From C.F. Buckley. Dec 31. 1975. cc P. E. Heisler.

Subject. Effect of Sargent Discharge on Mississippi River.

To A.E. Laisy.

We are not equipped to ~~detect~~ measure PCB in water in concentrations down to .000008 mg/liter (one part per Trillion) and must therefore calculate the concentration produced by adding a known quantity to the river and assuming complete mixing in the flow passing at that time.

The concentration in mg/liter produced by adding 1 pound per day to the river is given by the equation: ~~lb/day x~~

$$\text{Concentration} = \frac{\text{lb/day} \times 0.1856}{\text{River flow in ft}^3\text{/sec.}}$$

The average river flow for 112 years is 175,900 ft^3/Sec. at which flow 1.25 lb/day would produce a concentration of

0.0000013 mg/l or 1.3 parts per Trillion.

The relationship of river flow to gauge height varies only slightly at St Louis.

MONS 030319

worst case

Flows

PCB	Low	High	Ave
1) Sanget outfall 7.6#	7.6×1.86 = 14.1 ppt	7.6×.52 = 4.0	7.6×1.1 = 8.4
2) WGK Depts oper	3.6×1.86 6.7 ppt	3.6×.52 = 1.9 ppt	3.6×1.1 = 4.0

WGK. Ave for Ave flow 1.1 × .8 = ×88 ~~ppm~~ PPT

~~3)~~

Nr Days (%) greater than 1#

Nor Day less than 1#

MONS 030320

Based on river heights and using the 1973 Water Resources Data for Missouri to estimate the relationship between height and flow I get the following for the period June 1975 thru Dec 1975:

			PPT for [illegible]
Maximum flow.	360,000	Cubic feet per second.	0.52
Minimum flow	100,000	" " " "	1.86
Average (7 months)	169,000.		1.16

Monthly averages from average gauge height

		PPT for [illegible]
Jan	260,000	0.71
July	218,000	0.85
August	133,000	1.40
Sept	153,000	1.21
Oct	125,000	1.50
Nov	145,000	1.3
Dec.	147,000.	1.3

Month	Plant effluent prior to Sweetwater Ave	high	low
Jan	1.80	3.4	.75
Feb	1.59	2.9	.66
Mar	1.60	2.2	.66
Apr	2.5	6.8	.73
May	9.1	6.9	1.20
June	~~1.4~~ 2.9	4.5	.66
July	~~2.9~~ 1.6	2.7	1.08
* Aug	2.3	4.1	~~1.1~~ 1.10
Sept	3.2	9.0	.63
Oct	2.2	6.5	.63
Nov	1.15	1.8	.63
Dec.			
	~~2.08~~		
Ave for year	~~2.08~~ 2.1		
Ave 6 Mo Last	2.2		
high / yr		9.0	
low / yr			0.63

2A+2B

1 online only = 2A+2B

3,100

1# or Less ~~than~~

	Mfg	Target
Jan	0 out of 31	31 of 31
Feb.	3 of 28	28 of 28
Mar	3 of 31	3 of 31
Apr	4 of 30	30 of 30
May	3 of 31	4 of 31
June	9 of 30	15 of 30
July	15 of 31	6 of 31
Aug	3 of 31	0 of 31
Sept	12 of 30	9 of 30
Oct	18 of 31	9 of 31
Nov	3 of 31	6 of 31
	73 of 334	116 of 334

248
28

Yr = % 78% below

65% in 116

365
31
334

MONS 030323

Last 6 Mo Dept

~~Dept~~ Sawyer

60 of 154 = ~~60%~~
40% over
60% in

30 of 154 = 20%
80% in

for Year 22% over
~~78~~ 78% under

35% over
65% under

Sol. Aroclor in H_2O at ~~[illegible]~~ = [illegible]

MONS 030324

Month	Ave PCB losses lbs effluent Mfg Depts	Sauget Treatment	High PCB losses (lbs river) Mfg	Sauget
Jan	0.70	3.2	0.7	7.6
Feb	0.57	2.0	1.1	3.2
Mar	0.59	1.7	1.2	3.2
Apr	0.72	2.6	1.7	4.9
May	0.40	2.0	1.2	3.7
June	0.95	1.4	1.8	3.0
July	1.26	<1.2	2.8	2.2
Aug	0.56	<1.2	0.8	<1.2
Sept	1.25	<1.2	3.6	2.8
Oct	1.4	<1.2	3.0	2.7
Nov	0.62	<1.2	1.9	2.1
Dec				

Ave .80 1st 6 Mo 1st 6 Mo 2.1
1.03 2nd 6 Mo Last 6 Mo <1.2
0.80 yr

High 3.6 (Sept) 7.6 (Jan)

No Days Greater than 1 #
Mfg
Sauget