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Notebook No. CL-1752

Issued To: W. D. Cottrell

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Pg #

1 Index
2-5 Samples along disposal system 7/9/47
6-15 recopied
16-29 Samples along disposal System 9/18/47
30-33 Routine S.B + Dam Beta check 10/3-8/47

Continuation of Index

Determination of amount of Beta activity in Hot WASTE DISPOSAL SYSTEM

I White Oak Dam: 9/9/47

Volume of sample - 17 Liters
sample evaporated to dry & filtered
Wt. ppt. (silt) + paper 3.54 gms
Wt of paper 1.26 "
Net 2.28 gm. - wt.
of colloidally suspended silt in sample
* supernatent liquid of this sample was spilled

II MARSH: 9/9/47

Volume of sample - 17 Liters
sample evaporated to dry & filtered
Wt. of ppt. (silt) + paper - 3.89 gms
Wt of paper 1.26 "
Net 2.63 gm - wt.
of colloidal ppt. in sample

III. Mid swamp: 9/9/47

Volume of sample - 17 Liters
sample evaporated to dry & filtered
Wt of ppt. (silt) + paper 3.93 gms
Wt. of paper 1.26
Net 2.67 gms wt.
of colloidal ppt in sample

Initial Counting Date	Sample Number	(gms) TARE	(gms) GROSS	(gms) Net	gm/cm²	First Count Counts/min	Counts/min per gram	est. C/M/zero gm	gm/l	β μc/l	
	1	13.27	13.62	0.35 †	.0254	5,798	16,560 *				
	2	10.72	11.48	0.76 †	.0550	17,766	23,400	26000	.134	.0158	Silt 6 Dam
	3	10.92	12.26	1.34 †	.0972	28,952	21,600				
"	4	11.41	11.55	0.14	.0102	5112	36500 *				
"	5	13.44	13.71	0.27	.0196	12065	44700	46000	.155	.0324	Silt 5 Marsh
	6	10.75	11.35	0.60	.0435	20849	34800 *				
	7	12.50	13.81	1.31	.0948	45324	34600				
	8	12.22	13.99	1.77	.128	35442	20000	30000	.104	.0141	Super 5 Marsh
	9	12.65	12.87	0.22	.0159	16493	75000				
"	10	13.38	13.90	0.52	.0377	35370	68000	77500	.157	.0547	Silt 4 Mid Swp
	11	13.94	14.64	0.70	.0507	47246	67500				
"	12	11.90	12.88	0.98	.0710	62109	63400				
"	13	12.92	15.79	2.87	.208	83310	29,000	50000	.169	.0381	Super 4 Mid Swamp

† exceed initial wt in total

* points not considered valid a/c weight errors

see page 4 for extra counts

Designation of Sample No:
1, 2, 3 - colloidial silt - W.O. Dam
4, 5, 6, 7 - " " MARSH
8 — supernatant liquid MARSH
9, 10, 11, 12 - colloidial silt - Mid SWAMP
13 — Supernatant Liquid Mid SWAMP

Counts on Samples described pages 2 + 3

Dish #	9/9	9/17	9/18	9/19	9/22	9/23	9/24	9/25	9/26	10/9	10/27	11/11/4
1		5798	5723	5589	5504	5504	5563	5411		5237	5,220	5,126
2		17766	17252	17703	17805	17795	17576	16277		16838	17,222	16,060
3		28952	28344	28280	28158	28277	28388	28442		26874	25,646	25,402
4			5112	5125	5108	5183	5067	5107	4689	4725	5,238	4486
5			12065	11336	11592	11592	11151	11106	11425	10818	10931	10422
6			20849	20480	20740	20389	20115	20083	20065	19426	18,338	18176
7			45324	44343	43672	44541	44208	42840	42565	41026	40194	37651
8			35442	34767	34339	34704	34265	34321	32850	32148	31329	30,154
9			16493	16241	16497	16362	15694	15876	16258	15475	15877	16,011
10			35370	35244	34398	34722	33172	33902	34038	32602	32904	32,737
11			47246	46998	46327	46656	46309	46273	45261	44968	44559	44,556
12			62109	62158	61420	61020	60518	61344	60645	59179	57906	56,884
13			83310	80474	80712	81022	79456	79537	74889	76311	79087	79,006

See pgs 16-29

WATER SAMPLES TAKEN 9-18-47

Volume of all samples - 15 liters

A. Above Settling Basin
B. Settling Basin Discharge - Error due to loss in evaporating
C. Above SWAMP
D. Mid SWAMP
E. MARSH - Some of Residue lost in evaporating supernatent
F. W.O. Dam Discharge - Error loss in evaporating
G White Wing Bridge

The sample above the settling Basin was taken first. The remainder of the samples were taken in the order of decreasing activity.

The rate of flow of the water was not measured; therefore it is doubtful if the same water was sampled at all points.

Identification of Samples (table on page 47)

Dish no	sample
14	Supernatent Marsh
15	" above swamp
16, 17, 18, 19	Colloidial silt above Settling Basin
20	Supernatent Settling Basin
21	" White Wing Bridge
22, 23, 24,	Colloidial silt ~~White Oak Dam discharge~~ (SETTLING BASIN)
25	Supernatent White Oak Dam
26	" Above Settling Basin
27, 28, 29, 30	Colloidial silt - Above SWamp
31	Supernatent - Mid SWamp

Buffalo 12 1714

Initial counting

Date	Dish No.	Tare (gms)	Gross (gms)	Net (gms)	
✓	14	10.69	12.50	1.81	Pg 25
✓	15	13.76	16.28	2.52	Pg 21
✓	16	13.10	13.24	0.14	See pg 17
✓	17	11.98	12.34	0.36	
✓	18	10.76	11.35	0.59	
✓	19	13.87	14.90	1.03	
✓	20	12.62 ?	17.04 ?	3.42	Pg 19
✓	21	13.45	14.25	0.80	Pg 29
✓	22	11.32	11.53	0.21	Pg 19
✓	23	13.56	13.87	0.31	
✓	24	12.19	13.12	0.93	
✓	25	10.88	12.14	1.26	Pg 27
✓	26	11.88	13.90	2.02	Pg 17
✓	27	12.77	12.93	0.16	Pg 21
✓	28	11.02	11.34	0.32	
✓	29	11.56	12.21	0.65	
✓	30	13.83	14.85	1.02	
✓	31	11.47	13.83	1.36	Pg 23
	32	11.76			
*	33	13.06			
	34	13.44			

question on ~~gross~~ net, gross checks 10/21

Pg 16 - 29

See Pgs 16-29

8.

Identification of Samples (Table on page #9)

Dish no.	Sample
64, 65, 66, 67	Colloidal silt - Mid Swamp
68, 69, 70, 71	" " - Marsh
72, 73, 74, 75	" " White Oak Dam
76, 77, 78, 79	" " White Wing Bridge

A. Above Settling Basin - 9-18-47

Volume of Sample - 15 liters

Sample evaporated to 1 liter & filtered

Wt. of pit & paper - 3.28 g.

" " paper - 1.26

Net 2.02 g. wt. of colloidally suspended silt.

Initial counting

Date	Dish No.	Tare (gms)	Gross (gms)	Net (gms)	
	64	11.11	11.26	0.15	
	65	10.53	10.80	0.27	
	66	11.07	11.59	0.58	pg 23
	67	10.59	11.73	1.14	
	68	11.41	11.61	0.20	
	69	10.46	10.87	0.41	pg 25
	70	11.24	11.94	0.70	
	71	11.54	12.47	0.93	
	72	11.36	11.56	0.20	
	73	10.00	10.31	0.31	pg 27
	74	12.83	13.42	0.59	
	75	11.34	12.60	1.26	
	76	11.58	11.71	0.13	
	77	11.80	12.13	0.33	pg 29
	78	10.75	11.27	0.52	
	79	11.92	12.64	0.72	
	80				

pg 5 16-29

9

See pgs 18-19

B Settling Basin 9/18/47

Volume of sample - 15 Liters

Sample evaporated to 1 Liter & filtered.

Wt. of pyt. + paper - 2.60g

" " " - 1.26

Net 1.34g wt of

Colloidal silt

See pgs. 20-21

c. Above swamp - 9/18/47

Volume of Sample 15 liters

Sample evaporated to 1 liter & filtered

Wt. of ppt + paper - 3.47 g

" " " - 1.26

Net - 2.21 g Wt. of Colloidial silt.

See pgs 22, 23

D. Mid swamp - 9-18-47

Volume of Sample - 15 liters

Sample evaporated to 1 liter & filtered

Wt. of ppt + Paper - 3.61 g

" " " - 1.26

Net 2.35 g wt of

Colloidal silt.

See pgs 24, 25

E. MARSH 9/18/47

Volume of sample 15 liters

Sample evaporated to 1 liter

Wt. of ppt + paper — 3.52 g

" " " — 1.26

Net — 2.26 g wt.

of colloidal silt.

See pgs 26, 27

14 F. White Oak Dam — 5/18/47

Volume of sample - 15 liters

Sample evaporated to 1 liter & filtered.

Wt. of Dish & Paper - 4.039

" " " — 1.26

Net — 2.779 wt of colloidial silt.

G. White Wing Bridge (Clinch River) 9/18/47

Vol. of sample — 15 ltrs.

Sample evap. to 1 ltr. & Filtered.

Wt. of ppt. + paper — 2.91 gms.

" " " — 1.26

Net — 1.65 g. wt of colloidal silt.

See Pg 8 + 7 + 6

A, Above Settling Basin 9/18

Volume of Sample 15 liters Evap to apx 1 l., filtered

Weight of Precipitate and paper 3.28 g

" " paper only 1.26

net - silt weight 2.02

Dish 26 used for supernatant

" 16, 17, 18, 19 for silt

Counts	9/18	9/26	9/29	9/30	10/1	10/2	10/3	10/6	10/27	11/11/4
Dish 26	635	378	370	409	342	311	369	382	270	306
16	234	158	113	72	117	117	135	161	140	27
17	363	234	230	203	220	140	162	144	113	54
18	600	401	293	346	364	360	270	364	131	149
19	1000	634	621	585	576	468	445	387	221	216

	$\frac{I_0}{I_i}$	$()^2$
26	1.68	2.82
16	1.48	2.19
17	1.55	2.40
18	1.50	2.25
19	1.58	2.49
Avers	1.56	5/12.15 2.43

$\frac{I}{I_0} = .641 = e^{-\lambda 8} = e^{-.527}$

$.500 = e^{-.693} = e^{\lambda t_{\frac{1}{2}}}$

$\lambda = \frac{.527}{8}$ $t_{\frac{1}{2}} = \frac{.693 \times 8}{.527} \approx 13.1$ da

Disk #	Gross	Tare	Net gm.	gm/cm²	First count	c/m/gm	est c/m/gm	gm/l	β μc/l
26	13.90	11.88	2.02	.1469	378	187	320	.135	.0002
16	13.24	13.10	.14	.0102	158	1130			
17	12.34	11.98	.36	.0261	234	650	800	.135	.0005
18	11.35	10.76	.59	.0427	401	680			
19	14.90	13.87	1.03	.0747	634	615			
	Total Silt		2.12 excess						

$800 \text{ c/m/g} \times 10 \text{ gf.} \times .135 \text{ g/l} \times 4.5 \times 10^{-7} = 4.86 \times 10^{-4}$

$5 \times 10^{3} \times 6 \times 10^{-8} = 4.8 \times 10^{-5}$

$320 \times .135 \times 4.5 \times 10^{-6} = 1.95 \times 10^{-4}$

270 .0007

See pgs 10, 6 + 7.

By Settling Basin Discharge 9/18

Vol. of Sample 15 l evap. to 1 l + filtered

Wt of precip. + paper 2.60

Wt of paper only 1.26

Net silt wt 1.34 gm

Dish 20 used for supernatant (Some lost in evap.)

