1453

1958-1960
monthly CW-1
CW-3
CW-4
CW-5
CW-6

WATER AND MUD

MONTHLY & QUARTERLY SUMMARY

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

Technical Information Officer — Date 4/18/95
Oak Ridge K-25 Site

Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7314
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

REPORT OF WATER ANALYSES

REPORT NO. 8

Distribution:
H.F. Henry
E.C. Bollinger
W.C. Hartman
H.G.P. Snyder
T.C. Whitson (RC)

SAMPLE NUMBER	DATE SAMPLED	SAMPLING LOCATION	URANIUM ppm.	FLUORIDES ppm.	pH	Counts per min/gram ALPHA	Counts per min/gram BETA
332 W	4/19/60	Stream bottom mud. East Fork at Poplar Creek, North Bank - 30' West of Bridge	54			84	215
333 W	"	Stream bottom mud. Poplar Creek, 1/2 mile below East Fork Junction - Blair Road Bridge, South Bank - 30' East	20			31	86
334 W	"	Stream bottom mud. Poplar Creek, 1/2 mile below East Fork Junction - Blair Road Bridge - 30' West - North Bank	21			33	123
335 W	"	Stream bottom mud. East Fork at Poplar Creek South Bank - 30' East of Bridge	75			98	286
336 W	"	Stream bottom mud. East Fork at Poplar Creek - South Bank - 30' West of Bridge	68			91	194
337 W	"	Stream bottom mud. Poplar Creek, 1/2 mile below East Fork Junction - Blair Road Bridge - 200' East - North Bank.	16			32	47

NOTE: *Alpha counts per minute per 100 ml. water at 50% geometry.*
Beta counts per minute per 100 ml. water at 100% geometry.
All Mud Results per gram dry weight.

WCX-1012 (8-55)
Central Files K23RC
Laboratory Department
Analysis Section

SUPERVISOR T. Kusumoto

DATE RELEASED August 26, 1960

AVERAGE CONCENTRATION IN STREAM BOTTOM MUD

($\mu c/gram \times 10^{-8}$)

Total Beta Activity

YEAR	East Fork at Poplar Creek	Poplar Creek at Clinch River	Clinch River One Mile Below	Clinch River 25 Miles Above
1952	—	7,632	6,300	—
1953	9,788	5,576	12,074	—
1954	96,255	5,639	8,010	—
1955	34,740	6,246	20,862	—
1956	31,275	16,047	25,555	—
1957	46,440	15,930	28,080	—
1958	25,425	13,644	25,898	2,655
1959	17,933	18,414	45,495	4,275
1960	18,036	32,864	77,931	1,440
1961	21,645	30,794	26,447	—
1962				
1963				

MPC mud not established. Compare: (Sr^{90}) MPC$_w$ - NBS - 168-hr. general population - 1×10^{-7} $\mu c/cc$ = 10×10^{-8} $\mu c/cc$

" - USPHS - " - 1×10^{-8} $\mu c/cc$ = 1×10^{-8} $\mu c/cc$

$_{44}Ru^{106}$ — NBS 168 hr. gen. population = 1×10^{-5} μc/cc = $1{,}000 \times 10^{-8}$ μc/cc

$_{92}U^{Nat}$ — " " = 2×10^{-5} μc/cc = $2{,}000 \times 10^{-8}$ μc/cc

10 CFR Part 20 — "not above natural background" general population
unrestricted use of surface waters. (10.4 μg U/g water)

D.E. Lynch: "Natural" soil uranium, 3-9 μg U/g soil

MPC_{soil} (suggested) ≈ 100× MPC_w ≈ 1040 μg U/g water.

STREAM BOTTOM MONITORING

Month

Year Record

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	α	β	Ave. ANALYSIS U ppm	α	β	Maximum ANALYSIS U ppm	α	β	S
MM 1	East Fork at Poplar Creek		1.8	5.4	72				202.0	192.0	3284	
MM 2	K 1500 Drain at Poplar Creek		0.5	7.3	64				885.0	4,331.0	12,829	
MM 3	Poplar Creek at Clinch River		0.6	3.3	54				64.0	111.0	1,166	
MM 4	Clinch River (1 mile below)		0.2	1.1	28				35.0	142.0	4,540	
MM 5	Poplar Creek at K-27 Drain		0.3	8.0	60				3,616.0	1,149.0	8,066	
MM 6	[illegible] at Raw Water Intake		0.5	1.6	155				2.0	5.4	699	
MM 8	Poplar Creek at Blue Pond		2.0	10.0	38				534.0	869.0	6,730	
MM 9	Sewage Disposal Plant		11.0	470.0	1465				1,727.0	2,158.0	10,780	
CRM 57	Scarboro Gauging Station		1.0	2.8	32.0				2.0	6.7	95.0	
CRM 50	River Bend at Emory Valley		0.7	4.0	29.0				2.0	176.4	65.0	

[α – c/m/gram (50%)] [β – d/m/gram = 4.5×10^{-7} μc/gram] [1 ppm ≈ 7×10^{-7} μcc]

AVERAGE CONCENTRATION IN STREAM BOTTOM MUD

($\mu c/gram \times 10^{-8}$)

Uranium Concentration

YEAR	East Fork at Poplar Creek	Poplar Creek at Clinch River	Clinch River One Mile Below	Clinch River 25 Miles Above
1952	—	112	42	—
1953	763	161	63	—
1954	1,673	385	238	—
1955	3,605	595	224	—
1956	2,765	385	119	—
1957	2,849	987	168	—
1958	3,794	1,680	791	70
1959	3,080	2,436	700	140
1960	5,831	840	539	70
1961	8,701	931	280	—
1962				
1963				

MPC_{mud} not established.

Compare: MPC_w - NBS - 168 hr. general population — 2×10^{-5} $\mu c/cc$ = 2000×10^{-8} $\mu c/cc$
$42 U^{NAT}$ —

STREAM BOTTOM MONITORING

Month _____

Year 1963

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppb	α	β	Ave. ANALYSIS U ppb	α	β	Maximum ANALYSIS U ppb	α	β	
MM-1	East Fork at Poplar Creek											
MM-2	K-1300 Drain at Poplar Creek											
MM-3	Poplar Creek at Clinch River											
MM-4	Clinch River (1 mile below)											
MM-5	Poplar Creek at K-27 Drain											
MM-6	C.R. at Raw Water Intake											
MM-8	Poplar Creek at Blair Road											
MM-7	Sewage Disposal Plant											
CRM-39	Scarboro Gauging Station											
CRM-50	River Road at Emory Valley											

STREAM BOTTOM MONITORING

Year 1962

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β
MM-1	East Fork at Poplar Creek										
MM 2	K 1300 Drain at Poplar Creek										
MM 3	Poplar Creek at Church River										
MM-4	Church River (1 mile below)										
MM-5	Poplar Creek at K-27 Drain										
MM 6	C.R. at Raw Water Intake										
MM 8	Poplar Creek at Blair Road										
MM-7	Sewage Disposal Plant										
CRM-39	Lenoxa Gauging Station										
CRM-50	River Road at Emory Valley										

STREAM BOTTOM MONITORING

~~Month~~ _____

Year 1961

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	S
MM-1	East Fork at Poplar Creek		47	49	214	124.3	92.0	481.0	202	133	625	
MM-2	K-1300 Drain at Poplar Creek		97	289	827	235.0	580.3	1765.3	397	876	2621	
MM-3	Poplar Creek at Clinch River		11	17	456	13.3	18.3	684.3	15	19	1037	
MM-4	Clinch River (mile below)		3	4	370	4.0	6.0	587.7	6	9	909	
MM-5	Poplar Creek at K-27 Drain		5	8	60	29.3	31.7	199.3	49	54	342	
MM-6	C.R. at Raw Water Intake		0.5	1.6	155	0.8	2.1	385	1.0	3.0	699	
MM-8	Poplar Creek at Blair Road		11	21	38	23.3	33.3	320.3	31	46	849	
MM-7	Sewage Disposal Plant		—	—	—	—	—	—	—	—	—	
CRM-39	Scarboro Ranging Station		—	—	—	—	—	—	—	—	—	
CRM-50	River Road at Emory Valley		—	—	—	—	—	—	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~

Year 1960

X-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	S
MM-1	East Fork at Poplar Creek		10	68	221	83.3^{4}	105.3^{4}	400.8^{4}	183	166	826	
MM-2	[illegible] Drain at Poplar Creek		86	327	1,226	374.5^{4}	941.8^{4}	$2,015.3^{4}$	885	1,959	3,112	
MM-3	Poplar Creek at Clark Ferry		9	19	483	12.0^{4}	27.0^{4}	730.3^{4}	15	41	1,166	
MM-4	Clark Ferry (Inside below)		2	5	368	7.7^{3}	9.4^{3}	$1,731.8^{4}$	16	13	4,540	
MM-5	Poplar Creek at X-27 Drain		16	9	176	34.8^{4}	56.3^{4}	330.8^{4}	57	103	593	
MM-6	[illegible] Water Intake		+	2.1	465	1.5^{2}	3.8^{2}	489	2	5.4	572	
MM-8	Poplar Creek at Blair Road		2	10	145	268.0^{2}	440.0^{2}	$3,437.5^{2}$	534	869	6,730	
MM-7	Sewage Disposal Plant		—	—	—	$1,727^{1}$	$2,158^{1}$	$10,780^{1}$	—	—	—	
CRM-51	Scarboro Pumping Station		—	—	—	1.0^{1}	2.8^{1}	32.0^{1}	—	—	—	
CRM-50	[illegible] Road at Emory Valley		—	—	—	0.7^{1}	11.0^{1}	29.0^{1}	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~

Year 1959

K-25 PLANT

PLOT NO	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β
MM-1	East Fork at Poplar Creek		5	53	161	44.0 [4]	103.0 [4]	398.5 [4]	98	160	635
MM-2	K-1300 Drain at Poplar Creek		23	126	239	64.5 [4]	400.8 [4]	1,000.0 [4]	124	1,088	2,185
MM-3	Poplar Creek at Clinch River		18	21	286	34.8 [4]	52.5 [4]	409.2 [4]	64	111	470
MM-4	Clinch River (1 mile below)		4	10	351	10.0 [4]	23.3 [4]	1,011.0 [4]	18	36	1,757
MM-5	Poplar Creek at K-27 Drain		7	47	183	78.3 [4]	113.0 [4]	334.3 [4]	195	213	529
MM-6	C.R. at Raw Water Intake		—	—	—	—	—	—	—	—	—
MM-8	Poplar Creek at Blair Road		—	—	—	—	—	—	—	—	—
MM-7	Sewage Disposal Plant		12	546	2,112	595.2 [5]	1162.1 [6]	3135.5 [4]	1,186	1,798	4432
CRM-39	Scarboro Ranging Station		—	—	—	2.0 [1]	6.7 [1]	95.0 [1]	—	—	—
CRM-50	River Road at Emory Valley		—	—	—	1.0 [1]	176.4 [1]	65.0 [1]	—	—	—

STREAM BOTTOM MONITORING

~~Month~~ _____

Year 1958

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	S
MM 1	East Fork at Poplar Creek		12	10	113	54.2 [4]	77.0 [4]	565.0 [4]	144	192	1,719	
MM-2	L 1500 Drain at Poplar Creek		88	161	313	191.5 [4]	401.5 [4]	670.0 [4]	293	1,007	1,294	
MM 3	Poplar Creek at Church Rd		2	4	179	24.0 [4]	21.7 [4]	303.2 [4]	55	34	568	
MM 4	Church Rd (1 mile below)		2	5	144	11.3 [4]	48.2 [4]	575.5 [4]	35	142	1,693	
MM 5	Poplar Creek at L 27 Drain		13	30	176	575.5 [4]	761.5 [4]	3144.0 [4]	2,616	1,619	8,066	
MM 6	[illegible] at [illegible] Intake		–	–	–	–	–	–	–	–	–	
MM 8	Poplar Creek at Blair Road		–	–	–	–	–	–	–	–	–	
MM-7	Sewage Disposal Plant		–	–	–	1,186 [1]	1,439 [1]	4,432 [1]	–	–	–	
CRM-39	[illegible] Gauging Station		–	–	–	1.0 [1]	3.0 [1]	59.0 [1]	–	–	–	
CRM-50	River Road at [illegible] Valley		–	–	–	2.0 [1]	4.0 [1]	47.0 [1]	–	–	–	

STREAM BOTTOM MONITORING

Month _____

Year 1957

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	α	β	Ave. ANALYSIS U ppm	α	β	Maximum ANALYSIS U ppm	α	β	S
MM-1	East Fork at Poplar Creek		8.0	13.0	96	7 40.7	7 66.7	7 1,032	106.0	131.0	2,806	
MM-2	K-1300 Drain at Poplar Creek		29.0	39.0	228	7 164.1	7 754.6	7 2,683	493.0	4,331.0	12,829	
MM-3	Poplar Creek at Clinch River		4.0	6.3	140	7 14.1	7 17.0	7 354	37.0	34.0	511	
MM-4	Clinch River (1 mile below)		1.0	3.4	134	7 2.4	7 5.2	7 624	7.0	9.0	1,917	
MM-5	Poplar Creek at K-27 Drain		14.0	33.0	154	5 53.8	5 210.0	5 642	127.0	762.0	1,396	
MM-6	C.R. at Raw Water Intake		—	—	—	—	—	—	—	—	—	
MM-8	Poplar Creek at Blair Road		—	—	—	—	—	—	—	—	—	
MM-7	Sewage Disposal Plant		—	—	—	1 12.0	1 762.0	1 2,112	—	—	—	
CRM-39	Scarboro Gauging Station		—	—	—	—	—	—	—	—	—	
CRM-50	River Road at Emory Valley		—	—	—	—	—	—	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~ _____

Year 1956

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	REMARKS
MM-1	East Fork at Poplar Creek		11.7	12.4	127	12 39.5	8 39.5	8 695.0	123.0	89.0	2,096	
MM-2	K 1500 Drain at Poplar Creek		17.0	35.9	230	11 134.9	7 285.0	7 2,219	433.0	828.0	7,442	
MM-3	Poplar Creek at Clinch River		1.0	4.9	144	12 5.5	9 7.6	8 356.6	15.0	12.0	449	
MM-4	Clinch River (1 mile below)		0.5	1.6	28	12 1.7	8 3.6	8 567.9	6.0	6.2	1,394	
MM-5	Poplar Creek at K-27 Drain		14.6	82.0	659	11 188.3	6 428.2	6 3,310	417.0	985.0	7,908	
MM-6	C.R.O.R. Water Intake		—	—	—	—	—	—	—	—	—	
MM-8	Poplar Creek at Blair Road		—	—	—	—	—	—	—	—	—	
MM-7	Sewage Disposal Plant		—	—	—	1 588	1 1,798	—	—	—	—	
CRM-51	Melton Gauging Station		—	—	—	—	—	—	—	—	—	
CRM-50	Pine Ridge at Emory Valley		—	—	—	—	—	—	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~ _____

Year 1955

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	S
mm-1	East Fork at Poplar Creek		1.8	5.4	82	51.5 (12)	55.0 (11)	772.0 (11)	142.5	137.3	2,215	
mm-2	K-1300 Drain at Poplar Creek		1.3	7.3	64	30.4 (12)	32.6 (11)	284.2 (11)	132.8	84.0	998	
mm-3	Poplar Creek at Clinch River		0.7	3.3	66	8.5 (12)	7.8 (11)	138.8 (11)	36.8	38.2	263	
mm-4	Clinch River (1 mile below)		0.5	1.1	67	3.2 (12)	5.3 (11)	463.6 (11)	10.0	12.4	1286	
mm-5	Poplar Creek at K-27 Drain		1.8	14.0	92	74.3 (12)	93.3 (11)	427.2 (10)	247.7	318.8	905	
mm-6	C.R. at Raw Water Intake		—	—	—	—	—	—	—	—	—	
mm-8	Poplar Creek at Blair Road		—	—	—	—	—	—	—	—	—	
mm-7	Sewage Disposal Plant		—	—	—	11.0 (1)	1,280.0 (1)	2,835 (1)	—	—	—	
cem-39	Scarboro Gauging Station		—	—	—	—	—	—	—	—	—	
cem-50	River Road at Emory Valley		—	—	—	—	—	—	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~ _____

Year 1954

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	S
MM-1	East Fork at Poplar Creek		2.0	24.4	87	12 23.9	9 44.0	9 2,139	75.0	78.4	3,284	
MM-2	K-1300 Drain at Poplar Creek		0.5	7.9	78	12 40.8	9 43.5	9 243.7	100.0	69.0	354	
MM-3	Poplar Creek at Clinch River		0.8	3.3	66	12 5.5	9 6.7	9 125.3	10.0	12.1	187	
MM-4	Clinch River (1 mile below)		0.8	2.0	75	12 3.4	9 5.4	9 178.0	11.3	10.7	280	
MM-5	Poplar Creek at K-27 Drain		40.0	65.0	234	12 457.1	9 260.0	9 982.1	1,220.0	562.0	1,596	
MM-6	C.R. at Raw Water Intake		—	—	—	—	—	—	—	—	—	
MM-8	Poplar Creek at Blair Road		—	—	—	—	—	—	—	—	—	
MM-7	Sewage Disposal Plant		—	—	—	1 700	—	—	—	—	—	
MM-10	Powerhouse Effluent at Poplar Creek		3.1	—	—	3 4.9	—	—	5.3	—	—	
CRM-39	Seabar Gauging Station		—	—	—	—	—	—	—	—	—	
CRM-50	River Road at Emory Valley		—	—	—	—	—	—	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~ _____

Year 1953

K-25 PLANT

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. U ppm	Ave. α	Ave. β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β	S
mm-1	East Fork at Poplar Creek		5.6	9.2	72	10.9 (12)	19.8 (12)	217.5 (12)	20.0	27.0	727	
mm-2	K-1300 Drain at Poplar Creek		5.0	11.5	87	36.7 (12)	42.7 (12)	183.7 (12)	87.5	88.0	284	
mm-3	Poplar Creek at Clinch River		0.6	3.5	54	2.3 (12)	4.7 (11)	123.9 (11)	4.4	7.4	251	
mm-4	Clinch River (1 mile below)		0.2	1.8	103	0.9 (12)	3.3 (12)	268.3 (12)	2.3	5.5	482	
mm-5	Poplar Creek at K-27 Drain		12.5	13.9	106	221.0 (12)	234.3 (12)	622.3 (12)	600.0	969.0	1550	
mm-6	C.R. at Raw Water Intake		—	—	—	—	—	—	—	—	—	
mm-8	Poplar Creek at Blair Road		—	—	—	—	—	—	—	—	—	
mm-7	Sewage Disposal Plant		200.0	470.0	1465	200.0 (1)	470.0 (1)	1465 (1)	200.0	470.0	1465	
mm-10	Power House Effluent New Hope Cr.		1.0	4.6	75	2.9 (8)	5.9 (2)	137.8 (8)	6.3	7.1	195	
CRM-39	Scarboro Gauging Station		—	—	—	—	—	—	—	—	—	
CRM-50	River Road at Emory Valley		—	—	—	—	—	—	—	—	—	

STREAM BOTTOM MONITORING

~~Month~~ _____

K-25 PLANT

Year 1952

PLOT NO.	LOCATION	DATE	Minimum ANALYSIS U ppm	Minimum ANALYSIS α	Minimum ANALYSIS β	Ave. ANALYSIS U ppm	Ave. ANALYSIS α	Ave. ANALYSIS β	Maximum ANALYSIS U ppm	Maximum ANALYSIS α	Maximum ANALYSIS β
MM-1	East Fork at Poplar Creek		–	–	–	–	–	–	–	–	–
1-ME MM-2	K-1300 Drain at Poplar Creek		7.5	–	82	13 25.0	–	12 152.2	68.8	–	303
43-ME MM-3	Poplar Creek at Clinch River		1.1	–	75	12 1.6	–	11 169.6	2.3	–	270
13-ME MM-4	Clinch River (1 mile below)		0.2	–	48	12 0.6	–	11 140.0	1.0	–	192
11-ME MM-5	Poplar Creek at K-27 Drain		0.3	–	62	12 7.1	–	11 123.4	20.0	–	398
MM-6	C.R. at Raw Water Intake		–	–	–	–	–	–	–	–	–
MM-8	Poplar Creek at Blair Road		–	–	–	–	–	–	–	–	–
MM-7	Sewage Disposal Plant		–	–	–	–	–	–	–	–	–
42 ME MM-10	Power House Effluent at Poplar C.		1.0	–	53	12 3.5	–	11 154.9	7.5	–	232
CRM-39	Scarboro Gauging Station		–	–	–	–	–	–	–	–	–
CRM-50	River Rd. at Emory Valley		–	–	–	–	–	–	–	–	–

STREAM BOTTOM MONITORING

ORGD PLANT

~~Month~~ 4th Qtr

Year 1962

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork at Poplar Creek					
MM-2	K 1500 Drain at Poplar Creek					
MM-3	Poplar Creek at Clinch River					
MM-4	Clinch River (½ mile below)					
MM-5	Poplar Creek at K-27 Drain					
MM-6	C.R. at Raw Water Intake					
MM-7	Sewage Disposal Plant Sludge					
MM-8	Poplar Creek (Upstream)					

STREAM BOTTOM MONITORING

ORGD PLANT

~~Month~~ 3rd Qtr.

Year 1962

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork at Poplar Creek					
MM-2	K-1300 Drain at Poplar Creek					
MM-3	Poplar Creek at Clinch River					
MM-4	Clinch River (½ mile below)					
MM-5	Poplar Creek at K-27 Drain					
MM-6	C.R. at Raw Water Intake					
MM-7	Sewage Disposal Plant Sludge					
MM-8	Poplar Creek (Upstream)					

STREAM BOTTOM MONITORING

ORGD PLANT

~~Month~~ 2nd Qtr.

Year 1962

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork at Poplar Creek					
MM-2	K-1300 Drain at Poplar Creek					
MM-3	Poplar Creek at Clinch River					
MM-4	Clinch River (½ mile below)					
MM-5	Poplar Creek at K-27 Drain					
MM-6	CK at Raw Water Intake					
MM-7	Sewage Disposal Plant Sludge					
MM-8	Poplar Creek (Upstream)					

x – [illegible]

STREAM BOTTOM MONITORING

ORGD PLANT

~~Month~~ 1st Qtr.

Year 1962

c/m/gram dry weight

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α ~~50%~~	β ~~10%~~	REMARKS
MM-1	East Fork at Poplar Creek	2/10/62	28	442	198	
MM-2	K-1300 Drain at Poplar Creek		53	176	1283	
MM-3	Poplar Creek at Clinch River		17	28	392	
MM-4	Clinch River (½ mile below)		2	7	531	
MM-5	Poplar Creek at K-27 Drain		44	46	483	
MM-6	CR at Raw Water Intake		2	5	496	
MM-7	Sewage Disposal Plant Sludge		1066	1902	9581	
MM-8	Poplar Creek (Upstream)		58	63	455	

α – c/m/gram (50%) β – c/m/gram

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 4th Qtr

Year 1961

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
MM-1	East Fork at Poplar Creek	11/25/61	202	133	604	
MM-2	1500 Drain at Poplar Cr.	"	211	576	1848	
MM-3	Poplar Creek at C.R.	"	15	17	456	
MM-4	C.R. (1 mile below)	"	3	4	484	
MM-5	Poplar Creek (1.27 Drain)	"	34	33	196	
MM-8	Poplar Creek at Blair Road	"	31	46	849	
	Quarterly Average					
MM-1	East Fork	Total	202	133	604	
		Avg	202	133	604	
MM-3	Poplar Creek	Total	291	672	3349	
		Avg	73	168	837	
MM-4	Clinch River	Total	3	4	484	
		Avg	3	4	484	

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 3rd Qtr.

Year 1961

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α dpm/100cc	β dpm/100cc	REMARKS
MM-1	East Fork at Poplar Creek	8/19/61	124	94	625	
MM-2	K-1300 Drain at Pop. Cr.	"	397	876	2621	
MM-3	Pop. Cr. at C.R.	"	14	19	1037	
MM-4	C.R. (1 mile below)	"	3	5	370	
MM-5	P.C. (K-27 Drain)	"	.5	8	60	
MM-8	P.C. at Blair Road	"	11	21	74	
		Quarterly Averages				
MM-1	East Fork	Total	124	94	625	
		Ave	124	94	625	
MM-1 2 3 8	Poplar Creek	Total	427	924	3792	
		Ave	107	241	948	
MM-4	Clinch River	Total	3	5	370	
		Ave	3	5	370	

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 2nd Qtr.

Year 1961

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb (ppm)	α	β (dpm/100cc)	REMARKS
mm-1	East Fork at Poplar Creek					
mm-2	K-1300 Drain at Pop. Cr.					
mm-3	Pop. Cr. at C.R.					
mm-4	C.R. (1 mile below)					"Mixed"
mm-5	P.C. (K-27 Drain)					
mm-8	P.C. at Blair Road					
		Quarterly Averages				
mm-1	East Fork	Total				
		Ave				
mm-2,3,5,8	Poplar Creek	Total				
		Ave				
mm-4	Clinch River	Total				
		Ave				

STREAM BOTTOM MONITORING

K-25 PLANT

Month 1st Qtr.

CY Year 1961

PLOT NO.	LOCATION	DATE	ppm d/m/g ANALYSIS U ppb	α	β	REMARKS
mm-1	East Fork at Poplar Creek	2/11/61	47	49	214	
mm-2	K-1300 Drain at Popl Cr.	"	97	289	827	
mm-3	Poplar Creek at C.R.	"	11	19	560	
mm-4	C.R. (1 mile below)	"	6	9	909	
mm-5	Poplar Creek (K-27 Drain)	"	49	54	342	
mm-8	Poplar Creek at Blair Road	"	28	33	38	
	Quarterly Averages					
mm-1	East Fork	Total	47	49	214	
		Ave	47	49	214	
mm-{2,3,5,8}	Poplar Creek	Total	185	395	1767	
		Ave	46	99	442	
mm-4	Clinch River	Total	6	9	909	
		Ave	6	9	909	

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 4th Qtr.

CY—Year 1960

PLOT NO.	LOCATION	DATE	ANALYSIS U ~~ppb~~ (ppm)	α (dpm/g)	β (dpm/g)	REMARKS
mm-1	East Fork at Poplar Creek	11/28/60	183	166	826	
mm-2	K-1300 Drain at Poplar Cr.	"	885	1959	3,112	
mm-3	Poplar Creek at C.R.	"	15	20	753	
mm-4	C.R. (1 mile below)	"	2	5	368	
mm-5	Poplar Creek (K-27 Drain)	"	39	9	186	
mm-8	Poplar Creek at Blair Road	"	2	10	145	
	Quarterly Averages					
mm-1	East Fork	Total	183	166	826	
		Ave	183	166	826	
mm-{2,3,5,8}	Poplar Creek	Total	941	1998	4196	
		Ave	235	500	1058	
mm-4	Clinch River	Total	2	5	368	
		Ave	2	5	368	

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 3rd Qtr.

CY-Year 1960

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α ppm/dm/g	β ppm/dm/g	ppm U Previous Qtr.	REMARKS
mm-1	East Fork at Poplar Creek	8/22/60	10	84.6	285	92	
mm-2	K-1300 Drain at Poplar Creek	"	393	1098.5	2417	86	
mm-3	Poplar Creek at Clinch River	"	10	41.1	1166	9	
mm-4	C.R. (1 mile below ORGDP)	"	5	13.1	1347	16	
mm-5	Poplar Creek (opposite K-27 Drain)	"	25	103.5	593	57	
mm-7	Sewage Disposal Plant Sludge	6/17/60	1727	2158	10,780	—	
mm-8	P.C. at Blair Bridge	8/22/60	534	869.0	6730	—	
	3rd Qtr. Stream Averages						
		July-Aug-Sept				April-May-June	Jan-Feb-March
mm-1	East Fork	Total	10	85	285		
		Ave	10	85	285	92	48
mm {2,3,5,8}	Poplar Creek	Total	962	2,113	10,906		
		Ave	240	526	2,726	51	52
mm-4	Clinch River	Total	5	13	1347		
		Ave	5	13	1347	16	Lost Sample

STREAM BOTTOM MONITORING

~~Month~~ 2nd Qt.

K-25 PLANT

Cal. Year 1960

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α d/m/gm	β d/m/gm	ppm U Previous Qtr.	REMARKS
MM-1	East Fork at Poplar Creek	5/7/60	92	102	271	48	
MM-2	K-1300 Drain at Poplar Creek		86	382	1226	134	
MM-3	Poplar Creek at C.R.		9	19	483	4	
MM-4	C.R. (1 mile below ORGDP)		16	10	672	Lost	
MM-5	Poplar Creek (Opposite K-27 Drain)		57	59	176	18	
	2nd Qtr. Stream Averages						
		April	May-June			Jan Feb Mar	Oct Nov Dec
MM-1	East Fork	Total	92				
		Avg	92	—	—	48	— 98
MM-2-3-5	Poplar Creek	Total	152				
		Avg	51	—	—	52	— 54
MM-4	C.R.	Total	16				
		Avg	16	—	—	Lost	— 6

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 1st Qt.

Cal. Year 1960

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb (ppm)	α (d/m/gm)	β (d/m/gm)	U ppm Previous Qt.	REMARKS
MM-1	East Fork at Poplar Creek	2/26/60	48	68	221	98	
MM-2	K-1300 Drain at Poplar Creek	"	134	327	1306	124	
MM-3	Poplar Creek at Clinch River	"	14	28	519	18	
MM-4	Clinch River (1 mile below ORGDP)	"	Lost	Lost	4540	6	
MM-5	Poplar Creek (opp. K-27 Drain)	"	18	52	368	21	

1st Qt. — Stream Averages

			JAN-FEB-MAR			Oct-Nov-Dec	Jul-Aug-Sept
MM-1	East Fork	Total	~~48~~	~~48~~	~~224~~		
		Ave		48		98	5
MM-2-3-5	Poplar Creek	Total		156			
		Ave		52		54	22
MM-4	Clinch River	Total		Lost			
		Ave		Lost		6	4

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 4th Qt.

Year 1959

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α ppm	β d/m/gm	Previous Qt. "U" ppm	REMARKS	Ave. CY-59
mm-1	East Fork at Poplar Creek	11/28	98	160	470	5		44
mm-2	K-1300 Drain at Poplar Creek	"	124	247	512	23		65
mm-3	Poplar Creek at Clinch River	"	18	21	422	35		35
mm-4	Clinch River (1 mile below ORGDP)	"	6	36	1395	4		10
mm-5	Poplar Creek (Opp. K-27 Drain)	"	21	47	183	7		79
	4th Qt. = Stream Averages							
		Oct-Nov. Dec				July-Aug-Sept		April-May-Jun
mm-1	East Fork of Poplar C.	Total	98					
		Ave	98	—	—	5		46
mm 2 3 5	Poplar Creek	Total	163					
		Avage	54	—	—	22		120
mm-4	Clinch River	Total	6					
		Avage	6	—	—	4		18

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 3rd Qt.

Year 1959

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm (ppm)	α (d/m/gm)	β (d/m/gm)	Previous Qt. "U" (ppm)	REMARKS
mm-1	East Fork at Poplar Creek	8/22	5	107	328	46	
mm-2	K-1300 Drain at Poplar Creek	"	23	1088	1064	43	
mm-3	Poplar Creek at Clinch River	"	35	36	470	22	
mm-4	Clinch River (1 mile below ORSDP)	"	4	10	541	18	
mm-5	Poplar Creek - Opp. K-27 Drain	"	7	88	242	195	
	3rd Quarter = Stream Bed Averages						
			July-Aug-Sept.			April-May-June	Jan-Feb-Mar.
mm-1	East Fork	Total	5				
		Average	5			46	27
mm {2, 3, 5	Poplar Creek	Total	65				
		Average	22			120	74
mm-4	Clinch River	Total	4				
		Average	4			18	12

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 2nd Qt

Year CY-59

PLOT NO.	LOCATION	DATE	ANALYSIS c/m/g U ppm	α	β	Previous Qt. "U"	REMARKS
MM-1	East Fork at Poplar Creek	5/23	46	92	635	27	
MM-2	K-1300 Drain at Poplar Creek	"	43	126	2185	68	
MM-3	Poplar Creek at C.R.	"	22	42	286	64	
MM-4	C.R. — 1 mile below ORGDP	"	18	30	1757	12	
MM-5	Poplar Creek — Opposite K-27 Drain	"	195	213	529	90	
MM-7	Sewage Disposal Plt. Sludge	6/25/59	—	546	—		
		5/23/59	1177	1148	3163		
	"	6/1/58	1186	1439	4432		
	"	5/1/57	12	762	2112		
	"	3/1/56	588	1798	—		
	"	~~3/1/55~~	~~11~~	~~1280~~	~~2835~~		
	2nd Quarter — Stream Bed Averages						
	April - May - June					Jan - Feb - March	Oct - Nov - Dec
MM-1	East Fork	Total	46				
		Average	46			27	33
MM 2+3+5	Poplar Creek	Total	360				
		Average	120			74	973
MM 4	Clinch River	Total	18				
		Average	18			12	2

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 1st Qt.

Year CY-59

PLOT NO.	LOCATION	DATE	ANALYSIS c/m/~~100~~g U ppm	α	β	Previous Qt. U	REMARKS
MM-1	East Fork at Poplar Creek	2/14/59	27	53	161	33	
MM-2	K-1300 Drain at Poplar Creek	"	68	142	239	282	
MM-3	Poplar Creek at Clinch River	"	64	111	459	22	
MM-4	Clinch River - 1 mile below CRAP	"	12	17	351	2	
MM-5	Poplar Creek - Opposite K-27 Drain	"	90	104	383	2616	
	1st Quarter - Stream Bed Averages						
	Jan-Feb. March					Oct-Nov-Dec	July Aug Sept
MM-1	East Fork Total		27				
	Average		27			33	144
2+3+5	Poplar Creek Total		222				
	Average		74			973	758
4	Clinch River Total		12				
	Average		12			2	35

STREAM BOTTOM MONITORING

~~Month~~ 4th Qt.

K-25 PLANT

Year CY-58

PLOT NO.	LOCATION	DATE	ANALYSIS c/min/100g U ppm	α	β	(Previous Qt. – U)	REMARKS
MM-1	East Fork at Poplar Creek		33	67	310	144	
MM-2	K-1300 Drain at Poplar Creek		282	1007	1294	88	
MM-3	Poplar Creek at Clinch River		22	34	568	2	
MM-4	Clinch River – 1 mile below Poplar		2	5	216	35	
MM-5	Poplar Creek – Opposite K-27 Drain		2616	1177	2584	2185	
	4th Quarter – Stream Bed Averages						
	October – November – Dec.					July – Aug – Sept	April – May – June
MM-1	East Fork { Total		33				
	{ Average		33			144	28
2+3+5	Poplar Creek { Total		2920				
	{ Average		973			758	44
4	Clinch River { Total		2				
	{ Average		2			35	3

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 3rd Qt.

Year CY-58

PLOT NO.	LOCATION	DATE	ANALYSIS c/min/100g U ppm	α	β	Prev. Qt. (U)	REMARKS
MM-1	East Fork at Poplar Creek	8/16	144	192	1719	28	
MM-2	K-1300 Drain at Poplar Cr.	"	88	161	313	103	
MM-3	Poplar Creek at Clinch River	"	2	4	277	17	
MM-4	Clinch River – 1 mile below Poplar	"	35	39	1693	3	
MM-5	Poplar Creek – Opposite K-27 Drain	"	2185	1619	8066	13	

3rd Quarter Stream Bed Averages						
July-August-Sept.					April-May-June	Jan-Feb-March
East Fork	Total		144			
	Average		144		28	12
Poplar Creek	Total		2275			
	Average		758		44	362
Clinch River	Total		35			
	Average		35		3	5

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 2nd Qt

CY Year 1958

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Prev. Quarter (U)	REMARKS
MM-1	East Fork at Poplar Creek	5/3	28	39	118	12	
-2	K-1300 Drain at Poplar	"	103	241	632	293	
-3	Poplar Creek at Clinch River	"	17	24	179	55	
-4	Clinch Riv. - 1 mile below Poplar	"	3	142	144	5	
-5	Poplar Cr. - Opposite K-27 Drain	"	13	30	176	737	
-7	Sludge	6/18	1186	1439	4432		
	2nd Quarter Stream Bed Averages						
	Apr-May-June					Jan-Feb-Mch	July-Sept
	East Fork - Total		28				
	Av.		28			12	41
	Poplar Creek - Total		133				
	Av		44			362	148
	Clinch River - Total		3				
	Av.		3			5	2

STREAM BOTTOM MONITORING

K-25 PLANT

Month 1st Quarter

Year 1958

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	REMARKS Prev. Quarter (U) (July-Sept 1957)
MM.1	East Fork at Poplar Creek	Feb 1	12	10	113	41
2	K-1300 Drain at Poplar	Feb. 1	293	197	441	335
3	Poplar Creek at Clinch Riv	Feb 1	55	25	189	8
4	Clinch River 1 Mi. below Poplar	Feb 1	5	7	249	2
5	Poplar opposite K-27 Drain	Feb 1	737	220	1750	65
	1st Quarter Stream Bed Averages					
	(Jan-March 1958)					Previous Quarter's Average (July-Sept 1957)
	East Fork - Total		12			
	Average		12			41
	Poplar Creek - Total		1085			
	Average		362			148
	Clinch River Total		5			
	Average		5			2

STREAM BOTTOM MONITORING

~~Month~~ ~~Quarter 4th~~

K-25 PLANT

Year 1957

1957 Yearly Averages

PLOT NO.	LOCATION	Total ~~DATE~~	Avg ANALYSIS U ppb	α	β	REMARKS
MM1	East Fork at Poplar	285	41			
MM2	K-1300 at Poplar	1149	164			
MM3	Poplar at Clinch	99	14			
MM4	Clinch 1 mi below Poplar	18	2.6			
MM5	Poplar opposite K-27 Drain	269	54			

STREAM BOTTOM MONITORING

K-25 PLANT

Month December

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS			REMARKS
			U ppb	α	β	

STREAM BOTTOM MONITORING

K-25 PLANT

Month November

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS			REMARKS
			U ppb	α	β	

STREAM BOTTOM MONITORING

K-25 PLANT

Month October

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS			REMARKS
			U ppb	α	β	
MM 1		Oct.				
MM 2						
MM 3						
MM 4						
MM 5						

STREAM BOTTOM MONITORING

K-25 PLANT

Month 3rd QTR

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm LAST QTR	REMARKS
	East Fork Total		82				
	Avg.		41			42	
	Poplar Creek Total		740				
	Avg.		148			49	
	Clinch River Total		4				
	Avg.		2			21	

3rd QTR 1957

STREAM BOTTOM MONITORING

K-25 PLANT

Month Sept

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork at Poplar Creek	[illegible]	65	128	1,287	
2	K-1300 Drain at Poplar	"	493	[illegible]	12,[illegible]	
3	Poplar Creek at Clinch River	"	4	6.5	140	
4	Clinch River 1 mi. below Poplar		1	3.4	64	
5	Poplar Opposite K-27 Drain					

STREAM BOTTOM MONITORING

K-25 PLANT

Month Aug

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
MM-1	East Fork at Poplar Creek					
2	K-1300 Drain at Poplar					
3	Poplar Creek at Clinch River					
4	Clinch River 1 mi. below Poplar					
5	Poplar Opposite K-27 Drain					

AUG 1957

STREAM BOTTOM MONITORING

K-25 PLANT

Month July

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		17*	107	2806	106	
2	K-1300 Drain at Poplar		166	306	3118	29	
3	Poplar Creek at Clinch River		12	13	475	6	
4	Clinch River 1 mi. below Poplar		3	6	1156	3	
5	Poplar Opposite K-27 Drain		65	75	796	14	

*July results corrected by [illegible]

JULY 1957

STREAM BOTTOM MONITORING

K-25 PLANT

Month 2nd QTR

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Uppm Last QTR	REMARKS
	East Fork Total		127			76	
	Avg.		42			38	
	Poplar Creek Total		442			349	
	Avg.		49			58	
	Clinch River Total		6			8	
	Avg.		2			4	

STREAM BOTTOM MONITORING

K-25 PLANT

Month June

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	U ppm Last Month	REMARKS
BM-1	East Fork at Poplar Creek	6/7	106	131	2396	13	
2	K-1300 Drain at Poplar	–	43	51	397	29	
3	Poplar Creek at Clinch River	–	19	22	511	6	
4	Clinch River 1 mi. below Poplar	–	2	3	193	3	
5	Poplar Opposite K-27 Drain	–	Not Sampled	–	–	14	
		U ppb					
	East Fork Total	106					
	Av.	106					
	Poplar Creek Total	76					
	Av.	25					
	Clinch River Total	2					
	Av	2					

STREAM BOTTOM MONITORING

K-25 PLANT

Month MAY

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	7	13	22	133	8	
2	K-1300 Drain at Poplar	7	29	49	228	278	
3	Poplar Creek at Clinch River	7	6	14	449	17	
4	Clinch River 1 mi. below Poplar	7	3	6	339	<1	
5	Poplar Opposite K-27 Drain	7	14	36	446	22	
7	Sludge at Sewage Disposal Plant	13	12	762	2112	—	
		U lb					
	East Fork Total	13					
	Av	13					
	Poplar Creek Total	49					
	Av.	16					
	Clinch River Total	3					
	Av	3					

MAY 195

STREAM BOTTOM MONITORING

K-25 PLANT

Month April

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		8	13	76	10	
2	K-1300 Drain at Poplar		278	320	1,439	31	
3	Poplar Creek at Clinch River		17	23	314	4	
4	Clinch River 1 mi. below Poplar		1	6.4	416	1	
5	Poplar Opposite K-27 Drain		22	33	154	41	
	East Fork Total		8				
	Av.		8				
	Poplar Creek Total		317				
	Av		106				
	Clinch River Total		1				
	Av.		1				

April 1957

STREAM BOTTOM MONITORING

K-25 PLANT

Month 1ST QTR

Year 1957

PLOT NO.	LOCATION		DATE	ANALYSIS U ppm	α	β	U ppm Last QTR	REMARKS
	East Fork	Total (2)		76			262	
		Avg		38			87	
	Poplar Creek	Total (2)		349			1244	
		Avg		58			138	
	Clinch River	Total (2)		8			8	
		Avg		4			3	

1ST QTR 1957

STREAM BOTTOM MONITORING

K-25 PLANT

Month MAR

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		10	15	110		
-2	K-1300 Drain at Poplar		31	39	259		
-3	Poplar Creek at Clinch R.		4	6.3	494		
-4	Clinch River 1 mi. below Poplar		1	2.7	216		
-5	Poplar Opposite K-27 Drain		41	62	424		

MAR '57

STREAM BOTTOM MONITORING

K-25 PLANT

Month Feb

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm last month	REMARKS
MM-1	East Fork at Poplar Creek					46	No samples taken during
-2	K-1300 Drain at Poplar					109	February.
-3	Poplar Creek at Clinch R.					37	
-4	Clinch River 1 mi. below Poplar					7	
-5	Poplar Opposite K-27 Drain					127	

Not sampled due to flood condition of the streams.

