License No. 19-1398-29

Backup for AEC 592 Martin-Marietta Facility, Quehanna PA, April 24-26, 1967
(Inspection Date: May 23 - 25, 1967 (Announced Reinspection)

June 12, 1967 Inspection Report Details @ Commencement of Decontamination of the drybox in Cell #4.

Reviewers Comments: All Martin personnel had vacated the facility since May 31, 1967. License held by Martin for possession only. New license status is described in Amend #21 issued Feb 17, 1967. As a result of more than 200 entries into Cell 4A, the general dose rates were reduced from 500 Rad/hr to approx. 500 mRad/hr (ORIGINAL SPECIFIC AREA DOSE RATES WITHIN THE CELL WERE GREATER THAN 5000 RAD/HR). An ion chamber with a wall thickness of 75 MG/CM^2 was used for surveys. NOTE: AEC REQUIRED MEASUREMENTS TO BE MADE WITH A SURVEY METER WITH A WALL THICKNESS OF NO GREATER THAN 7 mg/cm^2. Several attempts were made to determine a correlation between film badge readings and dosimeter readings; factors of 3 to 4 and 6 to 8 were mentioned in the file. Near the end of the decontamination effort, an overexposure to an individual occurred, which caused the skin of the whole body of one individual to exceed 7 1/2 rem in the second quarter of 1967.

The decontamination effort first required shielding in the form of a box constructed of plywood with glove ports and rubber gloves, large enough for a man kneeling inside it to be protected on all sides from radiation. When the walls were decontaminated, the plywood box was dispensed with, and a spongy rubber drape material was used as a shield rather than the plywood. Techniques used to decontaminate included washing, wiping, grinding of hot spots, and sand-blasting. The entire drybox was sand-blasted at one time or another.

An overexposure occurred for the period 3/31 to 4/7/67, with the results being reported from the film service (U. S. Testing Co.) as being 100 mrem gamma, and 4600 mrad to the skin of the whole body. A final explanation was offered that the exposure had come from an uncovered area which exposed the individual from a directional source since a second badge worn on the individual's back was significantly lower than the other whole body badge.

Other factors that may have contributed to exposure were disrobing techniques, and reuse of protective clothing. The file does not contain evidence, or statements whether the film badge was categorically proven to be free of contamination itself.

Residual contamination in a significant number of survey points exceed allowable release limits by current standards, if it is considered that Sr-90 was the predominant radionuclide present.

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Continued review of additional file material, Document: RADIOISOTOPE PILOT PLANT, Quehanna, Pennsylvania, FACILITY DESIGN AND SAFETY EVALUATION (Document ID MND 3137)

The MND 3137 report contain a statement that Penn State retains control of part of the building and monitors liquid waste disposal to the stream. No documentation of the records of the analyses are in the file. There is also a reference to a sampling regimen for a least 14 sampling locations (see page 188 of report MND 3137) on the site, however, no records of analyses or reports is in the file. There was(is?) a buried pipe from the reactor pool effluent that ran(runs) from the reactor building to a stream called Meeker Run. In addition, there was(is) also a buried pipe from the radioactive waste treatment plant which carried treatment plant effluent through to Meeker Run.