| | | |
|---|---|---|
| 1. | Record Nr. | UNISA996200160503316 |
| | Autore | Ganoulis J |
| | Titolo | Engineering risk analysis of water pollution [[electronic resource] ] : probabilities and fuzzy sets / / Jacques G. Ganoulis |
| | Pubbl/distr/stampa | Weinheim ; ; New York, : VCH, c1994 |
| | ISBN | 1-281-75876-0 |
| | | 9786611758769 |
| | | 3-527-61575-X |
| | | 3-527-61574-1 |
| | Descrizione fisica | 1 online resource (321 p.) |
| | Disciplina | 553.7 |
| | | 628.168 |
| | Soggetti | Water - Pollution |
| | | Water - Pollution potential |
| | | Sewage - Environmental aspects |
| | | Water quality |
| | | Environmental risk assessment |
| | Lingua di pubblicazione | Inglese |
| | Formato | Materiale a stampa |
| | Livello bibliografico | Monografia |
| | Note generali | Description based upon print version of record. |
| | Nota di bibliografia | Includes bibliographical references (p. [289]-295) and index. |
| | Nota di contenuto | Engineering Risk Analysis of Water Pollution Probabilities and Fuzzy Sets; Contents; 1 Introduction; 1.1 Role of Engineering Risk Analysis in Water Pollution Problems; 1.1.1 Importance of Natural Water Resources; 1.1.2 Importance of Water Quality; 1.1.3 Environmental Water Pollution; 1.1.4 Management of Water Quantity and Quality; 1.1.5 Uncertainties in Water Resources Management; 1.2 Environmental Risk Assessment and Management; 1.3 Aim and Organisation of the Book; 2 Risk Identification; 2.1 Definition of Risk; 2.2 Uncertainties in Water Pollution Problems; 2.3 Probabilistic Approach |
| | | 2.3.1 Basic Probability2.3.2 Probabilistic Risk and Reliability; 2.4 Use of Fuzzy Set Theory; 2.4.1 Basic Definitions; 2.4.2 Fuzzy Risk and Reliability; 2.5 Water Quality Specifications; 2.5.1 Water Quality Standards; 2.5.2 Effluent Standards; 3 Risk Quantification; 3.1 Stochastic Approach; 3.1.1 Direct Evaluation; 3.1.2 Second-Moment Formulation; 3.1.3 Frequency Analysis of Data; 3.1.4 Stochastic |

Modelling; 3.1.5 Monte Carlo Simulation; 3.2 Fuzzy Set Theory; 3.2.1 Fuzzy Regression; 3.2.2 Fuzzy Modelling; 3.3 Time Dependence and System Risk; 3.3.1 Failure and Reliability Functions
3.3.2 Failure Rate and Hazard Function3.3.3 Expected Life; 3.3.4 System Risk and Reliability; 3.3.4.1 Series Systems; 3.3.4.2 Parallel Systems; 4 Risk Assessment of Environmental Water Quality; 4.1 Risk in Coastal Water Pollution; 4.1.1 Uncertainties in Coastal Water Quality Processes; 4.1.2 Mathematical Modelling; 4.1.2.1 Molecular Diffusion; 4.1.2.2 Turbulent Diffusion; 4.1.2.3 Turbulent Dispersion; 4.1.2.4 Growth Kinetics; 4.1.2.5 Coastal Circulation; 4.1.3 Random Walk Simulation; 4.1.4 Dispersion by Wind Generated Currents; 4.2 Risk in River Water Quality; 4.2.1 Introduction
4.2.2 Mathematical Modelling and Simulation4.2.2.1 Physically Based Mathematical Models; 4.2.2.2 Numerical Simulation; 4.2.3 Time Series of Water Quality Data; 4.2.4 Risk Assessment; 4.3 Risk in Groundwater Contamination; 4.3.1 Importance of Groundwater Resources; 4.3.1.1 Groundwater in the Hydrological Cycle; 4.3.1.2 Steps in Groundwater Development; 4.3.2 Properties and Field Investigation of Groundwater Systems; 4.3.2.1 Water in Geological Formations; 4.3.2.2 Space and Time Scales; 4.3.3 Aquifer Hydraulic Properties; 4.3.3.1 Measurements and Field Investigations
4.3.4 Conceptual and Mathematical Models4.3.4.1 Conceptual Models and Flow Equations; 4.3.4.2 Analytical Solutions; 4.3.5 Spatial Variability and Stochastic Modelling; 4.3.5.1 Uncertainties in Aquifer Contamination Studies; 4.3.5.2 Stochastic Description; 4.3.6 Risk Assessment of Groundwater Pollution; 4.3.6.1 Immiscible Fluids; 4.3.6.2 Solute Transport and Random Walks; 5 Risk Management; 5.1 Performance Indices and Figures of Merit; 5.2 Objective Functions and Optimization; 5.2.1 Continuous Decision Problems; 5.2.2 Optimization Methods; 5.2.3 Discontinuous Decision Problems
5.3 Basic Decision Theory

| Sommario/riassunto | Question: How can I best evaluate the environmental impact and find the risk of water pollution from wastewater disposal? Answer: This book shows you the way! In a unique and comprehensive manner, questions of risk and reliability in water quality are analyzed. And more than that: The author also develops a methodology to evaluate the environmental impact of wastewater disposal on rivers, groundwater and coastal areas.Major topics covered include: fuzzy set theory for engineering risk analysis/ uncertainty analysis of water quantity and quality data/ stochastic and fuzzy simula |