

U.S. NUCLEAR REGULATORY COMMISSION

User's Guide to Physical Protection Documents Published by the NRC



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User's Guide to Physical Protection Documents Published by the NRC

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ABSTRACT

This report is a compilation of physical protection guidance documents published by the U.S. Nuclear Regulatory Commission. It is intended to serve as a user's guide to assist in conducting information searches about physical protection subjects. Given for each document is a reference number, title, publication date, and abstract to further aid in identifying available physical protection information of interest.

The NRC invites comments for revising this report to make it more useful. Please send them to:

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1 INTRODUCTION

1.1 Purpose

This report is a reference guide that lists all physical protection documents published by the U.S. Nuclear Regulatory Commission (NRC). This guide was originally developed by NRC staff to evaluate the present collection of NRC physical protection documents with a view towards -

1. consolidation of documents,
2. identification of obsolete documents, and
3. identification of areas where additional guidance is needed.

The documents included are listed in four different ways by document type:

1. A Document Number Listing (Section 2), from which a user can quickly identify whether a particular document is included in this report;
2. A Subject Listing (Section 3), in which documents are grouped according to their physical protection subject or "module;"
3. Document Description Listing (Section 4), which includes the number, title, publication date, and abstract for each document; and
4. A Chronological Publication Date Listing (Section 5).

Users of this report are cautioned that some of the earlier published documents may be outdated and may not represent current NRC policy or positions. These documents are included for completeness and because they represent a historical perspective on particular issues. An NRC licensee should consult NRC to determine the applicability of a document to its facility.

1.2 Types of Documents Included

Four formal types of NRC-published documents are listed in this guide and each is described in the rest of the section.

1.2.1 Regulatory Guides

Regulatory guides (R.G.s) present methods acceptable to NRC for implementing specific parts of NRC regulations, delineate techniques used by the staff in evaluating specific problems, and provide guidance to applicants, licensees, or certificate holders.

Regulatory guides are prepared when detailed guidance is needed for implementing NRC requirements, but are not substitutes for regulations and compliance is not required. Draft regulatory guides are issued for public comment.

1.2.2 NUREG-Series Publications

The following types of information are published in the NUREG-series:

- support for a regulatory decision;
- results of licensing studies preliminary to licensing actions;
- results of generic regulatory or technical analyses;
- managerial, programmatic, or administrative analyses of interest to the staff, the industry, and the public;
- resolution of a problems of interest to the nuclear industry at large;
- team reports on specific topics; and
- proceedings of conferences and workshops.

Legally binding regulatory requirements are stated only in laws; NRC regulations; licenses, including technical specifications; or orders. Although NRC may suggest a course of action in a NUREG-series publication, these suggestions are not legally binding and the regulated community may use other approaches to satisfy regulatory requirements.

Each NRC publication is identified by a unique alphanumeric designator, for example, NUREG-1555 or NUREG/CR-1666. The alpha designation "NUREG," identifies the publication as an NRC publication; it is followed by a four-digit number, or it is followed by two letters further identifying the type of report and a four-digit number to form the complete designator.

Publications bearing the following designators will be included in this report:

NUREG-XXXX for a report prepared by NRC staff;
NUREG/CR-XXXX for a report prepared by a contractor for the NRC; and
NUREG/CP-XXXX for a conference proceedings. These
proceedings may be prepared by the staff or an NRC contractor.

1.2.2.1 NUREG Publications

Publications bearing a designator NUREG-XXXX are prepared by NRC staff. They may cover any of the bulleted items listed in section 1.2.2. They are formal reports on regulatory, technical, and administrative issues of interest to NRC, industry, other government agencies, and the public. These formal reports address results of licensing studies; results of analyses of general or specific problems of a regulatory or technical nature of interest to industry; action and review plans for satisfying NRC requirements; task force reports on specific topics; and administrative reports of interest to NRC, industry and the public. NUREG publications do not constitute regulatory requirements, are not subject to public comment, and do not represent policy positions acceptable to NRC.

1.2.2.2 NUREG/CR Publications

NUREG/CR-series publications are formal technical reports prepared for NRC by contractors or other government agencies and their contractors, including national laboratories. These reports

are final products of research, original investigations, periodic progress reports, or significant compilations of information. Similar to reports prepared by the staff (NUREG-XXXX), these documents do not undergo public comment, and contain only technical information with no policy implications.

1.2.2.3 NUREG/CP Publications

NUREG-series publications designated as NUREG/CPs present the proceedings of conferences or workshops sponsored by NRC.

1.3 Availability of Documents

The documents listed in this guide are available from one of the following sources:

- a) The NRC Public Document Room, 2121 L Street, NW., Lower Level, Washington, DC 20555-0001. Telephone: 1-800-397-4209 or locally 202-634-3273.
World Wide Web (WWW) Address: <<http://www.nrc.gov/NRC/PDR/pdrl.htm>>.
- b) The Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328. Telephone: 202-512-1800.
WWW Address: <http://www.access.gpo.gov/su_docs>.
- c) The National Technical Information Service, Springfield, VA 22161-0002.
Telephone: 703-487-4650.
WWW Address: <<http://www.ntis.gov/ordernow>>.

Most of the documents included in this guide may be purchased from the Government Printing Office or the National Technical Information Service. Documents are also available for inspection and copying for a fee from the NRC Public Document Room (PDR) in Washington, D.C. The PDR maintains a comprehensive collection of publicly available documents on paper, microfiche, and diskette media. The materials are searchable via the PDR's computer system and can be accessed by calling 1-800-270-2787 for Internet service.

The NRC, in cooperation with a public, college, or university library, establishes a Local Public Document Room (LPDR) near each civilian nuclear power reactor site. Information concerning NRC-published documents are maintained on microfiche at each of these locations. A list of all LPDR libraries may be obtained by calling 1-800-638-8081.

For more information on how to obtain NRC-published documents, please refer to the "Citizen's Guide to U.S. Nuclear Regulatory Commission Information," NUREG/BR-0010, Rev.2.

2 DOCUMENT NUMBER LISTING

This list provides a quick reference to the documents listed in this report. In the search for a document, a user may quickly note whether a document is included in this report and then refer to Section 4, "Document Description Listing," for further detail.

2.1 Regulatory Guides

R.G. 5.7	Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas, Rev.1
R.G. 5.12	General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material
R.G. 5.14	Use of Observation (Visual surveillance) Techniques in Material Access Areas, Rev.1
R.G. 5.15	Security Seals for the Protection and Control of Special Nuclear Material, Rev.1
R.G. 5.17	Truck Identification Markings
R.G. 5.20	Training, Equipping, and Qualifying of Guards and Watchmen
R.G. 5.27	Special Nuclear Material Doorway Monitors
R.G. 5.31	Specially Designed Vehicle with Armed Guards for Road Shipment of Special Nuclear Material, Rev.1
R.G. 5.32	Communication with Transport Vehicles
R.G. 5.43	Plant Security Force Duties
R.G. 5.44	Perimeter Intrusion Alarm Systems, Rev. 3
R.G. 5.52	Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other Than Nuclear Power Plants), Rev.3
R.G. 5.54	Standard Format and Content of Safeguards Contingency Plans for Nuclear Plants
R.G. 5.55	Standard Format and Content of Safeguards Contingency Plans for Fuel Cycle Facilities
R.G. 5.56	Standard Format and Content of Safeguards Contingency Plans for Transportation
R.G. 5.57	Shipping and Receiving Control of Strategic Special Nuclear Material, Rev. 1
R.G. 5.59	Standard Format and Content for Licensee Physical Security Plans for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance, Rev. 1
R.G. 5.60	Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material in Transit
R.G. 5.61	Intent and Scope of the Physical Protection Upgrade Rule Requirements for Fixed Sites
R.G. 5.62	Reporting of Physical Security Events, Rev. 2
R.G. 5.63	Physical Protection for Transient Shipments
R.G. 5.65	Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls

R.G. 5.66	Access Authorization Program for Nuclear Power Plants
R.G. 5.68	Protection Against Malevolent Use of Vehicles at Nuclear Power Plants

2.2 NUREG Publications

NUREG-0144	Summary Report of Workshop on Sabotage Protection in Nuclear Power Plants
NUREG-0178	Basic Considerations for Assembling a Closed Circuit Television System
NUREG-0184	User's Guide for Evaluating Physical Security Capabilities of Nuclear Facilities by the EASI Method
NUREG-0194	Calculation of Radiological Consequences of Sabotage of Shipping Casks
NUREG-0219	Nuclear Security Personnel - Interim Qualification and Training Requirements
NUREG-0271	Physical Protection Equipment Study: Final Report
NUREG-0272	Cross Reference Index for Equipment Catalog and Evaluation Guide
NUREG-0273	Guide for the Evaluation of Physical Protection Equipment, Vol. I-VII
NUREG-0274	Catalog of Physical Protection Equipment, Vol. I-VII
NUREG-0320	Interior Intrusion Alarm Systems
NUREG-0459	Generic Adversary Characteristics Summary Report
NUREG-0464	Site Security Personnel Training Manual, Vol. I-IV
NUREG-0465	Transportation Security Personnel Training Manual, Vol. I & II
NUREG-0506	Fixed Site Physical Protection Upgrade Rule Guidance Compendium
NUREG-0508	Design Methodology for the Physical Protection Upgrade Rule Requirements for Fixed Sites
NUREG-0525	Safeguards Summary Event List, Vol. I & II
NUREG-0561	Physical Protection of Shipments of Irradiated Reactor Fuel
NUREG-0576	Nuclear Power Reactor Security Personnel Training and Qualification Plans
NUREG-0703	Insider Study
NUREG-0721	Acceptance Criteria for the Physical Protection Upgrade Rule Requirements for Fixed Sites
NUREG-0725	Public Information Circular for Shipments of Irradiated Reactor Fuel, Rev. I-V
NUREG-0768	People Related Problems Affecting Security in the Licensed Nuclear Industry
NUREG-0794	Protection of Unclassified Safeguards Information
NUREG-0907	Acceptance Criteria for Determining Armed Response Force Size at Nuclear Power Plants
NUREG-0908	Acceptance Criteria for the Evaluation of Nuclear Power Reactor Security Plans
NUREG-0992	Report of the Committee to Review Safeguards Requirements at Power Reactors
NUREG-1045	Guidance on the Application of Compensatory Safeguards Measures for Power Reactor Licensees
NUREG-1178	Vital Equipment/Area Guidelines Study: Vital Area Committee Report
NUREG-1304	Reporting of Safeguards Events

NUREG-1321	Testing Standards for Physical Protection Systems at Category I Fuel Cycle Facilities
NUREG-1322	Acceptance Criteria for the Evaluation of Category I Fuel Cycle Facility Physical Security Plans
NUREG-1328	Use of Perimeter Alarms at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material
NUREG-1329	Entry/Exit Control at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material
NUREG-1330	Personnel and Vehicle Barriers at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material
NUREG-1354	Fitness for Duty in the Nuclear Power Industry: Responses to Public Comments
NUREG-1385	Fitness for Duty in the Nuclear Power Industry: Response to Implementation Questions
NUREG-1404	Licensee Use of Tactical Exercise Results
NUREG-1436	Requirements for the Maintenance of Physical Security Records at Category I Fuel Cycle Facilities
NUREG-1456	An Alternative Format for Category I Fuel Cycle Facilities Physical Protection Plans
NUREG-1485	Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit 1 on February 7, 1993
NUREG-1497	Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel
NUREG-1504	Review Criteria for Physical Fitness Training Requirements in 10 CFR Part 73
NUREG-1619	Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High-Level Radioactive Waste

2.3 NUREG/CR Publications

NUREG/CR-0027	Capability for Intrusion Detection at Nuclear Fuel Sites
NUREG/CR-0040	Evaluation of Cost Estimates of Physical Security Systems for Recycled Nuclear Fuel
NUREG/CR-0099	Evaluation of Road-Transit Physical Protection Systems
NUREG/CR-0101	A Tactical Game for Use in Development and Evaluation of Road Transit Physical Protection Systems
NUREG/CR-0181	Barrier Penetration Database
NUREG/CR-0364	Simulating Barrier Penetration During Combat
NUREG/CR-0484	Vehicle Access and Control Planning Document
NUREG/CR-0485	Vehicle Access and Search Training Manual
NUREG/CR-0508	Security Communication Systems for Nuclear Fixed Site Facilities
NUREG/CR-0509	Emergency Power Supplies for Physical Security Systems
NUREG/CR-0510	Duress Alarms for Nuclear Fixed-Site Facilities
NUREG/CR-0532	Safeguards Against Insider Collusion
NUREG/CR-0543	Central Alarm Station and Secondary Alarm Station Planning Document
NUREG/CR-0921	Programmers Manual for TRNSM 2

NUREG/CR-0923	Sensitivity Studies Using the TRNSM 2 Computerized Model for the NRC Physical Protection Project
NUREG/CR-1166	COPS Model Estimates of LLEA Availability Near Selected Reactor Sites
NUREG/CR-1169	Safeguards Vulnerability Analysis Program, Vol. I-III
NUREG/CR-1226	A Subroutine for Path Ordering of Sabotage Targets
NUREG/CR-1233	Structured Assessment Approach, Vol. I-IV
NUREG/CR-1234	The Insider Threat to Security Facilities: Data Analysis
NUREG/CR-1258	Inspection Methods for Physical Protection Project, Vol. I & II
NUREG/CR-1315	The Feasibility of Field Evaluation of Physical Protection Procedures
NUREG/CR-1327	Security Lighting Planning Document for Nuclear Fixed Site Facilities
NUREG/CR-1345	Nuclear Power Plant Design Concepts for Sabotage Protection, Vol. I & II
NUREG/CR-1378	Hardening Existing Strategic Special Nuclear Material Storage Facilities
NUREG/CR-1381	Methodology for Evaluating Safeguards Capabilities for Licensed Nuclear Facilities
NUREG/CR-1385	Development of a Good Physical Protection Plan
NUREG/CR-1467	CAS-SAS Operational Work Station Design Procedures
NUREG/CR-1468	Design concepts for Independent Central Alarm Station and Secondary Alarm Station Intrusion Detection Systems
NUREG/CR-1574	Data Requirement Comparison for the Fixed Site Upgrade Rule Guidance Compendium and the Structured Assessment Approach Licensee Submittal Document
NUREG/CR-1610	Inspection Methods for Physical Protection Project, Vol. I & II
NUREG/CR-1744	Structured Assessment Approach (SAA) Input Package, Vol. I-III
NUREG/CR-2075	Standards for Psychological Assessment of Nuclear Facility Personnel
NUREG/CR-2076	Behavioral Reliability Program in the Nuclear Industry
NUREG/CR-2217	Detection of Special Nuclear Materials at Portal Monitors and Location and Recovery of Contraband Special Nuclear Materials: Legal and Technical Problems
NUREG/CR-2297	Security Management Techniques and Evaluative Checklists for Security Force Effectiveness
NUREG/CR-2404	Analyzing Safeguards Alarms and Response Decisions
NUREG/CR-2472	Final Report on Shipping-Cask Sabotage Source-Term Investigation
NUREG/CR-2546	Reactor Safeguards Against Insider Sabotage
NUREG/CR-2588	Security Officer Response Strategies
NUREG/CR-3191	Target Assignment for Security Officers to K Targets (TASK)
NUREG/CR-3251	The Role of Security During Safety-Related Emergencies at Nuclear Power Plants
NUREG/CR-3351	Security Officer Tactical Training Issues Involving ESS Equipment
NUREG/CR-4298	Design and Installation of Computer Systems to Meet the Requirements of 10 CFR 73.55
NUREG/CR-4462	A Ranking of Sabotage/Tampering Avoidance Technology Alternatives
NUREG/CR-4473	A Study of The Operations and Maintenance of Computer Systems to Meet the Requirements of 10 CFR 73.55
NUREG/CR-5081	Tactical Exercise Planning Handbook
NUREG/CR-5172	Tactical Training Reference Manual