STREAM BOTTOM MONITORING

K-25 PLANT

Month JAN

Year 1957

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		66	51	397	73	
2	K-1300 Drain at Poplar		109	186	510	53	
3	Poplar Creek at Clinch R.		37	34	445	5	
4	Clinch River 1 mi. below Poplar		7	9	1,917	2	
5	Poplar Opposite K-27 Drain		127	118	1,392	17	(417 - see Doc. sheet)
	East Fork TOTAL						
	Avg.						
	Poplar Creek TOTAL						
	Avg.						
	Clinch River TOTAL						
	Avg.						

JAN '57

STREAM BOTTOM MONITORING

K-25 PLANT

Month Dec

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Uppm Last Month	1956 Totals REMARKS	1956 Averages
MM-1	East Fork at Poplar Creek	Dec 5	73			123	474	39.5
2	K-1300 Drain at Poplar	"	53			386	1532	128
3	Poplar Creek at Clinch R.	Dec 4	5			4	67	5.6
4	Clinch River 1 mi. below Poplar	Dec 4	2			4	21	1.8
5	Poplar Opposite K-27 Drain	Dec 5	417			162	Note: 17 was reported by Telephone. Correct value should be 417.	
							C 1687	C 141
							4th Quarter	3rd Quarter
	East Fork Total		73				262	120
	Avg.		73			Av.	87.0	40
	Poplar Creek Total		75				1244	908
	Avg.		25			Av.	138	101
	Clinch River Total		2				8	3
	Avg.		2			Av.	3	1
				1956 Yearly			1956 Av.	1955 Av.
						East Fork	471.7	39	51
						Poplar Creek	3284	91	39
						Clinch River	21	2	3

STREAM BOTTOM MONITORING

K-25 PLANT

Month NOV

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	Nov. 30	123			66	
2	K-1300 Drain at Poplar		386			433	
3	Poplar Creek at Clinch R.		4			1	
4	Clinch River 1 mi. below Poplar		4			2	
5	Poplar Opposite K-27 Drain		162			183	
	East Fork Total		123				
	Avg.		123				
	Poplar Creek Total		552				
	Avg.		184				
	Clinch River Total		4				
	Avg.		4				

STREAM BOTTOM MONITORING

K-25 PLANT

Month Oct

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last month	REMARKS
MM-1	East Fork at Poplar Creek		66	83	1261	62	
2	K-1300 Drain at Poplar		433	828	4,115	106	
3	Poplar Creek at Clinch R.		1	4.9	144	4	
4	Clinch River 1 mi. below Poplar		2	4.7	156	1	
5	Poplar Opposite K-27 Drain		183	274	2,254	262	
	East Fork Total		66				
	Avg.		66				
	Poplar Creek Total		617				
	Avg.		206				
	Clinch River Total		2				
	Avg.		2				

Oct '56

STREAM BOTTOM MONITORING

K-25 PLANT

[redacted] 3rd QTR

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last QTR	REMARKS
	East Fork Total		120 ~~[illegible]~~				
	Avg.		40 ~~[illegible]~~			14	
	Poplar Creek Total		908 ~~[illegible]~~				
	Avg		101 ~~[illegible]~~			24	
	Clinch River Total		3				
	Avg.		1			1.1	

3rd QTR 1956

STREAM BOTTOM MONITORING

K-25 PLANT

Month Sept

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		62	89	2096	31	
2	K-1300 Drain at Poplar		106	264	1613	114	
3	Poplar Creek at Clinch R.		4	10	406	7	
4	Clinch River 1 mi. below Poplar		1	4	711	1	
5	Poplar Opposite K-27 Drain		262	801	5639	225	
	East Fork TOTAL		62				
	Avg.		62				
	Poplar Creek TOTAL		372				
	Avg.		124				
	Clinch River TOTAL		1				
	Avg.		1				

Sept 1956

STREAM BOTTOM MONITORING

K-25 PLANT

Month August

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U PPM LAST MONTH	REMARKS
MM1	East Fork At Poplar Creek		31	46	425	28.9	
MM2	K-1300 Drain At Poplar		114	152	581	100.3	
MM3	Poplar Creek At Clinch Riv.		7	11	489	8.5	
MM4	Clinch River 1 Mi Below Poplar		1	3	349	0.8	
MM5	Poplar Opposite K-27 Drain		225	491	7958	81.7	
MM8	Special (Poplar at Clinch River)		8	15	519		
	East Fork Total		31				
	Avg.		31				
	Poplar Creek Total		346				
	Avg.		115				
	Clinch River Total		1				
	Avg.		1				

AUGUST 1956

STREAM BOTTOM MONITORING

K-25 PLANT

Month July

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	July 3*	28.9 ~~12.15~~	22	255	14.2	
2	K-1300 Drain at Poplar	"	190.3 ~~70.1~~	600	742	33.6	
3	Poplar Creek at Clinch R.	"	8.5 ~~3.4~~	9.2	449	1.24	
4	Clinch R. 1 mi. below Poplar	"	0.8 ~~0.31~~	2.8	391	0.5	
5	Poplar opposite K-27 Drain	"	81.7 ~~32.7~~	82	659	41.4	
MM-8	Special	7/10/56		11	115		
	East Fork Total		28.9 ~~12.15~~				
	Avg.		28.9 ~~12.15~~				
	Poplar Creek Total		190.5 ~~71.2~~				
	Avg.		63.5 ~~23.4~~				
	Clinch River Total		0.8 ~~0.3~~				
	Avg.		0.8 ~~0.3~~				
	*July results corrected Aug. 10 as per data from Industrial Hygiene.						

JULY 1956

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 2nd QtR

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last QtR	REMARKS
	East Fork Total		43.				
	Avg		14			116	
	Poplar Creek Total		219				
	Avg		24			101	
	Clinch River Total		3.4				
	Avg		1.1			2.2	

STREAM BOTTOM MONITORING

K-25 PLANT

Month June

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		14.2			14.2	
2	K-1300 Drain at Poplar		33.6			—	
3	Poplar Creek at Clinch R.		1.24			2.43	
4	Clinch R. 1 mi. below Poplar		0.5			1.52	
5	Poplar Opposite K-27 Drain		41.4			—	
	East Fork Total		14.2				
	Avg.		14.2				
	Poplar Creek Total		76				
	Avg.		25				
	Clinch River Total		0.5				
	Avg.		0.5				

JUNE '56

STREAM BOTTOM MONITORING

K-25 PLANT

Month MAY

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	May 4	14.2	[illegible]	127	15	
2	K-1300 Drain at Poplar	✓	* ~~48~~			48	
3	Poplar Creek at Clinch R.	"	2.43	5.6	158	~~49~~ 15	
4	Clinch R. 1 mi. below Poplar	"	1.52	2.9	1,394	1.4	
5	Poplar Opposite K-27 Drain		* ~~1.5~~			15	
	East Fork Total		14.2				
	Avg.		14.2				
	Poplar Creek Total		65				
	Avg		22				
	Clinch River Total		1.52				
	Avg.		1.52				
	*Was Not Sampled in May ✓						

MAY '56

STREAM BOTTOM MONITORING

K-25 PLANT

Month APRIL

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	4-13-56	14.8			16	
2	K-1300 Drain at Poplar		48.2			174	
3	Poplar Creek at Clinch R.		48.8			8.5	Should be 15 corrected on 6-20-56
4	Clinch R. 1 mi. below Poplar		1.4			0.3	
5	Poplar Opposite K-27 Drain		14.6			182	
	East Fork Total		14.8				
	Avg.		14.8				
	Poplar Creek Total		78				
	Avg.		26				
	Clinch River Total		1.4				
	Avg.		1.4				

ORP 54

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 1ST QTR

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last QTR	REMARKS
	East Fork Total		46.7				
	Avg		16			8.2	
	Poplar Creek Total		912.8				
	Avg		101			39	
	Clinch River Total		6.7				
	Avg.		2.2			4.9	

1ST QTR 1956

STREAM BOTTOM MONITORING

K-25 PLANT

Month MARCH

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	3-6-56	16	24	532	19	
2	K-1300 Drain at Poplar		174	52	230	17	
3	Poplar Creek at Clinch R.		8.5	12	442	5.7	
4	Clinch R. 1 mi. below Poplar		0.3	1.6	28	6.0	
5	Poplar opposite K-27 Drain		182	298	1109	259	
Special → 7	Sludge at Sewage Disposal Plant	2-24-56	588	1,798			
	East Fork Total		16				
	Avg.		16				
	Poplar Creek Total		364.5				
	Avg		121.5				
	Clinch River Total		0.3				
	Avg		0.3				

MAR 1956

STREAM BOTTOM MONITORING

K-25 PLANT

Month Feb

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm last Month	REMARKS
MM-1	East Fork at Poplar Creek	2-9-56	19	22	327	11.7	
2	K-1300 Drain at Poplar	2-8-56	17	48	260	18.7	
3	Poplar Creek at Clinch River	2-7-56	5.7	8.1	418	3.6	
4	Clinch River 1 mi. below Poplar	2-8-56	6.0	6.2	1205	0.4	
5	Poplar opposite K-27 Drain	2-8-56	259	643	2090	244	
	East Fork Total		19				
	Average		19				
	Poplar Creek Total		282				
	Average		94				
	Clinch River Total		6.0				
	Average		6.0				

Feb '56

STREAM BOTTOM MONITORING

K-25 PLANT

Month JAN.

Year 1956

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	U µ/gm Last month	REMARKS
MM-1	East Fork at Poplar Creek	27	11.7	12.4	169	13.2	
2	K-1300 Drain at Poplar		18.7	35.9	286	20.6	
3	Poplar Creek at Clinch River		3.6	6.5	407	17.0	
4	Clinch River 1 mi. below Poplar		0.4	3.8	314	7.4	
5	Poplar Opposite K-27 Drain		249	985	2288	131.4	
	East Fork TOTAL		11.7				
	Average		11.7				
	Poplar Creek TOTAL		2663				
	Average		89				
	Clinch River TOTAL		0.4				
	Average		0.4				

JAN. '56

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ _____

Year 1955
TOTALS

PLOT NO.	LOCATION	~~DATE~~ Average Total	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork at Poplar Creek	51	617.7			(12 samples)
2	K-1300 Drain at Poplar		364.8			" "
3	Poplar Creek at Clinch River		102.4			" "
4	Clinch River 1 mi. below Poplar		38.3			" "
5	Poplar Opposite K-27 Drain		890.5			(11 samples)
	East Fork Total		617.7			
	Average		51			
	Poplar Creek Total		1357.7			
	Average		39			
	Clinch River Total		38.3			
	Average		3.2			

CY 1955

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 4th QTR

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last QTR	REMARKS
	East Fork Total		246.8				
	Average		82			81.6	
	Poplar Creek Total		354.3				
	Average		39			45.3	
	Clinch River Total		14.6				
	Average		4.9			1.5	

STREAM BOTTOM MONITORING

K-25 PLANT

Month Dec.

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last month	REMARKS
MM-1	East Fork at Poplar Creek		13.2			91.1	
2	K-1300 Drain at Poplar		20.6			4.6	
3	Poplar Creek at Clinch River		17.0			36.8	
4	Clinch River 1 mi. below Poplar		7.4			6.3	
5	Poplar Opposite K-27 Drain		131.4			31.8	
	East Fork Total		13.2				
	Average		13.2				
	Poplar Creek Total		169				
	Average		56				
	Clinch River Total		7.4				
	Average		7.4				

STREAM BOTTOM MONITORING

K-25 PLANT

Month NOV.

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	11-4/55	91.1	81	856	142.5	
2	K-1300 Drain at Poplar		4.6	7.3	222	27.9	
3	Poplar Creek at Clinch River		36.8	38.2	87	2.7	
4	Clinch River 1 mi. below Poplar		6.3	3.5	93	0.93	
5	Poplar Opposite K-27 Drain		31.8	29.3	124	81.5	
	East Fork Total		91.1				
	Average		91.1				
	Poplar Creek Total		73.2				
	Average		24.4				
	Clinch River Total		6.3				
	Average		6.3				

STREAM BOTTOM MONITORING

K-25 PLANT

Month Oct.

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last Month U ppm	REMARKS
MM 1	East Fork at Poplar Creek	10/4/55	142.5 ~~184~~	137.3	1022	129.0	Results corrected 12/1/55 as
2	K-1300 Drain at Poplar		27.9 ~~44.4~~	12.9	287	52.3	per Whitson of Specific Analysis.
3	Poplar Crk at Clinch River		2.1 ~~2.68~~	4.5	95	24.4	
4	Clinch River 1 mi below Poplar		0.93 ~~3.72~~	2.1	131	1.0	
5	Poplar opp. K-27 Drain		81.5 ~~1.98~~	86.8	760	24.8	
	East Fork Total		142.5				
	Average		142.5				
	Poplar Creek Total		112.1				
	Average		37.4				
	Clinch River Total		0.93				
	Average		0.93				

OCT 55

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ 3rd QTR

Year CY 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm LAST QTR	REMARKS
	East Fork Total		244.9				
	Av.		81.6			20	
	Poplar Creek Total		408.3				
	Av.		45.3 ~~136.1~~			25.0	
	Clinch River Total		4.64				
	Av.		1.5			1.0	

STREAM BOTTOM MONITORING

K-25 PLANT

Month September

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	9-6-55	129.0	132	1505	62.1	
-2	K-1300 Drain at Poplar		52.3	84	399	23.0	
-3	Poplar Creek at Clinch R.		24.4	3.4	89	1.42	
-4	Clinch R. 1 mi. below Poplar		1.0	1.5	86	1.34	
-5	Poplar opposite K-27 Drain		24.8	26	214	18.99	
	East Fork Total		129.0				
	Average		129.0				
	Poplar Creek Total		101.5				
	Average		33.8				
	Clinch River Total		1.0				
	Average		1.0				

STREAM BOTTOM MONITORING

K-25 PLANT

Month August

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek		62.1	53	690	53.8	
2	K-1300 Drain at Poplar		23.0	28	208	13.6	
3	Poplar Creek at Clinch R.		1.42	3.7	110	2.1	
4	Clinch R. 1 mi. below Poplar		1.34	1.1	67	2.3	
5	Poplar opposite K-27 Drain		18.99	14	254	247.7	
	East Fork Total		62.1				
	Average		62.1				
	Poplar Creek Total		43.41				
	Average		14.5				
	Clinch River Total		1.34				
	Average		1.34				

STREAM BOTTOM MONITORING

K-25 PLANT

Month July

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Upper Last Month	REMARKS Special Mercury ppb
MM-1	East Fork at Poplar Crk.	July 12	53.8	38.7	889	49.9	July 26 - 560 ppb July 29 - 1804 ppb
2	K-1300 Drain at Poplar	"	13.6	16.6	186	17.8	
3	Poplar Creek at Clinch River	"	2.1	3.5	77	3.5	
4	Clinch R. 1 mi below Poplar	"	2.3	5.0	551	1.1	
5	Poplar Cr. opposite K-22 Drain	"	247.7	318.8	905	1.8	July 26 22 ppb 29 32 ppb
	East Fork (Total)		53.8				
	Average		53.8				
	Poplar Creek Total		263.4				
	Average		87.8				
	Clinch River Total		2.3				
	Average		2.3				

July '55

STREAM BOTTOM MONITORING

K-25 PLANT

Month 2nd Quarter

Year CY 1955

Apr - June

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	Upper Last QTR	REMARKS
	East Fork Total		60.1				
	Av.		20			22	
	Poplar Creek Total		199.8	(8)			
	Av.		25.0			44	
	Clinch River Total		3.05				
	Av.		1.0			5.0	

2nd QTR '55

STREAM BOTTOM MONITORING

K-25 PLANT

Month June

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork At Poplar Creek	6-8	49.98	64.5	2215	
MM-2	K-1300 Drain at Poplar Creek	6-8	17.83	21.2	208	
MM-3	Poplar Creek at Clinch R.	6-8	3.49	4.5	159	
MM-4	Clinch River 1 mi below Poplar	6-8	1.13	2.2	287	
MM-5	Poplar Creek opp. K-27 Drain	Lost (7-15-55)	1.80	62	104	(not considered in totals)
				—	971	
	East Fork Total		49.98			
	Av.		49.98			
	Poplar Creek Total		21.32	—		
	Av.		10.7			
	Clinch River Total		1.13			
	Av.		1.13			

JUNE

STREAM BOTTOM MONITORING

K-25 PLANT

Month MAY

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM1	East Fork at Poplar Creek	5-3	8.26	23.0	503	
MM2	K-1300 Drain at Poplar Creek	5-3	7.63	17.0	112	
MM3	Poplar Creek at Clinch	5-3	2.15	6.2	140	
MM4	Clinch River 1 mi. below Poplar	5-3	1.42	9.2	165	
MM5	Poplar Creek opp. K-27 Drain	5-3	25.58	39.0	281	
			Uran			
	East Fork TOTAL		8.26			
	AV.		8.26			
	Poplar Creek TOTAL		25.36			
	AV.		12			
	Clinch River TOTAL		1.42			
	AV.		1.42			

STREAM BOTTOM MONITORING

K-25 PLANT

Month April

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	LAST MONTH U ppm	REMARKS
MM 1	East Fork at Poplar Creek	4-6	.9	13.0	134.0	1.8	
MM 2	K-1300 Drain at Poplar Creek	4-6	1.3	8.1	64.0	132.8	
MM 3	Poplar Creek at Clinch	4-6	0.7	5.1	221.0	3.72	
MM 4	Clinch River 1 mi. below Poplar	4-6	0.5	3.1	256.0	4.9	
MM 5	Poplar Creek opp. K-27 Drain	4-6	141.1	153.0	496.0	105.4	
			U ppm				
	East Fork	Total	1.9				
		Av.	1.9				
	Poplar Creek	Total	143.1				
		Av	118				
	Clinch River	Total	0.5				
		Av.	0.5				

STREAM BOTTOM MONITORING

K-25 PLANT

~~Month~~ / 1st Quarter

Year 1955

Jan - Nov.

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm REMARKS
						Last Quarter (Oct. - Dec.)
	East Fork Total		65.9			
	Av.		22			48
	Poplar Creek Total		395.3			
	Av.		44			299
	Clinch River Total		16			
	Av.		5			5.0

STREAM BOTTOM MONITORING

K-25 PLANT

Month MARCH

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	LAST MONTH Uppm	REMARKS
MM 1	East Fork at Poplar Creek	3-7	1.8	5.4	82	4.1	
MM 2	K-1300 Drain at " "	3-7	132.8	42.2	998	3.2	
MM 3	Poplar Creek at Clinch	3-7	3.72	5.8	220	6.0	
MM 4	Clinch River 1 Mi below Poplar	3-7	4.9	8.0	1242	1.1	
MM 5	Poplar Creek opp. K-27 Drain	3-7	105.9	29.4	92	22.2	
			Uppm				
	East Fork	Total	1.8				
		Av	1.8				
	Poplar Creek	Total	241.9				
		Av	81				
	Clinch River	Total	4.9				
		Av.	4.9				

STREAM BOTTOM MONITORING

K-25 PLANT

Month February

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last Month Uran. ppm	REMARKS
mm 1	East Fork @ Poplar Crk.		4.1	9.7	266	60	
mm 2	K-1300 Drain at Poplar		3.2	40.9	194	60	
mm 3	Poplar Creek @ Clinch		6.0	7.9	263	2	
mm 4	Clinch 1 Mile below Poplar		1.1	12.4	1286	10	
mm 5	Poplar Crk. opposite K-27 Drain		22.2	159	632	60	
mm 7	Sewage Disposal Plant Sludge		11.0	1280	2835	Spiked	
			U ppm				
	East Fork (mm1) TOTAL		4.1				
	Av.		4.1				
	Poplar Creek (mm2, mm3, mm5) TOTAL		31.4				
	Av.		10.5				
	Clinch River (mm4) TOTAL		1.1				
	Av.		1.1				

STREAM BOTTOM MONITORING

K-25 PLANT

Month January

Year 1955

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar	Jan. 5	60.0	47.7	330	50	
MM-2	K-1300 Drain at Poplar	Jan. 5	60.0	50.5	248	100	
MM-3	Poplar Creek at Clinch	Jan. 5	2.0	3.3	66	10	
MM-4	Clinch River 1 mi. below Poplar	Jan. 5	10.0	10.7	936	3	
MM-5	Poplar Creek oppos. K-27 Drain	Jan. 5	60.0	108.8	691	540	
		ppm					
	East Fork. Total	60.0					
	Av.	60.0					
	Poplar Creek Total	122					
	Av.	41.0					
	Clinch River Total	10.0					
	Av.	10.0					

STREAM BOTTOM MONITORING

K-25 PLANT

Month December

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar	Dec	50	51.6	1881	75	
MM-2	K-1300 Drain at Poplar		100	43.1	202	63	
MM-3	~~Poplar Creek~~ ~~East Fork~~ mi at Clinch River		10	4.9	114	3.8	
MM-4	Clinch River / mi below Poplar		3	2.0	75	0.75	1954 Av – 181
MM-5	Poplar Creek opposite K-27 Drain		540	186	919	1120	
	East Fork Total		50				
	Av.		50				
	Poplar Creek Total		650				
	" " Av.		217				
	Clinch River Total		3.0				
	Av		3.0				
Oct-Dec Quarterly Avg.							
	Poplar Creek		299	(with East Fork - Av is 203)			
	Clinch River		5.0				
	East Fork		48				
	1954 Average Conc						
	Poplar Creek		124				
	Clinch River		3.4				

Sampling Location

1954 Av.	MM1	MM2	MM3	MM4	MM5
Total	287	489	71	40	5485
Av	24	41	6	3	457
		12	12		12

STREAM BOTTOM MONITORING

K-25 PLANT

Month November

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Lost Mg.	REMARKS
MM-1	East Fork at Poplar	Nov. 4	75	78.4	1460	20	
MM-2	K-1300 Drain at Poplar		63	69	248	62.5	
MM-3	Poplar Crk. at Clinch River		3.8	4.6	67	12.5	
MM-4	Clinch River 1 mi. below Poplar		0.75	6.1	186	11.3	
MM-5	Poplar Creek opp. K-27 Drain		1220	562	1546	680	
	East Fork	Total	75				
		Av.	75				
	Poplar Creek Lotic		1286.8				
		Av.	429				
	Clinch River Lotic		0.75				
		Av.	0.75				

STREAM BOTTOM MONITORING

K-25 PLANT

Month October

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last Month	REMARKS
MM-1	East Fork @ Poplar Creek	10-1	20	61.6	1720	37.5	
MM-2	K-1300 Drain @ Poplar Creek	10-1	62.5	48.6	203	30.0	
MM-3	Poplar Creek @ Clinch River	10-1	12.5	6.5	125	7.5	
MM-4	Clinch River 1 mi. below Poplar	10-1	11.3	6.4	225	4.0	
MM-5	Poplar Creek opp. K-27 Drain	10-1	680	340.5	1252	400	
	East Fork	Total	20				
		Avg	20				
	Poplar Creek Total		755				
		Avg	252				
	Clinch River		11.3				
		Avg	11.3				

STREAM BOTTOM MONITORING

K-25 PLANT

Month September

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar	Sept 4	37.5	51.6	2140	30	
MM-2	K-1300 Drain at Poplar	"	30.0	34.5	177	30	
MM-3	Poplar Creek at Clinch	"	7.5	6.0	143	7.5	
MM-4	Clinch River 1 Mi. below Poplar	"	4.0	3.6	255	2.5	
MM-5	Poplar Creek opp. K-27 Drain	"	400	303	1335	800	
	Poplar Creek Below		475				
	" " Conc		118.7				
	Clinch River Below		4.0				
	" " Conc		4.0				
July - Sept Quarter Composites							
	Poplar Creek —		119.4				
	Clinch River —		2.5				

49.9
2.1
2.8

STREAM BOTTOM MONITORING

K-25 PLANT

Month August

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	Last Month U ppb	REMARKS
MM 1	East Fork at Poplar Crk	Aug 2	30	51.6	214	5	
2	K-1300 Drain at " "	" "	30	36.4	346	5	
3	Poplar Crk Junction at Clinch " "		7.5	6.3	165	0.8	
4	Clinch River / Nicholson Plant " "		2.5	5.8	194	1	
5	Poplar Crk. opposite K-27 Drain " "		800	315	1188	80	
	Poplar Creek Intake		867.5				
	" " Outlet		216.9				
	Clinch River Intake		2.5				
	" " Outlet		2.5				

STREAM BOTTOM MONITORING

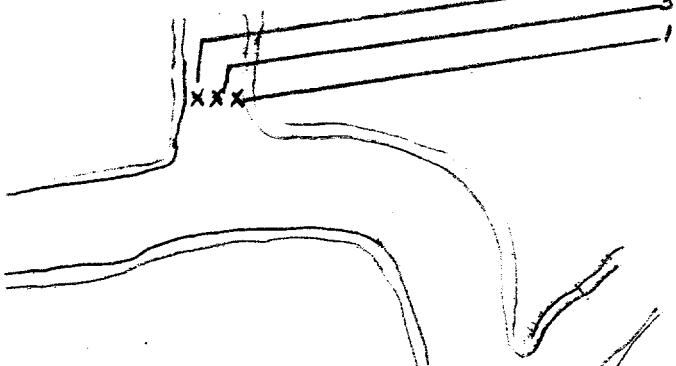
K-25 PLANT

Month July

Year 1954

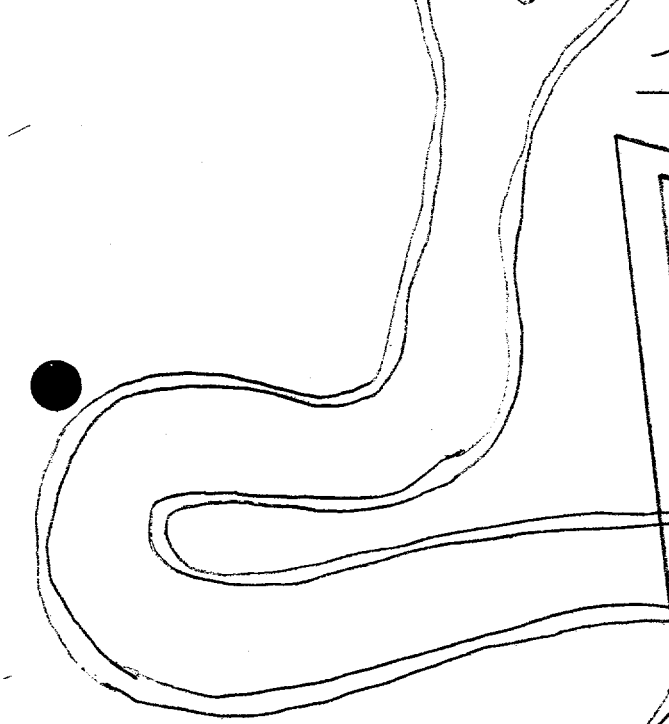
PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
MM-1	East Fork Junction at Poplar	July	5	39	3284	
MM-2	K-1300 Drain at Poplar	"	5	47	335	
MM-3	Poplar Creek Junction	"	0.8	4.5	76	
MM-4	Clinch River 1 mile below Jct	"	1	6.4	206	
MM-5	Poplar Creek opp K-27 Drain	"	80	153	899	
	Poplar Creek Below		90.8			
	" " Center		22.7			
	Clinch River Below		1.0			
	" " Center		1.0			

Trans-Uranic Field Sampling
July 9, 1954



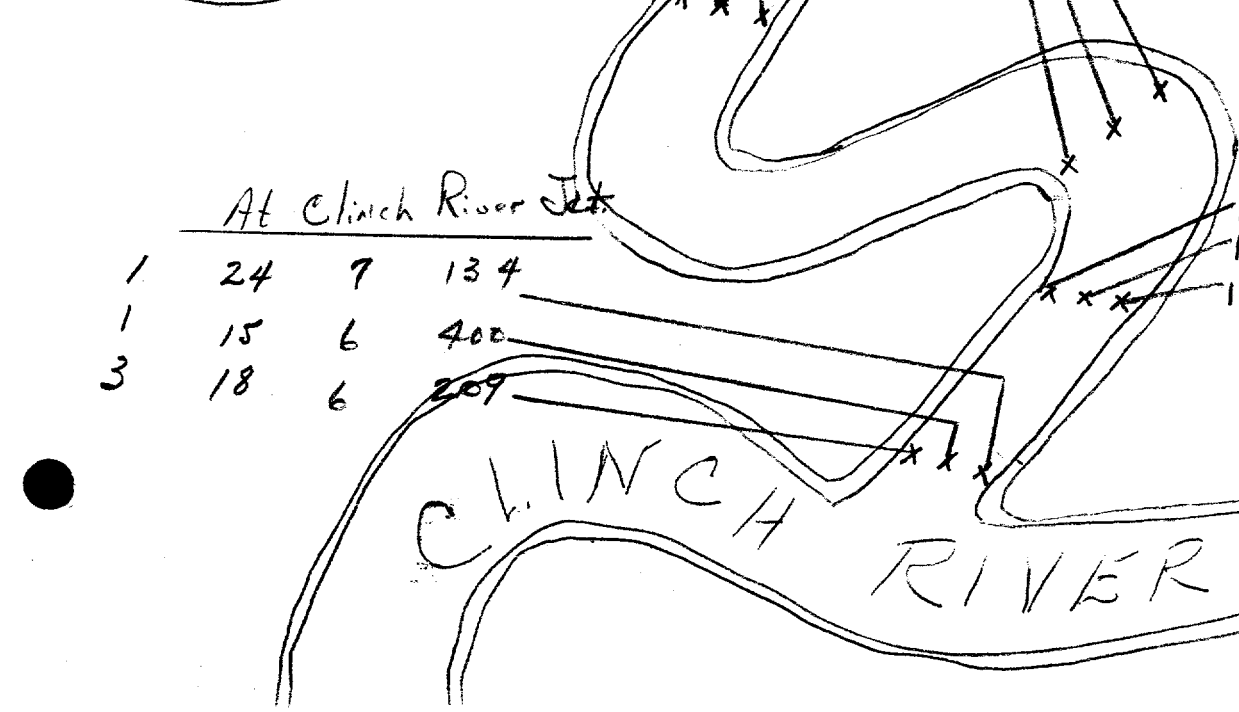
East fork Junction with Poplar Creek

U (ppm)	Fluorides (ppm)	Alpha	Beta
12	23	15	659
30	15	21	1109
10	17	8	483



Poplar Creek at the K-31 Bridge

62	30	70	110
10	38	33	516
20	46	15	130



At The Power House Effluen

7	26	6	139
7	15	6	123
3	74	4	160

Below Power House E

1	6	3	120
1	18	4	132
1	35	8	108

At Clinch River Jct

1	24	7	134
1	15	6	400
3	18	6	209

CLINCH RIVER

STREAM BOTTOM MONITORING

K-25 PLANT

Month June

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	U ppM Last Month	REMARKS
MN-1	East Fork at junction with Poplar	June	15	35.0	3712	30	
MN-2	K-1300 Drain at Poplar Crk.	"	50	53.0	250	35	
MN-3	Poplar Crk at Clinch River Jnct.	"	10	10.0	187	2	
MN-4	Clinch River 1 mile below Poplar	"	5	8.9	280	2	
MN-5	Poplar Crk. opposite K-27 Drain	"	200	223	759	40	
	Poplar Creek Total		270				
	Average		67.5				
	Clinch River Total		5.0				
	Average		5.0				
Apr-June Quarter Averages							
	Poplar Creek		47				
	Clinch River		2.7				

STREAM BOTTOM MONITORING

K-25 PLANT

Month May

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	U ppM Last Month	REMARKS
MM-1	East Fork at Poplar Crk	5-10	30	25	2827	7.5	
MM-2	K-1300 Drain at " "	5-10	35	52	354	0.5	
MM-3	Poplar Crk at Clinch River	5-10	2	5.6	113	5.0	
MM-4	Clinch River 1 Mi below Poplar Crk	5-10	2	5.6	81	1.1	
MM-5	Poplar Crk oppos. K-27 Drain	5-10	40	65	234	175	
	Poplar Creek Total		10.7				
	" " Crk		26.8				
	Clinch Total		2				
	Control		2.0				

STREAM BOTTOM MONITORING

K-25 PLANT

Month April

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar Creek	April-2	7.5	24.4	87	~~8.75~~ 6.25	
MM-2	K-1300 Drain at " "	April	0.5	7.9	78	~~3.50~~ 8.0	
MM-3	Poplar Creek at Clinch River	"	5.0	12.1	138	~~5.75~~ 2.0	
MM-4	Clinch River (Mile below Poplar	"	1.1	3.4	100	~~6.25~~ 1.25	
MM-5	Poplar Creek opp. K-27 Drain	"	175	193	657	400	
	Poplar Creek		188				
	Average		47				
	Clinch River		1.1				
	Average		1.1				

STREAM BOTTOM MONITORING

K-25 PLANT

Month March

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar Creek		6.25			8.75	
MM-2	K-1300 Drain at Poplar Creek		8.0			35.0	
MM-3	Poplar Creek at Clinch River		2.0 ~~1.25~~			5.75	
MM-4	Clinch River 1 Mi. below Poplar Crk		1.25			6.25	
MM-5	Poplar Creek opposite K-27 Drain		400			150.0	
MM-10	Bottom Mud at Powerhouse Effluent		3.1			5.75	
	of Poplar Creek						
	Poplar Creek Total		419.35				
	Average		83.9				
	Clinch River Total		1.25				
	Average		1.25				
(Jan-Mar)	Quarterly Average						
	Poplar Creek		100.4			[illegible]	
	Clinch River		3.2				

STREAM BOTTOM MONITORING

K-25 PLANT

Month February

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar Creek	Feb	8.75			2	
MM-2	K-1300 Drain at Poplar Creek	"	35.0			70	
MM-3	Poplar Creek at Clinch River	"	5.75			3.75	
MM-4	Clinch River 1 Mi below Poplar	"	6.25			2.0	
MM-5	Poplar Creek opp. K-27 Drain	"	150.0			800	
MM-10	Poplar Creek near Powerhouse effluent.	"	5.75			5.75	
MM-7	Sludge at Sewage Disposal Plant	Feb.	700				
	Poplar Creek total		205.3				
	Ave		41.0				
	Clinch Total	6.25					
	Ave	6.25					

STREAM BOTTOM MONITORING

K-25 PLANT

Month January

Year 1954

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	U ppm Last Month	REMARKS
MM-1	East Fork at Poplar Creek	Jan. 4	2			20	
MM-2	K-1300 Drain at Poplar Creek	Jan. 4	70			75	
MM-3	Poplar Creek at Clinch River	Jan. 4	3.75			3.75	
MM-4	Clinch Riv. 1 Mi. below Poplar	Jan. 4	2.0			1.0	
MM-5	Poplar Creek opposite K-27 Drain	Jan. 4	800			600	
MM-10	Poplar Creek near Powerhouse	Jan. 4	5.75			4.38	
	effluent.						
	Poplar Creek Inlet		881.5				
	Out		176.3				
	Clinch River		2.0				
	Down		2.0				

STREAM BOTTOM MONITORING

K-25 PLANT

Month December

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month	REMARKS	1953 Average
MM 1	East Fork at Poplar Creek	Dec.	20	27	206	12.5		11
MM 2	K-1300 Drain at " "	"	75	88	284	70.0		37
MM 3	Poplar Creek at Clinch Ri.	"	3.75	5.6	149	2.0		2.3
MM 4	Clinch Ri. 1 Mi. below Poplar	"	1.0	2.8	238	1.13	1953 Ave – 268	0.92
MM 5	Poplar Crk. at K-27 Drain	"	600	503	1218	482.5		221
MM 10	Poplar Crk Near Power House Eff.	"	~~3.75~~ (4.38)	7.1	171	—		
	Poplar Creek Total		702.5				1953 Annual	
	Average		140.5				Poplar Creek Total	707.2
	Clinch River Total		1.0				Average	58.9
	Average		1.0					
							Clinch River Total	9.0
(Est. Rec.)	Quarter Averages						Average	0.75
	Poplar Creek		121.2					
	Clinch River		1.0					

STREAM BOTTOM MONITORING

K-25 PLANT

Month November

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last Month	REMARKS
MM 1	East fork of Poplar Creek	Nov 2	12.5	21.3	152	15.0	
MM 2	K-1300 Drain at Poplar Crk	" 2	70.0	74	276	28.1	
MM 3	Poplar Creek at Clinch River	" 2	2.0	5.6	87	1.13	
MM 4	Clinch Ri. 1 Mile below Poplar	" 2	1.13	4.0	178	1.0	
M 5	Poplar Creek at K-27 Drain	" 2	~~500~~ 482.5	484	1550	281.1	
	Poplar Creek Total		567.0				
	Average		141.7				
	Clinch River Total		1.1				
	Average		1.1				

STREAM BOTTOM MONITORING

K-25 PLANT

Month October 2,

Year 1953

Bottom Mud

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last month U ppm	REMARKS
MM1	East Fork at Poplar Creek	Oct.	15.0	20.8	198	6.25	
MM2	K-1300 Drain at Poplar Crk.	"	28.1	45.0	245	18.75	
MM3	Poplar Creek at Clinch River	"	1.13	4.0	108	1.5	
MM4	Clinch River 1 mi. below Poplar Ck.	"	1.0	2.7	196	0.5	
MM5	Poplar Ck at K-27 Drain	"	281.1	362	1115	187.5	Spot water sample. U ppb 800 ~~Beta c/min/100m~~ 440
MM10	Powerhouse effluent of Poplar	Oct.					
	Poplar Creek Total		325.3				
	Average		81.3				
	Clinch River Total		1.0				
	Av.		1.0				

STREAM BOTTOM MONITORING

K-25 PLANT

Month Sept.