" 22, 23, 24 for silt

Counts	9/18	9/26	9/29	9/30	10/1	10/2	10/3	10/6	10/27	11/11/47
Dish* 20	825000	398,736	304,983	304,366	303997	298,823	203656	168691	160,629	
22	68,700	66,442	64,827	66483	65280	66,645	65,290	65,232	60,552	65,304
23	99800	98,712	99,881	98,136	98694	98,509	98,091	97,902	102,384	96466
24	37000	291,807	246,874	244,436	244,750	244,024	239665	225,243	223,713	

	$\frac{T_0}{T}$	$(\ )^2$		
20	2.07	4.28		2.07
22	1.03	1.06		
23	1.01	1.02	$\frac{370\ T^2}{1.24\ A^2}$	1.11
24	1.27	1.62		
	1.41	7.98	~2.00	

* Energy absorption for β run 10/3

10, 6 + 7

DISH #	Gross 17.35.10/81	Tare ?	Net gm ?	gm/cm²	First Count	c/m/g	est c/m/g₀	gm/l	βμc/l	
20	1704	1262	3.42	.248	398,736	116000	130 000	.228	.1334	580 c/m/mC
22	11.53	11.32	.21	.0152	66,442	316000				
23	13.87	13.56	.31	.0224	98,712	318000	323000	.089	.1297	1117
24	13.12	12.19	.93	.0674	291,807	314000				
		total	1.45 excess							

$1.3\times10^5 \quad 1\times10^{-6} = 1.3\times10^{-}$

$130000 \times .228 \times 4.5\times10^{-6} = .1334$

$323000 \times .089 \times 4.5\times10^{-6} = .1297$

$.317 \qquad .2631$

? tare wt in error? gross wt checks.

if: 4.42 gm .328 gm/cm² 90,200 cmg 101 000 cmg₀ .295 g/l = .1341 βμc/l

appx 77 per 206 report w. G.F. ≅ 10%

See pgs 6, 7, 11

Cy Above Swamp – Upper Dike 9/18/47

Vol of sample 15 l evap. to 1 l filt + dry

Wt of Pft + paper	3.47
Wt of paper only	1.26
Net silt wt	2.21 gm

Dish #15 used for supernatant

" 27, 28, 29, 30 for silt

Counts	9/18	9/26	9/29	9/30	10/1	10/2	10/3	10/6	10/27	11/11
Dish 15	107000	105898	108598	108504	109827	106355	108378	105962	108,303	106,716
27	9800	9360	11070	10854	8870	8941	8811	8707	9,050	8,635
28	22400	21789	21694	21825	22194	21325	21469	21798	21,717	22,379
29	41,600	40410	40837	40923	40648	39194	40495	40464	40,923	40,635
30	69,200	66442	66528	65155	64984	64219	64242	63278	66,888	65038

	$\frac{I_0}{I}$	$(\ )^2$
15	1.01	102
27	1.05	110
28	103	106
29	103	106
30	106	113

Over 10 of 51 537 10"

11/11	106776	8635	22379	40635	65038				

Disk #	Gross wt	Tare wt	Net gm.	gm/cm²	First Count	c/m/g	est. c/m/g₀	g/l	β μc/l
15	16.28	13.76	2.52	.183	105898	42000	54000	.168	.0408
27	12.93	12.77	.16	.012	9360	58500			
28	11.34	11.02	.32	.023	21789	68000	70000	.148	.0466
29	12.21	11.56	.65	.047	40410	62200			
30	14.85	13.83	1.02	.074	66442	65000			
		total silt	2.15						

$5\times10^{4} \times 2\times10^{-1} \times 4\times10^{-6} = 40\times10^{-3}$

$54000 \times .168 \times 4.5\times10^{-6}$ $-.0408$

$70000 \times .148 \times 4.5\times10^{-6}$ $.0466$

$7\times10^{4} \times 1\times10^{-1} \times 5\times10^{-6}$

$.316$ $.0874$

- See pgs 6, 7, 12, 9

22

Dy Mud Swamp - between Dikes 9/18/47

Vol of Sample = 15 l. evap. to 1 l., filt + dry

Wt of pipt + paper: 3.61

" " paper 1.26

Net " " silt 2.35 gm

Dish #31 used for Supernatant

" 64, 65, 66, 67 for silt

Counts	9/18	10/1	10/2	10/3	10/6	10/7	10/8	10/9	10/27	11/4/47
Dish 31	74,000	73,147	72,562	72,414	72,796	72,428	73,327	72,022	70,344	68,670
64	13,000	11,970	11,430	11,911	10,944	11,430	11,259	11,304	11,268	11,772
65	20,700	19,134	18,999	18,369	18,319	18,274	18,238	17,779	16,164	19,210
66	36,700	36,045	35,203	35,721	35,644	35,909	35,991	35,649	35,744	34,848
67	57,800	55,255	56,551	56,376	55,120	55,413	56,605	56,119	56,370	56,506

	$\frac{I_0}{I}$	$(\ )^2$
31	1.01	102
64	1.09	119
65	1.08	116
66	1.02	104
67	1.05	110
Avg	1.05	1551 110

7.12.9

11/1/47
68,670
11,772
15,210
34,848
56,506

Dish #	Gross wt	Tare wt	Net gm	gm/cm²	First Count	c/m/gm	est c/m/go	g/l	βμc/l
31	13.83	11.47	1.36	.099	73147	53800	96000	.0907	.0392
64	11.26	11.11	.15	.011	11970	79800			
65	10.80	10.53	.27	.020	19134	70800	79500	.1566	.0560
66	11.59	11.01	.58	.042	36045	62200			
67	11.73	10.59	1.14	.083	55255	48500			
		total	2.14						

$96\,000 \times .0907 \times 4.5 \times 10^{-6} = .0392$

$79\,500 \times .1566 \times 4.5 \times 10^{-6} = .0560$

$.2473$ $\qquad$ $.0952$

See pgs 13, 6, 7, 8, 9

E_5 Marsh, Betson Lake + Lower Lake 9/18

Vol of sample 15 l. evap. → 1 l. filt. + dry

Wt of precip. + papers 3.52

" " papers 1.26

Net wt silt 2.26 gm.

Dish #14 used for Supernatant

" 68, 69, 70, 71 for silt

Counts	9/18	9/26	9/29	9/30	10/1	10/2	10/3	10/6	10/7	10/8
Dish 14	47,200	46463	45908	45931	45261	45756	45630	45257		
68	8400				8136	8145	8127	8014	8014	8239
69	18000				17113	16123	16159	16740	16416	16632
70	26000				25474	25213	25398	24795	24768	25092
71	35000				33340	33898	33724	33002	33616	32278

Counts	10/9	10/27	11/11
Dish 14		44,676	40896
68	7444	8478	7,875
69	16172	16317	16,060
70	25537	24,678	24,075
71	32787	32,386	32157

	10/8	( )²
14	102	104
68	103	106
69	105	110
70	102	104
71	105	110
Aver	104	534 107

7.89

-dry

10/8

8239

16632

25092

32278

Disk #	Gross wt	Tare wt	Net gm	gm/cm²	First Count	c/m/g	c/m/gm₀	g/l	βμc/l
14	12.50	10.69	1.81	.131	8136	25600	43500	.121	.0237
68	11.61	11.41	0.20	.0145	17113	40700			
69	10.87	10.46	.41	.030	25474	41800	47000	.151	.0319
70	11.94	11.24	.70	.051	33	36400			
71	12.47	11.54	.93	.067	33340	35800			
			2.24						

$43500 \times .121 \times 4.5 \times 10^{-6} = .0237$

$47000 \times .151 \times 4.5 \times 10^{-6} = .0319$

$5 \times 10^{4} \times 1.5 \times 10^{-1} \times 4.5 \times 10^{-6} = 32 \times 10^{-3}$

$.272$ g/l $\qquad$ $.0556$ βμc/l

See pgs 14, 6, 7, 89

26

F6 White Oak Dam Overflow 9/18/47

Vol. of Sample 15 liters, evap to 1 l, filt

Wt. of Precip. + f Paper 4.03

Wt of filter Paper 1.26

Net wt of silt 2.77 gm

Dish #25 used for Supernatant

" 72, 73, 74, 75 " " silt

Counts	9/18	9/26	9/29	9/30	10/1	10/2	10/3	10/6	10/7	10/8
Dish #25	18,000	17280	17136	17978	17293	17779	17365	17703		
72	5,160				5022	5157	5017	4878	5179	4914
73	7,410				7290	7483	7483	7033	6768	6907
74	14,300				13725	14373	14098	13725	13495	13419
75	26,800				26149	26689	26649	26766	26433	26599

Counts	10/9	10/27	11/11/47
Dish #25		17,600	16,839
72	5031	4,986	5,192
73	7402	7,218	6,871
74	13504	14,548	13,293
75	26523	26,505	25,924

	$\frac{I_0}{I}$
25	104
72	103
73	102
74	104
75	103
Aver	103

Disk #	Gross wt	Tare wt	Net gm	gm/cm²	First count	c/m/g	c/m/g₀	g/l	β μc/l
25	12.14	10.88	1.26*	.0914	17280	13600	17500	.084	0066
72	11 56	11.36	.20	.0145	5022	25100			
73	10 31	10.00	.31	.0224	7290	23500	26000	.185	0216
74	13 42	12 83	.59	0428	13725	23,200			
75	12 60	11.34	1.26	0914	26149	20 800			
			2.36						

* boiled over

$17500 \times .084 \times 4.5 \times 10^{-6} = .0066$

$26000 \times .185 \times 4.5 \times 10^{-6} \quad .0216$

$26 \times 10^{4} \times 2 \times 10^{-1} \times 4.5 \times 10^{-6} = 24 \times 10^{-3}$

$.269 \qquad .0282$

See pgs 15, 6, 7, 8, 9

28

G7 White Wing Bridge - Upstream 9/18/47

Vol. of Sample 15 l. evap. to 1 l. filt. + dry

wt of Ppt + paper 2.91

wt of paper 1.26

net wt of silt 1.65 gm

Dish #21 used for Supernatant

" 76, 77, 78, 79 " " silt

Counts	9/18	9/26	9/29	9/30	10/1	10/2	10/3	10/6	10/7	10/8
Dish #21		189	176	167	189	185	135	148		
76					18	BG	BG	—	—	—
77					23	45	22	18	27	BG
78					14	45	72	68	36	32
79					45	58	45	68	54	63

Counts	10/9	10/27		
Dish 21		185		
76				
77	BG			
78	40			
79	41			

Dish #	Gross wt	Tare wt	Net gm	gm/cm²	First Count	c/m/gm	c/m/g	g/l	μc/l
21	14.25	13.45	.80	.058	189	236	300	.053	0001
76	1171	1158	.13	.0094	18	139			
77	1213	1180	.33	0239	23	70	250? ~~77~~	.110	0001 0000
78	1127	1075	.52	0377	14	28			
79	1264	1192	.72	0522	45	63			
			1.70 Exceeds						

$3\times10^{2} \times 5\times10^{-2} \times 4.5\times10^{-6} = 70\times10^{-6}$

$300 \times .053 \times 4.5\times10^{-6} = 71.5\times10^{-6}$

$77 \times .110 \times 4.5\times10^{-6} = 38\times10^{-6}$

$250 \times .110 \times 4.5\times10^{-6} = 124\times10^{-6}$

.163 0002

Settling Basin Samples A

Routine Waste Surveys. Beta Counts

Volume of all samples 15 liters

Date	10/3/47	10/6/47	10/7/47	10/8/47
Gross	2.7669	2.7298	2.8309	3.8579
Tare	1.2037	1.2037	1.2037	1.2037
Net Silt	1.5632 gm	1.5261 gm	1.6272 gm	2.6542 gm
Specimen #	2	4	6	7
Silt Dish #	130	132	134	135
Supernatant	123, 126	121 122	115, 116	124, 125

