#2956 Box CR-2

ChemRisk/Shonka Research Associates, Inc., Document Request Form

#2956 DSFD

(This section to be completed by subcontractor requesting document)

J. Lamb / 1034A

Requestor — Document Center (is requested to provide the following document)

Date of request 5/3/96 — Expected receipt of document 6/3/96

Document number K-CR-387/DEL* — Date of document 1955

Title and author (if document is unnumbered)

Highlights of HP Report

*Privacy Act info removed from 1 Page in document

(This section to be completed by Document Center)

Date request received 5/10/96

Date submitted to ADC 5/21/96 Release

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(This section to be completed by HSA Coordinator)

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Date submitted to ChemRisk/Shonka and DOE 5/23/96

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Date document received

Signature

#2956

Highlights of Health Physics Activities in the K-25 Plant for January - April 1955

K/CR-387/DEL

K/CR-387/DEL

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Classification changed to _____ (level and category)

19Sep95
ADC or ADD signature (first reviewer) Date

Thomas W. Kelley 9/25/95
ADD signature (final reviewer) Date

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

5/22/96
OSSI Technical Information Officer Date
Oak Ridge K-25 Site

Carbide and Carbon Chemicals Company, Operating Contractor for the U.S. Atomic Energy Commission.

Not sent out

[redacted]

INTER-COMPANY CORRESPONDENCE

COMPANY: Carbide and Carbon Chemicals Company

LOCATION: Plant: Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001

DATE:

CC: Dr. J. S. Lyon
Mr. W. L. Richardson
Mr. E. O. Sternberg
File K-25RC

SUBJECT: Highlights of Health Physics Activities in the K-25 Plant for APRIL, 1955

The following are the highlights of health physics activities in the K-25 Plant for APRIL, 1955:

I. ENVIRONMENTAL MONITORING

A. Alpha Contamination Levels

1. The area factors and contamination indices as indicated by audit surveys are shown below:

TABLE I

ALPHA CONTAMINATION INDICES

	Location Area (Ft²)	AREA FACTOR*			CONTAMINATION INDEX**			Ref. No.
		This Month	Last Month	1954 Average	This Month	Last Month	1954 Average	
K-25 Work Locations	276,312	26	27	34	95	113	413	
K-25 Lunch Rooms, Offices, and Locker Rooms	25,790	1.0	11	23	1.8	13	101	
DIVISIONS								
Chemical	78,850	44	44	80	190	224	1,375	
Production	120,220	22	24	24	71	81	87	
Maintenance	57,880	16	16	8.9	43	43	31	
Technical	25,362	6.8	10	18	18	61	60	
Manufacturing Office								

* Area Factor = $\frac{\text{Total Area over P.A.L.}}{\text{Total Floor Work Area}} \times 100$

** The Contamination Index is the sum of the weighted surface and wipe indices for the various classes. The weighting factors are as follows: Class I, 1; Class II, 5; Class III, 20.

[redacted]

[redacted]

Divisions or locations which significantly affect the plant levels, as well as those static conditions where high contamination indices are recorded are summarized below:

_____

_____

_____

_____

_____

Radiation Levels

1. The beta-gamma radiation indices and the average of the maximum total body beta-gamma readings obtained on audit surveys of locations with a R. I. of 0.1 or greater are used to obtain plant indices.

TABLE II
PLANT RADIATION INDICES

	Location Area (Ft^2)	AREA FACTOR			RADIATION INDEX			Avg. Max. Total Body	Ref. No.
		This Month	Last Month	1954 Average	This Month	Last Month	1954 Average		
K-25 Work Locations	100,980	0.19	0.15	0.92	0.28	0.24	2.18	29.7	
DIVISION									
Chemical	52,100	0.24	0.18	1.82	0.38	0.30	4.29	29.5	
Production	22,750	0	0	0.08	0	0	0.17	—	
Technical	25,600	0.09	0.09	0.11	0.14	0.14	0.39	70	
Safety and Protection	530	7.2	7.2	4.30	9.4	9.4	7.83	20	

Remarks: The increase noted in K-25 Work Locations is attributed to the increase in Chemical Division Levels resulting principally from spillages occurring during pulverizing operations in K-1231 Pulverizing Area.

_____

_____

_____

[redacted]

Plant air activity, as determined by spot checks in the field, decreased substantially this month and compares favorably with the average air activity level of 0.54 recorded for 1954. The pulverizing operation in K-1231 Pulverizing Area, which was the primary source of the activity recorded last month, was not in progress when samples were taken this month.

Plant contamination levels decreased this period due to decreases in Chemical, Production, and Technical Division levels which were attributed to [redacted] decontamination efforts in K-1413 Building, K-1131 Feed Production Area, K-1303 Building, and to routine cleanup in Vault 16-A, K-101 C-816 Stripping, and K-306-7 Product Withdrawal Station.

The substantial decrease in Plant Lunch Rooms, Offices, and Facilities is attributed primarily to routine monitoring and decontamination in K-1131 Office and Facilities.

[redacted]

C. Air Sampling Program

TABLE III
AIR CONTAMINATION INDICES

	(SPOT AIR SAMPLES)									(LONG-TERM AIR SAMPLES)							
				AVG. ACTIVITY (c/m/ft³)				> P.A.L. Samples Respiratory Protection					AVG. ACTIVITY (c/m/ft³)				
	No. Taken	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	No. Hearing	%	No. Rec'd	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	Ref. No.
K-25 Work Locations	81	4	4.9	0.36	1.52	0.36	0.77	3	75	[illegible]	[illegible]	[illegible]	0.095	0.149	0.075	0.169	
K-25 Lunch Rooms, Offices, and Locker Rooms	3	0	0	0.04	—	0.04	0.06	—	—	—	—	—	—	—	—	—	
DIVISION																	
Chemical	44	4	9.1	0.63	2.51	0.63	1.12	3	75	301	[illegible]	0.4[illegible]	0.063	0.211	0.063	0.224	
Production	25	0	0	0.67	0.25	0.67	0.09	—	—	156	0	0	0.010	0.019	0.010	0.153	
Maintenance	6	0	0	0.05	0.77	0.05	1.53	—	—	[illegible]	4	10	0.791	0.137	0.791	0.178	
Technical	6	0	0	0.11	0.47	0.11	0.60	—	—	98	0	0	[illegible]	0.080	[illegible]	0.071	

Remarks: (1) > P.A.L. Air Investigations:

(2) Comments on Significant Air Problems, etc.:

April Highlights 1955

REMARKS:

Table V

The beta activity increased significantly in the K-25 Sanitary Water Supply following a relatively heavy short-termed release of radioactive waste material from X-10 during which time a peak activity of 339 c/min/100 ml was recorded. Concurrent with this release the flow of the Clinch River as indicated by the Norris Dam discharge was considerably reduced with the average flow being only 2,730 ft^3/sec as compared to 7,750 ft^3/sec for the previous period. The average beta activity at the junction of East Fork and Poplar Creek decreased significantly indicating a decrease in the release of waste products from the Y-12 installation.

Table VI

The Uranium concentration in the Poplar Creek and Clinch River bottom mud remained low with a significant decrease noted at the K-1300 drainage area of Poplar Creek where the entrained material which had been picked up during the flood stage last month has moved farther downstream with subsequent dispersal and dilution. The concentration at the K-27 drain effluent increased slightly and may be attributed to normal fluctuation of the amount of material released from K-1131 during routine operations.

