

Monsanto

COMPANY
CONFIDENTIAL

FROM (NAME & LOCATION) E. E. Stewart, Krummrich

DATE : January 19, 1972

SUBJECT : POLLUTION CONTROL
SEWER SAMPLERS

REFERENCE :

cc: Bill Engman
Mike Foresman
Paul Heisler
Gill Hippe

TO : Messrs.
Clarrie Buckley
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Ed Stewart

Notes below are from our 1/18/72 meeting related to the discussion of comparative results between the slow, drum and flip-flop sewer sampler.

I. Mercury

Comparative lab results from in plant samples obtained with slow and flip-flop samplers are about the same. When the sewer system tends to build up in solids the flip-flop results can be about three times greater than comparable samples from a slow sampler. Periodic air blowing of the sewer systems or heavy rains should suffice to keep solids from accumulating in the sewer system.

It is believed that slow samplers for obtaining samples for Hg within the plant will be satisfactory. However, the in-plant slow samplers should be winterized where necessary. Routine checks for operational problems should be made. The tip of the sampler in the sewer stream should be designed such that the tip is prevented from touching the bottom, top or sides of the sewer or box from which the sample is to be attained.

Comparative results of the Waste Treatment Plant Influent samples obtained with the drum and the flip-flop samplers are about the same. There would be no need to change the sampler with regard to mercury analysis.

A traverse of the area immediately before the Parshall flume would indicate representative samples can be taken from just about any location at the flume. Results obtained during three tests are as follows:

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	<u>1/3/72</u> <u>16 M GPD Flow</u>	<u>1/10/72</u> <u>8 M GPD Flow</u>	<u>1/10/72</u> <u>8 M GPD Flow</u>
Spot No. 1 *	11 ppb	4 ppb	4
No. 2	13	4	4
No. 3	13	4	4
No. 4	13	5	3
No. 5	11	3	3

* See attached sketch for spot location.

II. PCB

Comparative results in-plant between slow and flip-flop samplers are quite divergent. Data attached. It is believed the slow samplers do not pick up a representative sample with solids from the stream and hence give low results. Until we develop techniques to get a representative sample from the stream we will discontinue sampling in the plant with slow samplers.

Comparative results of the Waste Treatment Plant Influent samples obtained with the drum and the flip-flop samplers are also divergent. Comparable samples are:

<u>Composite</u>	<u>Drum (Existing)</u>	<u>Flip-Flop</u>
1/2/72	50 ppb	43 ppb
1/5	61	144
1/9	273	21
1/12	243	389
1/16	49	733

The data are too erratic for analysis. Additional comparative samples will be obtained and data will again be reviewed on 1/31/72.

The traverse of the area immediately before the Parshall flume would indicate that representative samples cannot always be obtained with regard to PCB. This is in conflict with the mercury data. Results obtained during the traverse tests are as follows:

1/14	84	123
1/21	55	62

II. PCB (contd.)

	<u>1/3/72</u> <u>16 M GPD Flow</u>	<u>1/10/72</u> <u>8 M GPD Flow</u>	<u>1/10/72</u> <u>16 M GPD Flow</u>
Spot No. 1	114 ppb	234 ppb	153 ppb
No. 2	64	200	128
No. 3	148	192	152
No. 4	265	241	133
No. 5	561	193	217

The sampling point will be relocated to the converging section of the flume. Will be designed as close as possible to get isokinetic results.

We believe that better PCB results can be obtained from the flip-flop sampler than from the drum sampler. However, we will continue to use the drum results as official until we get more comparative results between the drum sampler and the flip-flop unit. Will analyze again on 1/31/72.

We also agreed that a flip-flop isokinetic sample be taken of the Treatment Plant Effluent. This should be taken at Effluent Manhole No. 2 and comparisons can be made with the existing drum sample. Will analyze comparative results 1/31/72.

In the near future we must also analyze the effluent stream at some point closer to the river than Effluent Manhole No. 2. To consider Effluent Manhole No. 3, the Pumping Station on the line to the river from the pumping station. The latter is the true stream that a control agency may insist we sample.

III. Waste Treatment Plant Requirements

The flip-flop sampler would be better than the existing drum sampler. Both employ a fast pump required for isokinetic sampling. The major advantage with the flip-flop sampler lies in the sample obtained. The one gallon sample obtained can be handled better than the 55 gal. sample. Can be agitated better to obtain 8 or 16 oz. sample, has less wetted surface to collect contaminants, can start with fresh container every time and there is less chance of introducing extraneous factors that can affect the end results.

III. Waste Treatment Plant Requirements (contd.)

A change in sampling procedure will not conflict with historical data accumulated with drum sampler. Control agencies are interested in trends but are more concerned with today's results.

Arrangements will be made to get comparative data at the Waste Treatment Plant from the flip-flop and the drum sampler. After evaluation we will select a future time when the flip-flop will replace the drum as the standard sampler to be used at the Waste Treatment Plant.

