AD-740 950

# CIVIL DEFENSE SYSTEMS:

## PREATTACK AND POSTATTACK (NUCLEAR WARFARE)

## A DDC BIBLIOGRAPHY

DDC-TAS-72-12-I

APRIL 1972



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AD-740 950

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ALEXANDRIA, VIRGINIA 22314

# FOREWORD

This bibliography is a compilation of references on *Civil Defense Systems: Preattack and Postattack (Nuclear Warfare)* in a series of bibliographies on Civil Defense Systems. Entries were processed into the Defense Documentation Center's data bank during the period January 1970 through January 1972 and updates an earlier bibliography, AD-705 900.

Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.

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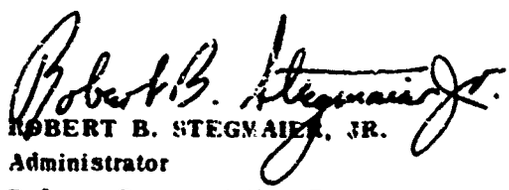

**ROBERT B. STEGMAIER, JR.**
**Administrator**
**Defense Documentation Center**

# C O N T E N T S

UNCLASSIFIED
Security Classification

**DOCUMENT CONTROL DATA - R & D**

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5. AUTHOR(S) (First name, middle initial, last name)

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13. ABSTRACT

This bibliography is a compilation of references on Civil Defense Systems: Preattack and Postattack (Nuclear Warfare) in a series of bibliographies on Civil Defense Systems. Entries were processed into the Defense Documentation Center's data bank during the period of January 1970 through January 1972 and updates an earlier bibliography, AD-705 900. References contained in this volume deal primarily with emergency source utilities, vulnerability of utilities, industries, schools and transportation; radiation exposure and control; control of diseases; capabilities of fire services, recovery and debris removal.

Other bibliographies in this series are: (1) two-volumes on Social Impact and Management Planning, (2) one-volume on Communications, (3) one-volume on Disasters and Accidents and (4) two-volumes on Shelters.

Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.

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| *Civil Defense Systems | | | | | | |
| *Nuclear Warfare | | | | | | |
| Advanced Planning | | | | | | |
| Nuclear Explosion Damage | | | | | | |
| Water Supplies | | | | | | |
| Industries | | | | | | |
| Transportation | | | | | | |
| Recovery | | | | | | |
| Survival | | | | | | |
| Radicactive Fallout | | | | | | |
| Nuclear Warfare Casualties | | | | | | |
| Buildings | | | | | | |
| Shelters | | | | | | |
| Blast | | | | | | |
| Fires | | | | | | |
| Communication Systems | | | | | | |
| Preattack Operations | | | | | | |
| Postattack Operations | | | | | | |
| Social Psychology | | | | | | |
| Warning Systems | | | | | | |
| Production | | | | | | |
| Economics | | | | | | |
| Urban Areas | | | | | | |

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZAML8

AD-699 831 15/3 5/4
RAND CORP SANTA MONICA CALIF

ON THE POSTATTACK VIABILITY OF AMERICAN INSTITUTIONS. (U)

JAN 70 28P BROWN,WILLIAM M. ;
REPT. NO. P-4275

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE, CIVIL DEFENSE SYSTEMS), (*UNITED STATES GOVERNMENT, RECOVERY), SURVIVAL, MONEY, LOGISTICS, PUBLIC HEALTH, PREDICTIONS, COMMERCE, FOOD (U)
IDENTIFIERS: *POST ATTACK OPERATIONS (U)

THE PAPER DELINEATES A SET OF CRUCIAL PROBLEMS WHICH ARE APT TO DEVELOP IF A NUCLEAR WAR COLLAPSED THE FEDERAL GOVERNMENT AS AN AUTHORITATIVE PRESENCE, AND THEN DISCUSSES SOME PROBLEMS THAT MIGHT BE INSURMOUNTABLE EVEN IF THE FEDERAL GOVERNMENT SURVIVED. THE FIRST SET REPRESENTS THE THREAT TO VIABILITY THAT WOULD COME FROM THE DEPENDENCE ON THE SUDDENLY MISSING HAND OF THE FEDERAL GOVERNMENT; THE SECOND BECAUSE THE HAND WOULD NOT BE SUFFICIENTLY SKILLED AT OR AWARE OF ITS VITAL PA FUNCTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-701 914 5/3 15/6
RESEARCH ANALYSIS CORP MCLEAN VA

MEASUREMENT OF CRITICAL PRODUCTION CAPACITIES FOR MODELS OF THE POSTATTACK ECONOMY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 70 52P BULL,ELWYN M. ISOBIN, BERNARD ;
REPT. NO. RAC-TP-387
CONTRACT: DAHC20-68-C-0194
PROJ: OCD-3534E, RAC-488.10;

UNCLASSIFIED REPORT

DESCRIPTORS: (•NUCLEAR WARFARE, INDUSTRIES), (•INDUSTRIES, SURVIVAL), MATHEMATICAL MODELS, PRODUCTION, CIVIL DEFENSE SYSTEMS, FOOD, RECOVERY, ECONOMICS (U)
IDENTIFIERS: •POSTATTACK RECOVERY, •INDUSTRIAL RECOVERY, •POSTATTACK ECONOMY (U)

THE PAPER DESCRIBES CURRENTLY AVAILABLE METHODOLOGY FOR ESTIMATING PRODUCTION CAPACITIES OF INDUSTRIAL FACILITIES THAT SURVIVE A NUCLEAR ATTACK ON THE US AND PROPOSES IMPROVEMENTS IN ESTIMATION OF SUCH CAPACITIES. THE FIRST SECTION DEALS WITH IDENTIFICATION OF CAPACITIES (CALLED 'CRITICAL' CAPACITIES) FOR WHICH ACCURATE ESTIMATES ARE MOST IMPORTANT. IT DISCUSSES PROBLEMS ENCOUNTERED IN USING MODELS DEVELOPED AT RAND, RAC, IDA, NPA, AND OEP. THE SECOND SECTION REVIEWS EXISTING MEASURES OF INDUSTRIAL CAPACITY TO DETERMINE THEIR ADEQUACY FOR POSTATTACK MODELS. MOST MEASURES ARE DESIGNED FOR PEACETIME CONDITIONS. MEASURES DEVELOPED BY NPA AND IEB FOR EMERGENCY ECONOMIC MODELS ALLOW FOR EXTRA WORK SHIFTS IN CRITICAL INDUSTRIES. HOWEVER, NONE OF THE CURRENT STATISTICS ATTEMPT TO MEASURE CAPACITY CONVERSION POSSIBILITIES FOR EMERGENCY PRODUCTION. THE THIRD SECTION DEMONSTRATES AN APPROACH TO IMPROVED CAPACITY ESTIMATION WITH A CASE STUDY OF THE FLOUR-MILLING INDUSTRY. IT IS ESTIMATED THAT FLOUR CAPACITY COULD BE INCREASED TO NEARLY 10 TIMES THE MILLING INDUSTRY'S NORMAL CAPACITY THROUGH (A) INCREASING OPERATING HOURS, (B) CHANGING THE OUTPUT TO WHOLE WHEAT FLOUR, AND (C) CONVERTING THE FEED INDUSTRY TO PRODUCTION OF WHOLE WHEAT FLOUR. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-702 235 15/3
TECHNICAL OPERATIONS INC ALEXANDRIA VA SYSTEM SCIENCES DIV

DEVELOPMENT OF A LOCAL CIVIL DEFENSE OPERATING SYSTEMS EVALUATION MODEL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 159P TILLER,HANS J. IHARDICK,
WILLIAM L. ;WALKER,DAN M. ;
REPT. NO. TOI-TR-70-1
CONTRACT: DAHC20-69-C-0105
PROJ: OCD-4126C

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE, CIVIL DEFENSE SYSTEMS), (*CIVIL DEFENSE SYSTEMS, MATHEMATICAL MODELS), SYSTEMS ENGINEERING, EFFECTIVENESS, NUCLEAR EXPLOSION DAMAGE, DAMAGE ASSESSMENT, RADIOACTIVE FALLOUT, THERMAL RADIATION, SHOCK WAVES, AREA COVERAGE (U)
IDENTIFIERS: FIRE SPREAD, MASS FIRES (U)

THE ORGANIZATION AND UTILIZATION OF LOCAL CIVIL DEFENSE RESOURCES UNDER NUCLEAR ATTACK ARE ESSENTIAL ELEMENTS OF CIVIL DEFENSE PLANNING. EXISTING AND PROPOSED LOCAL CD OPERATING SYSTEMS SHOULD, THEREFORE, BE EVALUATED TO ESTABLISH THEIR EFFECTIVENESS UNDER NUCLEAR ATTACK AND TO PROVIDE BASES FOR DECISIONS ON DISTRIBUTION OF EFFORT AMONG SYSTEM COMPONENTS OR SUBSYSTEMS; TO ASSURE OPTIMUM ALLOCATION OF RESOURCES; AND TO PROVIDE A MEANS FOR TESTING ALTERNATIVE OPERATING PROCEDURES AND PRINCIPLES. A COMPUTER-BASED MODEL FOR THE EVALUATION OF LOCAL CD OPERATING SYSTEM EFFECTIVENESS IS UNDER DEVELOPMENT. THE MODEL CONSISTS OF THREE MAJOR COMPONENTS; LOCAL DAMAGE ASSESSMENT MODEL, COUNTERMEASURES OPERATIONS MODEL AND COUNTERMEASURE EFFECTIVENESS EVALUATION PROGRAM. ASSESSMENT OF WEAPONS EFFECTS IS MADE BY THE ASSESSMENT MODEL IN TIME INCREMENTS BY UNIT AREA (E.G., ZIP CODE AREAS) FOR PROMPT EFFECTS (BLAST, THERMAL PULSE; AND PERSISTENT EFFECTS (FIRE SPREAD, FALLOUT RADIATION). (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-703 856 18/8 15/3
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

FALLOUT MIGRATION FROM A SLOPED ROOF. (U)

FEB 70 26P MALONEY,JOSEPH C. ;MILLER, ANDREW S. ;

REPT. NO. BRL-1476
PROJ: RDT/E-1-8-062104-A-089, OCD-32138

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR EXPLOSIONS, RADIOACTIVE FALLOUT), (*RADIOACTIVE FALLOUT, ROOFS), CIVIL DEFENSE SYSTEMS, METEOROLOGICAL PARAMETERS, RADIOLOGICAL DOSAGE, BUILDINGS, CONFIGURATION, NUCLEAR WARFARE, FALLOUT SHELTERS (U)
IDENTIFIERS: POST ATTACK RECOVERY (U)

THE OBJECTIVE OF THE OVERALL PROJECT WAS TO DEVELOP AND TEST RADIOLOGICAL COUNTERMEASURES THAT ARE APPLICABLE TO POST-NUCLEAR ATTACK RECOVERY OPERATIONS. THE SPECIFIC OBJECTIVE OF THE PRESENT STUDY WAS TO CONDUCT AN EXPLORATORY EXPERIMENT ON THE POSSIBLE EFFECTIVENESS OF PASSIVE ROOF DECONTAMINATION, BY WEATHER INDUCED MIGRATION, IN REDUCING THE POTENTIAL EXPOSURE RATE IN THE BASEMENT SHELTER AREA OF A SMALL DWELLING HAVING A SLOPED ROOF. FOR THE STRUCTURE UTILIZED AND INCIDENT WEATHER ENCOUNTERED: (1) CONTRARY TO EXPECTATIONS THAT MIGRATION WOULD CAUSE DOSE RATES TO DECREASE IN BASEMENT SHELTER AREAS, THE ACTUAL MIGRATION OF FALLOUT PARTICLES FROM A SLOPED ROOF MAY CAUSE SUCH DOSE RATES TO EITHER INCREASE OR DECREASE WITH TIME. (2) THE PRESENCE OF GUTTERS CAN EFFECT A DOSE INCREASE DURING EARLY TIME. THE SAME EFFECT MAY BE EXPECTED IN SOME, BUT NOT ALL SHELTER SPACE IF THE FALLOUT FELL IN A LINE UNDER THE ROOF EAVES. (3) EVEN MILD WEATHER CONDITIONS CAN HAVE SIGNIFICANT EFFECT ON THE MOVEMENT OF FALLOUT PARTICLES ON A SLOPED ROOF. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-704 366 15/3 5/1
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

DEFINITION OF LOCAL OPERATING AREAS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 70 87P TRUSTMAN,S. I
REPT. NO. RTI-OU-427-2
CONTRACT: DAHC20-69-C-0107
PROJ: OCD-43168

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, *MANAGEMENT PLANNING), THREAT EVALUATION, URBAN AREAS, RURAL AREAS, DATA PROCESSING SYSTEMS, POPULATION, VULNERABILITY, STANDARDS, PERSONNEL (U)

THE OBJECTIVES OF THIS INVESTIGATION WERE THREEFOLD: THE INVESTIGATION AND ANALYSIS OF PATTERNS OF GEOGRAPHICAL SUBDIVISIONS OF LOCALITIES IN TERMS OF THEIR USABILITY AND DESIRABILITY FOR THE PURPOSES OF EVALUATING LOCAL TOTAL CIVIL DEFENSE SYSTEMS; THE DETERMINATION OF DATA TO BE COLLECTED TO DESCRIBE EACH OF THE GEOGRAPHICAL SUBDIVISIONS IN TERMS SUITABLE FOR THE EVALUATION OF LOCAL CIVIL DEFENSE SYSTEMS; AND THE DEVELOPMENT OF PROCEDURES TO ESTIMATE THE VULNERABILITY OF THE PEOPLE, INSTITUTIONS AND RESOURCES OF THE GEOGRAPHIC SUBDIVISIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-704 727 15/6 15/3
URS RESEARCH CO PALO ALTO CALIF

TRANSATTACK ENVIRONMENT SCENARIOS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 61P HARKER,ROBERT A. I
CONTRACT: DAHC20-68-C-0128
PROJ: OCD-261IE, URS-236

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE, MATHEMATICAL MODELS), (*CIVIL DEFENSE SYSTEMS, NUCLEAR WARFARE), SIMULATION, CIVIL DEFENSE PERSONNEL, DECISION MAKING, PERFORMANCE(HUMAN), REACTION(PSYCHOLOGY), NUCLEAR EXPLOSION DAMAGE, RADIOACTIVE FALLOUT, FALLOUT SHELTERS, COUNTERMEASURES, KILL PROBABILITIES, DAMAGE CONTROL, NUCLEAR WARFARE CASUALTIES, LOUISIANA, MICHIGAN (U)
IDENTIFIERS: SCENARIOS, NEW ORLEANS(LOUISIANA), DETROIT(MICHIGAN) (U)

THIS REPORT PRESENTS EMERGENCY OPERATIONS ATTACK SCENARIOS FOR NEW ORLEANS AND DETROIT. THESE SCENARIOS INDICATE THE RESPONSES WITHIN THE CITIES TO ENVIRONMENTAL CHANGES WHICH WOULD OCCUR DURING THE FIRST SIX HOURS AFTER THE RECEIPT OF ATTACK WARNING. ALSO, THERE IS DESCRIPTION OF THE BACKGROUND RESEARCH FOR THE TRANSATTACK ENVIRONMENT SIMULATION WHICH WAS PRESENTED TO NEW ORLEANS GOVERNMENT OFFICIALS. AN ANALYSIS OF THE APPLICABILITY OF THIS RESEARCH WORK TO OCD'S EMERGENCY OPERATIONS SIMULATION TRAINING PROGRAM IS ALSO INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-705 104 15/3 17/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

EOC DISPLAY SYSTEM EQUIPMENT ALTERNATIVES. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
MAR 70 59P GAYDOS,H. F. I
REPT. NO. SDC-TM-4378/002/00
PROJ: OCD-2224E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR STANFORD RESEARCH INST., MENLO PARK, CALIF.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, COMMUNICATIONS CENTRAL), (*COMMUNICATIONS CENTRAL, *DISPLAY SYSTEMS), COMMUNICATION SYSTEMS, COMMAND + CONTROL SYSTEMS, FIRES, RADIOACTIVE FALLOUT, FALLOUT SHELTERS, DAMAGE ASSESSMENT, NUCLEAR WARFARE (U)
IDENTIFIERS: POST ATTACK OPERATIONS (U)

THE DOCUMENT DESCRIBES THE WORK DONE ON THE ELECTRONICS OPERATIONS CENTER (EOC) DISPLAY SYSTEM EQUIPMENT ALTERNATIVES PROJECT. THE PURPOSE OF THIS EFFORT WAS TO DETERMINE THE DISPLAY SYSTEM FUNCTIONAL EQUIPMENT REQUIREMENTS FOR THE EOC, SURVEY THE INFORMATION ON AVAILABLE AND DEVELOPMENTAL DISPLAY EQUIPMENT, AND SUGGEST ALTERNATIVE DESIGN SPECIFICATIONS FOR AN AUSTERE SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-705 388 13/12 15/3 15/6
IIT RESEARCH INST CHICAGO ILL ENGINEERING MECHANICS DIV

MATHEMATICAL MODELING OF FIRE DEFENSES. PART II. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. MAY 69-FEB 70,
MAR 70 75P TAKATA, ARTHUR N. ;
CONTRACT: DAHC20-70-C-0209
PROJ: OCD-2526A, IITRI-J6179

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE, FIRES), (*FIRES, URBAN AREAS), (*CIVIL DEFENSE SYSTEMS, FIRE SAFETY), MATHEMATICAL MODELS, FIREFIGHTING VEHICLES, CIVILIAN PERSONNEL, CIVIL DEFENSE PERSONNEL (U)
IDENTIFIERS: MASS FIRES, FIRE SPREAD, *FIRE FIGHTING (U)

THE REPORT COVERS THE DEVELOPMENT OF A COMPUTER CODE TO PREDICT THE EFFECTS OF CIVILIAN AND PROFESSIONAL FIRE FIGHTING ON BUILDING FIRES INITIATED WITHIN AN URBAN AREA BY A NUCLEAR ATTACK. CITIES ARE REPRESENTED BY A FEW THOUSAND TRACTS, EACH OF WHICH IS DESCRIBED IN TERMS OF THE COMPOSITION AND SIZE OF ITS BUILT-UP AREA AND THE LENGTHS AND WIDTHS OF FIREBREAKS BETWEEN IT AND BUILT-UP AREAS IN ADJACENT TRACTS. THE FIRE-FIGHTING FORCES CONSIST OF TWO-MAN TEAMS CALLED SELF-HELP TEAMS THAT CAN HANDLE SMALL FIRES IN FURNISHINGS, FOUR-MAN TEAMS CALLED BRIGADES THAT CAN HANDLE FULLY DEVELOPED ROOM FIRES IN THEIR EARLY STAGES, AND FINALLY FIRE-DEPENDENT UNITS. PROVISIONS ARE INCLUDED FOR ALOCATING THESE FORCES ACCORDING TO THE SIZE, TYPE AND NUMBERS OF BUILDINGS IN EACH TRACT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAHL8

AD-707 299 15/3
DEFENCE RESEARCH BOARD OTTAWA (ONTARIO)

MUST WE FREEZE IN CRISIS. (U)

70 10P STANNARD,BURKE I
REPT. NO. DRB-REPRINT-3214

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN QUEENS QUARTERLY, SPRING 1970, P1-10. NO COPIES FURNISHED.