GSH:erc

5-9-55

[redacted]

TABLE V

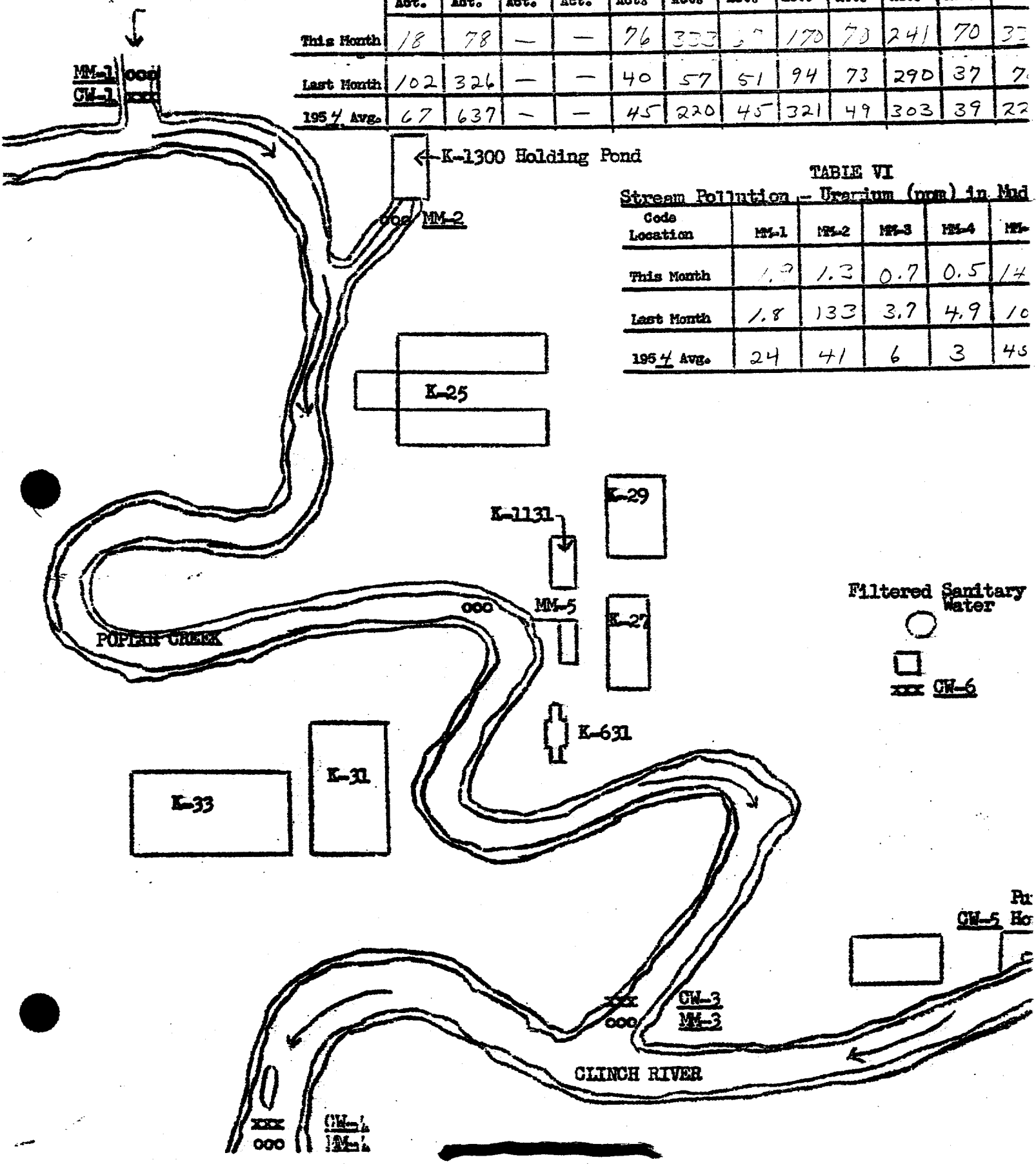
Water Sampling - Beta Activity (c/m/100ml.)

Code Location	CW-1		CW-2		CW-3		CW-4		CW-5		CW-6	
	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.
This Month	18	78	—	—	76	333	[illegible]	170	70	241	70	3[illegible]
Last Month	102	326	—	—	40	57	51	94	73	290	37	7[illegible]
1954 Avg.	67	637	—	—	45	220	45	321	49	303	39	22

TABLE VI

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month	1.9	1.3	0.7	0.5	14
Last Month	1.8	133	3.7	4.9	10
1954 Avg.	24	41	6	3	45



[redacted]

[redacted]

Remarks: _____

II. PERSONNEL MONITORING

A. Personnel Contamination

1. The table below is a summary of health physics audit of on-the-job contaminati for the month, compared to checks for the previous month and the 1958 average.

TABLE VII

PERSONNEL SPOT CHECKS

K-25 WORK LOCATIONS	HANDS			SHOES						CLOTHING					
				PERSONAL			ISSUED			PERSONAL			ISSUED		
	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL
This Month	33	13	39	—	—	—	31	2	6.5	—	—	—	33	8	24
Last Month	45	12	27	5	0	0	40	2	5	3	0	0	42	7	17
1958 Avg.	118	40	34	29	6	20	83	15	18	24	0.08	0.3	90	20	22
K-25 Canteens, Cafe, Lunch Rooms, Offices and Facilities															
This Month	25	10	40	—	—	—	25	1	4	—	—	—	25	6	24
Last Month	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1958 Avg. ~~(X-month)~~	43	10	23	8	2	25	35	8	23	5	0	0	38	9	24
DIVISIONS															
Chemical	16	7	44	—	—	—	16	2	13	—	—	—	16	6	38
Production	11	2	18	—	—	—	9	0	0	—	—	—	11	1	9.1
Maintenance	3	2	67	—	—	—	3	0	0	—	—	—	3	1	33
Technical	3	2	67	—	—	—	3	0	0	—	—	—	3	0	0

[redacted]

2. Routine Hand Checks

An average of approximately _____ employees checked their hands daily for alpha and/or beta contamination, as compared to _____ employees taking such checks during the previous month. There were _____ over-P.A.L. readings recorded.

Remarks: _____

B. Film Badges, Film Rings, and Pocket Chambers

1. The tables below are a summary of film meter and pocket chamber data for the month compared to data for the previous month and the 1954 averages.

TABLE VIII

FILM BADGES

No > P.A.L.

	Average Number used Per Week	NUMBER OF EXPOSURES				Average mrep per badge
		150-300 mrep/week		300 mrep/week		
		No.	%	No.	%	
This Month						
Last Month	565	3	0.11	1	0.04	1.33
1954 Avg.	572	30	1.2	4	0.17	7.81

TABLE II

FILM RINGS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		> 1500 mrep/week		
		No.	%	No.	%	
This Month						
Last Month	117	2	0.34	0	0	2.8
1954 Average	140	0.5	0.08	0	0	1.01

TABLE X

POCKET CHAMBERS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		1500 mrep/week		
		No.	%	No.	%	
This Month						
Last Month	0	0	0	0	0	0
1954 Average	0	0	0	0	0	0

2. Personnel exposures above the plant acceptable limit of 300 mrep/week on badges or 1500 mrep/week on rings are listed individually below for IBM weeks 14 thru 17.

TABLE XI

Name	Security Number	Location Code	Supervisor	Type Meter	Meter No.	Exposure B + γ (mrep)	Exposure γ (mr)	IBM Week No.	Remark No.

Remarks: _____

IV. RADIATION DETECTION INSTRUMENTS

A. The number of radiation instruments of various types available in the plant, including spares, is listed below.

TABLE XII

INSTRUMENT TYPE	On Hand at First of Month	Additions During Month	Withdrawals During Month
Alpha Survey Meter	218		
Beta-Gamma Survey Meter	198		
Air Samplers	50		
Hand Counters	39		

B. Information concerning the receipt of instruments and material, and pending orders for instruments and material to be received in the future is shown below.

TABLE XIII

NUMBER	TYPE	REMARKS

V. MATERIAL RELEASES INVOLVING RADIOACTIVE MATERIALS

A. Number of material releases reported, 2.

B. Number of employees sent to dispensary, 0.

C. Locations and Conditions.

TABLE XIV

DATE	LOCATION	TYPE MATERIAL	DURATION OF RELEASE OR AMOUNT OF MATERIAL	NO. SENT TO DISPENSARY
4-14-55	K-1132	HF	—	0
4-19-55	K-633	C-616	5 min.	0

not sent out

[redacted]

rec'd. 4/12/55

INTER-COMPANY CORRESPONDENCE

COMPANY: Carbide and Carbon Chemicals Company

LOCATION: Plant Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001

DATE:

CC: Dr. J. S. Lyon
Mr. W. L. Richardson
Mr. E. O. Sternberg
File K-25RC

SUBJECT: Highlights of Health Physics Activities in the K-25 Plant for MARCH, 1955

The following are the highlights of health physics activities in the K-25 Plant for MARCH, 1955:

I. ENVIRONMENTAL MONITORING

A. Alpha Contamination Levels

1. The area factors and contamination indices as indicated by audit surveys are shown below:

TABLE I

ALPHA CONTAMINATION INDICES

	Location Area (Ft.²)	AREA FACTOR This Month	AREA FACTOR Last Month	AREA FACTOR 1954 Average	CONTAMINATION INDEX This Month	CONTAMINATION INDEX Last Month	CONTAMINATION INDEX 1954 Average	Ref. No.
K-25 Work Locations	276,312	27	29	34	113	111	413	
K-25 Lunch Rooms, Offices, and Locker Rooms	25,790	11	8.0	23	13	10	101	
DIVISIONS								
Chemical	78,850	44	50	80	224	234	1,375	
Production	120,220	24	24	24	81	71	87	
Maintenance	57,880	16	17	8.9	43	46	31	
Technical	25,362	10	9.1	18	61	52	60	
Manufacturing Office								

* Area Factor = $\frac{\text{Total Area over P.A.L.}}{\text{Total Floor Work Area}} \times 100$

** The Contamination Index is the sum of the weighted surface and wipe indices for the various classes. The weighting factors are as follows: Class I, 1; Class II, 5; Class III, 20.

