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Risk Assessment, Management, Communication

A Guide to Selected Sources
Volume 4, Number 1

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RISK ASSESSMENT,
MANAGEMENT, COMMUNICATION

A GUIDE TO SELECTED SOURCES
VOLUME 4, NUMBER 1

Office of Toxic Substances
Chemical Library

U.S. Environmental Protection Agency

September 1991

This issue of Risk Assessment, Management, and Communication: A Guide to Selected Sources has been prepared and reviewed by the Environmental Protection Agency (EPA). Due to the rapidly expanding field of risk information, EPA cannot guarantee that all relevant sources are cited. Publication does not signify that the contents reflect the views of EPA or that EPA endorses the coverage and scope of the subject matter as comprehensive, complete and appropriate.

INTRODUCTION

This issue of Risk Assessment, Management, and Communication: A Guide to Selected Sources is the ninth update in EPA's series of risk management bibliographies. References were gathered from the environmental, medical, and scientific literature included in the following databases: ABI/Inform, Cambridge Scientific Collection (Pollution Abstracts), Conference Papers Index, Enviroline, Legal Resource Index, Life Sciences Collection, Magazine Index, NTIS, PAIS International, and NLM's TOXLINE and MEDLINE. The citations cover documents added to those collections during the period from November 1989 to July 1991. The original Guide appeared in March 1987 and was followed by quarterly updates. These earlier updates constitute Volume 1 of the current semiannual series.

Like its predecessors, this document is subdivided into Risk Assessment, Risk Management, and Risk Communication. The Table of Contents lists further divisions of each of these categories. Citations are arranged alphabetically by title, with the exception of the chemical specific references. These citations are grouped alphabetically by chemical name. Abstracts in this guide have been shortened or eliminated if the content of the article is adequately reflected in the title.

The EPA Library Network can assist EPA staff members and EPA contractors in obtaining materials cited in the bibliography. Reference copies of the original Guide and subsequent issues are available through NTIS at the following address:

National Technical Information Service
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*Guide:	PB87-185500
1st Update:	PB87-203402/AS
2nd Update:	PB88-100102
3rd Update:	PB88-128178
Volume 2, No. 1:	PB89-210596
Volume 2, No. 2:	PB89-189641
Volume 3, No. 1:	PB90-237116
Volume 3, No. 2:	PB90-282508

*These five issues constitute Volume 1 of the current series.

Questions or comments concerning Risk Assessment, Management, Communication: A Guide to Selected Sources may be sent to:

U.S. Environmental Protection Agency
Office of Toxic Substances Chemical Library TS-793
Risk Management Bibliographies
401 M Street, S.W., Room B002, NE Mall
Washington, DC 20460

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. . . IS THE SCIENTIFIC PROCESS THAT EVALUATES THE POTENTIAL FOR OCCURRENCES OF ADVERSE EFFECT

GENERAL PERSPECTIVE - includes cross media approach, de minimis risk, and uncertainty in assessment

Advancing environmental protection through risk assessment. (Symposium: Risk Assessment in Environmental Law)
Daggett, Christopher J.; Hazen, Robert E.; Shaw, Judith Auer
Columbia Journal of Environmental Law 14 n2 315-327 Spring, 1989
LEGAL RESOURCE INDEX

Educated guesses: health risk assessment in environmental impact statements.
Harvey-PD
Am-J-Law-Med; VOL 16, ISS 3, 1990, P399-427
Journal Article

Environmental pollution threatens public health. The search for solutions has advanced the frontiers of science and law. Efforts to protect the environment and public health begin with describing potential adverse consequences of human activities and characterizing the predicted risk. The National Environmental Policy Act requires the preparation of environmental impact statements to describe the effects of proposed federal projects and provide information for agency decisionmakers and the public. Risks to public health are particularly difficult to quantify because of uncertainty about the relation between exposure to environmental contamination and disease. Risk assessment is the current scientific tool to present estimates of risk. The methodology has created controversy, however, when underlying assumptions and uncertainties are not clearly presented. Critics caution that the methodology is vulnerable to bias. This Note evaluates the use of risk assessment in the environmental impact statement process and offers recommendations to ensure informed decisions.
TOXBIB

Environmental audits and assessments: The problem of risk
Saxe, D.
Hazardous Materials Management VOL. 3, NO. 1, 1991, 6-8

Environmental audits and assessments have become an increasingly central pillar of Canadian efforts to protect our environment. We have learned repeatedly how high can be the price of attempting to remedy environmental contamination after it has occurred, and how often such efforts are doomed to failure. Both business and governments therefore face increasing pressure to identify and avoid environmental risks in advance.
POLLUTION ABSTRACTS

Environmental Concern Sparks Renewed Interest in IPM
Greene, Catherine
Food Review v14n2 PP: 8-11 Apr-Jun 1991
DOC TYPE: Journal article LANGUAGE: English LENGTH: 4 Pages
Integrated Pest Management (IPM) offers farmers a variety of pesticide-reducing techniques that allow them to produce high-quality, abundant food supplies while minimizing environmental impacts. The conventional practice of applying pesticides by the calendar is becoming uncommon for cotton, canning tomatoes, and other crops where IPM is having success. Instead, pesticides are applied only when pests reach economically damaging levels. Pest-resistant varieties, biological control, and other non-chemical techniques are often used as well. IPM uses both efficiency and substitution approaches to control pests. Combined funding from governments and industry for vegetable IPM projects rose from approximately $64,000 in 1978 to almost $3 million in 1989. Vegetable acreage under IPM increased from 742,000 in 1984 to nearly 2 million in 1989.
ABI/INFORM

Environmental impact assessment in the People's Republic of China
Wenger RB, Huadong Wang, Xiaoying MA
Univ. of Wisconsin, Green Bay
Env Management (Springer-Verlag), Jul-Aug 1990, V14, N4, P429(11)
POLLUTION ABTRACTS

Evidentiary difficulties with quantitative risk assessments. (Symposium: Risk Assessment in Environmental Law)
Walker, Vern R.
Columbia Journal of Environmental Law 14 n2 469-499 Spring, 1989
LEGAL RESOURCE INDEX

First generation of a new science: risk assessment in transition.
Stara-JF
U.S. Environmental Protection Agency, Office of Health and Environmental Assessment, Cincinnati, Ohio 45268.
Toxicol-Ind-Health; VOL 5, ISS 5, 1989, P621-7 (REF: 16)
REVIEW; REVIEW,-TUTORIAL

The greatest challenge facing human populations today is that of extraordinary rapid change. Such a change in the society is illustrated by the increasing public awareness of environmental issues, accompanied by continuously expanding scientific investigations of chemical pollution. Our industrial civilization has developed and introduced into the various environmental media many compounds affecting human health individually and as a society. The science of toxicology is the evaluation of the effects of chemical and physical agents in various biological systems. Most chemical compounds cannot be tested in man due to their possible carcinogenic, mutagenic, teratogenic, or other long-term toxic potential. Therefore, carefully designed toxicologic studies in other species, especially mammalian, are conducted to provide biological dose-response data, which can be used to predict human response. Toxicologists have the responsibility of providing accurate scientific dose-response data based on experiments employing, among others, "practical" concentrations of pollutants or toxicants. When the toxic effects are considered, the action of these agents in the atmosphere, water, and other environmental vehicles should be considered. There are always interacting events that co-exist in the environment. The various issues in environmental health need to be tied together in order to be understood by scientists who are not intimately familiar with risk assessment procedures as they relate to the implementation of environmental laws. Much effort is needed both in the area of improved risk assessment methodology as well as in the area of toxicologic testing and validation of the theoretical approaches.
TOXBIB

Going for a Green Audit
Boivin, Benoit; Gosselin, Louis
CA Magazine v124n3 PP: 61-63 Mar 1991
Journal article

A growing awareness of the ecological hazards of industrial activity may soon make environmental audits a necessity. Several industries in Canada, including oil, aluminum, and forestry, have been conducting such audits for quite some time. The main purpose of an environmental audit is to evaluate a company's operations and performance in terms of their conformity with federal, provincial, and municipal laws and regulations and to identify the sectors at risk. These audits also allow for the development of remedial plans aimed at mitigating environmental risks. Each company must define its audit objectives and programs based on its own particular mandate, objectives, and corporate culture. Given the scope of the environmental audit, careful consideration should be given to the selection of audit team members. The actual environmental audit report supplies management with information concerning audit results and potential remedial measures.
ABI/INFORM

How to protect yourself from your environment
Hutchison, Sue
National Wildlife, Aug-Sep 1990, V28, N5, P30(13)
Journal article
Toxic hazards are omnipresent in work and living environments, and have been thoroughly documented in the past years. A review of such hazards addresses sources of pollutants and risk assessment procedures, and includes home and workplace pllutants, water pollutants, food contaminants, and air pollutants. (33 DRAWINGS)
ENVIROLINE

Is risk assessment really too conservative?: Revising the revisionists. (Symposium: Risk Assessment in Environmental Law)
Finkel, Adam M.
Columbia Journal of Environmental Law 14 n2 427-467 Spring, 1989
LEGAL RESOURCE INDEX

Major hazard information policy in the European Community: implications for risk analysis.
Otway, Harry and Aniello Amendola.
Risk Analysis 9:505-12 Dec 89, chart

Outlines background, content, and implementation of the "Seveso Directive." Response to industrial accidents, including risk communication and emergency preparedness.
PAIS

Making "acceptable risk" acceptable. (Defining the Undefinable: What Risks Are Acceptable?)
Preuss, Peter W.
Environmental Forum 5 n5 22(5) Nov-Dec, 1988
LEGAL RESOURCE INDEX

Overview of the Risk Assessment Study of the Dickerson Site in Montgomery County, Maryland.
Brower-R; Gerritsen-J; Zankel-K; Huggins-A; Peters-N
Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
Versar, Inc., Columbia, MD. Environmental Resources Management, Inc., Annapolis, MD. Stockholm Univ. (Sweden).
Govt Reports Announcements & Index (GRA&I), Issue 24, 1990

The report presents an overview of a comprehensive, multipathway health-based risk assessment study performed for routine air emissions from three combustion sources collocated at a rural site. The sources included a proposed 2,250 ton/day municipal waste resource recovery facility, an existing 558-MW coal fired power plant and a proposed 750-MW oil/gas-fired combustion turbine power plant. State-of-the-art risk assessment methods were developed to

determine human exposure through inhalation of contaminated air (direct emissions as well as resuspended contaminated soil) and ingestion of contaminated crops, livestock, fish, water, and soil. Carcinogenic and noncarcinogenic effects to a most exposed individual (MEI) and an average exposed farmer, who both eat locally-derived food, were estimated. In addition to the classical assessment, potential risks associated with toxics formation from plume mixing as well as enhanced risk associated with carcinogenic synergies between pollutants were addressed. Final rept. Prepared in cooperation with Environmental Resources Management, Inc., Annapolis, MD., and Stockholm Univ. (Sweden). Sponsored by Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
Public-health,-Site-surveys,-Toxicity,-Exposure,-Inhalation,-Ingestion-Biology,-Combustion-products,-Food-chains,-Study-estimates,-Air-water-interactions,-Water-pollution,-Carcinogens,-Electric-power-plants; Risk-assessment; Air-pollution-effects-Humans; Ecosystems,-Permits, Montgomery-County-Maryland
NTIS/PB90-272329, 64p. NTIS Prices: PC A04/MF A01
NTIS

Preparation Aids for the Development of Category 1: Quality Assurance Project Plans.
Simes, G. F.
Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab. Feb 1991, 75p.
PB91-148312 EPA/600/8-91/003

Data collection activities performed for the Risk Reduction Engineering Laboratory (RREL) of the U.S. Environmental Protection Agency are divided into four categories, depending on the intended use of the data. Quality Assurance (QA) Project Plans are written to ensure that project needs will be met and that quality control procedures are sufficient for obtaining data of known quality. The level of QA required, however, depends on the project category selected for a given project. Projects that are of sufficient scope and substance that their results could be used directly, without additional support, for compliance or other litigation are identified as Category I projects. Such projects are of critical importance to the Agency goals and must be able to withstand legal challenge. Accordingly, the QA requirements will be the most rigorous and detailed in order to ensure that such goals are met. To assist professional scientists and engineers in preparing QA Project Plans, separate guidance manuals in an easy-to-read format have been developed for each category. The Category I manual contains detailed descriptions of each of the 15 required elements of a Category I QA Project Plan. Also included are definitions and explanations of frequently used terms, examples of QA forms and charts, sample equations and numerous types of tables suggested for summarizing information.
NTIS

Preparation Aids for the Development of Category 3: Quality Assurance Project Plans.
Simes, G.
Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab. February 1991, 60p.
PB91-167569 EPA/600/8-91/005;
See also PB91-148312.
NTIS

Reducing uncertainty in risk assessment.
Kamrin MA
Center for Environmental Toxicology, Michigan State University, East Lansing MI 48824.
Regul-Toxicol-Pharmacol; VOL 10, ISS 1, 1989, P82-91 (REF: 10) 1989

This article presents a summary of the proceedings of the Symposium and Workshop on Reducing Uncertainty in Risk Assessment, held at Michigan State University, on May 18-19, 1987. Participants addressed four topic areas: safety factors in noncarcinogen risk assessment; relevance of biological data in risk assessment; upper and lower bounds in carcinogenic risk assessment; and exposure assessment. Consensus recommendations in these areas, resulting from the deliberations of the workshop groups, are presented. In addition to the specific recommendations, some general conclusions could be drawn. One was that the increased understanding of underlying mechanisms of toxicity, gained in the last decade, should be incorporated as much as possible into the risk assessment process. A second conclusion was that more effort should be devoted to increasing this understanding and developing the best methods for applying this knowledge to risk assessment. Last, more effort should be made to improve the communication of these assessments to the public and to policy makers so that the best and most complete information is utilized in risk management decisions.
TOXBIB

Reference Dose (RfD): Description and Use in Health Risk Assessments.
Barnes-DG; Dourson-M
Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office.
Govt Reports Announcements & Index (GRA&I), Issue 19, 1989

For many years the concept of the 'acceptable daily intake' has served the toxicological and regulatory fields quite well. However, as approaches to assessing the health significance of exposures to noncarcinogenic substances receive greater scrutiny, some difficulties with this traditional approach have become more apparent. Consequently, the concept of the 'reference dose' is introduced in order to avoid use of prejudicial terms (e.g., 'safety' and 'acceptable'), to promote greater consistency in the assessment of noncarcinogenic chemicals, and to maintain the functional separation between risk assessment and risk management. Journal article. Pub. in Regulatory Toxicology and Pharmacology 8, p471-486 1988.
NTIS/PB89-202436, 18p. EPA/600/J-88/310
NTIS

Risk analysis and risk management.
Lave LB
Carnegie Mellon University, Graduate School of Industrial Administration, Pittsburgh, PA 15213.
Sci-Total-Environ; VOL 99 (3), 1990, 235-242
JOURNAL-ARTICLE

During the past several decades, the public has given increasing attention to environmental problems and increased their demands that these problems be solved. During this period, the difficulty and costs of solving the problems have become apparent. Environmental abatement programs must be effective in achieving the desired goals and efficient in achieving them at low cost. Risk analysis is necessary to quantify the benefits of proposed solutions in order to make them effective and efficient. The necessity for performing risk assessment stems from a presidential executive order, from a Supreme Court Decision, and from the public's demand for information about the extent of possible danger from a hazard, rather than knowing simply that it is a hazard. The science of risk analysis is an an early stage and so there are many uncertainties concerning interpretation of the estimates. This approach has sharpened the scientific questions and hastened improvements in scientific understanding. Risk analysis is most helpful when the analysis reflects the science, without intrusion of the risk assessor's values or attempts to force a risk management outcome by skewing the risk analysis.
TOXBIB

Risk assessment and environmental policy
Wassersug, S.R.
WATER ENVIRON. TECHNOL VOL. 2, NO. 11, 1990 41-42

All nations grapple with environmental risks. Establishing ways to deal with these risks is related to a society's reaction to real and perceived danger. Environmental policies that have evolved in various European countries reflect the differences in their perception of environmental risks. A comparative study of environmental risk management in four major industrialized countries of Western Europe and the U.S. generated some provocative questions: What country has achieved the most effective results? Where can the most desirable treatment methodologies have observed? Which methodologies have proven to be the most cost-effective?
161395 91-02406 POLLUTION ABSTRACTS

Risk analysis and global environmental issues
Coppock, R.
Natl. Acad. Sci./Natl. Res. Counc., Washington, DC
American Association for the Advancement of Science, 155th National Meeting 8910024 San Francisco, CA (USA) 14-19 Jan 1989
American Association for the Advancement of Science (AAAS)
AAAS, 1333 H Street, NW, Washington, DC 20005 (USA)
Languages: ENGLISH
CONFERENCE PAPERS INDEX

Risk Assessment Study of the Dickerson Site. Volume 1. Text.
Brower-R; Gerritsen-J; Zankel-K; Huggins-A; Peters-N
Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
Versar, Inc., Columbia, MD. Environmental Resources Management, Inc., Exton, PA. Environmental Resources Management, Inc., Annapolis, MD. Stockholm Univ. (Sweden).
Govt Reports Announcements & Index (GRA&I), Issue 24, 1990

A comprehensive, multipathway health-based risk assessment study was performed for routine air emissions from three combustion sources collocated at a rural site. The sources included a proposed 2250 ton/day municipal waste resource recovery facility, an existing 558 MW coal-fired power plant, and a proposed 750 MW oil/gas-fired combustion turbine power plant. State-of-the-art methods were developed to determine human exposure through inhalation of contaminated air (direct emissions as well as resuspended contaminated soil) and ingestion of contaminated crops, livestock, fish, water, and soil. In addition to the classical assessment, potential risks associated with toxics formation from plume mixing as well as enhanced risk associated with carcinogenic synergies between pollutants were addressed. There are currently insufficient data to quantify risks associated with carcinogenic synergies. Sensitivity analyses were conducted to evaluate the effect due to uncertainties in emissions, toxicity, deposition, and bioaccumulation. Generally, these sensitivity analyses suggest that actual exposure and risks are likely to be less than those estimated in the study. See also Volume 2, PB90-272303. Prepared in cooperation with Environmental Resources Management, Inc., Exton, PA., Environmental Resources Management, Inc., Annapolis, MD., and Stockholm Univ. (Sweden). Sponsored by Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
NTIS/PB90-272295, Also available in set of 3 reports PC E99/MF E99, PB90-272287., 223p. NTIS Prices: PC A10/MF A02
NTIS

Risk Assessment Study of the Dickerson Site. Volume 2. Appendices A-J.
Brower-R; Gerritsen-J; Zankel-K; Huggins-A; Peters-N
Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
ÅVersar, Inc., Columbia, MD. Environmental Resources Management, Inc., Exton, PA. Environmental Resources Management, Inc., Annapolis, MD. Stockholm Univ. (Sweden).
Govt Reports Announcements & Index (GRA&I), Issue 24, 1990

The document contains the appendices A-J for the 3 volume series. Volume 2 covers: Nitroarenes; Food chain module; Plant and animal bioconcentration factors and pollutant loss rates for terrestrial food chain model; Review and comparison of currently recommended methods for computing dry deposition velocity; Carcinogenic synergy; Inhalation risk computed by EPA's human exposure model; Emissions calculations; Model receptors and terrain exclusions; Deposition module; and The Oak Ridge National Laboratory food chain model. See also Volume 1, PB90-272295 and Volume 3, PB90-272311. Prepared in cooperation with Environmental Resources Management, Inc., Exton,

PA., Environmental Resources Management, Inc., Annapolis, MD., and Stockholm Univ. (Sweden). Sponsored by Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
NTIS/PB90-272303, Also available in set of 3 reports PC E99/MF E99, PB90-272287., 330p. NTIS Prices: PC A15/MF A02
NTIS

Risk Assessment Study of the Dickerson Site. Volume 3. Appendices K-N.
Brower-R; Gerritsen-J; Zankel-K; Huggins-A; Peters-N
Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div. Versar, Inc., Columbia, MD. Environmental Resources Management, Inc., Exton, PA. Environmental Resources Management, Inc., Annapolis, MD. Stockholm Univ. (Sweden).
Govt Reports Announcements & Index (GRA&I), Issue 24, 1990

The document contains the appendices K-N for the 3 volume series. Volume 3 covers: Toxicological profiles; Detailed results of exposure assessment and risk characterization; Systems Applications, Inc. (SAI) discussion on wet deposition; and Reviewers' comments and responses. See also Volume 2, PB90-272303. Prepared in cooperation with Environmental Resources Management, Inc., Exton, PA., Environmental Resources Management, Inc., Annapolis, MD., and Stockholm Univ. (Sweden). Sponsored by Maryland Dept. of Natural Resources, Annapolis. Power Plant and Environmental Review Div.
NTIS/PB90-272311, Also available in set of 3 reports PC E99/MF E99, PB90-272287., 349p. NTIS Prices: PC A15/MF A02
NTIS

Research Priorities in Environmental Risk Assessment. Workshop on Research Needs in Environmental Toxicology and Chemistry Held in Breckenridge, Colorado on August 16-21, 1987.
Dickson-K
North Texas State Univ., Denton. Inst. of Applied Sciences.
Govt Reports Announcements & Index (GRA&I), Issue 24, 1989

The environmental issues facing society are the most critical in our nation's history. Difficult decisions must be made about potentially expensive solutions to environmental problems. Environmental risk assessment will provide the information necessary to ensure that best decisions are made. Environmental risk assessment is the most efficient, technically sound, and cost-effective approach to providing the information required to make these decisions. However, research is urgently needed to enhance the use of environmental risk assessment. The formal scientific techniques used in risk assessment take into account the uncertainty associated with knowledge about effect on the environment and estimate the probability of an identified risk being realized in the environment as a result of a contemplated action. The charge given to workshop participants was to identify technical research needs that would best improve the use and understanding of environmental risk assessment. Society of Environmental Toxicology and Chemistry (SETAC). Final rept. 15 Jun 87-30 Jun 88.
NTIS/AD-A211 296/9, 116p. Grant DAMD17-87-G-7028
NTIS

Risk assessment and regulatory priorities. (Symposium: Risk Assessment in Environmental Law)
Lave, Lester B.
Columbia Journal of Environmental Law 14 n2 307-314 Spring, 1989
LEGAL RESOURCE INDEX

Risk assessment in environmental agencies
Berkowitz, J.H.
Div. Environ. Qual., New Jersey Dep. Environ. Prot., Trenton, NJ
American Association for the Advancement of Science, 155th National Meeting 8910024 San Francisco, CA (USA) 14-19 Jan 1989
American Association for the Advancement of Science (AAAS)
AAAS, 1333 H Street, NW, Washington, DC 20005 (USA)
CONFERENCE PAPERS INDEX

Scientific trends in risk assessment research.
Anderson-EL
Toxicol-Ind-Health; VOL 5 (5), 1989, 777-790 (REF: 29)
REVIEW; REVIEW,-TUTORIAL

The use of risk assessment approaches to evaluate the effects of toxic chemicals had its primary origin in 1976 when the U.S. Environmental Protection Agency (EPA) adopted the first federal guidelines to commit a major regulatory agency to risk assessment approaches for the evaluation of suspect carcinogens. The accompanying policy statement also adopted a risk management policy, which acknowledged that the agency would accept risk in making public health policy decisions; in essence, this represented a primary departure from the zero-risk goal that had dominated the first half of the environmental movement of the 70s. The approach adopted in 1976 was based on the experience of risk assessment approaches used for assessing low-dose-radiation effects on human health. To be certain that no public health risk be underestimated, particularly in light of the prior zero-risk goal, the practice of risk assessment for the first decade relied heavily on extremely protective assumptions in all aspects of the assessment process. This paper will discuss the recent trends in weight-of-evidence characterization, dose-response modeling, and exposure assessment and will compare the outcomes of these refined assessments to those evaluations that have relied on the earlier, conservative approaches. In essence, if the practices of the first decade for establishing plausible upper bounds on the risk were accurate, improved scientific data by and large should be expected to lower the overall theoretical risk. Indeed, this is the case when recent risk assessment research is applied but there are examples to the contrary. This paper represents a survey of recent trends and applications.
TOXBIB

Summary and Perspectives: Panel Discussion on Toxicology and Exposure Assessment. State of the Art.
Fowle-JR
Health Effects Research Lab., Research Triangle Park, NC.
Govt Reports Announcements & Index (GRA&I), Issue 19, 1990

Exposure evaluation is an integral component of the risk assessment process linking chemical contact to toxicologic manifestation or disease outcome. When exposure data are used to make decisions in the absence of corroborating data or disease outcome, human risk assessments rely on conservative assumptions that may overestimate true risk. A major theme of the symposium was that conservative assumptions in risk assessment could be replaced and uncertainties reduced as data on exposure assessment are coupled with health effect outcomes. Other important themes that emerged from the symposium are that social issues are as important as scientific issues in conducting effective exposure assessments, and that decisions will be made regardless of data availability or quality. Journal article. Pub. in Jnl. of the American College of Toxicology, v8 n5 Sep 89.
NTIS/PB90-246026, 6p.
NTIS

Technical Support Document on Risk Assessment of Chemical Mixtures.
Anon
Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office.
Syracuse Research Corp., NY. Cincinnati Univ., OH. Dept. of Environmental Health.
Govt Reports Announcements & Index (GRA&I), Issue 01, 1991

The document was recommended by the U.S. EPA's Science Advisory Board as a means of providing the broad technical background for the principles and procedures described in the 'Guidelines for Health Risk Assessment of Chemical Mixtures'. Unique sections include an overview of available toxicity data on complex mixtures and binary exposures, an estimate of the maximum synergistic effect observed for environmental chemicals, an evaluation of quantitative methods (statistics and models) that have been used in characterizing interaction data base, and recommendations for Guidelines revisions and future research relevant to risk assessment. The two most significant conclusions in the document are (1) that the available literature is extremely poor for use in quantifying the extent of synergism expected from environmental exposures, and (2) that validation of in vitro and short-term in vivo studies seems to be the most promising approach for assessment of complex mixtures.
Hazardous-materials; Chemical-compounds; Toxicology, Mixtures, Quantitative-analysis,- Measurement; Risk-assessment; Environmental-exposure; Health-hazards; Chemical-mixtures,-Pharmacokinetics,-Synergism
NTIS/PB91-103556, 186p. NTIS Prices: PC A09/MF A09
Contract EPA-68-C8-0004
NTIS

The big cleanup gets it wrong: the emerging science of risk assessment says that the U.S. is spending way too much on minor threats, like asbestos, and not enough on major pollutants, like radon.
Main, Jeremy.
Fortune 123:95-6+ Mr 20 '91, il table chart

Questions the validity of assessing the effect of massive doses of a pollutant in the workplace or the lab as a means to determine effects of the same pollutant among the populace at large; US.
PAIS

The evolution of chronic hazard evaluation
Robinson-T; Yodaiken-R
Journal of Hazardous Materials, May 1989, Vol.21, No.3, 201-214.
Illus,. 36 ref.
Journal Article

The history of modern epidemiology is briefly reviewed from the early observational studies to the nested case control technique. The lessons learned from the investigation of nickel, benzene, chromates, smoking and many other hazards which were too long ignored must be applied, otherwise the tragedies of the past will recur. To accomplish the preventive goals inherent in occupational medicine, cooperation between industry, government, physicians and scientists is necessary. Toxicological, epidemiological and medical research must continue to improve our understanding of environmental hazards. New chemicals or new uses of old agents should be assumed to be potentially hazardous and worker exposure kept to a minimum until the long risk assessment process indicates otherwise.
CIS

The hazards of risk assessment. (Symposium: Risk Assessment in Environmental Law)
Commoner, Barry
Columbia Journal of Environmental Law 14 n2 365-378 Spring, 1989
LEGAL RESOURCE INDEX

U.S. Environmental Protection Agency processes for consensus building for hazard identification
Schoeny RS
EPA, Cincinnati OH
ACS Pesticide Residues & Food Safety: A Harvest of Viewpoints Conference, Point Clear, AL, January 21-25, 1990, P214(7)
Conference Paper
The EPA increasingly relies on risk assessment to form regulations. Risk assessment involves hazard identification, dose-response assessment, exposure assessment and risk characterization. The scientific integrity of risk assessment methods is crucial. The EPA's risk assessment forum and scientific review groups promote consensus on methodologies. The guidelines and databases for risk assessment information exchange are discussed. Two review groups, carcinogen risk assessment verification endeavour and reference dose work groups, are discussed. The EPA is dedicated to providing consensus reaching tools to ensure the public benefits from regulations based on quality risk assessments. (1 REFERENCE)
ENVIROLINE

Valuing environmental health effects
Cropper, M.L.; Freeman, A.M.,III
RESOURCES FOR THE FUTURE, WASHINGTON, DC (USA), 1990

This paper provides a survey of techniques for estimating the value of improved human health associated with the control of environmental pollutants. Topics covered include defining and measuring changes in health status, the willingness to pay for reduced risk of death, and the value of reduced morbidity and risk of chronic disease. Also included are reviews of the results of empirical studies of the value of reduced mortality and morbidity.
POLLUTION ABSTRACTS

Workshop on indoor air quality.
Risk Analysis 10:15-91 Mr '90, tables charts
Workshop Paper

Eight papers presented at a workshop organized jointly by the Energy and Environmental Policy Center and the School of Public Health, Harvard University, Dec. 6-8, 1988. Associated health risk concerns; assessment of exposure to tobacco smoke, formaldehyde, radon, organic compounds, biologicals, man-made mineral fibers, and nitrogen dioxide.
PAIS

ASSESSMENT GUIDELINES

A survey and analysis of states' methodologies for deriving drinking water guidelines for chemical contaminants.
Paull JM; Joellenbeck LM; Cochran RC; Sidhu KS
Federal-State Toxicology and Regulatory Alliance Committee,
Environmental Toxicology and Risk Assessment Division, Baltimore, MD 21224.
Regul Toxicol Pharmacol VOL 13 (1), 1991, 18-35
Journal article
ISSN: 0273-2300

Data from a national survey questionnaire regarding the development of guidelines for chemical contaminants in drinking water were collected from all 50 states. Twenty-three states develop at least some of their own guidelines; the other 27 states rely on guidelines previously developed by the U.S. Environmental Protection Agency (USEPA) or by other states. States which derive guidelines generally employ toxicological criteria and risk assessment methodologies developed by the USEPA. Fourteen of the twenty-three states that develop their own guidelines depend on cancer potency factors derived by the USEPA to establish risk-based concentrations for carcinogens. Most of the states develop guidelines based on preventing possible excess cancer risk greater than one in one million. Seventeen of these twenty-three states rely on oral reference doses (RfDs) to derive guidelines for noncarcinogens. Examination and clarification of the states' approaches to guideline derivation reveal that although similar risk assessment techniques are generally employed, differences in assumptions, chemical classifications, and uncertainty factors may lead to variation in resultant guidance levels. Improved communication and coordination between states and the federal government may help reduce the variations and inconsistencies among the states in establishing drinking water guidelines for chemical contaminants.
TOXBIB

Air/Superfund National Technical Guidance Series. Superfund Air Pathway Analyses Review Criteria Checklists.
Letkeman-JE
Environmental Protection Agency, Research Triangle Park, NC. Office of Air Quality Planning and Standards.
Radian Corp., Austin, TX.
Govt Reports Announcements & Index (GRA&I), Issue 11, 1990

The EPA has responsibility for assessment and cleanup of superfund sites. Because air emissions pose a potential human health risk at these sites, the EPA has developed a set of procedures for evaluating these risks. The four checklists presented provide a systematic approach for air reviewers to apply the air pathway assessment procedures. The background, purpose, and application of the checklists are discussed. Final rept.
See also PB90-113374, PB89-180053, PB89-180061 and PB90-113382.
NTIS/PB90-182544, 63p. NTIS Prices: PC A04/MF A01
DCN-90-203-080-61-02, Contract 68-02-4392
NTIS

Continuous Release-Emergency Response Notification System and Priority Assessment Model: Model Documentation.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response.
Report, 13 Feb 1991, 75p.
PB91-168468
EPA/540/G-91/004; OSWER DIRECTIVE-9360.7-03;
See also PB91-168450 and PB90-249715.