NUREG/CR-5227	Fitness for Duty in the Nuclear Power Industry: A Review of Technical Issues, Supplement 1
NUREG/CR-5246	A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs
NUREG/CR-5689	Medical Screening Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Material
NUREG/CR-5690	Physical Fitness Training Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Material
NUREG/CR-5721	Video Systems for Alarm Assessment
NUREG/CR-5722	Interior Intrusion Detection Systems
NUREG/CR-5723	Security System Signal Supervision
NUREG/CR-5758	Fitness for Duty in the Nuclear Power Industry, Vol. I-VI
NUREG/CR-5899	Entry/Exit Control Components for Physical Protection Systems
NUREG/CR-5929	Locking Systems for Physical Protection and Control
NUREG/CR-6149	Applications of Fiber Optics in Physical Protection
NUREG/CR-6190	Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, Vol. I & II

2.4 NUREG/CP Publications

NUREG/CP-0107	Security Training Symposium: Meeting the Challenge - Firearms and Explosives Recognition and Detection
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3 SUBJECT LISTING

This section groups the documents found in this report under twelve physical protection subjects or topics. The first eight topics are consistent with those found in new "modular" standard review plans (SRPs) being issued by NRC. A licensee may use an SRP to develop physical protection plans in response to NRC regulations. This report may be used as a companion document to the SRP because, while the SRP contains the acceptance criteria of one way to satisfy NRC requirements, this report, in this section, uses the same groupings or "modules" to present applicable NRC guidance.

3.1 Threat

R.G. 5.68	Protection Against Malevolent Use of Vehicles at Nuclear Power Plants
NUREG-0144	Summary Report of Workshop on Sabotage Protection in Nuclear Power Plants
NUREG-0459	Generic Adversary Characteristics Summary Report
NUREG-0525	Safeguards Summary Event List, Vol. I & II
NUREG-0703	Insider Study
NUREG-1485	Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit 1 on Feb. 7, 1993
NUREG/CR-0532	Safeguards Against Insider Collusion
NUREG/CR-1234	The Insider Threat to Security Facilities: Data Analysis
NUREG/CR-2546	Reactor Safeguards Against Insider Sabotage
NUREG/CR-4462	A Ranking of Sabotage/Tampering Avoidance Technology Alternatives
NUREG/CR-6190	Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, Vol. I & II

3.2 Security Organization

R.G. 5.20	Training, Equipping, and Qualifying of Guards and Watchmen
R.G. 5.43	Plant Security Force Duties
NUREG-0219	Nuclear Security Personnel - Interim Qualification and Training Requirements
NUREG-0464	Site Security Personnel Training Manual, Vol. I-IV
NUREG-0576	Nuclear Power Reactor Security Personnel Training and Qualification Plan: Reviewer's Workbook
NUREG/CR-3351	Security Officer Tactical Training Issues Involving ESS Equipment
NUREG/CR-5690	Physical Fitness Training Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Material
NUREG/CR-5689	Medical Screening Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Material

3.3 Barriers and Designated Areas

R.G. 5.12	General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material
R.G. 5.15	Security Seals for the Protection and Control of Special Nuclear Material, Rev. 1
NUREG-1178	Vital Equipment/Area Guidelines Study: Vital Area Committee Report
NUREG-1330	Personnel and Vehicle Barriers at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material
NUREG/CR-0181	Barrier Penetration Database
NUREG/CR-1378	Hardening Existing Strategic Special Nuclear Material Storage Facilities
NUREG/CR-5929	Locking Systems for Physical Protection and Control

3.4 Access Controls, Subsystems, and Procedures

R.G. 5.7	Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas, Rev. 1
R.G. 5.67	Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls
NUREG-0992	Report of the Committee to Review Safeguards Requirements at Power Reactors
NUREG-1329	Entry/Exit Control at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material
NUREG/CR-0484	Vehicle Access and Control Planning Document
NUREG/CR-0485	Vehicle Access and Search Training Manual
NUREG/CR-3251	The Role of Security During Safety-Related Emergencies at Nuclear Power Plants
NUREG/CR-5899	Entry/Exit Control Components for Physical Protection Systems

3.5 Detection, Surveillance, and Alarm Subsystems

R.G. 5.14	Use of Observation (Visual Surveillance) Techniques in Material Access Areas, Rev. 1
R.G. 5.27	Special Nuclear Material Doorway Monitors
R.G. 5.44	Perimeter Intrusion Alarm Systems, Rev. 3
NUREG-0178	Basic Considerations for Assembling a Closed Circuit Television System
NUREG-0271	Physical Protection Equipment Study: Final Report
NUREG-0272	Cross Reference Index for Equipment Catalog and Evaluation Guide
NUREG-0273	Guide for the Evaluation of Physical Protection Equipment, Vol. I-VII
NUREG-0274	Catalog of Physical Protection Equipment, Vol. I-VII
NUREG-0320	Interior Intrusion Alarm Systems
NUREG-1328	Use of Perimeter Alarms at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material
NUREG/CR-0027	Capability for Intrusion Detection at Nuclear Fuel Sites
NUREG/CR-0509	Emergency Power Supplies for Physical Security Systems
NUREG/CR-0543	Central Alarm Station and Secondary Alarm Station Planning Document
NUREG/CR-1327	Security Lighting Planning Document for Nuclear Fixed Site Facilities

NUREG/CR-1467	CAS-SAS Operational Work Station Design Procedures
NUREG/CR-1468	Design Concepts for Independent Central Alarm Station and Secondary Alarm Station Intrusion Detection Systems
NUREG/CR-2217	Detection of Special Nuclear Materials at Portal Monitors and Location and Recovery of Contraband Special Nuclear Materials: Legal and Technical Problems
NUREG/CR-4298	Design and Installation of Computer Systems to Meet the Requirements of 10 CFR 73.55
NUREG/CR-4473	A Study of The Operations and Maintenance of Computer Systems to Meet the Requirements of 10 CFR 73.55
NUREG/CR-5721	Video Systems for Alarm Assessment
NUREG/CR-5722	Interior Intrusion Detection Systems
NUREG/CR-5723	Security System Signal Supervision
NUREG/CR-6149	Applications of Fiber Optics in Physical Protection
NUREG/CP-0107	Security Training Symposium: Meeting the Challenge—Firearms and Explosives Recognition and Detection

3.6 Communications Subsystems

NUREG/CR-0508	Security Communication Systems for Nuclear Fixed Site Facilities
NUREG/CR-0510	Duress Alarms for Nuclear Fixed-Site Facilities

3.7 Test and Maintenance Programs

NUREG-1321	Testing Standards for Physical Protection Systems at Category I Fuel Cycle Facilities
NUREG/CR-0364	Simulating Barrier Penetration During Combat

3.8 Contingency Response Plans and Procedures

R.G. 5.62	Reporting of Physical Security Events, Rev. 1
NUREG-0794	Protection of Unclassified Safeguards Information
NUREG-1045	Guidance on the Application of Compensatory Safeguards Measures for Power Reactor Licensees
NUREG-1304	Reporting of Safeguards Events
NUREG/CR-2588	Security Officer Response Strategies
NUREG/CR-3191	Target Assignment for Security Officers to K Targets (TASK)
NUREG/CR-5081	Tactical Exercise Planning Handbook
NUREG/CR-5172	Tactical Training Reference Manual

3.9 Transportation

R.G. 5.17	Truck Identification Markings
R.G. 5.31	Specially Designed Vehicle with Armed Guards for Road Shipment of Special Nuclear Material, Rev. 1
R.G. 5.32	Communication with Transport Vehicles, Rev. 1

R.G. 5.57	Shipping and Receiving Control of Strategic Special Nuclear Material, Rev. 1
R.G. 5.63	Physical Protection for Transient Shipments
NUREG-0465	Transportation Security Personnel Training Manual, Vol. I & II
NUREG-0561	Physical Protection of Shipments of Irradiated Reactor Fuel
NUREG-0725	Public Information Circular for Shipments of Irradiated Reactor Fuel, Rev. I-V
NUREG/CR-0101	A Tactical Game for Use in Development and Evaluation of Road Transit Physical Protection Systems
NUREG/CR-2472	Final Report on Shipping-Cask Sabotage Source-Term Investigation

3.10 Analysis Tools

NUREG-0184	User's Guide for Evaluating Physical Security Capabilities of Nuclear Facilities by the EASI Method
NUREG-0194	Calculation of Radiological Consequences of Sabotage of Shipping Casks
NUREG-0508	Design Methodology for the Physical Protection Upgrade Rule Requirements for Fixed Sites
NUREG-1404	Licensee Use of Tactical Exercise Results
NUREG/CR-0923	Sensitivity Studies Using the TRNSM 2 Computerized Model for the NRC Physical Protection Project
NUREG/CR-1166	COPS Model Estimates of LLEA Availability Near Selected Reactor Sites
NUREG/CR-1169	Safeguards Vulnerability Analysis Program, Vol. I-III
NUREG/CR-1226	A Subroutine for Path Ordering of Sabotage Targets
NUREG/CR-1233	Structured Assessment Approach, Vol. I-IV
NUREG/CR-1345	Nuclear Power Plant Design Concepts for Sabotage Protection, Vol. I & II
NUREG/CR-1381	Methodology for Evaluating Safeguards Capabilities for Licensed Nuclear Facilities
NUREG/CR-1574	Data Requirement Comparison for the Fixed Site Upgrade Rule Guidance Compendium and the Structured Assessment Approach Licensee Submittal Document
NUREG/CR-1744	Structured Assessment Approach (SAA) Input Package, Vol. I-III
NUREG/CR-2404	Analyzing Safeguards Alarms and Response Decisions
NUREG/CR-5246	A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs

3.11 Evaluation Criteria/Standard Format and Content Guides

R.G. 5.52	Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other Than Nuclear Power Plants), Rev. 3
R.G. 5.54	Standard Format and Content of Safeguards Contingency Plans for Nuclear Plants
R.G. 5.55	Standard Format and Content of Safeguards Contingency Plans for Fuel Cycle Facilities
R.G. 5.56	Standard Format and Content of Safeguards Contingency Plans for Transportation

R.G. 5.59	Standard Format and Content for Licensee Physical Security Plans for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance, Rev. 1
R.G. 5.60	Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material in Transit
R.G. 5.61	Intent and Scope of the Physical Protection Upgrade Rule Requirements for Fixed Sites
NUREG-0506	Fixed Site Physical Protection Upgrade Rule Guidance Compendium
NUREG-0721	Acceptance Criteria for the Physical Protection Upgrade Rule Requirements for Fixed Sites
NUREG-0907	Acceptance Criteria for Determining Armed Response Force Size at Nuclear Power Plants
NUREG-0908	Acceptance Criteria for the Evaluation of Nuclear Power Reactor Security Plans
NUREG-1322	Acceptance Criteria for the Evaluation of Category I Fuel Cycle Facility Physical Security Plans
NUREG-1456	An Alternative Format for Category I Fuel Cycle Facilities Physical Protection Plans
NUREG-1497	Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel
NUREG-1504	Review Criteria for Physical Fitness Training Requirements in 10 CFR Part 73
NUREG-1619	Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High-Level Radioactive Waste
NUREG/CR-0040	Evaluation of Cost Estimates of Physical Security Systems for Recycled Nuclear Fuel
NUREG/CR-1258	Inspection Methods for Physical Protection Project, Vol. I & II
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NUREG/CR-1385	Development of a Good Physical Protection Plan
NUREG/CR-1610	Inspection Methods for Physical Protection Project, Vol. I & II
NUREG/CR-2297	Security Management Techniques and Evaluative Checklists for Security Force Effectiveness

3.12 Screening/Fitness for Duty

R.G. 5.66	Access Authorization Program for Nuclear Power Plants
NUREG-0768	People Related Problems Affecting Security in the Licensed Nuclear Industry
NUREG-1354	Fitness for Duty in the Nuclear Power Industry: Responses to Public Comments
NUREG-1385	Fitness for Duty in the Nuclear Power Industry: Response to Implementation Questions
NUREG/CR-2075	Standards for Psychological Assessment of Nuclear Facility Personnel
NUREG/CR-2076	Behavioral Reliability Program in the Nuclear Industry
NUREG/CR-5227	Fitness for Duty in the Nuclear Power Industry: A Review of Technical Issues, Supplement 1
NUREG/CR-5758	Fitness for Duty in the Nuclear Power Industry, Vol. II-VI

4 DOCUMENT DESCRIPTION LISTING

This section gives pertinent information about each document listed in this report. Presented in numerical order, the information includes the title, abstract, and publication date for each document.

4.1 Regulatory Guides

REGULATORY GUIDE 5.7, Rev. 1

TITLE: Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas

PUBLICATION DATE: May 1980

ABSTRACT: This guide contains measures NRC staff considers acceptable for implementing the entry/exit control requirements of facilities with formula quantities of strategic special nuclear material.

REGULATORY GUIDE 5.12

TITLE: General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials

PUBLICATION DATE: November 1973

ABSTRACT: This guide provides information regarding the selection and use of commercially available locks in the protection of facilities and SNM.

REGULATORY GUIDE 5.14, Rev. 1

TITLE: Use of Observation (Visual Surveillance) Techniques in Material Access Areas

PUBLICATION DATE: May 1980

ABSTRACT: This guide describes measures for implementing the requirements of surveillance or observation within material access areas to ensure safeguarding of strategic special nuclear material.

REGULATORY GUIDE 5.15, Rev. 1

TITLE: Security Seals for the Protection and Control of Special Nuclear Material

PUBLICATION DATE: March 1997

ABSTRACT: This guide identifies features of security seal systems and describes types of seals for tamper-safe of special nuclear materials (SNM) in shipment or storage.

REGULATORY GUIDE 5.17

TITLE: Truck Identification Markings

PUBLICATION DATE: January 1974

ABSTRACT: This guide identifies markings applied to a road vehicle to enhance its identification from the air.

REGULATORY GUIDE 5.20

TITLE: Training, Equipping, and Qualifying of Guards and Watchman

PUBLICATION DATE: January 1974

ABSTRACT: This guide describes a program for training, equipping, and qualifying guards and watchman.

