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Area Code 814

12 April 1982

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Director, Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C.
20555

Dear Director:

Enclosed are my comments on the "Draft Environmental Statement related to license renewal and power increase for the National Bureau of Standards Reactor", NUREG-0877. Please note that the evaluation presented here does not necessarily reflect the opinion of the Pennsylvania State University.

I hope that these comments are used in developing the Final Environmental Statement. Would you also please send me a copy of that Final EIS when it is available.

Sincerely,

William A. Lochstet

Wm. A. Lochstet, Ph.D.

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The Long Term Consequences of Operation of NBS Reactor

by

William A. Lochstet, Ph.D.
The Pennsylvania State University*
April 1982

The Nuclear Regulatory Commission (NRC) has attempted to meet its responsibility under section 102 of the NEPA by the Draft Environmental Statement NUREG-0877. Unfortunately, the Draft does not meet the requirement in at least three aspects. These are the impacts of releases of Argon-41, Tritium, and the uranium fuel cycle used.

It is suggested in table 4.1 that 1400 Ci/yr of argon-41 are expected to be released. It is shown that this will produce concentrations below maximum permissible concentrations (MPC) and therefore dismissed. Concentrations below mpc do have an environmental impact and must not be dismissed as such. One important result of the Lewis APS study of reactor safety (Reviews of Modern Physics, Summer 1975) is that if a large population is exposed to a small dose, the impact can be quite large and significant.

The situation with the projected release of 900 Ci/yr of tritium (Table 4.1) is much the same. The health impacts should be evaluated numerically as for Argon-41. In addition the possibility of getting deposited onto the ground and getting into surface or groundwater should be discussed. In particular, what fraction will end up in the DC water supply described in section 2.2.

The evaluation of fuel supply and disposal is inadequate. The amount of fuel necessary is not stated. The total fuel, and the total amount of ore necessary to be mined for it should be presented. In addition the emissions of radon from these ores

* For identification purposes only.

must be considered for the full amount of time that these materials are radioactive. Since the major constituent of the ore is Uranium-238, the times necessary are in the billions of years. The curie content of the spent fuel is not explicitly stated in the Draft. The environmental impact of this reprocessing and disposal should be evaluated numerically. The impact does not stop when the spent fuel leaves the site boundry. The implied reprocessing and disposal must be considered. It is important to notice the impact of long lived products in the waste, particularly Iodine-129. This isotope should be evaluated over the entire world population for millions of years.

I trust that these comments will be useful in preparing an adequate Final Statement.

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