Selection Criteria Of Waste Processing Technologies

Savannah River Plant, Aiken, Waste Management Activities for Groundwater Protection
Management of Municipal Solid Waste
Application of MCDM Tools in Landfill Site Selection
Proposed Site Selection Criteria for the Development of a Hazardous Waste Management System
Summary of Responses to Issues Raised by Public Comment in Reference to Site Selection Criteria for a Low-level Radioactive Waste Disposal Facility
Discussion Document, Proposed Site Selection Process for the Development of a Hazardous Waste Management System
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Multi-Criteria Decision Analysis for Sustainability Assessment and Ranking
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Disposal of Hazardous Wastes
Connecticut's First Site Selection Process for a Disposal Facility : Report to Congressional Requesters
Discussion Document
Technical Report
Waste Management Master Plan
Hearings Before the Subcommittee on Energy, Nuclear Proliferation, and Federal Services of the Committee on Governmental Affairs, United States Senate, Ninety-fifth Congress, Second Session, July 25, 26 and 27, 1978
Facility Site Selection Criteria
Proceedings of the International Conference on Water and Environment (WE-2003), December 15-18, 2003, Bhopal, India
Results of Technology Down-Selection and Research and Development to Support New Salt Waste Processing Facility
Small Modular Incinerator Systems with Heat Recovery
Geologic Criteria in Waste-management Site Selection in Northeastern North Dakota
Legal Compilation; Statutes and Legislative History, Executive Orders, Regulations, Guidelines and Reports

Technologies and Management Strategies for Hazardous Waste Control: Working papers: pt. A. Hazardous waste categories: a review of literature and past research effort. pt. B. Application of biotechnology to hazardous waste disposal. pt. C. Classification by degree of hazard for selected industrial waste streams. pt. D. Alternatives for reducing hazardous waste generation using end-product substitution (4 v.)
Minnesota's Experience

BAKER BRUNO

Savannah River Plant, Aiken, Waste Management Activities for Groundwater Protection Waste-to-EnergyMulti-Criteria Decision Analysis for Sustainability Assessment and Ranking
Industrial Waste Treatment Handbook provides the most reliable methodology for identifying which waste types are produced from particular industrial processes and how they can be treated. There is a thorough explanation of the fundamental mechanisms by which pollutants become dissolved or become suspended in water or air. Building on this knowledge, the reader will learn how different treatment processes work, how they can be optimized, and the most efficient method for selecting candidate treatment processes. Utilizing the most up-to-date examples from recent work at one of the leading environmental and science consulting firms, this book also illustrates approaches to solve various environmental quality problems and the step-by-step design of facilities. Practical applications to assist with the selection of appropriate treatment technology for target pollutants Includes case studies based on current work by experts in waste treatment, disposal, management, environmental law and data management Provides glossary and table of acronyms for easy reference

Management of Municipal Solid Waste John Wiley & Sons
Industrial Waste Treatment Process Engineering is a step-by-step implementation manual in three volumes, detailing the selection and design of industrial liquid and solid waste treatment systems. It consolidates all the process engineering principles required to evaluate a wide range of industrial facilities, starting with pollution prevention and source control and ending with end-of-pipe treatment technologies. Industrial Waste Treatment Process Engineering guides experienced engineers through the various steps of industrial liquid and solid waste treatment. The structure of the text allows a wider application to various levels of experience. By beginning each chapter with a simplified explanation of applicable theory, expanding to practical design discussions, and finishing with system Flowsheets and Case Study detail calculations, readers can "enter or leave" a section according to their specific needs. As a result, this set serves as a primer for students engaged in environmental engineering studies AND a comprehensive single-source reference for experienced engineers. Industrial Waste Treatment Process Engineering includes design principles applicable to municipal systems with significant industrial influents. The information presented in these volumes is basic to conventional treatment procedures, while allowing evaluation and implementation of specialized and emerging treatment technologies. What makes Industrial Waste Treatment Process Engineering unique is the level of process engineering detail. The facility evaluation section includes a step-by-step review of each major and support manufacturing operation, identifying probable contaminant discharges, practical prevention measures, and point source control procedures. This theoretical plant review is followed by procedures to conduct a site specific pollution control program. The unit operation chapters contain all the details needed to complete a treatment process design. Industrial Waste Treatment Process Engineering will interest environmental engineers, chemical process engineers working in environmental engineering, civil engineers with environmental specialties, as well as graduate students in environmental engineering, corporate environmental engineers, plant engineers, and industry and university technical libraries. These books supplement existing texts detailing the regulatory, legal, and permit preparation requirements imposed on manufacturing facilities. Additionally, Industrial Waste Treatment Process Engineering is designed for engineers preparing environmental appropriations for corporate funding and developing systems for plant facilities sensitive to operating costs.

