



Book reviews

LPS 2000: Proceedings of the 34th AIChE Annual Loss Prevention Symposium, Atlanta, GA, March 2000

American Institute of Chemical Engineers, New York, NY, 2000, US\$ 150.00, approx. 575 pp. (8.5 in. × 11 in. paperback format), ISBN: 0-8164-0822-2

This Loss Prevention Symposium, put on by the American Institute of Chemical Engineer's Safety and Health Group, has been held yearly since 1967. Thirty-five papers were given at the symposium and most (a few were presented orally but only the abstract appears in the proceedings) are found in almost equal number under the following headings:

- Advances in Fire Protection
- Health and Toxicology Aspects of Loss Prevention
- Fire, Explosion and Reactivity Hazards
- Overpressure Protection Alternatives
- Electrical Equipment Design for Application in Hazardous Areas
- Case Histories and Lessons Learned

The papers are a mixture of theoretical and practical aspects, with emphasis on the latter. For example, in the former category there is a paper entitled "Flow of Dry Chemical Fire Suppressant Through Simplified Discharge Systems", wherein the author presents mathematical models and experimental verification of blowdown of nitrogen pressurized cylinders through dip tubes and discharge nozzles.

In the latter area (practical case histories) were six papers discussing accidents:

- Explosion and Fire at Powell Duffryn Terminals
- Storage Tank Explosion Investigation
- Using Case Histories in PHA Meetings
- A Tale of Two Explosions
- Steam Line Rupture at Tennessee Eastman Division
- Fixed Roof Gas–Oil Tank Explosion

Five of the six (above) papers deal with fires and explosion. Much is to be learned in reading them.

Personally, I was most interested in the fourth of these papers, in which the author discusses about two explosions, one of which was at the Ford Motor Company's River Rouge automotive manufacturing complex — about 100 km from my home. The explosion killed six workers, badly burned, and many others (some of whom were transferred to a burn center in Toledo, OH, my home city). The damage estimate was US\$ 1 billion, making it the most expensive industrial accident in US history.

The author concludes that “The combined evidence from employee observations, damage distribution, dust sample SEMs, and dust explosivity test data suggests that a great deal of the damage in this explosion was due to a secondary coal dust explosion in the powerhouse and in adjacent structures such as the coal conveyor gallery and the coal pulverizer building. The dust cloud was created by the blast wave emanating from the gas explosion in the Number 6 boiler”.

Those engineers involved in safety programs for the chemical and other industries should find these proceedings very interesting.

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Groundwater Contamination: Vol. 1. Contamination, Sources & Hydrology; Vol. 2. Management, Containment, Risk Assessment & Legal Issues

Chester D. Rail, Technomic Publishing Co., Inc., Lancaster, PA, 2000, US\$ 174.95/two-volume set, Vol. 1: 187 pp. (8.5 in. × 11 in. format), Vol. 2: 174 pp. (8.5 in. × 11 in. format), ISBN: Vol. 1: 1-56676-870-5, Vol. 2: 1-56676-897-7

This two volume series on groundwater contamination was created by the author to provide “updated, integrated, interdisciplinary material in the form of bibliographic references and URL Internet WWW site information” on groundwater issues.

As one of the older generation of environmental engineers who uses (not as well as possible) Internet resources, I continue to be amazed by the amount of material accessible by computer. This book only enhances the awe. And that amazement reaches to the author. I wonder how he compiled all the data he did; the number of sites referenced is phenomenal. He provides information from more than 1300 literature references and 2300 URL Internet WWW sites information, 2300 Internet sites. These cited resources are the key contribution of these two books.

Rail’s technique is best illustrated by reproducing a short section of the text:

“*Detergents* (URL Ref. no. 223): Detergent chemicals, which are broadly used in consumer products, are typically disposed of in domestic wastewater. In the United States, approximately 70% of domestic wastewater is treated in municipal wastewater treatment systems (URL Ref. No. 222), with the remaining 25–30% being treated by on-site systems (URL Ref. No. 217) (e.g. septic tanks, cesspools, etc.). Though low in volume, effluents from on-site systems (URL Ref. No. 218) can potentially impact GWSS systems since they are directly released to the subsurface environment. Municipal systems would naturally have a lesser impact primarily through land application of wastewater effluents or sludge to surface soils. These practices result in the entry of detergent chemicals into subsurface environments. The fate of these chemicals will depend upon the biodegradative activities of the indigenous microbial communities (URL Ref. No. 214) (Ventullo and Larson, 1998).”

One notes the prose (description) cites both URL sites and print material.

Volume 1, which has 129 pages of text and 54 of reference has the following chapters:

- Groundwater as a Resource — Movement, Usage, Yield, Contamination Potential, Disposal, Stabilization and Historical Aspects.
- Natural Quality of Water and Groundwater Contamination.
- On-Site Liquid Waste Disposal Systems.