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, •WARNING SYSTEMS), NUCLEAR WARFARE, MILITARY INTELLIGENCE, DECISION MAKING, UNITED STATES GOVERNMENT, GOVERNMENT(FOREIGN), VULNERABILITY, CANADA (U)
IDENTIFIERS: STRATEGIC WARNING SYSTEMS (U)

INTERNATIONAL CRISES SINCE WORLD WAR II HAVE REVEALED THE VULNERABILITY OF DEFENSE ARRANGEMENTS THROUGH THE LACK OF AN ADEQUATE SYSTEM OF STRATEGIC WARNING (AS DISTINCT FROM TACTICAL WARNING SYSTEMS). THE SLOWNESS AND UNCERTAINTY OF THE DECISION-MAKING PROCESSES AT ALL LEVELS OF GOVERNMENT IN A TIME OF CRISIS SHOULD LEAD ONE TO EXAMINE THE STRATEGIC WARNING, ITS RELIABILITY AND MEASURABILITY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-707 454 13/12 15/3
IIT RESEARCH INST CHICAGO ILL ENGINEERING MECHANICS DIV

URBAN BURNS - FULL-SCALE FIELD STUDIES. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 FEB 69-6 JAN 70,
JAN 70 150P VODVARKA,FRANK J.
CONTRACT: DAHC20-70-C-0213
PROJ: IITRI-J6171, OCD-2562A

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR EXPLOSIONS, *FIRES), (*BUILDINGS, *BURNING RATE), (*URBAN AREAS, FIRES), THERMAL RADIATION, GASES, PRESSURE, WOOD, CONCRETE, BRICK, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: *FIREBRANDS, *FIRESPREAD (U)

EIGHT STRUCTURES WHICH BECAME AVAILABLE DURING THE CONTRACT PERIOD WERE FREE BURNED. FIVE OF THESE WERE TWO AND 2-1/2-STORY ALL WOOD RESIDENCES IN VARIOUS STATES OF DISREPAIR. THE OTHERS WERE MASONRY AND INCLUDED A CONCRETE-BLOCK RESIDENCE, A CONCRETE-BLOCK AUTOMOBILE SERVICE STATION, AND A BRICK RESTAURANT. DURING THE BURNS, DATA WERE COLLECTED ON BURNING TIMES, FIRE SPREAD RATES WITHIN BUILDINGS, RADIATION EMITTED, FIREBRAND PRODUCTION, GAS COMPOSITIONS WITHIN MASONRY BUILDINGS, AND PRESSURES DEVELOPED BY THE FIRES. PARTICULAR EXPERIMENTS PERFORMED WITH EACH BUILDING WERE CHOSEN TO BE COMPATIBLE WITH THE BUILDING AND ITS SURROUNDINGS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-708 292 15/3
RESEARCH ANALYSIS CORP MCLEAN VA

POSTATTACK RECOVERY. (U)

JUN 70 19P SOBIN,BERNARD I
REPT. NO. RAC-P-51

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE, RECOVERY), (*CIVIL DEFENSE SYSTEMS, RECOVERY), ECONOMICS, MANAGEMENT ENGINEERING, EFFICIENCY (U)
IDENTIFIERS: *POSTATTACK RECOVERY (U)

CONTENTS: PROBLEMS OF ECONOMIC RECOVERY; PHYSICAL CAPABILITIES; MANAGEMENT EFFECTIVENESS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-711 021 15/6
URS RESEARCH CO SAN MATEO CALIF

ASSESSMENT OF NUCLEAR WEAPON REQUIREMENTS FOR ASSURED DESTRUCTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 70 144P MILLER,CARL F. ;
REPT. NO. URS-757-6
CONTRACT: DAHC20-69-C-0142
PROJ: OCD-3119D

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR EXPLOSION DAMAGE, STATISTICAL ANALYSIS), POPULATION, DAMAGE ASSESSMENT, CIVIL DEFENSE SYSTEMS, RADIOACTIVE FALLOUT, BLAST, NUCLEAR WEAPONS, COSTS (U)
IDENTIFIERS: MIRV(MULTIPLE INDEPENDENTLY TARGETABLE REENTRY VEHICLES), MULTIPLE INDEPENDENTLY TARGETABLE REENTRY VEHICLES (U)

THE RESULTS OF A FEW RUDIMENTARY NUCLEAR-WAR-DAMAGE-ASSESSMENT CALCULATIONS ARE PRESENTED AS PART OF AN INVESTIGATION OF THE SIZE AND COMPOSITION OF NUCLEAR FORCES THAT WOULD BE REQUIRED FOR THE 'ASSURED DESTRUCTION' OF THE ENTIRE POPULATION OF THE UNITED STATES. THE LATTER RESULT WOULD BE A REDUCED VERSION OF THE SIMPLISTIC VIEW OF THE CONSEQUENCES OF AN EXCHANGE OF NUCLEAR EXPLOSIONS BETWEEN THE SOVIET UNION AND THE UNITED STATES IN WHICH THE TOTAL DESTRUCTION OF MANKIND IS ANTICIPATED. THE CALCULATIONAL RESULTS INDICATE THAT THE TOTAL MEGATONNAGE REQUIRED FOR A GIVEN LEVEL OF POPULATION COVERAGE BY A GIVEN MINIMUM OVERPRESSURE WOULD BE MUCH LESS IF (MANY) LOW YIELD WEAPONS WERE USED INSTEAD OF (FEW) HIGH YIELD WEAPONS. THE CALCULATIONAL RESULTS ALSO SHOW THAT, IF THE POPULATION WERE SHELTERED IN CONCRETE BUILDINGS WITH A PROTECTION FACTOR OF 130 OR MORE, THE EXTENT OR COVERAGE OF THE LETHAL RADIOLOGICAL HAZARD FROM SURFACE BURST 100-KT WEAPONS WOULD BE REDUCED TO THE ASSURED LETHAL COVERAGE OF AIR BURST 100-KT WEAPONS. A DIRECT CONNECTION EXISTS BETWEEN THE CIVIL DEFENSE CAPABILITY TO PROVIDE THE NECESSARY FALLOUT PROTECTION AND THE CAPABILITY OF THE US ARSENAL TO PROVIDE DETERRENCE SINCE BOTH ARE APPARENTLY RELATED TO THE SIZE OF THE NUCLEAR FORCE THAT THE SOVIET UNION MAY DEPLOY OVER A PERIOD OF TIME.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-711 553 15/3
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM ANALYSIS DIV

THE IDA CIVIL DEFENSE ECONOMIC MODEL. (U)

DESCRIPTIVE NOTE: INTERIM SUMMARY REPT.,
MAR 70 46P DOLINS,LYNN P. ;
REPT. NO. N-713(R)
CONTRACT: DAHC20-70-C-0287
PROJ: OCD-411SE
MONITOR: IDA/HQ 70-11362

UNCLASSIFIED REPORT

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, MATHEMATICAL MODELS), (•SURVIVAL, NUCLEAR WARFARE), ECONOMICS, ADVANCED PLANNING, MONEY, LABOR, NUCLEAR EXPLOSION DAMAGE, URBAN AREAS (U)
IDENTIFIERS: ECONOMIC MODELS, •POST ATTACK PLANNING, NUCLEAR DAMAGE MODELS (U)

THE PURPOSE OF THE EFFORT IS TO DESCRIBE CURRENT DEVELOPMENTS IN THE RESEARCH EFFORT AT IDA TO CONSTRUCT A CIVIL DEFENSE ECONOMIC MODEL WHICH WILL BETTER ENABLE CIVIL DEFENSE PLANNERS TO EVALUATE THE EFFECTS OF PLANS FOR CIVIL DEFENSE UPON A POST-ATTACK ECONOMY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-711 572 13/8 15/6 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

INDUSTRIAL RECOVERY MODELING: POSTATTACK DEMANDS AND POTENTIALS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 180P LEE,HONG I
CONTRACT: DAHC20-67-C-0136
PROJ: OCD-3331C, SRI-MU-6300-350

UNCLASSIFIED REPORT

DESCRIPTORS: (*INDUSTRIES, RECOVERY), (*NUCLEAR WARFARE, INDUSTRIES), MATHEMATICAL MODELS, PRODUCTION, CONSUMPTION, TRANSPORTATION, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: *POST ATTACK RECOVERY, *INDUSTRIAL PRODUCTION MODELS, POST ATTACK OPERATIONS, *INDUSTRIAL RECOVERY (U)

THE REPORT USES THE INDUSTRIAL PRODUCTION MODEL TO GENERATE THE INDUSTRIAL NETWORK INPUT DEMANDS FOR THE PRODUCTION OF 21 FINAL CONSUMER ITEMS CONSIDERED IMPORTANT TO POSTATTACK SURVIVAL AND RECOVERY. THESE INPUT DEMANDS ARE COMPARED WITH THE POSTATTACK POTENTIAL FOR PRODUCING THESE SAME INPUTS TO ASSESS THE CAPABILITY OF THE SURVIVING INDUSTRIAL SYSTEM FOR PRODUCING THE 21 FINAL CONSUMER ITEMS. THE GENERAL CONCEPT AND DEVELOPMENT APPROACH FOR A COMPATIBLE TRANSPORTATION MODEL IS ALSO DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-711 956 13/2 15/3
DALLAS WATER UTILITIES DEPT TEX

METROPOLITAN WATER SYSTEM OPERATION SUBSEQUENT TO NUCLEAR ATTACK OR NATURAL DISASTER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 70 381P BROCK,DAN A. ;
CONTRACT: PH-110-68-38

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON A STUDY TO DEVELOP A PROTOTYPE EMERGENCY WATER SUPPLY PLAN.

DESCRIPTORS: (•WATER SUPPLIES, MANAGEMENT PLANNING), (•NUCLEAR WARFARE, WATER SUPPLIES), DISASTERS, MATHEMATICAL MODELS, NUCLEAR EXPLOSION DAMAGE, VULNERABILITY, CIVIL DEFENSE SYSTEMS, POWER SUPPLIES (U)
IDENTIFIERS: POST ATTACK OPERATIONS, •POST ATTACK PLANNING, COMPUTERIZED SIMULATION, POST ATTACK RECOVERY (U)

THE STUDY DEVELOPS METHODOLOGY FOR CREATION OF A PLAN FOR OPERATION OF A METROPOLITAN WATER SYSTEM SUBSEQUENT TO NUCLEAR ATTACK OR NATURAL DISASTER. AUTOMATIC DIGITAL COMPUTER WATER SYSTEM SIMULATION IS USED TO DETERMINE THE ULTIMATE OVERALL EFFECT OF DAMAGE TO SPECIFIC COMPONENTS. VULNERABILITY ANALYSES ARE MADE AS A MATHEMATICAL MODEL OF THE WATER SYSTEM REACTS AUTOMATICALLY TO HYPOTHETICAL ATTACK DATA SUPPLIED BY THE NATIONAL CIVIL DEFENSE COMPUYER CENTER. PROBLEMS OF UNMANNED WATER PURIFICATION PLANT OPERATION ARE NOTED. THE NEED FOR AND AVAILABILITY OF ELECTRIC POWER IS CONSIDERED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-712 332 17/2.1 15/3
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

APPLICATION OF COMMUNICATION THEORY AND RESEARCH TO THE EMERGENCY BROADCASTING SYSTEM PRERECORDED PROGRAMMING. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 69-31 OCT 70.
SEP 70 128P KNOWER,FRANKLIN H. ;JOHNSON, MICHAEL R. ;JOHNSON,THOMAS G. ;
CONTRACT: DAHC20-69-C-0416
PROJ: OSURF-2856

UNCLASSIFIED REPORT

DESCRIPTORS: (•RADIO BROADCASTING, •CIVIL DEFENSE SYSTEMS), INFORMATION THEORY, PSYCHOLOGY, MANAGEMENT PLANNING, EDUCATION (U)
IDENTIFIERS: •POST ATTACK OPERATIONS (U)

A SERIES OF PRIMARY RESEARCH CONTRACTORS FOR THE OFFICE OF CIVIL DEFENSE WERE INTERVIEWED AS BACKGROUND FOR AN UNDERSTANDING OF THE PROBLEMS OF PRERECORDING EMERGENCY BROADCASTING SYSTEM MESSAGES TO SHELTEREES. RELEVENT RESEARCH REPORTS FROM THESE AND OTHER SOURCES WERE REVIEWED. A BROAD SPECTRUM OF INDEPENDENT SOURCES ON HUMAN, SOCIAL AND COMMUNICATION BEHAVIOR WAS ALSO INVESTIGATED. FINDINGS FROM THESE SOURCES WERE SYNTHESIZED INTO A SERIES OF GUIDELINES ON PROCEDURES FOR COMMUNICATION APPLICABLE TO E.B.S. MESSAGE SYSTEMS. STRATEGIES FOR THE GENERATION OF NEEDED MESSAGE SYSTEMS WERE FORMULATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-712 342 13/12 15/3
IIT RESEARCH INST CHICAGO ILL

FIRE DEPARTMENT OPERATIONS ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1969-JUN 70,
JUN 70 54P
REPT. NO. IITRI-J6163
CONTRACT: DAHC20-70-C-0208
PROJ: OCD-2522F
TASK: 2520(66)

UNCLASSIFIED REPORT

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, •FIRE SAFETY), EFFICIENCY, MANPOWER, FIRE ALARM SYSTEMS, FIRE EXTINGUISHERS, WATER SUPPLIES, CONTROL, STATISTICAL DATA, NUCLEAR WARFARE, URBAN AREAS, THERMAL RADIATION (U)
IDENTIFIERS: •FIRE DEPARTMENTS, •MASS FIRES, FIRE SPREAD, •POST ATTACK OPERATIONS (U)

FIRE DEPARTMENT OPERATIONS WERE STUDIED IN NEW YORK, N.Y., WHITE PLAINS, N.Y., LOS ANGELES, CALIFORNIA AND BUENA PARK, CALIFORNIA. THE STUDY WAS PERFORMED USING DATA ON TEN FIRES IN EACH CITY. CORRELATIONS WERE DEVELOPED INVOLVING WATER APPLICATION, TIME AND MANPOWER REQUIRED FOR SUPPRESSING VARIOUS SIZES OF STRUCTURAL FIRES. RESULTS WERE COMPARED WITH FIRE DEPARTMENT OPERATIONS WITHIN THE CHICAGO METROPOLITAN AREA THAT WERE DETERMINED IN OTHER STUDIES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-713 023 15/3 10/2
STANFORD RESEARCH INST MENLO PARK CALIF

APPLICATION OF THE DECONTAMINATION AND DOSE CONTROL MODEL TO AN INDUSTRIAL COMPLEX. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 70 71P OWEN,*. LEIGH ;
CONTRACT: DAHC20-70-C-0294
PROJ: OCD-3231D, SRI-EGU-8348

UNCLASSIFIED REPORT

DESCRIPTORS: (*STEAM POWER PLANTS, RECOVERY), (*NUCLEAR WARFARE, STEAM POWER PLANTS), DECONTAMINATION, MATHEMATICAL MODELS, RADIOLOGICAL DOSAGE, COSTS, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: *POST ATTACK RECOVERY, INDUSTRIAL RECOVERY, POST ATTACK PLANNING (U)

THE STUDY DESCRIBES THE APPLICATION OF A PREVIOUSLY DEVELOPED DECONTAMINATION AND DOSE CONTROL MODEL TO THE PROBLEM OF PLANNING AND SCHEDULING THE RADIOLOGICAL RECOVERY OF A REPRESENTATIVE CRITICAL INDUSTRIAL INSTALLATION, I.E., A STEAM POWER PLANT. THE PURPOSE OF THIS STUDY WAS TO DETERMINE THE MAGNITUDE OF RECOVERY OPERATIONS AND THE RELATED PLANNING FACTORS GENERATED BY THE MODEL UNDER VARIED RADIOLOGICAL CONDITIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-713 416 15/6 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

EVALUATION OF SYSTEMS OF FIRE DEVELOPMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 70 88P WEISBECKER,LEO W. ILEE,
HONG ;
CONTRACT: DAHC20-67-C-0116
PROJ: SRI-EGU-6250; OCD-26;9A

UNCLASSIFIED REPORT

DESCRIPTORS: (•NUCLEAR EXPLOSIONS, FIRES), (•FIRES, MATHEMATICAL MODELS), PROPAGATION, THERMAL RADIATION, URBAN AREAS, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: •MASS FIRES, •FIRE SPREAD, •FIREBRANDS (U)

THE REPORT COMPARES THREE FIRE SPREAD MODELS, RECENTLY DEVELOPED FOR THE OFFICE OF CIVIL DEFENSE, FOR UTILITY, ACCURACY, AND EFFICIENCY WHEN APPLIED TO CIVIL DEFENSE FIRE INFORMATION REQUIREMENTS. THE FIRE SPREAD MODELING WAS ESSENTIALLY LIMITED TO THE RADIATION FIRE SPREAD MECHANISM. ALL THREE MODELS PROVIDED PROCEDURES FOR CALCULATING FIRE SPREAD UNDER A LIMITED RANGE OF CONDITIONS, BUT ALL SUFFERED TO SOME DEGREE FROM INADEQUATE MODELING OF URBAN CONFIGURATIONS AND THE FIRE PARAMETERS ASSOCIATED WITH URBAN STRUCTURES THAT SIGNIFICANTLY AFFECT FIRE SPREAD MECHANISMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-714 287 15/6 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

DESIGN AND APPLICATION OF A DECONTAMINATION AND DOSE CONTROL MODEL SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 70 186P OWEN,W. LEIGH ;
CONTRACT: DAHC20-70-C-0217
PROJ: SRI-MU-7319, OCD-3231C

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED FEB 68, AD-673 199.