The purpose of the model documentation is to provide a detailed description of the modeling and risk analysis procedures used in CR-ERNS/PAM to assist OSCs and other Superfund decision-makers in interpreting the system results. PAM is a screening-level model; to properly interpret PAM's outputs, the user must understand the limitations and uncertainties in the equations and data used to generate these results. Chapter 2 presents the system's fate and transport models and describes the assumptions associated with these equations. Chapter 3 describes PAM's auxiliary data bases and provides the source(s) of each parameter and the methods by which values were selected. Chapter 4 explains the methods and exposure assumptions used to estimate exposures to hazardous substances and to evaluate the risks and hazards associated with these exposures. Chapter 5 presents examples of reports generated by PAM and explains the meaning of the 'flags' assigned to hazardous substances, media, and facilities. Appendix A contains versions of the fate and transport equations used for radionuclides. Appendix B contains copies of PAM's reports.
NTIS

EMS Response at a Hazardous Material Incident: Some Basic Guidelines
Plante-DM; Walker-JS
Journal of Emergency Medicine, Vol. 7, No. 1, pages 55-64, 64 references, 1989
Journal Article

A discussion was presented of the response of emergency medical services to hazardous materials incidents, and basic guidelines were described. Hazardous materials could be divided into three levels of risk: easily handled by initial response crews; need for outside help and specialized regional response team; true disaster that may require several days to resolve and that cannot be handled by local government. There were five components to disaster planning: event forecasting using technology; risk reduction using engineering; public education on potential hazards; coordinated emergency response; and systematic assessment of effects for future preparation. Activation, implementation, and recovery comprised the sequence of events in a disaster. Communication was a priority on the scene and between the scene and health care facilities. A press officer was recommended for dealing with media in order to avoid disruption and for proper communication. Plans for immediate or potential evacuation were important. Regulations regarding substance identification were discussed. Equipment for hazardous material incident management was identified. Methods of decontamination were described. The authors conclude that prior examination of problems and development of protocols for disaster management are important for effective response, and emergency physicians should play a leading role in this.
NIOSH

Guidance for Data Useability in Risk Assessment. Interim Report.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response. October 1990, 272p.
PB91-921208 EPA/540/G-90/008;
NTIS Categry Codes 68C; 68G; 70F; 88A

The Environmental Protection Agency has established a Data Useability Workgroup to develop national guidance for minimum data quality requirements to increase the useability of environmental analytical data in the cleanup of hazardous waste sites under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended in the Superfund Amendments and Reauthorization Act of 1986 (SARA). The guidance manual prvides direction for planning and assessing analytical data collection activities for the baseline human health risk assessment, conducted as part of the remedial investigation (RI) process. The guidance does not address the use of environmental data for purposes other than baseline risk asssessment for human health.
NTIS

Guidance document for prepermit bioassay testing of low-level radioactive waste.
Anderson, S. L. ; Harrison, F. L.
Lawrence Livermore National Lab.(CA), Department of Energy, Washington, DC.
November 1990.
Report, 60p.
Sponsored by Department of Energy, Washington, DC.
DE91002995
UCRL-ID-105266; EPA-520/1-90-012; W-7405-ENG-48

In response to the mandate of Public Law 92-532, the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, as amended, the Environmental Protection Agency (EPA) has developed a program to promulgate regulations and criteria to control the ocean disposal of radioactive wastes. This technical guidance report represents prepermit bioassay procedures that potentially may be applicable to the assessment of effects from a mixture of radionuclides that could be released from a point source at the ocean bottom. Methodologies along with rationale and a discussion of uncertainty are presented for the sediment benthic bioassay protocols identified in this report.
NTIS

Interim Methods for Development of Inhalation Reference Doses.
Jarabek-AM; Blackburn-K; Dourson-M; Erdreich-L; Overton-J
Environmental Protection Agency, Research Triangle Park, NC. Environmental Criteria and Assessment Office.
Govt Reports Announcements & Index (GRA&I), Issue 07, 1990

The document describes methodology for the derivation of Inhalation Reference Doses (RfDis). An RfDi is defined as an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous lifetime inhalation exposure to the human population (including sensitive subpopulations) that is likely to be without appreciable risk of adverse noncancer health effects. A detailed discussion of factors that determine inhaled dose, including respiratory anatomy and physiology and the physiochemical properties of the inhaled pollutants, is provided. Discussions of these area included currently available information on interspecies variability. Issues related to the evaluation of study design and the generation and characterization of inhalation exposures are also discussed.
NTIS/PB90-145723, 216p. EPA/600/8-88/066F, ECAO-R-0204
NTIS

Overview of U.S. EPA's Proposed Guidelines on Exposure-Related Measurements.
Callahan-M; Segna-J; Wood-W
Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Govt Reports Announcements & Index (GRA&I), Issue 22, 1990

The Guidelines for Estimating Exposure provided the general principles and a logical process to follow in evaluating exposure for risk assessment purposes. These proposed guidelines significantly expanded the concept of exposure assessment related to the 1986 guidelines. As part of the proposed guidelines, three general approaches to exposure assessment are discussed, namely predictive, reconstructive, and direct exposure assessments. Within these three approaches, the guidelines discuss the purpose of making exposure - related measurements, as well as using measurements in exposure assessments. In addition, the guidelines also propose a glossary of terms which describes or defines commonly used terms in exposure assessments. Final rept.
NTIS/PB90-263138, 10p. OHEA-E-316, EPA/600/D-90/149
NTIS

Risk analysis: a guide to principles and methods for analyzing health and environmental risks.
Cohrssen, John J. and Vincent T. Covello.
United States. Council on Environmental Quality.
1989, xi+407p, bibl tables diag charts indexes
GPO Catalog No. PrEx 14.8:R 49;
ORDER INFO: NTIS PB 89-137772 (ISBN 0-934213-20-8) pa $17.50 plus $3 postage and handling
LANGUAGE: Engl
Monograph
Partial contents: Hazard identification; Risk assessment; Risk communication.
PAIS

Risk Assessment Guidance for Superfund. Volume 1. Human Health Evaluation Manual. Part A.
Means-B
Environmental Protection Agency, Washington, DC. Office of Solid Waste and Emergency Response.
Govt Reports Announcements & Index (GRA&I), Issue 09, 1990
NTIS/PB90-155581, 290p. NTIS Prices: PC A13/MF A02

The document is part of a two-manual set entitled 'Risk Assessment Guidance for Superfund.' One manual, the 'Environmental Evaluation Manual,' provides guidance for ecological assessment at Superfund sites; the other, the 'Human Health Evaluation Manual,' provides guidance for health risk assessment of these sites. The 'Risk Assessment Guidance for Superfund' manuals were developed to be used during the Removal and Remedial Investigation/Feasibility Study (RI/FS) processes at Superfund sites. The analytical framework and specific methods described in the manuals, however, may also be applicable to evaluations of hazardous wastes and hazardous materials for other purposes. The two manuals in the set have somewhat different target audiences. The 'Environmental Evaluation Manual' primarily addresses Remedial Project Managers (RPMs and On-Scene Coordinators (OSCs)), who are responsible for ensuring a thorough evaluation of potential environmental effects at sites. The 'Human Health Evaluation Manual' provides for the risk assessor - Updated procedures and policies, specific equations and variable values for estimating exposure, and a hierarchy of toxicity data sources. Interim rept. (Final). See also Volume 2, PB90-155599.
Toxicology,-Public-health,-Regulations,-Quantitative-analysis,-Manuals,-Exposure,-Pollution,-Irradiation,-Guidelines; Risk-assessment; Superfund-program,-Radiation-induced-neoplasms,-Environmental-e
EPA/540/1-89/002
NTIS

Supplemental Risk Assessment Guidance for the Superfund Program. Part 1. Guidance for Public Health Risk Assessments. Part 2. Guidance for Ecological Risk Assessments.
Anon
Environmental Protection Agency, Boston, MA. Region I.
Govt Reports Announcements & Index (GRA&I), Issue 23, 1989

The guidance manual was developed to address the practical aspects and issues pertaining to the Superfund risk assessment process for both public health and environment concerns. Part 1, Guidance for Public Health Risk Assessments, supplements the Superfund Public Health Evaluation Manual and Superfund Exposure Assessment Manual and the Endangerment Assessment Handbook. Explicit guidance on technical matters which should be followed in developing public health risk assessments for EPA Region 1. The guidance addresses hazard identification, dose-response assessment, exposure assessment, risk characterization and uncertainty/limitations. Part 2 of the manual, Guidance for Ecological Risk Assessments, addresses the collection of site-specific data needed to support an ecological risk assessment, describes a framework for conducting the assessments, and provides several specific approaches for assessing risks to systems exposed to chemical contamination in different media. Draft rept. (Final). Portions of this document are not fully legible.
NTIS/PB89-220974, 114p. NTIS Prices: PC A06/MF A01
EPA/901/5-89/001
POLLUTION ABSTRACTS/NTIS

The U.S. Environmental Protection Agency's risk assessment guidelines.
Jarabek-AM; Farland-WH
U.S. Environmental Protection Agency Office of Health, Environmental Assessment Environmental Criteria and Assessment Office, Research Triangle Park, North Carolina.
Toxicol-Ind-Health; VOL 6, ISS 5, 1990, P199-216 (REF: 14)
Guideline; Journal-article; review; review,-tutorial

In 1983, the U.S. National Academy of Sciences (U.S. NAS) proposed a framework for the processes of risk assessment and risk management in government agencies (U.S. NAS, 1983). Using the U.S. NAS scheme as an organizing principle, the U.S. Environmental Protection Agency (U.S. EPA) published guidelines pertaining to risk assessment in five areas: estimating exposures, chemical mixtures, mutagenicity, suspect developmental toxicity and carcinogenicity. These guidelines were developed to promote high technical quality and consistent practice of risk assessment Agencywide. This paper will discuss the historical development of the guidelines and their role in the work performed by the Agency. Each of the five (5) guidelines is outlined and anticipated revisions discussed. Related assessment activities and new subject areas are also presented.
TOXBIB

Toxic Chemical Release Inventory Risk Screening Guide (Version 1.0). Volume 1. The Process. Volume 2. Appendices.
Klauder-D; Saunders-L
Environmental Protection Agency, Washington, DC. Office of Toxic Substances.
Eastern Research Group, Inc., Arlington, MA.
Govt Reports Announcements & Index (GRA&I), Issue 05, 1990

The guide describes some of the challenges raised by the Toxic Release Inventory (TRI) data and to suggest ways of approaching them. The guide suggests steps that can be taken to answer two key issues of concern: setting risk-based priorities for followup investigation of the TRI facilities and chemicals within geographic area of interest, and identifying data needs and approaches for collecting information necessary to respond to health and ecological questions from the public. The guide is directed at those individuals who are involved in interpreting and explaining environmental pollution, exposures, and health risks to the general public, especially at the local or sub-State level. Many users of the guide will already be well-versed in evaluating risk and/or in helping members of the public understand and deal with toxic chemicals, but Title 111 - particularly, the Section 313 release data - presents new challenges for everyone. Final rept. Sponsored by Environmental Protection Agency, Washington, DC. Office of Toxic Substances.
Guidelines-; Environmental-surveys; Industrial-wastes; Chemical-compounds; Hazardous-materials,-Sources,-State-government,-Local-government,-Potable-water,-Community-development,-Waste-disposal,-Information-systems,-Exposure,-Public-health,-Toxicology; Toxic-substances; Risk-assessment; Toxic-Chemical-Release-Inventory,-Superfund-Amendments-and-Reau
NTIS/PB90-122128, 355p. NTIS Prices: PC A16/MF A02
Contract EPA-68-C8-0033
PB90-122128
NTIS

United States Environmental Protection Agency Office of Solid Waste and Emergency Response Environmental Response Teams's generic site health and safety plan
Campagna Philip R. (US EPA, Edison NJ), Santoro Vickie L, et al.
Env Canada 7th Technical Seminar on Chemical Spills, Edmonton, AB, June 4-5, 1990, p97(5). Conference paper

OSHA promulgated the Hazardous Waste Worker Protection standards in 1990, regulating the safety and health of employees involved in cleanup operations at uncontrolled hazardous waste sites and in any emergency response to incidents involving hazardous substances. The standards require that a site safety and health plan be developed prior to the commencement of site activities. The personal computer program developed by the EPA's Environmental Response Team to generate a generic site health and safety plan that complies with the standards is described. The generic health and safety plan is currently being introduced to all EPA regions and will soon be available to the public.
ENVIROLINE

WHO drinking water quality guidelines for selected herbicides.
Kello-D
Toxicology and Food Safety, Environment and Health Service, World Health Organization, Copenhagen, Denmark.
Food-Addit-Contam; VOL 6 Suppl 1, 1989, PS79-85
Language: ENGLISH
Abstract: Following the successful introduction of its Guidelines for Drinking-Water Quality in 1984, the WHO Regional Office for Europe was approached by the Government of Italy to develop, as a matter of urgency, recommendations for guidelines levels of certain herbicides found in drinking water supplies. Realizing the extent of the problem, the Regional Office for Europe organized two consultations to develop drinking water quality guidelines for the following 11 herbicides most commonly used in Italy: alachlor, metolachlor, pyridate, atrazine, molinate, simazine, bentazon, pendimethalin, trifluralin, MCPA and propanil. The presence of these and other herbicides in ground and surface water has been reported in several countries. Although the main purpose of these guidelines is to provide guidance to the Government of Italy in making risk management decisions, the information given was also intended to assist the other countries of the European Region in setting standards or in developing alternative control procedures where the implementation of standards is not feasible. The purpose of this paper is to review the process of health risk assessment used in the development of the WHO drinking water quality guidelines for selected herbicides. It will also reveal the major dilemmas and concerns expressed by the participating experts during the process of scientific deliberations, in the interests of understanding the complex issues involved in reaching the bare figures of the recommended guidelines.
TOXBIB

A probabilistic approach for the groundwater vulnerability to contamination by pesticides: the VULPEST model
Villenueve, Jean-Pierre; Banton, Olivier; LaFrance, Pierre
Univ du Quebec, Ste-Foy, Canada
Ecological Modelling, MAY 90, V51, N1-2, P47(12)

A probabilistic statement of the structure-activity relationship for environmental risk analysis
Shirazi, Mostafa (EPA, Corvallis, OR) and Lowrie, LeVaughn (NSI Technology Services, Corvallis, OR)
Archives Env Contam & Tox, Jul-Aug 1990, V19, N4, P597(6)
Research article

A general mathematical model of the response surface is used to define a mode of an organism's biological response to a chemical. The model describes the combined effects od dose-level exposure and time-duration response using 570 96-hour toxicity tests with fathead minnows. The response surface along the dose and the axes for each chemical in these tests was defined by two scale and two form factors, one each for dose and for time. Only the scale factor for the dose is correlated with the logarithm of the octanol water partition coefficient and molecular weight. Narcosis-producing chemicals can be distinguished from other classes of chemicals by the dominance of the response strategy with respect to the dose over time exposures. (2 GRAPHS, 7 REFERENCES, 3 TABLES)
ENVIROLINE

An ecological risk assessment framework for examining the impacts of oceanic disposal
Munns, W.R.Jr.; Walker, H.A.; Paul, J.F.
Science Applications International Corp., S. Ferry Rd., Narragansett, RI 02882, USA
Oceans '89 Seattle, WA (USA) 18-21 Sep 1989
OCEANS '89: The Global Ocean. Volume 2: Ocean Pollution pp. 664-669, 1989
MTS/IEEE, New York, NY (USA)

A risk assessment framework which utilizes population modeling techniques and the concept of quasiextinction to investigate disposal impacts has been developed to provide ecologically relevant information to the environmental manager. An example application has been constructed which draws upon previous modeling exercises to describe the whole-waste exposure field resulting from disposal of sewage sludge at the 106-Mile Deepwater Municipal Sludge Dump Site located off the Northeast U.S. coast. The resulting impacts on the geometric rate of population increase, as determined through use of an age-classified population projection matrix model, were translated into estimates of the probability of quasiextinction for various levels of environmental stochasticity. In addition to illustrating the application of population modeling techniques in risk

assessments of offshore disposal, this exercise underscores the need for further study of offshore species' sensitivities and life history characteristics, and environmental exposure conditions, so that such assessments can be carried out in a more realistic fashion.
POLLUTION ABSTRACTS

Biological safety factors in toxicological risk assessment.
McColl-RS
Environmental Health Directorate, Ottawa (Ontario). Health and Welfare Canada, Ottawa (Ontario).
Govt Reports Announcements & Index (GRA&I), Issue 06, 1991

Traditional approaches to toxicity testing for environmental hazards have focused primarily on the determination of 'safe' levels of exposure to toxic agents, equated with the absence of toxic effects to the exposed human population. This report gives the background to the development of this approach, describes the concept of an acceptable daily intake and the safety factors involved, presents alternative approaches to safety factor methods, and describes safety factor approaches to carcinogens and teratogens. Text in English and French (Bilingual). French ed. on the same fiche.
Environmental-health; Toxicity-testing; Foreign-technology; Risk-assessment
NTIS/MIC-90-06409, 91p. NTIS Prices: PC E07/MF E01
SSC-H49-49/1990E, ISBN-0-662-17638-3
NTIS

Bronchial Deposition of Inhaled Particles: Dosimetry Implications for Radon Progeny.
Hofmann-W; Martonen-TB
Health Effects Research Lab., Research Triangle Park, NC. Toxicology Branch. Duke Univ. Medical Center, Durham, NC. Center for Extrapolation Modelling.
Govt Reports Announcements & Index (GRA&I), Issue 18, 1990

Radon progeny attached to environmental aerosols have characteristic activity median diameters between 0.1 and 0.3 micrometer. A comparison of experimental and theoretical particle deposition patterns in human lungs has revealed certain systematic inconsistencies among measured and predicted distributions within this range of particle sizes. It is the objective of the focused note to address the potential significance of the apparent discrepancies and comment how current lung dosimetry and risk estimates for inhaled radon progeny would be affected. Journal article. Pub. in Radiation Protection Dosimetry, v16 p261-265 Dec 88. Prepared in cooperation with Duke Univ. Medical Center, Durham, NC. Center for Extrapolation Modelling.
Aerosols-; Radon-; Dosimetry, Deposition, Particle-size, Radioactive-materials,-Experimental-design,-Mathematical-models,-Bronchi,-Lung,-Respiratory-system,-Reprints; Air-pollution-effects-Humans; Risk-assessment
NTIS/PB90-232257, 8p. NTIS Prices: PC A02/MF A01
EPA/600/J-88/521
NTIS

Can Problems Shape Priorities? The Case of Risk-Based Environmental Planning
Fiorino, Daniel J.
Public Administration Review v50n1 PP: 82-90 Jan/Feb 1990
DOC TYPE: Journal article LANGUAGE: English LENGTH: 9 Pages

Evaluation of the relative health and ecological risks of environmental problems can provide a conceptual basis for planning and priority setting. Risk-based planning can shape environmental priorities in 4 ways: 1. by informing an agency's exercise of discretion at the margins of choice, 2. by focusing program strategies, 3. by defining a basis for improved public participation, and 4. by informing the process for setting the broader environmental policy agenda. One example is the US Environmental Protection Agency's comparative risk projects, presented as a risk-based planning process. This started as a national process that defined an approach, assembled data, identified methodological and data gaps and needs, and achieved a consensus on health, ecological, and welfare effects.
ABI/INFORM

Concepts for environmental hazard assessment
Poremski, H.-J.
SETAC '90 - Global Environmental Issues: Challenge for the 90s 9045011
Arlington, VA (USA) 11-15 Nov 1990
Society for Environmental Toxicology and Chemistry
SETAC, 1101 14th Street, NW, Suite 1100, Washington, DC 20005, USA.
Telephone: (202) 371-1275., Paper No. 452
CONFERENCE PAPERS INDEX

Continuous Release-Emergency Response Notification System and Priority Assessment Model: User's Manual for EPA Regions.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response.
Report, October 1990, 88p.
PB91-168450
EPA/540/G-91/001; OSWER DIRECTIVE-9360.7-05;
See also PB90-249715 and PB91-168468.

The user's manual provides EPA Regional personnel with information and detailed instructions on how to use the Continuous Release-Emergency Response Notification System (CR-ERNS) and Priority Assessment Model (PAM), an integrated database management system and screening-level risk assessment model.
NTIS

Data base selection in toxicological risk assessment and management
Kamrin-MA
Center for Environmental Toxicology, Michigan State University, East Lansing MI 48824-1206.
Regul-Toxicol-Pharmacol; VOL 11, ISS 3, 1990, P308-13
Journal Article

In recent years, there has been increasing awareness of the differences in maximum allowable levels developed by the various federal regulatory agencies. It has generally been presumed that the variation in levels arises from differences in risk management decisions, i.e., how the data are used. This study was undertaken to test the hypothesis that differences in choice of data to utilize also have a significant impact on interagency variation. To test this hypothesis, a comparison was made between the data bases used by the EPA Office of Drinking Water and the Occupational Safety and Health Administration in setting maximum levels for pesticides in drinking water and workplace air, respectively. The results show that the same data are only infrequently used as bases for both types of regulatory levels. The study also indicates that the differences in data selection cannot be ascribed to factors related to the applicability of different data for the two types of exposures--drinking water and workplace air. There are essentially no differences in the data with respect to route of exposure, species (laboratory animals vs humans), or length of exposure. No obvious scientific basis for the differences was found. Other possible selection factors are discussed.
TOXBIB

Description of Risk Reduction Engineering Laboratory: Test and Evaluation Facilities.
Anon
U.S. EPA, Cincinnati OH. Risk Reduction Engineering Lab.
Govt Reports Announcements & Index (GRA&I), Issue 11, 1990

The brochure is an overview of the test and evaluation facilities of the Cincinnati based Risk Reduction Engineering Laboratory (RREL), Office of Research and Development, U.S. EPA. While these facilities and capabilities vary greatly as to function and scope they have in common their abilities to serve the scientific and engineering needs of RREL client offices, both within EPA, and for other Federal, State and local organizations, and industry. Detailed information regarding permitted wastes and unit processes, for each facility location, is included. The facilities described are: Cincinnati (Ohio area) -- (test and evaluation facility, center hill facility, full containment facility, drinking water pilot plant (fixed and mobile), mobile wastewater treatment units, and mobile dehalogenation treatment units); Jefferson (Arkansas) -- (combustion research facility); Edison (New Jersey) -- Synthetic Soils Matrix (SSM) blending facility, underground storage tank test apparatus, environmental technology and engineering (E-TEC) facility. RREL facilities are available to industry, academia, and other governmental agencies to pursue cooperative treatability studies or process control, and equipment research and development activities under the Stevenson-Wydler Technology Innovation Act as amended by the Federal Technology Transfer Act of 1986.
NTIS/PB90-182486, 20p. EPA/600/M-89/002
NTIS

Development of Risk Assessment Methodology for Surface Disposal of Municipal Sludge.
Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office. ;Abt Associates, Inc., Cambridge, MA. ;Cincinnati Univ., OH. Dept. of Civil Engineering. ;GeoTrans, Inc., Herndon, VA. ;Dynamac Corp., Rockville, MD. Aug 1990. 255p.
PB90-261561 EPA/600/6-90/001
See also PB90-135740.

This is one of a series of reports that present methodologies for assessing the potential risks to humans or other organisms from the disposal or reuse of municipal sludge. The sludge management practices addressed by the series include land application practices, distribution and marketing programs, landfilling, surface disposal, incineration and ocean disposal. In particular, these reports provide methods for evaluating potential health and environmental risks from toxic chemicals that may be present in sludge.
NTIS

Environmental and human health risk assessment methodology for evaluation of environmental contamination
Sullivan, M.J.
Envirologic Data Inc.
1990 Society of Petroleum Engineers Annual Technical Conference & Exhibition 9030030 New Orleans, LA (USA) 23-26 Sep 1990
Society of Petroleum Engineers
SPE, P.O. Box 883836, Richardson, TX 75083-3836, USA. Telephone: (214) 669-3377. Fax: (214) 669-0135. Telex: 730989 SPEDAL., Paper No. 20617
Languages: ENGLISH
CONFERENCE PAPERS INDEX

Evaluating comparative potencies: developing approaches to risk assessment of chemical mixtures.
Schoeny-RS; Margosches-E
Environmental Criteria and Assessment Office, U.S. Environmental Protection Agency, Cincinnati, Ohio.
Toxicol-Ind-Health; VOL 5, ISS 5, 1989, P825-37 (REF: 16)
Review-Tutorial

The U.S. EPA must provide guidance as to health risk assessment of mixtures from a variety of sources such as wastewaters, hazardous waste sites and air particulates. One approach to risk assessment of mixtures is to add up risk assessments for individual components identified as part of the mixture, after considering the potential for interaction among those components. This provides an index of hazard potential but not a quantitative estimate. When data on mixture components are incomplete, but these components are isomers or congeners of a well-studied chemical, another technique--use of toxic equivalency factors--can be applied. This approach has been proposed for estimating risk associated with chlorinated dioxins and dibenzofurans. A third approach, that of relative or comparative potency, is based on the assumption that for similar but not necessarily definable complex mixtures, a measure of

relative potency based on data from in vitro tests can be correlated in a constant fashion with relative potency from an in vivo bioassay. The degree of confidence in the appropriateness of a relative potency method rests upon the way potency is measured and the validity of underlying assumptions (the degree to which these assumptions can be tested). One class of assumptions involves choice of the model or procedure for deriving the quantitative risk estimates. A second set of assumptions deals with mechanism of action, and whether such considerations add bias or, in fact, refine the relative potency judgment. This paper presents examples of proposed uses of relative potency in risk assessment and outlines some areas for further study.
TOXBIB

Experimental procedures for environmental hazard assessment based on the effect data incorporate tests for acute toxicity.
Presented at: World Conference on Hazardous Waste, Budapest (Hungary), 25-31 Oct 1987
Szigeti, M.
Inst. Environ. Prot., 1113 Budapest, Aga u. 4, Hungary
Published by: ELSEVIER PUBLISHING COMPANY, NEW YORK, NY (USA), 1988, pp. 795-803 1988 In Hazardous waste: detection, control, treatment. Part A., Abbou, R. (ed.)
Book-chapter article

An attempt will be made to summarize briefly the experimental procedures used at the Hungarian Institute for Environmental Protection for an initial hazard assessment. Methodological aspects of biological testing procedures are briefly reviewed.
LIFE SCIENCES

Expert System Based Risk Assessment for Ground Water Protection.
Parsons-JR
Environmental Protection Agency, Washington, DC. Office of Cooperative Environmental Management.
Nebraska Univ.-Lincoln.
Govt Reports Announcements & Index (GRA&I), Issue 24, 1989

Ground water is affected by virtually every action of society, from agriculture to residential activities. Even though contamination prevention is a complex task, it is less difficult and expensive, and generally requires less time, than cleanup of contaminated aquifers. Thus, prevention is the key to maintaining the integrity of the nation's ground water. A comprehensive prevention program involves several tasks (aquifer vulnerability assessment, hazard identification, risk assessment, risk management, and management option selection) each of which is usually assigned to an expert. Rural communities--where much of the ground water contamination occurs--are typically unable to access or afford experts. The study formulates an expert system based risk assessment, suitable for small communities to use to evaluate and manage their ground water contamination problems. An expert system is useful in solving complex problems usually reserved for experts. Because of the extensive time involved in the development of a viable expert

system, the scope of the study is limited to the design of a prototype system. The proposed methodology is designed to be comprehensive in nature, incorporating all of the recommended tasks, but simplistic enough for a 'layman' to use. Thesis. Sponsored by Environmental Protection Agency, Washington, DC. Office of Cooperative Environmental Management.
Ground-water; Water-pollution-control;
Water-pollution-abatement,-Theses,-Local-government,-Aquifers,-Rural-areas,-Potable-water,-Prototypes; Risk-assessment; Environment-management;
Expert-systems,-Environmental-protection,-Comprehensive-plannin
NTIS/PB89-225668, 116p. NTIS Prices: PC A06/MF A01
9004
PB89-225668
NTIS

Feasibility of Using GEMS (Graphical Exposure Modeling System) to Perform Risk Assessments Using SARA (Superfund Amendment and Reauthorization Act of 1986), Toxic Release Inventory Information.
Nuckels-JH
Environmental Protection Agency, Washington, DC. Office of Cooperative Environmental Management.
Virginia Univ., Charlottesville. Div. of Urban and Environmental Planning.
Govt Reports Announcements & Index (GRA&I), Issue 21, 1989

Under Title III, Section 313 of the Superfund Amendment and Reauthorization Act of 1986 (SARA) companies which release toxic chemicals into the environment are required to report annually the amount of these toxic releases. Because the chemical toxic release reports are public information, EPA Region V is concerned that the raw data published in the toxic chemical release reports will be misinterpreted and will in turn generate unfounded public concern. The study examines the possibility of using the Graphical Exposure Modeling System (GEMS), a computer program, to transform incoming raw data into better qualified, user ready, public information. Specifically, the report analyzes the compatibility between the raw data reported in the toxic chemical release reports and the input requirements of the GEMS exposure model. An industrial site in East St. Louis, Illinois is used as a test site for the development of the exposure assessment. The study discusses the research and the methods used to perform the exposure assessment. The report also reviews the legislation which requires companies to report toxic release data, the basics of exposure assessment and the GEMS model, the research methods used, and the findings of the study. Technical rept.
Chemical-compounds; Hazardous-materials; Public-health, Exposure,
Public-relations,-Reporting,-Questionnaires,-Computerized-simulation,-Concentration-Composition,-Site-surveys; Graphical-Exposure-Modeling-System;
GEMS-computer-program; Risk-assessment; Toxic-substances; Superfund-program,
Environmental-transport, Region-5, Computer
NTIS/PB89-211767, 111p. NTIS Prices: PC A06/MF A01
NTIS

From comparative physiology to toxicological risk assessment
Koeman, J.H.
Dep. Toxicol., Agric. Univ., Wageningen, Netherlands 12. Annual Conference on Physiological and Biochemical Approaches to the Toxicological Assessment of Environmental Pollution, Utrecht (Netherlands) 27-31 Aug 1990
Physiological and biochemical approaches to the toxicological assessment of environmental pollution , 1990, vp
Royal Netherlands Chemical Society, Utrecht (Netherlands)

One of the major objectives of toxicology is to assess the risks or to evaluate the safety of the many chemical compounds to which man and environment may get exposed. Increasingly the aim is to prevent damage, which implies that attempts are made to assess the toxicological properties before the chemicals are released for practical use.
161837 91-02848 POLLUTION ABSTRACTS

