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NOTES ON THE INCIDENT OF EXPOSURE TO Ru^{106}, Rh^{106} ON MONDAY, SEPTEMBER 12, 1960.

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At sometime between 4:00 and 4:30 p.m. on the 12th of September, probably pretty close to 4:15, three individuals had a possible inhalation exposure to Ru^{106} and Rh^{106} in a room in Building 70. The three individuals were [redacted], [redacted], and [redacted]. I was contacted at home about 5:30 p.m. by Homer Adams, and met the three individuals at about 6:00 p.m. The entire amount of material with which the three were working was 10mc of Ru^{106} which would have had an equal amount of Rh^{106} in equilibrium with it. At the actual time of manipulation, in which there was a release, they were working with perhaps 3mc of the same material. This work was being done on a bench top rather than in a hood. The entire amount registered 2 or 3 mr at 3 feet of gamma radiation, and 20mr with the window open registering both gamma and beta at three feet. There was no appreciable decrease in these measurements at this fixed distance after the release. Swipes of the floor registered 1/2 to 1mr, and the air count was about 1mr. From the nature of the exposure they felt initially that all three individuals were exposed about the same amount. They were in the room potentially exposed for 1/2 hour. When they removed from the room, it was not possible to detect activity on them anywhere with ordinary beta-gamma monitors. Nose swipes were taken, however, and there was appreciable activity on the air sampler. The Ru was from Oak Ridge, presumably from neutron bombardment of inactive Ru. It was in the form of a chloride when it came, but it had been boiled down and put on a hot filament, and probably had become a mixture of the oxides by the time of the release. Two of the three oxides are described in the chemistry handbook as deliquescent, but there seems to be some question about this. They may actually be liquid at room temperature, and be volatile. After the patients were seen here, a urine sample was collected at 6:15 p.m., and whole body counting was arranged at about 7:30 p.m. The waste material from clean-up of the room showed a typical gamma spectrum of Rh: None of this material was detectable in [redacted] or [redacted], but very small amounts are probably detectable in [redacted], and will be followed further. They are amounts less than the activity due to Ce from fallout. There was also some possibility that there might be Ir^{192} in the release. This Ir had come from neutron bombardment in the Vallecitos pile, and would have been one or two weeks old. They originally thought it quite improbable that this could be involved in the release, but then were not quite so certain; however, none of this activity was detectable with the 100-channel analyzer. There has obviously been no exposure of significance to health, but because of the academic interest in the matter [redacted] will be [redacted] further with whole body counts and urinary assays. It appears that the Ru, whether in the form of oxide or chloride, ought to be pretty soluble in the lung.

PRIVACY ACT MATERIAL REMOVED

HGP/mcw

Howard G. Parker, M.D.

9/14/60: Harvey Soule called today with some additional data on the Ru spill. The air sampler, which was behind the individuals in the room, showed 12,000 beta-gamma counts per minute. Calculated for a thirty minute exposure, this would give ten times the maximum permissible concentration. Yesterday in cleaning up the room they attempted to assess the combined filterable and gaseous activity with both filter paper and an activated charcoal filter, but these filters were reading negative at that time. Nose swipes on the two experimenters were negative, but the monitor, [redacted] had 2,000 cpm on one of his nose swipes.

PRIVACY ACT MATERIAL REMOVED

Howard G. Parker, M.D.

HGP/mcw