

JUL 23 1969

U. S. Radium Corporation  
Post Office Box 246  
Morristown, New Jersey 07960

Attention: Mr. R. C. Sorenson  
President

Gentlemen:

This refers to the inspection conducted at Bloomsburg, Pennsylvania, during April and May 1969 of your activities authorized under AEC Byproduct Material Licenses Nos. 37-00030-02 and -07. In addition, we wish to acknowledge the receipt of letters dated April 24 and May 27, 1969, from Mr. J. D. McGraw reporting the exposure of personnel to radioactive material.

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

LICENSE NO. 37-00030-02

1. Contrary to 10 CFR 20.201(b), "Surveys," surveys were inadequate to evaluate the airborne concentrations of radioactive material released from the facility through exhaust stacks to unrestricted areas so as to determine compliance with 10 CFR 20.106.
2. Contrary to 10 CFR 20.201(b), "Surveys," inadequate surveys were conducted to determine the presence and extent of radioactive contamination existing on accessible surfaces throughout the plant. Based on your recorded data and radiation measurements made by the AEC inspector at the time of the inspection, it appears that you may have exceeded the contamination limits specified in the company's licensed Standard Operating Procedure 27.
3. Byproduct material wastes were disposed of via normal refuse channels, contrary to 10 CFR 20.301, "General requirements."
4. Contrary to 10 CFR 20.201(b), "Surveys," surveys were inadequate to determine compliance with 10 CFR 20.103 with respect to the

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airborne concentrations of americium 241 and radium 226 to which employees were exposed while dismantling ductwork in the Americium-Radium Laboratory. It was found during the inspection that no prior evaluation was made by the company to determine the hazards incident to the above operation. It was also found that while air samples were taken during the first week in April 1969, the results of such samples were not immediately reviewed and evaluated.

LICENSE NO. 37-00030-07

5. Contrary to 10 CFR 20.201(b), "Surveys," surveys were inadequate to evaluate the airborne concentrations of radioactive material released from the facility through exhaust stacks to unrestricted areas so as to determine compliance with 10 CFR 20.106.
6. Contrary to 10 CFR 20.201(b), "Surveys," inadequate surveys were conducted to determine the presence and extent of radioactive contamination existing on accessible surfaces throughout the plant. Based on your recorded data and radiation measurements made by the AEC inspector at the time of the inspection, it appears that you may have exceeded the contamination limits specified in the company's licensed Standard Operating Procedure 27.

With regard to items 1, 2, 3, 5 and 6 above, this notice is sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office, within twenty (20) days of your receipt of this notice, a written statement or explanation in reply including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved.

With regard to item 4 above, we understand that U. S. Radium Corporation has discontinued all production operations involving radium and americium. The personnel exposures reported in your April 24 letter were received by employees engaged in the dismantling and removal of contaminated equipment in the Americium-Radium Laboratory. It is also our understanding that the company has discontinued further decontamination operations in the Americium-Radium Laboratory and plans to engage an outside firm to perform this work. In your reply to this letter please inform us of the status of this matter.

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In addition to the above matters, the AEC inspector reported that U. S. Radium Corporation did not promptly perform bioassays on personnel after it was determined on April 8, 1969, that such personnel were exposed to airborne concentrations of americium 241 and radium 226 in excess of AEC limits while dismantling ductwork in the Americium-Radium Laboratory. We understand that urine samples for the individuals in question were not collected until April 25, 1969. In light of the above, we believe the company should reevaluate the procedures used in its bioassay program. Please provide us with your comments concerning this matter and the steps which have been or will be taken to assure that bioassays are promptly made and evaluated when it appears that an exposure to radioactive material has occurred.

With respect to items 1 and 5 above, the AEC inspector observed the following matters which warrant consideration:

- A. The diffusion calculations made by the company to show compliance with 10 CFR 20.106 regarding the stacks of the main building and the Etching Building were unsatisfactory in that the company did not take into account the apparent differences in flow patterns caused by the close proximity of the two buildings and the location of their stacks.
- B. The diffusion calculations made by the company with respect to the effluent released from stacks of the Tritium Building and the Watch Dial Operations area were inappropriate pursuant to the requirements of 10 CFR 20.106(d) in that the stacks did not discharge within a restricted area. This matter was also discussed in our notice to you dated September 19, 1968.
- C. The monitoring systems used to measure the airborne concentrations of tritium released to unrestricted areas were not calibrated.
- D. The concentrations of americium 241 and tritium released to unrestricted areas were not totaled as specified in Note 1 to the Appendices of 10 CFR 20.

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Regarding that portion of the company's operations with byproduct material to be continued at the Bloomsburg location, involving primarily tritium, we understand that the company plans to move these operations into a new building in the near future. Your applications, dated March 13 and April 24, 1969, requesting authorization to use byproduct material in the new facility are being evaluated by the Division of Materials Licensing.

Very truly yours,

Original signed by  
L. D. Low

Lawrence D. Low, Director  
Division of Compliance

bcc: Mr. Thomas M. Gerusky, Director  
Office of Radiological Health  
Pennsylvania Department of Health  
Post Office Box 90  
Harrisburg, Pennsylvania 17120  
(w/cpys ltrs 4/24 and 5/27/69)

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DR Central Files  
PDR )  
NSIC ) w/cpys ltrs dtd 4/24 & 5/27/69  
DML:IB )  
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