Application of MCDM Tools in Landfill Site Selection Springer Nature
Waste-to-Energy: Multi-criteria Decision Analysis for Sustainability Assessment and Ranking offers a comprehensive view of the technologies and processes for energy generation as a path for waste treatment, presenting all the necessary information and tools for selecting the most sustainable waste-to-energy solution under varying conditions. The book combines methods such as lifecycle assessment, sustainability assessment, multi-criteria decision-making, and multi-objective optimization modes. In addition, it provides an overview of waste-to-energy feedstocks, technologies and implementation, then goes on to investigate the critical factors and key enablers that influence the sustainable development of the waste-to-energy industry. The book proposes several decision-making methods for the ranking and selection of waste-to-energy scenarios under different levels of certainty and information availability, including multi-criteria, multi-actor and multi-attribute methods. Finally, the book employs lifecycle tools that allow the assessment of economic, environmental and social sustainability of waste-to-energy systems. Explores existing and state-of-the-art waste to energy technologies and systems, as well as their feedstock requirements Presents a wide perspective of sustainability issues of waste-to-energy technologies, also discussing critical influential factors or key enablers for promoting the sustainable development of waste-to-energy solutions Provides multi-dimensional decision-making techniques for choosing the most suitable and sustainable waste-to-energy technologies for different scenarios

Proposed Site Selection Criteria for the Development of a Hazardous Waste Management System WIT Press
There are 3 types of REWDC container types listed. Type 1 is used for long term storage of conditions waste. It's made of steel and it's a 55-gallon galvanized drum with a 90 mil HDPE liner. Type 2 is used for solid waste, point of generation and short term storage. It can be made of steel or poly. They come in 2-gallon, 5-gallon, 30-gallon, and 55-gallon drums used with 4 mil polyethylene liner. Type 3 is used for liquid waste. It can be made of steel or poly. It comes in 2-gallon, 5-gallon, 30-gallon, or 55-

gallon drums. They have a closed head.

Summary of Responses to Issues Raised by Public Comment in Reference to Site Selection Criteria for a Low-level Radioactive Waste Disposal Facility The Energy and Resources Institute (TERI)

Waste management can be problematic. Especially with the emphasis in many countries now being on sustainability, there is a great need for more research on disposal methods. While we have found ways to reduce the volume of waste that needs to disposed. questions remain about the environmental and safety aspects of certain recycled materials and the by-products of waste management activities, current technology improvements, and regulatory and monitoring problems. Featuring papers published at the Sixth International Conference on Waste Management and the Environment, this book contains contributions on the topics such as: Advanced Waste Treatment Technology, Wastewater Treatment; Resources Recovery; Waste Incineration and Gasification; Waste Pre-Treatment; Separation and Transformation; Landfills; Soil and Groundwater Clean-up; Public Awareness; Air Pollution Control; Hazardous Waste, Waste Management; Construction and Demolition Waste Costs; Waste Reduction; Reuse and Recycling, Energy from Waste; Electrical Waste; Rare Metals; Computer Modelling; Methodologies and Practices; Risk Assessment; Nuclear Waste; Environmental Economics Assessment; Laws and Regulations; Biological Treatments; Agricultural Wastes.

