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SEP 30 1980

Docket Nos. 50-338
and 50-339

Ms. Ann S. Hepler
2117 Parkside Avenue
Richmond, Virginia 23228

Dear Ms. Hepler:

This letter is in response to your letter dated July 24, 1980 to the Nuclear Regulatory Commission (NRC) wherein you requested information regarding the North Anna Power Plant.

The information requested by you related to plant operating experience and, therefore, this letter addresses plant operations at the North Anna Power Station, Unit 1 (North Anna One) which was issued an Operating License on November 26, 1977. The license permitted fuel loading and was subsequently amended April 1, 1978 to permit North Anna One to operate at 100 percent power. The North Anna Power Station, Unit 2, just recently issued a full power Operating License on August 21, 1980, does not at this time have a sufficient data-base of operational experience required to respond to your questions.

For each nuclear power plant licensed under Title 10 Code of Federal Regulations, Part 50 (10 CFR Part 50), the Technical Specifications set forth requirements for the reporting to the NRC information concerning reportable occurrences. The reportable occurrences are submitted to the NRC in Licensee Event Reports (LERS). In general, such events are those that cause or threaten to cause, a condition affecting safe operation of a nuclear facility. The NRC collects and evaluates this operational information concerning licensed nuclear facilities to assess safety, and to form a basis for comparing plant performance with design objectives.

These reportable occurrences or LERS are incidents or events that involve systems, component or structural failure or malfunction, personnel error, design deficiencies, management deficiencies, and other matters related to plant safety. For example, they might involve a variance from the regulations, such as personnel overexposures, radioactivity releases above prescribed limits, and malfunctions of safety-related equipment.

Because of the multiple levels of protection, or "defense-in-depth," including the provisions of redundant safety-systems and components, such events do not, in general, affect safety directly and do not have an actual impact or consequence on the health and safety of the public. However, the information regarding these events is useful to the NRC and to the nuclear industry in their efforts to improve safety. Therefore, these events are brought to the attention of the NRC through a variety of reporting requirements or by NRC inspection, and if required, appropriate enforcement and corrective actions are thereafter taken.

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Under Section 208 of the Energy Reorganization Act of 1974, the NRC is required to report to the Congress every quarter, a listing of each occurrence defined in that Section as, "--- an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety." Accordingly, the NRC reviews reportable occurrences submitted in the LERS and determines which must be reported to Congress. An event is considered significant and hence, reportable, if it involves an actual loss of protection, or a major reduction in the degree of protection, provided for the health and safety of the public.

The NRC's responsibility to keep the public informed regarding nuclear safety does not begin and end with its reporting requirements to the Congress. Information pertaining to abnormal or reportable occurrences at NRC licensed or regulated facilities is released to the public, the nuclear industry, and other interested groups as they occur. The LERS describing reportable occurrences are placed in the NRC Local Public Document Rooms every two weeks as well as in the Washington, D. C., NRC Public Document Room. A North Anna Power Station Local Public Document Room is located at the Board of Supervisor's Office, Louisa County Courthouse, Louisa, Virginia, which is approximately 20 miles from the town of Bumpass, Virginia, mentioned in your letter.

In your letter you asked, "How many reported problems has this power plant had that have come to your attention and what were they?"

For North Anna One, 351 LERS have been recorded from the date of issuance of the Operating License (November 26, 1977) through August 26, 1980. It is not possible to describe all of these events in this letter. However, an NRC computer printout of the North Anna One LERS listed in chronological order and with the event/cause description is enclosed for your information.

You also asked, "How does it rate compared to other nuclear plants in the nation as far as performance rating and also reported incidents?"

For the first six months of calendar year 1980, the North Anna One Unit Availability and Capacity Factors were 73.6 percent and 62.9 percent, respectively. For the same period of time the national average for unit availability and capacity factors were 59.4 percent and 52.4 percent. Thus, one can see for this period of time, that North Anna One is above average for on-line availability. Comparison of 1978 and 1979 data also indicate North Anna One to be above the national average.

North Anna One for the year 1979 reported more LERS on a per-unit basis than any other nuclear power plant in the nation. North Anna One reported 154 LERS whereas the national average was 34 LERS.

It should be noted that the total number of LERS in themselves is not an adequate index for plant specific performance. Counting the number of reported occurrences is not the same as counting and analyzing those events which have safety significance. For example, the drift of one of several redundant instruments should not be held at the same level of importance as a failure of the electrical distribution system to the Engineered Safety Features Actuation System.

