1. Record Nr. UNINA9910812188303321 The Nuclear weapons complex: management for health, safety, and the **Titolo** environment // Committee to Provide Interim Oversight of the DOE Nuclear Weapons Complex, Commission on Physical Sciences, Mathematics, and Resources, National Research Council Pubbl/distr/stampa Washington, D.C., : National Academy Press, 1989 **ISBN** 1-280-21273-X 9786610212736 0-309-57188-X 0-585-15536-4 Edizione [1st ed.] Descrizione fisica 1 online resource (156 p.) Disciplina 363.1/1962345119/0973 Soggetti Nuclear weapons plants - United States - Safety measures Nuclear weapons plants - Environmental aspects - United States Nuclear weapons plants - Employees - Health and hygiene - United States Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Bibliographic Level Mode of Issuance: Monograph Nota di bibliografia Includes bibliographical references (p. 141-143). Nota di contenuto The Nuclear Weapons Complex -- Copyright -- Preface -- Contents --Executive Summary -- MANAGEMENT -- ENVIRONMENT -- SAFETY --HEALTH -- MODERNIZATION -- 1 Introduction -- THE NUCLEAR WEAPONS COMPLEX -- THE CURRENT SITUATION -- THE CHALLENGES -- Setting Production Goals -- Setting Priorities -- Using Technical Strengths -- Developing and Maintaining Competence -- Changing the DOE Culture -- 2 Management -- THE MANAGEMENT STRUCTURE --Contractors -- Award Fees -- Contractor Turnover -- External Oversight -- CHANGES -- AREAS FOR IMPROVEMENT -- Simple Lines of Authority -- Decisionmaking Processes -- Internal Oversight Structure -- Communication -- Directives from Headquarters -- Exchange of Information within the Complex -- Independent Technical Advice --Availability of Qualified Personnel -- Recruitment -- Training -- 3 Environment -- INTRODUCTION -- Background -- Recent Initiatives --**ENVIRONMENTAL CONTAMINATION -- SETTING STANDARDS AND** 

PRIORITIES ACROSS THE COMPLEX -- Risk-Based Cleanup Standards --National Priority System -- Characterization of Contaminated Sites --WASTE MANAGEMENT -- Waste Minimization -- Process Development -- ENVIRONMENTAL RESEARCH -- Types of Research Needed -- The Role of DOE Measurement Laboratories -- DOE'S ENVIRONMENTAL RESPONSIBILITY -- Participation by the Public and by Local and State Officials in Environmental Programs -- Ecological Value of DOE Lands -- 4 Safety -- INTRODUCTION -- INDUSTRIAL SAFETY -- Inhalation of Radioactive Materials -- Contamination in Ductwork -- Conventional Industrial Safety Practices -- Sitewide Emergency Control Centers and Local Monitoring of Safety Systems -- FIRE SAFETY -- Variations in Operational Approach -- Fire Protection Audits -- Personnel and Equipment -- CRITICALITY SAFETY -- SEISMIC SAFETY -- DOE Practice -- Earthquake Criteria -- Upgrading Old Facilities -- 5 Health. OCCUPATIONAL HEALTH -- The Role of Medical Expertise -- Chemical Hazards -- ASSESSING RISKS TO HEALTH -- Monitoring in the Workplace -- Research on Effects of Exposure to Low Levels of Radiation -- Epidemiology on Exposure of Workers -- Epidemiology on Exposure of the Nonworker Population -- 6 Modernization of the Complex -- THE DOE MODERNIZATION REPORT -- Capacity for Processing Plutonium -- Renovation and Modernization --OPPORTUNITIES FOR ADVANCED TECHNOLOGY -- Upgrading the Chemical Processing of Plutonium -- Computing and Communications Technology -- Robotics -- Appendixes -- Appendix A Biographical Sketches of Committee Members -- Appendix B The DOE Nuclear Weapons Complex: A Descriptive Overview -- WEAPONS LABORATORIES -- MATERIALS PRODUCTION FACILITIES -- Heavy Metal Production --Fernald/Ashtabula/Hanford -- ICPP/Y-12/Savannah River -- Light Element Production: Y-12 and Savannah River -- D2O Production at SRS -- Li6 and Li6D Production at Y-12 -- Tritium Production at SRS --WEAPONS PRODUCTION FACILITIES -- Production of Weapons Components -- Assembly and Disassembly of Weapons -- Appendix C Nuclear Criticality -- DEFINITIONS -- AN ILLUSTRATION -- FACTORS AFFECTING CRITICALITY -- Density -- Moderation -- Reflection --Geometrical Shape -- Neutron Absorbers -- ASSESSING CRITICALITY SAFETY -- CRITICALITY ACCIDENTS IN MATERIALS PROCESSING --Appendix D Plutonium -- Appendix E Physics of Nuclear Weapons Design -- FISSION WEAPONS -- Neutron Sources -- Assembly Methods -- Predetonation -- BOOSTED WEAPONS -- THERMONUCLEAR WEAPONS -- Appendix F Charge to the Committee -- References.