IV. Effort, maintenance and costs of the flip-flop sampler are equal to or less than the existing drum sampler.



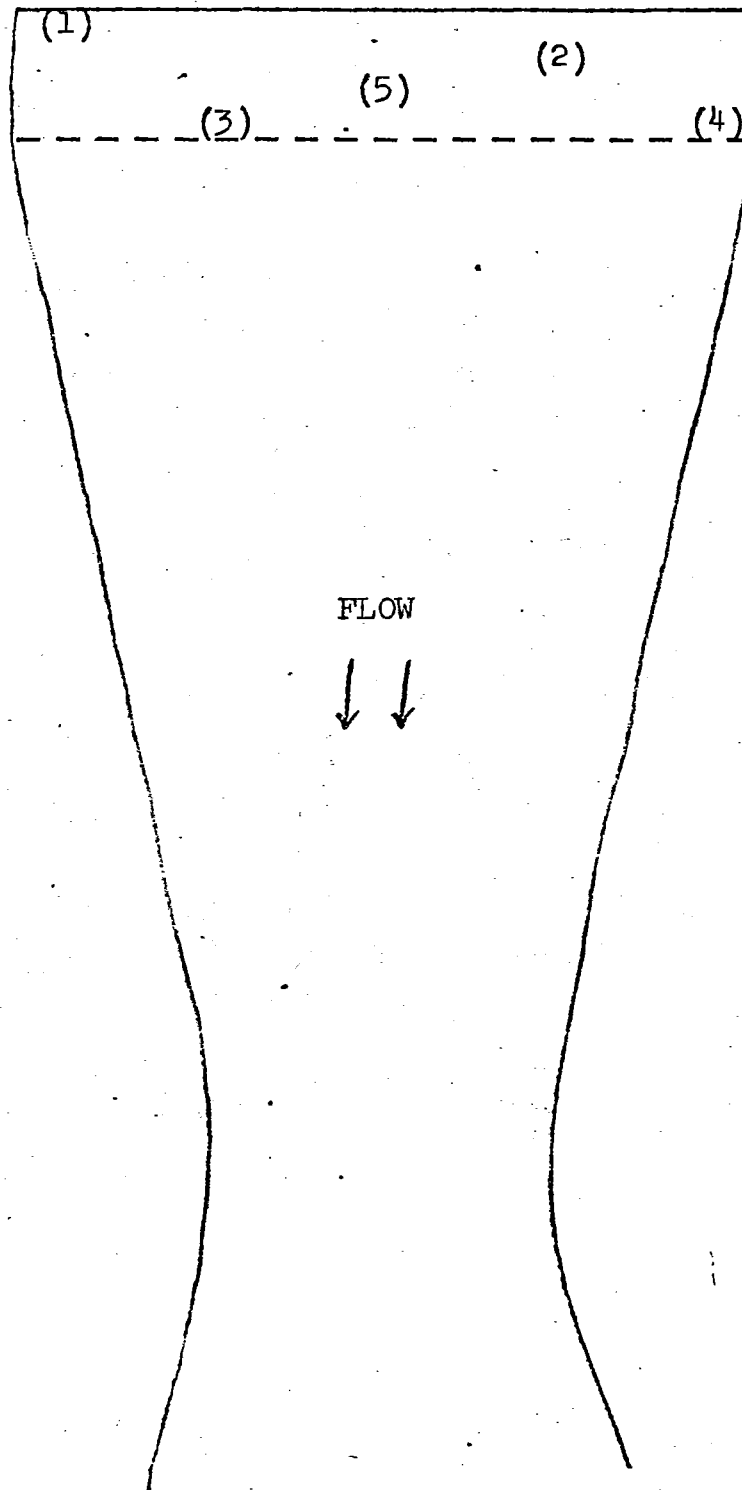
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DSW 295946

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SAMPLING SPOTS AT PARSHALL FLUME AT WTP



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1/18/72

PCB SAMPLE COMPARISONS (ppb)

2-A				1-B		Influent		
<u>Dec.</u>	<u>Slow</u>	<u>Flip-Flop</u>		<u>Slow</u>	<u>Flip-Flop</u>	<u>Drum</u>	<u>Flip-Flop</u>	
12	50	(169)						
13	79	431	1:5.5	28	(2217)			
14	124	231	1:1.9	10	(4136)			
15	157	252	1:1.6	9	(1132)			
16	42	366	1:8.7	4	330			
19	38	(126)	1:3.2	9	(1592)			
22				19	1226			
23	132	251		1:1.9	3	15		
26	15	42		1:2.8	4	142		
27					3	22		
29	32	68	1:2.1					
<u>Jan.</u>								
2	57	43	1:0.8			50	43	1:0.9
5						61	144	1:2.4
9						273	21	1:0.1
12					1:4	243	389	1:1.6
16						49	733	1:15.
						84	123	1:1.5
						55	62	1:1.1
<u>Effluent</u>								
	<u>Slow</u>	<u>Drown</u>	<u>Fast</u>	<u>Grade</u>				
	38	83	57	65				

○ Denotes possible solids present in sample

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