Discussion Document, Proposed Site Selection Process for the Development of a Hazardous Waste Management System National Academies Press

This book presents various methods for sustainability assessment of energy systems, under various different conditions and scenarios. It answers the questions of how to measure the sustainability of energy systems by adopting appropriate metrics and methods. This book provides readers with a comprehensive view of the frontiers of sustainability assessment methods for energy system analysis. It presents various methodologies, allowing readers to understand: the complete metrics for sustainability assessment; life cycle thinking for sustainability assessment of energy systems; and the advanced sustainability assessment methods for energy systems. This book is of interest to researchers, engineers, decision makers, and postgraduate students within the field of energy systems, sustainability, and decision analysis.

Nuclear Waste CRC Press

The Department of Energy's (DOE) Savannah River Site (SRS) high-level waste (HLW) program is responsible for storage, treatment, and immobilization of HLW for disposal. The Salt Processing Project (SPP) is the salt waste (water-soluble) treatment portion of this effort. The overall SPP encompasses the selection, design, construction, and operation of technologies to prepare the salt-waste feed material for immobilization at the site's Saltstone Production Facility (SPF) and vitrification facility (Defense Waste Processing Facility [DWPF]). Major constituents that must be removed from the salt waste and sent as feed to DWPF include cesium (Cs), strontium (Sr), and actinides. In April 2000, the DOE Deputy Secretary for Project Completion (EM-40) established the SRS Salt Processing Project Technical Working Group (TWG) to manage technology development of treatment alternatives for SRS high-level salt wastes. The separation alternatives investigated included three candidate Cs-removal processes selected, as well as actinide and Sr removal that are also required as a part of each process. The candidate Cs-removal processes are: crystalline Silicotitanate Non-Elutable Ion Exchange (CST); caustic Side Solvent Extraction (CSSX); and small Tank Tetraphenylborate Precipitation (STTP). The Tanks Focus Area was asked to assist DOE by managing the SPP research and development (R & D), revising roadmaps, and developing down-selection criteria. The down-selection decision process focused its analysis on three levels: (a) identification of goals that the selected technology should achieve, (b) selection criteria that are a measure of performance of the goal, and (c) criteria scoring and weighting for each technology alternative. After identifying the goals and criteria, the TWG analyzed R & D results and engineering data and scored the technology alternatives versus the criteria. Based their analysis and scoring, the TWG recommended CSSX as the preferred alternative. This recommendation was formalized in July 2001 when DOE published the Savannah River Site Salt Processing Alternatives Final Supplemental Environmental Impact Statement (SEIS) and was finalized in the DOE Record of Decision issued in October 2001.

Industrial Waste Treatment Processes Engineering Routledge

This book presents the application of system analysis techniques with case studies to help readers learn how the techniques can be applied, how the problems are solved, and which sustainable management strategies can be reached.

Multi-Criteria Decision Analysis for Sustainability Assessment and Ranking Allied Publishers

First published in 1994, as part of the AAAS Selected Symposia Series. National strategies to minimize pollution, including that from hazardous waste, are evolving in both the United States and Canada. Recent federal hazardous waste regulations in the United States, promulgated under the authority of the Resource Conservation and Recovery Act of 1976 (RCRA), encourage the states to develop their own waste management programs, patterned after federal specifications; some states have developed progressive options. Canadian hazardous waste management programs originate in the provinces. However, the federal government is increasingly involved in developing new treatment technologies, guidelines for consistent management, and control of waste across political boundaries. The authors of this volume find that disposal is still the most common practice for handling hazardous waste in both countries, despite the potential for alternative methods such as industrial process redesign for waste reduction, waste detoxification, recycling, or incineration. Nonetheless, some waste will remain. Sound disposal site selection criteria are prerequisite for industry and government credibility in site selection. Only after accountability is established and recognized will the public lose symptoms of the NIMBY (not in my backyard) syndrome. Even so, public involvement in site selection in these countries should be expected for a site to be accepted. All the while, the three parties— industry, government, and the public— must balance the risk of potential waste hazards with the cost of avoiding adverse effects.

