15, 1921, when a 90 foot storage tank on Boston Harbor front burst open and re-

leased 2.3 million gallons of molasses weighing 13,500 tons, which hit the North End at 35 miles an hour, swallowing eight buildings. (N.Y. Times 1/15/79)

Was it credible that the drinking water supply at a nuclear plant be connected to a 3,000 gallon radioactive waste tank, thereby contaminating the drinking water? It happened. (Nugget File USNRC)

Was it credible that after an automatic shutdown of a nuclear plant when backup generators are supposed to supply power to safety systems. blown fuses would make it impossible to start any of the emergency equipment, automatically or manually? It happened. (Ibid.)

Was it credible that instruments used to measure the level in emergency water storage tanks would be out of service because the pipes connecting them to the tank were frozen? It happened. The instruments, which start the vital reactor cooling cycle in an accident were inadequately protected from cold, a design error not uncovered before the plant was licensed. (Ibid.)

Was it credible that 30 cars of a freight train would be derailed at the precise moment that another train on a parallel track would pass and sideswipe it, rupturing a tank car carrying 60 to 80 tons of anhydrous ammonia? (Anhydrous ammonia fumes can cause death or permanent injury.) It happened on 5/16/76 to an eastbound Chicago and Northwestern freight train. Thousands of residents had to be evacuated.

Was it credible that the ground would open and suck in a house, trees, and sports cars? It happened, in Winter Park, Florida, and the hole had a diamter of 400 feet by May 11, 1981, and caused $2 million

dollars in damages. The base of the sinkhole has sunk to the Floridan Aquifer, an underground limestone latticework underlying all of Central Florida, and which supplies much of the area's fresh water. Experts blamed a recent drought, which caused lowering of the underground water table for formation of the sinkhole. Withdrawal of water from an underground limestone cavity created a vacuum, causing the ground to collapse when it couldn't withstand the weight of the surface earth, vegetation and buildings. (Woonsocket Call, May 12, 1981)

Was it credible that a large lake with barges and boats would simply disappear in front of the eyes of astonished observers? It happened on November 21, 1980 in southern Louisiana to Lake Pigneur, near the town of Abbeville, when a salt dome under the lake was punctured by an oil company worker drilling near by, causing the dome to collapse. ("Abbeville Meridional", 11/21/80)

We live in a world where the incredible happens much too frequently. Too many opportunities for error are involved here. Planes have been known to be greatly off course. The condition of airliners may be excellent, but there is no guarantee of that as the following indicates: The Report by the Government Activities and Transportation Subcommitee referred to on page 10 indicts the Federal Government's system for certifying the safety of airliners and urges adoption of twenty-four (24!) measures to upgrade the process. It urged the FAA to reassert authority over industry engineers. Apparently some safety factors are ignored,

as the DC-10 crashes revealed. Another consideration is the fact that accidents are increasing as the number of flights increase.

Besides possible flaws in the aircraft itself, there is the human factor to bear in mind. We know human beings are not perfect. Some of the finest pilots, with the best safety records, have gone down. Many different pilots will be guiding the planes during the thousands of flights over the general area in the next thirty years, in all kinds of weather. A catastrophic accident at a nuclear facility could have far more serious consequences than anything the world has ever seen. We cannot possibly predict whether or not there will be such an accident. It is prudent, therefore, out of concern for human health and safety, not to permit a plant to be built where there are opportunities for an accident. The Pilgrim site is just too close, to too many, continuous overflights.

Exception No. 16

With respect to Cleeton Contention E, the Board erred in concluding that "the testimony of the Cleetons' witnesses failed to show unusual circumstances whereby the Cleeton family is inordinately susceptible to the effects of radiation."

See response to Exception No. 6.

Exception No. 17

With respect to Cleeton Contention B, the Board erred in concluding "...the transport of nuclear materials to and from Unit 2 does not constitute

an unacceptable risk to the health and safety of the public or of the Intervenors in excess of that engendered by day-by-day commercial activity on the highways and railroads." (Par. 409)

In the midst of the hearings, new and more stringent regulations with regard to transportation were promulgated by the NRC. This action clearly indicates concern about transportation hazards. Yet the Board did not reopen hearings on this issue.

Now we have learned that nuclear materials are and will be traveling on Route 495, which goes right through our town of Franklin, near our home. Many transportation accidents have occurred and will continue to occur. No one knows when such an accident will be disastrous.

In conclusion, two points:

1. We note the several changes of administrative judges on the Board and question whether consistency of judgment is possible under this circumstance.

2. As citizens and taxpayers of this country, and as residents of the area under consideration, we feel entitled to a reasoned decision on the part of the Board, covering the many health, safety and environmental issues, instead of mere recital of selected portions of the testimony and then some totally unsupported conclusions, rejecting each contention raised.

