



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

August 11, 1989

Mr. Rick A. Sloan
36 Ferris Drive
Decatur, Illinois 62521

Dear Mr. Sloan:

This is in response to your letter of July 22, 1989, about your concerns pertaining to the Clinton Power Plant.

First, you asked about the probability of a radioactivity release from the Clinton Plant. This question needs further qualification because all material things are, and always have been, radioactive. We release radioactive gases every time we exhale and everything releases radiation all the time. Generally, the amounts of radioactivity and radiation released are too small to cause concern. The Clinton Plant has the potential for releasing more radioactivity and radiation by nature of the process utilized to generate electricity. This is safe, however, because of the strict limits on how much that can be released during normal operations and the stringent design, construction, and operational practices that are utilized to prevent accidents from occurring. The probability of a major release, one that might injure a member of the public, from an American nuclear power plant is quite small. There has never been such a release even though commercial nuclear power plants have been in operation for 29 years. We try to ensure that the theoretical risk to a person living within a mile of a nuclear power plant is no greater than one in a million, even if the plant operates for 50 years. The chances of a release from a nuclear plant endangering someone 30 miles away, of course, are much, much smaller.

Your second question was about the wisdom of purchasing a dosimeter. If you are thinking of buying a dosimeter to improve your chances of evacuating in time to be safe, we do not believe it will be of much use. For one thing, the chances of needing to evacuate to escape a radiation release are much smaller than other common risks. In our emergency plans, we do not even consider the possibility of needing to evacuate areas more than 10 miles from the plant. Another important reason for not relying on your own dosimeter is that any evacuation should occur before there is a dangerous release.

Thirdly, you asked about the price of dosimeters. The price varies greatly with the capabilities and characteristics of the dosimeter. Simple film badges and TLDs that give no warning but do measure the radiation dose cost only a few dollars. A monitor that would provide a warning should cost a few hundred dollars. A quality instrument capable of measuring the radiation normally found in American homes can be expected to cost several thousand dollars.

DF01
/1

Then you asked about the advisability of giving potassium iodide to children if there were a serious release. We do not recommend the use of potassium iodide except in certain specific situations. The problems with potassium iodide are: (1) it offers protection only for the thyroid, not for other organs, and only for radioactive iodine, not other radioactive materials; (2) it is effective only if taken at the right time; (3) it has potentially lethal side effects in some people; (4) it remains effective for only a limited time in storage; and (5) it costs too much for the limited good it might do.

Next, you asked about the existence of an evacuation plan and a private citizen's access to the plan. Every nuclear power plant has an emergency plan (it addresses more than evacuation) and the plan for Clinton is available for anyone to read at the local NRC Public Document Room which is in the Warner Library, 120 W. Johnson, Clinton, Illinois 61727.

You wanted to know who is in charge of an evacuation. Any actual evacuation would be directed by the State and local authorities, based on a decision by the Governor. These authorities would have access to the NRC and other Federal agencies for advice and support. The NRC and the Department of Energy would send teams to the site to provide assistance, and numerous other agencies would participate. Illinois has a particularly strong Department of Nuclear Safety that also would participate. Thus, there would be abundant backup and support for the local authorities.

Your next question dealt with places where one can be trained "in reading REMs". Radiological training programs are widely available. Most universities have such programs, and the program at Purdue is well known. For more specific information about what is available locally, you could talk to someone in the NRC office in Glen Ellyn, Illinois; Marty Schumacher, (312) 790-5514, might be helpful.

You asked about acceptable levels of radiation. Different levels of exposure are acceptable for different purposes. The amount of radiation an individual receives is called "dose" and is measured in "rem". On the high end of the scale is radiation therapy where patients often receive very large doses, over 200,000 rem, for specific problems. The basis for acceptability is that the responsible physicians decide that this is the best available treatment under the existing circumstances. The limit for exposure of radiation workers in nuclear power plants, hospitals, laboratories, etc., is 30 rem per year to the thyroid gland. The basis for this limit is that at this level of exposure for 50 years, there would be no observable ill effect and the theoretical risk of radiation-induced cancer would be similar to the risk of fatal accidents in other safe industries.

For emergency planning for nuclear power plants, protection actions (such as evacuation) are to be taken to prevent a dose of 25 rem to the thyroid of a member of the public. The basis of acceptability is the judgment that a smaller dose would present such a small risk that its avoidance would not justify evacuation.

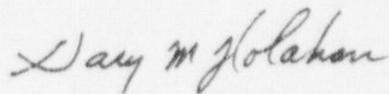
Finally, there is the limit for exposure of the thyroid of a member of the public from normal operation of a nuclear power plant which is 0.015 rem per year. The basis for the acceptability of this number is that it is a dose normally associated with non-radiological activities. For example, moving from a wooden house to a house made of concrete block or stone probably would produce more radiation dose than would come from living next to a nuclear power plant.

