

PROGRESS REPORT FOR MONTH OF SEPTEMBER 1944

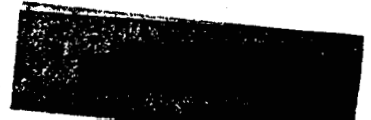
CONTRACT # W-7405-eng-48A

J. G. Hamilton

CLASSIFICATION CANCELLED
 DATE AUG 21 1962
 For the Atomic Energy Commission
 TED REDMON *[Signature]* for the
 Chief, Declassification Branch

REPOSITORY NARA-WASH D.C.
RG 326 ARGONNE NATL LAB
 COLLECTION U OF CHICAGO MET LAB
 BOX No. 5 (2X-1) NN3-77-85-1
 FOLDER SEPT 19-14

September 23, 1944



SUMMARY

PART I

Bone Radio-Autographic studies are now under way. The deposition of fission products from different dilutions of W₆ waste liquor upon Hanford and Clinton soils indicates a high degree of removal of activity by both types of soils. Uranium smoke studies using material containing fission products has been initiated.

During the past month the reconstruction program of the 60" has progressed reasonably well. Due to interference of one of the jobs on project 48B, the completion data of our work on the 60" cyclotron has been delayed 10 to 14 days. 90% of the fabrication of component parts for the reconstruction program is now completed, but a large variety of small tasks still lie ahead. However, barring unforeseen difficulties, the cyclotron should be in operating order by October 25, 1944.

The estimated expense for September 1944 is \$6,250.00 as compared to \$5,750.00 for August. The personnel increased from 18 to 19.

1090646

I. TECHNICAL PROGRESS REPORT ON METABOLIC STUDIES OF FISSION PRODUCTS

1. Radio-Autographic Studies

The sliding microtome has arrived and the preparation of bone sections of animals having previously received fission products is now under way. Radio-Autographs of lungs from animals which were exposed to uranium smoke containing fission products are being prepared.

2. Soil Studies

A series of Hanford soils from the 100 and 200 areas, river bank, and bed of the river have been compared, together with a specimen from Clinton, for their apparent ability to adsorb fission activity from W_6 waste liquors at no dilution, 1 : 10, 1 : 100, and 1 : 1000 dilution with distilled water. Ten grams of soil was used with each 100 cc. of test solution. Each soil sample was kept in contact with the test solutions for 3 days during which interval they were frequently shaken to insure adequate contact between the solutions and the soils. In addition control experiments were done that included the study of precipitation of activity from W_6 liquor at different dilutions with distilled water and the adsorption of activity by pure silica sand (washed Ottawa sand). The results showed that the average per cent of apparent adsorption of activity by seven different 10 gram Hanford soil samples was 45% as against 75% for Clinton clay when each sample was held in contact for three days with 100 cc. of undiluted W_6 waste liquor. The corresponding values for diluted W_6 liquors were; 1:10, 83% and 94%; 1:100, 85% and 96%; 1:1000, 78% and 96%. It was of considerable interest to note that the apparent fixation of activity did not show any great variations between the seven Hanford samples. This observation is significant since some of the samples were taken at a depth of 30 feet below the surface and were composed chiefly coarse sand. The top soil samples were largely made up of very fine sand and contained a much greater fraction of soil colloid.

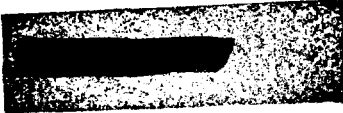
A progress report is now in preparation and will include all of the experimental information together with an analysis of the results in terms of the practical problems of waste disposal and accidental contamination of the top soil that may arise in the future.

The plant studies are to be initiated within the next two weeks with Carrier free fission products furnished to us through the cooperation of Dr. Cohn's group at Clinton. The active materials include the radio-active isotopes of Sr, Y, Zr, Cb, and Ce.

