

Docket Nos. 50-10, 50-237, 50-268, 50-249 MAR 21 1972

Mr. Jacob D. Dumelle
Board Member
State of Illinois
Pollution Control Board
309 West Washington Street
Suite 300
Chicago, Illinois 60606

Dear Mr. Dumelle:

This is in reply to your letter of February 18, 1972, to Chairman Schlesinger regarding the statements before the Pollution Control Board of the State of Illinois by Representative Katz and Dr. Radford.

With regard to Dr. Radford's estimate of a dose of 680 millirems per year to people at one mile to the northeast of the Dresden site, there are several factors that may be helpful in placing such a computation in perspective.

1. Dr. Radford's dose estimate does not refer to actual doses delivered. It is a projection, based on an estimate of the dose due to operation of Dresden-1 alone, of what the dose might be from all three power reactors operating at 90% of capacity. He apparently has assumed that the dose to people would be linearly related to total power level. Dr. Radford indicates that his estimates are based on a USPHS survey of Dresden-1 done in 1968. We assume that he is referring to the survey reported in HEW publication BRH/DER 70-1, a copy of which is enclosed. Page 53 of the report states that the highest measured exposure rate, at station #110, adjusted for annual wind-direction frequency and wind speed in the appropriate sector, and the annual average gaseous fission product release rate during 1968 was 14 ± 5 millirems per year.
2. Technical specifications on release rates applicable to presently operating power reactors are based on 10 CFR Part 20, which is, in turn, based on the existing Federal Radiation Council (now the Environmental Protection Agency) guidance that doses received by the most highly exposed individuals in the general population should not exceed 500 millirems per year. It follows that, if the combined effluents from all of the plants at a particular site, for example the Dresden site, were permitted to operate for a full year at the

operating limit, doses to individual members of the public living near the site boundary of the order of 500 millirems per year might

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be expected to result. Although this has been the technical basis for our operating limits, we have never permitted individual facilities or combinations of facilities at a given site to operate for any extended period of time at their maximum operating limits. Measurements have been obtained independently by our Compliance Division during subsequent operation of Dresden-1 and Dresden-2. In the one-year period from October 1970 to October 1971, the quarterly doses to a person continuously present at the measuring station nearest the location referenced by Dr. Radford would have been about:

4th quarter, 1970	9 millirems/quarter
1st quarter, 1971	8 millirems/quarter
2nd quarter, 1971	12 millirems/quarter
3rd quarter, 1971	22 millirems/quarter

or an average of about 13 millirems/quarter, for an average annual rate of about 50 millirems/year.

3. In December 1970, the Commission promulgated amendments to 10 CFR Parts 20 and 50 (copy enclosed) which require that levels of radioactive material in effluents to unrestricted areas from light-water-cooled nuclear power plants be kept as low as practicable. We expect that for plants designed and operated in accordance with this requirement, resulting doses to members of the public would not be likely to exceed a small percentage of the FRC/EPA guidance of 500 millirems per year. The amendments also require that equipment be installed capable of routinely controlling releases such that doses are this low, and that this equipment be maintained and used. Technical specifications developed since that time require that licensees control effluents such that material released is kept as low as practicable. Similar provisions have been applied to Dresden-2 and Dresden-3.
4. In June 1971, the Commission published a proposed amendment to 10 CFR Part 50 (copy enclosed) which would provide a numerical definition of the qualitative "as low as practicable" criterion stated in the amendment of December 1970. A new proposed Appendix I would establish design objectives for effluent releases such that doses to members of the public would not exceed 5 millirems from liquid and 5 millirems from gaseous effluents. Following completion of the hearings presently being conducted on the proposed amendments, we expect to publish amendments to Part 50 in effective form that would specify numerical values for design objectives and limiting conditions

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for operation of light-water-cooled power reactors. Under the proposed criteria extended operation of such plants at more than a few percent of the FRC/EPA guidance level of 500 millirems per year to the most highly exposed individual would not be permitted.

- 5. Pending promulgation of the above described amendment to Part 50, we have been imposing related requirements on particular power plants. Specifically, for the Dresden-1 facility, the licensee has proposed an instantaneous action level, based on a dose rate of 75 millirems/year at the boundary of the site, above which action would be required to reduce levels. Specifically for Dresden-2 and Dresden-3, AEC requested the licensee on December 4, 1970, to submit plans for installation and operation of additional gaseous holdup systems. The licensee agreed by letter dated June 1, 1971, and now is in the process of procuring these augmented systems. In addition, for the Dresden-1 reactor, AEC requested the licensee on July 22, 1971, to propose technical specifications that would reduce allowable rates of leakage to the lowest practicable level.
- 6. In summary, public doses as high as Dr. Radford's 680 millirems could occur only if the Commission were to permit licensees to operate such that members of the general public would receive dose rates of 500 or more millirems per year for a period of as long as a full year. The record shows that short term dose rates this high have not occurred, and the Commission does not propose to permit annual doses to individual members of the public to exceed a few percent of this guidance level.

We received the Applicant's Environmental Report for the Midwest Fuel Recovery Plant from General Electric in July and have completed preparation of the environmental impact statement, a copy of which accompanies this letter. We will be happy to discuss any aspect of this statement with you, should you so desire.

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Sincerely,

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LESTER ROGERS

Lester Rogers, Director
 Division of Radiological and
 Environmental Protection

Enclosures:

- 1. BRH/DER 70-1
- 2. 12/70 Amendments to Parts 20 & 50
- 3. 6/71 Proposed Amendment to Part 50

OFFICE	Environmental Impact Statement for Midwest Fuel Recovery Plant	DRL	OGC	REP:DIR
SURNAME	REP:RPB	REP:ADRP	CO	DSkovolt
DATE	JNehemias:sf	CGamertsfelder	LKornblith	JBecker
	3-14-72	3-14-72	3-14-72	3-14-72

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