DESCRIPTORS: (•RADIOACTIVE FALLOUT, DECONTAMINATION), (•NUCLEAR WARFARE, RADIOACTIVE FALLOUT), MODELS(SIMULATIONS), CIVIL DEFENSE SYSTEMS, RADIOLOGICAL DOSAGE, SUBROUTINES, COST EFFECTIVENESS, NUCLEAR EXPLOSIONS, RECOVERY (U)
IDENTIFIERS: POST ATTACK OPERATIONS, •RADIOLOGICAL RECOVERY (U)

SURVIVAL FROM A CONTAMINATING NUCLEAR ATTACK MAY DEPEND ON A CAPABILITY TO EFFECTIVELY IMPLEMENT FALLOUT DECONTAMINATION OPERATIONS. THE SUCCESS OF THESE AND RELATED RECOVERY OPERATIONS WILL REQUIRE CAREFUL AND EXTENSIVE PREPLANNING. THEREFORE, A DECONTAMINATION AND DOSE CONTROL (D/DC) MODEL SYSTEM WAS DEVELOPED FOR DETERMINING FEASIBLE RADIOLOGICAL RECOVERY (RAD/REC) PLANS AND PROCEDURES CONSISTENT WITH OVERALL POSTATTACK REQUIREMENTS. A TEST APPLICATION OF THE MODEL IS MADE ON A REGIONAL SHOPPING CENTER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-714 373 15/3 15/6
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

LOCAL OPERATING SYSTEM COUNTERMEASURES MODEL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 70 77P HENDRY,R. N. (WILKERSON, DORA B. ;
REPT. NO. RTI-OU-U27-5
CONTRACT: DAHC20-69-C-0107
PROJ: OCD-4126G

UNCLASSIFIED REPORT

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, MATHEMATICAL MODELS), (•NUCLEAR EXPLOSION DAMAGE, CIVIL DEFENSE SYSTEMS), VULNERABILITY, RECOVERY, PROGRAMMING(COMPUTERS), DISEASES, WATER, FOOD, CONTROL, HAZARDS, TRANSPORTATION, DEPLOYMENT (U)
IDENTIFIERS: POST ATTACK OPERATIONS, POST ATTACK PLANNING (U)

IMPROVED METHODS ARE NEEDED FOR DEVELOPING REALISTIC PLANS FOR COPING WITH DAMAGE FROM NUCLEAR ATTACK TO THE LOCAL CIVIL DEFENSE OPERATING SYSTEM. A COUNTERMEASURES MODEL HAS BEEN DESIGNED AND DEVELOPED. THE MODEL OBJECTIVE IS TO PROVIDE A MEANS FOR PLACING RELATIVE VALUES ON ALTERNATIVE COUNTER-MEASURE CONCEPTS EVOLVING WITHIN THE RESEARCH DIRECTORATE. THE REPORT DESCRIBES THE DESIGN OF THE TIME-PHASED COUNTERMEASURES MODEL. SEVERAL SUBMODELS OF THIS MODEL WERE PROGRAMMED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-714 991 13/12 5/11 15/3
OHIO STATE UNIV COLUMBUS DISASTER RESEARCH CENTER

THE WARNING SYSTEM IN DISASTER SITUATIONS: A SELECTIVE ANALYSIS. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
JUL 70 78P MCLUCKIE,BENJAMIN F. ;
REPT. NO. DRC-SER-9
CONTRACT: OCD-PS-64-46

UNCLASSIFIED REPORT

DESCRIPTORS: (*DISASTERS, *WARNING SYSTEMS), CIVIL DEFENSE SYSTEMS, SOCIAL PSYCHOLOGY, REACTION(PSYCHOLOGY), FACTOR ANALYSIS, CLASSIFICATION, STATISTICAL DATA, TIME, MANAGEMENT PLANNING, DAMAGE, CONTROL SYSTEMS, THREAT EVALUATION, DECISION MAKING, DATA PROCESSING SYSTEMS, COMMUNICATION SYSTEMS, NUCLEAR EXPLOSIONS (U)

IN MANY WAYS WARNING CAN BE THE MOST IMPORTANT PHASE OF THE DISASTER RESPONSE. WARNING IS THOUGHT OF NOT JUST IN TERMS OF MECHANICAL DEVICES BUT IN TERMS OF PSYCHOLOGICAL AND SOCIOLOGICAL STRUCTURES AND PROCESSES. WARNING IS NOT ONLY ADVANCE NOTIFICATION OF THE EXISTENCE OF DANGER BUT ALSO INFORMATION ABOUT WHAT CAN BE DONE TO PREVENT, AVOID, OR MINIMIZE THE DANGER. THE CHARACTERISTICS OF THE DISASTER AGENT -- FREQUENCY, SPEED OF ONSET, SCOPE OF IMPACT, DESTRUCTIVE POTENTIAL, ETC. -- AFFECT THE WARNING PROCESS. BEFORE A WARNING MESSAGE CAN BE ISSUED, THREAT DATA MUST BE COLLECTED, COLLATED, AND EVALUATED. THE REPORT EXAMINES WHAT IS INVOLVED IN THESE PROCESSES. INCLUDED AMONG THE FACTORS INFLUENCING RESPONSE ARE THE SOCIO-CULTURAL FRAMEWORK, THE HISTORICAL SETTING, AND THE IMMEDIATE ONGOING SOCIAL SITUATION. THE REPORT CONTAINS A DISCUSSION OF IMPLICATIONS FOR NUCLEAR CATASTROPHE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-715 413 13/12 20/4 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

LABORATORY SCALING OF THE FLUID MECHANICAL ASPECTS OF MASS FIRES. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. AUG 69-AUG 70,
AUG 70 45P LEE,BILLY T. ;
CONTRACT: DAHC20-70-C-0219
PROJ: SRI-PYU-8150, OCD-2536F

UNCLASSIFIED REPORT

DESCRIPTORS: (*FIRES, URBAN AREAS), (*COMBUSTION, FLUID MECHANICS), CIVIL DEFENSE SYSTEMS, MANAGEMENT PLANNING, NUCLEAR EXPLOSIONS, LOW ALTITUDE, MODEL TESTS, SCALE, VISCOSITY, DYNAMICS, FLOW FIELDS, TEST FACILITIES, VELOCITY, TEMPERATURE, WIND (U)
IDENTIFIERS: FLAMBEAU PROJECT, VISCOUS FLOW (U)

KNOWLEDGE CONCERNING THE LARGE, RAPIDLY INCREASING FIRE ENVIRONMENT AREA FOLLOWING NUCLEAR DETONATIONS OVER A CITY IS VITAL TO CIVIL DEFENSE PLANNING. THE HIGH TEMPERATURE, HIGH WINDS, HIGH THERMAL-RADIATION FLUX, AND HIGH NOXIOUS-GAS CONCENTRATIONS AT STREET LEVEL PRESENT AN ADVERSE ENVIRONMENT FOR THE ESCAPE OF PEOPLE, FOR FIGHTING FIRE, AND FOR THE SECURITY OF SHELTERS. FURTHERMORE, A KNOWLEDGE OF THIS ENVIRONMENT AT AN EARLY STAGE IS NECESSARY TO PREDICT SUBSEQUENT FIRE SPREAD WITHIN AND AROUND THE AREA; E.G., THE MAGNITUDE AND DIRECTION OF THE INDUCED WINDS AFFECT FIREBRAND GENERATION, TRANSPORT, AND IGNITION OF THE SURROUNDINGS. INFORMATION ON THE FIRE ENVIRONMENT CAN ALSO ASSIST IN DESIGNING MORE REALISTIC FIRE-SPREAD TESTS INVOLVING STRUCTURES IN A SIMULATED LARGE-AREA FIRE ENVIRONMENT. THE PURPOSE OF THE RESEARCH IS TO DETERMINE THE FEASIBILITY OF SCALING IN THE LABORATORY THE FLUID-MECHANICAL ASPECTS, ESPECIALLY AT THE LOW-ALTITUDE, STREET-LEVEL ENVIRONMENT, OF A HIGHLY TRANSIENT LARGE-FIRE DEVELOPMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY  SEARCH CONTROL NO. /ZAML8

AD-715 415  15/3  15/6
STANFORD RESEARCH INST MENLO PARK CALIF

AUTOMATED ATTACK-EFFECTS INFORMATION SYSTEMS-1. (U)

DESCRIPTIVE NOTE: FINAL REPLY.,
APR 70  131P  STRUNK,ROBERT W. ;COLAW,
MANCHI S. ;
CONTRACT: DAHC20-67-C-0136
PROJ: SRI-EGU-6300-691, OCD-2211D
TASK: 2

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, DATA PROCESSING SYSTEMS), (*NUCLEAR EXPLOSION DAMAGE, INFORMATION RETRIEVAL), RADIATION EFFECTS, DAMAGE ASSESSMENT, COMMUNICATION SYSTEMS, SENSORS, RADIATION MONITORS, RADIOACTIVE FALLOUT, GAMMA EMISSION, SURVIVAL, FIRE ALARM SYSTEMS, COST EFFECTIVENESS, OPERATION (U)
IDENTIFIERS: EMERGENCY OPERATING CENTERS, AUTOMATED ATTACK EFFECTS SYSTEM 1 (U)

THE STUDY SETS FORTH PRELIMINARY DESIGN CONCEPTS AND CONFIGURATIONS FOR AN AUTOMATED SYSTEM FOR DETECTING, MEASURING, AND REPORTING THE EFFECTS OF NUCLEAR WEAPON BURSTS. MEASURED BLAST OVERPRESSURE AND GAMMA RADIATION LEVELS ARE CORRELATED FOR READ-OUT FROM THE SYSTEM AS BASIC OPERATING SITUATIONS (DEFINED IN THE FEDERAL CIVIL DEFENSE GUIDE). WAYS ARE DISCUSSED FOR USING THE NATION'S TELECOMMUNICATIONS NETWORK TO INTERCONNECT SENSOR, DATA COLLECTION AND COMPUTER STATIONS INTO AN OPERABLE SYSTEM AT LOWEST COST. HARDWARE AND OPERATING COSTS ARE ESTIMATED FOR THREE ALTERNATIVES OF NATIONAL COVERAGE (SKELETAL, MODERATE, AND EXTENSIVE) FOR ADDITION OF THE SYSTEM TO EXISTING CIVIL DEFENSE FACILITIES. TENTATIVE MODELS ARE DEVELOPED FOR ASCERTAINING WEAPON BURST PARAMETERS FROM SYSTEM DATA OUTPUT. A DEVELOPMENTAL TEST IS OUTLINED FOR VALIDATING SYSTEM CONCEPTS AND THE TENTATIVE MODELS AND FOR SIMULATING OVERALL OPERATIONS PRIOR TO SYSTEM ADOPTION AND FINALIZATION OF DESIGN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-715 735 15/3
TECHNICAL OPERATIONS INC ALEXANDRIA VA SYSTEM SCIENCES DIV

PROGRAM DESIGN OF INITIAL ROUTINES OF A CIVIL DEFENSE COUNTERMEASURE OPERATIONS MODEL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 70 75P WALKER,DAN M. ;
REPT. NO. TOI-TR-70-9
CONTRACT: DAHC20-70-C-0297
PROJ: OCD-4126H

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, COUNTERMEASURES), OPERATIONS RESEARCH, PROGRAMMING(COMPUTERS), SUBROUTINES, ENVIRONMENT, CLASSIFICATION, THERAPY, RESCUES, DEBRIS, REMOVAL, DECONTAMINATION KITS, SIMULATION (U)
IDENTIFIERS: CIVIL DEFENSE COUNTERMEASURE OPERATIONS MODELS, COMPUTERIZED SIMULATION (U)

THE ORGANIZATION AND UTILIZATION OF LOCAL CIVIL DEFENSE RESOURCES UNDER NUCLEAR ATTACK ARE ESSENTIAL ELEMENTS OF CIVIL DEFENSE PLANNING. ANY CHANGE FROM THE ORIGINAL AVAILABILITY OF RESOURCES, BROUGHT ABOUT BY THE EFFECTS OF A NUCLEAR ATTACK, MUST IN TURN EFFECT EMPLOYMENT AND EFFECTIVENESS OF THE LOCAL CD OPERATING SYSTEMS. EXISTING AND PROPOSED CD SYSTEMS THEREFORE NEED TO BE EVALUATED TO ESTABLISH THEIR EFFECTIVENESS UNDER ATTACK CONDITIONS AND TO PROVIDE BASES FOR DECISIONS ON DISTRIBUTION OF EFFORT AMONG SYSTEMS, COMPONENTS, OR SUBSYSTEMS; TO ASSURE OPTIMUM ALLOCATION OF RESOURCES PRIOR TO EMERGENCY SITUATIONS; AND TO PROVIDE A MEANS FOR TESTING ALTERNATIVE OPERATING PRINCIPLES AND PROCEDURES. THE LOCAL CIVIL DEFENSE OPERATING SYSTEMS EVALUATION MODEL (LCDOSEM) IS A COMPUTERIZED SIMULATION, CONSISTING OF THREE MAJOR COMPONENTS; THE LOCAL DAMAGE ASSESSMENT MODEL (LDAM), THE COUNTERMEASURE OPERATIONS MODEL AND THE COUNTERMEASURE EFFECTIVENESS EVALUATION MODEL. THE CURRENT RESEARCH HAS CONCENTRATED ON THE DESIGN OF PORTIONS OF THE COUNTERMEASURE OPERATIONS MODEL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-715 972 15/2 13/2 13/6
STANFORD RESEARCH INST MENLO PARK CALIF

VULNERABILITY AND SURVIVING CAPABILITY OF THE NATION'S TRANSPORTATION SYSTEMS. INTERIM REPORT: DEVELOPMENT AND TEST OF METHODOLOGY. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
MAR 70 121P HAMBERG,WILLIAM A. (HALL, RICHARD W. ;
REPT. NO. SRI-7862-010
CONTRACT: DAHC20-69-C-0156
PROJ: SRI-7862

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: DETACHABLE SUMMARY INSERTED.

DESCRIPTORS: (*NUCLEAR WARFARE, TRANSPORTATION), (*TRANSPORTATION, VULNERABILITY), CIVIL DEFENSE SYSTEMS, MATHEMATICAL MODELS, RAILROADS, ROADS, PASSENGER VEHICLES, AIR TRANSPORTATION, INLAND WATERWAYS, SURVIVAL (U)
IDENTIFIERS: *POST ATTACK PLANNING, POST ATTACK OPERATIONS (U)

THE REPORT, ONE OF A GROUP OF REPORTS CONCERNED WITH DETERMINING THE VULNERABILITY OF THE NATION'S TRANSPORTATION SYSTEMS TO NUCLEAR ATTACKS, DESCRIBES THE DEVELOPMENT OF A METHOD OF DETERMINING THE CAPABILITY OF AN ALL-MODE TRANSPORTATION SYSTEM TO MOVE A GIVEN AMOUNT OF GOODS AND PEOPLE ACCORDING TO A REQUIRED SCHEDULE AND DISTRIBUTION PATTERN. TWO COURSES OF METHODOLOGY DEVELOPMENT ARE EXAMINED. IN ONE CASE, THE SYSTEM IS DESCRIBED IN ABSTRACT TERMS SUCH THAT A GENERALIZED MODEL CAN BE STRUCTURED. PRELIMINARY INVESTIGATION SUGGESTS THAT THIS APPROACH WILL BE NECESSARY IF THE SYSTEM IS TO BE ANALYZED IN A DYNAMIC FASHION. IN THE OTHER CASE THE SYSTEM IS EXAMINED UNDER A SET OF STATIC SITUATIONS REPRESENTING A CREDIBLE POSTATTACK PERIOD AND CONDITION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-716 006 15/2 13/12
SOUTHWEST RESEARCH INST SAN ANTONIO TEX

FIRE DEFENSE SYSTEMS ANALYSIS. APPLICATION OF CONCEPTS TO THE SAN JOSE METROPOLITAN AREA. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 70 91P EGGLESTON,LESTER ;
CONTRACT: DAHC20-70-C-0210

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, *FIRE SAFETY), (*URBAN AREAS, FIRES), (*NUCLEAR WARFARE, FIRES), MATHEMATICAL MODELS, THERMAL RADIATION, BLAST, RADIOACTIVE FALLOUT, ELECTROMAGNETIC PULSES, COMMUNICATION SYSTEMS, CALIFORNIA, WATER SUPPLIES, STRUCTURES, DAMAGE ASSESSMENT, FIREFIGHTING VEHICLES, MANPOWER (U)
IDENTIFIERS: *FIRE DEFENSE SYSTEMS, FIRE SPREAD, MASS FIRES, PREATTACK PLANNING, POSTATTACK OPERATIONS, SAN JOSE(CALIFORNIA) (U)

A HYPOTHETICAL, BUT NOT INFEASIBLE, FIRE DEFENSE SYSTEM FOR A METROPOLITAN AREA UNDER NUCLEAR ATTACK CONDITIONS, DEVELOPED IN AN EARLIER STUDY, IS EXAMINED FOR OPERABILITY IN AN ASSUMED SITUATION AT SAN JOSE, CALIFORNIA. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML6

AD-716 326 13/12 15/3 15/6
STANFORD RESEARCH INST MENLO PARK CALIF

CIVIL DEFENSE TEST DESIGN AND SUPPORT OF OPERATION FLAMBEAU-TYPE FIRES. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. AUG 69-AUG 70,
AUG 70 14P MARTIN,STANLEY B. I
CONTRACT: DAHC20-70-C-0219
PROJ: OCD-25618, SRI-PYU-3150

UNCLASSIFIED REPORT

DESCRIPTORS: (*FIRES, MODELS(SIMULATIONS)), (*CIVIL DEFENSE SYSTEMS, FIRE SAFETY), (*NUCLEAR EXPLOSIONS, FIRES), WIND, HUMIDITY, THERMAL RADIATION, AREA COVERAGE, TURBULENCE, IGNITION, BURNING RATE, RADIO SIGNALS, RADIO COMMUNICATION SYSTEMS, FOREST FIRES (U)
IDENTIFIERS: MASS FIRES, FIRE STORMS, FIRE SPREAD, FLAMBEAU PROJECT (U)

THE REPORT DESCRIBES ANNUAL PROGRESS IN A CONTINUING PROGRAM TO REVIEW AND APPRAISE POTENTIAL OPPORTUNITIES FOR MASS-FIRE TESTS AND OTHER SOURCES OF FIELD-TEST DATA RELEVANT TO THE CIVIL DEFENSE FIRE PROBLEM AND TO PROVIDE OBJECTIVE AND TECHNICALLY SOUND ADVICE IN SUCH MATTERS AS REQUIRED BY THE SUPPORT SYSTEMS DIVISION OF OCD, RESEARCH. PROGRESS FOR THE YEAR IS SUMMARIZED IN THE FOLLOWING SUBJECT-AREA CATEGORIES: REVIEW OF REPORTS ON FLAMBEAU-TYPE FIRES; INVESTIGATION OF NEW SOURCES OF DATA; CONDUCT ANNUAL OCD FIRE RESEARCH CONTRACTORS CONFERENCE; PARTICIPATION IN THE WRITING OF A HANDBOOK ON FOREST THERMAL EFFECTS. PLANS FOR THE COMING YEAR ARE ALSO PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZAHL8

