



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504 • (206) 753-2353

M E M O R A N D U M

April 8, 1982

To: Jim Krull  
From: Bill Yake *BY*  
Subject: Increasing Interest in Pentachloropropene

Attached is a letter from Bob Riley (Battelle) noting the similarity of the mass spectra for pentachloropropene found in Hylebos Waterway samples (20 liters filtered through XAD resin) and an "unknown" noted in EPA Manchester laboratory analysis of our September 25-26, 1979 samples of Hooker main effluent and stripper effluent. The match is marginal, possibly because of interference in the effluent samples. Two effluent unknowns remain unidentified. The best present guess of the main effluent concentration for "unknown B" (similar to pentachloropropene) in the September 1979 sample is 0.5 to 5  $\mu\text{g/L}$ . EPA Manchester is re-running the extracted samples to see if they can get a cleaner result this time.

The possibility that this, or a closely related compound, may have been isolated in Hylebos fish and shellfish in the <50 ppb range is responsible for their renewed interest.

Pentachloropropene has been identified as a mutagen by researchers working with pulp mill effluents and we will be reviewing the following articles to follow up on this:

Nestmann, *et al.*, 1981. *Mutagenic evaluation of 1,1,2,3-tetrachloro-2-propene, a contaminant in pulp mill effluents, using a battery of in vitro mammalian and microbial tests.* Can. J. Genet. Cytol. V 23(1): 17-25.

Nestman, *et al.*, 1980. *Mutagenicity of constituents identified in pulp and paper mill effluents using Salmonella/mammalian-microsome assay.* Mutat. Res. 79(3): 203-12.

Douglas, G.R., *et al.*, 1980. *Mutagenic activity in pulp mill effluents, Water Chlorination: Env. Impr. Hlth. Eff.* V 3: 865-880.

BY:cp

Attachment

cc: Dick Cunningham  
Art Johnson



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
OFFICE OF MARINE POLLUTION ASSESSMENT  
PACIFIC OFFICE  
7600 SAND POINT WAY NE  
SEATTLE, WASHINGTON 98115

April 28, 1981

Mr. Dick Cunningham  
Washington Department of Ecology  
Olympia, WA 98504

Dear Dick:

I have enclosed a copy of a letter sent to me by Dr. Bob Riley at Battelle. His letter contains information on the identification of "unknown" compounds detected in the DOE/EPA Class II inspection of Hooker Chemical effluents.

I have also enclosed a copy of the R.F.P. which we have out at this time.

Sincerely,

*Ed Long*  
Ed Long

RECEIVED

APR 29 1981

DEPARTMENT OF ECOLOGY  
SOUTHWEST REGIONAL OFFICE





**Battelle**

Pacific Northwest Laboratories  
P.O. Box 999  
Richland, Washington U.S.A. 99352  
Telephone (509) 375-2045

Telex 15-2874

March 3, 1981

Mr. Ed Long  
NOAA/OMPA  
7600 Sandpoint Way, N.E.  
Seattle, WA 98115

Dear Ed:

I have just finished reviewing the documents that you left with me on your recent visit to Richland. The documents were very informative -- especially the one dated June 19, 1980 addressed to Don Brown discussing the results of an EPA Class II inspection of Hooker Chemical. The EPA indicated the presence of significant concentrations of unidentified chlorinated organic compounds in the stripper and total effluent which were not detected in the saltwater influent. I compared the spectra of unknowns; A, B, and C in this document to mass spectra of unknown chlorinated compounds extracted from suspended matter collected last year in the Hylebos Waterway near Hooker Chemical Company and reported in our NOAA final report dated April 1980. All three spectra bear resemblance to the spectrum on page 83 of our report which we have tentatively identified as a pentachloropropene isomer. Unknown B appears to have the closest match to our spectrum (see enclosed mass chromatograms). As stated in our report, these unknown compounds were also suggested to be in the water based on GC retention time matches. The fact that EPA did not detect the unknown(s) in the saltwater influent was probably due to insufficient sample size. Remember, we analyzed from the preconcentration of organic components from 20 liters of water into XAD-2 resin.

