

F.G. STEWARD.

FROM L.M. SZENDREY

9/19/67

SUBJECT: TCP Purification - Pilot Column

CC: F.R. KENNEDY

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The pilot column by T-132 has been in operation since 9/8/67 and has to date purified nearly 20,000 gals. of ~15% T.C.P.

The average Dioxin concentration in the first 17,900 gals passed was 1.4 ppm. Normally a dioxin concentration of <1 ppm is expected.

The reason for a concentration of 1.4 ppm, is that the column was operated at 2.0 gpm instead of the recommended 1.5 gpm, for 7,200 gals of the T.C.P. passed.

The column is operating satisfactorily and no appreciable pressure drop has built up across the column. The pressure drop across the column after 20,000 gals. of ~15% T.C.P. is 4 psi. A 10 μ filter after the column is used to remove any solids that pass through the column.

The 10 μ puralator paper filters tend to

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plug after $\sim 9,000$ gal. of T.C.P. passes through them. The pressure drop across the filter builds up to 26 p.s.i. Presently we are using a 25 micron purolator filter to test if a 25 μ porosity is sufficient to remove the particles passing through the column and to see if it exhibits a longer operating life.

The first sample from the 25 μ filter show that it should be sufficient for our purposes. Chart # 1 shows the efficiency of the column and the basic operating data to the present.

The column has not undergone a regeneration yet because it has not exhibited a need for one. The first regeneration will be performed when the pressure drop across the column is in the range of 25-35 psi, or when the column fails to remove or reduce the diatom level in $\sim 15\%$ T.C.P. to the desired safe limit. The present safe limit is < 1 ppm.

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J.M. Spindler

CHART # 1

SAMPLE	DIOXIN IN PPM	DATE - TIME	TOTAL GALS. PASSED	COMMENTS
3A	13	9/7/67 11 AM	—	START RUN # 1
5B	< 1	9/7/67 11 ³⁰ A.M.	30	(A = BEFORE COLUMN
6C	< 1	9/7/67 11 ³⁰ AM	30	B = AFTER COLUMN
7B	< 1	9/7/67 5 ⁰⁵ PM	532	C = AFTER FILTER)
8C	< 1	9/7/67 5 ⁰⁵ PM	532	
9B	BROKEN	—	—	RUN 1 = 15.2% T.C.P.
10C	"	—	—	
11B	< 1	9/8/67 7 ³⁰ AM	~1830	
12C	< 1	9/8/67 7 ³⁰ AM	1830	< ENDRUN #1 TOTAL VOL = 2000 GAL
13A	19	9/8/67 1 ⁰⁰ PM	2000	START RUN #2
14B	2	9/8/67 3 ⁰⁰ PM	2060	RUN 2 = 16.4% T.C.P.
15C	2	9/8/67 3 ⁰⁰ PM	2060	
16B	N.A.	—	—	N.A. = NOT ANALYSED
18B	< 1	9/8/67 11 ³⁰ P.M.	2980	
17C	< 1	9/8/67 11 ³⁰ P.M.	2980	< ENDRUN 2 TOTAL VOL = 3000 GAL
18A	N.A.	—	—	START RUN #3
19C	BROKEN	—	—	RUN 3 = 16.0% T.C.P.
20A	2.3	NO DATA	—	RUN 3 = 3500 GAL.
21B	3.8	9/10/67 11 ¹⁵ AM	—	(FLOW RATE FOR
22C	3.1	9/10/67 11 ¹⁵ AM	—	RUN 3 = 2 gpm.)

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CHART 1 CONT.

SAMPLE	DIOXIN ppm	DATE	TIME	TOTAL GALS. PASSED	COMMENTS
23B	N.A.	—	—	—	
24C	N.A.	—	—	8500	END RUN #3
102C	3.5	9/11/67	3 ⁰⁰ PM	8630	START RUN #4 @ 2gpm.
103C	2.6	9/11/67	7 ⁰⁰ PM	9110	RUN 4 = 16.2 % T.C.P.
104C	3.4	9/11/67	11 ⁰⁰ PM	9,590	END RUN 4 - 2200 GALS
105C	NO SAMPLE	9/12/67	5 ⁰⁰ AM	10,310	<
201C	N.A.	9/12/67	3 ⁴⁵ PM	10,940	START RUN #5 @ 1.5gpm.
202C	< 1	9/12/67	7 ⁰⁰ PM	11,230	TCP = 16.1%
203C	< 1	9/12/67	11 ⁰⁰ PM	11,590	RUN 5 = 2150 GALS.
204C	< 1	9/13/67	5 ⁰⁰ AM	12,220	END RUN-5
301C	< 1	9/13/67	2 ⁰⁰ PM	12,850	START RUN 6 @ 1.5gpm
302C	< 1	9/13/67	7 ⁰⁰ PM	13,277	RUN 6 = 16.1% T.C.P.
303C	< 1	9/13/67	11 ⁰⁰ PM	13,637	RUN 6 = 1150 GAL
304C	< 1	9/14/67	5 ⁰⁰ AM	14,177	END RUN 6
401B	1	9/14/67	7 ^{AM}	14,715	START RUN 7
402C	< 1	9/14/67	11 ⁰⁰ PM	15,075	RUN 7 = 3500 GALS.
403C	< 1	9/15/67	5 ^{AM}	15,615	RUN 7 = 15.9% TCP.
404C	< 1	9/15/67	9 ⁰⁰ AM	15,975	
405C	1.5	9/15/67	1 ⁰⁰ PM	16,335	
06B	< 1	9/15/67	7 ⁰⁰ PM	16,875	END RUN 7
501C	< 1	9/18/67	7 ⁰⁰ PM	18,170	START RUN 8
502C	< 1	9/18/67	11 ⁰⁰ PM	18,530	RUN 8 = 25μ FILTER.

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