



UNIVERSITY OF MISSOURI-COLUMBIA

November 17, 1995

Research Reactor Center

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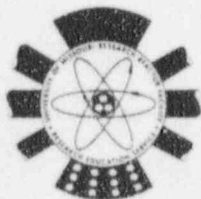
Subject: Reply to Confirmatory Action Letter CAL No. RIII-95-04 and Concerns Raised During Exit Interview November 3, 1995

Dear Ms. Pederson:

This letter is our notification to you that we have completed the actions addressed in your Confirmatory Action Letter CAL-RIII-95-004. Specifically:

- (1) On September 20, 1995, the inner door of Room 267 (Dark Room) was padlocked and the two keys were placed under the control of Mr. John Ernst or his designee and Mr. Matt Sanford or his designee.
- (2) Since September 20, 1995, a University of Missouri Research Reactor (MURR) employee has been present in a supervisory role when any work is performed in Room 267.
- (3) Conducted on the evening of September 20, 1995, an audit of the byproduct material contained in Room 267 was conducted under the direction of Mr. Jim Schuh.
- (4) The inventory was reconciled under the oversight of Mr. Clarence Jett of the University of Missouri Internal Auditing Department on September 21, 1995. No material was transferred into or out of Room 267 until September 22, 1995.
- (5) A University of Missouri Research Reactor employee has supervised all byproduct material transfers into and out of Room 267. The first transfer of byproduct material was a transfer into Room 267 on September 22, 1995. The first transfer out was a shipment on September 25, 1995.

During the investigation conducted on September 20-21, 1995, we understood Mr. Robert Marsh had major concerns about how we were handling the byproduct material in Room 267. We do not believe that the University violated any regulations regarding the possession and use of the byproduct material in Room 267. When we asked Mr. Marsh what NRC regulation he felt we were not in compliance with concerning Room 267, no specific answer was given. Therefore in an attempt to



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continue to meet appropriate program needs while alleviating nonspecific concerns, Mr. Steve Gunn committed to take the actions in his September 20, 1995 letter (amended September 21, 1995). MURR is in compliance with CAL-RIII-95-004.

Next, we wish to address the issues raised in the November 3, 1995 exit interview of the CAL compliance inspection. We understand that you are concerned that our supervision of non-University employees working with byproduct material is insufficient to preclude the possibility of unauthorized release in the United States. Specifically, that allowing non-University employees unescorted access to byproduct topaz material in Room 267 and being involved jointly with MU employees in delivering the material to the carrier in St. Louis does not provide a sufficient barrier to prevent this topaz from being switched with nonbyproduct topaz. You suggest that this provides an opportunity for byproduct topaz to be released in the U.S. without going through the appropriate controls of an exempt gemstone license.

We have implemented the following controls to provide the barrier and documentation for inspection to validate that the byproduct topaz is only released in compliance with 10CFR regulations:

- (1) We have restricted the activities in Room 267 to storage, cleaning, heat treating and sorting of MURR irradiated byproduct material that has been approved by the Gemstone QA program for non-U.S. release. No nonbyproduct topaz will be allowed in Room 267.
- (2) All transfers into and out of the Room 267 are documented by MURR employees who log the date, type of transfer and mass of the transfer.
- (3) MURR employees will package all shipments of byproduct topaz leaving the Center after weighing and documenting the weights. The packages will be sealed and marked to clearly differentiate them from any other packages and make unauthorized opening easily detectable.
- (4) MURR employees will keep packages in their custody during the transfer to the air carrier and will obtain documentation of this transfer. Only MURR irradiated byproduct material will be allowed in these shipments.

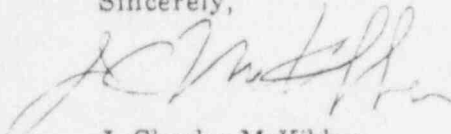
It is our position that properly trained radiation workers can be relied on to follow procedures and obey regulations. The gemstone material being handled in Room 267 has all been analyzed by an extensive QA program to ensure that each individual stone does not exceed a concentration of 74 Bq/g (2 nCi/g). In practice the concentrations are significantly below the 74 Bq/g limit. Small batches of gemstones having these very low radioactive concentrations can be surveyed with a typical GM survey instrument with no increase in count rate detected. We believe that the hazard level of byproduct material that has been certified to have a specific activity of less than 74 Bq/g including beta activity does not justify constant surveillance or physical search of trained personnel.

We propose implementing the following controls governing the activities in Room 267 to address the issues raised during the inspection November 1-3, 1995. These controls will be in place December 18, 1995 and will replace the controls given in the CAL-RIII-95-004.:

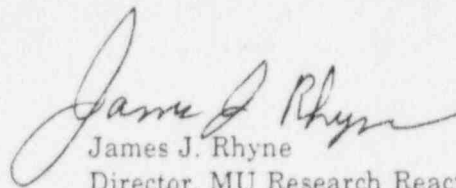
- (1) Limit by procedure the activities in Room 267 to the storage, cleaning, heat treating, sorting and handling of byproduct material that has been certified for nondomestic release by the MURR Gemstone QA program.
- (2) By procedure, require that all transfers of byproduct material into and out of Room 267 will be supervised by a MURR employee.
- (3) By procedure, require that the date, type of transfer and mass of all transfers of byproduct material into and out of Room 267 be logged by a MURR employee.
- (4) By procedure, require that MURR employees perform or supervise the packaging of all topaz byproduct topaz leaving the center.
- (5) By procedure, require that shipments of byproduct material from Room 267 will be restricted to byproduct material only, and that MURR employees will keep the packages in their custody during transfer to the air carrier and will obtain documentation of this transfer.
- (6) Compliance with the control procedures will be documented by conducting an annual audit of the physical inventory and records of the material balance in Room 267.

These steps will enhance the level of control over byproduct material located in Room 267 of MURR. We believe that this enhanced level of control will address the issues you raised and more than adequately protect the public from any potential hazards associated with this byproduct material. No shipments of byproduct topaz have been made since the November 3, 1995 exit. We will make shipments as needed meeting the above policies, but do not anticipate shipping until after November 26, 1995. If there are any additional questions, please call John Ernst (314-882-5226) or Charles McKibben (314-882-5204).

Sincerely,



J. Charles McKibben
Associate Director



James J. Rhyne
Director, MU Research Reactor
and Professor of Physics

xc: J. McCormick
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J. Ernst