



STATE OF  
WASHINGTON

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DEPARTMENT OF ECOLOGY

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M E M O R A N D U M

March 15, 1978

To: Gerry Calkins

From: Mike Morhous

Re: Weyerhaeuser Chlorine Plant  
Class II Inspection

Findings and Conclusions:

On August 16 and 17, 1977 the above referenced inspection was conducted by Eric Egbers and myself.

The composite samples collected by DOE showed the plant in compliance with their NPDES permit effluent limitations. The composite samples collected by the chlorine plant produced consistently higher values for parameters analyzed in comparison to the DOE composites. The plant's composite collected from the 001 line indicated non-compliance with the mercury limitation. These discrepancies were contributed to contaminated sampling lines which the chlorine plant cleaned or replaced subsequent to this inspection.

The flow measuring device on each discharge line, 001 and 002, was checked for accuracy. In view of the enclosed results, it is recommended that the 001 line Parshall flume and recorder be calibrated.

In view of the data collected from grab samples and simultaneous recorder readings, it appeared that the pH and total residual chlorine continuous recorders were in need of calibration. The results have been provided in this memo.

Laboratory procedures and techniques appeared to be in order and Weyerhaeuser's lab results compared quite well with DOE's results.

MM:ee

cc: Central Files  
Bill Yake  
Dick Cunningham

Class II Field Review and Sample Collection  
24 Hour Composite Sampler Installations

Sampler	Date and Time Installed	Location
1. 001 line aliquot -	8/16 at 1355	immediately below Parshall flume, same as WeyCo sampling station.
2. 002 line aliquot -	8/16 at 1340	above Parshall flume, same as WeyCo sampling station.
3. aliquot -	NOTE: WeyCo actuated their composite samplers at the same time DOE's samplers were installed. WeyCo samplers are a continuous feed sampler. All four composites were split between DOE and WeyCo for a comparison of the composites and lab results.	

Grab Samples

	Date and Time	Analysis	Sample Location
1.			
2.			
3.			
4.			
5.			
6.			

Flow Measuring Device

1. Type: Two Parshall flumes
2. Dimensions

a. Meets standard criteria  Yes  
 No Explain:

(See attached Parshall flume data)

b. Accuracy check

	Actual Instan. Flow	Recorder Reading	Recorder Accuracy (% of inst. flow)
1.			
2.			
3.			
002	<input checked="" type="checkbox"/>	is within accepted 15% error limitations	
001	<input checked="" type="checkbox"/>	is in need of calibration	

Field Data

Parameter	Date and Time	Sample Location	Result
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See attached data.

## Review of Laboratory Procedures and Techniques

Laboratory procedures and techniques were reviewed with Terry Hopkins, Chlorine Plant Chemist. The chlorine plant is presently reporting lead concentrations, as directed by DOE, in place of their previous nickel parameter. The chlorine plant lab conducts the mercury and TSS analyses. The remaining metals analyses, lead and zinc, are conducted by Weyerhaeuser's main lab located at the Technical Center in the sawmill complex.

The metals: nickel, lead, zinc and mercury are analyzed by atomic absorption spectrophotometry.

The pH and total residual chlorine are both recorded continuously. The maximum, average and minimum data are reported for these parameters together with the number of times these data exceed their respective maximum and/or minimum limitations.

Total suspended solids (TSS) samples are filtered through Gelman glass fiber filters type A/E. The lab normally filters 300 mls of sample in approximately 30 seconds. In lieu of the filtering time recommended during this inspection the following guideline should be used as a check for optimum sample volumes. The sample volume should be sufficient to reduce the initial filtration rate by approximately 50-60 percent (visual determination), at the end of the sample filtering period.

## DOE COMPOSITE SAMPLES

	DOE			WEYERHAEUSER			NPDES (Monthly Average)
	001	Total Effluent	002	001	Total Effluent	002	
SS mg/l lbs/day	1 8.76	27.61	1 18.85	1.4 12.26	19.80	.4 7.54	246
Asbestos <sup>1</sup>	None detected		N.D.				No discharge
Mercury (ug/l-ppb)	1.4		0.2	1.0		.14	2.0 (daily max)
Cadmium (mg/l)	.01		.03	.012 <sup>2</sup>		.028 <sup>2</sup>	.2 (daily max)
Nickel (mg/l)	< 0.1		< 0.1				
Lead (mg/l)	< .05		< .05	< .003 <sup>2</sup>		.006 <sup>2</sup>	
Total Flow (MGD)				1.05	3.31	2.26	6 (daily max)

"<" is "less than" and ">" is "greater than"