Silts on above not used were combined, leached and used for self absorption studies see pgs 34-35

Counts	10/3	10/6	10/7	10/8	10/20	10/24	10/27			
Dish 130					85,477	57,588	87,183			
123					148,162	146,169	109,584			
126					193,356	188,077	193,450			
132					180,364	176,962	170,918			
121					231,390	226,390	223,794			
122					225,193	223,870	223,029			
134					97,402	96,214	95,765			
115					208,575	201,833	202,918			
116					153,936	163,557	165,118			
135					61,524	59,107	59,769			
124					129,060	128,821	129,834			
125					148,046	151,564	156,704			

Disk #	Gross wt	Tare wt	Net gm	gm/cm²	First Count	c/m/g	c/m/g	g/l	μc/l	
130	12.8583	12.4737	.3846	.0779	85,477	221,900	295,000	.1041	0.138	.605
123*	13.6637	12.2390	1.4247	.1033	148,162	148,200	282,000	.2110	0.267	
126	14.2884	12.5597	1.7287	.1252	193,356	129,200			—	
132	13.5570	13.0974	.4596	.0332	180,364	392,700	542,000	.1017	0.2482	.6773
121	14.8116	10.9827	3.8289	.2774	231,390	62,010	250,200	.3812	0.4291	
122	13.4142	11.5247	1.8895	.1368	225,193	119,200			—	
134	12.6690	12.2150	.4540	.0329	97,402	214,300	293,500	.1084	0.1433	.3598
115	12.4506	10.8906	1.5600	.1130	208,595	133,800	261,000	.1842	0.2165	
116	11.4785	10.2771	1.2014	.1148	153,936	127,000			—	
135	11.9861	11.4514	.5347	.0387	61,524	115,200	167,000	.1769	0.1330	.2702
124	12.4673	11.6347	.8326	.0604	129,064	155,200	257,800	.1182	0.1372	
125	12.8540	11.8960	.9580	.0694	148,446	154,900	269,400	—	—	

* after spill 13.2567
decrease .4070

1310

White Oak Dam A

Routine Waters Surveys Beta Counts

volume of all Samples 15 liters

Date	10/3/47	10/6/47	10/7/47	
Gross	3.8237	3.6160	3.6307	
Tare	1.2037	1.2037	1.2037	average value
Net Silt	2.6200	2.4123	2.4270	
Specimen #	1	3	5	
Silt Dish #	129	131	133	
Supernatant	119 120	117, 118	127, 128	

Silts on above not used were combined leached and used for self absorption studies

Counts	10/3	10/6	10/7	10/20	10/24	10/27
Dish 129				8339	8,212	8,307
119				17114	16,983	16,780
120				38896	35,388	34,995
131				8730	8,212	8,725
117				26410	27,193	26,906
118				25690	25,978	25,861
133				9018	8,514	8,127
127				30105	30,372	30,771
128				29277	29,263	29,682

Disk #	Gross wt	Tare wt	Net gm	gm/cm²	First Count	c/m/gm	c/m/g₀	g/l	μc/l
129	12.1495	11.7106	.4389	.0318	8,339	18,970 1.13	21,320	.1746	.0167
119	13.1305	12.2709	.8596	.0622	17,114	19,920 1.51	25,100	.1780	.0197
120	13.3905	11.6247	1.7658	.1278	38,896	22,450			—
131	11.7665	11.3273	.4392	.0318	8,730	19,880 1.13	22,430	.1609	.0162
117	14.7311	13.1944	1.5367	.1112	26,410	17,220 1.41	24,290	.1944	.0212
118	14.2428	12.8592	1.3836	.1002	25,690	18,560			—
133	11.8040	11.3245	.4795	.0347	9,018	18,830 1.13	21,470	.1626	.0157
127	13.9030	12.2900	1.6130	.1169	30,105	18,650 1.40	26,120	.2344	.0276
128	13.3835	11.4771	1.9064	.1380	29,277	15,370			—

average value

Self Abs.

Settling Basin Silt Group A 10/3-8/47 See pg 3031

Specimen	Net wt.	Dish	wt.	
2	1.5632	130	.3846	Balance of samples not
4	1.5261	132	.4596	used combined: 5.5378 gm
6	1.6272	134	.4540	leached with 100 cc H_2O
7	2.6542	135	.5347	filtered, pipt dried and
Total	7.3707 collected		1.8329 used	filtrate dried.

100 cc filtrate from leaching in Dish #142

Self absorption samples prepared: Dishes: 167, 168, 169, 170, 171, 172, 173

Counts	10/6	10/20	10/24	10/27	11/2/47
Dish 142		31909	30,690	30,006	30,272
167		56465	56,277	56,038	52745
168		81166	79,442	80,041	
169		97213	97,164	96,705	91,485
170		134608	131,890	130,990	122,297
171		162481	161,325	159,214	
172		201208	174,598	192,613	
173		226674	222,592	218,205	

Dish #	Gross	Tare	Net gm	gm/cm²	First Count	C/m/g	C/m/go	g/l	Bμc/l	
142	11.2215	11.1831	.0384	0028	31909	830000				LEACHED
167	12.1962	12.0048	.1914	0139	56.465	295000	.867 154			
168	11.9501	11.6526	.2975	0215	81.166	273000	.803 1245			
169	12.6888	12.2922	.3966	0288	97.213	245000	.720 1390 340000	.164	.250	
170	13.4333	12.8365	.5968	0432	134.608	226000	.665 1502			
171	13.2403	12.4405	.7998	0578	162.481	204000	.593 1686			
172	14.5668	13.5781	.9887	0716	201208	203000	.592 1690			
173	13.5905	12.3940	1.1965	0865	226674	190000	.554 1790			

$340000 \times .164 \times 4.5 \times 10^{-6}$

$3 \times 10^{5} \times 2 \times 10^{-1} \times 4 \times 10^{-6} = 24 \times 10^{-2}$

854000 counts (corrected) leached from 5.5 gm = 1,870,000 counts after leach

854000

2,724000

= 31.4%

86

Self Ab...

White Oak Dam silt Group A 10/3-8/47 Pg 532-33

Specimen	Net wt	Dish	Wt.
1	2.6200	129	.4389
3	2.4123	131	.4392
5	2.4270	133	.4795
Total	7.4593		1.3576

Balance of silt samples not used combined: 6.1017 gm leached w. 100cc H_2O, filtered, ppt dried and filtrate dried

100cc filtrate from leaching in Dish # 143
Self absorption samples prepared: Dishes # 148, 149, 162, 163, 164, 165, 166

Counts	10/6	10/20	10/24	10/27	~~11/2/48~~
Dish 143		1701	1872	1922	
148		3087	3357	3240	
149		6394	6313	6461	
162		9063	10,899	7,873	
163		12118	11,866	12,024	
164		16857	16,308	16,601	
165		18517	19,044	19,166	
166		21267	21,298	20,952	19,584

Dish #	Gross	Tare	Net gm	gm/cm²	First Count	c/m/g	c/m/g₀	g/l	βμc/l
143	11.8182	11.7453	.0729	.0053	1707	23300	.992 1.01		
148	10.8984	10.7568	.1416	.0103	3087	21800	.927 1.08		
149	11.4235	11.1390	.2845	.0206	6394	22500	.957 1045		
162	11.2824	10.8600	.4224	.0306	9063	21400	910 23500 110	.166	.0174
163	11.9056	11.2768	.6288	.0455	12118	19300	821 1218		
164	14.0860	13.2103	.8757	.0635	16857	19200	817 1224		
165	12.6607	11.6274	1.0333	.0749	18517	17900	762 1353		
166	13.4640	12.2413	1.2227	.0887	21267	17400	740 1.351		
			4.6819						

23500 × .166 × 4.5 × 10⁻⁶
2.3×10⁴ × .16 × 4.5 × 10⁻⁶ = 1.5×10⁻²

1715 counts (corrected) leached from 6 gm = 141,000 counts = 1.2% resolution w. 100 cc

Settling Basin Samples B

Routine Strates Survey Beta Counts
volume of all samples 15 liters

Date	10/9/47	10/10/47	10/13/47
Gross			
Tare			
net Silt	2.70	2.68	3.39
Specimen #	2	4	6
Silt Dish	151	153	155
Supernatant	159	160	157 158

Silts on above not used were given 2 leachings with 100cc each (after being combined) filtrates dried and counted. precipitate saved in bottle.
Leach #1 Dish 144 Leach #2 Dish 174

Counts	10/9	10/10	10/13	10/20	10/24	10/27
Dish 151				46,664	45,814	46,291
159				135,900	132,417	132,601
153				41,445	40,131	39,996
160				116,388	114,615	112,482
155				20,394	20,326	20,146
157				166,054	142,830	128,812
158				171,234	141,957	130,041
144				4,450	2,308	2,556
174				2,362	2,291	2,142

Dish #	Gross	Tare	Net gm	gm/cm²	First count	c/m/g	c/m/g₀	g/l	βμc/l
151	12.2050	11.6730	.5320	.0385	46,664	87,700 1.45	127,200	.1800	.1031
159	13.7085	12.0907	1.6178	.1170	135,900	84,000 1.96	164,600	.1078	.0795
153	13.5033	12.9812	.5221	.0378	41,445	79,180 1.43	113,200	.1787	.0911
160	13.2951	11.7397	1.5554	.1125	116,388	74,810 1.94	145,200	.1036	.0678
155	11.7584	11.2399	.5185	.0374	20,394	39,320 1.43	56,230	.2260	.0572
157	12.4600	11.5772	.8828	.0640	166,054	188,200 1.70	320,000	.1238	.1784
158	11.7746	10.7987	.9759	.0707	171,234	175,500 1.75	3[illegible]	—	—
144	10.3944	10.3945	off balance -.0001		4,450				
174	12.5828	12.5980	off balance -.0152		2,362				

.1826

White Oak Dam Samples B

Routine Waters Surveys Beta Counts
volume of all samples 15 liters

Date	10/8/47	10/9/47	10/10/47	10/13/47
Gross				
Tare				
Net Silt	3.74	3.84	3.50	2.99
Specimen #	1	3	5	7
Silt Dish	150	152	154	156
Supernat.	140, 141	161	138, 139	136, 137

Silts on above not used were given 2 leachings with 100 cc each (after being combined) filtrates dried and counted. precipitate saved in bottle
Leach #1 - Dish 145 Leach #2 - Dish 175

* Sample spilled while being counted

Counts	10/8	10/9	10/10	10/13	10/20	10/24	10/27
Dish #150					17,307	10,120	10,273
140					24,822	24,502	24,048
141					27,697	28,071	28,033
152					16,663	9,198	9,469
161					36,882	37,332	37,224
154					9,333	9,333	8,959
138					21,643	24,912	23,787
139					20,349	20,393	19,890
156					110,592	103,369	99,526
136					35,251	25,672	65,681
*137					18,066	*21,510	*21,141
145					1,845	1,894	1,809
175					1,593	1,786	1,471