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last month ppm	REMARKS
MM1	Bottom Mud, East Fork @ Poplar Cr.	Sept	6.25	17.6	254	15.0	
MM2	K-1300 Drain at Poplar Cr.	"	18.75	34.7	195	12.5	
MM3	Bottom Mud, Poplar Cr. at Clinch	"	1.5	4.9	–	1.3	
MM4	" " Clinch River 1 Mi. below Poplar	"	0.5	2.3	128	1.0	
MM5	Poplar Cr. opposite K-27 Drain	"	187.5	330	746	187.5	
MM10	Powerhouse effluent at Poplar	"	1.0	—	81	1.25	
	Poplar Creek		215				
	Av.		43				
	Clinch River		0.5				
	Av		0.5				
	Quarter Average						
	Poplar Creek		43.4	ppm			
	Clinch River		0.75				

STREAM BOTTOM MONITORING

K-25 PLANT

Month August

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month REMARKS
MM1	East Fork at Poplar Creek	Aug	15.0	24.9	727	10.0
MM2	K-1300 Drain at Poplar Cr.	"	12.5	18.3	95	18.75
MM3	Poplar Creek at Clinch River	"	1.3	3.6	89	0.75
MM4	Clinch River 1 Mi. below Poplar	"	1.0	5.0	372	0.75
MM5	Poplar Creek at K-27 Drain	"	187.5	969 ~~369~~	327 ~~874~~	187.5
MM10	At Powerhouse eff at Pop.	"	1.25		168	1.25
~~MM7~~						
MM						
	Poplar Creek		217.6			
	Avg.		43.5			
	Clinch River		1.0			
	Avg.		1.0			

STREAM BOTTOM MONITORING

K-25 PLANT

Month July

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month	REMARKS
MM1	East Fork at Poplar Creek	July	10.0	27	429	6.25	
MM2	K-1300 Drain at Poplar Ck.	"	18.75	34	173	18.75	
MM3	Poplar Creek at Clinch River	"	0.75	3.9	54	0.63	
MM4	Clinch River 1 Mi. below Poplar	"	0.75	5.5	282	2.25	
MM5	Poplar Creek at K-27 Drain	"	187.5	369	874	187.5	
MM10	At Powerhouse eff. of Poplar	"	1.25		75	1.13	
	Poplar Creek		218.3				
	Av.		43.7				
	Clinch River		0.75				
	Av.		0.75				

STREAM BOTTOM MONITORING

K-25 PLANT

Month June

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	Last Mo.	REMARKS Water Uran ppb / 30*	α	β / 9
MM 1	East Fork at Poplar Crk.	June	6.25	13.9	138	6.3			
MM 2	K-1300 Drain at " "	"	18.75	26.2	162	5.0			
MM 3	Poplar Cr. at Clinch River	"	0.63	7.4	119	1.25			
MM 4	Clinch River 1 Mi below Poplar	"	2.25	5.3	481	1.25	0.0	—	3
MM 5	Poplar Cr. at K-27 Drain	"	187.5	154	365	351.0			
MM 10	At Powerhouse eff. of Poplar	"	1.13	—	91	3.75			
—	H.F. Neutralizing Pit	"	1.56						
	Poplar Crk.		214.3						
		Av.	42.9			* First sample from constant water sampler			
	Clinch River	Av.	0.62						
	Quarter								
	Poplar	Av.	48						
	Clinch	Av.	0.70						

STREAM BOTTOM MONITORING

K-25 PLANT

Month May

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month	REMARKS	June
MM 1	East Fork at Poplar Ck.	May 8	6.3	23.3	124	5.6		6.25
MM 2	K-1300 Drain at " "	"	5.0	11.5	90	50.0		18.75
MM 3	Poplar Cr. at Clinch Riv.	"	1.25	3.5	101	4.4		0.63
MM 4	Clinch River 1 Mi. below Poplar	"	1.25	2.8	276	0.23		2.25
MM 5	Poplar Cr. at K-27 Drain	"	351.0	277	599	75		187.5
MM 10	At Powerhouse eff. of Poplar	"	3.75	—	195	4.4		1.13
							HF Nent.	1.86
	At Poplar Creek	Total	367.3					
		Av.	73.5					
	Clinch River	Av.	1.25					

STREAM BOTTOM MONITORING

K-25 PLANT

Month April

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month	REMARKS
MM-1	East Fork at Poplar Creek	April	5.6	9.2	112	6.8	
MM-2	K-1300 Drain at Poplar Creek	"	50	66.5	197	18.75	
MM-3	Poplar Creek at Clinch River	"	4.4		121	3.75	
MM-4	Clinch River 1 Mi. below Poplar Creek	"	.23	4.0	482	1.0	
MM-5	Poplar Cr. at K-27 Drain	"	75	76	278	50.0	
~~MM-6~~	~~S~~						
MM-8	East Fork at turnpike bridge	"	1.8	3.7	60	0.75	
MM-9	East Fork at security gate	"	15.0	38.6	197	6.25	
MM-10	At Powerhouse eff. of Poplar Cr.	"	4.4	4.6	161	6.25	
	Poplar Creek	Total	139.4				
		Av.	27.9				
	C. C. at Mouth	Total	0.23				
		Av.	0.23				

STREAM BOTTOM MONITORING

K-25 PLANT

Month March

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last Month	REMARKS	Apr
MM1	East Fork at Poplar Creek	Mar.	6.8	12.3	72	17.5		5.6
MM2	K-1300 Drain at Poplar Creek	Mar.	18.75	19.6	87	37.5		50
MM3	Poplar Creek at Clinch River	Mar	3.75	4.8	251	3.75		4.4
MM4	Clinch River 1 Mi. below Poplar Cr.	Mar	1.0	2.4	327	0.50		2.3
MM5	Poplar Cr. at K-27 Drain	Mar	50.0	51.9	195	12.5		75
MM7	Sludge, Sewage Disposal Plant	Mar	200.0	470	1465	—		
MM8	East Fork at Turnpike bridge	Mar	0.75	2.2	82	—		1.8
MM9	East Fork below Y-12	Mar	6.25		77	—	Sandy Sample.	1.5
MM10	At Powerhouse eff. in Poplar	Mar.	6.25		160	—		1.4
		Total	46.1					
		Av.	45.1					
	Poplar Creek only	Total	85.5 ~~44.8~~					
		Av.	17.1 ~~28.4~~					
	Clinch River	Avr	1.0					
	Quarter Averages							
	Poplar Cr.	Total	69.2 ~~80.5~~					
		Av.	23.1 ~~26.8~~					
	Clinch River	Av.	0.71					

STREAM BOTTOM MONITORING

K-25 PLANT

Month February

Year 1953

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	Last mo	REMARKS
MM-1	East Fork at Poplar Creek	Feb.	17.5	22.5	120	10	
MM-2	K-1300 Drain at Poplar Creek	Feb.	37.5	24.4	130	87.5	
MM-3	Poplar Creek at Clinch	Feb.	3.75	4.0	154	3.75	
MM-4	Clinch R. 1 Mi. below Poplar Cr.	Feb.	0.625	1.8	157	0.50	
MM-5	Poplar Creek opposite K-27 drain	Feb.	12.5	13.9	106	50	
MM-6	Poplar Creek below K-31	Feb.	—			20	
		Total	71.9				
		Av.	14.4				
	Poplar Creek only	Total	71.25				
		Av.	17.8				
	Clinch River	Av.	0.63				

STREAM BOTTOM MONITORING

K-25 PLANT

Month January

Year 1953

Bottom Mud

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
MM-1	East Fork at Poplar Creek	Jan.	10	18.0	78	
MM-2	K-1300 Drain at Poplar Creek	Jan.	87.5	70.0	250	appx 4500 gms of U released to 1300 holding pond during Dec.
MM-3	Poplar Creek at Clinch River	Jan.	3.75	4.7	130	
MM-4	Clinch River 1 Mile below Poplar Cr.	Jan.	0.50	54	103	
MM-5	Poplar Creek opposite K-27 drain	Jan.	50	94.0	241	
MM-6	Poplar Creek ~~opposite~~ below K-31	Jan.	20	18.0	101	
		Total	173.3			
		Av.	28.9			
	Poplar Crk. Only	Total	171.3			
		Av.	34.3			
	Clinch River	Av.	0.50			

STREAM BOTTOM MONITORING

K-25 PLANT

Month DEC

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppM	α	β	REMARKS
17ME	K1300 drain at Poplar Cr	Dec	68.75		277	see special survey Report
11ME	K27 " " " "	"	17.50		90	
13ME	Clinch Ri. 1mi. below Plant	"	0.50		64	— 1952 Ave — 158 d/m/100ml
41ME.	K31 Bridge at Poplar Cr	"	3.75		62	
42ME	Power House effluent at Poplar Cr.	"	2.50		118	
43ME	Clinch River & Poplar Cr.	"	2.25		75	
		Tot	95.25			
		Av	15.87			
	Poplar Creek	Total	94.8			[illegible]
		Av	19.0			
	Clinch River	Av.	0.50			Poplar Creek Total C 101.00
						Average 8.67
	Greater Totals					
	Poplar Creek	Total	42.8			Clinch River Average — 0.53
		Av.	14.7			
	Clinch River	Av.	0.70			

STREAM BOTTOM MONITORING

K-25 PLANT

Month Dec

Year 1952

Special check A/C High U in Creek

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
	Confluence of K1037					
	drain & K1300 Area Drains		3.75		81	U found previously in open
						ditch north of K1301 washed
						clean - Also see drain water
						samples - Holding pond, 1405 & 1301

STREAM BOTTOM MONITORING

K-25 PLANT

Month Nov

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr	10/17	56.25		303	see special survey report
11ME	K27 " " " "	Nov	1.50		75	
13ME	Clinch Ri, 1 mi. below Plant	"	1.00	2.7	156	
41ME	K31 Bridge at Poplar Cr.	"	15.00		84	
42ME	Power House effluent at Poplar Cr	"	5.00		158	
43ME	Clinch River & Poplar Cr.	"	1.25		181	
		Tot	80.00			
		Av	13.33			
	Poplar Creek	Total	79.0			
		Av	15.8			
	Clinch River	Av.	1.0			

STREAM BOTTOM MONITORING

Month October

Year 1952

K-25 PLANT

Special check

A/C HIGH U IN CREEK

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
1M E	K1300 drain at poplar CR		15		102	
	West drain K1301 at ditch		15		38	
	Middle drain K1301 " "		6,250		4,636	TRACED TO K1301 - J DYKSTRA
	East drain - K1405 & HOLDING POND		2,000		135	CONTACTED, APPEARS TO HAVE
						COME FROM CONTAMINATED LAUNDRY
						NO ANALYSIS MADE ON WASH
					β+γ mrep	WATER AT RECENT DATE
	(Check with 2610)	10/18				
	west discharge line contact				0.65 mrp	ENTRAINED U IN VEGETABLE
	" " " 1ft distant				0.25	MATTER AND SILT, NO clean up to
	" " " contact				0.80	be made per JCB,
	" " " 1ft distant				0.25	
	EAST discharge line (CONTACT)				0.08	
	" " " 1ft distant				0.00	
	Av. of 22 Readings along ditch					
	CONTACT				0.47	
	1ft away				0.29	

STREAM BOTTOM MONITORING

K-25 PLANT

Month Oct

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr.	10/1	15.00		102	
11ME	K27 " " " "	Oct	15.00		86	
13ME	Clinch Ri, 1 mi. below Plant	"	0.50	2.8	192	
41ME	K31 Bridge at Poplar Cr.	"	7.50		114	
42ME	Power House effluent at Poplar Cr	"	1.25		53	
43ME	Clinch River & Poplar Cr.	"	1.25		178	
		Tot	40.50			
		Av.	6.75			
	Poplar Creek	Total	40.0			
		Av.	8.0			
	Clinch	Av.	0.50			

STREAM BOTTOM MONITORING

K-25 PLANT

Month Sept.

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1500 drain at Poplar Cr	9/5	50.0		187	See special survey report.
11ME	K27 " " " "	Sept	20.0		398	
13ME	Clinch Ri, 1mi. below Plant	"	0.50	2.8	192	
41ME	K31 Bridge at Poplar Cr.	"	7.50		117	
42ME	Power House effluent at Poplar Cr.	"	1.00		88	
43ME	Clinch River & Poplar Cr.	"	1.50		192	
		Tot	80.50			
		Av	13.41			
	Poplar Cr only		16.0			

STREAM BOTTOM MONITORING

K-25 PLANT

Month August

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr	Aug	7.50		82	
11ME	K27 " " " "	Aug	1.38		90	
13ME	Clinch Ri, 1mi, below Plant	"	0.19	2.1	48	
41ME	K31 Bridge at Poplar Cr	"	2.00		83	
42ME	Power House effluent at Poplar Cr.	"	2.00		182	
43ME	Clinch River & Poplar Cr	"	1.13		137	
		TOT	14.20			
		AV.	2.36			
	Poplar Cr Rarely	Av.	2.8			

STREAM BOTTOM MONITORING

K-25 PLANT

Month July

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
17ME	K1300 drain at Poplar Cr	July	20.00		139	
11ME	K27 drain " " "	July	0.25		90	
13ME	Clinch Ri 1mi, below Plant	"	0.25	1.7	89	
41ME	K31 Bridge at Poplar Cr	"	1.80		62	
42ME	Power House effluent at Poplar Cr	"	5.02		198	
43ME	Clinch River & Poplar Cr	"	1.25		163	
		Tot.	28.55			
		Av.	4.75			
	Poplar Creek only		5.7			

STREAM BOTTOM MONITORING

K-25 PLANT

Month JUNE

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr	June	18.80		123	
11ME	K27 " " " "	June	15.00		146	
13ME	Clinch R. 1 mi. below Plant	"	0.38	34	103	
41ME	K31 Bridge at Poplar Cr.	"	1.20		71	
42ME	Power House effluent at Poplar Cr.	"	6.30		182	
43ME	Clinch River at Poplar Cr.	"	1.80		148	
		Tot	43.48			
		Av	7.24			
	Poplar Crk overall Av.		8.6			

STREAM BOTTOM MONITORING

K-25 PLANT

Month May

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr	May	12.50		100	
11ME	K27 " " " "	May	3.80		62	
13ME	Clinch R: 1 mi. below Plant	"	0.80		182	
41ME	K31 Bridge at Poplar Cr.	"	3.80		73	
42ME	Power House effluent at Poplar Cr.	"	2.50		132	
43ME	Clinch River at Poplar Cr	"	1.90		156	
		Tot	25.30			
		Av.	4.21			
	Poplar Creek Avg.	Av.	4.9			

STREAM BOTTOM MONITORING

K-25 PLANT

Month April

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr	Apr	12.50		86	
11ME	K27 drain at " "	Apr	1.50		80	
13ME	Clinch R. 1mi below Plant	Apr	1.00	3.4	172	
41ME	K31 Bridge at Poplar Cr.	"	6.30		101	
42ME	Power House effluent at Poplar Cr	"	7.50		182	
43ME	Clinch River & Poplar Cr	"	1.90		183	~~No record of U this period~~
		Tot. 3	0.70			
		Av.	5.11			
	Poplar Cr K only Cr.		5.9			

STREAM BOTTOM MONITORING

K-25 PLANT

Month MARCH

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
1ME	K1300 drain at Poplar Cr	Mar	16.3		124	
11ME	K27 drain at " "	"	1.50		120	
13ME	Clinch Ri 1mi below Plant	"	1.0		168	
41ME	K31 Bridge at Poplar Cr	"	2.0		119	
42ME	Power House effluent at Poplar Cr	"	3.8		199	
43ME	Clinch River & Poplar Cr.	"	3.9		183	
		Tot	26.5			
		Av.	4.41			
	Poplar Ck Avg	Av.	5.1			

STREAM BOTTOM MONITORING

K-25 PLANT

Month Feb

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppb	α	β	REMARKS
1ME	K1300 drain at Poplar Cr Jct	2/29	160		201	
11ME	K27 drain, Poplar Cr	2/29	7.50		120	
13ME	Clinch R. 1mi. below Plant	2/29	0.75		174	
41ME	K31 Bridge at Poplar Cr.	2/29	6.25		160	
42ME	Power house effluent, Poplar Cr	2/29	2.50		232	
43ME	Poplar Cr at Jct w/ Clinch		1.90		270	
		Tot	34.90			
		Av	5.81			
	Poplar Creek only.		6.83			

STREAM BOTTOM MONITORING

K-25 PLANT

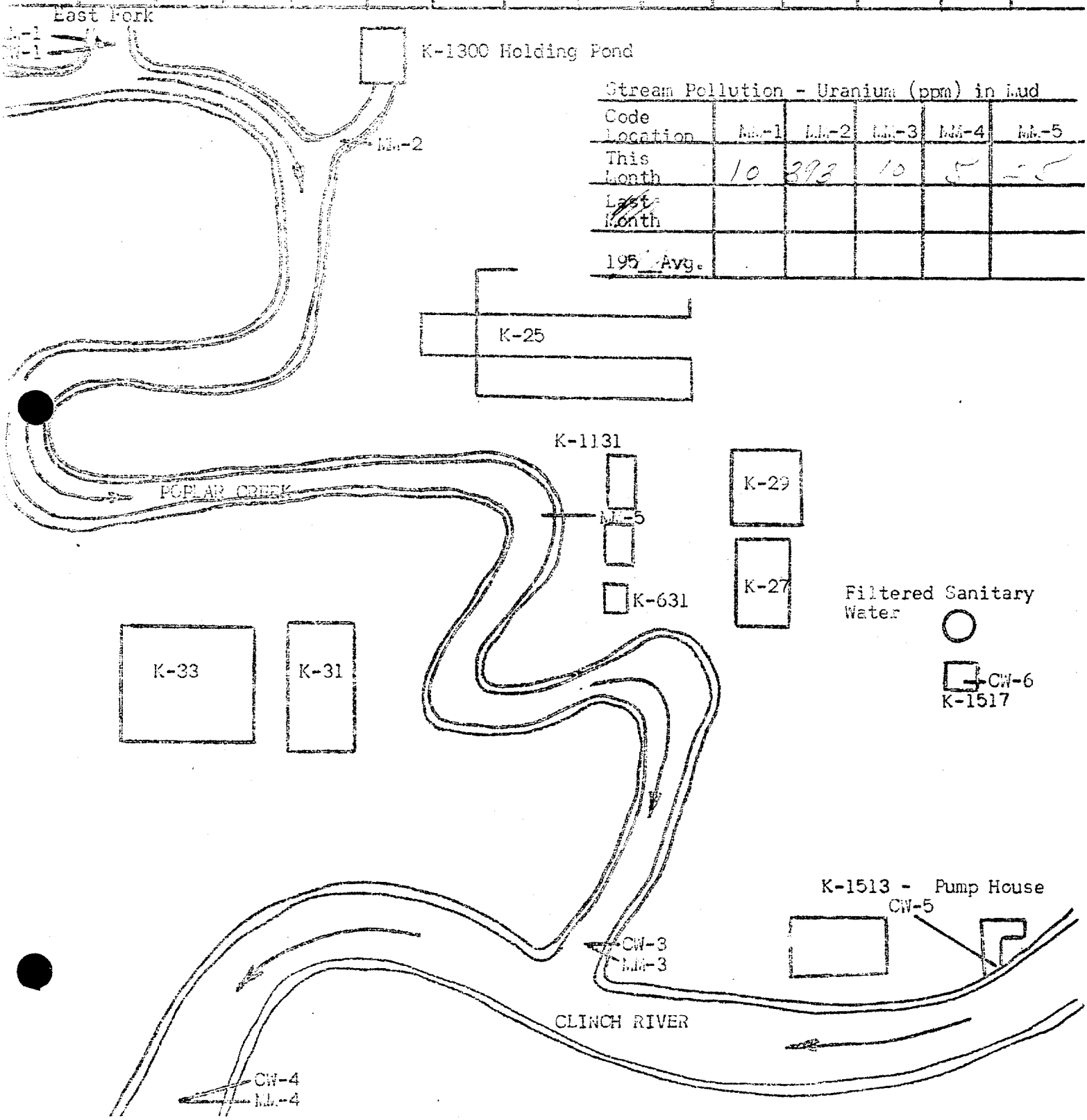
Month JAN.

Year 1952

PLOT NO.	LOCATION	DATE	ANALYSIS U ppm	α	β	REMARKS
1ME	K1300 drain at Poplar Cr. Jct.	28	16.40	-	-	
11ME	K27 drain, poplar Cr.	28	0.75	-	-	
13ME	Clinch River 1 mi. below Plant	28	0.25	-	-	
41ME	K31 Bridge & Poplar Cr.	28	6.30	-	-	
42ME	Power House effluent, poplar Cr	28	2.50			
43ME	Poplar Cr. at Jct w/Clinch	28	1.25			
		Tot.	27.45			
		Av.	4.57			
	Poplar Cr. Only	Av.	5.4			

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb)

Date Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
Avg.														

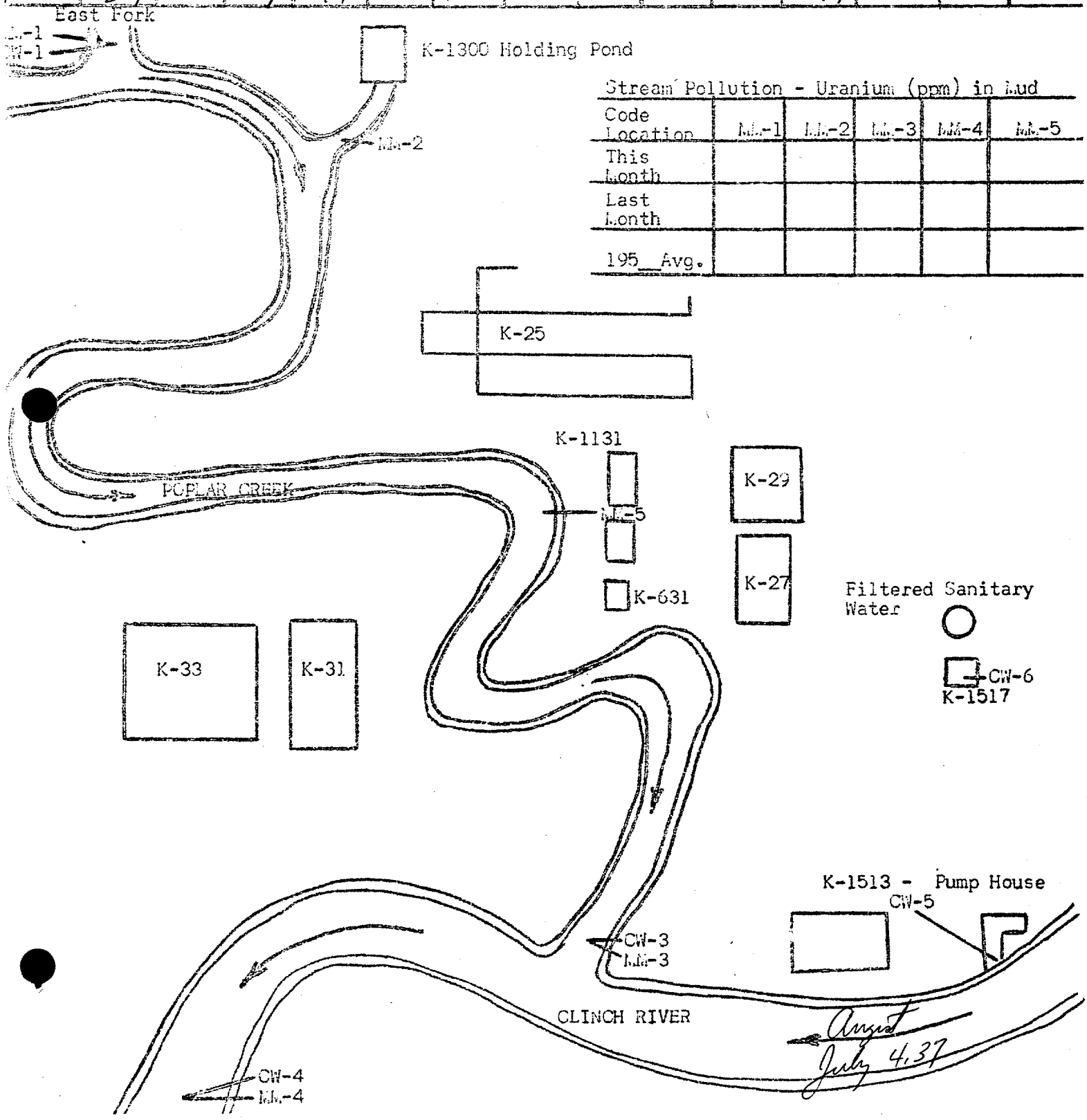


Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month	10	393	10	5	25
~~Last~~ Month					
195 Avg.					

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) August 1960

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
This Month														
Last Month	12	22	47	49	141	7.1	36	197	2.0	83	355	2.1	86	374
9 Avg.	39	302	89	49	242	9.0	110	1958	3.8	86	1047	2.0	58	463

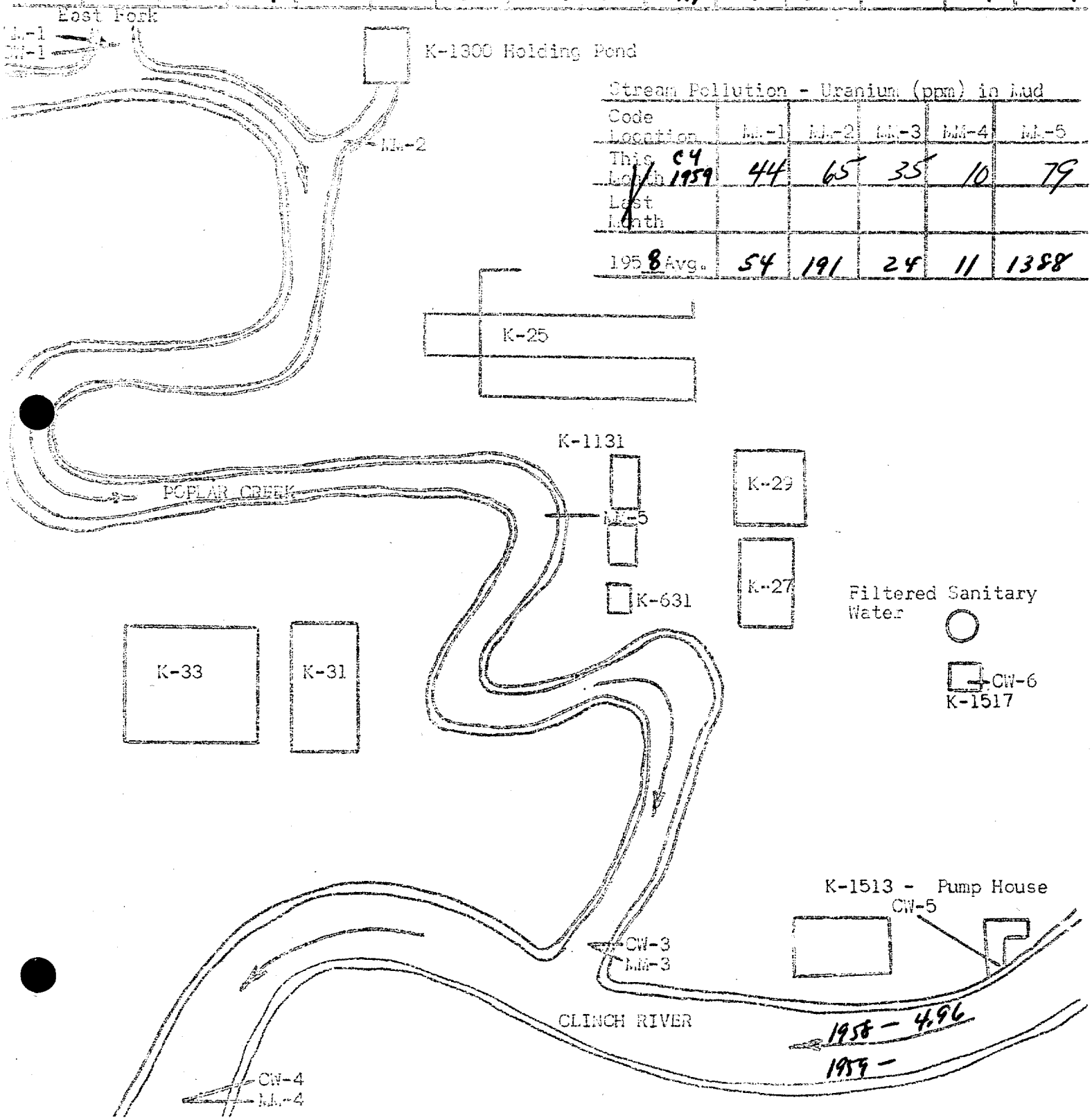


Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) C4 - 1959

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
C4 1959	39	302	89	49	242	9	110	1958	3.8	86	1047	2.0	58	463
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357

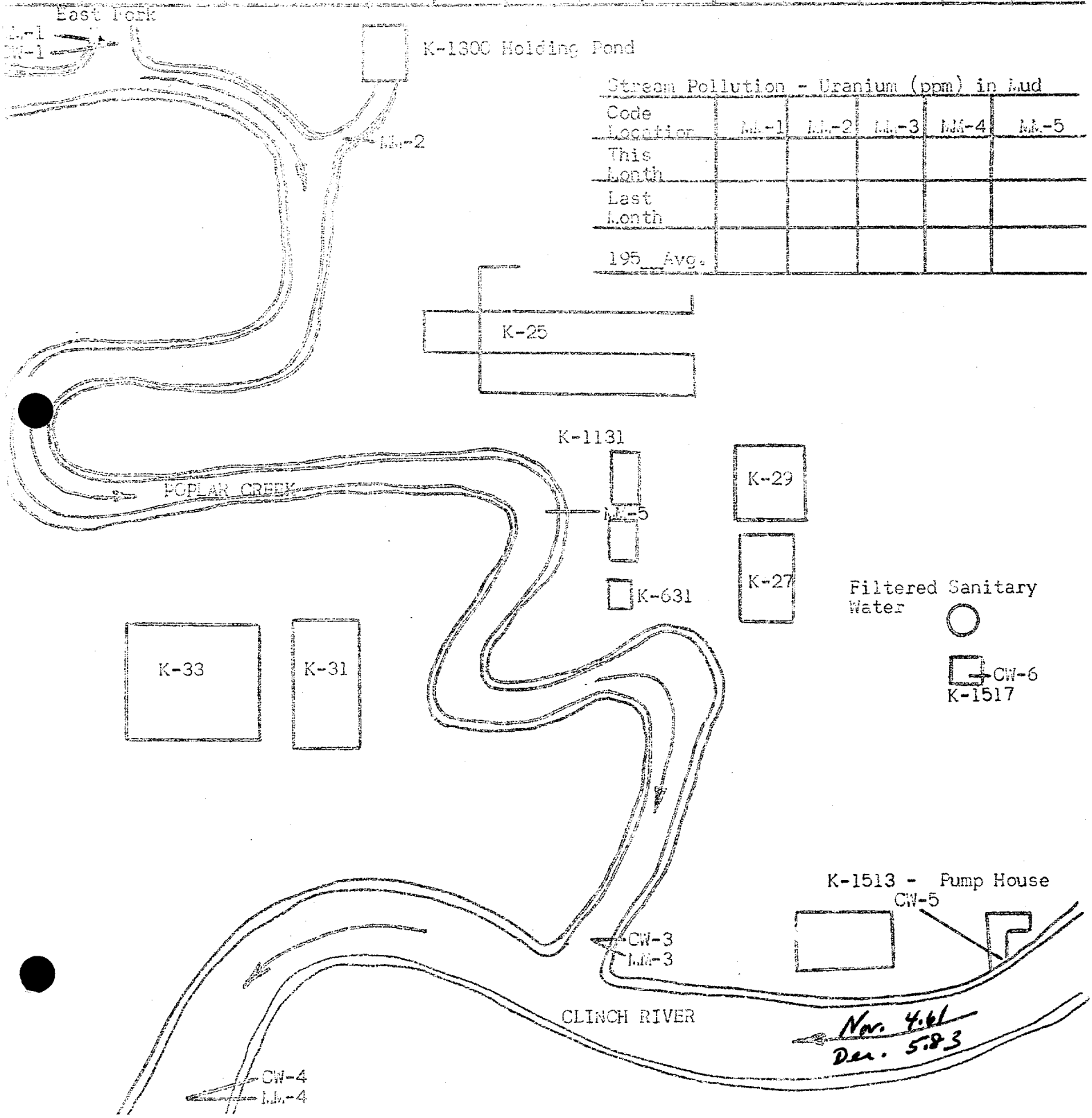


Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month C4 1959	44	65	35	10	79
Last Month					
1958 Avg.	54	191	24	11	1388

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) Dec. 1961

Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	64	124	128	120	242	21	355	853	1.8	500	1047	1.3	285	463
[illegible]h	38	56	141	74	242	10	551	1958	4.8	158	533	4.0	102	463
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

December

Beta

The average beta activity in the ORGDP sanitary water more than doubled, increasing from 102 to 285 dis/min/100ml, attributed to Ru^{106} (≈ 60% of the beta emitters — NCRP MPC_w 88,889 dis/min/100ml) leaching out of the ORNL earthen seepage basins during recent heavy rains.

The rate of flow of the Clinch River meanwhile increased from 4,610 to 5,830 ft^3/second.

Similarly, beta activity at all other sampling points showed increases, reflecting the above mentioned conditions.

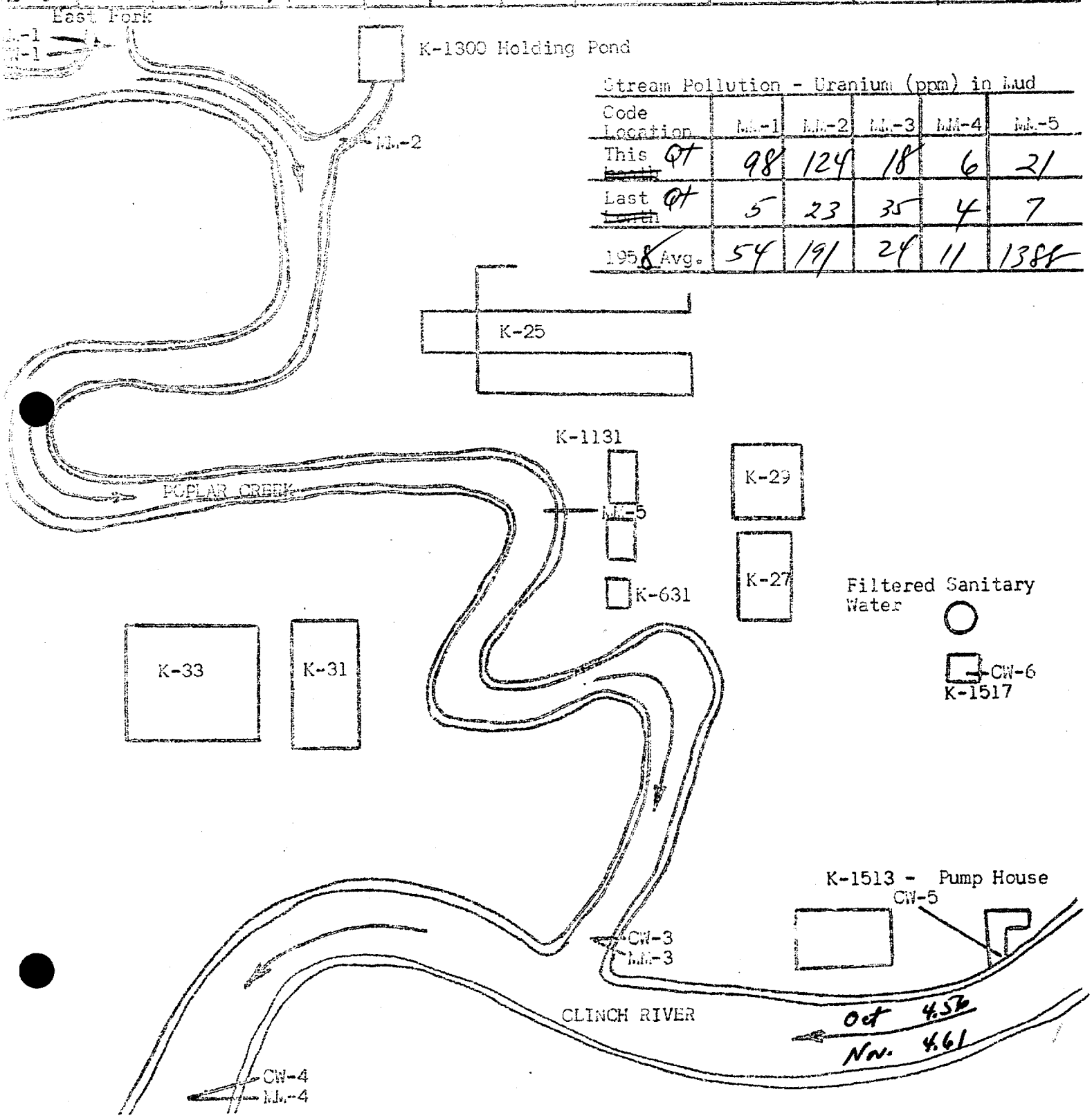
Uranium

The average uranium concentrations showed no significant changes, apparently reflecting normal releases of uranium-bearing materials from Y-12 and ORGDP operations.

nba
1/11/60

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) Nov. 11-1

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.
	38	56	141	74	242	16	551	1958	4.8	158	555	4.0	102	463
	30	70	104	32	90	15	19	35	5.9	25	36	3.6	25	58
	20	43	54	40	328	12	47	455	4.1	42	388	2.4	39	357
8 Avg.	~~29~~	~~43~~	~~117~~	~~19~~	~~22~~	~~5~~	~~8~~	~~18~~	~~1.4~~	~~13~~	~~16~~	~~0.2~~	~~11~~	~~15~~



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~month~~ Qt	98	124	18	6	21
Last ~~month~~ Qt	5	23	35	4	7
1958 Avg.	54	191	24	11	1388

November

Beta

The average beta activity in the ORGDP sanitary water increased from 25 to 158 d/m/100ml, attributed to radioactive leak of spent fuel elements from ORNL Thorex Plant (10/30/59), and stack of solid state lab (Ru^{106}), in addition to normal discharges of mixed fission product waste materials. This average figure of 158 d/m/100ml may be compared with NCRP (NBS #69) MPC_w Sr^{90} of 889 dis/min/100ml and MPC_w Ru^{106} of 88,889 dis/min/100ml, 40 hr. week. occupational exposure.

Ce^{144} - 30% Sr^{90} - 3% TRU - 7.2%
Ru^{106} - 57% Cs^{137} - 3.4%
TOTAL = 1.2×10^{-5} μc/ml
MPC_w mixture = 22,440 d/m/100ml

The rate of flow of the Clinch River meanwhile remained essentially unchanged, increasing only slightly from 4,540 to 4,610 ft^3/second.

Beta activity at all sampling points showed increases, reflecting the above-mentioned releases.

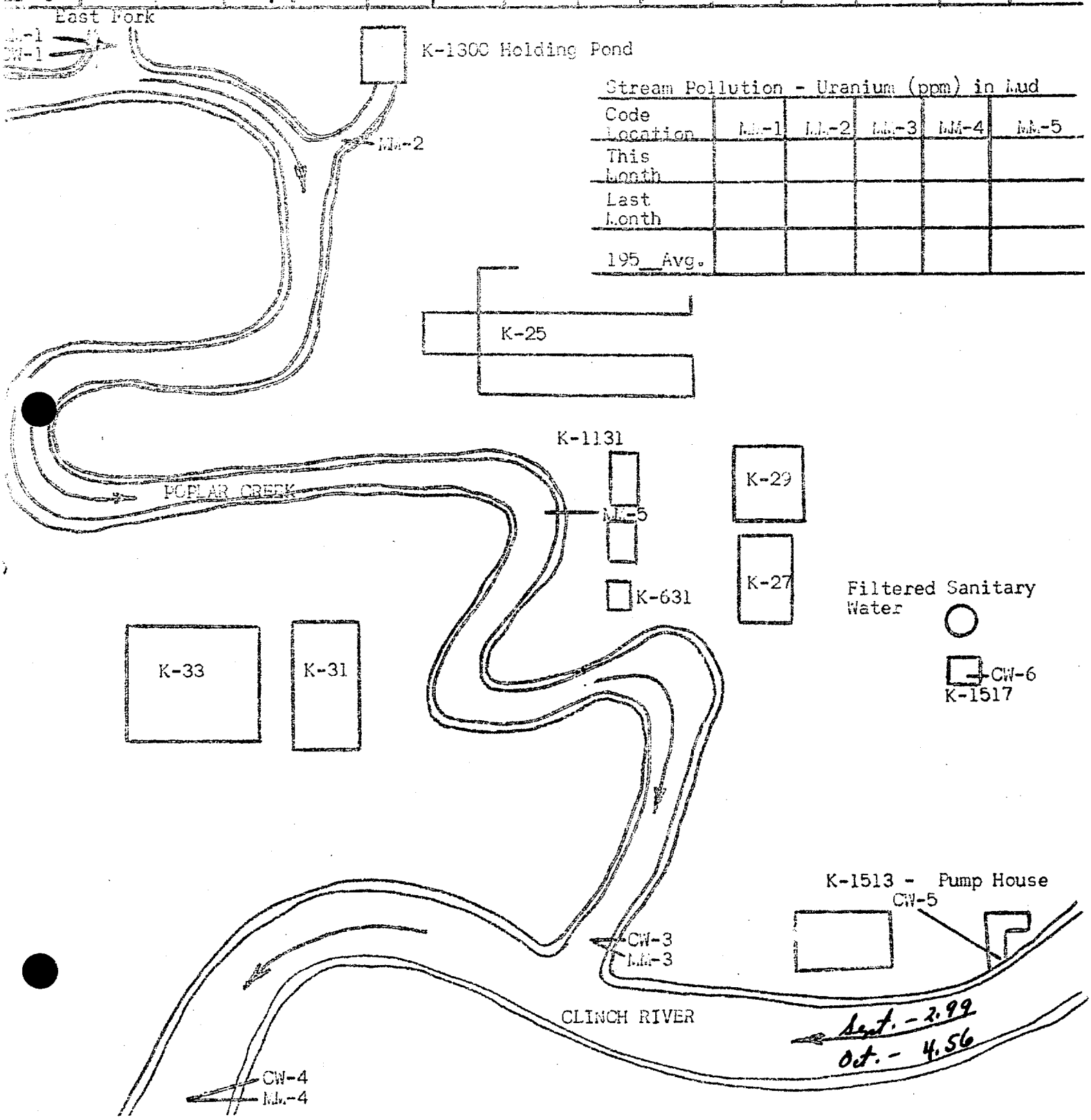
Uranium

The average uranium concentrations at all sampling points remained essentially unchanged and low, apparently reflecting normal release of uranium-bearing materials from Y-12 and ORGDP operations.

nbs
1/6/60

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb)

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	30	70	104	32	90	15	19	35	5.9	25	36	3.6	25	58
[illegible]	24	43	117	19	22	5	8	18	1.4	13	16	0.2	11	15
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

October

Beta

The average beta activity in the ORGDP sanitary water increased from 11 to 25 d/m/100 ml, remaining well below the ORGDP PAL based on Sr^{90} (1/10 of NCRP MPC for 40 hr. occupational exposure; NBS Handbook #59, $MPC_w^{Sr^{90}} = 4 \times 10^{-6}$; ORGDP $PAL_w^{Sr^{90}} = 4 \times 10^{-7} \cong 89$ d/m/100 ml).

The rate of flow of the Clinch River meanwhile increased from 2990 to 4560 ft³/second.

Beta activity at all sampling points showed increases, but remained within the range of previously noted fluctuations, apparently indicating normal release of mixed fission product waste material from ORNL.*

Uranium

The average uranium concentrations in East Fork of Poplar Creek remained essentially unchanged, while increasing generally at other sampling points, reflecting normal releases of uranium-bearing materials from Y-12 and ORGDP operations.

* Note. 10/30/59 — ORNL radioactive leak of spent fuel elements. See Memo, nba to A.F. Becker.