AD-716 327 13/12 15/3 15/6
STANFORD RESEARCH INST MENLO PARK CALIF

MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. AUG 69-AUG 70,
AUG 70 138P BUTLER,C. P. ;
CONTRACT: DAHC20-70-C-0219
PROJ: OCD-2561A; SRI-PYU-8150

UNCLASSIFIED REPORT

DESCRIPTORS: (*FIRES, BUILDINGS), (*CIVIL DEFENSE SYSTEMS, FIRE SAFETY), (*NUCLEAR EXPLOSIONS, FIRES), THERMAL RADIATION, BLAST, DETONATION WAVES, DAMAGE ASSESSMENT, TURBULENCE, WIND, SMOKES, PROPAGATION, CARBON MONOXIDE, IGNITION, BURNING RATE, MODELS(SIMULATIONS) (U)
IDENTIFIERS: MASS FIRES, FIRE SPREAD (U)

A MAJOR EFFORT HAS BEGUN TO EVALUATE EXPERIMENTALLY THE DYNAMIC BEHAVIOR OF STRUCTURAL FIRES IN THE CONTEXT OF CIVIL DEFENSE IMPLICATIONS FOLLOWING NUCLEAR ATTACK. THE REPORT DESCRIBES THE ACCOMPLISHMENTS OF THE FIRST YEAR'S EFFORT WHICH INCLUDED (1) EXPERIMENTAL MEASUREMENTS OF THE DYNAMIC CHARACTERISTICS OF FIRES IN ONE-STORY WOODEN BUILDINGS, (2) METHODS USED FOR CORRELATING AND INTERPRETING THE RESULTING DATA, AND (3) ATTEMPTS AT REDUCED-SCALE MODELING OF SUCH FIRES. FOR THE MOST PART, TESTS WERE CONDUCTED IN SINGLE, UNCOLLAPSED STRUCTURES IN WHICH FIRES WERE STARTED IN A SINGLE ROOM AT ONE END OF THE STRUCTURE. IN ONE FULL-SCALE TEST, A STRUCTURE WAS PARTIALLY COLLAPSED TO SIMULATE MODERATE BLAST DAMAGE; AND IN ANOTHER SERIES, TWO LONG, PARALLEL STRUCTURES WERE BURNED SIMULTANEOUSLY TO OBSERVE EFFECTS OF INTERACTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-716 613 15/3 2/2
STANFORD RESEARCH INST MENLO PARK CALIF

AGRICULTURAL VULNERABILITY IN THE NATIONAL ENTITY SURVIVAL CONTEXT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 70 138P BROWN,STEPHEN L. ;KRUZIC, PAMELA G. ;
REPT. NO. SRI-EGU-7979-001-F
CONTRACT: DAHC20-69-C-0186
PROJ: OCD-3535A, SRI-EGU-7979

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE, AGRICULTURE), (*AGRICULTURE, VULNERABILITY), (*FERTILIZERS, INDUSTRIAL PRODUCTION), DAMAGE ASSESSMENT, RADIOACTIVE FALLOUT, ANIMALS, CEREALS, VEGETABLES, SURVIVAL, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: AGRICULTURAL VULNERABILITY, *POST ATTACK RECOVERY (U)

TWO SEPARATE STUDIES OF AGRICULTURAL VULNERABILITY ARE REPORTED. ONE IS A SENSITIVITY ANALYSIS OF AGRICULTURAL DAMAGE ASSESSMENT. SEVERAL IMPORTANT INPUT ASSUMPTIONS ARE TESTED FOR THEIR EFFECT ON THE RESULTS OF THE DAMAGE ASSESSMENT. THE OTHER STUDY IDENTIFIES TRENDS IN THE PRODUCTION AND UTILIZATION OF FERTILIZERS AND RELATES THEM TO CHANGES IN THE VULNERABILITY OF AGRICULTURAL PRODUCTION THROUGH POTENTIAL LOSS OF THE FERTILIZER INPUT.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-716 807 15/3 15/6
DIKEWOOD CORP ALBUQUERQUE N MEX

ANALYSIS OF FOUR MODELS OF THE NUCLEAR-CAUSED IGNITIONS AND EARLY FIRES IN URBAN AREAS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 70 97P MILLER,R. KEITH ;JENKINS,
MILTON E. ;KELLER,JAMES A. ;
REPT. NO. DC-FR-1210
CONTRACT: DAHC20-70-C-0222
PROJ: OCD-26198

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR EXPLOSIONS, FIRES), (*FIRES, MATHEMATICAL MODELS), URBAN AREAS, IGNITION, THERMAL RADIATION, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: FIRE SPREAD, MASS FIRES (U)

THE REPORT DETAILS THE RESEARCH AND ANALYSES SUPPORTING RECOMMENDATIONS ON SELECTION AMONG FOUR MODELS OF THE IGNITION POTENTIAL OF NUCLEAR ATTACKS ON URBAN AREAS. FACTORS INVESTIGATED INCLUDE THE ACCURACY OF THE VARIOUS ASSUMPTIONS AND ANALYTICAL TECHNIQUES EMPLOYED BY THE MODELS, THE SENSITIVITY OF THE MODELS TO VARIATIONS IN THE INPUT PARAMETERS, AND THE ADAPTABILITY OF THE MODELS TO INCREASED KNOWLEDGE OF FIRE PHENOMENOLOGY. (AUTHOR) (U)

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-717 098 5/3 15/3
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM ANALYSIS DIV

THE STRUCTURE OF THE IDA CIVIL DEFENSE ECONOMIC MODEL. (U)

DESCRIPTIVE NOTE: RESEARCH PAPER,
AUG 70 60P WETZLER,ELLIOT ;
REPT. NO. RP-P-674
CONTRACT: DAHC20-70-C-0287
PROJ: OCD-411SE
MONITOR: IDA/HQ 70-11741

UNCLASSIFIED REPORT

DESCRIPTORS: (•NUCLEAR WARFARE, SURVIVAL), (•CIVIL DEFENSE SYSTEMS, •ECONOMICS), CIVIL DEFENSE SYSTEMS, MANAGEMENT PLANNING, MATHEMATICAL MODELS, MATHEMATICAL PREDICTION, DAMAGE, POPULATION, LABOR, WAGES, MONEY, EMPLOYMENT, DEMAND(ECONOMICS), INDUSTRIES (U)
IDENTIFIERS: ECONOMIC MODELS, POSTWAR ECONOMY, •POSTATTACK PLANNING (U)

THE PAPER DESCRIBES A MULTI-SECTOR MODEL OF THE US ECONOMY DESIGNED TO ASSESS THE OVERALL VIABILITY OF THE POSTATTACK ECONOMY GIVEN A VARIETY OF ALTERNATIVE CIVIL DEFENSE POSTURES AND ATTACK CONTINGENCIES. IN ADDITION, THE MODEL IS GENERAL ENOUGH TO BE USED, WITH APPROPRIATE MODIFICATIONS, FOR A WIDE VARIETY OF ECONOMIC ISSUES UNRELATED TO CIVIL DEFENSE. THE MODEL INCORPORATES A NUMBER OF FEATURES ABSENT FROM OTHER MULTI-SECTOR ECONOMIC MODELS, INCLUDING: (1) THE COMBINING OF CHARACTERISTICS OF AN INPUT-OUTPUT MODEL WITH CONSTANT ELASTICITY OF SUBSTITUTION (CES) PRODUCTION FUNCTIONS. (2) THE ABILITY TO INCORPORATE NON-HOMOGENEOUS LABOR SUPPLY. BASICALLY, AS WITH STANDARD INPUT-OUTPUT MODELS, THIS IS A REPRESENTATION OF THE SUPPLY SIDE OF THE ECONOMY WITH THE INITIAL SET OF POSTATTACK FINAL DEMANDS (NET OUTPUTS) DETERMINED EXOGENOUSLY. THESE FINAL DEMANDS ARE ADJUSTED IN RESPONSE TO SECTORAL AND AGGREGATE SUPPLY CONDITIONS RELATIVE TO AGGREGATE DEMAND UNTIL EQUILIBRIUM IS ACHIEVED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-719 242 15/3
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM ANALYSIS DIV

A STUDY OF NATIONAL TRAVEL REQUIREMENTS FOR STRATEGIC EVACUATION. (U)

MAR 70 63P SCHMIDT,LEO A. I

REPT. NO. P-702
CONTRACT: DAHC20-70-C-0287
MONITOR: IDA/HQ 70-11944

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, TRANSPORTATION), (*URBAN AREAS, *EVACUATION), REVIEWS, UNITED STATES, RANGES(DISTANCE), PROGRAMMING(COMPUTERS), RURAL AREAS, MANAGEMENT PLANNING, STATISTICAL DATA, FEASIBILITY STUDIES, MICHIGAN (U)
IDENTIFIERS: *TRAVEL REQUIREMENTS, STRATEGIC EVACUATION, DETROIT(MICHIGAN) (U)

CALCULATIONS ARE MADE OF THE TRAVEL REQUIREMENTS FROM LARGE URBAN CENTERS TO RURAL RECEPTION AREAS UNDER THE ASSUMPTION THAT A RECEPTION AREA CAN HOUSE FOUR TIMES ITS NORMAL POPULATION. THE NEW YORK AND LOS ANGELES AREAS REQUIRED LARGE TRAVEL DISTANCES; HOWEVER, FOR THE REMAINDER OF THE COUNTRY, AVERAGE TRAVEL DISTANCES OF ABOUT 60 MILES ARE INDICATED. THE COMPUTER RESULTS FOR EVACUATING THE DETROIT AREA WERE STUDIED IN MORE DETAIL AS AN EXAMPLE OF THE NATIONWIDE CALCULATIONS. THE PATTERN OF RECEPTION CENTERS APPEARED CONSISTENT WITH THE REGIONAL AREAS DEFINED BY THE OFFICE OF BUSINESS ECONOMICS OF THE DEPARTMENT OF COMMERCE. THE SIZE OF THESE REGIONAL AREAS APPEARED APPROPRIATE AS A BASIS FOR EVACUATION PLANNING AS WELL AS FOR POST-ATTACK ASSISTANCE TO MAJOR CENTERS. THE MOST CRITICAL DEFICIENCY FOUND, BESIDES A LACK OF ADEQUATE REGIONAL PLANNING, WAS A LACK OF FALLOUT SHELTERS IN RURAL AREAS TO HOUSE THE EVACUATED POPULATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZAML8

AD-719 306 13/13 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

EXISTING STRUCTURES EVALUATION. PART IV.
TWO-WAY ACTION WALLS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 70 256P WIEHLE,CARL K. IBOCKHOLT,
JAMES L. I
CONTRACT: DAHC20-67-C-0136
PROJ: OCD-1154F, SRI-6300

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 3, AD-701 088.

DESCRIPTORS: (•WALLS: VULNERABILITY), (•NUCLEAR EXPLOSION DAMAGE, BLAST), (•CIVIL DEFENSE SYSTEMS, SHELTERS), DAMAGE ASSESSMENT, LOADING(MECHANICS), STRUCTURAL PROPERTIES, TRANSPARENT PANELS, REINFORCED CONCRETE, BRICK, MATHEMATICAL MODELS, STATISTICAL ANALYSIS (U)
IDENTIFIERS: BLAST LOADING, NFSS(NATIONAL FALLOUT SHELTER SURVEYS), NATIONAL FALLOUT SHELTER SURVEYS, OVERPRESSURE, WINDOWS, COMPUTER ANALYSIS, •BLAST SHELTERS (U)

THE OBJECTIVE OF THE INVESTIGATION WAS TO DEVELOP AN EVALUATION PROCEDURE APPLICABLE TO EXISTING NFSS-TYPE STRUCTURES AND PRIVATE HOMES FOR DETERMINING THE BLAST PROTECTION AFFORDED AND THE COST OF STRUCTURE MODIFICATIONS TO IMPROVE THE BLAST PROTECTION. THE APPROACH ADOPTED WAS TO FORMULATE A PROCEDURE THAT WOULD PERMIT EXAMINING THE RESPONSE OF A STRUCTURE OVER A RANGE OF INCIDENT OVERPRESSURE LEVELS TO DETERMINE THE PRESSURE AT WHICH FAILURE OF THE VARIOUS ELEMENTS OCCURS. PAST EFFORTS IN THIS PROGRAM HAVE BEEN CONCERNED WITH EXAMINING EXTERIOR WALLS, WINDOW GLASS, AND STEEL FRAME CONNECTIONS. THE PHASE OF THE WORK PRESENTED IN THIS REPOR. EXTENDED THE EXTERIOR WALL RESPONSE MODELS PREVIOUSLY DEVELOPED BY INCLUDING EXTERIOR WALLS WITH TWO-WAY ACTION AND WINDOW OPENINGS. THE EVALUATION PROCEDURE WAS ALSO EXTENDED TO INCLUDE A PROBABILITY DISTRIBUTION FOR EACH OF THE VARIOUS 'UNKNOWN' WALL AND LOAD PARAMETERS. USING THE WALL EVALUATION PROCEDURE, A LIMITED SENSITIVITY ANALYSIS WAS PERFORMED AND A COMPARISON WAS MADE OF THE AVAILABLE EXPERIMENTAL INFORMATION ON DYNAMICALLY LOADED WALL ELEMENTS WITH THEORETICAL PREDICTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-719 312 15/3 12/2
FAUCETT (JACK) ASSOCIATES SILVER SPRING MD

APPLICATIONS OF NETWORK ANALYSIS TO CIVIL DEFENSE SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT.
DEC 70 144P
CONTRACT: DAHC20-70-C-0311
PROJ: OCD4114C

UNCLASSIFIED REPORT

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, •OPERATIONS RESEARCH), (•NUCLEAR WARFARE, DAMAGE ASSESSMENT), MATHEMATICAL PROGRAMMING, TRANSPORTATION, EVACUATION, MEDICAL SUPPLIES, MATHEMATICAL MODELS, DIFFERENTIAL EQUATIONS, INTEGRALS, PROBABILITY DENSITY FUNCTIONS, OPTIMIZATION (U)
IDENTIFIERS: •NETWORK FLOWS, ALLOCATION MODELS, CONTROL THEORY, OPTIMAL CONTROL, TRANSPORTATION MODELS, GRAPH THEORY, EMERGENCY PLANNING, •NETWORK ANALYSIS THEORY, NETWORK SYNTHESIS, RESOURCE ALLOCATION (U)

THE REPORT CONTAINS RESULTS OF THE RESEARCH ON THE APPLICABILITY OF THE PRESENTLY AVAILABLE NETWORK ANALYSIS TECHNIQUES FOR SOLVING THE PROBLEMS OF CIVIL DEFENSE AND EMERGENCY RESOURCE PLANNING. USING POPULATION AND DISTANCE DATA CONTAINED IN THE NATIONAL NODAL NETWORK SYSTEM (NNNS), A GRAVITY MEASURE WAS GENERATED. THIS GRAVITY MEASURE CLUSTERED 67 NEW ENGLAND DOMAINS TO PROVIDE AN ALTERNATIVE REGIONAL STRUCTURE TO BETTER SERVE CIVIL DEFENSE AND EMERGENCY PLANNING NEEDS. AN ANALYTICAL METHOD FOR CALCULATING AVERAGE TIME OF FIRE ENGINES FROM SMALL SUBURBAN NODES TO A LARGE URBAN NODE WAS ALSO DEVELOPED. IN ADDITION, AN EFFICIENT NETWORK ALGORITHM FOR SOLVING THE PROBLEM OF MINIMIZING TRANSPORTATION COSTS OF MULTI-COMMODITY FLOWS IN A ZONAL ECONOMY WAS DESIGNED. FINALLY, A NETWORK FLOW MODEL TO OPTIMIZE PREPOSITIONING OF RESOURCES IN ANTICIPATION OF A DISASTER WAS CONSTRUCTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-719 723 15/3 15/6
STANFORD RESEARCH INST MENLO PARK CALIF

NUCLEAR EMERGENCY OPERATIONS PLANNING AT THE OPERATING ZONE LEVEL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 70 56P RAINEY,CHARLES T. ;
CONTRACT: DAHC20-68-C-0156
PROJ: OCD-2611H

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, OPERATION), (*NUCLEAR WARFARE, THREAT EVALUATION), ORGANIZATIONS, URBAN AREAS, RURAL AREAS, CONTROL, FIRES, RADIOACTIVE FALLOUT (U)
IDENTIFIERS: *POSTATTACK OPERATIONS, NUCLEAR EMERGENCY OPERATIONS, CONTINGENCY PLANNING, CIVIL DEFENSE PREPAREDNESS (U)

THE STUDY WAS CONCERNED WITH THE DEVELOPMENT OF A PROTOTYPE NUCLEAR EMERGENCY OPERATIONS PLAN FOR LOCAL JURISDICTIONS OF LESS THAN 25 SQUARE MILES AND FOR OPERATING ZONES WITHIN LARGER JURISDICTIONS. THE EMERGENCY PERIOD CONSIDERED BEGINS WITH THE ONSET OF A CRISIS, INCLUDES THE WARNING AND ATTACK PHASES, AND CONTINUES UNTIL WEAPON-CAUSED FIRES, IF ANY, ARE OUT AND FALLOUT RADIATION, IF ANY, NO LONGER CONSTITUTES A SUBSTANTIAL HAZARD. THE PROTOTYPE ZONAL NEOP CONSISTS OF THREE PARTS. THE FIRST IS THE BASIC PLAN OF THE LOCAL GOVERNMENT WITHIN WHICH THE ZONE IS LOCATED. THE SECOND IS A MASTER CHECKLIST OF PREPLANNED ACTIONS. THIS CHECKLIST IS BASED ON THE DYNAMICS OF THE PRINCIPAL THREATS (DIRECT EFFECTS AND FALLOUT) POSED BY NUCLEAR WEAPONS. ALL OPERATING ZONES WOULD USE THE SAME CHECKLIST EXCEPT THAT THOSE ZONES UNLIKELY TO EXPERIENCE DIRECT WEAPONS EFFECTS WOULD REQUIRE THE FALLOUT PORTIONS ONLY. THE THIRD PART CONTAINS SERVICE ANNEXES THAT DETAIL THE PLANS FOR ACCOMPLISHMENT OF EMERGENCY ACTIONS WITHIN A GIVEN ZONE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-719 731 15/3 13/12
IIT RESEARCH INST CHICAGO ILL