3. Smoke Studies

A number of activated uranium wires were sent to us by Dr. Borst's group for the purpose of investigating the absorption, retention, distribution and excretion of uranium smoke containing fission products. A group of 12 animals have already been exposed to the active uranium smoke (U_2O_3) which was produced by the aid of an electric arc. Initial determinations of the distribution of the inhaled activity indicated that most of the activity was deposited in the upper respiratory tract and the lungs. More animals are to be exposed and the

1090647




behavior of the inhaled activity is to be followed over a period of several months; the animals being sacrificed in groups of three at appropriate intervals.

4. Projected Studies for the Next Two Months.

The soil, plant, Radio-Autographic and smoke studies will be continued.

II. REPORT ON 60" BERKELEY CYCLOTRON ACTIVITIES FOR SEPTEMBER 1944

During the past month the reconstruction program of the 60" has progressed reasonably well. The interference caused by one of the jobs on project 48 resulted in a net delay for completion of our work on the cyclotron of from 10 to 14 days. The fabrication of component parts involved in the reconstruction program is now approximately 90% complete. Installation of these units is now under way. The assembly of the oscillator houses and oscillator tube is practically completed and installation should be completed within eight days. Fabrication has been completed for the transmission lines and their assembly and installation will be finished within 12 days. The constant current network has been completed and installation is expected to be completed within the next four days. The new dees are expected to be completed within a week and will be available for installation at the end of that time. It is anticipated that all major alterations of the dee stem tanks and vacuum chamber will be completed within a week. At the end of that period that entire system will be ready to be assembled and pumped down for final leak hunting tests. Both the vacuum chamber and dee stem tanks have been previously pumped down and tested independently for leaks and made adequately vacuum tight. A large number of miscellaneous relatively small tasks still lie ahead. These involve items such as electrical installation, plumbing, complete testing of all electrical components including all circuits, fabrication of wooden platforms to cover the water tanks, painting, and numerous other individually small tasks. Barring unforeseen delays, it now appears that we will be ready to turn on the cyclotron for the purpose of looking for the beam October 25, 1944.



October 5, 1944

MR. H. A. FIDLER

PART III

Re: W-7405-eng-48
Report on NDP-48A

An estimate of expense of this project in September, 1944, follows:

Payroll	\$ 3,000.00
Overhead	750.00
Expense and Equipment	<u>2,500.00</u>
Total	<u>6,250.00</u>

Following is a budget estimate for October and November, 1944:

Payroll	\$ 8,000.00
Overhead	2,000.00
Expense and Equipment	<u>5,000.00</u>
Total	\$15,000.00

Personnel at September 30, 1944, included:

Biochemist P-6	1
" P-5	1
Biologist	1
" P-3	1
Chemist P-4	1
" P-3	1
Clerk	1
Physiologist P-3	2
Technician, Lab.	4
" Jr. Lab.	5
Secretary	1

1090649

Mr. H. A. Fidler

October 5, 1944

ESTIMATED STATUS OF NDP-48A
ON SEPTEMBER 30, 1944

Payroll:

Appropriation		\$ 99,000.00
Payroll to August 31	\$ 56,500.00	
September payroll	<u>3,000.00</u>	
		<u>59,500.00</u>
Balance		\$ 39,500.00

Overhead:

Appropriation		24,750.00
Overhead to August 31	14,125.00	
September overhead	<u>750.00</u>	
		<u>14,875.00</u>
Balance		9,875.00

Expense and Equipment:

Appropriation		76,450.00
Expense to August 31	38,700.00	
September expense	<u>2,500.00</u>	
		<u>41,200.00</u>
Balance		<u>35,250.00</u>
TOTAL BALANCE		<u>\$ 84,625.00</u>

Total Appropriation	\$200,200.00
Total Expense	<u>115,575.00</u>
Total Balance	<u>\$ 84,625.00</u>

/s/ Kenneth Priestley
Kenneth Priestley
Business Manager
Radiation Laboratory

KP:ml
cc: Dr. J. G. Hamilton (2)