1) Detection limit: 5 micron length, 1 fiber/100 ml, 2) Tech. Center Lab

Weyerhaeuser Composite Samples

	DOE		Weyerhaeuser		NPDES (Monthly Average)
	001	002	001	002	
TSS (mg/l) lbs/day	2 17.51	2 37.70	2.6 22.77	.8 15.08	246
Asbestos <sup>1</sup>	None Detected	N.D.			No discharge
Mercury (ug/l- ppb)	3.5	0.8	4.0	0.8	2.0 (daily max)
Zinc (mg/l)	.1	.11	.112 <sup>2</sup>	.072 <sup>2</sup>	.2 (daily max.)
Nickel (mg/l)	< .1	< .1			
Lead (mg/l)	< .05	< .05	.006 <sup>2</sup>	< .003 <sup>2</sup>	

"<" is "less than" and ">" is "greater than"

1) Detection limit: 5 micron length, 1 fiber/100 ug/l, 2) Tech. Center Lab

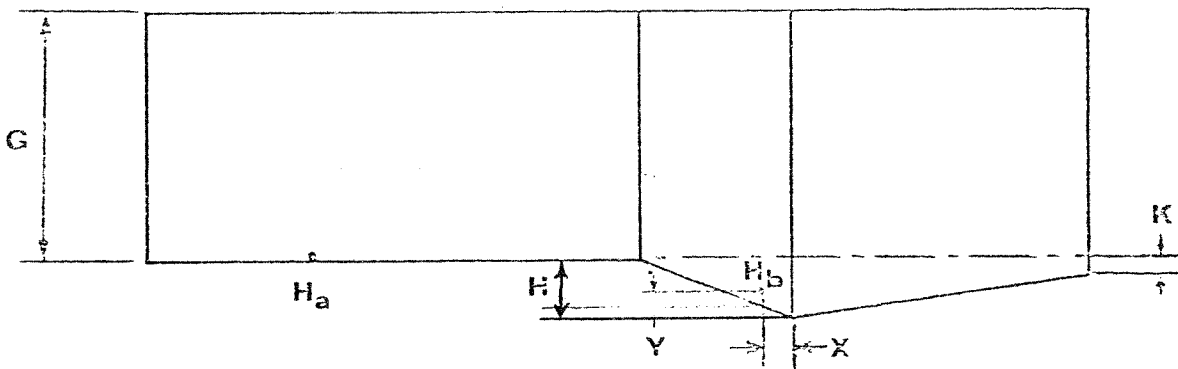
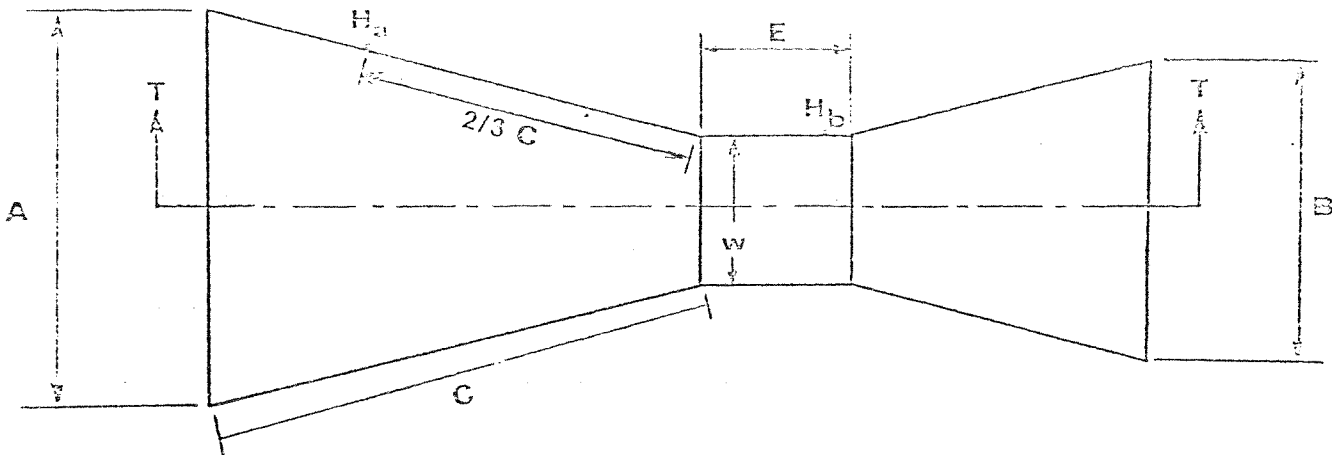
of the discharge lines (001 and 002) with the respective readings from WeyCo.'s continuous recorders. Analyses were performed in the field.

