

United States  
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Agency

Office of Information  
Resources Management  
Washington, DC 20460

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March 1989



# **Risk Assessment, Management, Communication**

## **A Guide to Selected Sources Volume 3, Number 1**



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# **Risk Assessment, Management, Communication**

A Guide to Selected Sources  
Volume 3, Number 1



Office of Information  
Resources Management  
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U.S. Environmental Protection Agency

March 1989

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\*Includes Quantitative Risk Assessment and Pharmacokinetics.

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 seventh update in EPA's series of risk management bibliographies. Subsequent issues of the Guide will be compiled by the Office of Toxic Substances Library. References were gathered from the environmental, medical and scientific literature included in the following databases: Toxline, Conference Papers Index, Enviroline, NTIS, PAIS Public Affairs Information Service, and Legal Resource Index. The citations cover documents added to those collections during the period from September 1988 through March 1989. The original Guide appeared in March 1987 and was followed by quarterly updates. These earlier updates constitute volume one 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 the Risk Assessment section 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  
5285 Port Royal Road  
Springfield, Virginia 22161  
703-487-4650  
800-336-4700 (outside Virginia)

\* Guide: PB87-185500  
1st Update: PB87-203402/AS  
2nd Update: PB88-100102  
3rd Update: PB88-128178  
Volume 2, N. 1: PB88-210596  
Volume 2, N. 2: PB89-189641

\* 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:

EPA Headquarters Library PM-211A  
Risk Management Bibliographies  
401 M St., S.W.  
Washington, D.C. 20460

# **RISK ASSESSMENT**

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

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

**Assessing EPA's (Environmental Protection Agency's) Biotechnology  
Research and Information Needs. Report of the Study Group on  
Biotechnology**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-86/009

Jan 86 18p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Study Group was requested to undertake a preliminary evaluation of the Agency's existing research and risk assessment capabilities organisms. The Group concluded that although the Agency has increased its research staff and initiated a research program in biotechnology, a larger and broader program than that envisioned is needed by EPA decision makers. Evaluation of environmental effects, in particular, is an issue which should receive high priority by EPA. The Study Group endorsed EPA's current regulatory approach toward this developing industry. PB88-244678/XAB

**Construction of Plasmids for Use in Risk Assessment Research**

Zylstra, G. J. ; Cuskey, S. M. ; Olsen, R. H.

Michigan Univ., Ann Arbor. Medical School.

Corp. Source Codes: 002797166

Sponsor: Environmental Research Lab., Gulf Breeze, FL.

Report No.: EPA/600/D-88/216

Oct 88 16p

Languages: English

Journal Announcement: GRAI8903  
Sponsored by Environmental Research Lab., Gulf Breeze, FL.  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
Contract No.: EPA-R-812679  
(NTIS)

The report describes a series of selftransmissible and nonselftransmissible (cloning vector) plasmids constructed to compare results from different laboratory tests and plasmid systems. Plasmids were designed to overcome problems of reproducibility, confusion due to use of different genetic structures with a wide range of capabilities, and background contamination when enumerating released organisms or recipients in gene transfer determinations. Inclusion of one or more such plasmids may alleviate some ambiguity in analysis of data from different environmental milieus. PB89-118772/XAB

**Criteria for Evaluating the Reliability of Literature Data on  
Environmental Process Constants (Journal Version)**

(Journal article)

Kollig, H. P.

Environmental Research Lab., Athens, GA.

Corp. Source Codes: 057445000

Report No.: EPA/600/J-88/201

1988 28p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8908

Pub. in Toxicological and Environmental Chemistry, v17 n8 p287-311 Aug 88.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

In the assessment of health risk from pollutant exposure, it is important for the modeler to know the reliability of literature values that are needed for estimating the fate of toxic substances in the environment. Since literature values, in general, are of unknown reliability, evaluation criteria were developed for twelve rate and equilibrium constants used in environment modeling. These evaluation criteria also can be used to assess the reliability of literature values for other properties.

(Copyright (c) 1986 Gordon and Breach Science Publishers, Inc.) PB89-138796/XAB

**EPA'S UNFINISHED BUSINESS**

MORGENSTERN RICHARD (EPA) AND ; SESSIONS STUART (SOBOTKA &  
CO, DC),

ENVIRONMENT, JUL-AUG 88, V30, N6, P14(10)

(ENVIROLINE)

JOURNAL ARTICLE A WIDE VARIETY OF FACTORS COMBINE TO MAKE PRIORITY SETTING BY EPA DIFFICULT. ONE MAJOR DIFFICULTY STEMS FROM THE MULTIPLE STATUTORY GOALS GOVERNING THE AGENCY; ACHIEVING ALL OF THE STATUTORY MANDATES WITH THE LIMITED RESOURCES AVAILABLE IS IMPOSSIBLE. HOWEVER, IN RECENT YEARS THERE HAVE BEEN SOME IMPROVEMENTS IN THE AGENCY'S PRIORITY SETTING.



PERHAPS MOST IMPORTANT HAVE BEEN ADVANCES IN RISK ASSESSMENT TECHNIQUES FOR THE HUMAN HEALTH RISKS OF EXPOSURE TO POLLUTANTS. THE RESULTS OF A YEAR-LONG STUDY INITIATED TO DETERMINE THE COMPARATIVE MAGNITUDE OF THE VARIOUS ENVIRONMENTAL PROBLEMS THAT EPA MIGHT ADDRESS ARE SURVEYED. THE MAJOR FINDINGS ARE RANKINGS OF THE 31 PROBLEM AREAS FOR EACH OF FOUR RISK TYPES. EFFORTS ARE ALSO UNDERWAY TO EXPAND ON THE INITIAL COMPARATIVE ASSESSMENT EFFORT. (1 DIAGRAM) Enviroline Number: \*88-081229

**Evaluating EPA's (Environmental Protection Agency's) Current Objectives and Future Needs for Biotechnology Risk Assessment Research. Report of the Biotechnology Research Review Subcommittee**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EETFC-88/010

Jan 88 44p

Languages: English

Journal Announcement: GRAI8824

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The EPA Biotechnology Research Review Subcommittee commends the program and its researchers for the number of significant accomplishments achieved in a short period of time. Preliminary areas of concentration on development of methods were appropriate and now allow the program to shift to application of methods. Specifically, new emphasis should be placed on microcosm and field testing, investigating and analyzing environmental effects, and developing control strategies for containment and mitigation. The Subcommittee was concerned with the limited scope and lack of strategy for the health effects component, while supporting the strategy underlying the engineering component. PB88-248950/XAB

**THE EVOLUTION OF WATER QUALITY STANDARDS AND TESTING PROCEDURES,**

MCCURDY ROSS F. AND ; MOSS MICHAEL MANN AQUA LABS, CANADA,  
WATER & POLLUTION CONTROL, OCT-NOV 88, V126, N5, P4(2)  
(ENVIROLINE)

JOURNAL ARTICLE PROGRESS IN THE MAINTENANCE AND EXPANSION OF THE SUPPLY OF CLEAN DRINKING WATER WILL DEPEND IN PART ON DEVELOPMENTS IN THE AREAS OF DRINKING WATER STANDARDS AND WATER QUALITY TESTING. TODAY, WATER QUALITY STANDARDS AND GUIDELINES DEAL WITH HEALTH-RELATED PARAMETERS, AESTHETICS, AND OTHER CONSIDERATIONS. AS IT IS IMPOSSIBLE TO COMPLETELY ELIMINATE EVERY HAZARDOUS SUBSTANCE AND ORGANISM FROM WATER SUPPLIES, THE CONCEPT OF ACCEPTABLE RISK HAS BEEN USED. IN THE CASE OF SUBSTANCES THAT APPEAR TO HAVE A THRESHOLD DOSE, A MAXIMUM ACCEPTABLE DOSE CAN BE DETERMINED. THE DEVELOPMENT OF STANDARDS AND GUIDELINES HAS OCCURRED CONCOMITANTLY WITH THE DEVELOPMENT OF WATER ANALYSIS METHODS, WHICH ARE BRIEFLY REVIEWED. (2 PHOTOS) Enviroline Number: \*89-000916

**Exposure Measurement for Air Pollution Epidemiology**  
Ferris, B. G. ; Ware, U. H. ; Spengler, J. D.  
Harvard School of Public Health, Boston, MA.  
Corp. Source Codes: 011983000  
Sponsor: Health Effects Research Lab., Research Triangle Park, NC.  
Report No.: EPA/600/D-88/167  
Aug 88 20p  
Languages: English  
Journal Announcement: GRAI8824  
Sponsored by Health Effects Research Lab., Research Triangle Park, NC.  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
Contract No.: EPA-R-811650  
(NTIS)

The chapter describes the evolution of air pollution epidemiology over a period when changes in pollution technologies have both lowered total exposures and dispersed them over vastly greater areas. Since personal exposure and microenvironmental measurements are expensive, studies oriented toward measurements of total exposure will be smaller and more intensive. The shift in emphasis to total human exposure also will affect health risk assessment and raise difficult issues in the regulatory domain. Considering that outdoor exposures (for which EPA has a regulatory mandate) occur in the context of exposures from other sources, the potential effect of regulatory action would probably be small. The regulatory issues are even more difficult for particulate air pollution since cigarette smoking is the strongest determinant of indoor levels but the EPA lacks regulatory responsibility for cigarette smoke. PB88-246111/XAB

**Hazard and risk assessment and acceptability of chemicals in the environment**

Bro-Rasmussen, F.  
Tech. Univ.. Lyngby, Denmark  
3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010  
University of Surrey (UK) 11-14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**THE INTERNATIONAL COMPETITIVE IMPLICATIONS OF TOXICOLOGICAL STANDARDS: THE NEED FOR CONSISTENT INTERNATIONAL STANDARDS, HSE COMM SCIENCE SPACE TECH HEARINGS 100 CON 2 97, MAR 17, 88 (232) (ENVIROLINE)**

HEARING TRANSCRIPT HEARINGS WERE HELD TO EXAMINE THE INCONSISTENCIES IN THE VARIOUS LISTS OF SUBSTANCES WHICH CONCEIVABLY COULD BE FOUND TO CAUSE CANCER IN HUMANS. INCONSISTENT TOXICOLOGICAL STANDARDS BETWEEN THE US AND OTHER NATIONS MAY DISADVANTAGE US CHEMICAL MANUFACTURERS. ALTHOUGH INTERNATIONAL AGREEMENT EXISTS ON SCIENTIFIC METHODS USED TO IDENTIFY AND EVALUATE CARCINOGENS, AGREEMENTS DO NOT EXIST ON THE TYPE AND DEGREE OF EVIDENCE NECESSARY TO CLASSIFY A CARCINOGEN AS A KNOWN, PROBABLE, OR POSSIBLE CARCINOGEN. THE USE OF LISTS DEVELOPED BY HHS, EPA, AND OTHERS AS

THE BASIS FOR REGULATORY DECISIONS CONCERNING CHEMICAL SUBSTANCES IS CRITIQUED. PRINCIPLES FOR EXPOSURE AND RISK ASSESSMENT ARE SUGGESTED, AS ARE PROPOSALS FOR HARMONIZING TOXICOLOGICAL STANDARDS. TESTIMONY WAS PRESENTED BY JOHN HIGGINSON OF GEORGETOWN UNIV.; RONALD LANG OF THE CHEMICAL MFRS. ASSN.; AND OTHERS. ASSOCIATED DOCUMENTS AND MEMORANDA ARE TRANSCRIBED. Enviroline Number: \*89-000696

**Integrated Risk Information System (IRIS) (for IBM PC  
Microcomputers)**

(Data file)

Picardi, R. ; Swartout, U.

Environmental Protection Agency, Washington, DC. Office of Research and Development.

Corp. Source Codes: 031287457

Report No.: EPA/DF/DK-88/050

1988 12 diskettes

Languages: English

Journal Announcement: GRAI8819

See also PB88-215884.

The data file is contained on 5 1/4-inch, double sided, double density diskettes, compatible with the IBM PC microcomputer. Diskettes are in the ASCII format.

NTIS Prices: CP D06

Country of Publication: United States

(NTIS)

The Integrated Risk Information System (IRIS), an on-line database of chemical-specific risk information, was made available outside EPA. IRIS provides information on how chemicals affect human health and is a primary source of EPA risk assessment information on chemicals of environmental concern. It is intended to serve as a guide for the hazard identification and dose-response assessment steps of EPA risk assessments. The principal section of IRIS is the chemical files. The chemical files contain: oral and inhalation reference doses for noncarcinogens; oral and inhalation carcinogen assessments; summarized Drinking Water Health Advisories; summaries of selected EPA regulations; supplementary data (for example, acute toxicity information and physical-chemical properties). The two primary types of health assessment information in IRIS are reference doses and carcinogen assessments. Reference doses are estimated human chemical exposures over a lifetime which are just below the expected threshold for adverse health effects. Because exposure assessment pertains to exposure at a particular place, IRIS cannot provide situational information on exposure. IRIS can be used with an exposure assessment to characterize the risk of chemical exposure. This risk characterization can be used to decide what must be done to protect human health. Oral reference doses (RfD) are provided for most of the chemicals in IRIS and carcinogen slope factors are provided for some. Inhalation reference doses are not yet available in IRIS. Inhalation reference doses will be added after the Agency produces a methodology for developing these RfDs. For more information on IRIS call IRIS User Support at (513) 569-7254 or FTS 684-7254. PB88-215892/XAB

**JUDGING LIMITS OF SAFETY IS A REGULATOR'S NIGHTMARE,**  
LIPKIN RICHARD  
INSIGHT, MAY 23, 88, V4, N21, P14(3)  
(ENVIROLINE)

JOURNAL ARTICLE THE DECISIONS OF RISK ASSESSORS AND REGULATORS, WHO SET LIMITS OF SAFETY FOR TOXIC SUBSTANCES, ARE DIFFICULT TO ARRIVE AT AND OFTEN IMPACT ON THE ECONOMY AND GENERATE CONTROVERSY AND LAWSUITS. IN THE CASE OF THE CARCINOGEN DIOXIN, EPA HAS RECOMMENDED A LOWER RISK-SPECIFIC DOSE THAT WOULD INCREASE THE LEVEL IT CONSIDERS SAFE FROM 0.006 PICOGRAMS PER KILOGRAM OF BODY WEIGHT/DAY TO 0.1. EPA IS USING THE SAME RISK MODEL-A LINEARIZED MULTI-STAGE MODEL-BUT MAKING LESS CONSERVATIVE ASSUMPTIONS THAN CDC, WHOSE DAILY DOSAGE ESTIMATE IS 0.03, AND FDA, WHOSE STANDARD IS 0.06. INCONSISTENCY OF THIS KIND MAKES THE PUBLIC UNDERSTANDABLY SKEPTICAL. NEVERTHELESS, RISK ANALYSIS IS A NECESSARY IF INEXACT DISCIPLINE. (1 GRAPH, 4 PHOTOS) Enviroline Number: 88-081224

**Methodological Challenges in Health Risk Assessment**

(Final rept)

Lewin and Associates, Inc., Washington, DC.

Corp. Source Codes: 064210000

Sponsor: Public Health Service, Rockville, MD. Office of Disease Prevention and Health Promotion.

12 Oct 87 466p

Languages: English

Journal Announcement: GRAI8903

Portions of this document are not fully legible.

Sponsored by Public Health Service, Rockville, MO. Office of Disease Prevention and Health Promotion.

NTIS Prices: PC A20/MF A01

Country of Publication: United States

Contract No.: PHS-282-83-0069

(NTIS)

Risk assessment, a major activity of both health and regulatory agencies, is subject to large and unavoidable uncertainties. Thus, different teams of knowledgeable experts can come to different conclusions about risks to human health from various sorts of hazards. The report examines and compares analyses by two or more agencies of ten health hazards or potential hazards: ethylene dibromide, formaldehyde, Tris, dioxin (limited to cancer risks of contaminated soil), lead (reproductive effects), cotton dust, noise (long-term hearing impairment), passive smoking, dietary fat (cancer risks), and the radiation hazards of mammography. Each set of risk assessments is analyzed in depth. The report then turns to cross-cutting analyses of such matters as setting priorities for risk assessment, approaches and methods used to evaluate different kinds of risks, and the relationships between risk assessment and risk management. Overall, the report found large differences among risk assessments of the same hazard, but these differences are often quite appropriate. PB89-116032/XAB

**NIOSH (National Institute for Occupational Safety and Health) Report on Occupational Safety and Health for Fiscal Year 1986 under Public Law 91 - 596**

National Inst. for Occupational Safety and Health, Cincinnati, OH.

Corp. Source Codes: 052678000

Sep 87 58p

Languages: English

Journal Announcement: GRAI8822

See also report for 1984, PB88-237508.

NTIS Prices: PC A04/MF A01

Country of Publication: United States

(NTIS)

A brief review was provided of the development of the field of occupational safety and health in the United States. The tasks which NIOSH was mandated to carry out were briefly defined and its activities in the areas of hazard identification, hazard evaluation, control systems, and dissemination of information were described. The organization of the Institute was delineated with explanations of activities given for each of its various divisions. Efforts were described in the areas of concern. PB88-237516/XAB

**Observations on work force and training needs for assessing environmental health risks.**

DeRoos, Roger L. and others.

Public Health Repts 103:348-54 JI/Ag '88, chart

LANGUAGE: Engl

DOC TYPE: P

(PAIS INTERNATIONAL)

Based on the experiences of agencies in six states. Education and risk assessment, particularly as they relate to schools of public health and the role of continuing education.

**Perspective of PC-Based Probabilistic Risk Assessment**

Sattison, M. B. ; Rasmuson, D. M. ; Robinson, R. C. ; Russell, K. D. ; Van Siclen, V. S.

EG and G Idaho, Inc., Idaho Falls.

Corp. Source Codes: 046580000; 9507781

Sponsor: Nuclear Regulatory Commission, Washington, DC. Office of Nuclear Regulatory Research.; Department of Energy, Washington, DC.

Report No.: EGG-M-33687; CONF-871234-14

1987 9p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8818; NSA1300

ASME winter meeting, Boston, MA, USA, 13 Dec 1987.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC07-76ID01570

(NTIS)

Probabilistic risk assessment (PRA) information has been under-utilized in the past due to the large effort required to input the PRA data and the large expense of the computers needed to run PRA codes. The microcomputer-based Integrated Reliability and Risk Analysis System (IRRAS) and the System Analysis and Risk Assessment (SARA) System, under development at the Idaho National Engineering Laboratory, have greatly enhanced the ability of managers to use PRA techniques in their decision-making. IRRAS is a tool that allows an analyst to create, modify, update, and reanalyze a plant PRA to keep the risk assessment current with the plant's configuration and operation. The SARA system is used to perform sensitivity studies on the results of a PRA. This type of analysis can be used to evaluate proposed changes to a plant or its operation. The success of these two software projects demonstrate that risk information can be made readily available to those that need it. This is the first step in the development of a true risk management capability. (ERA citation 13:029085) DE88006715/XAB

**Pesticide Assessment Guidelines, Subdivision F, Hazard Evaluation:  
Human and Domestic Animals. Series 81-3 and 82-4. Acute and  
Subchronic Inhalation Toxicity Testing. Addendum 6 on Data Reporting**

Gross, S. B.

Environmental Protection Agency, Washington, DC. Office of Pesticide Programs.

Corp. Source Codes: 031287124

Report No.: EPA/540/09-89/007

Oct 88 38p

Languages: English

Journal Announcement: GRAI8903

See also PB83-153916 and PB89-124085.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Data Reporting Guideline (DRG) for Acute and Subchronic Inhalation Toxicity Testing, Series 81-3 and 82-4, gives guidance to pesticide registrants on the format of their study report so that the Agency can review it efficiently. The guidance clarifies sections in the existing Pesticide Assessment Guidelines, Subdivision F, on data reporting. It provides an outline for the study report which data submitters can use in preparing their reports for submission to EPA to meet 40 CFR 158 data requirements for the registration of pesticides. The DRG for Series 81-3 and 82-4, Acute and Subchronic Inhalation Toxicity Testing, is only one of a number of DRGs published by the National Technical Information Service as an addendum to Subdivision F of the Pesticide Assessment Guidelines. PB89-124077/XAB

**Pesticide Assessment Guidelines, Subdivision F, Hazard Evaluation:  
Human and Domestic Animals. Series 85-1, General Metabolism.  
Addendum 7 on Data Reporting**

Ghali, G. Z. ; Engler, R.

Environmental Protection Agency, Washington, DC. Office of Pesticide Programs.

Corp. Source Codes: 031287124

Report No.: EPA/540/09-89/008

Oct 88 20p

Languages: English

Journal Announcement: GRAI8903

See also PB89-124077.

NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

The Data Reporting Guideline (DRG) for General Metabolism, Series 85-1, gives guidance to pesticide registrants on the format of their study report so that the Agency can review it efficiently. The guidance clarifies sections in the existing Pesticide Assessment Guidelines, Subdivision F, on data reporting. It provides an outline for the study report which data submitters can use in preparing their reports for submission to EPA to meet 40 CFR 158 data requirements for the registration of pesticides. The DRG for Series 85-1, General Metabolism, is only one of a number of DRGs published by the National Technical Information Service as an addendum to Subdivision F of the Pesticide Assessment Guidelines. PB89-124085/XAB

### **Probability and Control Cost Effectiveness for Accidental Toxic Chemical Releases**

DeWolf, G. B. ; Quass, U. D. ; Bare, J. C.

Radian Corp., Austin, TX.

Corp. Source Codes: 029117000

Sponsor: Environmental Protection Agency, Research Triangle Park, NC. Air and Energy Engineering Research Lab.

Report No.: EPA/600/D-88/137

Jun-88 21p

Languages: English

Journal Announcement: GRAI8820

Sponsored by Environmental Protection Agency, Research Triangle Park, NC. Air and Energy Engineering Research Lab.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: EPA-68-02-3994

(NTIS)

The paper shows how fault tree analysis (FTA) of a process System can be used to compare the relative effectiveness of various equipment, design, and operating measures for release prevention and protection applied to process streams. It also shows how the costs of various safety control measures can be estimated and combined with accident frequency estimates to provide a basis for efficiently allocating financial resources for safety. In addition to the positive aspects of the methodology shown, limitations of the methodology and needs for future investigations are highlighted. Attempting to prevent and protect against an accidental or emergency release of a toxic gas or vapor is preferable to actions taken after such a release. Of the various formal, quantitative methods for estimating how releases might occur and their probability for process systems, FTA is being used more frequently. While there are current limitations to the method, due to a lack of adequate reliability data for process System components, it can still be used to provide valuable information to planners. PB88-225032/XAB

**Process safety and risk assessment in public decision making**

Waite, P.U.; Shillito, O.E.

Cremer and Warner, UK

CHEMECA '88-Australia's Bicentennial International

Conference for the Process Industries 8830498 Sydney

(Australia) 28-31 Aug 1988

Institution of Chemical Engineers; Institution of Chemical Engineers in Australia;

Royal Australian Chemical Institute; et al.

Institution of Engineers, Australia, 11 National Circuit, Barton, ACT 2600, Australia.

Telephone: (062)70 6549. Telex: AA62758. Facsimile: (062) 73 1488

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Protest movements and the construction of risk**

Gerlach, L.P.

Wissenschaftszentrum, Berlin (Germany, F.R.). Internationale s Inst. fuer Umwelt und Gesellschaft.

Corp. Source Codes: 076912001

Report No.: IIUG-DP-86-10

1986 61p

Languages: English

Journal Announcement: GRAI8905

NTIS Prices: PC E07

Country of Publication: Germany, Federal Republic of  
(NTIS)

An important event in western society is the often militant protest of major technologies. Such have been explained in at least five ways; as problems in risk assessment and management; as problems in decision-making procedures; as a result of post-industrial transformation; as driven by social movements or as events which produce public debates which can lead to sociocultural change. This report briefly criticizes the first three of these and argues the explanatory merits of the last two. Social movements are analyzed as a phenomenon which drives technological disputes, controls risk/benefit assessment and procedural adaptation, and generates culture-changing public debates. Technological risk is constructed in the process of such disputes as social movements act and interact with established orders and the larger society. (orig./RHM). (TIB: RO 740(86-10).) (Copyright (c) 1988 by FIZ. Citation no. 88:082209.) TIB/A88-82209/XAB

**Regional Environmental Studies Using National Data Bases and GIS  
(Geographic Information System)**

Olson, R. U. ; McCord, R. A. ; Dearstone, K. C. ; Timmins, S. P.

Oak Ridge National Lab., TN.

Corp. Source Codes: 021310000; 4832000

Sponsor: Analysas Corp., Oak Ridge, TN.; Department of Energy, Washington, DC.

Report No.: CONF-880385-1

1988 18p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8823; NSA1300

Portions of this document are illegible in microfiche products. ISRI annual user conference, Palm Springs. CA, USA, 21 Mar 1988.



NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
Contract No.: AC05-840R21400  
(NTIS)

The Environmental Sciences Division at Oak Ridge National Laboratory has conducted a variety of regional and national studies of potential environmental impacts related to energy development. These studies have included the assessment of acid deposition impacts, assessment of global climate change, environmental impact and risk analysis, and landscape pattern analysis. The authors have compiled the Geoecology and ADDNET data bases for regional studies. These data bases contain extensive national data regarding soils, land use, agriculture, forestry, aquatic resources, endangered species, natural areas, air quality, emissions, and climate. SAS is used for data management, analysis, and display. An in-house geographic information system (GIS) is also used for mapping. In 1986 we acquired the ARC/INFO system to enhance our GIS capabilities and to be compatible with other federal agencies. Our evaluation of lake chemistry data from the Environmental Protection Agency's National Surface Water Survey demonstrates the use of GIS as a tool for regional studies. In addition, the interfacing of SAS data sets and ARC/INFO attribute files is discussed. 8 refs. (ERA citation 13:034817) DE88008368/XAB

#### **Risk Assessment: An Introduction**

Travis, C. C.

Oak Ridge National Lab., TN.

Corp. Source Codes: 021310000: 4832000

Sponsor: Department of Energy, Washington, DC.

Report No.: CONF-881183-1

1988 34p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8908 NSA1400

International toxicology seminar on environmental toxicology, Bangkok, Thailand, 14 Nov 1988.

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: AC05-840R21400

(NTIS)

Growing public awareness of the potential risk to humans from hazardous chemicals in the environment has led to concern over permissible exposure limits. This awareness has generated a demand for a rational means of estimating risk and of limiting exposure where risk is judged to be excessive. An outcome of this awareness has been the emergence of the field of risk assessment. Risk assessment synthesizes available data on exposure and toxicity of chemicals and uses the best scientific judgment to estimate the associated risk to humans. The risk analysis process involves four consecutive steps: Hazard Identification, Risk Assessment, Risk Management, and Risk Communication. The focus of this presentation is on the risk assessment component of this process. 57 refs., 7 figs. (ERA citation 14:001994) DE88016789/XAB

**Risk assessment and risk acceptance**

Roberts, L.E.J.

Univ. East Anglia, UK

3rd FECS Conference on Risk Assessment of Chemical in  
Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington  
House, London W1V OBN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk assessment of chemicals: A global approach**

Mercier, M.

IPCS, Geneva, Switzerland

3rd FECS Conference on Risk Assessment of Chemical in  
Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1v OBN  
(UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk assessment of domestic chemicals**

Melnick, S.C.

Toxic Chem. Inf. Cent., London, UK

3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010  
University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V OBN  
(UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk assessment: Prediction and reality**

Warner, F.

Univ. Essex, UK

3rd FECS Conference on Risk Assessment of Chemical in  
Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington  
House, London W1V OBN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**RISKY BUSINESS OF ASSESSING DANGER,**  
LIPKIN RICHARD  
INSIGHT, MAY 23, 88, V4, N21, P8(6)  
(ENVIROLINE)

JOURNAL ARTICLE CARCINOGENS IN PESTICIDES AND SUBSTANCES WITH "REPRODUCTIVE TOXICITY" ARE SOME OF THE TARGETS OF CALIFORNIA'S PROPOSITION 65. SUCH SAFETY MEASURES, COINED IN LEGAL LANGUAGE AND BASED ON SCIENTIFIC RESEARCH, SET ACCEPTABLE LEVELS OF RISK. EPA, FDA, AND NRC ARE AMONG THE FEDERAL AGENCIES THAT ATTEMPT TO QUANTIFY RISK. OF THE 7 MILLION KNOWN MAN-MADE CHEMICALS, LESS THAN 10% HAVE BEEN TESTED FOR TOXICITY; AND THE VALIDITY OF TEST CONCLUSIONS CAN BE QUESTIONED. SOME OF THE DIFFICULTIES IN MAKING RISK ASSESSMENTS ARE: ANIMAL TESTING OFTEN FAILS TO EXTRAPOLATE TO HUMANS; DIFFERENT MATHEMATICAL RISK MODELS USED TO TRANSLATE ANIMAL DATA YIELD DIFFERENT RESULTS; SCIENTISTS LACK KNOWLEDGE OF SPECIES DIFFERENCES IN METABOLISM AND THE MECHANISMS OF CARCINOGENICITY. RISK ANALYSIS ADDRESSES NOT ONLY THE DANGERS OF VARIOUS CHEMICALS BUT ALSO THE DANGERS INHERENT IN THE ASSUMPTIONS ON WHICH MUCH SCIENTIFIC RESEARCH IS BASED. IT IS A FIELD THAT CONTINUES TO GROW IN AN AGE OF HEALTH-HAZARD AWARENESS. (9 PHOTOS) Enviroline Number: 88-081225

**Surviving the 1980s at EPA.**

Truax, Hawley.  
Environmental Action 20:12-16 Ja/F '89, il  
LANGUAGE: Engl  
DOC TYPE: P  
(PAIS INTERNATIONAL)

Emergence of the risk assessment process at the Environmental Protection Agency.

**Trends in risk assessment from the deterministic to the probabilistic**  
Farmer, F.R.

3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010  
University of Surrey (UK) 11-14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews,  
Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Ways in Which EPA (Environmental Protection Agency) and the  
Environmental Health Committee Can Enhance Their Efficiency in  
Reviewing Risk Assessments**

(Final rept)  
Environmental Protection Agency, Washington, DC. Science Advisory Board.  
Corp. Source Codes: 031287050  
Report No.: SAB/EHC-86/018 8  
Apr 86 6p  
Languages: English  
Journal Announcement: GRAI8823  
NTIS Prices: PC A02/MF A01

Country of Publication: United States  
(NTIS)

The report identifies areas in which the Environmental Protection Agency and the Environmental Health Committee of EPA's Science Advisory Board could enhance the efficiency of carrying out their joint responsibilities. Areas targeted for study are reviewing risk assessments and methods for planning scientific reviews. The Committee's viewpoint and current concerns are presented in the document. PB88-242755/XAB

**What should you worry about when doing a risk assessment?**

Freeman, R.  
Monsanto Co., St. Louis, MO  
American Institute of Chemical Engineers 1988 Summer  
National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988  
American Institute of Chemical Engineers  
Engineering Societies Library, United Engineering Center, 345  
East 47th Street, New York, NY 10017 (USA). Telephone:  
(212)705-7611, Individual Papers are also Available Paper No. 65c  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**ASSESSMENT GUIDELINES**

**Applicability of U.S. EPA (Environmental Protection Agency) Risk  
Assessment Guidelines for Chemical Mixtures**

Lutkenhoff, S. D. ; Hertzberg, R. C. ; Sonich-Mullin, C.  
Environmental Protection Agency, Research Triangle Park, NC. Environmental  
Criteria and Assessment Office.  
Corp. Source Codes: 034680061  
Report No.: EPA/600/D-88/170  
Aug 88 35p  
Languages: English  
Journal Announcement: GRAI8822  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

The U.S. EPA published Guidelines for the health Risk Assessment of Chemical Mixtures in September, 1986. To facilitate the application of Guidelines procedures the Agency has developed a data base on known toxicological interactions (synergism, etc.). This unique resource allows incorporation of interaction data on a case-by-case basis into mixture risk assessments. Additional technical support information is being compiled, which will provide the scientific basis for the Guidelines procedures. In the present paper, the Guidelines still be summarized and illustrated using an example assessment of contaminated ground water. PB88-238951/XAB

### **Approach to Uncertainty in Risk Analysis**

Rish, W. R.

Oak Ridge National Lab., TN.

Corp. Source Codes: 021310000; 4832000

Sponsor: Department of Energy, Washington, DC.

Report No.: ORNL/TM-10746

Aug 88 143p

Languages: English

Journal Announcement: GRAI8904; NSA1300

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A07/MF A01

Country of Publication: United States

Contract No.: AC05-840R21400

(NTIS)

In the Fall of 1985 EPA's Office of Radiation Programs (ORP) initiated a project to develop a formal approach to dealing with uncertainties encountered when estimating and evaluating risks to human health and the environment. Based on a literature review of modeling uncertainty, interviews with ORP technical and management staff, and input from experts on uncertainty analysis, a comprehensive approach was developed. This approach recognizes by design the constraints on budget, time, manpower, expertise, and availability of information often encountered in "real world" modeling. It is based on the observation that in practice risk modeling is usually done to support a decision process. As such, the approach focuses on how to frame a given risk modeling problem, how to use that framing to select an appropriate mixture of uncertainty analyses techniques, and how to integrate the techniques into an uncertainty assessment that effectively communicates important information and insight to decision-makers. The approach is presented in this report. Practical guidance on characterizing and analyzing uncertainties about model form and quantities and on effectively communicating uncertainty analysis results is included. Examples from actual applications are presented. (ERA citation 13:047344)  
DE88015332/XAB

### **Assessment of Reproductive Risks (Journal Version)**

(Journal article)

Clegg, E. D. ; Sakai, C. S. ; Voytek, P. E.

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

Corp. Source Codes: 031287609

Report No.: EPA/600/J-85/501

1985 14p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8907

Pub. in Biology of Reproduction, v34 p5-16 1986.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

In the regulatory process, the hazards posed by potentially toxic agents to the female and male reproductive systems and to developing young are evaluated by risk assessment procedures. In the paper, toxicity testing and the regulatory process are discussed, with emphasis on risk assessment. The suggested testing protocols of the

Pesticide Assessment Guidelines (U.S. EPA) are presented as an example of testing that might be done to produce toxicity data for an agent. Protocols and end points that are utilized in testing for reproductive effects are described. Included are acute, subchronic, chronic, and short-term tests. The four components of reproductive risk assessment (hazard identification, dose-response assessment, exposure assessment, and risk characterization) are examined. Effects of dibromochloropropane on rabbit testicular parameters are used to demonstrate approaches that could be taken in doing a reproductive risk assessment. Research needs are identified. Areas in which changes in reproductive risk assessment are anticipated, as well as the mechanism for influencing the nature and extent of those changes are discussed. PB89-134746/XAB

**Assessment of the Water Hazard of Material with Regard to the Storage, Transfer and Transport, and Investigation to Clear Up Limits Specific to Substance and Methods of Assessment of the Water Hazard  
(Bewertung wassergefährdender Stoffe im Hinblick auf Lagerung, Umschlag und Transport und Untersuchung zur Abklärung substanz- und bewertungsmethodenspezifischer Grenzfälle bei der Bewertung wassergefährdender Stoffe.)**

Trenel, J. ; Kuehn, R.

Bundesgesundheitsamt, Berlin (Germany, F.R.). Inst. fuer Wasser-, Boden- und Lufthygiene.

Corp. Source Codes: 004845001

Sponsor: Umweltbundesamt, Berlin (Germany, F.R.).

