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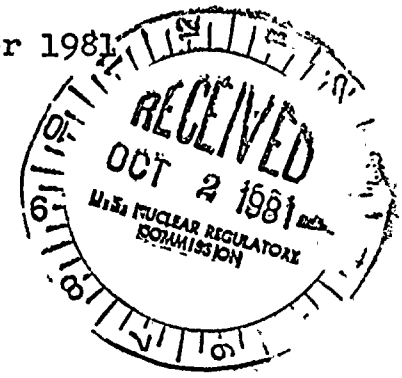

U.S. Nuclear Regulatory Commission
Washington, D.C., 20555

Attention: Director,
Division of Licensing

Dear Director:

Enclosed are my comments on the Draft Environmental Statement related to operation of WPPSS Nuclear Project No 2, NUREG- 0812. Please note that the opinions and calculations presented here are my own, and not necessarily those of The Pennsylvania State University, which affiliation is given for identification purposes only.

I should note that the statement of policy refered to on page 5-46 as being dated January 19, 1979, was actually dated January 18 , 1979.

I hope these comments are used in developing the Final Environmental Impact Statement.

Sincerely,

William A. Lochstet

Wm. A. Lochstet, Ph.D.

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The Long Term Health Consequences and Environmental Impact of Postulated Accidents WPPSS Nuclear No. 2

by

William A. Lochstet
The Pennsylvania State University*

September 1981

The Nuclear Regulatory Commission (NRC) has attempted to evaluate the health consequences of the operation of the Washington Public Power Supply System (WPPSS) , Washington Nuclear Project Number 2 (WNP-2) in the draft Environmental Statement NUREG-0812 (Ref. 1). The health consequendes of the radon-222 released from the mill tailings and mines are evaluated for the first 1000 years in Appendix K(Ref. 1). This evaluation suggests (Ref. 1, Page K-5) that the radon emissions increase after the first 500 years have elapsed. There is no suggestion that there is any reason to believe that these emissions will stop at that time (1000 years), or at any later time.

The fact is that these radon emissions are governed by the 80,000 year half life of thorium-230 , the 4.5 billion year half life of uranium-238, and the amount of material covering the tailings. The thorium situation has been adequately discussed by Pohl (Ref. 2, in 1976). The impact of the uranium - 238 as a source of radon was recognized by the NRC in GESMO (Ref. 3) and is discussed in the Final Environmental Statement for the Split Rock Mill. The result is that for a generic 1000 MWe plant operating at 80% capacity factor as is used in Ref. 1, the radon emissions will result in 200,000 deaths.

* The opinions and calculations presented here are my own, and not necessarily those of the Pennsylvania State University. My affiliation is given here for identification purposes only.

Thus the estimates of health effects (Ref. 1, P. K-6) are too by a factor of 100,000. This is due to the arbitrary, and eronius procedure of stopping at the end of the first 1000 years.

Rebaselining:

The NRC has attempted to evaluate the impact of "Class 9 " accidents which might occur at WNP-2. Unfortunately, the 32 pages (Ref. 1; pp 5-26 to 5-47, D-1 to D-6 and E-1 to E-5) of this report are not adequate to describe a calculation that was modified from that presented in the eight volumes of the Reactor Safety Study (RSS) WASH-1400 (Ref. 5). It should be noted that this attempt to do something about this issue is a giant step improvement over the past practice of doing nothing. For severe accidents the assessment is carried out considering the entire population within radii of 80 km (50 miles) and 563 km (350 miles) (Ref. 1, Sec. 5.8.2.1.4.2, page 5-38) which would include part of Canada. It is entirely appropriate to use large radii. A radius of 800 km (500 miles) was used in a recent DEIS (Ref. 6). At larger distances from the release point, the exposure per person decreases, but the number of people exposed increases. Thus, it was recognized in the 1975 APS study (Ref. 7) that the major health impact may be located at the larger distances from the release site.