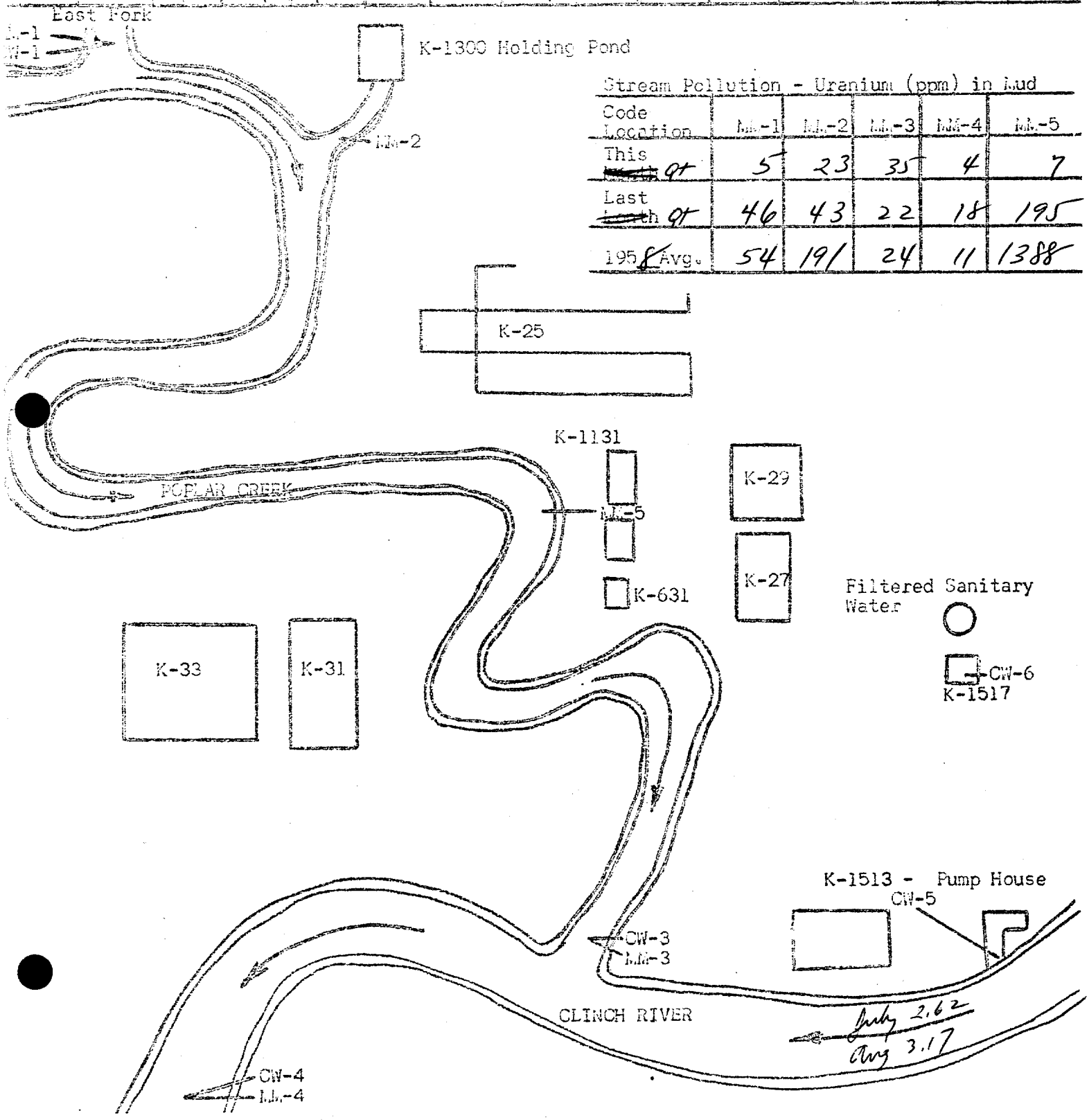
nba 12-3-59

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) Angus 1957

...tion	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
...h	98	302	135	29	47	10	29	57	1.8	37	83	1.4	20	84
...h	19	29	49	28	41	6	27	32	2.4	31	44	1.6	41	84
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~Month~~ qt	5	23	35	4	7
Last ~~Month~~ qt	46	43	22	18	195
1958 Avg.	54	191	24	11	1388



August 1959

Beta

The average beta activity in the CRGDP sanitary water decreased from 41 to 20 d/m/100 ml, being well below PAL ^{Sr90} of 50 d/m/100 ml.

The rate of flow of the Clinch River meanwhile increased again this month from 2620 to 3170 ft^3/second, increasing the dilution factor. This is reflected in continued unchanged & relatively low levels recorded at C.R. monitoring stations, apparently indicating normal release of mixed fission product waste material from ORNL.

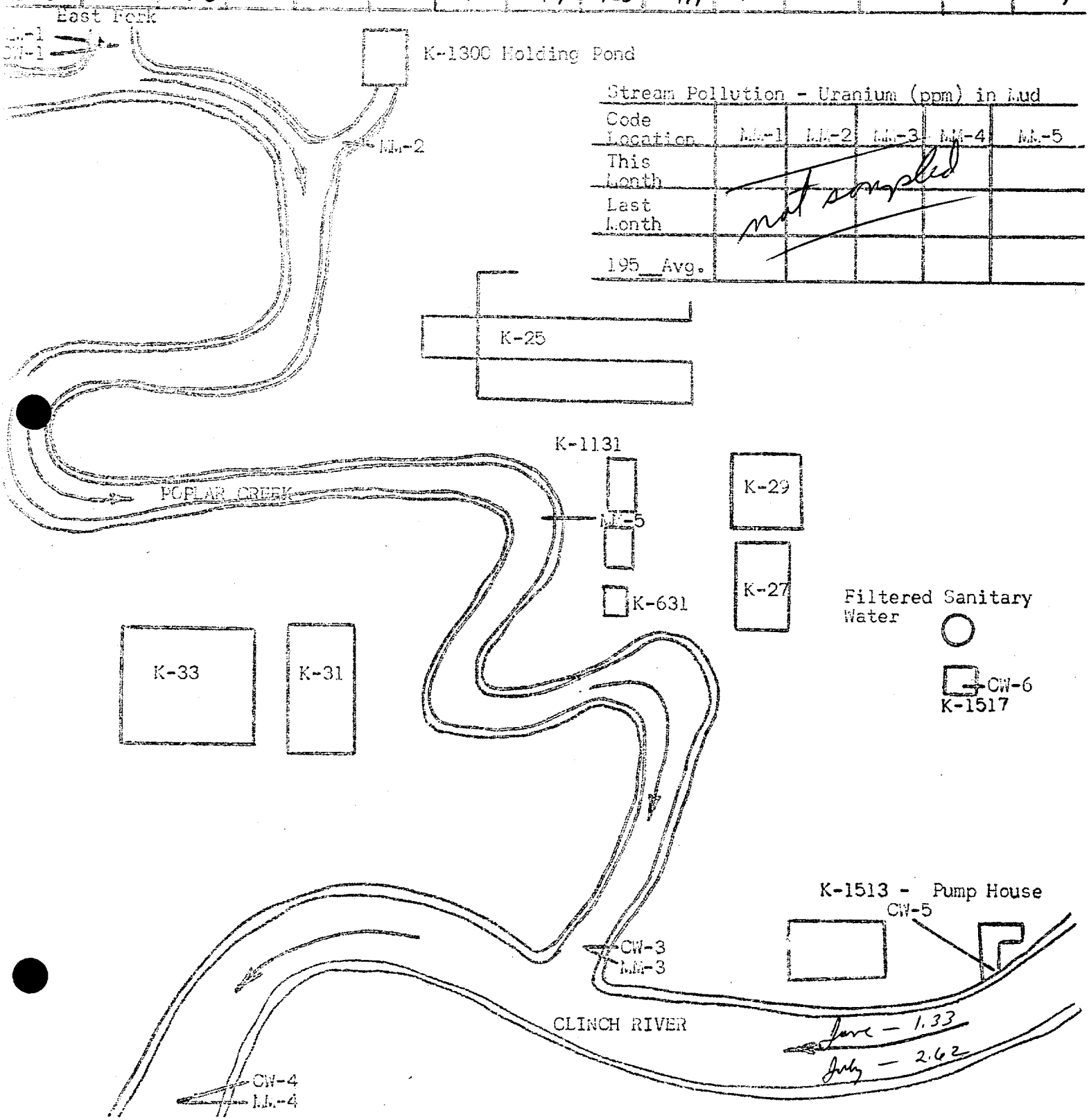
Uranium

The average uranium concentrations remained low and unchanged except in East Fork of Poplar Creek, where levels reflected low rainfall for the month and presumably normal release of material from Y-12 operations.

nbs
10/8/59

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) July 1957

Sampling	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
7th	19	29	49	28	41	6	27	32	2.4	31	44	1.6	41	84
14th	33	83	106	46	55	13	39	64	6.3	40	51	6.1	31	41
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month	not sampled				
Last Month					
195__ Avg.					

July 1959

Beta

The average beta activity in the ORGDP sanitary water increased to 41 d/m/100ml, compared with 39 d/m/100ml average for the year 1958. (~~MPC~~ PAL = 50 d/m/100ml – Sr^{90}).

The rate of flow of the Clinch River meanwhile doubled from 1330 to 2620 ft^3/second, increasing the dilution factor. This is reflected in the fact that the average beta activity decreased at all monitoring stations, apparently indicating normal release from ORNL of mixed fission product waste material.

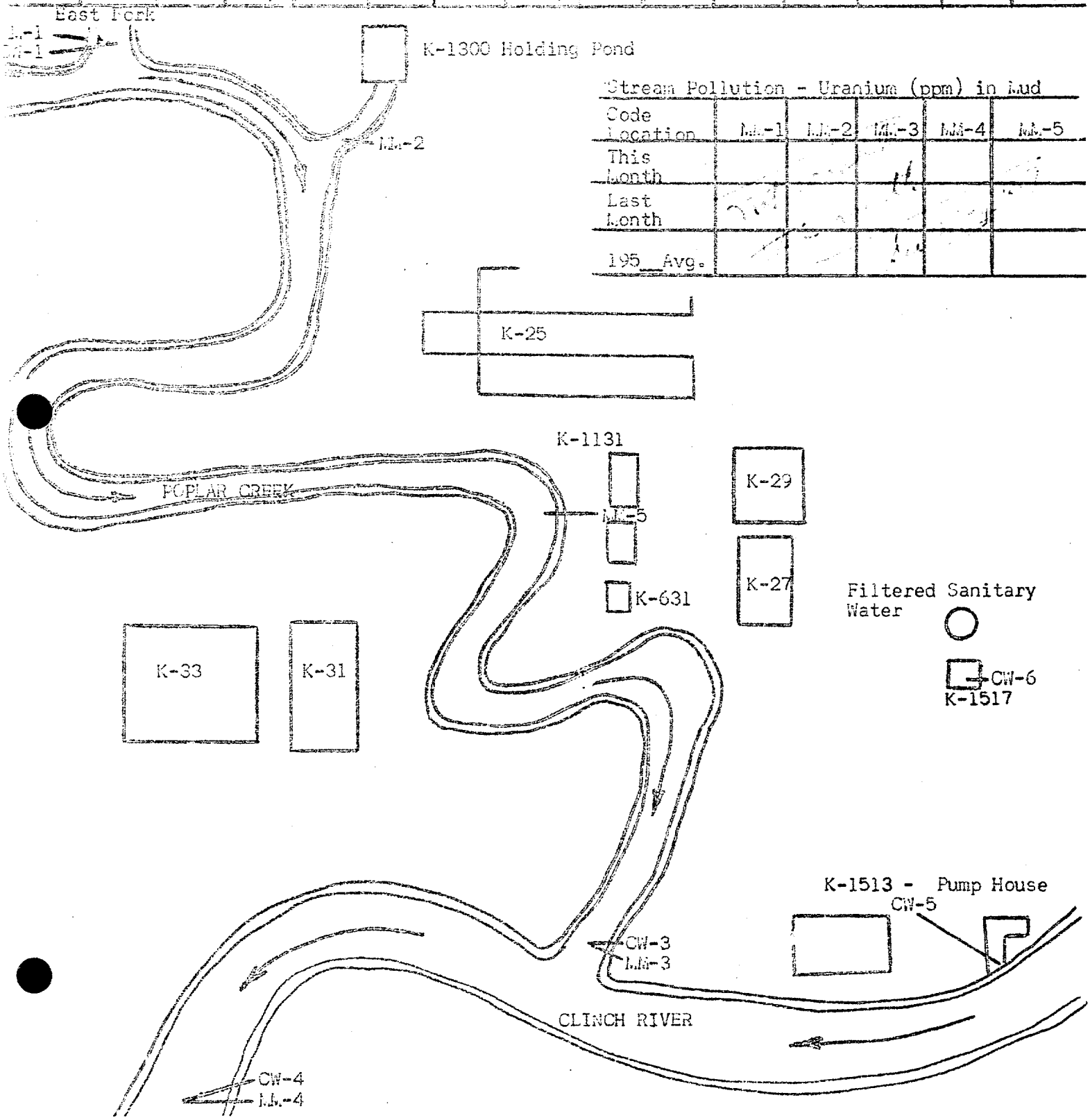
Uranium

The average uranium concentrations decreased below last month's levels at all monitoring stations, apparently representing normal fluctuation influenced by rate of flow of creeks and river, and rate of release from Y-12 operations.

Neil B. Schultz
8-26-59

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) June 1957

e ation	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
h	33	83	106	46	55	[illegible]	39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
h	44	109	61	33	65	6	81	168	4.6	29	61	1.3	28	53
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

[illegible]

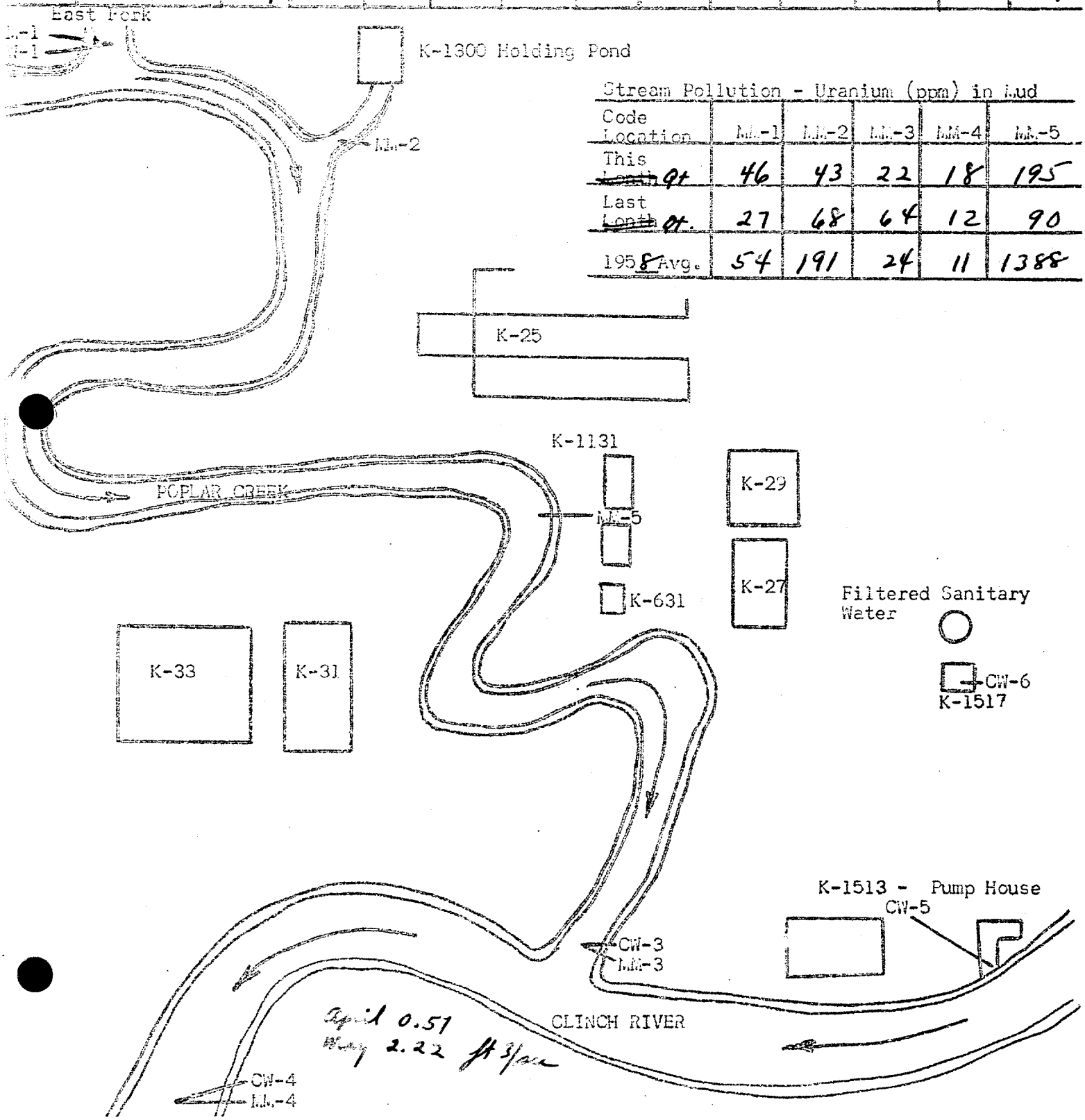
The average [illegible] is [illegible] to [illegible] 100 [illegible]

[illegible] 1500 lbs, [illegible] the [illegible] factor.

[illegible] significant [illegible] [illegible] [illegible]

Water Sampling - Beta Activity (cts/min/100 ml) - Uranium (ppm) MAY 1961

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.
	44	109	61	33	65	6	81	168	4.6	29	61	1.3	28	53
	22	34	72	45	81	5	55	69	2.9	81	132	0.3	42	49
2 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	257



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~Month~~ Qt	46	43	22	18	195
Last ~~Month~~ Qt.	27	68	64	12	90
1958 Avg.	54	191	24	11	1388

May 1959

Beta

The average beta activity in the ORGDP [illegible] water decreased 5510 to 2[illegible] c/m/100 [illegible], fluctuating within "normal" previously [illegible].

The rate of flow of the [illegible] [illegible] [illegible] increased from 510 to 2220 ft³/second, thus increasing dilution factor.

East Fork showed slight increase (Y-12 contribution), but Poplar (Y-12 + ORGDP) decreased; normal fluctuation. C.R. increased as result of mixed fission product waste material released from ORNL during normal operation.

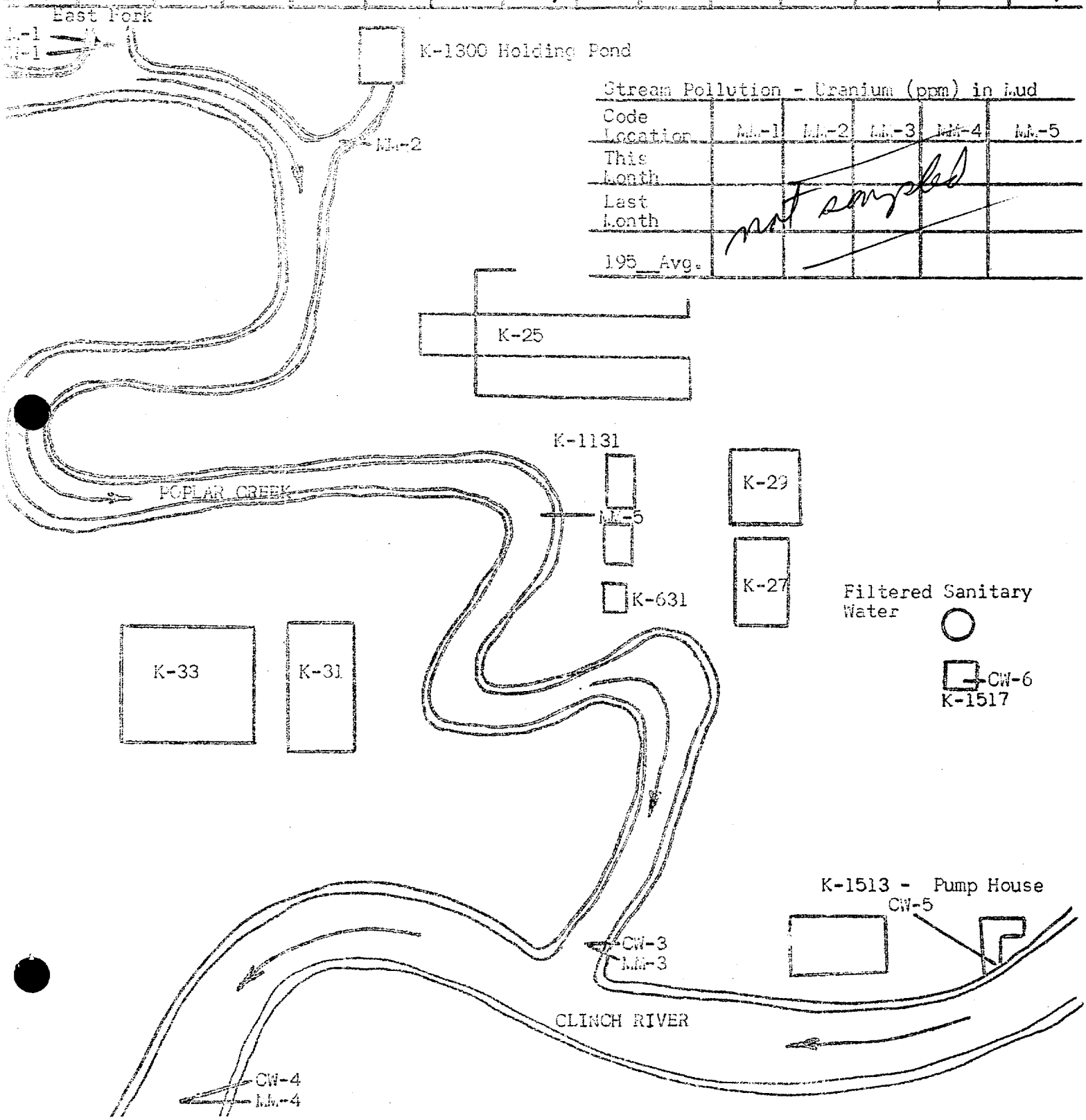
Uranium

The average uranium concentrations remained essentially unchanged, apparently representing normal fluctuations influenced by the CR rate of flow and rate of release from normal operations of AEC plants.

N. B. Schultz
6/29/59

WATER MONITORING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) APRIL 1967

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	22	34	72	45	81	5	55	69	2.9	81	132	0.3	42	49
[illegible]	25	53	69	35	48	7	29	43	3.5	43	53	0.5	34	53
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	344	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

not sampled

April 1959

Beta

The average beta activity in the ORGDP sanitary water increased about 20% to 42 c/m/100 ml, fluctuating normally within previously noted levels.

The rate of flow of the Clinch River meanwhile reduced to about one-fifth the flow recorded during March; 0.51 ft³/sec/1000; this approaches the all-time low.

East Fork and Poplar showed little change; somewhat higher beta levels in C.R. possibly reflect low rate of flow and corresponding reduction in dilution factor of CR on mixed fission product waste material released from ORNL.

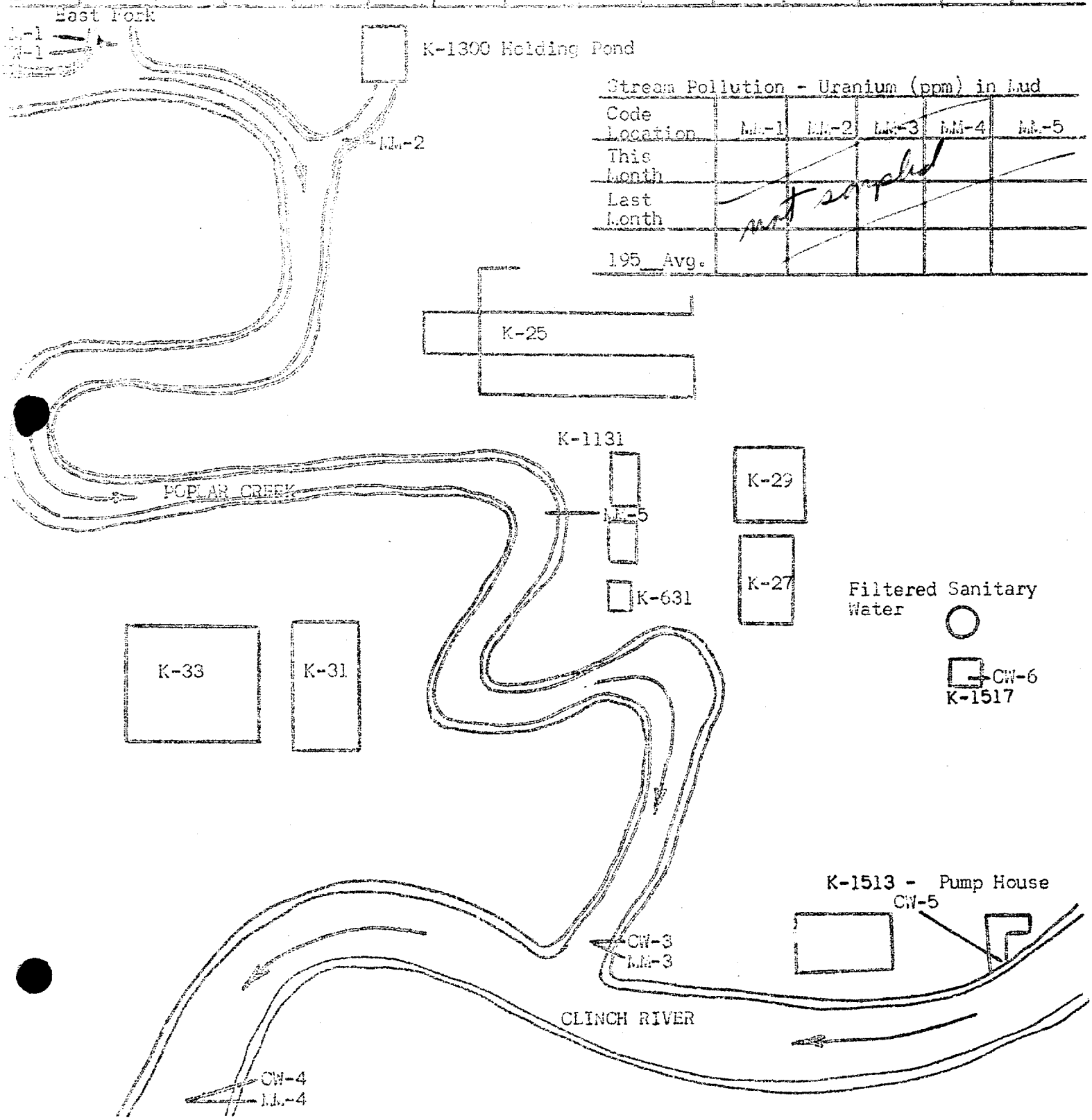
Uranium

The average uranium concentrations remained essentially unchanged or decreased below the previous low levels, apparently representing normal fluctuations influenced by rate of normal releases from Y-12 operations.

Neil B. Schultz
6/1/59

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) MARCH 1971

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	25	53	69	35	48	7	29	43	3.5	43	53	0.5	34	53
[illegible]	31	39	32	88	185	7	92	159	6.3	63	96	1.3	44	53
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month	not sampled				
195__ Avg.					

March 1959

Beta

The average beta in the ORG OP sanitary water decreased again during the month another 20% to 34 c/m/ml compared to the February figure, and is below the 1958 average figure.

The rate of flow of the Clinch River nearly doubled from 1.52 to 2.78 ft³/sec/1000, reversing the trend noted since August 1958.

Beta activity in East Fork decreased slightly and remains low; similarly decreases were noted in beta levels recorded at the C.R. sampling points, apparently reflecting the increased dilution of the mixed fission product waste material released from ORNL, concurrent with increased C.R. flow.

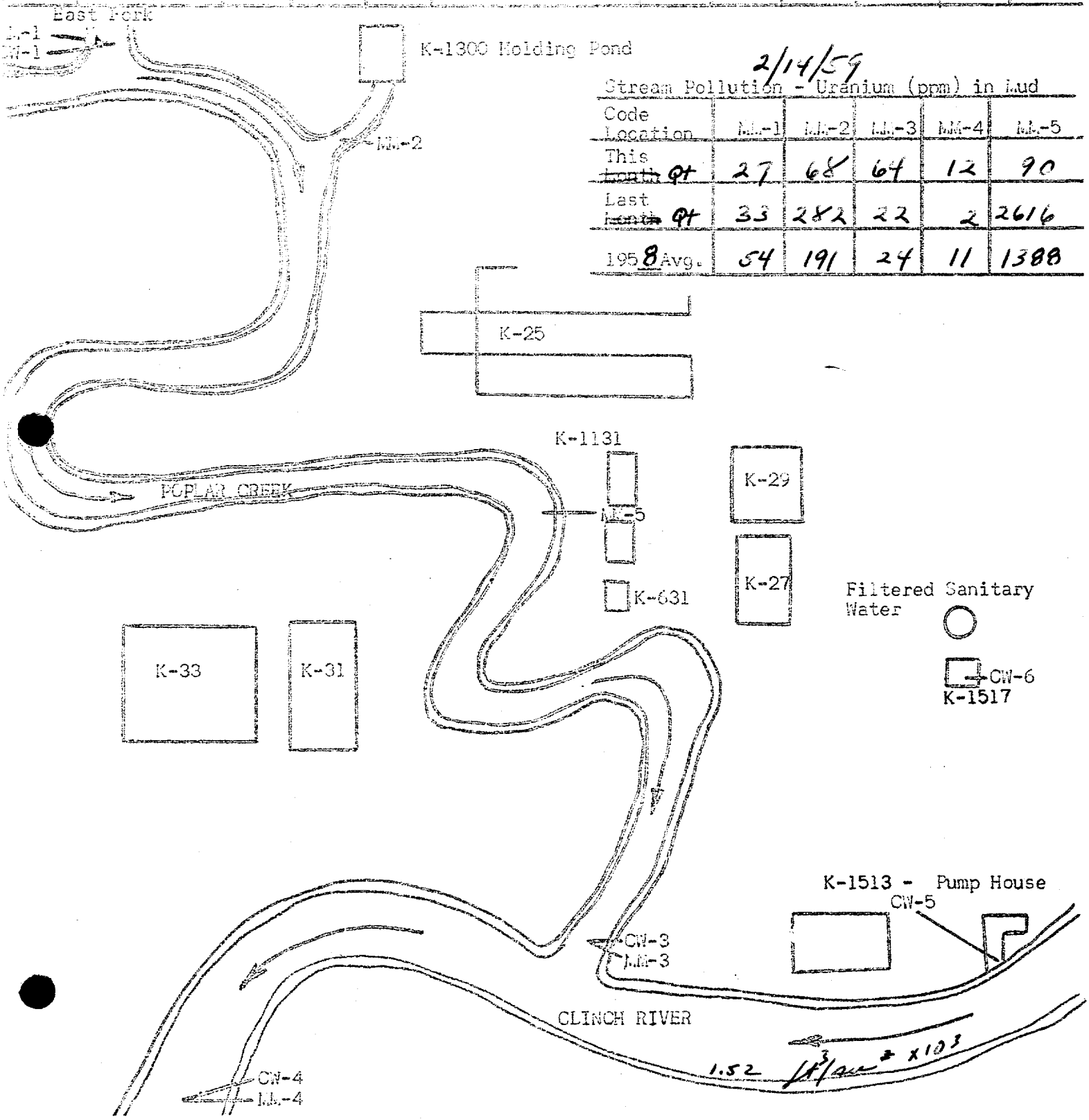
Uranium

The average uranium concentration in the East Fork Branch doubled, increasing from 32 to 69 c/m/100ml; compared with 54 c/m/100ml as 1958 annual average, this apparently represents normal fluctuation influenced by normal releases from Y-12 operations.

N. B. Schultz

February 1954

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	31	39	32	88	185	7	92	159	6.3	63	96	1.5	47	53
[illegible]	38	89	57	52	84	8	54	88	3.9	52	81	2.7	54	109
Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



2/14/59

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~month~~ Qt	27	68	64	12	90
Last ~~month~~ Qt	33	282	22	2	2616
1958 Avg.	54	191	24	11	1388

February

Beta

The average beta in the plant sanitary water decreased about 2080 to 44 c/m/100ml compared with the January figure, and approximates the 1958 ave. figure of 39 c/m/100ml.

The rate of flow of the Clinch River continued the decreasing trend noted since August, being 1520 ft³/sec compared with 2080 ft³/sec for January.

Beta activity in East Lake (CW-4) decreased slightly, but levels at Clinch River sampling points showed increases, apparently reflecting the decreased dilution of the mixed fission product waste material released from ORNL & leached from the mud concurrent with decreased river flow.

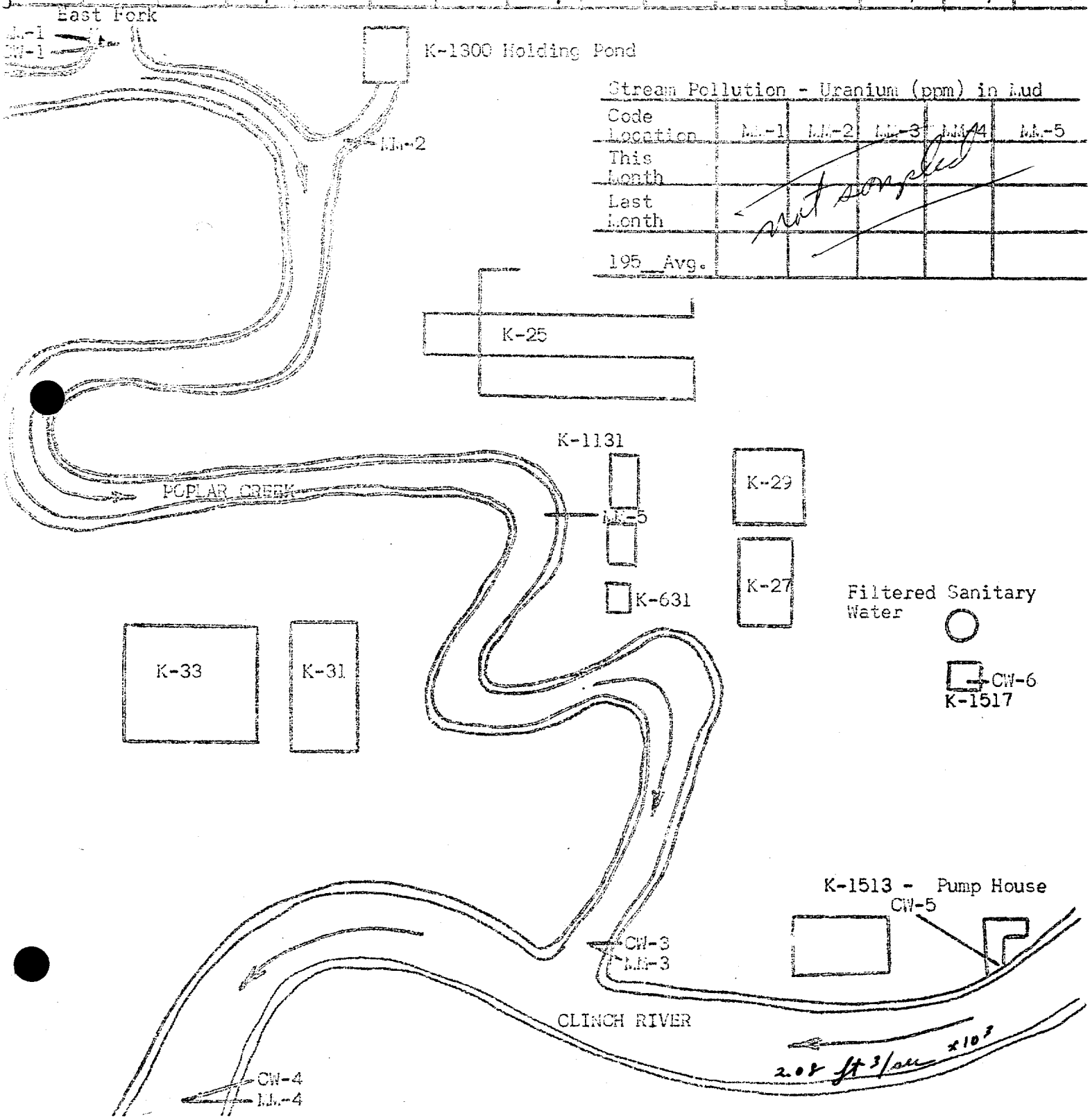
Uranium

The average uranium concentration either decreased & showed only slight fluctuations within normal ranges, apparently indicating no unusual operation & release from the Y-12 Plant.

3/30/59
nbs

WATER [illegible] - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) January 1954

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.
[illegible]	38	89	57	52	84	8	54	88	3.9	52	81	2.7	54	109
[illegible]	2[illegible]	26	145	24	34	12	20	35	5.3	20	31	1.7	15	20
Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357



Stream Pollution - Uranium (ppm) in Mud

Code Location	LM-1	LM-2	LM-3	LM-4	LM-5
This Month					
Last Month					
195__ Avg.					

not sampled

January 1958

Subject: Water Sampling

Average Beta Activity

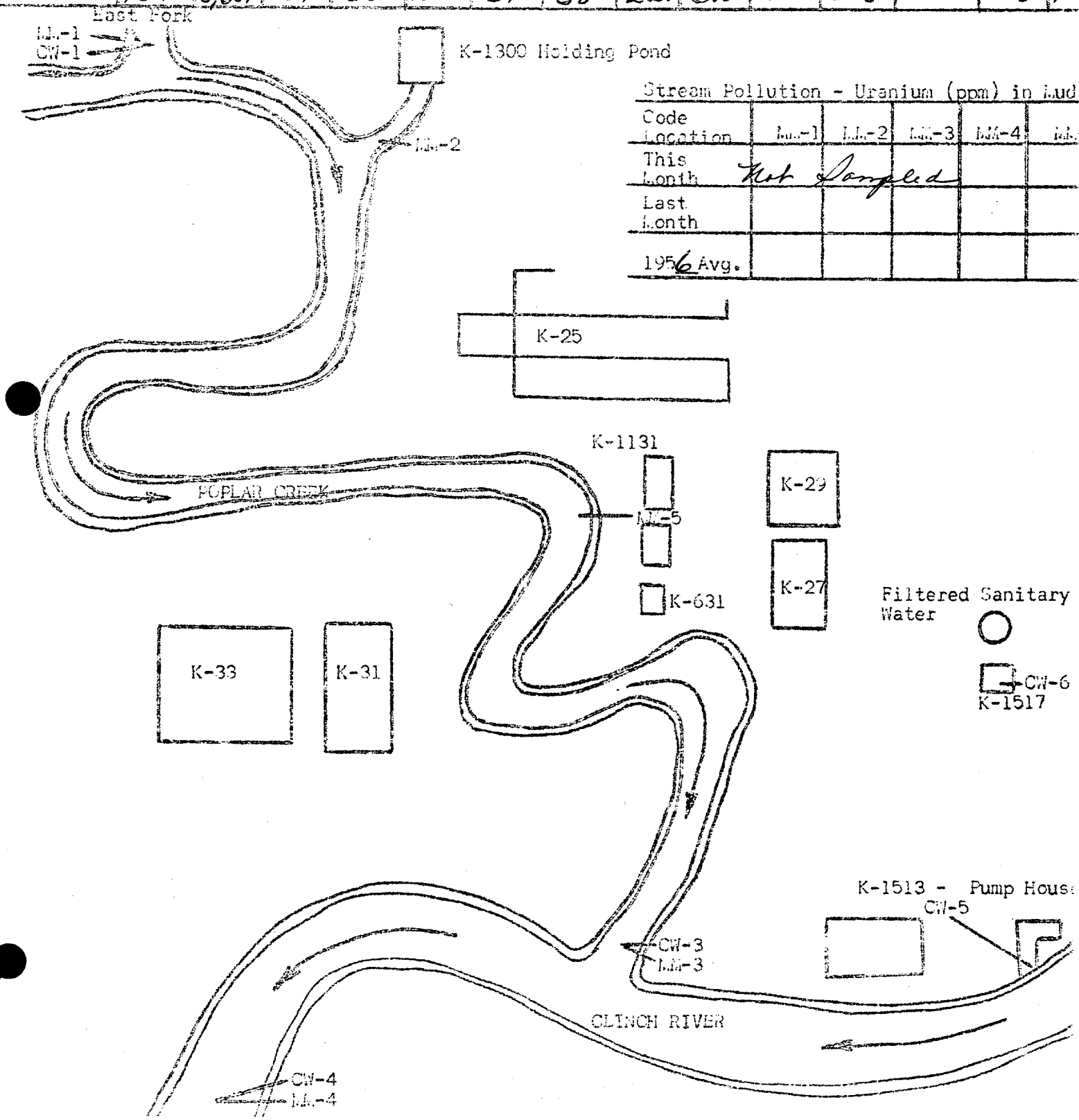
Remarks: The average beta activity in the plant sanitary water of only 18 c/m/100 ml indicates a slight decrease from the previous month. The continuing relatively low activity in the sanitary water supply is apparently a result of the high flow of the Clinch River which remained well above the normal for the year. Decreases were also noted in the Poplar Creek sampling locations apparently resulting from decreases in the release of waste material from the decontamination and recovery facility. The average beta activity in the East Fork Creek remained relatively low and unchanged as the releases of waste material from the Y-12 Installation were apparently normal and without any incident of significant spillage.

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) DECEMBER 1957

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
This Month	22	44	41	67	146	12	84	228	4.7	20	22	4.7	23	2[illegible]
Last Month	19	27	87	30	44	21	26	47	4.4	42	68	2.0	39	5[illegible]
1956 Avg.	137	5,351	59	36	252	31	38	221	3.8	40	358	—	26	12[illegible]

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-[illegible]
This Month	Not Sampled				
Last Month					
1956 Avg.					