1090650

DO NOT REMOVE THIS PAGE

9-25-44

REPORT NO. _____
THIS DOCUMENT CONTAINS 6 PAGES OF
TEXT AND 0 PAGES OF FIGURES.
THIS IS COPY 14 OF 15 SERIES B
ISSUED TO: _____

CLASSIFICATION: [REDACTED]

Progress Report - Sept 1944

THIS IS A [REDACTED]

1. THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN MEANING OF THE ESPIONAGE ACT, U.S.C. 50; 31 AND 32. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.
2. BEFORE THIS DOCUMENT CAN BE READ BY A PERSON OTHER THAN THE ONE TO WHOM IT WAS ASSIGNED, HIS NAME MUST BE ON THE LIBRARY LIST OF THOSE AUTHORIZED TO READ MATERIAL ON THIS SUBJECT, OR PERMISSION MUST BE OBTAINED FROM THE ASSISTANT DIRECTOR OR THE DIRECTOR OF THE INFORMATION DEPARTMENT, OR THROUGH AN APPROPRIATE SECTION CHIEF OR HIGHER OFFICER WHO MUST BE CONVINCED THAT THE PERSON NEEDS TO READ THE DOCUMENT FOR THE SUCCESS OF HIS WORK.
3. THIS IS A CLASSIFIED DOCUMENT AND IS TO BE KEPT ONLY IN A GUARDED AREA. SECRET MATERIAL MUST BE KEPT IN A LOCKED SAFE OR A LOCKED FILING CASE WITH TUMBLER LOCK. CONFIDENTIAL MATERIAL MUST BE KEPT IN AT LEAST A LOCKED FILING CABINET.
4. A SECRET OR CONFIDENTIAL DOCUMENT IS NOT TO BE COPIED OR OTHERWISE DUPLICATED WITHOUT PERMISSION OF THE ORIGINATING OFFICE. EXTENSIVE NOTES ON THE CONTENTS OF A SECRET REPORT MAY BE TAKEN ONLY IN A BOUND NOTEBOOK WITH NUMBERED PAGES, HAVING THE DESIGNATION SECRET. THIS MUST BE SAFEGUARDED IN THE SAME WAY AS A SECRET REPORT. OTHER NOTES MUST BE AVOIDED, BUT IF MADE MUST BE DONE IN A FORM MEANINGLESS TO ANYONE BUT THE WRITER AND LATER DESTROYED.
5. THE PERSON OR OFFICE TO WHOM A SECRET OR CONFIDENTIAL DOCUMENT IS ISSUED IS ACCOUNTABLE FOR THE DOCUMENT AT ALL TIMES. A SYSTEM OF ACCOUNTABILITY BY SIGNED RECEIPTS OR A SIGNED RECORD BOOK MUST ALWAYS BE USED. PERMISSION FOR TRANSMISSION TO ANOTHER OFFICE OTHER THAN THAT OF THE ASSIGNEE MUST BE OBTAINED THROUGH THE INFORMATION OFFICE AND RECORDED THERE.
6. AS SOON AS THE DOCUMENT IS NO LONGER NEEDED, IT IS TO BE RETURNED TO THE INFORMATION OFFICE WHEREUPON THE INDIVIDUAL WILL BE RELIEVED OF THE RESPONSIBILITY FOR ITS SAFEKEEPING.
7. THE FORM BELOW IS USED IN ROUTING THIS REPORT AND MUST BE SIGNED BY EACH PERSON WHO READS IT.

ROUTE TO	READ BY	DATE	ROUTE TO	READ BY	DATE
CLASSIFIED FILE SECTION MANHATTAN ENGINEER DISTRICT CHICAGO AREA OFFICE DISPATCHED			REPOSITORY NARA - [unclear] #586 Argonne Nat Lab - 1 COLLECTION [unclear] - [unclear]		
OCT 26 1944			BOX No. #5 (RAID) ANS-77-851		
AM 7 8 9 10 11 12 1 2 3 4 5 6			FOLDER [unclear]		
1288					

1090651