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Date: May 13, 1995

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WR/2

Pages to follow (excluding cover sheet): 6

Message:

Possible handouts for  
meeting with Christiansen  
on Wed.

Concentrations of 17 2,3,7,8-Substituted  
Dioxin And Furan Isomers In Military  
Creek Sediments (Sept. 1993 S14  
Samples)

DIOXIN ISOMERS	Pg/g (ppt)						Reference Sediments		
	S-20	S-22	S-25	S-21	S-23	S-24	Homolog Basis		
							Wisconsin R. @ Wausau		
2,3,7,8-TCDD	ND*	ND	ND	ND	ND	ND	TCDD	ND	
1,2,3,7,8-PeCDD	ND	ND	ND	ND	ND	ND	PeCDD	ND	
1,2,3,4,7,8-HxCDD	ND	400	300	ND	ND	ND	HxCDD	13	
1,2,3,6,7,8-HxCDD	ND	2450	1660	970	ND	ND			
1,2,3,7,8,9-HxCDD	ND	910	700	380	ND	ND			
1,2,3,4,6,7,8-HpCDD	ND	64,750	40,000	25,350	1380	1600	HpCDD	83	
OCDD	ND	577,500	520,000	259,790	14590	18000	OCDD	635	
<b>TOTAL Dioxin Isomer</b>	ND	646,010	562,660	286,490	15970	19600		731	
<b>FURAN ISOMERS</b>									
2,3,7,8-TCDF	ND	ND	ND	ND	ND	ND	TCDF	18	
1,2,3,7,8-PeCDF	ND	ND	ND	ND	ND	ND	PeCDF	14	
2,3,4,7,8-PeCDF	ND	ND	ND	ND	ND	ND			
1,2,3,4,7,8-HxCDF	ND	2630	1660	940	ND	ND	HxCDF	26	
1,2,3,6,7,8-HxCDF	ND	790	580	310	ND	ND			
2,3,4,6,7,8-HxCDF	ND	790	780	530	ND	ND			
1,2,3,7,8,9-HxCDF	ND	750	380	ND	ND	ND			
1,2,3,4,6,7,8-HpCDF	ND	24,500	17,000	10,020	520	1000	HpCDF	47	
1,2,3,4,7,8,9-HpCDF	ND	3150	1940	1060	ND	ND			
OCDF	ND	115,500	88,000	53,210	2740	4000	OCDF	26	
<b>TOTAL Furan Isomer</b>	ND	148,110	110,340	66,070	3260	5000		131	
<b>TOTAL DIOXIN + FURAN</b>	ND	794,120	673,000	352,560	19,230	24,600		862	

\* For summing purposes, isomers or homolog groups reported as being less than the detection level were assumed to be.

Calculation of 2,3,7,8-TCDD EQUIVALENCIES  
Based On 2,3,7,8-Substituted Dioxin And  
Furan Isomer Concentrations In Military  
Creek Sediments