You wondered if the U.S.A. got any radioactive fallout from the accident at Chernobyl. The maximum dose received by an American is estimated to be only about 0.003 rem to the thyroid. This dose is about equivalent to the dose each of us receives every day from nature.

Finally, you asked how many nuclear power plants there are in the area. The closest plants (other than Clinton) are LaSalle and Byron; both are more than a hundred miles away.

We hope this letter provides the information you need. Please let me know if we can be of further assistance.

Sincerely,



Gary M. Holahan, Acting Director
Division of Reactor Projects III,
IV, V, and Special Projects
Office of Nuclear Reactor Regulation

August 11, 1989

Rick A. Sloan

- 3 -

Finally, there is the limit for exposure of the thyroid of a member of the public from normal operation of a nuclear power plant which is 0.015 rem per year. The basis for the acceptability of this number is that it is a dose normally associated with non-radiological activities. For example, moving from a wooden house to a house made of concrete block or stone probably would produce more radiation dose than would come from living next to a nuclear power plant.

You wondered if the U.S.A. got any radioactive fallout from the accident at Chernobyl. The maximum dose received by an American is estimated to be only about 0.003 rem to the thyroid. This dose is about equivalent to the dose each of us receives every day from nature.

Finally, you asked how many nuclear power plants there are in the area. The closest plants (other than Clinton) are LaSalle and Byron; both are more than a hundred miles away.

We hope this letter provides the information you need. Please let me know if we can be of further assistance.

Sincerely,

original signed by:

Gary M. Holahan, Acting Director
Division of Reactor Projects III,
IV, V, and Special Projects
Office of Nuclear Reactor Regulation

DISTRIBUTION

Docket File (50-461)
NRC PDRs
EDO#0004646
EDO r/f
TMurley/JSniezek
JPartlow
PDIII-2 r/f (w/cy of incoming)
GHolahan
MVirgilio
OGC
PGA/CA

SECY
JTaylor
DMossburg, PMAS (ED00004646) w/cy of incoming
MKrebs
JHickman w/cy of incoming
LLuther
FMiraglia
FGillespie
DCrutchfield
PDIII-2 plant file

*PREVIOUSLY CONCURRED

| | | | | |
|--------------|-------------|----------------|--------------|--------------|
| *PDIII-2:PM | *PDIII-2:LA | *PDIII-2:(A)PD | *Tech Editor | (A)AD:DRSP35 |
| JHickman:dmj | LLuther | PShemanski | RSanders | MVirgilio |
| 8/8/89 | 8/8/89 | 8/8/89 | 8/8/89 | 8/11/89 |

[Signature]
(A)AD:DRSP
GHolahan
8/11/89

Finally, there is the limit for exposure of the thyroid of a member of the public from normal operation of a nuclear power plant which is 0.015 rem per year. The basis for the acceptability of this number is that it is a dose normally associated with non-radiological activities. For example, moving from a wood house to a house made of concrete block or stone probably would produce more radiation dose than would come from living next to a nuclear power plant. This discussion just skims the subject, but it should show that safe limits are being imposed on the plants we license.

You wondered if the U.S.A. got any radioactive fallout from the accident at Chernobyl. The answer, of course, is yes, but not much. The maximum dose received by an American is estimated to be only about 0.003 rem to the thyroid. This dose is about equivalent to the dose each of us receives every day from nature.

Finally, you asked how many nuclear power plants there are in the area. The closest plants (other than Clinton) are LaSalle and Byron, both are more than a hundred miles away.

I hope this letter provides the information you need. Please let me know if I can be of further assistance.

Sincerely,

Gary M. Holahan, Acting Director
Division of Reactor Projects III,
IV, V, and Special Projects
Office of Nuclear Reactor Regulation

DISTRIBUTION

Docket file (50-461)
NRC PDRs
EDO#0004646
EDO r/f
TMurley/JSnizek
JPartlow
PDIII-2 r/f (w/cy of incoming)
GHolahan
MVirgilio
OGC
PGA/CA

SECY
JTaylor
DMossburg, PMAS (ED00004646) w/cy of incoming
MKrebs
JHickman w/cy of incoming
LLuther
FMiraglia
FGillespie
DCrutchfield
PDIII-2 plant file

PDIII-2:PM
for JHickman:dmj
8/8/89

PDIII-2:LA
LLuther
8/8/89

PDIII-2:(A)PD
for PShemanski
8/8/89

Tech Editor (A)AD:DRSP35
Raylondine MVirgilio
8/8/89 8/ /89

(A)D:DRSP
GHolahan
8/ /89

ADP:NRR
JPartlow
8/ /89

DD/ONRR
JSnizek
8/ /89

DONRR
TMurley
8/ /89

(A)EDO
JTaylor
8/ /89