Also, there are nonuniformities in reporting requirements due to differences in plant specific Technical Specifications, differences in the type of reactor and differences in the individual utilities' reporting practices.

Finally, in support of over-reporting (as compared to under-reporting), it is noted that there are instances in which some events, which when examined individually do not appear to be significant - but when reviewed in the context of similar events recurring at the same plant or occurring at two or more facilities may reveal an emerging safety significant problem.

In your letter you also asked what a normal radiation reading would be with no nuclear power plant nearby.

Man is continually exposed to ionizing radiation which occurs naturally. There are three primary sources of this natural radiation. These are: (1) solar and galactic radiation, (2) long life radionuclides in the earth's crust and (3) radionuclides formed in the atmosphere from the interactions of cosmic radiation with gases in the atmosphere. Radiation that man is exposed to is measured in units called millirem (mrem).

This normal background radiation varies in intensity according to latitude and altitude. The average United States background is 88 mrem per year. The Eastern Coastal Plain measures 65 mrem per year. Non-coastal areas of the United States register 88 mrem per year and Denver, Colorado (the mile-high city) registers 165 mrem per year. The average natural background radiation level for the State of Virginia is 77.7 mrem per year and Bumpass, Virginia, has a background level of 0.168 mrem per day or 63 mrem per year.

Operations at the North Anna Power Station are controlled by the Technical Specifications appended to the operating licenses for North Anna One and Two so that releases of radioactive materials to unrestricted areas during normal reactor operations, including expected operational occurrences, are as low as is reasonably achievable. The potential doses are controlled by restrictions on the rate of radioactive liquid and gaseous effluent releases and are further monitored through the North Anna Power Station

Radiological Environmental Monitoring Program. This monitoring program was established and in effect well before any reactor operations were allowed. The data collected from this monitoring (air, soil, and water) allows one to compare preoperational and operational measurements and assess any effects to the off-site environment around the North Anna Power Station.

The Virginia Electric and Power Company (the licensee for the North Anna Power Plant) has maintained a radiation monitoring station at Bumpass, Virginia, as part of its environmental monitoring program. This station as well as eleven other stations encircle the power station and periodically check radiation background levels through the use of thermoluminescent dosimeters.

The Bumpass station is located behind the Bumpass Post Office and Fire Station which is only a short distance from your farm. Preoperational background radiation levels at the Bumpass station measure 66.6 mrem. Operational background radiation levels measure 63 mrem. The difference in the two measurements (66.6 mrem versus 63 mrem) is postulated to be due to (1) changes in the amount of phosphate fertilizer used for agriculture purposes, (2) fallout from nuclear weapons testing, and (3) cyclic changes in solar activity. Also, it should be noted that background radiation levels measured at any fixed station can vary by as much as 15 percent on a yearly basis.

Finally, your letter requested that the air, soil, and water on your farm be checked for radiation levels. The NRC does not measure air, soil and water samples on an individual basis as requested in your letter.

However, the NRC compiles the environmental monitoring data from each of the operating nuclear power plants in the nation. These data are submitted by reactor licensees on an annual basis. In general, the data indicates that radioactive effluents from routine reactor operations are either not detected in the environment or are detected for short periods of time at levels that are small fractions of the operating limits as prescribed by the Technical Specifications.

Since the licensee performs radiation surveys at locations that are expected to yield the highest concentrations, other locations more distant from the reactor site would experience even smaller concentrations. For example, your farm is sufficiently distant from the plant (approximately 8 miles) so that one would not expect to find any detectable radioactivity that would be associated with the North Anna Power Station operations.

OFFICE ▶					
SURNAME ▶					
DATE ▶					

Ms. Ann S. Hepler

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I trust this letter addressed the information requested in your letter. A copy of this letter is being sent to Congressman J. Kenneth Robinson, 7th Congressional District, State of Virginia.

Sincerely,

(Signed) T. A. Robins

for William J. Dircks
Executive Director
for Operations

Enclosure:
LER Output On North Anna 1
Operational Events From
Operation to the Present.
(August 26, 1980)

cc: The Honorable J. Kenneth Robinson

Excellent job.

EW
NRR
EGCase
9/14/80

SH
NRR
HRDenton
9/14/80

EDD
WDircks
9/24/80

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DATE	9/10/80	9/16/80	9/16/80	9/17/80	9/23/80	9/24/80