Jul 82 62p

Languages: German

Journal Announcement: GRAI8907

In German,

NTIS Prices: PC E07

Country of Publication: Germany, Federal Republic of (NTIS)

The aim of the research work was to examine selected materials according to the criteria of the scheme of evaluation, which had been worked out by the ad hoc Working Party 'Water hazard ranking of materials' of the BMI Committee on 'Storage and transport of materials hazardous to water'. The range of tests by which the materials were examined, was given by the above-mentioned scheme of evaluation. This was: the determination of toxicity to bacteria; the determination of biodegradability; the determination of toxicity to algae; the determination of acute toxicity to daphnia; the determination of acute toxicity to fish, the determination of acute oral toxicity to rats. The test results obtained are given in tables. Solutions were examined for the problems or limits of ability to test, arising during the investigations. The test results are intended for use as a basis for water hazard assessment. (orig./RHM). (TIB: FR 848.) (Copyright (c) 1988 by FIZ. Citation no. 88:082798.) TIB/A88-82798/XAB

**Hazard Evaluation Division, Standard Evaluation Procedure: Eye Irritation Studies**

Seabaugh, V. M. ; Vocci, F. J.

Environmental Protection Agency, Washington, DC. Office of Pesticide Programs.

Corp. Source Codes: 031287124

Report No.: EPA/540/09-88/105

Aug 88 36p

Languages: English

Journal Announcement: GRAI8903  
See also PB83-153916  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

The Standard Evaluation Procedure for Eye Irritation Studies states the purpose and requirements, and the test is further defined in the Pesticide Assessment Guidelines (Subdivision F, Hazard Evaluation: Human and Domestic Animals, (1982, revised 1984)). Background information is given on the development of the test, animal models, scoring system, labeling, and factors affecting the results. There are discussions on objective and alternative technologies, evaluation based on weight-of-evidence, epidemiological data, and low dose and dose response studies. A tier system is presented incorporating present methods and possible future alternatives. Data Reporting Guidelines (Subdivision F, Series 81-4, Eye Irritation) are available (National Technical Information Service (NTIS), accession no. PB88-161179 EPA document no. 540/09-88-023).

**Report of the EPA (Environmental Protection Agency) Workshop on the Development of Risk Assessment Methodologies for Tumor Promoters**

Connery, U.  
Eastern Research Group, Inc., Arlington, MA.  
Corp. Source Codes: 085443000  
Sponsor: Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.  
Report No.: EPA/600/9-87/013  
Jun 87 217p  
Languages: English  
Journal Announcement: GRAI8821  
Sponsored by Environmental Protection Agency, Washington, DC. Office of Health and Environmental Assessment.  
NTIS Prices: PC A10/MF A01  
Country of Publication: United States  
Contract No.: EPA-68-03-3234  
(NTIS)

At a workshop sponsored by the EPA Office of Research and Development, thirteen expert panelists discussed research needed to support the development of risk assessment methodologies for tumor promoters. The panelists exchanged current data on promotion, identified data gaps, and formulated general and specific research recommendations. Available data suggest that there are probably at least three stages of carcinogenesis - initiation, promotion and progression - and that there are agents that are associated predominantly with these three stages. The panelists agreed that the mechanism of promotion is not currently understood and they suggest that there may be several different mechanisms of promotion. Available data suggest that promotion is substantially different from initiation, and that traditional risk assessment models for carcinogens are not appropriate for promoters. The panelists agreed that not enough data are currently available to assess the risks of promoters, and that substantial research is needed in several areas. PB88-230743/XAB

**Review of Technical Documents Supporting Proposed Revisions to EPA  
(Environmental Protection Agency) Regulations for the  
Disposal/Reuse of Sewage Sludge under Section 405(d) of the Clean  
Water Act**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EEC-87/015

Jan 87 82p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A05/MF A01

Country of Publication: United States

(NTIS)

In August 1985 the Environmental Engineering Committee of the Science Advisory Board was asked by the Office of Water Regulations and Standards (OWRS) to review technical documents supporting development of EPA regulations for the disposal/reuse of sewage sludge under Section 405(d) of the Clean Water Act. The Committee was also asked by the Office of Marine and Estuarine Protection (OMEP) to review technical documents supporting revisions of the EPA ocean dumping regulations. The Committee chose to review the two sets of documents together, since they both dealt with a common subject, and since they shared, in some respects, a common methodology. The report, however, covers only the review of the OWRS documents, which consist of a set of risk assessment methodologies (1,2,3,4) for four sludge disposal/reuse options (landfilling, land application/distribution and marketing, incineration, and ocean disposal). The reviews of the OMEP documents are covered in separate Committee reports. The Committee's principal findings are outlined. PB88-Z43407/XAB

**Risk Assessment Guidelines Update, 1988**

Ehrlich, A. M.

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

Corp. Source Codes: 031287609

Report No.: EPA/600/D-88/264

Nov 88 34p

Languages: English

Journal Announcement: GRAI8904

See also PB88-123997.

NTIS Prices: Not available NTIS

Country of Publication: United States

(NTIS)

In 1986, the U.S. Environmental Protection Agency issued five guidelines for conducting risk assessments. The authors describe the process used by EPA to evaluate the health effects of exposure to environmental toxicants. When those guidelines were issued, EPA stated its intent to continue the development of new guidelines and revision of existing guidelines. The paper discusses the seven guideline activities under way as of September 1988: female reproductive risk, male reproductive risk, exposure measurements, developmental toxicity, carcinogenicity, non-cancer health effects, and neurotoxicity. PB89-133417



**Role of Health-Based Criteria Development in USATHAMA'S (US Army Toxic and Hazardous Materials Agency) Installation Restoration Program: Final Report**

Etnier, E. L.

Oak Ridge National Lab., TN.

Corp. Source Codes: 021310000; 4832000

Sponsor: Department of Energy, Washington, DC.

Report No.: ORNL-6489

Jun 88 27p

Languages: English

Journal Announcement: GRAI8902; NSA1300

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: AC05-840R21400

(NTIS)

The purpose of this report is to provide the Project Managers (PM) of the US Army Toxic and Hazardous Materials Agency (USATHAMA) Installation Restoration Program (IRP) with an overview of the means by which various health-based criteria and standards are derived and with definitions of health risk terms frequently used in the risk assessment/risk management scheme. Although certain chemical-specific criteria or standards may apply directly to ambient conditions at a hazardous waste site, many require adjustment to make them relevant and appropriate to the exposure conditions found at a particular site. This report will provide insight into the means of adjusting available health-based information to provide guidance on cleanup of waste sites and will give examples to clarify the methodologies. In particular, basic concepts for derivation of health-based standards and criteria for systemic toxicants and carcinogens are discussed, as well as the actual standards and criteria themselves. These include maximum contaminant level goals, maximum contaminant levels, drinking water health advisories, and ambient water quality criteria for the protection of human health. It can be seen that several basic precepts are inherent in each of the methodologies described, and an understanding of these basic concepts will allow the IRP PM to evaluate the chemical-specific ARARs developed for cleanup of any CERCLA site. DE88013223/XAB

**Use of Short-Term Bioassays in Estimating Human Health Hazards of Wastewater Effluents**

Condie, L. W. ; Easterly, C. E. ; Glass, L. R.

Health Effects Research Lab., Cincinnati, OH. Toxicology and Microbiology Div.

Corp. Source Codes: 057052001;

Sponsor: Oak Ridge National Lab., TN. Health and Safety Research Div.

Report No.: EPA/600/D-88/132

Jun 88 17p

Languages: English

Journal Announcement: GRAI8820

Prepared in cooperation with Oak Ridge National Lab., TN. Health and Safety Research Div.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

Effluents from wastewater treatment facilities are discharged as a complex mixture of numerous chemical substances, which may include cytotoxic, carcinogenic and mutagenic compounds. The U.S. Environmental Protection Agency has recently established a research program to determine if a bioassay approach for evaluating the potential adverse human health effects from exposure to complex mixtures might supplement conventional chemical analysis for setting regulatory limits for wastewaters. The paper summarizes a bioassay testing strategy for characterizing cytotoxic and mutagenic activity of various wastewater effluents. The use of a relative potency framework for assessing complex mixtures for potential health hazards is addressed. PB88-220686/XAB

## **METHODS FOR ESTIMATING RISK**

### **Application of groundwater modeling in risk assessment and clean-up level determination**

Djafari, S.H.

IT Corp., Pittsburgh, PA

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345

East 47th Street, New York, NY 10017 (USA). Telephone:

(212)705-7611, Individual Papers are also Available Paper No. 38e

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Background data for risk assessment: An alternative to the traditional LD sub(50) study?**

van den Heuvel, M.J.

DHSS, London, UK

3rd FECS Conference on Risk Assessment of Chemical in

Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **CHAWS (Chemical HAZard Warning System) User's Guide: System Description and Standard Operating Procedures, Pine Bluff Arsenal**

Shinn, J. H. ; Novo, M. G.

Lawrence Livermore National Lab., CA.

Corp. Source Codes: 068147000; 9513035

Sponsor: Department of Energy, Washington, DC.

Report No.: UCID-21333

Mar 88 183p

Languages: English

Journal Announcement: GRAI8904; NSA1300

Paper copy only, copy does not permit microfiche production.

NTIS Prices: PC A09  
Country of Publication: United States  
Contract No.: W-7405-ENG-48  
(NTIS)

The Chemical HAZARD Warning System (CHAWS) has been designed to collect meteorological data and to display, in real time, hazardous chemical dispersion as a result of an accidental release. Meteorological sensors are placed strategically around each installation and are used to calculate direction and hazard distance for the release. These data are then graphically displayed on a computer screen showing a site map and arrows depicting the release direction and distance traveled. The objectives of CHAWS are as follows: to determine the trajectory of the center of mass of released material from the measured wind field; to calculate the dispersion based on the measured lateral turbulence intensity (sigma theta); to determine the height of the mixing zone by measurement of the inversion height and wind profiles up to an altitude of about 1 km; to archive meteorological data for potential use in climatological descriptions for emergency planning; to archive air-quality data for preparation of compliance reports; and to provide access to the data for realtime hazard analysis purposes. The system is discussed. (ERA citation 13:049532) DE88014313/XAB

**CHEMICAL EXPOSURE INDEX,**  
EASTERBROOK JOHN DOW CHEMICAL CANADA INC, CANADA,  
ENV CANADA CHEMICAL SPILLS 5TH TECHNICAL SYM, MONTREAL, FEB  
9-11, 88, P297(12)  
(ENVIROLINE)

CONF PAPER A CHEMICAL EXPOSURE INDEX (CEI) FORMULATED BY DOW CHEMICAL PROVIDES A METHOD OF RATING THE RELATIVE POTENTIAL OF ACUTE HEALTH HAZARD TO HUMANS FROM POSSIBLE CHEMICAL RELEASE INCIDENTS. THE INDEX IS INTENDED TO SERVE AS A SIMPLE, EMPIRICAL RATING OF THE ACUTE TOXIC HAZARDS FROM CHEMICALS IN A COMPARABLE AND QUANTITATIVE MANNER. THE CEI FORMULA TAKES INTO ACCOUNT FIVE FACTORS WHICH INFLUENCE THE MAGNITUDE OF EXPOSURE FROM ANY POTENTIAL RELEASE: TOXICITY, QUANTITY, DISTANCE, MOLECULAR WEIGHT, AND PROCESS VARIABLES SUCH AS TEMPERATURE, PRESSURE, AND REACTIVITY. EACH FACTOR HAS BEEN CATEGORIZED INTO DIRECTLY PROPORTIONAL SCALE NUMBERS TO MAINTAIN QUICK AND SIMPLE CALCULATIONS. (1 DIAGRAM, 1 REFERENCE, 1 TABLE)  
Enviroline Number: \*88-081174

**Comparison and Application of Quantitative Human Reliability Analysis  
Methods for the Risk Methods Integration and Evaluation Program  
(RMIEP). Final Report**

(Technical rept.) Haney, L. N. ; Blackman, H. S. ; Bell, B. J. ; Rose, S. E. Hesse, D. U.  
Idaho National Engineering Lab., Idaho Falls.

Corp. Source Codes: 056198000;

Sponsor: Battelle Columbus Div., OH.; Nuclear Regulatory Commission, Washington,  
DC. Office of Nuclear Regulatory Research.

Report No.: EGG-2485

Jan 89 192p

Languages: English

Journal Announcement: GRAI8908

Also available from Supt. of Docs. Also pub. as Battelle Columbus Div., OH. rept. no.  
BMI-2159. Prepared in cooperation with Battelle Columbus Div., OH. Sponsored by

Nuclear Regulatory Commission, Washington, DC. Office of Nuclear Regulatory Research.

NTIS Prices: PC AO9/MF A01

Country of Publication: United States  
(NTIS)

The report documents the human reliability analysis (HRA) portion of the Risk Methods Integration and Evaluation Program (RMIEP) sponsored by the U.S. Nuclear Regulatory Commission. A literature search identified 20 HRA methods for consideration. Twelve methods were evaluated as appropriate for use in probabilistic risk assessment (PRA) for nuclear power plants (NPPs) by using a criteria set developed for that purpose. Data were collected at a commercial NPP with operators responding to walkthroughs of four severe accident scenarios. An HRA systems analysis was also performed for the plant. The data were used in the application and quantitative comparison of selected HRA methods. Possible reasons for observed quantitative differences are discussed. Qualitative comparisons of the 12 methods are provided via attribute descriptions and utility ratings in an HRA selection tool designed to help analysis select appropriate HRA methods based on their goals and available resources. An assessment of the current state of the art of HRA for PRA is presented as well as recommendations for the future use of HRA in PRA. NUREG/CR-4835/XAB

#### **Draft Risk Screening Analysis of Mining Wastes**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EEC-88/028 26

Apr 88 35p

Languages: English

Journal Announcement: GRAI8902

NTIS Prices: PC A03/MF A01

Country of Publication: United States  
(NTIS)

The Mine Waste Risk Screen Subcommittee of the EPA Science Advisory Board's Environmental Engineering Committee concluded that the general risk screen approach for analysis of mining waste is appropriate and the risk screen methodology can be used for setting priorities for collection of additional data when all appropriate pathways and component models are implemented. The Subcommittee recommended that, while the model may be appropriate, it should not, in its current state, be used to provide a context for performing analyses which may lay out options for the scope of the regulatory approaches for managing mining wastes. The Subcommittee identified additional pathway receptor combinations approach is conceptually sound and the air emission factors are appropriate for the present state of development of the risk screen analysis. PB89-114128/XAB

**ELECTRODE SYSTEMS FOR MEASUREMENT OF ENVIRONMENTAL  
POLLUTANTS (HAZARD ASSESSMENT OF CHEMICALS),**  
SMART RONALD B. WEST VIRGINIA UNIV,  
HEMISPHERE PUBLISHING CORP REPORT, 1987, V5, P1(27)  
(ENVIROLINE)

BOOK VARIOUS ELECTRODE SYSTEMS ARE AVAILABLE FOR THE MEASUREMENT OF ENVIRONMENTAL CONTAMINANTS. THE FUNCTIONS AND CAPABILITIES OF BIOSENSORS AND VOLTAMMETRIC AND POLAROGRAPHIC ELECTRODE SYSTEMS ARE DETAILED. MODULATED MODES, STRIPPING ANALYSIS, ELECTRODES, AND APPLICATIONS IN THE ANALYSIS OF INORGANIC CATIONS AND ANIONS, ORGANIC AND ORGANOMETALLIC COMPOUNDS, AND TRACE METAL SPECIATION ARE DISCUSSED A NEED EXISTS FOR ELECTRODE SYSTEMS WHICH CAN BE RENDERED MORE SELECTIVE OR SPECIFIC FOR INDIVIDUAL POLLUTANTS IN COMPLEX MATRICES. THE EMERGING FIELD OF CHEMICALLY MODIFIED ELECTRODES OFFERS POTENTIAL FOR SOLVING THIS PROBLEM. (4 DIAGRAMS, 6 GRAPHS, 1 PHOTO, 83 REFERENCES, 3 TABLES) Enviroline Number: \*88-091060

**Expert Opinion in Risk Analysis: The NUREG-1150 Methodology**

Hora, S. C. ; Iman, R. L.

Hawaii Univ. at Hilo.

Corp. Source Codes: 077890000: 9520256

Sponsor: Sandia National Labs., Albuquerque, NM.: Department of Energy, Washington, DC.

Report No.: SAND-88-0122C; CONF-880601-36

1988 16p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8903; NSA1300

American Nuclear Society annual meeting, San Diego, CA, USA, 12 Jun 1988.

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: AC04-76DP00789

(NTIS)

The Reactor Risk Reference Document (US Nuclear Regulatory Commission, 1987) is the most comprehensive study and application of probabilistic risk analysis and uncertainty analysis methods for nuclear power generation safety since the Reactor Safety Study (US Nuclear Regulatory Commission, 1975). Many of the issues addressed in PRA work such as NUREG-1150 involve phenomena that have not been studied through experiment or observation to an extent that makes possible a definitive analysis. In many instances, the rarity or severity of the phenomena make resolution impossible at this time. In these instances, the best available information resides with experts who have studied the phenomena in question. This paper is about a reasoned approach to the acquisition of expert opinion for use in PRA work and other public policy areas. (ERA citation 13:045081) DE88012390/XAB

**Hazard Evaluation Division, Standard Evaluation Procedure: Product Chemistry**

Perfetti, R. B.

Environmental Protection Agency, Washington, DC. Office of Pesticide Programs.

Corp. Source Codes: 031287124

Report No.: EPA/540/9-86/143

Jul 88 15p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A03/MF A01

Country of Publication: United States  
(NTIS)

Detailed, stepwise procedures for the evaluation of product chemistry data are provided. Topics on product Identity and Composition (Guideline Reference Numbers 61-1,2,3), Analysis and Certification of Product Ingredients (Reference Numbers 62-1,2,3), Physical and Chemical Characteristics (Reference Numbers 63-2 thru 63-21) and Other Requirements (Reference Number 64-1) are explained and important information to be discussed is identified. Special emphasis is placed on the evaluation of Topics 61-1,2,3 and 62-1,2,3 to assure that the occurrence of any especially toxic impurities in a product are examined in detail. PB88-243191/XAB

**Incorporation of Monte Carlo simulation techniques into the R-RAM II health risk assessment model**

McNally, D.E.; Lowe, J.; Tesche, T.W.

Radian Corp., Sacramento, CA

Air Pollution Control Association 81st Annual Meeting &

Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861,

Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Interfacing biotechnology risk assessment with application to bioremediation**

Pritchard, P.H.

U.S. Environ. Prot. Agency. Gulf Breeze, FL

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345

East 47th Street, New York, NY 10017 (USA). Telephone:

(212)705-7611, Individual Papers are also Available

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**LAVA (Los Alamos Vulnerability and Risk Assessment Methodology): An Expert System Framework for Risk Analysis**

Smith, S. T.

Los Alamos National Lab., NM.

Corp. Source Codes: 072735000; 9512470

Sponsor: Department of Energy, Washington, DC.

Report No.: LA-UR-88-1385; CONF-880593-1

1988 28p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8823; NSA1300

Portions of this document are illegible in microfiche products. Federal analysis workshop, Denver, CO, USA, 24 May 1988.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Los Alamos National Laboratory has developed an original methodology for performing risk analyses on subject systems characterized by a general set of asset categories, a general spectrum of threats, a definable system-specific set of protecting the assets from the threats, and a general set of outcoming resulting from threats exploiting weaknesses in the safeguards system. Applications of this methodology can be tailored to address a wide variety of subject systems' risk analysis requirements. The Los Alamos Vulnerability and Risk Assessment Methodology (LAVA) models complex systems having large amounts of "soft" information about both the subject system itself and occurrences related to the system. Its structure lends itself well to automation on a portable computer, making it possible to analyze numerous similar but geographically separated installations consistently and in as much depth as the subject system warrants. LAVA is based on hierarchical systems theory, event trees, fuzzy sets, natural-language processing, decision theory, and utility theory. LAVA's framework is a hierarchical set of fuzzy event trees relating the results of several embedded (or sub-) analyses: a vulnerability assessment providing information about the presence and efficacy of system safeguards, a threat analysis providing information about static (background) and dynamic (changing) threat components coupled with an analysis of asset "attractiveness" to the dynamic threat, and a consequence analysis providing information about the outcome spectrum's severity measures and impact values. Each sub-analysis can be simplified or made complex, depending on the sensitivity and relative worth of the subject system. 34 refs., 8 figs. (ERA citation 13:035524) DE88009112/XAB

**Love Canal Emergency Declaration Area Habitability Study: User's Guide to the Soil Assessment for Indicator Chemicals Integrated Data Base**  
(Final rept)

CH2M Hill Southeast, Inc., Reston, VA.

Corp. Source Codes: 092459000;

Sponsor: Horizons System Corp., Herndon, VA.; Environmental Protection Agency, New York. Region II.

Report No.: EPA/902/4-88/002E

Sep 88 119p

Languages: English

Journal Announcement: GRAI8901

See also PB88-249149. Prepared in cooperation with Horizons System Corp., Herndon, VA. Sponsored by Environmental Protection Agency, New York. Region II.

NTIS Prices: PC A06/MF A01  
Country of Publication: United States  
Contract No.: EPA-68-01-7251  
(NTIS)

Directions are provided for the use of the data collected during the Love Canal Emergency Declaration Area Soil Assessment for Indicator Chemicals study. The data are contained in a Statistical Analysis System (SAS) relational data base, comprised of ten separate SAS data sets. The data base is available from Environmental Protection Agency Region II. The data base contains data from field, preparation laboratory, analytical laboratory, and data validation sources. Over 1.8 million cells of data are contained in the data base. The user's guide gives an overview of the source system, file contents, and SAS data set structure, describes specific data sets, and discusses the combining of files. Appendices list the data elements contained in the data base and provide formulas used in computations. PB89-103709/XAB

**Methodology of Comprehensive Probabilistic Safety Analyses for Future HTR-Concepts. A Status Report. Vol. 1. Event Sequences, System Reliability, Release Frequencies**

Hennings, W.  
Kernforschungsanlage Juelich G.m.b.H. (Germany, F.R.). Inst. fuer Nukleare Sicherheitsforschung.  
Corp. Source Codes: 056217012; 9200695  
Report No.: JUEL-SPEZ-388(V.1)  
May 87 40p  
Languages: German  
Journal Announcement: GRAI8908; NSA1300  
In German.  
U.S. Sales Only.  
NTIS Prices: PC A03/MF A01  
Country of Publication: Germany, Federal Republic of  
(NTIS)

This series of reports establishes the status of the risk analysis methodology in order to increase the comparability of the analyses being under way for the HTGR concepts 'HTR-100', 'HTR-500' and 'HTR-Modul'. The volume at hand deals with the subject 'event sequence and reliability analyses'. (ERA citation 13:011455)  
DE88751961/XAB

**Models of the Interaction of Mortality and the Evolution of Risk Factor Distribution: A General Stochastic Process Formulation (Journal Version)**

(Journal article)  
Manton, K. G. ; Woodbury, M. A. ; Stallard, E.  
Duke Univ., Durham, NC.  
Corp. Source Codes: 008097000  
Sponsor: Health Effects Research Lab., Research Triangle Park, NC.; National Science Foundation, Washington, DC.  
Report No.: EPA/600/J-88/093  
c1988 20p  
Languages: English



Document Type: Journal article

Journal Announcement: GRAI8902

Pub. in Statistics in Medicine, v7 p239-256 1988. Sponsored by Health Effects Research Lab., Research Triangle Park, NC., and National Science Foundation, Washington, DC.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: EPA-R-811090

(NTIS)

Generally, analyses of longitudinal studies of chronic disease risks do not directly model the change with time of risk factor values and the interactions of those changes with risk levels. Failure to account for such process characteristics can lead to incorrect inferences about the specific effects of risk factors on mortality, the inability to accurately forecast the future risk of the cohort, and inaccurate statements about the effects of specific risk factor interventions on mortality. A model is presented which does describe such a process model, and shows how it can be estimated from longitudinal studies. The effects of certain risk factor process features on the evolution of disease risk are illustrated, using data from males in the Framingham, Massachusetts study. (Copyright (c) John Wiley & Sons Ltd. 1988.) PB89-109250/XAB

#### **Organization of Risk Analysis Codes for Living Evaluations (ORACLE)**

Batt, D. L. ; MacDonald, P. E. ; Sattison, M. B. ; Vesely, W. E.

EG and G Idaho, Inc., Idaho Falls.

Corp. Source Codes: 046580000; 9507781

Sponsor: Science Applications International Corp., Columbus, OH.; Department of Energy, Washington, DC.

Report No.: EGG-M-37186; CONF-870820-12

1987 6p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8819; NSA1300

PSA 87: international topical meeting on probabilistic safety assessment and risk management, Zurich, Switzerland, 31 Aug 1987.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC07-76ID01570

(NTIS)

ORACLE (Organization of Risk Analysis Codes for Living Evaluations) is an integration concept for using risk-based information in United States Nuclear Regulatory Commission (USNRC) applications. Portions of ORACLE are being developed at the Idaho National Laboratory for the USNRC. The ORACLE concept consists of related databases, software, user interfaces, processes, and quality control checks allowing a wide variety of regulatory problems and activities to be addressed using current, updated PRA information. The ORACLE concept provides for smooth transitions between on code and the next without pre- or post- processing. 3 figs. (ERA citation 13:030296) DE88007723/XAB

**PC simulation for reliability and risk analysis**

Sutton, I.

Syst. Reliab. Int., Houston, TX

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also

Available Paper No. 57c

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**PRISIM: A Plant Risk Status Information Management System for NRC Inspectors**

Reilly, H. J. ; Glynn, J. C. ; Campbell, D. J.

EG and G Idaho, Inc., Idaho Falls.

Corp. Source Codes: 046580000; 9507781

Sponsor: Department of Energy, Washington, DC.

Report No.: EGG-M-37386; CONF-870820-13 26

Jun 87 7p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8823; NSA1300

PSA 87: international topical meeting on probabilistic safety assessment and risk management, Zurich, Switzerland, 31 Aug 1987.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC07-76ID01570

(NTIS)

The Plant Risk Status Information Management System (PRISIM) is a microcomputer program that presents results of probabilistic risk assessments (PRAs), and related information, for use by United States Nuclear Regulatory Commission (NRC) decisionmakers. Plant-specific PRISIMs have been developed for three nuclear plants in the United States. The usefulness of PRISIM for these plants is now under evaluation, and an improved PRISIM is being developed. (ERA citation 13:033635) DE88007728/XAB

**Proposed Test Protocol to Determine Toxicant Leaching into Potable Water**

Rossi, R. ; Turner, C. R. ; Basu, D. K.

Syracuse Research Corp., NY.

Corp. Source Codes: 059452000

Sponsor: Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.

Report No.: EPA/600/2-88/066

Nov 88 61p

Languages: English

Journal Announcement: GRAI8905

Sponsored by Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.

NTIS Prices: PC A04/MF A01

Country of Publication: United States  
(NTIS)

Research was conducted to develop a general test protocol to identify the possible deterioration of water quality as a result of leaching of toxicants from distribution/transmission pipes and tanks during distribution and storage of potable water. The developed protocol was tested with a representative coating material normally used for corrosion inhibition of standard steel pipes and tanks and is known to contain a large number of compounds, some of which are suspected to be carcinogenic. The leaching apparatus of the test protocol is expected to be applicable in predicting possible toxicant leaching from other coated and uncoated materials that come in contact with potable water. PB89-125959/XAB

**Quantitative Risk Assessment: Biomedical Ethics Reviews, 1986.  
(book reviews)**

Goodin, Robert E.  
Humana Press  
Ethics 98 n4 891 July, 1988  
ARTICLE TYPE: review  
GRADE: B  
GEOGRAPHIC CODE: ZINT  
JURISDICTION: international  
REVIEWEE: Humber, James; Almeder, Robert F.  
(LEGAL RESOURCE INDEX)

**Reanalysis of Zion Risk**

Park, C. K. ; Unwin, S. D. ; Cazzoli, E. ; Tingle, A. ; Chun, M.  
Brookhaven National Lab., Upton, NY.  
Corp. Source Codes: 004545000; 0936000  
Sponsor: Korea Advanced Inst. of Science and Technology, Seoul (Republic of Korea).;  
Department of Energy, Washington, DC.  
Report No.: BNL-NUREG-40831; CONF-8710111-45  
Oct 87 7p  
Languages: English  
Document Type: Conference proceeding  
Journal Announcement: GRAI8821; NSA1300  
Portions of this document are illegible in microfiche products. 15. water reactor safety information meeting, Gaithersburg, MD, USA, 26 Oct 1987.  
NTIS Prices: PC A02/MF A01  
Country of Publication: United States  
Contract No.: AC02-76CH00016  
(NTIS)

As part of the NUREG-1150 efforts, Brookhaven National Laboratory (BNL) has undertaken a risk analysis of Zion Unit 1 adopting the methodology developed at Sandia National Laboratories (SNL) under the Severe Accident Risk Rebaselining Program. Results of the preliminary version of the analysis are reported here. Completion plans for the Zion study are described also. (ERA citation 13:033614) DE88007575/XAB

**Review of EPA's (Environmental Protection Agency's) Assessment of the Risks of Stratospheric Modification. Review of the Stratospheric Ozone Subcommittee of the Science Advisory Board**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-87/025

Mar 87 34p Languages: English

Journal Announcement: GRAI8823

Portions of this document are not fully legible.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Subcommittee concluded that EPA's draft document represents an extensive effort to develop an integrated risk assessment based upon currently available scientific information to ascertain the potential threat to the stratosphere posed by a continued growth world-wide of emissions of chlorofluorocarbon (CFCs) compounds. The Subcommittee generally finds that EPA has done a commendable job of assembling the relevant scientific information in the body of the document. The Subcommittee has provided many specific recommendations for improving the treatment of particular scientific issues and characterizing scientific uncertainties which are detailed in the report. PB88-247226/XAB

**Risk assessment: A physiologically-based pharmacokinetic approach**

Drawbaugh, R.B.

Armstrong Aerosp. Med. Research, OH, USA

3rd FECS Conference on Risk Assessment of Chemical in

Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington

House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk Assessment Models for Land Application of Municipal Sludges (RAMMS Version 3.0). Volume 1. Draft Complete Documentation of the System/User Manual**

Science Applications International Corp., McLean, VA.

Corp. Source Codes: 082583000

Sponsor: Environmental Protection Agency, Washington, DC. Office of Water Regulations and Standards.

Report No.: EPA/SW/DK-89/016A

1989 104p

Languages: English

Journal Announcement: GRAI8908

For system on diskette, see PB89-138739.

Sponsored by Environmental Protection Agency, Washington, DC. Office of Water Regulations and Standards.

NTIS Prices: PC A06/MF A01

Contract No.: EPA-68-03-3453

(NTIS)

The U.S. Environmental Protection Agency (EPA) has developed a series of models for calculating the risks associated with the land application of municipal sludge. These models were used in the development of the Proposed Technical Sludge Regulation, and have been collected together in a single, user friendly computer program. The manual contains a basic description of the risk assessment models, explains how to use the computer program, and documents the code, input, and output data for the program. The manual is organized in six chapters. The first chapter is a brief description of the risk assessment models as they are implemented by the program. The second chapter explains system requirements and how to install the program on appropriate systems. The third chapter explains how the program is structured and outlines options that can be invoked at different stages of execution. The fourth chapter steps through typical execution of the program, showing input screens and output screens that are encountered. The fifth chapter is the listing of the program code, and the sixth chapter is a listing of data files used by the program. PB89-149306/XAB

**RISK ASSESSMENT OF MICROBIAL APPLICATIONS IN BIOTECHNOLOGY  
(HAZARD ASSESSMENT OF CHEMICALS),**

LINCOLN DAVID CH2M HILL, WA,  
HEMISPHERE PUBLISHING CORP REPORT, 1987, V5, P199(34)  
(ENVIROLINE)

BOOK THE SAFETY OF RECOMBINANT DNA, DIRECTED MUTAGENESIS, AND OTHER ADVANCES IN BIOTECHNOLOGY HAVE BEEN QUESTIONED. A RISK ASSESSMENT FRAMEWORK IS APPLIED TO THE CONSEQUENCES OF INADVERTENT AND DELIBERATE RELEASES OF GENETICALLY ENGINEERED MICROORGANISMS. THE FATE OF SUCH MICROORGANISMS IN THE HUMAN GASTROINTESTINAL TRACT, SURFACE WATER, SOIL, AND GROUNDWATER IS EXAMINED, AND THE POTENTIAL HUMAN HEALTH AND ENVIRONMENTAL EFFECTS ASSOCIATED WITH THE INTRODUCTION OF NEW SPECIES ARE CONSIDERED. DUE TO THE MANY UNCERTAINTIES INHERENT IN SUCH ANALYSES, FURTHER RELEASE, FATE, AND TRANSPORT ASSESSMENT RESEARCH IS ADVOCATED, AND COMPONENTS OF A RISK MANAGEMENT STRATEGY ARE SUGGESTED. (5 DIAGRAMS, 1 GRAPH, 66 REFERENCES, 3 TABLES) Enviroline Number: \*88-091062

**Risk Methodology to Evaluate Sensitivity of Plant Risk to Human Errors**

Samanta, P. ; Wong, S. ; Higgins, U. ; Haber, S. ; Luckas, W.

Brookhaven National Lab., Upton, NY.

Corp. Source Codes: 004545000; 0936000

Sponsor: Department of Energy, Washington, DC.

Report No.: BNL-NUREG-41719; CONF-880633-9

1988 11p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8908; NSA1400

International conference on human factors and power plants, Monterey, CA, USA, 5 Jun 1988.

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: AC02-76CH00016

(NTIS)

This paper presents an evaluation of sensitivity of plant risk parameters, namely the core melt frequency and the accident sequence frequencies, to the human errors involved in various aspects of nuclear power plant operations. Results are provided using the Oconee-3 Probabilistic Risk Assessment model as an example application of the risk methodology described herein. Sensitivity analyses in probabilistic risk assessment (PRA) involve three areas: (1) a determination of the set of input parameters; in this case, various categories of human errors signifying aspects of plant operation, (2) the range over which the input parameters vary, and (3) an assessment of the sensitivity of the plant risk parameters to the input parameters which, in this case, consist of all postulated human errors, or categories of human errors. The methodology presents a categorization scheme where human errors are categorized in terms of types of activity, location, personnel involved, etc., to relate the significance of sensitivity of risk parameters to specific aspects of human performance in the nuclear plant. Ranges of variability for human errors have been developed considering the various known causes of uncertainty in human error probability estimates in PRAs. The sensitivity of the risk parameters are assessed using the event/fault tree methodology of the PRA. The results of the risk-based sensitivity evaluation using the Oconee-3 PRA as an example show the quantitative impact on the plant risk level due to variations in human error probabilities. The relative effects of various human error categories and human error sorts within the categories are also presented to identify and characterize significant human errors for effective risk management in nuclear power plant operational activities. 8 refs., 10 figs., 4 tabs. (ERA citation 14:000632) DE89001273/XAB

### **Structure-Penetration Relationships in Percutaneous Absorption**

Ridout, G. ; Guy, R. H.

California Univ., San Francisco.

Corp. Source Codes: 005453000

Sponsor: National Inst. for Occupational Safety and Health, Cincinnati, OH.

31 Dec 87 21p

Journal Announcement: GRAI8906

Sponsored by National Inst. for Occupational Safety and Health, Cincinnati, OH.