FIRE SPREAD IN HIGH DENSITY HIGH-RISE BUILDINGS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 71 55P TAKATA,A. N. ;
CONTRACT: DAHC20-70-C-0286
PROJ: OCD-2538F

UNCLASSIFIED REPORT

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, FIRE SAFETY), (•FIRES, MATHEMATICAL MODELS), (•URBAN AREAS, FIRES), (•NUCLEAR EXPLOSIONS, FIRES), PROBABILITY, IGNITION, THERMAL RADIATION, ROADS, THREAT EVALUATION, BUILDINGS, VULNERABILITY, AREA COVERAGE, WIND, BLAST (U)
IDENTIFIERS: FIRE SPREAD, HIGH RISE BUILDINGS, FIRE STORMS, MASS FIRES, OVERPRESSURE (U)

THE PROGRAM HAD THE OBJECTIVE OF DEVELOPING A COMPUTER ROUTINE TO DETERMINE THE INITIATION AND SPREAD OF FIRE IN HIGH DENSITY HIGH-RISE AREAS FOLLOWING A NUCLEAR DETONATION, AND ITS EFFECTS ON THE STREET ENVIRONMENT. THE RESULT OF THIS ENDEAVOR IS A COMPUTER CODE THAT EVALUATES THE PROBABLE NUMBER AND FLOOR LOCATIONS OF FIRES, THE RATE OF HEAT GENERATION FROM BUILT-UP AREAS, THE RADIANT INTENSITIES IN THE STREETS, AND THE INDUCED WINDS AS FUNCTIONS OF TIME. PROVISIONS WERE MADE TO KEEP THE CODE SUFFICIENTLY FLEXIBLE TO ALLOW FOR IMPROVED DATA AND INFORMATION AS THEY BECOME AVAILABLE. ALSO, PROVISIONS WERE MADE TO SIMPLIFY THE PROBLEM OF INCORPORATING THE ROUTINE IN A MORE GENERAL CODE FOR AN ENTIRE URBAN AREA. PRELIMINARY CALCULATIONS WERE CONDUCTED TO GAIN AN APPRECIATION OF HOW THE FIRES DEVELOP IN TIME, THE THREATS TO PERSONNEL IN THE STREETS AND THE POSSIBILITY OF A FIRE STORM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-720 439 15/3 5/3 15/6
CHECCHI AND CO WASHINGTON D C

PETROLEUM DISTRIBUTION, GROSS NATIONAL PRODUCT, AND SYSTEM VULNERABILITY: METHODS OF ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 70 122P MANLY,ROBERT P. LERNER, HARVEY A. GRIGSBY,J. WILLIAM ;
REPT. NO. CHECCHI-7023-A
CONTRACT: DAHC20-68-C-0160
PROJ: OCD-43618

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, PETROLEUM INDUSTRY), (*PETROLEUM, DISTRIBUTION), (*NUCLEAR WARFARE, PETROLEUM INDUSTRY), (*PETROLEUM INDUSTRY, VULNERABILITY), ECONOMICS, MATHEMATICAL ANALYSIS, MODELS(SIMULATIONS), CONSUMPTION, URBAN AREAS, NETWORKS (U)
IDENTIFIERS: *GROSS NATIONAL PRODUCT, INDUSTRIAL VULNERABILITY, PETROLEUM DISTRIBUTION SYSTEMS (U)

THE PURPOSE OF THE REPORT IS TO DEVELOP IMPROVED METHODS, TECHNIQUES, AND TECHNICAL INFORMATION FOR ANALYZING THE EFFECTS OF NUCLEAR ATTACK ON DISTRIBUTION SYSTEMS IN THE UNITED STATES. THE REPORT REPRESENTS A BRIDGE BETWEEN PREVIOUS STUDIES OF THE VULNERABILITY OF LOCAL PETROLEUM DISTRIBUTION SYSTEMS AND ANALYSES OF A BROADER RANGE OF ECONOMIC, GEOGRAPHICAL, AND SYSTEM PARAMETERS. PRINCIPAL ATTENTION IS GIVEN TO FOUR AREAS OF ANALYSIS WHICH ARE APPROPRIATE TO BROADER CONCEPTS OF VULNERABILITY: GROSS NATIONAL PRODUCT ANALYSIS, NATIONAL NEEDS ANALYSIS, SPATIAL INTERACTION ANALYSIS, AND NETWORK-BOUNDARY FLOW ANALYSIS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-722 834 6/5
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

POSTATTACK COMMUNICABLE RESPIRATORY DISEASES. (U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 69-NOV 70,
NOV 70 153P VOORS,ANTONIE W. HARRIS, BENJAMIN S. H. , III;
REPT. NO. RTI-R-OU-493-F
CONTRACT: DAHC20-70-C-0285
PROJ: OCD-3412E, RTI-OU-493

UNCLASSIFIED REPORT

DESCRIPTORS: (*RESPIRATORY DISEASES, *EPIDEMIOLOGY), (*INFECTIOUS DISEASES, *CIVIL DEFENSE SYSTEMS), (*NUCLEAR WARFARE, RESPIRATORY DISEASES), MATHEMATICAL MODELS, CONTROL, IMMUNITY, HYGIENE, ANTIBIOTICS, CHEMOTHERAPY, VACCINES, MEDICAL SUPPLIES, MEDICAL PERSONNEL, POPULATION, PUBLIC HEALTH, COSTS, RADIOBIOLOGY (U)
IDENTIFIERS: *POST ATTACK OPERATIONS (U)

RESPIRATORY DISEASES LIKELY TO CAUSE POSTATTACK PROBLEMS IN THE U. S. WERE IDENTIFIED BY A REVIEW OF THE LITERATURE. THE FINALIZED LIST CONSISTED OF INFLUENZE, PNEUMONIA, DIPHTHERIA, WHOOPING COUGH, MEASLES, SCARLET FEVER, MENINGOCOCCAL MENINGITIS, AND SMALLPOX. A MATHEMATICAL MODEL OF INFECTIOUS DISEASE EPIDEMICS WAS ADAPTED TO THE POSTATTACK SITUATION TO ACCOUNT QUANTITATIVELY FOR DISEASE OCCURRENCE UNDER POSTATTACK CONDITIONS, AS WELL AS FOR THE EFFECTIVENESS OF PREVENTION AND CONTROL MEASURES. ESTIMATES OF MORTALITY RATES FOR THE DISEASES UNDER A LIMITED SET OF POSTATTACK CONDITIONS WERE MADE. VARIOUS MEASURES TO DECREASE THE EFFECTS OF THESE DISEASES WERE IDENTIFIED AND THEIR POSTATTACK FEASIBILITY EVALUATED. METHODS CONSIDERED WERE: IMMUNIZATION, PERSONAL HYGIENE, QUARANTINE, HEALTH EDUCATION AND INFORMATION, ANTIBIOTIC PROPHYLAXIS AND TREATMENT, AND PROTECTION AGAINST CLIMATE EXPOSURE. THEY WERE STUDIED AS ISOLATED MEASURES AND IN RELATION TO ONE ANOTHER, USING THE MATHEMATICAL MODEL AS AN ANALYTICAL FRAMEWORK. PREVENTION AND CONTROL MEASURES WERE COMPARED ACCORDING TO THEIR EFFECTIVENESS. PREATTACK PREPAREDNESS PROGRAMS WERE RECOMMENDED ON THE BASIS OF COST-EFFECTIVENESS FEASIBILITY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-723 045 13/5 13/13 15/3
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS

DYNAMIC TESTS OF LARGE REINFORCING BAR SPLICES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 71 183P FLATHAU,WILLIAM J. ;
REPT. NO. AEWES-TR-N-71-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*METAL JOINTS, STRUCTURAL PROPERTIES), (*REINFORCING MATERIALS, JOINING), (*SHELTERS, REINFORCED CONCRETE), BLAST, DEFORMATION, STRAIN(MECHANICS), WELDING, WELDS, STRESSES, TEST METHODS, CIVIL DEFENSE SYSTEMS, NUCLEAR EXPLOSIONS (U)
IDENTIFIERS: HARDENED INSTALLATIONS, BLAST RESISTANT STRUCTURES (U)

DYNAMIC TENSILE TESTS WERE CONDUCTED AT RAPID, INTERMEDIATE, AND SLOW RATES OF STRAIN ON SPECIMENS OF NO. 11 REINFORCING BARS OF GRADES 60 AND 75 A615 BILLET STEEL. AS-ROLLED BARS, MACHINED BARS, BUTT-WELDED SPLICES, THERMIT SPLICES, AND CADWELD SPLICES WERE PREPARED. THE AS-ROLLED AND MACHINED SPECIMENS WERE TESTED PRIMARILY TO DETERMINE THE TENSILE STRENGTH CHARACTERISTICS OF THE GRADES 60 AND 75 BARS FOR USE WHEN ASSESSING HOW EFFECTIVE THE VARIOUS SPLICED SPECIMENS WERE WHEN TESTED. ALL TESTS WERE CONDUCTED IN A 200,000-POUND-CAPACITY DYNAMIC LOADER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-723 424 13/12 21/2 15/3
IIT RESEARCH INST CHICAGO ILL ENGINEERING MECHANICS DIV

SCALED ROOM FLASHOVER. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 26 FEB 70-28 FEB 71,
APR 71 73P WATERMAN,THOMAS E. I
REPT. NO. IITRI-J6200
CONTRACT: DAHC20-70-C-0308

UNCLASSIFIED REPORT

DESCRIPTORS: (*FIRES, BURNING RATE), (*URBAN AREAS, *BUILDINGS), (*NUCLEAR WARFARE, URBAN AREAS), CIVIL DEFENSE SYSTEMS, MODELS(SIMULATIONS), HEAT OF COMBUSTION, FLAMMABILITY, COMBUSTION PRODUCTS, REACTION KINETICS (U)
IDENTIFIERS: FIRE FLASHOVER, FLASH POINT, COMBUSTIBLE GASES (U)

EXPERIMENTS WERE CONDUCTED WITH A ONE-EIGHTH MODEL ROOM TO DETERMINE THE EFFECTS OF INITIATING FIRE SIZE, ROOM DEPTH, WINDOW SIZE, AND FIRE LOCATION ON THE OCCURRENCE AND TIME OF ROOM FLASHOVER. DATA WERE ALSO COLLECTED TO INDICATE THE INFLUENCE OF THESE PARAMETERS ON THE ABILITY OF FIRE TO JUMP SPACES DEVOID OF COMBUSTIBLES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-723 429 15/3 13/12 15/6
URS RESEARCH CO SAN MATEO CALIF

EFFECTS OF AIR BLAST ON URBAN FIRES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 70 54P GOODALE,THOMAS I
REPT. NO. URS-7009-4
CONTRACT: DAHC20-70-C-0373

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FIRE SAFETY), (*FIRES, URBAN AREAS), (*BLAST, FIRES), (*BUILDINGS, VULNERABILITY), (*NUCLEAR EXPLOSIONS, FIRES), PROPAGATION, FLAMES, THERMAL RADIATION, PROBABILITY, IGNITION, MODELS(SIMULATIONS), HIGH-SPEED PHOTOGRAPHY, STRUCTURES (U)
IDENTIFIERS: OVERPRESSURE, FIRE-BLAST INTERACTIONS (U)

AN EXPERIMENTAL INVESTIGATION WAS CONDUCTED OF THE EFFECT OF SIMULATED NUCLEAR BLAST WAVES ON FIRES, SIMULATING THOSE THAT WOULD BE STARTED IN URBAN INTERIORS DUE TO THERMAL RADIATION THAT WOULD HAVE EMANATED FROM A 1 MT-YIELD WEAPON SSUMED TO BE THE SOURCE OF THE SIMULATED BLAST. BLA WAVES IN THE RANGE 1 TO 5 PSI NOMINAL OVERPRESSURE PROPAGATED THROUGH WINDOWS IN A NON-FAILING WALL INTO FULL-SCALE TEST ROOMS FURNISHED AS TYPICAL LIVING ROOM, BEDROOM AND OFFICE OCCUPANCIES. THE FIRE-BLAST INTERACTION, IN VARIOUS COMBINATIONS OF OCCUPANCY AND INCIDENT OVERPRESSURE, AND FOR NON-FAILING WALLS HAVING TWO DIFFERENT WINDOW AREAS, WAS DOCUMENTED BY CONVENTIONAL AND HIGH-SPEED MOTION PICTURE PHOTOGRAPHY, AND BY POST-TEST PHOTOGRAPHY AND RECORDED OBSERVATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-726 001 11/5 21/2 15/6
NAVAL ORDNANCE LAB WHITE OAK MD

FUEL VALUES AND BURNING TIMES OF SELECTED FUEL ARRAYS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 71 17P BRACCIAVENTI,JOHN ;
REPT. NO. NOLTR-71-76
PROJ: OCD-25358

UNCLASSIFIED REPORT

DESCRIPTORS: (*TEXTILES, *COMBUSTION), (*BUILDINGS, FIRES), (*NUCLEAR WARFARE, URBAN AREAS), CIVIL DEFENSE SYSTEMS, HOUSING, FIRE SAFETY, FIRE RESISTANT TEXTILES, FLAMMABILITY, BURNING RATE (U)
IDENTIFIERS: *CURTAINS, *DRAPES, *WINDOW SHADES (U)

FUEL VALUES AND BURNING TIMES OF SEVENTEEN SELECTED WINDOW FUEL ARRAYS WERE DETERMINED EXPERIMENTALLY FOR CONDITIONS UNDER WHICH THE ARRAYS ARE COMMONLY FOUND. THE RESULTS WERE COMPARED WITH PREDICTED FUEL VALUES AND BURNING TIMES MADE IN CONJUNCTION WITH SURVEYS OF PROVIDENCE AND DETROIT. THE RESULTS INDICATE THAT THE FUEL VALUES FOR THE BURNING ARRAYS ARE ON THE AVERAGE 50 PERCENT LOWER THAN THOSE PREDICTED. THE FLAMING TIME OF THE FUELS WAS FOUND TO BE TWICE TO SIX TIMES THOSE PREDICTED, HOWEVER THE HANGING FUELS FELL TO THE FLOOR IN CONSIDERABLY SHORTER TIMES THAN THE ESTIMATED BURNING TIMES. SOME OF THE IMPLICATIONS OF THE RESULTS TO ROOM FLASHOVER ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-726 461 15/3 13/12
URS RESEARCH CO SAN MATEO CALIF

FIRE FIGHTING OPERATIONS IN HAMBURG, GERMANY DURING WORLD WAR II. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 120P MILLER,CARL F. I
REPT. NO. URS-7004
CONTRACT: DAHC20-70-C-0307
PROJ: OCD-2534H

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FIRE SAFETY), (*FIRES, *WEST GERMANY), ORGANIZATIONS, SITE SELECTION, FIREFIGHTING VEHICLES, PROTECTION, DETECTION, WATER SUPPLIES, VOLUME, EFFICIENCY (U)
IDENTIFIERS: *HAMBURG(GERMANY), WORLD WAR 2, *FIRE FIGHTING (U)

INFORMATION RECORDED BY THE HAMBURG FIRE DEPARTMENT DURING WORLD WAR II HAS BEEN SUMMARIZED AND ANALYZED TO EVALUATE SEVERAL OPERATIONAL PARAMETERS RELATING TO THE PERFORMANCE OF THE VARIOUS FIRE FIGHTING ORGANIZATIONS UNDER CONDITIONS OF STRESS FROM AIR ATTACKS ON THE CITY. PRIOR TO THE LARGE-SCALE ATTACKS, THE PROFESSIONAL FIRE FIGHTING UNITS FOUGHT AT ABOUT 38 PERCENT OF THE FIRE SITES WHILE THE SELF-PROTECTION SERVICE SQUADS FOUGHT AT ABOUT 59 PERCENT OF THE FIRE SITES. FINALLY, IN THE MAJOR AIR ATTACKS DURING THE PERIOD 7/25/43 TO 8/4/43, WHEN THE CAPABILITIES OF BOTH THE PROFESSIONAL AND SELF-PROTECTION UNITS WERE EXCEEDED, A MAXIMUM PERFORMANCE OR EFFORT LEVEL WAS REACHED FOR THE SELF-PROTECTION SERVICES AT ABOUT 2 FIRE SITES/SQUAD PER ATTACK AND, FOR THE FIRE DEPARTMENT UNITS AT ABOUT 6 FIRE SITES/ SQUAD PER ATTACK. BECAUSE OF THE FAILURE OF THE MUNICIPAL WATER SYSTEM AND THE EVACUATION (FORCED AND VOLUNTARY) OF LARGE NUMBERS OF PEOPLE, THE SELF-PROTECTION SERVICE DID NOT FUNCTION TO ANY GREAT EXTENT AFTER THE FIRST OF THESE LARGE-SCALE ATTACKS ON 7/25/43. HOWEVER, AT THE ABOVE-INDICATED RATE, THE SELF-PROTECTION SERVICE WAS CREDITED WITH EXTINGUISHING FIRES IN ABOUT 20,000 RESIDENTIAL BUILDINGS OVER THE 11-DAY PERIOD. THE HAMBURG FIRE DEPARTMENT UNITS, ON THE OTHER HAND, PERFORMED MORE OR LESS CONTINUOUSLY OVER THE 11-DAY PERIOD WITH A CONTINUOUSLY DECREASING EFFICIENCY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-726 955 15/3 6/7 6/21
SYSTEM SCIENCES INC BETHESDA MD

A CONCEPT OF EMERGENCY HEALTH SERVICE (EHS) IN NUCLEAR WAR. PART I - PLANNING FOR EHS IN NUCLEAR WAR, AND PART II - DEVELOPING AN EHS ANNEX TO A NUCLEAR EMERGENCY OPERATIONS PLAN (NEOP). (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 71 228P ANDERSON,CHARLES G. ;
CONTRACT: DAHC20-70-C-0302

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR WARFARE CASUALTIES, *PUBLIC HEALTH), (*CIVIL DEFENSE SYSTEMS, PUBLIC HEALTH), NUCLEAR WARFARE, MEDICAL PERSONNEL, MEDICAL SUPPLIES (U)
IDENTIFIERS: *EMERGENCY MEDICAL [illegible] (U)

THE REPORT PRESENTS A GENERAL DI[illegible] OF MEDICAL DISASTER PLANNING, EMERGENCY HEALTH SERVICE (EHS) ORGANIZATION, POTENTIAL ATTACK ENVIRONMENTS AND CASUALTY CARE REQUIREMENTS. THE ELEMENTS OF THE EHS ARE ALL DISCUSSED IN TERMS OF APPLICATION DURING ANY ONE OF THE POSSIBLE DIFFERENT TYPES OF ATTACK BASIC OPERATING SITUATIONS (BOS). A CONCEPT OF PLANNING FOR EMERGENCY MEDICAL OPERATIONS DURING AND IMMEDIATELY AFTER A NUCLEAR ATTACK IS DISCUSSED. IT COVERS THE ASPECTS OF MEDICAL MANPOWER, MEDICAL SUPPLIES AND MEDICAL FACILITIES AND HOW THEY COULD BE INTERRELATED DURING EMERGENCY OPERATIONS. SUBSTANTIAL EMPHASIS IS GIVEN OVER TO INCREASED READINESS ACTIVITIES DURING A CRISIS BUILD UP PERIOD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-726 961 5/10 5/1 15/3
HUMAN SCIENCES RESEARCH INC MCLEAN VA

A MODEL OF SOCIETY TO USE IN SYSTEMATIC ANALYSIS AND MANAGEMENT PLANNING FOR SOCIETIES UNDER STRESS; FURTHER DEVELOPMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 71 134P HALL,EARL E. ;
REPT. NO. HSR-RR-71/4-VB-X
CONTRACT: DAHC20-68-C-0151
PROJ: OCD-4321C

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED NOV 69, AD-700 166.