In vitro Studies of Chemical Effects on Gap-Junctional Communication: Role of Biotransformation in Toxicant Detection and Use of Assays in Risk Assessment.
Malcolm-AR; Mills-LJ; Robson-DL
Environmental Research Lab., Narragansett, RI. Science Applications International Corp., Narragansett, RI.
Journal article
In vitro Toxicology, v3 61-67 1990.
A correlation is emerging between the capacity of chemical substances to inhibit gap-junctional intercellular communication in vitro and their capacity to induce reproductive and developmental dysfunction, neurotoxicity and tumor promotion in vivo. A practical issue in identifying chemicals affecting gap-junctional communication in vitro is the role of metabolic products. Phenol, a weak promoter of mouse skin tumors, failed to inhibit gap-junctional communication between Chinese hamster V79 lung fibroblasts; however, five metabolites of phenol suppressed gap-junctional communication in a concentration-related manner. Sodium cyclamate, a possible promoter of bladder cancer in rats, weakly inhibited gap-junctional communication in the same assay; however, three metabolites were stronger inhibitors than sodium cyclamate. Thus, some metabolic products may show activity when parent compounds do not or may show greater activity than parent compounds.
Call Number NTIS/PB90-217670, 9p.
ERLN-981, EPA/600/J-90/024
NTIS

Interaction assessment: Rationale and a test using desert plants.
Emlen, J.M.; Freeman, D.C.; Wagstaff, F.
Natl. Fish. Res. Cent., US Fish and Wildl. Serv., Seattle, WA, USA
EVOL. ECOL.; 3(2), pp. 115-149 1989
Language: English Summary Language: English
Document Type: Journal article-original research
A non-manipulative method for deriving empirical expressions of population growth parameters from simple field data is presented. The derived expressions can be used to asses the intensity and form of density dependence and interspecies interactions, and have potential for

parameterizing more mechanistic models of population dynamics and for use in applied ecology, e.g. land management or environmental risk assessment. The method is based on an assertion of invariant expected fitness across occupied microhabitats. Hence, its success depends upon the degree to which that assertion holds. The assertion, as used here, is broadly applicable. Thus, the method can be expected to yield reliable results even in non-equilibrium communities. Here, we apply the method to data on six desert plant species. Expressions generated from data in one stand, in one year, successfully predict plant cover values in other stands and years. The predicted patterns of plant species interactions are discussed in the light of current knowledge and theories of desert succession.
LIFE SCIENCES

Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions.
Anon
Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office.
Govt Reports Announcements & Index (GRA&I), Issue 12, 1990
The methodology document seeks to provide risk assessors with the guidance necessary to estimate the health risks that result from exposure to toxic pollutants in combustor emissions by pathways other than inhalation. The organization of the document reflects the four-step process of risk assessment (hazard identification, dose-response assessment, exposure assessment and risk characterization). The methodology is not intended to be prescriptive; that is, it does not comprise a set of guidelines or recommended approaches that the U.S. EPA believes should be applied in all circumstances. Rather, it provides a set of procedures that the risk assessor can draw upon, where applicable, to a given assessment. The document describes analytical procedures and computer models that can be used to estimate exposure and risk by a variety of environmental pathways. In addition, it serves as a preliminary source of data for carrying out the risk calculations. Interim rept. (Final).
Emissions-; Incinerators-; Toxicity, -Exposure, -Tables-Data, -Computation,-Models,-Skin-effect,-Concentration; Risk-assessment; Environmental-exposure-pathways; Air-pollution-effects-Humans, -Dose-response-relationships
NTIS/PB90-187055, 439p. NTIS Prices: PC A19/MF A03
EPA/600/6-90/003
NTIS

Methods Used in the United States for the Assessment and Management of Health Risk Due to Chemicals.
Falco-JW; Moraski-RV
Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Govt Reports Announcements & Index (GRA&I), Issue 22, 1989

A key factor in the development of a strategy for the control of environmental pollution or the protection of human health is the assessment of the risk

associated with the accidental or intentional release of the chemical. A risk assessment may be used to estimate the degree of risk reduction that could result from the consideration of control scenarios that may be implemented in the regulatory process. As legislation and regulations have been enacted over the years to control chemical releases and to institute risk strategies, a diversity of approaches and technical quality in risk assessments resulted and complicated the management of environmental risks. The paper reviews the recent major U.S. reports on the issues of risk assessment and risk management and the response of federal agencies to the recommendations made in those reports. A more detailed description in this area is provided including as an example the recent risk assessment for dichloromethane (methylene chloride). Pub. in Risk Management of Chemicals in the Environment, Vol. 12 of NATO: Challenges of Modern Society, Jan 89.
Environmental-pollution; Public-health;
Hazardous-materials,-United-States,-Legislation,-Exposure,-Reprints;
Risk-assessment;
Chemical-spills,-Environment-management,-Pollution-regulations
NTIS/PB89-222707, 27p. NTIS Prices: PC A03/MF A01
EPA/600/D-89/070, OHEA-E-284
NTIS

Model for environmental risk assessment of new chemicals
Volmer, J.; Kordel, W.; Klein, W.
Fraunhofer-Inst. Umweltchem. und Okotoxikol., Schmallenberg, FRG
14th Symposium on Aquatic Toxicology and Risk Assessment 9020208 San Francisco, CA (USA) 22-24 Apr 1990
American Society for Testing and Materials
ASTM, 1916 Race Street, Philadelphia, PA 19103, USA
Languages: ENGLISH
CONFERENCE PAPERS INDEX

Modelling environmental change in support of assessments of radioactive waste disposal in the U.K.
Wilmot RD, Chadwick AF, Ringrose PS, Kleissen IFAT, Burgess WG, Frizelle CJG.
Dames & Moore Intl, Twickenham UK
Radioactive Waste Management 2 (British Nuclear Eenergy Society Intl Conference, Brighton, UK), May 2-5, 1989, V1, P145(8)

Multiple Pathway Exposure Factors (PEFs) Associated with Multimedia Pollutants.
McKone-TE
Department of Energy, Washington, DC. Lawrence Livermore National Lab., CA.
Govt Reports Announcements & Index (GRA&I), Issue 14, 1989

This paper describes methods for addressing several potential exposure pathways and provides a link between human exposure and chemical concentrations in multiple environmental media. This approach links environmental concentrations to human exposure through pathway-exposure factors (PEFs). The PEF incorporates information on human physiology, human behavior patterns, and environmental transport into a term that translates a unit concentration (in mg/cu m, mg/kg, or mg/L) in a specified environmental media (air, soil, or water) into daily exposure in mg/kg-d for a specified route (inhalation, ingestion, or dermal absorption). This process of exploring the data associated with human/environment interactions and proposing exposure models provides insight for risk-management activities. 11 refs., 1 fig., 3 tabs. (ERA citation 14:018454) Workshop on intermedia pollutant transport: modeling and field measurements, Santa Monica, CA, USA, 23 Aug 1988.
NTIS/DE89007222, Portions of this document are illegible in microfiche products., 19p.
UCRL-99786, Contract W-7405-ENG-48
NTIS

Non-Cancer Dose-Response Assessments Within the EPA (Environmental Protection Agency): A Foundation for Selecting a Dose-Response Assessment Method to Assess Section 112 Pollutants Based on Non-Cancer Effects.
Nagiecki-J
Environmental Protection Agency, Washington, DC. Office of Cooperative Environmental Management.
Colorado Univ. at Boulder.
Govt Reports Announcements & Index (GRA&I), Issue 19, 1989

Regulations concerning hazardous pollutants within the EPA's Office of Air and Radiation have historically focused on chronic continuous exposure, with cancer as the chief health endpoint of concern. Exposures to these hazardous substances are averaged over an annual period, allowing for exposure levels to fluctuate over short periods of time (e.g. episodic releases of a plume through a pressure relief valve would contribute to such fluctuations). There is concern that significant non-cancer risks may result from these episodic exposures. The report provides a foundation for a decision of how risks from non-cancer effects should be assessed in developing regulations under the NESHAP program. This foundation is built by focusing on trends in current non-cancer risk assessment practices across program offices within the Agency, and, to the extent such information is available, the conditions which have driven these trends. The report focuses on the dose response evaluation, a step in the risk assessment process. Technical rept.
NTIS/PB89-203657, 60p. Grant EPA-U-912743-01-0
NTIS

Oil spills at sea
Hall, Stephen K
Chicago State Univ IL
Pollution Engineering, Dec 89, V21, N13, P59(4)
Journal Article

Oil spills at sea have extreme aesthetic, ecological, and economic impacts. The technology to contain spills and rehabilitate affected areas must address several problems. The characteristics of an oil spill and its chemical dynamics must be determined. Four response options are available: natural removal, shoreline cleanup, mechanical containment and collection, and the use of chemical dispersants. Each option must be weighed against the potential environmental consequences. The EPA Oil Spill Response Decision Tree, the decision-making process in determining the appropriate response to a spill, is described. (1 DIAGRAM, 16 REFERENCES)
ENVIROLINE

OSHA's approach to risk assessment for setting a revised occupational exposure standard for 1,3-butadiene.
Grossman-EA; Martonik-J
Occupational Safety and Health Administration, Washington, DC 20210.
Environ-Health-Perspect; VOL 86, 1990, P155-8
Journal Article

In its 1980 benzene decision [Industrial Union Department, AFL-CIO v. American Petroleum Institute, 448 U.S. 607 (1980)], the Supreme Court ruled that "before he can promulgate any permanent health or safety standard, the Secretary [of Labor] is required to make a threshold finding that a place of employment is unsafe--in the sense that significant risks are present and can be lessened by a change in practices" (448 U.S. at 642). The Occupational Safety and Health Administration (OSHA) has interpreted this to mean that whenever possible, it must quantify the risk associated with occupational exposure to a toxic substance at the current permissible exposure limit (PEL). If OSHA determines that there is significant risk to workers' health at its current standard, then it must quantify the risk associated with a variety of alternative standards to determine at what level, if any, occupational exposure to a substance no longer poses a significant risk. For rulemaking on occupational exposure to 1,3-butadiene, there are two studies that are suitable for quantitative risk assessment. One is a mouse inhalation bioassay conducted by the National Toxicology Program (NTP), and the other is a rat inhalation bioassay conducted by Hazelton Laboratories Europe. Of the four risk assessments that have been submitted to OSHA, all four have used the mouse and/or rat data with a variety of models to quantify the risk associated with occupational exposure to 1,3-butadiene. In addition, OSHA has performed its own risk assessment using the female mouse and female rat data and the one-hit and multistage models.
TOXBIB

Overview and Update of the Superfund Innovative Technology Evaluation (SITE) Demonstration Program.
Martin, J. F.
U.S. EPA, Cincinnati, OH. Risk Reduction Engineering Lab. 1991.
Journal article reprint, 6p. Overview and Update of the Superfund Innovative Technology Evaluation (SITE) Demonstration Program. Pub. in Jnl. of Air and Waste Management Association, v41 n3 p344-347 Mar 91.
PB91-196469 EPA/600/J-91/066;

The Superfund Innovative Technology Evaluation (SITE) Program, conducted by the U.S. Environmental Protection Agency's Risk Reduction Engineering Laboratory, is intended to accelerate the use of new and innovative treatment processes as well as evaluate innovative measurement and monitoring techniques. Within the SITE Program, the Demonstration Program and the Emerging Technologies Program are responsible for innovative/alternative waste treatment technology development. Separate and parallel activities are progressing for development and evaluation of measuring and monitoring technologies as well as technology transfer operations. (Copyright (c) 1991, Air and Waste Management Association.)
NTIS

Polychlorinated biphenyls (PCBs), dibenzo-p-dioxins (PCDDs), dibenzofurans (PCDFs), and related compounds: environmental and mechanistic considerations which support the development of toxic equivalency factors (TEFs).
Safe-S
Department of Veterinary Physiology and Pharmacology, College of Veterinary Medicine, Texas A&M University, College Station 77843-4466.
Crit-Rev-Toxicol; VOL 21, ISS 1, 1990, P51-88 (REF: 387)
Journal Article

Halogenated aromatic compounds, typified by the polychlorinated dibenzo-p-dioxins (PCDDs), dibenzofurans (PCDFs), biphenyls (PCBs), and diphenylethers (PCDEs), are industrial compounds or byproducts which have been widely identified in the environment and in chemical-waste dumpsites. Halogenated aromatics are invariably present in diverse analytes as highly complex mixtures of isomers and congeners and this complicates the hazard and risk assessment of these compounds. Several studies have confirmed the common receptor-mediated mechanism of action of toxic halogenated aromatics and this has resulted in the development of structure-activity relationships for this class of chemicals. The most toxic halogenated aromatic is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and based on in vivo and in vitro studies the relative toxicities of individual halogenated aromatics have been determined relative to TCDD (i.e., toxic equivalents). The derived toxic equivalents can be used for hazard and risk assessment of halogenated aromatic mixtures; moreover, for more complex mixtures containing congeners for which no standards are available (e.g., bromo/chloro mixtures), several in vitro or in vivo assays can be utilized for hazard or risk assessment.
TOXBIB

Risk assessment and management models in development.
Hart-RW; Turturro-A
National Center for Toxicological Research, Food and Drug Administration, Jefferson, Arkansas 72079.
Biomed-Environ-Sci; VOL 1, ISS 1, 1988, P71-8 (REF: 5)

Traditionally toxicology was the science of poisons and antidotes. Because of societal and historical reasons, there developed a need to determine public hazard. This need has resulted in regulatory toxicology, the science of how to evaluate public health and environmental safety by evaluating the possibility of hazard or injury from the use of a substance to humans under practical conditions of use and exposure. The intense investigation, especially in this century, made to address these concerns has led to a significant broadening of the knowledge base in toxicology and to a new capacity to alter toxicity. How the risk of a toxic endpoint is assessed and the steps taken to assure safety are part of a process termed risk management. Managing risks can affect society, public health, employment, and international economics. It therefore includes, in addition to information on toxicity, many other factors such as values, politics, and economics. In order to provide a description of how risks are managed in a society such as the United States, some background about why certain risks are of concern is given, and how this concern is manifest and the methods of managing risk with an emphasis on regulatory toxicology are discussed.
United-States
*Environmental-Health; *Models,-Theoretical; *Risk-Management; *Toxicology-REVIEW; REVIEW,-TUTORIAL
TOXBIB

Risk analysis: a guide to principles and methods for analyzing health and environmental risks.
United States. Council on Environmental Quality.
Cohrssen, John J. and Vincent T. Covello.
1989, xi+407p, bibl tables diag charts indexes
SERIES: PB 89-137772; SD cat. no. PrEx 14.8:R 49;
ORDER INFO: Nat Tech Info Service (ISBN 0-934213-20-8) pa $17.50 plus $3 postage and handling
LANGUAGE: Engl
Monograph
Partial contents: Hazard identification; Risk assessment; Risk communication.

Risk modelling: which models to choose?
Csicsaky-MJ; Roller-M; Pott-F
Medical Institute of Environmental Hygiene, University of Dusseldorf, FRG.
Exp-Pathol; VOL 37, ISS 1-4, 1989, P198-204
Journal Article

Using as examples excess lung cancer mortality in coke oven workers and lung tumor induction in rats by inhalation of diesel engine emissions or cadmium chloride aerosol, the maximum likelihood estimate and the upper limit of risk were determined using a set of conventional risk models. The additional safety offered by going to the upper limit of the 95% confidence interval when deriving a unit risk value was found to be less than a factor of 5 in all but one case, and usually much less than 2. It is concluded that the selection of an adequate model is the most critical step in risk assessment, and that an additional safety factor may be required to allow for a better protection of the public in case models other than the most conservative ones come into use.
TOXBIB

Setting human-health-based groundwater protection standards when toxicological data are inadequate
Whyatt, R.M.
Nat. Resour. Def. Counc., 40 W. 20th St., New York, NY 10011, USA
Technical Workshop of the Conference on Agricultural Occupational and Environmental Health: Policy Strategies for the Future Iowa City, IA (USA) 17-30 Sep 1988
In: Agricultural occupational and environmental health: policy strategies for the future -- the scientific basis. Part III
Am. J. Ind. Med., Vol. 18, NO. 4, 1990 505-510

Toxicological data are not adequate to assess fully the health effects of many of the pesticides that currently contaminate or have the potential to contaminate groundwater. The National Academy of Sciences estimated in 1984 that data to conduct a complete health hazard assessment exist for only 10% of the pesticides currently on the market. Many pesticides have not been tested for their ability to cause cancer, genetic mutation, or birth defects. There are significant gaps in the toxicological data base for the majority of pesticides for which the Environmental Protection Agency proposed health advisories in 1987. To help assure that groundwater standards are adequately protective of human health when toxicological data are not adequate, additional uncertainty factors can be incorporated into such standards. Alternatively, standards can be set at the level of detection.
174987 91-05936
POLLUTION ABSTRACTS

Statistical Methods for Estimating Risk for Exposure above the Reference Dose.
Knauf-L; Hertzberg-RC
Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office.
Computer Sciences Corp., Cincinnati, OH.
Govt Reports Announcements & Index (GRA&I), Issue 22, 1990

A statistical method has been developed that provides a risk estimate for noncarcinogenic effects at a given dose. The method uses a categorical regression procedure to model severity of effect as it relates to experimental dose. Toxicity data are analyzed from multiple animal experiments that span different species, target organs, toxic effects, and exposure conditions. The data are screened for homogeneity with respect to experiment duration and route of exposure. The resulting dose-response curve provides an estimate of the risk of adverse effects that may be useful in estimating risk for exposures above the reference dose (RfD). Sponsored by Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office.
Toxicity-; Statistical-analysis, Regression-analysis, Mathematical-models, Exposure,-Dieldrin,-Nephritis; Risk-assessment; Environmental-pollution; Dose-response-relationships,-Computer-applications,-Hexachlorob
NTIS/PB90-261504, 104p. NTIS Prices: PC A06/MF A01
Contract EPA-68-01-7176
NTIS

Toxicity of complex waste mixtures: a comparison of observed and predicted lethality.
Simmons-JE; Berman-E
Health Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.
J-Toxicol-Environ-Health; VOL 27, ISS 3, 1989, P275-86
Journal Article

The ability to predict the biological effect of complex waste mixtures from chemical characterization data was examined by comparing observed mortality to that predicted by a mathematical additivity model with literature LD50 values for the chemicals identified in the mixtures. Male F344 rats were exposed by gavage to 1 of 10 samples of complex industrial waste. Seven of the 10 waste samples caused death within 24 h of administration at dosages ranging from 1 to 5 ml/kg body weight. Two of the 7 lethal waste samples produced 100% mortality at a dosage of 2.5 ml/kg; another 2 waste samples produced 100% mortality at 5 ml/kg. The partial chemical analysis, although providing more extensive information on chemical composition than might normally be available for most complex waste mixtures, was not sufficient to distinguish lethal from nonlethal waste samples or to indicate lethal potency.
TOXBIB

U-Shaped Dose-Response Curves: Their Occurrence and Implications for Risk Assessment.
Davis-JM; Svendsgaard-DJ
Environmental Protection Agency, Research Triangle Park, NC. Environmental Criteria and Assessment Office.
Govt Reports Announcements & Index (GRA&I), Issue 03, 1991
NTIS/PB91-115808, 15p.

A class of curvilinear dose-response relationships in toxicological and epidemiological studies may be roughly described by 'U-shaped' curves. Such curves reflect an apparent reversal or inversion in the effect of an otherwise toxic agent at a low or intermediate region of the dose continuum. Several examples of U-shaped dose response functions are presented to illustrate the variety of agents and end points that can follow this form. Such findings are not thought to represent a unitary phenomenon, but may be explained through numerous possible principles or mechanisms, some of which are illustrated and discussed in general terms. U-shaped dose-response curves raise important issues for toxicological and environmental health risk assessments, particularly in the identification of no-observed-effect levels and in the evaluation of multiple outcomes and trade-offs between potential risks and benefits of a given agent. Journal article. Pub. in Jnl. of Toxicology and Environmental Health, v30 p71-83 1990.
EPA/600/J-90/171
NTIS

Use of the Multimedia Environmental Pollutant Assessment System (MEPAS) for Large- and Small-Scale Applications.
Buck-JW; Aiken-RJ
Department of Energy, Washington, DC.
Battelle Pacific Northwest Labs., Richland, WA.
Govt Reports Announcements & Index (GRA&I), Issue 10, 1990

The Multimedia Environmental Pollutant Assessment System (MEPAS) is an objective, physics-based computer code system that provides a means of quantifying relative risks from contaminants released into the environment. A baseline survey of DOE's major operating facilities is being conducted to identify and rank environmental problems and areas of environmental risk. The MEPAS model was used on 208 groups of problems associated with 16 sites located in 12 different states. Within 1 year, 208 groups of problems and some 500 transport scenarios were assembled, data were input, and model runs were made and analyzed. Findings from the surveys conducted at the 16 DOE sites were used to identify preliminary environmental problems. Using the MEPAS methodology as a basis for the ranking, these environmental problems are being ranked according to relative potential public health and environmental impact. The resulting Hazard Potential Index (HPI) is used to develop a preliminary ranking for each of the environmental problems. As a part of the Environmental Survey, DOE has issued a preliminary summary report that includes a preliminary ranking of potential problems at 16 sites associated with DOE's defense production mission. A final summary report addressing all 35 of the major DOE sites will re-evaluate the preliminary ranking and will incorporates the results of the Survey's sampling and analysis. 6 refs. Annual hazardous

waste and hazardous materials management conference and exposition, San Francisco, CA, USA, 27-29 Sep 1989.
Contamination-; Computerized-Simulation,-Evaluation,-Health-Hazards,-M-Codes; Risk-Assessment; Site-Characterization,-Task-Scheduling; Multimedia-Environmental-Pollutant-Assessment-System; Environmental-surveys,-Industrial-wastes,-Small-systems,-Rankin
NTIS/DE90001898, Portions of this document are illegible in microfiche products., 10p. NTIS Prices: PC A02/MF A01
PNL-SA-16844, CONF-890964-1, Contract AC06-76RL01830
NTIS

Utility of environmental inventory questionnaires to classify exposures for health risk assessment
Quackenboss, J.J.; Johnson, K.D.
Univ. Arizona
Air & Waste Management Association 83rd Annual Meeting & Exhibition Pittsburgh, PA (USA) 24-29 Jun 1990
Air & Waste Management Association
Air & Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230, USA. Telephone: (412) 232-3444., Paper No. 90-159.4
Languages: ENGLISH
CONFERENCE PAPERS INDEX

Watershed Surveys to Support an Assessment of the Regional Effects of Acidic Deposition on Surface Water Chemistry.
Lee-J; Lammers-D; Johnson-M; Stevens-D; Turner-R
Department of Energy, Washington, DC.
Corvallis Environmental Research Lab., OR.
Oak Ridge National Lab., TN. Environmental Sciences Div. NSI Technology Services Corp., Corvallis, OR. Eastern Oregon State Coll., La Grande.
Govt Reports Announcements & Index (GRA&I), Issue 01, 1990

The results of these surveys and the conclusions of the Direct/Delayed Response Project (DDRP) will be presented in several future papers. The current paper gives an overview of the context, rationale, logistical considerations, and implementation of these surveys, with special emphasis on the field activities of watershed mapping and soil sampling. The discussion should be useful to those planning, implementing, and managing survey activities in support of regional assessments of other environmental concerns, who are likely to face similar choices and constraints. Journal article. Pub. in Jnl. of Environmental Management, v13 n1 p95-108 1989.
NTIS/PB90-108473, 16p. NTIS Prices: PC A03/MF A01
Contract DE-AC05-84OR214000
NTIS

Analysis of Air Toxics Emissions, Exposures, Cancer Risks and Controllability in Five Urban Areas. Volume 1. Base Year Analysis and Results.
Wilson-J; Istvan-D; Laich-E; Lahre-T
Environmental Protection Agency, Research Triangle Park, NC. Office of Air Quality Planning and Standards. Pechan (E.H.) and Associates, Inc., Springfield, VA.
Govt Reports Announcements & Index (GRA&I), Issue 20, 1989
NTIS/PB89-207161, 88p. EPA/450/2-89/012A

The report is the first phase of a study to define the multiple source, multiple pollutant nature of the urban air toxics problem (also known as 'urban soup') and to discern what control measures (or combinations of measures) can best be employed to mitigate the urban air toxics problem. The report documents the base year analysis, involving dispersion modeling of emissions data for 25 carcinogenic air toxics in five U.S. urban areas and a subsequent exposure/risk assessment to estimate aggregate cancer incidence. Aggregate (multi-source, multi-pollutant) cancer incidence (or population risk) across the 5 cities in this study averaged about 6 excess cases per million persons, ranging from about 2 to 10 in individual cities. The most important pollutants contributing to aggregate incidence are polycyclic organic matter, 1,3-butadiene, formaldehyde and hexavalent chromium. The most important sources are road vehicles, comfort and industrial cooling towers, chrome platers, solvent use and fuel combustion, including woodstoves.
NTIS

Assessing risks and preventing disease from environmental chemicals.
Dunnette-DA
Center for Public Health Studies, Portland State University, Oregon 97207.
J-Community-Health; VOL 14, ISS 3, 1989, P169-86
Journal Article

In the last 25 years there has been considerable concern expressed about the extent to which chemical agents in the ambient and work environments are contributing to the causation of disease. This concern is a logical extension of our increased knowledge of the real and potential effects of environmental chemicals and the methodological difficulties in applying new knowledge that could help prevent environmentally induced disease. Chemical risk assessment offers an approach to estimating risks and involves consideration of relevant information including identification of chemical hazards, evaluation of the dose-response relationship, estimation of exposure and finally, risk characterization. Particularly significant uncertainties which are inherent in use of this and other risk models include animal-human and low dose-high dose extrapolation and estimation of exposure. Community public health risks from exposure to environmental chemicals appear to be small relative to other public health risks based on information related to cancer trends, dietary intake of synthetic chemicals, assessment data on substances such as DDT and "dioxin," public health effects of hazardous waste sites and contextual considerations. Because of inherent uncertainty in the chemical risk assessment process, however, we need to apply what methods are available in

our efforts to prevent disease induced by environmental chemicals. There are a number of societal strategies which can contribute to overall reduction of risk from environmental chemicals. These include acquisition of information on environmental risk including toxicity, intensity and extensity of exposure, biological monitoring, disease surveillance, improvement in epidemiological methods, control of environmental chemical exposures, and dissemination of hazardous chemical information. Responsible environmental risk communication and information transfer appear to be among the most important of the available strategies for preventing disease induced by chemicals in the environment.
TOXBIB

Comparative analysis of health risk assessments for municipal waste combustors
Levin, A.; Fratt, D.B.; Leonard, A.; Bruins, R.J.F.; Fradkin, L.
Alliance Technol. Corp., Lowell, MA, USA
J. Air Waste Mgt Assoc, Vol. 41, NO. 1, 1991, 20-31

Quantitative health risk assessments have been performed for a number of proposed municipal waste combustor (MWC) facilities over the past several years. This article presents the results of a comparative analysis of a total of 21 risk assessments, focusing on seven of the most comprehensive methodologies. The analysis concentrates on stack emissions of noncriteria pollutants and is comparative rather than critical in nature. Overall, the risk assessment methodologies used were similar whereas the assumptions and input values used varied from study to study.
POLLUTION ABSTRACTS

EPA Study of asbestos-containing materials in public buildings - A report to Congress
Anonymous
U.S. Environmental Protection Agency, Washington D.C., USA, Feb. 1988. 114p.