NTIS Prices: PC A03/MF A01

Contract No.: PHS-OH-00017

(NTIS)

An attempt was made to predict the kinetics and extent of percutaneous penetration of the skin by a chemical from the physicochemical and pharmacokinetic properties of the chemical. If this is possible, then one should be able to determine the risk of toxicity arising from dermal exposure to pesticide formulations. Penetration data were gathered for a series of barbiturates, nicotines, phenols, steroids, and a selection of other compounds. For these experiments excised skin and artificial membranes were used. Particular attention was given to the utility of various organic aqueous partition coefficients as rank order indicators of transdermal flux and on the predictability of the different model systems investigated. In most cases membrane permeability increased with increasing organic aqueous partition coefficients. The researchers conclude that for a structurally related series of chemicals, measurement of a simple lipid water partition coefficient and selected permeabilities through a model membrane composed of the lipid can accurately predict rank order transport rates across the skin. This approach should allow one to select a chemical which demonstrates high potency for its proposed utilization as a pesticide but presents a low risk with respect to worker toxicity resulting from dermal exposure. PB89-130033/XAB

**Techniques for Assessing Industrial Hazards: A Manual**

International Bank for Reconstruction and Development, Washington, DC.

Corp. Source Codes: 063877000:

Sponsor: Technica Ltd., London (England).

Report No.: WORLD BANK TP-55; ISBN-0-8213-0779-7

c1988 171p

Languages: English

Journal Announcement: GRAI8821

Library of Congress catalog card no. 86-11135. Prepared in cooperation with

Technica Ltd., London (England).

Microfiche copies only. Paper copy available from World Bank, 1818 H St. NW., Washington, DC. 20433.

NTIS Prices: MF A01

Country of Publication: United States  
(NTIS)

The manual provides guidelines for the identification of the potential hazards of new or existing plants or processes in the chemical and energy industries, and for the assessment of the consequences of the release of toxic, flammable or explosive materials to the atmosphere. It presents a structured, simplified approach for identifying the most serious potential hazards and for calculating their effect distances or damage ranges. It is the intention that by presenting a simplified approach, the manual should be amenable to use by engineers and scientists with little or no experience of hazard analysis. Further analysis with a view to mitigation of the hazards identified may be appropriate in many cases: at this stage it may be necessary to seek the advice of a specialist. The basic procedure in a hazard analysis is: identify potential failures, calculate release quantities for each failure, and calculate the impact of each release on people and property. For large plants this can become highly complex, and therefore a simplified method is presented, in which the analysis has been divided into 14 steps. A spreadsheet technique has been devised to permit the analyses to be carried out on a programmable calculator or personal computer. After the introductory material, the manual outlines the 14 steps which make up the hazard analysis. PB88-231220/XAB

**Theory of Possibility and Fuzzy Sets: New Ideas for Risk Analysis and Decision Making**

Andersson, L.

Swedish Council for Building Research, Stockholm.

Corp. Source Codes: 060307000;

Sponsor: Royal Inst. of Tech., Stockholm (Sweden).

Report No.: D8:1988; ISBN-91-540-4865-6

c1988 164p

Languages: English

Journal Announcement: GRAI8902

Prepared in cooperation with Royal Inst. of Tech., Stockholm (Sweden).

NTIS Prices: PC E07/MF A01

Country of Publication: Sweden  
(NTIS)

Risk analysis and decision making methods are as yet relatively unknown concepts in the construction industry. As time goes on, construction projects become increasingly complex and in most cases they have a number of different parties involved. This is accompanied by tight time schedules and rigid overall cost limits. In view of this and

the continual growth in technical complexity, increasing attention must be given to a quality and safety approach. The report mainly concentrates on the role of the consultant in the design of construction schemes or, to an even greater degree, on the analytical process in design. The report concentrates on methods based on the theory of fuzzy sets. The theory which was proposed in the middle of the sixties may be seen as an alternative to the theory of probability, particularly as regards the 'subjective' theory of probability. PB89-110928/XAB

#### **Use of Genetic Activity Profiles in Hazard Evaluation**

Waters, M. D. ; Stack, H. F. ; Brady,  
A. L. Health Effects Research Lab., Research Triangle Park, NC.  
Corp. Source Codes: 048097000;  
Sponsor: Environmental Health Research and Testing, Inc., Research Triangle Park,  
NC.  
Report No.: EPA/600/0-88/246  
Nov 88 23p  
Languages: English  
Journal Announcement: GRAI8905  
Prepared in cooperation with Environmental Health Research and Testing, Inc.,  
Research Triangle Park, NC.  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

A methodology has been developed to display and evaluate multiple test quantitative information on genetic toxicants for purposes of hazard/risk assessment. Dose information is collected from the open literature: either the lowest effective dose or the highest ineffective dose tested is recorded for each agent and bioassay system. For each agent in the data base, the quantitative results from genetic and related test systems are represented by computer-generated bar graphs 'genetic activity profiles.' Bioassay systems are organized according to classes of genetic activity and subdivided by the phylogenetic level of the test organism. Genetic activity profiles were prepared 187 chemicals, e.g., dibromochloropropane, for the use of the International Agency for Research on Cancer (IARC) Working Group. PB89-129415/XAB

#### **User-friendly interface for the air emission risk assessment model (AERAM)**

Gratt, L.B.  
IWG Corp., 1940 Fifth Ave., Suite 200, San Diego, CA  
Air Pollution Control Association 81st Annual Meeting &  
Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988  
Air Pollution Control Association (APCA)  
Air Pollution Control Association, P.O. Box 2861,  
Pittsburgh, PA 15230 (USA)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)



## **Utilization of human factors in risk assessment**

Slater, D.

Tech., Columbus, OH

1988 Hazardous Material Spills Conference 8825005 Chicago,

IL (USA) 16-19 May 1988

American Institute of Chemical Engineers (AIChE); National Response Team

Publication Sales, AIChE, 345 East 47th Street. New York, NY 10017 (USA).

Telephone (212) 705-7657, Proceedings available; pre-publication price is \$60.00

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

## **HEALTH RISKS**

### **GENERAL**

#### **Acid Air and Aerobiology Related to the Maturing Human Lung**

Montonen, T. B. ; Graham, R. C. ; Hofmann, W. ; Eisner, A.

Northrop Services, Inc., Research Triangle Park, NC.

Corp. Source Codes: 058582000;

Sponsor: Duke Univ., Durham, NC.; Health Effects Research Lab., Research Triangle Park, NC.

Report No.: EPA/600/D-88/223

Oct 88 30p

Languages: English Journal Announcement: GRAI8904

Prepared in cooperation with Duke Univ., Durham, NC. Sponsored by Health Effects Research Lab., Research Triangle Park, NC.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: EPA-68-02-4450

(NTIS)

The effect of 'acid air' on human health was studied by considering the effects of hygroscopicity upon aerosol deposition in the lung as a function of human subject age. Children are a critical sub-population to be incorporated into health effects analyses following ambient exposures. Sulfate particles are products of the combustion of fossil fuels, are consequences of basic personal needs and industrial uses, and are prevalent in the atmosphere. Experimental hygroscopic growth information is introduced into a validated mathematical model describing aerosol deposition in the human lung. The results are intended for hazard evaluations pertinent to humans subsequent to exposures to pollutant atmospheres. The influences of hygroscopic growth, taking place when inhaled particles enter the warm, moist human respiratory tract, are significant; and should not be ignored in considerations of threat-to-human-health. The findings can be directed into aerosol therapy functions also, leading to more efficient administrations of drugs via the inhalation route. Therefore, the findings, considering age-dependency, are of potential application to pediatric medicine. PB89-118533/XAB

**Assessing and Managing Health and Environmental Risks from Energy and Other Complex Industrial Systems. Proceedings of a Workshop Held in Paris, 13-17 October 1986**

International Atomic Energy Agency, Vienna (Austria).

Corp. Source Codes: 014014000; 3294000

Sponsor: United Nations Environmental Programme.; World Health Organization, Geneva (Switzerland).

Report No.: IAEA-TECDOC-453; CONF-861085

Mar 88 444p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8908

Assessing and managing health and environmental risks from energy and other complex industrial systems, Paris, France, 13 Oct 1986.

U.S. Sales Only.

NTIS Prices: PC A19/MF A01

Country of Publication: Other  
(NTIS)

There is a growing awareness that it is necessary to identify, assess, and manage the risks of energy and other complex industrial activities in order to minimize their potential to harm public health and the environment. Therefore, quantitative risk analysis with emphasis on risk management has become an important aspect in high level decision making for regulation in developed and developing countries. The International Atomic Energy Agency (IAEA), the United Nations Environment Program (UNEP) and the World Health Organization (WHO) have initiated a project to promote the use of risk assessment and risk management in environmental health and safety decision making throughout the world. A meeting was held in Paris, France on October 13-17, 1986. The purpose of the meeting was to: a) Discuss the state of the art of national and international experience in conducting case studies in the field of assessing and managing industrial risks from energy and other complex industrial systems either at the plant level or in highly industrialized areas within a country; b) Present and discuss planned regional risk management case studies within a country or international research projects on risk management to be implemented in the future; and c) Review the Project Document on "Assessing, Controlling, and Managing Health and Environmental Risks from Energy and Other Complex Industrial Systems". The full texts, together with abstracts, of the papers given at the meeting are presented. The summary reviews briefly some of the major points that arose in papers or in the ensuing discussions. Where a consensus view resulted, conclusions were drawn. Major differences of opinion are also noted. (Atomindex citation 19:083260)  
DE88703967/XAB

**Biological age as a measure of risk.**

Hochschild, Richard

Journal of the American Society of CLU & ChFC 42 n5 60(7)

Sept, 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

CAPTIONS: Companies that made employees available for testing.; Aging rate vs. cigarettes smoked per day (packs.); Aging rate vs. high fat foods per day (servings.); Aging rate vs. red meat - fish & fowl diets. Intensity of exercise.; Aging rate vs. state life expectancy at birth.; Aging rate vs. combined mortality risk.  
(LEGAL RESOURCES INDEX)

### **Contribution of epidemiology to risk assessment**

Doll, R.

Radcliffe Infirm., Oxford, UK

3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010

University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington

House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **IMMUNOTOXICOLOGY AND RISK ASSESSMENT OF DRINKING WATER CONTAMINANTS,**

KOLLER LOREN D. OREGON STATE UNIV

UNIV OF MISSOURI/ET AL TRACE SUBSTANCES IN ENV HEALTH 21ST

CONF, ST LOUIS, MAY 25-28, 87, P247(6)

(ENVIROLINE)

CONF PAPER THE IMMUNE SYSTEM CAN SERVE AS A SENSITIVE TARGET ORGAN FOR A VARIETY OF XENOBIOTICS. EVIDENCE SUGGESTS THAT SOME DRINKING WATER DISINFECTANTS AND DISINFECTION BYPRODUCTS ARE POTENTIALLY IMMUNOTOXIC. CHLORINE IN POTABLE WATER CAN SUPPRESS MACROPHAGE ACTIVITY, WHILE 2,4-DICHLOROPHENOL ALTERS HUMORAL AND CELL-MEDIATED IMMUNITY BUT DOES NOT AFFECT MACROPHAGE FUNCTION; NEITHER 2-CHLOROPHENOL NOR 2,4,6-TRICHLOROPHENOL SIGNIFICANTLY AFFECTS THE IMMUNE RESPONSE. TRICHLOROACETIC ACID HAS TUMOR PROMOTING PROPERTIES BUT DOES NOT APPEAR TO ALTER SPECIFIC IMMUNE RESPONSES. (34 REFERENCES, 1 TABLE) Enviroline Number: \*88-091091

### **Improving the Use of Epidemiologic Data in Health Risk Assessment**

(Journal article)

Erdreich, L. S. ; Burnett, C.

Environmental Protection Agency, Cincinnati, OH

Environmental Criteria and Assessment Office.

Corp. Source Codes: 034122077;

Sponsor: National Inst. for Occupational Safety and Health, Cincinnati, OH.

Report No.: EPA/600/J-85/528

c1985 19p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8820

Pub. in Toxicology and Industrial Health, v1 n4 p65-81 1985.

Prepared in cooperation with National Inst. for Occupational Safety and Health, Cincinnati, OH.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

Epidemiologic data with quantitative exposure measures is infrequently available for specific environmental agents. The paper discusses screening and evaluating epidemiologic studies for use in assessing health risk. The approach recognizes that the various designs used to increase statistical power and to control for covariables have

different functions in contemporary risk assessment as practiced by regulatory agencies. Each of these study designs is categorized for its role in risk analysis as useful for hazard identification or for dose-response assessment. The numerical level of the exposure data is a deciding factor in using valid epidemiologic studies. However, data measured on an ordinal scale can be used in qualitative assessments and can demonstrate the strength of the relationship. The application of the procedure is illustrated using epidemiologic studies on the carcinogenicity of chemicals contaminated with dioxins. PB88-223292/XAB

**ISSUES IN QUALITATIVE AND QUANTITATIVE RISK ANALYSIS FOR  
DEVELOPMENTAL TOXICOLOGY,**

KIMMEL CAROLE A. (EPA) AND ; GAYLOR DAVID W. (FDA),  
RISK ANALYSIS, 1988, V8, N1, P15(6)  
(ENVIROLINE)

JOURNAL ARTICLE THE QUANTITATIVE RISK ASSESSMENT ATTEMPTS TO ESTIMATE HUMAN RISK FOR DEVELOPMENTAL TOXICITY AS A FUNCTION OF DOSE. THE CURRENT APPROACH IS TO APPLY SAFETY FACTORS TO THE NO-OBSERVED-EFFECT LEVEL. AN ALTERNATIVE PRESENTED HERE IS TO MODEL THE EXPERIMENTAL DATA AND APPLY A SAFETY FACTOR TO AN ESTIMATED RISK LEVEL TO ACHIEVE AN "ACCEPTABLE" LEVEL OF RISK. IN CASES WHERE THE DOSE RESPONSE CURVES UPWARD, THIS APPROACH PROVIDES A CONSERVATIVE ESTIMATE OF RISK. THIS PROCEDURE DOES NOT PRECLUDE THE EXISTENCE OF A THRESHOLD DOSE. (2 GRAPHS, 21 REFERENCES, 1 TABLE)  
Enviroline Number: 88-081058

**Lymphocytes mutagenesis as a tool for risk assessment in humans  
exposed to antineoplastic agents in the workplace**

Zazi, W.; Vincent, D.; Baron, C.; Dubeau, H.  
Univ. Quebec, Montreal, Que. H3C 3P8, Canada  
4th International Congress of Cell Biology 8830041 Montreal  
(Canada) 14-19 Aug 1988  
Canadian Society for Cell Biology (CSCB); International Federation for Cell Biology (IFCB); National Research Council of Canada; et. al  
Publication, Sales and Distribution, National Research  
Council Canada, Ottawa, Canada K1A 0R6, ISBN No.  
0-660-54182-3. Price: \$25.00 Poster Paper  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Prospective Epidemiological Study of Health Risks Associated with  
Wastewater Utilization in Agriculture (Journal Version)**

(Journal article)  
Fattal, B. ; Yekutieli, P. ; Wax, Y. ; Shuval, H. I.  
Hadassah Medical School, Jerusalem (Israel).  
Corp. Source Codes: 063220000  
Sponsor: Health Effects Research Lab., Research Triangle Park, NC.  
Report No.: EPA/600/J-86/477  
c1987 12p  
Languages: English  
Document Type: Journal article

Journal Announcement: GRAI8902

Pub. in Water Science and Technology, v18 n10 p199-209 Oct 86. Sponsored by Health Effects Research Lab., Research Triangle Park, NC.

NTIS Prices: Not available

NTIS Country of Publication: Israel

Contract No.: EPA-R-806416

(NTIS)

A prospective epidemiological morbidity and serology study was carried out in Israel in 1980/82 on the association between enteric disease incidence and wastewater utilization in 29 kibbutzim. Analysis of morbidity data indicate that no significant excess of enteric disease episode rates was found in any age group, or in any occupational group, in kibbutzim exposed to wastewater aerosols, versus kibbutzim using wastewater. Results of viral antibodies in blood sera of a subsample of the population generally confirmed the findings of the morbidity study. Of 8 enteroviruses tested no excess in antibody level was found in the population, exposed to aerosolized wastewater versus the control kibbutzim. No differences were found between wastewater-contact and clean water-contact workers. In field studies, aerosolized enteric bacteria and viruses of wastewater origin were detected in air samples as far as 730 m downwind of wastewater sprinkler irrigated plots. (Copyright (c) IAWPRC 1987.) PB89-106868

**Toxicity of Selected Contaminants: Chapter 9 of 'Drinking Water and Health. Volume 6'**

Thomas, R. D.

National Research Council, Washington, DC. Safe Drinking Water Committee.

Corp. Source Codes: 019026217

Sponsor: Environmental Protection Agency, Washington, DC.

1985 168p

Languages: English

Journal Announcement: GRAI8820

See also PB82-249244. Sponsored by Environmental Protection Agency, Washington, DC.

NTIS Prices: PC A08/MF A01

Country of Publication: United States

Contract No.: EPA-68-01-3169

(NTIS)

The Safe Drinking Water Act of 1974 (PL 93-523) authorized EPA to seek the expertise of a National Research Council committee to identify the health effects associated with specified contaminants, areas of insufficient knowledge, and recommendations for future research. The most recent Safe Drinking Water Committee prepared the sixth volume in the series, which contains the results of a two-part study conducted at the request of EPA. In the first part, the committee examined current practices in risk assessment and identified likely areas of innovation in the assessment of noncancer toxic responses and in the use of toxicokinetic data to estimate delivered dose and response. The second part consisted of a review of the literature on compounds of interest to EPA and the research community and the calculation of risk assessments for those compounds. PB88-223904/XAB

**CANCER . . . includes carcinogens, carcinogenesis, carcinogenicity, genetics, epidemiology , and multi-media exposure**

**ACETYLATION PHARMACOGENETICS: ACETYLATOR PHENOTYPE SUSCEPTIBILITY TO ARYLAMINE CARCINOGENESIS (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**

WEBER WENDELL W. UNIV OF MICHIGAN. ; MATTANO SUSAN S. ; LEVY GERALD N.

COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P81(12)  
(ENVIROLINE)

CONF PAPER THERE EXISTS A STATISTICAL RELATION BETWEEN ACETYLATION RATE PHENOTYPE AND TYPE OF ACRYLAMIDE-INDUCED CANCER. SLOW ACETYLATOR PHENOTYPE LEADS TO URINARY BLADDER CANCER, WHILE IN WOMEN, RAPID PHENOTYPE LEADS TO COLORECTAL CANCER AND BREAST CANCER. THREE ACETYLATION ACTIVITIES HAVE BEEN SHOWN TO BE INVOLVED IN THE METABOLISM OF ACRYLAMINES TO CARCINOGENS; ALL THREE ACTIVITIES ARE IDENTIFIED WITH A SINGLE HOMOGENEOUS 31.5 KD PROTEIN. THE MECHANISM OF THE CARCINOGENICITY OF ACRYLAMIDE IS LIKELY DUE TO DNA DAMAGE; HPLC HAS BEEN ADAPTED TO ALLOW THE STUDY OF ANY COVALENT ADDUCTS FORMED BETWEEN THE DNA NUCLEOTIDES AND EITHER ACRYLAMIDE OR A METABOLIZED ACRYLAMIDE PRODUCT. (1 DIAGRAM, 1 GRAPH, 34 REFERENCES, 2 TABLES) Enviroline Number: \*89-000568

**ASSESSMENT OF CARCINOGENICITY: GENERIC ISSUES AND THEIR APPLICATION TO DIESEL EXHAUST (AIR POLLUTION, THE AUTOMOBILE, AND PUBLIC HEALTH),**

KAUFMAN DAVID G. UNIV OF NORTH CAROLINA,  
HEALTH EFFECTS INST REPORT, 1988, P519(35)  
(ENVIROLINE)

ASSN REPORT THE EVIDENCE ON THE CARCINOGENICITY OF DIESEL ENGINE EXHAUSTS AND THE METHODS USED TO MAKE QUANTITATIVE RISK ESTIMATES FROM THESE DATA ARE EVALUATED. SPECIFIC EVIDENCE CONCERNING CARCINOGENESIS OF DIESEL EXHAUST IN EXPERIMENTAL SYSTEMS IS REVIEWED, HIGHLIGHTING THE GENETIC EFFECTS OF CARCINOGEN DAMAGE TO DNA. PRIORITIES FOR FUTURE RESEARCH IN THIS FIELD ARE DELINEATED. THE ROLE OF PROMOTERS AND ENHANCERS IN HUMAN CARCINOGENESIS SHOULD BE DETERMINED, AND METHODS SHOULD BE DEVELOPED TO IDENTIFY INDIVIDUALS AT HIGH RISK. CRITICAL DATA MUST BE GATHERED FOR QUANTITATIVE ASSESSMENT, AND ACCEPTABLE METHODS MUST BE DEvised FOR DOSIMETRY IN HUMANS. (99 REFERENCES, 6 TABLES) Enviroline Number: 88-081135

**BM and LDH in the risk assessment of extranodal (EN) disease in intermediate grade lymphoma (IGL)**

Swan, F.; Redman, O.; Rodriguez, M.; Hagemeister, F.; Velasquez, W.; McLaughlin, P.  
24th Annual Meeting of the American Society of Clinical Oncology; 79th Annual Meeting of the American Association for Cancer Research 8825009 New Orleans, LA (USA) 22-28 May 1988  
American Society of Clinical Oncology (ASCO); American Association for Cancer Research (AACR); William Guy Forbeck Research Foundation; Imerg, Inc., Indiana Division of the American Cancer Society; et al.  
ASCO, 435 North Michigan Avenue, Suite 1717, Chicago, IL 60611 (USA). AACR, Temple University Medical School. Philadelphia, PA 19140 (USA)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Carcinogenic risk assessment using animal data: The importance of mechanistic studies**

Purchase, I.F.H.  
ICI, Macclesfield, UK  
3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010 University of Surrey (UK) 11-14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Carcinogenity Evaluation of Chemical Substances 2 (Beoordeling van de Carcinogeniteit van Chemische Stoffen 2)**

Gezondheidsraad, The Hague (Netherlands).  
Corp. Source Codes: 078090000  
2 Mar 88 102p  
Languages: Dutch  
Journal Announcement: GRAI8823  
Text in Dutch; summary in English.  
NTIS Prices: PC E05/MF A01  
Country of Publication: Netherlands  
(NTIS)

The 1978 report of the Health Council on 'the carcinogenicity of chemical substances' is critiqued and recommendations are made. The classification of substances into categories I and II (those that do and do not initiate irreversible effects) approved. The uses of short-term tests (DNA interaction tests), long-term animal experiments, and human epidemiological data in risk assessment of potential carcinogens are discussed.  
PB88-244124/XAB

**Environmental Mutagenesis and Carcinogenesis**

Notani, N. K. Chauhan, P. 5.

Bhabha Atomic Research Centre, Bombay (India).

Corp. Source Codes: 004104000

1986 215p

Languages: English

Journal Announcement: GRAI8903

NTIS Prices: PC E08/MF A01

Country of Publication: India

(NTIS)

A special publication presents a collection of 18 research papers and research overviews concerning recent findings in environmental causes of mutagenesis and carcinogenesis transportations at the biological cellular and pathological tissue levels. Topics include experiments in genetic toxicology, in vitro and in vivo genotoxicity, mutations induced by chemical and radiation, methodology for assessing DNA mutations and their repair, case studies, risk assessment, and cancer prevention. Experimental data and graphs are included, and literature citations are appended to each paper. PB89-116339/XAB

**An epidemiological approach for the risk assessment of chemicals causing human cancer and other disorders**

Li, S.

CAPM, People's Rep. China

3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010

University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington

House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**HUMAN CARCINOGENS AND DNA MODIFICATION: THE FIRST STEP IN RISK ASSESSMENT (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE AND QUANTITATIVE ASPECTS),**

SINGER B. UNIV OF CALIFORNIA, BERKELEY,

COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P123(16)

(ENVIROLINE)

CONF PAPER WHILE ON THE CELLULAR LEVEL, SEVERAL PATHWAYS CAN LEAD TO CANCER; ONE PARTICULARLY VULNERABLE NUCLEAR COMPONENT IS DNA. THERE IS MUCH EVIDENCE CONCERNING THE PRODUCTS, REPAIR ENZYMES AND EFFECTS OF ADDUCTS ON DNA STRUCTURE FOLLOWING THE METABOLISM OF N-NITROSAMINES AND N-NITROSUREA. IT IS CLEAR FROM THESE STUDIES THAT WHILE THE ALKYLATION REACTION OF THESE COMPOUNDS WITH DNA IS PREDICTABLE, REPAIR PROCESSES WHICH ARE UNIQUE E TO CELL TYPE AND ADDUCT MAKE PREDICTION OF THE CARCINOGENESIS MECHANISM DIFFICULT. IN CONTRAST TO THESE CHEMICALS, OTHER CARCINOGENS-ASBESTOS AND ETHANOL-DO NOT FORM COVALENT BONDS TO DNA. CLEARLY NO SINGLE ADDUCT OR PRODUCT CAN BE USED AS AN INDICATOR OF CANCER RISK OR EXPOSURE. (6 DIAGRAMS, 55 REFERENCES) Enviroline Number: \*89-000567



**IS IT POSSIBLE TO PREDICT THE CARCINOGENIC POTENCY OF A CHEMICAL IN HUMANS USING ANIMAL DATA? (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**  
ALLEN BRUCE CLEMENT ASSOC, LA, ; CRUMP KENNY ; SHIPP ANNETTE  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P197(13)  
(ENVIROLINE)

CONF PAPER BASED UPON ESTIMATES OF TRANSFORMING DOSES (TD25), COMPARISONS ARE MADE OF CARCINOGENIC POTENCY IN ANIMALS AND IN HUMANS FOR 23 CHEMICALS. THESE COMPARISONS WERE MADE IN AN EFFORT TO ASSESS THE RELIABILITY OF ANIMAL DATA IN PREDICTING HUMAN DISEASE RISK. THE TD25 VALUES OBTAINED ARE FOUND TO BE STRONGLY CORRELATED. THESE STUDIES ARE IMPORTANT SINCE HUMAN AND ANIMAL RESPONSES TO CARCINOGENS TEND TO BE DIFFERENT; FOR EXAMPLE, A HUMAN CARCINOGENIC RESPONSE GENERALLY INVOLVES A MALIGNANT TUMOR, WHILE AN ANIMAL RESPONSE COULD BE EITHER A BENIGN OR MALIGNANT TUMOR. APPROACHES IN WHICH ANIMAL DATA WERE FOUND TO BEST PREDICT HUMAN DATA UTILIZE ANIMAL DATA FROM SEVERAL ROUTES OF EXPOSURE. (2 GRAPHS, 4 REFERENCES, 3 TABLES) Enviroline Number: \*89-000573

**MOLECULAR DOSIMETRY DATA IN HUMANS: IMPLICATIONS FOR RISK ASSESSMENT AND RESEARCH (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**  
PERERA FREDERICA COLUMBIA UNIV,  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P307(7)  
(ENVIROLINE)

CONF PAPER RISK ASSESSMENT FOR ENVIRONMENTAL CARCINOGENS STANDS TO BE SUBSTANTIALLY IMPROVED BY HUMAN MOLECULAR DOSIMETRY DATA. DESPITE THE MANY BIOLOGICAL "MARKERS" WHICH DELINEATE HUMAN RISK-CARCINOGEN-DNA AND CARCINOGEN-PROTEIN ADDUCTS AND SOMATIC CELL MUTATION, FOR EXAMPLE- NO PARALLEL HUMAN-LABORATORY ANIMAL STUDIES HAVE EXPLOITED THE POTENTIAL OF THIS DOSIMETRY DATA. THIS DATA COULD ENHANCE CANCER RISK ASSESSMENT IN SEVERAL WAYS; TIMELY IDENTIFICATION OF CARCINOGENIC HAZARDS; ESTABLISHMENT OF CAUSAL ASSOCIATIONS BETWEEN PARTICULAR EXPOSURES AND CANCER BY CLASSIFICATION OF STUDY SUBJECTS ACCORDING TO THEIR BIOLOGICALLY EFFECTIVE DOSE; AND IMPROVEMENT OF THE QUANTITATIVE RISK EXTRAPOLATION BETWEEN RODENTS AND A HUMAN POPULATION EXPOSED TO LOWER LEVELS OF THE SAME CHEMICAL. (17 REFERENCES) Enviroline Number: \*89-000570

**NONGENOTOXIC MECHANISMS IN CARCINOGENESIS: ROLE OF INHIBITED INTERCELLULAR COMMUNICATION (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**  
TROSKO JAMES E. AND ; CHANG CHIA-CHENG MICHIGAN STATE UNIV,  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P139(32)  
(ENVIROLINE)

CONF PAPER CARCINOGENESIS IS A COMPLICATED PROCESS INVOLVING SEVERAL MECHANISMS; INHIBITED INTERCELLULAR COMMUNICATION HAS BEEN POSTULATED TO PLAY A ROLE IN TUMOR PROMOTION AND PROGRESSION. THE PROMOTION PHASE OF CARCINOGENESIS SEEMS TO BE A MITOGENIC (I.E., CELL DIVISIONAL) RATHER THAN A MUTAGENIC PROCESS. WHILE ALTERATION OF GENE EXPRESSION DOES NOT NECESSARILY KILL CELLS OR INDUCE MUTATIONS, GAP JUNCTIONAL INTERCELLULAR

COMMUNICATION (GJICP) IS A FUNDAMENTAL PROCESS NECESSARY FOR CELL GROWTH AND DIFFERENTIATION. SEVERAL OBSERVATIONS SUGGEST THE ROLE OF THESE GAP JUNCTIONS IN THE CARCINOGENIC PROCESS; CANCER HAS BEEN CHARACTERIZED AS A DISEASE OF DIFFERENTIATION OR A DISEASE OF DYSFUNCTIONAL GROWTH CONTROL-BOTH OF THESE DISEASES ARE ASSOCIATED WITH DYSFUNCTIONAL GJIC. (1 DIAGRAM, 89 REFERENCES, 1 TABLE) Enviroline Number: \*89-000575

**PERSPECTIVE ON RISK ASSESSMENT OF CARCINOGENS (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**

ANDERSON ELIZABETH L. CLEMENT ASSOC, VA,  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P281(14)  
(ENVIROLINE)

CONF PAPER THE EPA HAS DEPARTED FROM THE BROAD PRACTICE OF USING RISK-ASSESSMENT APPROACHES FOR EVALUATION OF HUMAN CARCINOGENS; THE AGENCY HAS ADOPTED GUIDELINES FOR ASSESSING CARCINOGEN RISK AND A RISK MANAGEMENT APPROACH TO REGULATE SUSPECT CARCINOGENS. IN RISK ASSESSMENT, FOCUS HAS CENTERED ON THE WEIGHT-OF-EVIDENCE INDICATING LIKELY CARCINOGENICITY, THE DOSE-RESPONSE RELATIONSHIPS, AND THE ENVIRONMENTAL EXPOSURES. EVEN MORE ATTENTION, HOWEVER, HAS CENTERED ON THE CHARACTERIZATION OF SUSPECT CARCINOGENS AND THEIR DOSE-RESPONSE RELATIONSHIPS. INCREASINGLY, THE RISK ASSESSMENT PROCESS WILL CONSIDER MECHANISMS OF CARCINOGENESIS. (1 GRAPH, 28 REFERENCES, 2 TABLES)  
Enviroline Number: \*89-000574

**Physical Factors Affecting Lung Deposition of Cigarette Smoke (with Syncarcinogenic Radon Progeny Effects), and Mineral Fiber Particulate Matter**

Martonen, T. B. ; Hofmann, W. ; Balashazy, I.  
Duke Univ. Medical Center, Durham, NC.  
Corp. Source Codes: 054518000  
Sponsor: Health Effects Research Lab., Research Triangle Park, NC.  
Report No.: EPA/600/D-88/266  
Nov 88 43p  
Languages: English Document Type: Journal article  
Journal Announcement: GRAI8906  
Sponsored by Health Effects Research Lab., Research Triangle Park, NC.  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
Contract No.: EPA-68-02-4450  
(NTIS)

Unusual dynamic factors affecting the behavior and fate of inhaled cigarette-smoke particles and mineral fibers within the human lung are addressed. The actions of interception, for fiber particles, and cloud-settling, for concentrated cigarette smoke, can enhance focal deposition in locations that would not have been anticipated for dilute aerosols or for more regularly shaped, sphere-like particles. It is important to quantitate the efficiencies of these deposition mechanisms because it is after deposition that deleterious biological effects can occur. Theoretical deposition models are presented that simulate the actions of the interception and cloud-settling processes,

which are validated by comparisons with in vitro and in vivo data. The sites of preferential deposition are regions whose cells receive increased doses of hazardous substances associated with smokes and fibers. They must, therefore, be considered in risk assessment analyses of human inhalation exposures to airborne toxicants. Incorporation of these mechanisms in aerosol therapy protocols could conceivably lead to improved therapeutic procedures. PB89-130454/XAB

**QUALITATIVE FACTORS IN CARCINOGEN CLASSIFICATION (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**

MUNRO IAN C. CANADIAN CENTRE FOR TOXICOLOGY, CANADA,  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988 (19)  
(ENVIROLINE)

CONF PAPER TESTING OF CARCINOGENS IN ANIMALS TO PREDICT HUMAN CARCINOGENESIS IS WIDELY ACCEPTED BY REGULATORY AGENCIES. MOST HEALTH AUTHORITIES FAVOR THE HIGH-DOSE TESTING CONCEPT SINCE IT IS CONSIDERED TO MAXIMIZE THE POTENTIAL FOR DETECTING CARCINOGENS IN THE USUAL GROUP SIZES USED IN THE STANDARD CARCINOGEN BIOASSAY. HOWEVER, THE USE OF HIGH DOSE LEVELS IS CONTROVERSIAL BECAUSE THE USE MAY PRODUCE A HIGHLY ARTIFICIAL SITUATION OF QUESTIONABLE RELEVANCE TO THE HUMAN POPULATION. THIS CONTROVERSY IS EXAMINED IN LIGHT OF CONTEMPORARY PROGRAMS DESIGNED TO REGULATE CARCINOGENS. CRITERIA FOR DETERMINING THE WEIGHT OF EVIDENCE FOR CARCINOGENICITY ARE PROPOSED; THIS ASSESSMENT REQUIRES EVALUATION OF ALL DATA BEARING ON THE QUESTION OF CARCINOGENESIS. (40 REFERENCES, 1 TABLE)  
Enviroline Number: \*89-000572

**QUANTITATIVE DOSE-RESPONSE MODELS FOR TUMOR PROMOTING AGENTS (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**

THORSLUND TODD AND ; CHARNLEY GAIL CLEMENT ASSOC, VA,  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P245(11)  
(ENVIROLINE)

CONF PAPER A CARCINOGENESIS MODEL IS PROPOSED FOR THE ACTION OF TWO TUMOR PROMOTING AGENTS-2,3,7,8-TETRACHLORO-DIBENZO-P-DIOXIN AND CHLORDANE- WHICH INCORPORATES BIOLOGICAL INFORMATION. THIS TYPE OF MODEL ALLOWS LOW-DOSE ESTIMATES OF RISK THAT ARE MORE DEFENSIBLE BIOLOGICALLY THAN THOSE OBTAINED WITH THE LINEARIZED MULTISTAGE MODEL. PREDICTED TUMOR RATES FIT OBSERVED BIOASSAY RATES EXTREMELY WELL. THESE MODELS HAVE IMMENSE FLEXIBILITY AND CAN BE USED TO PREDICT BIOASSAY RESULTS IN OTHER EXPERIMENTS SIMPLY BY ADJUSTING FOR DIFFERENCES IN BACKGROUND TUMOR RATES. (10 REFERENCES, 8 TABLES) Enviroline Number: \*89-000571

**QUANTITATIVE FACTORS IN CARCINOGENIC RISK ASSESSMENT (CARCINOGEN RISK ASSESSMENT: NEW DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**

KREWSKI DANIEL (HEALTH AND WELFARE CANADA) AND : MURDOCH DUNCAN (CARLETON UNIV, CANADA),  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P257(17)  
(ENVIROLINE)

CONF PAPER BIOLOGICALLY MOTIVATED MODELS FOR CARCINOGENESIS ARE REVIEWED WITH MODEL-FREE APPROACHES TO LOW-DOSE RISK ASSESSMENT. LOW-DOSE LINEARITY MAY BE REASONABLY ASSUMED IN SOME CASES AND WILL PROVIDE AN UPPER-BOUND IN CASES WHERE SUBLINEARITY OCCURS. THE TWO-STAGE BIRTH-DEATH-MUTATION MODEL OF MOOLGAVKAR-VENZON-KNUDSON (M-V-K) ACCOMMODATES MANY IMPORTANT COMPONENTS OF CARCINOGENESIS AND PROVIDES A MORE BIOLOGICALLY MOTIVATED APPROACH TO CANCER MODELING THAN THE CLASSICAL MULTISTAGE MODEL. INITIATION CORRESPONDS TO THE OCCURRENCE OF THE FIRST MUTATION, WITH PROGRESSION TO MALIGNANCY FOLLOWING A SECOND MUTATION. PROMOTION INVOLVES INCREASING THE INITIATED CELL POPULATION THROUGH CLONAL EXPANSION. (4 DIAGRAMS, 1 GRAPH, 40 REFERENCES) Enviroline Number: \*89-000576

**Review of EPA's- (Environmental Protection Agency's) Draft Kanawha Valley Toxics Screening Study**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-87/031

27 May 87 13p

Languages: English

Journal Announcement: GRAI8824

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Subcommittee unanimously concluded that the Kanawha Valley study represented an important component of EPA's overall effort to develop methodological to define public health and environmental priorities. Studies such as this provide (1) valuable technical challenges and experiences to EPA staff, particularly to regional offices; and (2) provide a valuable means for developing closer working relationships with state and local officials and the general public. In general, the Subcommittee viewed the Draft Kanawha Valley Toxics Screening Study as one step of a continuing process to assess risks. The current study addresses chronic health exposure to carcinogens which represent one of many public health concerns in the Valley. PB88-244389,'XAB

**Review of ORD's (Office of Research and Development's) Integrated Air Cancer Project**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-87/023

25 Feb 87 19p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Agency has addressed the carcinogenic potency of mixtures of materials in the ambient air which is a critical step towards characterizing the exposure of humans to a complex environment. The Integrated Air Cancer Project was found to be scientifically well-founded. The project represents a logical and appropriately innovative approach that can achieve its long-range goals of addressing these complex environmental health issues. In addition, the project effectively exploits some of the research tools and results developed in the past decade and presents an example of effective multi-laboratory research management within the Agency. PB88-242847/XAB

**Risk assessment techniques for carcinogenic compounds**

Batt, S.; Peterson, P.B.