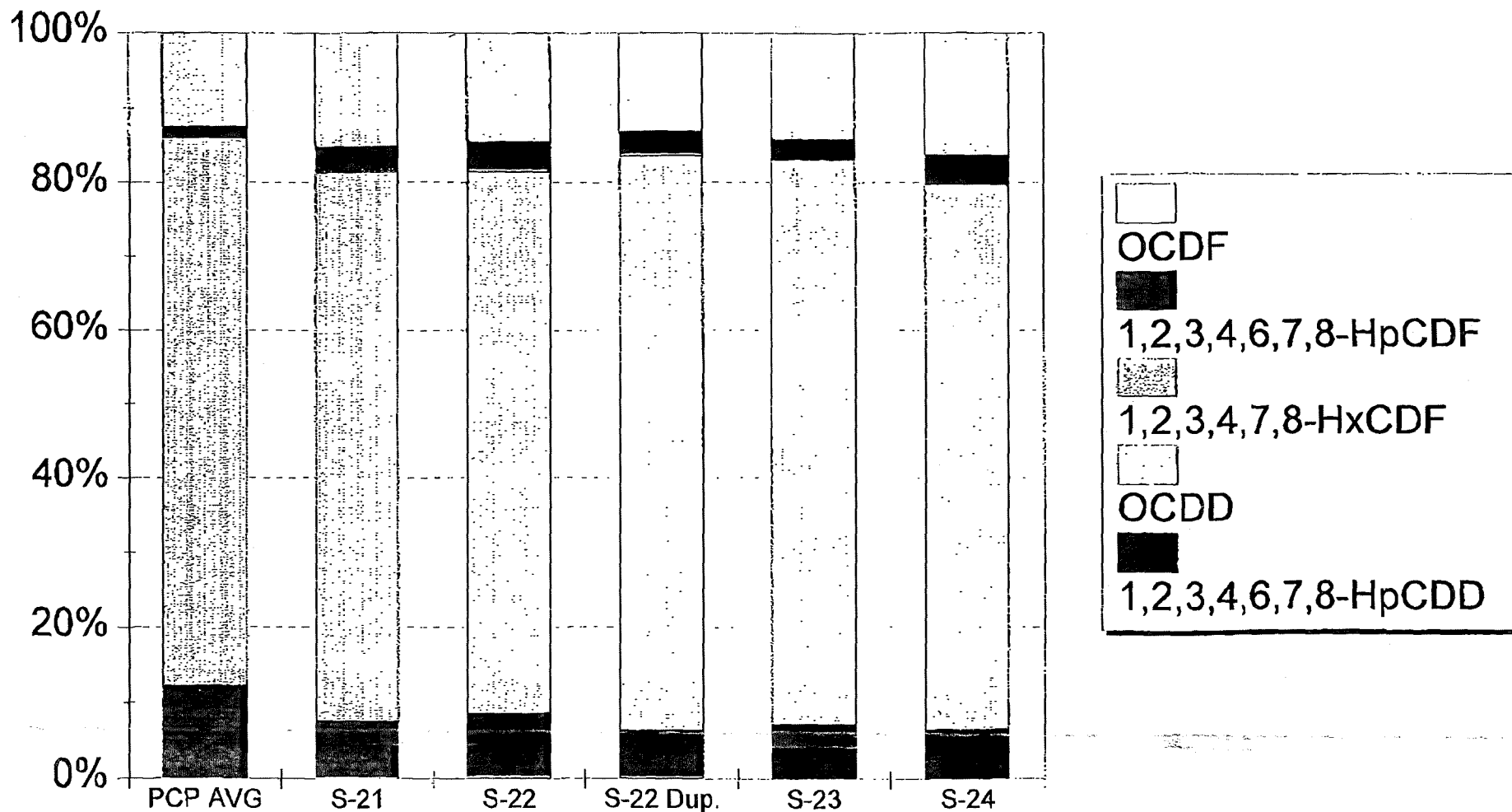
DIOXIN ISOMERS	Pg TCDD-EQ/g Sed.						Reference Sediments	
	S-20	S-22	S-25	S-21	S-23	S-24	Rainbow Flowage	TEF
2,3,7,8-TCDD	ND	ND	ND	ND	ND	ND	ND	1.0
1,2,3,7,8-PeCDD	ND	ND	ND	ND	ND	ND	ND	0.5
1,2,3,4,7,8-HxCDD	ND	40	30	ND	ND	ND	0.22	0.1
1,2,3,6,7,8-HxCDD	ND	250	170	100	ND	ND	0.36	0.1
1,2,3,7,8,9-HxCDD	ND	91	70	40	ND	ND	0.31	0.1
1,2,3,4,6,7,8-HpCDD	ND	650	400	250	13.8	16	0.65	0.01
OCDD	ND	580	520	260	15	18	0.49	0.001
Dioxin TCDD-EQ		1611	1190	650	28.8	34	2.0	
FURAN ISOMERS								
2,3,7,8-TCDF	ND	ND	ND	ND	ND	ND	0.27	0.1
1,2,3,7,8-PeCDF	ND	ND	ND	ND	ND	ND	ND	0.05
2,3,4,7,8-PeCDF	ND	ND	ND	ND	ND	ND	ND	0.5
1,2,3,4,7,8-HxCDF	ND	260	170	90	ND	ND	0.22	0.1
1,2,3,6,7,8-HxCDF	ND	79	58	30	ND	ND	0.20	0.1
2,3,4,6,7,8-HxCDF	ND	79	80	50	ND	ND	0.11	0.1
1,2,3,7,8,9-HxCDF	ND	75	38	ND	ND	ND	ND	0.1
1,2,3,4,6,7,8-HpCDF	ND	250	170	100	5.2	10	0.17	0.01
1,2,3,4,7,8,9-HpCDF	ND	30	19	10	ND	ND	0.03	0.01
OCDF	ND	120	88	53	3	4	0.03	0.001
Furan TCDD-EQ		893	623	333	8.2	14	1.03	
TOTAL TCDD-EQ		2504	1813	983	37	48	3.03	
Pg TCDD-EQ/g Sediment								

# Statewide TCDD-EQ SEDIMENT VALUES

Site	pg TCDD-EQ/g	Site	pg TCDD EQ/g
Military Creek	2504	Rainbow	2.5
	1813	Flowage-Wis R.	2.3
	983		
	37	Lake Sediments	
	48	WD - Hatfield Lake	0.15
Lower Fox River (Below Depere Dam)	441	Bass Lake	0.23
	379	Kankapot Creek	2.34
	314	Trib. to lower Fox	1.86
	268		1.72
	253		0.79
	229		0.47
	85		0.39
	61		0.36
	52	Soils (Literature)	
	49	Great Britain	1.05
	42		1.30
	21	<u>Rural</u>	1.65
	(Study Reference) 4.3		1.09
Petenwell/ Castle Rock Flowages - Wis R.	78		
	62		
	31		