REGULATORY GUIDE 5.27

TITLE: Special Nuclear Material Doorway Monitors

PUBLICATION DATE: June 1974

ABSTRACT: This guide describes SNM doorway monitors.

REGULATORY GUIDE 5.31, Rev. 1

TITLE: Specially Designed Vehicle with Armed Guards for Road Shipment of Special Nuclear Material

PUBLICATION DATE: April 1975

ABSTRACT: This guide describes features for a vehicle operated by armed guards to ship special nuclear material by road and for the qualification of the armed guards.

REGULATORY GUIDE 5.32, Rev. 1

TITLE: Communication with Transport Vehicles

PUBLICATION DATE: May 1975

ABSTRACT: This guide describes radiotelephone equipment and systems, and procedures for their use regarding radiotelephone communication in connection with road or rail shipments of special nuclear material.

REGULATORY GUIDE 5.43

TITLE: Plant Security Force Duties

PUBLICATION DATE: January 1975

ABSTRACT: This guide describes the organization of the plant security force and duties of guards, watchmen, and other individuals responsible for security.

REGULATORY GUIDE 5.44, Rev. 3

TITLE: Perimeter Intrusion Alarm Systems

PUBLICATION DATE: October 1997

ABSTRACT: This guide describes six types of perimeter intrusion alarm systems and sets forth criteria for their performance and use. It also references a document (SAND 76-0554) that provides additional information in this area, especially on the subject of combining sensors to yield a better overall performance.

REGULATORY GUIDE 5.52, Rev. 3

TITLE: Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other Than Nuclear Power Plants)

PUBLICATION DATE: December 1994

ABSTRACT: This guide describes the standard format and content suggested by NRC for use in preparing fixed site Physical Protection Plans in response to the Physical Protection Upgrade Rule (portions of 10 CFR Part 73). By using this Standard Format for preparing a Physical Protection Plan, the license applicant will minimize administrative problems associated with the submittal, review, and approval of the plan. Preparation of a Physical Protection Plan in accordance with this Standard Format will assist NRC in evaluating the plan and in standardizing the licensing and review process.

REGULATORY GUIDE 5.54

TITLE: Standard Format and Content of Safeguards Contingency Plans for Nuclear Power Plants

PUBLICATION DATE: March 1978

ABSTRACT: The guide has been prepared as an aid to ensure uniformity and completeness in the preparation and review of the contingency planning section of license applications. It is applicable to nuclear power plants and research reactors that are subject to the requirements of 10 CFR under 73.50, 73.55, and/or 73.60.

REGULATORY GUIDE 5.55

TITLE: Standard Format and Content of Safeguards Contingency Plans for Fuel Cycle Facilities

PUBLICATION DATE: March 1978

ABSTRACT: The guide has been prepared as an aid in ensuring completeness of planning and presentation and to simplify NRC review of the safeguards contingency plan. It applies to fuel cycle licensees who are subject to the requirements of 10 CFR under 73.50 and 73.60.

REGULATORY GUIDE 5.56

TITLE: Standard Format and Content of Safeguards Contingency Plans for Transportation

PUBLICATION DATE: March 1978

ABSTRACT: The guide has been prepared as an aid in ensuring completeness of planning and presentation and to simplify the NRC review of the safeguards contingency plan. It applies to the transportation of special nuclear material that is subject to the requirements of 10 CFR under 73.30 through 73.36.

REGULATORY GUIDE 5.57, Rev. 1

TITLE: Shipping and Receiving Control of Strategic Special Nuclear Material

PUBLICATION DATE: June 1980

ABSTRACT: This guide describes the requirements specified in 10 CFR Part 73, Physical Protection of Plants and Materials for the physical protection of special nuclear material (SNM) at licensee facilities and in transit, and is the subject of various regulatory guides issued or under development.

REGULATORY GUIDE 5.59, Rev. 1

TITLE: Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance

PUBLICATION DATE: January 1980

ABSTRACT: This guide describes the information required in the physical security plan submitted as part of an application for a license to possess, use, or transport special nuclear material (SNM) of moderate strategic significance or 10 kg or more of SNM of low strategic significance and recommends a standard format for presenting the information in an orderly arrangement. This standard format will thus serve as an aid to uniformity and completeness in the preparation and review of the physical protection plan of the license application. This document can also be used as guidance by licensees possessing or transporting less than 10 kg of SNM of low strategic significance in understanding the intent and implementing the requirements of paragraphs 73.67(a), 73.67(f), and 73.67(g) of 10 CFR Part 73.

REGULATORY GUIDE 5.60

TITLE: Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material in Transit

PUBLICATION DATE: April 1980

ABSTRACT: A predetermined plan to respond to safeguards contingency events is required to be prepared, based on personnel and other physical protection resources described in the Physical Protection Plan for strategic special nuclear material (SSNM) in transit. Specific requirements for the contingency plan are provided in Appendix C. Licensee Safeguards Contingency Plans, to 10 CFR Part 73. Regulatory Guide 5.56, Standard Format and Content of Safeguards Contingency Plans for Transportation, provides guidance for the preparation of transportation contingency plans. Licensee is reminded that all three submissions—the Physical Protection Plan, the Physical Protection Arrangements for Specific Shipments, and the Safeguards Contingency Plan—together describe the system for physical protection of each particular shipment. They should be developed and maintained to be completely consistent with each other for each shipment.

REGULATORY GUIDE 5.61

TITLE: Intent and Scope of the Physical Protection Upgrade Rule Requirements for Fixed Sites

PUBLICATION DATE: June 1980

ABSTRACT: This guide is intended to give the reader a broad overview of the structure of the Physical Protection Upgrade Rule as it applies to fixed sites and the purpose of its major provisions. A review of the threat statement is included. The Physical Protection Upgrade Rule is structured in three distinct levels; two are essentially performance oriented and the third, a reference physical protection system, is specification oriented.

REGULATORY GUIDE 5.62, Rev. 1

TITLE: Reporting of Physical Security Events

PUBLICATION DATE: February 1981

ABSTRACT: This guide discusses whether an event should be reported and the time frame during which the event should be reported and suggests a format that could be used for reporting the event.

REGULATORY GUIDE 5.63

TITLE: Physical Protection for Transient Shipments

PUBLICATION DATE: 1983

ABSTRACT: This guide describes measures that can be taken by the licensee to provide the physical protection for scheduled and unscheduled transient shipments required by 10 CFR Part 70.

REGULATORY GUIDE 5.65

TITLE: Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls

PUBLICATION DATE: September 1986

ABSTRACT: This guide presents approaches for implementing amendments designed to foster plant safety while maintaining adequate safeguards.

REGULATORY GUIDE 5.66

TITLE: Access Authorization Program for Nuclear Power Plants

PUBLICATION DATE: June 1991

ABSTRACT: This guide provides an approach for granting unescorted access to protected and vital areas of a nuclear power plant.

REGULATORY GUIDE 5.68

TITLE: Protection Against Malevolent Use of Vehicles at Nuclear Power Plants

PUBLICATION DATE: August 1994

ABSTRACT: This guide provides information regarding different vehicle barriers that can be employed to protect against vehicle attacks. This guide can be used by licensees in conjunction with separate Safeguards Information that has already been provided to affected licensees, but is not available to the general public.

4.2 NUREG Publications

NUREG-0144

TITLE: Summary Report of Workshop on Sabotage Protection in Nuclear Power Plant Design

PUBLICATION DATE: February 1977

ABSTRACT: During the Summer of 1976, Sandia Laboratories hosted a workshop on Sabotage Protection in Nuclear Power Plant Design in which 11 consultants from the nuclear power industry participated. The objective of the workshop was to identify practicable design measures which could be employed in future nuclear power plants to provide increased protection against sabotage. The report summarizes the conclusions and recommendations of the workshop.

NUREG-0178

TITLE: Basic Considerations for Assembling a Closed-Circuit Television System

PUBLICATION DATE: May 1977

ABSTRACT: The report presents to the potential user of a closed-circuit television (CCTV) system pertinent information that will be useful in assembling, operating and maintaining the optimum CCTV system.

NUREG-0184

TITLE: User's Guide for Evaluating Physical Security Capabilities of Nuclear Facilities by the EASI Method

PUBLICATION DATE: June 1977

ABSTRACT: This handbook is a guide for evaluating physical security of nuclear facilities using the "Estimate of Adversary Sequence Interruption (EASI)" method and a hand-held programmable calculator. The handbook is intended for use by personnel at facilities where special nuclear materials are used, processed, or stored. It may also be used as a design aid for such facilities by potential licensees.

NUREG-0194

TITLE: Calculations of Radiological Consequences from Sabotage of Shipping Casks for Spent Fuel and High-Level Wastes

PUBLICATION DATE: February 1977

ABSTRACT: Radiological consequences of a hypothetical sabotage event which causes a

release of radioactive material from a spent fuel cask and a high level waste cask are calculated. The release fractions of volatile fission products in the spent fuel and the solid fission products in both the spent fuel and high level waste are treated as parameters. Assuming a largest credible solids release fraction of one percent, the numbers of health effects are shown to be small and on the same order of magnitude for both spent fuel and high level waste.

NUREG-0219

TITLE: Nuclear Security Personnel for Power Plants. Content and Review Procedures for a Security Training and Qualification Program

PUBLICATION DATE: June 1978

ABSTRACT: This document gives guidance on the preparation of training and qualification plan by which guard, watchman, armed response persons and other members of the security organization will be selected, trained, equipped and qualified and contains three parts: (1) an introduction to and brief explanation of job analysis and performance objectives; (2) a statement of the information that should be submitted in response to the requirements and the NRR review procedures; and (3) a sample qualification submittal.

NUREG-0271

TITLE: Physical Protection Equipment Study. Final Report

PUBLICATION DATE: June 1977

ABSTRACT: This report summarizes the work performed by MITRE for NRC. The major products of this effort are a Catalog of Physical Protection Equipment, a Guide for Evaluation of Physical Protection Equipment, a book of Reference Materials, and a set of guidelines for use in the development of a methodology for measuring levels of security system effectiveness. A summary of recommendations resulting from this study is also presented.

NUREG-0272

TITLE: Cross-Reference Index for Equipment Catalog and Evaluation Guide

PUBLICATION DATE: June 1977

ABSTRACT: MITRE has prepared for NRC a Catalog of Physical Protection Equipment and a Guide for Evaluation of Physical Protection Equipment. The information contained in the volume includes reference material for both documents: a cross-reference index by manufacturer, a cross-reference index by equipment category, a list of manufacturers and a glossary of abbreviations and terms.

NUREG-0273

TITLE: Guide for the Evaluation of Physical Protection Equipment. Book 1: Volumes I-III

PUBLICATION DATE: June 1977

ABSTRACT: A guide for evaluating the performance of commercially available physical protection equipment. Separate evaluation procedures are provided for each generic type of equipment contained in the companion document, Catalog of Physical Protection Equipment. Among the equipment parameters evaluated, as appropriate, are sensitivity, area/volume of coverage, false/nuisance alarm rate, resistance to countermeasures, environmental requirements, installation parameters and maintenance. Four evaluation techniques are employed (inspections, analyses, demonstrations and tests); standard test equipment (both commercially available as well as developmental) to be used in the evaluation are listed.

NUREG-0274, Vol. 1, Bk.1

TITLE: Catalog of Physical Protection Equipment. Book 1: Volume I. Barriers and Structural Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment which includes information on barrier structures and equipment, interior and exterior intrusion detection sensors, entry (access) control devices, surveillance and alarm assessment equipment, contraband detection sensors, automated response equipment, general purpose displays and general purpose communications, with one volume devoted to each of these eight areas. For each item of equipment the information included consists of performance, physical, cost and supply/logistics data. This volume covers barriers and structural components.

NUREG-0274, Vol. 2, Bk.1

TITLE: Catalog of Physical Protection Equipment. Book 1: Volume II. Intrusion Detection Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. This volume covers acoustic components, microwave/radar components, electro-optic barriers, ferrous metal detection components, electric field components, orientation components, proximity detection components, vibration detection components, seismic components, pressure mats, pressure-sensitive components, continuity components, electrical/magnetic switches, fire detection components, and mechanical contact switches.

NUREG-0274, Vol. 3, Bk.2

TITLE: Catalog of Physical Protection Equipment. Book 2: Volume III. Energy Control Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. This volume covers code combination locks, card locks, code combination and card locks, card systems, and personal characteristics verification systems.

NUREG-0274, Vol. 4, Bk.2

TITLE: Catalog of Physical Protection Equipment. Book 2: Volume IV. Surveillance and Alarm Assessment Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. Components covered by this volume are thermal imaging systems, video camera equipment, video monitors and video tape recorders.

NUREG-0274, Vol. 5, Bk.2

TITLE: Catalog of Physical Protection Equipment. Book 2: Volume V. Contraband Detection Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. This volume covers contraband detection components.

NUREG-0274, Vol. 6, Bk.3

TITLE: Catalog of Physical Protection Equipment. Book 3: Volume VI. Automated Response Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. This volume covers automated response components.

NUREG-0274, Vol. 7, Bk.3

TITLE: Catalog of Physical Protection Equipment. Book 3: Volume VII. General Purpose Display Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. This volume covers general purpose display components.

NUREG-0274, Vol. 8, Bk.3

TITLE: Catalog of Physical Protection Equipment. Book 3: Volume VIII. General Purpose Communication Components

PUBLICATION DATE: June 1977

ABSTRACT: A catalog of commercially available physical protection equipment. This volume covers alarm signaling systems and portable voice communications (UHF and VHF).

NUREG-0320

TITLE: Interior Intrusion Alarm Systems

PUBLICATION DATE: January 1978

ABSTRACT: A licensee is required to design a physical protection system that will safeguard special nuclear material. An integral part of any physical protection system is the interior intrusion alarm system. The purpose of this report is to provide the potential user of an interior intrusion alarm system with information on the various types, components, and performance capabilities available so that he can design and install the optimum alarm system for his particular environment. In addition, maintenance and testing procedures are discussed and recommended which, if followed, will help the user obtain the optimum results.

NUREG-0459

TITLE: Generic Adversary Characteristics: Summary Report

PUBLICATION DATE: July 1978

ABSTRACT: This study analyzes adversary characteristics and the conclusions that can be drawn by the nature of threat.

NUREG-0464

TITLE: Site Security Personnel Training Manuals, Vols. I-IV

PUBLICATION DATE: October 1978

ABSTRACT: These training manuals provides guidance to assist licensees in the development of security personnel training and qualifications programs. The information contained in the manual typifies the level and scope of training for personnel to perform security related tasks and job duties associated with the protection of nuclear fuel cycle facilities and nuclear power reactors.

