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CLINTON LABORATORIES
CENTRAL FILES NUMBER
47-5-399

File _____
Copy _____

Date 5/26/47
Subject 706-C H.P. Report for
the Two Weeks Ending 5/23/47.
To R. E. Hayden
By J. M. Davis

Before reading this document sign and date below:

No. 1282

This document has been approved for release to the public by:

David R. Hunt 3/9/95
Technical Information Officer Date
ORNL Site

- 1. R. E. Hayden
- 2. K. Z. ...
- 3. C. E. ...
- 4. W. H. ...
- 5. J. S. ...
- 6. G. ...
- 7. E. ...
- 8. J. C. ...
- 9. J. M. Davis
- 10. O. D. ...
- 11. C. F. ...
- 12. R. ...

DECLASSIFIED
CLASSIFICATION CHANGED TO: ABC
BY AUTHORITY OF: 1-24-52
DATE: 3/9/95

To: R. E. Hayden

5/26/47

From: J. W. Davis

In re: 706-C H. P. Report for the Two Weeks Ending 5/23/47.

The work of cleaning up the spill in room #2 reached it's final stages in so far as radiation was concerned. A drop in radiation level in the N. W. corner of the room from 2 r/hr @ 3" to 10 mr/hr @ 3" C.P. H.P. 404 W. O. was observed during this period. The walls where the spill occurred were highly contaminated and were chipped off 1 1/2" with the highest section of the wall being completely removed for a door way in the reconverting of the room. Protective measures taken during the removal of the contamination were as follows:

1. Air line hoods.
2. Rubber gloves.
3. Protective clothing.
4. Special film packs & rings.
5. Respirators.
6. Rubbers.

Smears taken of the building after the bulk of work was done indicated only slight contamination and all within tolerance limits of 200 c/m on standard eck and krebs counter chamber. The contaminated concrete was removed to the emergency trash truck. No red can exceeded a 25 mr/hr level @ 3" of the outside of the can during the removing.

On 5/15/47 P. O. Schallert washed down a solution of column stripping from cell IV, bank I into a acid carboy outside the north wall of the cell. The carboy bottle reached a maximum field of 75 mr/hr @ 6" from the bottle. The solution contained several isotones along with La¹⁴⁰ with the hard γ of 1.69 M.E.V. Solution was discharged down hot sink. An increase in the column separation in cell IV, bank I is expected within the next month along with an increase in radiation and contamination in proportion.

Received two (2) portable alpha nonnys during this period and have made a complete survey of α contamination on the floors, walls and connections in and around cells II & IV of bank II. Contamination was confined to the north and south walls, floors and connection of the bank. Only a slight contamination was found on the south side of bank II with just above b.g. indication on the top of the cells where the solutions are poured into the raffinate lines of cell II.

The radiation levels of the New Cell Block have remained fairly constant during this period as little work is being carried out there in so far as the cell II, bank I installation of glass ware is demanding completion in lending impetus to the isotone program. Radiation levels are as follows:

Place	mr/hr
Hot storage laboratory @ 6' floor, center	40
Hoods (center & right) Maximum @ window (up)	20
Sink (varied with decontamination) Maximum @ 3"	15

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Daily air samples were within the tolerances of 3.1×10^{-11} uc/cc for A and 10^{-7} uc/cc for B.

No over exposure reports were received for the period ending 5/23/47.

J. M. Davis
J. M. Davis

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Classification Cancelled

C. H. Perry	E. J. Witkowski
O. D. Teague	S. A. Reynolds
K. Z. Morgan	J. C. Hart
F. Western	D. E. Arthur
J. S. Felton	C. File
L. B. Emlet	R. File

By Authority Of

By DM Date AUG 25 1971

September 26, 1947

CLINTON LABORATORIES

CENTRAL FILES NUMBER

47-10 11

CLASSIFICATION CANCELLED

DE Arthur 1/19/95
ADD signature Date

To: C. H. Perry

From: D. E. Arthur

Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22, 1994.

