ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

May 12, 1958

Honorable Lewis L. Strauss
Chairman, U. S. Atomic Energy Commission
Washington 25, D. C.

Subject: BROOKHAVEN NATIONAL LABORATORY RESEARCH REACTOR (BNL) - GRAPHITE ANNEALING

Dear Mr. Strauss:

The Advisory Committee on Reactor Safeguards at its Sixth Meeting, May 9, 1958, reviewed the present status and planned annealing of the Brookhaven National Laboratory Research Reactor at the request of the Commission.

The Committee had available and examined reports referenced below and had the benefit of discussion with the Hazards Evaluation Branch and a representative of the staff of Brookhaven National Laboratory. In addition the Committee reviewed the report of its Subcommittee which considered the problem in detail with representatives of Brookhaven National Laboratory, Division of Reactor Development, Division of Licensing and Regulation, Brookhaven Area Office, and Oak Ridge National Laboratory, in New York on April 16, 1958. The Committee had previously been briefed by members of the United States team which had visited England and investigated the Windscale incident of October 1957. As supplementary information, members of the Subcommittee and Hazards Evaluation Branch reported on the examination of the recent Harwell reports 3/-4/covering the March 1958 annealing of BEPO.

The Committee is pleased that the Brookhaven National Laboratory staff has very carefully reviewed the problem of release of stored energy in the graphite moderator over a period of several years and have more recently, following the Windscale incident, correlated results of their studies with data available from the British. The Committee concurs with the conclusion of the Brookhaven National Laboratory staff that the next scheduled annealing of the Brookhaven Reactor will present no serious hazard to the reactor or to personnel.

Among the reasons which contribute to this conclusion are:

a) Satisfactory annealing of BNL reactor graphite on seven prior occasions.

b) Adequate controls to avoid excessive temperatures and an emergency action program to handle the unexpected.

c) The recent refueling of the Brookhaven National Laboratory Research Reactor with uranium alloy fuel more resistant to oxidation than the natural uranium fuel previously used.

The Committee commends the Brookhaven National Laboratory staff on their continuing thorough study of problems peculiar to graphite reactors and encourages their future activities particularly along the lines of investigation of irradiated graphite oxidation phenomena.

Sincerely yours,

C. Rogers McCullough
Chairman
Advisory Committee on
Reactor Safeguards

cc: K. E. Fields, GM
H. L. Price, DL&R

References:

1/ Final Report, Stored Energy, Growth and Annealing Status of Graphite Moderator in the BNL Research Reactor. (Received by ACRS April 11, 1958.)

2/ Report on Graphite Annealing of the BNL Research Reactor by Division of Licensing and Regulation, April 11, 1958.

3/ Manual for the Second Wigner Energy Release, by J. L. Dickson, B.E.P.O., Memo 89, Eng.Div.,A.E.R.E., Harwell (U.K.), March 1958.

4/ BEPO Wigner Energy Release, Preliminary Report, by J. L. Dickson, P.O.C. Memo 93, Reactor Services Group, Eng. Div., A.E.R.E., Harwell (U.K.), 28th March, 1958.