NUREG-0465, Vol. 1**TITLE:** Transportation Security Personnel Training Manual**PUBLICATION DATE:** November 1978**ABSTRACT:** Objective of this manual is to train security personnel to protect special nuclear materials and nuclear facilities against theft and sabotage. This volume contains the introduction and rationale.**NUREG-0465, Vol. 2, Pt. A****TITLE:** Transportation Security Personnel Training Manual**PUBLICATION DATE:** November 1978**ABSTRACT:** Objective of this manual is to train security personnel to protect special nuclear materials and nuclear facilities against theft and sabotage. This volume is the instructor's guide, covering physical exercise, terrorism, field search and restraint, criminals procedures, introduction to criminal law, offenses against property, rules of conduct, use of force, firearms qualification, self defense, arrest authority, civil liability, report writing, stress, tactics, and situational training scenarios.**NUREG-0465, Vol. 2, Pt. B****TITLE:** Transportation Security Personnel Training Manual**PUBLICATION DATE:** November 1978**ABSTRACT:** Objective of this manual is to train security personnel to protect special nuclear materials and nuclear facilities against theft and sabotage. This volume is the instructor's manual for the training of SNM guards. Covered are: self-defense, arrest authority, civil liability, report writing, stress, tactics, and situational training scenarios.**NUREG-0465, Vol. 3****TITLE:** Transportation Security Personnel Training Manual**PUBLICATION DATE:** November 1978**ABSTRACT:** Objective of this manual is to train security personnel to protect special nuclear materials and nuclear facilities against theft and sabotage. This volume contains the student guide. It contains the introduction to the course, terrorism, field search and restraints, criminal procedures, introduction to criminal law, offenses against persons and property, rules of conduct, use of force, firearms qualification course, self defense, arrest authority, civil liability, report writing, stress, and tactics.**NUREG-0506****TITLE:** Introduction and User's Information for the Fixed Site Physical Protection Upgrade Rule Guidance Compendium**PUBLICATION DATE:** June 1980**ABSTRACT:** Licensees at fixed sites who possess, use, process, or handle strategic special nuclear material are required to design a physical security system to protect this material. This report suggests an orderly process for using guidance, with special emphasis on two regulatory guides and two NUREG series documents that comprise a compendium, to aid in the design of a physical protection system that meets the requirements of the final Physical Protection Upgrade Rule. The rule was published November 28, 1979 (44 FR 68184), and became effective March 25, 1980.

NUREG-0508

TITLE: Design Methodology for the Physical Protection Upgrade Rule Requirements for Fixed Sites. Technical Report

PUBLICATION DATE: June 1980

ABSTRACT: This Design Methodology document aids the licensee in understanding how the fixed site requirements of the Physical Protection Upgrade Rule affect the design of physical protection systems for fuel processing plants, fuel manufacturing plants, or other fixed site special nuclear material operations involving possession or use of formula quantities of strategic special nuclear material. The document consists of three major elements: Logic Trees, Safeguards Jobs and Component Matrices, and Effectiveness Test Questionnaires.

NUREG-0525

TITLE: Safeguards Summary Event List, Vols. I & II

PUBLICATION DATE: July 1997

ABSTRACT: The Safeguards Summary Event List (SSEL) provides brief summaries of safeguards-related events involving nuclear material or facilities reported to the NRC.

NUREG-0561

TITLE: Physical Protection of Shipments of Irradiated Reactor Fuel. Interim Guidance. Regulatory Report

PUBLICATION DATE: June 1980

ABSTRACT: This report discusses the amended regulations and provides a basis on which licensees can develop an acceptable interim program for the protection of spent fuel shipments.

NUREG-0576

TITLE: Nuclear Power Reactor Security Personnel Training and Qualification Plan Reviewer Workbook

PUBLICATION DATE: June 1979

ABSTRACT: This workbook has been developed to provide the information required for evaluating the adequacy of the Training and Qualification Plans developed to meet the requirements of 10 CFR 73.55(b)(4) and 10 CFR 73, Appendix B.

NUREG-0703

TITLE: Potential Threat to Licensed Nuclear Activities from Insiders (Insider Study). Technical Report

PUBLICATION DATE: July 1980

ABSTRACT: The Insider Study was undertaken by NRC staff at the request of the Commission. Its objectives were to: (1) determine the characteristics of potential insider adversaries to licensed nuclear activities; (2) examine security system vulnerabilities to insider adversaries; and (3) assess the effectiveness of techniques used to detect or prevent insider malevolence. The study analyzes insider characteristics as revealed in incidents of theft or sabotage that occurred in the nuclear industry, analogous industries, government agencies, and the military. In addition to case history information, the study contains data derived from non-NRC studies and from interviews with over 100 security experts in industry, government (federal and state), and law enforcement.

NUREG-0721

TITLE: Acceptance Criteria for the Physical Protection Upgrade Rule Requirements for Fixed Sites. Information Guide

PUBLICATION DATE: September 1980

ABSTRACT: This document has been developed as a tool to assist in providing consistent evaluation of upgraded physical security plans submitted in response to the Physical Protection Upgrade Rule. It presents a means for assuring licensee compliance with every regulatory requirement of particular significance to the protection of the public health and safety. Acceptance criteria are included to determine the extent to which each licensee meets the regulatory requirements.

NUREG-0725, Rev. 1-5

TITLE: Public Information Circular for Shipments of Irradiated Reactor Fuel.

PUBLICATION DATE: June 1985

ABSTRACT: This circular has been prepared in response to numerous requests for information regarding routes used for the shipment of irradiated reactor (spent) fuel subject to regulation by NRC and to meet the requirements of Public Law 96-295. NRC staff must approve such routes prior to their first use in accordance with the regulatory provisions of Section 73.37 of 10 CFR Part 73. The information included reflects NRC staff knowledge as of June 1, 1985. Spent fuel shipment routes, primarily for road transportation, but also including one rail route, are indicated on reproductions of DOT road maps. Also included are the amounts of material shipped and safeguards regulations for spent fuel shipments have been effective.

NUREG-0768

TITLE: People-Related Problems Affecting Security in the Licensed Nuclear Industry. Technical Report

PUBLICATION DATE: March 1981

ABSTRACT: The report discusses people-related problems in security forces at nuclear power reactors and nuclear fuel fabrication facilities regulated by NRC. Security personnel issues are discussed under headings of corporate attitude toward security, security force management and organization, security officer selection and training, security force morale and security equipment. Problems are also discussed from the point of view of the government regulator, and possible changes in NRC policies, procedures and regulatory requirements (including ideas about possible federal licensing or certification of nuclear security personnel) are outlined. The report also includes appendices concerning the statistical basis for the report's conclusions, a behavioral reliability program for the nuclear industry and synopses of some existing licensing and certification programs.

NUREG-0794

TITLE: Protection of Unclassified Safeguards Information Criteria and Guidance

PUBLICATION DATE: October 1981

ABSTRACT: The document was prepared to assist licensees and other persons who possess unclassified safeguards information in establishing an information protection system that satisfies the requirements of 10 CFR 73.21. Section 73.21 was issued by NRC in response to the provisions of Section 147 of the Atomic Energy Act of 1954, as amended, titled Safeguards Information.

NUREG-0907

TITLE: Acceptance Criteria for Determining Armed Response Force Size at Nuclear Power Plants

PUBLICATION DATE: February 1983

ABSTRACT: This document contains acceptance criteria for determining the adequacy of the armed response force size at a nuclear power reactor facility.

NUREG-0908

TITLE: Acceptance Criteria for the Evaluation of Nuclear Power Reactor Security Plans

PUBLICATION DATE: August 1982

ABSTRACT: This document contains acceptance criteria for evaluating the acceptability of nuclear power reactor security programs as detailed in security plans.

NUREG-0992

TITLE: Report of the Committee to Review Safeguards Requirements at Power Reactors

PUBLICATION DATE: May 1983

ABSTRACT: The NRC's Executive Director for Operations appointed a five-member Committee to review NRC security requirements at nuclear power plants with a view toward evaluating the impact of these requirements on operational safety. Overall, the Committee did not identify any clear operational safety problems associated with implementation of the NRC's security requirements. However, they did find that the potential existed, to varying degrees, at licensed facilities. The Committee's report contains five basic findings and a number of associated recommendations intended to minimize the potential impact of security on safety.

NUREG-1045

TITLE: Guidance on the Application of Compensatory Safeguards Measures for Power Reactor Licensees

PUBLICATION DATE: January 1984

ABSTRACT: The report provides criteria for determining the acceptability of compensatory safeguards measures.

NUREG-1178

TITLE: Vital Equipment/Area Guidelines Study: Vital Area Committee Report: Final Report

PUBLICATION DATE: February 1988

ABSTRACT: A study was conducted by the staff to (1) re-evaluate the guidelines and bases used to determine what are the vital equipment and areas to be protected against radiological sabotage in nuclear power plants and (2) to recommend revised guidance. On the basis of this study, the staff has recommended a revised vital equipment/area protection philosophy: to protect as vital the reactor coolant pressure boundary and one train of equipment that would provide the capability to achieve and maintain hot shutdown. To implement this overall protection philosophy, the staff also has recommended new analysis assumptions or guidelines to identify the specific equipment and areas in each plant that require protection as "vital".

NUREG-1304

TITLE: Reporting of Safeguards Events

PUBLICATION DATE: February 1988

ABSTRACT: This report contains answers to questions discussed at a NRC workshop held September 14, 1987 on reporting requirements for safeguards events.

NUREG-1328

TITLE: Use of Perimeter Alarms at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material

PUBLICATION DATE: December 1988

ABSTRACT: This document presents information on installation, system objectives, maintenance, and testing of perimeter intrusion detection systems that could be used at fuel fabrication facilities using or possessing formula quantities of strategic special nuclear material.

NUREG-1329

TITLE: Entry/Exit Control at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material

PUBLICATION DATE: December 1988

ABSTRACT: This document presents information on entry/exit control at fuel fabrication facilities using or possessing formula quantities of strategic special nuclear material. It describes NRC requirements and methods for conducting personnel, package, and vehicle searches at these facilities. Testing methods for determining the detection capability of firearms, explosives, and metal detectors are provided.

NUREG-1330

TITLE: Personnel and Vehicle Barriers at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material

PUBLICATION DATE: December 1988

ABSTRACT: This document provides information on the use and availability of barriers designed to deny unauthorized personnel and vehicle entry to fuel fabrication facilities using or possessing formula quantities of strategic special nuclear material.

NUREG-1354

TITLE: Fitness for Duty in the Nuclear Power Industry: Responses to Public Comments

PUBLICATION DATE: May 1989

ABSTRACT: NRC published for public comment a proposed rule concerning the fitness for duty of commercial nuclear power plant workers. The proposed rule focused on methods for controlling the use of substances that may affect the trustworthiness and performance of workers. It provides for chemical testing, behavioral observation, employee awareness and education, and employee assistance programs as means for assuring fitness for duty. This report summarizes the comments received on the proposed rule and provides the staff resolutions of the issues raised by the comments.

NUREG-1385

TITLE: Fitness for Duty in the Nuclear Power Industry: Responses to Implementation Questions

PUBLICATION DATE: October 1989

ABSTRACT: NRC published a rule concerning fitness for duty of commercial nuclear power plant workers. This report responds to questions raised concerning the implementation of the

rule during the Edison Electric Institute's Fitness-for-Duty Rule Implementation Workshop. It also responds to questions raised by licensees with the staff outside the workshop.

NUREG-1404

TITLE: Licensee Use of Tactical Exercise Results

PUBLICATION DATE: April 1990

ABSTRACT: On November 10, 1988 NRC amended its physical security requirements in 10 CFR Part 73 for fuel facilities possessing formula quantities of strategic special nuclear material. The amendments to 10 CFR 73.46(b) require, among other things, that licensees carry out performance evaluations through tactical response exercises. This document sets forth criteria which will enable a licensee to use the results of a tactical response exercise to determine whether additional training or security improvements are needed. The exercises are intended to demonstrate the guard force state of readiness and to test the effectiveness of delay mechanisms, alarm and communication systems, response times, deployment of response forces, firing skills (simulated), tactical maneuvers, etc.

NUREG-1456

TITLE: An Alternative Format for Category I Fuel Cycle Facility Physical Protection Plans

PUBLICATION DATE: June 1992

ABSTRACT: This document provides an alternative format for physical protection plans required for licensees who are authorized to use or possess a formula quantity of strategic special nuclear material. The format described is an alternative to that found under Regulatory Guide 5.52, Rev. 2, Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other than Nuclear Power Plants).

NUREG-1485

TITLE: Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit 1 on February 7, 1993

PUBLICATION DATE: April 1993

ABSTRACT: On February 7, 1993, there was a vehicle intrusion into the protected area of Three Mile Island Nuclear Generating Station, Unit I (TMI-1). This report describes the event and the response to the event, evaluated the regulatory requirements, and presented the findings and conclusions of an NRC incident investigation team.

NUREG-1497

TITLE: Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel

PUBLICATION DATE: November 1994

ABSTRACT: This document presents interim criteria to be used in the physical protection licensing of certain spent fuel storage installations. Installations that will be reviewed under this criteria are those that store power reactor spent fuel at decommissioned power reactor sites; independent spent fuel storage installations located outside of the owner controlled area of operating nuclear power reactors; monitored retrievable storage installations owned by the Department of Energy, designed and constructed specifically for the storage, of spent fuel; the proposed geologic repository operations area; or permanently shutdown power reactors still holding a Part 50 license. This criteria applies to both dry cask and pool storage. However, the criteria in this document does not apply to the storage of spent fuel within the owner-controlled area of operating nuclear power reactors.

NUREG-1504

TITLE: Review Criteria for the Physical Fitness Training Requirements in 10 CFR Part 73

PUBLICATION DATE: September 1994

ABSTRACT: This document provides review criteria for physical fitness requirements in 10 CFR Part 73.

NUREG-1619

TITLE: Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High-Level Radioactive Waste

PUBLICATION DATE: June 1998

ABSTRACT: This document is a standard review plan (SRP) for evaluating plans for the protection of spent fuel and high-level radioactive wastes stored at (1) independent spent fuel storage installations, (2) monitored-retrievable storage installations, and (3) the geologic repository operations area. Conducting a review according to an SRP ensures that license applicants address every pertinent NRC requirement in their NRC-approved physical protection plans and ensures consistency and comprehensiveness in the NRC review of the plans. The information presented here takes a new matrix or "modular" format to streamline the information and facilitate its use.

4.3 NUREG/CR Publications**NUREG/CR-0027**

TITLE: Capability for Intrusion Detection at Nuclear Fuel Sites

PUBLICATION DATE: March 1978

ABSTRACT: This document describes a safeguards vulnerability assessment that was conducted at three separate licensed nuclear processing facilities. Emphasis was placed on (1) performance of the total intrusion detection system, and (2) vulnerability of the system to compromise by insiders.

NUREG/CR-0040

TITLE: Evaluation of Cost Estimates of Physical Security Systems for Recycled Nuclear Fuel

PUBLICATION DATE: January 1978

ABSTRACT: This report is an evaluation of the cost estimates and underlying economic assumptions of physical security systems described in the Draft Safeguards Supplement to the Generic Environmental Statement on the use of Mixed Oxide Fuel in Light Water Cooled Reactors—NUREG 0002, August 1976 (GESMO).

