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

DEC 20 1978

The Honorable John H. Chafee
United States Senate
Washington, D. C. 20510

Dear Senator Chafee:

This is in reply to Mr. Dunnington's October 27, 1978 letter of concern regarding decommissioning of nuclear facilities and in particular nuclear reactors. At the outset, it would be useful to clarify the definition of decommissioning as used by the NRC staff; namely, the effective decontamination of the radioactive constituents of a site and facility so that they can be released for unrestricted use by the public. Mr. Dunnington's main concerns stem from the assumed length of time required (one to two centuries for a nuclear reactor) before decommissioning can take place. Based on the detailed technical study done for the NRC by Battelle Northwest Laboratory of a reference pressurized water reactor (PWR), an 1175 MWe reactor typical of the majority of today's nuclear power plants, decommissioning can be completed in as little as four years after reactor shutdown, after a two-year preplanning stage during the last years of reactor operation.

Studies by Battelle are being done to establish an information base on the decommissioning of nuclear facilities as part of the NRC Plan for Reevaluation of Decommissioning Policy as described in NUREG-0436 and further described in a shortly forthcoming, updated version of NUREG-0436 (Revision 1). Two of the Battelle reports have been published, NUREG-0278 and NUREG/CR-0130, on the decommissioning of a fuel reprocessing plant and a pressurized water reactor, respectively. Their report on the decommissioning of a mixed oxide fuel fabrication plant (NUREG-0129) will shortly be issued. All of the Battelle studies have been based on the conceptual decommissioning of actual facilities which have generic applicability to other currently existing facilities having eventual need for decommissioning. The studies draw on much information and experience concerning the actual decommissioning of both commercial and DOE facilities. In performing these studies careful consideration is given to the manner of decommissioning so as not to compromise the health and safety of the general public as well as the decommissioning workers. The conclusions of the studies performed thus far convince us that decommissioning of nuclear facilities can be safely done in a timely and cost effective manner. Further delineation of the conclusions of the Battelle studies are: (1) the technology for safely decommissioning a nuclear facility, and in particular a nuclear reactor, in a timely manner is well in hand; (2) the cost of decommissioning a nuclear facility is reasonable and for a large nuclear reactor is between 5 to 10 percent of its current day value.

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Mr. Dunnington also expressed concern about the dangers of earthquakes or flooding or other natural phenomena compromising the integrity of the radioactive components of nuclear facilities which, he says, cannot be decommissioned for long times. We have already indicated that decommissioning can be accomplished on a short term basis. It should also be noted that commercial facilities are carefully regulated by the NRC from the preconstruction stage, through the operating stage and postoperating stage, until the facility can be released for unrestricted use (e.g., decommissioned). Prior to construction, careful consideration is given to site suitability regarding, among other things, potential seismic and hydrologic problems such as earthquakes or flooding or combinations thereof. Moreover, careful consideration is also given to proposed facility designs and implementation to ensure that appropriate conservative engineering procedures are being followed which would mitigate any dangers associated with even the remote possibility of any natural catastrophies. The manner of NRC regulation is described in Title 10 of the Code of Federal Regulations (CFR). For a nuclear reactor, for example, 10 CFR 50, and in particular Appendix A, "General Design Criteria for Nuclear Power Plants," and 10 CFR 100, and in particular Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," indicate how the concerns that Mr. Dunnington expressed regarding the potential earthquake or flooding or combinations of the two are dealt with.

Concerning Mr. Dunnington's comment on the amount of land committed to nuclear facilities, it should be noted that most of the land Mr. Dunnington refers to is in large unpopulated areas committed for national defense installations. These lands are Federally owned DOE reservations where only a small portion of the land is actually committed to nuclear matters. The DOE facilities do not come under NRC regulation. However, DOE has tended to follow the practices and procedures prescribed by the NRC in its regulation of commercial facilities, as described in Title 10 of the Code of Federal Regulations.

Sincerely,

(Signed)
Lee V. G...
Exe...
for ...