Aspects covered in this report: risk assessment; risk management (reduction, feasibility, costs, policy considerations); recommendations. The inquiry focused on 2 major aspects: the extent and condition of asbestos in public and commercial buildings and whether these buildings should be subject to the same requirements that apply to school buildings. Friable asbestos-containing materials were found in about 1/5th of all the public and commercial buildings in the USA (730,000 buildings). It was recommended that removal of asbestos from school be given the highest priority.
CIS

Health risk assessments: opportunities and pitfalls. (Symposium: Risk Assessment in Environmental Law)
Paustenbach, Dennis J.
Columbia Journal of Environmental Law 14 n2 379-410 Spring, 1989
LEGAL RESOURCE INDEX

Health risk assessment of incinerator air emissions incorporating background ambient air data
Smith, A.H.; Goeden, H.M.
Dep. Biomed. and Environ. Health Sci., Sch. Public Health, Univ. California, Berkeley, CA 94720, USa
COMBUST. SCI. TECHNOL VOL. 74, NO. 1-6, 1990, 51-61
Languages: ENGLISH
Combustion of hazardous and municipal waste produces a wide variety of emissions which need to be considered when assessing potential human health risks. A major focus in recent years has been excess cancer risks. The main emissions which rodent studies indicate may be carcinogenic to humans include organic chemicals as dioxins, furans and polychlorinated biphenyls, which are highly persistent in the environment. Certain metals known to be carcinogenic to humans, such as arsenic, such as arsenic, cadmium, chromium and nickel, are also emitted. Priorities for consideration among non-carcinogenic emissions include lead and mercury. Methods for health risk assessment of air emissions are presented in this paper, and illustrated with data from a risk assessment of emissions from a municipal waste incinerator. The most significant potential exposure pathways were fish, meat, and milk consumption, which are dependent on the siting of facilities in relation to fishable lakes and land used for animal grazing or food production.
POLLUTION ABSTRACTS

Hygienists, risk managers develop closer worker relationships.
LeRoux-D
Occup-Health-Saf; VOL 58, ISS 5, 1989, P75-6, 88
Environmental-Monitoring; Human-; Industry-; Interprofessional-Relations; United-States; United-States-Occupational-Safety-and-Health-Administration
*Financial-Management; *Occupational-Health-Services; *Risk-Management
0362-4064
TOXBIB

Important recent advances in the practice of health risk assessment: implications for the 1990's.
Paustenbach, Dennis J
Chemrisk, Alameda, CA, ENV CANADA/ET AL
Toxic Substances 4th Conf, Montreal, PQ, April 4-5, 1990, 129(40)
Conference Paper

Knowledge gained from experiences in conducting risk assessments, coupled with the scientifice advances of the past few years, should dramatically improve our ability to accurately estimate the human health risks of low-level exposure to chemicals in the 1990's. The scientific advances in risk assessment that have occurred during the past five years are described, and how these advances will change both the way we will conduct health risk assessments and the way society and regulators may view the significance of environmental hazards is discussed. (251 REFERENCES, 4 TABLES)
ENVIROLINE

Overview of Risk Assessment for Toxic and Pathogenic Agents.
Kowal, N. E. ; Bruins, R. J. F. ; Sonich-Mullin., C.
Environmental Protection Agency, Cincinnati, OH. Environmental Criteria and Assessment Office, c1990. 17p.
Reprint: Overview of Risk Assessment for Toxic and Pathogenic Agents. Pub. in Proceedings: Water Quality Technology Conference, American Water Works Association, Philadelphia, PA., November 12-16, 1989, p905-919.
PB91-136945 EPA/600/D-90/216

Risk assessment is a process that defines the adverse health consequences of exposure to toxic or pathogenic agents. When used in regulatory decision making, risk assessment is an important component of risk management, which combines the risk assessment with the directives of regulatory legislation, together with socioeconomic, technical, political, and other considerations, to reach a decision as to whether or how much to control future exposure to the suspected toxic agents. The conceptual framework for risk assessment as it is currently practiced was outlined by the National Academy of Science in 1983 as a four-phased process. The elements in this process include hazard identification, exposure assessment, dose-response assessment, and risk characterization. The paper will discuss each of these elements, with particular emphasis on their application to risk assessment of pathogens.
NTIS

Risk assessment and risk management of noncriteria pollutants.
Lee SD
Environmental Criteria and Assessment Office, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.
Toxicol Ind Health VOL 6 (5), 1990, 245-255
JOURNAL ARTICLE

Noncriteria air pollutants are synonymous with hazardous air pollutants (HAPs), air toxics or toxic air pollutants (TAPs). The term noncriteria pollutants refers to all air pollutants except for the criteria pollutants (SOx, PM, NOx, CO, O3, and Pb). Air toxics are pervasive in our environment worldwide in varying degrees. Uses of these chemicals are varied and numerous; their emissions are ubiquitous, and they include organic compounds such as chlorinated hydrocarbons, dioxins, aldehydes, polynuclear aromatic hydrocarbons, and heavy metals such as chromium, nickel, cadmium, and mercury. There are more than 70,000 chemicals that are in use commercially in the United States, and we know relatively little about their ambient concentrations, persistence, transport and transformation as well as their effects on health and the environment, many of which take decades to emerge. The United States Environmental Protection Agency, under the authority of Section 112 of the Clean Air Act, is mandated to regulate any air pollutant which, in the Administrator's judgment, "causes, or contributes to, air pollution which may reasonable be anticipated to result in an increase in serious irreversible or incapacitating reversible illness." For such regulatory decision-making, EPA's Office of Health and Environmental Assessment (OHEA) provides scientific assessment of health effects for potentially hazardous air pollutants. In accordance with risk assessment guidelines developed by OHEA over the years, Health Assessment Documents

(HADs) containing risk assessment information were prepared and were subjected to critical review and careful revision to produce Final Draft HADs which serve as scientific databases for regulatory decision-making by the Office of Air Quality Planning and Standards (OAQPS) in its risk management process. EPA developed data-bases such as the Integrated Risk Information System (IRIS) and the National Air Toxics Information Clearinghouse (NATICH) and a technical assistance response system called the Air Risk Information support Center (AIR RISC), in addition, to help in implementation of the National Air Toxics Program by state and local regulators.
TOXBIB

Risk assessment for carcinogens under California's Proposition 65.
Pease-WS; Zeise-L; Kelter-A
University of California, School of Public Health, Berkeley 94720.
Risk-Anal; VOL 10, ISS 2, 1990, P255-71
Journal Article
Risk assessments for carcinogens are being developed through an accelerated process in California as a part of the state's implementation of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act. Estimates of carcinogenic potency made by the California Department of Health Services (CDHS) are generally similar to estimates made by the U.S. Environmental Protection Agency (EPA). The largest differences are due to EPA's use of the maximum likelihood estimate instead of CDHS' use of the upper 95% confidence bounds on potencies derived from human data and to procedures used to correct for studies of short duration or with early mortality. Numerical limits derived from these potency estimates constitute "no significant risk" levels, which govern exemption from Proposition 65's discharge prohibition and warning requirements. Under Proposition 65 regulations, lifetime cancer risks less than 10(-5) are not significant and cumulative intake is not considered. Following these regulations, numerical limits for a number of Proposition 65 carcinogens that are applicable to the control of toxic discharges are less stringent than limits under existing federal water pollution control laws. Thus, existing federal limits will become the Proposition 65 levels for discharge. Chemicals currently not covered by federal and state controls will eventually be subject to discharge limitations under Proposition 65. "No significant risk" levels (expressed in terms of daily intake of carcinogens) also trigger warning requirements under Proposition 65 that are more extensive than existing state or federal requirements. A variety of chemical exposures from multiple sources are identified that exceed Proposition 65's "no significant risk" levels.
TOXBIB

Role of epidemiology in health risk assessment.
Krewski-D; Wigle-D; Clayson-DB; Howe-GR
Health Protection Branch, Health and Welfare Canada, Ottawa, Ontario.
Recent-Results-Cancer-Res; VOL 120, 1990, 1-24 (REF: 101)
JOURNAL-ARTICLE; REVIEW,-TUTORIAL; REVIEW

Human health risk assessment has been the object of systematic study in recent years, with formal models of risk assessment and risk management having been proposed by several national and international health agencies. The particular model developed by the Environmental Health Directorate of Health and Welfare Canada was examined in some detail and used to focus on the role of epidemiology in the overall process of risk assessment. Taken collectively, epidemiologic data on health risks provide a basis for improved disease surveillance and prioritization of public health concerns. The complementary roles of epidemiology and toxicology in health risk assessment were examined using four case studies.
TOXBIB

The current practice of health risk assessment: potential impact on standards for toxic air contaminants.
Paustenbach DJ, Jernigan JD; Finley BL; Ripple SR; Keenan RE
ChemRisk, Division of McLaren/Hart Environmental Engineering Corp.,Alameda CA.
J Air Waste Manage Assoc; VOL 40 (12), 1990, 1620-1630 (REF: 129)
JOURNAL ARTICLE; REVIEW; REVIEW, TUTORIAL

Since the Bhopal incident, the public has placed pressure on regulatory agencies to set community exposure limits for the dozens of chemicals that may be released by manufacturing facilities. More or less objective limits can be established for the vast majority of these chemicals through the use of risk assessment. However, each step of the risk assessment process (i.e., hazard identification, dose-response assessment, exposure assessment, and risk characterization) contains a number of pitfalls that scientists need to avoid to ensure that valid limits are established. For example, in the hazard identification step there has been little discrimination among animal carcinogens with respect to mechanism of action or the epidemiology experience. In the dose-response portion, rarely is the range of "plausible" estimated risks presented. Physiologically based pharmacokinetic (PB-PK) models should be used to understand the difference between the tissue doses and the administered dose, as well as the difference in target tissue concentrations of the toxicant between rodents and humans. The exposure assessment step can be significantly improved by using more sensitive and specific sampling and analytical methods, more accurate exposure parameters, and computer models that can account for complex environmental factors. In the risk characterization, the best estimate of the potential risk as well as the highest plausible risk should be presented. Future assessments would be much improved if quantitative uncertainty analyses were conducted. Procedures are currently available for making future assessments. By correcting some of these shortcomings in how health risk assessments have been conducted, scientists and risk managers should be better able to identify scientifically appropriate ambient air standards and emission limits.
TOXBIB

HEALTH RISKS - CANCER

Cancer Risk Assessment and Prevention: Where Do We Stand.
Whittemore-AS
Health Effects Research Lab., Research Triangle Park, NC.
Stanford Univ., CA. Dept. of Family, Community and Preventive Medicine.
Govt Reports Announcements & Index (GRA&I), Issue 19, 1990

The paper reviews selected aspects of progress and setbacks in cancer risk assessment and prevention during the four decades since the founding in 1947 of the Institute of Environmental Medicine at the New York University Medical Center. The period has been marked by substantial gains in quantifying the risks posed by exposure to known human carcinogens such as tobacco and ionizing radiation. By contrast, the search for sensitive and specific laboratory screens for human carcinogens has met setbacks, and epidemiological data still are needed to monitor the adverse effects of environmental exposures. The determination of acceptable levels of exposure to potential human carcinogens remains a formidable task, one for which no scientific framework yet exists. Future challenges in cancer risk assessment include the validation and use of biological markers of exposure and effective monitoring of risk among exposed populations. Future challenges in cancer prevention include the elimination of tobacco consumption and the acquisition of knowledge needed to prevent nutritionally and hormonally related cancers such as cancers of the bowel, prostate, and breast. Journal article. Pub. in Environmental Health Perspectives, v8 p95-101, May 89. Sponsored by Health Effects Research Lab., Research Triangle Park, NC.
Preventive-medicine; Neoplasms-;
Carcinogens,-Epidemiology,-Tobacco,-Radiation,-Mortality,-Reprints;
Risk-assessment;
Carcinogenicity-tests,-Indoor-air-pollution,-Environmental-expo
NTIS/PB90-246042, 9p. NTIS Prices: PC A02/MF A01
Grant EPA-R-813495
NTIS

Cancer risks in painters: study based on the New Zealand Cancer Registry
Bethwaite Peter B, Pearce Neil, Fraser James
Dept. of Community Health, Wellington School of Medicine, Wellington New Zealand
British J of Industrial Medicine 47, 1990, 742-746

Cancer Risk for Radon Exposure in a Polluted Environment: Progress Report, March 1, 1989-February 28, 1990.
Burns-FJ
Department of Energy, Washington, DC.
New York Univ., NY. Dept. of Environmental Medicine.
Govt Reports Announcements & Index (GRA&I), Issue 10, 1990

The following research for the quarter of March 1, 1989--February 28, 1990 is described: design of a radiation source (polonium-210) implant or needle and

methods used to measure the radiation dose delivered; DNA strand breakage and repair in rat tracheal epithelium and skin after exposure to external radiation and internal alpha particle irradiation (polonium 210); and DNA strand breaks in tracheas exposed to NO(sub 2) or cigarette smoke.
NTIS/DE90002554, Portions of this document are illegible in microfiche products., 26p. NTIS Prices: PC A03/MF A01
DOE/ER/60549-4, COO-60549-4, Contract FG02-87ER60549
NTIS

Epidemiologic assessment of cancer risk: Application from the Cancer Surveillance Program of Orange County.
Presented at: 9. Annual Meeting of the American College of Toxicology, 31 Oct-2 Nov 1988
Anton-Culver, H.
Dep. Community and Environ. Med., Univ. California, Irvine, CA 92717, USA
In J. AM. COLL. TOXICOL. 8(5) 1989, 933-940

To determine the human health risks from toxic contaminants in the environment, the toxicologic effect of these contaminants and their potential for human exposure must be evaluated. The present study uses epidemiologic methods to evaluate a hazardous waste site located in Orange County, California, covering an area of 9 acres. In the early 1940s the site was used for acid petroleum sludge. Community complaints began in the late 1970s, based mainly on the odor and on some symptoms that were, for the most part, nonspecific. Both the County Health Department and the State Department of Health Services were involved in the study of possible health effects associated with living near the site. There has recently been some concern on the part of residents near the site that they are at increased risk for cancer because of their proximity. This study compares cancer rates in the residential areas near the site with the rest of Orange County for the years 1984 and 1985 and explores the utility of the Cancer Surveillance Program of Orange County in determining the risk for cancer in the population in the vicinity of the site.
LIFE SCIENCES

Integrated Quantitative Cancer Risk Assessment of Inorganic Arsenic.
Chen-CW; Chen-CJ
Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Govt Reports Announcements & Index (GRA&I), Issue 06, 1990

The paper attempts to make an integrated risk assessment of arsenic, using data on humans exposed to arsenic via inhalation and ingestion. The data useful for making an integrated analysis and data gaps are discussed. Arsenic provides a rare opportunity to compare the cancer risk to humans due to exposure to a metal carcinogen via inhalation and ingestion. The study's assessment suggests that the elevated lung cancer mortality observed in the population of the blackfoot disease endemic areas is consistent with that observed in copper smelter workers who, presumably, were exposed to arsenic via inhalation. It is also speculated, on the basis of overall information on arsenic, that smelter workers could have an elevated cancer mortality in sites

other than the lung, contrary to the usual assumption that lung tissue is the only target tissue for cancer when exposure is via inhalation. Symposium paper (Final). Presented at the Symposium on Health Risk Assessment, Tapei, Taiwan, December 20-22, 1988.
NTIS/PB90-130683, 24p. NTIS Prices: PC A03/MF A01
EPA/600/D-89/193, OHEA-C-312
NTIS

Methods Development for Assessment of Vapor-Phase Mutagens and Carcinogens in Ambient Air.
Hsieh-DPH; Kado-NY; Seiber-JN; Shibamoto-T; Huzmicky-P
California State Air Resources Board, Sacramento.
California Univ., Davis. Dept. of Environmental Toxicology.
Govt Reports Announcements & Index (GRA&I), Issue 23, 1990

The purpose of the project was to develop methods to identify potentially toxic and mutagenic vapor-phase compounds in ambient air. By combining a unique bioassay with trapping and extraction, the researchers demonstrated the feasibility of a system to chemically characterize complex volatile mixtures. The method was developed using eight model vapor-phase mutagens (with a range of mutagenicities and vapor pressures) selected from three chemical classes: halogenated hydrocarbons, aldehydes, and PAHs. These compounds were bioassayed singly and as simple mixtures. Simulated airborne levels were generated; these were trapped, extracted, and tested by bioassay. The resulting extracts were fractionated into classes of compounds, which were analyzed chemically and by bioassay. Close agreement between these methods was obtained. Results from this pilot study indicate that mutagenic activity in the vapor phase is higher than in the particulate phase. Final rept. 1987-90. Sponsored by California State Air Resources Board, Sacramento.
NTIS/PB90-265927, 178p.
Contract ARB-A6-174-32
NTIS

Neurotoxic substances also posing a cancer risk: a warning.
Csicsaky-MJ; Rodriguez-Farre-E
Department of Experimental Hygiene, Medical Institute of Environmental Hygiene, Dusseldorf, FRG.
Neurotoxicol-Teratol; VOL 12, ISS 6, 1990, P677-81
Journal Article
Language: ENGLISH
A large proportion of compounds studied for their neurotoxic potential are at the same time suspected or proven carcinogens. This is demonstrated using the International Neurotoxicology Association (INA) Professional Interest Directory and publications from the field of neurotoxicology as examples. In addition to listing these compounds, the classification scheme used by the International Agency for Research on Cancer (IARC), the Commission of the European Communities (EC), the U.S. Environmental Protection Agency (EPA), the German MAK-Commission of the Deutsche Forschungsgemeinschaft (DGF) and the U.S. National Institute of Occupational Safety and Health (NIOSH) to make qualitative risk assessments is explained. Finally, a short initiation to

quantitative risk assessment as performed by the US EPA and the World Health Organization (WHO) is given in order to put the reader into a position as to assess the cancer risk incurred by his/her co-workers and by himself.
TOXBIB

Nongenotoxic Mechanisms in Carcinogenesis: Role of Inhibited Intercellular Communication,
Trosko-JE; Chang-CC
Air Force Office of Scientific Research, Bolling AFB, DC.
Michigan State Univ., East Lansing. Dept. of Pediatrics/Human Development.
Govt Reports Announcements & Index (GRA&I), Issue 16, 1989

Carcinogenesis is a multistep process, involving several distinct mechanisms, involving the conversion of a normal stem-like cell to a cell resistant to terminal differentiation (i.e., initiation), followed by the clonal expansion of this initiated cell (i.e., promotion), during which time additional changes occur allowing the cell to become malignant (i.e., progression). Each of these distinct operational stages of carcinogensis probably involves mechanisms (i.e., many mechanisms for initiation and promotion). Since gene and chromosomal mutations, cell death, and modulation of gene expression are the biological consequences of chemical exposure, many genetic, biological, and environmental factors can modulate how a given chemical can induce these changes. The general paradigm of 'carcinogenesis as mutagens' is considered totally inadequate to design the test protocol for animal bioassays and to interpret the data from these tests. The role of inhibited intercellular communication has been postulated to play a role in the tumor promotion and progression phases . Examination of experimental results of known tumor promotes as inhibitors of intercellular communication is presented. Implications of these results suggest a new paradigm is needed to approach the problem of a 'biological risk assessment' model. Pub. in Carcinogen Risk Assessment, n31 p139-170 1988.
NTIS/AD-A206 877/3, 33p.
Grant AFOSR-86-0084, Proj. 2312, Task A5
NTIS

Parental occupational exposures and risk of childhood cancer: a review
O'Leary LM, Hicks AM, Peters JM, London S
Dept. of Preventive Medicine Div. of Occupational and Environmental Medicine, Univ. of Southern CA School of Medicine, Los Angeles, CA
Am J of Industrial Medicine 20 (1991): 17-35
Journal article

Stem cell theory of carcinogenesis.
Trosko-JE; Chang-CC
Department of Pediatrics/Human Development, Michigan State University, East Lansing 48824.
Toxicol-Lett; VOL 49, ISS 2-3, 1989, P283-95 (REF: 75)
REVIEW; REVIEW,-TUTORIAL

Our present understanding of the carcinogenic process, involving complex interactions of genetic, developmental, sex, dietary and environmental factors during the multistage initiation/promotion/progression process of carcinogenesis, would lead us to reject simplistic non-biologically based risk assessment models. This understanding, plus recent results of the National Toxicology Bioassay program and of the studies of short-term tests for genotoxicity, has challenged the primary paradigm of 'carcinogens as mutagens' which governs our current risk assessment models. The concepts of the stem cell theory of cancer, of oncogenes/tumor suppressor genes, of gap junctional intercellular communication, and of mutagenic and epigenetic mechanisms must be integrated into a biologically-based model of the multistage nature of carcinogenesis. Current understanding of the complex interactions during this process prevents us from believing that a simple and accurate, biologically based risk assessment model will be developed soon, if ever.
TOXBIB

Uncertainties in Quantitative Cancer Risk Assessment: Some Approaches to Reduce Them.
Chen-CW
Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Govt Reports Announcements & Index (GRA&I), Issue 21, 1989

There are three major sources of uncertainties in quantitative cancer risk assessment: low-dose extrapolation, route-to-route extrapolation, and species-to-species extrapolation. Scientific information and procedures useful for reducing uncertainties are discussed. Two examples, one relating to genotoxic carcinogens and another to promoting agents, are presented to demonstrate the importance of incorporating biologic information into the risk assessment. These examples also demonstrate that a quantitative risk assessment is a multidisciplined endeavor that involves various branches of the biomedical and mathematic sciences. Symposium paper (Final). Presented at Symposium on Health Risk Assessment, Taipei, Taiwan, December 20-22, 1988.
NTIS/PB89-221303, 23p. NTIS Prices: PC A03/MF A01
EPA/600/D-89/051, OHEA-C-313
NTIS

Workshop Report on EPA (Environmental Protection Agency) Guidelines for Carcinogen Risk Assessment: Use of Human Evidence. Held in Washington, DC. on June 26-27, 1989.
Anon
Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Eastern Research Group, Inc., Arlington, MA.
Govt Reports Announcements & Index (GRA&I), Issue 11, 1990

The U.S. Environmental Protection Agency (EPA) issued guidelines for assessing human risk from exposure to environmental carcinogens. The guidelines set forth principles and procedures to guide EPA scientists in the conduct of Agency risk assessments, to promote high scientific quality and Agency-wide consistency, and to inform Agency decision-makers and the public about these scientific procedures. In publishing the guidance, EPA emphasized that one purpose of the guidelines was to 'encourage research and analysis that will lead to new risk assessment methods and data,' which in turn would be used to revise and improve the guidelines. Thus, the guidelines were developed and published with the understanding that risk assessment is an evolving scientific undertaking and that continued study would lead to changes. Also available from Supt. of Docs. Sponsored by Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Meetings,-Epidemiology,-Studies,-Exposure,-Methodology,-Procedures,-Humans; Carcinogenicity-tests; Risk-assessment; Health-planning-guidelines,-Dose-response-relationships
NTIS/PB90-183534, 98p. NTIS Prices: PC A05/MF A01
Contract EPA-68-02-4404
NTIS

HEALTH RISKS - GENOTOXICITY AND REPRODUCTIVE EFFECTS

Benefits and risks of genetic engineering in agriculture.
Pimentel, D.; Hunter, M.S.; LaGro, J.A.; Efroymson, R.A.; Landers, J.C.; Mervis, F.T.; McCarthy, C.A.; Boyd, A.E.
BioScience v39 p606(9) Oct, 1989
MAGAZINE INDEX

Biotechnology and the environment: the regulation of genetically engineered organisms used in the environment.
Environmental Law Reporter 19:10486-10526 November '89
Conference report prepared by the Standing Committee on Environmental Law, American Bar Association.
Partial contents: Federal, state and local regulation of biotechnology, by Geoffrey M. Karney; Current models of risk assessment used in biotechnology regulation, by Charles L. Elkins; Current litigation issues associated with biotechnology, by William A. Anderson, II; Panel discussion: enforcement of regulations, by David J. Glass and others; ethical and cultural considerations, by Mark Sagoff.
PAIS

Current models of risk assessment used in biotechnology regulation. (includes discussion) (Biotechnology and the Environment: the Regulation of Genetically Engineered Organisms Used in the Environment)
Elkins, Charles L.
Environmental Law Reporter 19 n11 10496-10500 Nov, 1989
LEGAL RESOURCE INDEX

The principles of predicting the individual risk of silicosis and silicotuberculosis.
Polzik-EV; Katsnelson-BA; Kochneva-MYu; Kasantsev-VS
Medical Research Center for Prevention in Industrial Workers, Department of General Industrial Hygiene, Sverdlovsk, USSR.
Med-Lav; VOL 81, ISS 2, 1990, P87-95
Journal Article

A series of investigations conducted in different "silicosis-risk" industries using a methodology based on the mathematical theory of pattern recognition has shown that in the given conditions of dust exposure, the probability of contracting pneumoconiosis depends for each individual on a complex influence of many factors, both environmental and intrinsic for the individual. Genetic predisposition was one of the most important factors and while the direction in which a factor influences predisposition was the same in every industry, its relative contribution to predisposition to simple silicosis was different in the studied working populations. The complex of factors determining predisposition to silicotuberculosis is more general: this complex comprises both factors influencing susceptibility to silica dust and specially those influencing susceptibility to tuberculosis. In the opinion of the authors, the task of screening off those applicants for a "silicosis-risk" employment for whom the risk may be estimated as high on the basis of the developed methodology, is quite feasible.
TOXBIB

HUMAN AND ENVIRONMENTAL EXPOSURE

An assessment of the effects of air pollution on buildings and building materials
Medhurst, J.; Nath, B. (ed.)
ECOTEC Res. and Consult. Ltd., Birmingham, UK
Proceedings of International Conference on Environmental Pollution. Lisbon, April 1991. (Volume 1) Lisbon (Portugal) 15-19 April 1991
INTERNATIONAL CONFERENCE ON ENVIRONMENTAL POLLUTION, 1991, 153-161
INDERSCIENCE ENTERPRISES LTD., GENEVA (SWITZERLAND)
Languages: ENGLISH
There is evidence that acid rain leads to damage of building materials and concern that the built environment requires costly repairs to maintain the state of repair of building. Research has identified a methodology for the estimation of the benefits (cost savings) in financial terms resulting from reduced acid deposition on building materials. The methodology

combines an "inventory" approach of the stock of buildings at risk with an indirect economic evaluation approach to prepare initial estimates of benefit.
POLLUTION ABSTRACTS

Assessing Chemical Releases and Worker Exposures from a Filter Press.
Scott-J; Sherban-K; Marshall-M
Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.
Southwest Research Inst., San Antonio, TX.
Govt Reports Announcements & Index (GRA&I), Issue 03, 1990
1989
TD3: Chemical releases and worker exposures associated with the filtration of an industrial wastewater sludge were characterized. The filter was a recessed chamber filter press with an open filtrate discharge system. Chemical releases and worker exposures for a selected chemical were measured over four operational cycles and various aspects of the filtration operation believed to influence the measurement values were documented. Ventilation patterns around the filter press were monitored. The worker's time-weighted average exposures to total copper (low vapor pressure, highly insoluble form) during the 113-minute operational cycle ranged from 3.1 to 25 micro g/cu m. To sludge feed and filter cake copper concentrations were approximately 0.1 and 1.0 weight percent. A noticeable difference in worker techniques was observed which may account for the large range of inhalation exposures during the cake removal stage. During this stage, the inhalation exposures ranged from 11 micro g/cu m to 130 micro g/cu m. The manual removal of filter cake comprised only 15% of the time in an average filtration cycle, but produced 72% of the worker's inhalation exposure. Sponsored by Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.
Environmental-surveys; Waste-treatment; Waste-water; Copper-; Industrial-medicine,-Exposure,-Hazardous-materials; Risk-assessment; Occupational-safety-and-health,-Environmental-monitoring
NTIS/PB90-119587, 125p. NTIS Prices: PC A06/MF A01
Grant EPA-R-813355, Proj. SWRI-01-1236
NTIS

Assessing exposures to environmental tobacco smoke.
Leaderer-BP
John B. Pierce Foundation Laboratory, Department of Epidemiology & Public Health, Yale University School of Medicine, New Haven, Connecticut 06520.
Risk-Anal; VOL 10, ISS 1, 1990, P19-26 (REF: 28)
REVIEW; REVIEW,-TUTORIAL

The combustion of tobacco indoors results in the emission of a wide range of air contaminants that are associated with a variety of acute and chronic health and comfort effects. Exposures to environmental tobacco smoke (ETS) are assessed for epidemiologic studies and risk assessment and risk management applications. An individual's or population's exposure to ETS can be assessed by direct methods, which employ personal air monitoring and biomarkers, and indirect methods, which utilize various degrees of microenvironmental

measurements of spaces, models, and questionnaires in combination with time-activity information. The major issues related to assessing exposures to ETS are summarized and discussed, including the physical-chemical nature of ETS air contaminants, use of proxy air contaminants to represent ETS, use of biomarkers, models for estimating ETS concentrations indoors, and the application of questionnaires.
RN: 54-11-5 (Nicotine)
TOXBIB

Assessment of long-term exposures to toxic substances in air.
Rappaport-SM
Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, Chapel Hill 27599.
Ann-Occup-Hyg; VOL 35, ISS 1, 1991, P61-121 (REF: 128)
JOURNAL-ARTICLE; REVIEW; REVIEW,-ACADEMIC
Language: ENGLISH
Abstract: Because airborne exposure varies greatly over time and between individual workers, occupational hygienists should adopt sampling strategies which recognize the inherent statistical nature of assessing exposure. This analysis indicates that the traditional practice of testing 'compliance' with occupational exposure limits (OELs) should be discarded. Rather, it is argued that acceptable exposure should be defined with reference to the exposure distribution. Regarding the many statistical issues which come into play, it is concluded that hygienists should continue to apply the log-normal model for summarizing and testing data. However, sampling designs should move away from methods which are biased (e.g. sampling only the worst case) and which rely upon job title and observation as the primary means of assigning workers into groups. Since exposure data often lack independence (e.g. owing to the autocorrelation of serial measurements) and there exist large differences in exposure between workers in the same job group, random sampling designs should be adopted.
TOXBIB

Developments and tendencies in establishing limit values for the soil from the point of view of environmental medicine
Eikmann, T.; Michels, S.; Krieger, T.; Einbrodt, H.J.
Inst. Hyg. and Occup. Med., Tech. Univ., D-5100 Aachen, FRG
Congress of the Deutsche Gesellschaft fuer Hygiene und Mikrobiologie, Section Hygiene and Public Health Hannover (FRG) 4-6 Oct 1989
ZENTRALBL. HYG. UMWELTMED VOL. 189, NO. 4, 1990, 376

By assessment of the possible risk of man by toxic substances from waste sites the most important investigation criteria are the type of the substance, the concentration in soil, soil air, surface and groundwater, but also in nutritional plants and useful animals. In the last years the burden of affected population groups has been investigated based on biological monitoring by analyzing toxic substances in biological material (e.g. blood, urine, mother's milk). - To estimate the grade of burden of population the existing regulations and guidelines are generally not sufficient. For rapid classification of waste sites and their possible

remedials various institutions are developing limit values which manage to assess concentrations of toxic substances by criteria of human toxicology. The necessary restrictions and conventions for this are presented and critically discussed.
163093 91-04104 POLLUTION ABSTRACTS

Epidemiological aspects in food safety.
Kello-D
Environment and Health Service, World Health Organization, Copenhagen, Denmark.
Food-Addit-Contam; VOL 7 Suppl 1, 1990, PS5-11
JOURNAL-ARTICLE
Language: ENGLISH
The rapid growth of international trade in food products has resulted in increased hazards from trans-boundary foodborne infections and intoxication. Therefore, the development of multinational surveillance and registration of foodborne diseases or food contamination, of both biological and chemical origin, is of utmost importance for their prevention and control. Recognizing the importance of accurate and adequate epidemiological data for decision making with respect to priorities, resources and management, the World Health Organization (WHO) launched in 1976 the Joint UNEP/FAO/WHO Food Contamination Monitoring Programme (GEMS/Food) and in 1980 the surveillance programme for control of foodborne infections and intoxications in Europe. Although the response of participating countries in both programmes was very positive, many questions have arisen during this period which require further improvements through national and international action. Monitoring and surveillance of food contamination and foodborne infections and intoxications is a multidisciplinary process and requires the active involvement of experts in medical and veterinary food hygiene, food chemistry and epidemiology. Since health risk management with respect to food safety is frequently delegated to different authorities, much better coordination between the sectors is needed in order to improve epidemiological analysis at national and international level. The purpose of this paper is to review the WHO regional programme for prevention and control of foodborne infections and intoxications in the light of accumulated experience and to discuss plans and possibilities for further improvements through national and international action in the 1990s.
TOXBIB

Evaluating the liver in hazardous waste workers.
Hodgson-MJ; Goodman-Klein-BM; van-Thiel-DH
Department of Medicine, University of Pittsburgh School of Medicine, Pennsylvania.
Occup-Med; VOL 5, ISS 1, 1990, P67-78 (REF: 38)
PT: REVIEW; REVIEW,-TUTORIAL

This article reviews issues in screening and surveillance of liver disease in hazardous waste workers. Traditional liver injury tests (LIT) are only insensitive indicators of liver disease. Newer techniques, including the use of true liver function tests and urinary excretion of metabolites, are as yet unvalidated and substantially more expensive. In the presence of abnormalities, useful strategies include: assessment of other possible causes, avoidance of other possible risk factors, and review of exposures on specific sites.
TOXBIB

Evaluation of health risks associated with proposed ground water standards at selected inactive uranium mill-tailings sites
Hamilton, L.D.; Medeiros, W.H.; Meinhod, A.; Morris, S.C.; Moskowitz, P.D.
REP. BROOKHAVEN NATL. LAB, 1989
NTIS Order No.: DE90015133/GAR.

