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BIOLOGICAL AVAILABILITY OF PLUTONIUM AND IODINE

by

E. A. Schuck  
Monitoring Systems Research and Development Laboratory  
National Environmental Research Center  
Las Vegas, Nevada

Program Element 1FA083

NATIONAL ENVIRONMENTAL RESEARCH CENTER  
OFFICE OF RESEARCH AND DEVELOPMENT  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
LAS VEGAS, NEVADA 89114

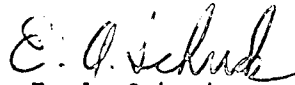
ENVIRONMENTAL PROTECTION AGENCY

NATIONAL ENVIRONMENTAL RESEARCH CENTER -LAS VEGAS

DATE: December 19, 1974

Reply to  
Attn of: MSA  
Subject: FY 74 Progress Report, Task 005, ROAP 21 BAS  
Biological Availability of Plutonium and Iodine  
To: Mr. James G. Payne, Jr.  
Operations Officer

Forwarded herewith are FY 74 results of investigations of meteorological factors in the resuspension of plutonium contaminated land surfaces.



E. A. Schuck

Chief, Monitoring Systems Analysis Staff  
Monitoring Systems Research  
and Development Laboratory

Enclosure

cc: w/encl  
Mr. G. Morgan  
Dr. R. Stanley

## Meteorological Factors in the Resuspension of Pu from Contaminated Land Surfaces

ROAP/Task I.D.: 21 BAS, Task 005

The objective of this task is to determine the relevance of meteorological factors on the resuspension of Pu from contaminated land surfaces. Because of the wide variety of such factors, this task will be limited to the use of commonly available meteorological data, i.e., wind speed and direction, temperature profile, precipitation, etc. Also, since no field experimentation is anticipated, the scope of this task will be limited to the analysis of selected existing data bases.

The resuspension of radioactive particulate matter from soil surfaces has been recognized for some time as a potential long-term hazard. Sources of radioactive deposition include nuclear detonations (Nevada Test Site), products of nuclear materials processing facilities (Rocky Flats), and potential reactor accidents. Most of the emphasis in the past has been on inhalation hazards in connection with the initial distribution of radioactive debris in the environment. However, redistribution of material by meteorological forces, primarily wind and precipitation, is known to be significant. This work will investigate the influence of such meteorological parameters and attempt to define their relevance to the resuspension and redistribution of Pu containing particulate matter.

A literature search has been completed and the completeness of the coverage verified. This coverage is limited to those journals available through the NERC-LV library and more specifically, the work of the Air Resources Laboratory-Las Vegas (ARL-LV) in connection with the plutonium

environmental studies program of the Nevada Applied Ecology Group (NAEG), Nevada Operations Office (NVOO). The work of the Lawrence Livermore Laboratory (LLL) has been carefully reviewed and used where possible as input to this study. Proceedings of the Atmosphere-Surface Exchange of Particulate and Gaseous Pollutants-1974 Symposium held in Richland, Washington, will be utilized where possible as input to this project, as well as proceedings of past symposia on this subject.

Interviews have been initiated with prominent workers in the field with respect to current work in progress, and important background work and documents. Among the organizations involved in laboratory and field studies of plutonium resuspension are Battelle Pacific Northwest Laboratory, Lovelace Foundation, Lawrence Livermore Laboratory, and NOAA Air Resources Laboratory.

A final report will be prepared by MSA professional staff by June, 1975, including the results of the above work, and the parameters relevant to the preparation of a non-quantitative, PERT-type model for determining the transfer coefficients of Pu particles using commonly available climatological data will be identified. Where gaps exist, appropriate research projects or programs will be outlined.