DESCRIPTORS: (*NUCLEAR WARFARE, RECOVERY), (*CIVIL DEFENSE SYSTEMS, *MANAGEMENT PLANNING), MATHEMATICAL MODELS, ECONOMICS, SYSTEMS ENGINEERING, EQUATIONS, FACTOR ANALYSIS, BEHAVIOR (U)
IDENTIFIERS: POST ATTACK PLANNING (U)

THE REPORT DESCRIBES FURTHER DEVELOPMENT OF A SYSTEMS MODEL OF SOCIETY TO BE USED AS A TOOL IN PLANNING FOR SOCIETAL RECOVERY FOLLOWING NUCLEAR ATTACK. THE BASIC ELEMENTS OF THE SYSTEM WERE PRESENTED IN AN EARLIER REPORT, A MODEL OF SOCIETY TO USE IN SYSTEMATIC ANALYSIS AND MANAGEMENT PLANNING FOR SOCIETIES UNDER STRESS; THE PRESENT REPORT EMPHASIZES THE NEEDS SYSTEMS-EFFORTS EQUATIONS OF THE SOCIETAL MODEL AND COVERS IN DETAIL THE GENERAL SYSTEMIC IMPLICATIONS OF SPECIFIC HUMAN NEEDS; IMPLICATIONS FOR THE CONSUMER DEMAND SUBSYSTEM; IMPLICATIONS FOR THE INSTITUTION-BUILDING SUBSYSTEM; AND GENERAL IMPLICATIONS FOR RECOVERY PLANNING. THE REPORT CONCLUDES WITH A DESCRIPTION OF DEVELOPMENTS IN THE SOCIAL SCIENCES RELATED TO THE POTENTIAL OF SOCIETAL MODELING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-729 371 13/3 15/6
JACOBS ASSOCIATES SAN FRANCISCO CALIF

OPERATIONAL PLANNING -- DEBRIS REMOVAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 71 190P WICKHAM,GEORGE E. ;
WILLIAMSON,THOMAS N. ;
REPT. NO. JA-TR-110
CONTRACT: DAHC20-70-C-0305
PROJ: OCD-3325D

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: INCLUDES DETACHABLE SUMMARY.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, *SANITARY ENGINEERING), (*NUCLEAR WARFARE, URBAN AREAS), (*DEBRIS, NUCLEAR WARFARE), MANAGEMENT ENGINEERING, OPERATIONAL READINESS, PREDICTIONS, VEHICLES, PERSONNEL, AREA COVERAGE, MOBILIZATION (U)
IDENTIFIERS: POST ATTACK OPERATIONS, DEBRIS REMOVAL OPERATIONS (U)

PROCEDURES ARE ESTABLISHED FOR PREDICTING DEBRIS ENVIRONMENTS IN URBAN AREAS RESULTING FROM DIFFERENT NUCLEAR ATTACK SITUATIONS. METHODS OF CLASSIFYING CONSTRUCTION EQUIPMENT BY PRODUCTIVITY FOR DEBRIS REMOVAL OPERATIONS ARE PRESENTED, AS ARE METHODS TO ESTIMATE REQUIREMENTS FOR AND MOBILIZATION OF PERSONNEL AND OTHER SUPPORTING RESOURCES. PROCEDURES INCLUDE ALL PREEVENT PLANNING ACTIVITIES, INCREASED READINESS REQUIREMENTS AND IMPLEMENTATION OF CLEARING OPERATIONS IN THE EARLY POST-ATTACK PERIOD. METHODS AND PROCEDURES ARE ILLUSTRATED BY A HYPOTHETICAL SITUATION IN THE CITY OF SAN FRANCISCO. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-730 360 5/10
HUMAN SCIENCES RESEARCH INC MCLEAN VA

A STUDY OF CONSENSUS ON PSYCHOLOGICAL FACTORS RELATED TO RECOVERY FROM NUCLEAR ATTACK. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 71 234P ALLNUTT,BRUCE C. ;NORDLIE, PETER G. ;
REPT. NO. HSR-RR-71/3-DI
CONTRACT: DAHC20-70-C-0380
PROJ: OCD-35428

UNCLASSIFIED REPORT

DESCRIPTORS: (*REACTION(PSYCHOLOGY), NUCLEAR WARFARE), RECOVERY, SOCIAL PSYCHOLOGY, SOCIOLOGY, ADJUSTMENT(PSYCHOLOGY), FACTOR ANALYSIS, CIVIL DEFENSE SYSTEMS, LABOR (U)
IDENTIFIERS: *POSTATTACK RECOVERY (U)

A STUDY WAS MADE OF THE AGREEMENT THAT EXISTS AMONG EXPERTS ABOUT THE PROBABLE SOCIAL AND PSYCHOLOGICAL CONSEQUENCES OF NUCLEAR WAR, AND THE IMPACT OF SUCH FACTORS ON THE PROCESS OF NATIONAL RECOVERY. THE RESEARCH METHOD INVOLVED THE INTERROGATION OF A PANEL OF COGNIZANT GOVERNMENT OFFICIALS, MILITARY OFFICERS, AND RESEARCH SCIENTISTS, USING A VARIATION OF THE ITERATIVE DELPHI PROCEDURE. VERY GENERALLY, THE PANEL WAS IN AGREEMENT THAT, WHILE THE VARIETY OF INDIVIDUAL AND GROUP BEHAVIORS COULD BE EXPECTED TO INCREASE, THE INCIDENCE OF ADAPTIVE BEHAVIOR WOULD LIKELY OUTWEIGH THAT OF MALADAPTIVE BEHAVIOR. HOWEVER A VERY STRONG TENDENCY FOR SOCIAL SYSTEMS TO FRAGMENT INTO SMALL, LOCAL, SHORT-SIGHTED, AND SELF-INTERESTED GROUPS WAS PREDICTED. A DIVERSE SET OF PROJECTIONS ARE PRESENTED AND DISCUSSED IN DEPTH BY THE PANELISTS, AND ESTIMATIONS OF THE EFFECTS OF SOCIAL AND PSYCHOLOGICAL FACTORS ON SUCH NUMERICAL VARIABLES AS THE POSTATTACK AVAILABILITY OF LABOR ARE GIVEN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-730 483 13/13 18/3 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

STRUCTURAL RESPONSE AND LOADING OF WALL PANELS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 71 196P WILTON,C. ;GABRIELSEN,B. ;
MORRIS,P. ;
CONTRACT: DAHC20-67-C-0136
PROJ: OCD-1123E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH URS RESEARCH CO., SAN MATEO, CALIF. REPT. NO. URS-709-11.

DESCRIPTORS: (*WALLS, *NUCLEAR EXPLOSION DAMAGE), (*NUCLEAR EXPLOSION DAMAGE, *BUILDINGS), DAMAGE ASSESSMENT, PANELS(STRUCTURAL), BLAST: RESPONSE, MATHEMATICAL MODELS, STRESSES, CONSTRUCTION MATERIALS, CONSTRUCTION, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: COMPUTER AIDED ANALYSIS, FINITE ELEMENT ANALYSIS (U)

THE OBJECTIVE OF THE PROGRAM WAS TO STUDY THE LOADING AND STRUCTURAL RESPONSE OF WALL PANELS. THE REPORT DESCRIBES TECHNICAL PROGRESS AND REPORTS THE DATA FROM NUMEROUS LOADING STUDY TESTS WITH A RANGE OF TEST GEOMETRIES. CORRELATIONS BETWEEN THEORY AND TEST RESULTS FOR PANEL FAILURE PHENOMENA ARE PRESENTED AND DISCUSSED. ALSO PROVIDED ARE APPENDICES ON THE SHOCK TUNNEL AND ITS INSTRUMENTATION. THE WORK TO DATE WAS SUMMARIZED ON THE DEVELOPMENT OF A THEORY OF THE DYNAMIC FAILURE OF BRITTLE MATERIALS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-730 930 6/7 15/3
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION ROCKVILLE MD DIV OF EMERGENCY HEALTH SERVICES

THE ROLE OF ENVIRONMENTAL ENGINEERING AND ALLIED OCCUPATIONS IN NATIONAL DISASTER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 71 25P DUBUQUE,ERNEST P. ;
CONTRACT: OCD-PS-66-24
PROJ: OCD-2422C

UNCLASSIFIED REPORT

DESCRIPTORS: (*DISASTERS, ENGINEERING PERSONNEL), (*PUBLIC HEALTH, *NUCLEAR WARFARE), (*CIVIL DEFENSE SYSTEMS, NUCLEAR WARFARE), MEDICAL PERSONNEL, POPULATION, TRAINING, NATIONAL DEFENSE (U)
IDENTIFIERS: *EMERGENCY MEDICAL CARE, *ENVIRONMENTAL HEALTH (U)

THE STUDY DEFINES THE MOST ESSENTIAL ENVIRONMENTAL HEALTH REQUIREMENTS DURING AND FOLLOWING NUCLEAR ATTACK IN ORDER TO PROVIDE ENVIRONMENTAL HEALTH PERSONNEL WITH GUIDELINES IN THE DEVELOPMENT OF INTEGRATED ENVIRONMENTAL HEALTH SERVICES IN THEIR COMMUNITIES. THE MANNER IN WHICH NORMAL DUTIES COULD BE EXPANDED TO MEET THE NEEDS OF NUCLEAR DISASTER ARE DESCRIBED. THE ACADEMIC REQUIREMENTS OF SEVERAL ENVIRONMENTAL HEALTH DISCIPLINES ARE DEFINED AND CHANGES ARE SUGGESTED TO BETTER PREPARE THESE DISCIPLINES TO COPE WITH NUCLEAR DISASTER PROBLEMS. SEVERAL FEASIBLE AND APPROPRIATE METHODS FOR THE DISSEMINATION OF EXPANDED FUNCTION INFORMATION TO PROFESSIONALS ALREADY IN THE FIELD ARE DISCUSSED. THE DEVELOPMENT, PUBLICATION, AND DISTRIBUTION OF A COMPREHENSIVE MANUAL ON DISASTER ENVIRONMENTAL HEALTH PROBLEMS IS RECOMMENDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-730 945 15/3 6/5
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

POSTATTACK MEDICAL CARE MEASURES OF EFFECTIVENESS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 70-SEP 71 ON PHASE 1.
SEP 71 121P PYECHA,JOHN N. ;VOORS, ANTONIE W. ;POOLE,WILLIAM K. ;
REPT. NO. RTI-R-OU-555-1
CONTRACT: DAHC20-70-C-0400
PROJ: OCD-3432C, RTI-OU-555

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, MEDICINE), (*NUCLEAR WARFARE, RECOVERY), MATHEMATICAL MODELS, DISASTERS, RADIATION INJURIES, CASUALTIES, DISEASES, WOUNDS + INJURIES, THERAPY, RECOVERY, SURVIVAL, MORTALITY RATES, EPIDEMIOLOGY, EMPLOYMENT, EFFECTIVENESS, LABOR (U)
IDENTIFIERS: EMERGENCY HEALTH CARE SYSTEMS, PHYSICAL DISABILITY, OCCUPATIONAL PHYSICAL DEMANDS (U)

TWO LARGE-SCALE COMPUTERIZED SIMULATION MODELS WERE DEVELOPED TO STUDY THE HEALTH RELATED CONSEQUENCES OF NUCLEAR WARFARE. BOTH MODELS USE SURVIVORS AND FATALITIES AS SUMMARY MEASURES OF EMERGENCY HEALTH CARE SYSTEM EFFECTIVENESS. THE PURPOSE OF THE STUDY WAS TO DEVELOP AN ALTERNATIVE MEASURE OF EFFECTIVENESS THAT DEALS WITH THE NATURE AND EXTENT OF PHYSICAL DISABILITY AMONG SURVIVORS OF NUCLEAR ATTACK AND, AS SUCH, PROVIDES A MEASURE OF THEIR ECONOMIC UTILITY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-730 946 15/3 5/1
STANFORD RESEARCH INST MENLO PARK CALIF

NATIONAL ENTITY SURVIVAL: MEASURE AND COUNTERMEASURE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 129P LAURINO,RICHARD K. ;DRESCH, FRANCIS W. ;
CONTRACT: DAHC20-69-C-0186
PROJ: OCD-3535A, SRI-EGU-7979

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, INDUSTRIES), (*NUCLEAR WARFARE, RECOVERY), THREAT EVALUATION, ADVANCED PLANNING, ECONOMICS, MANAGEMENT PLANNING (U)
IDENTIFIERS: POSTATTACK RECOVERY, INDUSTRIAL RECOVERY, POSTATTACK OPERATIONS (U)

THE REPORT PROVIDES A COMPREHENSIVE REVIEW OF NATIONAL ENTITY SURVIVAL STUDIES WITH RESPECT TO POSSIBLE METHODS TO CALIBRATE NATIONAL SURVIVAL LEVELS IN VIEW OF VARIOUS LEVELS OF RESOURCE LOSSES DUE TO ATTACK AND TO THE USE AND NEED FOR ALTERNATIVE COUNTERMEASURES. THE REPORT DEFINES VARIOUS LEVELS OF U.S. VIABILITY IN WHICH POSTATTACK CONCEPTS OF OPERATION WOULD FUNDAMENTALLY DIFFER AND DESCRIBES GENERAL CONDITIONS UNDER WHICH EXPEDIENT MEASURES ARE MOST USEFUL. CONDITIONS FOR EFFECTIVE ADVANCED PLANNING FOR POSTATTACK RECOVERY ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-731 503 13/12 13/13 15/6
STANFORD RESEARCH INST MENLO PARK CALIF

MODELING THE DYNAMIC BEHAVIOR OF BUILDING FIRES. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 70-AUG 71,
AUG 71 53P LEE,BILLY T. ;
CONTRACT: DAHC20-70-C-0219
PROJ: SRI-PYU-8150, OCD-2536F

UNCLASSIFIED REPORT

DESCRIPTORS: (*FIRES, MODELS(SIMULATIONS)), (*BUILDINGS, NUCLEAR EXPLOSION DAMAGE), WALLS, ROOFS, PANELS(STRUCTURAL), BURNING RATE, WIND, INTERACTIONS, FLAME PROPAGATION, DAMAGE ASSESSMENT, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: *STRUCTURAL FIRES, *FIRE BEHAVIOR (U)

THE PRACTICAL MODELING OF FIRE BEHAVIOR IN A BURNING BUILDING REQUIRES SEPARATE TECHNIQUES FOR SIMULATION OF THE CONVECTIVE AND RADIATIVE FIELDS ABOUT THE FIRE. PREVIOUSLY DERIVED SCALING METHODS FOR MODELING THE FLUID FLOW ENVIRONMENT IN MASS FIRES APPEAR APPLICABLE TO 1/16-SCALE STRUCTURAL FIRES. THE TIME DURATION OF A FIRE CAN BE SCALED AS THE SQUARE ROOT OF A CHARACTERISTIC DIMENSION OF THE BURNING STRUCTURE UPON SATISFACTION OF GEOMETRIC SIMILARITY WITH THE MODEL TO WHICH IT IS BEING COMPARED. THE PERTURBATION OF THE FLOW, E.G., THE SMOKE COLUMN, BY THE AMBIENT WIND IS SHOWN TO DEPEND ON WIND VELOCITY, BURNING RATE, AND FIRE SIZE. IF THE MATERIAL THICKNESS IN A MODEL IS INCREASED TO ABOUT THE THICKNESS OF COMBUSTIBLE SHEATHING IN FULL-SIZE BUILDINGS, THE RESULTING MODEL WILL EXHIBIT THE RADIATIVE CHARACTERISTICS OF LARGE FIRES AT THE LOW VIEWING ANGLES PERTINENT TO EVALUATION OF BUILDING-TO-BUILDING FIRE SPREAD. ALTHOUGH STUDY OF AMBIENT WIND ENHANCEMENT OF FUEL CONSUMPTION RATE AND ROOM-TO-ROOM FIRE SPREAD APPEAR TO REQUIRE ALTOGETHER DIFFERENT MODELING TECHNIQUES, THE ABOVE MODEL FOR RADIATIVE SIMULATION HAS POTENTIAL IN THESE TWO AREAS AS WELL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO: /ZAML8

AD-732 498 15/3 15/6
STANFORD RESEARCH INST MENLO PARK CALIF

MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. AUG 70-AUG 71,
AUG 71 92P WIERSMA,S. J. ;MARTIN,S. B. ;
CONTRACT: DAHC20-70-C-0219
PROJ: OCD-25611A, SRI-PYU-8150

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED AUG 70, AD-716 327.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, *FIRE SAFETY), (*FIRES, BUILDINGS), (*NUCLEAR EXPLOSIONS, FIRES), THERMAL RADIATION, BLAST, DETONATION WAVES, DAMAGE ASSESSMENT, TURBULENCE, WIND, SMOKES, PROPAGATION, CARBON MONOXIDE, IGNITION, BURNING RATE, MODELS(SIMULATIONS) (U)
IDENTIFIERS: MASS FIRES, FIRE SPREAD (U)

THE DYNAMIC BEHAVIOR OF STRUCTURAL FIRES IN THE CONTEXT OF CIVIL DEFENSE IMPLICATIONS FOLLOWING NUCLEAR ATTACK IS EXPERIMENTALLY EVALUATED. THE SECOND YEAR'S EFFORT HAS STUDIED THE INTERACTIVE EFFECTS OF PAIRS OF STRUCTURES THAT WERE BURNED SIMULTANEOUSLY AND THE EFFECTS OF WIND ON INDIVIDUAL BURNING STRUCTURES. THE BUILDINGS BURNED WERE SIMILAR TO THE ONE-STORY WOODEN BUILDINGS USED IN THE FIRST YEAR'S PROGRAM, SO COMPARISONS COULD BE MADE. ALSO DURING THE YEAR, AN OPPORTUNITY TO MEASURE RADIANT FLUXES FROM BURNING BUILDINGS OF MASONRY EXTERIOR WAS AFFORDED BY AN URBAN-RENEWAL PROJECT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-732 499 15/3 15/6
BROWN (WILLIAM M) TOPANGA CALIF