The US Environmental Protection Agency (EPA) has proposed ground water standards applicable to all inactive uranium mill-tailings sites. The proposed standards include maximum concentration limits (MCL) for currently regulated drinking water contaminants, as well as the addition of standards for molybdenum, uranium, nitrate, and radium-226 plus radium-228. The proposed standards define the point of compliance to be everywhere downgradient of the tailings pile, and require ground water remediation to drinking water standards if MCLs are exceeded. The document presents a preliminary description of the Phase 2 efforts. The potential risks and hazards at Gunnison, Colorado and Lakeview, Oregon were estimated to demonstrate the need for a risk assessment. (Contract AC02-76CH00016 Sponsored by Dept. of Energy, Washington, DC. Portions of this document are illegible in microfiche products.)
174885 91-05834
POLLUTION ABSTRACTS

Exposure Assessment Component of the Field Verification Program: Overview and Data Presentation.
Munns-WR; Paul-JF; Bierman-VJ; Davis-WR; Galloway-WB
Environmental Research Lab., Narragansett, RI.
Science Applications International Corp., Narragansett, RI.
Govt Reports Announcements & Index (GRA&I), Issue 08, 1990

The exposure assessment component of the aquatic portion of the Field Verification Program (FVP) related the source input of dredged material contaminants to corresponding concentration distributions in space and time in the vicinity of the disposal mound. The specific objectives for this component were to provide a description of the environmental exposure field at biological effects measurement stations in the water column (pelagic zone), in the sediments (benthic zone), and at the near-bottom/ sediment-water interface (epibenthic zone); to relate the source (dredge disposal mound) to near-field exposure measurements using process models for the vertical transport of contaminants and particulate materials; and to determine the environmental processes controlling contaminant phase partitioning. The report provides an overview of the exposure assessment component of the aquatic portion of the FVP, and describes the methods used and results obtained from activities directed towards the first objective. Sponsored by Environmental Research Lab., Narragansett, RI.
Waste-disposal; Sediments-;
Water-pollution,-Exposure,-Physical-tests,-Chemical-tests,-Metals,-Quality-assurance,-Quality-control,-Organic-compounds,-Trace-elements; Dredge-spoil;
Field-Verification-Program; Risk-assessment; Ocean-disposal;
Environmental-effects,-Comprehensive-planning,-Environmental-tr
NTIS/PB90-156233, 278p. NTIS Prices: PC A13/MF A02
Contract EPA-68-03-3529
NTIS

Food Chain as a Source of Human Exposure from Municipal Waste Combustion.
Belcher-GD; Travis-CC
Department of Energy, Washington, DC.
Oak Ridge National Lab., TN.
Govt Reports Announcements & Index (GRA&I), Issue 18, 1989

The food chain is the primary pathway of human exposure for a large class of lipophilic compounds, such as dioxins, DDT, and other pesticides. Since municipal waste combustors release both metals and organics into the environment, the food chain pathway must be considered as a potential source of human exposure. This paper presents estimates of human exposure through the food chain for a typical municipal waste combustor. A Monte Carlo uncertainty analysis is performed to characterize variability in exposure estimates. 8 refs., 4 figs., 3 tabs. (ERA citation 14:025540) International conference on municipal waste combustion, Hollywood, FL, USA, 11 Apr 1989.
NTIS/DE89010368, Portions of this document are illegible in microfiche products., 17p. NTIS Prices: PC A03/MF A01
CONF-890422-2, Contract AC05-840R21400
NTIS

Molecular epidemiology of coal worker's pneumoconiosis: application to risk assessment of oxidant and monokine generation by mineral dusts.
Borm-PJ; Meijers-JM; Swaen-GM
Department of Occupational and Environmental Medicine and Toxicology, University of Limburg, Maastricht, The Netherlands.
Exp-Lung-Res; VOL 16, ISS 1, 1990, P57-71
Journal Article
Language: ENGLISH
Abstract: It is generally accepted that fibrotic lung diseases are mediated by macrophage-derived cytokines and growth factors. Basic research continues to find new factors involved in these disease processes to incorporate into new hypotheses. Two hypotheses implicitly generated by recent findings were tested in an epidemiologic approach among workers in coal mines. This approach is described as molecular epidemiology and is exemplified by two studies focused on different mechanistic aspects of coal workers' pneumoconiosis (CWP): antioxidants in red blood cells of miners with CWP and generation of tumor necrosis factor (TNF) by blood monocytes of miners with CWP. Most findings in the antioxidant study may merely be reflections of pulmonary inflammatory processes. Some data in the TNF study indicate, however, that TNF release is a risk factor for the development of lung fibrosis after prolonged exposure to coal mine dust.
TOXBIB

Protection of human health from mixtures of radionuclides and chemical in drinking water.
Jones-TD; Owen-BA; Trabalka-JR
Health and Safety Research Division, Oak Ridge National Laboratory, Tennessee 37831-6101.
Arch-Environ-Contam-Toxicol; VOL 20, ISS 1, 1991, P143-50
Journal Article
Language: ENGLISH
Abstract: This study was undertaken to develop a common scale for evaluating health risks from contaminated drinking water. For different agents, many unrealistic models of risk have been used. By intent, regulatory toxicology depends on "data-sparse, model-intensive" analogies from exotic animal genetics and novel exposures (NCRP 1989). The question is, does a risk evaluation so derived have any predictive validity? Absence of data prevents answer because regulatory toxicology rationalizes in step-by-step logic, which we call absolute (i.e., predicts cases of disease in a population). Absolute models ensure safety, but do so at the cost of realism. In contrast, we make relative comparisons in the manner of horsepower or RBE from radiation biology. All pollutants are assumed to contribute to toxic injury. Next, relative potencies are linked to the most credible standards. Thus, experience is transferred from well-studied chemicals to the new chemical by "data-intensive, model-sparse" methods. This logos provides much relative precision. Then, pollutants are compared with: (1) common foodstuffs, (2) ambient radiation background, or (3) utility-pure drinking water. Finally, an assessment is made for a waste disposal area.
TOXBIB

Public health response to an identified environmental toxin: managing risks to the James Bay Cree related to cadmium in caribou and moose.
Archibald CP, Kosatsky T
Departement de Sante communautaire, Hopital general de Montreal, Quebec.
Can-J-Public-Health; VOL 82 (1), 1991, 22-26
JOURNAL-ARTICLE

At the request of Cree political and health authorities and using indirect measures of exposure, we estimated the risk to the James Bay Cree of renal impairment related to the long-term consumption of the liver and kidney of moose and caribou contaminated by environmental cadmium. The low risk of disease was weighed against the possible detriment from activities to convince the Crees to avoid a traditional albeit occasional component of their subsistence diet. Our approach to the assessment and management of this specific environmental hazard is of general interest.
TOXBIB

Report to Congress on Indoor Air Quality. Volume 2. Assessment and Control of Indoor Air Pollution.
Anon
Environmental Protection Agency, Washington, DC.
Govt Reports Announcements & Index (GRA&I), Issue 10, 1990
1989
TD3: The purpose of the report is to fulfill the requirement of section 403(e) of the Superfund Amendments and Reauthorization Act of 1986. The report consists of four volumes. The component, Volume 2, of the report discusses information on the risks, the economic impacts of pollution control methods, a description of current legislative authorities, and state, local, as well as private problems addressing the issue. It concludes with a discussion of the policy issues on a comprehensive Federal response to indoor air quality. Final rept. Also available from Supt. of Docs. See also Volume 1, PB90-167388 and Volume 3, PB90-167404.
Radon-; Hazardous-materials; Air-pollution-control;
Public-health,-Building-codes,-Design-standards,-Exposure,-Sources,-Mathematical-models,-Radioactive-materials; Indoor-air-pollution; Risk-assessment;
Environmental-impact-assessment; Air-quality;
Superfund-Amendments-and-Reauthorization-Act-of-1986;
Occupational-safety-and-health,-Public-information,-Comprehensi
NTIS/PB90-167396, Also available in set of 4 reports PC E99/MF E99, PB90-167362., 252p. NTIS Prices: PC A12/MF A02
EPA/400/1-89/001C
NTIS

Risk assessment of vibration exposure and white fingers among platers.
Nilsson-T; Burstrom-L; Hagberg-M
Department of Occupational Medicine, Sundsvall, Sweden.
Int-Arch-Occup-Environ-Health; VOL 61, ISS 7, 1989, P473-81
Journal Article

The dose-response relationship between vibration exposure and vascular disorders in the hands was examined in platers. The study was based on a cross section of 89 platers and 61 office workers divided according to exposure to vibration into four groups. Vibration exposure was assessed by measuring the acceleration intensity on a sample of tools, together with both subjective rating and objective measurements of the exposure time. The frequency-weighted energy equivalent acceleration for 4 h was 4.6-4.7 m/s2. The point prevalence of white fingers was 42% for the plater category currently exposed with an odds ratio of 85. The time laps before contraction of white fingers (latency time) was four years for the 10th percentile, and was shorter than predicted according to the ISO-5349 standard. The prevalence of white finger symptoms staged according to the Taylor-Pelmear scale was comparable to the prevalences according to the Stockholm Workshop Scale. Vibration exposure was the dominant source of white fingers and each year of vibration exposure increased the odds ratio for white fingers by 11%. Distal circulation in the hands was assessed by a timed Allen test. The odds ratio for a positive Allen test was higher for the workers exposed to vibration compared to the non-exposed workers. The use of the timed Allen test is suggested in the clinical examination for vibration white fingers. The observed high risk for contracting white fingers could be prevented by exposure level reduction and/or restriction of exposure duration.
TOXBIB

Risk Assessment and Control of Toxic Gas Releases
Sherin-BJ
Hazard Assessment and Control Technology in Semiconductor Manufacturing, Lewis Publishers, Inc., Chelsea, Michigan, pages 115-133, 15 references, 1989
Monograph

The use of risk assessment in the semiconductor industry to evaluate the hazards of toxic gas releases was described. Several toxic gases have been used in the semiconductor industry, including metal hydride gases used in fabrication processes to dope silicon substrates. Anhydrous ammonia (7664417) has been used in reactions with silicon compounds to produce insulating silicon-nitride. Hydrogen-chloride (7647010) and chlorine (7782505) have been commonly used as etching gases. Several regulations have been promulgated by local, state and federal agencies to minimize the risk of extremely hazardous material releases into the environment. Modeling the results of an accidental discharge of extremely hazardous materials (EHM) may be useful as a tool for site planning, emergency preparedness, and emergency response. To examine the level of risk to a neighboring community of a semiconductor facility, dispersion modeling calculations were included for hypothetical releases from a facility that manufactures microwave and optoelectronic devices in San Jose, California. Various engineering controls which can be used to limit the hazards were discussed.
NIOSH

Risk perceptions and food choice: an exploratory analysis of organic- versus conventional-produce buyers.
Hammitt, James K.
Risk Analysis 10, September 1990, 367-374 tables chart

Consumer choice between organically and conventionally grown fruits and vegetables.
PAIS

Significance of risk assessment in the management of environmental exposures to chemical mixtures.
Newill-VA
U.S. Environmental Protection Agency, Office of Research and Development, Washington, D.C. 20460.
Toxicol-Ind-Health; VOL 5, ISS 5, 1989, P635-46
Language: ENGLISH
TOXBIB

Some issues in risk assessment for agricultural chemicals.
Rodricks-JV; Rachman-NJ
ENVIRON Corporation, Washington, D.C.
Am-J-Ind-Med; VOL 18, ISS 4, 1990, P467-75
JOURNAL-ARTICLE
Language: ENGLISH
Risk assessment is now a significant feature of most environmental risk management programs, in both industry and government. The purpose of this paper is to describe the elements of risk assessment, their strengths and limitations, and their relationship to other activities, including research and risk management. Risk assessment issues to be examined are those especially important to the agricultural community, including problems of high-risk subpopulations, exposure through unauthorized pathways (e.g., those resulting from groundwater contamination or pesticide misuse), and inadequacies in toxicity and residue data bases.
TOXBIB

The maximally exposed individual: an inappropriate basis for public health decisionmaking.
Goldstein, Bernard D.
Environmental Forum 6 n6 13(4) Nov-Dec, 1989
LEGAL RESOURCE INDEX

The treatment of environmental conditions in accident consequence assessments
Simmonds JR
Natl Radiological Protection Board, Chilton, UK
OECD/NEA Influence of Seasonal Conditions on Radiological Consequences of a Nuclear Accident Workshop, Paris, September 21-23, 1988, p162(9)
Conference paper
The consequences of accidental releases of radioactivity to the atmosphere will vary depending on the environmental conditions occurring at the time of the release. The different stages in an accident consequence assessment are delineated, highlighting relevant environmental and seasonal factors. The major environmental effects are considered in probabilistic accident consequence assessments by sampling from all possible weather conditions and by using site-specific data. (9 REFERENCES)
ENVIROLINE

Total Human Exposure: basic concepts, EPA field studies, and future research needs
Ott, Wayne R
EPA, Washington DC
Air & Waste Management Assn J, Jul 1990, V40, N7, P966(10)

Toxicity Assessment of Dredged Materials: Acute and Chronic Toxicity as Determined by Bioassays and Bioaccumulation Tests.
Proceedings of the International Seminar on the Environmental Aspects of Dredging Activities (Actes du Seminaire International sur les Aspects Environnement aux lies aux Activities de Dragages), c1990.
Melzian, B. D.
Environmental Research Lab., Narragansett, RI.
Reprint, 25p.
Proceedings of the International Seminar of the Environmental Aspects of Dredging Activities, Nantes, France, November 27-December 1, 1989, Session 1, p49-64.
PB91-182790 EPA/600/D-91/066 ;ERLN-1123;
NTIS Categry Codes 68D; 68C; 68G; 47D; 57H; 57U
NTIS Prices PC A03/MF A01
Whenever dredged materials are disposed into the ocean, the potential effects of the materials on human health, fishery resources, and marine ecosystems may range from being negligible or unmeasureable to important. Because these effects may differ greatly at each dredged material extraction or disposal site, each site must be evaluated on a case-by-case basis. In the United States, the manual entitled Ecological Evaluation of Proposed Discharge of Dredged Material into Ocean Waters: Implementation Manual for Section 103 of Public Law 92.532 (Marine Protection, Research, and Sanctuaries Act of 1972) (the 'Implementation Manual' or 'Green Book') was published in 1977 to give guidance on determining the potential biological effects caused by dredging operations. The Green Book provides detailed guidance on the conduct of the required bioassays on the liquid, suspendEd particulate, and solid phases of a dredged material. In addition, guidance is given on how to conduct the bioassays and bioaccumulation tests. The U.S. Environmental Protection Agency (EPA) recently published a manual that gives guidance on the appropriate

length of the bioaccumulation tests (i.e., 28 days), recommended test species, and conduct of the tests. In the past, the U.S. Food and Drug Administration's 'Action Limits' and international fish and shellfish standards have occasionally been used in the interpretation of dredged material bioaccumulation data. Even though they may be useful in some cases, there are limitations to using Action Limits and international standards when evaluating bioaccumulation test data.
NTIS

Urban Pollution: Modelling Approaches for Predicting Environmental Exposure to Toxicants.
Barnwell-TO
Middlesex Polytechnic, Enfield (England). Urban Pollution Research Center.
Environmental Research Lab., Athens, GA.
Govt Reports Announcements & Index (GRA&I), Issue 24, 1989
1988
TD3: Evidence of potentially harmful effects of pesticides and other toxic organic chemicals on aquatic organisms has led to intensive efforts toward environmental risk assessment for existing and new chemicals. The most direct procedures for evaluating environmental risk attendant to chemical use or release is a field study in which aquatic systems are monitored for damage, causal factors delineated, and results extrapolated or generalized. Concern about pesticides and other toxic chemicals is related to effects or damage. The study of this exposure, or exposure assessment, is defined as a quantitative evaluation of the concentration of chemical toxicants in contact with receptor populations for various environmental media as the toxicant is released, transported, and transformed among and within environmental compartments. Exposure assessments for toxic chemicals in the aquatic environment must accommodate both the nonpoint or variable loading case and the point or steady loading case. The influence of transport on chemical behavior is determined by the local environmental regime (flow rates, sediment concentrations, etc.); transformation processes are largely determined by chemical properties and to a lesser extent by environmental conditions. Research rept. Prepared in cooperation with Environmental Research Lab., Athens, GA.
Urban-areas; Pesticides-; Water-pollution;
Chemical-compounds,-Mathematical-models,-Water-quality,-Exposure,-Numerical-analysis,-Rivers,-Concentration-Composition,-Substitutes,-Sediments,-Great-Britain; Risk-assessment; Toxic-substances; Environmental-transport;
Environmental-effects,-Bioaccumulation,-Path-of-pollutants,-Bio
NTIS/PB89-237093, 84p. NTIS Prices: PC E06/MF E06
NTIS

CHEMICAL SPECIFIC RISK ASSESSMENT

1,1,1-TRICHLOROETHANE (MC)

Pharmacokinetics for regulatory risk analysis: the case of 1,1,1-trichloroethane (methyl chloroform).

Bogen-KT; Hall-LC

Environmental Sciences Division, Lawrence Livermore National Laboratory, California 94550.

Regul-Toxicol-Pharmacol; VOL 10, ISS 1, 1989, P26-50 (REF: 67)

Review

A methodology for using physiologically based pharmacokinetic (PBPK) models to derive predicted safe concentrations of noncarcinogens in drinking water for humans based on experimentally determined no observed adverse effect levels (NOAELs) in animals is presented and applied to the case of 1,1,1-trichloroethane (methyl chloroform, MC). For each toxic endpoint and lowest corresponding NOAEL identified for MC, we considered a set of toxicologically plausible options regarding the presumed toxic agent and the metric for effective dose to target tissue. A four-compartment PBPK model for rodents was used to estimate corresponding effective doses to the animals used to obtain the experimental NOAELs. A five-compartment PBPK model was then applied, in conjunction with a multiroute (inhalation, ingestion and dermal) human-exposure scenario, to calculate alternative concentrations of MC in drinking water predicted to result in corresponding effective doses to the same target tissues in humans.

TOXBIB

1,1,1-TRICHLOROETHANE (MC)

Health Risk Assessment of 1,1,1-Trichloroethane (MC) in California Drinking Water.

Hall-LC; Bogen-KT; McKone-TE; Mallon-B; Hall-CH

Department of Energy, Washington, DC.

Lawrence Livermore National Lab., CA.

Govt Reports Announcements & Index (GRA&I), Issue 14, 1989

This document presents an assessment of the potential health risks associated with exposure to 1,1,1-trichloroethane (methyl chloroform, or MC) dissolved in California drinking waters. This assessment is being provided to the California Department of Health Services (CDHS) for the development of drinking-water standards to manage the health risks of MC exposure. Other assessments required in the risk-management process include analyses of the technical and economic feasibilities of treating water supplies contaminated with MC. A primary goal of this health-risk assessment is to evaluate dose-response relationships for observed and potential toxic end points of MC in order to define dose rates that can be used to establish standards that will protect members of the general public from adverse health effects resulting solely from water-based exposures to MC. We also analyze the extent of human exposures attributable to MC-contaminated groundwater in California. The document consists of seven sections, plus supporting appendices. Our assessment begins in Section 2 with a review of the uses of MC, its environmental chemistry, and concentrations measured in different

environmental media. The next section provides an overview of published studies on the absorption, distribution, metabolism, and elimination of MC. Also included in Section 3 is a review and analysis of physiologically based pharmacokinetic models for predicting MC metabolism in animals and humans. In Section 4, we review studies of the acute, subchronic, and chronic toxicity of MC to animals, including a summary of data from bioassays conducted to evaluate its potential carcinogenicity. We also provide an overview of MC's health effects in humans and examine human data on MC's toxic effects on specific organs and systems. 305 refs., 7 figs., 18 tabs. (ERA citation 14:006529)
Drinking-Water; Hazardous-Materials; Health-Hazards, -Biological-Effects,-Biological-Pathways,-Carcinnogenesis,-Chlorinated-Aliphatic-Hydrocarbons,-Contamination,-Dose-Response-Relationships,-Genetic-Effects,-Historical-Aspects,-Human-Populations,-Ingestion,-Inhalation,-Risk-Assessment, -Solvents; Toxicity, -Water-Pollution; Chloroform-
NTIS/DE89003457, Portions of this document are illegible in microfiche products., 180p. NTIS Prices: PC A09/MF A01
UCRL-21054, Contract W-7405-ENG-48
NTIS

1,3-BUTADIENE
Assessment of the potential risk to workers from exposure to 1,3-butadiene.
Turnbull-D; Rodricks-JV; Brett-SM
Environ Corporation, Arlington, VA 22203.
Environ-Health-Perspect; VOL 86, 1990, P159-71 (REF: 52)
Journal Article

The available epidemiologic data provide equivocal evidence that 1,3-butadiene is carcinogenic in humans; some available studies suggest that the lymphopoietic system is a target, but there are inconsistencies among studies in the types of tumors associated with 1,3-butadiene exposure, and there is no evidence of a relationship between length of exposure and cancer risk, as one might expect if there was a true causal relationship between 1,3-butadiene exposure and cancer risk. The available chronic animal studies, however, show an increase in tumor incidence associated with exposure to high concentrations of 1,3-butadiene. In addition to the general uncertainty of the relevance of animal data to humans, there are several additional reasons why the National Toxicology Program's mouse study may not be appropriate for assessing possible human risks. These include: a) the possible involvement of a species-specific tumor virus (MuLV) in the response in mice; b) apparent differences between mice and humans in the rate of metabolism of 1,3-butadiene to reactive epoxides that may be proximate carcinogens; c) use of high dose levels that caused excess early mortality; and d) exposure of animals to 1,3-butadiene for only about half their lifetime. While recognizing the uncertainty in using the available animal data for risk assessment, we have performed low-dose extrapolation of the data to examine the implications of the data if humans were as sensitive as rats or mice to 1,3-butadiene, and to examine how the predictions of the animal data compare to that observed in the epidemiologic studies.
TOXBIB

2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN

Evaluation of potential transmission of 2,3,7,8-tetrachlorodibenzo-p-dioxin contaminated incinerator emissions to humans via foods.

Fries-GF; Paustenbach-DJ
Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland 20705.

J-Toxicol-Environ-Health; VOL 29, ISS 1, 1990, P1-43 (REF: 144)
REVIEW; REVIEW,-TUTORIAL

Interest in the potential sources of human exposure to TCDD (dioxins, TCDD and equivalents, or 2,3,7,8-tetrachlorodibenzo-p-dioxin) via foods has recently shifted from phenoxy herbicides to products of combustion and waste disposal. Proposals to locate municipal waste combustors in rural areas have raised concerns that emissions, which could contain TCDD, could contaminate animal feeds and such human foods as milk, meat, and vegetables. Important factors that can affect the results of an assessment of incinerator emissions include (1) the emission and deposition rates of TCDD from the source, (2) the fractional retention and half-life of fly ash on plants, (3) the environmental half-life of TCDD, (4) the animal feeding and management systems, (5) the bioavailability of TCDD and related compounds, (6) the metabolism and pharmacokinetics of TCDD in farm animals, (7) food consumption levels, (8) the half-life of TCDD in humans, and (9) the model selected to estimate cancer risk. For persons living in the area of highest deposition near an incinerator, a possible uptake of TCDD from foods of animal origin was estimated to be about 10-40 fg/kg.d, which was much greater than the 1-5 fg/kg.d uptake estimated for foods of plant origin. The total uptake of TCDD from foods by the maximally exposed population will usually be about 500- to 1000-fold greater than that due to inhalation. Although milk was assumed to be the most important food pathway in several previous assessments that evaluated the hazards of airborne emissions, we determined that the deposition-forage-cattle-beef pathway was the more important route of exposure. The previous assessments appear to have used inappropriate pharmacokinetic models for TCDD and to have overestimated pasture use for dairy cows. The amount of TCDD accumulated in soil from airborne emissions was found to be less important than the amount deposited in forage, a finding that is the opposite of the usual conclusions drawn for other routes of TCDD introduction into agricultural environments. Based on the assumption and parameters used in this assessment, the potential human health risks due to TCDD emissions from incinerators are insignificant compared to other background sources of TCDD. It would be desirable to measure TCDD in soil and crops around existing facilities to better evaluate this assessment, but it is likely that concentrations would be too low to reliably quantitate.
TOXBIB

2-METHYL-4-CHLOROPHENOXYACTIC ACID

Toxicology and quantitative risk assessment of environmental exposure to 2-methyl-4-chlorophenoxyactic acid (MCPA)

Martin, F.M.; Daugherty, M.L.; Talmage, S.S.; Simth, B.G.; DeRosa, C.
Health and Saf. Res. Div., Oak Ridge Natl. Lab., Oak Ridge, TN
Society of Toxicology 29th Annual Meeting 9015008 Miami Beach, FL (USA) 12-16 Feb 1990
Society of Toxicology
Society of Toxicology, 1101 14th St., NW, Ste. 1100, Washington, DC 20005, USA. Telephone: 202-293-5935. Fax: 202-371-1090.
Poster Paper No. 1399
Languages: ENGLISH
CONFERENCE PAPERS INDEX

ACRYLONITRILE

Assessment of risk from exposure to acrylonitrile: the general approach used by a consultant.

Page-NP; Cook-B
Page Associates, Gaithersburg, MD 20878.
Sci-Total-Environ; VOL 99, ISS 3, 1990, P307-16; discussion 316-7
Journal Article

The concern from low-level exposure to acrylonitrile is primarily due to its potential for carcinogenicity. Several epidemiology studies provide suggestive evidence for an association of lung cancer in workers exposed to acrylonitrile; however, smoking may be a contributing factor and therefore the role of acrylonitrile as a causative factor is unclear. Seven animal bioassays, using three routes of exposure and two strains of rats, have provided consistent results. Tumors were induced in all studies, with the primary sites of tumor induction being the brain, ear canal, gastrointestinal tract and mammary glands. The linearized multistage model was used for extrapolation purposes. The risk based on brain tumors (astrocytomas) and stomach tumors following oral exposures ranged from 1 x 10(-1) to 4 x 10(-1)mg-1kg-1day-1. The risk of inhalation exposure is somewhat less, (2-3) x 10(-2). Support for carcinogenic potential is obtained from mutagenicity studies. Acrylonitrile has been found to be mutagenic and also binds with DNA. It has been speculated that acrylonitrile is metabolized to 2-cyanoethylene oxide, which is the proximate carcinogen.
TOXBIB

AMMONIA, GASEOUS

Predicting the Consequences of Short-Term Exposure to High Concentrations of Gaseous Ammonia

Pedersen-F; Selig-RS

Journal of Hazardous Materials, Vol. 21, No. 2, pages 143-159, 15 references, 1989

Journal Article

Abstract: A method was proposed for assessment of the effects of the accidental release of gaseous ammonia (7664417) on humans. Information was provided on the toxicity of ammonia. The effects of precautions such as running away from the gas cloud or going indoors were considered. A model was discussed, based on theoretical work and data extrapolated from experiments on laboratory animals. The model considered the density of ammonia relative to air, the form in which the ammonia was stored such as gaseous or liquid, the domination of gravity causing a slumping phase in the initial release of dense cloud dispersions, and the effects of wind turbulence. Data concerning accidents at Houston, Texas and Potchefstroom, South Africa were used to evaluate the method. The authors note that gas dispersion calculated by means of the WHAZAN dense cloud model provides a fairly realistic estimate of the area of the cloud. Areas in which deaths and permanent injuries actually occurred at Houston and Potchefstroom were relatively small compared with the calculated predictions. The authors conclude that the distance to 0 percent fatality provides a fairly realistic estimate of the limit of the high risk area. The area covered by a toxic ammonia cloud may be represented by 4 isopleths at ground level: 10,000 parts per million (ppm), very high risk; 5000ppm, high risk with very high risk to vulnerable members of the population; 2500ppm, some risk; and 1200ppm, predicted limit of cloud for emergency planning purposes.

NIOSH

ASBESTOS

Guadalupe corridor transportation project asbestos health risk assessment, San Jose, California.

Steiner-WE; Koehler-JL; Popenuck-WW

Atmospheric Sciences Group, Woodward-Clyde Consultants, Oakland, California 94607-4014.

Sci-Total-Environ; VOL 93, 1990, P115-24

JOURNAL ARTICLE

A study was conducted to assess health risks and identify a set of appropriate mitigation measures to control airborne emissions of natural asbestos from construction of the Guadalupe Corridor Transportation Project, a highway and light-rail construction project in San Jose, California. This study supported a state-mandated Environmental Impact Report. Communication Hill, along the project route, is known to contain natural chrysotile asbestos-bearing rock. The study described in this paper estimated potential asbestos emissions, identified and evaluated mitigation measures, and evaluated air pathway exposure and health risks. With mitigation, estimated risks were found to be acceptable by the regulatory agency, and construction proceeded.

TOXBIB

BENZENE

The toxicity of benzene and its metabolism and molecular pathology in human risk assessment

Yardley-Jones A, Anderson D, Parke DV
Dept. of Biochemistry, Univ. of Surrey, Guildford UK
British J of Industrial Medicine 48, 1991, 437-444

BIOAEROSOLS

Bioaerosols: prevalence and health effects in the indoor environment.

Burge-H
University of Michigan Medical Center, Ann Arbor 48109-0529.
J-Allergy-Clin-Immunol; VOL 86, ISS 5, 1990, P687-701 (REF: 48)
JOURNAL-ARTICLE; REVIEW,-TUTORIAL; REVIEW

Assessing the role of bioaerosols in residence-related symptoms involves (1) determining that symptoms are related to the residence by medical examination and careful questioning, (2) connecting reported symptoms with known or hypothesized effects of bioaerosols, (3) examining the residence for bioaerosol risk factors such as overcrowding/poor ventilation, inappropriate outdoor air intrusion, and dampness/standing water, (4) and finally, if no obvious risk factors are present, air sampling. Air sampling should always be a last resort and should use a reliable volumetric method. Particulate samplers, such as the Burkard personal spore trap, are inexpensive alternatives to viable particle samplers and will provide data on most organisms implicated in hypersensitivity diseases. Interpretation of residential bioaerosol sample data requires both qualitative and quantitative comparison with adjacent outdoor air and examination of aerosol changes related to domestic activities. Recommendations that should lead to a decrease in indoor bioaerosols include the use of air conditioning to allow limitation of outdoor aerosols, prevention of dampness or moisture intrusion, and discouraging the use of humidifying devices other than steam. Bioaerosol assessment in the workplace is often more complex than for residences. Because the symptomatic subjects are not in charge of the environment, such situations often lead to difficult employee/management relations and occasionally to litigation. It is essential that each step in workplace bioaerosol assessment be defensible and that the best possible methods are used. The approach is similar to the approach used for residences, but on a larger scale. Symptom assessment must include stress and ergonomic factors. Air sampling, if this is necessary, must usually be extensive with controls for ventilation rates, occupancy, and spatial variation.
TOXBIB

CDD'S, CDF'S

Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and-Dibenzofurans (CDDs and CDFs) and 1989 Update.

Bellin-JS; Barnes-DG

Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.

Govt Reports Announcements & Index (GRA&I), Issue 08, 1990

In 1987, the U.S. Environmental Protection Agency (EPA) formally adopted an interim toxicity equivalency factor (TEF) procedure (see PB89 125041), which has been used in addressing a variety of situations of environmental contamination involving CDDs and CDFs. The method, published as 'Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs),' is republished as Part I of the document. Since the 1987 report was published, the EPA has been active in an international project aimed at adopting a common set of TEFs, the International TEFs/89 (I-TEFs/89), to promote consistency in addressing contamination involving CDDs and CDFs. The '1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs)' identifies EPA's adoption of the I-TEFs/89 as a revision to the method currently in use. The 1989 Update is Part II of the document. See also PB89-125041.

Chlorine-organic-compounds; Furans-;
Toxicity,-Hazardous-materials,-Exposure,-Bioassay,-Public-health,-Fly-ash,-Industrial-wastes,-Tables-Data,-Waste-disposal,-Carcinogens; Risk-assessment;
Dioxins-; Air-pollution-effects-Humans,-Dibenzodioxin-tetrachloro,-Land

NTIS/PB90-145756, 98p. NTIS Prices: PC A05/MF A01

EPA/625/3-89/016

NTIS

CHEMICAL WARFARE AGENTS

Behavior of chemical warfare agents in water: aquatic transport modeling for assessing the potential impacts of accidental releases

Breck James E.