King's Coll., London, UK

3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010

University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington

House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**STRUCTURE-ACTIVITY RELATIONS AMONG NITROGEN-CONTAINING  
ALKYLATING CARCINOGENS (CARCINOGEN RISK ASSESSMENT: NEW  
DIRECTIONS IN THE QUALITATIVE & QUANTITATIVE ASPECTS),**

LIJINSKY WILLIAM NCI-FREDERICK CANCER RESEARCH FACILITY, MD,  
COLD SPRING HARBOR LAB BANBURY REPORT 31, 1988, P15(19)  
(ENVIROLINE)

CONF PAPER THE CARCINOGENICITY OF MANY N-NITROSO COMPOUNDS AND RELATED NITROGEN-CONTAINING ALIPHATIC COMPOUNDS MAY BE RELATED TO THEIR ABILITY TO ALKYLATE DNA AND OTHER CELLULAR MACROMOLECULES. TUMORS INDUCED BY THESE AGENTS ARE DEPENDENT ON THE TYPE OF COMPOUND AS WELL AS THE TYPE OF ALKYLATION (I.E., METHYLATION, ETHYLATION, ETC.) AND THE DOSE RATE. TABLES DETAIL THE TYPES OF TUMORS INDUCED-LUNG, NERVOUS SYSTEM, FORESTOMACH, INTESTINE, MESOTHELIOMA, OR ZYMBALEND GLAND-AS A FUNCTION OF TYPE OF ALKYLATION AND DOSE RATE. OF THESE TUMOR TYPES, IN MALE RATS METHYLATION CAUSES TUMORS OF THE NERVOUS SYSTEM, FORESTOMACH AND MESOTHELIOMA, WHILE IN FEMALE RATS METHYLATION CAUSES TUMORS OF THE NERVOUS SYSTEM AND FORESTOMACH. (13 REFERENCES, 8 TABLES) Enviroline Number: \*89-000569

**THE SWEDISH STUDIES OF PESTICIDE EXPOSURE AND CANCER: A CASE  
STUDY OF DISCIPLINARY AND MANDATED SCIENCE,**

LEVY EDWIN UNIV OF BRITISH COLUMBIA, CANADA,

ALTERNATIVES, APR-MAY 88, V15, N2, P48(17)

(ENVIROLINE)

JOURNAL ARTICLE THREE RESEARCHERS IN SWEDEN EMBARKED ON A SERIES OF EPIDEMIOLOGICAL STUDIES TO ASCERTAIN WHETHER THERE IS AN ASSOCIATION BETWEEN PHENOXY HERBICIDES OR CHLOROPHENOLS AND SEVERAL KINDS OF CANCERS. THEIR CONCLUSION WAS THAT THERE IS A SIGNIFICANT RELATIVE RISK OF

SOFT TISSUE SARCOMA, HODGKIN'S DISEASE, AND NON-HODGKIN'S LYMPHOMA ASSOCIATED WITH PESTICIDES. THESE STUDIES HAVE BEEN SEVERELY CRITICIZED AND HAVE RAISED A STORM OF CONTROVERSY. THE SWEDISH STUDIES NEGLECTED TO ACCOUNT FOR THE FACT THAT ALL OF THE PESTICIDES UNDER CONSIDERATION CONTAIN DIOXINS AS CONTAMINANTS. EVEN IF A LINK WITH CANCER IS DEMONSTRATED, THERE IS A RESIDUAL QUESTION WHETHER THE ASSOCIATION IS WITH THE PESTICIDES OR WITH THE CONTAMINANTS. IN SPITE OF THE VOLUME OF RESEARCH COMPLETED ON THESE PESTICIDES AND THEIR EFFECTS, THERE IS STILL SAID TO BE NO DEFINITIVE EVIDENCE SHOWING THAT THEY CAUSE CANCER IN HUMANS. (5 DRAWINGS, 3 PHOTOS, 96 REFERENCES) Enviroline Number: \*88-071070

**Thyroid Follicular Cell Carcinogenesis: Mechanistic and Science Policy Considerations**

Hill, R. N. ; Erdreich, L. S. ; Paynter, O. E. ; Roberts, P. A. ; Rosenthal, S. L.

Environmental Protection Agency, Washington, DC. Office of Research and Development.

Corp. Source Codes: 031287457

Report No.: EPA/625/3-88/014A

May 88 169p

Languages: English

Journal Announcement: GRAI8821

NTIS Prices: PC A08/MF A01

Country of Publication: United States (NTIS)

EPA's Guidelines for Carcinogen Risk Assessment call for use of mechanistic and other relevant information in making choices about the models to be used in extrapolating hazard estimates from high to low exposures. The Forum report on thyroid neoplasia proposes that, under clearly specified conditions, chemical carcinogenesis in thyroid follicular cells can be analyzed as a threshold phenomenon, rather than assuming low-dose linearity as EPA customarily does for carcinogenic compounds. Specifically, for chemicals that induce tumors only in the thyroid gland and alter pituitary-thyroid status, EPA scientists would use metabolic, toxicological, and ancillary data on preneoplastic end points to identify a NOAEL or LOAEL as the basis for a cancer potency estimate. The Forum report reviews the physiology and biochemistry of normal thyroid-pituitary function, discusses factors influencing thyroid carcinogenesis, and analyzes human data on thyroid hyperplasia and neoplasia. PB88-230750/XAB

## **GENOTOXICITY AND REPRODUCTIVE EFFECTS**

### **Analysis of the Gene-Tox Carcinogen Data Base (Journal Version)**

(Journal article)

Nesnow, S. ; Bergman, H.

Health Effects Research Lab., Research Triangle Park, NC. Genetic Toxicology Div.

Corp. Source Codes: 048097011

Report No.: EPA/600/B-88/096

1987 19p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8902

Pub. in Mutation Research, v205 p237-253 1988.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Gene-Tox Carcinogen Data Base is an evaluated source of cancer data on 506 chemicals, selected, in part, for their previous assessment in genetic toxicology bioassays. The data base has been analyzed for the distribution of these chemicals into chemical classes, and for the distribution of the cancer studies by route of administration, animal species, gender, major tumor sites, and tumor types. Chemicals in the database have been assessed for species specific carcinogenic effects, and these results indicate, that for mice and rats, there is a high correspondence (85%). When chemicals in the Gene-Tox Carcinogen Data Base were examined for their previous evaluation in 73 genetic toxicology bioassays, only 26 of these bioassays had 30 or more chemicals. In these 26 bioassays, the prevalence of positive chemicals was generally greater than 80-90%. This suggests that a thorough evaluation of genetic toxicology bioassays for their ability to predict carcinogenic effects in animals is premature at this time. PB89-109284/XAB

### **Comparison of Maternal and Fetal Toxic Dose Responses in Mammals (Journal Version)**

(Journal article)

Rogers, J. M.

Health Effects Research Lab., Research Triangle Park, NC.

Corp. Source Codes: 048097000

Report No.: EPA/600/J-87/413

1987 12p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8902

Pub. in Teratogenesis, Carcinogenesis, and Mutagenesis, v7 p297-306 1987.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The role of maternal toxicity in adverse developmental outcome and the importance of maternal toxicity as a factor in developmental risk assessment have received increasing attention in recent literature. The paper reviews these concepts and some of the experimental approaches that have been used to assess their importance. The often non-parallel nature of maternal and fetal toxic dose response curves make specific comparisons of maternal and fetal

toxic doses quite difficult. The use of specific ratios of maternal to fetal toxic doses, such as the A/D ratio and the Relative Teratogenic Index is discussed, including some of the difficulties encountered in assigning such ratios, and a compilation of A/D ratios for compounds for which the ratio could be estimated in more than one mammalian species is included. Results of studies on the fungicide dinocap, for which the A/D ratio does not seem to be consistent across species, are briefly reviewed. PB89-105597/XAB

**Genetic Activity Profiles and Pattern Recognition in Test Battery Selection  
(Journal Version)**

(Journal article) Waters, M. D. ; Stack, H. F. ; Rabinowitz, J. R. ; Garrett, N. E.  
Environmental Health Research and Testing, Inc., Research Triangle Park, NC.

Corp. Source Codes: 084308000

Sponsor: Health Effects Research Lab., Research Triangle Park, NC.

Report No.: EPA/600/U-88/088

c1988 22p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8902

Pub. in Mutation Research, v205 p119-138 1988. Sponsored by Health Effects Research Lab., Research Triangle Park, NC.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: EPA-68-02-4031

(NTIS)

Computer-generated genetic activity profiles and pairwise matching procedures may aid in the selection of the most appropriate short-term bioassays to be used in test batteries for the evaluation of the genotoxicity of a given chemical or group of chemicals. Selection of test batteries would be based on a quantitative comparative assessment of the past performance of similar tests applied to other chemicals of the same structural group. Application of the method should further our understanding of the relationships between chemical properties and genotoxic responses obtained in short-term bioassays, and also may contribute to our knowledge of the mechanisms of complex processes such as carcinogenesis. The approach to battery selection should be augmented by careful consideration of established principles of genetic toxicity testing; that is, a chemical should be evaluated in a battery of tests representing the full range of relevant genetic endpoints. (Copyright (c) Elsevier Science Publishers B.V. 1988.) PB89-109664/XAB

**Genotoxicity of Complex Mixtures: Strategies for the Identification and  
Comparative Assessment of Airborne Mutagens and Carcinogens from  
Combustion Sources (Journal Version)**

(Journal article)

Lewtas, J.

Health Effects Research Lab., Research Triangle Park, NC. Genetic Toxicology Div.

Corp. Source Codes: 048097011

Report No.: EPA/600/J-88/098

1988 22p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8902

Pub. in Fundamental and Applied Toxicology, v10 p571-589 1988.



NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

Two strategies for assessment of the toxicity of complex mixtures are described and illustrated with examples from genotoxicity studies of complex combustion mixtures. The first is a strategy for identifying biologically active compounds or compound classes in complex mixtures (bioassay-directed fractionation and characterization). Studies have shown that a significant portion of the mutagenicity in combustion emissions and urban air is found in fractions more polar than polynuclear aromatic hydrocarbons. The second strategy (comparative potency method) provides an approach to evaluating the relative toxicities of a series of mixtures. The comparative mutagenicity and carcinogenicity of a series of combustion emissions has been assessed using dose-response studies in bacteria, mammalian cells, and rodents. Comparative mutagenic and tumorigenic emission rates or emission factors provide a means to directly compare the relative hazard of the sources. The data base also has been used to develop a comparative risk assessment methodology for combustion emissions.  
PB89-109300/XAB

**Use of Computerized Data Listings and Activity Profiles of Genetic and Related Effects in the Review of 195 Compounds (Journal Version)**

(Journal article) Waters, M. D. ; Stack, H F. ; Brady, A. L. ; Lohman, P. H. M. ; Haroun, L. Health Effects Research Lab., Research Triangle Park, NC. Genetic Toxicology Div.  
Corp. Source Codes: 048097011;  
Sponsor: Environmental Health Research and Testing, Inc., Research Triangle Park, NC.; Leiden Rijksuniversiteit (Netherlands); International Agency for Research on Cancer, Lyon (France).  
Report No.: EPA/600/J-88/089  
c1988 20p  
Languages: English  
Document Type: Journal article  
Journal Announcement: GRAI8902  
Pub. in Mutation Research, v205 p295-312 1988. Prepared in cooperation with Environmental Health Research and Testing, Inc., Research Triangle Park, NC., Leiden Rijksuniversiteit (Netherlands), and International Agency for Research on Cancer, Lyon (France).  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

Computer-generated listings of data from short-term tests for genetic and related effects (activity profile listings) were prepared for 195 compounds that included for each compound: the test system (identified by a three-letter code word); qualitative results; and the lowest effective dose (LED) or highest ineffective dose (HID) tested. A corresponding bar or line graph (activity profile) also was generated, in which test systems are displayed along the x-axis and the LED or HID values along the y-axis. The listings were reviewed and the data summarized by an IARC Working Group. The methodology used to generate these listings and plots is described, and results are given for one compound, benzene. The entire data base contains approximately 7,000 entries from 4,000 references. (Copyright (c) Elsevier Science Publishers B.V. 1988.) PB89-109680/XAB

## **CHEMICAL SPECIFIC RISK ASSESSMENT**

### **ACRYLAMIDE**

#### **Analysis of Dose/Time/Response Relationships for Chronic Toxic Effects: The Case of Acrylamide**

Hattis, D. ; Shapiro, K.

Massachusetts Inst. of Tech., Cambridge. Center for Technology, Policy and Industrial Development.

Corp. Source Codes: 001450010

Sponsor: National Inst. for Occupational Safety and Health, Rockville, MD.

Report No.: CTPID-88-4

Jul 88 72p

Languages: English

Journal Announcement: GRAI8902

Sponsored by National Inst. for Occupational Safety and Health, Rockville, MD.

NTIS Prices: PC A04/MF A01

Country of Publication: United States  
(NTIS)

To conduct a risk assessment of hazards associated with the handling of acrylamide (79061), a simple dynamic analysis model was applied to the results of some classic studies of acrylamide neurotoxicity. The model incorporated the following assumptions: that a particular adverse effect occurs whenever a specific amount of damage is accumulated in the relevant portions of the nervous system, that damage is produced at a rate linear with the dose administered, and that repair of the accumulated damage occurs at a rate directly dependent on the amount of accumulated damage to be repaired. Preliminary estimates were proposed of the risk posed to various proportions of the population by exposure to various air concentrations of acrylamide. For the most part the model focused on the reversible neurotoxic damage and its associated rates of repair. However, there was also evidence that some of the damage from acrylamide is not reversible. At ventilation rate of 10 cubic meters per 8 hour day, a 5-year exposure to acrylamide at 1.5 mg/cu m or a 40-year exposure to 0.18 mg/cu m would show an association to long term visual changes in average individuals. PB89-109581/XAB

#### **Review of the Acrylamide Health Criteria Document**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB-EHC-88-035 19 .

Jul 88 7p

Languages: English ,

Journal Announcement: GRAI8902

See also PB86-117744.

NTIS Prices: PC A02/MF A01

Country of Publication: United States  
(NTIS)

The Drinking Water Subcommittee of the Science Advisory Board's Environmental Health Committee completed its review of the Drinking Water Health Criteria Document for Acrylamide. Subcommittee made the following conclusions and recommendations: because it was performed for two full years the Johnson Study should be used in setting the standard, the

final assessment of the carcinogenic potential should await the results of the current bioassay, the ability of acrylamide to produce heritable germ cell mutations should be given emphasis in the risk assessment process, the health implications of products formed from acrylamide as a result of chlorination and oxidation processes are potentially serious and must be considered in the document, and the potential effects of pH and metal ions in water should be addressed.  
PB89-109011/XAB

## **ALDICARB**

### **Aldicarb Special Review Technical Support Document**

Environmental Protection Agency, Washington, DC. Office of Pesticide Programs.

Corp. Source Codes: 031287124

Report No.: EPA/540/9-88/093

Jun 88 164p

Languages: English

Journal Announcement: GRAI8820

NTIS Prices: PC A08/MF A01

Country of Publication: United States

(NTIS)

The Special Review Document addresses the risks and benefits of pesticide products containing the subject active ingredient. The Agency has determined that the use of products containing the subject active ingredient may meet or exceed a risk criterion described in 40 CFR Part 154. Potential hazards will be examined further to determine the nature and extent of the risk, and considering the benefits of the subject active ingredient, whether such risks cause unreasonable adverse effects on the environment. PB88-236856/XAB

## **AMMONIA**

### **Ammonia barging risk assessment**

Kaiser, G.D.; Brooks, J.K.; Cheok, M.C.; McKelvey, T.C.; Raj, A.; Greiner, W.

Sci. Appl. Int. Corp., McLean, VA

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 47c

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

## **ANHYDROUS HCL**

### **ANALYSIS OF POTENTIAL ACCIDENTAL RELEASE OF ANHYDROUS HCL FROM A TANK CAR,**

EGAN BRUCE A. (ERT INC, MA) AND ; SCHWAB BRADLEY W. (BUONICORE-CASHMAN ASSOC, NH),

TAPPI ENV CONF, CHARLESTON, SC. APR 18-20, 88, P249(9)  
(ENVIROLINE)

CONF PAPER A CONSEQUENCE ANALYSIS ADDRESSED A HYPOTHETICAL ACCIDENTAL RELEASE OF ANHYDROUS HYDROGEN CHLORIDE TO THE ATMOSPHERE. THE HCL RELEASE IS ASSUMED TO OCCUR FROM A 70-TON RAILROAD CAR DURING TRANSFER OPERATIONS. A WORST-CASE RELEASE SCENARIO IS ASSOCIATED WITH FLOW RATES JUST BELOW THAT REQUIRED TO TRIGGER AN EXCESS FLOW VALVE INSIDE OF THE TANK CAR. THE EFFECTS OF DIFFERENT EXCESS FLOW VALVE SIZES IN WORST-CASE DOWNWIND CONCENTRATIONS ARE ANALYZED USING AN ATMOSPHERIC DISPERSION MODEL APPROPRIATE FOR USE WITH HEAVIER-THAN-AIR GAS RELEASES. THE TOXICOLOGY OF HCL EXPOSURES AND THE FACTORS INVOLVED IN DEFINING AN EMERGENCY RESPONSE THRESHOLD AIR CONCENTRATION VALUE ARE ALSO COVERED. (4 GRAPHS, 11 REFERENCES, 2 TABLES) Enviroline Number: \*89-000614

## **CARBON TETRACHLORIDE**

Reed NR, Babapour R; Reed W; Beltran L i Hsieh DPH

California Univ, Davis Dept of Environmental Toxicology.

### **Health Risk Assessment of Carbon Tetrachloride (TCT) in California Drinking Water**

California Public Health Foundation, Berkeley

California Dept of Health Services, Berkeley

Govt Reports Announcements & Index (GRA&I). Issue 01. 1989

PB89-102321 173p

NTIS Prices:PC A08/MF A01

UCD/ET-88/1

California Public Health Foundation, Berkeley

California Dept of Health Services, Berkeley

(TOXLINE)

The purpose of the document is to provide information on the toxicity of carbon tetrachloride (CTC) and to estimate the exposure of California residents to CTC. The information provided will aid the California Department of Health Services in developing drinking water standards for CTC. The four major contributions of the document are (1) a review of the existing literature pertinent to the health risk from CTC contaminated drinking water; (2) an estimation of the CTC exposure for California residents; (3) a delineation of the level of CTC that may cause a noncarcinogenic health effect; and (4) an estimation of the cancer potency and lifetime cancer risk. Toxics also discussed are: physical and chemical properties; mechanisms of toxicity; human exposure; health effects; and data gaps. Final rept NTIS PB89-102321

## **CHLORINATED DIBENZO-P-DIOXINS**

### **Interim Procedures for Estimating Risks Associated with Exposures of Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs)**

Bellin, U. S. ; Barnes, D. G.

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

Corp. Source Codes: 031287609

Report No.: EPA/625/3-87/012

Mar 87 59p

Languages: English

Journal Announcement: GRAI8904  
NTIS Prices: PC A04/MF A01  
Country of Publication: United States  
(NTIS)

As part of its effort to address risks posed by chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans (CDDs and CDFs) in the environment, the U.S. Environmental Protection Agency (EPA) has adopted an interim procedure, based on dioxin toxicity equivalence factors (TEFs), for estimating the hazard and dose-response of complex mixtures containing CDDs and CDFs in addition to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). The TEF procedure, and the scientific data upon which it is based, are the subject of the report. The document describes the recommended interim procedure for generating the TCDD equivalence of complex mixtures of CDDs and CDFs, based on congener or homologue-specific data, and for using such information in assessing risk. PB89-125041/XAB

## **CHROMIUM**

### **Carcinogen Risk Assessment of Chromium Compounds**

Gibb, H. J. ; Chen, C. W. ; Hiremath, C. B.  
Environmental Protection Agency, Washington, DC. Carcinogen Assessment Group.  
Corp. Source Codes: 031287601  
Report No.: EPA/600/D-88/129  
Jun 88 50p  
Languages: English  
Journal Announcement: GRAI8818  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
(NTIS)

Hexavalent chromium has been identified as a human carcinogen. Evidence to support this contention derives from epidemiologic, animal, and genotoxicity studies. Although workers exposed to both trivalent and hexavalent chromium have been shown to be at an excess risk of respiratory cancer, only hexavalent chromium has been shown to be carcinogenic in animals. Both hexavalent and trivalent chromium have been shown to be mutagenic, but the evidence for hexavalent chromium is somewhat stronger than that for trivalent chromium. The quantitative estimation of the cancer risk due to hexavalent chromium in the ambient air is calculated on the basis of lung cancer mortality data for chromate production workers. The lifetime respiratory cancer risk due to 1 microgram/cu m) of hexavalent chromium in the ambient air is estimated to be  $1.2 \times .002$  on the basis of Mancuso's data and  $9.4 \times .003$  on the basis of the Braver et al. data. PB88-220363/XAB

## **DICHLOROPHENOXY ACETIC ACID**

### **Delineation and risk assessment for 2,4-dichlorophenoxy acetic acid in the vadose zone**

Blunt, D.U.  
Exceltech Inc.  
2nd National Outdoor Action Conference on Aquifer Restoration, Ground Water Monitoring and Geophysical Methods  
8825013 Las Vegas, NV (USA) 23-26 May 1988  
Association of Ground Water Scientists and Engineers;

American Association for the Advancement of Science  
National Water Well Association 6375 Riverside Drive, Dublin, OH 43017 (USA). Telephone  
(614) 761-1711. Telex-241302  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

## **DICHLOROPROPANE**

### **Health Risk Assessment of 1,2-Dichloropropane (1,2-DCP) in California Drinking Water**

(Final rept.)

Reed, N. R. ; Reed, W. ; Beltran, L. ; Babapour, R. ; Hsieh, D. P. H.  
California Univ., Davis. Dept. of Environmental Toxicology. Corp.

Source Codes: 004365119

Sponsor: California Dept. of Health Services, Berkeley.

Report No.: UCD/ET-88/3

18 Nov 88 94p

Languages: English

Journal Announcement: GRAI8906

Sponsored by California Dept. of Health Services, Berkeley.

NTIS Prices: PC A05/MF A01

Country of Publication: United States

(NTIS)

The purpose of the document is to provide information on the toxicity of 1,2-dichloropropane (1,2-DCP) and to estimate the exposure of California residents to 1,2-DCP. The information provided will aid the California Department of Health Services (CDHS) in developing drinking water standards for 1,2-DCP. The scope of the document is: a review of the existing literature pertinent to the health risk posed by the use of 1,2-DCP contaminated drinking water; an estimation of the 1,2-DCP exposure for California residents based on the most recent data on 1,2-DCP concentrations in California drinking water supplies; a delineation of the level of 1,2-DCP that may cause a noncarcinogenic health effect; and an evaluation of the carcinogenicity of 1,2-DCP. PB89-132005/XAB

## **DIOXIN**

### **Dioxin Toxic Equivalency Methodology Subcommittee Following Its Evaluation of EPA's (Environmental Protection Agency's) Toxic Equivalency Factor Methodology for CDDs (Chlorinated Dibenzo-p-Dioxins) and CDFs (Chlorinated Dibenzofurans). Report of the Science Advisory Board**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-87/008

4 Nov 86 12p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Assistant Administrator for Air requested the Science Advisory Board to review a draft document which sets an approach for assessing the hazards of Chlorinated dibenzo-p-dioxin (CDD) and dibenzofuran (CDF) mixtures relative to the toxicity of the 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) isomer. The Subcommittee concluded that the draft document represented a successful interim attempt to articulate a scientific rationale and procedures for developing risk management decisions for mixtures which contain CDDs and CDFs related in structure and activity to TCDD. PB88-244801/XAB

#### **THE MOST POTENT CARCINOGEN?,**

GOUGH MICHAEL

RESOURCES (RESOURCES FOR THE FUTURE), SUMMER 88, N92, P2(4)  
(ENVIROLINE)

JOURNAL ARTICLE DIOXIN HAS BEEN LABELED AS THE MOST TOXIC MANMADE CHEMICAL AND THE MOST POTENT CARCINOGEN. NORTH AMERICANS SLOWLY ACCUMULATE DIOXIN IN THEIR TISSUES OVER THEIR LIFETIMES. WITH THE DECAY OF RESIDUAL DIOXIN FROM HERBICIDE USE AND THE CONTROL OF EMISSIONS FROM COMBUSTION SOURCES, LEVELS OF DIOXIN IN HUMAN TISSUES WILL PROBABLY DECREASE IN THE FUTURE. HOWEVER, THE INABILITY TO DETERMINE HOW AND IF ENVIRONMENTAL EXPOSURES TO DIOXINS MAKE PEOPLE SICK KEEPS ALIVE THE CONTROVERSY ABOUT HOW HARMFUL DIOXIN MAY BE TO HUMAN HEALTH. INCIDENTS OF ACCIDENTAL AND OCCUPATIONAL EXPOSURES TO THE CHEMICAL ARE REVIEWED, REVEALING NO CONSISTENT, CONVINCING EVIDENCE OF LONG-TERM ADVERSE HEALTH EFFECTS. IMPLICATIONS FOR RELATED STATE AND FEDERAL REGULATORY ACTIVITIES ARE CONSIDERED. (1 GRAPH, 1 PHOTO) Enviroline Number: \*89-000647

#### **Risk Assessment for Dioxin Contamination at Midland, Michigan (Second Edition)**

(Final rept.)

Nisbet, I. C. T. ; Mendez, W. M. ; Phillips, W. ; Barnes, D.

Environmental Protection Agency, Chicago, IL. Region V.

Corp. Source Codes: 032265018

Report No.: EPA/905/4-88/005

Apr 88 220p

Languages: English

Journal Announcement: GRAI8824

NTIS Prices: PC A10/MF A01

Country of Publication: United States

(NTIS)

Results are presented of a comprehensive, multi-media, human health risk assessment of the contamination in the Midland, Michigan, area with 2,3,7,8-tetrachlorodibenzo-p-dioxin, or TCDD, and related compounds ('dioxin') resulting primarily from past releases from the Dow Chemical Company's Michigan Division plant. The risk assessment follows USEPA's published guidelines for carcinogen risk assessment and exposure assessment. An exposure assessment section summarizes the available environmental monitoring data for the Midland area and derives estimated human intakes of dioxin for a number of scenarios based upon exposure of the local population to ambient air, drinking water, soil, and fish. Finally, a risk characterization section combines the dose response and exposure information to determine estimated probabilities of adverse health effects for the scenarios considered. PB88-249818/XAB

## **ETHYL CHLORIDE**

### **Summary of Emissions Associated with Sources of Ethyl Chloride**

Hume, G. L.

Environmental Protection Agency, Research Triangle Park, NC. Office of Air Quality Planning and Standards.

Corp. Source Codes: 034680059

Report No.: EPA/450/3-88/005

Jun 88 125p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A06/MF A01

Country of Publication: United States  
(NTIS)

The potential ambient health impact of ethyl chloride emissions has been investigated. The document contains information on the sources of ethyl chloride emissions, estimates current emission levels, summarizes production trends and ambient monitoring results. Results of the study provided inputs for the exposure and risk assessment of ethyl chloride. PB88-240247/XAB

## **HEAVY METALS**

### **Incinerator Ash Quality, Residue Characteristics, and Control of Heavy Metal Emissions**

Carroll, G. U.

Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.

Corp. Source Codes: 034122084

Report No.: EPA/600/D-88/252

Nov 88 23p

Languages: English

Journal Announcement: GRAI8906

NTIS Prices: PC A03/MF A01

Country of Publication: United States  
(NTIS)

Limited information from past research indicates that organic concentrations in hazardous waste incinerator (HWI) ash and air pollution control device residue are low, and that destruction is the primary reason for high Destruction and Removal Efficiency (DRE) values. Increasing attention is being focused on HWI stack metal-emissions, which appear to be the most significant component of HWI risk assessment values derived to date. PB89-129464/XAB



## **MONOCHLOROETHANE**

### **Summary Review of Health Effects Associated with Monochloroethane: Health Issue Assessment**

Opresko, D.

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

Corp. Source Codes: 034680061;

Sponsor: Oak Ridge National Lab., TN.

Report No.: EPA/600/8-88/080

Jun 88 43p

Languages: English

Journal Announcement: GRAI8822

Prepared in cooperation with Oak Ridge National Lab., TN.

NTIS Prices: PC A03/MF A01

Country of Publication: United States  
(NTIS)

Monochloroethane (ethyl chloride) is released into the environment from anthropogenic sources and has been identified in air samples from locations around the U.S. The major route of exposure is inhalation. Histopathological changes in the lungs, liver and kidneys have been observed in animals at concentrations >20,000 ppm. Severe toxic effects were seen at concentrations >40,000 ppm. Humans exposed to high concentrations exhibited CNS, cardiac, and respiratory effects. There is no conclusive information about chronic toxicity of monochloroethane to humans, and it is in EPA's Group D as to carcinogenicity. Monochloroethane was found to be non-teratogenic in one animal study. PB88-236047/'XAB

## **LEAD**

### **Nature and Extent of Lead Poisoning in Children in the United States: A Report to Congress**

(Final rept.)

Mushak, P. Crocetti, A. F.

Agency for Toxic Substances and Disease Registry, Atlanta, GA.

Corp. Source Codes: 092477000;

Sponsor: North Carolina Univ. at Chapel Hill.; New York Medical Coll., NY.

Report No.: DHHS-99-2699

Jul 88 563p

Languages: English

Journal Announcement: GRAI8901

Prepared in cooperation with North Carolina Univ. at Chapel Hill, and New York Medical Coll., NY.

NTIS Prices: PC A24/MF A01

Country of Publication: United States  
(NTIS)

The findings in the report clearly indicate a continuing health concern that too many children are exposed to too much lead in their environments. About 17 percent of children in Standard Metropolitan Statistical Areas are exposed to environmental sources of lead at concentrations that place them at risk of adverse health effects (using a blood lead criterion of 15 micrograms of lead per deciliter of blood). Three to four million children are estimated to have this level of risk. Additionally, 400,000 fetuses are estimated to be at risk of excess

absorption of lead due to maternal exposure. Lead in paint and lead in dust/soil will continue as major problems into the foreseeable future. These sources of exposure to lead remain, in large measure, as problems of poor housing and impoverished neighborhoods. The report recommends effective use of screening programs to prevent development of adverse health effects in children exposed to environmental sources of lead. The most effective prevention measure will be removal or marked reduction of lead exposure sources. The report contains an extensive bibliography. PB89-100184/XAB

## **OXIDANTS**

**CHRONIC OBSTRUCTIVE PULMONARY DISEASE SYMPTOM EFFECTS OF LONG-TERM CUMULATIVE EXPOSURE TO AMBIENT LEVELS OF TOTAL OXIDANTS AND NITROGEN DIOXIDE IN CALIFORNIA SEVENTH-DAY ADVENTIST RESIDENTS,**  
EULER GARY L. KERN COUNTY HEALTH DEPT, CA, ; ABBEY DAVID E. HODGKIN JOHN E. ; MAGIE ALLAN R.  
ARCHIVES ENV HEALTH, JUL-AUG 88, V43, N4, P279(7)  
(ENVIROLINE)

RESEARCH ARTICLE THE RISK OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE SYMPTOMS DUE TO LONG-TERM EXPOSURE TO AMBIENT LEVELS OF TOTAL OXIDANTS AND NITROGEN DIOXIDE WAS ASSESSED FOR A SAMPLE OF 7445 SEVENTH-DAY ADVENTIST NONSMOKERS, AGED 25 YEARS OR OLDER. THE STUDY POPULATION HAD RESIDED AT LEAST 11 YEARS IN AREAS OF CALIFORNIA WITH HIGH TO LOW PHOTOCHEMICAL AIR POLLUTION. A STATISTICALLY SIGNIFICANT ASSOCIATION WITH CHRONIC SYMPTOMS WAS OBSERVED FOR TOTAL OXIDANTS ABOVE 10 PPM. CHRONIC RESPIRATORY DISEASE SYMPTOMS WERE NOT ASSOCIATED WITH RELATIVELY LOW NO<sub>2</sub> EXPOSURE LEVELS IN THIS POPULATION. WHEN THESE POLLUTANT EXPOSURES WERE STUDIED WITH EXPOSURES TO TOTAL SUSPENDED PARTICULATES (TSP) AND SULFUR DIOXIDE, ONLY TSP EXPOSURE ABOVE 200 (GR)MG/CU M SHOWED STATISTICAL SIGNIFICANCE. (67 REFERENCES, 3 TABLES) Enviroline Number: \*89-000015

## **OZONE**

### **Use of exposure analysis and risk assessment in the ozone NAAQS review process**

Richmond, H.M.; McCurdy, T.  
U.S. EPA, Research Triangle Park, NC  
Air Pollution Control Association 81st Annual Meeting &  
Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988  
Air Pollution Control Association (APCA)  
Air Pollution Control Association, P.o. Box 2861, Pittsburgh, PA 15230 (USA)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

## **PERCHLOROETHYLENE**

### **Review of a Draft Addendum to the Health Assessment Document for Perchloroethylene**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EHC-87/018

27 Jan 87 14p

Languages: English

Journal Announcement: GRAI8824

See also PB85-249704.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Committee previously reviewed a draft Health Assessment Document on May 9-20, 1984 and an Addendum is desirable because of newly available data, primarily an inhalation bioassay of rodents by the National Toxicology Program. The Subcommittee believes it is reasonable to describe the weight of the epidemiological evidence in humans as conforming to the EPA guideline for carcinogen risk assessment definition of inadequate. The Subcommittee concluded that the animal evidence of carcinogenicity is limited because of positive results in only one strain of mouse of a type of tumor that is common and difficult to interpret. Therefore, the Subcommittee concluded that perchloroethylene belongs in the overall weight-of-the-evidence category C (possible human carcinogen). PB88-244298/XAB

## **POLYCHLORINATED DEBENZOFURANS**

### **Review of a Draft Health Assessment Document for Polychlorinated Debenzofurans**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EHC-87/021

16 Jan 87 7p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A02/MF A01

Country of Publication: United States

(NTIS)

The available information on polychlorinated dibenzofurans is scant. For this reason, staff utilized information about polychlorinated dibenzo-p-dioxins in the assessment. The scientific theory that supports the use of the analogy is sound. Both groups of substances are thought to cause biological effects by binding with different affinities to the same intracellular receptor molecule. However, the draft document assumes the theory for one plausible effect of receptor binding, namely developmental abnormalities, and not for other effects which have been attributed to polychlorinated dibenzo-p-dioxins in previous Agency assessments, such as carcinogenicity. The Subcommittee requests that EPA either assume the same theory for all effects or provide an explanation of why carcinogenic effects do not follow from binding to the receptor. PB88-245535/XAB

## **RADON**

### **Health Risks of Radon and Other Internally Deposited Alpha-Emitters: BEIR IV (Biological Effects of Ionizing Radiations)**

National Research Council. Washington, DC. Advisory Committee on the Biological Effects of Ionizing Radiations.