[redacted]

Insert I

Plant contamination levels remained essentially unchanged this period as compared to last month, and continue to be about 73% below the average for 1954. Small increases noted in the Technical ~~and~~ Production Division levels, attributed to material spillage in K-1413 Building during tray repair and in K-101 C-816 Recovery Building during pump maintenance, were offset by a decrease in the Chemical Division levels due to equipment and floor painting in the K-1410 Decontamination facility.

[redacted]

Divisions or Locations which significantly affect the plant levels as well as those static conditions where high contamination indices are recorded are summarized below: Plant contamination Levels increased this period due to corresponding increases in Production and Technical Divisions which were attributed to the availability of more contaminated floor space in K-601 Sampling Room, to maintenance work on a Worthington Pump in K-101 C-816 Stripping, and to the spillage of material during tray repair in K-1413 Building. The decreases in Chemical and Maintenance Division Levels were attributed primarily to decontamination and painting of equipment and floors in K-1410 Decontamination, and to cleanup and removal of contaminated equipment from K-1401 Vacuum Pump Shop.

Draft I

Radiation levels

The beta-gamma radiation indices and the average of the maximum total body beta-gamma readings obtained on audit surveys of locations with a R. I. of .1 or greater are used to obtain plant indices.

TABLE II
PLANT RADIATION INDICES

	Location Area (Ft^2)	AREA FACTOR This Month	AREA FACTOR Last Month	AREA FACTOR 1954 Average	RADIATION INDEX This Month	RADIATION INDEX Last Month	RADIATION INDEX 1954 Average	Avg. Max. Total Body	Ref. No.
K-25 Work Locations	100,980	0.15	0.16	0.92	0.24	0.26	2.18	32	
DIVISION									
Chemical	52,100	0.18	0.24	1.82	0.30	0.41	4.29	33	
Production	22,750	0	0	0.08	0	0	0.17	—	
Technical	25,600	0.09	0.09	0.11	0.14	0.14	0.39	70	
Safety and Protection	530	7.2	1.9	4.30	9.4	2.20	7.83	20	

Remarks: ~~The slight decrease in K-25 work locations is attributed to the decrease in Chemical Division levels resulting principally from the removal of ash receivers and drums from K-1231 Pulverizing. Plant radiation levels remained essentially unchanged this period as compared to last month, and continued to be about 90% below the average for 19~~ a decrease in Chemical Division levels, due to the removal of ash receivers and drums from the K-1231 Pulverizing area being offset by an increase in Safety and Protection Division levels due to the storage of additional gamma sources in the K-301-3 Calibration Room.

[redacted]

C. Air Sampling Program

TABLE III
AIR CONTAMINATION INDICES

	(SPOT AIR SAMPLES)									(LONG-TERM AIR SAMPLES)							
				AVG. ACTIVITY (c/m/ft³)				> P.A.L. Samples Respiratory Protection					AVG. ACTIVITY (c/m/ft³)				
	No. Taken	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	No. Wearing	%	No. Rec'd	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	Ref. No.
K-25 Work Locations	78	15	19	1.52	0.58	0.77	1.85	14/19	74	529	13	2.5	0.179	0.191	0.169	0.325	
K-25 Lunch Rooms, Offices, and Locker Rooms	0	—	—	—	0.10	0.06	0.62	—	—	—	—	—	—	—	—	—	
DIVISION																	
Chemical	42	10	24	2.57	0.20	1.12	3.87	7/10	70	302	11	3.6	0.211	0.172	0.224	0.258	
Production	24	2	8.3	0.25	0.02	0.09	0.15	0/2	0	97	0	0	0.019	0.277	0.153	0.383	
Maintenance	6	2	33	0.77	4.50	1.53	0.15	3/3	100	44	1	2.3	0.137	0.205	0.178	0.139	
Technical	6	1	17	0.47	0.29	0.60	0.08	4/4	100	86	1	1.2	0.080	0.090	0.071	0.011	

Remarks: (1) > P.A.L. Air Investigations: See page 4.

(2) Comments on Significant Air Problems, etc.: See page 4.

Remarks:

(1) > P.A.L. Air Investigations: The total of 13 > P.A.L. Long-Term air samples was reported this period as follows:

K-1413 Building: 1 > P.A.L. sample was recorded due to leakage of uranium material when a bellows failed; respiratory equipment was not worn.

K-1401 Compressor Shop: 1 > P.A.L. sample was recorded during compressor dismantling operations; respiratory protection was worn by all personnel engaged in the operation.

K-1410 Decontamination: 9 > P.A.L. samples were recorded due to cleaning and decontamination of equipment, some of which was visibly "smoking"; Respiratory protection is routinely worn during these operations.

K-1301: 2 > P.A.L. samples were recorded due to a leakage in uranium oxide conversion equipment and during subsequent maintenance on the equipment.

(2) Comments on Significant Air Problems, etc.: Plant air activity, as determined by spot checks in the field, increased significantly this month, ~~with~~ the average air activity level being greater than the P.A.L. Principal contributors to the increase were K-1231 Pulverizing, K-1410 Decontamination, K-132 Solutions Recovery, and K-1401 Ferrule Removal, where average air activity levels of 21, 3.9, 2.5, and 1.52, respectively, were reported.

(3) Plutonium: Due to the high alpha activity noted in three air samples taken on a routine audit survey of the K-1231 Pulverizing facili

over on back

A Pu analysis was made and revealed the presence of Pu in the samples to the extent of 0.691 ppm Pu/U, 0.098 ppm Pu/U, and 0.113 ppm Pu/U, however, the primary problem continued to be the activity due to uranium.

~~Highlights for March~~

~~Data~~

Remarks

Table II — The average beta activity of the K-25 sanitary water remained relatively unchanged from last month and, though the average water volume of the Clinch River increased from 1,510 ft³/sec to 7,750 ft³/sec, a concomitant increase in the release of mixed fission product waste from the X-10 White Oak Lake ~~concomitant with this increased volume of the Clinch maintained the~~ offset the expected dilution factor and ~~thus~~ the activity ~~at a lower level~~ remained at a static level. The activity in the East Fork Branch increased as a result of comparatively high short term releases of activity from the Y-12 Plant operations while levels in Poplar Creek decreased significantly with the increase in stream volume following heavy monthly rainfall.

Table VI Insert II

~~The average uranium concentration of Poplar Creek mud increased during the month primarily as a result of higher concentrations in the waste material being released from the K-1131 Feed Production Building as slurries processing was partially resumed; however the most significant increase resulted from uranium released from K-1303 Burgaw Coolant Reprocessing and to the pick-up of entrained material along the stream embankment by the swollen drainage waters.~~

Insert II

Table VI

The average uranium concentration in Poplar Creek mud increased significantly this month primarily as the result of material released from the K-1303 Building ~~during~~ following coolant separation processes, and to a lesser extent, to material released from K-1131 Feed Production facilities ~~which~~.