	DOE Grab Sample		WeyCo Recorder		NPDES (Monthly Average)  between 6.0 to 9.0
	001	002	001	002	
pH	6.6	6.9	7.0	6.8	
Total Chl. Resid. (ppm)	0.7	0.7	1.2	0.5	1.0
Temperature (°F)	>86	79.7	91	77	

\* DPD "<" is "less than" and ">" is "greater than"

PARSHALL FLUME:

Dimensions & Flow



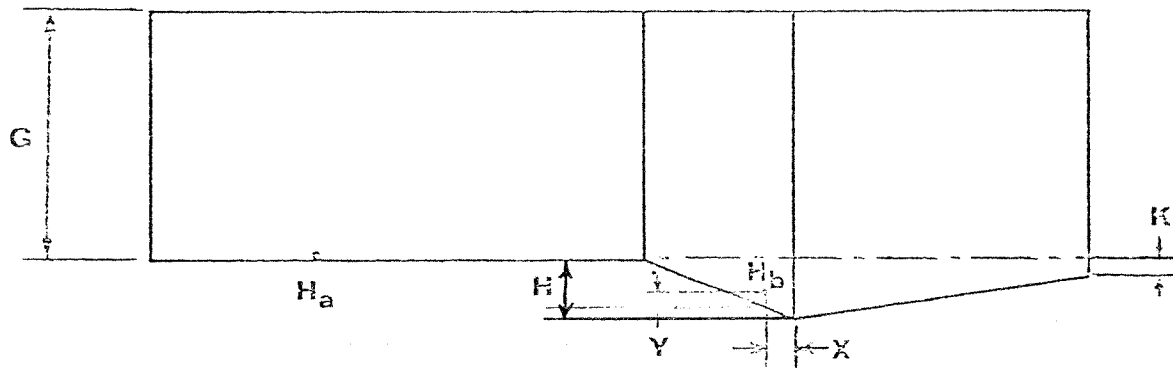
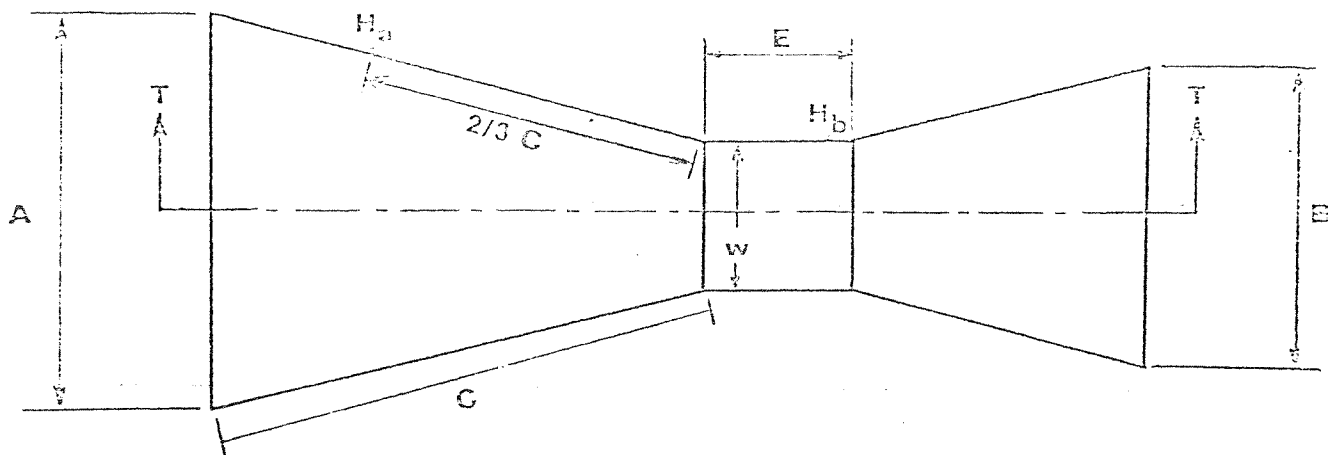
Code	Spec's	Measured
A	3'4 3/8"	3'4"
B	2' 6"	2'6"
C	4'9"	4'9"
2/3 C	3'2"	3'2"
E	2'0"	2'0"
G	3'0"	3'0"
H	0'9"	0'9"
K	0'3"	0'3"
W	1'6"	1'5 3/4"
X		
Y		

Date	$H_a$	$H_b$	Theoretical Flow	Recorded Flow
8/17	.33'		.70 MG	1.1 MG

Accuracy of the flume/recorder was 157% of the calculated instantaneous flow.

PARSHALL FLUME:

Dimensions & Flow



Code	Spec's	Measured	Time	H <sub>a</sub>	H <sub>b</sub>	Theoretical Flow	Recorded Flow
A	3'4 3/8"	3'6"	8/17	.69		2.19 MG	2.15 MG
B	2'6"	3'0"					
C	4'9"	L = 1'11 1/2", R = 4'8 1/4"					
2/3 C	3'2"	3'2"					
E	2'0"	L = 1'11 1/2", R = 1'11-3/4"					
G	3'0"	3'5"					
H	0'9"	L = 0'8", R = 0'9 1/4"					
K	0'3"	L = 0'6 1/2", R = 0'6"					
W	1'6"	Front = 1'5-7/8", Back = 1'5-3/4"					
X							
Y							

Accuracy of the flume/recorder was 98% of the calculated instantaneous flow.