Corp. Source Codes: 019026259

Sponsor: Environmental Protection Agency, Washington, DC.: Nuclear Regulatory Commission, Washington, DC.

Report No.: ISBN-0-309-03789-1

c1988 621p

Languages: English

Journal Announcement: GRAI8820

Library of Congress catalog card no. 87-31280. Sponsored by Environmental Protection Agency, Washington, DC., and Nuclear Regulatory Commission, Washington, DC.

NTIS Prices: PC A99/MF A01

Country of Publication: United States

Contract No.: EPA-68-02-3895

(NTIS)

The report addresses demonstrated and potential health effects of exposure of human populations to internally deposited alpha-emitting radionuclides and their decay products. It emphasizes carcinogenic effects and, where possible, presents quantitative risk estimates for cancer induction. The largest part of the report deals with health effects of exposure to radon and its progeny. The report also addresses health effects of exposure to other groups of radionuclides and their progeny that emit alpha particles--the isotopes of polonium, radium, thorium, uranium, and the transuranic elements. The report consists of eight chapters and eight appendixes. The remainder of the chapter presents a summary of the committee's findings and its recommendations for future research. PB88-225594/XAB

### **ESTIMATED RISK OF LUNG CANCER FROM EXPOSURE TO RADON DECAY PRODUCTS IN U.S. HOMES: A BRIEF REVIEW,**

NERO JR. ANTHONY V. LBNL,

ATMOSPHERIC ENV, 1988, V22, N10, P2205(7)

(ENVIROLINE)

JOURNAL ARTICLE THE RISK OF LUNG CANCER FROM RADON DECAY PRODUCTS IN US HOMES CAN BE DIRECTLY ESTIMATED. ANALYSIS OF DATA FROM INDOOR MONITORING IN SINGLE-FAMILY HOMES YIELDS A TENTATIVE FREQUENCY DISTRIBUTION OF ANNUAL AVERAGE RADON 222 CONCENTRATIONS WITH AN ARITHMETIC MEAN OF 55 BECQUEREL (BQ)/CU M AND ABOUT 2% OF HOMES HAVING 300 BO/CU M OR MORE. APPLICATION OF THE RESULTS OF OCCUPATIONAL EPIDEMIOLOGICAL STUDIES TO INDOOR EXPOSURES SUGGESTS THAT THE AVERAGE INDOOR CONCENTRATION ENTAILS A LIFETIME RISK OF LUNG CANCER OF ABOUT 0.4%, CONTRIBUTING ABOUT 10% OF THE TOTAL RISK OF LUNG CANCER. THE RISK TO INDIVIDUALS OCCUPYING HOMES WITH 300 BQ/CU M OR MORE FOR THEIR LIFETIMES IS ESTIMATED TO EXCEED 2%, WITH RISKS FROM HOMES WITH THOUSANDS OF BQ/CU M CORRESPONDINGLY HIGHER, EVEN EXCEEDING THE TOTAL RISK OF PREMATURE DEATH DUE TO CIGARETTE SMOKING. (1 GRAPH, 25 REFERENCES) Enviroline Number: \*89-000837

## **TETRACHLORODIBENZO-P-DIOXIN**

### **Estimating Exposures to 2,3,7,8-TCDD**

(Draft rept)

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

Corp. Source Codes: 031287609

Mar 88 360p

Languages: English

Journal Announcement: GRAI8821

See also PB88-231212.

NTIS Prices: PC A16/MF A01

Country of Publication: United States

(NTIS)

The exposure assessment document provides a review and update of information related to exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). Several scenarios are constructed to illustrate how contaminated material from contaminated soil, various land disposal situations, and municipal waste incineration can result in exposure to 2,3,7,8-TCDD. Estimates are also provided to show what the human exposure and risk would be via inhalation, dermal contact, and ingestion of contaminated soil. Part One presents an update of previous work and an analysis of key issues related to exposure assessment for chlorinated dibenzo-p-dioxins with emphasis on 2,3,7,8-TCDD, such as the behavior of 2,3,7,8-TCDD in soil and sediment, bioavailability from soil, the use of pharmacokinetics for estimating 2,3,7,8-TCDD exposures, and plant uptake. Part Two addresses the application of exposure assessment methods discussed in Part One, in evaluating 2,3,7,8-TCDD exposures from selected situations. Twenty different exposure scenarios, covering contaminated soil, landfills and incineration are presented. Human exposure and risk calculations are then computed under each pathway for the different scenarios. PB88-231196/XAB

### **Cancer Risk-Specific Dose Estimate for 2,3,7,8-TCDD**

(Draft rept)

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

Corp. Source Codes: 031287609

Jun 88 72p

Languages: English

Journal Announcement: GRAI8821

See also report dated Mar 88, PB88-231196.

NTIS Prices: PC A04/MF A01

Country of Publication: United States

(NTIS)

The draft report focuses on the hazard identification and dose-response assessment for the potential human carcinogenicity of the chemical. The objective of the report is to determine if EPA's 1985 cancer risk assessment for polychlorinated dibenzo-p-dioxins should be modified in light of recent data, alternative risk assessment methods, or alternative interpretations of data on the chemical. The draft report concludes that (1) the 1985 assessment that associates a 0.006 pk/kg/day dose with a plausible upper bound increased cancer risk of one in a million 10 to the -6 power should be reconsidered, and (2) a change to a 0.1 pg/kg/day dose as a plausible upper bound associated with an increased lifetime risk of one in a million is consistent with the available data and theories, and represents a reasonable science policy for

the Agency. Also, appendices A through F to the document contain important background information on a broad range of issues related to 2,3,7,8-TCDD including quantitative implications (A), epidemiology (B and D), reproductive and developmental toxicity (C), immunotoxicity (E), and mechanisms of action (F). PB88-231204/XAB

### **Cancer Risk-Specific Dose Estimate for 2,3,7,8-TCDD: Appendices A through F**

(Draft rept)

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

Corp. Source Codes: 031287609

Jun 88 270p

Languages: English

Journal Announcement: GRAI8821

See also report dated Jun 88, PB88-231204.

NTIS Prices: PC A12/MF A01

Country of Publication: United States

(NTIS)

The draft report reexamines the scientific basis and methods used by the U.S. Environmental Protection Agency (EPA) for estimating the cancer potency of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). It focuses on the hazard identification and dose-response assessment for the potential human carcinogenicity of this chemical. The objective of the report is to determine if EPA's 1985 cancer risk assessment for polychlorinated dibenzo-p-dioxins should be modified in light of recent data, alternative risk assessment methods, or alternative interpretations of data on the chemical. The draft report concludes that (1) the 1985 assessment that associates a 0.006 pk/kg/day dose with a plausible upper bound increased cancer risk of one in a million 10 to the -6 power should be reconsidered, and (2) a change to a 0.1 pg/kg/day dose as a plausible upper bound associated with an increased lifetime risk of one in a million is consistent with the available data and theories, and represents a reasonable science policy for the Agency. Appendices A through F to the document contain important background information on a broad range of issues related to 2,3,7,8-TCDD including quantitative implications (A), epidemiology (B and D), reproductive and developmental toxicity (C), immunotoxicity (E), and mechanisms of action (F). PB88-231212/XAB

## **TRICHLOROETHANE**

### **Health Risk Assessment of 1,1,2-Trichloroethane (1,1,2-TCA) in California Drinking Water**

(Final rept.)

Reed, N. R. ; Reed, W. ; Beltran, L. ; Babapour, R. ; Hsieh, D. P. H.

California Univ., Davis. Dept. of Environmental Toxicology.

Corp. Source Codes: 004365119

Sponsor: California Dept. of Health Services, Berkeley.

Report No.: UCD/ET-88/2

2 Nov 88 99p

Languages: English

Journal Announcement: GRAI8906

Sponsored by California Dept. of Health Services, Berkeley.

NTIS Prices: PC A05/MF A01  
Country of Publication: United States  
(NTIS)

The purpose of the document is to provide information on the toxicity of 1,1,2-trichlorethane (1,1,2-TCA) and to estimate the exposure of California residents to 1,1,2-TCA. The information provided will aid the California Department of Health Services (CDHS) in developing drinking water standards for 1,1,2-TCA. The scope of the document is: a review of the existing literature pertinent to the health risk posed by the use of 1,1,2-TCA contaminated drinking water; an estimation of the 1,1,2-TCA exposure for California residents based on the most recent data on 1,1,2-TCA concentrations in California drinking water supplies; a delineation of the level of 1,1,2-TCA that may cause a noncarcinogenic health effect; and an evaluation of the carcinogenicity of 1,1,2-TCA. PB89-131999/XAB

**Comparison of approaches to trichloroethylene risk assessment**

Brown, L.P.

ICI Epidemiol. Unit, Macclesfield, UK

3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

## **HAZARDOUS WASTE**

### **Ecological risk assessment at hazardous waste sites**

Shortelle, A.B.

ERT, Inc., Concord, MA

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345

East 47th Street, New York, NY 10017 (USA). Telephone:

(212)705-7611, Individual Papers are also Available Paper No. 35f

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **EDUCATION AND TRAINING OF ENVIRONMENTAL HEALTH PERSONNEL IN HEALTH RISK ASSESSMENT AND MANAGEMENT OF HAZARDOUS WASTE,**

STERN BARRY S. PH.D., MD,

J ENV HEALTH, MAY-JUN 88, V50, N6, P352(3)

(ENVIROLINE)

RESEARCH ARTICLE A WORKSHOP ATTENDED BY REPRESENTATIVES OF ACADEMIC INSTITUTIONS, STATE AND LOCAL ENVIRONMENTAL HEALTH PROGRAMS, FEDERAL PROGRAMS, AND THE PRIVATE SECTOR GENERATED RECOMMENDATIONS TO IMPROVE THE TRAINING AND EDUCATION OF THE ENVIRONMENTAL WORKFORCE IN RISK ASSESSMENT AND HAZARDOUS WASTE MANAGEMENT. CURRICULUM NEEDS FOR RISK ASSESSMENT AND MANAGEMENT WERE IDENTIFIED. EDUCATIONAL INGREDIENTS WERE SPECIFIED WITH REFERENCE TO TRAINING RESPONSE PERSONNEL IN THE HUMAN HEALTH RISKS ASSOCIATED WITH TOXIC SUBSTANCES/HAZARDOUS WASTE EVENTS. (4 REFERENCES, 1 TABLE) Enviroline Number: \*88-081198

### **Escape from RCRA: avoiding compliance through redefinition and risk assessment. (Resource Conservation and Recovery Act)**

Fortuna, Richard C.

Environmental Forum 5 n2 30(5) May-June, 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

STATUTE: Resource Conservation and Recovery Act of 1976

(LEGAL RESOURCE INDEX)



**Exposure and risk assessment for a proposed hazardous waste incinerator**

Dietrich, G. Pyne, D.; Tilly, J.

ICF Technol., Inc., Fairfax, VA

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 80f

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**From Risk Analysis to Risk Control in Land Transport of Dangerous Materials.**

**Contribution of Quantitative Evaluation**

Hubert, P. ; Pages, P.

Centre d'Etude sur l'Evaluation de la Protection dans le Domaine Nucleaire, Fontenay-aux-Roses (France).

Corp. Source Codes: 059075000; 9698141

Report No.: CEPN-85

Mar 85 92p

Languages: French

Journal Announcement: GRAI8901; NSA1300

In French.

U.S. Sales Only.

NTIS Prices: PC A05/MF A01

Country of Publication: France

(NTIS)

The different approaches of risks and risk management system are described: statistics, potential risk, prevention, information and intervention. quantitative evaluation is developed: data collection, purposes and methods. Two examples of application are given on risks associated to road transport of propane and of uranium hexafluoride. In conclusion, level of risk and practical use of studies on risks are examined. DE88753181/XAB

**Hazardous Waste from Small Quantity Generators in the United States**

Herndon, R. C. ; Moerlins, U. E. ; Teaf, C. M. ; Lambou, V. W. ; Koutsandreas, U. D.

Environmental Monitoring Systems Lab., Las Vegas, NV.

Corp. Source Codes: 065438000;

Sponsor: Florida State Univ., Tallahassee. Center for Biomedical and Toxicological Research and Hazardous Waste Management.

Report No.: EPA/600/D-88/193

1988 11p

Languages: English

Document Type: Journal article

Journal Announcement: GRAI8824

Pub. in Hazardous Waste: Detection, Control, Treatment, p943-951 1988. Prepared in cooperation with Florida State Univ., Tallahassee. Center for Biomedical and Toxicological Research and Hazardous Waste Management.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The EPA must evaluate the potential impact of small quantity generator hazardous waste on groundwater contamination in the United States, focusing on potential groundwater contamination due to small quantity generator hazardous waste disposal in municipal sanitary landfills. Data were analyzed from approximately 20,000 small quantity hazardous waste generators located within all 67 counties in the State of Florida. The Florida data provide a useful representation of the hazardous waste generation and management practices of small quantity generators in the United States. The small quantity generator hazardous waste study described in the article has identified the types of waste which pose a potential threat to groundwater in the State of Florida. PB88-251871/XAB

**HAZWASTE TECHNOLOGY,**  
DALEY PETER CHEMICAL WASTE MANAGEMENT INC, IL,  
HAZMAT WORLD, AUG 88, P38(6)  
(ENVIROLINE)

JOURNAL ARTICLE THE RISK ASSESSMENT, BEST AVAILABLE TECHNOLOGY, AND OTHER RULES CONTAINED WITHIN THE RESOURCE CONSERVATION & RECOVERY ACT OF 1976 DO NOT PROMOTE THE ADVANCEMENT OF HAZARDOUS WASTE MANAGEMENT TECHNOLOGY. THE REGULATIONS WERE DEVELOPED WITH COMMERCIAL DISPOSAL IN MIND, AND THEY EMPHASIZE STABLE OPERATIONS RATHER THAN EXPERIMENTATION. THE SUPERFUND INNOVATIVE TECHNOLOGY EVALUATION PROGRAM HAS BROUGHT NEW TECHNOLOGIES TO THE DEMONSTRATION PHASE AND PROVIDED A VISIBLE FORUM FOR NEW METHODS IN REMEDIAL ACTION. WITH THESE AND OTHER INCENTIVES, THE HAZARDOUS WASTE MANAGEMENT INDUSTRY PROMISES TO REALIZE MUCH TECHNOLOGICAL PROGRESS WELL INTO THE 1990S. RECENT ADVANCES IN WASTE MINIMIZATION, INCINERATION, AND WASTE REDUCTION ARE NOTED. (3 PHOTOS) Enviroline Number: 89-000403

**Optimizing Compliance Training for the Waste Management Worker**

Copenhaver, E. D.  
Oak Ridge National Lab., TN.  
Corp. Source Codes: 021310000: 4832000  
Sponsor: Department of Energy, Washington, DC.  
Report No.: CONF-881054-13  
1988 10p  
Languages: English Document Type: Conference proceeding  
Journal Announcement: GRAI8908; NSA1300  
Annual DOE model conference, Oak Ridge, TN, USA, 3 Oct 1988.  
Portions of this document are illegible in microfiche products.  
NTIS Prices: PC A02/MF A01  
Country of Publication: United States  
Contract No.: AC05-840R21400  
(NTIS)

Waste management workers are required to participate in special training mandated by a variety of Federal laws and DOE Orders; these include the Resource Conservation and Recovery Act (RCRA), Superfund Amendments Reauthorization Act (SARA) as implemented by OSHA in CFR 1920.120, in addition to requirements for Hazard Communication, Radiation Workers, Respiratory Protection, Transportation, and Waste Generator training. The Technical Resources and Training program is examining the course contents and mandated requirements to determine how to best meld these requirements into a training program that will still

fulfill all requirements but eliminate the potential for duplication of some elements in successive courses. This approach may not eliminate all duplication between courses, but it should result in significant savings in manhours demanded in a training environment which requires similar information to meet a host of regulatory requirements. The training matrix planned for Oak Ridge National Laboratory (ORNL) will be presented and discussed. 22 refs., 3 tabs. (ERA citation 13:056246) DE89001211/XAB

### **Overview of hazards evaluation and risk assessment technology for spill prevention**

Arendt, S.

JBF Assoc., Inc., Knoxville, TN

1988 Hazardous Material Spills Conference 8825005 Chicago,

IL (USA) 16-19 May 1988

American Institute of Chemical Engineers (AIChE); National

Response Team

Publication Sales, AIChE, 345 East 47th Street. New York, NY 10017 (USA). Telephone

(212) 705-7657, Proceedings available; pre-publication price is \$60.00

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Review of the Superfund Hazard Ranking System: Review by the Hazard Ranking System Review Subcommittee of the Science Advisory Board**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/RAC-88/008 Jan 88 120p

Languages: English

Journal Announcement: GRAI8824

NTIS Prices: PC A06/MF A01

Country of Publication: United States

(NTIS)

Changes were suggested that will allow EPA's Hazardous Ranking System (HRS) to provide a more accurate and scientifically based estimate of the relative risk of candidate uncontrolled waste sites. A revised HRS, better designed to evaluate sites by relative risks, will provide an improved mechanism for determining which sites should be included on the National Priorities List (NPL), and can potentially provide useful input to the subsequent prioritization of NPL sites. Most of the changes needed to improve the current HRS are changes in the risk variables assessed and in the overall algorithm, not changes with vast new data requirements. PB88-248935/XAB

### **RISK ASSESSMENT IN RAIL TRANSPORTATION OF DANGEROUS GOODS,**

ALP E. CONCORD SCIENTIFIC CORP, CANADA, ; OLIVERIO M. ; PORTELLI R. V. ; NAPIER D. H.

ENV CANADA CHEMICAL SPILLS 5TH TECHNICAL SYM, MONTREAL, FEB

9-11, 88, P351(31)

(ENVIROLINE)

CONF PAPER FEASIBLE MEANS OF REDUCING RISK TO THE PUBLIC FROM RAIL TRANSPORT OF DANGEROUS GOODS THROUGH THE TORONTO, CANADA, AREA, WERE SOUGHT. VARIOUS ALTERNATIVE ROUTES AND OPERATIONAL STRATEGIES WERE CONSIDERED, AS WAS THE

DEGREE OF RISK REDUCTION POSSIBLE THROUGH SUCH MEASURES AS TECHNOLOGY IMPROVEMENTS. THE BASELINE SOCIETAL RISK FOR THE EXISTING RAIL SYSTEM IS 4.1 STATISTICAL FATALITIES PER YEAR BASED ON 1991 POPULATION DATA, AND 4.6 STATISTICAL FATALITIES PER YEAR FOR THE YEAR 2011. THESE LEVELS OF PUBLIC RISK ARE RELATIVELY LOW WHEN COMPARED WITH OTHER SOCIETAL RISKS. RAIL ROUTING OPTIONS THAT CAN FURTHER REDUCE THESE SOCIETAL RISKS ARE IDENTIFIED. (2 DIAGRAMS, 5 GRAPHS, 2 MAPS, 6 REFERENCES, 8 TABLES) Enviroline Number: \*88-081418

**Risk Assessment Study on the Transportation of Hazardous Materials Over the U.S. Railroads**

(Final rept. 1984-85)

Raj, P. K.

Technology and Management Systems, Inc., Burlington, MA.

Corp. Source Codes: 077179000 Sponsor:

Federal Railroad Administration, Washington, DC. Office of Research and Development.

Report No.: DOT/FRA/ORD-88/14

Nov 88 164p

Languages: English

Journal Announcement: GRAI8908

Sponsored by Federal Railroad Administration, Washington, DC. Office of Research and Development.

NTIS Prices: PC A08/MF A01

Country of Publication: United States

Contract No.: DTFR53-84-C-00012

(NTIS)

A comprehensive and generic risk assessment model has been developed for evaluating the risk to the public from the transportation of hazardous materials (Hazmat) on rail over specified routes. The model considers the various operational and Hazmat property parameters. The model developed was utilized to evaluate the risks posed in transporting LPG, chlorine and sulfuric acid on two (alternative) routes between the same origin-destination pair. Historical main line and yard accident data together with the current volumes of transportation of the specified Hazmats were considered. The results are presented in the form of risk profiles. Safety measures, such as head shields and shelf couplers, seem to reduce, substantially, the annual frequency of high casualties but seem to have less impact on the low casualty end of the risk profile. A similar positive effect in risk reduction is seen from emergency response action following an accident. Sensitivity of the risk profiles to various other parameters were also investigated. PB89-138929/XAB

**RISK ASSOCIATED WITH RESEARCH OF AN INNOVATIVE PROCESS FOR THERMAL DESTRUCTION OF HAZARDOUS SUBSTANCES: A CASE STUDY,**  
WENTZ CHARLES A. ANL,  
HAZARDOUS WASTE & HAZARDOUS MATERIALS, 1988, V5, N2, P155(7)  
(ENVIROLINE)

JOURNAL ARTICLE UNION CARBIDE CONTRACTED WITH THE UNIVERSITY OF NORTH DAKOTA ENERGY RESEARCH CENTER TO DEMONSTRATE HIGH-TEMPERATURE GASIFICATION BY DESTROYING PCBs IN THE CENTER'S EXISTING PILOT-PLANT LIGNITE GASIFIER. SHORTLY AFTER THE CENTER RECEIVED NECESSARY STATE AND FEDERAL PERMITS, A GROUP OF LOCAL CITIZENS CAME OUT AGAINST THE PCB PROGRAM. THE PROJECT THEN CAME UNDER INTENSE PUBLIC SCRUTINY. DESPITE THE PROJECTS POTENTIAL BENEFITS AND REGARDLESS OF THE BUILT-IN SAFEGUARDS, THE STATE OPERATING PERMIT WAS REVOKED AND THE PROJECT WAS TERMINATED. (21 DIAGRAMS, 9 REFERENCES) Enviroline Number: 88-071364

**Superfund cleanups, ethics, and environmental risk assessment.**

Brown, Donald A.

Boston Col Environmental Affairs Law R 16:181-98 Winter '88

LANGUAGE: Engl

DOC TYPE: P

Determining levels of acceptable risk from the threats of hazardous wastes.

Contents: Risk assessment methodology; Science and ethics distinguished; Risk management compared to risk assessment; Consequences of failure to identify ethical questions in risk assessment.

(PAIS INTERNATIONAL)

**Superfund Exposure Assessment Manual**

Environmental Protection Agency, Washington, DC. Office of Emergency and Remedial Response.

Corp. Source Codes: 031287614

Report No.: EPA/540/1-88/001; OSWER DIRECTIVE-9285-5-1

Apr 88 166p

Languages: English

Journal Announcement: GRAI8908

NTIS Prices: PC A08/MF A01

Country of Publication: United States

(NTIS)

Manual provides a framework for the assessment of exposure to contaminants at or migrating from uncontrolled hazardous waste sites, covering the application of both monitoring and modeling procedures to the exposure assessment process. This process considers all contaminant releases and exposure routes and assures that an adequate level of analytical detail is applied to support the human health risk assessment process. The analytical process covers: analysis of contaminant releases from a subject site into environmental media; evaluation of the transport and environmental fate of the contaminants released; identification, enumeration, and characterization of potentially exposed populations; integrated exposure analysis; and uncertainty analysis. The Manual supports the development of exposure assessments that are consistent from site to site, and provides a means of documenting that each site receives adequate evaluation. PB89-135859/XAB

**Use of risk analysis results in support of the final programmatic environmental impact statement for the disposal of the U.S. chemical weapons stockpile**

Flanagan, G.F.

Oak Ridge Natl. Lab., Oak Ridge, TN

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street, New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 9F

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

## **RADIATION**

**CALCULATED RADIONUCLIDE INVENTORIES OF HIGH-EXPOSURE LWR FUELS,**  
WILSON W. B. LANL, ; ENGLAND T. R. ; LABAUVE R. J. ;  
MITCHELL U. A.  
NUCLEAR SAFETY, APR-JUN 88, V29, N2, P177(17)  
(ENVIROLINE)

JOURNAL ARTICLE RELIANCE ON HIGHER ENRICHMENT OXIDE FUELS TO ALLOW HIGHER DISCHARGE EXPOSURES MAY REDUCE LWR OPERATING COSTS BECAUSE OF EXTENDED FUEL CYCLE LENGTH AND REDUCED SPENT FUEL STORAGE VOLUME. HIGH EXPOSURE FUELS CONTAIN HIGH TOTAL FISSION PRODUCT AND ACTINIDE INVENTORIES AND THUS COULD POSE GREATER POTENTIAL RADIOLOGICAL HAZARDS. THE INVENTORIES OF 56 RADIONUCLIDES CONTRIBUTING TO RADIOLOGICAL HAZARD ASSESSMENTS WERE COMPUTED FOR A RANGE OF INITIAL ENRICHMENTS AND DISCHARGE EXPOSURES. THE CI/METRIC TON OF URANIUM INVENTORIES ARE COMPILED AND COMPARED WITH THOSE GENERATED IN LWR OXIDE FUELS WITH CONVENTIONAL ENRICHMENTS AND EXPOSURES. MAXIMUM VALUES THAT WOULD BE EXPECTED UNDER EQUILIBRIUM CYCLE CONDITIONS ARE TABULATED. (1 GRAPH, 16 REFERENCES, 5 TABLES) Enviroline Number: \*88-081320

**THE DEVELOPMENT OF PROCEDURES FOR THE RISK ASSESSMENT OF UNDERGROUND DISPOSAL OF RADIOACTIVE WASTES: RESEARCH FUNDED BY THE DEPARTMENT OF ENVIRONMENT 1982-1987,**  
THOMPSON B. G. UK DEPT OF ENV,  
RADIOACTIVE WASTE MANAGEMENT & THE NUCLEAR FUEL CYCLE, 1987,  
V9, N1-3, P215(42)  
(ENVIROLINE)

JOURNAL ARTICLE DURING 1982-87, THE UK DEPT. OF ENV. FUNDED EXTENSIVE RESEARCH ENDEAVORS TO DEVELOP A PROCEDURE FOR POST-CLOSURE RISK ASSESSMENT OF UNDERGROUND DISPOSAL FACILITIES FOR LOW- AND INTERMEDIATE-LEVEL RADIOACTIVE WASTES. THIS PROCEDURE IS BASED ON PROBABILISTIC RISK ANALYSIS AND USES THE MONTE CARLO SIMULATION PROGRAMS SYVAC A/C AND TIME2. THE PROCEDURE IS BEING ADVANCED BY MEANS OF A SERIES OF TRIAL ASSESSMENTS WHICH ARE DESCRIBED TOGETHER WITH RESULTS OF SUBSEQUENT EXPLORATORY STUDIES OF A POSSIBLE SHALLOW ENGINEERED

TRENCH FACILITY PROPOSED BY INDUSTRY FOR LOW-LEVEL WASTE DISPOSAL. THE PROBABILISTIC RISK ASSESSMENT METHOD IS SHOWN TO BE MORE JUSTIFIABLE THAN USE OF BEST ESTIMATES. (11 DIAGRAMS, 15 GRAPHS, 30 REFERENCES, 2 TABLES) Enviroline Number: 88-081314

**Development of Risk Criteria for the Whole Nuclear Fuel Cycle. Final Report for the Period 1 September 1983 - 30 September 1987**

Bede, G.

International Atomic Energy Agency, Vienna (Austria).

Corp. Source Codes: 014014000; 3294000

Report No.: IAEA-R-3543-F

Feb 88 66p

Languages: English

Journal Announcement: GRAI8907

RELEASE computer code.

U.S. Sales Only.

NTIS Prices: PC A04/MF A01

Country of Publication: Other

(NTIS)

Methods were developed for intercomparison of the risks arising from normal operation of different energy producing systems, for determination of socially acceptable security level of the energy supply, and for estimation of short and medium range transport of radioactive airborne materials. A computer program was developed for the quick evaluation of situations arising from accidental radioactive releases from the nuclear power plants. In the production of electrical energy/heat the intercomparison to other forms of energy can be limited to the comparison of the effects of airborne pollutants, because other possible harmful effects are practically the same for all energy production systems. When the effects of a given source are to be determined, all other realistically possible solutions also have to be investigated. For the determination of public risk arising from different energy production systems intercomparison calculations are performed. The air pollution transport models, with suitable parameters, are effective tools for the risk intercomparison calculations. In each of the investigated cases, nuclear versus conventional heating plant, and nuclear versus conventional power plant, the results definitely showed that the nuclear variant produces a fairly lower public risk than the conventional one. The security of the energy supply from the consumer's viewpoint was considered an important aspect in the public risk analysis economically as well as generally.

Figs, tabs. (Atomindex citation 19:069451) DE88703145/XAB

**Evaluation of Environmental Change and Its Effects on the Radiological Performance of a Hypothetical Shallow Engineered Disposal Facility at Elstow, Redfordshire**

Department of the Environment, London (England). Radioactive Waste Div.

Corp. Source Codes: 034686003; 9050563

Sponsor: Dames and Moore International, Twickenham (UK).

Report No.: DDE/RW-87.124

Mar 88 146p

Languages: English

Journal Announcement: GRAI8903; NSA1300

U.S. Sales Only.

NTIS Prices: PC A07/MF A01  
Country of Publication: United Kingdom  
(NTIS)

The results of a project designed to evaluate aspects of a hypothetical facility for disposal of radioactive wastes at Elstow, Bedfordshire, are described. The project included modelling of environmental change using the TIME2 code, groundwater flow modelling, biosphere modelling and risk analysis using the SYVAC A/C code. The aims of the work were to demonstrate use of TIME2, investigate the evolution of the facility's environment and to evaluate the influence of environmental change on estimates of radiological risk. Risk analysis of several time-independent environmental system states, using data obtained from the other tasks, indicated that environmental changes significantly influence estimates of radiological risk. (ERA citation 13:042793) DE88753404/XAB

**EXACT SOLUTIONS FOR RADIONUCLIDE TRANSPORT IN THE PRESENCE OF  
PARAMETER UNCERTAINTY,**

ROBINSON P. C. AND ; HODGKINSON D. P. HARWELL LAB, UK,  
RADIOACTIVE WASTE MANAGEMENT & THE NUCLEAR FUEL CYCLE, 1987,  
V8, N4, P283(29)  
(ENVIROLINE)

JOURNAL ARTICLE EXACT SOLUTIONS ARE PRESENTED TO EQUATIONS DESCRIBING THE TIME-DEPENDENT RISK ARISING FROM THE MIGRATION OF RADIONUCLIDES FROM AN UNDERGROUND WASTE REPOSITORY. PARAMETER UNCERTAINTIES ARE INCORPORATED BY INTEGRATING OVER THE LAPLACE-TRANSFORMED SOLUTION TO THE SOURCE TERM AND GEOSPHERE MODEL, YIELDING ANALYTICAL EXPRESSIONS WHICH ARE NUMERICALLY INVERTED TO THE TIME DOMAIN. RESULTS ILLUSTRATE THE CUMULATIVE EFFECTS OF UNCERTAINTIES IN THE CONTAMINANT TIME, RELEASE RATE, GROUNDWATER VELOCITY, RETARDATION FACTOR, AND PATH LENGTH. (6 GRAPHS, 20 REFERENCES, 2 TABLES)  
Enviroline Number: 88-071293

**For the Interim, the Proposed Central Estimate and Range in EPA's  
(Environmental Protection Agency's) Low-LET Risk Estimate for Regulatory  
Purposes are Acceptable**

(Final rept)  
Environmental Protection Agency, Washington, DC. Science  
Advisory Board.  
Corp. Source Codes: 031287050  
Report No.: SAB/RAC-88/041  
9 Sep 88 7p  
Languages: English  
Journal Announcement: GRAI8901  
NTIS Prices: PC A02/MF A01  
Country of Publication: United States  
(NTIS)

The EPA Science Advisory Board's (SAB) Radiation Advisory Committee has reviewed EPA's Low-LET Risk Estimate for Regulatory Purposes and determined that, on an interim basis, the nominal central estimate of 400 fatal cancers and a range of 120-1200 additional fatal cancers per million persons exposed to one rad of low-LET radiation is acceptable. However, several important reports and radiation risks are expected within the year which could alter



the understanding of their magnitude. The reports are based, in part, on new information from Japan on the survivors of the atomic bombing of Hiroshima and Nagasaki. The SAB urges EPA to take the findings and conclusions of such reports into account in the development of final regulations on radionuclides in the environment. PB89-105043/XAB

#### **Methods for Cost-Benefit-Risk Analysis of Material-Accounting Upgrades**

Fishbone, L. G. ; Gordon, D. M. ; Higinbotham, W. ; Keisch,  
Brookhaven National Lab., Upton, NY.

Corp. Source Codes: 004545000; 0936000

Sponsor: Department of Energy, Washington, DC.

Report No.: BNL-41513; CONF-880631-49

1988 10p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8906; NSA1300

29. annual meeting of the Institute of Nuclear Materials

Management, Las Vegas, NV, USA, 26 Jun 1988.