TABLE V

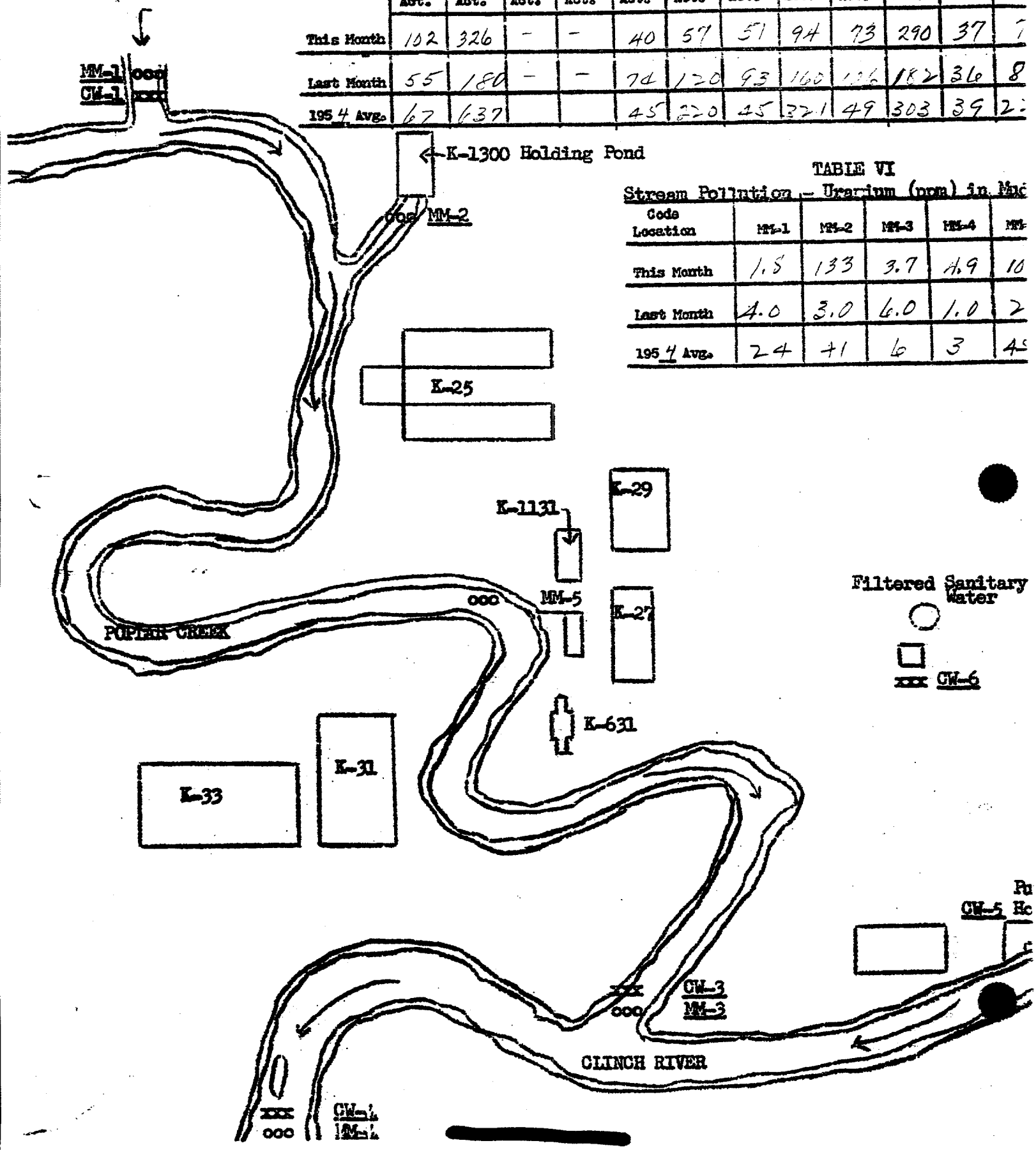
Water Sampling - Beta Activity (c/m/100ml.)

Code Location	CW-1		CW-2		CW-3		CW-4		CW-5		C[redacted]	
	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Pea Act
This Month	102	326	-	-	40	57	51	94	73	290	37	7
Last Month	55	180	-	-	74	120	93	160	106	182	36	8
195 4 Avg.	67	637			45	220	45	321	49	303	39	2:

TABLE VI

Stream Pollution - Uranium (ppm) in Mu

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month	1.5	133	3.7	4.9	10
Last Month	4.0	3.0	6.0	1.0	2
195 4 Avg.	24	41	6	3	4



Remarks: See page 4.

II. PERSONNEL MONITORING

A. Personnel Contamination

1. The table below is a summary of health physics audit of on-the-job contaminatic for the month, compared to checks for the previous month and the 1954 average.

TABLE VII

PERSONNEL SPOT CHECKS

K-25 WORK LOCATIONS	HANDS			SHOES						CLOTHING					
				PERSONAL			ISSUED			PERSONAL			ISSUED		
	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL
This Month	45	12	27	5	0	0	40	2	5	3	0	0	42	7	17
Last Month	37	13	35	1	1	100	36	7	19	1	0	0	36	6	17
1954 Avg.	118	40	34	29	6	20	53	15	18	24	0.08	0.3	90	20	22
K-25 Canteens, Cafe, Lunch Rooms, Offices and Facilities															
This Month	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Last Month	19	0	0	1	0	0	18	0	0	-	-	-	19	4	21
1954 Avg. ~~(Quarter)~~	43	10	23	8	2	25	35	8	23	5	0	0	38	9	24
DIVISIONS															
Chemical	16	6	38	—	—	—	16	1	6.3	—	—	—	16	4	25
Production	10	5	50	—	—	—	10	1	10	—	—	—	10	1	10
Maintenance	12	0	0	2	0	0	29	0	0	—	—	—	31	2	6.5
Technical															

2. Routine Hand Checks

An average of approximately 566 employees checked their hands daily for alpha and/or beta contamination, as compared to 612 employees taking such checks during the previous month. There were 0 over-P.A.L. readings recorded.

Remarks: The decrease in the number of [illegible] checking hands is attributed primarily to the smaller number of persons checking in 4-303-1 Process Maintenance [illegible].

B. Film Badges, Film Rings, and Pocket Chambers

1. The tables below are a summary of film meter and pocket chamber data for the month compared to data for the previous month and the 1954 averages.

TABLE VIII

FILM BADGES

	Average Number used Per Week	NUMBER OF EXPOSURES				Average mrep per badge
		150-300 mrep/week		300 mrep/week		
		No.	%	No.	%	
This Month	565	3	0.11	1	0.04	1.33
Last Month	548	6	0.27	0	0	2.77
1954 Avg.	572	30	1.2	4	0.17	7.81

[redacted]

TABLE II

FILM RINGS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		> 1500 mrep/week		
		No.	%	No.	%	
This Month	117	2	0.34	0	0	2.8
Last Month	118	0	0	0	0	0.0
1954 Average	140	0.5	0.08	0	0	1.01

TABLE X

POCKET CHAMBERS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		1500 mrep/week		
		No.	%	No.	%	
This Month	0	0	0	0	0	0
Last Month	0	0	0	0	0	0
1954 Average	0	0	0	0	0	0

2. Personnel exposures above the plant acceptable limit of 300 mrep/week on badges or 1500 mrep/week on rings are listed individually below for IBM weeks 9 thru 13.

TABLE XI

Name	Security Number	Location Code	Supervisor	Type Meter	Meter No.	Exposure B + γ (mrep)	Exposure γ (mr)	IBM Week No.	Remark No.
		BQ		Badge	261	480	0	9	1

[redacted]

Remarks: (1) K-1410 Decontamination Facility — Exposure attributed to radiation received while performing routine work on K-1131 equipment.

IV. RADIATION DETECTION INSTRUMENTS

A. The number of radiation instruments of various types available in the plant, including spares, is listed below.

TABLE XII

INSTRUMENT TYPE	On Hand at First of Month	Additions During Month	Withdrawals During Month
Alpha Survey Meter	209	9 *	0
Beta-Gamma Survey Meter	198	0	0
Air Samplers	50	0	0
Hand Counters	39	0	0

B. Information concerning the receipt of instruments and material, and pending orders for instruments and material to be received in the future is shown below.

TABLE XIII

NUMBER	TYPE	REMARKS
3	Samson Alpha Survey Meter	On order for Maintenance Division
9	Samson Alpha Survey Meter	On order for Chemical Division
1	Samson Alpha Survey Meter	On order for Technical Division
25	Samson Alpha Survey Meter	On order for Instrument Pool
9	Juno Hi-range Beta-Gamma Survey Meter	On order for Instrument Pool

* Destination of seven of these instruments has not been determined.

V. MATERIAL RELEASES INVOLVING RADIOACTIVE MATERIALS

A. Number of material releases reported, 3.

B. Number of employees sent to dispensary, 3.

C. Locations and Conditions.

TABLE XIV

DATE	LOCATION	TYPE MATERIAL	DURATION OF RELEASE OR AMOUNT OF MATERIAL	NO. SENT TO DISPENSARY
3-15-55	K-1401	C-616	65 minutes	0
3-16-55	K-631	C-616	10 pounds	3
3-16-55	K-1401	C-616	45 minutes	0

[redacted]

INTER-COMPANY CORRESPONDENCE

COMPANY: Carbide and Carbon Chemicals Company

LOCATION: Plant Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001

DATE: March 15, 1955

CC: Dr. J. S. Lyon
Mr. W. L. Richardson
Mr. E. O. Sternberg
File K-25RC

SUBJECT: Highlights of Health Physics Activities in the K-25 Plant for February 1955

The following are the highlights of health physics activities in the K-25 Plant for February, 1955:

I. ENVIRONMENTAL MONITORING

A. Alpha Contamination Levels

1. The area factors and contamination indices as indicated by audit surveys are shown below:

TABLE I

ALPHA CONTAMINATION INDICES

	Location Area (Ft²)	AREA FACTOR* This Month	Last Month	1954 Average	CONTAMINATION INDEX** This Month	Last Month	1954 Average	Ref. No.
K-25 Work Locations	276,312	29	34	34	111	122	413	
K-25 Lunch Rooms, Offices, and Locker Rooms	25,790	8.0	2.1	23	10	5.9	101	
DIVISIONS								
Chemical	78,850	50	68	80	234	268	2,375	
Production	220,220	24	28	24	72	83	87	
Maintenance	51,680	17	16	8.9	46	46	32	
Technical	25,362	9.1	6.6	18	52	30	60	
Manufacturing Office								

* Area Factor = $\frac{\text{Total Area over P.A.L.}}{\text{Total Floor Work Area}} \times 100$

** The Contamination Index is the sum of the weighted surface and wipe indices for the various classes. The weighting factors are as follows: Class I, 1; Class II, 5; Class III, 20.