RECOVERY FROM A NUCLEAR ATTACK. (A STUDY BASED UPON A HYPOTHETICAL 1973 WAR SCENARIO). (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 71 77P BROWN,WILLIAM M. ;
CONTRACT: DAHC20-70-C-0378
PROJ: OCD-35368

UNCLASSIFIED REPORT

DESCRIPTORS: (•CIVIL DEFENSE SYSTEMS, RECOVERY), (•NUCLEAR WARFARE, CIVIL DEFENSE SYSTEMS), CASUALTIES, EVACUATION, URBAN AREAS, SURVIVAL, UNITED STATES GOVERNMENT, SOCIOLOGY, LOGISTICS, ORGANIZATIONS (U)
IDENTIFIERS: •POST ATTACK RECOVERY, POST ATTACK OPERATIONS (U)

THE ANALYSIS OF POSTATTACK RECOVERY PROBLEMS IS APPROACHED BY MEANS OF A 1973 NUCLEAR WAR SCENARIO WHICH DEPICTS A PREATTACK CRISIS OF SEVERAL MONTHS DURATION, AN URBAN EVACUATION, A LARGE SOVIET NUCLEAR ATTACK BEFORE THE EVACUATION IS COMPLETED, A CALCULATION OF THE CASUALTIES, AND A DISCUSSION OF THE CRITICAL PROBLEMS AT TWO WEEKS AND AT THREE MONTHS POSTATTACK. THE FACTORS FOUND TO AFFECT THE RECOVERY MOST STRONGLY ARE (1) THE SURVIVABILITY OF THE FEDERAL GOVERNMENT; (2) THE NATURE OF THE PREATTACK CIVIL DEFENSE PLANS; AND (3) THE CIVILIAN RESPONSES DURING THE PREATTACK CRISIS. IN THIS SCENARIO AN INCAPACITATION OF THE FEDERAL AND MOST STATE GOVERNMENTS LEADS TO MAJOR SOCIETAL CHANGES INCLUDING THE POLITICAL FRAGMENTATION OF THE NATION. COMPETITION FOR SCARES RESOURCES LEADS TO AUTHORITARIAN COMMUNITY GOVERNMENTS, RIOTS, AND INTER-COMMUNITY CONFLICTS AS WELL AS GREAT INEQUITIES IN THE DISTRIBUTION OF SURVIVAL SUPPLIES. SOME LOW-COST CONTERMEASURES WHICH MIGHT REDUCE OR PREVENT THE MORE UNDESIRABLE DEVELOPMENTS ARE SUGGESTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-733 359 15/3 15/6
URS RESEARCH CO SAN MATEO CALIF

POSTATTACK RECOVERY AND OPERATION PARAMETERS AFFECTING DEBRIS ESTIMATION PROCEDURES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 76P VAN HORN,WILLIAM H. ;
REPT. NO. URS-7006-3
CONTRACT: DAHC20-70-C-0387
PROJ: OCD-3312C

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: INCLUDES A DETECHABLE SUMMARY.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, DEBRIS), (*NUCLEAR WARFARE, RECOVERY), FIRE SAFETY, URBAN AREAS, SANITARY ENGINEERING, MATHEMATICAL MODELS (U)
IDENTIFIERS: DEBRIS PREDICTION METHODS, DEBRIS REMOVAL SYSTEMS, POSTATTACK RECOVERY (U)

PREDICTED AND OBSERVED INFORMATION REQUIREMENTS WITH RESPECT TO DEBRIS WERE EVALUATED FOR THE VARIOUS ELEMENTS OF THE CIVIL DEFENSE SYSTEM. IT WAS FOUND THAT MANY ELEMENTS (E.G., FIREFIGHTING, WELFARE, ETC.) EXPRESS MODERATE TO HIGH REQUIREMENTS, FOR BOTH PREDICTED AND OBSERVED INFORMATION. THREE FUNCTIONAL AREAS AFFECTED BY THE PRESENCE OF DEBRIS WERE DERIVED THROUGH FUNCTIONAL ANALYSIS OF THE 22 ELEMENTS COMPRISING THE CIVIL DEFENSE SYSTEM. IT WAS CONCLUDED THAT THE EXISTING DEBRIS PREDICTION METHOD IS ADEQUATE FOR DESIGNING A DEBRIS REMOVAL SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZAML8

AD-733 361 6/18 18/4 15/3
OAK RIDGE NATIONAL LAB TENN

RADIOLOGICAL INSTRUMENT DESIGN INVESTIGATION FOR OCD. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. JAN-OCT 70, NOV 71 49P DELORENZO,J. T. ;GLASS, F. M. ;KENNEDY,E. J. ;MANNING,F. W. ; ROCHELLE,J. M. ;
REPT. NO. ORNL-TM-3370
CONTRACT: DAHC20-69-C-0132
PROJ: OCD-2121H

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 22 APR 70, AD-704 803.

DESCRIPTORS: (*HEALTH PHYSICS INSTRUMENTATION, DESIGN), (*CIVIL DEFENSE SYSTEMS, RADIATION MONITORS), URBAN AREAS, IONIZATION CHAMBERS, ELECTRONIC EQUIPMENT, INTEGRATED CIRCUITS, AMPLIFIERS, ELECTROMETERS, SEMICONDUCTOR DEVICES, FIELD EFFECT TRANSISTORS (U)
IDENTIFIERS: METAL OXIDE TRANSISTORS (U)

CIRCUIT AND ELECTRONIC COMPONENT DESIGNS FOR THE OFFICE OF CIVIL DEFENSE RADIOLOGICAL INSTRUMENTATION WERE STUDIED. MINIATURE GAS-DISCHARGE IONIZATION CHAMBER INSTRUMENTS WERE STUDIED, AND TWO EXPERIMENTAL MODULES WERE CONSTRUCTED AND TESTED. ADDITIONAL OBSERVATIONS AND DATA WERE RECORDED TO DETERMINE RADIATION EFFECTS ON METAL-OXIDE FIELD-EFFECT TRANSISTORS. A COMMERCIAL OPERATIONAL AMPLIFIER WAS STUDIED FOR APPLICATION TO ELECTROMETER TYPE RADIOLOGICAL INSTRUMENTS. A STUDY OF PROPORTIONAL COUNTERS FOR USE IN GAMMA SURVEY METERS WAS STARTED. UTILIZATION OF BREADBOARD-TYPE INTEGRATED CIRCUITS WAS INVESTIGATED.
(AUTHOR) (U)

CORPORATE AUTHOR - MONITORING AGENCY

•ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS

• • •

AEWES-TR-N-71-2
DYNAMIC TESTS OF LARGE REINFORCING BAR SPLICES.
AD-723 045

•BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

• • •

BRL-1476
FALLOUT MIGRATION FROM A SLOPED ROOF.
AD-703 856

•BROWN (WILLIAM M) TOPANGA CALIF

• • •

RECOVERY FROM A NUCLEAR ATTACK. (A STUDY BASED UPON A HYPOTHETICAL 1973 WAR SCENARIO).
AD-732 499

•CHECCHI AND CO WASHINGTON D C

• • •

CHECCHI-7029-A
PETROLEUM DISTRIBUTION, GROSS NATIONAL PRODUCT, AND SYSTEM VULNERABILITY: METHODS OF ANALYSIS.
AD-720 439

•DALLAS WATER UTILITIES DEPT TEX

• • •

METROPOLITAN WATER SYSTEM OPERATION SUBSEQUENT TO NUCLEAR ATTACK OR NATURAL DISASTER.
AD-711 956

•DEFENCE RESEARCH BOARD OTTAWA (ONTARIO)

• • •

DRB-REPRINT-3214
MUST WE FREEZE IN CRISIS,
AD-707 299

•DIKEWOOD CORP ALBUQUERQUE N MEX

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DC-FR-1210
ANALYSIS OF FOUR MODELS OF THE NUCLEAR-CAUSED IGNITIONS AND EARLY FIRES IN URBAN AREAS.
AD-716 807

•FAUCETT (JACK) ASSOCIATES SILVER SPRING MD

• • •

APPLICATIONS OF NETWORK ANALYSIS TO CIVIL DEFENSE SYSTEMS.
AD-719 312

•HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION ROCKVILLE MD DIV OF EMERGENCY HEALTH SERVICES

• • •

THE ROLE OF ENVIRONMENTAL ENGINEERING AND ALLIED OCCUPATIONS IN NATIONAL DISASTER.
AD-730 930

•HUMAN SCIENCES RESEARCH INC MCLEAN VA

• • •

HSR-RR-71/2-DI
A STUDY OF CONSENSUS ON PSYCHOLOGICAL FACTORS RELATED TO RECOVERY FROM NUCLEAR ATTACK.
AD-730 960

• • •

HSR-RR-71/4-VB-X
A MODEL OF SOCIETY TO USE IN SYSTEMATIC ANALYSIS AND MANAGEMENT PLANNING FOR SOCIETIES UNDER STRESS: FURTHER DEVELOPMENT.
AD-726 961

•IIT RESEARCH INST CHICAGO ILL

• • •

FIRE SPREAD IN HIGH DENSITY HIGH-RISE BUILDINGS.
AD-719 731

• • •

IITRI-J6163
FIRE DEPARTMENT OPERATIONS ANALYSIS.
AD-712 342

•IIT RESEARCH INST CHICAGO ILL ENGINEERING MECHANICS DIV

• • •

MATHEMATICAL MODELING OF FIRE DEFENSES, PART II.
AD-709 388

• • •

INS-RES

URBAN BURNS - FULL-SCALE FIELD STUDIES.
AD-707 454

• • •

IITRI-J6200
SCALED ROOM FLASHOVER.
AD-729 424

•INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA

• • •

IDA-HQ-70-11362
THE IDA CIVIL DEFENSE ECONOMIC MODEL.
AD-711 553

• • •

IDA/HQ-70-11791
THE STRUCTURE OF THE IDA CIVIL DEFENSE ECONOMIC MODEL.
AD-717 098

• • •

IDA/HQ-70-11944
A STUDY OF NATIONAL TRAVEL REQUIREMENTS FOR STRATEGIC EVACUATION.
AD-719 242

•INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM ANALYSIS DIV

• • •

N-713(R)
THE IDA CIVIL DEFENSE ECONOMIC MODEL.
(IDA/HQ-70-11362)
AD-711 553

• • •

P-702
A STUDY OF NATIONAL TRAVEL REQUIREMENTS FOR STRATEGIC EVACUATION.
(IDA/HQ-70-11944)
AD-719 242

• • •

RP-P-674
THE STRUCTURE OF THE IDA CIVIL DEFENSE ECONOMIC MODEL.
(IDA/HQ-70-11791)
AD-717 098

•JACOBS ASSOCIATES SAN FRANCISCO CALIF

• • •

JA-TR-110
OPERATIONAL PLANNING -- DEBRIS REMOVAL.
AD-729,371

•NAVAL ORDNANCE LAB WHITE OAK MD

• • •

NOLTR-71-76
FUEL VALUES AND BURNING TIMES OF SELECTED FUEL ARRAYS.
AD-726 001

•OAK RIDGE NATIONAL LAB TENN

• • •

ORNL-TM-3370
RADIOLOGICAL INSTRUMENT DESIGN INVESTIGATION FOR OCD.
AD-733 361

•OHIO STATE UNIV COLUMBUS DISASTER RESEARCH CENTER

• • •

DRC-SER-9
THE WARNING SYSTEM IN DISASTER SITUATIONS: A SELECTIVE ANALYSIS.
AD-714 991

•OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

• • •

APPLICATION OF COMMUNICATION THEORY AND RESEARCH TO THE EMERGENCY BROADCASTING SYSTEM PRERECORDED PROGRAMMING.
AD-712 333

•RAND CORP SANTA MONICA CALIF

• • •

P-4279
ON THE POSTATTACK VIABILITY OF AMERICAN INSTITUTIONS.
AD-699 821

•RESEARCH ANALYSIS CORP MCLEAN VA

• • •

RAC-P-51
POSTATTACK RECOVERY.
AD-708 292

• • •

RAC-TP-287

MEASUREMENT OF CRITICAL PRODUCTION CAPACITIES FOR MODELS OF THE POSTATTACK ECONOMY.
AD-701 914

•RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

• • •

RTI-OU-427-2
DEFINITION OF LOCAL OPERATING AREAS.
AD-704 365

• • •

RTI-OU-427-5
LOCAL OPERATING SYSTEM COUNTERMEASURES MODEL.
AD-714 373

• • •

RTI-R-OU-493-F
POSTATTACK COMMUNICABLE RESPIRATORY DISEASES.
AD-722 835

• • •

RTI-R-OU-555-1
POSTATTACK MEDICAL CARE MEASURES OF EFFECTIVENESS.
AD-730 945

•SOUTHWEST RESEARCH INST SAN ANTONIO TEX

• • •

FIRE DEFENSE SYSTEMS ANALYSIS. APPLICATION OF CONCEPTS TO THE SAN JOSE METROPOLITAN AREA.
AD-716 006

•STANFORD RESEARCH INST MENLO PARK CALIF

• • •

INDUSTRIAL RECOVERY MODELING: POSTATTACK DEMANDS AND POTENTIALS.
AD-711 572

• • •

APPLICATION OF THE DECONTAMINATION AND DOSE CONTROL MODEL TO AN INDUSTRIAL COMPLEX.
AD-713 023

• • •

EVALUATION OF SYSTEMS OF FIRE DEVELOPMENT.
AD-713 418

• • •

DESIGN AND APPLICATION OF A DECONTAMINATION AND DOSE CONTROL MODEL SYSTEM.
AD-714 287

• • •

LABORATORY SCALING OF THE FLUID MECHANICAL ASPECTS OF MASS FIRES.
AD-715 413

• • •

AUTOMATED ATTACK-EFFECTS INFORMATION SYSTEMS-I.
AD-715 415

• • •

CIVIL DEFENSE TEST DESIGN AND SUPPORT OF OPERATION FLAMBEAU-TYPE FIRES.
AD-716 326

• • •

MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES.
AD-716 327

• • •

EXISTING STRUCTURES EVALUATION. PART IV. TWO-WAY ACTION WALLS.
AD-719 306

• • •

NUCLEAR EMERGENCY OPERATIONS PLANNING AT THE OPERATING ZONE LEVEL.
AD-719 723

• • •

STRUCTURAL RESPONSE AND LOADING OF WALL PANELS.
AD-730 483

• • •

NATIONAL ENTITY SURVIVAL: MEASURE AND COUNTERMEASURE.
AD-730 906

• • •

MODELING THE DYNAMIC BEHAVIOR OF BUILDING FIRES.
AD-731 503

• • •

MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES.
AD-732 498

• • •

SRI-7362-010
VULNERABILITY AND SURVIVING

CAPABILITY OF THE NATION'S TRANSPORTATION SYSTEMS. INTERIM REPORT: DEVELOPMENT AND TEST OF METHODOLOGY.
AD-719 972

• • •

SRI-EGU-7979-001-F
AGRICULTURAL VULNERABILITY IN THE NATIONAL ENTITY SURVIVAL CONTEXT.
AD-716 613

•SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

• • •

SDC-TM-4378/002/00
EOC DISPLAY SYSTEM EQUIPMENT ALTERNATIVES.
AD-705 104

•SYSTEM SCIENCES INC BETHESDA MD

• • •

A CONCEPT OF EMERGENCY HEALTH SERVICE (EHS) IN NUCLEAR WAR. PART I - PLANNING FOR EHS IN NUCLEAR WAR, AND PART II - DEVELOPING AN EHS ANNEX TO A NUCLEAR EMERGENCY OPERATIONS PLAN (NEOP).
AD-726 955

•TECHNICAL OPERATIONS INC ALEXANDRIA VA SYSTEM SCIENCES DIV

• • •

TOI-TR-70-1
DEVELOPMENT OF A LOCAL CIVIL DEFENSE OPERATING SYSTEMS EVALUATION MODEL.
AD-702 235

• • •

TOI-TR-70-9
PROGRAM DESIGN OF INITIAL ROUTINES OF A CIVIL DEFENSE COUNTERMEASURE OPERATIONS MODEL.
AD-719 735

•URS RESEARCH CO PALO ALTO CALIF

• • •

TRANSATTACK ENVIRONMENT SCENARIOS.
AD-704 727

•URS RESEARCH CO SAN MATEO CALIF

• • •

URS-757-6
ASSESSMENT OF NUCLEAR WEAPON REQUIREMENTS FOR ASSURED DESTRUCTION.
AD-711 021

• • •

URS-7004
FIRE FIGHTING OPERATIONS IN HAMBURG, GERMANY DURING WORLD WAR II.
AD-726 461

• • •

URS-7006-3
POSTATTACK RECOVERY AND OPERATION PARAMETERS AFFECTING DEBRIS ESTIMATION PROCEDURES.
AD-723 959

• • •

URS-7009-4
EFFECTS OF AIR BLAST ON URBAN FIRES.
AD-723 429

SUBJECT INDEX

SHELTERS
EXISTING STRUCTURES EVALUATION.
PART IV. TWO-WAY ACTION WALLS.*
AD-719 306

TRANSPORTATION
A STUDY OF NATIONAL TRAVEL
REQUIREMENTS FOR STRATEGIC
EVACUATION.*
AD-719 242

WARNING SYSTEMS
REPRINT: MUST WE FREEZE IN
CRISIS.
AD-707 299

*COMBUSTION
FLUID MECHANICS
LABORATORY SCALING OF THE FLUID
MECHANICAL ASPECTS OF MASS FIRES.*
AD-715 413

TEXTILES
FUEL VALUES AND BURNING TIMES OF
SELECTED FUEL ARRAYS.*
AD-726 001

*COMMUNICATIONS CENTRAL
DISPLAY SYSTEMS
EOC DISPLAY SYSTEM EQUIPMENT
ALTERNATIVES.*
AD-705 104

*DEBRIS
NUCLEAR WARFARE
OPERATIONAL PLANNING -- DEBRIS
REMOVAL.*
AD-729 371

*DISASTERS
ENGINEERING PERSONNEL
THE ROLE OF ENVIRONMENTAL
ENGINEERING AND ALLIED OCCUPATIONS
IN NATIONAL DISASTER.*
AD-730 930

