Epa Risk Assessment Guidelines

The public depends on competent risk assessment from the federal government and the scientific community to grapple with the threat

of pollution. When risk reports turn out to be overblown--or when risks are overlooked--public skepticism abounds. This comprehensive and readable book explores how the U.S. Environmental Protection Agency (EPA) can improve its risk assessment practices, with a focus on

implementation of the 1990 Clean Air Act Amendments. With a wealth of detailed information, pertinent examples, and revealing analysis, the volume explores the "default option" and other basic concepts. It offers two views of EPA operations: The first examines how EPA currently

assesses exposure to hazardous air pollutants, evaluates the toxicity of a substance, and characterizes the risk to the public. The second, more holistic, view explores how EPA can improve in several critical areas of risk assessment by focusing on cross-cutting themes and incorporating

more scientific judgment. This comprehensive volume will be important to the EPA and other agencies, risk managers, environmental advocates, scientists, faculty, students, and concerned individuals.

The Integrated Risk Information

System (IRIS) is a program within the US Environmental Protection Agency (EPA) that is responsible for developing toxicologic assessments of environmental contaminants. An IRIS assessment contains hazard identifications and dose-response assessments of various chemicals

related to cancer and noncancer outcomes. Although the program was created to increase consistency among toxicologic assessments within the agency, federal, state, and international agencies and other organizations have come to rely on IRIS assessments for setting

regulatory standards, establishing exposure guidelines, and estimating risks to exposed populations. Over the last decade, the National Research Council (NRC) has been asked to review some of the more complex and challenging IRIS assessments, including those of

formaldehyde, dioxin, and tetrachloroethylene. In 2011, an NRC committee released its review of the IRIS formaldehyde assessment. Like other NRC committees that had reviewed IRIS assessments, the formaldehyde committee identified deficiencies in the specific

assessment and more broadly in some of EPA's general approaches and specific methods. Although the committee focused on evaluating the IRIS formaldehyde assessment, it provided suggestions for improving the IRIS process and a roadmap for its revision in case EPA decided to

move forward with changes to the process. Congress directed EPA to implement the report's recommendations and then asked the National Research Council to review the changes that EPA was making (or proposing to make) in response to the recommendations. Review of

EPA's Integrated Risk Information System (IRIS) Process provides an overview of some general issues associated with IRIS assessments. This report then addresses evidence identification and evaluation for IRIS assessments and discusses evidence integration for hazard evaluation and

methods for calculating reference values and unit risks. The report makes recommendations and considerations for future directions. Overall, Review of EPA's Integrated Risk Information System Process finds that substantial improvements in the IRIS process have been made,

and it is clear that EPA has embraced and is acting on the recommendations in the NRC formaldehyde report. The recommendations of this report should be seen as building on the progress that EPA has already made. Sustainability and the U.S. EPA

Arsenic in Drinking Water
EPA Region 10 Supplemental Risk Assessment Guidance for the Superfund Program
Managing the Process
Environmental Evaluation Manual : Interim Final
Risk Assessment Guidance for

Superfund: pt. A. Human health evaluation manualEPA 630/RHuman exposure assessment : a guide to risk ranking, risk reduction, and research planningDIANE PublishingScience and Judgment in Risk

AssessmentNational Academies Press

This document presents an analysis of the Environmental Protection Agency's (EPA) general risk assessment practices, based on typical historic & current

practice. Chapters: Introduction to EPA Risk Assessment; EPA Risk Assessment & Public & Environmental Health Protection; Uncertainty & Variability; Considering Information Gaps in Health Assessments: Use of

Default & Extrapolation Assumptions; Site- & Chemical-Specific Assessments; Ecological Assessment; Summary & Recommendations; List of Useful Abbreviations & Acronyms; General References; References of EPA

Risk Assessment Guidelines; & Additional Useful Web Sites. Illustrations.
Science and Judgment in Risk Assessment
Risk Characterization Handbook
Preliminary Scientific Report of the

Epa Risk Assessment Guidelines for Carcinogenicity, Mutagenicity, Chemical Mixtures, Developmental Effects and Ex
Staff Paper Prepared for the U.S. Environmental Protection Agency by Members of the Risk

Assessment Task Force
Risk Assessment in the Federal Government
The regulation of potentially hazardous substances has become a controversial issue. This volume evaluates past efforts to develop and use risk

assessment guidelines, reviews the experience of regulatory agencies with different administrative arrangements for risk assessment, and evaluates various proposals to modify procedures. The book's conclusions and

recommendations can be applied across the entire field of environmental health.
The U.S. Environmental Protection Agency (EPA) was introduced on December 2, 1970 by President Richard Nixon. The agency is charged with protecting human

health and the environment, by writing and enforcing regulations based on laws passed by Congress. The EPA's struggle to protect health and the environment is seen through each of its official publications. These publications outline new policies,

detail problems with enforcing laws, document the need for new legislation, and describe new tactics to use to solve these issues. This collection of publications ranges from historic documents to reports released in the new millennium, and features

works like: Bicycle for a Better Environment, Health Effects of Increasing Sulfur Oxides Emissions Draft, and Women and Environmental Health.
User's Guide
Report on the Ecological Risk Assessment Guidelines Strategic

Planning Workshop
The Risk Assessment Guidelines of 1986
Supplemental Risk Assessment Guidelines for Superfund

