

Office Memorandum • UNITED STATES GOVERNMENT

TO : Isotopes Division Files

DATE: April 14, 1954

FROM : Oscar M. Bizzell and Lester R. Rogers

SUBJECT: VISIT TO U. S. RADIUM COMPANY, BLOOMSBURG, PENNSYLVANIA, MARCH 26, 1954.

I. Control

Mr. Rogers and I together with Mr. Joseph Mimelo visited U. S. Radium Company, to review their use of General Authorization Number 18812 during the past year. Discussion was held with Mr. C. C. Carroll, Director and Chairman of the Bloomsburg plant of the U. S. Radium Company and present Chairman of the Isotopes Committee and Mr. H. H. Dooley, Principal Chemist at this plant and Radiological Safety Officer.

This company makes considerable use of Commission produced radioisotopes. In addition, they use and fabricate quite large quantities of radium. Work with radioisotopes appears to comprise about one half of their business; the other part being devoted to manufacture of engraved identification plates through photographic techniques and the manufacture of self luminous compounds containing no radioactivity. This company has numerous laboratories which have been described in previous reports by Dr. Manov and Mr. Frazier. It is interesting to note that this factory was during World War II a wooden toy factory. At the end of the war the plant put up for sale as surplus property and the U. S. Radium Company purchased the plant and converted it into a radium and radioisotope operation. Numerous people at this plant handle radioactive materials under the supervision and direction of Mr. Dooley and Mr. Carroll.

The Present Radioisotopes Committee is made up of the following people: Mr. C. C. Carroll, Chairman; Mr. H. H. Dooley, Radiological Safety Officer; Mr. Julius Chupak, Radiochemist; Mr. Frank Palmeri, Radiochemist; and Mr. Henry Vaughn, a Production Engineer who is to be brought in soon. Mr. Wallhausen, the previous Chairman of the Isotopes Committee is no longer actively engaged in the work in the Bloomsburg Plant. Mr. Wallhausen has been promoted to Superintendent of Sales and his position at the Bloomsburg Plant has been taken over by Mr. Carroll.

Mr. H. H. Dooley bears primary responsibility for health safety in the use of radioisotopes. All workers handling radioisotopes

are supplied with film badges and records are kept on personnel monitoring. In addition laboratories are surveyed for presence of radioactive contamination, and Mr. Dooley informed us that they intend to start routine air monitoring in the various laboratories in the very near future. The workers also wear pocket chambers. With regard to training and experience in radiological safety, Mr. Dooley was one of the early participants in the ORINS Course and has had considerably experience in using radioactive material at U. S. Radium Company. All workers are given a thorough indoctrination concerning the safety aspects necessary for the handling of radioisotopes.

As noted above this is a rather extensive program. Comparatively large quantities of Sr 90, Tl 204, Po 210, tritium and various other radioisotopes have been used. Approximately 12 shipments have been received this year under this general authorization. Both Messrs. Carroll and Dooley indicated that the program would be expected to continue along at about its present level of operation, with perhaps a slight increase in the investigational and research use of various other radioisotopes. In order to expend more effort upon research and development a series of 4 or 5 new laboratories were being constructed at the time of our visit.

II. Medical Examinations

Complete physical examinations are given periodically with blood counts. Also, radon breath samples are taken twice a year and analyzed for radon content.

III. Laboratory Area

It appears that approximately half the total area of this rather large factory building is devoted to radioisotope work of one type or another. These facilities have been described in considerable detail in previous reports by Dr. Manov and Mr. Frazier. In addition to present facilities 4 or 5 additional laboratories are being constructed. These laboratories are equipped with many ingenious devices such as specially designed glove boxes, dry boxes, ventilated boxes, fume hoods, specially designed tongs and various other equipment that enables them to perform the various necessary operations under good conditions of radiological safety.

