



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

August 16, 1996

File

MEMORANDUM TO: John R. Madera, Chief
Nuclear Materials Safety and Safeguards Branch
Region III

FROM: Donald A. Cool, Director
Division of Industrial and
Medical Nuclear Safety, NMSS

SUBJECT: TECHNICAL ASSISTANCE REQUEST CONCERNING ADVANCED MEDICAL
SYSTEMS, INC., LICENSE NO. 34-19089-01, LETTER DATED
APRIL 12, 1996

I am responding to your Technical Assistance Request (TAR), Control Number 98507 (Attachment), that requested review and comment of a letter response from Advanced Medical Systems, Inc. (AMS) dated April 12, 1996. A March 20, 1996, letter from Region III to AMS indicated that AMS had not demonstrated that the soil under the building was free of contamination, and that AMS' proposed disposal cost for the radioactive waste was underestimated. The April 12, 1996, AMS letter provided comments to the Region III letter, a report and findings of a registered hydrologist to address the concern about the possibility of contamination under the building, and a more detailed estimate for a SAFSTOR alternative. Your TAR requested review and comment, specifically on whether the findings in the hydrologist's report are acceptable, and whether the NRC will accept the SAFSTOR method of decommissioning of this facility.

With regard to the hydrologist's report and the need for further sampling of soils below the basement/WHUT room floors, we agree with the Region that the hydrologist's report be accepted. It is unlikely that there is significant contamination of the soil beneath the floor of the basement or WHUT room based on:

- 1) the hydraulic gradient during the flooding of the basement from the soils to the basement;
- 2) the hydraulic gradient since the removal of the water from the basement and the installation of the new footer drain has been toward the footer drain system and the basement has remained dry, indicating that the soils surrounding the basement are hydraulically connected to the footer drain system; and
- 3) no contamination has been found in the water removed from the footer drain system.

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For contamination to leach or leak from the basement, it would have to be somewhat soluble. Therefore, the contamination, if released, would likely show up in the footer drain system that appears to be hydraulically connected to the soils surrounding the basement.

Some contamination of the soils below the basement can not be completely ruled out, but widespread contamination is unlikely given the information at hand. The cost of remediation of small areas of soil contamination, if they exist, could easily be covered if a contingency is applied to the cost estimate of decommissioning of the site. If further information comes to light at a later date, indicating more extensive contamination than anticipated here, the cost estimates should be adjusted then.

With regard to the acceptable method of decommissioning, the March 20, 1996, letter to Mr. David Cesar continues to be our position. In that letter, we provided our reasons why SAFSTOR would not be an option, and that the Generic Environmental Impact Statement (GEIS), NUREG-0586 states in Chapter 14 that SAFSTOR for some materials facilities would be an advantage if the materials are relatively short-lived and would decay to levels permitting unrestricted use of the facility in a short time. AMS contends that the GEIS shows SAFSTOR as an acceptable alternative for materials licensees and cites page 04, section 0.2.4 and page 14-9, section 14.3.2.2 as support for materials licensees decommissioning. A careful reading of the citations shows that the intention of the GEIS was to allow use of a safe storage period of a few days to a few months, and not a period of decades of years. The deferment of decommissioning through SAFSTOR is only applicable to power reactors.

With regards to the adequacy of decommissioning cost estimates for the London Road facility, the \$3.3M may not be realistic in reflecting the total cost. We are concerned because the cost estimate does not address the following: 1) disposal of the 2,200 kilograms of depleted uranium inventory; 2) removal and disposal of the 11,700 curies of bulk cobalt-60 metal and the 49,000 curies of cobalt-60 sealed sources; 3) the remote decontamination techniques for the Hot Cell and the WHUT Room (generally remote techniques are used when exposure rates exceed 5 R per hour; the Hot Cell has a range from 12 to 200 R per hour, and the WHUT Room a range of 50 to 240 R per hour); 4) the work difficulty factors associated with the decommissioning (when remote techniques are used, significant amounts of time are lost due to the high exposure areas, access in and out of these areas, and maintenance of equipment; and 5) the disposal charges for curie content or special handling of high activity packages, or for transportation of shielded casks materials, which can substantially increase waste management costs. In addition, the cost estimate to decontaminate/decommission a similar facility was \$17M; therefore, the cost estimate of \$3.3M may be off by several times the actual cost to decommission the site.

Since changes in assumptions can have a significant impact on the total decommissioning cost, it is recommended that we require AMS to conduct a detailed characterization of the existing buildings, and develop a cost

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estimate that addresses the decontamination methods. This is especially important since AMS was recently given a license amendment that allows AMS to significantly reduce their inventory.

Attachments: As stated

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amendment request from AMS to dispose of these sources has been addressed and supported in a recent Safety Evaluation Report (Attachment 2). It is also recommended that we require AMS to conduct a detailed characterization of the existing buildings, and develop a cost estimate that addresses the decontamination methods.

Attachments:

1. Incoming TAR
2. Safety Evaluation Report

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