

U.S. Department of Energy
Washington, D.C.

ORDER

DOE 5632.2A

2-9-88

SUBJECT: PHYSICAL PROTECTION OF SPECIAL NUCLEAR MATERIAL
AND VITAL EQUIPMENT

1. PURPOSE. To prescribe the Department of Energy (DOE) policy for the physical protection of special nuclear material (SNM) and vital equipment, including nuclear reactors, and to establish baseline requirements and standards for those security interests.
2. SCOPE. The provisions of this Order apply to all Departmental Elements and contractors performing work for the Department as provided by law and/or contract and as implemented by the appropriate contracting officer.
3. POLICY. SNM and vital equipment, including nuclear reactors, under the jurisdiction of the Department are to be protected from theft, sabotage and other hostile acts which would cause adverse impacts on national security or on the health and safety of the public. Levels of protection appropriate to particular facilities are to be provided in a graded fashion in accordance with the potential risks as set forth in applicable site-specific safeguards and security plans and/or Master Safeguards and Security Plans (MSSAs).
4. APPLICABILITY. This Order applies to all SNM and vital equipment which is in the possession of Departmental Elements or Departmental contractors, or other organizations performing work for the Department, and which is not subject to license by the Nuclear Regulatory Commission (NRC). SNM under international or bilateral agreement shall be protected in accordance with the specific terms of that agreement or this Order, whichever is more restrictive.
5. REFERENCE. DOE 5632.1A, PROTECTION PROGRAM OPERATIONS, of 2-9-88, which establishes policy, responsibilities, and authorities for the physical protection of security interests, and contains applicable references and definitions.
6. BASIC REQUIREMENTS.
 - a. Information and guidance regarding implementation of these requirements are contained in the Protection Program Operations section of the DOE Safeguards and Security Standards and Criteria. That guidance shall be implemented and documented in accordance with DOE 5632.1A

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- b. A facility shall not receive, use, process, or store SNM until an SNM facility approval has been granted, based on a review and acceptance of the safeguards and security plan and/or an on-site survey by the responsible field element, as required by DOE 5634.1A, SECURITY SURVEYS, NUCLEAR MATERIAL SURVEYS, AND FACILITY APPROVAL.
- c. Protection provided specific security interests shall be consistent with protection levels for applicable portions of the classified threat guidance issued by DP-1, or applicable portions of the approved site-specific threat.
- d. Application of this Order in establishing physical protection systems within each category of SNM should consider special conditions such as ease of accessibility and concealment, portability, radioactivity, and other controlling factors. Specific protection measures necessary to meet identified protection needs, including protective force response capabilities, shall be documented in approved site safeguards and security plans and/or MSSAs.
- e. Specific hostile actions to be protected against involving SNM and vital equipment or SNM shipments include:
 - (1) Theft of SNM, e.g., unauthorized removal from a material access area, protected area, or from a shipment.
 - (2) Diversion of SNM, e.g., unauthorized placement within a material access or protected area.
 - (3) Radiological sabotage of SNM or vital equipment, including nuclear reactors or shipments. Protection against radiological sabotage shall be consistent with the potential for unacceptable consequences of such an act. Determination of an unacceptable impact on the health and safety of the public from radiological sabotage, based on radiological exposure, shall be defined by the field element, agreed to by the appropriate Headquarters program offices, and be consistent with limits established by Title 10 CFR Part 100.
 - (4) Industrial sabotage of SNM or vital equipment. Protection against industrial sabotage shall be consistent with the potential programmatic consequences of such an act. The interruption of programmatic activity from industrial sabotage which results in an unacceptable impact on national security shall be defined by the field element and agreed to by appropriate Headquarters program offices.

- f. A strong interface exists between physical security and nuclear material control, particularly with regard to potential insider threats. The requirements of this Order and DOE 5633.3, CONTROL AND ACCOUNTABILITY OF NUCLEAR MATERIAL, need to be satisfied to fully address this interface.
- g. The protection afforded SNM shall be graded according to the nuclear material safeguards Category of SNM involved, as defined in Attachment 1 (from DOE 5633.3). Specific requirements for protection of Category I, II, III, and IV quantities of SNM are defined in paragraphs 7, 8, 9, and 10 respectively of this Order.
- h. Vital equipment shall be identified by the field element and agreed to by the appropriate Headquarters program offices. Protection requirements for vital equipment are defined in paragraph 11 of this Order.
- i. Nuclear reactors and fuel shall be protected from theft, diversion, and sabotage consistent with the Category of SNM involved and the potential impact on national security and the health and safety of the public.
 - (1) The SNM contained in Departmental Nuclear Reactors shall be protected from theft or diversion at a level consistent with the Category of SNM involved, including consideration of radiation levels.
 - (2) When sabotage of Departmental Nuclear Reactors has credible potential, based on an approved Departmental Element evaluation, that could lead to radiological releases which exceed the limits established by Title 10 CFR Part 100 or to an unacceptable impact on national security, the reactors (including equipment and components essential to prevent sabotage) shall be protected as required for vital equipment.
 - (3) When the sabotage of Departmental Nuclear Reactors does not have credible potential, based on approved Departmental Element evaluations, to lead to radiological releases which exceed the limits established by Title 10 CFR Part 100 and national security would not be jeopardized, the reactors and associated equipment and components shall be protected from sabotage in a manner consistent with the protection needs and acceptable risks as defined by the Heads of Field Elements and with concurrence of the applicable Headquarters program offices.

