

The
University of Oklahoma at Norman

School of Aerospace, Mechanical
and Nuclear Engineering

April 30, 1980

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors
Nuclear Regulatory Commission
Washington, D.C. 20555

Reference: Docket 50-112

Subject: License Amendment Request

Dear Dr. Reid:

License renewal for the University of Oklahoma AGN-211P, dated Oct. 6, 1978 as revised Jan. 5, 1979, is under consideration by your office. Because of special circumstances we wish to request a further amendment. We recently learned that the University of West Virginia at Morgantown (UWV) will not request a renewal of their operating license which expires in June 1980. The UWV reactor is a 211P exactly like that at the University of Oklahoma (OU).

We wish to request that the UWV fuel be transferred to OU. our reasons for this request are as follows:

1. The 19% enriched polyethelene fuel elements used in the 211P are no longer manufactured.
2. Should any flaw develop or failure occur in any one of the 12 fuel elements in the OU reactor, the OU reactor would be shutdown because of insufficient excess reactivity (all 12 elements are required to achieve criticality). The UWV fuel would, in effect, provide us with spare or replacement fuel for the indefinite future.
3. The OU fuel has been in-water for 21 years. The UWV fuel has been in storage (out of water) for about 9 years, because the UWV reactor has been shutdown for the 9 year period. As a consequence, we believe that some of UWV fuel should be used to replace certain OU elements. In other words we wish to treat the two sets of fuels as one set, drawing the best 12 elements out of the total of 24 elements.

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Presuming NRC concurrence with this request we are making available additional fuel element storage racks to be placed and kept in the isotope and storage pit located immediately adjacent to the reactor's biological shield. These non-critical geometry, steel, fuel-element storage pipes are mounted in a welded-steel framework. The pipes are placed ~15 inches between centers. Once the fuel element is in place a flat top-plate is bolted on and locked to prevent removal of the element (see attached photos).

In addition to the above we believe the following information is pertinent:

The UWV AGN 211P operated at 75 watts over a period of 12 years averaging more than 100 hours per year.

We believe this successful 12 year operating period is relevant to our request to go to 100 watts from 15 watts.

Also, at present the UWV fuel elements measures approximately 4 mr/hr gamma at contact (this is about 55 μ c of gross fission products per gram). We anticipate no transportation problems in view of the exceedingly low activity present in the UWV fuel elements.

Because of the presence of the spare fuel stored in the reactor room (out of the reactor) we will add an intrusion alarm to both entrance doors of the reactor lab. There are no windows. Installation of this intrusion alarm has been approved and is under way.

In addition, two steel beams are to be sunk vertically in concrete immediately in front of the rear door to the reactor room which opens to the outside. These heavy steel beams will prevent the doors being rammed by a vehicle to gain entrance to the lab. Currently, after 5 pm (the reactor is shut down at 5 pm) a steel bar is placed across the inside of the rear door. This will be retained. We believe these steps (intruder alarms plus the vertical steel beams) provide valuable additional security for the fuel which will be stored in the isotope and fuel storage pit.

Specifically, we therefore request the following amendments to our operating license:

Amendment: The University of Oklahoma license be amended to allow the addition of the West Virginia University fuel to the total fuel inventory of the University of Oklahoma.

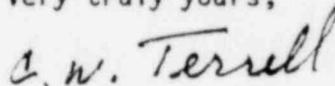
West Virginia Fuel: ~806 grams at ~19% U235 in 12 separate elements
U of Oklahoma Fuel: 806 grams at 19.84% U235 in 12 separate elements.

(We are uncertain of the exact quantity and enrichment of the UWV fuel as we do not have a copy of their material status report. Therefore, the UWV numbers shown are marked as approximate).

Amendment: The University of Oklahoma be authorized to select the best 12 out of 24 elements at any given time in order to optimize the safe operation of the reactor from the viewpoint of possible fuel element surface deterioration. Substitution or intermixing of the UWV and OU fuel elements will have no unusual or abnormal effect on the operation or the safety of the reactor. Our understanding is that the fuel elements are essentially, if not exactly, identical. While we do not believe it is possible, it is understood that no combination of 12 fuel elements will be installed which would allow the excess reactivity to exceed the license limit of 0.65%.

We shall respond promptly if additional information is required.