GIS Analysis of the Siting Criteria for the Mixed and Low-Level Waste Treatment Facility and the Idaho Waste Processing Facility Academic Press

Waste-to-EnergyMulti-Criteria Decision Analysis for Sustainability Assessment and RankingAcademic Press

Site-selection Criteria for a Low-level Radioactive Waste Disposal Facility Elsevier

Due to the rapid increase in the production and consumption

processes, societies generate as well as reject solid materials regularly from various sectors. The primary goals of this book are to encourage reduction of waste at the source and to foster implementation of cost-effective integrated solid waste management systems.

Disposal of Hazardous Wastes Independently Published

The U.S. Army's chemical stockpile is aging and gradually deteriorating. Its elimination has public, political, and environmental ramifications. The U.S. Department of Defense has designated the Department of the Army as the executive agent responsible for the safe, timely, and effective elimination of the chemical stockpile. This book provides recommendations on the direction the Army should take in pursuing and completing its Chemical Stockpile Disposal Program.

Energy Systems Evaluation (Volume 1)

This program involved a technical, environmental, and economic assessment of the feasibility of utilizing small modular incinerator systems for solid waste disposal in municipal and industrial applications. The assessment was implemented by (1) overviewing the state-of-the-art, (2) selecting two operational sites (one municipal and one industrial) representative of the state-of-the-art, and (3) subjecting these two sites to a rigorous field evaluation. The two facilities selected for this study were a municipal incinerator plant with a Consumat system in North Little Rock, Arkansas, and the industrial incinerator facility with a Kelley system in the plant of the Truck Axle Division of the Rockwell International Corporation in Marysville, Ohio. This selection was the result of a nationwide survey to find those two facilities which best satisfied several criteria. The principal selection requirements were a solid waste processing module with heat recovery and a capacity of 50 tons or less per day and its being representative of current technology, designs, and operational procedures.

Industrial Waste Treatment Handbook

This report was developed to provide the Greater-Than-Class C Low-Level Radioactive Waste Management Program with criteria and a methodology to select candidate treatment technologies for Greater-Than-Class C low-level radioactive waste (GTCC LLW) destined for dedicated storage and ultimately disposal. The technology selection criteria are provided in a Lotus spreadsheet format to allow the methodology to evolve as the GTCC LLW Program evolves. It is recognized that the final disposal facility is not yet defined; thus, the waste acceptance criteria and other facility-specific features are subject to change. The spreadsheet format will allow for these changes a they occur. As additional treatment information becomes available, it can be factored into the analysis. The technology selection criteria were established from program goals, draft waste acceptance criteria for dedicated storage (including applicable regulations), and accepted remedial investigation methods utilized under the Comprehensive Environmental Response, Compensation, and Liability Act. Kepner-Tregoe decisionmaking techniques are used to compare and rank technologies against the criteria.

Greater-Than-Class C Low-level Radioactive Waste Treatment Technology Evaluation

This report summarizes a study conducted using the Arc/Info{reg_sign} geographic information system (GIS) to analyze the criteria used for site selection for the Mixed and Low-Level Waste Treatment Facility (MLLWTF) and the Idaho Waste Processing Facility (IWPF). The purpose of the analyses was to determine, based on predefined criteria, the areas on the INEL that best satisfied the criteria. The coverages used in this study were produced by importing the AutoCAD files that produced the maps for a pre site selection draft report into the GIS. The files were then converted to Arc/Info{reg_sign} GIS format. The initial analysis was made by considering all of the criteria as having equal importance in determining the areas of the INEL that would best satisfy the requirements. Another analysis emphasized four of the criteria as ''must'' criteria which had to be satisfied. Additional analyses considered other criteria that were considered for, but not included in the predefined criteria. This GIS analysis of the siting criteria for the IWPF and MLLWTF provides a logical, repeatable, and defensible approach to the determination of candidate locations for the facilities. The results of the analyses support the location of the Candidate Locations.