IV. Radiological Safety, Equipment and Techniques

As noted above these laboratories are very well equipped with a large variety of remote handling equipment, and is too extensive to describe here in any detail. It suffices to say that Mr. Rogers and I were quite impressed with many of the devices that we saw and our tour through the facilities proved to be quite informative

to both of us in addition to the State Industrial Hygiene Engineer who had never had the opportunity of visiting this type of operation.

V. Instrumentation

Personnel monitoring is accomplished with film badges and pocket dosimeters. Since much of their contamination is likely to be alpha emitting radioisotopes, surveys are made with Juno type instruments and with various end-window count rate meters. Technical instrumentation includes a very large variety of instruments, many of which are specially designed for their particular purpose.

VI. Wastes

Considerable discussion was held with Messrs. Carroll and Dooley on the waste disposal problem. They do have a waste disposal problem involving disposal of approximately 100 uc of Sr 90 waste material and other hazardous radioisotopes per day. At the present time they have a contract with Radiological Services, of New York City, for collection of these waste materials. Presently they are disposing of contaminated solutions by evaporation and transfer of the residue to Radiological Services Company. Mr. Dooley stated that the volume of their wastes had reached a point where it was not practical for them to evaporate to dryness and he was anxious to devise some means whereby solutions could be disposed of by dilution and dispersion of the radioactive material into the Susquehanna River that flows immediately behind this plant instead of evaporation and concentration. This River appears to have a very large volume of water flowing down by the plant and it appears that it would be relatively easy to dilute this quantity of waste material.

These people hope to be able to put in a two-tank waste holding system using one to collect waste radioisotopes and the other for a dilution tank prior to disposal. I suggested that a submerged line might be run to the center of the River and that the waste solutions be disposed of under conditions that would achieve dilution to safe drinking water levels within the immediate vicinity of the U. S. Radium Plant. The state health man was questioned on this but appeared to have very little knowledge about what would be satisfactory. He suggested that anything that they might do should be cleared with people at Harrisburg.

Mr. Dooley is sending Mr. Rogers some of the necessary data on this proposed waste disposal unit in order that the calculations can be made in order to verify amounts of dilutions and disposal.

VII. Records

Records are kept on accountability of radioisotopes, personnel monitoring, waste disposal, surveys of operations and laboratories, medical records on personnel and minutes of Committee meetings.

VIII. Summary

It was our general impression that radioisotopes being used at U. S. Radium Company at Bloomsburg are being handled under exceptionally good conditions of radiological safety. We did feel that it would be a good idea for Mr. Dooley to do periodic air monitoring in order to assure the absence of atmospheric contamination in view of the large amounts of Sr 90 and other dangerous radioisotopes being used. This was the only suggestion that we had in connection with this program.

Mr. Carroll questioned me concerning a matter which should be given consideration by the Allocation Branch. He stated that in a few cases, specifically with regard to a source requested by Anton Electric Company, of Brooklyn, that they were not at all satisfied with the design specifications submitted to them by Anton Electric. Anton Electric informed them that the Isotopes Division had reviewed the proposed gadget and had approved it and requested again that U. S. Radium go ahead with the fabrication of the particular unit. In view of this assurance through Anton Electric Mr. Mason had approved the particular device; Mr. Carroll stated that they went ahead and made it up but released it to Anton with the feeling that the particular device was not by any means safe or leak proof. I assured Mr. Carroll that in many cases we granted approval on the basis of the supplier scheduled to make the gadget. I speculated that in this case it was probably felt that U. S. Radium would produce a gadget that they felt was entirely safe for use before releasing it to Anton Electric. This resulted in somewhat of a paradoxical situation in view of the fact that Mr. Carroll felt that we had reviewed the gadget and felt that from the standpoint of the Atomic Energy Commission that the device was safe.

I think that we have a considerably better understanding at the present time concerning this matter and agreed with Mr. Carroll THAT this would be taken up with the appropriate personnel in the Isotopes Division and that future proposals of this nature would be cleared either by telephone conversation or telegram with personnel at Bloomsburg.

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