

CO: AP

37-30-2

37-30-7

APR 1 1968

CO:RH

U. S. Radium Corporation  
Post Office Box 246  
Morristown, New Jersey 07950

Attention: Mr. R. C. Sorenson  
President

Gentlemen:

This refers to the inspection conducted at Bloomsburg, Pennsylvania, during November 1957 of your activities authorized under AEC Byproduct Material Licenses No. 37-30-2 & 7. In addition, we wish to acknowledge receipt of your letter dated January 30, 1958, reporting the release of tritium to unrestricted areas during the past several years.

As a result of the inspection, it appears that certain of your activities were not conducted in full compliance with license conditions and the requirements of the AEC's "Standards for Protection Against Radiation," Part 20, Title 10, Code of Federal Regulations, in that:

LICENSE NO 37-30-2

1. Contrary to 10 CFR 20.201(b), "Surveys," surveys conducted in the Americium Laboratory were not adequate to evaluate the concentrations of americium 241 to which employees were exposed during decontamination operations which were performed in that area from June to October, 1957. We note that while air samples were taken in the Americium Laboratory during this period, the results of such samples were not immediately reviewed and evaluated to determine the hazards incident to this operation. As a result, many individuals were exposed to airborne concentrations of americium 241 in the Americium Laboratory in excess of the limits specified in Table I, Column 1, Appendix B of 10 CFR 20 during the June-October 1957 period.

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2. Contrary to 10 CFR 20.201(b), "Surveys," surveys were inadequate to determine compliance with 10 CFR 20.105 with respect to:
  - a. the airborne concentrations of tritium gas released to unrestricted areas from the Tritium Building during tritium foil preparation and during various other operations involving curie quantities of tritium;
  - b. the airborne concentrations of tritium gas released to unrestricted areas from the Tritium Resin Preparation Laboratory during the incorporation of tritium gas into a plastic resin; and
  - c. the airborne concentrations of tritium gas released to unrestricted areas from the Tritium Gas Fill Facility from May 26 to September 28, 1967.

Based on the evaluations that have been made of the concentrations of tritium released from the Tritium Gas Fill Facility to unrestricted areas, it appears that you may have exceeded the limits specified in 10 CFR 20.105(a) when averaged over a one-year period.

3. Contrary to 10 CFR 20.201(b), "Surveys," surveys were inadequate to determine compliance with 10 CFR 20.103 with respect to the airborne concentrations of nickel 63 and krypton 85 to which employees were exposed while working in laboratories where the plating of nickel 63 is performed and where tubes are filled with krypton 85 gas.
4. Contrary to 10 CFR 20.405(a), "Reports of overexposures and excessive levels and concentrations," U. S. Radium Corporation failed to file with the Commission a report of the exposures of airborne concentrations of radioactive material, referred to in Item 1 above, received by its employees in excess of AEC limits. The reports which were filed with the Commission by U. S. Radium Corporation of the exposures were not timely.

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5. Individuals working in the restricted Americium Laboratory and engaged in various operations involving the decontamination of the laboratory, and the replacement of air filters were not adequately instructed in the safety problems associated with exposures to radioactive materials, and in the precautions or procedures to minimize their exposure during such operations, contrary to 10 CFR 20.206(a), "Instruction of personnel; posting of notices to employees."
6. Survey data indicated that the surfaces throughout your plant contaminated with radioactive material exceeded the contamination limits specified in your letter dated April 28, 1961, and your revised Standard Operating Procedure 27, contrary to License Condition No. 18 which incorporates the referenced documents.

LICENSE NO. 37-30-7

7. Contrary to 10 CFR 20.201(b), "Surveys," surveys were inadequate to determine compliance with 10 CFR 20.106 with respect to the airborne concentrations of tritium released to unrestricted areas from the Tritium Hand Paint Facility. Based on the evaluations that have been made prior to May, 1967 of the concentrations of tritium released from the Tritium Hand Paint Facility, it appears that you may have exceeded the limits specified in 10 CFR 20.106 when averaged over a one-year period.
8. Survey data indicated that the surfaces throughout your plant exceeded the contamination limits specified in your letter dated April 28, 1961, and your revised Standard Operating Procedure 27, contrary to License Condition No. 17 which incorporates the referenced documents.
9. Contrary to 10 CFR 20.201(b), "Surveys," except for the week of July 17, 1967, surveys were inadequate to determine compliance with 10 CFR 20.103 with respect to the airborne concentrations of radon 222 to which employees were exposed while working in the radium screening room. During the week noted above, several individuals working in the radium screening room were exposed to airborne concentrations of radon 222 in excess of AEC limits when averaged over a period of seven consecutive days.

