



MICHAEL S. DUKAKIS
GOVERNOR

THE COMMONWEALTH OF MASSACHUSETTS

EXECUTIVE DEPARTMENT

STATE HOUSE • BOSTON 02133

October 7, 1990

The Honorable Kenneth Carr
Chairman
Nuclear Regulatory Commission

Dear Chairman Carr:

I have enclosed a copy of the Southeastern Massachusetts Health Study which was released today by the Massachusetts Department of Public Health. The study, which is the first of its kind in the nation, explored the relationship between leukemia incidence in 22 Massachusetts communities and potential for exposure to the Pilgrim Nuclear Power Plant. The major findings were:

1. Overall, individuals with the highest potential for exposure to Pilgrim emissions (i.e., those who lived and/or worked the longest and closest to the plant) had almost four times the risk of leukemia as compared with those having the lowest potential for exposure (i.e., those who live and/or worked the least amount of time and farthest from the plant).
2. No apparent relationship with the plant was observed for cases diagnosed between 1984 and 1986.
3. Among those cases diagnosed before 1984, a dose-response relationship was observed in that the relative risk of leukemia increased as the potential for exposure to plant emissions also increased.

Based upon these findings, the state of Massachusetts is implementing changes in our radiation monitoring program. Two major initiatives will be undertaken. The first is to significantly intensify radiological monitoring efforts around Massachusetts nuclear power plants beginning with the Pilgrim Plant by implementing a real-time (i.e., continuous) monitoring system. This real-time monitoring system must include stack emission monitoring capability. The second initiative is to establish emissions based on dose limits at the fence line of the plant. This guidance is presently set at 25 millirem/year by the EPA. Massachusetts proposes a standard of 10 millirem/year.

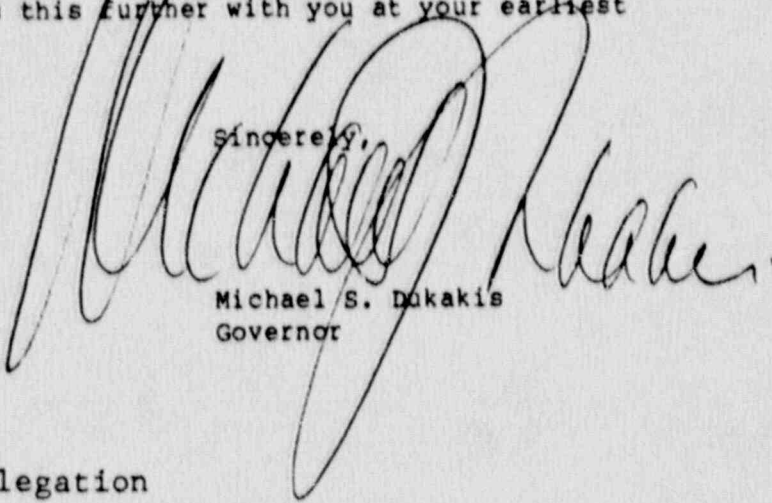
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The Nuclear Regulatory Commission should take steps to require offsite radiological monitoring programs at each and every nuclear power plant in the country. Further, the Massachusetts study strongly favors adoption of the EPA recommended emission standard for nuclear power plants. Finally, consideration should be given to replicating the methodology of the Massachusetts Department of Public Health Study at other selected sites around the country.

I would be happy to discuss this further with you at your earliest convenience.

Sincerely,



Michael S. Dukakis
Governor

cc: Mass. Congressional Delegation



OFFICE OF THE
EXECUTIVE DIRECTOR
FOR OPERATIONS

UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555

Nov. 5, 1990

Document Control Desk:

Attached are two documents which the Chairman's
office has requested be placed in the FDR. I
have sent them an advance copy.

A handwritten signature in cursive script, appearing to read "Margo".

Margo Bridgers
OEDO



The Commonwealth of Massachusetts
Executive Office of Human Services
Department of Public Health

150 Tremont Street

Boston 02111

Michael S. Dukakis
Governor

Philip W. Johnston
Secretary

David H. Mulligan
Commissioner

SUMMARY OF THE SOUTHEASTERN MASSACHUSETTS HEALTH STUDY

- In 1987, the Southeastern Massachusetts Health Study was initiated to explore the possible relationship between the Pilgrim Nuclear Power Plant and a significantly higher incidence of adult leukemia in males and a slightly elevated incidence for females among residents of a five town area near the Pilgrim nuclear power plant.
- The findings of this study show that the risk of leukemia for cases diagnosed between 1978-1983 was higher for those with the greatest potential for exposure (i.e., those who lived and/or worked the closest for the longest period of time) to the Pilgrim nuclear power plant. The risk of leukemia was almost four times higher for those individuals compared to those with the lowest potential for exposure. No relationship was observed for leukemia cases with the highest potential for exposure diagnosed between 1983 and 1986.
- 105 adult leukemia cases diagnosed between 1978 and 1986 were studied over a 22 town area, so that a broad range of exposure estimates could be tested.
- Although a cause and effect relationship cannot be proven, a possible explanation for this finding is that the elevated risk of leukemia may be associated with the higher plant emissions that occurred in the mid-1970s.
- Based on the results of this study, the DPH will undertake the following:
 - 1) Implement a system of continuous monitoring of radionuclide emissions so that reliable and timely information is available;
 - 2) Develop a state air quality standard more stringent than that of federal agencies and other states;
 - 3) Continue our surveillance of cancer in the Plymouth area through data collected by the Cancer Registry.

FOR MORE INFORMATION, CALL THE DPH AT 1-800-535-3937 from 9-5p.m. beginning Wednesday, October 10, 1990.



