



UNITED STATES RADIUM CORPORATION
4150 OLD BERWICK ROAD / BLOOMSBURG, PA. 17815 / (717) 784-3510

August 4, 1969

United States Atomic
Energy Commission
Washington, D. C. 20545

Attention: Lawrence D. Low, Director
Division of Compliance

Dear Sir:

The following is in response to your letter dated July 23, 1969 concerning inspection of our Bloomsburg facilities during April and May 1969.

License No. 37-00030-02

1. The diffusion calculations made to describe effluent dispersion from stacks were selected to be conservative in that no allowance was made for: (1) The increase in dispersion rate which is inevitable due to air turbulence resulting from the many trees, power poles, and buildings in the immediate area. (2) The vertical air movement resulting from the "heat island" created by the large amount of energy - electrical and fossil - which is consumed by plant processes. (3) The average wind speed used is lower than the actual average as indicated by the average wind speed reported by the U. S. Weather Bureau at a nearby airport.

It has been recognized that satisfactory control of airborne effluent could not be achieved with the stack system which has existed at this plant. Control of personnel exposures until the operations could be shut down has been achieved by monitoring all personnel who entered the main, etching, or tritium building roofs. Calculation of the maximum ground level concentrations indicated the level was well below the unrestricted area tolerance and occurred on U. S. Radium property. Air samples taken at ground level east of the main building (the prevailing wind blows east) verify the low ground concentrations indicated by calculation.

At this date only the Watch Dial process (Stack #15 on the Etching Building) remains in production outside of the new Nuclear Processing building. It cannot be moved until manufacturers deliver the necessary equipment to perform the Watch Dial process in the new facility.

This stack average .95 unrestricted area MPC at the stack outlet for 1968.

COPY SENT PERSON:

I

1000

9 57 8

The Tritium building stack is located in an area which was restricted by a fence installed prior to the July 1968 license inspection. Tritium concentrations in this stack average 20% of the restricted area MPC during 1968. Recent air sample data gathered downwind from the stack and a review of personnel urinalysis data of personnel whose work locations were on the east side (adjacent to the Tritium building) indicate this stack has not been a significant hazard.

At this date the Tritium Foil operations (Tritium building operations) are shut down. The processing equipment is being upgraded and rebuilt in the new Nuclear Processing Building.

At the time of license inspection we were unable to locate records of efficiency studies which had been performed for Tritium coater impinger air samplers. We are now completing a new study of these efficiency factors. Preliminary results indicate confirmation of the efficiency factor presently in use. We do observe, however, a variation in efficiency with tritium concentration that was not indicated by the previous study. By September 1, 1969 we expect to have enough data to re-evaluate impinger efficiency factors.

Evaluation of total airborne contamination from stacks due to Americium 241 and Tritium had not been documented so they could be shown to the inspector at the time of his visit. The Americium contribution has been evaluated. Since the average concentration at the stack outlet was only 0.1 unrestricted area MPC for the year, the contribution to airborne concentrations at points of interest was very low.

2. Surveys of the plant areas have been inadequate to locate many items of contamination created by early work with radium. As a result of the data gathered during and since the last license inspection a new program to survey and decontaminate plant areas has been initiated. The first phase of the program includes extending license 37-00030-02 for clean-up purposes only and the assistance of an outside contractor experienced in facility decontamination.

3. Investigation into the origin of the waste disposed of via normal refuse channels revealed that the items in question had been stored in a corner for some years without being properly labeled. It has since been made a policy that all waste of doubtful origin be surveyed by Health Physics prior to disposal. Also, all radioactive waste containers are now being clearly marked with the words "Contaminated Waste" and the standard radiation symbol.

4. The surveys to evaluate the hazard for dismantling ductwork in the Americium-Radium laboratory were inadequate. A bioassay program for each individual should have been started at the time of his assignment to the work. When the situation was recognized by management, all work was stopped for re-evaluation of the project. As a result, completion of the work was contracted to an experienced AEC licensed contractor, Atcor, Inc., Elmsford, New York.


Under our new Radiation Protection Program, Health Physicist Responsibilities Section 7.2.0 the Health Physicist is required to review all survey data promptly. A procedure is also in effect now, and is being written to require Institutional Isotope Committee approval prior to the execution of any major non-routine decontamination projects.

License No. 37-00030-07

5. Same as one (1) under License No. 37-00030-02.
6. Same as two (2) under License No. 37-00030-02.

Clean up of the Americium-Radium laboratory area has been contracted by Atcor, Inc., Elmsford, New York. The original work contracted was extended by a second contract when surveys indicated significant additional decontamination was required. At this time it appears that Atcor, Inc. will have completed their work by August 15, 1969.

Very truly yours,



R. E. Sorensen
President

RCS/kme

cc: C. W. Wallhausen
W. E. Umstead
O. L. Olson
J. D. McGraw
Isotope Committee File