Disk #	Gross	Tare	Net gm	gm/cm³	First Count	c/m/g	c/m/go	g/l	pc/l
150	11.3186	10.7846	0.5340	.0386	17,307	32,420 (1.15)	37,283	.2490	.0448
140	12.6800	11.4980	1.1820	.0856	24,822	21,010 (1.34)	28,256	.1725	.0221
141	13.8073	12.4050	1.4023	.1015	27,697	19,740 (1.38)	27,242	—	—
152	11.9552	11.4180	.5372	.0389	16,663	31,030 (1.15)	35,684.5	.2560	.0417
161	14.1437	12.1104	2.0333	.1470	36,882	18,120 (1.40)	25,360	.1355	.0154
154	12.5630	12.0283	.5347	.0386	9,333	17,420 (1.15)	20,033	.2332	.0210
138	13.9894	11.7115	2.2779	.1572	21,643	9,509*		.2221	.0257
139	12.5191	11.4605	1.0586	.0775	20,349	19,220 (1.34)	25,258	—	—
156	12.0070	11.4685	.5385	.0390	110,592	205,200 (1.15)	235,980	.1993	.0211
136	12.1630	10.8965	1.2665	.0916	35,251	27,820 (1.37)	38,113	.1573	.0273
137	11.5198	10.3967	1.1231	.0815	18,066	16,080 (1.35)	21,600	—	—
145	11.7132	11.6914	.1218	.00882	1,845	15,150 (1.43)	15,453		
175	12.4542	12.4569	off balance -.0027		1,593				

Settling Basin Samples c

Routine Water Survey Beta Counts

volume of all samples 15 liters

Date	10/14/47	10/15/47	10/16/47	10/17/47
Gross	3.3474	2.6553	2.7609	2.9382
Jare	1.6829	1.6829	1.6829	1.6829
Net Silt	1.6645	.9724	1.0780	1.2553
Specimen #	1	3	5	7
Silt Dish	242	244	246	248
Supernatant	239, 240, 241	252, 253, 254	236, 237, 238	249, 250, 251

Sample #	Gross wt	Tare wt	Net gm	gm/cm³	Karat count	cm/g	cm/g₀	g/l	pc/l	12/48 $/m
227	12.2637	11.8569			12 249					
228	13.9355	12.9806			14 719					
229	12.9565	11.5864			12 705					
230	11.8685	11.3650			7,531	See page 45				
231	12.2387	11.3165			25 186					
232	12.3288	11.4849			15 664					
233	11.2545	10.8757			5 985					
234	12.7337	11.6403			16 794					
235	12.4905	11.3942			20 343					
236	10.1402	12.6305	2.5097	.18186	248,809			.6608	.0860	266,432
237	18.2575	12.3857	6.1363	.07512	291,733	213,305	373,280	—	—	225,936
238	12.0606	10.7262	1.3344	.096695	149,026	116,868	206,608	—	—	138,839
239	12.7413	10.7321	*2.0092	.094606	64,876	49,691	91,431	.2106	.1608	39,427
240	12.4388	11.9212	0.5176	.07507	66,451	128,382	227,236	—	—	57,618
241	12.0747	11.4412	0.6335	.045901	79,177	124,933	189,974	—	—	68,198
242	12.8566	12.3196	0.5370	.03891	66,906	125,594	172,412	.4110	.0949	56,022
243	12.3514	11.8073			5449	See p. 45				
244	12.6926	12.1337	*0.0420 0.5589	.003921	99,555	237,000	244,099	.0648	.0712	78,305
245	13.0358	12.5260			8235	See p. 45				
246	11.7184	10.6071	*0.0723 0.5113	.00672	83,794	904,500	809,090	.0718	.3099 (?)	80,666
247	12.1086	11.5596			8561	See p. 45				
248	12.9528	12.4332	*0.4875 0.5241	.030[illegible]	62,037	127,161	195,996	.0837	.0736	60,777
249	13.4784	11.5403	1.9381	.041236	187,389	118,643	225,601	.1822	.4890	177,561
250	15.0454	12.6724	*2.4482 2.3730	.02210	149,046	248,191	367,409	—	—	110,574
251	14.4135	11.5234	2.9403	.04662	91,278	209,526	352,240	—	—	(?) 125,650
252	17.3934	11.7305	5.6629	.0948	271,539	264,128	452,[illegible]	1.0710	2.1750	240,107
253	17.5646	12.3314	5.2332	.37921	559,543	105,[illegible]		—	—	530,613
254	17.1028	11.9282	5.1746	.37497	478,570			—	—	469,166

* Sample tissues — new weights — correct count to original data (in 8 back)

White Oak Dam Samples c

Routine Water Surveys Beta Counts

volume of all samples 15 liters

Date	10/14/47	10/15/47	10/16/47
Gross	3.6914	4.4134	3.9523
Tare	1.6829	1.6829	1.6829
Net Silt	2.0085	2.7305	2.2694
Specimen #	2	4	6
Silt Dish	243	245	247
Supernatant	230, 231, 232	227, 228, 229	233, 234, 235

Dish #	Gross wt	Tare wt	Net gm	gm/cm²	Final count	c/m/g	c/m/g.	g/l	μc/l	1/2 c/m × 7
227	12.7637	11.8569	0.9068	.05592	12,249	13,508 (1.24)	16,750	.1888	.01530	12,015
228	13.9355	12.9806	0.9549	.06918	14,719	15,414 (1.30)	20,038	—	—	12,365
229	12.9565	11.9864	0.9701	.07029	12,775	13,169 (1.31)	17,251	—	—	11,349
230	11.8685	11.3650	0.5035	.03648	9,531	18,929 (1.14)	21,579	.1848	.01932	8,820
231	12.7387	11.3165	1.4222	.10300	25,186	17,709 (1.40)	24,793	—	—	28,863
232	12.3288	11.4849	0.8439	.06115	15,664	18,561 (1.26)	23,387	—	—	14,653
233	11.2545	10.8757	0.3788	.02744	5,985	15,800 (1.10)	17,380	.1712	.01625	6,724
234	12.7337	11.6403	1.0934	.07925	16,794	15,359 (1.35)	20,735	—	—	15,255
235	12.4905	11.3942	1.0963	.07944	20,343	18,556 (1.35)	25,054	—	—	13,217
243	12.3514	11.8073	0.5441	.03942	8,419	15,473 (1.15)	17,794	.1340	.01072	8,343
245	13.0358	12.5260	0.5098	.03694	8,235	16,153 (1.14)	18,414	.1821	.01509	6,994
247	12.1008	11.5896	0.5112	.03704	8,561	16,744 (1.14)	19,092	.1513	.01298	7,854

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Settling Basin Samples D

Routine Water Surveys - Beta activity

Vol. of all samples - 15 liters

Date	10/20/47	10/21/47	10/22/47
Gross	3.2269	3.1277	2.5941
Tare	1.6829	1.6829	1.6829
Net Silt.	1.5440	1.4448	1.9112
Specimen #	#2	4	6
Silt Dish	280	282	284
Supernatant	287, 288, 289	271, 272, 273	301, 302, 303

Dish #	Gross wt.	Tare wt.	Net gms.	gm/cm²	Fast count	c/m/g	c/m/go	g/l	βu c/l	12/31/47 c/m
271	15.1207 / 15.1723	13.2710	1.9013	.13777	188,705	99,250 (2.00)	198,500	.3382	.3266	174,076
272	13.7905 / 13.9204	11.9116	2.0088	.14556	213,637	106,350 (2.20)	233,970	—	—	202,792
273	12.6019	11.4375	1.1644	.08437	135,598	116,445 (1.81)	210,765	—	—	137,862
280	12.8037	12.2069	0.5968	.04324	109,552	183,550 (1.51)	277,183	.1030	.1284	92,079
282	12.3345	11.8136	0.5209	.03774	186,021	357,114 (1.43)	510,673	.0962	.2215	166,342
284	11.0987 / 11.3727	10.8850	0.2437 / 0.4877	.01548	433,152	2,026,916 (1.17)	2,371,492	.1275	.2128	356,845
287	12.3045	11.2772	1.0273	.07444	133,892	139,421 (1.77)	230,845	.2849	.2300	118,327
288	13.2541	11.5891	1.6650	.12063	119,539	71,795 (1.99)	143,872	—	—	143,977
289	15.2182 / 15.2469	13.6689	1.5493 / 1.5780	1.1226	134,347	86,714 (1.90)	164,757	—	—	125,131
301	18.6870	12.2147	6.4723	.46900	506,156	73,250	—	1.1630	1.9890	489,730
302	18.6767	12.6902	5.9867	.43381	444,056			—		433,516
303	16.4800	11.4739	5.0061	.03627	458,343	91,557 (4.15)	380,000	—		428,710

48 White Oak Dam Samples - D

Routine Water Surveys - Beta County

Vol. of all samples - 15 Liters

Date	10/17/47	10/20/47	10/21/47	10/22/47
Gross	4.8364	3.6118	3.7145	3.9786
Tare	1.6829	1.6829	1.6829	1.6829
Net Silt	3.1535	1.9289	2.0316	2.2957
Specimen #	1	3	5	7
Silt Dish	276	281	283	285
Supernatant	261, 274, 275	277, 278, 279	293, 294, 295	284
				sup. #7 - broken in evap. - Sample not necessarily representative

12/31/47

Dish #	Gross Wt	Tare Wt.	Net gms.	gms/cm²	First count	c/m/g	c/m/g.	g/l	Bud/l	c/m
261	12.9614	12.2596	0.7018	.05085	9,189	13,093 (1.20)	15,712	.1155	.00816	8,194
274	12.4827	12.0884	0.3943	.02857	8,681	22,016 (1.10)	24,217	—		7,753
275	12.2401	11.6031	0.6370	.04615	9,292	14,587 (1.18)	17,213	—		8,329
276	11.9221	11.3961	0.5260	.03811	9,360	17,795 (1.15)	20,464	.2101	.0193	8,991
277	12.6708	11.4439	1.2269	.08890	20,308	16,552 (1.36)	22,511	.2306	.0228	17,950
278	14.2245	12.9046	1.3199	.09564	20,853	15,798 (1.39)	21,959	—	—	19,206
279	12.8351	11.9213	0.9138	.06621	15,057	16,477 (1.30)	21,420	—	—	13,482
281	12.2673	11.7331	0.5342	.03871	9,693	18,145 (1.15)	20,867	.1283	.0120	9,207
283	14.0845	13.6204	0.4641	.03363	9,814	21,146 (1.13)	23,895	.1352	.0145	8,694
285	12.1662	11.6423	0.5239	.03796	9,828	18,759 (1.14)	21,385	.1530	.0147	8,784
293	13.0405	12.0665	0.9740	.07057	15,660	16,078 (1.31)	21,062	.1661	.0147	13,211
294	11.9274	11.0006	0.9274	.06720	13,477	14,532 (1.30)	18,892	—	—	11,992
295	12.7939	12.2055	0.5884	.04263	9,686	16,462 (1.16)	19,096	—	—	8,793
286	11.8361	11.7421	0.0940	.00681	1,440	1,531 (1.02)	1,561	.00626		1210

286 - spilled

Settling Basin Samples - E

Routine Water Surveys Beta County
Vol. of all Samples - 15 Liters

Date	10/23/47	10/24/47	10/27/47	10/28/47
Gross	3.0052	4.6859	3.3157	2.6661
Tare	1.6829	1.6829	1.6829	1.6829
net Silt	1.3223	3.0030	1.6328	0.9832
specimen #	1	3	5	7
Silt Dish	263	265	267	269
supernatant	304, 305, 306	spill - sample lost	353, 354, 355	290, 291, 292

?(358, 359, 360)