ORNL, Oak Ridge, TN

Env Professional, 1989, v11, n4, p324(11)

Journal article

As part of the Chemical Stockpile Disposal Program, information was compiled on the behavior of chemical warfare agents in water. A simple one-dimensional model was used to: organize and integrate the chemical and environmental information on the behavior of agents in water; identify the factors and processes likely to be most important in determining the agent concentration in water following an accident; and compare the concentration versus time profiles for spills involving different agents, streams, and environmental conditions. This kind of analysis can aid in the assessment of the environmental impacts on aquatic biota and in planning emergency response. (1 DIAGRAM, 1 GRAPH, 38 REFERENCES, 2 TABLES)

CHROMIUM

Evaluation of issues relating to the carcinogen risk assessment of chromium.

Gibb-H; Chen-C

Carcinogen Assessment Group, U.S. Environmental Protection Agency, Washington, DC 20460.

Sci-Total-Environ; VOL 86, ISS 1-2, 1989, P181-6 (REF: 17)

Review-Journal Article

Important issues in the carcinogenic risk assessment of chromium compounds are whether both trivalent and hexavalent chromium compounds are carcinogenic, the role of solubility in the carcinogenic response, and the carcinogenicity of ingested chromium. Hexavalent chromium compounds are carcinogenic to animals via several routes of exposure, while trivalent chromium compounds, although they demonstrate evidence of genotoxicity, have not been shown in animal studies to be carcinogenic. Workers in chromate production plants, where the risk of lung cancer is elevated, are exposed to both trivalent and hexavalent chromium compounds. A cancer unit risk estimate for Wistar rats exposed to a hexavalent chromium aerosol (sodium dichromate) is less than the risk estimate for workers in chromate production. If this difference is biologically real, a possible explanation may be that trivalent compounds also have a carcinogenic effect. For hexavalent chromium compounds, it is contended that only sparingly soluble hexavalent chromium compounds are carcinogenic. Recent evidence, however, indicates that highly soluble hexavalent chromium compounds are also carcinogenic. Animal ingestion studies have not found trivalent chromium compounds to be carcinogenic by ingestion; hexavalent compounds have not been studied. Research by EPA to address the issue of valence state and solubility with respect to carcinogenicity is currently being conducted.

TOXBIB

DIMETHYLAMINE

Summary Review of Health Effects Associated with Dimethylamine: Health Issue Assessment.

Rothwell-CE; Turck-P; Parker-D; Rowland-J; England-T

Environmental Protection Agency, Research Triangle Park, NC. Environmental Criteria and Assessment Office.

Dynamac Corp., Rockville, MD.

Govt Reports Announcements & Index (GRA&I), Issue 24, 1990

Chemical properties and toxicity studies for dimethylamine (DMA) are reviewed. At 25 C, DMA is a water-soluble, colorless, flammable gas, with both natural and anthropogenic sources. Body burden of DMA is due to rapid absorption of inhaled or ingested DMA, along with endogenous formation; urinary excretion of unmetabolized compound is primary route of elimination. Microsomal enzymes in nose and liver convert DMA to formaldehyde. DMA in the stomach in presence of nitrite and acid conditions can be converted to nitrosamines. Chronic inhalation studies in 2 or more species indicate concentration-dependent toxicity in nasal mucosa with no other tissues affected except small decrease in body weight at 175 ppm. There is no evidence for carcinogenicity, mutagenicity; there are no data on teratogenic or reproductive effects. Human data available are limited to secondary reports of eye irritation at low concentration, with nose, throat, and lung irritation at 100 ppm DMA. Skin or

eye contact produces severe burns. Further data are needed on ambient levels and human effects. Sponsored by Environmental Protection Agency, Research Triangle Park, NC. Environmental Criteria and Assessment Office.
Dimethylamine-;
Toxicity,-Public-health,-Exposure,-Laboratory-animals,-Metabolism;
Health-hazards; Risk-assessment; Air-pollution-effects-Animals;
Air-pollution-effects-Humans,-Pharmacokinetics,-Liver-microsom
NTIS/PB90-271909, 74p. NTIS Prices: PC A04/MF A01
NTIS

DIOXIN

Dioxin: Research needs for risk assessment

Travis, C.C.; Hattemer-Frey, H.A.; Birmingham, B.; Gilman, A.; Clement, R.; Tashiro, C. (eds.)
Off. Risk Anal., Health and Saf. Res. Div., Oak Ridge Natl. Lab., P.O. Box 2008, Build. 4500S, Oak Ridge, TN 37831-6109, USA
International Symposium on Chlorinated Dioxins and Related Compounds, Toronto, Ont. (Canada) 17-22 Sep 1989
Chlorinated dioxins and related compounds 1989 -- PART 1
CHEMOSPHERE, VOL. 20, NO. 7-9, 1990, 729-742

Evaluating the risks associated with exposure to environmental pollutants involves identifying the sources and magnitude of environmental input and the pathways and extent of human exposure. Multimedia transport models, such as the Fugacity model, can be used to study the environmental fate of pollutants released into the environment and the extent of human exposure.
POLLUTION ABSTRACTS

Assessment of potential health risks from dermal exposure to dioxin in paper products

Keenan, R.E.; Sauer, M.M.; Lawrence, F.H.
Envirologic Data, 295 Forest Ave., Portland, ME 04101, USA
8. International Symposium on Chlorinated Dioxins and Related Compounds 1988 Umea (Sweden) 21-26 Aug 1988
CHEMOSPHERE VOL. 19, NO. 1-6, 1989, 877-882

The National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI) contracted with Envirologic Data, Inc. to assess the potential risks to human health from dermal exposure to dioxin in a variety of bleached pulp-based products. The risk assessment evaluated dioxin levels in communication papers, such as those used in books and newspapers and for typing and writing. In addition, a number of personal care paper products were investigated, including disposable diapers, facial tissue, toilet tissue, sanitary napkins, and paper towels. Numerical results of the risk assessment were expressed as concentration of TCDD toxic equivalents in bleached pulp corresponding to a preselected, upper-bound lifetime cancer risk level of one in one million. For all of the personal care products modeled in this analysis, risk-specific concentrations of 160,000 ppt for females and 510,000 ppt for males were calculated. In the case of combined dermal exposure to communication papers

and personal care products, risk-specific concentrations of TCDD equivalents in the pulp were estimated at 4,100 to 8,900 ppt.
POLLUTION ABSTRACTS

Human exposures from dioxin in soil--a meeting report.
Gough M
Center for Risk Management, Resources for the Future, Washington, D.C.
J Toxicol Environ Health; VOL 32 (2), 1991, 205-235
JOURNAL-ARTICLE

A 1984 risk assessment identified 1 part per billion (ppb) of dioxin in soil as a "level of concern" at Times Beach, Mo. The authors of the assessment had to rely on many assumptions in their analysis, but since that time, a number of investigators have obtained data that bear directly on estimating exposures from substances in soil. Partly because of the assumptions and partly because of the site-specific nature of their analysis, the authors of the Times Beach risk assessment cautioned against the adoption of 1 ppb as a delineator between acceptable and nonacceptable levels of contamination. Those cautions have been more frequently ignored than honored, and 1 ppb has become a de facto standard. In November 1989, the Center for Risk Management at Resources for the Future hosted 50 experts at a workshop that heard and discussed published and new research about exposure estimates and measures. The 1984 assessment identified soil ingestion by toddlers as the single most important source of exposure to dioxin in soil; it assumed that toddlers ingested 10 g soil daily. Research discussed at the workshop shows that the average child ingests about 0.04 g soil daily, but that 1 of 320 studied children ingested 5 g. These findings leave open the risk management decision about whether acceptable exposure levels should be established to protect the average child or the extreme child. Furthermore, the absence of children from commercial and industrial sites led to suggestions that higher concentrations of dioxin are acceptable in soil at such sites. Some workshop participants objected to those suggestions because of the difficulty of assuring that such sites would not revert to residential use in the future. Whether deed restrictions are sufficient to prevent such reversions was seen as an important research topic. Workshop participants repeatedly discussed the importance of site-specific data in estimating exposures: Measured half-lives of dioxin in different soils range from 18 mo to greater than 100 yr; bioavailability from various soils differs by at least 20-fold; and the amounts of soil ingested by grazing cattle can differ 20-fold depending on conditions. Workshop participants agreed upon some suggestions for research and generally favored the development of guidelines for exposure assessment that would allow consideration of site-specific information. Furthermore, they generally agreed that no single concentration should be taken as a level of concern. Instead, levels should be established that consider the planned uses of the sites.
TOXBIB

ETHYLENE DIBROMIDE

Ethylene dibromide: toxicology and risk assessment.

Alexeeff-GV; Kilgore-WW; Li-MY

Office of Environmental Health Hazard Assessment, California Department of Health Services, Berkeley 94704.

Rev-Environ-Contam-Toxicol; VOL 112, 1990, P49-122 (REF: 139)

Journal Article

Since the 1920s ethylene dibromide's (EDB's) primary use has been as a scavenger of lead compounds in gasoline. Gasoline evaporation contributed to EDB emissions into the environment. In 1973, the United States Environmental Protection Agency (EPA) issued regulations to reduce the use of leaded gasoline and this has resulted in lower EDB usage and emissions. In addition, EDB has been used extensively as a fumigant since 1948. Its volatility and versatility, based on chemical and biocidal properties, led to its use as a soil sterilant, as a spot fumigant of grain milling machinery, and as a control agent in grain, fruit and vegetable infestations. In 1977 the EPA began a review of EDB's pesticidal uses which eventually led to its cancellation for most agricultural applications. Disposal of EDB and contamination of water supplies remain major environmental concerns. Analyses of risks from EDB exposure have focused on potential carcinogenic effects. Initial risk estimates, based on
animal studies, indicated that citrus workers had essentially a 100% chance of contracting cancer.
TOXBIB

METHYL N-BUTYL KETONE

Critical review of the toxicity of methyl n-butyl ketone: risk from occupational exposure

Bos Peter MJ, deMik G, Bragt Peter C

Dept. of Occupational Toxicology, TNO Medical Biological Laboratory, Rijswijk, Netherlands

American J of Industrial Medicine 20 (1991): 175-194

Journal Article-Research

METHYL BROMIDE

Occupational and environmental hygiene assessment of fumigations with methyl bromide

Guillemin, M.P.; Hillier, R.S.; Bernhard, C.A.
Inst. Occup. Health Sci., Univ. Lausanne, Bugnon 19, CH-1005 Lausanne, Switzerland
ANN. OCCUP. HYG VOL. 34, NO. 6, 1990, 591-607

Use of methyl bromide for pest control fumigation may result in adverse exposure to three populations: the actual fumigators; other workers not actually involved in the fumigation; and the general public in the vicinity. The risk of exposure of these three target populations in Switzerland was investigated. The methodology was a combination of occupational hygiene surveys, including a preliminary hazard analysis, with a comprehensive assessment of the safety and health systems in use based on the "Management Oversight and Risk Tree" (MORT) method (Knox and Eicher, MORT User's Manual, Revision 2. DOE 76-45/4 (1983)).
POLLUTION ABSTRACTS

OCTACHLORODIBENZO-P-DIOXIN (OCDD)

Health effects and environmental characterization of octachlorodibenzo-p-dioxin (OCDD): Impact on risk assessment of former wood treatment sites

Copeland, T.; Harris, M.; Finley, B.; Paustenbach, D.
ChemRisk Div., McLaren/Hart, Irvine, CA
911 5031: 30th Annual Meeting of the Society of Toxicology, Dallas, TX (USA), 25 Feb - 1 Mar 1991
Society of Toxicology Poster Paper No. 186
Society of Toxicology, 1101 14th Street, NW, Suite 1100, Washington, DC 20005, USA. Telephone: (202) 371-1393. Fax: (202) 371-1090.,
Languages: ENGLISH
171758 91038423
POLLUTION ABSTRACTS

RADON

Radon in the Living Environment. Levels and Risks.
Anon
National Inst. of Radiological Sciences, Chiba (Japan).
Govt Reports Announcements & Index (GRA&I), Issue 12, 1990
Individual papers in this series are separatedly indexed. (ERA citation 15:011313) In Japanese. NIRS seminar on environmental research (15th), Chiba (Japan), 3-4 Dec 1987.
Radon,-Meetings; Foreign-technology,-EDB-540130; Public-health; Risk-assessment; Radiation-dosage; Air-pollution-effects-Humans; Indoor-air-pollution
NTIS/DE90705994, U.S. Sales Only., 344p. NTIS Prices: PC A15/MF A01
NIRS-M-73, CONF-8712153
NTIS

Statewide scientific study of radon: summary report; task 7 final report.
New Jersey Dept. of Environmental Protection. Bur. of Environmental Radiation.
April 1989, v.p., il tables maps
ORDER INFO: 401 E. State St., CN 402, Trenton, NJ 08625 pa
LANGUAGE: Engl
Report
Prepared by Camp Dresser & McKee Inc.
Key results of a sampling and data collection program at over 6,000 homes and buildings, and assessment of the health risk of indoor radon exposure.
PAIS

TRICHLOROFLUOROMETHANE

Health Risk Assessment of Trichlorofluoromethane in California Drinking Water,
Reed-NR; Reed-W; Weir-K; Beltran-K; Babapour-R
California Univ., Davis. Dept. of Environmental Toxicology.
Govt Reports Announcements & Index (GRA&I), Issue 17, 1989

A review of the existing literature pertinent to the health risk posed by the use of Freon-11 contaminated drinking water, an estimation of the Freon-11 exposure for California residents based on the most recent data on Freon-11 concentrations in California drinking water supplies, and a delineation of the level of Freon-11 that may cause a noncarcinogenic health effect.
Public-health;
Drinking-water,-Potable-water,-Fluorohydrocarbons,-Exposure,-Concentration-Composition,-Toxicology,-Dosage,-Bioassays,-California; Risk-assessment; Methane-trichloro-fluoro,-Freons,-Path-of-pollutants,-Water-pol
NTIS/PB89-190391, 93p.
NTIS

Alternatives to Conventional Risk Assessment in Determining Appropriate Cleanup Levels for Superfund Remediation (Question 3105).
Hetes-RG
Environmental Protection Agency, Washington, DC. Office of Cooperative Environmental Management.
North Carolina Univ. at Chapel Hill. Dept. of Environmental Sciences and Engineering.
Govt Reports Announcements & Index (GRA&I), Issue 21, 1989

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), more commonly called Superfund, established a national program for responding to releases of hazardous substances into the environment. Central to the Superfund program are the questions of which sites are deserving of remedial action and to what extent they should be cleaned. The report includes a summary and analysis of the existing method of remedial action selection, both in design and practice. The consensus is that the existing process as designed is adequate, but problems arise from inconsistent application. The conventional risk assessment is found to be limited in addressing multi-compound and multi-media situations. The report identifies four alternatives to the conventional risk assessment. Conclusions include: concentration-based standards yielding consistent outcomes inadequately address additivity, exposure, costs, and site characteristics; best demonstrated available technology holds the greatest future promise for acceptability and effectiveness but is presently inadequate due to limited existing experience; benefit-cost analysis is not viable because CERCLA issues are not conducive to economic quantification; improved risk assessment has the greatest short-term potential for augmenting existing methods, not requiring extensive change, and better addressing multiple contaminant and media situations. Technical rept. (Final). Sponsored by Environmental Protection Agency, Washington, DC. Office of Cooperative Environmental Management.
Hazardous-materials; Waste-disposal;
Site-surveys,-Water-quality,-Standards,-Public-health,-Benefit-cost-analysis,-Acceptability; Risk-assessment; Superfund-program;
Remedial-action,-State-programs,-Best-technology; Cleanups-
NTIS/PB89-211726, 96p. NTIS Prices: PC A05/MF A01
Grant EPA-U-913012-01-0
NTIS

Analytical principles for occupational health prevention in sanitation of waste disposals.
Presented at: Asia-Pacific Symposium on Environmental and Occupational Toxicology, (Singapore), 4-7 Oct 1987
Luedersdorf, R.; Schaecke, G.
Inst. Occup. Med., Freie Univ. Berlin, Koenigsberger St. 36, D-1000 Berlin 45, FRG
Publ: Publ by: INTERNATIONAL CENTER FOR MEDICAL RESEARCH, KOBE UNIVERSITY SCHOOL OF MEDICINE, KOBE (JAPAN), 1988, pp. 467-474 1988
In Environmental and Occupational Chemical Hazards, Sumino, K. (ed.)
Language: English Summary Language: English
Document Type: Book-chapter article
Subfile: 24 Toxicology Abstracts

Toxic waste disposals may produce severe problem for the environment. During the sanitation of such disposals, a sufficient occupational health prevention for the employees must be assured. As toxic compounds are usually found as complex mixtures of different chemical compounds in varying compositions, no general arrangement is applicable. After a damage assessment, comprehensive chemical analyses have to be done from the contaminated materials such as soil and water for the first estimation of a health risk. Because inhalation is the main entering route into the human organism, air samples have to be taken regularly during the work process. The distribution and concentration of airborne substances deviates from those of the original contaminated materials. A biological monitoring is helpful for a stress estimation.
LIFE SCIENCES

Closing the NPL Book under the Original HRS.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response.
Fact sheet, 5p

The Fact Sheet discusses the closing of the Old NPL under the original HRS. Since 1982, the U.S. Environmental Protection Agency (EPA) has been preparing the National Priorities List (NPL). The list informs the public of uncontrolled hazardous waste sites that warrant further investigation to determine if they pose risks to public health or the environment. Such sites are eligible for long-term 'remedial action' financed under the Trust Fund established by the Comprehensive Environmental Response, Compensation, and Liability Act as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Sites are placed on the NPL primarily on the basis of their scores under EPA's Hazard Ranking System (HRS) model developed in 1982. EPA has now revised the HRS in response to SARA. The revised HRS, which will become effective late in February 1991, 90 days after its publication in the Federal Register,is a more comprehensive and accurate scoring system than the original HRS and will add new types of sites to the NPL.
PB91-921302
EPA/9320.7-04/FS
NTIS

Decision and risk analysis for environmental remediation work
Angell, K.G.
Groundwater Technology, Inc.
Air & Waste Management Association 83rd Annual Meeting & Exhibition
9020835 Pittsburgh, PA (USA) 24-29 Jun 1990
Air & Waste Management Association
Air & Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230, USA. Telephone: (412) 232-3444., Paper No. 90-12.8
Languages: ENGLISH
CONFERENCE PAPERS INDEX

Emergency response risk assessment and environmental contamination cleanup criteria
Greaney Dennis L., Hope Jr., William B.
Env Canada/et al Toxic Substances 4th Conference, Montreal PQ, April 4-5, 1990, p173(12)
Conference paper

Unlike remedial-response chemical cleanups, emergency-response cleanups are characterized by unplanned rapid multiple agency decision making. Cleanup errors can occur in two forms; Type I can be defined as the establishment of cleanup criteria that do not meet an acceptable risk in the environment, while Type II is the establishment of cleanup criteria that require site cleanup beyond the level of acceptable risk. Six commonly used or available approaches are outlined for establishing cleanup criteria. While no one approach is applicable for all incidents, the knowledge of these approaches will result in better decision making. (13 REFERENCES)
ENVIROLINE

International approaches to establishing site cleanup levels: an evaluation of different methods
Kelly, Kathryn E
Env Toxicology Intl, Seattle, WA
Env Canada/et al Toxic Substances 4th Conference, Montreal PQ, Apr 4-5, 1990, P113(13)
Conference Paper
Criteria are established for an ideal method for establishing soil cleanup levels, and various methods currently employed are described. Criteria include: Be consistent, be flexible, incorporate site-specific data, address al environmental media, address all environmental contaminants of concern, distinguish various degrees of contaminnt exposure, deal with various routes of exposure, deal with various receptors, deal with the effect of more than one contaminant, differentiate between non-carcinogenic and carcinogenic contaminants, deal with missing data, incorporate desired end land use, provide adequate documentation of all calculations and values, provide quantitative evaluation, be user-friendly, and be cost-effective. The advantages of the absolute, relative, and combined approaches are described. (1 DIAGRAM, 15 REFERENCES, 1 TABLE)
ENVIRONLINE

Marine Processes, Their Relationship to Pollution, and a Framework for Waste Management (Chapter 1).
Baumgartner DJ, Duedall IW
Environmental Research Lab.-Narragansett, Newport, OR. Mark O. Hatfield Marine Science Center. Office of Technology Assessment, Washington, DC. Florida Inst. of Tech., Melbourne. 1990. 10p.
Book chapter. Reprints: Marine Processes, Their Relationship to Pollution, and a Framework for Waste Management (Chapter 1), 1990. Also pub. as Florida Inst. of Tech., Melbourne. report. no. CONTRIB-139 and Environmental Research Lab., Narragansett, Newport, OR., Mark O. Hatfield Marine Science Center. rept. no. CONTRIB-N067. Pub. in Oceanic Processes in Marine Pollution Transformation, v6 Chapter 1, p3-11, 1990. Prepared in cooperation with Office of Technology Assessment, Washington, DC. Sponsored by Florida Inst. of Tech.
PB91-132829 EPA/600/D-90/187 ERLN-N067

The transport and transformation processes which influence the way in which waste materials are dispersed and incorporated into the marine environment are reviewed and summarized as a preface for appreciation of the technical papers which follow in the volume. In a similar vein the papers are discussed in relation to an outline of a risk assessment framework which may be useful in guiding both regulatory action and future research. It is concluded that marine environmental process research has a role to play, but not an exclusive role in regulation. The nature of the environment is such that not all the scientific questions have been answered, nor can they be expected to be answered in the near future to the satisfaction of regulatory agencies or the public at large. Consequently, regulatory actions must incorporate other approaches and research must be supported that focuses on critical environmental problems.
NTIS

Remedial overkill or when is clean "clean" enough?
Walker, P.B.
Pendleton and Sabian, PC, 303 E. 17th Ave., Suite 1000, Denver, CO 80203, USA
American Industrial Hygiene Conference on Industrial Hygiene in the World of Tomorrow, Orlando, FL (USA), 13-18 May 1990
Industrial hygiene in the world of tomorrow, 1990, 206
American Industrial Hygiene Association, 345 White Pond Drive, Akron, OH 44320 (USA)

During the 1986 reauthorization of the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA"), 42 U.S.C. 9601-9675, Congress considered establishing uniform, nationally applicable cleanup standards for Superfund sites, but was reluctant to make a specific legislative determination of "how clean is clean". Instead, Congress enacted Section 121 of CERCLA which expanded the Environmental Protection Agency's ("EPA") concept of "applicable or relevant and appropriate requirements" ("ARARs") to be attained during cleanup. Cleanup costs frequently reach $1 million per acre. Potentially responsible parties ("PRPs") held liable under CERCLA for the cleanup of a site often charge

that significant monies are being wasted. Disputes over appropriate levels of risk abound and the designation of ARARs for a site is one of the most controversial aspects of remedy selection.
POLLUTION ABSTRACTS

Revised Hazard Ranking System: Background Information.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response.
Fact sheet, November 1990, 13p.
PB91-921303 EPA/9320.7-03/FS;

The Fact Sheet discusses the Hazard Ranking System (HRS) in response to the Superfund Amendments and Reauthorization Act of 1986 (SARA). The HRS is the scoring system EPA uses to assess the relative threat associated with the release or potential release of hazardous substances from a waste site. The HRS score is the primary criterion EPA uses to determine whether a site should be placed on the National Priorities List (NPL). The HRS uses data that can be collected relatively quickly and inexpensively, thus allowing most Superfund resources to be directed to remedial actions at sites on the NPL.
NTIS

Revised Hazard Ranking System: Qs and As.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response. November 1990.
Fact sheet, 8p.
PB91-921305 EPA/9320.7-02/FS;
NTIS

Superfund research plan, 1989-1990.
United States. Environmental Protection Agency. Office of Research and Development. Hazardous Waste/Superfund Research Com. December 1989.
xii+93p, bibls tables charts maps
Revised edition
EPA/600/8-90/037; SD cat. no. EP 1.23/9:600/8-90/037;
ORDER INFO: U.S. EPA/ORD, Washington, DC 20460
Monograph

Research, development, demonstration, and technical assistance to reduce or eliminate risks posed by uncontrolled releases of hazardous substances into the environment. Covers field procedures and guidance, treatment technologies, health effects, risk assessment, and detection.
506328 900807263 PAIS

Superfund cleanups, ethics, and environmental risk assessment.
Brown, Donald A.
Boston College Environmental Affairs Law Review 16 n2 181-198 Wntr, 1989
LEGAL RESOURCE INDEX

Verfahren und Modelle fuer den Bodenschutz zur Belastungs- und Risikoabschaetzung von Schadstoffeintraegen. Darstellung des Forschungsstandes und -bedarfs. (Methods and models on soil conservation for the estimation of burdenings and for risk assessment of pollution. Status and demand on research).

Kneib-W.; Runge-I
Bundesministerium fuer Forschung und Technologie, Bonn (Germany, F.R.).
Kernforschungsanlage Juelich G.m.b.H. (Germany, F.R.). Projekttraeger Biologie, Oekologie, Energie.
Govt Reports Announcements & Index (GRA&I), Issue 15, 1990

There are only few user friendly applicable models to be found and even less which are able to meet the demands of a burdening and risk assessment. From the point of view of soil science many of the methods and models find a satisfactory way to treat the vertical asepct, the lateral aspect is frequently neglected though. The collected literature shows a decreasing number of models taking into account groundwater > soil solution > plant > adjacent soils. A possible way to meet all the demands of a risk assessment could be constituted by a combination of the stochastic formulation of soil data to reveal uniform areas (or standardized differences), followed by a model quantifying relative sensitivities of each area as defined within the stochastic part. All possible ways through the soil should be taken into account and the antagonistic aspects of efflux and contamination should reproducibly be represented. (orig./EF). (Copyright (c) 1990 by FIZ. Citation no. 90:080798.) In German.
Soil-conservation,-Land-pollution-control; Land-pollution; Risk-assessment;
Mathematical-models,-Pollutants,-Inventories;
Research-programs,-Environmental-policy,-Forecasting;
Foreign-technology,-Water-pollution,-Ground-water,-Environment
NTIS/TIB/B90-80798, 577p. NTIS Prices: PC E99
Rept no. Juel-Spez-545, Contract BMFT 0339186A
NTIS

RADIATION

A new hazard index for the determination of risk potentials of disposed radioactive wastes
Kirchner, Gerald
Univ of Bremen FRG
J Env Radioactivity, 1990, V11, N1, P71(25)

Biological Effects of Radio Frequency Electromagnetic Radiation
Adey-WR
In: Electromagnetic Interaction with Biological Systems, J. C. Lin, Editor; New York, Plenum Press, 1989, pages 109-140, 173 references,
Monograph Chapter

This review considered the biological effects of radio frequency electromagnetic radiation, with specific information provided concerning the following: the radiofrequency environment and its biophysical implications; whole body resonance at radiowave and microwave frequencies; tissue determinations of radiofrequency energy absorption; biomolecular mechanisms in interactions with radiofrequency fields; dielectric behavior of tissue elements and thermal responses to radio frequency fields; biomolecular organization in responses to continuous wave and amplitude modulated radiofrequency fields at athermal levels; millimeter microwave interactions with cells and macromolecules, absorption of millimeter microwaves in bacterial cultures; millimeter wave absorption in aqueous solutions of DNA; cell membrane substrates for transmembrane signaling and energy transfer; structural substrates of radiofrequency field interactions; the cellular microenvironment; intercellular communication through gap junctions; and cell membrane receptor proteins as substrates for transmembrane signaling and energy transfer. Experimental evidence was presented concerning amplitude modulation dependent tissue interactions with radiofrequency fields. Discussion was provided on the intercellular communication and cancer promotion, and theoretical and experimental models of cooperative organization in physiological systems.
NIOSH

Low dose radiation--Basis of risk assessment

Fry RJ
U.S. Dept. of Health and Human Services; Public Health Service; National Inst. of Health, National Cancer Institute.
The Univ of Tennessee, Biology Div., P.O. Box Y, Oak Ridge, TN 37831

Crisp Data Base National Institutes Of Health
Research

RPROJ/CRISP The proposed conference is the 14th of the world renowned series, that honors the memory of L. H. Gray. The subject of the conference is very timely because radiation risk estimates are undergoing reexamination by the United Nations Scientific Committee on Effects of Atomic Radiation (UNSCEAR), National Academy of Sciences, International Commission on Radiological Protection and the National Council on Radiation and Measurements (NCRP). For example, 1) The reassessment of the atomic bomb dosimetry is near completion. The initial risk estimates based on the new dosimetry and the cancer mortality data accumulated up to 1985 suggest that the risk of cancer from exposure to radiation may be greater than previously held. The new dosimetry indicates that the risk estimates for neutrons may not be obtained from data from the survivors at Hiroshima. 2) An ICRU-ICRP joint committee has recommended that the Quality Factor for neutrons should be increased from 10-20. 3) The vexed question of the risk of lung cancer from protracted exposure to the alpha particles, that arise from radon daughters has been examined recently by the NCRP and Measurements and the National Academy of Sciences BEIR IV committee. 4) The exquisite sensitivity of the brain between 8-15 week gestational age has recently led to extensive studies. 5) There is also a considerable body of data obtained recently from molecular chromosomal, cellular and whole animal studies that are important for a sound approach to risk estimates of radiation- induced cancer, genetic and other tissue effects. There can have been few, if any, times that there has been so much new information about radiation effects. It is of great importance that this information is analyzed and interpreted correctly. The aim of the proposed meeting is to review and discuss the epidemiological and experimental data, the methods of analysis, the modeling and methods of extrapolation across species the participants will come from many parts of the world. Much should be learned both within and outside the meeting room. A reasonably high proportion of the speakers will be invited but time will be given over to other presentations and posters, especially by those who have entered the field recently. This grant application is to ensure an appropriate participation of U.S. scientists at the meeting, especially of the younger workers in the field.
CRISP

ECOLOGICAL RISK

Analysis of PCDD and PCDF patterns in soil samples: Use in the estimation of the risk of exposure
Birmingham, B.; Birmingham, B.; Gilman, A.; Clement, R.; Tashiro, C. (eds.)
Ontario Minist. Environ., Hazard. Contam. Coord. Branch, 135 St. Clair Ave. W., Toronto, Ont. M4V 1P5, Canada
International Symposium on Chlorinated Dioxins and Related Compounds, Toronto, Ont. (Canada) 17-22 Sep 1989
CHLORINATED DIOXINS AND RELATED COMPOUNDS 1989 -- PART 1
CHEMOSPHERE, VOL. 20, NO. 7-9, 1990, 807-814

Public concern about PCDD and PCDF in incinerator emissions has focused attention on the potential for these compounds to enter the food chain. The Ontario Ministry of the Environment has extensively investigated PCDD/PCDF levels in incinerator emissions, urban soils near incinerators and major food products available for consumption in Ontario. No clearcut connection between emission sources and levels of PCDD/PCDF in soil or food has been found. However the number of samples analysed in these studies has been limited. Since soil may be a pathway of human exposure through dermal contact or ingestion, a wider data set of PCDD/PCDF analyses of U.S. and Canadian soils from rural, urban and industrial sources was examined. Levels, patterns and quantities of 2,3,7,8-TCDD toxicity equivalents (TEQ) of PCDD/PCDF in soils from various sources were analysed.
161635 91-02646 POLLUTION ABSTRACTS

