



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

96-46

July 26, 1996

MEMORANDUM TO: John R. Madera, Chief
Materials Licensing Branch
Division of Nuclear Materials Safety, RIII

FROM: Larry W. Camper, Chief *Larry W. Camper*
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

SUBJECT: TECHNICAL ASSISTANCE REQUEST DATED JUNE 27, 1996,
(CONTROL NUMBER 301020) REGARDING WYLE LABORATORIES

I am responding to your technical assistance request (TAR) (Attached) dated June 27, 1996, (Control Number 301020) regarding the request by Wyle Laboratories for an NRC license of a former United States Air Force permittee at Newark Air Force Base. Specifically, the applicant seeks a license for an irradiator and several other radiation devices used in a former Air Force Radiac Laboratory. The facility has an irradiator which does not comply with the requirements of 10 CFR 36.23. The applicant wishes to be granted certain exemptions based upon its view that the costs associated with the alterations necessary to bring the facility into compliance with the regulations would not result in added safety to the facility. Additionally, the applicant notes that the facility is only accessible by employees of the facility; therefore, members of the public would not be endangered by the facility's non-compliance.

Compliance with NRC regulations do require some expenditure of capital in order to purchase and install safety devices required by regulations. This is taken into consideration during the rulemaking process, and only those requirements which the NRC views as necessary to protect the public health and safety are included within the regulations. Therefore, the licensee's main objection, the cost associated with compliance, is not adequate justification to warrant granting the exemption requests.

Additionally, it is noted that all overexposures at irradiator facilities have historically involved employees, not members of the public. Therefore, the fact that members of the public do not have access to the facility, does not lessen the need for compliance with 10 CFR Part 36.

Specifically, the TAR requests the following exemptions. The requirement, the applicant's justification for the exemption from the requirement and our responses are as follows:

- A. 36.23(a) The personnel entrance door or barrier must have a lock that is operated by the same key used to move the sources.

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Justification: "The personnel entrance door does not require a key different from the key used to move the source. The door is operated with an interlock which does not require a key. ..If the door opens while the source is opened the interlock pins will release and cause the source to immediately return to the shielded position."

Response: The locked door to the irradiator is necessary as a barrier to prevent inadvertent entry into the irradiator facility during source exposure. In the event that the interlock system fails, an unlocked door will not prevent inadvertent entry; therefore, the region should deny this request.

B. 36.23(b) In addition, each entrance to a radiation room at a panoramic irradiator must have an independent backup access control to detect personnel entry while the sources are exposed. Detection of entry while the sources are exposed must cause the sources to return to their fully shielded position and must also activate a visible and audible alarm to make the individual entering the room aware of the hazard. The alarm must also alert at least one other individual who is onsite of the entry.

Justification: "There are numerous visible indications (lights) which activate when the source is exposed. One black and white lighted caution light goes on over the entrance door, another identical black and white caution light goes on inside the range. The light inside the range can be seen from the shielded viewing window outside the range. Also, the red indicator lights on the source controller show indicate "source moving" and "source exposed."

Although there is no audible or visible alarm specifically tied to an individual entering the range, the interlock system is designed to return the source to the shielded position immediately should the door open. There is no other way into the range other than the one interlocking door. All RADIAC workers are trained in the workings of the visible and audible alarm systems."

Response: The statements of consideration for this requirement state the following:

"This section also requires an independent backup access control system on panoramic irradiators. The purpose of the backup system is to provide a redundant means of preventing a person from being accidentally exposed to the source. In case of failure of the interlocks on the door or barrier combined with a failure to follow operating procedures, the backup system should warn the person entering the radiation room of the danger and automatically cause the source to return to their shielded position. The system must also

alert another person of the entry."

Therefore, it appears that the applicant's justification does not meet the intent of the regulation and the exemption request should be denied.

- C. 36.23 (c) The monitor must be integrated with personnel access door locks to prevent room access when radiation levels are high. Attempted personnel entry while the monitor measures high radiation levels, must activate the alarm described in paragraph(b) of this section.

Justification: "There is a range monitor that detects the radiation levels in the range. When high levels of radiation are detected an alarm will sound. Although there is no integration between the door interlocks and the radiation source-- the instant the door opens the radiation source would be returned to the shielded position."

Response: The statements of consideration regarding this requirement state the following:

"The purpose is to provide an additional level of protection in case of some failure of the source movement mechanism combined with a failure of the operator to make the required radiation survey upon entry into the radiation room."

Therefore, it appears that the applicant's justification does not meet the intent of the regulation and the exemption request should be denied.

- D. 36.23(d) Before the sources move from their shielded position in a panoramic irradiator, the source control must automatically activate conspicuous visible and audible alarms to alert people in the radiation room that the sources will be moved from their shielded position. The alarms must give individuals enough time to leave the room before the sources leave the shielded position.

Justification: "There is an audible alarm that sounds for 10 seconds before the source is to be opened. There are visible alarms in the range and outside the range which activate at the time the source is being moved from the shielded position. With the size of the range, 10 seconds is adequate time for an individual inadvertently remaining within the range to exit the range before the source would leave its shielded position.

There are numerous visible indications(lights) which activate when the source is exposed. One black-and-white light goes on over the entrance door, another identical black-and-white caution light goes on inside the range. The

light inside the range can be seen from the shielded viewing window outside the range. Also, the red indicator lights on the source controller indicate "source moving" and "source exposed."

The operating technician would have to be outside the range to use the key to move the source from the shielded position."

Response: The fact that the visible alarms (lighted signs and lights) are activated only after the source is exposed, obviously does not give individuals enough time to leave the room before the sources leave the shielded position. Therefore, the region should deny this request.

E. 36.23(f) Each radiation room of a panoramic irradiator must contain a control that prevents the sources from moving from the shielded position unless the control has been activated and the door or barrier to the radiation room has been closed within a preset time after activation of the control.

Justification: "The ON-OFF switch on the source itself must be in the correct position, the source controller outside the range must be activated, and the door must be in the closed position before the Cobalt-60 source can be moved from the shielded position. Therefore, the preset time referred to above is zero or negative for this system, because the door to the radiation room must have been closed before activation of the control."

Response: The requirement is intended to require that the door be closed shortly after a check of the room has been completed. This prevents the door from staying open after the control has been activated and allowing individuals to inadvertently enter the open door to the radiation room. The applicant's system does not meet the intent of the regulation; therefore, the region should deny the request.

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Attachment: RIII TAR dtd 6/27/96

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