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Date 8/31/44

- Subject Classified Information Required by
Operators Exposed to R. Hazards

To D. O. Notman

From H. M. Parker

Cop. No.

D. O. Notman

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D. O. NOTMAN
ASSISTANT PLANT MANAGER

CLASSIFIED INFORMATION REQUIRED BY OPERATORS
AND OTHERS EXPOSED TO RADIATION HAZARDS

1. General

The recommendations in the Bureau of Standards Handbook on Radium Protection specifically require that all men engaged in radium work be informed of the nature of the hazards involved. The same general principles govern operations at the Hanford Engineer Works, limited only by the requirements of Security. Security, with respect to fundamental operations, can be maintained if hazard information is phrased in such a manner that the maximum information on the nature of the hazard is combined with the minimum information on the nature of the materials used and the processes involved.

All operators require to know that they handle radioactive materials which may emit alpha, beta and gamma radiations similar to the radiations from radium. The absorption of these types of radiation in matter can be explained on an elementary basis; and hence the steps that each man must take at all times for his own protection and the protection of co-workers in addition to the permanent protective devices. This is necessary and sufficient to enable men to do their jobs safely and to make comprehensible the continuous monitoring program by the Health Instrument Group and by the Operators themselves. Without this information an operator cannot be protected at all times, at the present development stage of the process, without having a monitoring force as large as the operating force. Protection by fixed instrumentation of the alarm type is inadequate and dangerously misleading.

At the discretion of the Medical Department, men should be made familiar with the types of body damage that could arise in the absence of proper control.

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2. The Restricted Areas

The basic information of paragraph 1, given to all operators needs modification or amplification in particular buildings in the following manner:-

(a) 105 Building

The process unit is a potential source of rays. The rays may come from the unit or from any object in the vicinity.

Explicit reference to neutron radiation or to induced radioactivity is to be avoided.

Radioactive gas may be present in the air.

(b) 115 Building

The hazard in 115 Building is confined to gamma activity in the tanks and to active gas in the air.

(c) 100 Area Control Laboratories

Materials brought into the laboratories may give beta or gamma radiation. Active gas may be present.

(d) 221 Building

The operation is concerned with radioactive liquids. Active gas may be present.

(e) 224 Building

Same as 221 except that in Room F there is a vapor or dust hazard. The special nature of this hazard need not be disclosed.

(f) 231 Building

The existence of an alpha particle hazard analogous with the risk of radium poisoning is required information in this building only.

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(g) 200 Area Control Laboratories

Samples used may have dangerous levels of alpha, beta or gamma activity.

3. Special Classes of Men Other Than Operators

(a) Instrument Men

Information of paragraph 1 is needed with emphasis on contamination to ensure clean and safe instrumentation.

(b) Maintenance Men

Key maintenance men need information of paragraph 1 to enable crews to work effectively. No information is needed by others, provided that maintenance work is continuously monitored by both Operations and Health Instrument men.

(c) Safety Department

Optimum cooperation between the Safety Department and Health Instruments to promote job safety is conditional on Safety men having at least the information of paragraph 1.

4. Summary

All areas of the plant are subjected to radiation hazards similar to those in the radium industry. Personnel in these areas are required to wear pencil meters and special badges that are evidently not solely for identification. They are required to submit to medical examinations more stringent and frequent than usual. They are required to wear heavy gloves in one location, thin gloves in another, disposable hats or rubbers in another. They are required to stay away from familiar objects that they could handle a few days before. They observe health instrument men making readings at points not tangibly influenced by the operations.

Under these circumstances, operators cannot perform their duties intelligently without being advised of the general nature of the risks involved. Since the general beta and gamma hazard occurs at nearly

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all points and cannot reasonably be concealed, this is the feature selected for general information. The special hazard of 105 Building can then be concealed, and the origin, but not the nature of the hazard in 231 likewise concealed.

H. M. Parker

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CH. SUPV., HEALTH INSTRUMENTS

HMP:bk

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