The Commonwealth of Massachusetts
Executive Office of Human Services
Department of Public Health

150 Tremont Street

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FOR IMMEDIATE RELEASE:
OCTOBER 9, 1990

FOR FURTHER INFORMATION:
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STUDY SHOWS ASSOCIATION BETWEEN POWER PLANT AND LEUKEMIA CASES
BETWEEN 1978-1983; BUT NO INCREASED RISK SINCE THEN

The Department of Public Health today released a study showing an association between leukemia cases diagnosed between 1978-1983 and potential exposure to the Pilgrim Nuclear Power Plant. No association was found between the plant and leukemia cases diagnosed after 1983.

The Southeastern Massachusetts Health Study, which explored the possible relationship between the Pilgrim Nuclear Power Plant in Plymouth, Massachusetts and adult leukemia, found the risk was four times higher for people diagnosed with leukemia between 1978-1983 having the greatest potential for exposure (i.e., those who lived and/or worked the closest for the longest period of time to the power plant) compared with those with the lowest exposure potential.

"It must be emphasized," Commissioner of Public Health David Mulligan said, "that the relationship was strongest for those diagnosed between 1978 and 1983. For individuals diagnosed between 1983 and 1986, there was no elevated risk of leukemia associated with the plant."

The Southeastern Massachusetts Health Study was initiated in 1987 because of a concern expressed by citizens, members of the legislature, and the Department of Public Health, that an excess number of leukemia cases in towns near the power plant may be related to emissions from the plant. Massachusetts Cancer Registry data showed that the number of leukemia cases were significantly elevated in males and slightly elevated in females living in a five town area near the nuclear power plant. For all types of leukemia, excluding chronic lymphocytic leukemia, the incidence among males for the years 1982-1984 was twice that expected (19 cases observed, 9.4 expected, based on a statewide average cancer incidence).

The design chosen permitted collection of detailed residential and occupational data, thus allowing for a better estimate of exposure potential to the Pilgrim Plant. Leukemia cases were ascertained from hospital medical records for residents of 22 surrounding towns, so that a broad range of exposure estimates could be tested. One hundred and five cases or 89% of the total number of leukemia cases diagnosed between 1978 and 1986 participated in the study with 208 participants in a control group.

The principle question addressed by the study was: to what extent is the risk of leukemia related to the potential for exposure to emissions from the Pilgrim plant? The potential for exposure was estimated by examining how close a place of residence was to the plant; how long the subject lived at the residence; how close a place of employment was to the plant; how long the subject worked at that job location; the geographical location of the places of residence and employment with respect to frequency of being downwind from the plant (based on meteorological data).

"Our findings that the risk of leukemia was almost four times higher for individuals who had the greatest potential for exposure as compared with those who had the lowest exposure potential suggest the risk of leukemia increased as the potential for exposure increased," said Mulligan. "Factors other than environmental radiation were examined and none, including occupation and smoking status, could account for the elevated risks associated with exposure to Pilgrim."

Mulligan said that while a cause and effect relationship cannot be proven, one possible explanation for this finding is that elevated risk of leukemia may be related to the higher plant emissions that occurred during the mid 1970s.

"Leukemia is a rare disease," said Dr. Van Dunn, Deputy Commissioner for Environmental Health. While an elevated risk of leukemia may be associated with the plant for cases diagnosed between 1978-1983, that risk appears to no longer exist for cases diagnosed after 1983. The Department does not recommend any special cancer screening for persons who may have lived/worked near the plant in the 1970's and early 1980's apart from the routine medical care check-ups normally recommended."

"It is not possible for an epidemiologic study to conclusively establish the cause of a health problem. The findings of this study suggest that the Pilgrim emissions higher than those from routine operation of the Pilgrim plant may have affected leukemia incidence in southeastern Massachusetts. In response to these findings we are committed to monitoring emissions from the Pilgrim Nuclear Power Plant and taking steps to reduce the level of emissions permissible from nuclear power plants in Massachusetts," said Secretary of Human Services Philip Johnston.

Johnston said that he and Governor Dukakis has asked the Department of Public Health to initiate the following:

(1) Implement a system of continuous monitoring of radionuclide emissions so that realible and timely information is available. A system consisting of gamma radiation detectors located at 16 different locations at a one-half mile ring around the Pilgrim Nuclear Power Station is planned. Radiation levels will be transmitted on a continuous basis by telephone line to a centralized data logger and computer to the Radiation Control Program at the Department of Public Health. In addition, the Department will continue the monitoring system it currently has in place.

(2) Develop a state air quality standard more stringent than that of federal agencies and other states. At the present time, air emissions from nuclear power plants are regulated by the Nuclear Regulatory Commission (NRC). During the 1970's the Environmental Protection Agency (EPA) established exposure guidelines of 25 mrem per year. It is recommended that Massachusetts adopt the strictest emission standard in the country, currently being proposed under the Clean Air Act, which would result in an exposure limit of 10 mrem per year.

(3) Continue surveillance of cancer in the Plymouth area through data collected by the Massachusetts Cancer Registry.

(4) Based upon the availability of resources, interview the families of childhood leukemia cases, in order to learn more about childhood leukemia risk in relation to the plant. Massachusetts Cancer Registry data from 1982-1986 did not show a elevated incidence of childhood leukemia in Southeastern Massachusetts. However, because this study shows an association between some adult leukemia cases and the power plant, a closer investigation of childhood leukemia cases would be warranted.

The Southeastern Massachusetts Health Study was conducted by the Environmental Health Assessment unit of the Massachusetts Department of Public Health. Robert Knorr Ph.D. and Martha Morris Ph.D. were co-principal investigators of the study.

The public may call 1-800-535-3937 for more information.