2162 048

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Ltr from John F. Dunkleberger concerning the irreversible commitment of land to nuclear facilities

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Incoming: Senator John H. Chafee
From: Constituent referral of John Dunnington

To: Chairman Hendrie Date 11/22/78
Subject: Questions on decommissioning & siting of plants near water sources

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☐ Commissioner _____
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☐ _____
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☐ For appropriate action
☐ For information
☐ For recommendation

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For the Commission: Combs

*Send three (3) copies of reply to Secy Mail Facility

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2162 050

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United States Senate
COMMITTEE ON HUMAN RESOURCES
WASHINGTON, D.C. 20510

November 22, 1978

Mr. Joseph M. Hendrie
Chairman
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Dear Chairman Hendrie:

I am sending along to you for your comment a letter from John Dunnington of Kingsport, Rhode Island, regarding recycling and safety of nuclear facilities.

Mr. Dunnington is especially concerned about the locating of such facilities along river banks and the possible flooding of the sites. Any information you can offer about the period of commitment of land for nuclear plants would be helpful.

I look forward to hearing your thoughts on this issue.

Sincerely,

John H. Chafee

John H. Chafee
United States Senator

JHC:adb

Enclosure

2162 051

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MF

October 27, 1978

POOR ORIGINAL

Senator John H. Chafee
United States Senate
Washington, D. C. 20510

Dear Senator Chafee:

How is land containing worn out Nuclear facilities and waste being recycled? How much land is involved?

Am I to surmise from my readings that we have irreversibility committed 4,000 to 6,000 square miles of land (about the size of Connecticut) to nuclear facilities, "never again," to be used for other human uses "for all time?" To begin--five of DOE's 26 reservations cover, roughly, 3,150 square miles . . .

Since eminent nuclear scientists have made it clear that a reactor cannot be dismantled for a least a century or two once the chain reaction begins, then why have we constructed reactors and other radio toxic facilities, along river banks, above population concentrations and below major water impoundments. What is the danger of an earthquake in the Tennessee or Savannah watershed bursting dams and flooding existing nuclear facilities?

Can you assuage my apprehension?

Sincerely,

John Dunnington

2162 052

John F. Dunnington
P. O. Box 317
Kingston, R. I. 02881

Enc. 1

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NUCLEAR LAND USES

Nevada Testing Grounds, Nevada	1350	sq. mi.
Hanford Works Reservation, Washington	875	" "
Savannah River Plant, South Carolina	250	" "
National Reactor Testing Station, Idaho	600	" "
Oak Ridge, Tennessee	75	" "
Total Roughly	3150	sq. mi.
All Others	xxx	
Sum Total	unknown?	

EIS, Sequoyah Nuclear Plant, 1974. TVA, Chattanooga, Tennessee.

"Since the ultimate disposition of the plant buildings and materials has not been determined, it must be assumed that both the land and construction materials will be irreversibly committed".

Rebuttal Letter. NRC to Comptroller General of the U.S.,1977.

"With respect to nuclear power reactors it is true that, with the exception of dismantlement, the other methods of decommissioning (mothballing and entombment) that have been identified as being acceptable to the commission are not final, in that they do not provide acceptable disposition of the facility for all time". How many nuclear facilities have been dismantled?

October, 1978: TVA has or is constructing four twin reactor plants on the Tennessee River and I am aware of "Hypothetical" Dam "Collapse" studies, but, am wary of the NRC's "one to three feet above max flood" requirement as being adequate "for all time". How secure is the Old Savannah River Plant which lies below large earth dams?

DEIS, 1978. Naval Auxiliary Landing Field, Charlestown, R.I.

This report notes, when discussing power plant decommissioning, that due to ^{59}Ni activity in the core shroud, dangerous Beta and Gamma radiation is emitted from the surface for 505,000 years before it meets NRC's standards for safe disposal in the natural environment. How much land will be taken up with the storage of all this bulk and how will it be secured?

2162 053

October 16, 1978

John F. Dunnington
Box 317
Kingston, R.I. 02881