It is important to note the time period for which exposures to the populations are considered. It would appear that two cases are considered: one with immediate evacuation and one with evacuation after 24 hours exposure (Ref. 1, P. E-4). It is unclear if or when these people are allowed to return.

In the case of permanent relocation the radiation doses will end after evacuation. In the case of a large accident, the affected area would be " the size of the state of Pennsylvania" (Ref. 8). This is an area of 29 million acres, which at an average value of $100 per acre would total $2.9 billion. This is a little beyond the last dollar cost indicated in Fig 5.8 (Ref. 1, P 5-79).

In the case of temporary relocation, , the population of the affected area would return after a suitable waiting period and decontamination where practical. In the case of a large accident, with 29 million acres or so affected, it is not "practical" to decontaminate the large areas with fairly low contamination. In these areas, the population would return and receive a fairly small individual dose for a long time. This, in fact would be the major consequence of the accident (Ref. 7). It is unclear if this was considered in the NRC estimate.

The present study (Ref. 1) seems to based on the RSS(Ref. 5) and"rebaselining" to incorporate peer group comments, better data and other improvements since the publication of RSS. In its January 1979 statement of policy refered to in § 5.8.2.1.4.7 (Ref. 1) the Commission took the following actions:

> The Peer Review Process: The Commission agrees that the peer review process followed in publishing WASH-1400 was inadequate and that proper peer review iss fundamental to making sound, technical decisions. The Commission will take whatever corrective action is necessary to assure that effective peer review is an integral feature of the NRC's risk assessment program.
>
> Accident Probabilities: The Commission accepts the Review Group Report's conclusion that absolute values of the risks presented by WASH-1400 should not be used uncritically either in the regulatory process of for public policy purposes and has taken and will continue to take stept to assure that any such use in the past will be corrected appropriately. In particular, in light of the Review Group conclusions on accident probabilities, the Commission does not regard as reliable the Reactor Safety Study's numerical estimate of the overall risk of reactor accident. (Ref. 9, P.3)

The second statement would preclude the use of results from the RSS at this time. The first statement requires a thorough peer review process for any such study. It is suggested here that

the new "rebaselining" has undergone less peer review than the RSS of 1975. The present report (Ref. 1) is too incomplete for any hint of peer review.

It would appear that the NRC has at least two choices to face up to these important issues. One choice is to publish a new version of the RSS. Another choice would be to expand the present report (Ref. 1) and all other DEIS to be as comprehensive as the RSS. This latter would be an enormous duplication. In either case, thorough peer review would be necessary, of the scale that the 1975 RSS was exposed to.

References

1 "Draft Environmental Statement related to the operation of WPPSS Nuclear Project No. 2" NUREG-0812, Draft, NRC, July 1981

2 R.O. Pohl, "Health Effects of Radon-222 from Uranium Mining", Search, 7 (5), 345 - 350 (August 1976)

3 "Final Generic Environmental Statement on the Use of Recycled Plutonium in Mixed Oxide Fuel in Light Water Cooled Reactors" NUREG-0002, NRC, (August 1976)

4 "Final Environmental Statement for the Split Rock Mill ", NUREG- 0639, Pages A-57 to A-60, (February 1980)

5 "Reactor Safety Study", WASH-1400, (NUREG-75/014), 1975

6 "Supplement to Draft Environmental Statementrelated to the operation of Susquehanna Steam Electric Station, UNITS 1 and 2" NUREG-0564, Supp. 2, NRC, (March 1981) Draft

7 "Report to the American Physical Society by the Study group on light-water reactor safety", H.W. Lewis, et al., Reviews of Modern Physics, Vol 47, Supp No. 1, Summer 1975

8 AEC, WASH-740 update file, Document 92, page 4

9 "NRC Statement on Risk Assessment and The Reactor Safety Study Report (WASH-1400) In Light of the Risk Assessment Review Group Report", NRC; January 18, 1979.