December, 1957

Water Sampling

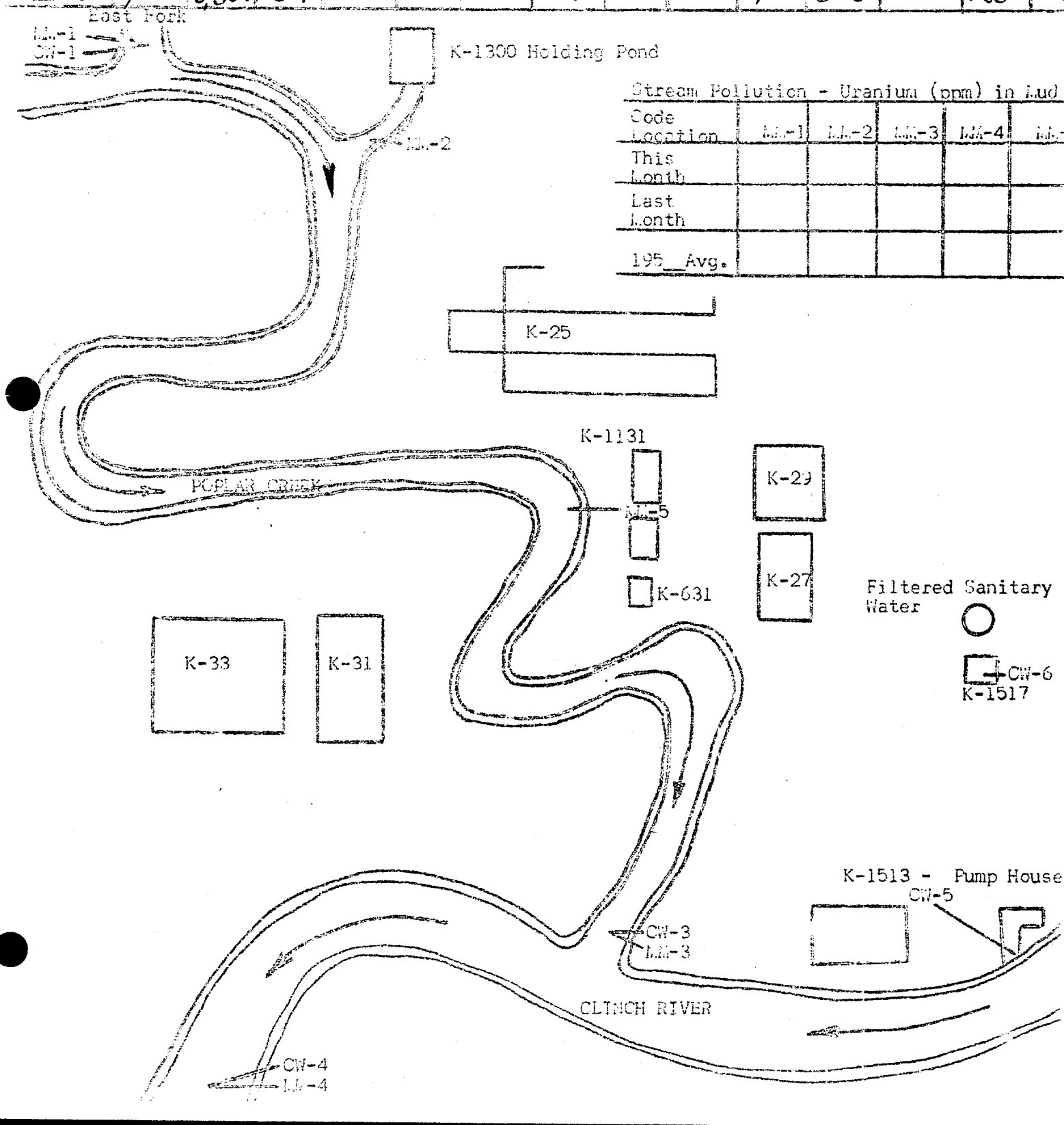
Remarks:

The average beta activity in the ORGDP Sanitary Water Supply decreased to only 23 cts/min/100 ml as the average flow of the Clinch River increased from the 3,920 ft³/sec last month to 10,480 ft³/sec. This resulting in a significantly greater dilution of the fission product waste materials released in normal gaseous effluent from the installation exposure from the ORGD plant.

The average uranium concentration in the Poplar Creek and in the Clinch River which did not change significantly during the month, continued to remain low and to present no particular health hazard even in the immediate environs of the plant waste effluents.

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) November 195

Code Location	CW-1 Beta Avg. Act.	CW-1 Beta Peak Act.	CW-1 U Avg. ppm	CW-3 Beta Avg. Act.	CW-3 Beta Peak Act.	CW-3 U Avg. ppm	CW-4 Beta Avg. Act.	CW-4 Beta Peak Act.	CW-4 U Avg. ppm	CW-5 Beta Avg. Act.	CW-5 Beta Peak Act.	CW-5 U Avg. ppm	CW-6 Beta Avg. Act.	CW-6 Beta Peak Act.
This Month	19	27	87	30	44	21	26	47	4.4	42	68	2.0	39	5
Last Month	21	57	61	24	40	17	46	65	13	36	52	8.0	28	4
1956 Avg.	137	5351	59	36	252	31	38	221	3.8	40	358	—	26	12



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month					
Last Month					
195__ Avg.					

November 1957

Beta Activity

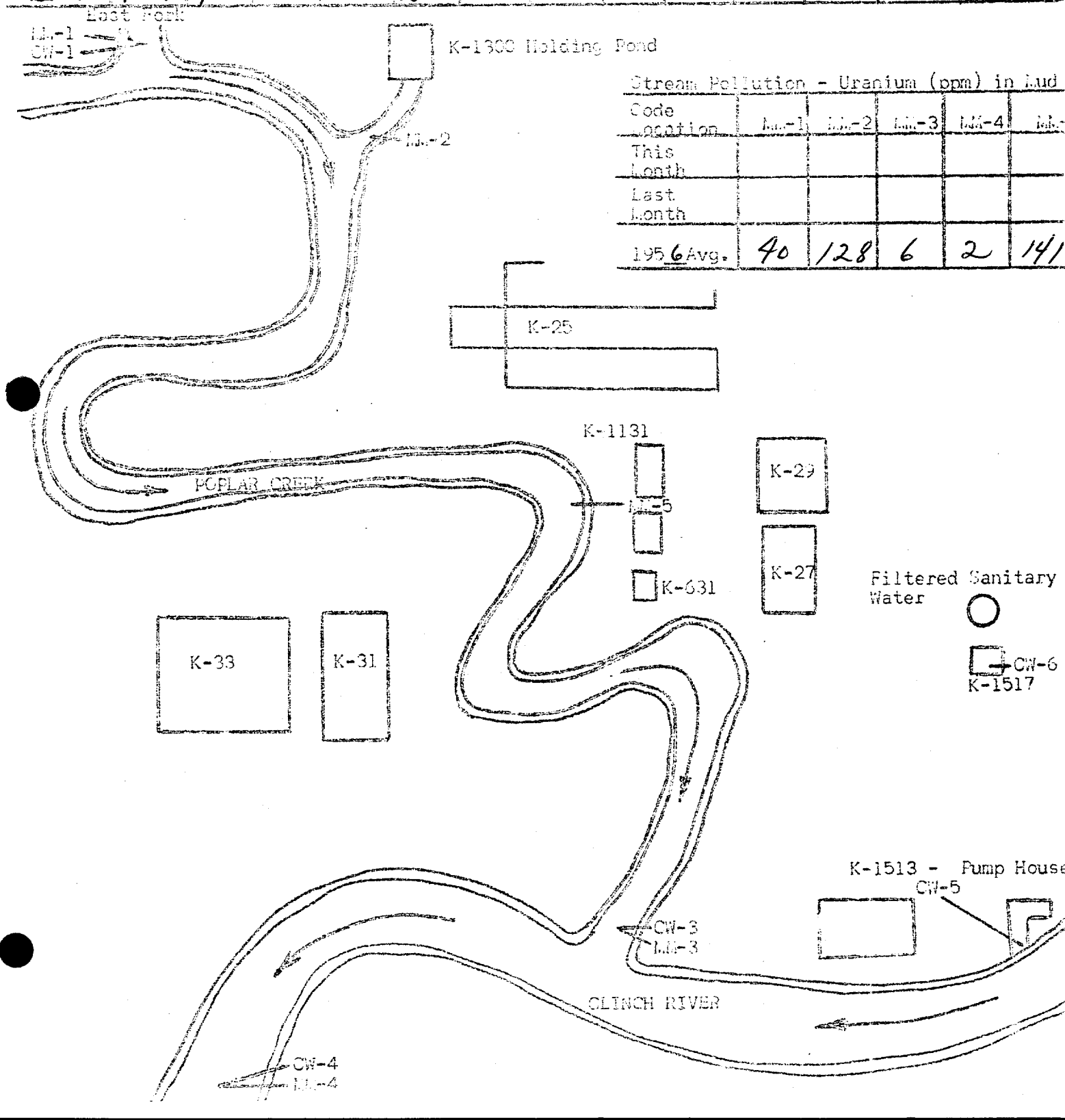
The average beta activity in the Plant Sanitary Water increased to 39 c/m/100ml from the average of 28 c/m/100ml reported last month. Despite the fact that the average flow of the Clinch River of 3,920 ft³/sec was higher the several low periods of flow registered during the month influenced the dilution of the normal releases of fission product waste material from ORNL and resulted in the increase in the monthly average. Only slight increases were noted in the average beta activity at the mouth of the East Fork Branch and of the Poplar Creek apparently indicating little change in the amount of waste materials released from facilities influencing the levels of these streams.

Uranium Concentration

The uranium concentration in the Plant raw water supply decreased as did the Clinch River at a spot 1 mile below the mouth of Poplar Creek as the increased water flow resulted in greater dilution and dispersal of the uranium waste materials released into the East Fork and Poplar Creek where levels remained relatively unchanged from the previous report period.

WATER ANALYSIS - RADIOACTIVITY (cts/min/100 ml) - Uranium (ppm) October 1956

Code Location	CW-1 Beta Avg. Act.	CW-1 Beta Peak Act.	CW-1 U Avg. ppm	CW-2 Beta Avg. Act.	CW-2 Beta Peak Act.	CW-2 U Avg. ppm	CW-4 Beta Avg. Act.	CW-4 Beta Peak Act.	CW-4 U Avg. ppm	CW-5 Beta Avg. Act.	CW-5 Beta Peak Act.	CW-5 U Avg. ppm	CW-6 Beta Avg. Act.	CW-6 Beta Peak Act.
This Month	21	57	61	24	40	17	46	65	13	36	52	8.0	28	4[illegible]
Last Month	13	19	71	24	46	16	18	40	2.6	30	86	2.8	41	7[illegible]
1956 Avg.	137	5,315	59	36	252	31	38	221	3.8	~~221~~ 40	358	—	26	12[illegible]



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-[illegible]
This Month					
Last Month					
1956 Avg.	40	128	6	2	141

October 1957

Water Sampling Results

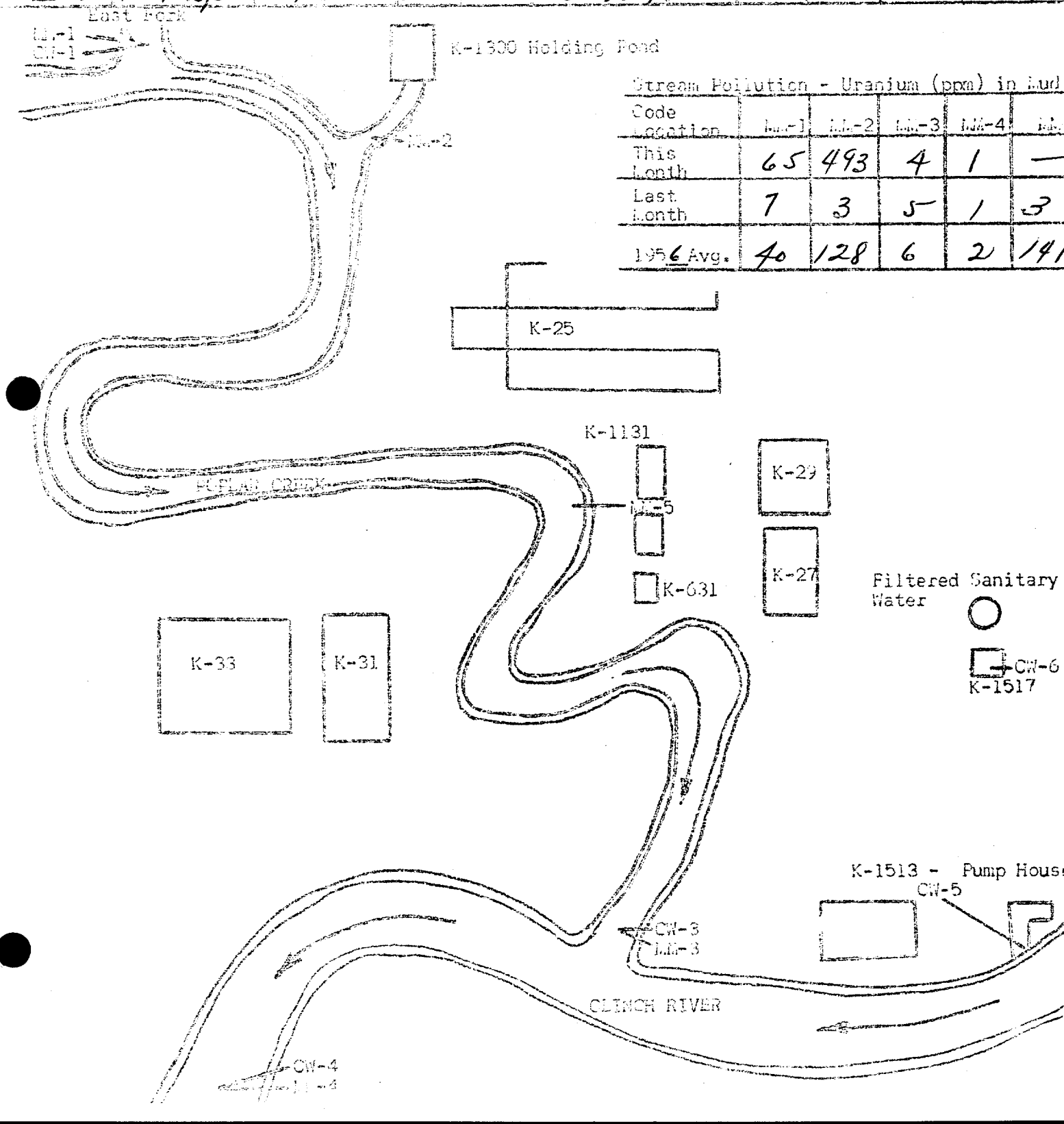
Comments: The average beta activity in the Plant Sanitary water decreased approximately 30% as a result of an increase in the average flow of the Clinch River from 2,680 ft³/sec to 3,240 ft³/sec. The larger river flow ~~reduced the~~ increased the dilution of the fission product waste material released to the River in relatively normal amounts during the period. The peak ~~activity~~ total beta activity of 52 ct/min/100 ml ~~found~~ in the Clinch River raw water is ~~only~~ very slightly above the PAL established for Strontium 90 only.

Mud Sampling Results.

Comments: No Samples taken

[illegible] CREEK - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) September 19[illegible]

	CW-3			CW-4					CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta
	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.
This Month	13	19	71	24	48	16	18	40	2.6	30	86	2.8	41	7[illegible]
Last Month	29	48	129	19	48	10	18	42	2.0	17	53	3.0	18	4[illegible]
1956 Avg.	137	5,315	59	36	252	31	38	221	3.8	40	358	—	26	12[illegible]



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM[illegible]
This Month	65	493	4	1	—
Last Month	7	3	5	1	3
1956 Avg.	40	128	6	2	141

September 1957

Water Sampling Results

Comments:

The average beta activity in the plant sanitary water increased almost 55% as a result of a decrease in the average flow of the Clinch River from 2,260 ft³/sec to 2,680 ft³/sec ~~and~~ influenced at the same time by the average activity in the ORNL White Oak Creek ~~being~~ being higher than the comparable average noted last month. While the average activity in the East Fork and Poplar Creek remained low and ~~relatively~~ not significantly changed the peak of total beta activity in the Clinch River of 86 ct/min/100 ml is the highest ~~noted~~ recorded since April 1957.

Mud Sampling Results

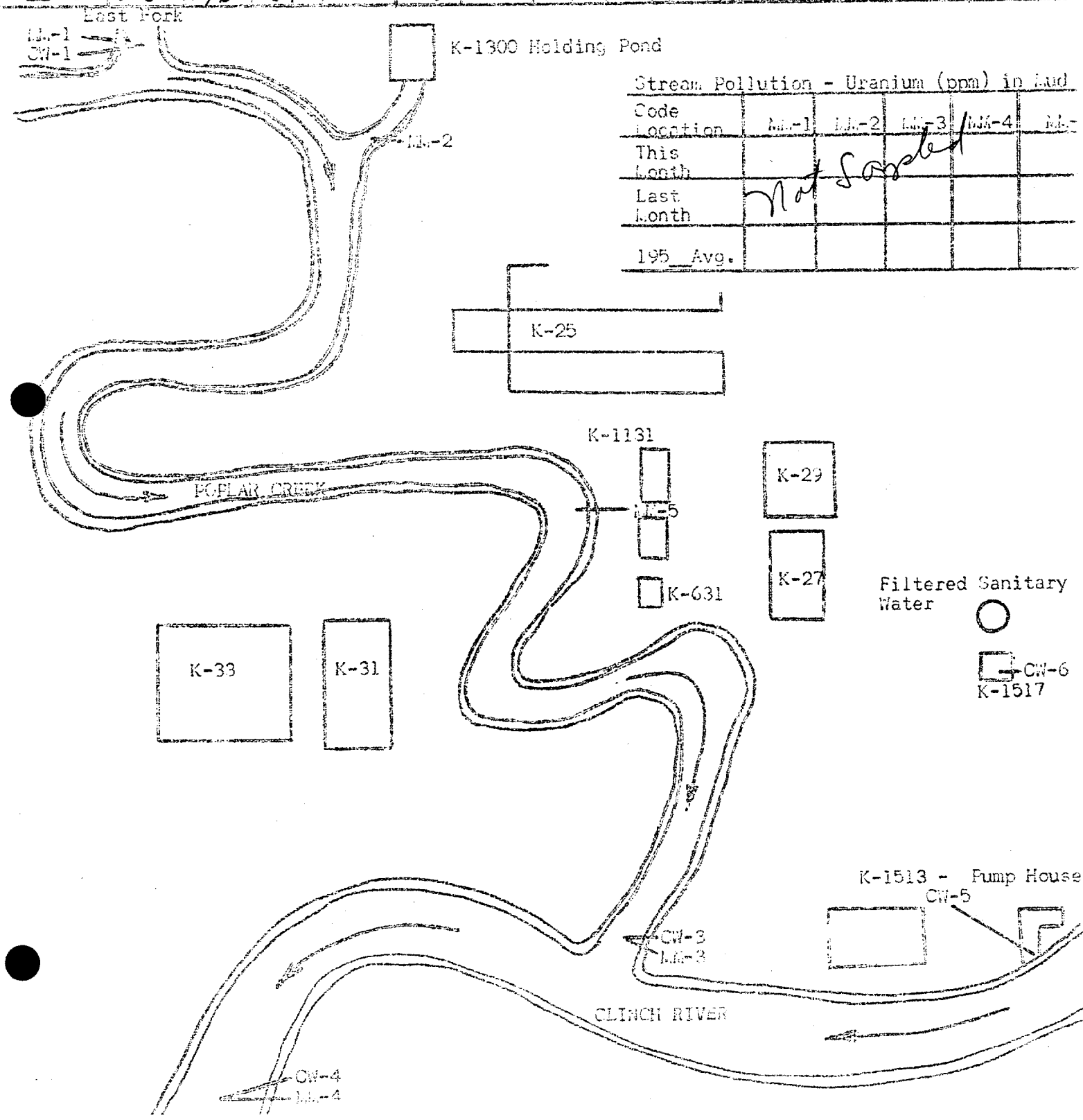
Comments:

The average Uranium concentrations in the bottom mud at the mouth of the East Fork Branch and at the drainage ~~area~~ of the K-1300-1420 areas were increased significantly as contaminated silt was built up. Although no ~~accidental~~ ~~[illegible]~~ releases were reported during the period and the increases are in the ~~normal~~ range of normal fluctuations from routine operations. The very low average concentration noted at the mouth

of Poplar Creek and in the Clinch River
One mile below the Plant indicates Good
dilution and dispersal of the ~~material~~ silt as
it moves into these larger streams.

[illegible] - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) April 1958

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
This Month	18	29	36	61	107	11	82	173	3.4	89	110	7.9	81	12[illegible]
Last Month	19	49	53	44	77	14	26	63	7.8	45	58	0.3	49	8[illegible]
195 7 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	9[illegible]



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month	Not Sampled				
Last Month					
195__ Avg.					

April 1958

Beta

The average beta activity in the plant sanitary water increased 65%, influenced by a 27% decrease in the average flow of the Clinch River from 2200 ft³/sec to only 1600 ft³/sec, with 14 days of -0- flow from Norris Dam. The total activity released to the river was possibly increased by the drainage of waste materials entrapped in the old White Oak Lake bed and carried by the unusually heavy rainfall into the stream.

The average beta activity at the mouth of East Fork remained essentially unchanged and well within the normal range of activity levels recorded during the routine release of waste materials from the 4-12 Plant.

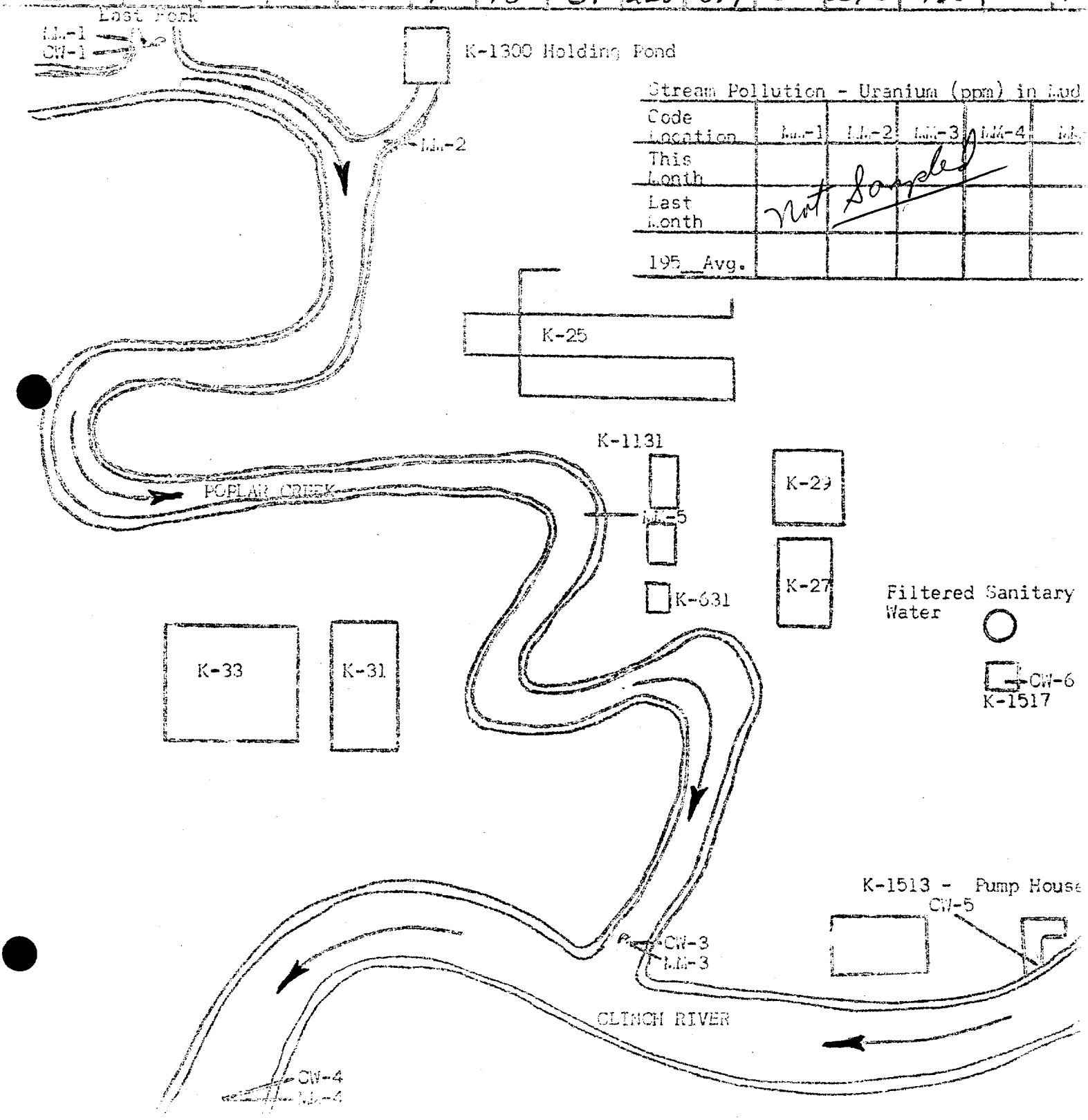
The beta activity at the mouth of Poplar Creek increased significantly, yet it may be noted that the uranium values decreased at this sample point, apparently indicating the backing up of the Clinch River into the sampling area.

Uranium

The average uranium concentration at all locations in East Fork and Poplar Creek decreased as the flow of these streams increased due to heavy rainfall and the resultant dilution factor. The decreased activity was also noted in the Clinch River 1 mile below the Plant.

Stream Pollution - Beta Activity (cts/min/100 ml) - Uranium (ppm) 1958

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Peak Act.	Avg. ppm	Avg. Act.	Pe Ac
This Month	19	49	53	44	77	14	26	63	7.8	45	58	0.3	49	8
Last Month	32	49	37	31	64	7.4	38	63	1.9	28	44	1.3	21	4
195 7 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	9



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month					
Last Month	Not Sampled				
195__ Avg.					

[illegible] 1958

* Beta Activity

The average beta activity in the plant sanitary water increased by greater than a factor of 2 during the month. The increase was apparently due to a decrease in the dilution of the mixed fission product waste material released from [illegible] as the average flow of the Clinch River decreased from 5,250 cfs/sec to only 2,200 cfs during this period while the releases from the reprocessing installation continued normal.

The average beta activity at the mouth of East Fork decreased slightly and continued to remain within the normal range of activity levels maintained during the routine releasing waste material from the [illegible] Plant. The increase at the mouth of Poplar Creek is in line with that noted for the Clinch River and is apparently resulting from cross contamination of the River as it is backed into Poplar Creek by the raising of the Watts Bar Lake level.

Uranium Concentrations

The average [illegible] concentration [illegible] at [illegible] Poplar [illegible] but is not significantly changed from the 1957 average [illegible] normal release of waste uranium solutions from Y-12 and the ORGDP operations during this period.

* While it could not be directly related to the increase of the [illegible] Beta activity in the Clinch River it may be noted that fall out activity apparently from the Russian [illegible] tests has been picked up in the area by ORNL personnel according to [illegible].

August 1951

	29	48	-	-	19	48	18	42	17	53	18	46
	48	71	-	-	38	55	36	45	37	53	31	36
6	137	5,315	-	-	36	252	38	221	40	358	26	124

Not Sampled

	7	3	5	1	3
6	40	128	6	2	141

[illegible]

[illegible] decrease [illegible]

[illegible]

[illegible] The

amount [illegible]

[illegible]

[illegible] In addition [illegible]

[illegible] 2.510

[illegible]

apparently resulted [illegible]

[illegible] materials during [illegible]

Similar decreases were noted [illegible]

[illegible]

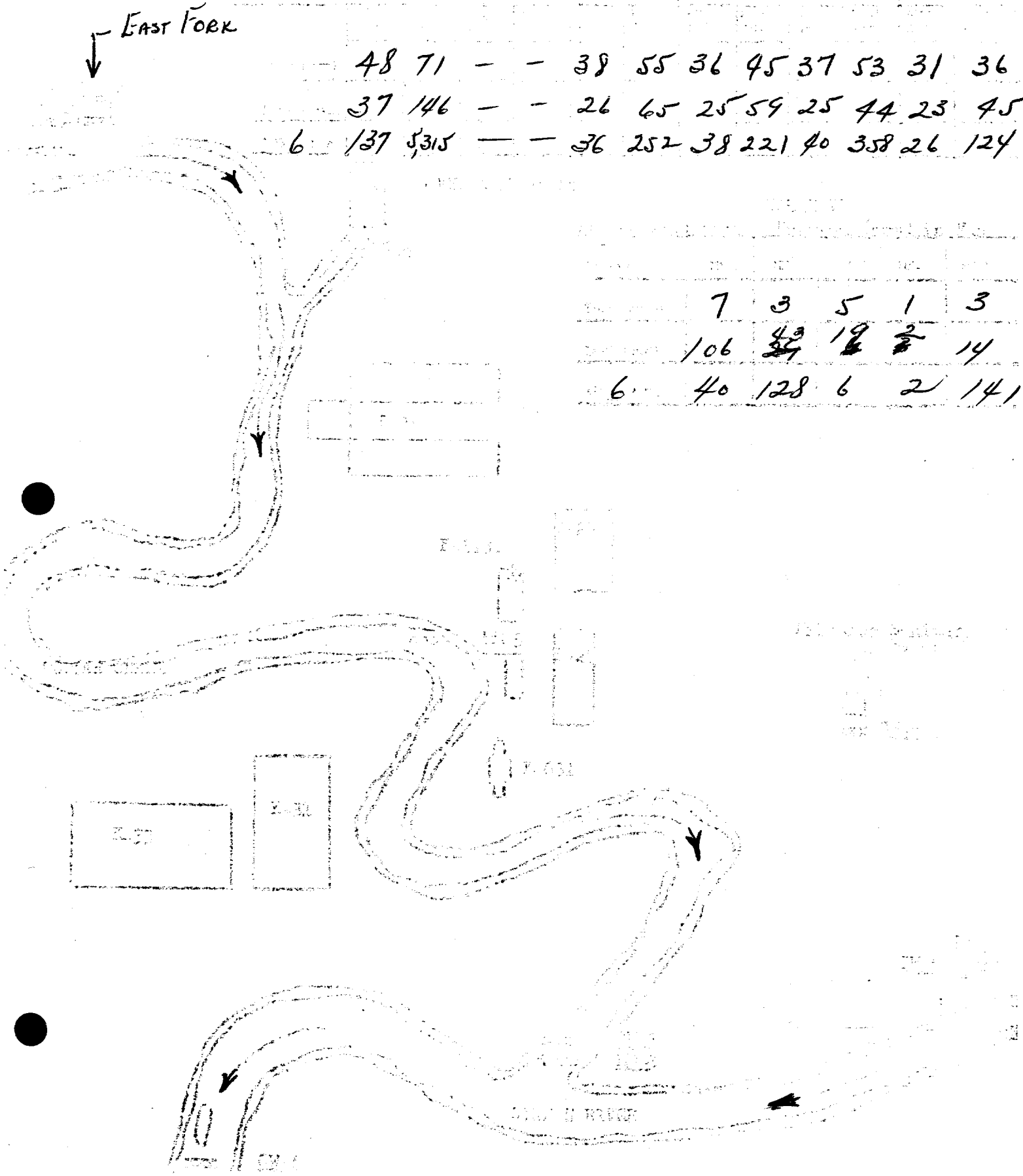
[illegible]

[illegible]

[illegible]

Table VI. The bottom mud of Poplar Creek [illegible] Clinch River was not sampled during this period.

July 1957



	48	71	—	—	38	55	36	45	37	53	31	36
	37	146	—	—	26	65	25	59	25	44	23	45
6	137	5,315	—	—	36	252	38	221	40	358	26	124

	7	3	5	1	3
	106	43	19	2	14
6	40	128	6	2	141

July, 1957

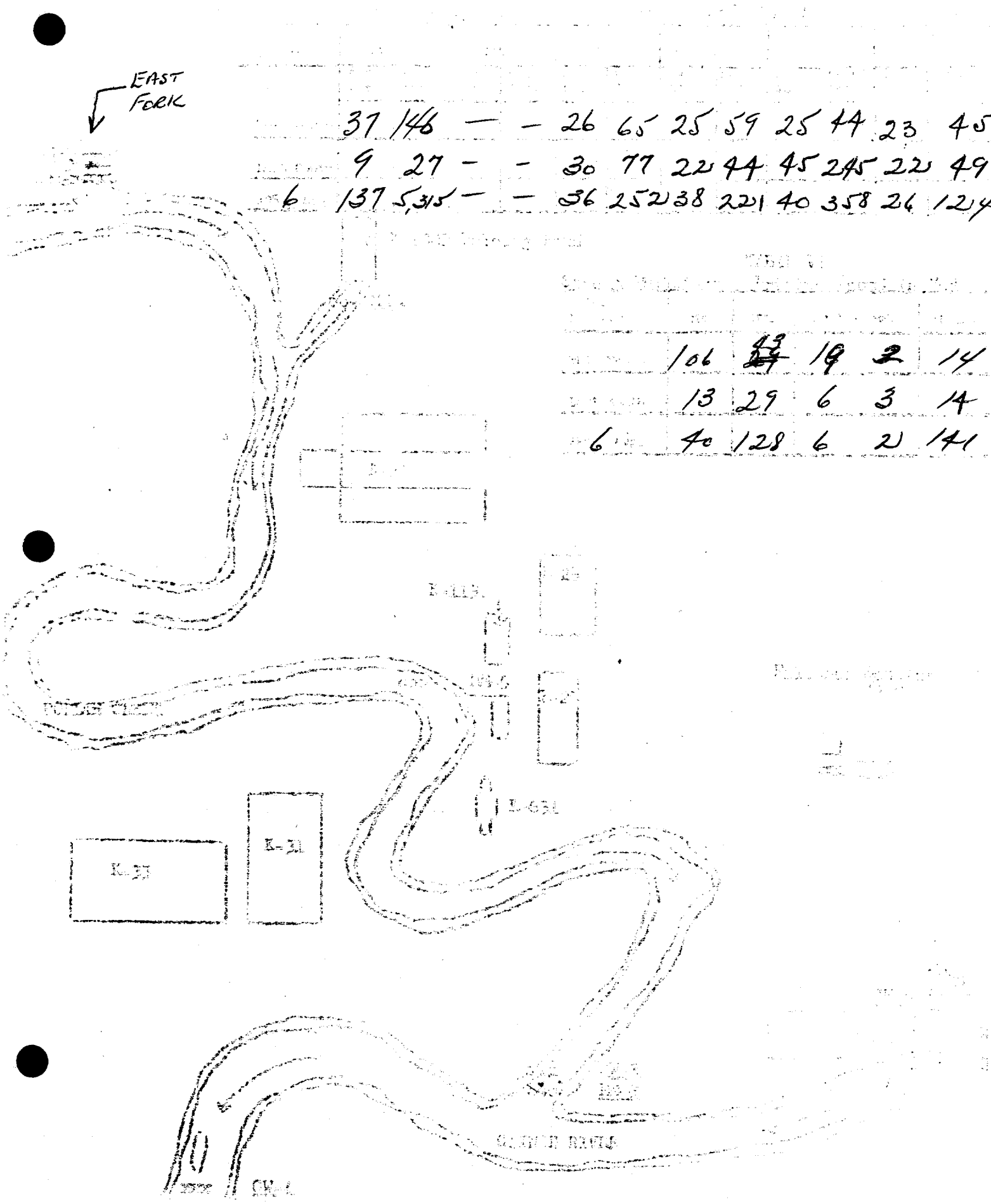
Remarks -

Table V - The average beta activity in the Plant Sanitary water increased about 25% to 31 cts/min/100ml. The increase is apparently due to the decreased flow of the Clinch River during the period and to normal fluctuations in the amount of fission product waste material released from X-10 since no above normal release was noted during the report period. The activity in the East Fork Branch and at the mouth of Poplar Creek also increased as the flow of the streams followed by the little rainfall during the month, decreased and thus reduced the dilution factor of the material normally released.

Table VI. -

The average Uranium concentration in the stream bottom of Poplar Creek decreased significantly apparently as a result of the reduction in the amount of activity entering via East Fork from X-12 and continuing decrease in the amount of material released from K-1131 into ~~the~~ Poplar Creek.

June 1957



	37	146	—	—	26	65	25	59	25	44	23	45
	9	27	—	—	30	77	22	44	45	245	22	49
6	137	5,315	—	—	36	252	38	221	40	358	26	124

	106	43	19	2	14
	13	29	6	3	14
6	40	128	6	2	141

June 1957

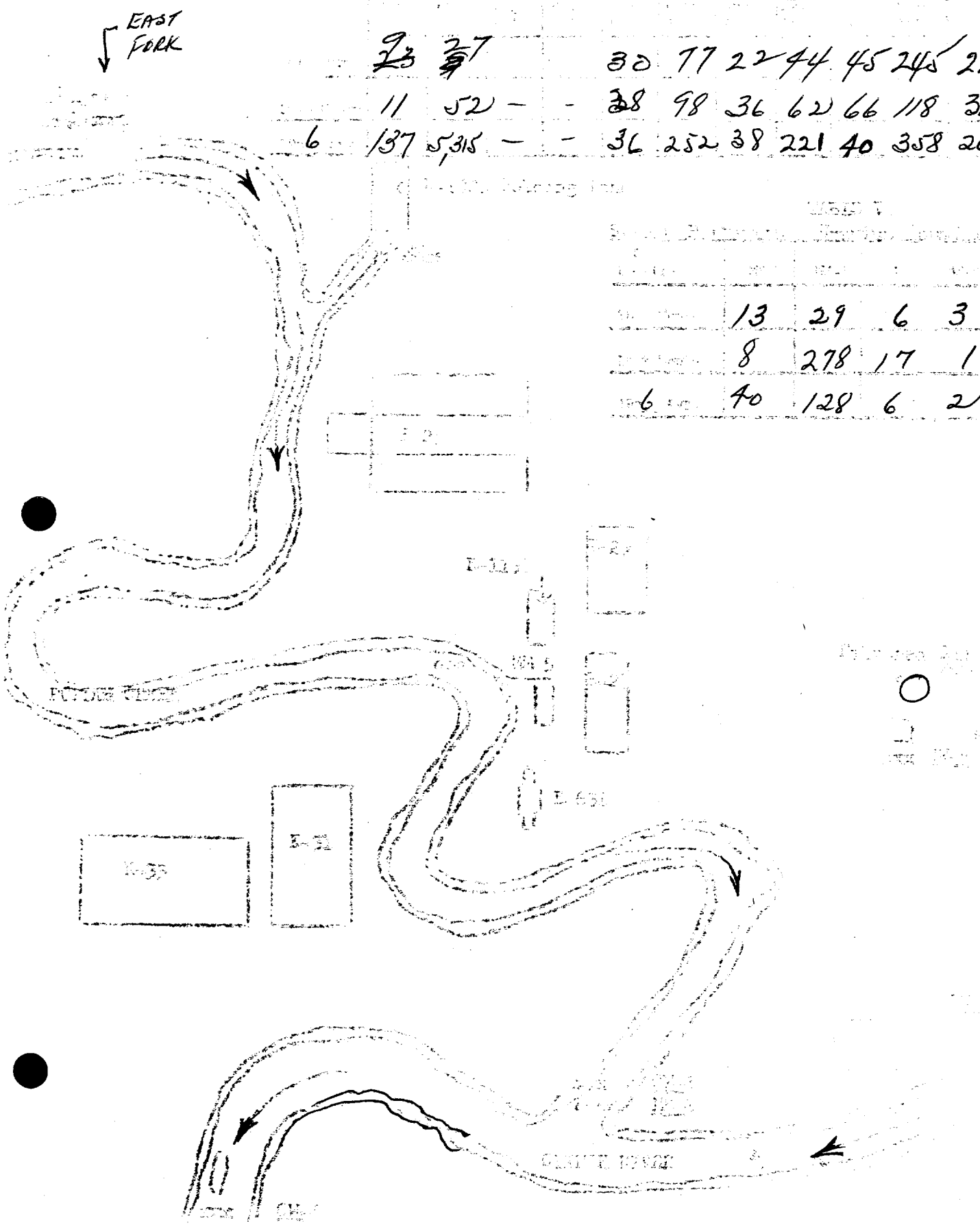
Remarks -

Table V. - The average beta activity in the ORGDP sanitary water remained low and relatively unchanged during the month. While the flow of the Clinch River decreased somewhat apparently the amounts of waste materials from ORGDP ~~[illegible]~~ were correspondingly lower so that the dilution factor was not appreciably changed. Little change in average levels of activity were noted in Poplar Creek and other Clinch River locations further reflecting this stability; however the activity increased significantly at the mouth of the East Fork Creek but continued to remain considerably below normal levels.

Table VI. The average uranium concentration in Poplar Creek increased during the month apparently as a result of poor stream movement during the month following a long period of little rainfall. In addition an increase was also noted at the East Fork mouth apparently indicating some increase in the amount of

uranium materials dumped to the creek by the Y-12 Plant and thence to the immediate Poplar Creek area. The concentration in the Clinch River decreased slightly and remained very low since there has been little movement of the contaminated silt into this area.

May 1957



	~~23~~	~~37~~			30	77	22	44	45	245	22	49
	11	52	–	–	28	98	36	62	66	118	38	90
6	137	5,315	–	–	36	252	38	221	40	358	26	124

	13	29	6	3	14
	8	278	17	1	22
6	40	128	6	2	141

May Water Ed Mud

Remarks:

Table I - The average beta activity in the ORGDP Sanitary water decreased approximately 42% to 22 c/m/100ml during the month. The decrease was apparently due to an increase in the dilution factor of the fission product waste material released from ORNL to White Oak Creek for while the activity released remained normal the average flow of the Clinch River was 3,120 ft³/sec as compared to only 2,050 ft³/sec for the previous period.

The average beta activity in Poplar Creek decreased slightly as did the activity of East Fork Creek apparently due to increased dilution of the normal releases from the ORGDP and Y-12 Plants following ~~area~~ rainfall.

Table VI.