In Re: 706-D H. P. Report for Week Ending 9-20-47.

On 9-19-47, the hottest samples were removed from the barricades in the isotope room and west hot lab to the new barricade in fan house. The sample readings varied up to 1000 mr/hr with a CPWO at 3'. Two men were in and out of the field of radiation for approximately 4 hrs. No overexposures were received during this operation.

One count was made during this period on K. L. Newton's forearm. The count was 1213 c/m @ $\frac{1}{4}$ " with the GM probe.

On 9-15-47, a survey was made of the isotope packing room. The right hand faucet handle was found reading 500 mr/hr, with CPWO. Operations decontaminated the faucet shortly after being notified.

On 9-19-47, a steam jet line at W-9, which was plugged, was removed for cleaning. The general background where the men worked read 85 mr/hr with C.P.W.O. Working time given was 1 hr. with warning to the men where the hottest spots were. Time required to do the work was 45 minutes.

Neither the constant air monitors nor the percipitrons run during this period showed any indication of air activity.

Readings at the settling basin in mr/hr during this period were as follows:

Date	Inlet Walk	Outlet Walk	East Bank	West Bank
9-15-47	16.8	8.3	11.0	13.3
9-17-47	17	10.8	9.2	15.5
9-19-47	26.6	5.9	12.3	16.6

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DE Arthur
D. E. Arthur

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ing the national defense of the Espionage Act, U.S.C. 50, 793 and 794.

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CLINTON LABORATORIES
CENTRAL FILES NUMBER
47-11-400
#37

DATE: November 17, 1947

SUBJECT: 706-C H. P. Report for the Two Weeks Ending 10-24-47.

TO: C. H. Perry

FROM: J. M. Davis

Please sign and date before reading this report.

J. M. Davis 11/24/47 _____

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David R. Hamlin 3/9/45
Technical Information Officer
ORNL Site

Date Technical Information Officer ORNL Site

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Per Letter Instructions Of

AEC 1-2457

H. T. Gray

For: H. T. Gray, Supervisor
Laboratory Records Dept.
ORNL

C. H. Perry
K. Z. Morgan
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C. E. Haynes
J. S. Felton

E. G. Bohlman
D. E. Arthur
J. M. Davis
W. E. Weiner
C. File
R. File

November 17, 1947

To: G. H. Perry

From: J. M. Davis

Subject: 706-C H. P. Report for the Two Weeks Ending 10-24-47.

Health Physics survey work in 706-C Building during this period has, in the main, been directed toward maintenance protection, because the different groups assigned to the facilities of the building are completing projects.

A survey on 10-13-47 revealed a critical condition to exist in Room #12 of the 706-C Building. A high degree of contamination was found in hoods #13, #14, #15 of room #12. All the exhausts to the hoods, hot sink, and the hot storage lab of room #12 had suffered an inversion during the weekend of the 11th and 12th of October. The degree of contamination was as follows:

<u>Location</u>	<u>Geometry</u>	<u>MR/HR</u>
Hood #15	@ #12 Floor of Hood	150
Hood #14	Background Previously High	30
Hood #13	" " "	60

The hot storage lab. exhaust counted < 200 c/m on smears.

Laboratorians cleaned the hot sink hood exhaust before any smears could be taken. Smears taken from top of Room #12 on the roof of the 706-C Building jammed the register of a Higginbotham Scaler. (Scale of 64) A reading on a "Cutie-Pie" was impracticable because of the softness of the irradiation. The greater part of the radiation came

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from Ruthenium (Ru^{103}) which has a 42 day half-life (MEV .3 & .8 energy). The exhaust is to be replaced to this room, and the removal of the roof is being considered. The area was roped off and tagged with Radiation Danger tags.