To me, this is the first indication of a possible relationship between the halogenated organics detected in water and suspended matter from our study last year and halogenated organics detected in effluents from Hooker Chemical Company



Mr. Ed Long  
March 3, 1981  
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by the EPA. Is the EPA aware of our results in light of the results of their analysis of Hooker effluent?

Sincerely yours,



Robert G. Riley  
Senior Research Scientist  
Environmental Chemistry

mmg

Enclosure

Battelle Mass  
Spectrum

FRN 10502	SPECTRUM 265		RETENTION TIME 17.9	
LARGST 4:	178.9, 100.0	176.9, 82.2	180.9, 52.2	119.0, 45.3
LAST 4:	444.8, .8	446.1, 1.3	447.3, .6	448.6, .9
				PAGE 1 Y = 1.00

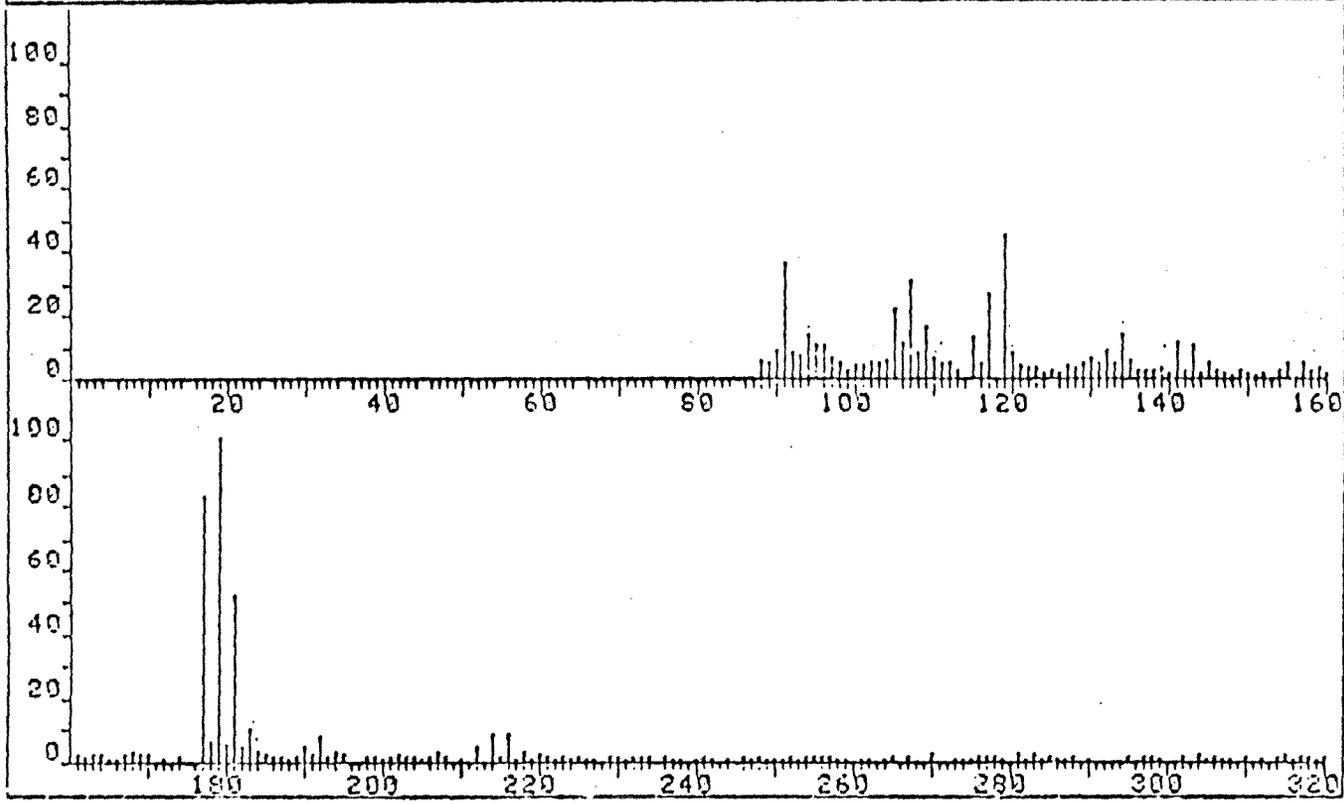
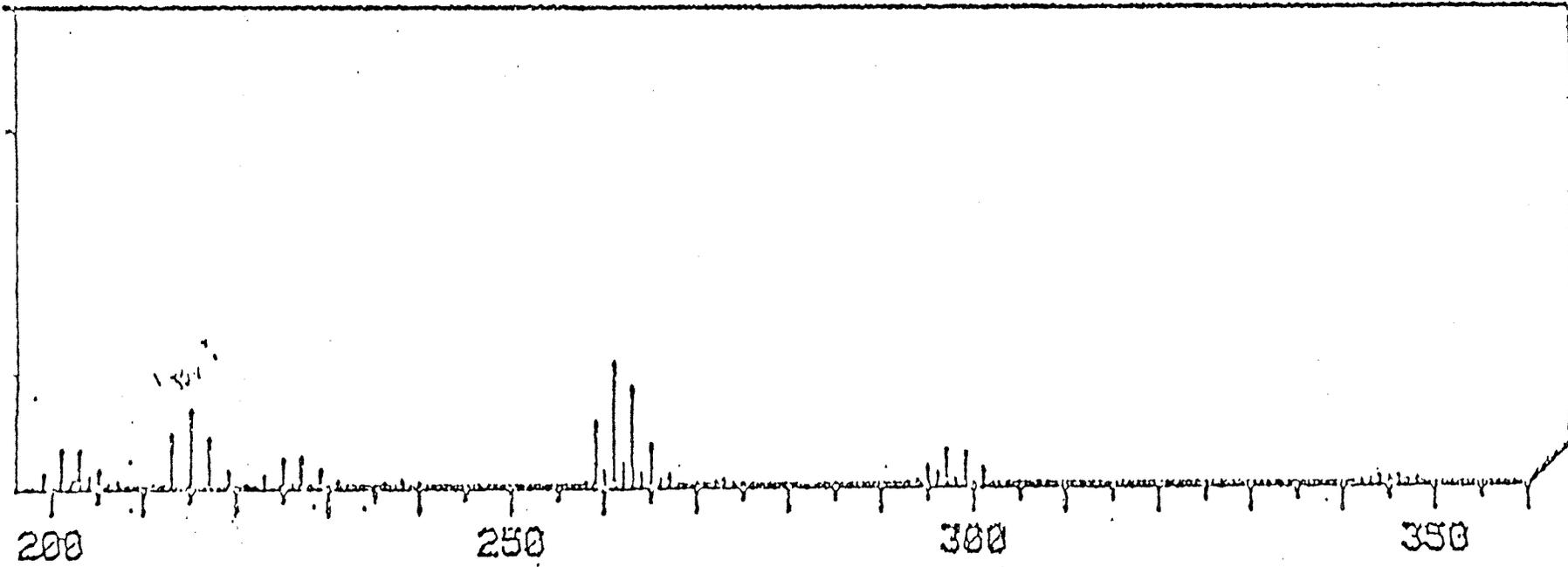
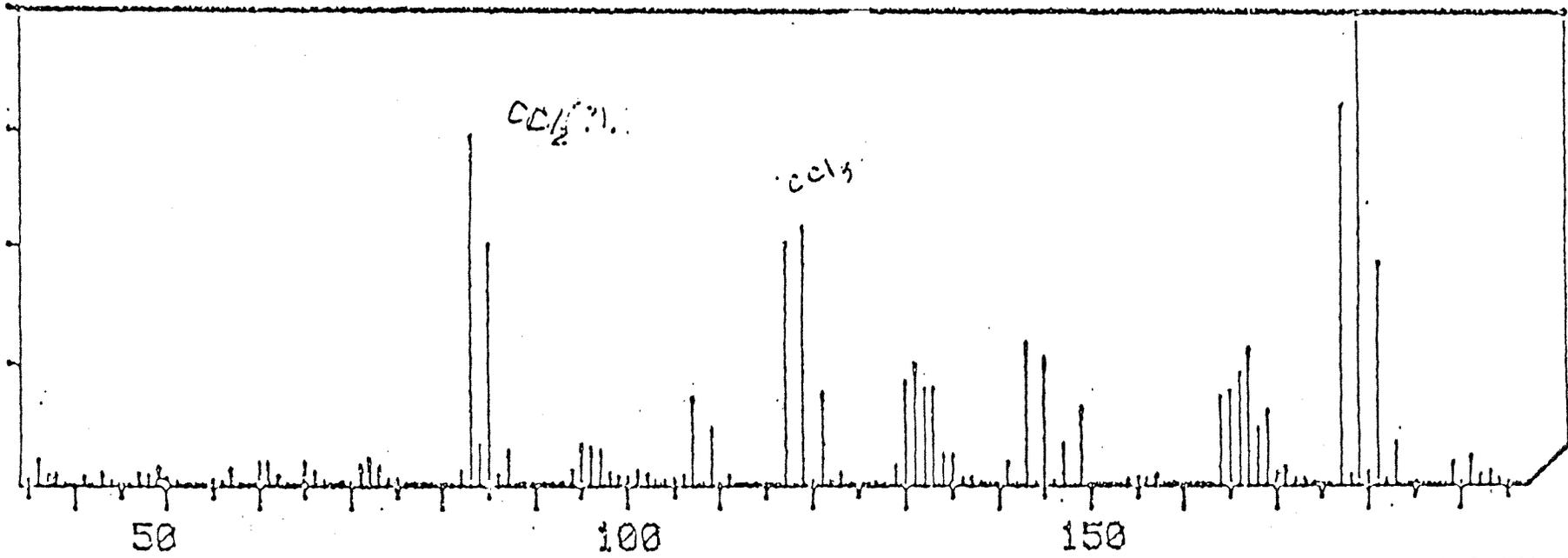