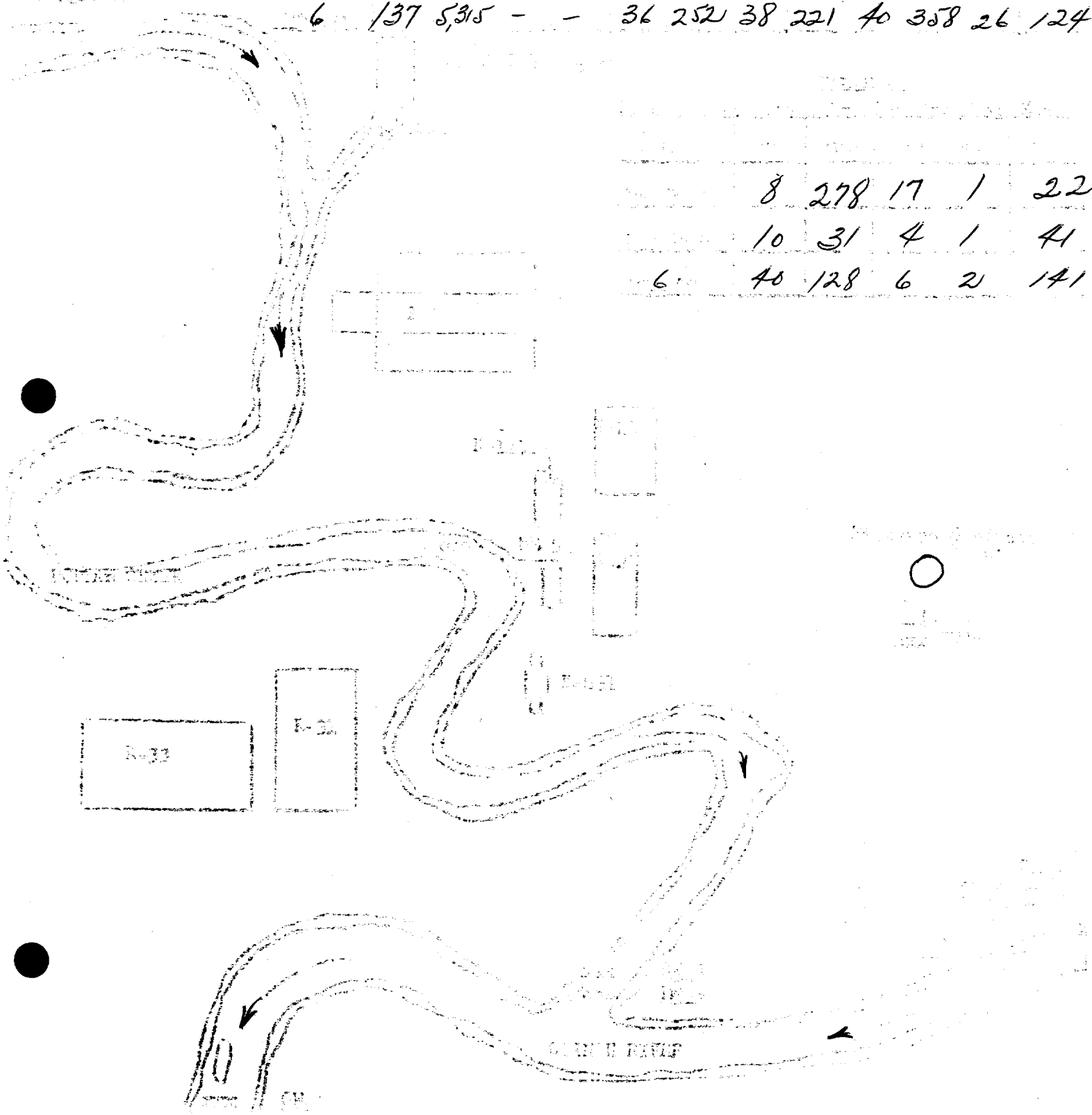
The average Uranium concentration in the Poplar Creek Mud decreased significantly as the contaminated silt built up in the stream bed was moved downstream and dispersed into the Clinch River. The average concentration in the Clinch River increased as the silt was moved from Poplar Creek into the River but continues to remain very low and presents no health hazard.

Alpine 1957

EAST FORK

11	52	–	–	38	98	36	62	66	118	38	90
39	201	–	–	29	74	28	52	35	44	28	46
6	137	5,315	–	–	36	252	38	221	40	358	26	124

	8	278	17	1	22
	10	31	4	1	41
6	40	128	6	2	141



April 1957

Remarks:

Table I. The average beta activity in the plant sanitary water increased to 38 d/m/100 ml ~~for the month~~ reflecting a level 25% greater than the previous period. The increase has resulted from a continuing drop in the flow of the Clinch River thus significantly reducing the dilution of the waste materials released from ORNL. The levels in the East Fork Branch decreased significantly apparently as a result of below normal release of waste materials from Y-12 during the month. The average activity in the Poplar Creek, while increasing, indicated no unusual ~~increase~~ change in levels outside of the normal influence of the Clinch River back flow.

Table VI. The average uranium concentration of Poplar Creek increased during the month ~~apparently~~ as a result of a build up of contaminated silt in the K-1300 area drain which apparently originated primarily from releases

of uranium contaminated solutions from the normal operating processes of the K-1420 Decontamination and Recovery Facilities.

The levels of uranium concentration in the bottom mud of East Fork Branch and the Clinch River remained low and not significantly changed.

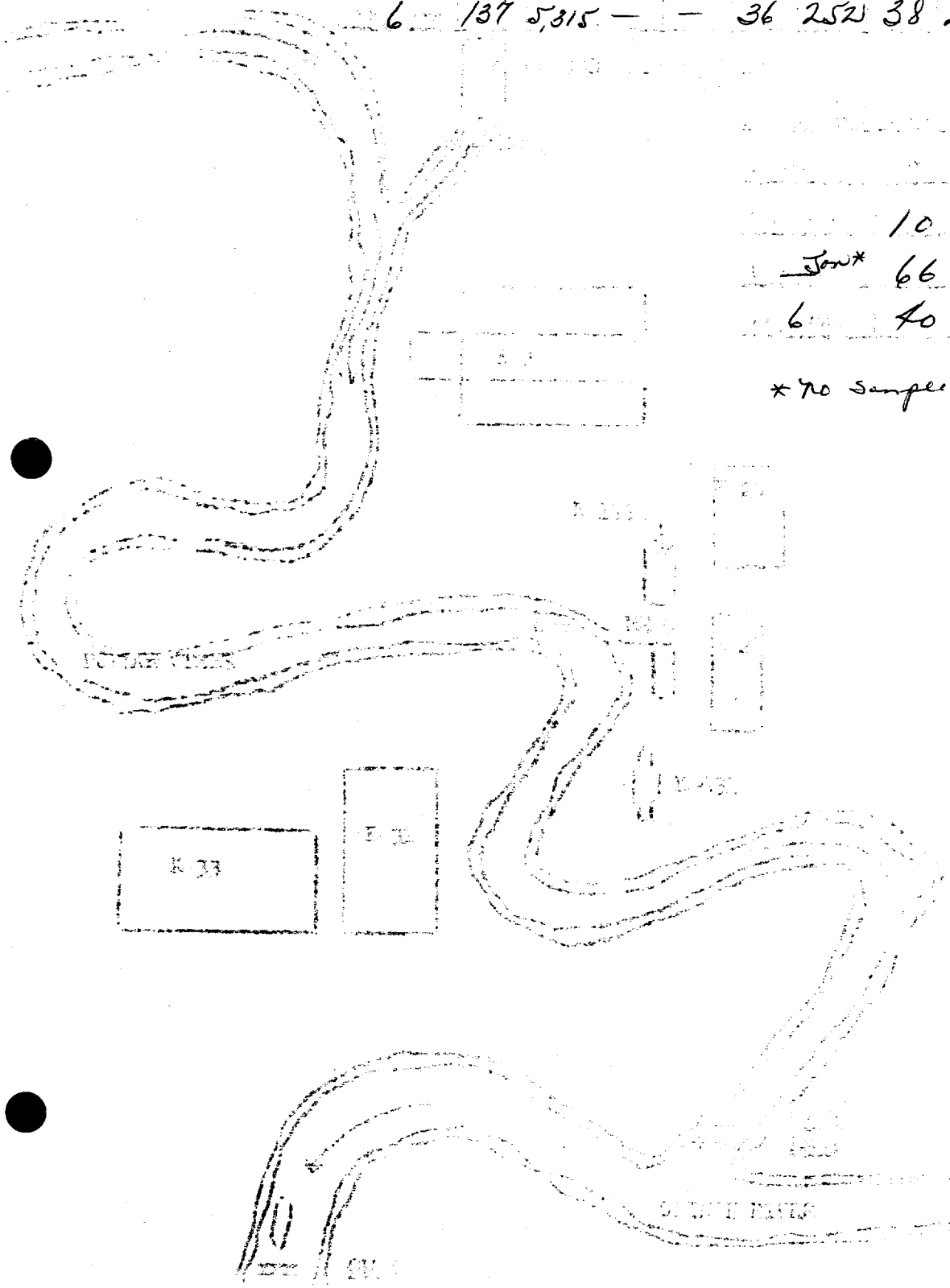
March 1957

EAST FORK

	39	201	—	—	29	74	28	52	35	44	28	4
	22	57	—	—	17	31	21	39	17	56	16	44
6	137	5,315	—	—	36	252	38	221	40	358	26	124

	10	31	4	1	41
Jan*	66	109	37	7	12
6	40	128	6	2	14

* no samples taken during Feb.



March Highlights

Remarks:

Table V - The average beta activity of the ORGDP sanitary water increased more than 40% to 28 d/Min/100 ml. The increase may be attributed to less dilution of the normal activity released from ORNL brought about by the significant decrease in the average flow of the Clinch River which dropped from 18,800 cu ft/sec during February to only 4,800 cu ft/sec. for the current period. Increases in the average beta activity of the East Fork Branch, reflecting Y-12's releases, and the Poplar Creek area were noted apparently as a result of a similar lowered dilution of waste products; however the average activity continues to remain below the similar figures of 1956 and indicate an hygienically-unsafe condition.

Table VI - The average uranium concentration in the bottom mud of Poplar Creek and in the Clinch River decreased significantly at all sampling points. The decrease may be attributed to the downstream

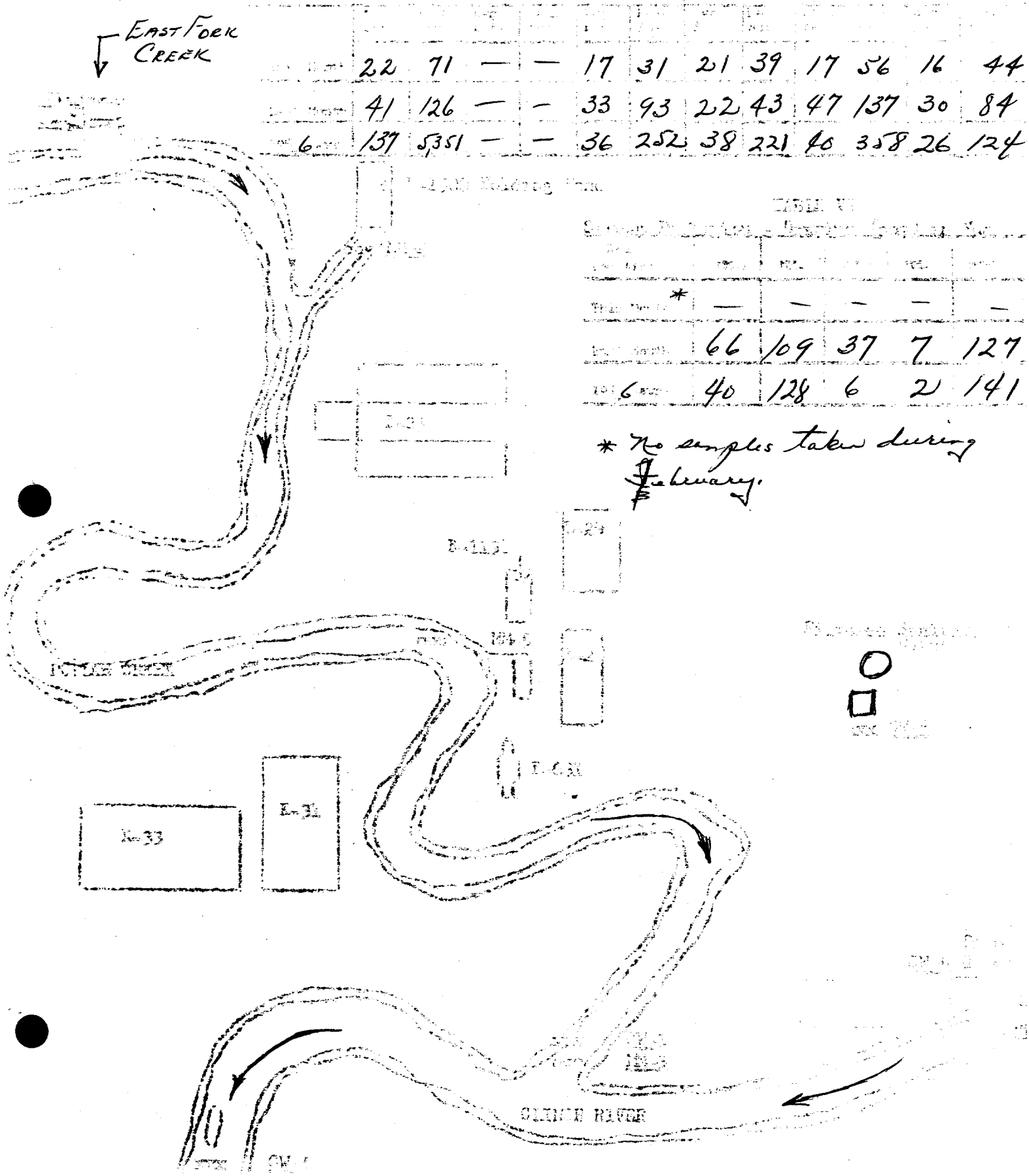
movement and dispersal of contaminated silt built up at points of release to the stream by the heavy rain fall during the previous month

February 1951

22	71	—	—	17	31	21	39	17	56	16	44
41	126	—	—	33	93	22	43	47	137	30	84
137	5,351	—	—	36	252	38	221	40	358	26	124

*	—	—	—	—
	66	109	37	7	127
6	40	128	6	2	141

* No samples taken during February.



February 11, 1957

Water Sampling - Beta Activity

Table I -

Remarks: The average beta activity in the plant sanitary water was lowered by a factor of 2 from the activity noted last month. The significant decrease was apparently due to the high flow of the Clinch River during this period which increased from an average flow of 5,035 ft³/sec to 18,805 ft³/sec, thus the normal release of mixed fission product waste material, were diluted to a much greater extent.

The average beta activity in the East Fork and Poplar Creek was ~~similarly~~ reduced in a similar manner by the heavy rain fall which resulted in greater dilution of the routine releases of waste materials from the ORGD and Y-12 plants.

Table IV -

No sampling of stream bottom mud was made during this period due to the hazardous conditions created by the flood conditions of the streams during this period.

[redacted] January 1956

		1075	5351	–	–	66	173	60	155	68	197	34	94			
		83	586	–	–	65	148	64	122	95	227	47	79			
5		60	586	–	–	29	333	35	170	43	290	28	337			

	12	19	4	0.4	244
	13	21	17	7	131
5	51	30	9	3	81

CLIMATE REVIEW

January 1956
Water and Mud Sampling
Highlights

Water

The average beta activity in the K-25 Sanitary water decreased during the month but remained above the 1955 average as a result of relatively high activity released from the Y-12 White Oak Lake following accidental releases of fissionable product waste material during the first part of the month. At the East Fork junction of Poplar Creek the beta activity increased significantly from last month with high activity noted during most of the month. The reason for the sudden increase was available from the Y-12 Installation other than low stream flow during the period of little rainfall which probably decreased the normal dilution factor. Investigation of the very high activity noted during the early part of the period is continuing.

Mud

The average concentration of Uranium in the stream bottom mud remained relatively low and not significantly changed at most locations. The increase noted at the K-27 drainage area

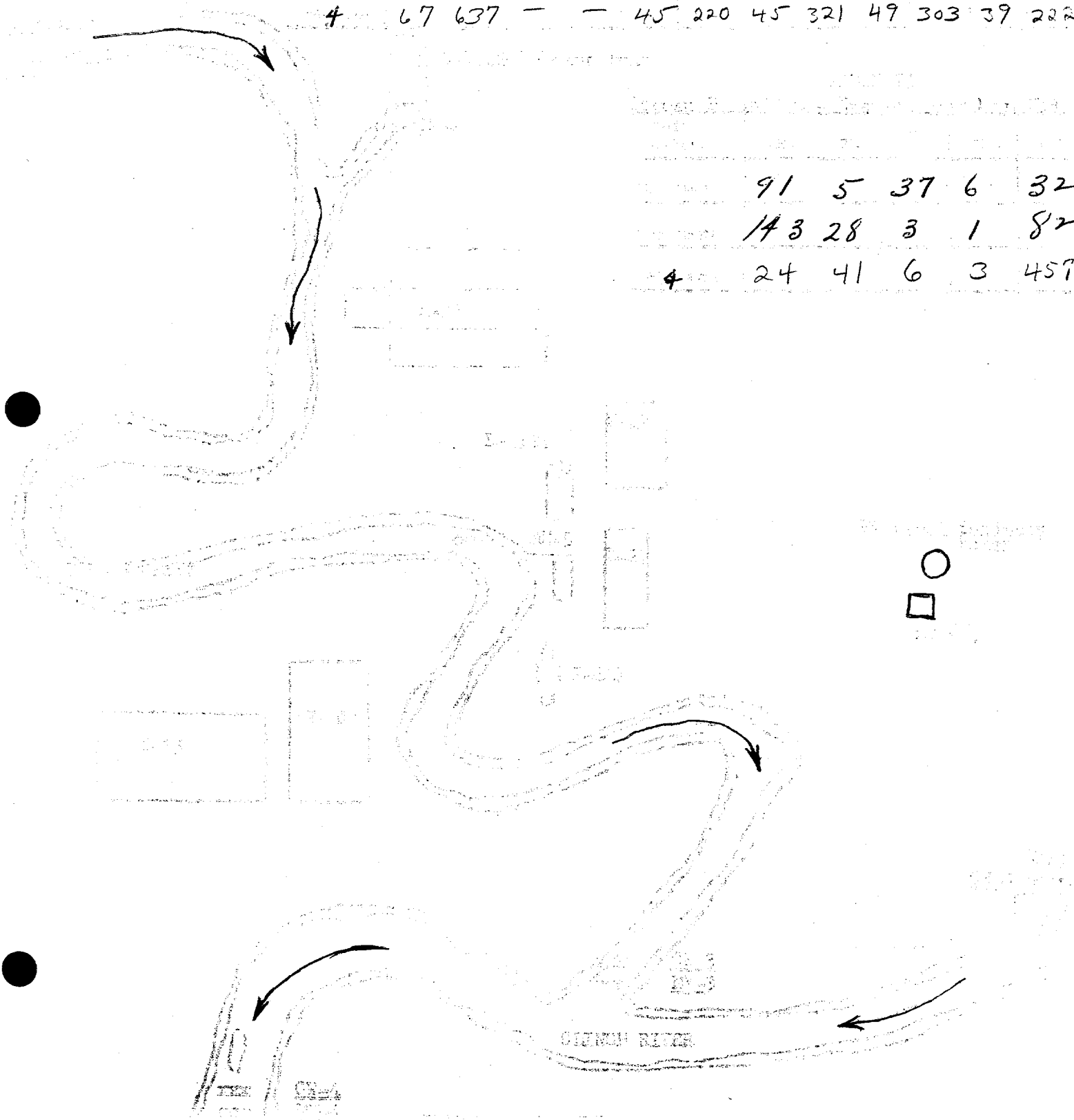
probably resulted from the manual cleaning of the UO_2 barrels outside of K-1131 during periods of maintenance on the drum cleaning equipment.

[redacted]

November 1951

	28	60	—	—	26	59	35	81	30	81	28	50
	85	181	—	—	17	34	14	29	15	36	14	26
4	67	637	—	—	45	220	45	321	49	303	39	222

	91	5	37	6	32
	143	28	3	1	82
4	24	41	6	3	457



November 1955

Remarks —

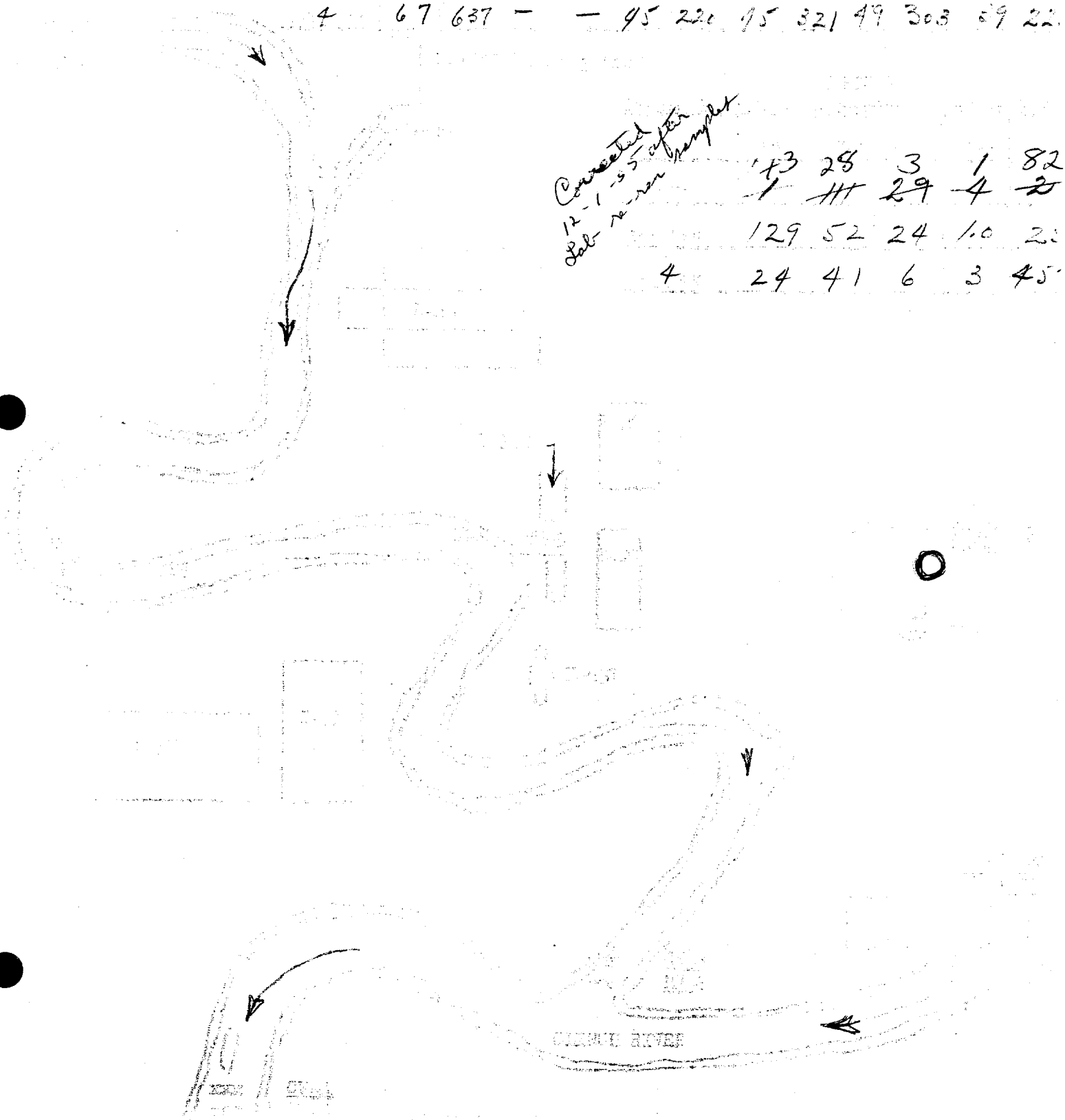
Table I. — The average beta activity in the K-25 sanitary water while remaining relatively low was somewhat higher than the results reported for the last period, however the release of the fissionable product waste material via the X-10 (White Oak Lake) remained normal and the increase while not significant may be attributed to the decrease in the flow of the Clinch River with subsequently less dilution.

Table II. — The average uranium concentration in the Poplar Creek mud decreased as the contaminated silt moved and was dispersed ~~by the~~ further downstream following the heavy rainfalls during this period. The movement may be traced by the decreases noted upstream at the K-1300 and K-27 drainage areas and the increases noted at the Poplar Creek mouth and the downstream Clinch River location.

	85	181	—	—	17	34	14	29	15	36	14	26
	47	117	—	—	9	16	10	20	9	13	11	17
4	67	637	—	—	95	220	95	321	49	303	59	22

Corrected 12-1-95 after Lab review pamphlet

	43	28	3	1	82
	~~1~~	~~111~~	~~29~~	~~4~~	~~2~~
	129	52	24	10	2
4	24	41	6	3	45



Remarks

Table V

The beta activity of the K-25 Sanitary water ~~remained low and~~ increased only slightly and remained very low. During the month the White Oak Lake was drained resulting in a slight increase in the Clinch River average activity but ~~[illegible]~~ the high flow of the River during this time offset the increase in ~~[illegible]~~ the amount of fission product waste material released. At the present time no water is being retained in the White Oak Lake and the waste materials are released directly to the Clinch River from the X-10 storage tanks. The average beta activity of the East Fork Branch ~~increased~~ resulting from ~~as a result of~~ normal operations at the Y-12 installation increased but at present ~~and~~ indicates no significant problem. ~~this time~~.

Table VI

The average Uranium Concentrations in Poplar Creek and the Clinch River remained low with the most significant increase noted at the K-1300 Drainage area of Poplar Creek as a result of downstream silt movement from the

East Fork Creek. Concentrations at the East Fork and K-27 Drainage Ditch were particularly low during the month probably as a result of the silt movement. Since no change from the normal operational release of material was reported

June 1955

TABLE V

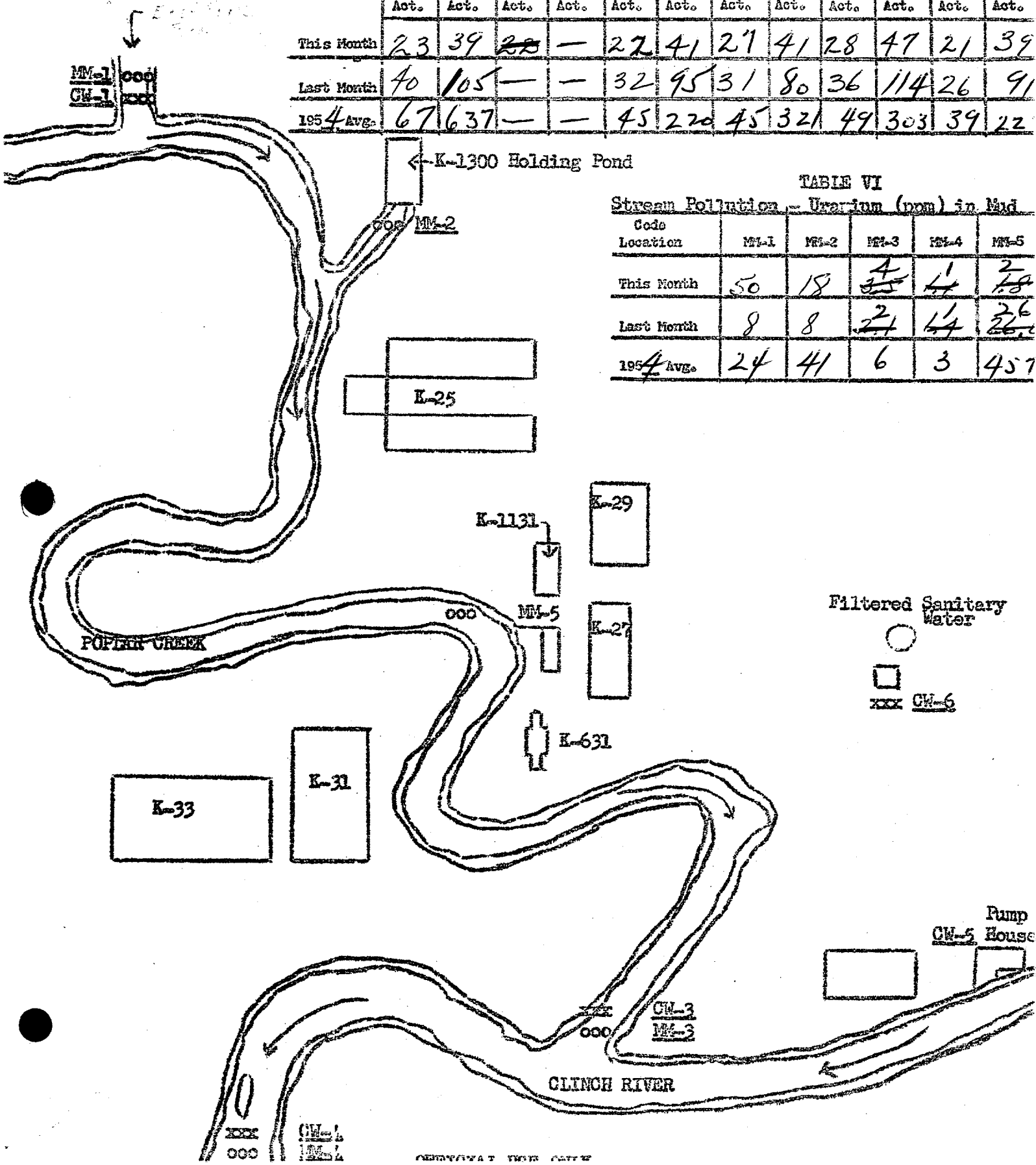
Water Sampling - Beta Activity (c/m/100ml.)

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	23	39	~~22~~	—	22	41	27	41	28	47	21	39
Last Month	40	105	—	—	32	95	31	80	36	114	26	91
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-5
This Month	50	18	4 ~~3.5~~	1 ~~4~~	2 ~~1.8~~
Last Month	8	8	2 ~~2.4~~	1 ~~4~~	26 ~~26.0~~
1954 Avg.	24	41	6	3	457



[illegible]

[illegible]

[illegible]

Count VI.

[illegible] Defendants [illegible] were not as to the amount of material released from the K-1131 Feed Plant permits be not [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

May - 195

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TABLE V

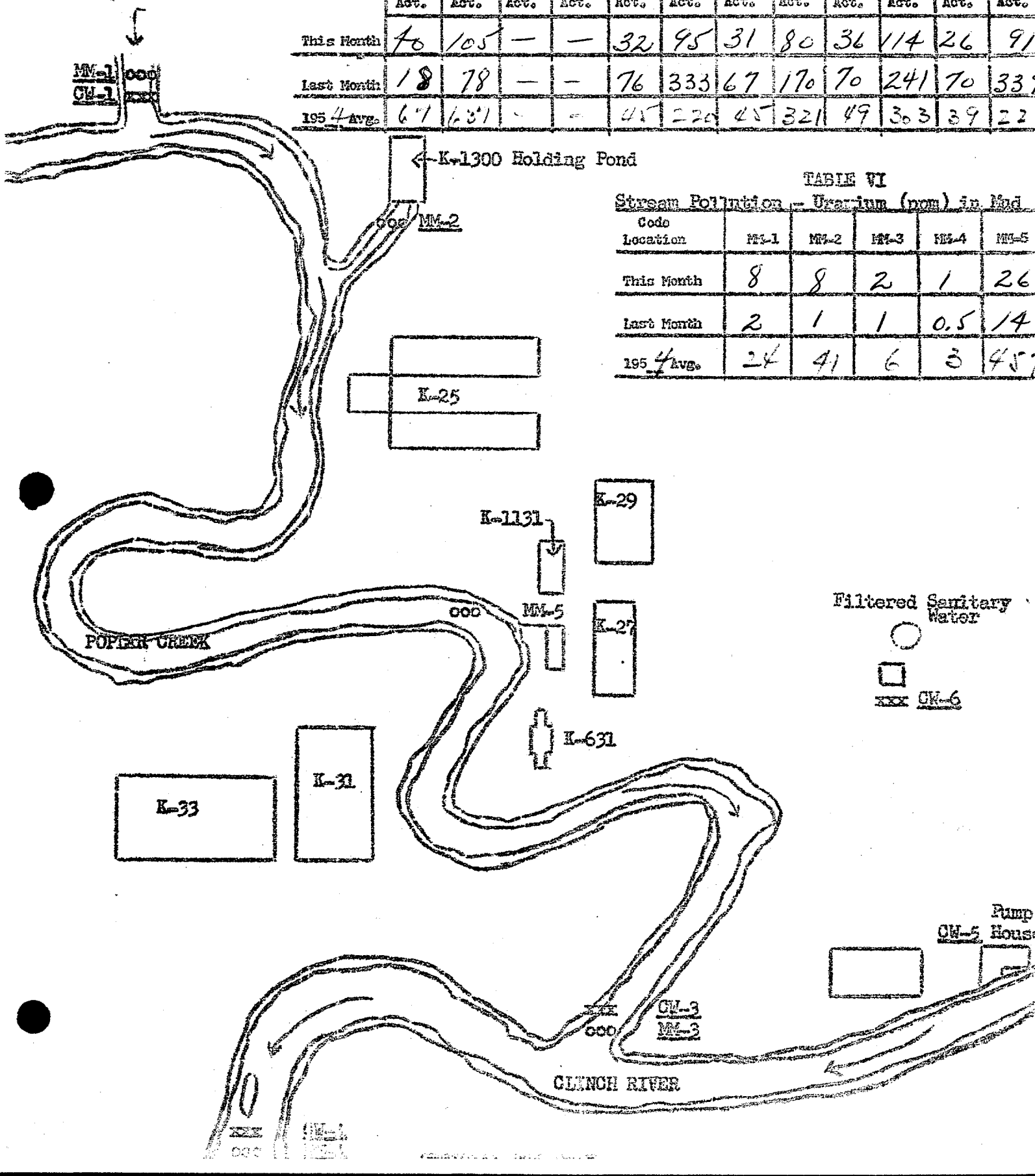
Water Sampling - Beta Activity (c/m/100ml.)

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	40	105	—	—	32	95	31	80	36	114	26	91
Last Month	18	78	—	—	76	333	67	170	70	241	70	33[illegible]
1954 Avg.	67	637	-	-	45	220	45	321	49	303	39	22[illegible]

TABLE VI

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month	8	8	2	1	26
Last Month	2	1	1	0.5	14
1954 Avg.	24	41	6	3	45[illegible]



May 1955

Table V
Water Sampling

Remarks:

The average beta activity in the K-25 sanitary water decreased significantly from the comparatively high level of activity reported last month. The release of fission product waste material from the X-10 White Oak Lake remained normal throughout this report period and the relatively high flow noted in the Clinch River resulted in the average beta activity being below the 1954 average.

Table VI

Remarks

The uranium concentration of Poplar Creek continued to decrease and to remain very low as a result of the shut-down of the K-1131 uranium feed production which is normally the primary source of stream contamination. The average concentration in the Clinch River also remained low and was not significantly changed from the previous period.

Summary

Beta

The average beta activity in the plant sanitary water tripled the low value of December, representing a level 125% of 1958 average figure. The rate of flow of the Clinch River continued the decreasing trend, noted since August, being 2080 ft³/sec compared with 3840 ft³/sec for December.

Generally higher beta levels were noted at all sampling points, apparently reflecting decreased dilution of the mixed fission product waste material released from ORNL & leached from the mud concentrate & decreased river flow.

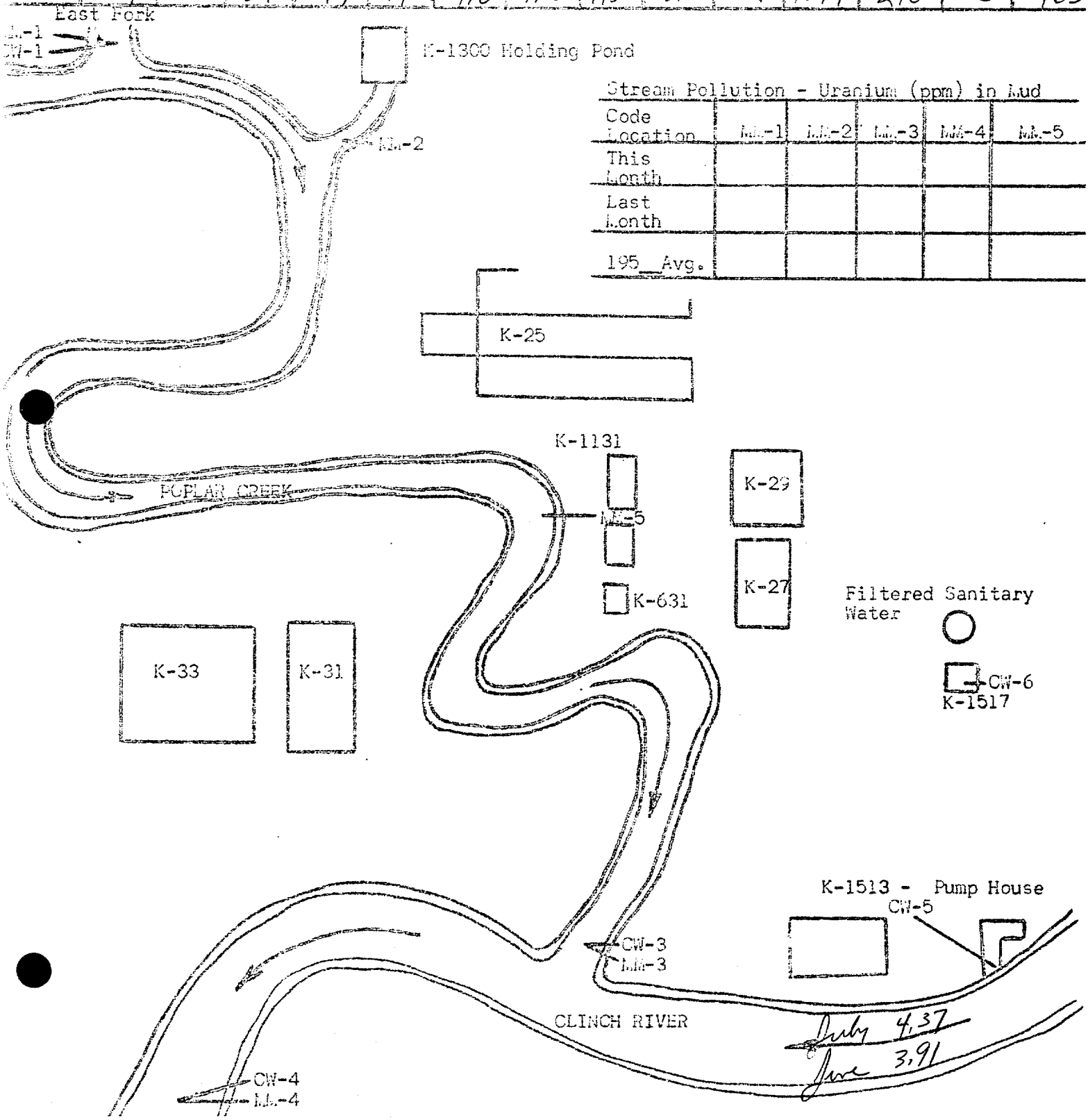
Uranium

The average uranium concentrations either decreased & showed only slight fluctuation within normal ranges, influenced by normal operations of the Y-12 Plant.

2/25/59
nbc

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) July 1960

Date Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
h	12	22	47	49	141	7.1	36	197	2.0	83	355	2.1	86	374
h	15	23	81	44	91	10.9	135	427	4.6	94	257	1.6	98	264
9 Avg.	39	302	89	49	242	9.0	110	1958	3.8	86	1047	2.0	58	463



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

July 1960

Beta

The average total beta in the ORGDP sanitary water decreased slightly from 98 to 86 dis/min/100cc. Results of ORNL radio-chemical analyses of weekly composite water samples collected by ORGDP at the Water Filtration Plant (raw Clinch River Water, about 6½ miles downstream from the mouth of White Oak Creek), reflected beta activity to be 16.0% of the 168 hour week "weighted" MPC during July.

Meanwhile the Clinch River average rate of flow (Norris Dam discharge) increased from 3910 to 4370 ft³/sec, with corresponding increase in the dilution factor of normal discharges from ORNL of mixed fission-product waste.

Beta activities at other sampling points decreased or remained low and unchanged.