Dish #	Gross wt	Tare wt	net gms	gm/cm²	Fist count	c/m/g	c/m/g₀	J/l	μc/l	12/31/47 c/m
263	17.7719 / 12.1753	11.6222	0.1497	.01084	144,932	968,149 (1.11)	1,074,645	.0882	0.4270	109,882
265	11.8708 / 12.5536	11.7679	0.1029	.00745	61,475	597,425 (1.07)	639,245	.2020	0.5820	44,477
267	17.8046 / 12.8067	11.6544	0.1502	.01086	32,520	216,511 (1.11)	240,327	.1089	0.1178	25,389
269	12.2014	11.6727	0.5287	.03831	621,406	1,175,347 (1.44)	1,692,500	.0655	0.4998	
290	13.9295	12.2551	1.6744	.12133	247,144	147,601 (1.98)	292,250	.3359	0.4759	224,591
291	12.9244	10.8533	2.0709	.15006	198,609	95,904		—	—	246,195
292	13.1935	11.8972	1.2963	.09393	240,295	185,369 (1.84)	341,079	—	—	128,461
304	11.8226	10.7707	1.0519	.07622	22,518	21,406 (1.78)	38,103	.1820	0.0296	19,705
305	11.9311 / 12.0007	11.2110	0.7201	.05218	14,238	19,772 (1.60)	31,635	—	—	12,195
306	11.2338	10.2771	0.9567	.06932	21,330	22,293 (1.74)	38,793	—	—	18,036
353	16.0544	13.1830	2.8714	.20807	138,168	48,118		.3682	0.2990	163,201
354	13.2017	12.0005	1.2012	.08704	143,059	119,096 (1.82)	216,755	—	—	124,178
355	12.2881	10.8322	1.4559	.10550	112,395	77,199 (1.88)	145,134	—	—	110,929
358	16.0022	11.1944	4.8078	.34839	462,784	96,256				413,437
359	17.1849	12.0192	5.1657	.37432	465,566					453,667
360	16.9836	11.4798	5.5038	.39882	497,799	90,446				448,312

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White Oak Dam Samples - E

Routine Water Surveys P-County
Vol. of All Samples - 15 Liters

Date	10/23/47	10/24/47	10/27/47
Gross	4.6859	4.0662	5.2960
Tare	1.6829	1.6829	1.6829
net Silt	3.0030	2.3833	3.6121
Specimen #	2	4	6
Silt Dish	264	266	268
Supernatant	296, 297, 262	298, 299, 300	356, 357, 97

Major spill MNL

Lift #	Gross Wt	Tare Wt.	Net Gross	g/cm²	First Count	g/m/g	c/m/g₀	g/l	μc/l	12/31/47 c/m
264	10.8208	10.2563	0.5645	.04090	10,989	19,467 (1.15)	22,387	.2005	.0217	10,017
266	12.3381	11.7241	0.6140	.04449	10,710	17,443 (1.17)	20,408	.1591	.0146	9,473
268	11.2980	10.7610	0.5370	.03891	8,433	15,704 (1.15)	18,060	.2407	.0195	7,533
262	18.1716	13.0436	5.1280	.37159	394,142	76,861		.7299	.8775	
296	15.4696	13.6689	1.8007	.13048	250,042	138,858 (1.93)	267,996	—	—	225,166
297	15.3766	11.3622	4.0144	.29089	377,678	94,080		—	—	291,529
298	13.7772	12.3819	1.3953	.10110	110,061	78,879 (1.40)	110,431	.1820	.0946	96,039
299	12.3957	11.6250	0.7707	.05584	45,490	59,024 (1.24)	73,190	—	—	44,460
300	11.8206	11.2567	0.5639	.04086	79,362	140,738 (1.16)	163,256	—	—	69,129
356	11.9502	11.1581	0.7921	.05739	14,179	17,901 (1.25)	22,376	.1420	.0182	11,007
357	12.5900	11.6258	0.9642	.06986	17,514	18,164 (1.30)	23,613	—	—	15,066
97	11.5674	11.1944	0.3730	.02702	13,459	36,083 (1.10)	39,691	—	—	12,163

Special Water Survey of overflow of Tanks #1 & #2 in Tank farm 10/31/47
100 ml samples - evap. to dryness & counted

Location	Dish no.	Gross gm	Tare	Net	gm/ml	First count 11/4/47	gm/ml	g/l
Coming into S.B. H2O - enclosure	255	12.0533	12.0060	0.0473		886	8.86	
" overflow - out of tank farm	256	11.7104	11.6715	0.0389		868	8.68	
Pipe - W. side " of S.B.	257	10.4701	10.4016	0.0685		963	9.63	
W.O. creek	270	11.5819	11.5361	0.0458		11,241	112.41	

g/l	β μc/ml
	3.99×10^{-1}
	3.91×10^{-1}
	4.33×10^{-1}
	5.04×10^{-4}

Clinch River samples

Special survey of Clinch River from mile 14 to mile 20 inclusive
oct. 16, 1947
Volume of all samples 15 liters

	mile 14		mile 15		Mile 16		Mile 17	
	5' deep	20'	5'	20'	5'	20'	5'	20'
Gross	3.7379	4.0110	4.0038	3.9446	3.9030	4.0042	3.9683	
Tare	1.6829	1.6829	1.6829	1.6829	1.6829	1.6829	1.6829	
Net Silt	2.0550	2.3281	2.3209	2.2617	2.2201	2.3213	2.2854	
Silt Dish	327	328	329	330	331	332	333	
Supernatant	334, 337	319, 320	324, 325	335, 336	323, 326	338, 339	321, 322	

Corrected Zero absorber

considered zero absorber

12/30/47

Run #	Net wt	Tare wt.	Net gros.	g/cm²	Fast count	c/m/g	c/m/g	g/l	Null	c/m
320	12.4292	12.0644	0.3648	.02663	1166	3,196 (1.12)	3515	.0487	.00077	1152
321	10.7341	10.3682	0.3659	.02651	1256	3432 (1.10)	3775	—		1166
322	11.2935	10.9805	0.3123	.02270	1605	1,931 (1.07)	2,066	.0364	.00032	0.22
323	11.8272	11.5954	0.2318	.01679	427	584 (1.05)	1,934	—	—	.383
324	11.6895	11.4401	0.2494	.01807	226	906 (1.06)	960	.0402	.00072	207
325	13.4625	13.0874	0.3751	.02718	1,490	3872 (1.16)	4369	.0537	.00093	1224
326	12.1429	11.7113	0.4316	.03127	1,296	3002 (1.13)	3362	—	—	1,391
327	12.8251	12.4714	0.3537	.02563	230	658 (1.14)	3085	—	—	284
328	11.8117	11.3897	0.4220	.03057	38	90 (1.12)	101	.1369	.00062	9
329	12.9048	12.3818	0.5230	.03789	58	110 (1.14)	125	0.1530	.00087	90
330	13.4327	12.9526	0.4801	.03478	24	49 (1.13)	55	0.1548	.00038	27
331	12.7313	12.2043	0.5270	.05746	43	83 (1.14)	95	0.1510	0.00611	72
332	12.2292	12.2357	0.4935	.03576	10	20 (1.13)	23	0.1510	.00015	8
333	11.9258	11.4400	0.4852	.03515	264	554 (1.13)	614	0.1500	.00112	64
334	12.1382	11.6642	0.4740	.03434	156	328 (1.13)	371	0.1524	.00025	99
335	12.1025	11.7089	0.3936	.02852	10,372	26,357 (1.10)	28986	0.575	.00760	9643
336	11.9762	11.5487	0.4275	.03097	851	1990 (1.11)	2209	.0472	.00158	886
337	10.6505	10.3715	0.2790	.02021	572	1050 (1.06)	1173	—	—	495
338	13.3274	12.8577	0.4697	.03403	12,546	26,710 (1.13)	30,182	—	—	11,425
339	11.4791	11.3133	0.1658	.01201	981	1,771 (1.01)	1,753	.0457	.00012	1148
339	11.8460	11.3258	0.5202	.03769	2,592	4982	5729	—	—	2282

SB 1,200 .0046

Group: Special Survey of Clinch River from Mile 17 thru 20
10/16/47

Miles	17	18		19		20	
Deep	17'	5'	15'	5'	15'	5'	11'
Specimen	1	2	3	4	5	6	7
Gross	3.9187	3.9478	3.8217	3.8073	4.0660	3.9754	3.5134
Tare	1.6829	1.6829	1.6829	1.6829	1.6829	1.6829	1.6829
Net Silt	2.2358	2.2649	2.1388	2.1244	2.3831	2.2925	1.8305
Silt dish	469	470	471	472	474	473	475
Superin't 11	477	483	481	476	482	479	478

12/30/47
C/m

Dish #469
470
471
472
473
474
475
477 0
481 23
482 23
483 0
476 68
479 9
478 158

DISH NO.	GROSS	TARE	NET GMS	g/cm²	FIRST COUNTS	cm/g		cm/g₀	g/l	Bm/l
469	13.4383	12.9423	.4842	.03486	16	33	1.13	37	0.1490	.000025
470	13.7547	13.2133	.5414	.03523	30	55	1.15	65	0.1510	.000044
471	14.4884	13.9783	.4901	.03551	14	29	1.14	33	0.1424	.000021
472	13.6201	13.1227	.4974	.03604	12	24	1.14	27	0.1418	.000017
474	14.2585	13.7566	.5019	.03637	24	48	1.14	55	0.1590	.000039
473	14.2608	13.7569	.5039	.03651	18	36	1.14	41	0.1530	.000028
475	13.7856	13.2816	.5040	.03652	19	38	1.14	43	0.1220	.000024
477	13.9275	13.4145	.5130	.03717	20	39	1.15	45	0.0342	.000089
483	12.9625	12.4793	.4832	.03501	29	60	1.14	68	0.0322	.000098
481	13.6011	13.0806	.5211	.03776	38	74	1.15	85	0.0348	.000123
476	14.2435	13.7532	1.1723	[illegible]	29	25	1.35	34	[illegible]	.000012
482	13.6675	13.1074	.5601	.04058	26	46	1.15	52	0.0374	.000089
479	14.2777	13.8081	.4696	.03402	41	87	1.13	98	0.0312	.000013
478	14.8622	14.2348	.6274	.04546	13	21	1.18	25	0.0418	.000047

Comparison of Results: 1 liter samples versus 15 liter samples

	1 liter S.B. samples				15 liter S.B. samples			
Date	10/30	10/31	11/5	11/10				
Gross								
Tare								
net silt								
silt dish								
Supernatant	361	362	363	364				

1 liter samples were evap. to dryness & counted - 15 liter samples were evap. to one liter & filtered. The silt was counted & the filtrate evap. to dryness & counted

12/31/47

Dish	Gross	Tare	Net gms	g/cm²	First count	c/m/g	c/m/go	g/l	pu/l	c/m
361	11.3285	10.4585	0.8700	.0630	123,210	142,000 1.70	241,100	0.8700	0.9450	
362	13.1891	12.7754	0.4137	.0299	107,005	259,000 1.40	363,000	0.4137	0.6752	367,101
363	14.0558	13.8735	0.1823	.01321	158,022	866,823 1.25	996,846	0.1823		
364	14.0012	13.7625	0.2387	.01729	69,600	291,579 1.19	346,979	0.2387		

Settling Basin Samples - F

Routine Water Surveys, S. County, D

Vol. of all Sample - 15 liters

Date	10/29	10/30	10/31
Gross	2.7724	2.8506	3.3438
Tare	1.6829	1.6829	1.6829
net silt	1.0895	1.1677	1.6609
Specimen #	2	4	6
Silt Dish	372	374	376
Supernatant	365, 366, 367	382, 383, 384	390, 391, 394