On 10-15-47, 706-D operations jotted their process lines to find the unaccounted for product causing high air activity in 706-C Building. The level did not reach masking tolerance (10^{-9} c/cc), but the weather condition could have prevailed in a manner which would have made the air activity higher. The highest 30 minute precipitron run taken was 1.36×10^{-10} c/cc from 9:00 A.M. - 10:00 A.M., on 10-15-47.

Some miscellaneous glassware and slightly contaminated equipment (~200 c/m) from 706-C Amex was sent to the burial ground. Salvagable equipment was taken to 706-A Platform to be checked before being placed in stores.

The 706-C Mechanical Shop was surveyed for this two week period with "Walkie-Talkie" H. P. T-12, and no contamination was found > 200 c/m.

A stationary air monitor (Q-545) is thought necessary for Building 717-BB to determine the amount of activity being air-borne from the 706-C and 706-D Buildings to Building 717-BB. Factors involved in this determination are height of exhaust stacks, wind, and what correlation could be gotten from the related recordings of the E.A. Charts in the above mentioned buildings. Since it is known that masking and evacuation levels have been reached in 706-C and 706-D Buildings in the past, then why not approach the subject of air tolerance in 717-BB in a similar manner. Apparently a constant air monitor should be placed in 717-BB in order that we may evaluate the air contamination in this building.

J. M. Davis
J. M. Davis

JMD:os

~~SECRET~~

CENTRAL FILES NUMBER

47-11-444

Classification Cancelled ~~or changed~~
TO

By Authority of

ATG

AUG 25 1971

Name

Title

Date

C. H. Perry

K. Z. Morgan

F. Western

J. S. Felton

L. B. Emlet

E. J. Witkowski

A. F. Rupp

S. A. Reynolds

D. E. Arthur

C. Files

R. Files

[Handwritten initials]

November 19, 1947

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AS Rust

1/19/95

ADD signature

Date

Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22, 1994.

To: C. H. Perry

From: D. E. Arthur

Subject: 706-D H. P. Report for Week Ending 11-8-47

Strontium runs continued during this period. A high background ranging from 25 mr/hr @18" to 85 mr/hr @18" in front of the lucite shielding caused a considerable amount of exposure to operations personnel. The equipment has been stored for future use. It has been recommended that more shielding be used in future operations.

Work continued in the tank farm, transferring the U waste from the wooden barrels to the stainless steel barrels. Stringent protective measures are being observed.

A survey of the old burial ground was made, for the removal of the contaminated material on top of the ground, to the new burial ground for disposal. The survey was made with a walkie-Talkie. No field of radiation was found in which a man would receive any appreciable amount of radiation during an 8 hour working day. It was recommended that the men wear rubbers, gloves, and coveralls, and take a hand and show count twice daily.

A continued high background existed in the N-hot lab during this period due to work with Zr and Cb. The background at 18" from the low barricade varied up to 28 mr/hr at 5¹/₂' with C.P.W.C. Reading over the barricade varied up to 200 mr/hr.

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Routine smear surveys were made of the Chemistry lab and the N. & S. hot labs. Of the 50 smears taken in the Chemistry lab, only 1 counted above tolerance (200 c/m). This was cleaned up immediately. Fifty smears were taken in the N. & S. hot labs of which 19 were above tolerance. Smears taken after decontamination were below 200 c/m.

No increase in air activity was observed during this period.

Readings at the settling basin in $\mu\text{r/hr}$ during this period were:

<u>Date</u>	<u>Inlet Walk</u>	<u>Outlet Walk</u>	<u>East Bank</u>	<u>West Bank</u>
11-3-47	16.1	2	7.5	13
11-5-47	17.8	2.9	7.2	13.8
11-7-47	20.2	3.6	10.9	19.4

The west bank readings were high due to the shallow water over a considerable amount of sunken algae.


D. E. Arthur

DEA:cs

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TO

By Authority of

ATG

AUG 25 1971

Name Title Date

- | | |
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| G. H. Perry | E. G. Bohlman |
| K. Z. Morgan | D. E. Arthur |
| F. Western | J. M. Davis |
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November 19, 1947

CLASSIFICATION CANCELLED

Jed Davis 1/20/95

ADD signature

Date

Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22, 1994.