Risk assessment has become a dominant public policy tool for making

choices, based on limited resources, to protect public health and the environment. It has been instrumental to the mission of the U.S. Environmental Protection Agency (EPA) as well as other federal agencies in evaluating public health concerns,

informing regulatory and technological decisions, prioritizing research needs and funding, and in developing approaches for cost-benefit analysis. However, risk assessment is at a crossroads. Despite advances in the field, risk assessment faces a number of

significant challenges including lengthy delays in making complex decisions; lack of data leading to significant uncertainty in risk assessments; and many chemicals in the marketplace that have not been evaluated and emerging agents

requiring assessment. Science and Decisions makes practical scientific and technical recommendations to address these challenges. This book is a complement to the widely used 1983 National Academies book, Risk Assessment in the Federal Government

(also known as the Red Book). The earlier book established a framework for the concepts and conduct of risk assessment that has been adopted by numerous expert committees, regulatory agencies, and public health institutions. The new book embeds

these concepts within a broader framework for risk-based decision-making. Together, these are essential references for those working in the regulatory and public health fields. These guidelines revise and replace EPA's Guidelines for carcinogen risk

assessment, published in 51 FR 33992, Sept. 24, 1986, and the 1999 interim final guidelines. They provide EPA staff guidance for developing and using risk assessments.

Risk Management Program Guidance for Offsite Consequence Analysis

EPA 630/R
2001 Update
Science and Decisions
EPA Region 10 Supplemental Ecological Risk Assessment Guidance for Superfund
Having safe drinking water is important

to all Americans. The Environmental Protection Agency's decision in the summer of 2001 to delay implementing a new, more stringent standard for the maximum allowable level for arsenic in drinking water generated a great deal of criticism and controversy. Ultimately at

issue were newer data on arsenic beyond those that had been examined in a 1999 National Research Council report. EPA asked the National Research Council for an evaluation of the new data available. The committee's analyses and conclusions are presented in Arsenic in

Drinking Water: 2001 Update. New epidemiological studies are critically evaluated, as are new experimental data that provide information on how and at what level arsenic in drinking water can lead to cancer. The report's findings are consistent with those of the 1999 report

that found high risks of cancer at the previous federal standard of 50 parts per billion. In fact, the new report concludes that men and women who consume water containing 3 parts per billion of arsenic daily have about a 1 in 1,000 increased risk of developing bladder or

lung cancer during their lifetime. Sustainability is based on a simple and long-recognized factual premise: Everything that humans require for their survival and well-being depends, directly or indirectly, on the natural environment. The environment provides

the air we breathe, the water we drink, and the food we eat. Recognizing the importance of sustainability to its work, the U.S. Environmental Protection Agency (EPA) has been working to create programs and applications in a variety of areas to better incorporate

sustainability into decision-making at the agency. To further strengthen the scientific basis for sustainability as it applies to human health and environmental protection, the EPA asked the National Research Council (NRC) to provide a framework for

incorporating sustainability into the EPA's principles and decision-making. This framework, Sustainability and the U.S. EPA, provides recommendations for a sustainability approach that both incorporates and goes beyond an approach based on assessing and

managing the risks posed by pollutants that has largely shaped environmental policy since the 1980s. Although risk-based methods have led to many successes and remain important tools, the report concludes that they are not adequate to address many of the

complex problems that put current and future generations at risk, such as depletion of natural resources, climate change, and loss of biodiversity. Moreover, sophisticated tools are increasingly available to address cross-cutting, complex, and challenging issues

that go beyond risk management. The report recommends that EPA formally adopt as its sustainability paradigm the widely used "three pillars" approach, which means considering the environmental, social, and economic impacts of an action or decision. Health

should be expressly included in the "social" pillar. EPA should also articulate its vision for sustainability and develop a set of sustainability principles that would underlie all agency policies and programs.

Guidelines for the Evaluation and

Control of Lead-based Paint Hazards in Housing
Guidelines for Carcinogen Risk Assessment
Review of the EPA's Draft Revised Cancer Risk Assessment Guidelines Pertaining to Children

Human exposure assessment : a guide to risk ranking, risk reduction, and research planning

An Examination of EPA Risk Assessment Principles and Practices

Formaldehyde is ubiquitous in indoor and outdoor air, and

everyone is exposed to formaldehyde at some concentration daily. Formaldehyde is used to produce a wide array of products, particularly building materials; it is emitted from many sources, including power plants, cars, gas and wood stoves,

and cigarettes; it is a natural product in come foods; and it is naturally present in the human body as a metabolic intermediate. Much research has been conducted on the health effects of exposure to formaldehyde, including effects on

the upper airway, where formaldehyde is deposited when inhaled, and effects on tissues distant from the site of initial contact. The U.S. Environmental Protection Agency (EPA) released noncancer and cancer assessments

of formaldehyde for its Intergated Risk Information System (IRIS) in 1990 and 1991, respectively. The agency began reassessing formaldehyde in 1998 and released a draft IRIS assessment in June 2010. Given the complexity of the

issues and the knowledge that the assessment will be used as the basis of regulatory decisions, EPA asked the National Research Council (NRC) to conduct an independent scientific review of the draft IRIS assessment. In this report, the

Committee to Review EPA's Draft IRIS Assessment of Formaldehyde first addresses some general issues associated with the draft IRIS assessment. The committee next focuses on questions concerning specific aspects of the draft

assessment, including derivation of the reference concentrations and the cancer unit risk estimates for formaldehyde. The committee closes with recommendations for improving the IRIS assessment of formaldehyde and provides some

general comments on the IRIS development process.
Use of Human Evidence
An Overview
U.S. Environmental Protection Agency
Preliminary Scientific Report of the

EPA Risk Assessment Guidelines for Carcinogenicity, Mutagenicity, Chemical Mixtures, Developmental Effects and Exposure Assessment EPA's Neurotoxicity Risk Assessment Guidelines