NUREG/CR-0099

TITLE: Evaluation of Road-Transit Physical Protection Systems

PUBLICATION DATE: May 1978

ABSTRACT: To assess the overall effectiveness of a transportation physical protection system, computer codes which simulate armed attacks have been developed and are being used to examine a range of issues associated with road transportation systems. This document discusses the purpose and features of three of these codes, SOURCE (which simulates the initial ambush), SABRES I (which covers the battle) and BARS (which treats the penetration of protective cargo barriers).

NUREG/CR-0101**TITLE:** Physical Protection Systems**PUBLICATION DATE:** May 1978

ABSTRACT: In order to gain insight into the various parts of the transportation physical protection system, a tactical board game, AMBUSH, was developed. The paper discusses the purpose and features of AMBUSH. AMBUSH can be used to help provide insight into the value of additional vehicles, guards, cargo barriers, equipment and alternative tactics. One value of using AMBUSH comes from the player participation in the events that take place. The tasks that are executed at any game turn are based on a human interpretation of the current overall situation and on which strategies appear to optimize the chance of success. Thus, this game may also be valuable as a training device for the transportation guard force. An advantage over computer-based combat simulation models is that AMBUSH is easily transportable and relatively inexpensive.

NUREG/CR-0181**TITLE:** Barrier Penetration Database**PUBLICATION DATE:**

ABSTRACT: The document provides basic data on the times required to penetrate forcibly the types of barriers commonly found in nuclear power plants. These times are useful for design and evaluation of the physical protection system required under 10 CFR 73.55. The source of the time listed is given for each barrier, and a complete list of the references used is included.

NUREG/CR-0364**TITLE:** Simulating Barrier Penetration During Combat. Technical Report**PUBLICATION DATE:** April 1980

ABSTRACT: This document describes a computer program, BARS, simulates combat between an adversary group attempting to hijack special nuclear material and escort personnel attempting to protect it. BARS is designed to investigate how various combat strategies and levels of performance affect the time required to penetrate barriers (armor, deterrent systems, etc.) against forcible entry.

NUREG/CR-0484**TITLE:** Vehicle Access and Control Planning Document.**PUBLICATION DATE:** November 1979

ABSTRACT: This document has been prepared as an aid in planning a vehicle access and control system at nuclear fixed site facilities. In this document, various threats have been postulated and countermeasures proposed. Although many of the threats and countermeasures may exceed those presented in Title 10, Code of Federal Regulations, (CFR), Part 73, this was done to present an in-depth study of planning options that might apply to each nuclear fixed site facility.

NUREG/CR-0485**TITLE:** Vehicle Access and Search Training Manual.**PUBLICATION DATE:** November 1979

ABSTRACT: This manual is intended to assist NRC-licensed organizations and their security personnel in developing vehicle access, control and search operations necessary at nuclear fuel cycle facilities and at reactor facilities. The manual includes lesson plans in (1) controlling

vehicle entry and exit, (2) searching for contraband, and (3) protecting the facility from sabotage and/or theft of special nuclear materials.

NUREG/CR-0508

TITLE: Security Communication Systems for Nuclear Fixed Site Facilities. Technical Report

PUBLICATION DATE: July 1980

ABSTRACT: This report presents a basic communication techniques and factors relevant to designing communication systems for nuclear fixed site facility security systems. The reader is provided communication fundamentals, design considerations, and specification techniques.

NUREG/CR-0509

TITLE: Emergency Power Supplies for Physical Security Systems

PUBLICATION DATE: November 1979

ABSTRACT: This report includes information that will be useful to those responsible for the planning, design, and implementation of emergency electric power systems for physical security and special nuclear materials accountability systems. Basic information concerning different types of emergency power supply systems is presented.

NUREG/CR-0510

TITLE: Duress Alarms for Nuclear Fixed-Site Facilities

PUBLICATION DATE: September 1979

ABSTRACT: This report on duress alarm systems for fixed-site nuclear facilities contains information that will be useful to those responsible for the planning, design, and implementation of duress alarm systems. Basic system concepts, requirements, designs, and implementations are discussed.

NUREG/CR-0532, Vol. 1

TITLE: Safeguards Against Insider Collusion: Guide on the Design of Work Rules for Safeguarding Against the Employee Collusion Threat at Nuclear Fuel Facilities

PUBLICATION DATE: October 1979

ABSTRACT: Guidance is presented for the development of work rules that will assist in protecting nuclear fuel facilities against the threat of employee collusion. Evaluation criteria for safeguards performance against this threat are discussed. Five types of work rules are presented: area zoning, function zoning, team zoning, time zoning and operation zoning. The strengths and weaknesses of each are discussed and examples are given.

NUREG/CR-0543

TITLE: Central Alarm Station and Secondary Alarm Station Planning Document

PUBLICATION DATE: June 1980

ABSTRACT: This report documents planning guidance for Central Alarm Station (CAS) and Secondary Alarm Station (SAS). It provides basic considerations for CAS and SAS siting, construction planning, intrusion detection systems, communications, operation considerations, miscellaneous equipment and information control.

NUREG/CR-0921

TITLE: Programmer's Manual for TRNSM 2

PUBLICATION DATE: September 1979

ABSTRACT: The TRNSM 2 computer program has been developed to analyze the effects of various factors on the size, composition and efficiency of the transportation system. This model includes all the major features of a transportation network, including the shipment schedule, different transportation modes, requirements for security escort vehicles, different maintenance requirements for trucks and escort vehicles, personnel assignment policies, and provisions for conveying trucks and escort vehicles. Based on a shipment schedule, maintenance rules, work rules, vehicle carrying capacities and the types of transport unit elements, TRNSM 2 provides the fleet sizes and the detailed itineraries of the transport unit elements required to handle the shipments in the shipment schedule. This programmer's manual provides details on the TRNSM 2 computer program.

NUREG/CR-0923

TITLE: Sensitivity Studies Using the TRNSM 2 Computerized Model for the NRC Physical Protection Project. Final Report

PUBLICATION DATE: August 1979

ABSTRACT: This report presents the results of a series of sensitivity studies performed using this model. These studies include the effects of the itinerary optimization criteria, work rules, and maintenance policies. These results demonstrate the effectiveness and versatility of the model for investigating the effects of a wide variety of physical and regulatory factors on the transportation fleet.

NUREG/CR-1166

TITLE: COPS Model Estimates of LLEA Availability Near Selected Reactor Sites

PUBLICATION DATE: November 1979

ABSTRACT: The COPS computer model can be used to estimate local law enforcement agency (LLEA) officer availability in the neighborhood of selected nuclear reactor sites. The results of these analyses are presented both in graphic and tabular form in this report.

NUREG/CR-1169, ES

TITLE: Safeguard Vulnerability Analysis Program (SVAP). Executive Summary

PUBLICATION DATE: December 1979

ABSTRACT: This document summarizes the steps involved in making a Safeguard Vulnerability Analysis Program (SVAP) application to a nuclear facility.

NUREG/CR-1169, Vol. 2

TITLE: Safeguard Vulnerability Analysis Program. Data-Gathering Handbook. Volume 2

PUBLICATION DATE: January 1980

ABSTRACT: The purpose of this volume is to provide the safeguards analyst with prototypes of the forms used in a SVAP analysis. The function of each of the forms is fully described in the SVAP Data-Gathering Handbook, Volume I.

NUREG/CR-1169, Vol. 3

TITLE: Safeguard Vulnerability Analysis Program. User's Manual. Volume 3

PUBLICATION DATE: October 1979

ABSTRACT: The operation and use of the Safeguards Vulnerability Analysis Program (SVAP) Input/Output programming written for a Tektronix 4050 series computer is described.

The programming consists of the Facility Description Program and its continuation, the Accounting System Program, plus several service routines.

NUREG/CR-1226

TITLE: POST: A Subroutine for Path Ordering of Sabotage Targets

PUBLICATION DATE: February 1980

ABSTRACT: POST is a subroutine which a safeguards analyst may use to find multiple-target sabotage paths through a fixed-site facility.

NUREG/CR-1233, Vols. I-IV

TITLE: Structured Assessment Approach, Version 1

PUBLICATION DATE: October 1979

ABSTRACT: These documents describe a Structured Assessment Approach (SAA), which was developed for the assessment of the effectiveness of material control and accounting (MC&A) safeguards systems at nuclear fuel cycle facilities. This methodology was refined into a computational tool, the SAA Version 1 computational package, and was used to analyze a hypothetical fuel cycle facility and to assess operational nuclear plants. The Version 1 analysis package is designed to analyze safeguards systems that prevent the diversion of SNM from nuclear fuel cycle facilities and to provide assurance that diversion has not occurred.

NUREG/CR-1234

TITLE: Insider Threat to Secure Facilities: Data Analysis

PUBLICATION DATE: May 1980

ABSTRACT: Three data sets drawn from industries that have experienced internal security breaches are analyzed. The industries and the insider security breaches are considered analogous in one or more respects to insider threats potentially confronting managers in the nuclear industry. The three data sets are: bank fraud and embezzlement, computer-related crime, and drug theft from drug manufacturers and distributors. A careful analysis by both descriptive and formal statistical techniques permits certain general conclusions on the internal threat to secure industries to be drawn. These conclusions are discussed and related to the potential insider threat in the nuclear industry.

NUREG/CR-1258, Vol. 1

TITLE: Inspection Methods for Physical Protection Project

PUBLICATION DATE: December 1979

ABSTRACT: Physical protection inspections were observed at Millstone, Apollo Facility, North Anna, St. Lucie, and Humboldt Bay. Power reactor inspection modules were produced. Physical protection inspector training methods were examined. Results of the physical protection equipment survey at power and research reactors are tabulated.

NUREG/CR-1258, Vol. 2

TITLE: Inspection Methods for Physical Protection Project: Annual Report

PUBLICATION DATE: June 1980

ABSTRACT: This is the annual report to NRC of progress at Lawrence Livermore National Laboratory (LLNL) during the first year of the Inspection Methods for Physical Protection project. This report details the activities of the first year of work that culminated in delivery of

field-test drafts of new procedures for inspecting the physical protection systems at nuclear power reactor sites.

NUREG/CR-1315

TITLE: The Feasibility of Field Evaluation of Physical Protection Procedures

PUBLICATION DATE: May 1980

ABSTRACT: This document discusses the feasibility of developing a methodology for field evaluation of physical protection procedures by physical protection inspectors. A logic diagram was used to analyze physical protection procedures and identify the resources needed for their successful execution. The dependence of response procedures on the availability of resources and on the exercise of preparatory support procedures prior to need for response is discussed. The effects of plant conditions and external influences that affect procedure execution are also discussed.

NUREG/CR-1327

TITLE: Security Lighting Planning Document for Nuclear Fixed Site Facilities. Technical Report

PUBLICATION DATE: April 1980

ABSTRACT: This document is an aid in planning security lighting at nuclear fixed site facilities. While the recommendations enclosed cover the minimum requirements established in 10 CFR Part 73, additional suggestions are made for further enhancing a facility's security lighting and related security capabilities. Planning considerations and information are provided for lighting of the isolation zones, protected areas, portals, vital areas and material access areas relative to indoor, outdoor, fixed, portable and other unique applications of security lighting.

NUREG/CR-1345, Vol. 1

TITLE: Nuclear Power Plant Design Concepts for Sabotage Protection. Volume 1

PUBLICATION DATE: February 1981

ABSTRACT: Using a modern design for a nuclear power plant as a point of departure, this study examines the enhancement of protection which may be achieved by changes to the design and the impacts associated with the changes. These changes include concepts such as complete physical separation of redundant trains of safety equipment, hardened enclosures for water storage tanks, and hardened shutdown heat removal systems. The study examines the enhancement (value) in terms such as the potential reduction in the number of vital areas and the increase in probability of adversary sequence interruption. The impacts considered include constraints imposed upon operations and maintenance personnel and increased capital and operating costs. The study results indicate that design changes alone do not provide significant enhancement of protection against sabotage. However, some of the design alternatives can facilitate the implementation of effective physical protection systems for both insider and external threats.

NUREG/CR-1345, Vol. 2

TITLE: Nuclear Power Plant Design Concepts for Sabotage Protection. Volume 2
Appendices D, E, F, G

PUBLICATION DATE: February 1981

ABSTRACT: This report describes research performed to identify practicable plant design alternatives which would improve the resistance of nuclear power plants to acts of attempted

sabotage and to categorize the candidate alternatives into four broad groups: Hardening critical systems or locations; Plant layout modifications; Systems design changes; and Addition of systems.

NUREG/CR-1378

TITLE: Hardening Existing Strategic Special Nuclear Material Storage Facilities. Interim Technical Report to March 1979

PUBLICATION DATE: June 1980

ABSTRACT: This report provides guidelines to aid NRC licensees in evaluating existing strategic special nuclear material storage facilities; discusses typical tools that could be employed to penetrate such facilities, and provides simple and cost effective hardening techniques. The report was developed to provide guidance in support of the Physical Protection Upgrade Rule, effective March 25, 1980.

NUREG/CR-1381

TITLE: Methodology for Evaluating Safeguards Capabilities for Licensed Nuclear Facilities. Final Report

PUBLICATION DATE: May 1980

ABSTRACT: This report describes work performed in the development and implementation of an evaluation methodology. This methodology was developed to aid the NRC in its evaluation of fixed-site physical protection system performance relative to the Physical Protection Upgrade Rule, 10 CFR Part 73.45.

NUREG/CR-1385

TITLE: Development of a Good Physical Protection Plan - Capability 73.45(b)

PUBLICATION DATE: June 1980

ABSTRACT: This report describes the development and documentation of a partial physical protection plan for a hypothetical facility. This work provides limited testing of the NRC Fixed-Site Physical Protection Upgrade Rule Design Guidance Compendium and of a methodology for evaluating physical protection system performance relative to the Upgrade Rule, 10 CFR Part 73.45.

NUREG/CR-1467

TITLE: CAS and SAS Operation Work Station Design and Procedures

PUBLICATION DATE: November 1980

ABSTRACT: This document serves as an aid for Central Alarm Station and Secondary Alarm Station planning as provided in 10 CFR Part 73. Procedures, responsibilities, and elements of alarm station work place design are covered.

NUREG/CR-1468

TITLE: Design Concepts for Independent Central Alarm Station and Secondary Alarm Station Intrusion Detection Systems

PUBLICATION DATE: November 1980

ABSTRACT: Fixed-site nuclear facilities are required to have a continuously manned Central Alarm Station and Secondary Alarm Station. All security alarms are required to annunciate at each alarm station such that a single act cannot remove the capability of calling for assistance.

This report reviews various types of intrusion detectors, signal transmission methods and receiver units relative to establishing the required intrusion alarm system's independence and redundancy.

NUREG/CR-1574

TITLE: Data Requirement Comparison between the Fixed Site Upgrade Rule Guidance Compendium and the Structured Assessment Approach Licensee Submittal Document

PUBLICATION DATE: December 1980

ABSTRACT: The Structured Assessment Approach's (SAA) Licensee Submittal Document is compared with the Fixed Site Physical Protection Upgrade Rule Guidance Compendium Standard Format and Content (SFC) Guide using correlation matrices to see how well the data requirements of the SFC Guide coincided with those of a specific automated vulnerability assessment technique for fixed-site nuclear fuel cycle facilities, namely, SAA.

