



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

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Michael E. Mayfield, Director
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Dear Mr. Mayfield:

When NIST decides to discontinue a measurement service, it is customary for us to notify previous customers of our intention and to reconsider the decision if a substantial need for continuation of the service is expressed. We want to be sure that all appropriate levels of the NRC are aware that certified-fluence irradiations of reactor dosimeters at the Materials Dosimetry Reference Facility (MDRF) can no longer be offered due to the shutdown of the Ford Nuclear Reactor (Ann Arbor, MI). Somewhat surprisingly to us, we have found no concern about the discontinuation of this service whatsoever in our initial contacts with the NRC. We are persisting with this one last communication, because we want to know if any other groups at the NRC might have a different view.

We had expected that NIST would have to respond to a fairly high level of requests for MDRF services when Regulatory Guide 1.190 was finally published. In the section entitled *2.2 Validation in Standard and Reference Neutron Fields*, the Guide states: "To ensure long-term measurement consistency and confirm measurement uncertainties, dosimetry measurements must be performed every few years in well characterized neutron fields." The Guide goes on to say that the MDRF or either of two referenced fission neutron fields would be satisfactory facilities for carrying out such dosimetry measurements.

In fact, since the publication of RG 1.190 there have been no requests to schedule any dosimetry irradiations at any of the three referenced facilities. In the years prior to publication of RG 1.190, only one MDRF irradiation for the reactor industry was ever carried out. It may be relevant that no new reactors have begun operation since the publication of RG 1.190. Perhaps existing reactors are required only to comply with previously approved quality assurance plans that did not anticipate the recommendations of RG 1.190. However, we are surprised that the recent wave of license extensions has not required more rigorous quality assurance activities related to assessment of radiation embrittlement of the pressure vessels.

At the January ASTM meetings of E10 (Nuclear Technology and Applications) and C26 (Nuclear Fuel Cycle), we discussed the discontinuation of the MDRF irradiations and the recommendations of RG 1.190. From these discussions we learned that reactor dosimeters associated with metallurgical test specimens continue to be analyzed by

NIST

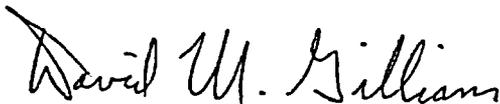
industrial laboratories, but the industry sees no need to take part in neutron measurements in standard and reference neutron fields for validation of that ongoing dosimetry analysis.

If the NRC expects licensees to begin seeking irradiations in well-characterized neutron fields, NIST will need advance notice of a minimum of two years to re-establish and characterize such a facility. If fluence levels even higher than previously available at the MDRF would be preferred, it might be possible to set up a well-tailored, high-fluence facility at the HFIR of Oak Ridge National Laboratory. However, it would be well to make a more judicious assessment of the probable utilization of such a facility before beginning its construction, so that the considerable waste of effort that has occurred with regard to RG 1.190 and the MDRF will not be repeated.

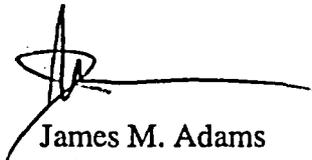
On the other hand, if the NRC does not anticipate a significant need for validation measurements in standard and reference neutron fields, perhaps RG 1.190 should be amended appropriately. The current validation activity seems to be infrequent and ad hoc. It would seem preferable for RG 1.190 to be amended to spell out validation activity methods and explicit frequencies that industry can honor and that will provide adequate protection to the public.

Thank you for your attention to this inquiry.

Sincerely,



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