To: C. H. Perry

From: J. M. Davis

Subject: 706-C H. P. Report for the Two Weeks Ending 11-7-47.

The Cell lights were replaced in Cell IV, Bank II on 10-28-47. A survey of the area with C.P., H.P. 45-C gave the following readings:

<u>Location</u>	<u>Geometry</u>	<u>MR/HR</u>
Raffinate Storage Tank	@3"	50
Cell Exhaust	@6"	50
Column in N.E. Corner	@3" center	200
General Background	@ cell's center	20

Excavation of an area west of 706-C Annex to determine the nature of high readings during the 706-D Building runs began at 9:00 A.M., 10-30-47. The lines of interest were those going to W-9 and W-11 tanks in the tank farm. Radiation level reached a maximum intensity of 6 r/hr @3" of W-9 line when the excavation was completed. This high level area had previously necessitated a tremendous amount of shielding, while just a few feet down the line the dirt alone was enough to shield out the radiation to <1 mr/hr.

The Safety Division had filed a complaint as to the 1" thick Pb pieces being a safety hazard.

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David R. Hamlin 3/9/95
Technical Information Officer Date
ORNL Site

After finding no leak in either line, and the consensus being that the line to W-9 could be plugged, the excavated area was backfilled with earth to the top of the lines, then 2 layers of Pb brick were carefully laid in the hole with the remaining ~3' being backfilled with dirt.

Rough calculations indicate that this shielding should reduce the radiation level to approximately 1 mr/hr at ground level.

Hoods #13 and #14 are still highly contaminated. The process of changing the exhaust duct to the hoods could easily contaminate them. The contaminated areas are indicated by radiation danger tags.

The 706-C Mechanical Shop was surveyed during this two week period and no contamination above the general background of < 200 c/m (Higinbotham Scaler, Scale 64) was found.

J. M. Davis
J. M. Davis

JMD:cs

~~SECRET~~
D

CLASSIFICATION CANCELLED
 DATE 12-9-54 *EDT*
 By The Atomic Energy Commission
Edward Thurin for the
 Chief, Declassification Branch

C. H. Perry J. S. Putnam
 K. Z. Morgan D. E. Arthur
 F. Western J. M. Davis
 J. S. Felton C. File
 E. G. Bohlman R. File

December 29, 1947

CLINTON LABORATORIES

CENTRAL FILES NUMBER

48-1-18

To: C. H. Perry

From: J. M. Davis

Subject: 706-C H. P. Report for the Two Weeks Ending 12-5-47

A survey of an I131 sample in Cell III, bank II on 11-25-47, gave a reading of 1200 mr/hr @ 5" of the bottle, and 250 mr/hr @ 10" of the bottle C.P., H.P. 51-C N.O. The job was measuring the volume in the bottle. This was accomplished by marking the meniscus on the sample bottle and then measuring the amount of another liquid placed in the bottle after the sample was emptied, by using a graduated cylinder.

Decontamination of the hood in room #9 was started 12-1-47. Readings taken during this clean-up are as follows:

<u>Location</u>	<u>Geometry</u>	<u>MR/HR</u>
Back, top part of hood (before clean-up)	@ 6"	300
Back, top part of hood (after clean-up)	@ 6"	50
Samples removed from hood	@ end 4' tongs	20 (max.)

A reagent cabinet was removed from the top of bank I and surveyed with a "Talkie-Talkie" and a "Cutie-Pie". The activity on the cabinet was recorded as 5 mr/hr @ 3" of one area of 36 sq. in. with a "Cutie-Pie". This cabinet was sent to the burial ground.

The background in the hot sample storage lab (room #16) at the center, 6' from the floor is 50 mr/hr, measured on dosimeter (#149) for a one hour period.