NUREG/CR-1610, Vol. 1, No. 1

TITLE: Inspection Methods for Physical Protection Project. Volume 1, No. 1

PUBLICATION DATE: July 1980

ABSTRACT: This is the fifth quarterly report to NRC on the progress at Lawrence Livermore National Laboratory in the Inspection Methods for Physical Protection project. Besides reporting on trips for field tests and data acquisition, the feasibility studies for field evaluation of procedures, and the progress of the E-field intrusion detector training film, the report details the production status of the 23 procedures in the draft module 81100 replacement series already delivered to NRC and the status of 28 procedures written for transportation of irradiated fuel and for possession and use of formula quantities of strategic special nuclear materials.

NUREG/CR-1610, Vol. 1, No. 2

TITLE: Inspection Methods for Physical Protection Project. Quarterly report, June-August 1980

PUBLICATION DATE: October 1980

ABSTRACT: This is the sixth quarterly report to NRC on the progress at Lawrence Livermore National Laboratory in the Inspection Methods for Physical Protection project. Besides reporting on one data gathering trip, the evaluation methodology for use by physical protection inspectors in the field, and the progress of the E-Field intrusion detector training film, the report details the production status of the procedures in the replacement modules for physical protection of power reactors, non-power/research reactors, SSNM fixed sites, and transportation of special nuclear materials.

NUREG/CR-1610, Vol. 1, No. 3

TITLE: Inspection Methods for Physical Protection Project. Volume 1, No. 3. Quarterly Report, September-November 1980

PUBLICATION DATE: December 1980

ABSTRACT: This is the seventh quarterly report to NRC on the progress at Lawrence Livermore National Laboratory in the Inspection Methods for Physical Protection project. The report details the production status of the procedures in the replacement modules for physical protection of power reactors, non-power/research reactors, strategic special nuclear materials fixed sites, and transportation of special nuclear materials. In addition to the replacement modules, new modules have been developed in personnel training and qualifications plan (Appendix B to 10 CFR 73) and in safeguards contingency plans (Appendix C to 10 CFR 73).

NUREG/CR-1610, Vol. 1, No. 4

TITLE: Inspection Methods for Physical Protection Project. Volume 1, No. 4. Annual Report, March 1980-February 1981

PUBLICATION DATE: March 1981

ABSTRACT: This is the second annual report to NRC on progress at Lawrence Livermore National Laboratory in the Inspection Methods for Physical Protection project. The report details the production status of the expanded procedures in the replacement modules for physical protection of power reactors, non-power/research reactors, strategic special nuclear material fixed sites, and transportation of special nuclear materials. In addition to the replacement modules, new modules have been developed for personnel training and qualifications plan (Appendix B to 10 CFR 73) and for safeguards contingency plans (Appendix C to 10 C.F. 73). A new module in licensee implementing procedures has also been developed.

NUREG/CR-1610, Vol. 2, No. 1

TITLE: Inspection Methods for Physical Protection Project. Volume 2, No. 1
Quarterly report, March-May 1981

PUBLICATION DATE: June 1981

ABSTRACT: This report reviews publication status of expanded procedures in the replacement inspection modules for physical protection of power reactors, strategic special nuclear material fixed sites, and transportation of special nuclear materials, as well as the status of new inspection modules developed for special nuclear material of moderate and low strategic significance at fixed sites, for personnel training and qualifications plan (Appendix B to 10 CFR Part 73), for safeguards contingency plans (Appendix C to 10 CFR Part 73), and for licensee implementing procedures evaluation. Progress is also reported on the safeguards effectiveness evaluation methodology study, on the computer surety guidance document, on the feasibility study on integration of inspector training, and on the study on the integration of physical protection and material control and accounting inspection procedures, methods, and activities.

NUREG/CR-1610, Vol. 2, No. 2

TITLE: Inspection Methods for Physical Protection Project. Quarterly report, June-August 1981. Volume 2, No. 2

PUBLICATION DATE: September 1981

ABSTRACT: This report to the NRC details progress of work during the tenth quarter of the Inspection Methods for Physical Protection project at Lawrence Livermore National Laboratory. Documents submitted as contract deliverables were the "Feasibility Study of the Integration of Physical Protection and MC&A Inspection Procedures, Methods, and Activities" and Computer Surety-Computer System Inspection Guidance. Also submitted was an interim draft of "IE Safeguards Effectiveness Evaluation Methodology."

NUREG/CR-1610, Vol. 2, No. 3

TITLE: Inspection Methods for Physical Protection Project: Annual Report, March-December 1981

PUBLICATION DATE: January 1982

ABSTRACT: The report details the current production status of the expanded replacement inspection procedures for physical protection of power reactors, for strategic special nuclear material fixed sites, and for transportation of special nuclear material. In addition to the expanded replacement procedures, the final production status is reported for the new series of

inspection procedures for special nuclear material of moderate and low strategic significance at fixed sites, for personnel training and qualifications plan (Appendix B to 10 CFR Part 73), for safeguards contingency plan (Appendix C to 10 CFR Part 73), and for licensee implementing procedures evaluation.

NUREG/CR-1744, Vol. 1

TITLE: Structured Assessment Approach (SAA) Input Package. Volume 1. Data-Gathering Handbook (Physical Security)

PUBLICATION DATE: June 1981

ABSTRACT: A description of the data-gathering process for the Structured Assessment Approach Input Package is presented in this volume. The Data-Gathering Handbook is divided into two phases, namely, Phase 1: Data-Collection, and Phase 2: Data-Recording. In the data-collection phase, a sequence of questions in the handbook elicits the required information. The data-recording phase rearranges the data that have been collected into a format suitable for entering in a Tektronix 4050 Series Computer. The appendix of this volume demonstrates the use of the SAA Data-Gathering Handbook in a hypothetical nuclear facility.

NUREG/CR-1744, Vol. 3

TITLE: Structural Assessment Approach (SAA) Input Package. Volume 3: User's Manual (Physical Security)

PUBLICATION DATE: June 1981

ABSTRACT: The operation and use of the SAA Input Package programming written for a Tektronix 4050 Series Computer is described. The programming consists of the Facility Description Program (described in this volume) and its continuation, the Accounting System Program (planned), plus several service routines. These programs generate the input files that are used by the SAA codes in a mainframe computer, such as the CDC 7600 at the Lawrence Livermore National Laboratory.

NUREG/CR-2075

TITLE: Standards for Psychological Assessment of Nuclear Facility Personnel. Technical Report

PUBLICATION DATE: July 1981

ABSTRACT: This document discusses the development of standards for the assessment of emotional instability in applicants for nuclear facility positions. The investigation covered all positions associated with a nuclear facility. Conclusions reached in this investigation focused on the ingredients of an integrated selection system including the use of personality tests, situational simulations, and the clinical interview, the need for professional standards to ensure quality control; the need for a uniform selection system as organizations vary considerably in terms of instruments presently used, and the need for an on-the-job behavioral observation program.

NUREG/CR-2076

TITLE: Behavioral Reliability Program for the Nuclear Industry. Technical Report

PUBLICATION DATE: July 1981

ABSTRACT: This document discusses the development of standards for a behavioral observation program which could be used by the NRC licensed nuclear industry to detect indications of emotional instability in its employees who have access to protected and vital areas. Emphasis was placed on those observable characteristics which could be assessed by supervisors

or peers in a work environment. The behavioral reliability program, as was defined in this report, encompasses the concept and basic components of the program, the definition of the behavioral reliability program, the definition of the behavioral reliability criterion, and a set of instructions for the creation and implementation of the program by an individual facility.

NUREG/CR-2217

TITLE: Detection of Special Nuclear Materials at Portal Monitors and Location and Recovery of Contraband Special Nuclear Materials: Legal and Technical Problems

PUBLICATION DATE: September 1981

ABSTRACT: This report examines the issues of how reliably special nuclear materials (SNM) can be detected during attempts to steal it and how recovery techniques initiated because of a confirmed theft may affect civil liberties. It addresses the technical abilities and limitations of detecting SNM under both controlled and uncontrolled conditions. It discusses the legal requirements and technical limits on detecting small quantities of SNM during smuggling attempts. Assessments are made concerning the type of detectors most desirable and which forms of SNM could logically be spiked to enhance their detectability. Administrative and legal restrictions on portal searches and emergency site responses to SNM losses are comprehensively examined. It also addresses methods for searching, sources of difficulty, and estimates of sensitivity are made. The legal implications of area and perimeter searches are examined with particular regard to problems of search and seizure law.

NUREG/CR-2297

TITLE: Security Management Techniques and Evaluative Checklists for Security Force Effectiveness. Technical Report (final) Sep 80-Jul 81

PUBLICATION DATE: April 1982

ABSTRACT: The report presents a system for evaluating and correcting deficiencies in security-force effectiveness in licensed nuclear facilities. There are four checklists which security managers can use as guidelines for developing their own checklists. The checklists are keyed to corrective-action guides. The report gives background information on the nature of security systems and discussions of various special problems of the licensed nuclear industry.

NUREG/CR-2404

TITLE: Analyzing Safeguards Alarms and Response Decisions

PUBLICATION DATE: September 1982

ABSTRACT: This report describes a quantitative model designed to help the NRC and its licensees evaluate and respond to alarms indicating that special nuclear material (SNM) may be missing. The report demonstrates three principal uses of the A/R Model. The first is determining the most likely cause of an alarm--theft, hoax, or error. Possible responses include conducting investigations, initiating measures to recover stolen SNM, and replying to extortion threats from individuals claiming to possess SNM. For each possible alarm, the model identifies the best response, which can be used to develop contingency plans that the licensee and the NRC can carry out. The third use is to assist the NRC in setting performance standards, especially detection requirements.

NUREG/CR-2472

TITLE: Final Report on Shipping-Cask Sabotage Source-Term Investigation

PUBLICATION DATE: October 1982

ABSTRACT: An experimental program sponsored by NRC and Battelle Columbus Laboratories was designed to estimate the source term resulting from a sabotage attack on a spent nuclear fuel shipping cask. A precision shaped charge was fired through a subscale model cask loaded with segments of spent PWR fuel rods and the radioactive material released was analyzed.

NUREG/CR-2546

TITLE: Reactor Safeguards Against Insider Sabotage

PUBLICATION DATE: March 1982

ABSTRACT: A conceptual safeguards system is structured to show how both reactor operations and physical protection resources could be integrated to prevent release of radioactive material caused by insider sabotage. Operational recovery capabilities are addressed from the viewpoint of both detection of and response to disabled components. Physical protection capabilities for preventing insider sabotage through the application of work rules are analyzed. Recommendations for further development of safeguards system structures, operational recovery, and sabotage prevention are suggested.

NUREG/CR-2588

TITLE: Security Officer Response Strategies

PUBLICATION DATE: March 1982

ABSTRACT: The Security Officer Response Strategies (SECURORS) approach provides a method for deploying security officers within a nuclear power plant subsequent to an adversary intrusion detection. The SECURORS method allocates the available officers on the basis of numerical weights and ranking for each of the nuclear power plant vital areas and barriers.

NUREG/CR-3191

TITLE: Target Assignment for Security Officers to K Targets

PUBLICATION DATE: February 1983

ABSTRACT: A probabilistic algorithm is developed to provide an optimal Target Assignment for Security Officers to K targets (TASK) using a maximum criterion. Under the assumption of only a limited number (N) of security officers, the TASK computer model determines deployment assignments which maximize the system protection against sabotage by an adversary who may select any link in the system, including the weakest, for the point of attack. Applying the TASK model to a hypothetical nuclear facility containing a nine-level building reveals that aggregate targets covering multiple vital areas should be utilized to reduce the number of possible target assignments to a value equal to or only slightly larger than N. The TASK model determines the optimal maximum deployment strategy for limited numbers of security officers and calculates a quantitative measure of the resulting system protection.

NUREG/CR-3251

TITLE: Role of Security During Safety-Related Emergencies at Nuclear Power Plants

PUBLICATION DATE: March 1984

ABSTRACT: This report provides an analysis of the literature and on-site data gathering relating to the actions of security forces at licensed nuclear power plants during safety-related emergencies. Recommendations as to how improvements can be made in the regulatory approach and licensee planning and procedures as they relate to the subject matter are examined. In addition, certain technological problems and issues are examined within the context of the study.

NUREG/CR-3351**TITLE:** Security Officer Tactical Training Issues Involving ESS Equipment**PUBLICATION DATE:** January 1984

ABSTRACT: Security officer tactical training issues are discussed in relation to the possible implementation of the Tactical Improvement Package (TIP), utilizing the Engagement Simulation System (ESS) equipment, by nuclear power plant licensees for security officer tactical training. The ESS equipment provides the capability to simulate engagement conditions between adversaries armed with weapons which have laser transmitters. A brief discussion of the TIP is presented, along with some concerns and considerations in the use of the TIP.

NUREG/CR-4298**TITLE:** Design and Installation of Computer Systems to Meet the Requirements of 10 CFR 73.55**PUBLICATION DATE:** July 1985

ABSTRACT: The Pacific Northwest Laboratory has studied the design and installation of computer-managed systems that can help nuclear power plant licensees to meet the physical security requirements of 10 CFR 73.55 (for access control, alarm monitoring, and alarm recording). Two objectives were to study the power plant security functions that could be aided by a computer-managed physical security system and to evaluate the safety and security considerations of such a system. A further objective was to develop guidance on system design, selection, and installation. The design guidance includes safety and security requirements, design alternatives, computer security, work space design, and user interface design. Guidance is also provided on writing a system specification for procurement, bid review procedures, and site preparation.

NUREG/CR-4462**TITLE:** Ranking of Sabotage/Tampering Avoidance Technology Alternatives**PUBLICATION DATE:** January 1986

ABSTRACT: Pacific Northwest Laboratory conducted a study to evaluate alternatives to the design and operation of nuclear power plants, emphasizing a reduction of their vulnerability to sabotage. Estimates of core melt accident frequency during normal operations and from sabotage/tampering events were used to rank the alternatives. Core melt frequency for normal operations was estimated using sensitivity analysis of results of probabilistic risk assessments. Core melt frequency for sabotage/tampering was estimated by developing a model based on risk analyses, historic data, engineering judgment, and safeguards analyses of plant locations where core melt events could be initiated. Results indicate the most effective alternatives focus on large areas of the plant, increase safety system redundancy, and reduce reliance on single locations for mitigation of transients. Less effective options focus on specific areas of the plant, reduce reliance on some plant areas for safe shutdown, and focus on less vulnerable targets.

NUREG/CR-4473**TITLE:** Study of the Operation and Maintenance of Computer Systems to Meet the Requirements of 10 CFR 73.55**PUBLICATION DATE:** January 1986

ABSTRACT: The Pacific Northwest Laboratory has studied the operation and maintenance of computer-managed systems that can help nuclear power plant licensees to meet the physical

security requirements of 10 CFR 73.55 (for access control, alarm monitoring, and alarm recording). This report of that study describes a computer system quality assurance program that is based on a system of related internal controls. A discussion of computer system evaluation includes verification and validation mechanisms for assuring that requirements are stated and that the product fulfills these requirements. Finally, the report describes operator and security awareness training and a computer system preventive maintenance program.

