



Technical Memorandum

Research Project No. 606-81-839-9

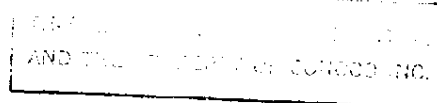
Conoco Inc.
Research and Development Department
Research Services Division
Ponca City, Oklahoma

To Mike Hayes, Lake Charles Chemical Plant

From Ed Sones, RSD, Ponca City

Date May 5, 1981

Subject ANALYSES OF WASTEWATERS FROM THE VCM PLANT 201 OUTFALL



SUMMARY

Three organic priority pollutants were found in the samples in concentrations greater than 10 parts-per-billion: chloroform at 52 PPB, 1,2-dichloroethane at 23 PPB, and bis(chloroethyl) ether at 550 PPB. Only the higher amount of the ether represents a significant change from previous samplings^{1,2}.

Additional organic compounds were determined and are reported in the two attached Technical Service Reports^{3,4}. Two of those compounds — 2,2,2-trichloroethanol and 4-hydroxy-4-methyl-2-pentanone — were identified at levels significantly above the previous findings.

No significant changes were reflected in the metals or chemical analyses values as given in Tables I and II.

DISCUSSION

The samples were delivered to Ponca City on 27 January 1981, by a chartered airplane. Those waters were sampled by and shipped in containers provided by the EPA and the LCCP. No sample was submitted for total phenols and no blanks accompanied the samples.

The samples were received still adequately packed in ice and below 4°C. On receipt, the samples were stored in a cold room at 4°C until analyzed. Extraction of the composited sample for concentration of the nonvolatile organic components was performed within five days, and those extracts were preserved under refrigeration until the analyses were performed. Analyses of the extract for organics by GC-MS per Method 625 are reported in this data. Analyses for pesticides per Method 608 is in progress and will be reported separately when available. Analyses of the VOA sample by purge-and-trap GC-MS was accomplished the same week as received.

Subsequent samples from Outfall 201 were received 24 April for determination of radioactivity and for volatiles by Method 603. Those data will be reported as soon as available.

Determinations of total sulfide and sulfite were requested and are included in Table II. However, the poor stability of those two ions would preclude their presence in the samples when analyzed. Future determinations should be done on site.

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Mike Hayes
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REFERENCES

1. Technical Memorandum 602-79-801-0
2. Technical Memorandum 602-80-839-1
3. TSR 256-81-839-9
4. TSR 408-81-839-9



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TABLE I
DISSOLVED METALS IN VCM 201 OUTFALL

	CONCENTRATION IN MG/LITER	
	By ICAP	By AA
Antimony	<0.25	
Arsenic		<0.002
Beryllium	<0.005	
Cadmium	<0.015	
Chromium	<0.030	
Copper	0.066	
Lead	<0.25	
Mercury		<0.013
Nickel	0.087	
Selenium		<0.002
Silver	<0.03	
Thallium	<0.50	
Zinc	0.16	
Aluminum	<0.15	
Barium	0.20	
Boron	<0.05	
Cobalt		<1
Iron	0.29	
Magnesium	27	
Molybdenum	<0.05	
Manganese	0.30	
Tin	<0.10	
Titanium	<0.025	
Calcium	400	
Strontium	0.92	
Vanadium	<0.025	
Sodium	910	

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TABLE II
DETERMINATIONS BY CHEMICAL ANALYSES ON
VCM 201 OUTFALL

<u>Parameter</u>	<u>Value</u>
Chemical Oxygen Demand	113 PPM
pH	8.2
Total Dissolved Solids	8600 PPM
Total Cyanides	0.6 PPB
Chloride	4800 PPM
Fluoride	2 PPM
Bromide	< 1 PPM
Sulfate	160 PPM
Nitrate	< 1 PPM
Surfactants by MBAS	60 PPB
Total Suspended Solids	40 PPM
Total Organic Carbon	107 PPM
Sulfide	N. D.*
Sulfite	N. D.*

*None detected, however, components are not stable.

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