TEXAS A&M UNIVERSITY
NUCLEAR SCIENCE CENTER
COLLEGE STATION, TEXAS 77843

13 June 1979

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors
U. S. N. R. C.
Washington, D.C. 20555

Reference: Docket No. 50-128

Dear Robert:

The additional information requested by Guy Vissing of your office by telephone on June 7, 1979, concerning the request for a technical specification change to allow the radiography of explosive material is attached. I hope this information to be sufficient to complete the review.

Sincerely,

John D. Randall, Director
Nuclear Science Center
Texas A&M University
College Station, Texas 77843

cc: Dr. R. R. Berg, Director
Office of University Research
Texas A&M University
College Station, Texas 77843

Mr. H. Whitmore, Associate Director
Texas Engineering Experiment Station
Texas A&M University
College Station, Texas 77843

Enclosure: Additional Information

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ADDITIONAL INFORMATION CONCERNING

TEXAS A&M UNIVERSITY, NUCLEAR SCIENCE CENTER REACTOR

RADIOGRAPHY OF EXPLOSIVE MATERIAL

REQUEST FOR TECHNICAL SPECIFICATION CHANGE

DOCKET NO. 50-128

What effect would the detonation of an explosive charge and/or a fire in the neutron radiography facility have on the controls, electrical systems, and small components that are reactor safety related?

In evaluating the effect of a fire or an explosion in the neutron radiography facility, it is necessary to fully understand the location of that facility in the building relative to the reactor safety system. Figure 1 shows the section of the reactor building and pool through the radiography facility which is located on the lowest level of the reactor facility. The level above the radiography facility contains mechanical and electrical equipment. The floor is six inch thick reinforced concrete. There is another similar floor which defines the upper research level which is constructed of four inch thick reinforced concrete. The control room and all critical safety cables are located on the opposite side of the reactor pool so that it is completely shielded from any explosion that could occur in the neutron radiography facility. Even during transport of the explosives through the lower level of the reactor facility the control room is shielded by two reinforced concrete floors and the control cables by one floor. Since the radiography facility is constructed of some wood and paraffin, it is conceivable that an explosion or electrical short could cause these materials to burn. If this should happen these would be the only materials to burn since there are no other significant combustibles on the lower research level. All of the walls and floors and ceilings are concrete. The smoke and possibly some flames could pass through the air conditioning grates in the ceiling above the neutron radiography facility, but there is no safety reactor equipment located in that area. All that would happen would be some smoke deposition in the mechanical level of the reactor building. There is an experiment scram which allows the reactor to be shut down from the lower research level which could be damaged by a blast or fire. However, this would probably shut the reactor down since a scram is initiated if the circuit is opened. It is therefore concluded that an explosion and/or fire resulting in the complete consumption of combustibles in the radiography facility would not endanger the reactor or any of its support systems.

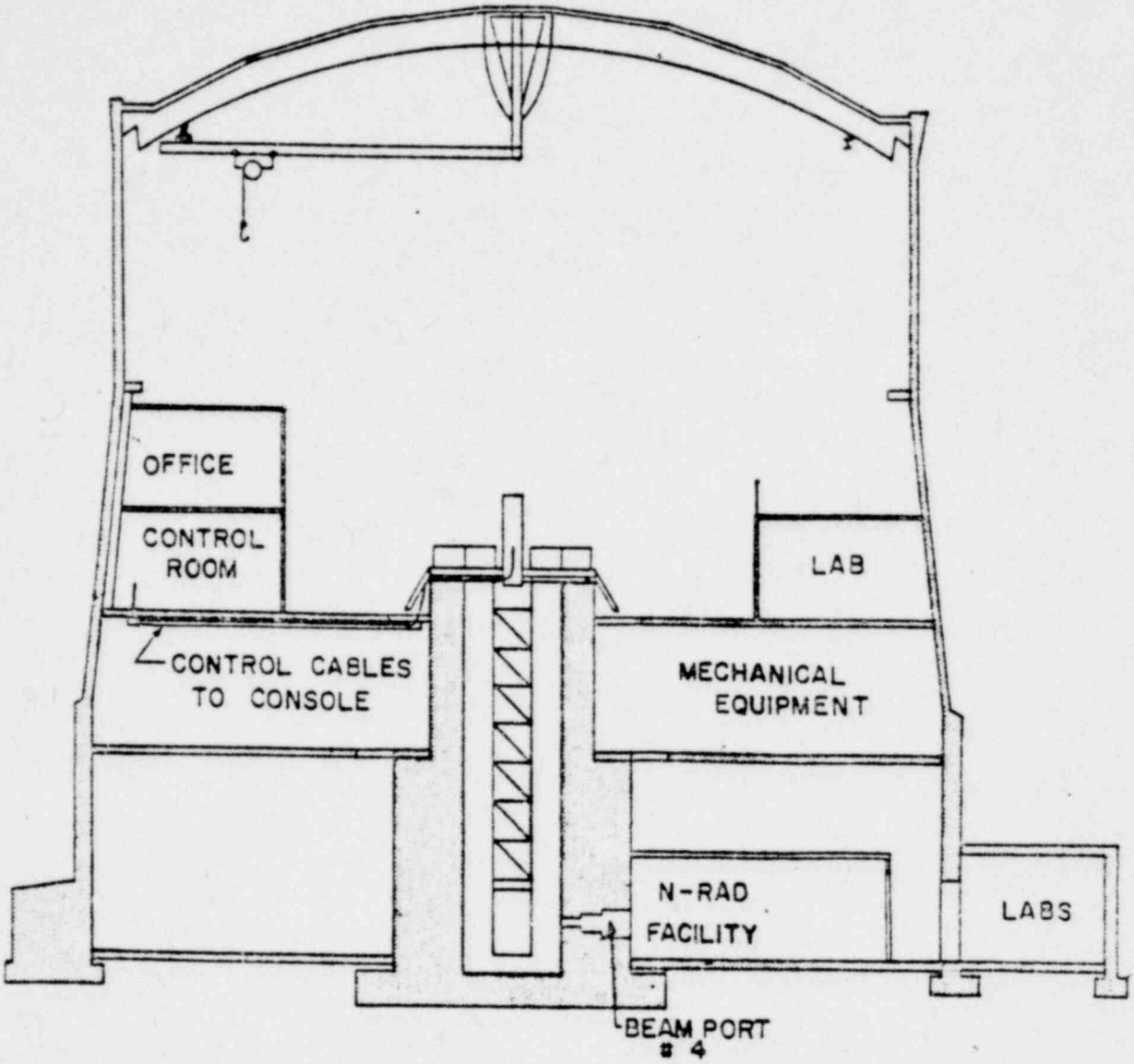

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FIG. 1 – RELATIONSHIP of N-RAD FACILITY to REACTOR SAFETY SYSTEMS