Portions of this document are illegible in microfiche  
products.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC02-76CH00016

(NTIS)

We have developed a cost-benefit-risk methodology for evaluating material-accounting upgrades at key measurement points in nuclear facilities. The focus of this methodology is on nuclear-material measurements and their effects on inventory differences and shipper/receiver differences. The methodology has three main components: Cost, Benefits, and Risk. The fundamental outcome of the methodology is therefore cost-benefit ratios characterizing the proposed upgrades, with the risk factors applied as necessary to the benefits. Examples illustrate the methodology's use. 10 refs., 3 figs., 6 tabs. (ERA citation 13:050861) DE88015859/XAB

#### **Microcomputer-Based Probabilistic Risk Assessment for Nuclear Power Plant Safety Studies**

Van Siclen, V. S. ; Russell, K. D. ; Sattison, M. B. ;

Stewart, H. D.

EG and G Idaho, Inc., Idaho Falls.

Corp. Source Codes: 046580000; 9507781

Sponsor: Department of Energy, Washington, DC.

Report No.: EGG-M-05387; CONF-870669-3

1987 8p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8820; NSA1300

Society of Women Engineers national convention, Kansas City,  
MO, USA, 24 Jun 1987, Portions of this document are illegible  
in microfiche products.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC07-76ID01570

(NTIS)

Probabilistic risk assessment (PRA) information in the analysis of safety issues pertaining to nuclear power plant systems has been underutilized in the past due to the large effort required to input the PRA data and to the large size of the computers needed to run PRA codes. The microcomputer-based Integrated Reliability and Risk Analysis System (IRRAS) and the System Analysis and Risk Assessment System (SARA), recently developed at the Idaho National Engineering Laboratory, have greatly enhanced the ability of nuclear power plant analysts to use PRA techniques in their decision-making and analysis of safety issues. IRRAS is a tool for modeling and analyzing systems reliability and risk that allows the analyst to create, modify, update, and reanalyze a plant PRA to keep the risk assessment current with the plant's configuration and operation. The PRA is created and edited using a graphical fault tree editor, which significantly enhances the speed and accuracy with which the PRA data can be manipulated. The SARA system, incorporating the PRA data input in IRRAS, is used to analyze safety issues in nuclear power plants. To simulate changes to plant systems, SARA users alter the failure rates of basic events of the plant system models. They then evaluate the significance of these changes through the calculation of the resultant core damage and accident sequence probabilities and importance measures. IRRAS and SARA demonstrate that reliability and risk analysis studies of nuclear power plants, as well as of any other complex systems such as chemical plants or the space shuttle, can be performed very effectively on microcomputers, providing powerful and flexible tools for the safety analyst. (ERA citation 13:030349) DE88006804/XAB

**THE NIREX SAFETY ASSESSMENT RESEARCH PROGRAMME ON NEAR-FIELD EFFECTS IN CEMENTITIOUS REPOSITORIES**

HODGKINSON D. P. HARWELL LAB, UK,  
 RADIOACTIVE WASTE MANAGEMENT & THE NUCLEAR FUEL CYCLE, 1987,  
 V9, N1-3, P257(52)  
 (ENVIROLINE)

JOURNAL ARTICLE THE UK NIREX SAFETY ASSESSMENT RESEARCH PROGRAMME FOCUSES ON THE NEAR-FIELD EFFECTS OF LOW- AND INTERMEDIATE-LEVEL RADIOACTIVE WASTES IN CEMENTITIOUS REPOSITORIES. PROCESSES WHICH COULD LEAD TO RADIOACTIVITY RETURNING TO THE BIOSPHERE ARE BEING STUDIED THEORETICALLY AND EXPERIMENTALLY. THE RESULTANT KNOWLEDGE IS SYNTHESIZED INTO MATHEMATICAL MODELS WHICH ARE USED TO EXTRAPOLATE THE COMBINED EFFECTS OF IMPORTANT PROCESSES INTO THE DISTANT FUTURE. RESEARCH TOPICS ADDRESSED INCLUDE CORROSION OF WASTE CONTAINERS, CONCRETE PROPERTIES, SOLUBILITY LIMITS, SORPTION, NATURAL ORGANICS, MICROBIAL DEGRADATION OF ORGANIC MATERIALS, EQUILIBRIUM LEACH TESTS, GAS GENERATION, AND ASSESSMENT MODELING. RESULTS TO DATE INDICATE THAT THE NEAR-FIELD CAN PROVIDE A HIGH DEGREE OF PROTECTION REGARDLESS OF THAT PROVIDED BY THE FAR-FIELD. (5 GRAPHS, 56 REFERENCES, 4 TABLES) Enviroline Number: 88-081315

**OCEAN DISPOSAL OF NUCLEAR WASTES,**  
 VAN DYKE JON M. UNIV OF HAWAII,  
 MARINE POLICY, APR 88, V12, N2, P82(14)  
 (ENVIROLINE)

JOURNAL ARTICLE BECAUSE OF THE OPPOSITION TO OCEAN DUMPING OF RADIOACTIVE WASTES, COUPLED WITH A CONTINUING NEED TO FIND SOME ACCEPTABLE SITE FOR THESE WASTES, SCIENTISTS HAVE EXAMINED AND EVALUATED THE ACTUAL RISKS CREATED BY OCEAN DISPOSAL. FOUR STUDIES PUBLISHED IN RECENT YEARS ON THIS TOPIC ARE REVIEWED. MOST GROUPS AGREE THAT MORE MONITORING IS NECESSARY AND THAT MORE

BASELINE STUDIES BE UNDERTAKEN BEFORE PASSING JUDGMENT ON THIS OPTION. DEFICIENCIES IN A JAPANESE ENV. SAFETY ASSESSMENT SCRUTINIZING A PROPOSAL FOR THE OCEAN DUMPING OF LOW-LEVEL RADIOACTIVE WASTES ARE HIGHLIGHTED. AS THE OCEAN ENVIRONMENT IS STILL RELATIVELY UNEXPLORED IN MANY RESPECTS, A STRONG CASE CAN BE MADE IN FAVOR OF CONTINUING THE PRESENT MORATORIUM ON OCEAN DUMPING WHILE ADDITIONAL RESEARCH IS PERFORMED. (62 REFERENCES) Enviroline Number: 89-000316

**Proposed Low-Level Radioactive Waste Standards: Draft Background Information Document, March 13, 1985**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/RAC-86/002

28 Oct 85 94p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A05/MF A01

Country of Publication: United States  
(NTIS)

The Radiation Advisory Committee of the Science Advisory Board reviewed the EPA's March 13, 1985-draft Background Information Document to accompany the Agency's proposed standards on low-level radioactive waste disposal. The Committee addressed eleven issues associated with the draft document. The Radiation Advisory Committee believes that the Background Information Document, on the whole, provides a reasonable presentation of the potential sources and risks associated with the disposal of low-level radioactive wastes. There are however deficiencies in parts of the document. To remedy these the Committee has suggested extensive revisions, which should be made before publication of the Background Information Document. PB88-241252/XAB

**Qualitative PRA Insights for Use in the Design Process for ALWRs**

Leaver, D. E. ; Krantz, E. A.

IT-Delian Corp., San Jose, CA.

Corp. Source Codes: 092141000; 9523888

Sponsor: Department of Energy, Washington, DC.

Report No.: EGG-M-34887; CONF-880506-1  
1988 10p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8820; NSA1300

Safety of next generation power reactors, Seattle, WA, USA,  
1 May 1988.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC07-76ID01570  
(NTIS)

A method has been developed for identifying and classifying qualitative design insights from probabilistic risk assessments and related studies that should be considered in the design of advanced light water reactors. These qualitative design insights may be used in the preliminary design stage when the lack of design detail makes it difficult to perform

quantitative risk analysis. These insights are easily accessible through use of a microcomputer-based data base system and may be used to provide designers with risk-related "lessons learned" from existing plant system designs. (ERA citation 13:030353) DE88007725/XAB

**R And D Program on Radioactive Waste Disposal into Geological Formations  
(Study of a Clay Formation)**

Centre d'Etude de l'Energie Nucleaire, M.  
Commission of the European Communities, Luxembourg.  
Corp. Source Codes: 048489000; 1910850  
Report No.: EUR-11025  
1987 220p  
Languages: English  
Journal Announcement: GRAI8824; NSA1300  
U.S. Sales Only.  
NTIS Prices: PC A10/MF A01  
Country of Publication: Other  
(NTIS)

This report deals with the R and D activities performed by the Belgian Nuclear Research Establishment (SCK/CEN) and its subcontractors concerning the disposal of high-level and long-life conditioned wastes in a deep clay formation, the Boom clay. The studies reported concern equally experimental as theoretical work spread over the following research issues: geochemical characterization of the Boom clay, modelling of radionuclide migration in the clay environment, irradiation effects and corrosion behaviour of candidate canister materials in the Boom clay, geomechanical, construction, backfilling and sealing studies related to underground facilities, regional hydrological investigations of the Mol site and safety and risk analysis. The geomechanical and construction-related studies are to a large extent focused on in situ research, performed along the construction of the underground Hades laboratory. The corrosion studies are also dealing with the preparation of in situ experiments in the same underground laboratory. These various research issues are meant to contribute to the assessment of the technical feasibility and safety of the geological disposal in an argillaceous host formation. (ERA citation 13:024150) DE88752570/XAB

**RADIONUCLIDES IN DRINKING WATER,**

LOWRY JERRY D. (UNIV OF MAINE) AND ; LOWRY SYLVIA B. (LOWRY  
ENGINEERING, ME),  
AWWA U, JUL 88, V80, N7, P50(15)  
(ENVIROLINE)

JOURNAL ARTICLE AN ASSESSMENT OF RESEARCH NEEDS, WHICH ALSO PROVIDED BACKGROUND INFORMATION ON COMPLETED AND ONGOING RESEARCH PROJECTS, SHOWED THAT RN-222 REPRESENTS THE MOST SERIOUS THREAT TO HEALTH OF ALL THE RADIONUCLIDES IN DRINKING WATER, LEADING TO THE ANTICIPATION THAT THE NEW MAXIMUM CONTAMINANT LEVELS FOR THESE SUBSTANCES COULD BE SET AT A RELATIVELY LOW LEVEL. SMALL PUBLIC AND PRIVATE SUPPLIES WERE IDENTIFIED AS BEING MORE VULNERABLE TO RADIONUCLIDE CONTAMINATION THAN PUBLIC SYSTEMS SERVING MORE THAN A FEW HUNDRED PEOPLE, BUT MORE INVESTIGATION IS NEEDED TO ASSESS THE EXTENT OF THE EXPOSURE AND ITS ASSOCIATED RISK. THE PREVIOUS BELIEF THAT HIGH LEVELS OF RN-222 ARE CONFINED TO A FEW GEOGRAPHIC AREAS WAS FOUND TO BE FALSE. (4 PHOTOS, 93 REFERENCES, 11 TABLES) Enviroline Number: \*88-081300

**Response to Request to Provide Assistance in Establishing Emergency Criteria  
Applicable to Elevated Indoor Radon Concentrations. Structures Built on the  
Reading Prong**

(Final rept)

Environmental Protection Agency, Washington, DC. Science  
Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/RAC-86/005

5 Nov 85 6p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A02/MF A01

Country of Publication: United States

(NTIS)

On September 4, 1985 Mr. Sheldon Mayers, the Acting Director of the Agency's Office of Radiation Programs, requested the assistance of the Science Advisory Board in establishing emergency criteria applicable to elevated indoor radon concentrations in structures built on the Reading Prong. (1) Is a range of relative risk coefficients of 1.2 to 2.8 percent a reasonable range for the Agency to use in evaluating the risks associated with exposures at and above various alternative interim emergency action levels for the Reading Prong. (2) Are there any special considerations that should be taken into account in calculating the risks associated with short-term exposures to radon decay products versus lifetime exposures. PB88-241245/XAB

**Review Of Studies Related to Uncertainty in Risk Analysis**

Rish, W. R. ; Marnicio, R. U.

Oak Ridge National Lab., TN.

Corp. Source Codes: 021310000; 4832000

Sponsor: Department of Energy, Washington, DC.

Report No.: ORNL/TM-10776

Aug 88 144p

Languages: English

Journal Announcement: GRAI8905; NSA1300

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A07/MF A01

Country of Publication: United States

Contract No.: AC05-840R21400

(NTIS)

The Environmental Protection Agency's Office of Radiation Programs (ORP) is responsible for regulating on a national level the risks associated with technological sources of ionizing radiation in the environment. A critical activity of the ORP is analyzing and evaluating risk. The ORP believes that the analysis of uncertainty should be an integral part of any risk assessment; therefore, the ORP has initiated a project to develop framework for the treatment of uncertainty in risk analysis. Summaries of recent studies done in five areas of study are presented. (ERA citation 13:049624) DE88015335/XAB

**Risk Assessment Of Subsidiary Nuclear Technologies**

Kalchev, B. ; Ilieva, S. ; Jordanova, P. ; Andreev, P.

Energoprojekt, Sofia (Bulgaria).

Corp. Source Codes: 081222000; 2372650

Report No.: INIS-MF-11178

1984 10p

Languages: Bulgarian

Journal Announcement: GRAI8901

In Bulgarian. National conference on thermal and nuclear power problems in Bulgaria, Varna, Bulgaria, 17 May 1984.

U.S. Sales Only.

NTIS Prices: PC A02/MF A01

Country of Publication: Bulgaria  
(NTIS)

The results from a risk assessment for processing, transportation and storage of radioactive wastes and for spent fuel storage and transportation are presented. Use of bitumens for waste processing is assumed. A comparative risk analysis for nuclear reactor operation and subsidiary technologies is given. (Atomindex citation 19:051231) DE88702604/XAB

**Science Advisory Board Endorses the Range of Risks Presented by EPA  
(Environmental Protection Agency) in Radon Risk Estimates**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/RAC-88/042

9 Sep 88 8p

Languages: English

Journal Announcement: GRAI8902

NTIS Prices: PC A02/MF A01

Country of Publication: United States  
(NTIS)

The EPA Science Advisory Board's (SAB) Radiation Advisory Committee endorses the range of risk estimates proposed by EPA's Office of Radiation Programs in Radon Risk Estimates. The Committee recommends EPA not attempt to develop still another model for radon and radon daughter risk estimation and projection, but urges the use of existing technical consensus reports. Three important technical consensus reports on radon risks are of potential use to EPA. None of these reports is clearly pre-eminent; each has its strengths and weaknesses which reflect the uncertain state of knowledge in particular areas. Two of these reports appear to have greater utility for EPA. PB89-105019/XAB

**UNCERTAINTY AND SENSITIVITY ANALYSES IN EVALUATING RISK OF HIGH LEVEL WASTE REPOSITORY,**

KIM TAE WOON KOREA ADVANCED INST OF SCIENCE & TECHNOLOGY, S  
KOREA, ; CHANG SOON HEUNG ; LEE BYUNG HO  
RADIOACTIVE WASTE MANAGEMENT & THE NUCLEAR FUEL CYCLE, 1988,  
V10, N4, P321(36)  
(ENVIROLINE)

JOURNAL ARTICLE SOME METHODS HAVE BEEN PROPOSED FOR THE PROBABILISTIC RISK ASSESSMENT OF HIGH-LEVEL RADIOACTIVE WASTE REPOSITORIES. AS THE REPOSITORY SYSTEM IS CHARACTERIZED BY HIGHLY UNCERTAIN INPUT PARAMETERS, THE EVALUATED RISK FOR SOME INPUT VALUES ALSO HAS HIGH UNCERTAINTY. A PREVIOUSLY DEVELOPED PROBABILISTIC RISK ASSESSMENT MODEL IS USED TO DISCUSS THE APPLICABILITY AND CHARACTERISTICS OF THE VARIOUS UNCERTAINTY AND SENSITIVITY ANALYSIS METHODS. THE RESULTING UNCERTAINTY OF PROBABLE RELEASE RATE OF EACH RADIONUCLIDE IS DISTRIBUTED THREE OR FOUR ORDERS AND LEACHING RATES OF WASTE GLASS APPEAR TO BE THE MOST DOMINANT SOURCES OF UNCERTAINTY. (2 DIAGRAMS, 10 GRAPHS, 49 REFERENCES, 8 TABLES) Enviroline Number: 88-091321

**ECOLOGICAL RISK**

**Analysis of untreated drinking water from Lake Ontario: Results and risk assessment**

Fitch, D.E.; Bellandi, R.; Tifft, E.C.; Robinson, J.P.  
Onandaga Cty. Metrop. Water Board  
31st Conference on Great Lakes Research 8825012 Hamilton  
(Canada) 17-20 May 1988  
International Association for Great Lakes Research  
Conference Services, Commons Building 101B, McMaster University, Hamilton, Ontario L8S 4K1 (Canada), Poster Paper  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**ASSESSING THE RISK OF VIOLATING STREAM WATER QUALITY STANDARDS,**

HATHHORN WADE E. AND ; TUNG YEOU-KOUNG UNIV OF WYOMING,  
J ENV MANAGEMENT, JUN 88, V26, N4, P321(18)  
(ENVIROLINE)

JOURNAL ARTICLE A METHOD IS PRESENTED FOR QUANTIFYING THE JOINT RISK ASSOCIATED WITH DISSOLVED OXYGEN DEFICITS EXCEEDING A SPECIFIED STANDARD AND THE LENGTH OF SUCH VIOLATIONS WITHIN A STREAM ENVIRONMENT. TECHNIQUES ARE EMPLOYED UTILIZING THE STREETER-PHELPS EQUATION IN CONJUNCTION WITH MONTE CARLO SIMULATION. FLEXIBILITY IS PROVIDED IN THE FORMULATION BY ALLOWING SEVERAL PROBABILITY DISTRIBUTIONS TO BE ASSIGNED TO EACH PARAMETER IN THE MODEL. A SENSITIVITY ANALYSIS IS ALSO PERFORMED ON THE JOINT RISK FOR THE VARIOUS PROBABILITY DISTRIBUTIONS AND STATISTICAL PROPERTIES ASSUMED FOR EACH PARAMETER. (15 GRAPHS, 20 REFERENCES, 1 TABLE) Enviroline Number: \*88-081373

**Assessment of Potential Toxic Problems in Non-Urban Areas of Puget Sound**  
(Final rept)

Tetra Tech, Inc., Bellevue, WA.  
Corp. Source Codes: 071784000  
Sponsor: Environmental Protection Agency, Seattle, WA.  
Region X.; Battelle Ocean Sciences. Duxbury, MA.  
Report No.: EPA/503/3-88/002  
Aug 88 190p  
Languages: English  
Journal Announcement: GRAI8907  
Sponsored by Environmental Protection Agency, Seattle, WA.  
Region X, and Battelle Ocean Sciences, Duxbury, MA.  
NTIS Prices: PC AO9/MF A01  
Country of Publication: United States  
Contract No.: EPA-68-03-3319; EPA-68-02-4341  
(NTIS)

The report compiles and interprets information on potential environmental degradation from toxic chemical contaminants in non-urban areas within Puget Sound. Prior to the publication, information on toxic contaminants in the areas of concern was scattered among numerous locations in forms not readily usable. The objectives of the study were (1) to identify, by interpreting existing information, non-urban areas in Puget Sound that may have serious contamination or biological problems, and (2) to prioritize those areas for future detailed studies. Of the 97 non-urban areas of Puget Sound evaluated in the study by the Environmental Assessment Matrix technique, only 6 received a ranking of HIGH which may qualify them for consideration as sites for future, detailed investigations. The areas of significant concern are: the Guemes/Fidalgo Channel, Port Angeles Harbor, Crescent Harbor, Richmond Beach, Liberty Bay, and East Passage. PB89-134332/XAB

**Comparative risk assessment of technologies to treat soil and debris wastes**

Reis, U.; Tilly, J.; Offutt, C.  
CIF Technol., Inc., Fairfax, VA  
American Institute of Chemical Engineers 1988 Summer  
National Meeting 8830985 Denver, CD (USA) 21-24 Aug 1988  
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Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 7  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Concept for ecological risk assessment**

Volmer, U.  
Fraunhofer-Inst., Schmallenberg, FRG  
3rd FECS Conference on Risk Assessment of Chemical in Environment 8835010 University of Surrey (UK) 11-14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)



**DIAGNOSTIC VARIABLES AS PREDICTORS OF ECOLOGICAL RISK,**  
JOHNSON ALAN R. ORNL,  
ENV MANAGEMENT, JUL 88, V12, N4, P515(9)  
(ENVIROLINE)

JOURNAL ARTICLE THE PROCESS OF SELECTING DIAGNOSTIC VARIABLES AND CRITERIA IN THE CONTEXT OF AN ECOLOGICAL SIMULATION MODEL IS EXAMINED. THE STATE OF AN ECOSYSTEM IS REPRESENTED BY X, A MULTIDIMENSIONAL STATE VECTOR. THE GOAL OF ECOSYSTEM MANAGEMENT IS TO INSURE THAT THE ECOSYSTEM REMAINS WITHIN SOME SET X OF ACCEPTABLE STATES. IF THE VECTOR OF DIAGNOSTIC VARIABLES IS FOUND TO BE WITHIN A SPECIFIED SET, THE STATE VECTOR X IS PREDICTED TO BE WITHIN X. THE SELECTION AND USE OF SUCH DIAGNOSTIC VARIABLES IS EXPLORED IN THE FRAMEWORK OF AN AQUATIC ECOSYSTEM SIMULATION MODEL. THE ADEQUACY OF A DIAGNOSTIC CRITERION AS A PREDICTOR OF ECOLOGICAL RISK IS DEMONSTRATED TO BE A FUNCTION OF THE ASSOCIATED RATES OF TYPE I AND TYPE II STATISTICAL ERRORS. (1 DIAGRAM, 5 GRAPHS, 14 REFERENCES) Enviroline Number: \*89-000238

**Dyestuffs and the environment: A risk assessment**

Brown, D.; Anliker, R.  
ICI, Brixham, UK  
3rd FECS Conference on Risk Assessment of Chemical in  
Environment 8835010 University of Surrey (UK) 11 14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**FACTORS AFFECTING METAL TOXICITY TO (AND ACCUMULATION BY) AQUATIC ORGANISMS-OVERVIEW,**  
WANG WUNCHENG ILLINOIS STATE WATER SURVEY.  
ENV INTL, 1987, V13, N6, P437(21)  
(ENVIROLINE)

JOURNAL ARTICLE THIS LITERATURE REVIEW ENCOMPASSES AQUATIC ENVIRONMENTAL TOXICITIES OF METALS AND METALLOIDS. THE EMPHASIS IS ON THE INFLUENCING FACTORS ON METAL TOXICITY TO AQUATIC ORGANISMS. THE EFFECTS OF ENVIRONMENTAL FACTORS ON METAL UPTAKE ARE ALSO DISCUSSED. THE FACTORS CAN BE DIVIDED INTO BIOTIC AND ABIOTIC. THESE FACTORS CAN ALTER METAL TOXICITY IN THE AQUATIC ENVIRONMENT SUBSTANTIALLY. THE LITERATURE SHOWS DIVERGENT RESULTS. IT IS RECOMMENDED THAT ENVIRONMENTAL HAZARD ASSESSMENT TAKE INTO CONSIDERATION THE RESULTS OF STANDARD TOXICITY TESTS AND SITE-SPECIFIC CONDITIONS WHICH CAN MODERATE METAL TOXICITY CONSIDERABLY. (37 REFERENCES, 1 TABLE) Enviroline Number: \*88-071154

**GREAT LAKES SCIENCE ADVISORY BOARD 1987 REPORT,  
US-CANADA INTL JOINT COMMISSION REPORT, NOV 87 (91)  
(ENVIROLINE)**

FED GOVT REPORT RECOMMENDATIONS MADE BY THE GREAT LAKES SCIENCE ADVISORY BOARD FOR ADDRESSING THE PROBLEM OF PERSISTENT TOXIC CHEMICALS IN THE GREAT LAKES, AND FOR REALIZING AN ECOSYSTEMS APPROACH TO MANAGING HUMAN USES AND ABUSES OF THE BASIN ARE COMPILED. THE US-CANADA INTL JOINT COMMISSION SHOULD ENSURE THAT THERE IS A UNIFIED INTERNATIONAL EMERGENCY PREVENTION PLAN WHICH ENCOURAGES GREAT LAKES JURISDICTIONS TO ESTABLISH A CLEAR DELINEATION OF RESPONSIBILITY AND PROVIDES RESOURCES TO LOCAL COMMUNITIES, THUS MINIMIZING THE RISK AND IMPACT OF SPILLS. RISK ANALYSIS SHOULD BE USED FOR DETERMINING THE RELATIVE RISKS ASSOCIATED WITH POLLUTION AND OTHER PERTURBATIONS TO LAKE BIOTA AND REGIONAL HUMAN POPULATIONS. RECOMMENDATIONS ON MONITORING, SURVEILLANCE, AND RESEARCH ARE INCLUDED (4 DIAGRAMS, 2 PHOTOS, 18 REFERENCES, 3 TABLES) DIALOG File 6: NTIS - 64-89/ISS08 (COPR. 1989 NTIS) Enviroline Number: \*88-081434

**Hazard Evaluation Division, Standard Evaluation Procedure: Guidance Document  
for Conducting Terrestrial Field Studies**

Fite, E. C. ; Turner, L. W. ; Cook, N. J. ; Stunkard, C.  
Environmental Protection Agency, Washington, DC. Office of  
Pesticide Programs.  
Corp. Source Codes: 031287124  
Report No.: EPA/540/09-88/109  
Sep 88 66p  
Languages: English  
Journal Announcement: GRAI8903  
See also PB83-153908.  
NTIS Prices: PC A04/MF A01  
Country of Publication: United States  
(NTIS)

The document is a technical paper intended to provide guidance on how to design and perform terrestrial field studies relative to data requirements under the Federal Insecticide, Fungicide and Rodenticide Act as amended (FIFRA, P.L. 92-516). The paper discusses when the Agency requires these tests, their objective and suggests a general approach and some experimental designs which could be used to address Agency's concerns. A variety of basic wildlife investigative methods which have been found useful in these type of studies are briefly reviewed along with adequate references to assist scientists planning to undertake a study to support a Federal Pesticide Registration. PB89-124580/XAB

**A HUMAN ECOLOGICAL ASSESSMENT OF AIR QUALITY MANAGEMENT: A  
CONVERGENCE IN ECONOMIC AND ECOLOGICAL THINKING?,  
SIMPSON R. W. GRIFFITH UNIV, AUSTRALIA,  
ENV MANAGEMENT, MAY 88, V12, N3, P285(11)  
(ENVIROLINE)**

JOURNAL ARTICLE THE EFFICACY OF TRADITIONAL AIR POLLUTION MANAGEMENT PRACTICES IN CONTROLLING THE EFFECTS OF AIR POLLUTION IS EXAMINED IN THE CONTEXT OF A HUMAN ECOLOGICAL FRAMEWORK. THE BIOHISTORICAL/BIOSOCIAL ANALYSIS OF CURRENT AIR QUALITY MANAGEMENT TOOLS ASSESSES THEIR EFFECTIVENESS IN PROTECTING THE OVERALL

HEALTH OF BOTH HUMANS AND THE NATURAL ENVIRONMENT. THE UNCERTAINTIES INHERENT IN AIR POLLUTION MANAGEMENT PRACTICES WHICH EMERGE HIGHLIGHT THE NEED TO REDUCE EMISSIONS RATHER THAN RELY ON SCIENTIFIC KNOWLEDGE TO DEFINE CLEAN AIR. ROLES FOR RESEARCH ARE IDENTIFIED IN VARIOUS AREAS SUCH AS ATMOSPHERIC MODELS, HEALTH EFFECTS, AND ENVIRONMENTAL DAMAGE. RECOMMENDATIONS STRESS THE NEED FOR THE INTRODUCTION OF SUCH INCENTIVES TO REDUCE EMISSIONS AS ECONOMIC INSTRUMENTS AND WARN AGAINST USING HEALTH INFORMATION TO DEFINE CLEAN AIR. (2 DIAGRAMS, 19 REFERENCES, 4 TABLES) Enviroline Number: \*88-081038

**Methods for Aquatic Toxicity Identification Evaluations Phase 1 Toxicity Characterization Procedures**

Mount, D. I. ; Anderson-Carnahan, L.  
Environmental Research Lab.-Duluth, MN.  
Corp. Source Codes: 049474000  
Report No.: EPA/600/3-88/034  
Sep 88 68p  
Languages: English  
Journal Announcement: GRAI8905  
NTIS Prices: PC A04/MF A01  
Country of Publication: United States  
(NTIS)

The manual describes procedures for characterizing the physical/chemical nature of toxicants in acutely toxic effluent samples. To detect the presence and potency of the toxicants as the sample is manipulated, the measurement of toxicity using organisms is helpful. The final step is to separate the toxicants from other sample constituents to simplify the analytical process. Usually the toxicants must be concentrated for analysis. Sample manipulations to alter toxicity include: sparging, pH change, filtration, solid phase extraction and addition of chelating and reducing agents. The results will often reveal information about the physical/chemical characteristics of the toxicants. PB89-125934/XAB

**OIL WELL DRILLING FLUIDS: THEIR PHYSICAL AND CHEMICAL PROPERTIES AND BIOLOGICAL IMPACT (HAZARD ASSESSMENT OF CHEMICALS),**

KANZ JAMES E. AND ; CRAVEY MELANIE O. TEXAS A&M UNIV,  
HEMISPHERE PUBLISHING CORP REPORT, 1987, V5, P291(131)  
(ENVIROLINE)

BOOK ABOUT 110,000 TYPY OF USED OIL WELL DRILLING FLUIDS ARE DISCHARGED TO THE OCEAN IN THE US. CONCERN HAS BEEN EXPRESSED THAT THE DISCHARGE OF FLUIDS CONTAINING A MIXTURE OF NONTOXIC AND TOXIC CHEMICALS COULD BE DAMAGING TO MARINE ECOSYSTEMS AND FISHERIES, AND ULTIMATELY POSE A HEALTH HAZARD TO CONSUMERS. A REVIEW OF THIS PROBLEM FIRST FOCUSES ON THE PHYSICOCHEMICAL PROPERTIES OF DRILLING MUD COMPONENTS, DISCUSSES THE PHYSICAL IMPACT OF MUDS ON THE ENVIRONMENT, AND DESCRIBES ANALYTICAL PROCEDURES FOR DETERMINING MUD COMPOSITION THE BIOLOGICAL IMPACT OF MUD DISPOSAL IN THE MARINE ENVIRONMENT IS THEN EXAMINED THROUGH SYNOPSES OF ACUTE, CHRONIC, AND SUBLETHAL TOXICITY STUDIES. HEAVY METAL BIOACCUMULATION RESEARCH AND CURRENT REGULATIONS FOR DRILLING FLUID DISCHARGE ARE ALSO COVERED. (99 REFERENCES, 8 TABLES)

**QSAR and risk assessment in the aquatic environment**

Lipnick, R.L.

EPA, IJSA

3rd FECS Conference on Risk Assessment of Chemical in

Environment 8835010 University of Surrey (UK) 11-14 Jul 1988

Royal Society of Chemistry

Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Report of the Ecological Risk Assessment Review Subcommittee: Review of the  
Office of Research and Development's Ecological Risk Assessment Program**

(Final report)

Environmental Protection Agency, Washington, DC. Science

Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-87/017

16 Jan 87 27p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The Ecological Risk Assessment Research Review Subcommittee's major conclusion was that the overall concept of ecological risk assessment developed in the program is comprehensive, scientifically ambitious, and sets forth a research direction for the long-term (perhaps twenty years). In the short-term (five-year), it is not achievable as planned, particularly because some of the key elements (density-dependent population, community and ecosystem mechanistic models) are based on an incomplete understanding of the fundamental mechanisms. However, the research staff have made a promising start in identifying some of the major issues the program should address. PB88-241203/XAB

**Review of Ecological Risk Assessment Methods**

(Final rept.)

Norton, S. ; McVey, M. ; Colt, U. ; Durda, B. ; Hegner, R.

ICF, Inc., Fairfax, VA.

Corp. Source Codes: 091184000

Sponsor: Environmental Protection Agency, Washington, DC

Office of Policy, Planning and Evaluation.

Report No.: EPA/230/10-88/041

Nov 88 181p

Languages: English

Journal Announcement: GRAI8907

Sponsored by Environmental Protection Agency, Washington,

DC. Office of Policy, Planning and Evaluation.

NTIS Prices: PC AO9/MF A01

Country of Publication: United States

Contract No.: EPA-68-01-7489

(NTIS)

The report provides a review of several of the methods developed by EPA and other Federal and State agencies for assessing ecological impacts or risks associated with the release of toxic or hazardous substances into the environment. Included is a review of legislative or executive directives under which ecological assessment methods have been developed. Three general objectives of ecological assessments are identified and discussed qualitative and quantitative methods are discussed, and 'top-down' and 'bottom-up' approaches are compared. Individual reviews of twenty ecological assessment methods focus on four major components of ecological risk assessment: receptor characterization, hazard assessment, exposure assessment, and risk characterization. PB89-134357/XAB

**Risk Analysis Model for Marine Mammals and Seabirds: A Southern California Bight Scenario**

(Final rept.)

Ford, R. G.

Ecological Consulting, San Diego, CA.

Corp. Source Codes: 093217000

Sponsor: Minerals Management Service. Los Angeles, CA.

Pacific OCS Region.

Report No.: MMS-85/0104

May 85 264p

Languages: English

Journal Announcement: GRAI8905

Sponsored by Minerals Management Service, Los Angeles, CA.

Pacific OCS Region.

NTIS Prices: PC A12/MF A01

Country of Publication: United States

Contract No.: DI-14-12-0001-30224

(NTIS)

The objective of the study was to model the risks to selected species of marine mammal and seabird populations in the Southern California Bight from oil spills during OCS oil and gas development and operations. Risk analysis is a procedure designed to investigate the possible negative effects of projects and activities. The conventional approach to analyzing oil and gas reserves is through the use of the MMS Oil Spill Risk Analysis Model (OSRAM). OSRAM was developed to aid in estimating the environmental hazards of developing oil resources in OCS lease areas. Two other computer models were used in these analyses. They are: (2) the short term oil response model, STORM and (3) the oil spill population response model, OSPREY. In the report, a methodology for describing the range of consequences which oil spills might have on Southern California Bight seabird and marine mammal populations and the likelihood of those effects were developed. Two general categories of spill consequences were examined: (1) the immediate mortality to a population caused by a spill from a given source, and (2) the long term marine mammal and seabird populations effects of the projected Southern California Bight OCS development PB89-126684/XAB

**RISK ANALYSIS OF AQUIFER CONTAMINATION BY BRINE,**

HOBBS BENJAMIN F. CASE WESTERN RESERVE UNIV, ; VON PATTERSON

CARL ; MACIEBOWSKI M. E. ; HAIMES YACOV Y.