NUREG/CR-5081

TITLE: Tactical Exercise Planning Handbook

PUBLICATION DATE: April 1989

ABSTRACT: This handbook provides guidance for the development, conduct, evaluation, and critique of security force tactical response exercises. Background information pertinent to the development of the handbook and the intent of rulemaking that revises 10 CFR Part 73 to require tactical response exercises is provided. Step-by-step instructions on exercise development, conduct, evaluation, and critique are furnished to assist licensees in meeting regulatory requirements. Needs and resource requirements estimates are addressed in terms of personnel, staff-hours, equipment, weapons, and ammunition.

NUREG/CR-5172

TITLE: Tactical Training Reference Manual

PUBLICATION DATE: April 1989

ABSTRACT: This manual provides training information for NRC licensees to assist in implementation of the Tactical Response Team (TRT) training and exercise requirements of the revised portions of 10 CFR Part 73, which requires that licensees possessing formula quantities of strategic special nuclear material establish TRT's and conduct tactical response exercises to enhance the capabilities of security forces in protecting NRC licensed fuel facilities from potential adversaries postulated in the design basis threat. Step-by-step illustrated instructional material is provided concerning both individual and team tactics and skills appropriate to meeting these requirements. The manual addresses adversary attributes and essential tactical skills that each TRT member should master to assure personal safety and effective response to adversary actions, and discusses more advanced tactics, command, control, and orders.

NUREG/CR-5227, Suppl. 1

TITLE: Fitness for Duty in the Nuclear Power Industry: A Review of Technical Issues

PUBLICATION DATE: May 1989

ABSTRACT: This report presents information gathered and analyzed in support of NRC's efforts to develop a rule that will ensure that workers with unescorted access to protected areas of nuclear power plants are fit for duty. This report supplements information previously published in NUREG/CR-5227, Fitness for Duty in the Nuclear Power Industry: A Review of Technical Issues (Barnes et al., 1988). The primary potential fitness-for-duty concern addressed in both of these reports is impairment caused by substance abuse, although other fitness concerns are discussed. This report addresses issues pertaining to workers' use and misuse of alcohol, prescription drugs, and over-the-counter drugs as fitness-for-duty concerns; responds to several questions raised by NRC Commissioners; discusses subversion of the chemical testing process and methods of preventing such subversion, and examines concerns about the urinalysis cutoff levels used when testing for marijuana metabolites, amphetamines, and phencyclidine.

NUREG/CR-5246

TITLE: A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs

PUBLICATION DATE: April 1989

ABSTRACT: This report provides a methodology which could be used by operators of licensed nuclear power reactors to address issues related to contingency planning for a land vehicle bomb, should such a threat arise. The methodology presented in this report provides a structured framework for understanding factors to be considered in contingency planning for a land vehicle bomb including: (1) system options available to maintain a safe condition, (2) associated components and equipment, (3) preferred system options for establishing and maintaining a safe shutdown condition, and (4) contingency measures to preserve the preferred system options.

Example applications of the methodology for a boiling water reactor and pressurized water reactor are provided along with an example of contingency plan changes necessary for implementation of this methodology, and a discussion of some contingency measures that can be used to limit land vehicle access.

NUREG/CR-5689

TITLE: Medical Screening Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Materials

PUBLICATION DATE: September 1991

ABSTRACT: This document contains medical screening information that could be used by physicians who are evaluating the parameters of the safe participation of guards, tactical response team members (TRTs), and all other armed response personnel in physical fitness training and in physical performance standards testing. The information provided will help licensees to determine if guards, TRTs, and other armed response personnel can effectively perform their normal and emergency duties without undue hazard to themselves, to fellow employees, to the plant site, and to the general public. The recommendations are similar in content to the medical standards contained in 10 CFR Part 1046 which, in part, specifies medical standards for the protective force personnel regulated by the Department of Energy.

NUREG/CR-5690

TITLE: Physical Fitness Training Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Materials

PUBLICATION DATE: September 1991

ABSTRACT: This is a reference manual which can be used by licensee management as they develop a program plan for the safe participation of guards, tactical response team members (TRTs), and all other armed response personnel in physical fitness training and in physical performance standards testing. The information provided will help licensees to determine if guards, TRTs, and other armed response personnel can effectively perform their normal and emergency duties without undue hazard to themselves, to fellow employees, to the plant site, and to the general public. The recommendations are similar in part to those contained within the Department of Energy (DOE) Medical and Fitness Implementation Guide which was published in March 1991.

NUREG/CR-5721

TITLE: Video Systems for Alarm Assessment

PUBLICATION DATE: September 1991

ABSTRACT: This document presents technical information for designing closed-circuit television systems for video alarm assessment. Each of the major components in a video system: camera, lens, lighting, transmission, synchronization, switcher, monitor, and recorder is discussed and information on component selection, procurement, installation, test, and maintenance is provided with considerations for system integration of the components. System emphasis is focused on perimeter intrusion detection and assessment systems.

NUREG/CR-5722

TITLE: Interior Intrusion Detection Systems

PUBLICATION DATE: October 1991

ABSTRACT: This document presents technical information for designing interior intrusion detection systems. Interior intrusion sensors are discussed according to their primary application: boundary-penetration detection, volumetric detection, and point protection. Information necessary for implementation of an effective interior intrusion detection system is presented, including principles of operation, performance characteristics and guidelines for design, procurement, installation, testing, and maintenance.

NUREG/CR-5723

TITLE: Security System Signal Supervision

PUBLICATION DATE: September 1991

ABSTRACT: This document presents technical information for understanding and applying line supervision techniques to security communication links. A review of security communication links is followed by detailed discussions of link physical protection and DC/AC static supervision and dynamic supervision techniques. Material is also presented on security for atmospheric transmission and video line supervision.

NUREG/CR-5758, Vol. 2

TITLE: Fitness for Duty in the Nuclear Power industry

PUBLICATION DATE: August 1992

ABSTRACT: This report summarizes data from the semi-annual reports on fitness-for-duty programs submitted to the NRC by 52 utilities for two reporting periods: January 1, 1991 to June 30, 1991, and from July 1, 1991, to December 31, 1991. During 1991, licensees reported that they had conducted 262,597 tests for the presence of illegal drugs and alcohol. Of these tests, 1,722 (.66%) were confirmed positive. A comparison of positive test results in 1991 with those found in 1990 found a decrease in the positive test rate for each category of test and worker.

NUREG/CR-5758, Vol. 3

TITLE: Fitness for Duty in the Nuclear Power Industry

PUBLICATION DATE: July 1993

ABSTRACT: This report summarizes the data from the semi-annual reports on fitness-for-duty programs submitted to the NRC by 52 utilities for two reporting periods: January 1 through June 30, 1992, and July 1 through December 31, 1992. During 1992, licensees reported that they had conducted 266,551 tests for the presence of illegal drugs and alcohol. Of these test, 1,818 (.68%) were confirmed positive.

NUREG/CR-5758, Vol. 4

TITLE: Fitness for Duty in the Nuclear Power Industry

PUBLICATION DATE: August 1994

ABSTRACT: This report summarizes the data from the semiannual reports on fitness-for-duty programs submitted to the NRC by utilities for two reporting periods: January 1 through June 30, 1993, and July 1 through December 31, 1993. During 1993, licensees reported that they had conducted 242,966 tests for the presence of illegal drugs and alcohol. Of these tests, 1,512 (.62%) were confirmed positive.

NUREG/CR-5758, Vol. 5

TITLE: Fitness for Duty in the Nuclear Power Industry: Annual Summary of Program Performance Reports CY 1994. Volume 5

PUBLICATION DATE: August 1995

ABSTRACT: This report summarizes the data from the semiannual reports on fitness-for-duty programs submitted to the NRC by utilities for two reporting periods: January 1 through June 30, 1994, and July 1 through December 31, 1994. During 1994, licensees reported that they had conducted 163,241 tests for the presence of illegal drugs and alcohol. Of these tests, 1,372 (.84%) were confirmed positive.

NUREG/CR-5758, Vol. 6

TITLE: Fitness for Duty in the Nuclear Power Industry: Annual Summary of Program Performance Reports

PUBLICATION DATE: July 1996

ABSTRACT: This report summarizes the data from the semiannual reports on fitness-for-duty programs submitted to the NRC by utilities for two reporting periods: January 1-June 30, 1995, and July 1-December 31, 1995. During 1995, licensees reported that they had conducted 150,121 tests for the presence of illegal drugs and alcohol. Of these tests, 1,476 (.98%) were confirmed positive. The overall positive test rate for 1995 (.98%) was higher than in 1994 (.84%). Several factors had an impact on the positive test rate across test categories for 1994 and 1995 compared to previous years. These factors include the NRC's reduction in the mandatory random testing rate from 100 percent to 50 percent, effective in 1994, and initiatives by licensees such as lowered marijuana screening cutoff levels and reported improvements in licensees ability to detect subversion of the process.

NUREG/CR-5899

TITLE: Entry/Exit Control Components for Physical Protection Systems

PUBLICATION DATE: November 1992

ABSTRACT: This document provides technical information on the major components of entry control systems: identity verifiers, weapons detectors, explosives detectors, and special nuclear material (SNM) detectors. For each type of device, information is presented on principles of operation, hardware features, recommended installation, testing methods, and operational procedures. Applications to personnel, hand carried packages, bulk items, and vehicles are addressed.

NUREG/CR-5929

TITLE: Locking Systems for Physical Protection and Control

PUBLICATION DATE: November 1992

ABSTRACT: This document provides technical information for understanding and applying locking systems for physical protection and control. There are major sections on hardware for

locks, vaults, safes, and security containers. Other topics include management of lock systems and safety considerations.

NUREG/CR-6149

TITLE: Applications of Fiber Optics in Physical Protection

PUBLICATION DATE: March 1994

ABSTRACT: This document provides technical information useful for the development of fiber-optic communications and intrusion detection subsystems relevant to physical protection. There are major sections on fiber-optic technology and applications. Other topics include fiber-optic system components and systems engineering.

NUREG/CR-6190, Vol. 1

TITLE: Protection Against Malevolent Use of Vehicles at Nuclear Power Plants: Vehicle Barrier System Guidance for Blast Protection

PUBLICATION DATE: December 1994

ABSTRACT: This manual provides guidance for determining the minimum safe standoff distance between vital safety related equipment and the design basis vehicle bomb threat adopted by NRC. Vital safety related equipment should survive the design basis vehicle bomb attack when the minimum safe standoff distance is provided. Guidance is provided for exposed vital safety related equipment and for equipment housed within vital area barriers.

NUREG/CR-6190, Vol. 2

TITLE: Protection Against Malevolent Use of Vehicles at Nuclear Power Plants

PUBLICATION DATE: December 1994

ABSTRACT: This manual provides a simplified procedure for selecting land vehicle barriers that will stop the design basis vehicle threat adopted by NRC. Proper selection and construction of vehicle barriers should prevent intrusion of the design basis vehicle. In addition, vital safety related equipment should survive a design basis vehicle bomb attack when vehicle barriers are properly selected, sites, and constructed. This manual addresses passive vehicle barriers, active vehicle barriers, and site design features that can be used to reduce vehicle impact velocity.

4.4 NUREG/CP Publications

NUREG/CP-0107

TITLE: Security Training Symposium

PUBLICATION DATE: September 1990

ABSTRACT: These conference proceedings have been prepared in support of NRC's Security Training Symposium on "Meeting the Challenge-Firearms and Explosives Recognition and Detection," November 28 through 30, 1989, in Bethesda, Maryland. This document contains the edited transcripts of the guest speakers, some of the speakers formal papers, and some of the slides that were shown at the symposium.

5 CHRONOLOGICAL LIST

This section lists the documents included in this report in chronological order by publication date within each document type. As evidenced by the list, some of the documents may be outdated and not describe current NRC practice or policies. These older documents are included for completeness and because they may be useful from a historical perspective. This list also will facilitate the determination of where resources can best be expended in maintaining the NRC system of physical protection guidance up-to-date and current.

5.1 Regulatory Guides

- 1973 R.G. 5.12 General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material, November 1973
- 1974 R.G. 5.17 Truck Identification Markings, January 1974.
- R.G. 5.20 Training, Equipping, and Qualifying of Guards and Watchmen, January 1974.
- R.G. 5.27 Special Nuclear Material Doorway Monitors, June 1974.
- 1975 R.G. 5.43 Plant Security Force Duties, January 1975.
- R.G. 5.31 Specially Designed Vehicle with Armed Guards for Road Shipments of Special Nuclear Material, Rev.1, April 1975.
- R.G. 5.32 Communication with Transport Vehicles, Rev.1, May 1975.
- 1976 None published
- 1977 None published
- 1978 R.G. 5.54 Standard Format and Content of Safeguards Contingency Plans for Nuclear Plants, March 1978.
- R.G. 5.55 Standard Format and Content Guide for Safeguards Contingency Plans for Fuel Cycle Facilities, March 1978.
- R.G. 5.56 Standard Format and Content Guide for Transportation, March 1978.
- 1979 None published
- 1980 R.G. 5.60 Standard Format and Content Guide of a Licensee Physical Protection Plan for Strategic Special Nuclear Material in Transit, April 1980.
- R.G. 5.7 Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas, Rev.1, May 1980.
- R.G. 5.14 Use of Observation (Visual Surveillance) Techniques in Material Access Areas, Rev. 1, May 1980.
- R.G. 5.57 Shipping and Receiving Control of Strategic Special Nuclear Material, Rev.1, June 1980.
- R.G. 5.61 Intent and Scope of the Physical Protection Upgrade Rule Requirements for Fixed Sites, June 1980.
- 1981 None published
- 1982 R.G. 5.63 Physical Protection for Transient Shipments, July 1982.
- 1983 R.G. 5.59 Standard Format and Content for Licensee Physical Security Plans for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance, Rev.1, February 1983.
- 1984 None published
- 1985 None published

1986	R.G. 5.65	Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls, September 1986.
1987	R.G. 5.62	Reporting of Physical Security Events, Rev. 1, November 1987
1988	None published	
1989	None published	
1990	None published	
1991	R.G. 5.66	Access Authorization Programs for Nuclear Power Plants, June 1991
1992	None published	
1993	None published	
1994	R G. 5.68	Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, August 1994.
	R.G. 5.52	Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other than Nuclear Power Plants), Rev. 3, December 1994.
1995	None published	
1996	None published	
1997	R.G. 5.15	Security Seals for the Protection and Control of Special Nuclear Material, Rev. 1, March 1997.
	R.G. 5.44	Perimeter Intrusion Alarm Systems, Rev.3, October 1997.