WARNING SYSTEMS
THE WARNING SYSTEM IN DISASTER
SITUATIONS: A SELECTIVE ANALYSIS.*
AD-714 991

*DISPLAY SYSTEMS
COMMUNICATIONS CENTRAL
EOC DISPLAY SYSTEM EQUIPMENT
ALTERNATIVES.*
AD-705 104

*ECONOMICS
CIVIL DEFENSE SYSTEMS
THE STRUCTURE OF THE IDA CIVIL
DEFENSE ECONOMIC MODEL.*
AD-717 098

*EPIDEMIOLOGY
RESPIRATORY DISEASES
POSTATTACK COMMUNICABLE
RESPIRATORY DISEASES.*
AD-722 834

*EVACUATION
URBAN AREAS
A STUDY OF NATIONAL TRAVEL
REQUIREMENTS FOR STRATEGIC
EVACUATION.*
AD-719 242

*FERTILIZERS
INDUSTRIAL PRODUCTION
AGRICULTURAL VULNERABILITY IN
THE NATIONAL ENTITY SURVIVAL
CONTEXT.*
AD-716 613

*FIRE SAFETY
CIVIL DEFENSE SYSTEMS
FIRE DEPARTMENT OPERATIONS
ANALYSIS.*
AD-712 342
FIRE DEFENSE SYSTEMS ANALYSIS.
APPLICATION OF CONCEPTS TO THE SAN
JOSE METROPOLITAN AREA.*
AD-716 006
MEASUREMENTS OF THE DYNAMICS OF
STRUCTURAL FIRES.*
AD-732 498

*FIRES
BUILDINGS
MEASUREMENTS OF THE DYNAMICS OF
STRUCTURAL FIRES.*
AD-716 227
MEASUREMENTS OF THE DYNAMICS OF

STRUCTURAL FIRES.•
AD-732 498

BURNING RATE
SCALED ROOM FLASHOVER.•
AD-723 424

MATHEMATICAL MODELS
EVALUATION OF SYSTEMS OF FIRE DEVELOPMENT.•
AD-713 418
ANALYSIS OF FOUR MODELS OF THE NUCLEAR-CAUSED IGNITIONS AND EARLY FIRES IN URBAN AREAS.•
AD-716 807
FIRE SPREAD IN HIGH DENSITY HIGH-RISE BUILDINGS.•
AD-719 731

MODELS(SIMULATIONS)
CIVIL DEFENSE TEST DESIGN AND SUPPORT OF OPERATION FLAMBEAU-TYPE FIRES.•
AD-716 326
MODELING THE DYNAMIC BEHAVIOR OF BUILDING FIRES.•
AD-731 503

NUCLEAR EXPLOSIONS
URBAN BURNS - FULL-SCALE FIELD STUDIES.•
AD-707 454

URBAN AREAS
MATHEMATICAL MODELING OF FIRE DEFENSES. PART II.•
AD-705 388
LABORATORY SCALING OF THE FLUID MECHANICAL ASPECTS OF MASS FIRES.•
AD-715 413
EFFECTS OF AIR BLAST ON URBAN FIRES.•
AD-723 429

WEST GERMANY
FIRE FIGHTING OPERATIONS IN HAMBURG, GERMANY DURING WORLD WAR II.•
AD-726 461

•HEALTH PHYSICS INSTRUMENTATION
DESIGN
RADIOLOGICAL INSTRUMENT DESIGN INVESTIGATION FOR OCD.•
AD-733 361

•INDUSTRIES
RECOVERY
INDUSTRIAL RECOVERY MODELING: POSTATTACK DEMANDS AND POTENTIALS.•
AD-711 572

SURVIVAL
MEASUREMENT OF CRITICAL PRODUCTION CAPACITIES FOR MODELS OF THE POSTATTACK ECONOMY.•
AD-701 914

•INFECTIOUS DISEASES
CIVIL DEFENSE SYSTEMS
POSTATTACK COMMUNICABLE RESPIRATORY DISEASES.•
AD-722 834

•MANAGEMENT PLANNING
CIVIL DEFENSE SYSTEMS
DEFINITION OF LOCAL OPERATING AREAS.•
AD-704 366
A MODEL OF SOCIETY TO USE IN SYSTEMATIC ANALYSIS AND MANAGEMENT PLANNING FOR SOCIETIES UNDER STRESS: FURTHER DEVELOPMENT.•
AD-726 961

•METAL JOINTS
STRUCTURAL PROPERTIES
DYNAMIC TESTS OF LARGE REINFORCING BAR SPLICES.•
AD-723 049

•NUCLEAR EXPLOSION DAMAGE
BLAST
EXISTING STRUCTURES EVALUATION, PART IV. TWO-WAY ACTION WALLS.•
AD-719 306

BUILDINGS
STRUCTURAL RESPONSE AND LOADING OF WALL PANELS.•
AD-730 463

CIVIL DEFENSE SYSTEMS
LOCAL OPERATING SYSTEM COUNTERMEASURES MODEL.•
AD-714 373

INFORMATION RETRIEVAL
AUTOMATED ATTACK-EFFECTS INFORMATION SYSTEMS-1.•
AD-715 415

STATISTICAL ANALYSIS
ASSESSMENT OF NUCLEAR WEAPON REQUIREMENTS FOR ASSURED DESTRUCTION.•
AD-711 021

WALLS
STRUCTURAL RESPONSE AND LOADING OF WALL PANELS.•
AD-730 483

•NUCLEAR EXPLOSIONS
FIRES
URBAN BURNS - FULL-SCALE FIELD STUDIES.•
AD-707 454
EVALUATION OF SYSTEMS OF FIRE DEVELOPMENT.•
AD-713 418
CIVIL DEFENSE TEST DESIGN AND SUPPORT OF OPERATION FLAMBEAU-TYPE FIRES.•
AD-716 326
MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES.•
AD-716 327
ANALYSIS OF FOUR MODELS OF THE NUCLEAR-CAUSED IGNITIONS AND EARLY FIRES IN URBAN AREAS.•
AD-716 807
FIRE SPREAD IN HIGH DENSITY HIGH-RISE BUILDINGS.•
AD-719 731
EFFECTS OF AIR BLAST ON URBAN FIRES.•
AD-723 429
MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES.•
AD-732 498

RADIOACTIVE FALLOUT
FALLOUT MIGRATION FROM A SLOPED ROOF.•
AD-703 856

•NUCLEAR WARFARE
AGRICULTURE
AGRICULTURAL VULNERABILITY IN THE NATIONAL ENTITY SURVIVAL CONTEXT.•
AD-716 613

CIVIL DEFENSE SYSTEMS
ON THE POSTATTACK VIABILITY OF AMERICAN INSTITUTIONS.•
AD-699 691
DEVELOPMENT OF A LOCAL CIVIL DEFENSE OPERATING SYSTEMS EVALUATION MODEL.•
AD-702 235
RECOVERY FROM A NUCLEAR ATTACK. (A STUDY BASED UPON A HYPOTHETICAL 1973 WAR SCENARIO).•
AD-732 499

DAMAGE ASSESSMENT
APPLICATIONS OF NETWORK ANALYSIS TO CIVIL DEFENSE SYSTEMS.•
AD-719 312

FIRES
MATHEMATICAL MODELING OF FIRE DEFENSES. PART II.•
AD-705 388
FIRE DEFENSE SYSTEMS ANALYSIS. APPLICATION OF CONCEPTS TO THE SAN JOSE METROPOLITAN AREA.•
AD-716 006

INDUSTRIES
MEASUREMENT OF CRITICAL PRODUCTION CAPACITIES FOR MODELS OF THE POSTATTACK ECONOMY.•
AD-701 914
INDUSTRIAL RECOVERY MODELING: POSTATTACK DEMANDS AND POTENTIALS.•
AD-711 572

MATHEMATICAL MODELS
TRANSATTACK ENVIRONMENT SCENARIOS.•
AD-704 727

# TITLE INDEX

FIRE SPREAD IN HIGH DENSITY HIGH-RISE BUILDINGS.(U) AD-719 791
•CIVIL DEFENSE SYSTEMS

FUEL VALUES AND BURNING TIMES OF SELECTED FUEL ARRAYS.(U) AD-724 001
•TEXTILES

THE IDA CIVIL DEFENSE ECONOMIC MODEL.(U) AD-711 993
•CIVIL DEFENSE SYSTEMS

INDUSTRIAL RECOVERY MODELING: POSTATTACK DEMANDS AND POTENTIALS.(U) AD-711 972
•INDUSTRIES

LABORATORY SCALING OF THE FLUID MECHANICAL ASPECTS OF MASS FIRES.(U) AD-718 913
•FIRES

LOCAL OPERATING SYSTEM COUNTERMEASURES MODEL.(U) AD-714 273
•CIVIL DEFENSE SYSTEMS

MATHEMATICAL MODELING OF FIRE DEFENSES. PART II.(U) AD-708 388
•NUCLEAR WARFARE

MEASUREMENT OF CRITICAL PRODUCTION CAPACITIES FOR MODELS OF THE POSTATTACK ECONOMY.(U) AD-701 914
•NUCLEAR WARFARE

MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES.(U) AD-716 327
•FIRES

MEASUREMENTS OF THE DYNAMICS OF STRUCTURAL FIRES.(U) AD-732 498
•CIVIL DEFENSE SYSTEMS

METROPOLITAN WATER SYSTEM OPERATION SUBSEQUENT TO NUCLEAR ATTACK OR NATURAL DISASTER.(U) AD-711 996
•WATER SUPPLIES

A MODEL OF SOCIRTY TO USE IN SYSTEMATIC ANALYSIS AND MANAGEMENT PLANNING FOR SOCIETIES UNDER STRESS: FURTHER DEVELOPMENT.(U) AD-726 961
•NUCLEAR WARFARE

MODELING THE DYNAMIC BEHAVIOR OF BUILDING FIRES.(U) AD-731 903
•FIRES

MUST WE FREEZE IN CRISIS.(U) AD-707 299
•CIVIL DEFENSE SYSTEMS

NATIONAL ENTITY SURVIVAL: MEASURE AND COUNTERMEASURE.(U) AD-730 944
•CIVIL DEFENSE SYSTEMS

NUCLEAR EMERGENCY OPERATIONS PLANNING AT THE OPERATING ZONE LEVEL.(U) AD-719 723
•CIVIL DEFENSE SYSTEMS

ON THE POSTATTACK VIABILITY OF AMERICAN INSTITUTIONS.(U) AD-699 831
•NUCLEAR WARFARE

OPERATIONAL PLANNING -- DEBRIS REMOVAL.(U) AD-729 371
•CIVIL DEFENSE SYSTEMS

PETROLEUM DISTRIBUTION, GROSS NATIONAL PRODUCT, AND SYSTEM VULNERABILITY: METHODS OF ANALYSIS.(U) AD-720 439
•CIVIL DEFENSE SYSTEMS

POSTATTACK COMMUNICABLE RESPIRATORY DISEASES.(U) AD-722 834
•RESPIRATORY DISEASES

POSTATTACK MEDICAL CARE MEASURES OF EFFECTIVENESS.(U) AD-730 949
•CIVIL DEFENSE SYSTEMS

POSTATTACK RECOVERY AND OPERATION PARAMETERS AFFECTING DEBRIS ESTIMATION PROCEDURES.(U) AD-732 389
•CIVIL DEFENSE SYSTEMS

POSTATTACK RECOVERY.(U) AD-708 292
•NUCLEAR WARFARE

PROGRAM DESIGN OF INITIAL ROUTINES OF A CIVIL DEFENSE COUNTERMEASURE OPERATIONS MODEL.(U) AD-719 739
•CIVIL DEFENSE SYSTEMS

RADIOLOGICAL INSTRUMENT DESIGN INVESTIGATION FOR OCD.(U) AD-732 261
•HEALTH PHYSICS INSTRUMENTATION

RECOVERY FROM A NUCLEAR ATTACK. (A STUDY BASED UPON A HYPOTHETICAL 1970 WAR SCENARIO).(U) AD-732 499
•CIVIL DEFENSE SYSTEMS

THE ROLE OF ENVIRONMENTAL ENGINEERING AND ALLIED OCCUPATIONS IN NATIONAL DISASTER.(U) AD-720 930
•DISASTERS

SCALED ROOM FLASHOVER.(U) AD-723 424
•FIRES

STRUCTURAL RESPONSE AND LOADING OF WALL PANELS.(U) AD-720 483
•WALLS

THE STRUCTURE OF THE IDA CIVIL DEFENSE ECONOMIC MODEL.(U) AD-717 094
•NUCLEAR WARFARE

A STUDY OF CONSENSUS ON PSYCHOLOGICAL FACTORS RELATED TO RECOVERY FROM NUCLEAR ATTACK.(U) AD-720 260
•REACTION(PSYCHOLOGY)

A STUDY OF NATIONAL TRAVEL REQUIREMENTS FOR STRATEGIC EVACUATION.(U) AD-719 242
•CIVIL DEFENSE SYSTEMS

TRANSATTACK ENVIRONMENT SCENARIOS.(U) AD-704 727
•NUCLEAR WARFARE

URBAN BURNS - FULL- AD-707 494

SCALE FIELD STUDIES.(U)
•NUCLEAR EXPLOSIONS

VULNERABILITY AND SURVIVING CAPABILITY OF THE NATION'S TRANSPORTATION SYSTEMS. INTERIM REPORT: DEVELOPMENT AND TEST OF METHODOLOGY.(U) AD-715 972
•NUCLEAR WARFARE

THE WARNING SYSTEM IN DISASTER SITUATIONS: A SELECTIVE ANALYSIS.(U) AD-714 991
•DISASTERS

CONTRACT INDEX

DAH-DAH

STANFORD RESEARCH INST MENLO PARK CALIF
F AD-714 287

•DAHC20-70-C-0219
STANFORD RESEARCH INST MENLO PARK CALIF
A AD-715 413
A AD-716 226
A AD-716 227
F AD-731 502
A AD-732 498

•DAHC20-70-C-0222
DIKEWOOD CORP ALBUQUERQUE N MEX
DC-FR-1210
F AD-716 807

•DAHC20-70-C-0285
RESEARCH TRIANGLE INST DURHAM N C
OPERATIONS RESEARCH AND ECONOMICS DIV
RTI-R-OU-493-F
F AD-722 834

•DAHC20-70-C-0286
IIT RESEARCH INST CHICAGO ILL
F AD-719 731

•DAHC20-70-C-0287
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM ANALYSIS DIV
N-723(R)
(IDA/HQ-70-11362)
S AD-711 552
RP-P-674
(IDA/HQ-70-11741)
AD-717 098
P-702
(IDA/HQ-70-11944)
AD-719 242

•DAHC20-70-C-0294
STANFORD RESEARCH INST MENLO PARK CALIF
F AD-719 022

•DAHC20-70-C-0297
TECHNICAL OPERATIONS INC ALEXANDRIA VA SYSTEM SCIENCES DIV
701-TR-70-9
F AD-715 735

•DAHC20-70-C-0302
SYSTEM SCIENCES INC BETHESDA MD
F AD-726 955

•DAHC20-70-C-0305
JACOBS ASSOCIATES SAN FRANCISCO CALIF
JA-TR-110
F AD-729 371

•DAHC20-70-C-0307
URS RESEARCH CO SAN MATEO CALIF
URS-7004
F AD-726 461

•DAHC20-70-C-0308
IIT RESEARCH INST CHICAGO ILL
ENGINEERING MECHANICS DIV
IITRI-J6200
F AD-723 424

•DAHC20-70-C-0311
FAUCETT (JACK) ASSOCIATES SILVER SPRING MD
F AD-719 312

•DAHC20-70-C-0373
URS RESEARCH CO SAN MATEO CALIF
URS-7009-4
F AD-723 429

•DAHC20-70-C-0378
BROWN (WILLIAM M) TOPANGA CALIF
F AD-732 499

•DAHC20-70-C-0380
HUMAN SCIENCES RESEARCH INC MCLEAN VA
HSR-RR-71/3-DI
F AD-730 260

•DAHC20-70-C-0387
URS RESEARCH CO SAN MATEO CALIF
URS-7006-3
F AD-733 359

•DAHC20-70-C-0400
RESEARCH TRIANGLE INST DURHAM N C

OPERATIONS RESEARCH AND ECONOMICS
DIV
RTI-R-OU-935-1
F AD-730 948

•OCD-PS-64-46
OHIO STATE UNIV COLUMBUS DISASTER
RESEARCH CENTER
DRC-SER-9
AD-714 991

•OCD-PS-66-29
HEALTH SERVICES AND MENTAL HEALTH
ADMINISTRATION ROCKVILLE MD DIV
OF EMERGENCY HEALTH SERVICES
F AD-730 930

•PH-11C-68-38
DALLAS WATER UTILITIES DEPT TEX
F AD-711 936

# REPORT NUMBER INDEX

URS-7009-4
AD-723 429

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13. ABSTRACT

This bibliography is a compilation of references on Civil Defense Systems: Preattack and Postattack (Nuclear Warfare) in a series of bibliographies on Civil Defense Systems. Entries were processed into the Defense Documentation Center's data bank during the period of January 1970 through January 1972 and updates an earlier bibliography, AD-705 900. References contained in this volume deal primarily with emergency source utilities, vulnerability of utilities, industries, schools and transportation; radiation exposure and control; control of diseases; capabilities of fire services; recovery and debris removal.

Other bibliographies in this series are: (1) two-volumes on Social Impact and Management Planning, (2) one-volume on Communications, (3) one-volume on Disasters and Accidents and (4) two-volumes on Shelters.

Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.

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| 14. KEY WORDS | LINK A | | LINK B | | LINK C | |
|---|---|---|---|---|---|---|
| | ROLE | WT | ROLE | WT | ROLE | WT |
| *Bibliographies | | | | | | |
| *Civil Defense Systems | | | | | | |
| *Nuclear Warfare | | | | | | |
| Advanced Planning | | | | | | |
| Nuclear Explosion Damage | | | | | | |
| Water Supplies | | | | | | |
| Industries | | | | | | |
| Transportation | | | | | | |
| Recovery | | | | | | |
| Survival | | | | | | |
| Radioactive Fallout | | | | | | |
| Nuclear Warfare Casualties | | | | | | |
| Buildings | | | | | | |
| Shelters | | | | | | |
| Blast | | | | | | |
| Fires | | | | | | |
| Communication Systems | | | | | | |
| Preattack Operations | | | | | | |
| Postattack Operations | | | | | | |
| Social Psychology | | | | | | |
| Warning Systems | | | | | | |
| Production | | | | | | |
| Economics | | | | | | |
| Urban Areas | | | | | | |