Assessment of Ecologic Risks Related to Chemical Exposure: Methods and Strategies Used in the United States.
Falco-JW; Moraski-RV
Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.
Govt Reports Announcements & Index (GRA&I), Issue 22, 1989
1988
TD3: The state-of-the-art assessment of risk to the ecosystem is still evolving. Although single-species tests have provided valuable information for the assessment of ecologic risk, it is necessary to focus on ecosystems-level tests and analyses. The increasing availability of predictive models makes assessment of risk to the environment, rather than simply to a single species, more possible. The paper presents a partial compilation of methods used in performing ecological risk assessments developed by the U.S. Environmental Protection Agency or published by the American Society for Testing and Materials and looks at the future directions of the EPA in the development of new ecological risk assessment methodologies and approaches. Pub. in Risk Management of Chemicals in the Environment, Vol. 12 of NATO: Challenges of Modern Society, Jan 89.
NTIS/PB89-222673, 16p. NTIS Prices: PC A03/MF A01
EPA/600/D-89/069
NTIS

Regional Ecological Risk Assessment: Theory and Demonstration.
Hunsaker-CT; Graham-RL; Suter-GW; O'Neill-BL; Jackson-BL
Department of Energy, Washington, DC.
Oak Ridge National Lab., TN.
Govt Reports Announcements & Index (GRA&I), Issue 16, 1989

Society needs a quantitative and systematic way to estimate and compare the impacts of environmental problems that effect large geographic areas. This report presents an approach for regional ecological risk assessment that combines regional assessment methods and landscape ecology theory with an existing framework for ecological risk assessment. Risk assessment evaluates the effects of an environmental change on a valued natural resource and interprets the significance of those effects in light of the uncertainties identified in each component of the assessment process. The components of regional risk are defined, and the similarities and differences between regional and local risk assessment are discussed in this report. Unique and important issues for regional risk assessment are emphasized; these include the definition of the disturbance scenario, the assessment boundary definition, and the spatial heterogeneity of the landscape. We present an in-depth discussion of possible endpoints for regional assessments and criteria for judging endpoints. A demonstration of a regional risk assessment is used to illustrate the components of the assessment framework, to test the utility of the approach, and to highlight unique aspects of regional assessment such as spatial heterogeneity, landscape pattern, and the need to link ecological systems through the use of models. 100 refs., 6 figs., 13 tabs. (ERA citation 14:023082)
NTIS/DE89008983, Portions of this document are illegible in microfiche products., 114p. NTIS Prices: PC A06/MF A01
ORNL/TM-11128, Contract AC05-84OR21400
NTIS

Risk assessment of human pressure in the Fort-de-France Bay of Martinique
Pellerin-Massicotte, J.; Nath, B.; Robinson, J.P. (eds.)
Dep. Oceanogr., Univ. Quebec, Rimouski, Que., Canada
Proceedings of International Conference on Environmental Pollution, Lisbon, April 1991. (Volume 2) Lisbon (Portugal) 15-19 April 1991
International Conference on Environmental Pollution, 1991, 622-628
Inderscience Enterprises Ltd., Geneva (SWITZERLAND)

We have developed an ecotoxicologic approach to environmental problems which can be used in either part of the world, appropriate to field studies and risk assessment of pollution on ecosystem health. This approach consists a) in the choice of a representative organism of the threatened ecosystem and preferentially a bivalve and sampling sites corresponding to a pollution gradient; b) sampling of organisms representative of the food web; c) analysis of the major pollutants; e) assessment of the physiological condition of the bivalve. Information gathered in the mangrove of the Fort-de-France bay of Martinique show a decreased physiological condition of Crassostrea rhizophorae in the south part of the bay due to physico-chemical parameters modified by the wet season.
POLLUTION ABSTRACTS

Summary report on Issues in Ecological Risk Assessment.
Risk Assessment Forum, U.S. EPA, Washington DC. February 1991
Assembled by Eastern Research Group, Inc., Arlington MA 02174
Report, ill. Various pagings. 29+ refserences.
EPA/625/3-91/018

This report summarizes the discussions and conclusions of seven information-gathering meetings held in the spring of 1990. Invited speakers and EPA staff addressed the scope and content of future ecological guidlines, the nature and diversity of ecological assessments, approaches to characerizing and quantifying uncertainty in ecological hazard and exposure assessments, and the potential use of population modeling for characterizing ecological risk.
GBK

LEGAL ASPECTS

Discernible risk - a proposed standard for significant risk in carcinogen regulation.
Cross, Frank B.; Byrd, Daniel M., III; Lave, Lester B.
Administrative Law Review 43 n1 61-88 Wntr, 1991

Exposure data and the risk-assessment process. Regulatory considerations
Reinhert, J.C.; Wang, R.G.M.; Franklin, C.A.; Honeycutt, R.C.; Reinhert, J.C. (eds.)
Off. Pol., Plan. and Eval., U.S. EPA, Washington, DC 20460, USA
194. Meeting of the American Chemical Society on Biological Monitoring for Pesticide Exposure: Measurement, Estimation and Risk Reduction, New Orleans, LA (USA) 30 Aug-4 Sep 1987
Biological monitoring for pesticide exposure: measurement, estimation and risk reduction, 1989, 286-287. ACS Symp. Ser. 382.
American chemical society, Washington, DC (USA)

Most quantitative risk assessments are conducted by or for regulatory agencies charged with protecting public health, and scientists must deal directly with the uncertainties inherent in all aspects of the continually moving field of risk assessment. Regulators must also face the proper public scrutiny of decisions made based on these assessments. The exposure end of the risk assessment equation is obviously critical and is an area where a great deal of uncertainty exists. Occupational exposure to pesticides is typically estimated either by passive dosimetry techniques or by biological monitoring.
POLLUTION ABSTRACTS

Good science, bad regulation, and toxic risk assessment.
Latin, Howard
Yale Journal on Regulation 5 n1 89-148 Wntr, 1988
LEGAL RESOURCES INDEX

Joinder of defendants and induced innovation in environmental torts.
Katzman, Martin T.
Environmental Law 19 n1 37-57 Fall, 1988
LEGAL RESOURCE INDEX

Perceived problems in the application of risk assessment analysis. (Symposium: Risk Assessment in Environmental Law)
Highland, Joseph H.
Columbia Journal of Environmental Law 14 n2 593-600 Spring, 1989
LEGAL RESOURCE INDEX

Proposition 65's flaws: A physician's perspective
Mattison, D.R.
Obst. and Gynecol., and Interdiscipl. Toxicol., Univ. Arkansas Med. Sci., Fayetteville, AR 72701, USA
HEALTH ENVIRON. DIG VOL. 3, NO. 7, 1989, p. 3+
Languages: ENGLISH
Proposition 65 is a good law intended to improve the health of California's citizens. But even good laws may have flaws that threaten their effectiveness. As a practicing obstetrician and gynecologist, the author sees flows in Proposition 65's implementation for reproductive and developmental toxicants. His criticisms focus on: the law's use of listing instead of traditional risk assessment; its use of safety or uncertainty factors; and its lack of provision for educating physicians.
161916 91-02927 POLLUTION ABSTRACTS

Regulation of emissions of airborne toxic substances - nuisance to risk assessment: an analysis of AB 2588 the California Air Toxics "Hot Spots" Information and Assessment Act of 1987. (Symposium: Environmental Law)
Dufour, James T.; Whisonant, Charles E.
Western State University Law Review 16 n1 139-168 Fall, 1988
LEGAL RESOURCE INDEX

Risk assessment, risk communication and legitimacy: an introduction to the symposium. (Symposium: Risk Assessment in Environmental Law)
Lyndon, Mary L.
Columbia Journal of Environmental Law 14 n2 289-306 Spring, 1989
LEGAL RESOURCE INDEX

Risk assessment and the interface between science and law. (Symposium: Risk Assessment in Environmental Law)
Goldstein, Bernard D.
Columbia Journal of Environmental Law 14 n2 343-355 Spring, 1989
LEGAL RESOURCE INDEX

Scientific developments in risk assessment: legal implications. (Symposium: Risk Assessment in Environmental Law)
Anderson, Elizabeth L.
Columbia Journal of Environmental Law 14 n2 411-425 Spring, 1989
LEGAL RESOURCE INDEX

The use of risk assessment in environmental law. (Symposium: Risk Assessment in Environmental Law)
Stever, Donald W., Jr.
Columbia Journal of Environmental Law 14 n2 329-342 Spring, 1989
LEGAL RESOURCE INDEX

BIBLIOGRAPHIES AND OTHER SOURCES

Approaches to Risk Training: An Evaluation of EPA (Environmental Protection Agency) Risk Training Materials.
Crook-AE
Environmental Protection Agency, Washington, DC. Office of Drinking Water.
North Carolina Univ. at Chapel Hill.
Govt Reports Announcements & Index (GRA&I), Issue 16, 1989

The report is part of the National Network for Environmental Management Studies under the auspices of the Agencywide Technology Transfer Staff of the U.S. Environmental Protection Agency. The study determines the best approaches for educating the public, environmental health professionals, and environmental managers in the risk assessment/risk management process for drinking water contamination. The report reviews the risk training materials published by the EPA. Because the project focuses on risk assessment and management with respect to drinking water contamination, the report concentrates on a workshop presented by the Office of Drinking Water in August of 1988: Workshops on Assessment and Management of Drinking Water Contamination. The report also presents the results of a survey of state public health/environmental agencies with jurisdiction over drinking water. Two questions were asked: do they conduct or participate in risk training programs or have written risk policy documents; and what are the major drinking water contamination concerns in their state. The report is divided into five sections: Approach to Evaluation of EPA Materials; ODW Workshop on Assessment and Management of Drinking Water Contamination; EPA Risk Training Material; EPA Risk Policy/Guidelines; and Survey of State Agencies. Technical rept., Portions of this document are not fully legible. Sponsored by Environmental Protection Agency, Washington, DC. Office of Drinking Water.
NTIS/PB89-189567, 567p.
Grant EPA-U-912784
NTIS

Evaluation of the environmental risks associated with the use as fertilizer of municipal sewage sludge containing toxic organic contaminants (A literature review).; Evaluation des risques environnementaux concernant la presence de composes synthetiques organiques toxiques dans les boues residuaires municipales lors de leur valorisation (revue de litterature)
Couillard, D.; Grenier, Y.
INRS-Eau, CP 7500, 2700 Rue Einstein, Ste-Foy, Que. G1V 4C7, Canada
WATER POLLUT. RES. J. CAN VOL. 25, NO. 1, 1990, 109-130
SUMMARY LANGUAGE - ENGLISH, FRENCH

The presence in municipal sewage sludge of toxic organic chemicals such as PCB's and PAH's raises questions concerning the use of such sludges as fertilizer. The present review of the literature suggests that the risk to public health is slight, given that the concentrations of organic contaminants in sludge are generally low, particularly in the case of residential areas with few industries. When contaminated sludge is used as fertilizer, uptake of the organic contaminants by rooted plants may occur; the primary route of uptake does not appear to involve the plant roots, however, but rather evaporation from the soil followed by deposition on the plant foliage. The high levels of organic matter naturally present in municipal sewage sludge will tend to retain the organic chemicals in the upper soil levels and promote their degradation. The recent development of government guidelines, concerning permissible levels of contaminants in sludge and suitable crop types for fertilization, should reduce the risk to human health associated with the use of municipal sludge for agricultural purposes.
162624 91-03635 POLLUTION ABSTRACTS

Multipurpose environmental database for hazard assessment
Chiu, A.; Socha, A.C.
SETAC '90 - Global Environmental Issues: Challenge for the 90s 9045011
Arlington, VA (USA) 11-15 Nov 1990
Society for Environmental Toxicology and Chemistry
SETAC, 1101 14th Street, NW, Suite 1100, Washington, DC 20005, USA.
Telephone: (202) 371-1275., Poster Paper No. P044

NATICH (National Air Toxics Information Clearinghouse) data base report on state, local and EPA (Environmental Protection Agency) air toxics activities
NTIS, SPRINGFIELD, VA (USA), 1989
NTIS Order No.: PB90-131459/GAR.
Languages: ENGLISH
The report disseminates information provided to the NATICH data base by State and local air agencies and EPA on their air toxics activities. It both updates and extends (in new tables) the information in the first six reports. The report includes a listing of State and local agencies that have provided information to the clearinghouse, air toxics contacts, regulatory program information, acceptable ambient concentration guidelines or standards and the bases of those guidelines/standards, pollutant

research information, methods development activities, permitting data, source testing data, ambient monitoring information, emissions inventory information, and selected EPA risk assessment information. Because of the large volume of data that now resides in the data base, the document reports only subset of permitting and source data.
162239 91-03250 POLLUTION ABSTRACTS

The toxics directory, 1990: references and resources on the health effects of toxic substances.
California. Dept. of Health Services. Health and Welfare Agency.
(?'90), v.p., bibls maps index
3d ed., Pubn. no. 7540-958-1300-3
ORDER INFO: California Department of General Services, Publications Section, P.O. Box 1015, North Highlands, CA 95660 pa
LANGUAGE: Engl
Contents are grouped under the headings: Resources; General references, citizen guides, environmental databases; References on toxic substances by categories of exposure; Substances and hazards of common concern; Risk assessment and risk communication; Program and laboratory lists.
PAIS

. . . DESCRIBES THE REGULATORY DECISION-MAKING PROCESSES
TO CONTROL AND MANAGE RISK

GENERAL PERSPECTIVE

Education in Management Aspects of Occupational and Environmental Health and Safety Programs
Moser-R Jr; Meservy-D; Lee-JS; Johns-RE Jr; Bloswick-DS
Journal of Occupational Medicine, Vol. 31, No. 3, Grant-No. T15-OH-07141, pages 251-256, 1989, 16 references
Journal Article
An interdisciplinary course designed for teaching management aspects of occupational and environmental health and safety (OEHS) was described. The course was developed in response to surveys of Master of Science in Public Health (MSPH) students, recent MSPH graduates, and faculty who indicated that there was a need for such a course. It was designed for students in the four disciplines of occupational medicine: industrial hygiene; occupational health nursing; occupational safety; and ergonomics. It consisted of 20 sessions, each lasting 1.5 hours, followed by a session for the final examination. Topics covered in the course included: basic management theory and its applications in OEHS; time management; cost containment; health risk management; organizational structure and communication especially within the corporate environment; leadership, motivation, and delegation; decision making, data management and analysis; automation use and misuse; participatory management; planning, budgeting and developing OEHS proposals; problem resolution; marketing OEHS programs; change theory and applications; personality interaction; local, national, and international factors affecting OEHS programs; and goals and objectives of OEHS programs. The course provided for active student participation in application exercises dealing with current OEHS problems. The authors conclude that the course meets an identified need of MSPH students for management education specifically directed toward OEHS professionals.
NIOSH

Environmental and disaster management risk analysis. Foreign trip report, December 9, 1989-December 22, 1989.
Anonymous
Department of Energy, Washington, DC.
Oak Ridge National Lab., TN.
Govt Reports Announcements & Index (GRA&I), Issue 12, 1990

The traveler attended workshops on Environmental and Disaster Management Risk Analysis in New Delhi and Jaipur, India. The objective of the workshops was to provide technical knowledge to Indians in the areas of environmental planning, industrial hazards, risk analysis, and disaster management. Conference participants identified the following top priorities to aid in the development of environmental and disaster management in India: (1) technology transfer in the area of atmospheric dispersion modelling, (2) increased training of scientific personnel to effectively deal with environmental problems, and (3) access to data bases on toxicological properties of chemicals. Sponsored by Department of Energy, Washington, DC.
NTIS/DE90005588, Portions of this document are illegible in microfiche products., 9p.
NTIS Prices: PC A02/MF A01
ORNL/FTR-3515, Contract AC05-84OR21400
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Environmental due diligence: risk assessment and management. (Environmental and Natural Resources Law)
Von Oppenfeld, Rolf R.
Arizona Attorney 26 n8 24(5) April, 1990
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Environmental risk and democratic process: a critical review. (Symposium: Risk Assessment in Environmental Law)
Fiorino, Daniel J.
Columbia Journal of Environmental Law 14 n2 501-547 Spring, 1989
LEGAL RESOURCE INDEX

Environmental risk management: a desk reference
Rothenberg, Eric B. ; Telego, Dean Jeffrey
RTM Communications, Inc., Alexandria, VA, 1991.
xxiv, 854 p. : ill. ; 24 cm.
ISBN:0962809802
OCLC

Perceived risks versus actual risks: managing hazards through negotiation.
Shrader-Frechette, Kristin S.
Risk: Issues in Health & Safety 1 n4 341-363 Fall, 1990

Prevention of chemical accidents: The health dimension
Krishna-Murti-CR; Rantanen-J; Somers-E
World Health Organization.
Hemisphere Publishing Co., Taylor and Francis, Rankine Road, Basingstoke, Hamps. RG24 0PR, United Kingdom, Aug. 1989. 168p. Illus. Bibl.ref. Index.
Monograph

Report on the World Conference on Chemical Accidents, held in Rome (Italy), 7-10 July 1987, and jointly sponsored by WHO, the International Programme on Chemical Safety (IPCS) and the Istituto Superiore di Sanita in Rome. Each chapter of the book contains a review of the papers presented at corresponding sessions: plenary session (WHO and EEC action on the environment, problems in developing countries, rehabilitation and reclamation, conclusions and recommendations); accident prevention, risk assessment; contingency planning; emergency response; summary and perspectives.
TOXBIB

OSWER Comparative Risk Project. Executive Summary and Overview.
Anon
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response.
Govt Reports Announcements & Index (GRA&I), Issue 24, 1990
Report
The document discusses the study undertaken by the Office of Solid Waste and Emergency Response (OSWER) to explore the comparative risks posed by various waste management practices regulated by and/or under OSWER purview. It describes the study's position as an early step in the larger strategic planning process, undertaken to gain experience in performing comparative analysis.
NTIS/PB90-272501, 72p.
EPA/540/1-89/003, EPA/9200.5-004
NTIS

Recent Advances in Risk Reduction Engineering.
Convery-JJ
Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.
Govt Reports Announcements & Index (GRA&I), Issue 05, 1990

Contemporary environmental legislation such as the Comprehensive Environmental Response, Compensation and Liability Act of 1980 and the Superfund Amendment and Reauthorization Act of 1986 emphasize the reduction of risk of damage to the environment and human health as the basis of environmental management. There is a hierarchy of approaches to risk reduction including source control, reuse and recycle, treatment and exposure minimization. Recent examples of these approaches, which were evaluated by the Risk Reduction Engineering Laboratory, are presented including: Superfund innovative technology demonstrations, waste reduction techniques, protective clothing and an expert system to assess risk. Symposium paper. Presented at Pan Pacific Cooperative Symposium (1st), on Industrialization and Emerging Environmental Health Issues, Kitakyushu, Japan, October 2-6, 1989.
Public-health;
Hazardous-materials,-Solidification,-Stabilization,-Protective-clothing,-Exposure,-Leaching,-Waste-disposal; Risk-assessment; Environment-management; Waste-management,-Waste-recycling,-Superfund-program,-Pollution
NTIS/PB90-129339, 14p. NTIS Prices: PC A03/MF A01
EPA/600/D-89/250
NTIS

Research on risk assessment and risk management: future directions.
Grant-LD; Jarabek-AM
U.S. Environmental Protection Agency, Environmental Criteria and Assessment Office, Research Triangle Park, North Carolina 27711.
Toxicol-Ind-Health; VOL 6, ISS 5, 1990, P217-33 (REF: 11)
Journal Article
Language: ENGLISH
This paper has been reviewed by the Office of Health and Environmental Assessment, U.S. Environmental Protection Agency, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use. The U.S. EPA has increasingly relied upon quantitative health risk assessments as the basis for management decisions about public health protection. Full utilization of risk assessment in management applications, however, is limited by uncertainties in the resultant accuracy of the risk estimates. This paper will discuss a research strategy to address the uncertainties in the risk assessment process and describe parallel issues to address in the risk management area. An attendant need for effective communication of complex scientific concepts is also identified.
TOXBIB

Risk management, public policy and informed consent: a case study.
Kee-F
Public-Health. 1989 Jul; 103(4): 281-7
Journal Article

The present guidelines on the use of hepatitis B vaccine in mental handicap hospitals dictate the need for an a priori identification of occupational risk, but fail to clarify how this risk should be defined. The ethical requirement of a respect for autonomy however demands that in offering vaccine as a means of protection, the choice of options must be "informed'. The determinants of institutional transmission have not been clearly defined and it is therefore difficult to inform client groups as to the degree or nature of their occupational risk. It is questionable whether the literature can support the recommendations in their present form, and supposedly "cost-effective' solutions to the problem, pay scant regard to the fact that in risk management, the relative desirability of options is conditional on the alternatives considered, how they are framed, what evidence is consulted and how consequences are weighed. In informing the policy making process, it is imperative that the values of those whose voice is seldom heard, are considered.
Great-Britain; Hospitals,-Psychiatric; Human-; Informed-Consent; Personnel,-Hospital
*Financial-Management; *Health-Policy; *Hepatitis-B-prevention-and-control; *Occupational-Diseases-prevention-and-control; *Risk-Management
MEDLINE

The IXth UOEH International Symposium and the First Pan Pacific Cooperative Symposium. Industrialization and emerging environmental health issues--risk assessment and risk management. 2-6 October, 1989, Kitakyushu, Japan.
Sangyo-Ika-Daigaku-Zasshi. 1990 Mar 20; 12 Suppl: 1-124
0387-821X
Human-; Support,-Non-U.S.-Gov't; Support,-U.S.-Gov't,-Non-P.H.S.
*Environmental-Health; *Industry-; *Risk-Management
MEDLINE

Risk assessment and risk management. International Symposium on Chemical Mixtures: Risk Assessment and Management. The Jerry F. Stara Memorial Symposium. June 7-9, 1988, Cincinnati, Ohio. Proceedings.
Toxicol-Ind-Health; VOL 5 (5), 1989, 619-924
HISTORICAL-ARTICLE; HISTORICAL-BIOGRAPHY
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Risk assessors taken to task. (report challenges federal risk management figures)
Roberts, Leslie
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The risk of risk assessment.
Houk-VN
Center for Environmental Health and Injury Control, Centers for Disease Control, Atlanta, Georgia 30333.
Biomed-Environ-Sci; VOL 2, ISS 1, 1989, P48-53
JOURNAL-ARTICLE

Appropriate risk management can only be based on sound risk assessment. The sources of uncertainty involved in risk assessment are discussed and a number of approaches to improving such assessments are recommended.
TOXBIB

POLICY - includes federal, state and local policy, science, public and regulatory policy

Administrative Order on Consent for Remedial Investigations/Feasibility Study.
Environmental Protection Agency, Washington, DC. Office of Solid Waste and Emergency Response. 5 Feb 1990, 34p.
PB91-139378 OSWER DIRECTIVE-9835.3-1A

The directive provides a model order that is designed to replace the outdated model order that was issued prior to the CERCLA amendments. The model order is designed to facilitate settlement negotiations by serving as an opening handposition, and to facilitate national consistency. The directive supersedes directive no. 9835.3 'Model Administrative Order for Private Party Conduct for RI/FSs,' dated January 31, 1985, and supplements directive no. 9835.8 'Model Statement of Work for Remedial Investigations and Feasibility Study Conducted by Potentially Responsible Parties (PRPs) dated June 2, 1989.
NTIS

Air toxics and public health: exaggerating risk and misdirecting policy.
Rueter, Frederick H. and Wilbur A. Steger.
Regulation (Cato Inst) 13:51-60 Winter '90, bibl table chart map
LANGUAGE: Engl
Journal Article
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511487 910100522 PAIS

Risk assessment and OMB: happy union or rocky marriage? should politics and the president's staff play a role in assessing the risks of pesticides, food preservatives, and chemicals?
Tozzi, Jim J. and Janet S. Hathaway.
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The perils of unreasonable risk: information, regulatory policy, and toxic substances control.
Applegate, John S.
Columbia Law Review 91 n2 261-333 March, 1991

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Johnstone, John W., Jr.
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Activists at risk of being SLAPPed; a new legal tactic is intimidating environmentalists - and stirring constitutional concerns. (Strategic Lawsuits Against Public Participation)(Environment)
Boyle, Robert H.
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Environmental crisis management: attorneys and communications professionals working together.
Corrado, Frank M.
Environmental Law Reporter 21 n3 10115-10118 March, 1991

Environmental liability: a gun at the lender's head?
Fordyce, James and others.
Internat Fin Law R 9:19-22 My '90, il
LANGUAGE: Engl
Journal article
Trends in legislation and court decisions; Canada. Assessing environmental risk and evaluating options in pollution control and cleanup.
507305 900905716 PAIS

Escape from RCRA: avoiding compliance through redefinition and risk assessment. (Resource Conservation and Recovery Act)
Fortuna, Richard C.
JOURNAL NAME: Environmental Forum 5 n2 30(5) May-June, 1988
LEGAL RESOURCE INDEX

Memorandum of Understanding between ORD and OERR.
Environmental Protection Agency, Washington, DC.
Office of Emergency and Remedial Response. 5 Nov 90.
Directive 17p PB91-921323 OSWER-9295.4-01

Abstract: The directive transmits a copy of the Memorandum of Understanding (MOU) between OSWER and ORD that was signed on March 10, 1990. OERR proposed the establishment of the Technology Support Center (TSC) in the Office of Health and Environmental Assessment (OHEA), Environmental Criteria Assessment Office, Cincinnati to address the human health risk assessment issues pertinent to Superfund-related activities. This MOU establishes functions and responsibilities for the TSC.
NTIS

Risk management for hazardous chemicals; OSHA's hazard communication standard and EPA's emergency planning and community right-to-know regulations.
Oleinick, Arthur; Fodor, William J.; Susselman, Marc M.
Journal of Legal Medicine 9 n2 179-278 June, 1988
LEGAL RESOURCE INDEX

ETHYLENE BISDITHIOCARBAMATES

EBDC Special Review: Technical Support Document 2/3.

Anon

Environmental Protection Agency, Washington, DC. Office of Pesticides and Toxic Substances.

Govt Reports Announcements & Index (GRA&I), Issue 08, 1990

The Environmental Protection Agency is examining the ethylene bisdithiocarbamates (maneb, mancozeb, metiram, nabam and zineb) because of carcinogenic, developmental and thyroid effects caused by ethylenethiourea (ETU), a common contaminant, metabolite and degradation product of these pesticides. Available data has led the Agency to conclude that the continued registration of EBDC products for use on certain food crops, commercial ornamentals and home garden sites and in some industrial uses would result in unreasonable adverse effects to humans. In determining which uses to cancel, the Agency considered the aggregate risks posed by the EBDCs and ETU, the extent to which registered uses are being supported by registrants and, where appropriate, the risks and benefits of individual uses.

Pesticides,-Exposure,-Reviews,-Public-health,-Regulations,-Carcinogens,-Plants -Botany,-Farm-crops,-Industrial-plants,-Fungicides,-Toxicity,-Thyroid-diseases ; Risk-assessment; Carbamic-acid-ethylene-bis-dithio; Imidazolidine-thione,-Occupational-safety-and-health,-Environme

NTIS/PB90-143025, 318p. NTIS Prices: PC A14/MF A02

EPA/540/09-90/077

NTIS

Problems Associated with the Use of Immediately Dangerous to Life and Health (IDLH) Values for Estimating the Hazard of Accidental Chemical Releases

Alexeeff-GV; Lipsett-MJ; Kizer-KW

American Industrial Hygiene Association Journal, Vol. 50, No. 11, 1989, 598-605, 61 references

Journal Article

The appropriateness of using 30 minute immediately dangerous to life and health (IDLH) values for estimating hazards to the public after accidental industrial chemical releases was evaluated by comparison with literature data for 84 chemicals. IDLH values were established for respirator selection in the workplace and, therefore, have inherently limited application to nonoccupational situations, particularly regarding hazard awareness and ability to escape of the people involved. Rat/mouse 30 minute median lethality concentrations (LC50) for 29 compounds indicated IDLH concentrations for 18 compounds were potentially lethal for humans. Severe nonlethal toxicity concentrations in laboratory animals for 46 compounds indicated severe toxicity was observed close to the IDLH (within a factor of four) for 43 compounds. The National Academy of Sciences' 1 hour emergency exposure guidance levels (EEGLs) for preventing irreversible harm of military personnel for 31 compounds indicated IDLH/EEGL values were 10 or less for 17 compounds. Assuming levels to protect the general public should be lower than for the

military, IDLH values would not appear adequate for this purpose. IDLH/LC50 and IDLH/severely toxic concentration ratios spanned four orders of magnitude while IDLH/EEGL ratios varied by 200 fold. Virtually safe doses (VSD) for 30 minute exposures to 20 carcinogenic substances indicated IDLH/VSD was less than 100 for six compounds, suggesting potential carcinogenic risks should be considered in developing emergency planning guidelines. Exposure to one tenth the IDLH for 22 of the 34 extremely hazardous materials considered could pose serious health risks. The authors conclude that use of IDLH values as planning guidelines for accidental releases, even with a ten fold safety factor, appears inappropriate. Concerns were raised as to whether NIOSH should reevaluate IDLH values to protect workers against inadvertent airborne exposure to highly toxic materials.
NIOSH

HAZARDOUS WASTE

Emergency planning for technological and natural hazards. Foreign trip report, July 3, 1990-July 14, 1990.
Rogers-GO
Department of Energy, Washington, DC.
Oak Ridge National Lab., TN.
Govt Reports Announcements & Index (GRA&I), Issue 01, 1991
Information was collected on research being conducted around the world on emergency planning for technological and natural hazards. Overall research activities regarding emergency planning are not as well developed as they are in the United States. Data collected by other researchers complement that found on US disasters and in some cases fills data gaps in the US Critical experience with Chernobyl and Bhopal was reported by East and West Europeans regarding the impact of Chernobyl on emergency management effort after Chernobyl and the Armenian earthquake. The emergency management experience during the Bhopal accident in India was discussed. Sponsored by Department of Energy, Washington, DC.
NTIS/DE90015768, Portions of this document are illegible in microfiche products., 13p.
NTIS Prices: PC A03/MF A01
ORNL/FTR-3686, Contract AC05-84OR21400
NTIS

Exposure to toxic waste sites: an investigative approach.
Stehr-Green-PA; Lybarger-JA
Immunization Division, Centers for Disease Control, Atlanta, GA 30333.
Public-Health-Rep; VOL 104, ISS 1, 1989, P71-4

Improper dumping and storage of hazardous substances and whether these practices produce significant human exposure and health effects are growing concerns. A sequential approach has been used by the Centers for Disease Control and the Agency for Toxic Substances and Disease Registry in investigating potential exposure to and health effects resulting from environmental contamination with materials such as heavy metals, volatile

organic compounds, and pesticide residues at sites throughout the United States. The strategy consists of four phases: site evaluation, pilot studies of exposure or health effects, analytic epidemiology studies, and public health surveillance. This approach offers a logical, phased strategy to use limited personnel and financial resources of local, State, national, or global health agency jurisdictions optimally in evaluating populations potentially exposed to hazardous materials in waste sites. Primarily, this approach is most helpful in identifying sites for etiologic studies and providing investigative leads to direct and focus these studies. The results of such studies provide information needed for making risk-management decisions to mitigate or eliminate human exposures and for developing interventions to prevent or minimize health problems resulting from exposures that already have occurred.
MESH: Centers-for-Disease-Control-U.S.; Epidemiologic-Methods; Human-; Industrial-Waste; Pilot-Projects; Population-Surveillance; Public-Health; Risk-Management; United-States
MESH: *Environmental-Exposure; *Hazardous-Substances-toxicity; *Refuse-Disposal-standards
TOXBIB

Hazardous material management in the future
Thibodeaux Louis J.
Louisiana State Univ, Baton Rouge
Env Science & Techn/logy, Apr 90, V24, N4, P456(4)

Hazardous waste site management: Water quality issues
Anon.
NATIONAL ACADEMY PRESS, WASHINGTON, DC (USA), 1988
Monograph

This book discusses ground and surface water cleanup levels at hazardous waste sites and evaluates the adequacy of scientific, technical, and regulatory bases currently used for setting cleanup levels. It reviews the processes of setting environmental standards, establishing and meeting ground water protection goals, and specific approaches to setting goals. As an example, the California system for decision-making and environmental issues in Santa Clara County are discussed at length. Models and methods for estimating health risks at hazardous waste sites are also examined, along with the roles of hydrogeology, engineering, risk assessment and toxicology, and regulatory strategies in hazardous waste site management.
POLLUTION ABSTRACTS

Identification, remediation and control of contaminated sites and landfills
Schwyn, B.; Scheiwiller, T.; Nath, B. (ed.)
SIMULTEC Ltd., CH-8706 Meilen/Zurich, Switzerland
Proceedings of International Conference on Environmental Pollution. Lisbon, April 1991. (Volume 1) Lisbon (Portugal) 15-19 April 1991
International conference on environmental pollution, 1991, 291-298
Inderscience Enterprises LTD., Geneva (SWITZERLAND)
POLLUTION ABSTRACTS

Managing the risks of hazardous waste
Kunreuther, H.; Patrick, R.
Risk and Decis. Proc. Cent., Wharton Sch., Univ. Pennsylvania, Philadelphia, PA 19104, USA
ENVIRONMENT VOL. 33, NO. 3, 1991, p. 12+
Languages: ENGLISH
Hazardous waste is the most serious environmental concern of the U.S. public, but scientific experts disagree. Many options exist for managing hazardous waste safely, but the public must be better informed about varying degrees of risk and toxicity before an effective risk-management strategy can be adopted.
POLLUTION ABSTRACTS

New Source Reduction Project: The Potential for Safe Substitutes.
Curran, M. A.
Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab. November 1990, 7p.
Presented at the National Household Hazardous Waste Management Conference (5th), San Francisco, CA, November 6, 1990.
PB91-137158 EPA/600/D-90/212;

One of the clean product research projects being funded by the EPA's Pollution Prevention Research Branch in Cincinnati, Ohio, involves evaluating the possibility of dramatic reductions in hazardous waste and toxic chemical exposure associated with commercial products. By identifying priority products for substitution and evaluating the feasibility of safe substitutes for those products, this project can be an important shift toward preventing toxic chemical pollution at the source. The paper describes the project's objectives and gives a brief description of the approach the University of Tennessee (Waste Management Institute) plans to take to accomplish the objectives. The project started in September 1990 and will continue for three years.
NTIS

Psychosocial effects of hazardous toxic waste disposal on communities.
Peck, Dennis L., ed.
1989, xxii+317p, bibls il tables charts indexes
ORDER INFO: Thomas, Charles C (ISBN 0-398-05618-8) $52.75
Monograph

Social implications of technology and technological disasters, including community reactions, liability, risk assessment, safeguards, monitoring emergency preparedness, and environmental planning and policy.