[redacted]

Divisions or locations which significantly affect the plant levels as well as those static conditions where high contamination indices are recorded are summarized below:

Plant contamination levels decreased this period due to corresponding decreases in Chemical and Production Division levels which were attributed to the removal of highly contaminated floor surfaces in K-1131 Feed Production Area, decontamination efforts and painting of floors in the K-601 Sampling Room and K-306-7 Product Withdrawal Station, and the removal of material drums from Vault 16-A. The increase in Technical Division levels is attributed primarily to spillage of material during a dismantling operation in K-1413 building.

Plant Lunch Rooms, Offices, and Facilities showed a substantial increase which is attributed to the spread of material in K-1131 offices and facilities during the dismantling and removal of contaminated panel board equipment and to the tracking of contamination from the operating area to the offices and lunch Room in K-1410.

Radiation Levels

1. The beta-gamma radiation indices and the average of the maximum total body beta-gamma readings obtained on audit surveys of locations with a R. I. of 0.1 or greater are used to obtain plant indices.

TABLE II
PLANT RADIATION INDICES

	Location Area (ft^2)	AREA FACTOR This Month	AREA FACTOR Last Month	AREA FACTOR 1953 Average	RADIATION INDEX This Month	RADIATION INDEX Last Month	RADIATION INDEX 1953 Average	Avg. Max. Total Body	Ref. No.
K-25 Work Locations	100,980	0.16	0.36*	0.92	0.26	0.54*	2.18	27	
DIVISION									
Chemical	52,100	0.24	0.62*	1.82	0.41	0.96*	4.29	26	
Production	22,750	0	0	0.08	0	0	0.27	-	
Technical	25,600	0.09	0.09	0.11	0.14	0.14	0.39	70	
Safety and Protection	530	1.9	1.90	4.30	2.20	2.20	7.83	18	

Remarks: **The decrease noted in K-25 work locations is attributed to the decrease in the Chemical Division levels resulting principally from the removal of material drums in K-1231.**

***Figures corrected for January.**

C. Air Sampling Program

TABLE III
AIR CONTAIMINATION INDICES

	(SPOT AIR SAMPLES)									(LONG-TERM AIR SAMPLES)							
				AVG. ACTIVITY (c/m/ft³)				> P.A.L. Samples Respiratory Protection					AVG. ACTIVITY (c/m/ft³)				
	No. Taken	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	No. Hearing	%	No. Rec'd	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	Ref. No.
K-25 Work Locations	79	6	7.6	0.58	0.35	0.46	1.85	6/6	100	458	7	1.5	0.191	0.168	0.180	0.375	
K-25 Lunch Rooms, Offices, and Locker Rooms	1	0	0	0.10	0.06	0.02	0.62	-	-	-	-	-	-	-	-	-	
DIVISION																	
Chemical	34	3	8.8	0.20	0.32	0.26	3.87	-	-	153	3	2.0	0.172	0.306	0.238	0.258	
Production	29	0	0	0.02	0.04	0.03	0.15	-	-	157	1	0.64	0.277	0.106	0.196	0.383	
Maintenance	8	3	38	4.50	0.47	1.71	0.15	6/6	100	38	2	5.3	0.205	0.198	0.201	0.139	
Technical	8	0	0	0.29	0.85	0.64	0.08	-	-	110	1	0.91	0.090	0.037	0.066	0.011	

Remarks: (1) > P.A.L. Air Investigations: See Page 4.

(2) Comments on Significant Air Problems, etc.: See Page 4.

REMARKS

(1) > P.A.L. Air Investigations: The total of 7 > P.A.L. long-term air samples was reported this period as follows:

K-1413 Building: 1 > P.A.L. sample was recorded due to spillage of UF_4 powder during a loading operation at F_2 reactor; respiratory protection is usually worn during this operation.

K-1410 Decontamination: 3 > P.A.L. samples were recorded due to cleaning, degreasing, and decontamination of equipment, some of which was visibly smoking; respirators are routinely worn during these operations, and assault masks are worn when "smoking" occurs.

K-1401 Axial Flow Compressor and A.C. Pump Shop: 1 > P.A.L. sample was recorded during a "freezing down" operation to loosen a stator; respiratory protection was worn by all employees engaged in the operation.

K-413 Process Maintenance Shop: 1 > P.A.L. sample was recorded probably due to spread of UF_6 during maintenance on pumps in the operations part of the building; it could not be determined if any personnel were present during the period of high activity.

K-306-7 Product Withdrawal Station: 1 > P.A.L. sample was recorded due to residual material in cylinders evacuated through Welch Pumps to atmosphere; respiratory protection was not worn during the operation, and procedure has since been changed to evacuate lines back to the cascade.

(2) Comments on Significant Air Problems, etc.: Plant air activity, as determined by spot checks in the field, increased slightly this month and parallels the average air activity level recorded in 1954. Contributors to the increase were the K-1401 Ferrule Removal, K-132 Solutions Recovery, and K-1231 Pulverizing areas, where 6 of the 42 samples taken were > P.A.L., and average air activity levels of 12.0, 1.24, and 0.64, respectively, were reported.

(3) Plutonium: No samples were taken this month.

D. Water and Stream Pollution

1. Summary

a. As shown in Table V, the average beta activity increased slightly in the K-25 sanitary water supply, while a more significant increase was noted at the raw water intake in the Clinch River. Though activity in the X-10 White Oak Lake remained normal, the uncontrolled overflow of the lake, due to heavy rainfall during the month, occurred at a time when the average flow of the Clinch River was significantly decreased by the hold-up of water in the Norris Reservoir and thus reduced the dilution factor. A significant decrease was noted at the East Fork Junction and may be attributed to the dilution effect of rainfall on the contaminants released from the X-12 Facility.

b. As shown in Table VI, significant decreases in the average uranium concentration are noted in the Poplar Creek and Clinch River bottom mud, and may be primarily attributed to the heavy rainfall which has gradually moved and dispersed the contaminated silt which had built up in the Poplar Creek and East Fork Areas.

[redacted]