Respectfully submitted,

Alan R. Cleeton

Marion W. Cleeton

Alan R. Cleeton & Marion W. Cleeton
Intervenor, Pro Se

Exhibit A

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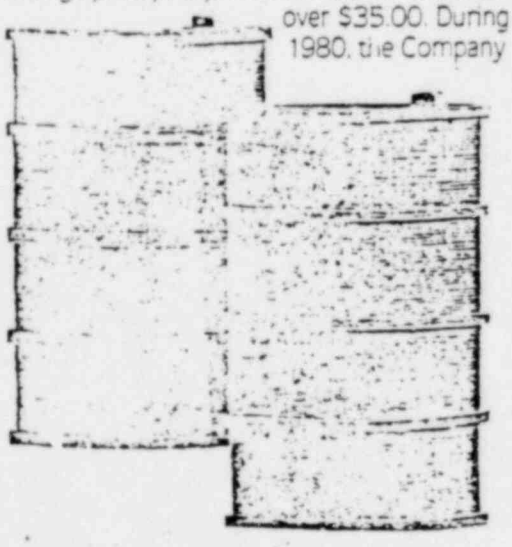
Improvements in system reliability continued to receive major attention. Improved maintenance of underground cables has reduced the in-service failure rate of these lines by 30 percent. Transmission and distribution reliability and more efficient control of substations will also improve when the new $11.7 million System Control and Data Acquisition system is installed. The new centralized system-wide control center will be in operation in 1981, monitoring and controlling 19 substations. The SCADA system as currently planned will grow to include 71 substations, all of which will be operated remotely from the control center by 1985. SCADA will allow system dispatchers to better monitor and control the system for routing of power through transmission and distribution lines to the end that restoration of service after power outages may proceed much more quickly, reducing inconvenience to customers.

Energy Strategy

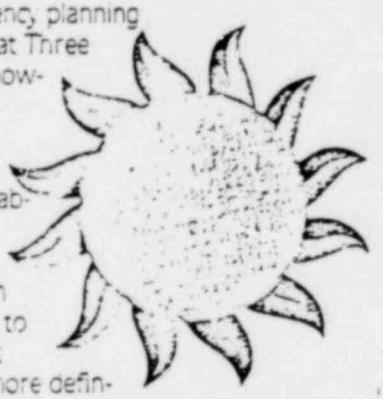
Energy, long taken for granted, is now the subject of daily public discussion. Two aspects of energy have captured the country's attention — ever-increasing price and future availability of supply. It is important to distinguish, however, that there is no shortage of energy, rather an over-reliance on imported fuel oil used to provide energy. It is a fuel crisis that has caused an energy crisis.

This past year has seen continued political unrest in the Middle East, causing supply uncertainties as well as price escalation from an average of $19.34 per barrel of residual oil in 1979 to $26.03 in 1980. By January 1981, the average price paid per barrel had increased to over $35.00. During 1980, the Company burned 15.4 million barrels of oil at a cost of $400 million. Oil generation amounted to 78 percent of its electricity production.



A major long-term corporate goal has been to substantially reduce oil-based generation by 1990. To achieve this objective, the Company plans to aggressively pursue nuclear energy, coal and gas utilization, Canadian power purchases, renewable energy resources and energy conservation.

A major component of the long-range plan has been the construction of Pilgrim Unit 2, a 1,150 megawatt nuclear generating station at the site of the present Pilgrim Unit 1 in Plymouth, Massachusetts. Boston Edison's share of this proposed plant's output will be approximately 650 megawatts which would be employed as baseload generation, displacing oil. The plant has been scheduled for service in the late 1980's, but the date is largely dependent on the successful completion of hearings by the Nuclear Regulatory Commission's Atomic Safety and Licensing Board and the subsequent issuance of a construction permit by the Nuclear Regulatory Commission (NRC). The company has received a partial decision from the NRC's Atomic Safety and Licensing Board dealing with all pending Pilgrim Unit 2 construction permit matters other than emergency planning and issues relating to the accident at Three Mile Island. The NRC has not yet, however, resumed the granting of construction permits following the accident at Three Mile Island and, as a result, no firm date can be established at this time for either the commencement of construction or commercial operation of Pilgrim Unit 2. The Company is continuing to review the feasibility of the project on an ongoing basis and, when a more definitive schedule is determined for the granting of a construction permit, will be able to develop revised cost estimates and financing plans. At that time it will decide whether to cancel or continue construction of the unit.



The Company is also considering new generating facilities in Weymouth at the old Edgar station site. Advanced technologies such as fluidized-bed combustion or coal gasification are being studied along with other alternatives for this location as they would contribute to a more advantageous mix of fuels for the future.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In tne Matter of	)	
	)	
BOSTON EDISON COMPANY, et al.	)	Docket No. 50-471
	)	
(Pilgrim Nuclear Generating Station, Unit 2)	)	

CERTIFICATE OF SERVICE

We hereby certify that copies of Intervenor Cleetons' Brief in Support of Cleeton Exceptions to the Partial Initial Decision of the Licensing Board in the above-captioned matter have been served on the following by deposit in the United States mail, first class, this 19th day of May, 1981.

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