Sentinel Event Notification System for Occupational Risks (Sensor): Recommendations for Control of Silica Exposure at Unimin Dividing-Creek Sand Plant, Millville, New Jersey, CT-171-12B.
Cooper-TC; O'Brien-DM; Sheehy-JW; Valiante-D; Stephens-A
New Jersey State Dept. of Health, Trenton.
National Inst. for Occupational Safety and Health, Cincinnati, OH. Engineering Control Technology Branch.
Govt Reports Announcements & Index (GRA&I), Issue 02, 1991

A study was made to document and evaluate effective techniques for the control of potential health hazards at the Unimin Dividing-Creek Sand Facility (SIC-1446), Millville, New Jersey. This facility supplied washed sand to the glass industry. Two dredges were used to mine sand from flooded areas, following removal of trees and topsoil. A sand/water slurry was pumped to a scalper to remove rocks and slime. Personal exposures to respirable quartz (14808607) dust were shown to range between less than 0.02 to 0.05mg/cu m for nine collected samples, none of which exceeded allowable limits. Area air samples taken near the railroad car filling operation and the sand screening area showed that there was a potential for exposures to elevated levels in these areas. Deficiencies were identified in the design and maintenance of equipment, in work practices, and in ventilation control systems which were identified for modification. Control methods in place at the operation included environmental monitoring programs, a respiratory protection program, good housekeeping practices, and equipment maintenance. Sponsored by New Jersey State Dept. of Health, Trenton.
Environmental-surveys;
Industrial-medicine,-Air-pollution-control,-Silicon-dioxide,-Dust-control,-Exposure,-Quartz; Occupational-safety-and-health; Risk-assessment;
Toxic-substances,-Air-pollution-effects-Humans,-SIC-1446,-EPA
NTIS/PB91-107979, 57p. NTIS Prices: PC A04/MF A04
CT-171-12B
NTIS

Streamlining the RI/FS for CERCLA Municipal Landfill Sites.
Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response. September 1990.
Fact sheet, 5p.
PB91-921301 EPA/9355.3-11/FS;

Approximately 20 percent of the sites on the National Priorities List (NPL) are municipal landfills which typically share similar characteristics. Because of the similarity the Superfund Program anticipates that their remediation will involve similar waste management approaches. As stated in the National Contingency Plan, EPA expects that containment technologies will generally be appropriate for waste that poses a relatively low long-term threat or where treatment is impracticable (Sec. 300.430(a)(1)(iii)(B),55FR8846(March 8, 1990)). In addition, EPA expects treatment to be considered for identifiable areas of highly toxic and/or mobile material that constitute the principal threat(s) posed by the site (Sec. 300.430(a)(1)(iii)(A)). The similarity in landfill characteristics and the NCP expectations make it possible to streamline the RI/FS for municipal landfills with respect to site characterization, risk assessment, and the development of remedial action alternatives. The fact sheet outlines available streamlining techniques for each of these three phases of an RI/FS. Additional information, including tools to assist in scoping activities, will be included in the document Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites (November 1990, Directive No. 9355.3-11). The document will be available from the Center for Environmental Research Information (FTS 684-7562 or 513-569-7562).
NTIS

TCLP: Good news for labs?
Ouellette, R.P.
ENVIRON. LAB VOL. 3, NO. 1, 36-40, 1991
Languages: ENGLISH
The U.S. Environmental Protection Agency (EPA) uses two procedures to define wastes as hazardous: listing and hazardous characteristics. The first approach, listing, involves identifying industries or processes that produce wastes that pose a hazard to health and the environment. Listed wastes can be removed from the EPA lists of hazardous wastes through a process called delisting, which involves a determination on a case-by-case basis for a specific site. The second approach involves characteristics or properties that, if exhibited by the wastes, indicate a potential hazard if the waste is not properly controlled. Four characteristics must be considered when identifying a waste as hazardous: ignitability, reactivity, corrosivity and toxicity. Toxicity is the characteristic addressed by the toxicity characteristic leaching procedure (TCLP) rule.
175040 91-05989
POLLUTION ABSTRACTS

The similarity of environmental impacts from all methods of managing solid wastes
Visalli Joseph R.
New York State Energy Research & Development Authority
J Env Systems, 1989-90, V19, N2, P155(15)

RADIATION

Chernobyl radiological data for accident consequence assessment: Behaviour in rural areas
Bottino, A.; Sacripanti, A.
ENEA, Rome, Italy
NTIS, SPRINGFIELD, VA (USA), 1989
NTIS Order No.: DE90610844/GAR.

In this draft is presented the results of a first effort to summarize information related to the radionuclides behaviour in rural areas, in order to estimate pathway parameters to assess accident consequences. This topic encloses relevant aspects concerning contamination of rural environment, the most important being: (1) dry deposition velocities; (2) washout coefficient; (3) accumulation in lakes; (4) migration in soil; (5) winter conditions; (6) filtering effects of forests.
161881 91-02892 POLLUTION ABSTRACTS

Strategies for adapting to the greenhouse effect
Titus James G.
EPA, Washington DC
American Planning Assn J, Summer 90, V56, N3, P311(13)

ECONOMIC ANALYSIS

Acapulco Polishes Its Image: Putting the Environment Back into Tourism
Iliff, Laurence; Farquharson, Mary
Business Mexico v1n3 PP: 37, 40-41 May 1991
DOC TYPE: Journal article LANGUAGE: English LENGTH: 3 Pages
Deterioration of the city of Acapulco, Mexico, has caused a significant drop in tourism over the last decade. However, officials have taken measures to clean up the city. For example, a new sewage treatment plant was opened, a new private garbage company using government capital was started, beaches were renovated, and street vendors were banned. Many environmentalists are asking whether the city's renewed popularity will have negative ecological effects. Ecologist Alejandro Oscos says that the measures taken to clean up Acapulco have been minimal and do not address the underlying problems. Developers wanted Cancun to be a dream community, but their wish for money has taken priority over initial plans to protect the environment. Uncontrolled construction has changed the ecological balance of the lagoon, and development has destroyed the rain forest around Cancun. In order for tourism in Mexico to grow in a healthy way, scientists must work closely with developers.
ABI/INFORM

Money Management: It's Not Easy Being Green
Hansell, Saul
Institutional Investor v25n1 PP: 101-106 Jan 1991
DOC TYPE: Journal article LANGUAGE: English LENGTH: 4 Pages

Environmental issues have become important to many companies and investors for economic as well as political reasons. New York City's comptroller, Elizabeth Holtzman, says that companies that are polluters can run up high liabilities that can have an impact on the stock. She points out that Exxon spent more than $2 billion cleaning up after the Valdez spill, even before going to court. The College Retirement Equities Fund, which established a program to screen companies for their attendance to environmental and social concerns, has found that the issues are not black and white. One problem facing any investor looking at environmental issues is gathering accurate information. Both the Council on Economic Priorities and the Investor Responsibility Research Center have initiated projects to create databases of environmental information on large companies. Investors may be able to evaluate companies' environmental performance with the Valdez Principles, an environmental code of conduct being circulated by the Coalition for Environmentally Responsible Economies.
ABI/INFORM

Taking some risks: Washington's fiscal constraints are driving a renewed search for ways to get more risk reduction for the regulatory buck; but skeptics label risk assessment a "sham science."
Browning, Graeme.
Nat J 23:1279-82 Je 1 '91, il
LANGUAGE: Engl
Measurement of environmental hazards and weighing the costs and benefits of regulating them; US.
521183 910915391 PAIS

The fact and fiction of financial responsibility for hazardous waste management
Black, Steven W.
Ecology Law Quarterly, 1990, V17, N3, P581(40)

The wasteful pursuit of zero risk. (environmental economics)
Brookes, Warren T.
Forbes v145 p160(8) April 30, 1990
MAGAZINE INDEX

CORPORATE RISK MANAGEMENT

Food and drug administration
Sinclair WK
U.S. Dept. Of Health And Human Services; Public Health Service; National Inst Of Health, Food and Drug Administration.
National Council on Radiation, 7910 Woodmont Ave, Suite 1016, Bethesda, MD 20814
Crisp Data Base National Institutes Of Health
Research

RPROJ/CRISP The National Council on Radiation Protection and Measurements (NCRP) seeks to collect, analyze, develop and disseminate information and recommendations on radiation protection and measurement. After identification of an area in which the development of NCRP recommendations would constitute a significant contribution, the Council initiates research aimed at (1) assessment of the available information that is pertinent to the problem, (2) identification of areas where more information is needed, and (3) synthesis of the present knowledge relevant to the problem area into practical recommendations on radiation protection and measurements which also highlight areas in need of further study. The proposed research is aimed at the development of NCRP reports on the following topics: (1) basic radiation protection criteria, (2) radiation protection in dental offices, (3) biological aspects of radiation protection criteria, (4) ALARA for occupationally exposed individuals in clinical radiology, (5) calibration of survey instrumentation, (6) radiation protection for allied health personnel, (7) emergency planning, (8) exposure criteria for ultrasound, (9) biological

effects of magnetic fields, (10) occupational exposure resulting from diagnostic nuclear medicine procedures, (11) practical guidance on the evaluation of human exposures to radiofrequency radiation, (12) extremely low frequency electric and magnetic fields, (13) radiation biology of the skin (beta ray dosimetry), (14) assessment of exposures from therapy, and (15) comparative risk as a basis for exposure standards.
5R01FD01085-11
CRISP

Management Thinking and Decision-Making Styles: Their Effect on Occupational Safety and Environmental Health
Kavianian-HR; Rao-JK; Sanchez-VF
Professional Safety, Vol. 34, No. 9, 1989, 24-27, 15 references
Journal Article
Abstract: The effects of management thinking and decision making styles on occupational safety and health were discussed. Those involved in occupational health and safety concerns and with concerns for environmental protection must accept responsibility for making judgements in the following areas: occupational injuries, occupational diseases, engineering control systems, loss control, risk assessment, system safety, air contaminants, emission control, heat stress control, noise control, vibration control, electrical safety, mechanical guarding, work practices, materials handling, monitoring, industrial toxicology, product liability, waste disposal, and radiation control. The matter of safety and welfare for employees has become of increasing concern to prospective employees and often may play a heavy part in their decision between job choices. Proper coordination between policy and management procedures were considered essential to hazard evaluation and control. One of the primary areas of concern was how information is handled. Management, being responsible for decision making and implementation, must have access to all types of information regarding the processes, raw materials, and possible hazards along the production line. Full communication must be fostered within the organization. In considering four types of management skills: participative, consultative, benevolent authoritative and exploitive authoritative, the authors stress the advantages of the first two.
NIOSH

Managing in-plant environmental problems
Cheremisinoff, P.N.; Ferrante, L.M.; King, J.A.; Ouellette, R.P.; van Houten, N.J.
POLLUT. ENG VOL. 23, NO. 4, 1991, 52-58
Languages: ENGLISH
Hazard recognition and risk assessment are the starting points for developing a facility's comprehensive management program. Information on characteristics and presence of hazards must be gathered and kept current. As operational modifications are made to meet business needs this must be reflected in the management program. Hazard analysis ensures the review of information and addresses changes in the organization's infrastructure and in regulations.
POLLUTION ABSTRACTS

Masters of Disorder: "Chaos" Opens Doors to Hidden Profits
Poe, Richard
Success v37n9 PP: 102 Nov 1990
DOC TYPE: Journal article LANGUAGE: English LENGTH: 1 Pages
ABSTRACT: A new type of software, called "chaos"-based risk management, is available to those beset by negative situations beyond their control. The program helps make predictions, as variables are covered in a computer and contingencies are analyzed. Chaos is the science of predicting the unpredictable. Since new discoveries opened the way for widespread computerized applications in 1977, chaos has rapidly invaded every area. Insurance executives now use it to calculate rates, and ecologists use it to determine whether new dams will endanger rare species of snail. Traffic flow, weather forecasting, engine design, nutrition, and financial services all are reaping the benefits of chaos analysis. Gordon Hammond, founder of Market Methodology Group, sells a type of chaos software that he claims helps people choose stocks and bonds. The software also helps investors determine when to buy and sell.
ABI/INFORM

Needed: New Paradigms for R&D
Steele, Lowell W.
Research-Technology Management v34n4 PP: 13-21 Jul/Aug 1991
DOC TYPE: Journal article LANGUAGE: English LENGTH: 9 Pages
Major changes in the competitive environment and in management learning are having a marked effect on research and development (R&D).
Differentiated paradigms that recognize the stage of maturity will affect internal R&D management. Increasingly, success will depend on early and creative reliance on market information. The goal of a major breakthrough as the ultimate achievement should be reconsidered; R&D's role may need to change from one putting a premium on creating major discontinuities to one ensuring timely access to the diverse technology required to implement major discontinuities. A glaring omission in the traditional paradigm is that it does not include provision for disciplined monitoring of performance. Industrial R&D organizations may need to become more rigorous in evaluating performance and more active in career planning. An agent of change must play a leading role in developing paradigms that both guide and invigorate the process. R&D, as perhaps the principal agent of change, must itself be part of the process if it is to remain viable.
ABI/INFORM

Occupational hygiene and environmental issues - Control of chemical risks on both sides of the factory fence
Anonymous
Institution of Chemical Engineers, 165-171 Railway Terrace, Rugby CV21 3HQ, United Kingdom
viii, 254p. Illus. Bibl. ref. Index.
PY: 1990
MONOGRAPH

Proceedings of a symposium held in Manchester, United Kingdom, 28-30 Mar. 1990. Contents: occupational hygiene in the process industries; aspects of the COSHH Regulations (enforcement, occupational exposure limits, risk assessment, impact on an established chemical plant, application to product distribution); data and information; respiratory protective equipment); design for hygiene; open learning for health and safety training. Papers on the environment include: the interface with occupational hygiene; the challenge for the chemical indsutry; the CIMAH Regulations; standards in pollution control; waste disposal (chemical wastes, environmental monitoring, loss audits, industrial effluent management, controlling the emission of volatile organic compounds, breakdown of difficult wastes by incineration).
CIS

The continuous development of an environmental assurance (audit) manual and guidance system based on plant experience and organisational theory
Huggard, J.A.; George, C.P.; Warris, A.-M.; Nath, B. (ed.)
Chem. Dep. Lloyd's Register, Ind. Div., Croydon, UK
Proceedings of International Conference on Environmental Pollution. Lisbon, April 1991. (Volume 1) Lisbon (Portugal) 15-19 April 1991
INTERNATIONAL CONFERENCE ON ENVIRONMENTAL POLLUTION pp. 71-81, 1991
INDERSCIENCE ENTERPRISES LTD., GENEVA (SWITZERLAND)
LANGUAGE - ENGLISH
This paper describes the development of the manual, and especially the use of organisational structure and culture theories to develop the sections relating to the assessments of management systems and commitment. The work described in this paper will have applications in other industries, and in other areas where the interaction between technical and organisational issues is important e.g. hazard assessment, marine pollution. The specific benefit of the completed project is to potential users of the data base, compiled from the grading index. Potential users include insurance companies, reinsurance companies, legislators at all levels but specifically local planning authorities.
175026 91-05975
POLLUTION ABSTRACTS

. . . THE PROCESS OF EDUCATING AND INFORMING AN AUDIENCE TO MAKE BETTER PERSONAL AND SOCIETAL DECISIONS REGARDING RISK

INFORMING THE DECISION-MAKER

Communicating Environmental Risks: A Guide to Practical Evaluations. Risk Communications Series.
Regan, M. J. ; Desvousges, W. H.
Research Triangle Inst., Research Triangle Park, NC. Center for Economics Research. Environmental Protection Agency, Washington, DC. Office of Policy,' Planning and Evaluation. December 1990.
Report, 107p.
Sponsored by Environmental Protection Agency, Washington, DC. Office of Policy, Planning and Evaluation.
PB91-168336
EPA-R-814676; EPA/230/01-91/001;

'Communicating Environmental Risks: A Guide to Practical Evaluations' is a guidebook designed to help program offices determine whether risk communication activities are achieving their goals. The guidebook explains how to plan a practical, cost-effective evaluation strategy that can be integrated with risk communication efforts. The framework described has been developed to facilitate thinking about where and when various evaluation techniques and activities are most effective.
NTIS

Communicating right-to-know information on chemical issues
Covello, Vincent T
Columbia Univ, New York NY
Env Science & Technology, Dec 1989, V23, N12, P1444(6)
Journal article
The Emergency Planning & Community Right-to-Know Act of 1986 requires companies to submit data to Federal, State, and local agencies on routine and accidental releases of toxic chemicals into the environment. Interest in risk comparisons has increased as a means of conveying such information to the public. The primary strengths and limitations of risk comparisons for communicating right-to-know information on chemical risks are identified, as are means by which they can be improved. Major deficiencies in the process include failure to identify and emphasize uncertainties involved in the calculation of comparative risk estimates, while strengths of the process include the compatibility of risk comparison with natural thought processes and the ability of comparisons to help people understand and appreciate new or unfamiliar risks. (45 REFERENCES, 3 TABLES)

Evaluation of an environmental health risk communication program
Abraham, J.E.; White, D.A.; White, R.K.
Agency Toxic Subst. and Dis. Regist., Atlanta, GA
American Industrial Hygiene Conference 9020107 Orlando, FL (USA)
13-18 May 1990
American Industrial Hygiene Association; American Conference of Governmental Industrial Hygiene
American Industrial Hygiene Association, 345 White Pond Drive, P.O. Box 8390, Akron, OH 44320, USA, Abstracts, $35.00 Paper No. 233
Languages: ENGLISH
CONFERENCE PAPERS INDEX

Ozone risk communication and management
Calabrese, Edward J. ; Gilbert, Charles E. ; Beck, Barbara D.
Lewis Publishers, Chelsea, Mich. c1990.
ix, 206 p. : ill. ; 24 cm.
Includes bibliographical references and index.

The "duty to inform" in international environmental law. (Symposium: Multinational Corporations and Their New Responsibilities to Disclose and Communicate Risk Information)
Partan, Daniel G.
Boston University International Law Journal 6 n1 43-88 Spring, 1988
LEGAL RESOURCE INDEX

INFORMING THE PUBLIC

A proposal for a national risk assessment clearinghouse. (Symposium: Risk Assessment in Environmental Law)
Stenzel, Paulette L.
Columbia Journal of Environmental Law 14 n2 549-591 Spring, 1989
LEGAL RESOURCE INDEX

A White House perspective on risk assessment and risk communication.
Young-AL
Executive Office of The President, Office of Science and Technology Policy, Washington, DC 20506.
Sci-Total-Environ; VOL 99, ISS 3, 1990, P223-8; discussion 228-9
JOURNAL-ARTICLE
Language: ENGLISH
Abstract: The fear of malign influences in our environment is so widespread today that the general public believes that it is those factors they cannot control that will bring about their early demise. Our goals in government must be to effectively communicate information on environmental risks, and to develop a disciplined way of approaching environmental assessment and regulation so as to reduce those risks.
TOXBIB

Communicating Radon Risk Effectively: Radon Testing in Maryland. Final Report
Desvousges-WH; Smith-VK; Rink-HH
Environmental Protection Agency, Washington, DC. Office of Policy Analysis.
Research Triangle Inst., Research Triangle Park, NC.
Govt Reports Announcements & Index (GRA&I), Issue 18, 1989
NTIS/PB89-196422, 158p. Final Report

Two sets of materials and corresponding delivery strategies for communicating radon risk were evaluated, compared with a 'no-special-treatment' strategy in a comparison community. One community received radio public service announcements and utility bill inserts. The second received these plus posters, local government sponsorship of a radon awareness week, and local slide presentations. From a marketing perspective, the effort was very successful, increasing the share of homeowners who tested for radon from 5% to 15%. This may not be viewed as sufficiently effective from a public health perspective, however. Sponsored by Environmental Protection Agency, Washington, DC. Office of Policy Analysis.
NTIS

Developing an environmental communications strategy
Knight, Karen and Ksenak, Gary
IBM, Endicott, NY
Air & Waste Management Assn J, Jul 90, V40, N7, P1058(3)
Journal Article

The IBM Corporation of Endicott NY, which has high chemicl use and emission levels, has decided to fully embrace the spirit of right-to-know legislation. The company has outlined an environmental communications strategy to explain to the publc how it handles chemicals, contains potential spills, abates air emissions, and prepares for emergencies. Othe routreach programs have included high-quality videotapes and brochures produced for employee distribution that explain the Superfund Amendments Reauthorization Act and how IBM has complied with the regulations. IBM has shown that risk communications, when done properly, will pay off in the long run.
(4 PHOTOS)
ENVIROLINE

Evaluation of Strategies for Promoting Effective Radon Mitigation. Risk Communication and Economic Research Series.
Doyle, J. K. ; McClelland, G. H. ; Schulze, W. D. ; Locke, P. A.
Elliott, S.R.
Colorado Univ. at Boulder. Environmental Law Inst., Washington, DC.
ÅEnvironmental Protection Agency, Washington, DC. Office of Policy, Planning and Evaluation. March 1990.
NTIS/PB90-247453 Final report. 193p.
EPA/230/02-90/075

The Environmental Protection Agency has estimated that as many as 20,000 lung cancer deaths per year in the United States can be attributed to exposure to radon gas. The report evaluates alternative strategies for motivating people to test for radon gas in their homes and to mitigate if necessary. Specifically, two separate radon information and awareness programs were evaluated, one targeted to the general population in the Washington, D.C. area and the other to home buyers in the Boulder, Colorado area. The results suggest that a home buyer program is likely to be far more effective in terms of effective remediation to reduce home radon levels than a program aimed at the general population. The report discusses the empirical findings and develops a recommendation for increasing the effectiveness of radon awareness and mitigation programs.
NTIS

Inside Story: A Guide to Indoor Air Quality - How Well Is It Working. Risk Communication Series.
Synstelien-D
Environmental Protection Agency, Washington, DC. Office of Policy, Planning and Evaluation.
Govt Reports Announcements & Index (GRA&I), Issue 10, 1990
NTIS/PB90-173469, Booklet, Final report. 56p.

The U.S. Environmental Protection Agency (EPA) and the U.S. Consumer Product Safety Commission developed a booklet entitled 'The Inside Story: A Guide to Indoor Air Quality,' designed to provide information for the general public. The report describes the small scale evaluation of the effectiveness of the booklet. The study appears to be one of the first attempts to determine how information materials requested by households actually are used by them. The evaluation examined the share of requesters who read the booklet; changes in their knowledge about indoor air pollution causes, and knowledge about testing and mitigation.
TOXBIB

Opening doors: making risk communication agency reality.
Chess, Caron; Hance, Billie Jo
Rutgers University, NJ
Environment, Jun 89, V31, N5, P11(7)
Journal article

To win back the public trust, environmental protection agencies must learn to disseminate sciectific data, listen to communities' concerns, involve communities in decision making, and promote the importance of communication within the agencies. A number of suggestions are offered to accomplish these objectives. Environmental protection agencies must establish clear mandates from agency policymakers to establish better communication between the public and the agencies; they must use risk communication as a means of promoting dialogue, not making converts; they must actively engage citizens in environmental decisionmaking; and they must gain a committment to these dialogues from agency management and staff.
(21 REFERENCES)
ENVIROLINE

Public Knowledge and Perceptions of Chemical Risks in Six Communities: Analysis of a Baseline Survey.
McCallum, D. B., Hammond, S. L., Morris, L. A., Covello, V. T.
Georgetown Univ., Washington, DC. Medical Center., Columbia Univ., New York., Environmental Protection Agency, Washington, DC. Office of Policy, Planning and Evaluation., Agency for Toxic Substances and Disease Registry, Atlanta, GA. January 1990
Final report on Phase 1, 178p.
PB90-217316 EPA/230/01-90/074;

A survey of public knowledge and perceptions of chemical risk was conducted in six communities. The purpose was to establish a baseline for evaluating change over time in knowledge, attitudes, and behaviors in response to new information about oxic chemicals, especially as related to Superfund, the Community Right-to-Know Law (SARA Title III), and other risk communication activities. During July and August, 1988, over 500 citizens responded to a 25-minute telephone survey in each city: Albuquerque NM, Cincinnati, OH, Durham NC, Middlesex County NJ, Racine WI, and Richmond VA. The report provides an overview of how citizens in these communities view environmental risks, and how the communities differ in their basic knowledge and attitudes about such risks. Recommendations are provided, for use in preparing risk communication programs and materials.
NTIS

"Recycling" loophole in the toxics-release inventory: out of site, out of mind.
Working Group on Community Right-To-Know, Washington, D.C. 1991.
ii, 76 p. : ill. ; 28 cm.
March 1989

Risk Communication about environmental hazards.
Baker, Frank
Johns Hopkins University, Baltimore MD
J Public Health Policy, Autumn 90, V11, N3, P341(19)
Journal Article

Risk communication is a new and important branch in the field of public health policy. Risk communication must address five components: intentionality, content, audience, source, and flow. The eight steps of risk communication include: risk assessment, goal setting, target audience assessment, sociocultural context assessment, choosing the approach, communication construction, program implementation, and evaluation. (34 REFERENCES)
ENVIROLINE

INFORMING THE WORKER

Environmental and workplace contamination in the semiconductor industry: implications for future health of the workforce and community
Edelman, Philip
Univ. of CA Irvine
Env Health Perspectives, Jun 1990, V86, P291(5)

Proposed National Strategies for the Prevention of Leading Work-Related Diseases and Injuries. Severe Occupational Traumatic Injuries
Anonymous
NIOSH, U.S. Department of Health and Human Services, Cincinnati, Ohio, DHHS (NIOSH) Publication No. 89-131, 25 pages, 1986
Abstract: Severe occupational traumatic injuries include amputations, fractures, severe lacerations, eye losses, acute poisonings, and burns. Control of severe occupational traumatic injuries is not possible without a concerted effort by government, academia, private business and labor. Such injuries pose a major threat to the health and well being of American workers. NIOSH estimates that as many as 10 million persons suffer traumatic injuries on the job each year. At least 10,000 of these are fatal. A dual approach is proposed to reduce the burden of such job injuries on the workforce, the economy and the population of the country. Immediate actions can be taken by interested groups and individuals based on prudent, carefully considered options for trauma prevention programs. For the long term, a major effort must be made to more thoroughly describe and study occupational injury incidents. Epidemiology can be used to evaluate the incidence of traumatic occupational injuries as it will assist in the identification, evaluation and control activities necessary to prevent further occurrences. Preventive components include modifying the job, changing the work environment, designing the safe machine, and managing the worker through training, hazard communication, known interventions, and rehabilitation.
Report Number: DCN-192578
NIOSH

VI. Hazard Surveillance in Occupational Disease
Froines-J; Wegman-D; Eisen-E
American Journal of Public Health, Vol. 79, Supplement, 1989,
26-31, 5 references
Journal Article
The role of hazard surveillance in occupational health was discussed. The features of hazard surveillance were summarized. Hazard surveillance was defined as a technique for assessing secular trends in exposure to occupational hazards. It involved collecting data on industry demographics, patterns of chemical use and workplace exposures, developing analytic methods for evaluating the data, and taking appropriate intervention and preventive actions. The benefits of hazard surveillance were discussed. These included identifying populations at risk of occupational diseases associated with continuous exposures, determining which job categories experience hazardous exposures, and identifying and evaluating control strategies. Existing data systems for hazard surveillance were reviewed. These included data obtained in the National Occupational Hazard Survey (NOHS) and National Occupational Exposure Survey (NOES) conducted by NIOSH, exposure data contained in the OSHA Integrated Management Information System (IMIS), and exposure assessment data obtained by the Mine Safety and Health Administration coal mine sampling program. Only the NIOSH NOES, the NOHS, and the OSHA IMIS data systems were considered to be potentially useful for hazard surveillance. Other sources of data were described, including the OSHA hazard Communication standards and data obtained in the NIOSH Health Hazard Evaluations. Alternative hazard surveillance systems were discussed. These were based on requiring industries to conduct environmental monitoring for defined substances according to the OSHA or generic standards and reporting the data to OSHA and NIOSH, which then used the information for surveillance purposes.
NIOSH

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