J WATER RESOURCES PLANNING & MANAGEMENT-ASCE, NOV 88, V114, N6, P667(19)  
(ENVIROLINE)

JOURNAL ARTICLE A MODEL IS DERIVED FOR ESTIMATING THE RISKS OF GROUNDWATER CONTAMINATION ARISING FROM THE UNDERGROUND INJECTION OF LIQUID WASTES. THE MODEL IS APPLIED TO THE CONTROVERSIAL OIL AND GAS BRINE DISPOSAL PRACTICE OF ANNULAR DISPOSAL. MODEL INPUTS INCLUDE HYDRDGEOLOGIC PARAMETERS, THE RELIABILITY OF WASTE DISPOSAL, AND DEMOGRAPHIC DATA. OUTPUTS ARE PROBABILITY DISTRIBUTIONS OF THE NUMBER OF RURAL DOMESTIC WELLS OR MUNICIPAL GROUNDWATER WELL FIELDS THAT MAY BE CONTAMINATED. THE ECONOMIC COSTS ASSOCIATED WITH THE RISKS OF ANNULAR DISPOSAL IN OHIO ARE AN ORDER OF MAGNITUDE SMALLER THAN THE BENEFITS OF THE PRACTICE (4 GRAPHS, 27 REFERENCES, 4 TABLES) Enviroline Number: \*89-001015

**Risk Analysis of Earth Return Options for the Mars Rover/Sample Return Mission**

Eagle Engineering, Inc., Webster, TX  
Corp. Source Codes: 073077000; EA098498  
Sponsor: National Aeronautics and Space Administration,  
Washington, DC.  
Report No.: NAS 1,26:172081; EE-88-183; NASA-CR-172081  
13 Jul 88 141p  
Languages: English  
Journal Announcement: GRAI8905; STAR2702  
NTIS Prices: PC A07/MF A01  
Country of Publication: United States  
Contract No.: NAS9-17878  
(NTIS)

Four options for return of a Mars surface sample to Earth were studied to estimate the risk of mission failure and the risk of a sample container breach that might result in the release of Martian life forms, should such exist, in the Earth's biosphere. The probabilities calculated refer only to the time period from the last midcourse correction burn to possession of the sample on Earth. Two extreme views characterize this subject. In one view, there is no life on Mars, therefore there is no significant risk and no serious effort is required to deal with back contamination. In the other view, public safety overrides any desire to return Martian samples, and any risk of damaging contamination greater than zero is unacceptable. Zero risk requires great expense to achieve and may prevent the mission as currently envisioned from taking place. The major conclusion is that risk of sample container breach can be reduced to a very low number within the framework of the mission as now envisioned, but significant expense and effort, above that currently planned is needed. There are benefits to the public that warrant some risk. Martian life, if it exists, will be a major discovery. If it does not, there is no risk.

**River Danube pollution and its risk assessment**

Benedek, P.  
3rd FECS Conference on Risk Assessment of Chemical in  
Environment 8835010 University of Surrey (UK) 11-14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**SHOULD REGULATORY CRITERIA AND STANDARDS BE BASED ON MULTISPECIES EVIDENCE?,**

CAIRNS JR. JOHN VIRGINIA POLYTECHNIC INST & STATE UNIV,  
ENV PROFESSIONAL, 1988, V10, N2, P157(9)  
(ENVIROLINE)

JOURNAL ARTICLE SINGLE SPECIES TOXICITY TESTS ARE USED TO ESTABLISH REGULATORY CRITERIA AND STANDARDS TO PROTECT AQUATIC ORGANISMS IN THE US. SOMETIMES THE TEST SPECIES MAY NOT INHABIT THE WATER BODY IN WHICH THE TOXICANTS OCCUR. THE PRACTICE OF USING SINGLE SPECIES TESTS TO PREDICT RESPONSES AT HIGHER LEVELS OF BIOLOGICAL ORGANIZATION HAS BEEN FREQUENTLY QUESTIONED, BUT THERE HAS STILL BEEN A RELUCTANCE TO USE MULTISPECIES EVIDENCE IN CONJUNCTION WITH SINGLE SPECIES EVIDENCE TO DEVELOP REGULATORY CRITERIA AND STANDARDS. IT IS SCIENTIFICALLY UNJUSTIFIABLE TO EXTRAPOLATE FROM THE RESPONSE AT ONE LEVEL OF BIOLOGICAL ORGANIZATION, SINGLE SPECIES, TESTED IN LABORATORY SYSTEMS TO THE RESPONSE AT HIGHER LEVELS IN COMPLEX, HIGHLY VARIABLE NATURAL ECOSYSTEMS. (1 DIAGRAM, 1 MAP, 39 REFERENCES) Enviroline Number: 89-000678

**3rd FECS Conference on Risk Assessment of Chemical in Environment**

3rd FECS Conference on Risk Assessment of Chemical in  
Environment 8835010 University of Surrey (UK) 11-14 Jul 1988  
Royal Society of Chemistry  
Dr. R. H. Andrews, Royal Society of Chemistry, Burlington House, London W1V 0BN (UK)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Transfer of environmental impact assessment methods to concrete administration planning - for example in infrastructural projects of the Department of Defense. (Final report) (Umsetzung der Umweltverträglichkeitsprüfung in praktisches Verwaltungshandeln - am Beispiel der raumwirksamen Aufgaben des Verteidigungsbereiches. Endbericht.)**

Burger, M. ; Burkhardt, D. ; Schemel, H.J.  
Industrieanlagen-Betriebsgesellschaft m.b.H., Ottobrunn  
(Germany, F.R.).  
Corp. Source Codes: 015334000  
Sponsor: Umweltbundesamt, Berlin (Germany, F.R.).  
30 Apr 85 276p  
Languages: German  
Journal Announcement: GRAI8907  
In German, With 1 tab., 21 figs.  
NTIS Prices: PC E07  
Country of Publication: Germany, Federal Republic of  
Contract No.: UFOPLAN-Nr  
(NTIS)

Based on minimum requirements within the reported project a procedure for environmental impact assessment (EIA) of infrastructural projects of the Department of Defense of the Federal Republic of Germany is developed which allows planning staff to perform the appropriate steps concurrently with the planning phases. The EIA method adopted is derived from the concept of ecological risk analysis. Due to the planning of federal construction being

standard procedure for all departments of the Federal Government the EIA proposed may be transferred to projects of other ministries. Following a description of infrastructural procedures with regard to the present consideration of environmental aspects pertinent information is extracted from two case studies. The EIA procedure suggested is applied to these cases exemplarily. (orig./RHM). (TIB: Ro 5486(1369/02).) (Copyright (c) 1988 by FIZ. Citation no. 88:082858.) TIB/A88-82858/XAB

**THE USE OF RISK ASSESSMENT TO DEFINE A CORRECTIVE ACTION PLAN FOR  
LEAKING UNDERGROUND STORAGE TANKS,**

CONWAY MICHAEL F. (GRADIENT CORP, MA) AND ; BOUTWELL SCOTT  
H. (BOUTWELL & ASSOC, MA),  
NATL WATER WELL ASSN/API HYDROCARBONS & CHEMICALS IN GROUND  
WATER CONF, HOUSTON, NOV 17-19, 87, P19(22)  
(ENVIROLINE)

CONF PAPER EPA IS REQUIRED BY THE HAZARDOUS & SOLID WASTE AMENDMENTS OF 1984 TO IMPLEMENT A COMPREHENSIVE REGULATORY PROGRAM FOR UNDERGROUND STORAGE TANKS. THESE TANKS HAVE BEEN A MAJOR SOURCE OF CONCERN DUE TO RELEASES OF PETROLEUM PRODUCTS TO GROUNDWATER. THE AGENCY HAS PUBLISHED A PROPOSED RULE FOR TECHNICAL REQUIREMENTS INVOLVING LEAK DETECTION AND PREVENTION, FINANCIAL RESPONSIBILITY, AND CORRECTIVE ACTION FOR ALL UNDERGROUND STORAGE TANKS CONTAINING REGULATED PETROLEUM AND HAZARDOUS SUBSTANCES. EPA'S PROPOSED RISK ASSESSMENT PROCESS FOR DEFINING A CORRECTIVE ACTION PROGRAM IS EVALUATED, AND AN INTEGRATED SITE INVESTIGATION/RISK ASSESSMENT APPROACH TO ADDRESS DEVELOPMENT OF CLEAN-UP CRITERIA IS INTRODUCED. (3 DIAGRAMS, 11 REFERENCES, 4 TABLES)  
Enviroline Number: \*88-071434



## **LEGAL ASPECTS**

**THE POTENTIAL ROLE OF SUPERFUND IN TOXIC TORT LITIGATION,**  
ROGERS JAMES A. SKADDEN ARPS SLATE MEAGHER & FLOM, DC,  
NATURAL RESOURCES & ENV, SPRING 88, V3, N2, P13(6)  
(ENVIROLINE)

JOURNAL ARTICLE THE 1986 SUPERFUND AMENDMENTS THAT WILL GENERATE SUBSTANTIAL NEW INFORMATION ON THE HEALTH IMPACTS OF HAZARDOUS WASTE DISPOSAL SITES ARE EXAMINED. THIS NEW DATA MAY ANSWER SOME OF THE QUESTIONS RAISED IN THE SUPERFUND LIABILITY ASSESSMENT DEBATE AND AFFECT PRIVATE TOXIC TORT LITIGATION. SUBSTANTIAL NEW PROVISIONS CALL FOR THE PREPARATION OF TOXICOLOGICAL PROFILES AND HEALTH ASSESSMENT IN AN EFFORT TO STRENGTHEN THE UNDERSTANDING OF THE LINK BETWEEN CHEMICALS AT SITES AND THE HEALTH OF PEOPLE LIVING NEARBY. TO THIS EXTENT IT WILL PROVIDE DISTURBING DATA TO POTENTIAL PLAINTIFFS AND WILL MAKE IT EASIER FOR PLAINTIFF'S ATTORNEYS TO ASSESS A CASE. Enviroline Number: \*88-081159

**Risk Analysis and Scientific Method: Methodological and Ethical Problems with Evaluating Scientific Hazards. (book reviews)**

Stenzel, Paulette L.  
D. Reidel Publishing Co.  
University of Cincinnati Law Review 56 n3 989-997 Wntr, 1988  
CODEN: UCLRD5  
ARTICLE TYPE: review  
GRADE: B  
GEOGRAPHIC CODE: NNUS  
JURISDICTION: United States  
REVIEWEE: Shrader-Frechette, Kristin S.  
(LEGAL RESOURCE INDEX)

**Risk assessment: fact and fiction. (Environmental Law Symposium: Toxic Waste; Is There a Final Resting Place)**

Orloff, Neil  
Journal of Law and the Environment 3 1-15 Winter, 1987  
GEOGRAPHIC CODE: NNUS  
JURISDICTION: United States  
(LEGAL RESOURCE INDEX)

## **BIBLIOGRAPHIES**

### **Cervical Cancer: Risk Assessment and Preventive Care. January 1978-November 1988 (Citations from the Life Sciences Collection Database)**

(Rept. for Jan 78-Nov 88)

National Technical Information Service, Springfield, VA.

Corp. Source Codes: 055665000

Dec 88 57p

Languages: English

Document Type: Bibliography

Journal Announcement: GRAI8903

Prepared in cooperation with Cambridge Scientific Abstracts, Washington, DC.

NTIS Prices: PC N01/MF N01

Country of Publication: United States

(NTIS)

This bibliography contains citations concerning the diagnosis, screening, and treatment of cervical cancer. Cervical cancer screening programs, risk factors, including age, smoking, use of birth control pills, and sexual activity, and treatments are discussed. Some attention is given to the epidemiology of this neoplasm including disease related complications and side effects. (Contains 115 citations fully indexed and including a title list.) PB89-851679/XAB

### **Risk Analysis and Management. April 1984-July 1987 (Citations from the Compendex Database)**

(Rept. for Apr 84-Jul 87)

National Technical Information Service. Springfield, VA.

Corp. Source Codes: 055665000

Feb 89 176p

Languages: English

Document Type: Bibliography

Journal Announcement: GRAI8908

NTIS Prices: PC N01/MF N01

Country of Publication: United States

(NTIS)

This bibliography contains citations concerning methods and techniques used for risk analysis, assessment, and management in business. Risk studies include potential hazardous risks to humans in the environment, transportation, manufacturing, agriculture, nuclear power, construction, and petrochemical industries. Various citations have specific applications to the insurance industry for computing risk assessment. (This updated bibliography contains 388 citations, none of which are new entries to the previous edition.) PB89-855910/XAB

**Risk Analysis and Management. August 1987-February 1989 (Citations from the Compendex Database)**

(Rept. for Aug 87-Feb 89)

National Technical Information Service. Springfield, VA.

Corp. Source Codes: 055665000

Feb 89 72p

Languages: English

Document Type: Bibliography

Journal Announcement: GRAI8908

Supersedes PB87-863981.

NTIS Prices: PC N01/MF N01

Country of Publication: United States

(NTIS)

This bibliography contains citations concerning methods and techniques used for risk analysis, assessment, and management in business. Risk studies include potential hazardous risks to humans in the environment, transportation, manufacturing, agriculture, nuclear power, construction, and petrochemical industries. Various citations have specific applications to the insurance industry for computing risk assessment. (This updated bibliography contains 115 citations, all of which are new entries to the previous edition.) PB89-855928/XAB

# Risk MANAGEMENT

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

## **GENERAL PERSPECTIVE**

**DEBATING THE PROBLEMS THAT UNDERLIE POLLUTION CONTROL PROBLEMS,**  
MCCLOSEKY MICHAEL CHAIRMAN, SIERRA CLUB,  
ENV LAW REPORTER, OCT 88, V18, N10, P10413(6)  
(ENVIROLINE)

JOURNAL ARTICLE THE DEBATE SURROUNDING POLLUTION CONTROL ISSUES BECOMES MORE TECHNICAL AND SPECIALIZED AS ENVIRONMENTAL REGULATIONS AND LITIGATION GROW IN COMPLEXITY. CONSEQUENTLY, THE FUNDAMENTAL QUESTIONS AND ASSUMPTIONS THAT UNDERLIE POLLUTION CONTROL PROBLEMS OFTEN GO UNARTICULATED. THESE ISSUES INCLUDE HOW RISK AVERSE SOCIETY SHOULD BE. WHO SHOULD BE RESPONSIBLE FOR THE COST OF CLEANING UP POLLUTION, AND HOW TO WEIGH ENVIRONMENTAL PROTECTION AND COST. SUCH ASPECTS OF POLLUTION CONTROL SHOULD BE BROUGHT INTO THE OPEN AND ADDRESSED IN BROAD PUBLIC DEBATE, ESPECIALLY ON THE OCCASION OF AN PRESIDENTIAL ELECTION YEAR. TO ESTABLISH A FRAMEWORK FOR THIS DEBATE, THE TWO BASIC OPPOSING POSITIONS IN ENVIRONMENTAL POLICY ARE OUTLINED: THE GO-SLOW APPROACH TO ENVIRONMENTAL REGULATION, AND THE TOUGH REGULATION POSITION. Enviroline Number: \*89-000753

### **Decision-Making Methodology for Management of Hazardous Waste**

Philbin, O. S. ; Cranwell, R. M.

Sandia National Labs., Albuquerque, NM.

Corp. Source Codes: 068123000; 9511100

Sponsor: Department of Energy, Washington, DC.

Report No.: SAND-88-1227C; CONF-881054-9

1988 9p

Document Type: Conference proceeding

Journal Announcement: GRAI8908; NSA1300 Annual DOE model conference, Oak Ridge, TN, USA, 3 Oct 1988.

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A02/MF A01

Contract No.: AC04-76DP00789

(NTIS)

A decision-making methodology is presented that combines systems and risk analysis techniques to evaluate hazardous waste management practices associated with DOE weapon production operations. The methodology provides a systematic approach to examining waste generation and waste handling practices in addition to the more visible disposal practices. Release-exposure scenarios for hazardous waste operations are identified and operations risk is determined. Comparisons may be made between existing and alternative waste management practices (and processes) on the basis of overall risk, cost and compliance with regulations. Managers can use this methodology to make and defend resource allocation decisions and to prioritize research needs. 13 refs., 2 figs. (ERA citation 13:056323) DE89001228/XAB

**DOD'S RISK ASSESSMENT AND SAFEGUARDS MANAGEMENT OF CHEMICAL AND BIOLOGICAL WARFARE RESEARCH AND DEVELOPMENT FACILITIES,**  
GAO REPORT T-PEMD-88-10, JUL 27, 88 (31)  
(ENVIROLINE)

FED GOVT REPORT THE FACTORS, STANDARDS, AND METHODOLOGY EMPLOYED BY DOD IN EVALUATING THE SAFETY AND SECURITY OF ITS CHEMICAL AND BIOLOGICAL WARFARE R&D CONTRACTOR FACILITIES ARE CRITIQUED. FOR CHEMICAL CONTRACTORS, THE AGENCY HAS IMPLEMENTED A REASONABLY SYSTEMATIC AND COMPREHENSIVE APPROACH FOR ANALYZING AND MANAGING RISKS. THIS APPROACH CONSISTS OF A CONTRACT PROPOSAL REVIEW, FORMAL REQUIREMENTS FOR SAFETY AND EMERGENCY PREPAREDNESS, AND A PRE- AND POST-AWARD INSPECTION SYSTEM. IN THE BIOLOGICAL DEFENSE PROGRAM, DOD HAS NOT DEVELOPED ITS OWN SAFEGUARD REQUIREMENTS OR CONDUCTED REGULAR EVALUATIONS OF FACILITIES. THE LACK OF A FORMAL DOD RISK ASSESSMENT AND SAFEGUARDS MANAGEMENT PROCESS MAKES IT DIFFICULT TO DETERMINE WHETHER CONTRACTORS ARE USING RECOMMENDED SAFEGUARD GUIDELINES. Enviroline Number: \*88-091099

**Modeling human actions for risk management**

Kazarians, M.

Pickard, Lowe and Garrick, Newport Beach, CA

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street, New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 65b

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Off-site risk assessment and risk minimization guidelines**

Schaller, L.C.

E. I. Dupont de Nemours & Co., Wilmington, DE

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street, New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 41b

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Protection Planning and Risk Management at Lawrence Livermore National Laboratory**

Hunt, J. S. ; Altman, W. D. ; Hockert, J. W.

Lawrence Livermore National Lab., CA.

Corp. Source Codes 068147000; 9513035

Sponsor: Department of Energy, Washington, DC.

Report No.: UCRL-98110; CONF-880631-25 26

Jun 88 6p

Languages: English

Document Type: Conference proceeding

Journal Announcement: GRAI8904; NSA1300

29. annual meeting of the Institute of Nuclear Materials Management, Las Vegas, NV, USA, 26 Jun 1988.

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: W-7405-ENG-48

(NTIS)

Effective safeguards and security management begins with comprehensive strategic planning that synthesizes protection objectives, threat information, existing protection capabilities, consequences of protection failure, and the costs and impacts of safeguards changes into cost effective protection strategies that adequately address credible threats. Lawrence Livermore National Laboratory (LLNL) has developed a structured risk management approach to safeguards and security planning that is designed to lead to protection strategies that are cost effective, meet the intent of Department of Energy (DOE) orders, balance protection needs with programmatic priorities, and acknowledge a level of residual risks that is not cost effective to eliminate. This risk management approach to safeguards decision making was used to develop the first DOE-approved Master Safeguards and Security Agreement (MSSA) that addresses all security interests at a major facility including: special nuclear material, classified information and materials, computer and communication security, and other DOE property. This risk management approach also provides the strategic basis for day-to-day management of the LLNL security program as well as the integration of safeguards programs upgrades. 2 refs., 2 figs. (ERA citation 13:048324) DE88013093/XAB

### **Research in a Regulatory Environment**

Drehmel, D. C. ; Princiotta, F. T.

Environmental Protection Agency, Research Triangle Park, NC. Air and Energy Engineering Research Lab.

Corp. Source Codes: 034680076

Report No.: EPA/600/D-88/173

Aug 88 13p

Languages: English

Journal Announcement: GRAI8822

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The paper discusses the rationale and motivation for integrated environmental control as it relates to EPA research, particularly as it involves risk management. EPA research, whether in support of integrated environmental control or not, must be responsive to the Agency's regulatory function. Risk reduction programs have been successful in the past, leading to

demonstration of flue gas desulfurization (FGD) and low nitrogen oxide (NOx) burner technologies. One emphasis of current risk reduction research activities is integrated environmental control because of the possibility of greater cost effectiveness. Two examples of integrated environmental control are described: limestone injection multistage burners (LIMB) and electrostatic precipitators-sulfur oxides (E-SOx). Both technologies show great promise for moderate to high SO<sub>2</sub> control with very low cost and ease of retrofit. PB88-239058/XAB

**Review Of Research in Support of Extrapolation Models by EPA's  
(Environmental Protection Agency's) Office of Research and Development  
(Final rept)**

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EC-87/030

May 87 55p

Languages: English

Journal Announcement: GRAI8823

NTIS Prices: PC A04/MF A01

Country of Publication: United States  
(NTIS)

The report's major finding is that there is no overall, conceptually integrated Environmental Protection Agency (EPA) research program on extrapolation modeling, but a conglomeration of investigator-initiated projects, many of which are commendable in their design and implementation. The major recommendation is that EPA should develop a comprehensive plan for an extrapolation models research program that should: articulate an overall conceptual objective towards which individual projects would aim; enhance EPA's risk assessment, risk management philosophy; develop a framework that promotes more planning and resource stability in support of the research; provide a common nomenclature; improve communication among the Agency's organizational components; and explain to the nonscientist how the research on extrapolation models supports the Agency's regulatory decisions. PB88-247242/XAB

**Risk assessment and management: emergency planning perspectives.**

Martin, Larry R. G. and Gilbert Lafond, ed.

'88 vii+352p, bibls tables diags charts maps

ORDER INFO: Univ Waterloo Pr (C88-093738-6) (ISBN 0-88898-087-6) pa \$37

LANGUAGE: Engl

DOC TYPE: M

Text in French and English.

Based largely on papers presented at a national symposium sponsored by Emergency Preparedness Canada, and held in Arnprior, Ontario, Sept. 1986.

(PAIS INTERNATIONAL)

Covers disaster prevention and preparedness through forecasting and warning, education and training, the organization for and management of disasters, stockpiling of key supplies, earmarking of relief funds and the creation of needed legislation and regulations.

**Risk communication, risk assessment and environmental fate: An integrated approach to risk management**

Air Pollution Control Association 81st Annual Meeting &  
Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988  
Air Pollution Control Association (APCA)  
Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Risk management: not ready for prime time. (Defining the Undefinable: What Risks Are Acceptable?)**

Powell, Jimmie  
Environmental Forum 5 n5 22(3) Nov-Dec, 1988  
GEOGRAPHIC CODE: NNUS  
JURISDICTION: United States  
(LEGAL RESOURCE INDEX)

**Risk management programs: Compliance with state and federal regulations**

Hazzan, M.J.; Vermaelen, P.  
Stone & Webster Eng. Corp., Cherry Hill, NJ  
American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988  
American Institute of Chemical Engineers  
Engineering Societies Library, United Engineering Center, 345 East 47th Street, New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 51a  
Languages: ENGLISH  
(CONFERENCE PAPERS INDEX)

**Technological risks in the highly industrialized society. Determination - assessment - control. (Technische Risiken in der Industriegesellschaft. Erfassung Bewertung - Kontrolle)**

Compes, P.C.  
Gesellschaft fuer Sicherheitswissenschaft e.V., Wuppertal (Germany, F.R.).  
Corp. Source Codes: 088592000  
1986 569p  
Languages: German  
Document Type: Conference proceeding  
Journal Announcement: GRAI8907  
In German, 7. international GfS summer symposium on technological risks in the highly industrialized society: Determination - assessment - control, Bonn (Germany, F.R.), 26-28 May 1986.  
NTIS Prices: PC E99  
Country of Publication: Germany, Federal Republic of  
(NTIS)

Before discussing the technical and other means of risk management, one has to look at the means and measures available for determining, explaining, evaluating and assessing the risks. Due to the different cause-response-relationships of the various technological risks, and their internal or external effects, decision-making processes meet with serious problems.



The topics dealt with at the GfS summer symposium cover aspects such as the law and practice, risk minimization as an object of legal protection, risk assessment as a scientific problem, and safety research. The question inevitably involved in all aspects is how efficiently in practice are institutionalized procedures for creating, maintaining, or even increasing, safety. Eighteen papers are separately indexed and analyzed for the data base. (DG). (Copyright (c) 1988 by FIZ. Citation no. 88:082925.) TIB/B88-82925/XAB

**POLICY . . . includes federal, state and local policy, science, public and regulatory policy**

**Biotechnology; Managing the Risks of Field Testing Genetically Engineered Organisms**

(Rept. no. 2)

General Accounting Office, Washington, DC. Resources, Community and Economic Development Div.

Corp. Source Codes: 010682026; 413437

Report No.: GAO/RCED-88-27

Jun 88 105p

Languages: English

Journal Announcement: GRAI8824

NTIS Prices: PC A06/MF A01

Country of Publication: United States

(NTIS)

The Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, requested that GAO review the federal risk management of genetically engineered organisms intended for agricultural and health uses in the environment. This report (1) evaluates the scope of regulatory policies applicable to deliberate, small-scale releases, (2) reviews the administrative procedures for implementing these policies, and (3) identifies technical methods available to control and monitor risks posed by field testing. It focuses on agencies directly responsible for regulating environmental introductions: the Department of Agriculture (USDA), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). USDA, EPA, and FDA have limited experience with genetically engineered organisms used in the environment and are uncertain about their effects. Each agency generally uses a detailed prerelease evaluation process that draws upon a broad range of scientific expertise to review proposals for field tests on a case-by-case basis. The agencies have made efforts to coordinate their policies and review procedures. USDA has issued a new rule and EPA is considering amending regulations to cover the range of products under their jurisdictions more completely. Even so, some organisms are not subject to regulation due to differences in legislative mandates and risk management policies. Although genetically engineered microorganisms cannot be completely contained at the field-test site, a variety of control methods are available to limit their dispersal and impact. These include setting physical barriers at the test site and selecting organisms with vulnerable biological features. AD-A197 655/4/XAB

**New Jersey's perspective: Risk management and self-auditing**

Edwards, A.T.

New Jersey Dep. Environ. Prot., Trenton, NJ

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 51b

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk management in five states: A survey**

Boissevain, A.

ART, Inc., Concord, MA

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street, New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 35d

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**LEGAL ASPECTS**

**California's Proposition 65 and the chemical hazard warning: risk management under the new code of popular outrage.**

Kuryla, Matthew L.

Virginia Journal of Natural Resources Law 8 n1 103-139 Fall, 1988

GEOGRAPHIC CODE: NNUSWCA

JURISDICTION: California

(LEGAL RESOURCE INDEX)

**Predicting the effects of food cancer risk warnings on consumers. (California)**

Viscusi, W. Kip

Food Drug Cosmetic Law Journal 43 n2 283-307 March, 1988 illustration; table

GEOGRAPHIC CODE: NNUSWCA

JURISDICTION: California

CAPTIONS: Effects of bleach labels for precaution-taking.; Effects of drain labels on precaution-taking.; Worker response to hazard warnings.; (Consumers' price response to changes in risk.); Warning content summaries.; Comparison of California warning with other wordings.; Risk assessment for Proposition 65 warning.  
(LEGAL RESOURCE INDEX)

**Status of U.S. EPA's (Environmental Protection Agency's) Sludge Incinerator Regulations**

Crumpler, E. P. ; Rubin, A. 8. ; Bostian, H. E.  
Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.  
Corp. Source Codes: 034122084  
Report No.: EPA/600/D-88/231  
Nov 88 8p  
Languages: English  
Journal Announcement: GRAI8905  
NTIS Prices: Pc A02/MF A01  
Country of Publication: United States  
(NTIS)

The report describes a potential regulatory approach that the U.S. EPA could use for controlling sewage sludge incinerators. The approach utilizes a most exposed individual risk assessment to ensure that sludge incineration air emissions will not cause an unacceptable health risk. An incinerator facility can demonstrate compliance using a three-tiered system which proceeds from a simple worst case calculation to a more resource intensive site-specific demonstration. A key part of the tiering system is development of an accurate and reliable emissions data base for U.S. sludge incinerators which can be used to develop reasonable worst case emission control factors. The results of testing to date are discussed in the paper. PB89-124366/XAB

**Toward resolution of insurance coverage questions in toxic tort litigation.  
(New Jersey) (Symposium: Toxic Waste)**

Bauer, Janine; Lakind, Arnold  
Rutgers Law Review 38 n4 677-727 Summ, 1986  
GEOGRAPHIC CODE: NNUSLNd  
JURISDICTION: New Jersey  
CASE: Ayers v. Township of Jackson 461 A.2d 184 (N.J. 1983); Jackson Township Municipal Utilities Authority v. Hartford Accident & Indemnity Co. 451 A.2d 990 (N.J. 1982)  
(LEGAL RESOURCE INDEX)

**Toxic waste liability a risk in acquisitions.**

Varnum, John E.; Achterman, Gail L.  
National Law Journal v8 col 1 p15 Oct 28, 1985  
423 col in  
GEOGRAPHIC CODE: NNUS  
JURISDICTION: United States  
(LEGAL RESOURCE INDEX)

## **CHEMICAL SPECIFIC RISK MANAGEMENT**

### **Adverse health consequences of their use and the limitations of traditional control standards. (Risk management for hazardous chemicals, part 1)**

Oleinick, Arthur; Fodor, William U.; Susselman, Marc M.

Journal of Legal Medicine 9 n1 1-103 March, 1988 illustration; table

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

CAPTIONS: (National occupational hazards survey, 1972-1974.) (Rates of disabling work injuries and illness from chemical sources.); (Actual of potential exposures to IARC carcinogens.); Percent attributable risk from asbestos exposure and smoking.; (Reported cancer risks associated with occupational exposure.); (Risk of lung cancer from occupational exposure.)

(LEGAL RESOURCE INDEX)

### **ASBESTOS REMOVAL NEED NOT BE DAUNTING,**

PALLUZI RICHARD P. EXXON. CHEMICAL ENGINEERING, SEP 12, 88, V95, N12, P95(5)  
(ENVIROLINE)

JOURNAL ARTICLE SINCE US FEDERAL AND STATE LAWS REQUIRE THAT ASBESTOS BE REMOVED, THIS PROCESS IS RECEIVING MUCH ATTENTION FROM THE CHEMICAL PROCESS INDUSTRIES. PRESENTED IS AN OUTLINE FOR THE ORGANIZATION AND IMPLEMENTATION OF AN INDUSTRIAL ASBESTOS-REMOVAL PROGRAM. EMPLOYEE SAFETY IS, OF COURSE, PRIMARY TO THE DEVELOPMENT OF A PROGRAM. ONCE HAZARD ASSESSMENT HAS BEEN ASSIGNED TO EACH AREA, THE COMPANY CAN EITHER TRAIN IN-HOUSE PERSONNEL TO REMOVE THE ASBESTOS OR HIRE A SPECIALIZED INDEPENDENT CONTRACTOR. METHODS ARE GIVEN FOR ESTIMATING THE COSTS OF DIRECT ASBESTOS-REMOVAL AND DISPOSAL. MONITORING OF THE AMBIENT AIR IS ALSO VERY IMPORTANT. (5 PHOTOS) Enviroline Number: \*88-091070

### **Dioxin in the agricultural foodchain: A health risk assessment model for MSW incinerators**

Stevens, J.B.

Environ. and Occup. Health, Univ. Minnesota, Minneapolis, MN

Air Pollution Control Association 81st Annual Meeting & Exhibition - APCA '88 Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.D. Box 2861, Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Economic model for evaluating alternative risk management measures applied to utility PCB equipment risks**

Amaral, D.

Univ. North Carolina, CB No. 7410, 311 Pittsboro St., Chapel Hill, NC

Air Pollution Control Association 81st Annual Meeting & Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)

(CONFERENCE PAPERS INDEX)

## **Reducing the Risk of Spillage in the Transportation of Chemical Wastes by Truck**

(Final rept. 1 Mar 88-31 Dec 88)

Ervin, R. D. ; Mathew, A.

Michigan Univ., Ann Arbor. Transportation Research Inst.

Corp. Source Codes: 002797323

Sponsor: Rohm and Haas Co., Bristol, PA. Engineering Div.

Report No.: UMTRI-I88-28

Jul 88 28p

Languages: English

Journal Announcement: GRAI8906

Sponsored by Rohm and Haas Co., Bristol, PA. Engineering Div.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The spillage of liquids in bulk quantities during transportation is examined from the viewpoint of the risk reduction which will result from improved vehicle roll stability. Roll stability limits were first computed for conventional vehicles used currently by the Rohm and Haas Company to transport chemical waste products. The vehicles in question included tractor-semitrailer combinations having both van- and tank-type trailer configurations. The stability level of individual vehicles was related to a national rate of rollover risk, expressed in rollovers per million miles of travel. The risk projections were based upon an evaluation of accident and exposure information generated through a detailed survey program undertaken previously. Improvements in suspension selection, height of the payload center of gravity, and tractor axle width were also examined by means of the stability analysis. When used in combination, such improvements were seen to reduce the rollover risk by as much as 35% relative to Rohm and Haas' current equipment. The problem of fluid slosh occurring when a bulk tanker is underfilled was also considered by reference to existing literature. PB89-130082/XAB

## **HAZARDOUS WASTE**

### **Chemical, Physical, and Biological Properties of Compounds Present at Hazardous Waste Sites**

(Final rept)

Clement Associates, Inc., Fairfax, VA.

Corp. Source Codes: 093221000:

Sponsor: GCA Corp., Bedford, MA.; Environmental Protection Agency, Washington, DC. Office of Solid Waste.

Report No.: EPA/530/SW-89/010 27

Sep 85 543p

Languages: English

Journal Announcement: GRAI8907

Portions of this document are not fully legible. Prepared in cooperation with GCA Corp., Bedford, MA. Sponsored by Environmental Protection Agency, Washington, DC. Office of Solid Waste.

NTIS Prices: PC A23/MF A01

Country of Publication: United States

(NTIS)

The chemical profiles are intended to serve as a concise reference with information on the physicochemical properties, transport and fate, toxicity, and regulatory standards for individual chemicals identified by the EPA Office of Waste Program Enforcement at hazardous waste sites. The profiles can be used in conjunction with the Toxicology and Endangerment Assessment Handbooks. PB89-132203/XAB

### **Chemical Stockpile Disposal Program. Community Review Final Report. Disposal of Ton Containers of VX**

(Final rept. Apr-Oct 87)

Heiser, C. ; Bundy, B. ; Hudson, M. ; Ormond, L. ; Greenwell, G.

Concerned Citizens of Vermillion, Parke, Vigo, Fountain and Tippecanoe Counties, Clinton, IN.

Corp. Source Codes: 092011000; 418926

Report No.: SAPEO-CDE-IS-87015

Oct 87 250p

Languages: English

Journal Announcement: GRAI8818

See also AD-A193 350.

NTIS Prices: PC A11/MF A01

Country of Publication: United States

Contract No.: DAAA15-87-C-0030

(NTIS)

This report was produced by the concerned citizens in the area of the Newport Army Ammunition Plant (NAAP) where the Army has proposed to build an incinerator to dispose of chemical agent stored at NAAP. The report addresses areas of concern which the citizens identified and makes a series of recommendations to the Army as to how the chemical agent (VX) at NAAP might be disposed of. AD-A193 349/8/XAB

**Chemical Stockpile Disposal Program. Risk Analysis of the Continued Storage of Chemical Munitions**

(Final rept. 3 Feb 86-25 Aug 87)

Barsell, A. W. ; Bellis, E. A. ; Bolig, C. A. ; Deremer, R. K. Everline, C. J.

GA Technologies, Inc., San Diego, CA.

Corp. Source Codes: 077753000; 397088

Report No.: GA-C-18564; SAPEO-CDE-IS-87009

Aug 87 338p

Languages: English

Journal Announcement: GRAI8818

See also AD-A193 353. Prepared in cooperation with H & R Technical Associates, Inc., JBF Associates, Inc. and Battelle-Columbus Div.