TABLE V

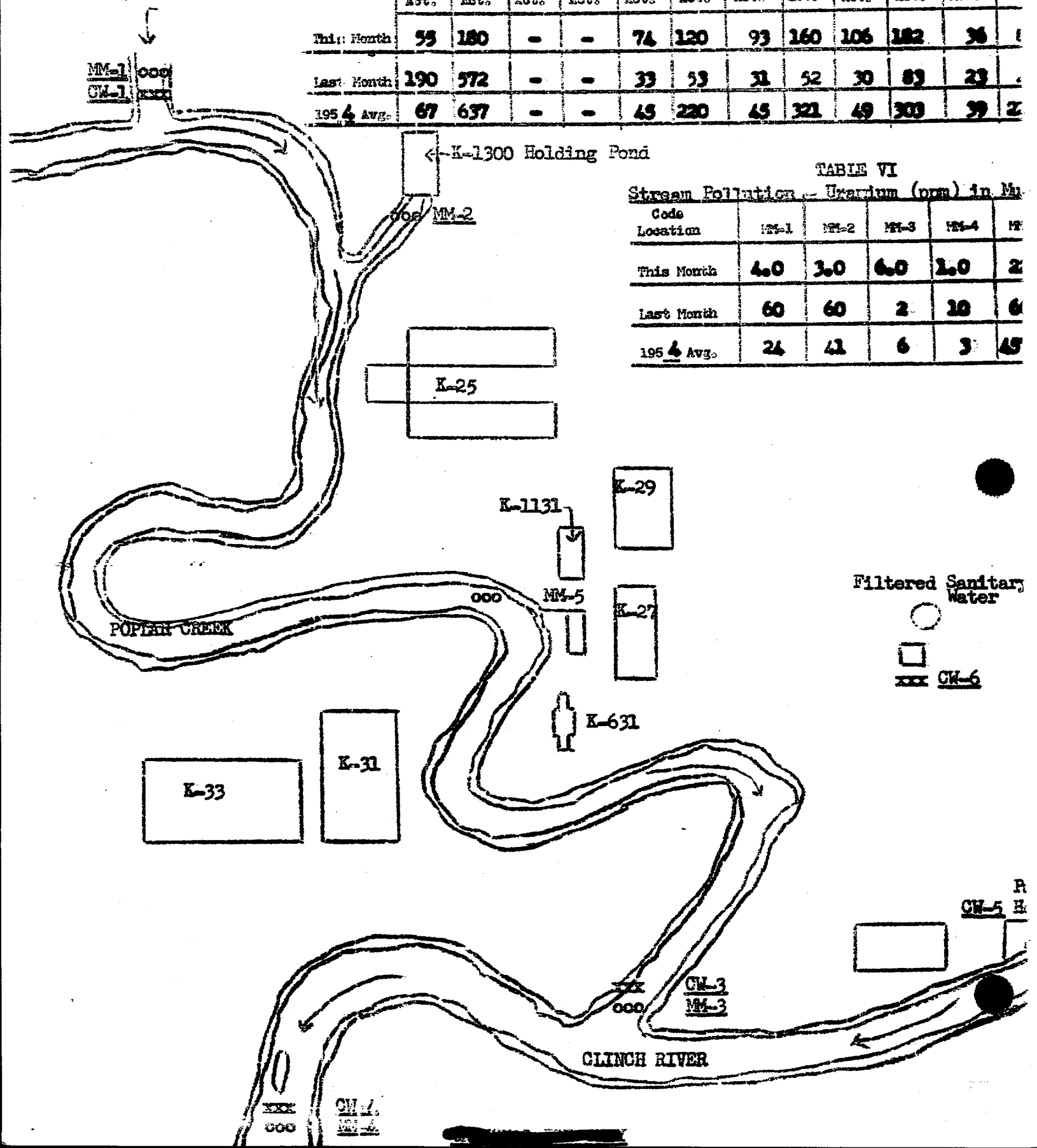
Water Sampling - Beta Activity (c/m/100ml.)

Code Location	CW-1		CW-2		CW-3		CW-4		CW-5		[redacted]	
	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.
This Month	55	180	-	-	74	120	93	160	106	182	36	[illegible]
Last Month	190	572	-	-	33	53	31	52	30	89	23	[illegible]
1954 Avg.	67	637	-	-	45	220	45	321	49	303	39	[illegible]

TABLE VI

Stream Pollution - Uranium (ppm) in Mu

Code Location	MM-1	MM-2	MM-3	MM-4	MM
This Month	4.0	3.0	6.0	1.0	2
Last Month	60	60	2	10	6
1954 Avg.	24	41	6	3	45



[redacted]

[redacted]

Remarks: See Page 4.

II. PERSONNEL MONITORING

A. Personnel Contamination

1. The table below is a summary of health physics audit of on-the-job contaminatio for the month, compared to checks for the previous month and the 195[illegible] average.

TABLE VII

PERSONNEL SPOT CHECKS

K-25 WORK LOCATIONS	HANDS			SHOES						CLOTHING					
				PERSONAL			ISSUED			PERSONAL			ISSUED		
	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL
This Month	37	13	35	1	1	100	36	7	19	1	0	0	36	6	17
Last Month	51	20	39	6	2	33	45	3	6.7	5	0	0	60	8	13
1953 Avg.	118	40	34	29	6	20	83	15	18	24	0.08	0.3	90	20	22
K-25 Canteens, Cafe, Lunch Rooms, Offices and Facilities															
This Month	19	0	0	1	0	0	18	0	0	-	-	-	19	4	21
Last Month	15	6	40	1	0	0	14	0	0	1	0	0	14	0	0
[redacted] (6-months)	43	10	23	8	2	25	35	8	23	5	0	0	38	9	24
DIVISIONS															
Chemical	14	4	29	-	-	-	14	3	21	-	-	-	14	2	14
Production	14	6	43	1	1	100	13	4	31	1	0	0	13	1	7.7
Maintenance	5	3	60	-	-	-	5	0	0	-	-	-	5	1	20
Technical	4	0	0	-	-	-	4	0	0	-	-	-	4	2	50

[redacted]

2. Routine Hand Checks

An average of approximately 632 employees checked their hands daily for alpha and/or beta contamination, as compared to 646 employees taking such checks during the previous month. There were 4 over-P.A.L. readings recorded.

Remarks: Three of the 4 > P.A.L. hand counts were recorded in the K-631 Waste Disposal Area, one of which was due to omission of the machine calibration at the time the count was made, while in the other 2 cases no reason could be found for the > P.A.L. condition. The fourth case involved an employee in the K-306-7 Product Withdrawal Station and, in this case too, no reason could be assigned to the > P.A.L. condition.

B. Film Badges, Film Rings, and Pocket Chambers

1. The tables below are a summary of film meter and pocket chamber data for the month compared to data for the previous month and the 1954 averages.

TABLE VIII

FILM BADGES

	Average Number used Per Week	NUMBER OF EXPOSURES				Average mrep per badge
		150-300 mrep/week		300 mrep/week		
		No.	%	No.	%	
This Month	968	6	0.27	0	0	2.77
Last Month	979	15	0.65	0	0	3.94
1954 Avg.	972	30	1.2	4	0.17	7.81

[redacted]

TABLE IX

FILM RINGS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		> 1500 mrep/week		
		No.	%	No.	%	
This Month	118	0	0	0	0	0.0
Last Month	119	0	0	0	0	0.0
1954 Average	140	0.5	0.08	0	0	1.02

TABLE X

POCKET CHAMBERS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		1500 mrep/week		
		No.	%	No.	%	
This Month	0	0	0	0	0	0
Last Month	0	0	0	0	0	0
1954 Average	0	0	0	0	0	0

2. Personnel exposures above the plant acceptable limit of 300 mrep/week on badges or 1500 mrep/week on rings are listed individually below for IBM weeks _____ thru _____.

TABLE XI

Name	Security Number	Location Code	Supervisor	Type Meter	Meter No.	Exposure B + γ (mrep)	Exposure γ (mr)	IBM Week No.	Remark No.
None									

[redacted]

Remarks: None

IV. RADIATION DETECTION INSTRUMENTS

A. The number of radiation instruments of various types available in the plant, including spares, is listed below.

TABLE XII

INSTRUMENT TYPE	On Hand at First of Month	Additions During Month	Withdrawals During Month
Alpha Survey Meter	209	0	0
Beta-Gamma Survey Meter	198	0	0
Air Samplers	56	0	6*
Hand Counters	39	0	0

*Salvaged by Safety and Protection Division

B. Information concerning the receipt of instruments and material, and pending orders for instruments and material to be received in the future is shown below.

TABLE XIII

NUMBER	TYPE	REMARKS
2	Sunson Alpha Survey Meter	On order for Safety and Protection Division
3	Sunson Alpha Survey Meter	On order for Maintenance Division
9	Sunson Alpha Survey Meter	On order for Chemical Division
1	Sunson Alpha Survey Meter	On order for Technical Division
25	Sunson Alpha Survey Meter	On order for Instrument Pool
9	Juno Hi-Range Beta-Gamma Survey Meter	On order for Instrument Pool

V. MATERIAL RELEASES INVOLVING RADIOACTIVE MATERIALS

A. Number of material releases reported, 4.

B. Number of employees sent to dispensary, 10.

C. Locations and Conditions.

TABLE XIV

DATE	LOCATION	TYPE MATERIAL	DURATION OF RELEASE OR AMOUNT OF MATERIAL	NO. SENT TO DISPENSARY
1-21-55	K-306-7	C-616	30 minutes	5
2-3-55	K-1401	C-616	1 hour	0
2-10-55	K-1401	C-616	3 hours, 45 minutes	1
2-8-55	K-1004-L	F_2	2 minutes	4

A. F. Becker
Safety and Health Physics

AFBecker

[redacted]

INTER-COMPANY CORRESPONDENCE

COMPANY: Carbide and Carbon Chemicals Company

LOCATION: Plant, Post Office Box P, Oak Ridge, Tennessee

TO: Dr. H. F. Henry
K-1001

DATE: February 28, 1955

CC: Dr. J. S. Lyon
Mr. W. L. Richardson
Mr. E. O. Sternberg
File K-25RC

SUBJECT: Highlights of Health Physics Activities in the K-25 Plant for January 1955

The following are the highlights of health physics activities in the K-25 Plant for January, 1955:

I. ENVIRONMENTAL MONITORING

A. Alpha Contamination Levels

1. The area factors and contamination indices as indicated by audit surveys are shown below:

TABLE I ±

ALPHA CONTAMINATION INDICES

	Location Area (ft²)	AREA FACTOR This Month	AREA FACTOR Last Month	AREA FACTOR 1954 Average	CONTAMINATION INDEX This Month	CONTAMINATION INDEX Last Month	CONTAMINATION INDEX 1954 Average	Ref No.
K-25 Work Locations	236,312	34	(36) 33	34	122	(448) 406	413	
K-25 Lunch Rooms, Offices, and Locker Rooms	25,790	2.1	(19) 22	23	5.9	(97) 113	101	
DIVISIONS								
Chemical	78,850	68	(76) 77	80	262	(1400) 1385	1375	
Production	120,220	25	(24) 31	24	83	(83) 108	87	
Maintenance	51,880	16	(18) 8.4	8.9	46	(45) 21	31	
Technical	25,362	6.6	(7.0) 9.8	18	30	(29) 39	60	
Manufacturing Office								

± Values shown in parenthesis are those which would have been recorded had only the locations and areas (ft²) used this period been considered.