5.2 NUREG Publications

1977	NUREG-0144	Summary Report of Workshop on Sabotage Protection in Nuclear Power Plant Design, February 1977.
	NUREG-0194	Calculations of Radiological Consequences from Sabotage of Shipping Casks for Spent Fuel and High Level Waste, February 1977.
	NUREG-0178	Basic Considerations for Assembling a Closed Circuit Television System, May 1977.
	NUREG-0184	User's Guide for Evaluating Physical Security Capabilities of Nuclear Facilities by the EASI Method, June 1977.
	NUREG-0271	Physical Protection Equipment Study: Final Report, June 1977.
	NUREG-0272	Cross Reference Index for Equipment Catalog and Evaluation Criteria, June 1977.
	NUREG-0273	Guide for the Evaluation of Physical Protection Equipment, Book 1, Vols. I-III.
	NUREG-0274	Catalog of Physical Protection Equipment, Book 1, Vol. I: Barriers and Structural Components, Vol. II: Intrusion Detection Components; Book 2, Vol. III: Energy Control Components; Vol. IV: Surveillance and Alarm Assessment Components; Vol. V: Contraband Detection Components; Book 3, Vol. VI: Automated Response Components; Vol. VII: General Purpose Display Components; Vol. VIII: General Purpose Communication Components, June 1977
1978	NUREG-0320	Interior Intrusion Alarm Systems, January 1978.
	NUREG-0219	Nuclear Security Personnel for Power Plants: Content and Review Procedures for a Security Training and Qualification Program, June 1978.
	NUREG-0459	Generic Adversary Characteristics: Summary Report, July 1978.

NUREG-0464 Site Security Personnel Training Manual, Vols. 1-4, October 1978.

NUREG-0465 Transportation Security Personnel Training Manual, Vols. 1-3, November 1978.

1979 NUREG-0525 Safeguards Summary Event List, May & November 1979.

NUREG-0576 Nuclear Power Reactor Security Personnel Training and Qualification Plan Reviewer Workbook, June 1979.

1980 NUREG-0506 Introduction and User's Information for the Fixed Site Physical Protection Upgrade Rule Guidance Compendium, June 1980.

NUREG-0508 Design Methodology for the Physical Protection Upgrade Rule Requirements for Fixed Sites, June 1980.

NUREG-0561 Physical Protection of Shipments of Irradiated Reactor Fuel: Interim Guidance, June 1980.

NUREG-0703 Potential Threat to Licensed Nuclear Activities from Insiders (Insider Study), July 1980.

NUREG-0721 Acceptance Criteria for the Physical Protection Upgrade Rule Requirements for Fixed Sites, September 1980.

NUREG-0525 Safeguards Summary Event List, September & December 1980.

1981 NUREG-0768 People-Related Problems Affecting Security in the Licensed Nuclear Industry, March 1981.

NUREG-0725 Information Circular for Shipments of Irradiated Reactor Fuel, Rev. 1, July 1981.

NUREG-0525 Safeguards Summary Event List, September 1981.

NUREG-0794 Protection of Unclassified Safeguards Information: Criteria and Guidance, October 1981.

1982 NUREG-0725 Public Information Circular for Shipments of Irradiated Reactor Fuel, Rev. 2, June 1982.

NUREG-0525 Safeguards Summary Event List, July 1982.

NUREG-0908 Acceptance Criteria for the Evaluation of Power Reactor Security Plans, August 1982.

1983 NUREG-0907 Acceptance Criteria for Determining Armed Response Force Size at Nuclear Power Plants, February 1983.

NUREG-0525 Safeguards Summary Event List, February & August 1983.

NUREG-0992 Report of the Committee to Review Safeguards Requirements at Power Reactors, May 1983.

NUREG-0725 Public Information Circular for Shipments of Irradiated Reactor Fuel, Rev. 3, July 1983.

1984 NUREG-1045 Guidance on the Application of Compensatory Safeguards Measures for Power Reactor Licensees, January 1984.

NUREG-0525 Safeguards Summary Event List, March, April & June 1984.

NUREG-0725 Public Information Circular for Shipments of Irradiated Reactor Fuel, Vol. 4, June 1984.

1985 NUREG-0525 Safeguards Summary Event List, May 1985.

NUREG-0725 Public Information Circular for Shipments of Irradiated Reactor Fuel, Rev. 5, June 1985.

1986 NUREG-0525 Safeguards Summary Event List, January 1986.

1987 NUREG-0525 Safeguards Summary Event List, February & July 1987.

1988	NUREG-1178	Vital Equipment/Area Guidelines Study: Vital Area Committee Report, February 1988.
	NUREG-1304	Reporting of Safeguards Events, February 1988.
	NUREG-0525	Safeguards Summary Event List, July 1988.
	NUREG-1328	Use of Perimeter Alarms at Fuel fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material, December 1988.
	NUREG-1329	Entry/Exit Control at Fuel Fabrication Facilities Using or Possessing Formula Quantities of Strategic Special Nuclear Material, December 1988.
1989	NUREG-1354	Fitness for Duty in the Nuclear Power Industry: Responses to Public Comment, May 1989.
	NUREG-0525	Safeguards Summary Event List, July 1989.
	NUREG-1385	Fitness for Duty in the Nuclear Power Industry: Responses to Implementation Questions, October 1989.
1990	NUREG-1404	Licensee Use of Tactical Exercise Results, April 1990.
	NUREG-0525	Safeguards Summary Event List, July 1990.
1991	NUREG-0525	Safeguards Summary Event List, July 1991.
1992	NUREG-1456	Alternative Format for Category I Fuel Cycle Facility Physical Protection Plans, June 1992.
	NUREG-0525	Safeguards Summary Event List, Vol. I, July 1992.
1993	NUREG-1485	Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit I on February 7, 1993, April 1993.
	NUREG-0525	Safeguards Summary Event List, July 1993.
1994	NUREG-0525	Safeguards Summary Event List, July 1994.
	NUREG-1497	Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel, November 1994.
	NUREG-1504	Review Criteria for Physical Fitness Training Requirements in 10 CFR Part 73, September 1994.
1995	NUREG-0525	Safeguards Summary Event List, July 1995.
1996	NUREG-0525	Safeguards Summary Event List, July 1996.
1997	NUREG-0525	Safeguards Summary Event List, Vol. II, July 1997.
1998	NUREG-1619	Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High-Level Radioactive Waste, June 1998

5.3 NUREG/CR Publications

1978	NUREG/CR-0040	Evaluation of Cost Estimates of Physical Security Systems for Recycled Nuclear Fuel, January 1978.
	NUREG/CR-0027	Capability for Intrusion Detection at Nuclear Fuel Sites, March 1978.
	NUREG/CR-0099	Evaluation of Road-Transit Physical Protection Systems, May 1978.
	NUREG/CR-0101	Physical Protection Systems, May 1978.
1979	NUREG/CR-0923	Sensitivity Studies Using the TRNSM 2 Computerized Model for the NRC Protection Project, August 1979.
	NUREG/CR-0510	Duress Alarms for Nuclear Fixed Site Facilities, September 1979.
	NUREG/CR-0921	Programmer's Manual for TRNSM 2, September 1979.

NUREG/CR-0532 Safeguards Against Insider Collusion: Guide on the Design of Work Rules for Safeguarding Against the Employee Collusion Threat at Nuclear Fuel Facilities, October 1979.

NUREG/CR-1169 Safeguards Vulnerability Analysis Program (SVAP), Vol.3: User's Manual, October 1979.

NUREG/CR-1233 Structured Assessment Approach Version 1: License Submittal Document Content and Format for Material Control and Accounting Assessment, Vol.2, October 1979.

NUREG/CR-1233 Structures Assessment Approach version 1: Applied Demonstration of Output Results, Vol.3, October 1979.

NUREG/CR-1233 Compilation Analysis Package The Structures Assessment Approach Version 1, Vol.4, October 1979.

NUREG/CR-0484 Vehicle Access and Control Planning Document, November 1979.

NUREG/CR-0485 Vehicle Access and Search Training Manual, November 1979.

NUREG/CR-0509 Emergency Power Supplies for Physical Security Systems, November 1979.

NUREG/CR-1166 COPS Model Estimates of LLEA Availability Near Selected Reactor Sites, November 1979.

NUREG/CR-1169 Safeguards Vulnerability Analysis Program (SVAP): Executive Summary, December 1979.

NUREG/CR-1258 Inspection Methods for Physical Protection Project, December 1979.

1980 NUREG/CR-1169 Safeguards Vulnerability Analysis Program (SVAP), Vol II: Data Gathering Handbook, January 1980.

NUREG/CR-1226 POST: A Subroutine for Path Ordering of Sabotage Targets, February 1980.

NUREG/CR-0364 Simulating Barrier Penetration During Combat, April 1980.

NUREG/CR-1327 Security Lighting Planning Document for Nuclear Fixed Site Facilities, April 1980.

NUREG/CR-1234 Insider Threat to Secure Facilities: Data Analysis, May 1980.

NUREG/CR-1315 The Feasibility of Field Evaluation of Physical Protection Procedures, May 1980.

NUREG/CR-1381 Methodology for Evaluating Safeguards Capabilities for Licensed Nuclear Facilities, May 1980.

NUREG/CR-0543 Central Alarm Station and Secondary Alarm Station Planning Document, June 1980.

NUREG/CR-1258 Inspection Methods for Physical Protection Project: Annual Report. June 1980.

NUREG/CR-1378 Hardening Existing Strategic Special Nuclear Material Storage Facilities, June 1980.

NUREG/CR-1385 Development of a Good Physical Protection Plan: Capability 73:45(b), June 1980.

NUREG/CR-0508 Security Communications Systems for Nuclear Fixed Sites Facilities, July 1980.

NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol.1, No.1, July 1980.

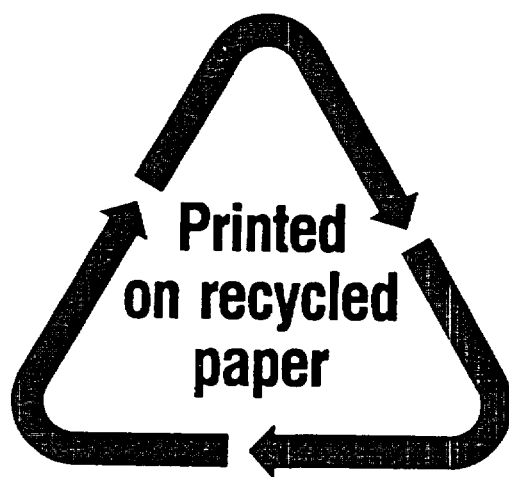
NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol. 1, No.2, October 1980.

- NUREG/CR-1467 CAS and SAS Operations Work Station Design and Procedures, November 1980.
- NUREG/CR-1468 Design Concepts for Independent Central Alarm Station and Secondary Alarm Station Intrusion Detection Systems, November 1980.
- NUREG/CR-1574 Data Requirement Comparison between the Fixed Site Upgrade Rule Guidance Compendium and the Structured Assessment Approach Licensee Submittal Document, December 1980.
- NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol.1, No.3, December 1980
- 1981** NUREG/CR-1345 Nuclear Power Plant Design Concepts for Sabotage Protection, Vols. 1 & 2, February, 1981.
- NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol 1, No.4, March 1981.
- NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol.2, No. 1, June 1981.
- NUREG/CR-1744 Structured Assessment Approach Input Package: Data Gathering Handbook, Vol.1, June 1981
- NUREG/CR-1744 Structured Assessment Approach Input Package: User's Manual, Vol. 3, June 1981.
- NUREG/CR-2075 Standards for Psychological Assessment of Nuclear Facility Personnel, July 1981.
- NUREG/CR-2076 Behavioral Reliability Program for the Nuclear Industry, July 1981.
- NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol.2, No. 2, September 1981.
- NUREG/CR-2217 Detection of Special Nuclear Materials at Portal Monitors and Location and Recovery of Contraband Special Nuclear Materials: Legal and Technical Problems, September 1981.
- 1982** NUREG/CR-1610 Inspection Methods for Physical Protection Project, Vol.2, No.3, January 1982.
- NUREG/CR-2546 Reactor Safeguards Against Insider Sabotage, March 1982.
- NUREG/CR-2588 Security Officer Response Strategies, March 1982.
- NUREG/CR-2297 Security Management Techniques and Evaluative Checklists for Security Force Effectiveness, April 1982.
- NUREG/CR-2404 Analyzing Safeguards Alarms and Response Decisions, September 1982
- NUREG/CR-2472 Final Report on Shipping Cask Sabotage Source-Term Investigation, October 1982.
- 1983** NUREG/CR-3191 Target Assessment for Security Officers to K Targets (TASK), February 1983.
- 1984** NUREG/CR-3351 Security Officer Tactical Training Issues Involving ESS Equipment, January 1984.
- NUREG/CR-3251 Role of Security During Safety-Related Emergencies at Nuclear Power Plants, March 1984.
- 1985** NUREG/CR-4298 Design and Installation of Computer Systems to Meet the Requirements of 10 CFR 73.55, July 1985.

- 1986 NUREG/CR-4462 Ranking of Sabotage/Tampering Avoidance Technology Alternatives, January 1986.
 NUREG/CR-4473 Study of the Operation and Maintenance of Computer Systems to Meet the Requirements of 10 CFR 73.55, January 1986
- 1987 None published
- 1988 None published
- 1989 NUREG/CR-5081 Tactical Exercise Planning Handbook, April 1989.
 NUREG/CR-5172 Tactical Training Reference Manual, April 1989.
 NUREG/CR-5246 A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs, April 1989.
 NUREG/CR-5227 Fitness for Duty in the Nuclear Power Industry: A Review of Technical Issues, May 1989.
- 1990 None published
- 1991 NUREG/CR-5689 Medical Screening Reference Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Materials. September 1991.
 NUREG/CR-5690 Physical Fitness Training Manual for Security Force Personnel at Fuel Cycle Facilities Possessing Formula Quantities of Special Nuclear Materials, September 1991.
 NUREG/CR-5721 Video Systems for Alarm Assessment, September 1991.
 NUREG/CR-5723 Security System Signal Supervision, September 1991.
 NUREG/CR-5722 Interior Intrusion Detection Systems, October 1991.
- 1992 NUREG/CR-5758 Fitness for Duty in the Nuclear Power Industry, Vol. 2, August 1992.
 NUREG/CR-5899 Entry/Exit Control Components for Physical Protection Systems, November 1992.
 NUREG/CR-5929 Locking Systems for Physical Protection and Control, November 1992.
- 1993 NUREG/CR-5758 Fitness for Duty in the Nuclear Power Industry, Vol. 3, July 1993.
- 1994 NUREG/CR-6149 Applications of Fiber Optics in Physical Protection, March 1994.
 NUREG/CR-5758 Fitness for Duty in the Nuclear Industry, Vol. 4, August 1994.
 NUREG/CR-6190 Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, Vols. 1 and 2, December 1994.
- 1995 NUREG/CR-5758 Fitness for Duty in the Nuclear Power Industry, Vol. 5, August 1995.
- 1996 NUREG/CR-5758 Fitness for Duty in the Nuclear Power Industry, Vol. 6, July 1996.
- 1997 None published

5.4 NUREG/CP Publications

- 1990 NUREG/CP-0107 Security Training Symposium: Meeting the Challenge - Firearms and Explosives Recognition and Detection, September 1990



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