This notice is sent to you pursuant to the provisions of Section 2.201, "Notice of violation," of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. You are hereby required to submit to this office, within twenty (20) days of your receipt of this notice, a written statement or explanation in reply including (1) admission or denial of the alleged violations; (2) the reasons for the violations if admitted; (3) corrective steps which have been taken to avoid further violations and (4) the date when full compliance will be achieved. Your reply will be considered in accordance with the Commission's regulations in determining what further enforcement action such as issuance of an order for suspension, revocation or modification of your license, or other action, as may be appropriate.

We note that items of noncompliance similar to the ones described in Items 2a, 2c, 6, 7, 8 and the latter part of Item 9 above were found during the previous inspection and brought to your attention in our notice dated July 20, 1957. In your reply dated August 15, 1957, to the aforementioned notice, you informed us that appropriate action would be taken and indicated that the violations would not be permitted to occur in the future. In connection with your response to this notice of violation, please explain why the violations recurred in view of your previous assurances to the contrary.

In our July 20, 1957 notice, we informed the company that its compliance history indicated inadequate indoctrination of personnel in sound safety practices and inadequate management control of the safety aspects of the company's licensed operations. During the meeting at our Bethesda office on September 27, 1957, and in letters to the Commission dated August 15 and October 5, 1957, U. S. Radium Corporation described the steps to be taken by the company to strengthen its safety management and administration of plant operations. The present inspection showed inadequate progress in this regard and clearly demonstrated that the steps taken by U. S. Radium Corporation were either ineffective or not carried out. Please provide us with your comments concerning the above matter in reply to this notice and the corrective steps which have been or will be taken by you regarding the matter.

With respect to Item 9 above, we understand that U. S. Radium Corporation ceased operations in the radium screen application facility as of October 2, 1957, because of the radiation hazards existing in the facility. According to information obtained during the inspection, this facility was and still is grossly contaminated and poorly ventilated. We note that operations have, nevertheless, been resumed in the facility. We note further that personnel who work in this area also are engaged in activities involving byproduct material. In light of the above, we believe that immediate steps should be taken by U. S. Radium Corporation to evaluate the facility and provide appropriate corrective action to assure that an

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adequate level of safety of operations will be maintained therein. You are requested to provide us with your comments concerning the above matter.

Additionally, the AEC inspector reported that the facilities used to process americium 241 are still marginal. You indicated during the present inspection and during the meeting with AEC representatives at your Bloomsburg, Pennsylvania plant on September 6, 1967, that the company planned to install a new glove box system in this area. Please inform us of the target date for installation of this system.

With respect to Items 6 and 8 above, we note that removable contamination still exists in restricted and unrestricted areas throughout your plant in quantities exceeding those specified in your procedures. Furthermore, we note that individuals working in the restricted Hand Paint Facility leave the area continuously with high quantities of removable contamination on their hands and clothing. According to information obtained during the inspection, no apparent effort has been made by U. S. Radium Corporation to eliminate the problem or to determine the causes precipitating the condition. We believe that U. S. Radium Corporation should conduct a thorough evaluation of the matter and should, as a result of its review, develop instructions to be issued to employees working in these areas detailing the procedures to be followed in every aspect of their work. The instructions should be sufficiently definitive to instruct employees in the step-by-step procedures they are to follow in minimizing the spread of contamination from their work areas and in minimizing their own exposure to tritium. Please provide us with your comments regarding this matter.

Finally, we understand that evaluations of airborne concentrations of tritium to which personnel were exposed while working in the Tritium Building, the Tritium Gas Fill Facility and the Tritium Hand Paint Facility may have been inadequate. The AEC inspector discussed this matter with Dr. J. MacLutchin and Mr. E. M. Burtzavage during the inspection and they stated that appropriate corrective action would be taken.

It is necessary that we receive prompt confirmation from you that immediate corrective action will be taken to strengthen the company's radiation safety program and to assure its future compliance with AEC's rules and regulations. In this regard, we believe it would be highly desirable if you would meet with us in our Bethesda office to discuss the matters referred to in our notice. The questions contained on page 3 of your January 30, 1968 letter relating to your tritium

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releases, as well as your survey program for evaluating the airborne concentrations of tritium to which employees are being exposed, could also be discussed during the meeting. Please advise me as to a suitable time for such a visit.

Very truly yours,

Lawrence D. Low, Director  
Division of Compliance

cc: Dr. Jan Lieben, Director  
Division of Occupational Health  
Pennsylvania Department of Health  
P. O. Box 90  
Harrisburg, Pennsylvania 17108

bcc: CO:HQ  
DML:IB  
INCIDENT FILE  
PUBLIC DOCUMENT ROOM  
CO:I  
REG READING FILE

OFFICE ▶	CO	<i>JRC</i>	CO	<i>CO</i>		
SURNAME ▶	RHandler:sas	JRoeder	RHEngelken	<i>Engelken</i>		
DATE ▶	3/22/68	3/29/68	4/1/68	<i>4/1</i>		