LH/14/61

12/31/47

Dish #	Gross	Tare	Net gms	g/cm²	First count	c/m/g	c/m/g₀	g/l	β uc/l	c/m
365	15.3125	11.5568	3.7557	.27215	483,565	128,754 (3.70)	476,040	.6476	1.1720	295,142
366	15.7583	11.8746	3.8837	.28142	467,356	120,337 (3.80)	457,500	—	—	298,682
367	16.0367	13.9537	2.0830	.15094	206,230	99,000 (2.75)	271,900	—	—	225,949
372	11.3741	10.8888	0.4853	.03516	358,447	738,609 (1.90)	1,405,357	.0724	0.4570	281,614
374	14.0218	13.5607	0.4611	.03341	308,916	669,954 (1.87)	1,252,814	.0775	0.4360	240,093
376	12.4395	11.9904	0.4491	.0325	259,316	577,200 (1.37)	792,500	0.1107	0.3941	210,645
382	14.9232	12.6300	2.2932	.16617	263,340	113,600 (2.73)	310,200	.5078	0.6525	223,807
383	13.5605	11.4174	2.1431	.15529	214,772	100,100 (2.70)	270,200	—	—	192,798
384	16.1096	12.9289	3.1807	.23048	257,895	81,081 (3.40)	275,500	—	—	246,061
390	14.8085	13.4572	1.3513	.0982	138,897	102,300 (1.86)	190,400	—	—	145,579
391	13.0856	13.3557	0.7299	.0528	158,944	222,700 (1.60)	340,500	2.306	1.3540*	136,188
394	13.2997	11.9151	1.3846	.1002	68,620	52,100 (1.87)	97,520	—	—	134,163

* [illegible] #371 [illegible] computing results

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White Oak Dam Samples - F

Routine Water Surveys B-County

Vol. of all Samples - 10 liters

Date	10/28	10/29	10/30	10/31
Gross	5.5085	3.6255 2.1073	5.0437	4.2318
Tare	1.6829	3.3658	1.6829	1.6829
net silt	3.8256	2.3670	3.3608	2.5489
Specimen #	1	3	5	7
Silt Dish	371	372	375	377
supernatant	379, 380, 381	368, 369, 370	385, 386, 378	387, 388

1

Dish #	Gross	Tare	Net gms.	g/cm²	Fit count	c/m/g		c/m/go	g/l	pμc/l	12/31/47 c/m
368	12.2576	11.4044	0.8532	.06182	3,575	4,190	1.25	5,113	.1645	0.0102	11,826
369	11.3933	10.6804	0.7129	.05132	9,990	14,013	1.21	16,956	—	—	9,608
370	13.5595	12.6598	0.8997	.06519	13,712	15,241	1.28	19,508	—	—	11,484
371	12.7304	12.2342	0.4962	.03559	8239	16,604	1.14	18,929	.2550	0.0217	7,731
373	13.8695	13.893	0.4802	.03479	11,061	23,034	1.13	26,028	.1579	0.0185	8,770
375	11.8682	11.3595	0.5087	.03686	9,531	18,720	1.14	21,350	.2240	0.0215	8,626
377	12.6892	12.1810	0.5082	.03682	11,466	23,562	1.14	25,728	.1699	0.0196	9,742
379	10.8936	10.0078	0.8858	.06201	10,804	12,197	1.27	15,490	.2460	0.0190	9,531
380	14.3601	13.0981	1.2620	.09144	17,326	13,726	1.37	18,805	—	—	15,723
381	11.3087	10.7589	0.5498	.03984	8,226	14,961	1.15	17,205	—	—	7,069
385	11.4147	11.0162	0.3985	.02887	6,048	15,120	1.11	16,806	.1762	0.0142	5,108
386	11.5125	11.2359	0.2766	.02004	4,374	15,790	1.07	16,890	—	—	3,739
387	14.0824	12.8377	1.2447	.09019	18,288	13,252	1.37	18,155	.1843	0.0155	17,775
388	12.0494	10.5278	1.5216	.11026	20,932	13,757	1.40	19,260	—	—	21,159
378	12.9660	10.9982	1.9678	.14259	27,274	13,860	1.45	20,097	—	—	21,159
											24,421

Settling Basin Samples G

Routine Water Survey B County

Vol. of all Samples 15 liters

Date	11/3	11/4	11/5	11/6
Gross	3.2278	3.4855	3.4680	2.6300
Tare	1.6829	1.6829	1.6829	1.6829
Net Silt	1.5449	1.8026	1.7851	0.9471
Specimen #	1	3	5	7
Silt Dish	403	405	407	409
Supernatant	389, 392, 393	400, 401, 402	410, 411, 412	430, 431, 432

12/31/47

Disk #	Gross	Tare	Net gms	g/cm²	First Count	c/m/g	c/m/g₀	g/l	β Mc/l	c/m
389	11.7770	10.9262	0.8568	.06208	123,854	144,554 (1.68)	242,851	.1580	0.1674	72,674
392	14.5925	13.8308	0.7617	.05519	116,275	152,651 (1.62)	247,295	—	—	106,492
393	12.0569	11.3031	0.7538	.05462	101,912	135,197 (1.61)	217,668	—	—	11,610
400	14.1983	13.4460	0.7523	.05451	337,959	449,234 (1.61)	723,267	.2316	0.4990	256,649
401	12.5850	11.5793	1.0057	.07287	273,892	272,340 (1.75)	476,595	—	—	132,088
402	13.2250	12.5055	1.7195	.12460	209,956	122,103 (1.95)	238,101	—	—	175,860
403	11.0892	10.5902	0.4992	.03617	226,471	453,667 (1.41)	639,663	.1030	0.2965	172,124
405	14.2795	13.7884	0.4911	.03558	254,070	517,348 (1.40)	724,287	.1202	0.3915	184,041
407	14.0604	13.5607	0.4997	.03621	338,139	676,684 (1.41)	954,124	.1190	0.5100	190,881
409	13.3210	12.8275	0.4935	.03576	476,140	964,822 (1.40)	1,350,751	.0632	0.3840	278,629
410	13.2371	12.5886	0.6485	.04699	12,654	19,513 (1.53)	29,854	.1179	0.0153	11,169
411	14.2797	13.6226	0.6571	.04761	13,243	20,154 (1.55)	31,289	—	—	10,975
412	14.3397	13.8620	0.4777	.03461	8,694	18,200 (1.39)	25,298	—	—	1,162
430	19.7828	13.7346	6.0482	.43827	456,939	75,550		.1022	0.1710	623,405
431	16.9677	13.3235	3.6442	.26407	375,723	103,102 (3.60)	371,500	—	—	240,395
432	18.6533	12.9635	5.6898	.41230	458,541	80,570 (4.60)	371,000	—	—	192,577

White Oak Dam Samples G

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Routine Water Surveys β Counts

Vol. of all Samples – 15 liters

Date	11/3	11/4	11/5
Gross	5.0225	4.9482	4.3017
Tare	1.6829	1.6829	1.6829
Net Silt	3.3396	3.2653	2.6188
Specimen #	2	4	6
Silt Dish	404	406	408
Supernatant	395, 396	397, 398, 399	413, 414, 415

13.8

Additional Counts

Date	12/30/47		
Dish #	395		
	396		
	397		
	398		
	399		
	404		
	406		
	408		
	413		
	414		
	415	11,544	

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Dist#	Gross	Tare	Net gms	g/cm²	First count	c/m/g	c/m/go	g/l	βμc/l	12/31/47 c/m
395	12.6992	10.7201	1.9791	.14341	25,452	12,860 (1.40)	18,004	.2071	0.0194	22,158
396	12.5880	11.4567	1.1313	.08197	18,905	16,711 (1.35)	22,560	—	—	10,575
397	13.8511	13.2667	0.5884	.04266	8,235	13,996 (1.16)	16,235	.1163	0.0999	7,398
398	11.5245	11.1096	0.4149	.03006	8,487	20,456 (1.12)	23,911	—	—	7,533
399	11.5090	10.7628	0.7462	.05407	323,649	433,729 (1.23)	533,487	—	—	241,259
404	13.8620	13.3423	0.5197	.03765	10,388	19,989 (1.15)	22,987	.2221	0.0229	8,091
406	13.1617	12.6625	0.4992	.03617	10,089	20,210 (1.14)	23,039	.2179	0.0227	9,342
408	14.2267	13.7228	0.5039	.03651	10,494	20,826 (1.14)	37,416	.1743	0.0293	9,036
413	14.2600	13.5789	0.6811	.04935	12,910	18,955 (1.20)	22,746	.1398	0.0143	1164
414	13.4963	12.7554	0.7409	.05368	13,684	18,469 (1.23)	22,717	—	—	11,826
415	14.0808	13.4046	0.6762	.04900	12,906	19,086 (1.20)	22,903	—	—	

70 Group 1 — Settling Basin Samples
Routine Water Survey B Counts
Volume of all samples - 15 liters

DATE	11/7	11/10	11/11
GROSS	2.6790	3.2939	3.6267
TARE	1.6829	1.6839	1.6839
NET-SILT	0.9861	1.6110	1.9438
SPECIMAN #	2	4	6
SILT DISH	417	419	421
SUPERNATENT	424	426	428

Gross	38.9690	40.9610	55.3872
Tare	29.4082	38.4456	53.4409
Net Supt'nt	9.5608	2.5154	1.9463

Additional Counts

Date	12/30/47	
Dish #	417	276,759
	419	104,737
	421	94,316
	424	10,610
	426	32,427
	428	18,756

Dish #	Gross	Tare	Activity sample NET GR.	Bulk sample Net gms	TOTAL sample Net gms	g/cm²	Feet count	c/m/g	c/m/go	g/l	β μc/l
417	13.7337	13.2371	0.4966	—	—	.03598	321,376	1.40 647,152	906,013	.0657	0.2680
419	14.5194	14.0403	0.4791	—	—	.03471	163,354	1.39 340,960	473,934	.1072	0.2285
421	14.3497	13.8508	0.4989	—	—	.03615	131,062	1.42 262,701	373,035	.1295	0.2176
424	15.5573	13.5947	1.9626	9.5608	11.5234	.1422	102,595	1.10 52,275	109,778	.7679	0.3785
426	12.7337	12.4912	0.2425	25154	27579	.01759	34,312	1.18 141,495	166,962	.1835	0.1375
428	13.8487	13.6179	0.2308	1.9463	2.1771	.01675	21,280	1.17 93,201	107,875	.1448	0.0704

Group White Oak Dam - Samples
Routine Water Surveys 6-Counts
Volume of all samples - 15 liters

Date	11/6	11/7	11/10	11/11
Gross	4.2442	4.3901	4.5761	4.4036
Tare	1.6829	1.6829	1.6829	1.6829
Net Silt	2.5613	2.7072	2.8932	2.7207
Specimen	1	3	5	7
Silt Dish	416	418	420	422
Supernatant	423	425	427	429

Gross	41.8850	46.5220	51.4054	61.6408
Tare	29.6814	44.4344	49.1681	59.0795
Net Sup't'nt.	12.2036	2.0876	2.2373	2.5613

Additional counts

Date →	12/30/47				
Dish # 416	12,339				
418	10629				
420	14607				
422	13383				
423	4851				
425	7105				
427	6,624				
429	1670				

Disk #	Gross	Tare	Activity sample net gms	Bulk sample Net gms	Total sample Net gms	g/cm²	Fast Count	c/m/g	c/m/g₀	g/l	Bq/l
416	13.6447	13.1403	0.5044	—	—	.03655	14,332	28,414 (1.14)	32,392	.1709	0.0249
418	14.1185	13.6256	0.4929	—	—	.03571	12,199	24,749 (1.13)	27,966	.1805	0.0219
420	13.6406	13.1334	0.5072	—	—	.03675	17,086	33,687 (1.14)	38,403	.1928	0.0333
422	13.4557	12.9566	0.4991	—	—	.03616	14,895	29,844 (1.14)	34,022	.1812	0.0277
423	13.2054	12.9422	0.2632	2.2036	2.4668	.01468	5073	19,234 (1.05)	20,238	.8320	0.0757
425	13.4218	13.0221	0.3997	2.0876	2.4873	.02892	7400	19,014 (1.10)	20,915	.1660	0.0156
427	13.8636	13.5315	0.3321	2.2373	2.5694	.02408	7,140	21,506 (1.08)	23,226	.1712	0.0179
429	12.9363	12.8461	0.0902	2.5618	2.5615	.00654	1,800	21,064 (1.02)	21,485	.1710	0.0165

Group: White Oak Dam and Settling Basin Samples, Routine Water Surveys Beta Counts
Volume of all samples - 15 liters

Date	11/12	11/12	11/13
Gross	6.7116	6.4339	2.9440
Tare	3.3658	2.8866	1.2037
Net silt	3.3458	3.5473	1.7403
Specimen	5	6	7
Silt dish	443	444	445
Sup. "	433	434	435
Gross Sup	42.2998	35.3775	55.8638
Tare "	40.7265	33.9339	52.9270
Net "	1.5733	1.4436	2.9368

Remarks: 1 thru 4 has been stored to be checked at a later date.