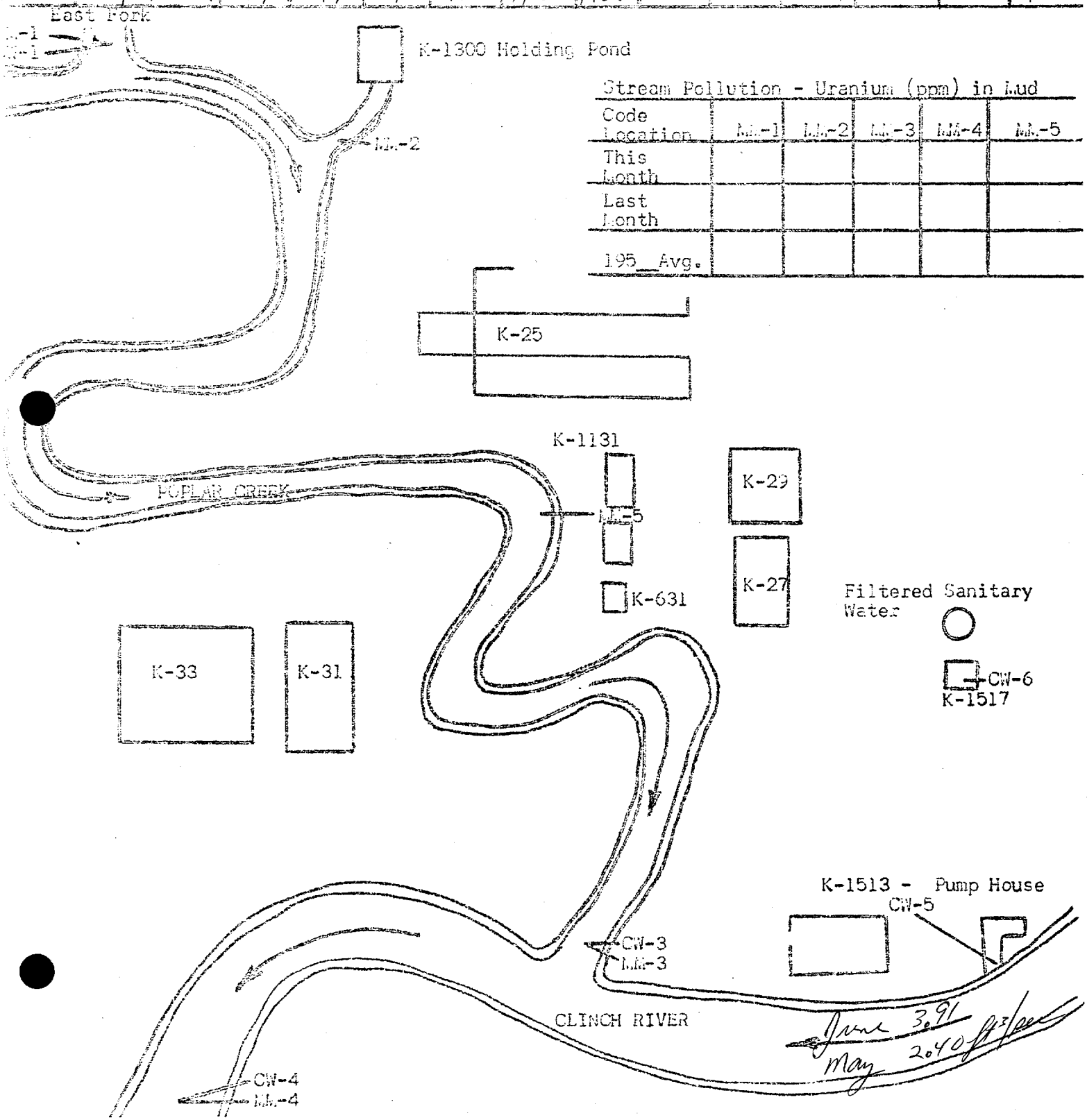
Uranium

The average uranium concentrations in local streams showed no significant changes from the quite low levels noted in previous periods, apparently reflecting normal releases of uranium-bearing materials from ORO, resulting in concentrations well below applicable MPC_w.

N. B. Schultz
8/31/60

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) June 1960

Tion	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
	15	23	81	44	91	10.9	135	427	4.6	94	257	1.6	98	264
	13	17	90	41	68	8.8	63	128	4.4	74	116	3.5	52	103
9 Avg.	39	302	89	49	242	9.0	110	1958	3.8	86	1047	2.0	58	463



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

June 3.91
May 2.40

June 1960

Beta

The average total beta activity in the ORGDP sanitary water increased from 52 to 98 dis/min/100ml, Results of ORNL radio-chemical analyses of weekly composite water samples collected by ORGDP at the Water Filtration Plant (raw Clinch River, ≈ 6½ mile downstream from mouth of White Oak Creek), reflected beta activity to be 16.7 % of the 168-hour-week "neighborhood" MPC in June.

Meanwhile, the Clinch River average rate of flow increased from 2,400 to 3910 ft³/sec, with corresponding increase in dilution factor of normal discharge from ORNL of mixed fission product waste.

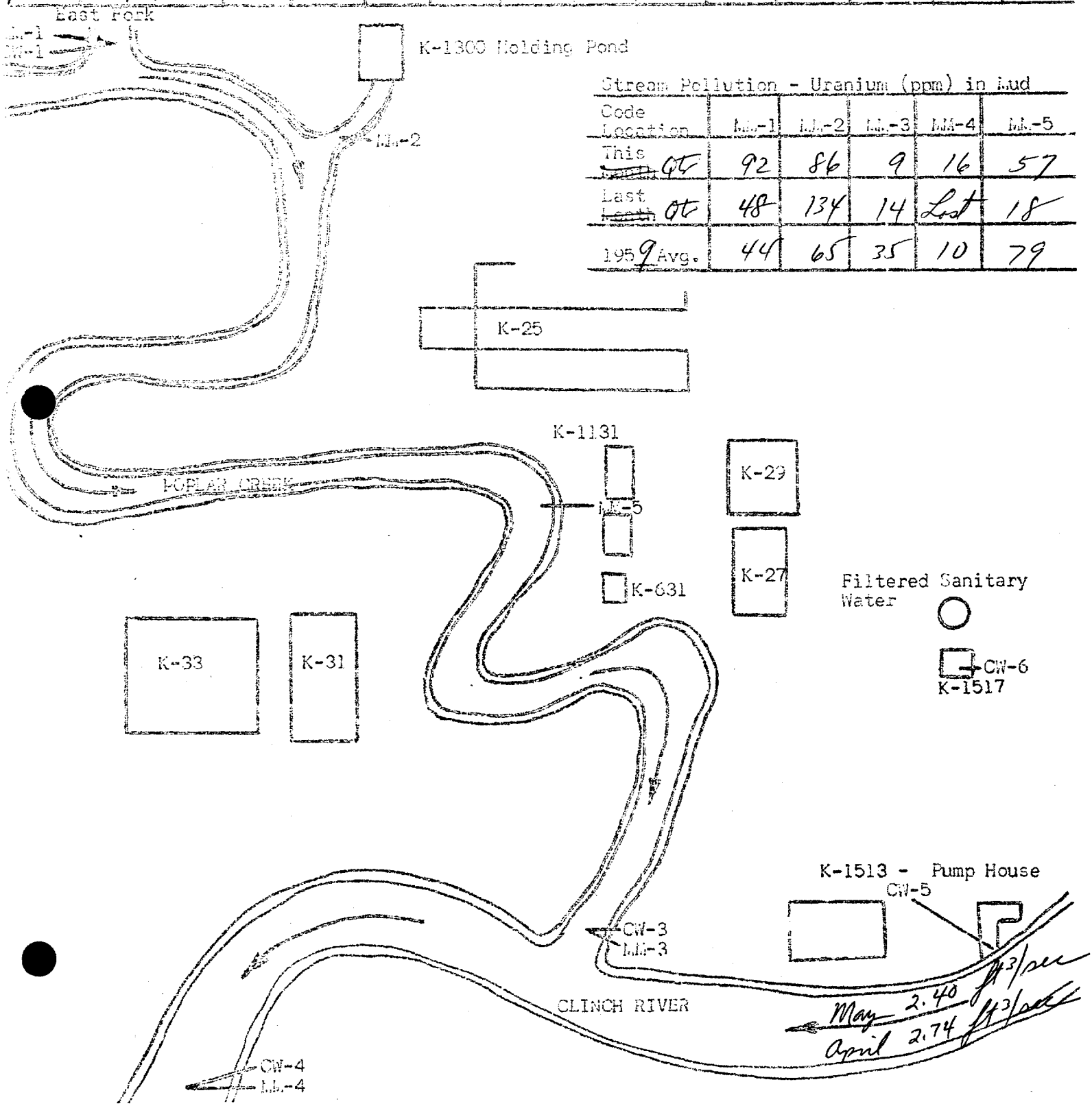
Uranium

The average uranium concentrations showed no significant changes from the relatively low levels noted in previous periods, apparently reflecting normal releases of uranium-bearing materials from ORO operations, resulting in concentrations well below applicable MPC_w

N. B. Schultz
7/8/60

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) May 1960

Month	CW-1 Beta Avg. Act.	CW-1 Beta Peak Act.	CW-1 U Avg. ppb	CW-3 Beta Avg. Act.	CW-3 Beta Peak Act.	CW-3 U Avg. ppb	CW-4 Beta Avg. Act.	CW-4 Beta Peak Act.	CW-4 U Avg. ppb	CW-5 Beta Avg. Act.	CW-5 Beta Peak Act.	CW-5 U Avg. ppm	CW-6 Beta Avg. Act.	CW-6 Beta Peak Act.
[illegible]	13	17	90	41	68	8.8	63	128	4.4	74	116	3.5	52	103
[illegible]	19	47	78	127	381	7.9	100	460	5.2	226	590	4.8	284	819
9 Avg.	39	302	89	49	242	9.0	110	1958	3.8	86	1047	2.0	58	463



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~month~~ Qtr	92	86	9	16	57
Last ~~month~~ Qtr	48	134	14	Lost	18
1959 Avg.	44	65	35	10	79

May 1960

Beta

The average total beta activity in the ORGDP sanitary water decreased again this month from 284 to 52 dis/min/100ml. The average rate of flow of the Clinch River (Norris Dam Discharge) meanwhile remained essentially unchanged, decreasing slightly from 2,740 to 2,400 ft³/second.

Total beta activity recorded for all sampling points likewise showed decreases this month.

Results of ORNL radiochemical analyses of weekly composite water samples collected by ORGDP at Water Filtration Plant, reflected beta activity in Clinch River ≈ 6½ miles below mouth of White Oak Creek to be 34.9% of 168-hour-week neighborhood MPC in April, and 21.5% in May.

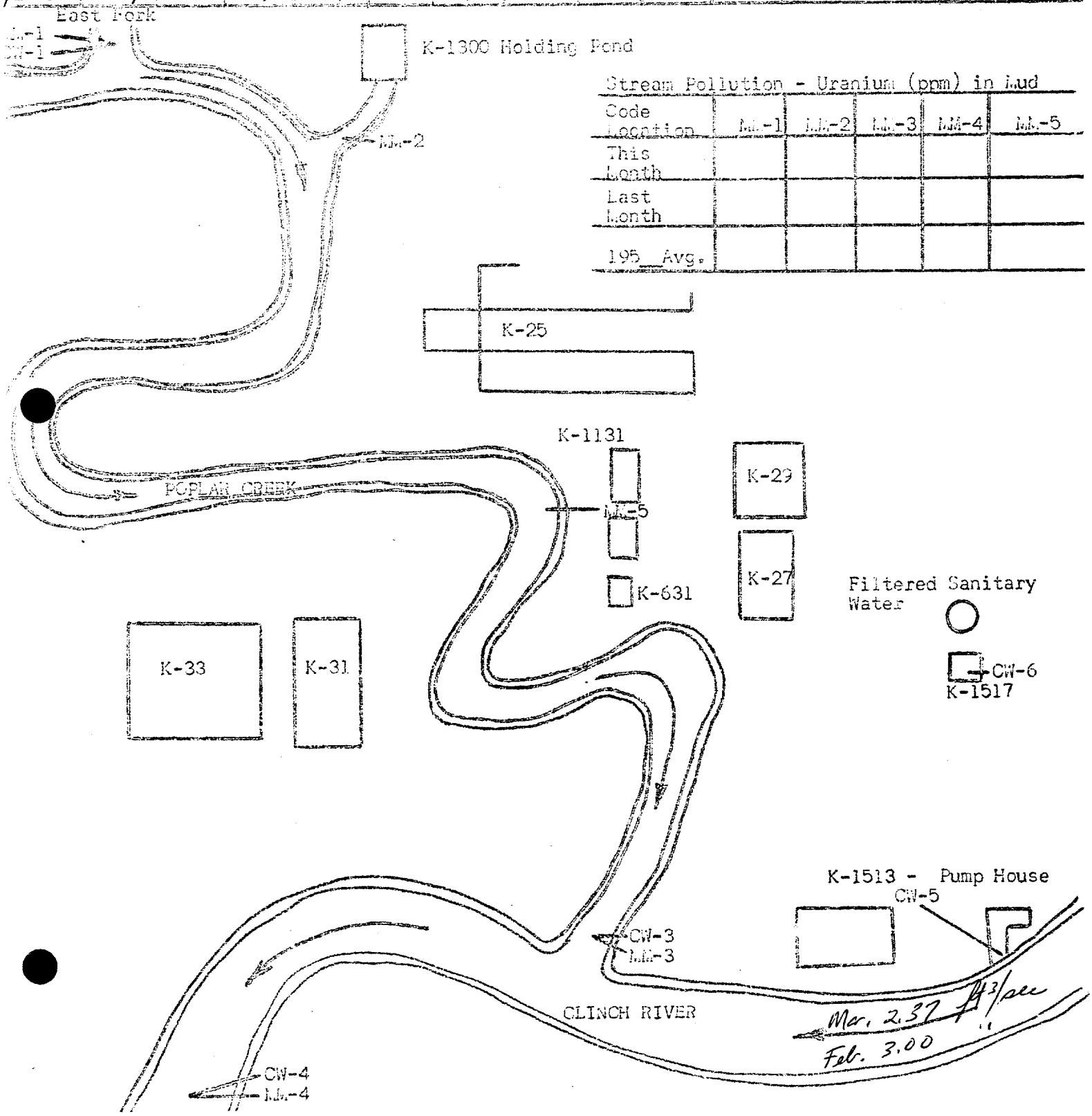
Uranium

The average uranium concentrations showed no significant changes from the relatively low levels noted previously, apparently reflecting normal releases of uranium-bearing materials from ORO operations.

6/28/60
N.B. Schultz

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) March 1960

Station	CW-1 Beta Avg. Act.	CW-1 Beta Peak Act.	CW-1 U Avg. ppb	CW-3 Beta Avg. Act.	CW-3 Beta Peak Act.	CW-3 U Avg. ppb	CW-4 Beta Avg. Act.	CW-4 Beta Peak Act.	CW-4 U Avg. ppb	CW-5 Beta Avg. Act.	CW-5 Beta Peak Act.	CW-5 U Avg. ppb	CW-6 Beta Avg. Act.	CW-6 Beta Peak Act.
d	47	87	58	196	287	8.9	340	846	3.9	404	638	1.3	443	600
n	132	503	57	180	287	7	277	846	4.0	447	584	0.7	407	529
9 Avg.	39	302	89	49	242	9	110	1958	3.8	86	1047	2.0	58	463



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

March 1960

Beta

The average beta activity in the ORGDP sanitary water continued the increase noted recently, from 407 to 443 dis/min/100 ml. It may be noted that det. radiochem. of WOC by ORNL indicated ≈ 2% Sr^{90}, resulting in % MPC_w-Mixture ≈ 1.7% of permissible level, reflecting no health problem to ORGDP occupational workers or "neighborhood" personnel.

The average rate of flow of the Clinch River (Norris Dam release) decreased slightly from 3,000 to 2,370 ft^3/second, with corresponding reduction in dilution factor.

The average beta activity in East Fork decreased from 132 to 47 dis/min/100 ml, with Feb. high value possibly resulting from the thorium oxides spill on or about 2/9/60.

Uranium

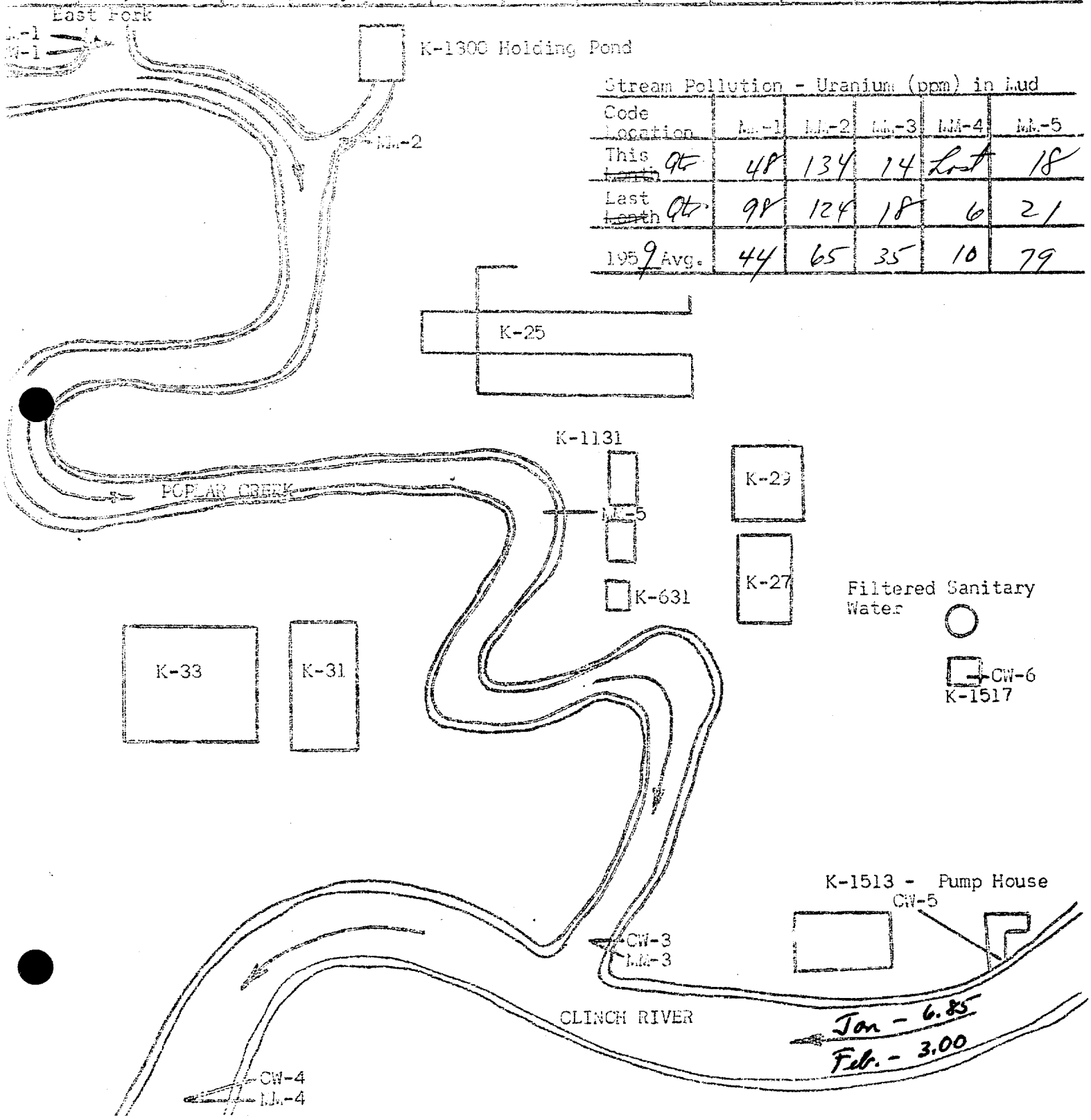
The average uranium concentrations showed no significant changes from the relatively low values reported in February.

{ Clinch River – Raw Water at K-1515 Sanitary Water Plant.
1st Weekly composite to ORNL for radiochem.: 3/28 → 4/3.

M.B. Schultz
4/11/60

WATER MONITORING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) Feb. 1960

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
	132 ~~57~~	503 ~~82~~	57	180	287	7	277	846	4.0	447	584	0.7	407	529
h	58	503	72	127	235	5	313	606	1.3	297	468	2.0	260	427
9 Avg.	39	302	89	49	242	9	110	1958	3.8	86	1047	2.0	58	463



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~Month~~ Qtr.	48	134	14	Lost	18
Last ~~Month~~ Qtr.	98	124	18	6	21
1959 Avg.	44	65	35	10	79

February

Beta

The average beta activity in the ORGDP sanitary water increased from 260 to 407 dis/min/100 ml. It should be noted that chemical analyses of WO Creek during Jan. & Feb. and Clinch River water at ORGDP sanitary water plant intakes reflect contribution to this total activity of ≈ 99% radionuclides, predominately Ruthenium ^{106}, with MPC_w ≈ 88,800 dis/min/100 ml, with < 1% due to Sr^{90} with MPC_w ≈ 888 dis/min/100 ml. (These values indicate ≈ 1/100th MPC mixture.)

ORNL representatives report the source of the Sr^{90} activity to be leaching from dry lake bed and some of Ru^{106} activity to be seepage from a leaking pit. A new pit is under construction, and the solution will be transferred to this new trench when completed, possible within 2 months.

The average rate of flow of the Clinch River (Norris Dam release) decreased from 6.85 to 3.00 ft^3/second, c/ corresponding decreased dilution factor.

Beta activity at other sampling points remained essentially unchanged, or increased.

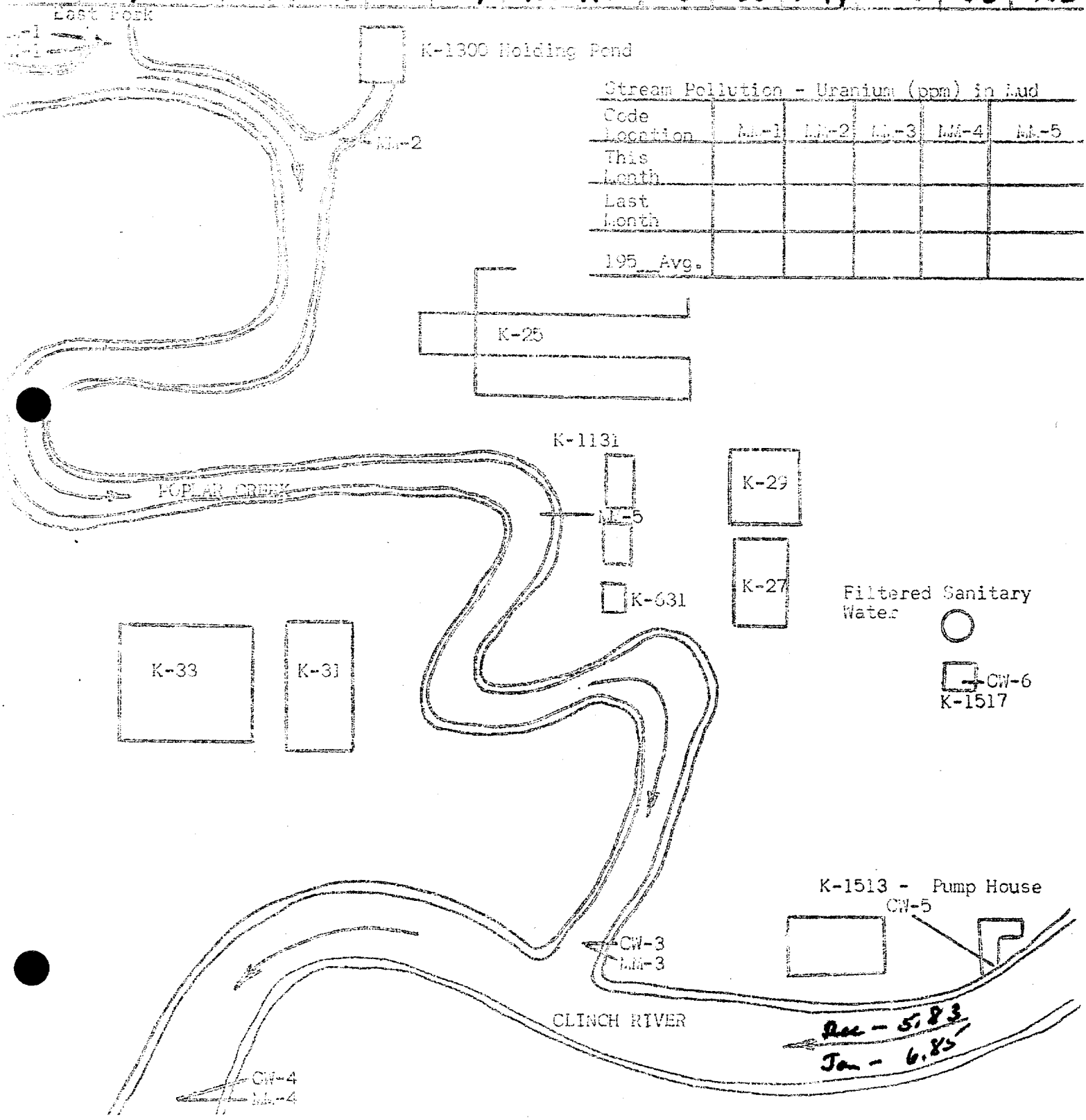
Uranium

The average U conc. showed no significant changes from relatively low values reported in January.

nbz
2/22/60

[illegible] (cts/min/100 ml) - Uranium (ppm) JAN. 1980

Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	58	503	72	127	235	5	313	606	1.3	297	468	2.0	260	427
[illegible]	64	124	128	120	242	21	355	853	1.8	500	1047	1.3	285	463
9 Avg.	39	302	89	49	242	9	110	1958	3.8	86	1047	2.0	58	463



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month					
195__ Avg.					

January

Beta

The average beta activity in the ORGDP sanitary water remained relatively high at 260 dis/min/100 ml but relatively unchanged from Dec. value of 285 dis/m/100 ml. The average rate of flow of the Clinch River (Norris Dam release) meanwhile increased from 5,830 to 6,850 ft³/second.

Similarly, beta activity at other sampling points remained essentially unchanged, except for the decrease at CW-5 (K-1573 Pump House, Clinch River) from an average of 500 to 297 beta dis/min/100 ml.

Uranium

The average uranium concentrations showed a decreasing trend, except for CW-5 where the monthly average increased slightly from 1.3 to 2.0 ppb, the latter being equivalent to the 1959 annual average for this location. These facts apparently reflecting normal releases of uranium-bearing materials from Y-12 and ORGDP operations.

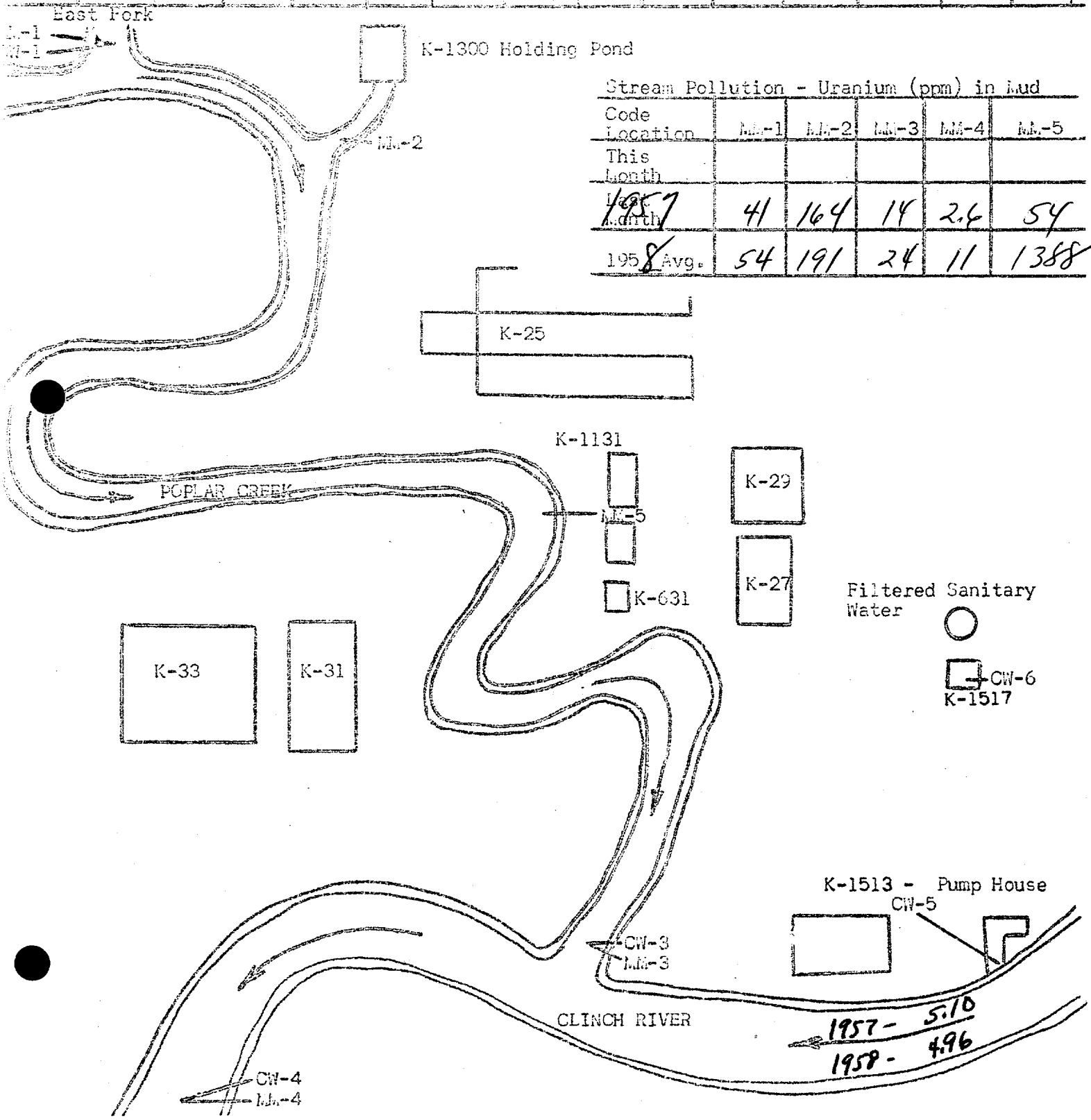
nbs
2/23/60

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) CY-1958

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
4th Qt.	17		88	23		12	21		2.7	17		1.8	13	
1957	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90
8 Avg.	20	63	54	40	328	12	47	455	4.1	42	388	2.4	39	357

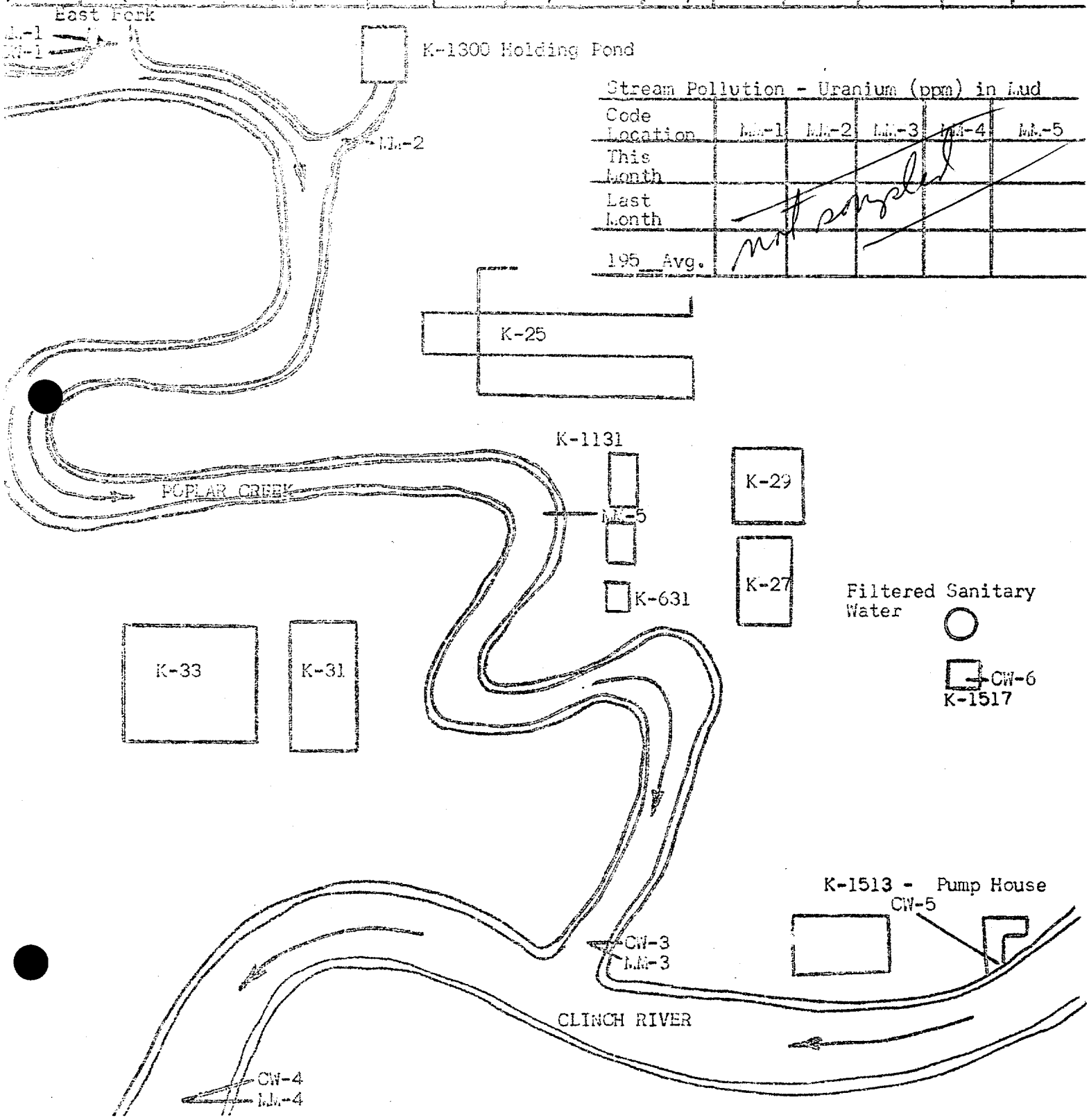
Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month 1957	41	164	14	2.6	54
1958 Avg.	54	191	24	11	1388



WATER MONITORING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) Sec 1750

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
h	22	26	145	24	34	12	20	35	5.3	20	31	1.7	15	20
h	16	23	62	31	79	14	34	66	0.6	22	32	1.0	16	23
Avg.	26	146	61	31	146	13	31	228	5.4	35	245	40	28	90



Stream Pollution - Uranium (ppm) in Mud

Code Location	M-1	M-2	M-3	M-4	M-5
This Month					
Last Month	not sampled				
195__ Avg.					

December

Beta

The average beta activity in the plant sanitary water remained essentially unchanged; the rate of flow of the Clinch River continued the decreasing trend noted since August, being 3840 ft³/sec compared with 4900 ft³/sec for November.

A slight increase was detected in the average beta activity in East Fork, but the levels remained below the average 1957 figure.

No abnormal release from ORNL was reported or indicated by activity levels.

Uranium

The average uranium concentration in the East Fork more than doubled the similar figure for November of 1957; discussion c̄ M. Sanders revealed 4-12 records also indicated somewhat higher levels, but no known history of unusual release; well below the 3.9×10^4 ppb U NORMAL to water MAC.

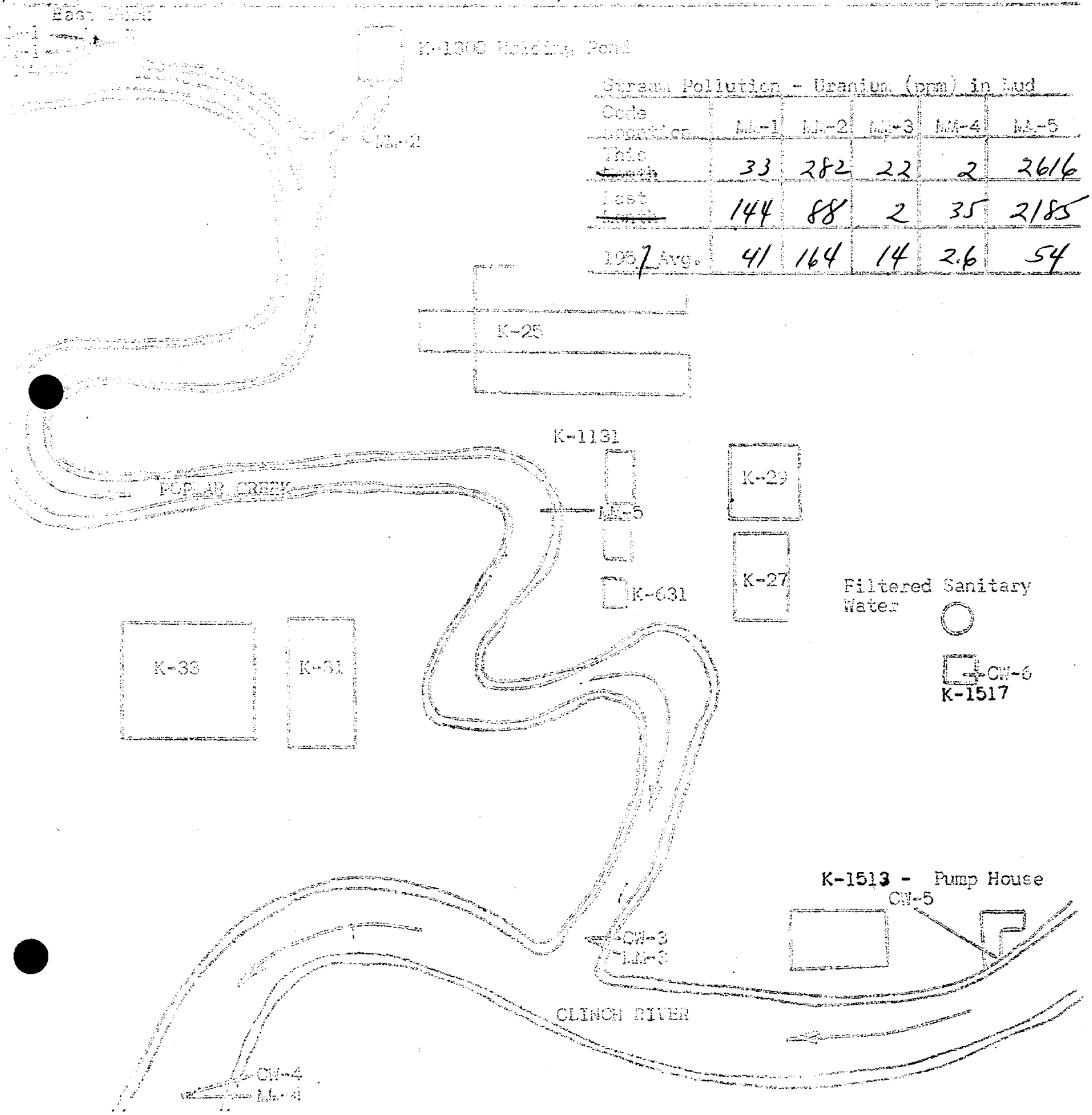
M. B. Schultz

[illegible] Nov. 1950

							CW-4			CW-5			CW-6	
							Beta		U	Beta		U	Beta	
	[illegible]	[illegible]	Avg. ppb	[illegible]	[illegible]	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
	16	23	62	31	79	14	34	66	0.6	22	32	1.0	16	23
	16	25	64	15	27	11	9	18	2.4	9	14	2.8	8	12
7 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~Month~~	33	282	22	2	2616
Last ~~Month~~	144	88	2	35	2185
1957 Avg.	41	164	14	2.6	54



November

Beta

The average beta activity in the plant sanitary water doubled the low value of October, but remained well below 1957 average figure. The rate of flow of the Clinch River continued the decreasing trend noted since August, being 4,900 ft³/second compared with 5,410 ft³/sec in October. Slight increase in beta activity at CR sampling points apparently reflect normal fluctuations in the quantity of mixed fission product waste materials released from ORNL.

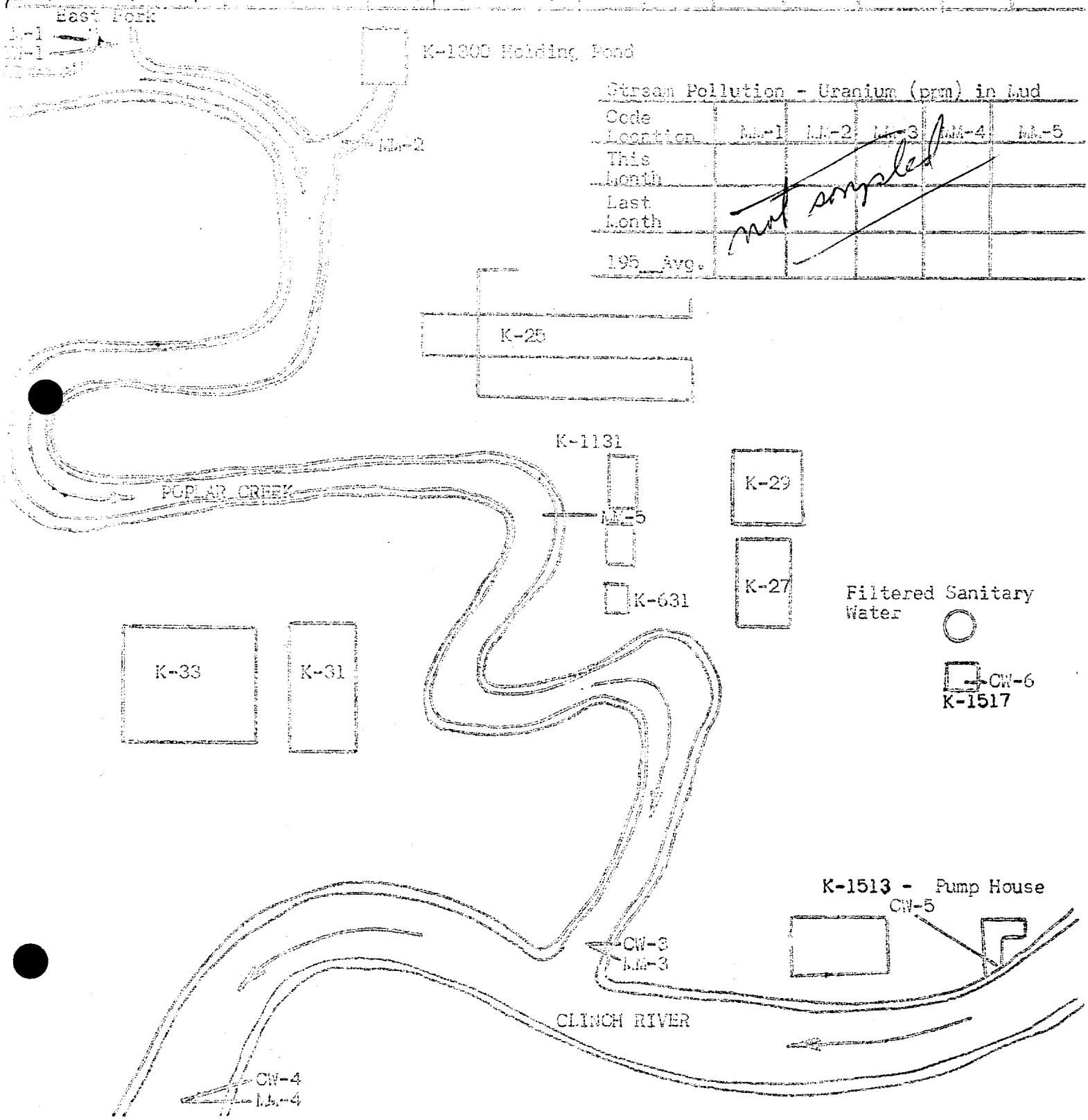
Uranium

No significant changes were noted in the uranium concentrations.

