

10. Describe VCM Concentrations in PVC Monitoring Wells Which May Be Attributed to PVC Casing or Casing Cement.

N.A. -- 4

None -- 1

No Information -- 5

No -- 1

None Detected -- 1

Some typical responses were:

Believed nil; made no specific determination.

We did monitoring (mid 1970's) at a commercial landfill with PVC pipe for wells and concluded results were influenced by the pipe RVCM. I can no longer find the data.

Technical articles on this subject have been published in Journal of American Water Works in past 6 years.

The work which the National Sanitation Foundation (NSF) has submitted to FDA on RVCM in food-contact PVC, shows that vinyl chloride is not found in water that has been in contact with rigid pipe if the pipe contains less than about 2 ppm of RVCM. The NSF method is sensitive to about 1 ppb. PVC is the standard material of construction for monitoring wells at Superfund sites and for RCRA groundwater monitoring. To my knowledge, there has not been any problem with VCM from the pipe.

11. Please Identify Any "Experts" on VCM or Chlorinated Hydrocarbons In Groundwater.

Names given -- 2

None Known -- 11

Perry L. McCarty
Dept. of Civil Engineering
Stanford University
Stanford, Calif. 94305

Gladys Barrio-Lage
Drinking Water Research Center
Florida International University
Miami, Florida 33199

John T. Wilson
Robert S. Kerr Environ. Research Lab
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Ada, Oklahoma

C. H. Ward and Edward J. Bouwer
National Center for Groundwater Research
Rice University
Houston, Tx.

Bruce Rittmann
Dept. of Civil Engineering
University of Illinois
Champaign-Urbana, Ill.

Joseph M. Suflita
Dept. of Botany & Microbiology
University of Oklahoma
Norman, OK 73019

Lial Tischer.

Parsons Group at International University in Miami.

Kleopfer group which published a recent article
in GS&T.

Mr. Wil ten Berge, DSM, the Netherlands

Mr. J. Prest
P. O. Box 13
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VEU-239644

**12. Please Alert Us of Any Situation Where PVC Compound Waste
Is Alleged To Be Causing an Environmental Problem Near a
Land Disposal Facility**

N.A. -- 1

None Known -- 6

No Information -- 2

None for PVC compound waste but numerous instances of vinyl chloride contamination near landfills where chlorinated solvents were disposed and transformed under anaerobic (methanogenic) conditions. See BNA Chemical Regulation Reporter, "Carcinogens: California Officials Probe Conversion of Trichloroethylene into Vinyl Chloride" (Sept. 16, 1983). Another similar instance at a Superfund cleanup site in New Hampshire or Massachusetts.

Firestone has such an alleged problem at the Woodlawn County Landfill near the Perryville, Maryland, PVC plant owned by Occidental Chemical.

**13. Have You Had Any Inquiries From Regulatory Agencies
Regarding Landfilling of PVC Wastes and/or VCM Content of
These Wastes?**

No -- 15

N/A -- 1

Yes -- 2

In 1981, state environmental organization requested data on EP Toxicity test for VCM in PVC sludge.

Based on inquiries from state officials who administer the RCRA program, tests were performed which showed that for PVC wastes containing less than 500 ppm VCM, leachate from the waste would contain less than 10 ppm VCM and air exposure to VCM for landfill workers would be below OSHA exposure limitations.

Our landfilling was worked out in an understanding with the authorities. This year they have been showing increasing interest in VCM in wastewater.

UEU-239646

**14. Please Send Us Any Additional Information You Have Related
to This Subject.**

N.A. -- 1

None -- 9

Yes -- 1

According to EPA Region III, groundwater from monitoring wells at Formosa Plastics Corporations PVC plant in Delaware City, Delaware, showed EDC levels up to 3,400 ppb, VCM levels up to 310 ppb and TCE levels of 15-20 ppb. No contamination in nearby residential water wells was found. EPA is seeking a cleanup agreement with Formosa and the former owner, Stauffer Chemical Co. See, BNA Environmental Reporter, pg. 578 (Aug. 15, 1986).