* Area Factor = $\frac{\text{Total Area over P.A.L.}}{\text{Total Floor Work Area}} \times 100$

** The Contamination Index is the sum of the weighted surface and wipe indices for the various classes. The weighting factors are as follows: Class I, 1; Class II, 5; Class III, 20.

[redacted]

[redacted]

2. Divisions or locations which significantly affect the plant levels, as well as those which [illegible] are contaminated "hot".

Changes in contamination levels, due only to actual changes in conditions, are indicated by a comparison of the values for this month with the values given in parenthesis for last month.

The decreases noted in K-25 work locations, K-25 Lunch Rooms, Offices, and locker rooms are influenced primarily by the Chemical Division and are attributable to the removal of equipment and extensive decontamination in the K-1131 feed production facility.

B. Radiation Levels

1. The beta-gamma radiation indices and the average of the maximum total body beta-gamma readings obtained on audit surveys of locations with a R. I. of 0.1 or greater are used to obtain plant indices.

TABLE II
PLANT RADIATION INDICES

	Area (ft²)	Area Factor This Month	Area Factor Last Month	Area Factor 1953 Average	Radiation Index This Month	Radiation Index Last Month	Radiation Index 1953 Average	Avg. Max. Total Body	Ref. No.
K-25 Work Locations	100,980	0.38	(0.48) 0.39	0.92	0.42	(0.89) 0.74	2.18	47	
DIVISION									
Chemical	52,100	0.67	(0.83) 0.71	1.82	0.72	(1.50) 1.29	4.29	40	
Production	22,750	●	(0) 0	0.08	0	(0) 0	0.17	-	
Technical	25,600	0.09	(0.16) 0.13	0.11	0.14	(0.40) 0.31	0.39	20	
Safety and Protection	530	1.90	(1.90) 1.90	1.30	2.20	(2.20) 2.20	7.83	15	

Remarks: **Changes in radiation levels, due only to actual changes in conditions, are indicated by a comparison of the values for this month with the values given in parenthesis for last month.**

The decrease noted in K-25 work locations is attributed primarily to a decrease in the Chemical Division levels and is attributable to the removal and extensive decontamination in the K-1131 Feed Production Facility, and, to a lesser degree, to a decrease in the Technical Division due to the removal of UF_4 ash receivers from the K-1001-J Laboratory.

+ Values shown in parenthesis are those which would have been recorded had
- only the locations and areas (ft²) used this period been considered.

[redacted]

C. Air Sampling Program

TABLE III
AIR CONTAMINATION INDICES

	(SPOT AIR SAMPLES)									(LONG-TERM AIR SAMPLES)							
				AVG. ACTIVITY (c/m/ft³)				> P.A.L. Samples Respiratory Protection					AVG. ACTIVITY (c/m/ft³)				
	No. Taken	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	No. Wearing	%	No. Rec'd	No. > P.A.L.	% > P.A.L.	This Month	Last Month	This Quarter (Cum.)	Last Quarter	Info. No.
K-25 Work Locations	89	7	7.9	0.35	4.33	0.35	1.85	0/5	0	22	11	2.6	0.168	0.271	0.168	0.292	
K-25 Lunch Rooms, Offices, and Locker Rooms	2	0	0	0.04	0.19	0.04	0.62	-	-	-	-	-	-	-	-	-	
DIVISION																	
Chemical	34	4	12	0.32	9.08	0.32	3.87	0/2	0	144	7	4.9	0.306	0.447	0.306	0.258	
Production	24	0	0	0.04	0.05	0.04	0.15	-	-	143	2	1.4	0.106	0.138	0.106	0.383	
Maintenance	18	1	5.6	0.47	0.35	0.47	0.15	0/0	-	41	2	4.9	0.198	0.188	0.198	0.139	
Technical	13	2	15	0.85	0.15	0.85	0.08	0/3	0	94	0	0	0.037	0.011	0.037	0.011	

Remarks: (1) > P.A.L. Air Investigations: See Page 4

(2) Comments on Significant Air Problems, etc.: See Page 4

[redacted]

REMARKS:

(1) > P.A.L. Air Investigations: The total of 11 over-P.A.L. long-term air samples was reported this period as follows:

K-1410: 7 > P.A.L. samples were recorded due to processing of K-1131 equipment; respiratory protection is normally worn during these operations.

K-631 Waste Disposal: 1 > P.A.L. sample was recorded due to a leaking sample valve; no reported exposures occurred.

K-306-7 P.W. Station: 1 > P.A.L. sample was recorded due to a ruptured valve bellows; personnel involved wore assault masks.

K-1401 Axial Flow Compressor and AC Pump Shop: 1 > P.A.L. sample was recorded while a stator was being frozen down; respiratory protection was worn.

K-413 Process Maintenance Shop: 1 > P.A.L. sample was reported due to a release in the operations part of the building; during this time, the entire building was evacuated.

(2) Comments on Significant Air Problems, etc.: Plant air activity, as determined from spot checks in the field, decreased significantly this month, and now compare favorably with the average value of 0.57 reported for 1954. The G-616 Separation Operation in the K-1303 Building, which was the primary source of the high activity recorded last month, was not in progress when samples were taken this month; respiratory protection is normally worn during this operation.

(3) Plutonium: No samples were taken this month.

D. Water and Stream Pollution

1. Summary

a. As shown in Table V, the significant decrease in the average beta activity of the K-25 sanitary water supply is primarily attributed to a decrease in the activity released from the X-10 White Oak Lake storage facility, coupled with an increased stream dilution due to the rise in the average flow volume of the Clinch River from 1,780 ft^3/sec to 4,400 ft^3/sec. A decrease was noted at all the other sampling locations with the exception of the East Fork Creek where the beta activity remained comparatively high as a result of the routine release of waste materials from the X-12 Plant.

b. As shown in Table VI, the average uranium concentration in the Poplar Creek and decreased significantly during this report period and, of particular note, is the decrease in the K-27 Drainage Area. This decrease may be attributed mainly to the heavy rainfall during the previous period which moved the silt further downstream, as indicated by the slight rise in the Clinch River concentration, coupled with the shutdown of the K-1131 Equipment Manufacturing Plant, whose normal operation is a primary source of uranium wasted to the creek.

[redacted]

[redacted]