Preliminary landfill selection criteria

The Idaho Waste Processing Facility, the Mixed and Low-Level Waste Treatment Facility, and the Mixed and Low-Level Waste Disposal Facility are new waste treatment, storage, and disposal facilities that have been proposed at the Idaho National Engineering Laboratory (INEL). A prime consideration in planning for such facilities is the selection of a site. Since spring of 1992, waste management personnel at the INEL have been involved in activities directed to this end. These activities have resulted in the (a) identification of generic siting criteria, considered applicable to either treatment or disposal facilities for the purpose of preliminary site evaluations and comparisons, (b) selection of six candidate locations for siting, and (c) site-specific characterization of candidate sites relative to selected siting criteria. This report describes the information gathered in the above three categories for the six candidate sites. However, a single, preferred site has not yet been identified. Such a determination requires an overall, composite ranking of the candidate sites, which accounts for the fact that the sites under consideration have different advantages and disadvantages, that no single site is superior to all the others in all the siting criteria, and that the criteria should be assigned different weighing factors depending on whether a site is to host a treatment or a disposal facility. Stakeholder input should now be solicited to help guide the final selection. This input will include (a) siting issues not already identified in the siting, work to date, and (b) relative importances of the individual siting criteria. Final site selection will not be completed until stakeholder input (from the State of Idaho, regulatory agencies, the public, etc.) in the above areas has been obtained and a strategy has been developed to make a composite ranking of all candidate sites that accounts for all the siting criteria.

Solid Waste Management (SWM) is becoming serious problem in developing countries like India. It's not working accurately in India. There are several techniques that are used for solid waste treatment such as biological treatment, composting and recycling etc. But the landfill is considered to be the cheapest method of solid waste disposal. This work describes the use of Multi Criteria Decision Making (MCDM) tools for the selection of suitable site for the disposal of solid waste in Najaf governorate. Several criteria have been considered in each of these location (eg: legal impact, economic, environmental, social, monitoring quality) to select to select the best site. Different MCDM methods used in this work are Analytical Hierarchy Process (AHP), Technique Of Order Preference by Similarity to Ideal Solutions(TOPSIS) andPreference Ranking Organization Method for Enrichment Evaluation(PROMETHEE II). With the help of the proposed decision making frame work, the high and low suitable areas were

determined.The basic concept of TOPSIS is to selects the alternative that is the closest to the ideal solution and farthest from negative ideal alternative.TOPSIS assumes that we have m alternatives (options) and n criteria. Therefore, it is easy to define the ideal and negative-ideal solutions. The Euclidean distance approach is used to evaluate the relative closeness of the alternatives to the ideal solution. Thus, the preference order of the alternatives can be built by a series of comparison of these relative distances. Generally the decision maker wants to have a maximum value among the alternatives. In case of cost criteria, the decisionTo make the result more precise, another widely used MCDM tool is PROMETHEE II. It refers to Preference Ranking Organisation Method for Enrichment Evaluation. PROMETHEE II is not only used for picking the right alternative, rather helps decision makers find the alternative that best suits their goal. This makes use of point fuzzy scale to build the decision matrix. The PROMETHEE II methodology promotes and prioritizes alternatives based on pair wise comparisons. Then the preference function for each of the pairs is calculated and the deviation should be between the number 0 and 1. Then the positive and negative flow at each criteria has to be calculated which determines the net flow of the alternatives or criteria. The higher the value, the higher the preference and ranked accordingly, Based on that ranking for 5 different locations in Najaf governorate is carried out using combined AHP-PROMETHEE II method is briefly carried out.Similarly in order to rank the 4 different sites and to give the priority among these sites based on the constraint 'distance To wetland' criteria was carried out using fuzzy-AHP method. Here the pairwise comparison for one sit over other is calculated using triangular fuzzy scale comparison and the priority among these 4 sites is carried out in this work. Hence in this work the need of MCDM tools or the methods in addressing the issues of landfill site ranking is carried out briefly in this work.

Waste-to-Energy

Environmental Impact Statement

Selected Water Resources Abstracts