DISH NO.	GROSS	TARE	ACTIVITY SAMPLES NET GM	BULK SAMPLES NET GMS	TOTAL SAMPLE GMS	g/cm²	FIRST COUNTS	c/m/g		dpm/g	g/l	Bq/l
443	13.0289	12.5002	.5287	—	—	.0383	87,534	165,564	1.15	190399	.2231	0.1912
444	14.2928	13.7590	.5338	—	—	.03868	13,315	24,944	1.15	28,686	.2365	0.0305
445	12.9735	12.4474	.5264	—	—	.03814	143,856	280,881	1.15	323,013	.1160	0.1689
433	13.8782	13.7640	.1142	1.5733	1.6875	.00827	11,930	104,553	1.02	106,644	.1123	0.0539
434	14.6307	14.0764	.5543	1.4436	1.9979	.04016	9,504	17,146	1.16	19,889	.1331	0.0119
435	13.2171	13.1141	.1030	2.9368	3.0398	.0074	17,473	169,641	1.01	171,337	.2022	0.1562

76 Group I Settling Basin Samples
Routine Water Surveys - B. Counts
Volume of Samples - 15 Liters

DATE	11/14	11/17	11/18
GROSS	2.9990	2.9269	3.0552
TARE	1.2037	1.6829	1.6829
NET-SILT	1.7953	1.2440	1.3723
SPECIMAN	2	4	6
SILT-DISH	447	449	451
SUPERNATENT	437	439	441
BULK-SUP.			
GROSS	33.7422	45.5651	52.8821
TARE	31.9472	39.2935	50.1834
NET-SUP.	1.7950	6.2716	2.6987

DISH NO.	GROSS	TARE	ACTIVITY SAMPLES NET-GMS	BULK SAMPLE NET-GMS	TOTAL SAMPLE GMS	G/cm²	FIRST COUNTS	cm/g	cm/ga	g/l	Bvc/l
447	13.4255	12.9261	.4994	—	—	.0362	115,708	1.42 231,169	328,260	.1196	0.1769
449	14.2679	13.7601	.5078	—	—	.0368	92,839	1.42 182,826	259,613	.0830	0.0969
451	13.0628	12.5496	.5132	—	—	.0372	139,169	1.43 271,178	387,785	.0915	0.1597
437	13.8520	13.7355	.1162	1.7950	1.9112	.0084	14,391	1.08 123,847	133,755	.1275	0.0766
439	12.9807	12.7537	.2270	6.2716	6.4986	.0164	30,600	1.17 134,802	157,718	.4330	0.3071
441	14.1343	13.6505	.2570	2.6987	2.9557	.0186	47,565	1.20 185,078	222,094	.1970	0.1967

Group — White Oak Dam Sample
Kentucky Water Surveys - B County
Volume of Sample - 15 liters

DATE	11/13	11/14	11/17	11/18
GROSS	4.7475	4.6392	5.0450	5.3441
TARE	1.2037	1.6829	1.6829	1.6829
NET-SILT	3.5438	2.9563	3.3621	3.6612
SPECIMANE	1	3	5	7
SILT-DISH	446	448	450	452
SUPERNATENT	436	438	440	442
GROSS-BULK	50.8229	31.9199	44.2404	33.8618
TARE "	49.1485	30.0475	42.9235	32.7948
NET "	1.6744	1.8724	1.3169	1.0670

DISH NO.	GROSS	TARE	ACTIVITY SAMPLES NET-GM	BULK SAMPLES NET-GM	TOTAL SAMPLES NET-GMS	G/cm³	FIRST COUNTS	cm/g	c/m/g	g/l	Bu/l
446	12.8520	12.3072	.5448	—	—	.0395	11,947	1.15 21,929	25,218	.2363	.0268
448	12.6184	12.0817	.5367	—	—	.0389	10,551	1.15 19,659	22,608	.1970	.0200
450	14.0644	13.5503	.5141	—	—	.0373	8,240	1.14 16,028	18,272	.2242	.0184
452	13.6946	13.1383	.5613	—	—	.0407	8,321	1.16 14,825	17,197	.2441	.0189
436	14.6724	14.2402	.4322	1.6744	2.1066	.1527	8,248	1.42 19,084	27,500	.1406	.0164
438	13.6029	13.4484	.1545	1.8724	2.0269	.1469	2,515	1.41 16,278	22,940	.1350	.0103
440	13.7135	13.5872	.1263	1.3169	1.4432	.1046	3,145	1.40 24,901	34,861	.0962	.0151
442	14.3114	14.0544	.2570	1.0670	1.3240	.0959	6,102	1.38 23,743	32,763	.0883	.0130

5 Harriman Water Samples
Volume of all samples 15 liters
Samples Taken Oct. 28, 1947

Date	10/28/47	10/28/47	10/29/47	10/29/47	10/29/47	10/29/47
Specimen #	1	2	3	4	5	6
Gross	3.2523	3.6344	2.3528	2.3265	3.8623	3.8100
Tare	1.6829	1.6829	1.6829	1.6829	1.6829	1.6829
Net = Silt	2.0694	1.9515	0.6699	0.6436	2.1794	2.1271
Silt Dish	453	454	455	456	457	458
Supernatant	459	460	461	{462 463	464	465
Gross Bulk		57.6441	49.0448		40.5395	49.8186
Tare "		54.6983	48.1065		39.6711	48.9879
Net "		2.9458	.9383		.8684	.8316
Net. Activity Sample		.2183	.1049		.1326	.1271
Total Weight of Sample		3.1641	1.0432		1.0010	.9587

Sample # Location

1 – Barge Water – Raw Tenn & Clinch 1PM. 10/28/47
2 – Barge Water – Purified Clinch & Emory 7PM. 10/28/47
3 – Emory Background – Oakdale 2PM. 10/29/47
4 – Emory " " " "
5 – Barge Water – Raw Tenn & Clinch 1PM 10/29/47
6 – " " Raw Tenn & Clinch " "
(No. 6 May contain small quantities of Alum)

Dish #	Gross	Tare	Net gm.	g/cm²	12/10/47 Fission count	c/min		c/m/g0	g/l	Ra/l	12/30/47 c/m
453	14.5128	13.8895	.6233	.04517	30	45.13	1.18	57	0.1380	3.5×10^{-5}	0
454	13.4459	12.7877	.6582	.04770	30	45.58	1.19	55	0.1301	3.2×10^{-5}	23
455	12.5785	12.3167	.2618	.01897	26	99.31	1.1	109	.0446	2.2×10^{-5}	68
456	13.6866	13.4508	.2358	.01708	31	131.47	1.1	145	.0429	2.8×10^{-5}	32
457	14.1887	13.6084	.5803	.04205	48	82.77	1.17	97	0.1450	6.3×10^{-5}	32
458	12.3637	11.8448	.5189	.03760	44	84.79	1.15	98	0.1418	6.2×10^{-5}	59
459	13.3089	12.8265	.4824	.03496	66	136.81	1.13	155	0.0321	2.2×10^{-5}	
460	13.3341	13.1158	.2183	.01582	8	36.65	1.05	39	0.0145	2.5×10^{-5}	
461	13.7736	13.6887	.1049	.0076	18	171.59	1.07	184	0.06953	5.8×10^{-5}	
462	14.1103	13.8078	.3025	.0219	26	185.53	1.23	106	0.05972	2.8×10^{-5}	
463	14.1348	13.8415	.5933	.0429	17	28.65	1.95	57	—	—	
464	13.0411	12.9085	.1326	.00961	34	256.41	1.03	264	0.0669	7.9×10^{-5}	
465	11.9326	11.8055	.1271	.00921	90	708.10	1.03	729	.0638	2.1×10^{-4}	

455 - 2.2
461 - 5.8
8.0

456 - 2.8
462,463 - 2.8
5.6

over 7.4×10^{-5}

c/m/g0 g/l
$.59 \times .211 \times 4.5\times10^{-6}$ 37×10^{-6}

10
2x

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Group - Settling Basin Samples
Routine Water Survey - B County
Volumes Sample - 1.5 liters

DATE	11/19	11/21	11/24
GROSS	3.3741	3.4119	3.6628
TARE	1.6829	1.6829	1.6829
NET-SILT	1.7912	1.7290	1.9799
SPECIMAN #	6	7	8
SILT-DISH	576	577	578
SUPERNATENT	555; 556	552; 553	547; 548
[illegible]			
TEMP			
[illegible]			

DISH NO.	GROSS	TARE	NET. GMS	S/cm²	FIRST COUNT	C/m/g	dm/go	g/l	Buc/l	APPED COUNTS
576	13.8607	13.4516	.4093	.02966	64,413	157,374 1.94	210,881	.1194	0.1135	
577	13.3842	12.9575	.4267	.03092	25,960	60,839 1.35	83,133	.1152	0.0426	
578	13.7285	13.3244	.4041	.02928	19,665	48,664 1.34	65,210	.1319	0.0387	
555	11.9197	10.2010	1.9197	.1391	63,990	25,350 2.00	50,700	.1650	0.0474	
556	11.1646	10.5072	.5574	.0404	29,579	53,066 1.45	76,946	—	—	
552	11.1032	10.2204	.8828	.06397	41,179	46,646 1.78	82,563	.1258	0.04137	
553	11.3328	10.4200	1.0070	.07297	36,557	36,303 1.75	63,530	—	—	
547	11.3027	10.3258	.8827	.06396	54,744	62,019 1.20	105,432	.0752	0.0332	
548	10.7200	10.4737	.2463	.01785	18,976	77,044 1.18	90,912	—	—	

Group 1 White Oak Dam Samples
Routine Water Survey - B. Counts
Volume of samples 15 liters

DATE	11/19	11/20	11/21	11/24	11/25
GROSS GMS	6.5297	5.1359	5.1748	5.6418	5.5626
TARE "	1.6829	1.6829	1.6829	1.6829	1.6829
NET-SILT	4.8468	3.4530	3.4919	3.5587	3.8797
SPECIMAN #	1	2	3	4	5
SILT-DISH	566	567	568	569	570
SUPERNATENT #	574, 575	563, 564	559	558	560, 561

DISH NO.	GROSS	TARE	NET-GMS	G/cm²	FIRST COUNTS	C/m/g	C/m/go	g/l	Bu/l	APPGD COUNTS
566	14.0658	13.5612	.5046	.03657	7,070	1.14 14,011	15,973	.3228	0.0232	
567	13.5790	13.1342	.3848	.02788	5,917	1.10 15,377	16,915	.2301	0.0175	
568	13.3627	12.9642	.3985	.02888	6,186	1.10 15,523	17,075	.2325	0.0178	
569	13.9896	13.6275	.3621	.02624	4,867	1.09 13,441	14,651	.2370	0.0156	
570	13.0482	12.5068	.5414	.03923	6,843	1.15 12,639	14,535	.2582	0.0169	
574	14.2816	13.1405	1.1411	.08268	11,404	1.35 9,993	13,491	.1025	0.0060	
575	14.2273	13.8308	.3965	.02873	4,544	1.10 11,460	12,606	—	—	
563	11.7815	10.9276	.8539	.06188	7,978	1.26 9,343	11,772	.0944	0.0049	
564	13.3511	12.7884	.5627	.04078	5,497	1.16 9,769	11,332	—	—	
557	13.2433	11.8457	1.3976	.10127	11,558	1.40 8,270	11,578	.0930	0.0048	
558	15.2023	13.8903	1.3120	.09507	12,680	1.37 9,665	13,241	.0875	0.0052	
560	14.7248	13.7239	1.0009	.07252	7,796	1.30 7,788	10,124	.0967	0.0042	
561	11.0414	10.5913	.4501	.03262	3,749	1.12 8,329	9,328	—	—	

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Group #1 White Oak Dam - Samples
Routine Water Surveys, B counts
Volume of Samples - 1 Liter.

