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SECURITY INFORMATION  
DATE: 5/22/92 BY: R.H.S.

# MOUND LABORATORY

Operated by  
MONSANTO CHEMICAL COMPANY  
U. S. GOVERNMENT CONTRACT NUMBER AT 33-1-GEN-53

Miamisburg, Ohio

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MOUND LSDR PROJECT  
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To Dr. R. A. Staniforth

Date May 22, 1952

At Subject Cave Operations and  
Schedule Revisions

MOUND DECLASSIFICATION REVIEW	
1ST REVIEW DATE: 11/14/57	DETERMINATION (CIRCLE NUMBER(S))
AUTHORITY: DAOC DADC DADD	1. CLASSIFICATION RETAINED
NAME: R. M. FLANNISAN	2. CLASSIFICATION CHANGED TO:
2ND REVIEW DATE: 11/11/97	3. CONTAINS NO DOE CLASSIFIED INFO
AUTHORITY: ADL Bratay	4. COORDINATE WITH:
NAME: The company	5. CLASSIFICATION CANCELLED
	6. CLASSIFIED INFO BRACKETED

The separation of actinium from approximately 20.6 grams of irradiated radium was completed in March 1952. Due to the impurities, probably carbon, in the radium which was to be returned to Hanford for irradiation, a process was set up, and equipment installed in the cave, to purify the radium. The first purification run was carried out the 15th of May. During April and up to the time the purification run was made the equipment in the radium and actinium boxes was removed and stored at one end of the cave behind a lead shield. The radium box was also removed and decontaminated. The equipment and the radium box were removed so that the working tolerances were reduced to a sufficiently low level that people could work in the cave.

During this period work was also done on the manipulator and can-opener which we believed was sufficient to get through the purification runs, after which we expected to give all of the equipment a thorough overhauling. It should be pointed out that during April and early in May there were several periods of several days each during which no work could be carried out in the 1A area of the "GP" Building due to air contamination. After considerable investigation it was thought that this contamination came through the pipe tunnel connecting the high and low risk areas underneath the cave. This condition is being corrected.

Several problems have arisen during the first purification which make it desirable to carry out the general overhauling of all of the cave equipment, both process equipment and the auxiliary equipment such as the trapping system, manipulator, etc., at once.

Since the Atomic Energy Commission has tentatively approved irradiation of radium in the MTR, a proposed revised radiation schedule is shown on the accompanying page and is compared with the original schedule. Phillips Petroleum will be contacted to work out the details. The overall production of actinium will actually be increased by this revised schedule. We will process one less batch of slugs and we will be able to use our experience to date to make changes and improvements in the system. Some of the aforementioned improvements are:

~~GROUP 1~~  
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1. Installation of a calorimeter.
2. Relocation of refrigeration equipment.
3. Construction of an air lock and shower between high and low risk areas.
4. Consideration of shielding of filter bank.
5. Rearrangement of equipment inside the cave for better utilization of space.
6. Possible changes in mechanical auxiliary equipment.

Thus, we feel it would be to our advantage to keep the radium that we have here, make the above changes, then purify the radium and send it directly to the MTR. Another advantage to this schedule is that a calorimeter will be available which will permit us to determine more accurately the amount of radium present and the purity of the material.

*Frank C. Mead, Jr.*  
Frank C. Mead, Jr.

FCM:pm

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