[REDACTED SECTION]

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David R. Hamlin 3/9/95
 Technical Information Officer
 ORNL Site

An event which could have proven very hazardous took place on 12-4-47. A welder and two pipefitters decided to connect the off-gas line from Cell II, Bank I to the off-gas line on the top of the building. This off-gas line from Cell II, Bank I was connected to the I¹³¹ cell which was in trial operation with a small amount of I¹³¹ tracer. Neither Operations, nor the Health Physicist were aware of this change until it was discovered by the H. P. man after the I¹³¹ cell lost its vacuum to the tanks.

It is recommended that maintenance men contact the Health Physicist before making any change in the 706-C Building.

Weekly surveys made of the 706-C Machine Shop found the background < 200 c/m and the tools and cabinets were free of contamination. A "Walkie-Talkie" was used as the detecting instrument.

On 12-4-47, G. E. Creek, P.R.#1986 repaired a sampling device on the top of Cell IV, Bank II. The rubber gloves used during the work leaked and the floor became contaminated, resulting in a high hand and foot count. The following contamination was recorded on the hand and foot counter:

<u>LP</u>	<u>LB</u>	<u>RP</u>	<u>RB</u>	<u>Shoe</u>
214 c/m	447 c/m	1,554 c/m	513 c/m	4,480 c/m

J. M. Davis
J. M. Davis

JMD:cs

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O. D. Teague	E. J. Witkowski
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F. Western	I. B. Whitney
J. S. Felton	D. E. Arthur
L. B. Emlet	C. File
M. C. Leverett	R. File
A. F. Rupp	J. C. Hart

CLASSIFICATION CANCELLED
 DATE 12-9-54 EJT
 For The Atomic Energy Commission
Edgar Thurin for the
 Chief, Declassification Branch

C. F. L

February 23, 1948

To: O. D. Teague
 From: D. E. Arthur

CLINTON LABORATORIES
 CENTRAL FILES NUMBER
 48-2-433

Subject: 706-D H.P. Report for Week Ending 2/21/48.

Two fire alarms were answered during this period of which one was a practice alarm at 735-B and the other was reported due to an unusual odor in room 33, building 706-A. There was no fire. There was no radiation hazard present at either location.

On 2/19/48 at 4:40 P.M. E. R. Johns #J728 was sent to the 706-D H.P. office from the Health Department for help in decontaminating his hands. Potassium permanganate and citric acid were used to bring the hand count from 185 recorded counts on the hand counter to 35 recorded counts.

At 11:20 P.M. February 19, A. T. Gresky #4136 was sent from the Health Department for hand decontamination. He had been working with Ru106 in the 706-A building. Both hands blocked the hand counter. After working overtime and by the use of potassium permanganate and citric acid, the count was reduced to below tolerance, with the exception of one small spot on the right thumb which was slightly under twice tolerance. It was thought inadvisable to continue further decontamination at this time, because of the danger of re-opening a recently healed area on the thumb. Gresky's hands are now below tolerance.

Smear surveys made in various areas showed the following activity.

Location	No. taken	No. above 200 c/m
Isotope room	58	8 varying from 238 c/m to 12,641 c/m.
Chemistry lab.	30	5 varying from 282 c/m to 820 c/m.
3rd. level	31	13 varying from 200 c/m to 394 c/m.
Lead floor area (3rd. level)	19	13 varying from 215 c/m to 23,823 c/m.

[REDACTED SECTION]

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All contaminated areas have been cleaned since the smear results were received. Gloves and rubbers are still required when working in the lead floor area on the 3rd. level.

Readings taken at the settling basin, in mr/hr, during this period were as follows:

<u>Date</u>	<u>Inlet</u>	<u>Outlet</u>	<u>East Bank</u>	<u>West Bank</u>
2/16/48	9.6	5	6.3	7.3
2/20/48	32.0	10.2	17.9	34.8

DEA/ejp

DE Arthur
D. E. Arthur

[REDACTED] D