Very truly yours,

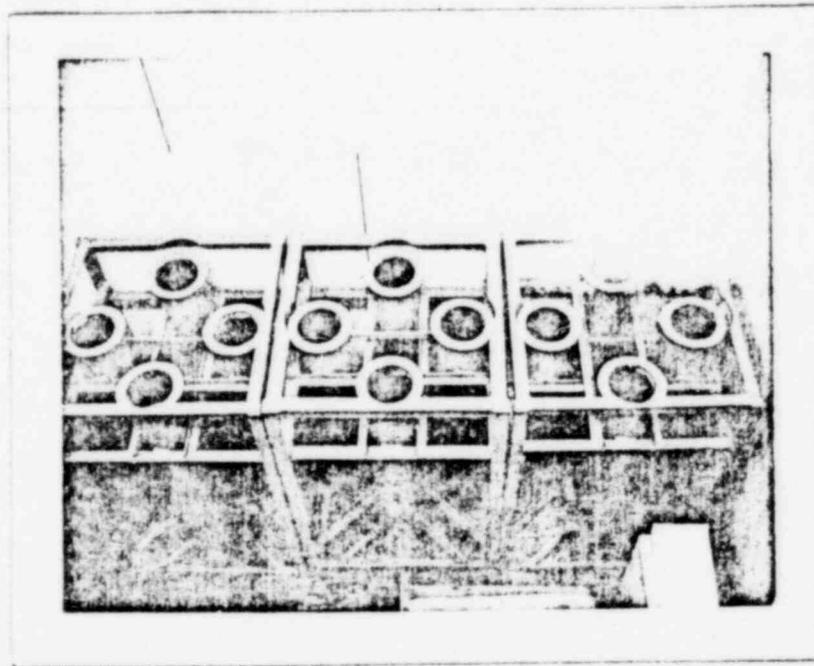
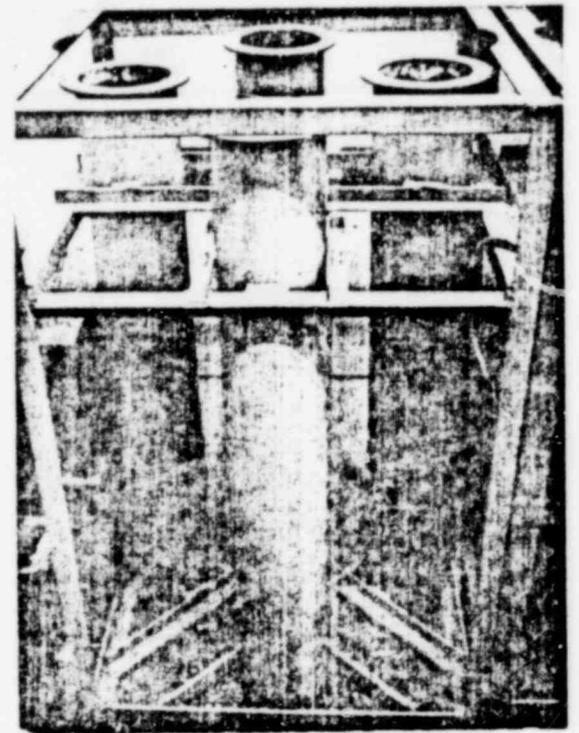
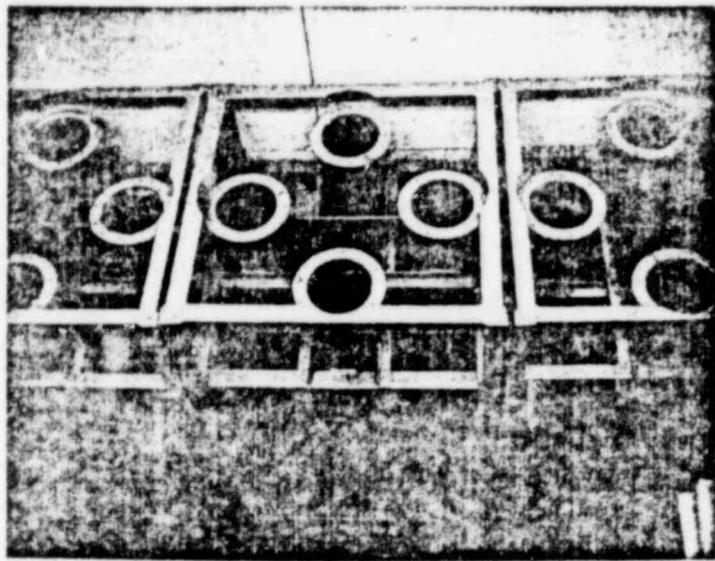


C. W. Terrell
Director, Univ. of Okla. Reactor

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