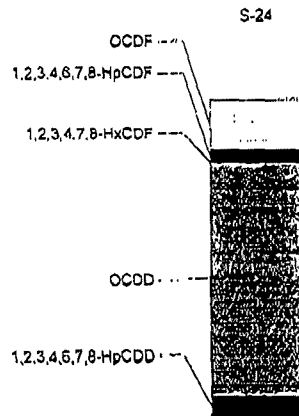
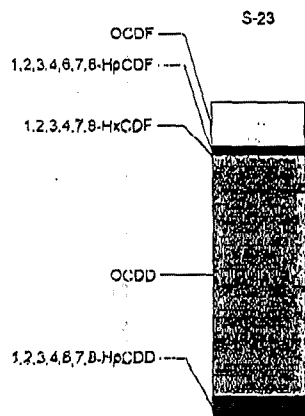
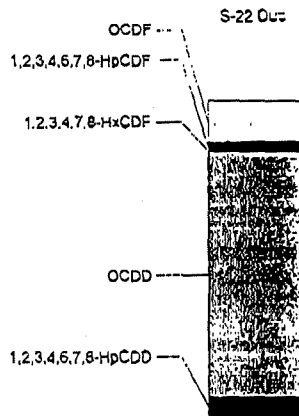
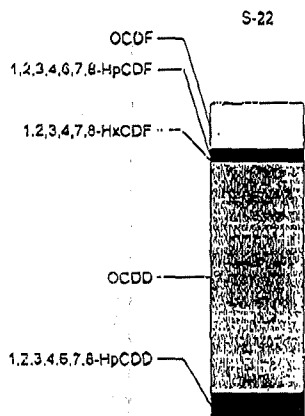
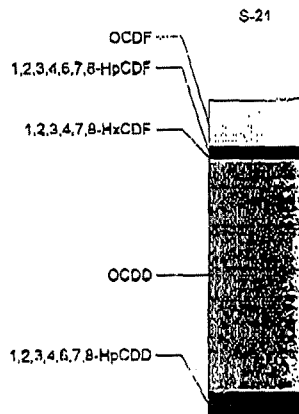
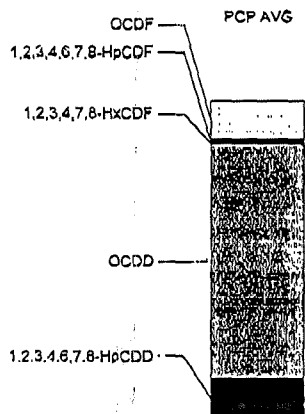
# Dioxin & Furan Distributions

PCP Product and Military Cr. Sediment



# Dioxin & Furan Distributions

## PCP Product and Military Cr. Sediment



**ESTIMATED PAST PENTACHLOROPHENOL CONCENTRATIONS IN SEDIMENTS  
AT THE MILITARY CREEK SAMPLING LOCATIONS<sup>1</sup> BASED ON THE CURRENT  
CONCENTRATIONS OF 17 2,3,7,8 - SUBSTITUTED DIOXIN AND FURAN  
ISOMERS**

<u>Sample Site</u>	<u>Past Pentachlorophenol Concentration mg/kg</u>	<u>Current Pentachlorophenol Concentration .ug/kg</u>	<u>Core Length</u>
S -20	N. D.	N. D.	2 ft.
S - 22	830	1300	1 ft.
S - 25 (DUP)	703	1600	1 ft.
S - 21	368	1400	2 ft.
S - 23	20	70	1 ft.
S - 24	26	N. D.	Trowel

1. Based on sediment sampling done by BHSW Site Evaluation Unit, Sept. 1993.

17 2,3,7,8 - substituted dioxin and furan isomers as impurities make up approximately 0.096 % by weight of the manufactured pentachlorophenol product. Based on the concentrations of these 17 isomers at the 6 sediment sampling locations ( duplicate of S - 22 considered as a separate sample) in Military Creek, the estimated pentachlorophenol concentrations associated with these concentrations was calculated. The dioxin and furan isomers makeup of pentachlorophenol is based on Hagenmaier, H. and H. Brunner. 1987. Isomerspecific analysis of pentachlorophenol and sodium pentachlorophenol for 2,3,7,8 - substituted PCDD and PCDF at sub - ppb levels. Chemosphere, 8/9, 1759 - 1764.