TABLE V

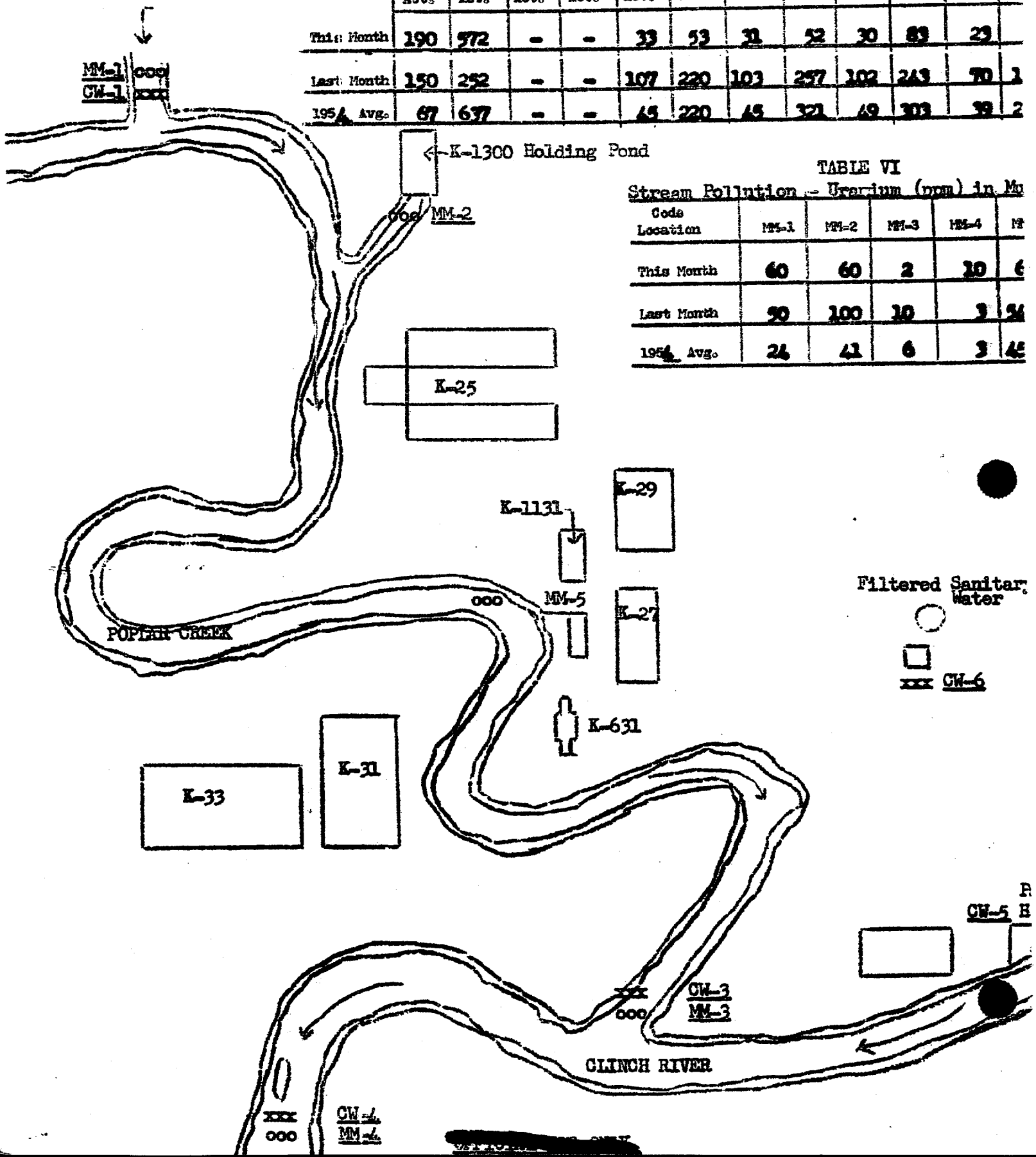
Water Sampling - Beta Activity (c/m/100ml.)

Code Location	CW-1		CW-2		CW-3		CW-4		CW-5		[redacted]	
	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Peak Act.	Avg. Act.	Pe Ac
This Month	190	572	-	-	33	53	31	52	30	83	23	
Last Month	150	252	-	-	107	220	103	257	102	243	70	1
1954 Avg.	67	637	-	-	45	220	45	321	49	303	39	2

TABLE VI

Stream Pollution - Uranium (ppm) in Mo

Code Location	MM-1	MM-2	MM-3	MM-4	M
This Month	60	60	2	10	6
Last Month	50	100	10	3	54
1954 Avg.	24	41	6	3	45



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[redacted]

Remarks: See Page 4.

II. PERSONNEL MONITORING

A. Personnel Contamination

1. The table below is a summary of health physics audit of on-the-job contaminatio for the month, compared to checks for the previous month and the 1954 average.

TABLE VII

PERSONNEL SPOT CHECKS

K-25 WORK LOCATIONS	HANDS			SHOES						CLOTHING					
				PERSONAL			ISSUED			PERSONAL			ISSUED		
	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL	No.	No. > PAL	% > PAL
This Month	51	20	39	6	2	33	45	3	6.7	5	0	0	60	8	13
Last Month	87	25	29	20	4	20	67	13	19	12	0	0	75	15	20
1954 Avg.	118	40	34	29	6	20	83	15	18	24	0.08	0.3	90	20	22
K-25 Canteens, Cafe, Lunch Rooms, Offices and Facilities															
This Month	15	6	40	1	0	0	14	0	0	1	0	0	14	0	0
Last Month	42	9	21	3	0	0	39	12	31	-	-	-	42	17	40
1954 Avg.	43	10	23	8	2	25	35	8	23	5	0	0	38	9	24
DIVISIONS															
Chemical	17	5	29	1	1	100	16	3	19	-	-	-	17	3	18
Production	12	4	33	1	1	100	11	0	0	1	0	0	12	4	33
Maintenance	14	5	36	-	-	-	14	0	0	-	-	-	14	1	7
Technical	8	0	0	4	0	0	4	0	0	4	0	0	4	0	0

[redacted]

[redacted]

2. Routine Hand Checks

An average of approximately 646 employees checked their hands daily for alpha and/or beta contamination, as compared to 572 employees taking such checks during the previous month. There were _____ over-P.A.L. readings recorded.

Remarks: (1) The increase in the average number of persons checking daily is attributed to the resumption of hand count program in K-635 Waste Disposal and K-306-7 P.U. Call Floor and to the inclusion of several late-reported sheets from K-1410.

(2) The two > P.A.L. hand counts were recorded in the K-1410 Decontamination Building by 2 employees who failed to notice the machine calibration.

B. Film Badges, Film Rings, and Pocket Chambers

1. The tables below are a summary of film meter and pocket chamber data for the month compared to data for the previous month and the 195__ averages.

TABLE VIII

FILM BADGES

	Average Number used Per Week	NUMBER OF EXPOSURES				Average mrep per badge
		150-300 mrep/week		300 mrep/week		
		No.	%	No.	%	
This Month	579	15	0.65	0	0	3.9
Last Month	577	39	1.1	9	0.26	8.4
195__ Avg.	522	30	1.2	4	0.17	7.81

Remarks: The decrease in the number of film badges reading 300 mrep/week or greater is attributed to decreased radiation levels in the K-1131 Feed Production facility and to the decontamination of feed production equipment.

[redacted]

[redacted]

TABLE IX

FILM RINGS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		> 1500 mrep/week		
		No.	%	No.	%	
This Month	119	0	0	0	0	0.0
Last Month	120	2	0.28	0	0	2.1
1954 Average	140	0.5	0.08	0	0	1.02

TABLE X

POCKET CHAMBERS

	Average Number Used per week	NUMBER OF EXPOSURES				Average mrep per ring
		300/1500 mrep/week		1500 mrep/week		
		No.	%	No.	%	
This Month	0	0	0	0	0	0
Last Month	0	0	0	0	0	0
1954 Average	0	0	0	0	0	0

2. Personnel exposures above the plant acceptable limit of 300 mrep/week on badges or 1500 mrep/week on rings are listed individually below for IBM weeks 1 thru 4.

TABLE XI

Name	Security Number	Location Code	Supervisor	Type Meter	Meter No.	Exposure β+γ (mrep)	Exposure γ (mr)	IBM Week No.	Remark No.
None									

[redacted]

Remarks: None

IV. RADIATION DETECTION INSTRUMENTS

A. The number of radiation instruments of various types available in the plant, including spares, is listed below.

TABLE XII

INSTRUMENT TYPE	On Hand at First of Month	Additions During Month	Withdrawals During Month
Alpha Survey Meter	209	0	0
Beta-Gamma Survey Meter	198	0	0
Air Samplers	56	0	0
Hand Counters	39	0	0

B. Information concerning the receipt of instruments and material, and pending orders for instruments and material to be received in the future is shown below.

TABLE XIII

NUMBER	TYPE	REMARKS
2	Gamma Alpha Survey Meter	On order for Safety and Protection Division
3	Gamma Alpha Survey Meter	On order for Maintenance Division
9	Gamma Alpha Survey Meter	On order for Chemical Division
1	Gamma Alpha Survey Meter	On order for Technical Division
25	Gamma Alpha Survey Meter	On order for Instrument Pool
9	Low-Ml-Range Beta-Gamma Survey Meter	On order for Instrument Pool
2	Gamma Probes	Received by Production Division

[redacted]

V. MATERIAL RELEASES INVOLVING RADIOACTIVE MATERIALS

A. Number of material releases reported, 2.

B. Number of employees sent to dispensary, 6.

C. Locations and Conditions.

TABLE XIV

DATE	LOCATION	TYPE MATERIAL	DURATION OF RELEASE OR AMOUNT OF MATERIAL	NO. SENT TO DISPENSARY
1-19-55	K-1401	C-616	Approximately 1 1/2 hours	1
1-21-55	K-306-7	C-616	120 grams Approximately 30 minutes	5

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3-2-55

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