UEU-239648

RIVER

OLD
TIRE
PLANT

PVC
PLANT

CLOSED
LANDFILL

ACTIVE
LANDFILL

EARTHEN
FILLED
LAGOONS
(PVC SLUDGE)

LINED
WASTE
WATER
LAGOONS

MONITOR

MONITOR

MONITOR

RIVER

ATTACHMENT A

THIS DATA BEING 1979
SCHEMATIC ENDS 1980S WORK

* Rock Wells
□ Plant Water Wells

MONITORING SUBSURFACE WELLS - ATTACHMENT A
NEW DER TEST PROTOCOLS - FEB. 1986

6/4/86 (300/SAMPLE)
ANNUAL
DER WILL
SPUTSAMP.
BACK
GROUND
3/14/86

		STRY 3/14/86	ANNUAL DER WILL SPUTSAMP.	BACK GROUND 3/14/86
Arsenic (01002)	µg/l	(3131/SAMP.)	X (311)	X
Barium (01007)	µg/l		X (11)	X
Cadmium (01027)	µg/l		X (11)	X
Chromium (01034)	µg/l		X (11)	X
Fluoride (00951)	µg/l		X (8)	X
Lead (01051)	µg/l		X (11)	X
Mercury (71900)	µg/l		X (16)	X
Nitrate (as N) (00620)	mg/l		X (10)	X
Selenium (01147)	µg/l		X (11)	X
Silver (01077)	µg/l		X (11)	X
Coliform Bacteria ()	l		(311)	X
Endrin (39390)	µg/l		↑	X
Lindane (39782)	µg/l		(RMC)	X
Methoxychlor (39480)	µg/l			X
Toxaphene (39400)	µg/l			X
2,4,D (39730)	µg/l			X
2,4,5 T P Silvex (39740)	µg/l			X
Radium ()	pCi/l			X
Gross Alpha ()	pCi/l			X
Gross Beta ()	millirem/yr		(RMC)	X
Turbidity (82079)	NTU		↓	X
Chloride (00940)	mg/l		X (310)	X
Iron (Total) (01045)	mg/l		X (11)	X
Manganese (01053)	mg/l		X (11)	X
Phenol (32730)	µg/l		X (20)	X
Sodium (00929)	mg/l		X (11)	X
Sulfate (00945)	mg/l		X (10)	X
Copper (01042)	mg/l		X (11)	X
Zinc (01092)	mg/l		X (11)	X
pH (00403)		X	X (NC)	X
Specific Conductance (00095) (micromhos)		X	X (6)	X
Total Organic Carbon (00680) mg/l		X	X (20)	X
Total Organic Halogen (78115) µg/l		X	X (75)	X
Total Dissolved Solids (70304) mg/l		X	X (10)	X

VEV-239649

Attachment B

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Demirjian, Y. A., Westman, T. R., and Rediske, R. R., "The fate of organic pollutants in a wastewater land treatment system using lagoon impoundment and spray irrigation." EPA-600/S2-83-077 (Nov. 1983).

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Attachment B (Cont.)

Parsons, F., Wood, P. R., and DeMaraco, J., "Transformations of Tetrachloroethene and Trichloroethene in Microcosms and Groundwater." J. Amer. Wat. Works Assoc. 76 56 (1984).

Parsons, F., Lage-Barrio, G., and Rice, Ramona, "Biotransformation of Chlorinated Organic Solvents in Static Microcosms." Environ. Toxicol. Chemistry 4 739 (1985).

Strier, M. P., "Pollutant Treatability: A Molecular Engineering Approach." Environ. Sci. & Technol. 14 28 (1980).

Young, P. J., and Parker, A., "The identification and possible environmental impact of trade gases and vapours in landfill gas." Waste Management and Research 1 213 (1983).

Attachment C

1. Introductory Study of Biodegradation of Chlorinated Methane, Ethane and Ethene Compounds, June 1980 (6 pages) and June 1981 (15 pages).
2. Anaerobic Transformation, Transport and Removal of Volatile Chlorinated Organics in Groundwater, Sept. 1981, 41 pages (Removal Section - 17 pages)
3. Behavior and Fate of Hazardous Organic Chemicals in Contaminated Groundwater, Dec. 1982, 72 pages.
4. Occidental Chemical Corporation's Ying to Werner, May 1983, 2 pages: VC in Soil.
5. Occidental Chemical Corporation's Dietz to Werner, June 1983, 2 pages: Evaluation of Chlorocarbon Degradation Reports from Florida International University.
6. BFGoodrich's Gregg to O'Mara, Oct. 1983, 2 pages: Case Study of Groundwater Contamination by Chloroethenes in Florida.
7. Transformation of Tetrachloroethene and Trichloroethene in Microcosms and Groundwater, Feb. 1984, 4 pages.
8. Anaerobic Degradation of Trichloroethylene in Soil, 1985, 4 pages.