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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 13 1979

Frank Batley, M.D.
Professor of Radiation Oncology
Ohio State University Hospital
410 West 10th Avenue
Columbus, Ohio 43210

Dear Dr. Batley:

Senator Glenn forwarded your letter of June 8, 1979 to me for reply. I am a member of the dose assessment group that prepared an estimate of the population dose and health impact associated with the Three Mile Island Nuclear Station (TMI) accident. A copy of our report is attached together with a more detailed technical description of one of the calculational techniques.

Your suggestion regarding the use of film monitors at nearby hospitals to determine the amount and distribution of exposure is indeed appreciated. However, as you will recognize when you read the attached report, the doses associated with the noble gas releases from the TMI site were not large enough to be determined by hospital film monitors.

The highest dose recorded at an off-site outdoor location was less than 100 mrem for the total time period from March 28 through April 7 (our best estimate is 83 mrem). This location is about 0.5 miles from the site. The nearest hospital is about six miles from the site. At this distance, the average individual dose was estimated to be less than 15 mrem. This calculated dose applies to an individual standing outdoors for the duration of the accident. A film monitor worn by an individual inside the hospital would be exposed to the hospital's radiation environment as well as the radiation inside the hospital due to the TMI accident. It is our opinion that the dose component associated with the TMI accident would be very difficult or impossible to identify under these circumstances. Therefore, we relied primarily on the thermoluminescent dosimeters (TLD's) readings and various interpolation techniques to characterize the distribution of dose around TMI.

You may be interested in a follow-up study performed by the Department of Health, Education, and Welfare - Bureau of Radiological Health. Photographic film that was in the TMI vicinity during the accident was collected and analyzed in an attempt to determine dose. The results indicated that one roll of film purchased in Middletown, PA may have received an exposure of as much as 5 mR from Xenon-133. A copy of the report prepared by Dr. Ralph E. Shuping is attached.

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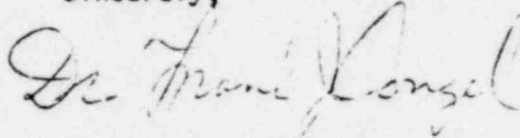
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Frank Batley, M.D.

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Thank you for your interest in this matter. If you have any additional questions or comments, do not hesitate to contact me.

Sincerely,



Dr. Frank J. Congel
Leader, Radiological Impact Section, RAB
Division of Site Safety and
Environmental Analysis
Office of Nuclear Reactor Regulation

Enclosures:

1. NUREG-0558
2. Detailed Calculations of Population
Estimates at TMI during the period
March 28, 1979 through March 31, 1979
3. Rpt. by Dr. Shuping re TMI Photographic
Film Dosimetry Project

cc: Senator John Glenn

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JOHN C. ...
DAVID ...

JOHN C. ...
DAVID ...

RICHARD A. WEDMAN
CHIEF COUNSEL AND STAFF DIRECTOR

United States Senate

COMMITTEE ON
GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON ENERGY, NUCLEAR
PROLIFERATION AND FEDERAL SERVICES
WASHINGTON, D.C. 20510

July 9, 1979

Dr. Frank Congel
Radiological Assessment Branch
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20014

Dear Dr. Congel:

Thank you for discussing with staff of the Subcommittee on Energy, Nuclear Proliferation and Federal Services your views concerning Dr. Frank Batley's suggestion of a survey of film monitor data from hospitals in the vicinity of the Three Mile Island nuclear plant.

As you recall, Dr. Batley recommended such a survey as a means of assessing radiation exposure resulting from the Three Mile Island accident. In a letter to me, a copy of which is enclosed, he suggested that tabulation of data from monitors in use during the plant's radiation release would indicate the amount of whole-body radiation and the distribution of exposure.

It is my understanding that you consider Dr. Batley's idea to be unworkable for several reasons:

- distance of hospitals from the plant (i.e., given the amount of radiation released, the hospitals were too far away for anyone there to have received significant exposure);
- inadequate sensitivity of film monitors (i.e., they are not designed to record the kind and degree of exposure involved here);

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- possibility that film badges were worn only indoors, or were not used at all during the relevant time period;
- difficulty of knowing how much exposure recorded on a particular monitor was from Three Mile Island and how much was occupational (i.e., of knowing how much exposure an x-ray technician received before going outside and being exposed to radiation from the plant, and vice versa).

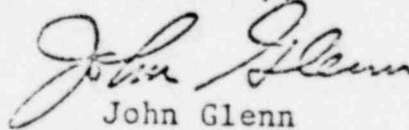
I note that the last three points would be relevant even if the first were not a factor.

Technical experts, government officials and the general public are all anxiously seeking valid, regional information on the Three Mile Island incident and its effects. We can only applaud a citizen's efforts to contribute to our fund of information. The Subcommittee would therefore appreciate your explaining in a letter to Dr. Batley why, in your view, the survey he has suggested would not be a successful method of dose assessment. Please forward a copy of the letter to the Subcommittee.

Thank you again for your cooperation.

Best regards.

Sincerely,



John Glenn

JG/lmm

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OSU

The Ohio State University

110 West Tenth Avenue
Columbus, Ohio 43210

Handwritten mark

June 8, 1979

Senator John Glenn
Chairman, Senate Investigation
Committee for Three-Mile Incident
204 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Glenn:

I have read in a report of the Senate investigation a statement that not enough monitors were available in order to determine the amount of radiation exposure during the "Three-Mile Island Incident". All radiologists and technicians working in x-ray departments wear film monitors for eight hours of each day. It would seem that if the data from hospitals in towns close by were surveyed, this would give an indication of the amount of whole-body radiation, and the distribution of exposure. The results from these, which I believe would show insignificant exposure, would at least help to reassure the public.

Also, I believe that all members of the Senate investigation committee, and others who are complaining about nuclear energy, should read Professor Fred Hoyle's book "Energy or Extinction - The Case for Nuclear Energy", published by Heinman Company.

Sincerely,

Frank Batley

Frank Batley, M.D.
Professor and Director,
Division of Radiation Oncology
Ohio State University Hospital

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