The average uranium concentration in the East Fork closely paralleled 1957 average, influenced by normal operations of 4-12 Plant.

Oct. 1950

Date	CW-1 Beta Avg. Act.	CW-1 Beta Peak Act.	CW-1 U Avg. ppb	CW-3 Beta Avg. Act.	CW-3 Beta Peak Act.	CW-3 U Avg. ppb	CW-4 Beta Avg. Act.	CW-4 Beta Peak Act.	CW-4 U Avg. ppb	CW-5 Beta Avg. Act.	CW-5 Beta Peak Act.	CW-5 U Avg. ppb	CW-6 Beta Avg. Act.	CW-6 Beta Peak Act.
1	16	25	64	15	27	11	9	18	2.4	9	14	2.8	8	12
2	14	23	29	25	39	8	45	147	5.7	16	22	1.3	19	23
7 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month					
Last Month	not sampled				
195__ Avg.					

October

Beta

The average beta activity in the plant sanitary water continued the decreasing trend noted during the last two months (following July "high"); the rate of flow of Clinch River decreased only slightly, from 5,700 to 5,410 ft³/second. A similar decrease in beta activity downstream CR was likewise recorded. No abnormal releases from ORNL were reported or indicated by activity levels.

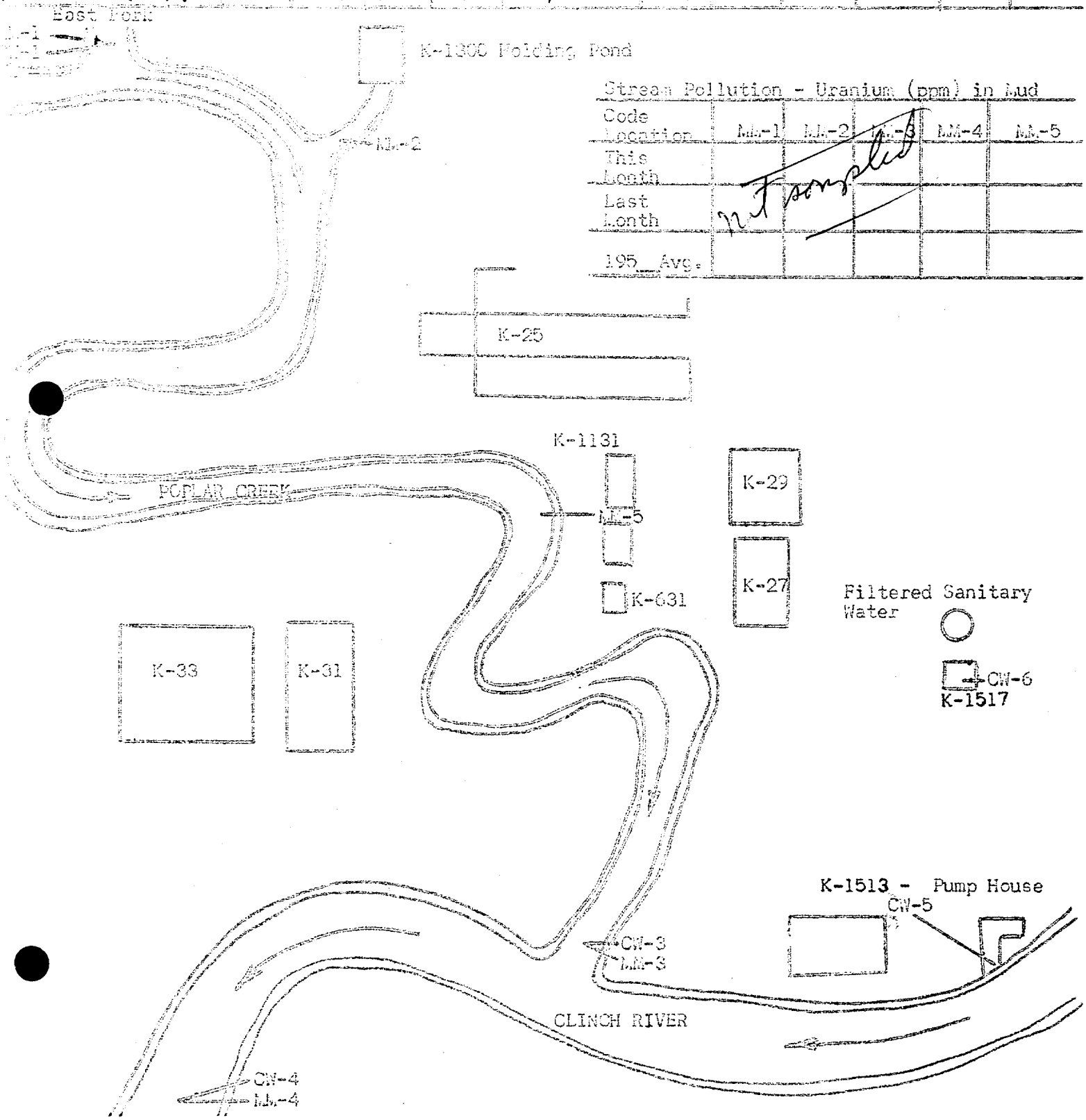
Uranium

No significant changes were noted in the uranium concentrations, with value at East Fork paralleling 1957 average or apparently influenced by normal activities at 4-12.

N. B. Schultz

Sept. 1950

Date	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta Avg. Act.	Beta Peak Act.	U Avg. ppb	Beta Avg. Act.	Beta Peak Act.	U Avg. ppb	Beta Avg. Act.	Beta Peak Act.	U Avg. ppb	Beta Avg. Act.	Beta Peak Act.	U Avg. ppb	Beta Avg. Act.	Beta Peak Act.
	14	23	29	25	39	8	45	147	5.7	16	22	1.3	19	23
	17	36	18	25	49	11	26	147	6.8	24	63	5.0	26	70
7 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month	not sampled				
Last Month					
195__ Avg.					

September

Beta

The average beta in the plant sanitary water continued the decrease noted last month; the rate of flow of Clinch River decreased from 6,790 to 5,700 ft³/second. An increase in beta activity downstream Clinch River apparently is normal fluctuation effected by leaching of silt and downstream flow of deposited waste released previously from ORNL.

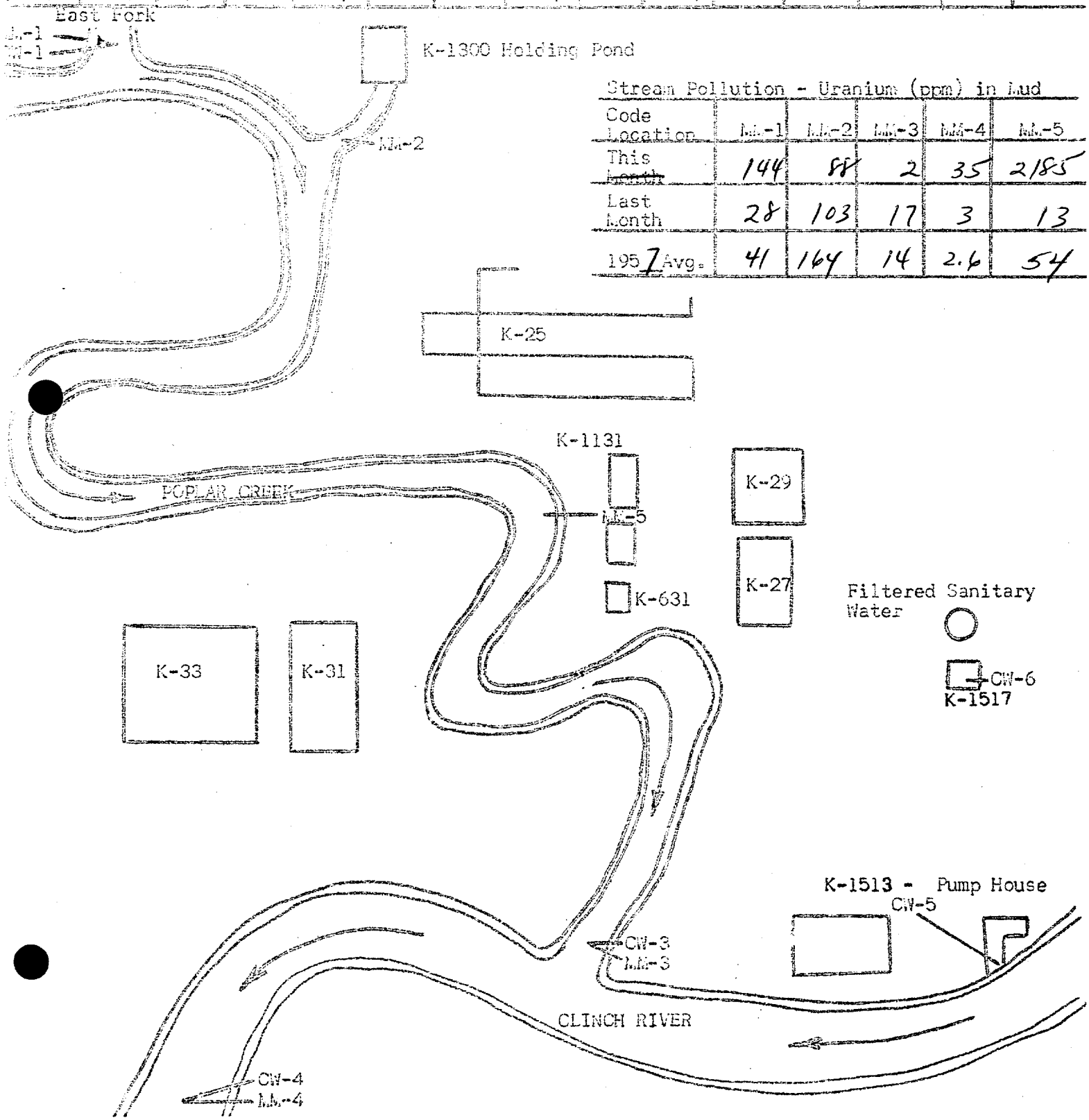
Uranium

No sig. changes were noted in uranium concentrations, with a slight increase apparent in East Fork influenced by normal releases from Y-12.

N. B. Schultz.

Water Analysis - Beta Activity (cts/min/100 ml) - Uranium (ppb) August 1958

Station	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.
[illegible]	17	36	18	25	49	11	26	147	6.8	24	63	5.0	26	70
[illegible]	19	32	65	147	328	9	155	455	3.5	174	388	2.3	153	357
1957 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This ~~Month~~	144	88	2	35	2185
Last Month	28	103	17	3	13
1957 Avg.	41	164	14	2.6	54

August

Beta

The average beta activity in the plant sanitary water decreased sharply from high levels reported in July to levels below 1957 averages.

The rate of flow of the Clinch River meanwhile increased from 3,690 to 6,790 ft³/second, and no abnormal releases were reported by ORNL or indicated by activity levels.

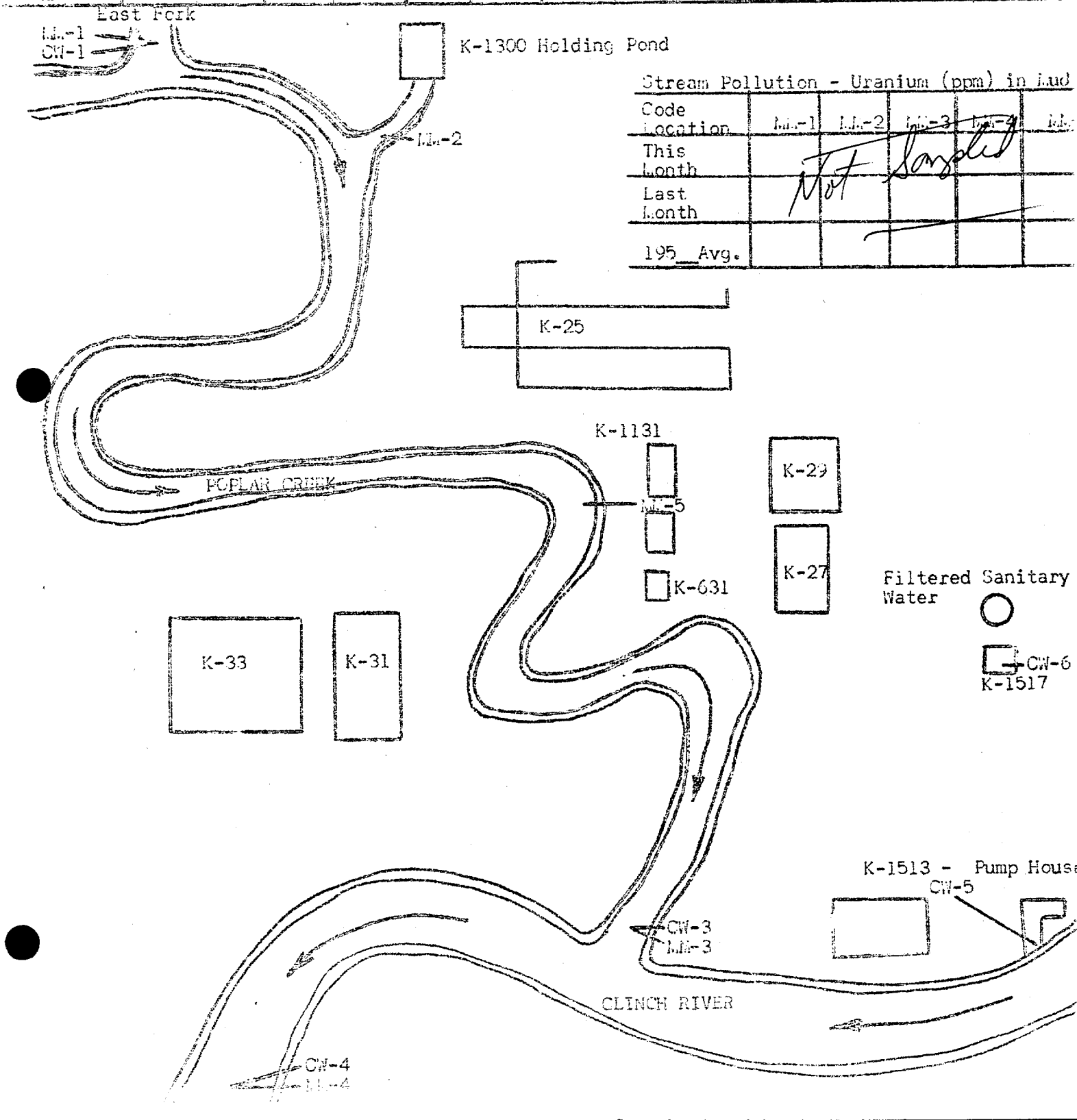
Uranium

The average uranium concentration in East Fork Poplar Creek remained essentially unchanged; ~~or did~~ the uranium levels noted in plant sanitary water intake at downstream Clinch River reflected apparent downstream-travel of uranium-materials released from ORNL.

N. B. Schultz

WATER SAMPLING - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb)

Code Location	East Fork CW-1			Poplar Creek CW-3			CW-4			CW-5			Sanitary CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Pe Ac
This Month	19	32	65	147	328	9	155	455	3.5	174	388	2.3	153	35
Last Month	24	57	40	31	67	11	55	164	2.3	28	67	2.0	27	6.
1957 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	7



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM
This Month	Not Sampled				
Last Month					
195__ Avg.					

July

Beta

The average beta activity in the plant sanitary water increased markedly (by a factor of 5) to a figure of 153, with the rate of flow of Clinch River falling from 7,850 to 3,690 ft³/second, decreasing the dilution of the mixed fission product waste material released from ORNL.

In addition, (according to H. Abee) ORNL personnel investigating the source of high activity in White Oak Lake, discovered + repaired a leaking waste line from a process used at irregular intervals which was sporadically releasing abnormal quantities of waste material to the Lake + the River.

During the 4 weeks following the max. activity of 357 c/min/100ml noted of July 19 the levels fell successively to 84 70 + 47 c/min/100ml.

Backing up into Poplar Creek, this activity influenced beta levels at the ~~mouth~~ junction of the Creek & Clinch River.

Uranium

The average uranium concentration in East Fork increased slightly but continued to remain within the range of fluctuation as influenced by normal releases from Y-12 Plant.

The average U concentrations in Poplar Creek + Clinch River remained essentially unchanged & higher beta levels downstream in the Clinch River reflecting the above-mentioned ORNL releases.

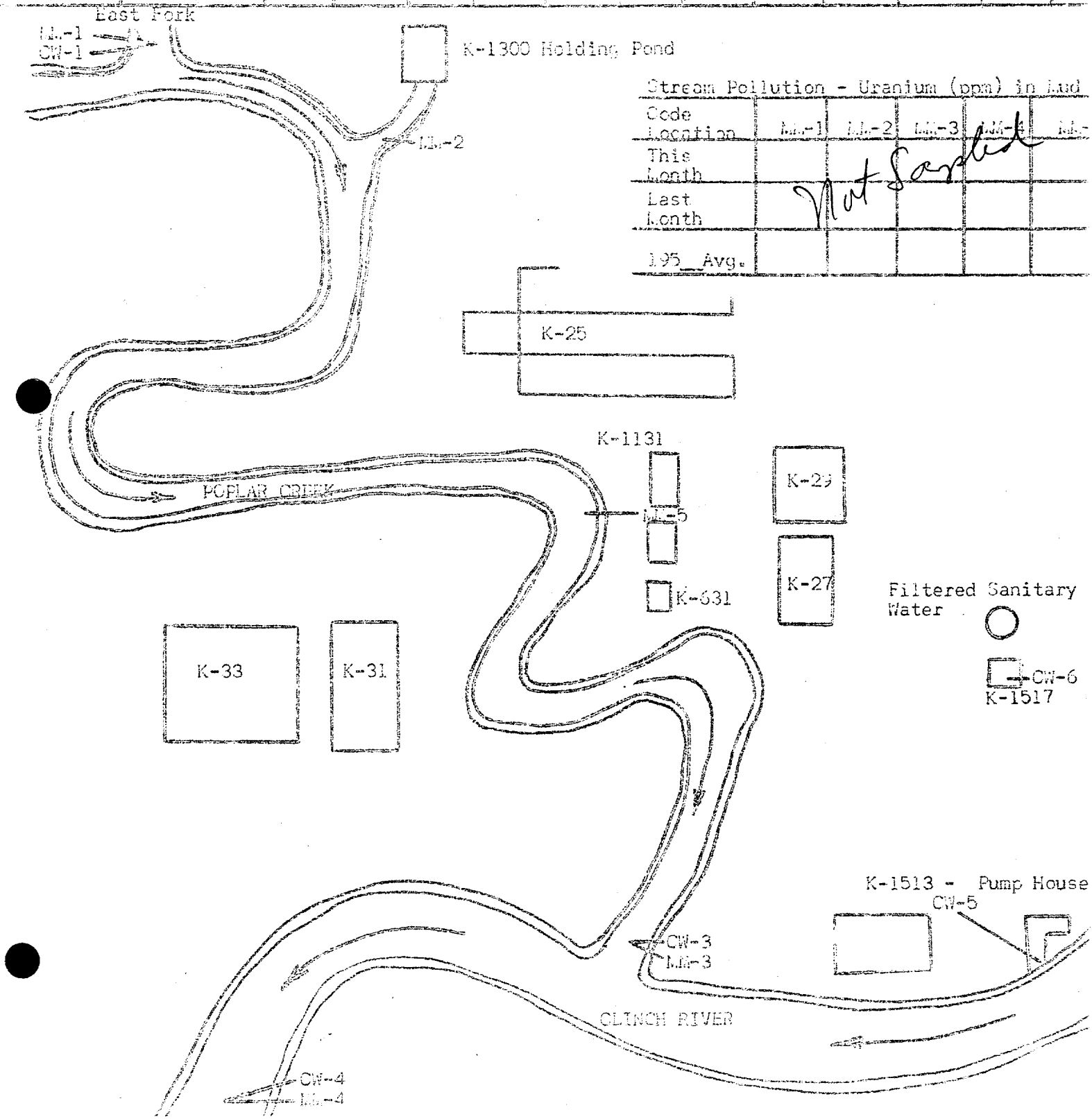
N. B. Schultz.

June 1950

Code Location	CW-1			CW-2			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Pe Ac
This Month	24	57	40	31	67	11	55	164	2.3	28	67	2.0	27	6
Last Month	13	20	31	25	38	18	44	173	3.1	26	63	1.4	38	9
195 1 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month	Not Sampled				
Last Month					
195 Avg.					



June

Beta

The average beta activity in the plant sanitary water continued to decrease during the month as the rate of flow of Clinch River rose from 5,430 to 7,850 ft³/second, with no abnormal releases reported from K-10.

Uranium

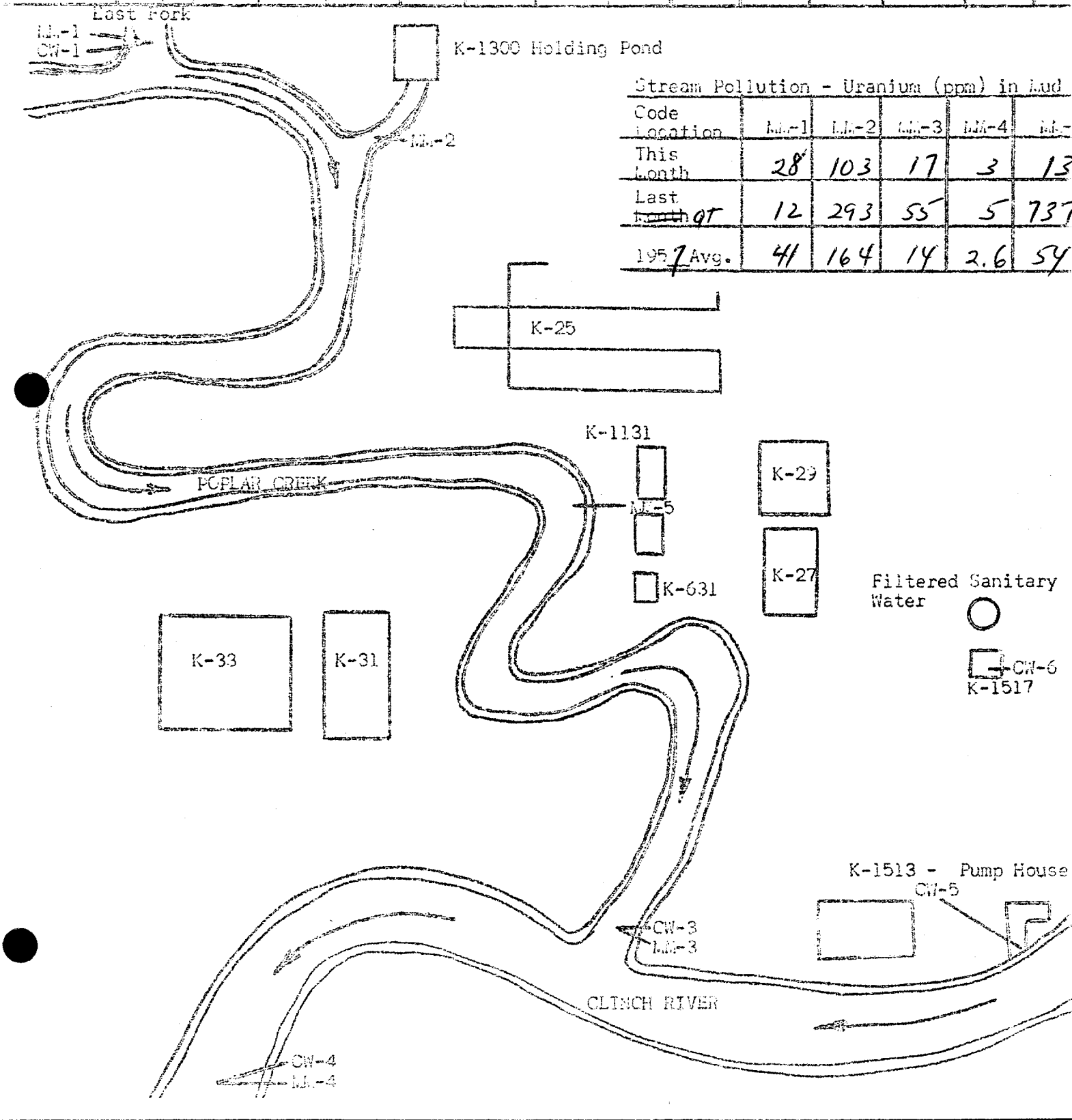
The average uranium concentration in East Fork increased slightly but continued to remain within the range of fluctuation as influenced by normal releases experienced during routine operations at Y-12 plant.

Uranium concentrations in Poplar Creek decreased apparently as a result of resumption of normal operation (reduction area) in K-1131 & resultant decrease in powder handling outside closed systems. This same influence was evident in level from Clinch River sampling points; coupled with the reduction of concentrations was the increased flow of Clinch River resulting in greater dispersal and dilution.

J B Schmitt

[illegible] May 1950

Code Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta Avg. Act.	Beta Peak Act.	U Avg. ppm	Beta Avg. Act.	Beta Peak Act.	U Avg. ppm	Beta Avg. Act.	Beta Peak Act.	U Avg. ppm	Beta Avg. Act.	Beta Peak Act.	U Avg. ppm	Beta Avg. Act.	Beta Peak Act.
This Month	13	20	31	25	38	18	44	173	3.1	26	63	1.4	38	9[illegible]
Last Month	18	29	36	61	107	11	82	173	3.4	89	110	7.9	81	12[illegible]
1957 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	90



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-[illegible]
This Month	28	103	17	3	13
Last ~~Month~~ qt	12	293	55	5	737
1957 Avg.	41	164	14	2.6	54

May

Beta

The average beta activity in the plant sanitary water decreased approximately 50%. This decrease may be attributable to the increased average flow of the Clinch River by a factor of 4, since no above normal releases were reported from the installation upstream from O.R.G.D.P.

Uranium

The average uranium concentration in East Fork ~~Poplar Creek while~~ remained relatively unchanged as routine releases of waste materials from Y-12 installation continued normal.

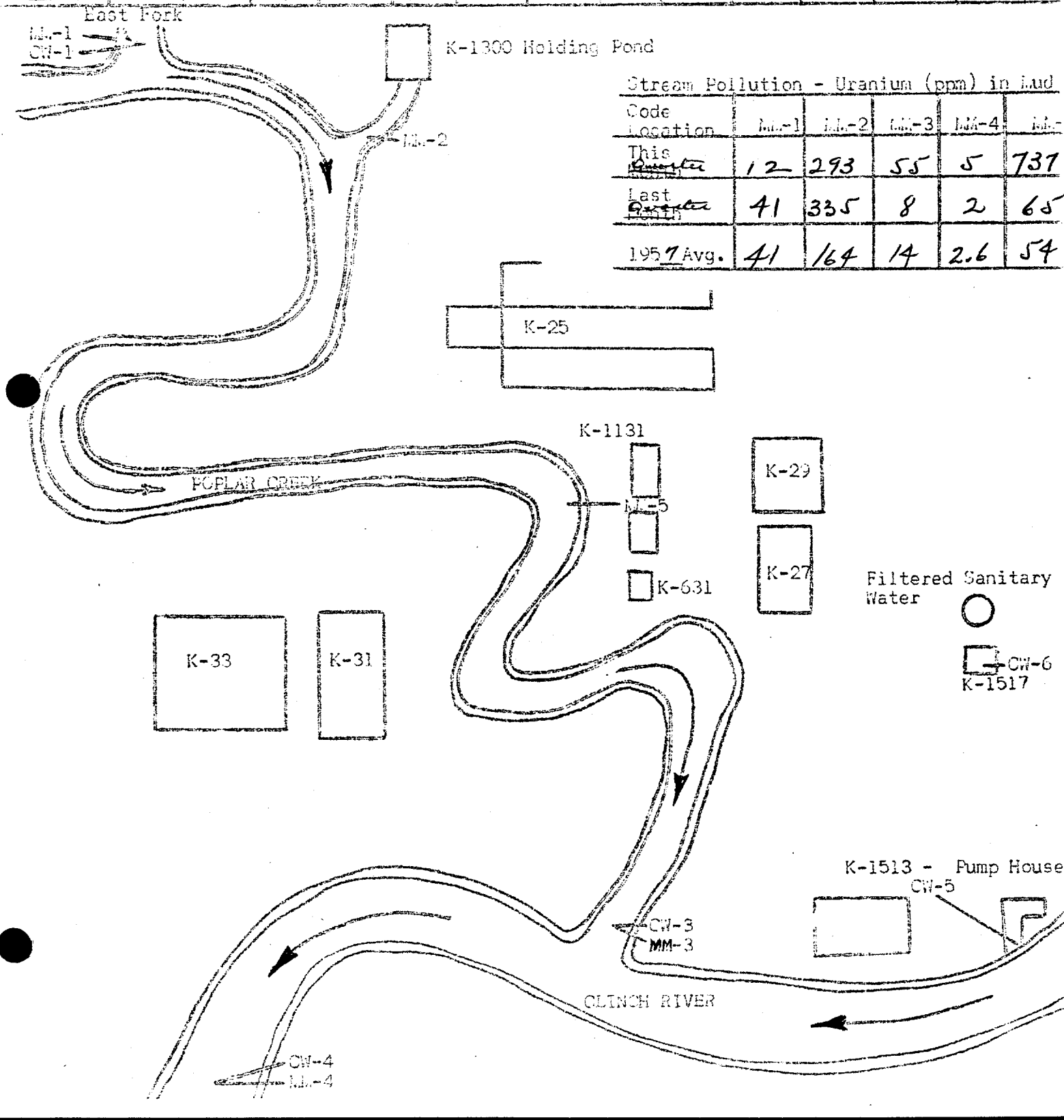
The average concentration in Poplar Creek increased slightly, apparently as a result of handling of uranium powders outside the system during installation of fluid bed reactors in Feed Plant.

The average concentration in the Clinch River 1 mile below ORGDP remained relatively unchanged, as the increased flow of the stream resulted in dispersal and dilution of the materials reaching the river by way of Poplar Creek.

N. B. Schultz.

WATER QUALITY - ALPHA ACTIVITY (cts/min/100 ml) - URANIUM (ppm) February 1958

Code Location	CW-1 Beta Avg. Act.	CW-1 Beta Peak Act.	CW-1 U Avg. ppm	CW-3 Beta Avg. Act.	CW-3 Beta Peak Act.	CW-3 U Avg. ppm	CW-4 Beta Avg. Act.	CW-4 Beta Peak Act.	CW-4 U Avg. ppm	CW-5 Beta Avg. Act.	CW-5 Beta Peak Act.	CW-5 U Avg. ppm	CW-6 Beta Avg. Act.	CW-6 Beta Peak Act.
This Month	32	49	37	31	64	7.4	38	63	1.9	28	44	1.3	21	4[illegible]
Last Month	26	63	60	18	60	15	19	37	6.2	20	33	3.0	18	4[illegible]
1957 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	9[illegible]



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month	12	293	55	5	737
Last Month	41	335	8	2	65
1957 Avg.	41	164	14	2.6	54

Water Sampling February, 1958

Remarks: The average beta activity in the plant sanitary water supply increased only slightly during the month and while the average flow of the Clinch River continued to be comparatively high during this period the slight increase in average beta activity may be attributed to the decrease in the river flow from 6,910 ft³/sec to 5,200 ft³/sec. The average beta activity in the White Oak Creek which carries the fission product waste material into the Clinch River from the ORNL remained relatively unchanged as no unusual releases of waste materials were reported.

Increases were also noted at the mouth of the East Fork Creek which reflects the activity released from the Y-12 Installation into Poplar Creek, and at the mouth of Poplar Creek downstream from the ORGDP. The increases were not considered to be significant in that they fell in the range of normal fluctuations due to the ~~varying~~ amount ~~[illegible]~~ of waste materials released during routine operations.

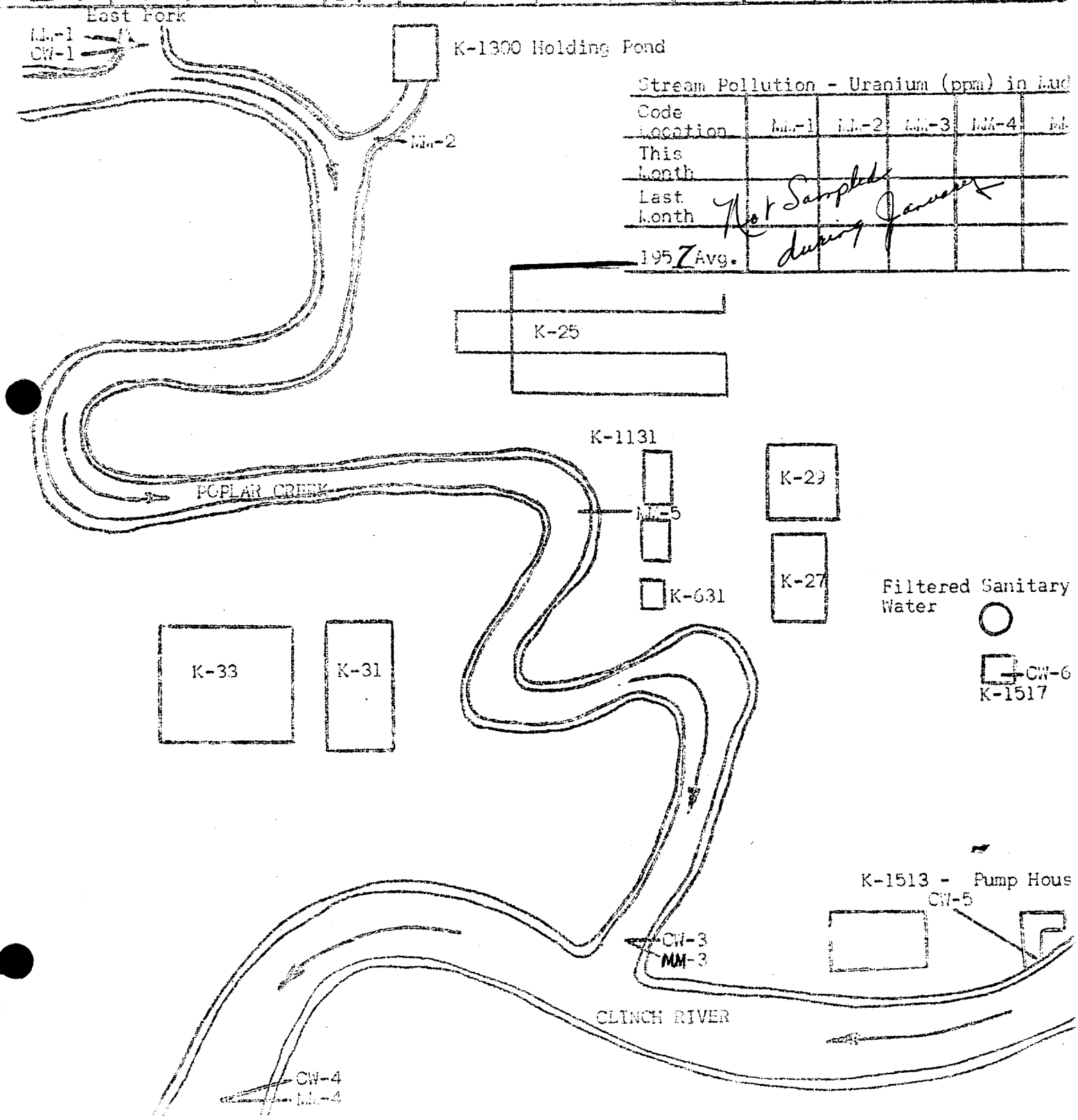
February 1958

Mud Sampling

Remarks: The uranium concentration in the stream bottom mud of Poplar Creek increased during this report period apparently as a result of an increase in the release of material from K-1131 following decontamination of floor areas. In addition there was a decrease in the flow of Poplar Creek thereby reducing the downstream movement and dispersal of the uranium contaminated silt.

[illegible] - BETA ACTIVITY (cts/min/100 ml) - URANIUM (ppb) January 1958

Date Location	CW-1			CW-3			CW-4			CW-5			CW-6	
	Beta		U	Beta		U	Beta		U	Beta		U	Beta	
	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	Peak Act.	Avg. ppb	Avg. Act.	[illegible]
This Month	26	63	60	18	60	15	19	37	6.2	20	33	3.0	18	4
Last Month	22	44	41	67	146	12	84	228	4.7	20	22	4.7	23	2
1957 Avg.	26	146	61	31	146	13	31	228	5.4	35	245	4.0	28	9



Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-
This Month					
Last Month	Not Sampled during January				
1957 Avg.					

Ho. Flow of the Clearwater

Dec - 10,480 ft³/sec

Jan - 6,910 ft³/sec.

April Highlights

TABLE V

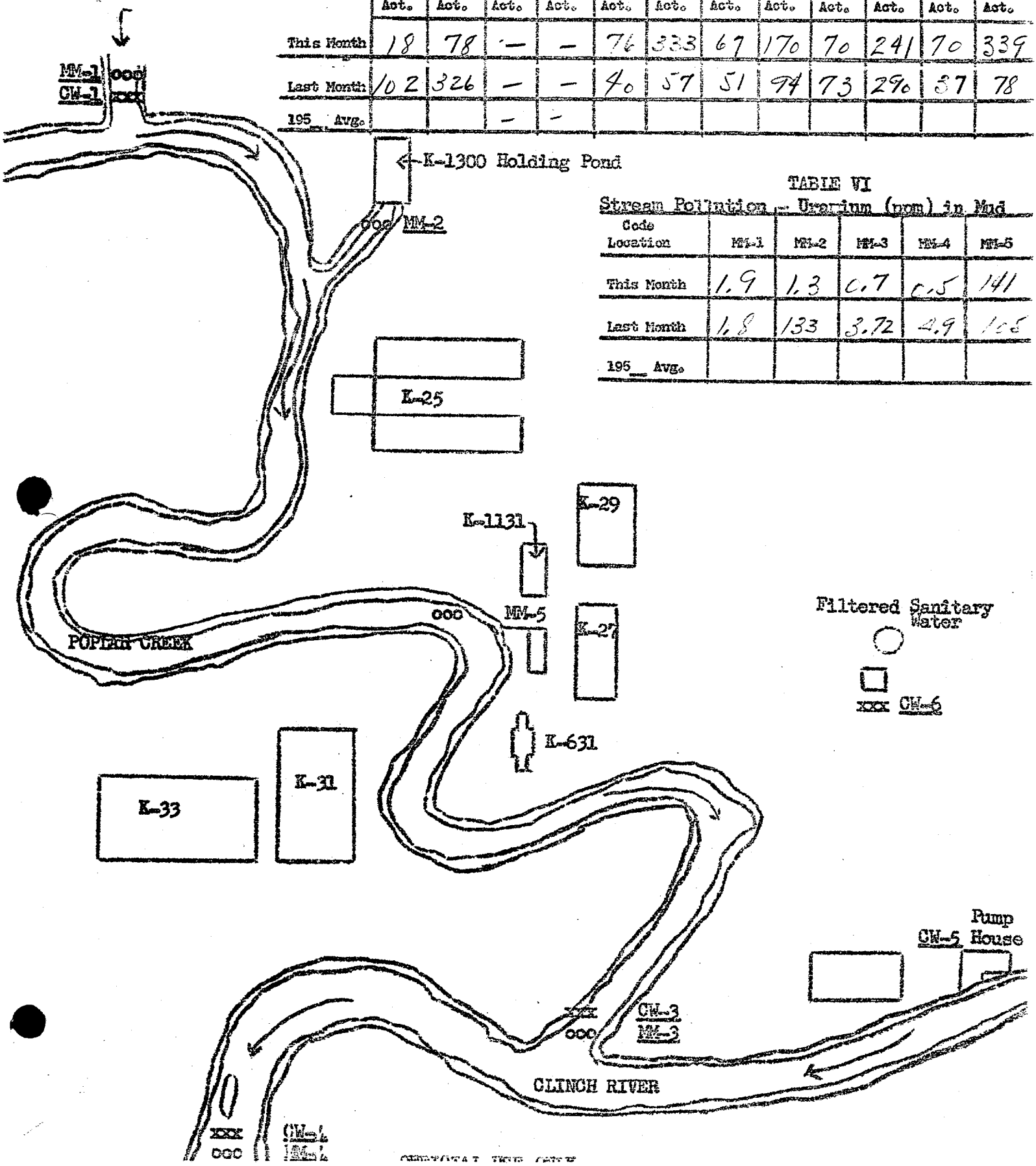
Water Sampling - Beta Activity (c/m/100ml.)

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	67	170	70	241	70	339
Last Month	102	326	—	—	40	57	51	94	73	290	37	78
195__ Avg.			—	—								

TABLE VI

Stream Pollution - Uranium (ppm) in Mud

Code Location	MM-1	MM-2	MM-3	MM-4	MM-5
This Month	1.9	1.3	0.7	0.5	141
Last Month	1.8	133	3.72	4.9	108
195__ Avg.					



September 1955

Table V

The average beta activity in the sanitary water continued to decrease during the month. The release of fission product rich material from the X-10 White Oak Lake remained normal with no uncontrolled releases of significance occurring. However, the average flow of the Clinch River increased from 4,390 ft³/sec to 6,210 ft³/sec resulting in a greater dilution of the waste. The highest activity was found at the East Fork Junction of Poplar Creek apparently from material released during normal operations at Y-12.

Table VI

The average Uranium concentration in the Poplar Creek while increasing remained well below the 1954 average. The increase was apparently due to only normal fluctuation in the amount of material released during routine operations at Y-12 and at K-25.