lington. We have initiated a very pro-active strategy to work with academia, industry, and State/local governments to establish communication links to foster and facilitate the transfer of information on new technology.

The prevention of waste rather than the control of pollution already generated is recognized as the most environmentally responsible approach. Toward this end we have initiated cooperative efforts with industry and academia to look at several management approaches that can provide an effective alternative to the traditional regulation of pollution at the end-of-the-pipe. The alternative approaches include: reduction at source; recovery and reuse; recycling; treatment and disposal.

FEASIBILITY STUDY OF GROUND WATER DETOXIFICATION

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Abstract

Computer simulation programs have been written to predict the performance of air/stream stripping for a non-ideal tray tower and a packed tower. Seventeen chlorinated hydrocarbons were considered in the contaminated ground water. The Henry constants for these organic contaminants range from 0.12 MPa (1.2 atm) of dichloroethyl ether (DCEE) to 169 MPa (1680 atm) of carbon tetrachloride.

The economics study indicated that the treatment cost of a packed tower is more economical than that of a tray tower. Based on 30 gpm (110 l/min) water flow rate and dichloroethyl ether (DCEE) as the key component, the treatment cost of air stripping is 5.6 ¢/gal for the tray tower, while for the packed tower the treatment cost is 3 ¢/gal.

USE OF ULTRAVIOLET IRRADIATION AND HYDROGEN PEROXIDE FOR THE CONTROL OF SOLVENT CONTAMINATION IN SMALL WATER UTILITIES

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Abstract

The U.S. Environmental Protection Agency has recently regulated several industrial solvents. The treatment technologies available for these contami-

nants are air stripping or adsorption on granular activated carbon. Both have disadvantages: with air stripping, the off-gases may have to be treated prior to discharge and granular activated carbon must periodically be thermally reactivated.

The process being researched is a combination of oxidation and ultraviolet (UV) irradiation. The oxidant to be investigated is hydrogen peroxide (H_2O_2). The general concept is that because H_2O_2 is easy to feed, because UV technology is improving, and because the waters to be treated are low in TOC, the likelihood of unknown oxidant by-products being produced is small, as is the likelihood of fouling of the UV Lamps, and because no waste streams are produced, this would be an attractive treatment possibility for small utilities.

Thus far, benzene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, carbon tetrachloride, and 1,4-dichlorobenzene have been tested at high concentrations in head-space free Teflon® bags in the dark. In addition, benzene, 1,1,1-trichloroethane, trichloroethylene, and carbon tetrachloride have been tested in the presence of UV irradiation with H_2O_2, and the results compared as follows:

Compound	Total conversion (mg/L/hour)		Factor of improvement with UV irradiation
	dark reaction	UV irradiation	
Trichloroethylene	0.03	30	1000
Benzene	0.12	60	500
1,1,1-Trichloroethane	0.11	13	120
Carbon Tetrachloride	0.02	5	250

Batch test studies will be completed for several other compounds in future research and all the compounds will also be tested under flow-through conditions.

INCORPORATING CHEMICAL AND PHYSICAL MECHANISMS INTO LEACHING MODELS FOR SOLIDIFIED HAZARDOUS WASTES

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Abstract

Solidification is an important process for managing the disposal of hazardous wastes and will continue to be so until waste minimization and waste re-