

FEB 2 1987

National Aeronautics and Space Administration
Lewis Research Center, MS - 21-15
ATTN: Albert B. Smith
Radiation Safety Officer
21000 Brookpark Road
Cleveland, OH 44135

Gentlemen:

This refers to your application dated February 21, 1986 for renewal of License Number 34-00507-04. In order for us to review your application further, we need additional information and clarification regarding the following:

1. Material

Please identify the radiographic exposure devices by manufacturer and model number for each of the additional iridium-192 sealed sources referenced in your cover letter dated February 21, 1986 and your application. Also, identify any source changers by manufacturer and model number. You should make sure that the sealed source/device/source changer combinations are compatible with one another.

2. Responsible Individual

It appears from your application that the person responsible for the day-to-day management or supervision operations of your radiographic program is your radiation safety officer, Albert B. Smith. Note that this person should have a minimum of one year of actual experience as a radiographer. The training submitted for Mr. Smith did not indicate if he has received this training. Please submit evidence that Mr. Smith has received one year of actual experience as a radiographer.

3. Facilities

- A. Please indicated if your facility at the Plum Brook Station, Ohio address will be used only for storage or if it will be used as a permanent facility. If this address will be used as a permanent facility submit a sketch or drawing. Please include with the drawing your control access procedures, posting shielding, a description of the adjacent areas, calculated exposure results (worst case) outside the facility and a description of the visible audible signal system (if this location is used for a permanent facility).

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B. Section 20.105 of 10 CFR Part 20, requires that the radiation levels in all directions around the facility, including the roof, must not exceed the limits for an unrestricted area of, 2 milliroentgens per hour. However, we note that the results of your actual and calculated radiation survey show several locations that exceed the 2 milliroentgens per hour. Since your survey results indicate that the limits specified in Section 20.105 are not met in your adjacent unrestricted areas, it will be necessary for you to outline steps that you will take to reduce your radiation to the limit and prevent overexposures to radiation. Options you may consider are:

1. Beam orientation may be restricted (e.g., using electrical or mechanical stops) to limit the anticipated radiation level. You might decide to place additional limitations on the use of the primary beam beyond those specified in your response.
2. Add shielding to the barrier in question, i.e., modifying the facility description.
3. You may request an exemption and demonstrate that the requirements of paragraph 20.105(a) of 10 CFR Part 20 are met. In this case, the applicant must include information on average radiation levels and anticipated occupancy times for each unrestricted area. The applicant must also maintain records to support the assumptions used in justifying the request for an exemption.
4. You may designate and maintain the area as restricted. If this option is selected, then provide information as described below:
 - a. The physical and administrative controls used to restrict access to the restricted area.
 - b. The number, wording, size, and location of warning signs to be placed in the vicinity of the restricted area.
 - c. The program for ensuring that personnel entering the restricted area receive proper instruction in accordance with Section 19.12.
 - d. The program for ensuring that personnel entering the restricted area are monitored in accordance with Section 20.202.
 - e. The surveys that will be performed in accordance with Section 20.201.

Please note that a radiation level that exceeds 100 milliroentgens per hour will not be considered acceptable. This radiation level constitutes a high radiation area and requires special precautions such as the visible-audible signal system required by Section 34.29 of 10 CFR Part 34.

It appears from your radiation survey report that the radioation levels on the roof will exceed the 100 milliroentgens per hour limit. Therefore, you will have to consider setting limitations on positioning of sources or type (isotope) and the amount of radioactive material that may be used in the facility to ensure that areas adjacent to, above, and below the facility will remain unrestricted areas during the performance of radiography.

4. Personnel Monitoring Equipment

In your application you state that "Victoreen 541/A, Bendix Corporation 06-862, Landsverk L-50, and Dosimeter Corporation of America 862" will be available and may be used. Please confirm that the dosimeters used by these manufacturers have a range from 0 to at least 200 milliroentgens as specified in Section 34.33 of 10 CFR Part 34.

5. Management Control System

Section 10.3 referenced several times personnel called "health physics technicians." They apparently work with the radiation safety officer and perform duties such as source exchange, leak testing, instrument calibration, inspection of exposure devices, etc. Please describe the training and experience given to these individuals to qualify them to perform the duties of a "health physics technician."

6. Internal Inspection Program

- A. Your application indicates that the "Chief of the Environmental Health and Chemical Analysis Branch along with the Radiation Safety Officer" will conduct the internal inspection program. Please specify the training and experience of the Chief of the Environmental Health and Chemical Analysis Branch. Please note that an individual who conducts internal inspections should have a minimum of one year of actual experience as a radiographer.
- B. Please submit a more detailed description of your internal inspection program that includes the specific matters to be considered in an inspection. See Item 10.3 of the enclosed radiography guide for an example of an acceptable internal inspection program.

- C. Please confirm that radiographers or radiographer assistants who have not performed radiography for a period that exceeds 3 months, will be inspected the first time that person engages in radiographic operations.

7. Operating Procedures for Radiographic Devices

Sections C.1.F. and C.2.E. of your procedures on making exposures in the field and in the radiography room states that after the source is exposed, "the radiographer is to determine and post the boundary of the high radiation area." Your instructions should be revised to inform radiographers to post the calculated high radiation area prior to exposing the source, and that an attempt should not be made to perform a confirmatory survey, since such a survey could lead to unnecessary exposure of personnel. Please revise your procedures accordingly.

8. Emergency Procedures

Section II.C. of your operating and emergency procedures, states that a zero reading on the survey meter indicates that the source is not in the storage container and that there should be an attempt to recover the source immediately and notify the health physicist.

Please note that radiography personnel should not attempt to perform operations involving source retrieval or recovery, unless they have had specific instructions and actual practice in retrieval operations with a dummy source. If it is your intent to have your radiographer personnel perform any source retrieval operations, please include the training program given to your radiographic personnel. Include in your training program a description of the instructions they will receive, including practice with a dummy source. In addition, include specific instructions for source retrieval in your operating and emergency procedures.

9. Transportation

- A. Please confirm that for field locations at the Cleveland site that the health physicist will provide placards when required, and specify shipping requirements in accordance with D.O.T. and NRC requirements, as they do for the Plum Brook site.
- B. Modify the list of the equipment to be carried by the radiographer on field locations to include D.O.T. shipping papers provided by the health physicist.

10. Source Exchange

Please provide step-by-step instructions that will be followed by Radiographers, when attempting to exchange a source. These instructions should be specific for each type of device which you intend to use.

11. Maintenance of Radiographic Equipment

Please describe the type of maintenance that you intend to perform on your devices, who will perform the maintenance and step-by-step instructions for each type of exposure device and source changer

If you have any questions or require clarification on any of the information stated above, you may contact us at (312) 790-5625.

We will continue our review of your application upon receipt of this information. Please reply in duplicate, within 30 days, and refer to Control Number 80781.

Sincerely,

Original Signed By
Cassandra F. Frazier
Materials Licensing Section

Enclosures:

1. 10 CFR Part 20
2. 10 CFR Part 34

RIII

Frazier/pd
1/23/87