Figure D-2. Mass spectrum of pentachloropropene isomer (compound b of Figure 16).

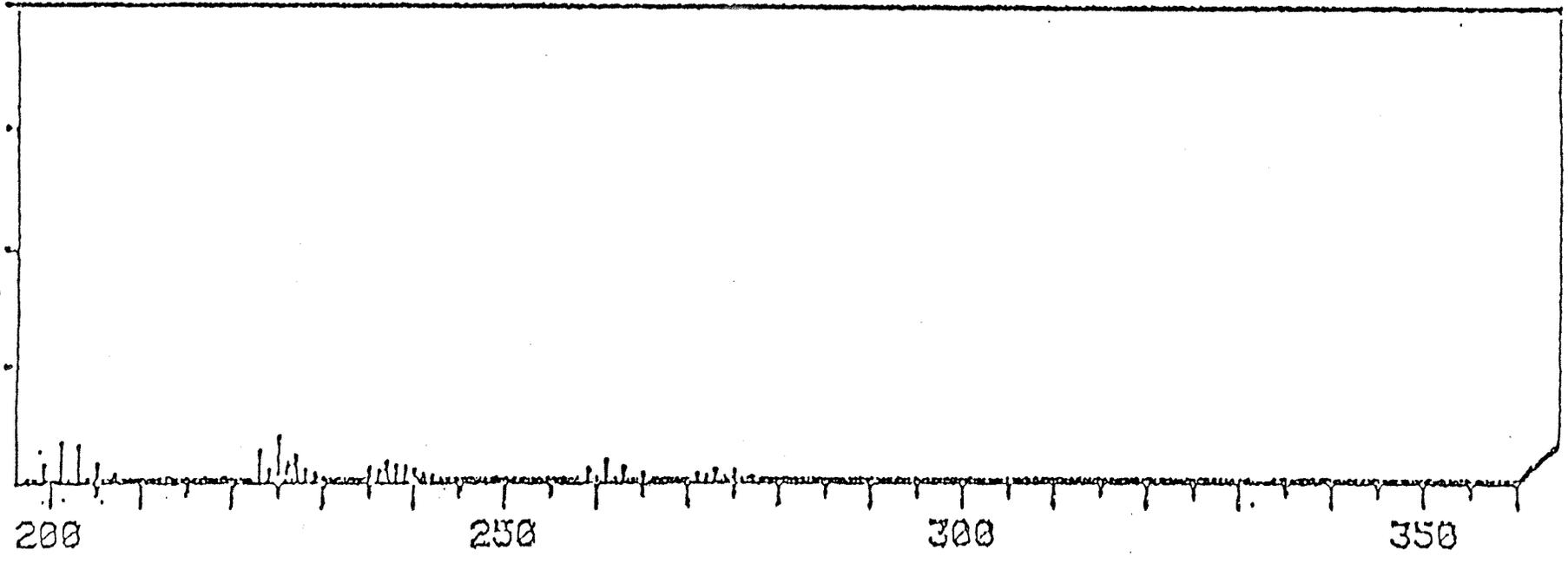
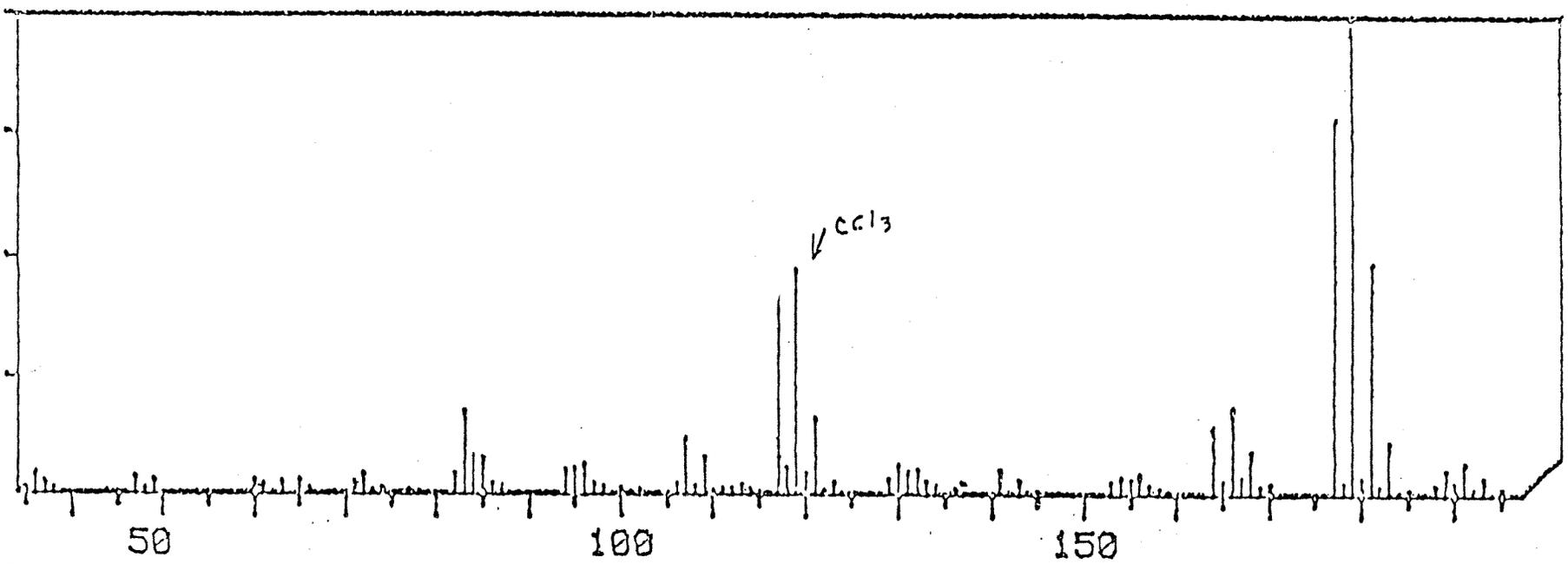
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Spectrum of Unknown "C" in Stripper Effluent

39004N SCAN 210 SIGMA=6 RT=34.17 BACK=200, X100 100% 102000  
39004NB 0.5UL/1ML 12-17-79 SP2250 60-270/8C



39004N SCAN 184 SIGMA=9 RT=30.20 BACK=180, X100 100%# 273600  
39004NB 0.5UL/1ML 12-17-79 SP2250 60-270/80



Spectrum of Unknown "A" in Stripper Effluent

39004N SCAN (164) SIGMA=3. RT=27.18 BACK=160, X100 100% 33920  
39004NB 0.5UL/1ML 12-17-79 SP2250 60-270/80