NTIS Prices: PC A15/MF A01

Country of Publication: United States

Contract No.: DAAA15-85-D-0022

(NTIS)

This document has been prepared for the U.S. Army to support the Final Programmatic Environmental Impact Statement for the Chemical Stockpile Disposal Program. This report describes the results of a comprehensive probabilistic assessment of the frequency and magnitude of chemical agent release associated with the storage of chemical munitions at eight U.S. Army installations. Both internal accident initiators (e.g., human error) and external accident initiators (e.g., earthquakes) were analyzed. AD-A193 352/2/XAB

**Chemical Stockpile Disposal Program. Risk Analysis of the Disposal Of Chemical Munitions at Regional or National Sites**

(Final rept. 3 Feb 86-25 Aug 87)

Barsell, A. W. ; Bellis, E. A. ; Bolig, C. A. ; Deremer, R. K. ; Everline, C. J.

GA Technologies, Inc., San Diego, CA.

Corp. Source Codes: 077753000; 397088

Report No.: GA-C-18563; SAPEO-CDE-IS-87006

Aug 87 1158p

Languages: English

Journal Announcement: GRAI8818

See also AD-A193 354. Prepared in cooperation with H & R Technical Associates, Inc., JBF Associates, Inc. and Battelle-Columbus Div.

NTIS Prices: PC A99/MF E08

Country of Publication: United States

Contract No.: DAAA15-85-D-0022

(NTIS)

This document has been prepared for the U.S. Army to support the Final Programmatic Environmental Impact Statement for the Chemical Stockpile Disposal Program. This report describes the results of a Comprehensive probabilistic assessment of the frequency and magnitude of chemical agent release for the storage, handling, on-site transportation, off-site transportation, and chemical demilitarization plant operations associated with the disposal of the chemical stockpile at two regional disposal sites or at a single national disposal site. Rail transportation from seven sites, air transportation from two sites and water transportation from one site were the off-site transportation modes analyzed. Both internal accident initiators (e.g., human error, equipment malfunction) and external accident initiators (e.g., earthquakes, airplane crashes) were included in the analysis. AD-A193 355/5/XAB

**Chemical Stockpile Disposal Program. Risk Analysis of the Onsite Disposal of Chemical Munitions**

(Final rept. 12 Feb 86-25 Aug 87)

Barsell, A. W. ; Bellis, E. A. ; Bolig, C. A. ; Deremer, R. K. ; Everline, C. J.

GA Technologies, Inc., San Diego, CA.

Corp. Source Codes: 077753000; 397088

Report No.: GA-C-18562; SAPEO-CDE-IS-87010

Aug 87 781p

Languages: English

Journal Announcement: GRAI8818

See also AD-A193 355. Prepared in cooperation with H & R Technical Associates, Inc., JBF Associates, Inc. and Battelle-Columbus Div.

NTIS Prices: PC A99/MF E04

Country of Publication: United States

Contract No.: DAAA15-85-D-0022

(NTIS)

This document has been prepared for the U.S. Army to support the Final Programmatic Environmental Impact Statement for the Chemical Stockpile Disposal Program. This report describes the results of a comprehensive probabilistic assessment of the frequency and magnitude of chemical agent release associated with storage, handling, onsite transportation and chemical demilitarization plant operation at eight U.S. Army installations. Both internal accident initiators (e.g., human error) and external accident initiators (e.g., earthquakes) were analyzed. Keywords: Chemical stockpile, Chemical munitions, Disposal of chemical munitions, Risk analysis, Hazards analysis, Probabilistic risk assessment. AD-A193 354/8/XAB

**CLEANING UP A HAZARDOUS WASTE SITE IN A RESIDENTIAL AREA,**

DAVIS d. D. AND ; DOUGAS P. P. SINCLAIR KNIGHT 8 PARTNERS, AUSTRALIA,

AUSTRALIAN WATER & WASTEWATER ASSN HAZARDOUS WASTE MGT 2ND

NATL CONF, SYDNEY, NOV 15-18, 87, P23.1(10)

(ENVIROLINE)

CONF PAPER A REMEDIAL INVESTIGATION/FEASIBILITY STUDY APPROACH IS FOLLOWED IN AUSTRALIA FOR THE ASSESSMENT AND CLEANUP OF HAZARDOUS WASTE DISPOSAL SITES. THIS PROCEDURE WAS DEPLOYED IN TREATING A HAZARDOUS WASTE SITE DISCOVERED IN A RESIDENTIAL AREA OF KINGSTON, QUEENSLAND. THE INVESTIGATIONS WERE DIRECTED TOWARD HEALTH AND ENDANGERMENT ASSESSMENTS AND EFFECTS ON PROPERTY OWNERSHIP AS WELL AS ON TECHNICAL SOLUTIONS TO CONTAMINATION. THE CLEANUP AND REMEDIAL PROGRAM EMPHASIZED THE RECOGNITION OF THE EMOTIONAL STRESS ON LOCAL RESIDENTS AND THE POTENTIAL IMPACTS OF THE MEDIA. FULL INFORMATION ON PROJECT PROGRESS WAS PROVIDED FOR RESIDENTS. (2 MAPS, 6 REFERENCES) Enviroline Number: \*88-071118



**Education and Training for Health Risk Assessment and Management of Hazardous Waste**

(Final rept)

Pacific Environmental Services, Inc., Durham, NC.

Corp. Source Codes: 079704000

Sponsor: Bureau of Health Professions, Rockville, MD.

Mar 86 109p

Languages: English

Journal Announcement: GRAI8902

Sponsored by Bureau of Health Professions, Rockville, MD.

NTIS Prices: PC A06/MF A01

Country of Publication: United States

(NTIS)

Principles of risk assessment and management of hazardous waste are difficult to apply, and information of optimal decisions related to hazardous waste requires a multidisciplinary approach. Government and private industry personnel often find that a team that makes a risk assessment and/or hazardous waste management decision does not include staff educated to accomplish the most informed and effective action. Therefore, to improve education and training for health risk assessment and management of hazardous waste, a workshop was convened. The work group examined the knowledge and skills required of a wide range of hazardous waste personnel and the availability of these skills in the current work force. Specific risk assessment and risk management basic curricula and continuing education were recommended by the work group. Suggestions were developed to improve knowledge and skills of personnel in the field. HRP-0907219/O/XAB

**EPA (Environmental Protection Agency) Region X Guidance Manual for the Development of an Accidental Spill Prevention Program**

Science Applications International Corp., McLean, VA.

Corp. Source Codes: 082583000

Sponsor: Environmental Protection Agency, Seattle, WA. Region X.

Report No.: EPA/910/9-87/170

Feb 86 164p

Languages: English

Journal Announcement: GRAI8822

Sponsored by Environmental Protection Agency, Seattle, WA. Region X.

NTIS Prices: PC A08/MF A01

Country of Publication: United States

Contract No.: EPA-68-01-7043

(NTIS)

The document was prepared for EPA Region X to assist publicly owned treatment works (POTWs) in implementing a component of their Pretreatment Program, namely the prevention of accidental spills and slug discharges from industrial users. Such spills and slug discharges could cause damage to a POTW's collection system, interfere with the operation or its treatment plant, affect water quality and sludge usage, and potentially affect worker health and safety. The important elements of an accidental spill prevention program include the following: identification of potential sources and risks, evaluation and/or development of legal authority to regulate spills and slug discharges, requirements for industrial users to develop Accidental Spill Prevention Program plans and submit them to the POTW for review, inspection and monitoring of potential sources of problem discharges, development of emergency procedures and resources. PB88-239173/XAB

**Hazardous materials routing: risk management or mismanagement?**

Glickman, Theodore S.

Resources p 11-13 Fall '88, map

LANGUAGE: Engl

DOC TYPE: P

United States.

(PAIS INTERNATIONAL)

**Permit Writers Guidance Manual for the Location of Hazardous Waste Land Treatment, Storage and Disposal Facilities. Phase 2**

(Final rept)

Environmental Protection Agency, Washington, DC. Science Advisory Board.

Corp. Source Codes: 031287050

Report No.: SAB/EEC-86/016

Jun 86 17p

Languages: English

Journal Announcement: GRAI8824

See also PB86-125580.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The guidance was prepared by the Office of Solid Waste (OSW) in response to a requirement in Section 3004 (o) (7) of RCRA, which requires the Agency to publish 'guidance criteria' for identifying areas of vulnerable hydrogeology and to promulgate regulations specifying criteria for the acceptable location of new and existing RCRA facilities. PB88-246806/XAB

**Update of Innovative Thermal Destruction Technologies**

Lee, C. C. ; Huffman, G. L.

Environmental Protection Agency, Cincinnati, OH. Risk Reduction Engineering Lab.

Corp. Source Codes: 034122084

Report No.: EPA/600/D-88/225

Oct 88 39p

Languages: English

Journal Announcement: GRAI8904

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

Five innovative technologies for thermally destroying hazardous wastes were selected and described in the paper. They are Oxygen-Enriched Incineration, Westinghouse/O'Connor Combustor, Circulating Bed Combustion, Infrared System, and Plasma Arc. Two important criteria used in selecting these technologies are that they are at least at the stage of pilot-scale demonstration, and appear to be promising in terms of destruction effectiveness. PB89-118541/XAB

**THE VALUATION OF ENVIRONMENTAL RISKS AND HAZARDOUS WASTE POLICY,**  
SMITH V. K. (NORTH CAROLINA STATE UNIV) AND ; DESVOUSGES WILLIAM H. (RESEARCH  
TRIANGLE INST, NC),  
LAND ECONOMICS, AUG 88, V64, N3, P211(9)  
(ENVIROLINE)

JOURNAL ARTICLE SOME RESEARCHERS CONTEND THAT IN SOME CASES, PRE-POLLUTION  
ACTIONS TO PREVENT GROUNDWATER CONTAMINATION BY HAZARDOUS WASTES WOULD NOT  
HAVE BEEN PREFERRED TO REMEDIAL ACTIONS. BY FOCUSING PRIMARILY ON THE  
COMMUNITY'S EXPECTED COSTS OF ALTERNATIVE POLICIES, THIS ANALYSIS ASSUMES THAT  
EACH POLICY WILL YIELD EQUIVALENT SERVICES. IN CONTRAST, A NEW ANALYSIS SUGGESTS  
THAT BENEFIT MEASURES FOR POLICIES INVOLVING RISK FROM HAZARDOUS WASTES OR ANY  
OTHER POLICY-RELATED RISKS MAY NEED TO BE CONSTRUCTED DIFFERENTLY FROM THE  
MEASURE CONSIDERED IN CONVENTIONAL COST-BENEFIT STUDIES THAT ASSUME CERTAINTY.  
THE EXERCISE SHOWS THAT THERE IS MORE THAN THE USUAL ESTIMATION ERRORS PRESENT  
IN USING EXPECTED EX POST CONSUMER SURPLUS MEASURES TO INDICATE THE BENEFITS OF  
POLICIES DESIGNED TO REDUCE RISKS. (1 GRAPH, 24 REFERENCES) Enviroline Number:  
\*89-000932

## **RADIATION**

### **Cost/Risk Analysis of Evacuation Options**

Tawil, U. O. ; Streng, D. L.  
Battelle Pacific Northwest Labs., Richland, WA.  
Corp. Source Codes: 048335000; 9512268  
Sponsor: Department of Energy, Washington, DC.  
Report No.: PNL-SA-13737  
Feb 86 39p  
Languages: English  
Journal Announcement: GRAI8903; NSA1300  
Portions of this document are illegible in microfiche products.  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
Contract No.: AC06-76RL01830  
(NTIS)

In this paper we evaluate the costs and risks associated with evacuating an area threatened by  
a nuclear power plant accident. The risks refer to the expected health effects from radiation  
dose that would be received by individuals if they did not evacuate, while the costs refer to the  
evacuation costs. For a given dispersion of radionuclides, the evacuation costs will vary  
primarily with 1) the exposure risk level, which determines the outer boundaries of the  
evacuation zone, and 2) the shape of the evacuation zone. Results are produced for a range of  
exposure risk levels and for two evacuation zone configurations. One configuration minimizes  
the number of evacuees for a given exposure risk level; the second is easier to implement.  
(ERA citation 13:046656) DE88013185/XAB

### **Forms for Documenting Radiation Safety Programs**

(Final rept.)

Weed, R. ; Donovan, L.

Medical Center, Scott AFB, IL.

Corp. Source Codes: 092014000; 418893

Report No.: USAFMCS/TR-88/001

Jan 88 78p

Languages: English

Journal Announcement: GRAI8818

NTIS Prices: PC A05/MF A01

Country of Publication: United States

(NTIS)

The Department of Radiology, US Air Force Scott Medical Center, created and compiled this booklet of document forms in Quality Assurance/Risk Management and ALARA (as low as reasonably achievable) for Nuclear Medicine/Radiology Departments. A health physicist manages, evaluates, trial tests, and currently uses forms such as these. They can be altered or easily redesigned as the needs of radiation surveillance programs change. These Documental Forms for Ionizing Radiation (Formless Forms) should be useful for facilities that devise their own Nuclear Medicine/Radiology Quality Assurance-Risk Management and ALARA Programs. AD-A193 180/7/XAB

### **HEALTH AND SAFETY PROTECTION IN THE MANAGEMENT OF THE NATION'S HIGH-LEVEL RADIOACTIVE WASTE,**

DOE REPORT RW-0169, MAY 88 (3)

(ENVIROLINE)

FED GOVT REPORT DOE IS ESTABLISHING A SCHEDULE FOR THE SITING, CONSTRUCTION, AND OPERATION OF A GEOLOGIC REPOSITORY THAT WILL PROVIDE A REASONABLE ASSURANCE THAT THE PUBLIC AND THE ENVIRONMENT WILL BE ADEQUATELY PROTECTED FROM HAZARDS POSED BY HIGH-LEVEL RADIOACTIVE WASTE DISPOSAL. REQUIREMENTS FOR RADIOLOGICAL AND INDUSTRIAL SAFETY, BASED ON SAFETY STANDARDS AND CRITERIA, WILL BE FACTORED INTO THE DESIGN OF ALL SYSTEMS IN BOTH THE LICENSED AND UNLICENSED FACILITIES. ASSURED LONG-TERM PROTECTION OF THE PUBLIC FROM EXPOSURES REQUIRES A DISPOSAL SYSTEM OF MULTIPLE INDEPENDENT BARRIERS. THESE INCLUDE THE WASTE PACKAGE, THE REPOSITORY, AND THE NATURAL SYSTEM. SITE SELECTION, RADIOLOGICAL MONITORING, AND SYSTEMS SAFETY ANALYSIS COMPONENTS OF THE PROGRAM ARE DISCUSSED. (1 DIAGRAM)  
Enviroline Number: \*88-081338

### **Risk Assessment for Long-Term Post-Accident Sequences**

Ellia-Hervy, A. ; Ducamp, F.

CEA Centre d'Etudes Nucleaires de Fontenay-aux-Roses (France). Dept. d'Analyse de Surete. Corp. Source Codes: 056141019; 1290300

Report No.: CEA-DAS-399

Nov 87 5p

Languages: English

Journal Announcement: GRAI8901; NSA1300

PSA 87: international topical meeting on probabilistic safety assessment and risk management, Zurich, Switzerland, 31 Aug 1987.

U.S. Sales Only.

NTIS Prices: PC A02/MF A01

Country of Publication: France

(NTIS)

Probabilistic risk analysis, currently conducted by the CEA (French Atomic Energy Commission) for the French replicate series of 900 MWe power plants, has identified accident sequences requiring long-term operation of some systems after the initiating event. They have been named long-term sequences. quantification of probabilities of such sequences cannot rely exclusively on equipment failure-on-demand data: it must also take into account operating failures, the probability of which increase with time. Specific studies have therefore been conducted for a number of plant systems actuated during these long-term sequences. This has required: - Definition of the most realistic equipment utilization strategies based on existing emergency procedures for 900 MWe French plants. - Evaluation of the potential to repair failed equipment, given accessibility, repair time, and specific radiation conditions for the given sequence. - Definition of the event bringing the long-term sequence to an end. Establishment of an appropriate quantification method, capable of taking into account the evolution of assumptions concerning equipment utilization strategies or repair conditions over time. The accident sequence quantification method based on realistic scenarios has been used in the risk assessment of the initiating event loss of reactor coolant accident occurring at power and at shutdown. Compared with the results obtained from conventional methods, this method redistributes the relative weight of accident sequences and also demonstrates that the long term can be a significant contribution to the probability of core melt. (ERA citation 13:033617) DE88753167/XAB

## **ECONOMIC ANALYSIS**

### **Application of economic risk assessment to-hazardous waste remediation projects**

Ellis, T.R.

Ellis Int. Serv.. Inc., 1067 St. Paul St., Denver, CO

Air Pollution Control Association 81st Annual Meeting & Exhibition - APCA '88 8825011

Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Controlling environmental impairment liability from an insurance perspective: Risk management for underground storage tanks**

Gulledge, W.P.

Environ. Insur. Manage., McLean, VA

Air Pollution Control Association 81st Annual Meeting & Exhibition - APCA '88 8825011

Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Economic risk assessment of facilities burning hazardous materials**

Holton, G.A.

First Environ., Inc., 314 W. Broadway, Lenoir City, TN

Air Pollution Control Association 81st Annual Meeting &

Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

### **Environmental liability risk management.**

Forte, Joseph Philip

Probate and Property 2 n7 57-61 Jan-Feb, 1989

CODEN: PPRODS

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

(LEGAL RESOURCE INDEX)

**How risk management cuts insurance costs.**

Cummings, John A.

National Law Journal v6 col 3 p15 Oct 17, 1983

69 col in

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

SIC CODE: 8111

(LEGAL RESOURCE INDEX)

**Risk retention groups: a risk-management alternative.**

Bader, Allan

Journal of Accountancy 166 n3 152(4) Sept. 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

SIC CODE: 6300

(LEGAL RESOURCE INDEX)

**CORPORATE RISK MANAGEMENT**

**Auditing and risk management at American Cyanamid**

Page, G.

American Cyanamid, Wayne, NU

American Institute of Chemical Engineers 1988 Summer

National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 845 East 47th Street, New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No.

65a

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Comprehensive risk management practices in the developing world: A case study on the multi-nationals chemical industry in Asian markets**

Ives, J.; Covello, V.

Suffolk Univ. Sch. Manage., Boston, MA

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CD (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No.

65f

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Corporate risk management at Mobil Oil Corporation**

Gremillion, C.E.; Petrucco, R.J.

Mobil Oil Corp., Princeton, NB

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 65g

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Operational safety and risk management at Union Carbide's Seadrift, Texas plant**

Moore, J.D.

Union Carbide Corp., Pt. Lavaca, TX

American Institute of Chemical Engineers 1988 Summer National Meeting 8830985 Denver, CO (USA) 21-24 Aug 1988

American Institute of Chemical Engineers

Engineering Societies Library, United Engineering Center, 345 East 47th Street. New York, NY 10017 (USA). Telephone: (212)705-7611, Individual Papers are also Available Paper No. 65e

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)



# **RISK COMMUNICATION**

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

## **INFORMING THE DECISION-MAKER**

### **Risk communication and local emergency planning committees**

Owens, W.L.; Conn, W.D.; Rich, R.C.; Manheim, J.B.

Univ. Cent. Environ. and Hazardous Mater. Stud., Virginia Polytech. Inst. and State Univ., Blacksburg, VA

Air Pollution Control Association 81st Annual Meeting &

Exhibition - APCA '88 8825011 Dallas, TX (USA) 19-24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

## **INFORMING THE PUBLIC**

### **Assessing Social and Economic Effects of Perceived Risk. Workshop Summary Draft: BWIP Repository Project**

Nealey, S. M. ; L1ebow, E. B.

Battelle Human Affairs Research Centers, Seattle, WA.

Corp. Source Codes: 057602000; 9501199

Sponsor: Department of Energy, Washington, DC.

Report No.: PNL-6515; BHARC-800/88/005

Mar 88 38p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8901; NSA1300

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: AC06-76RL01830

(NTIS)

The US Department of Energy sponsored a one-day workshop to discuss the complex dimensions of risk judgment formation and the assessment of social and economic effects of risk perceptions related to the permanent underground storage of highly radioactive waste from commercial nuclear power plants. Affected parties have publicly expressed concerns about potentially significant risk-related effects of this approach to waste management. A selective review of relevant literature in psychology, decision analysis, economics, sociology, and anthropology was completed, along with an examination of decision analysis techniques that might assist in developing suitable responses to public risk-related concerns. The workshop was organized as a forum in which a set of distinguished experts could exchange ideas and observations about the problems of characterizing the effects of risk judgments. Out of the exchange emerged the issues or themes of problems with probabilistic risk assessment techniques are evident; differences exist in the way experts and laypersons view risk, and this leads to higher levels of public concern than experts feel are justified; experts, risk managers, and decision-makers sometimes err in assessing risk and in dealing with the public; credibility and trust are important contributing factors in the formation of risk judgments; social and economic consequences of perceived risk should be properly anticipated; improvements can be made in informing the public about risk; the role of the public in risk assessment, risk management and decisions about risk should be reconsidered; and mitigation and compensation are central to resolving conflicts arising from divergent risk judgments. 1 tab. (ERA citation 13:039382) DE88010589/XAB

### **Atom-plant disclosure: knowledge as a sword?**

Sherman, Rorie

National Law Journal v11 n12 col 2 p3 Nov 28, 1988

EDITION: Mon 15 col in

illustration photograph

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

(LEGAL RESOURCE INDEX)

**The beginnings of chemical control. (Title III in the Real World)**

Millar, Fred

Environmental Forum 5 n4 26(2) Sept-Oct, 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

STATUTE: Superfund Amendments and Reauthorization Act of 1986

(LEGAL RESOURCE INDEX)

**Chemical hazard disclosure under federal and state right-to-know laws.**

McElveen, Junius, Jr.; Postol, Lawrence P.

Practical Lawyer 31 n4 75-91 June 1, 1985

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

SIC CODE: 2800

(LEGAL RESOURCE INDEX)

**Community Right-to-Know and Emergency Planning: Using Computers to Conduct Hazards Analysis**

(Rept. for May 86-Jul 88)

Bare, J. C.

Environmental Protection Agency, Research Triangle Park, NC.

Air and Energy Engineering Research Lab.

Corp. Source Codes: 034680076

Report No.: EPA/600/D-88/210

Oct 88 19p

Languages: English

Journal Announcement: GRAI8903

NTIS Prices: PC A03/MF A01

Country of Publication: United States

(NTIS)

The paper discusses the process of hazards analysis and the basic building blocks of systems used for data storage, retrieval, correlation, and analysis, to better inform people choosing and/or evaluating the systems. The remainder of the paper discusses: (1) the process of hazards analysis, including the three basic steps of hazard identification, vulnerability analysis, and risk analysis, performed in two phases--screening and planning; and (2) three basic building blocks of these computer systems--database management, mathematical capabilities, and graphical capabilities. All discussion relates to the Emergency Planning and Community Right-to-know Act of 1986 (Title III of the Superfund Amendment and Reauthorization Act--SARA) and its application to facilities handling designated chemicals in excess of specified quantities. PB89-120018/XAB

**Confrontation or compromise? (Title III in the Real World)**

Matsumoto, Gene I.

Environmental Forum 5 n4 25(2) Sept-Oct. 1988

illustration; photograph

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

STATUTE: Superfund Amendments and Reauthorization Act of 1986

DESCRIPTORS: Superfund--law and legislation; Right to know (Hazardous substances)--law and legislation

(LEGAL RESOURCE INDEX)

**Environmentalists praise oil firms' agreeing to direct Prop 65 warnings.  
(California)**

Dresslar, Tom

Los Angeles Daily Journal v101 n185 col 1 p2 Sept 15, 1988

EDITION: Thu 3 col in

GEOGRAPHIC CODE: NNUSWCA

JURISDICTION: California

SIC CODE: 1311

(LEGAL RESOURCE INDEX)

**Fuming over fumes: under a community right-to-know law, the local  
officials are starting to learn about stockpiles and emissions of dangerous  
chemicals, but what will they do with the data?**

Kriz, Margaret E.

Nat J 20:3006-9 N 26 '88, il

LANGUAGE: Engl

DOC TYPE: P

United States.

Contents: Federal preemption; Access to information; More controls?

(PIAS INTERNATIONAL)

**The law and the promise. (Title III in the Real World)**

Berkowitz, Jorge H.

Environmental Forum 5 n4 24(3) Sept-Oct, 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

STATUTE: Superfund Amendments and Reauthorization Act of 1986

(LEGAL RESOURCE INDEX)

**National Air Toxics Information Clearinghouse: Case Studies in Risk  
Communication**

(Final rept)

Radian Corp., Research Triangle Park, NC. Progress Center.

Corp. Source Codes: 076365001

Sponsor: Environmental Protection Agency, Research Triangle  
Park, NC. Office of Air Quality Planning and Standards.

Report No.: DCN-88-239-001-38-11; EPA/450/5-88/003

Jun 88 48p

Languages: English

Journal Announcement: GRAI8901  
Sponsored by Environmental Protection Agency, Research  
Triangle Park, NC. Office of Air Quality Planning and  
Standards.  
NTIS Prices: PC A03/MF A01  
Country of Publication: United States  
Contract No.: EPA-68-02-4330  
(NTIS)

The report documents the risk communication experience of three agencies. Case studies are presented describing the experience of the Puget Sound (Washington) Air Pollution Control Agency and the San Diego County (California) Air Pollution Control District in communicating the results of source-specific cancer risk assessments. Routine risk communication practices, rather than a specific case study, are presented for Maryland's Department of the Environment. The report is intended to be most useful to State and Local agencies just beginning to do quantitative cancer risk assessments, and seeking to benefit from the risk communication experience of others. PB89-104277/XAB

**The New Jersey Right to Know Act. (Symposium: Toxic Waste)**

Treat, Sharon Anglin  
Rutgers Law Review 38 n4 755-790. Summ, 1986  
GEOGRAPHIC CODE: NNUSLNU  
JURISDICTION: New Jersey  
STATUTE: New Jersey Worker and Community Right to Know Act  
(LEGAL RESOURCE INDEX)

**Noihing to lose but fear itself. (Title III in the Real World)**

Young, Glynn  
Environmental Forum 5 n4 27(2) Sept-Oct, 1988  
illustration; photograph  
GEOGRAPHIC CODE: NNUS  
JURISDICTION: United States  
STATUTE: Superfund Amendments and Reauthorization Act of 1986  
(LEGAL RESOURCE INDEX)

**Now it's everybody's job. (Title III in the Real World)**

Makris, Jim  
Environmental Forum 5 n4 25(3) Sept-Oct, 1988  
GEOGRAPHIC CODE: NNUS  
JURISDICTION: United States  
STATUTE: Superfund Amendments and Reauthorization Act of 1986  
(LEGAL RESOURCE INDEX)

**Right-to-know: much pain, little gain. (Title III in the Real World)**

Bromberg, Kevin L.

Environmental Forum 5 n4 24(3) Sept-Oct, 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

STATUTE: Superfund Amendments and Reauthorization Act of 1986

SIC CODE: 9511

(LEGAL RESOURCE INDEX)

**Risk communication**

Wilson, R.

Harvard Univ., Cambridge, MA

1988 Hazardous Material Spills Conference 8825005 Chicago, IL (USA) 16-19 May 1988

American Institute of Chemical Engineers (AIChE); National Response Team

Publication Sales, AIChE, 345 East 47th Street, New York, NY 10017 (USA). Telephone (212) 705-7657, Proceedings available; pre-publication price is \$60.00

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk communication on the community level: European experience from the Seveso Directive**

Renn, O.

Clark Univ., 950 Main St., Worcester, MA

Air Pollution Control Association 81st Annual Meeting & Exhibition - APCA '88 8825011 Dallas, TX (USA) 19--24 Jun 1988

Air Pollution Control Association (APCA)

Air Pollution Control Association, P.O. Box 2861, Pittsburgh, PA 15230 (USA)

Languages: ENGLISH

(CONFERENCE PAPERS INDEX)

**Risk Communication: On the Road to Maturity**

Russell, M.

Dak Ridge National Lab., TN.

Corp. Source Codes: 021310000; 4832000

Sponsor: Department of Energy, Washington, DC.

Report No.: CONF-8806245-1

Jul 88 18p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8908; NSA1400

Workshop on evaluation and effective risk communication, Washington, DC, USA, 2 Jun 1988.

Portions of this document are illegible in microfiche products.

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: AC05-840R21400

(NTIS)

This essay suggests that major opportunities for improving public health now resides in changing individual behavior, and that such changes require effective risk communication. Evaluation of efforts has lagged behind practice, however, and indeed many efforts are likely to be ineffective. Evaluation is the key to improving risk communication practice and will lead to it being taken more seriously, supported better, and performed more professionally. At the same time, there are deep value conflicts between the duties of the State and the rights of individuals when persuasions and manipulative techniques are used. The essay suggests an approach on which guidelines for appropriate use of risk communication can be built that lessens these conflicts. (ERA citation 14:001995)  
DE89000647/XAB

**RISK COMMUNICATION TO THE PUBLIC: HOW SAFE IS DRINKING WATER?,**  
MCCALLUM DAVID B AND ; ARKIN ELAINE B. INST FOR HEALTH POLICY ANALYSIS, OC,  
UNIV OF MISSOURI/ET AL TRACE SUBSTANCES IN ENV HEALTH 21STCONF, ST LOUIS, MAY  
25-28, 87, P253(10)  
(ENVIROLINE)

CONF PAPER A HEALTHFUL DRINKING WATER SUPPLY HAS BEEN AN ASSUMPTION BY MOST OF THE PUBLIC FOR DECADES. COMMUNICATING COMPLEX HEALTH RISK INFORMATION TO THE PUBLIC ABOUT WATER SUPPLIES IS FREQUENTLY AS COMPLEX AS DETERMINING LEVELS OF RISK. RISK ASSESSMENT SEEKS TO QUANTIFY RISK WHILE THE PUBLIC MAY BE MORE CONCERNED WITH THE QUALITATIVE ASPECTS OF RISK. THE COMMUNICATION CHALLENGES WHICH MUST BE MET CONCERN: HOW TO PROVIDE INFORMATION WHEN THE SCIENCE IS UNCERTAIN; HOW TO EXPLAIN THE RISK ASSESSMENT PROCESS; AND HOW TO MAXIMIZE APPROPRIATE PUBLIC RESPONSES AND MINIMIZE INAPPROPRIATE ONES THE NEED FOR PUBLIC EDUCATION AND FOR UNDERSTANDING THE TARGET AUDIENCES' NEEDS AND DESIRES IS STRESSED. (13 REFERENCES)      Enviroline Number: \*88-091395

**SHIFTING PUBLIC PERCEPTIONS OF NUCLEAR RISK: CHERNOBYL'S OTHER LEGACY,**  
HOHENEMSER CHRISTOPH AND ; RENN ORTWIN CLARK UNIV,  
ENVIRONMENT, APR 88, V30, N3, P4(14)  
(ENVIROLINE)

JOURNAL ARTICLE THE APRIL 1986 NUCLEAR ACCIDENT AT CHERNOBYL (USSR) EXPOSED NEARLY 400 MILLION PEOPLE WORLDWIDE TO THE RISK OF DELAYED CANCERS CAUSED BY INGESTION, INHALATION, OR EXTERNAL EXPOSURE. RADIATION DOSES FOR 35 COUNTRIES HAVE BEEN REPORTED BY THE US INTERLABORATORY TASK FORCE AND THE OECD. PUBLIC OPPOSITION TO NUCLEAR ENERGY INCREASED FOLLOWING THE ACCIDENT IN DIRECT PROPORTION TO AVERAGE INDIVIDUAL RADIATION DOSES. IN YUGOSLAVIA, FOR EXAMPLE, THE NUMBER OF OPPONENTS TO NUCLEAR ENERGY ROSE FROM 42% TO 78% THE TRANSNATIONAL IMPACT OF THE DISASTER TOOK COUNTRIES BY SURPRISE, AND THEY REACTED IN DIFFERENT WAYS BUT IN ROUGH PROPORTION TO THE AMOUNT OF EXPOSURE. OTHER FACTORS RELATED TO PROTECTIVE MEASURES WERE THE LEVEL OF COMMITMENT TO NUCLEAR POWER AND THE INCREASE IN PUBLIC OPPOSITION TO IT. CHERNOBYL PROVIDES INSIGHTS INTO BOTH RISK PERCEPTION AND RISK MANAGEMENT. (5 GRAPHS, 1 MAP, 3 PHOTOS, 41 REFERENCES, 4 TABLES)      Enviroline Number: \*88-071290

**Technological Conflicts: Problems and Perspectives**

Sartori, S.

ENEA, Rome (Italy).

Corp. Source Codes: 085298000; 2372100

Report No.: ENEA-RTI-STUDI-VASA-87-1

Feb 87 77p

Languages: Italian

Journal Announcement: GRAI8824; NSA1300

In Italian.

U.S. Sales Only. Portions of this document are illegible in microfiche products.

NTIS Prices: PC A05/MF A01

Country of Publication: Italy

(NTIS)

The conditioning of public opinion, specifically with regard to the risks associated with developing technologies, is discussed. The paper analyzes the evolution of public opposition to the development of steam vessels, the automobile, LNG terminals, the supersonic SST and other technological innovations. A comparison is made between public reaction to the development of nuclear energy and the reaction to genetic engineering. A discussion is made about the roles played by federal institutions in managing social behavioral trends. The paper then suggests a model for risk management decision making. (ERA citation 13:034225) DE88753192/XAB

**When the going got tough.... (Title III in the Real World)**

Solyst, Jim

Environmental Forum 5 n4 26(3) Sept-Oct, 1988

GEOGRAPHIC CODE: NNUS

JURISDICTION: United States

STATUTE: Superfund Amendments and Reauthorization Act of 1986  
(LEGAL RESOURCE INDEX)

**Your right to know: a new law is revolutionizing how companies, communities and governments deal with dangerous chemicals.**

Environmental Action 20:21-8 S/O '88, il chart

LANGUAGE: Engl

DOC TYPE: P

Includes national, state, and grassroots information sources:US.

(PAIS INTERNATIONAL)



## **INFORMING THE WORKER**

### **Hazardous chemicals in the workplace: the employer's obligation to inform employees and the community.**

Clare, Nelson A.

St. Mary's Law Journal 20 n2 307-338 Spring, 1989

CODEN:SMLJDT

GEOGRAPHIC CODE:NNUSTTX

JURISDICTION: Texas

STATUTE: Texas Hazard Communication Act of 1985

(LEGAL RESOURCE INDEX)

### **Labor union involvement in occupational safety and health, 1957-1987.**

Robinson, James C.

Journal of Health Politics. Policy and Law 13 n3 453-468 Fal, 1988

illustration; table

GEOGRAPHIC CODE:NNUS

JURISDICTION: United States

CAPTIONS: (% of union contracts covering selected issues in workplace health.); (% of workers belonging to unions by level of hazard in job.)

(LEGAL RESOURCE INDEX)

### **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

illustration; chart; table

GEOGRAPHIC CODE:NNUS

JURISDICTION: United States

SIC CODE: 4953; 9511

CAPTIONS: Federal OSHA chemical hazard determination.; (Hazard communication for OSHA workplace and EPA chemical hazard standards.); Program elements imposed by chemical hazard communication standard.; (Label and material safety data sheet information for carcinogens.); (Enforcement experience: violation items.); Percent of selected violation items classified as serious by OSHA.; Emergency planning and community right-to-know schematic.

(LEGAL RESOURCE INDEX)

### **State employees: disclose presence of hazardous substances. (Selected 1988 Georgia Legislation)**

Bawtinheimer, Stacey B.

Georgia State University Law Review 5 n1 460-463 Fall, 1988

GEOGRAPHIC CODE:NNUSUGA

JURISDICTION: Georgia

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