Supernatant Samples.

DATE	11/26	11/28	12/1	12/2	12/3	12/4	12/5	12/8
SPECIMEN #	1	2	3	4	5	6	7	8
GROSS	12.7007	13.3845	12.6389	13.5336	13.3531	13.6072	12.2985	14.0097
TARE	12.3837	13.0705	12.3396	13.2725	13.0755	13.3504	12.0462	13.6863
NET SUPERN'T	.3170	.3140	.2996	.2611	.2276	.2568	.2523	.3234
DISH-NO.	490	489	493	491	494	492	495	496

DISH NO.	GROSS	TARE	NET-GMS	g/cm²	FIRST COUNT	cm/g		cm/g	g/c	Burle
490	12.7007	12.3837	.3170	.0230	4734	14934	1.08	16,129	.3170	0.0230
489	13.3845	13.0705	.3140	.0228	5,094	16,223	1.07	17,359	.3140	0.0245
493	12.6389	12.3396	.2993	.0217	6,016	20,100	1.07	21,507	.2993	0.0287
491	13.5336	13.2725	.2611	.0189	7042	26,971	1.06	28,589	.2611	0.0335
494	13.3531	13.0755	.2276	.0165	6,196	27,223	1.05	28,584	.2276	0.0292
492	13.6072	13.3504	.2568	.0181	13,203	51,414	1.06	54,499	.2568	0.0628
495	12.2985	12.0462	.2523	.0183	7,434	29,465	1.06	31,233	.2523	0.0355
496	14.0097	13.6863	.3234	.0234	8,050	24,892	1.08	26,981	.3234	0.0393

Group 1 Settling Basin Samples
Contra Costa Water Survey - B. Counts
Volume of Sample - 1 liter

Supernatant - 11/26/47 - 12/5/47

DATE	11/25	11/26	11/28	12/1	12/2	12/3	12/4	12/5
SPECIMAN #	1	2	3	4	5	6	7	8
GROSS GMS	14.3145	13.8841	14.0665	11.9495	11.5022	14.0077	11.3339	12.7636
TARE GMS	13.4868	13.4407	13.7538	11.7408	11.2920	13.7589	10.9772	12.4817
NET GMS	.8277	.4434	.3127	.2087	.2120	.2488	.3567	.2819
DISH - NO.	497	499	500	498	504	501	503	502

Dist No.	Gross	Tare	Net-Gns	g/cm²	First Counts	cpm/g	cpm/go	g/l	Bu/l
497	14.3145	13.4868	.8277	.05998	159,297	1.65 192,457	317,554	.8277	1.8270
499	13.8841	13.4407	.4234	.03068	94,347	1.35 222,832	300,823	.4234	0.5720
500	14.0665	13.7538	.3127	.02266	46,894	1.25 149,965	187,456	.3127	0.2640
498	11.9495	11.7408	.2087	.01512	47,619	1.16 228,170	264,677	.2087	0.2487
504	11.5022	11.2920	.2102	.01523	52,632	1.16 250,390	290,452	.2102	0.2750
501	14.0077	13.7589	.2488	.01803	46,894	1.20 188,481	226,177	.2488	0.2534
503	11.3339	10.9772	.3567	.02585	55,396	1.29 155,862	201,062	.3567	0.3230
502	12.7636	12.4817	.2819	.02042	41,085	1.23 145,729	17,925	.2819	0.0227

Group — White Oak Dam Samples
Routine Water Survey - B-Counts
Volume of Samples - 1 liter

Supernatant Samples -

DATE	12/9	12/10	12/11	12/12	12/15	12/16	12/17	12/18
SPECIMAN	1	2	3	4	5	6	7	8
GROSS GMS	11.4051	10.3196	11.4295	10.9057	12.7266	10.7942	10.7718	11.1482
TARE "	11.0975	9.9400	11.0898	10.5993	12.4715	10.4438	10.4842	10.8458
NET "	.3076	.3796	.3397	.3064	.2551	.3504	.2876	.3024
DISH - NO.	505	506	507	508	509	510	511	512

DISH NO.	GROSS	TARE	NET-GMS	G/cm²	FIRT COUNT	Cm/g		Cm/g²	g/l	Bu/l
505	11.4051	11.0975	.3076	.02229	4,883	15,875	1.08	17,145	.3076	0.0237
506	10.3196	9.9400	.3796	.02751	3,650	9,615	1.10	10,577	.3796	0.0180
507	11.4295	11.0898	.3397	.02462	4,320	12,717	1.09	13,862	.3397	0.0212
508	10.9057	10.5993	.3064	.02221	4,104	13,395	1.08	14,467	.3064	0.0199
509	12.7266	12.4715	.2551	.01849	5,274	20,413	1.06	21,638	.2551	0.0249
510	10.7942	10.4438	.3504	.02539	3,879	11,070	1.09	12,066	.3504	0.0190
511	10.7718	10.4842	.2876	.02084	4,050	14,082	1.07	15,067	.2876	0.0195
512	11.1482	10.8458	.3024	.02191	4,000	13,393	1.07	14,331	.3024	0.0196

Special Sample - Y-12 Background data
Place - East fork of poplar creek between
Y-12 & Scarboro road
Vol. of sample - 15 liters
Date of collection - 17 Dec. 1947
Time of collection - 11^00 A - 7^00 P - 8 hrs.
Sample was collected over a period
of 8 hrs with a timed sampling
Device
Sample was evaporated to 1 liter, filtered,
reduced to dryness, & counted.

Gross gms.	3.5300
Tare gms.	1.6829
Net silt "	1.8471
Silt Dish	513, 514, 515
Supernatant "	524

Dist #	Gross	Tare	Net gms.	g/cm²	First count c/m (Bcm)	c/m/g	c/m/g₀	g/l	BMC/l
513	12.1520	11.8918	0.2602	.0202	45	172.60		.1230	.000325
514	13.2234	12.6277	0.5957	.0458	28	46.90	550	—	
515	12.1006	11.2343	0.8663	.0666	12	13.85		—	
524	13.6888	10.1140	3.5748	.2749	14	3.92	39 *	.238	.0000418

99 c/m/15 l

* [illegible] to correct [illegible]

P.E.	$\sqrt{69}$	8.32	× .674 ± 5.6	12.5%
	$\sqrt{52}$	7.22	± 4.9	17.5%
	$\sqrt{36}$	6.00	± 4.0	33.3%
	$\sqrt{38}$	6.17	± 4.2	30.0%

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Group P Settling Basin Samples
Routine Water Study - B Counts
Volume of sample - 1 liter

Supernatant Samples

DATE	12/8	12/9	12/10	12/11	12/12	12/15	12/16	12/17
SPECIMAN	1	2	3	4	5	6	7	8
GROSS GMS	12.4260	12.2285	12.5458	11.8514	12.2232	11.4200	11.8254	11.5793
TARE "	12.1742	11.5879	12.0282	11.4244	11.9460	11.1215	10.9823	11.1846
NET "	.2518	.6406	.5176	.4270	.2232	.2985	.8254	.3947
DISH-NO	526	521	519	517	523	520	518	522

DISH NO	GROSS-GMS	TARE-GMS	NET-GMS	G/cm²	FIRST COUNTS	cm/g	cm/go	g/l	Bu/l	ADDED COUNTS
526	12.4260	12.1742	.2518	.01825	23,166	1.20 92,002	110,402		0.1250	
521	12.2285	11.5879	.6406	.04642	106,384	1.53 166,008	254,084		0.7325	
519	12.5458	12.0282	.5176	.03751	80,100	1.44 154,560	222,566		0.5176	
517	11.8514	11.4244	.4270	.03094	73,215	1.35 171,464	231,476		0.4445	
523	12.2232	11.9460	.2232	.01617	37,080	1.18 166,129	196,032		0.1968	
520	11.4200	11.1215	.2985	.02163	37,035	1.25 124,070	155,088		0.2082	
518	11.8254	10.9823	.8254	.05981	117,936	1.65 142,883	235,757		0.8750	
522	11.5793	11.1846	.3947	.02860	50,116	1.34 126,972	170,142		0.3022	

See next Grams

Group — Q White Oak Dam Sample
Routine Water Survey B Counts
Volume of Sample — 0.1 Liter

Supernatant Samples

DATE	12/19	12/22	12/23	12/29	12/30	12/31
SPECIMAN	1	2	3	4	5	6
GROSS GMS	10.5296	11.0064	11.0450	11.2109	10.8767	13.1700
TARE "	10.2452	10.7205	10.7858	10.9544	10.6160	12.9284
NET "	.2844	.2859	.2592	.2109	.2607	.2416
DISH-NO.	527	531	525	528	529	530

DISH NO.	GROSS-GMS	TARE-GMS	NET-GMS	g/cm2	FIRST COUNT	cm/g	cm/g	g/l	Bq/l	ADDED COUNTS
527	10.5296	10.2452	.2844	.02061	3889	1.07 12,267	13,126	See next page	0.0168	
531	11.0064	10.7205	.2859	.02072	5102	1.07 17,843	19,094		0.0245	
525	11.0450	10.7858	.2592	.01878	4810	1.06 18,557	19,670		0.0229	
528	11.2109	10.9544	.2109	.01528	4350	1.05 20,625	21,656		0.0205	
529	10.8767	10.6160	.2607	.01889	5496	1.06 21,081	22,346		0.0262	
530	13.1700	12.9284	.2416	.01751	8899	1.06 36,833	39,043		0.0424	

Group R Settling Basin Samples
Routine Water Survey B-Counts
Volume of Sample - 1 liter

Supernatant + Samples.

DATE	12/18	12/19	12/22	12/23	12/29	12/30	12/31
SPECIMAN	1	2	3	4	5	6	7
GROSS - GMS	10.3802	13.1815	13.3789	10.8377	10.6229	12.8354	10.7600
TARE "	10.0000	12.5189	13.1699	10.5868	10.3986	12.5568	10.5579
NET. "	.3802	.6626	.2090	.2509	.2283	.2786	.2021
DISH - NO	534	542	536	533	537	535	532

DISH NO.	GROSS-GMS	TARE-GMS	NET-GMS	G/cm²	FIRST COUNTS	cm/g	cm/go	g/l	Bu/l	ADDED COUNTS
534	10.3802	10.0000	.3802	.02755	38,070	1.34 100,131	134,176		0.2295	
542	13.1815	12.5189	.6626	.04801	87,799	1.51 132,507	200,086		0.5960	
536	13.3789	13.1699	.2090	.01514	100,584	1.16 481,263	558,265		0.6390	
533	10.8377	10.5868	.2509	.01818	36,508	1.28 145,508	174,610		0.1970	
537	10.6269	10.3986	.2283	.01654	141,372	1.19 619,237	736,892		0.7579	
535	12.8354	12.5568	.2786	.02019	41,656	1.23 149,519	183,908		0.2312	
532	10.7600	10.5579	.2021	.01464	68,139	1.16 337,155	391,100		0.3553	

See next Grams