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- j. Protection strategies for each security interest shall be documented in applicable site safeguards and security plans and/or MSSAs, including appropriate exclusion, containment, and neutralization strategies for the site-specific range of hostile activities identified in paragraph 6e.
- k. The potential for adversaries to accumulate a Category I quantity of SNM by theft of Category II quantities from more than one location (rollup) shall be analyzed at facilities or protected areas where the total inventory used or stored outside of material access areas or controlled and alarmed processes meets or exceeds a Category I quantity. The number and type of actions an adversary would have to perform, including the time involved, to accumulate a Category I quantity of SNM from multiple locations at the facility shall be determined and documented. The appropriate protection measures and residual risk levels shall be included in site safeguards and security plans and/or MSSAs.
- l. Sufficient protective force personnel shall be available to man access control points and alarm stations and to perform required security functions. Additional protective force requirements are defined in DOE 5632.7, PROTECTIVE FORCES.
- m. Security-related equipment shall be protected from unauthorized access in a manner consistent with its importance to protection of SNM and vital equipment.
- n. Emergency backup power shall be provided for security systems essential to protect Category I and II SNM and vital equipment, as determined by the field element and documented in approved security plans and/or MSSAs.
- o. When SNM is classified because of its configuration or content, or is part of a classified item, it shall receive, as a minimum, the physical protection required by this Order for the category of SNM involved, or that required by DOE 5632.5, PHYSICAL PROTECTION OF CLASSIFIED MATTER, for the assigned classification, whichever is greater.
- p. Controls shall be established to deter unauthorized access to security areas or removal of SNM or vital equipment. Access to protected areas or SNM/vital equipment shall be limited to persons who possess appropriate access authorization and who require such access in the performance of their official duties. Specific access controls for facilities with Category I and II quantities of SNM or vital equipment are described in paragraph 12 of this Order.

- q. Exceptions to specific requirements of this Order may be proposed and processed, consistent with the procedures defined in DOE 5632.1A. Approved exceptions shall be documented and included in the appropriate site safeguards and security plans and/or MSSAs.
- r. Any attempts, suspected attempts, actual removals or sabotage of SNM or vital equipment shall be reported in accordance with DOE 5631.5, VIOLATIONS OF LAWS, LOSSES, AND INCIDENTS OF SECURITY CONCERNS, immediately after the initial assessment is made.

7. CATEGORY I.

- a. Category I quantities of SNM shall be protected from applicable hostile activities under all conditions. The site-specific threat and identified protection levels shall be defined in appropriate site safeguards and security plans and/or MSSAs.
- b. Baseline protection requirements for Category I quantities of SNM in use or storage are as follows:
 - (1) Category I quantities of SNM shall be used, processed, or stored only within material access areas or controlled and alarmed processes, enclosed within a protected area.
 - (2) Category I quantities of SNM shall be stored in SNM vaults equipped with Departmental-approved intrusion alarm systems or in vault-type rooms so equipped.
 - (3) Category I quantities of SNM in use or process shall be under material surveillance procedures, in process under alarm protection, or, with the approval of the responsible Heads of Field Elements, protected by alternative means which can be demonstrated to provide equivalent protection.
 - (4) A sufficient number of security inspectors shall respond to a verified intrusion alarm to contain and/or neutralize the adversaries within the delay time that can be demonstrated from alarm activation until adversaries could complete their adverse actions.
 - (5) Category I quantities of SNM shall always be controlled to prevent theft or diversion by a single authorized individual. Control of SNM may be achieved with material surveillance procedures or by alternative means which can be demonstrated to provide equivalent protection, with the approval of the responsible Heads of Field Elements.

- (6) Any person acting alone who is in a position to steal, sabotage, divert, or conceal the diversion of Category I quantities of SNM shall possess a "Q" access authorization.
 - (7) Access controls, intrusion detection and assessment systems, communications equipment, and testing and maintenance programs shall meet the applicable requirements of paragraph 12 of this Order.
- c. Baseline protection requirements for Category I quantities of SNM in transit are as follows:
- (1) Domestic shipments of SNM shall be made by approved transport operated under the auspices of the Albuquerque Operations Office Transportation Safeguards Division (TSD), under procedures approved by the Albuquerque Operations Office.
 - (2) Naval reactor cores are shipped under special arrangements approved by the Manager, Pittsburgh Naval Reactor Office.
 - (3) Packages shall be sealed with tamper-indicating seals.
 - (4) Movements of SNM between protected areas at the same site, or between protected areas and staging areas at the same site, shall be escorted by field element couriers or contractor security inspectors as defined by site- or shipment-specific security plans approved by the responsible field element.
 - (5) The protection provided for shipments under paragraph 7c(4) above shall, at a minimum, meet the following requirements:
 - (a) The shipment shall be under the direct surveillance of at least two security inspectors.
 - (b) The protective force shall inspect the route to be taken by the transfer or shipment to identify and eliminate any conditions which could result in unusual delay or risk.
 - (c) There shall be a detailed inspection/search of the transport vehicle prior to loading and shipment to assure that sabotage devices that could facilitate theft of the SNM have not been implanted or that sabotage has not been initiated, and that unauthorized persons are not aboard.
 - (6) Movements of SNM within a protected area shall be protected as defined by applicable site safeguards and security plans and/or MSSAs.

- (7) In all cases, a sufficient number of security inspectors or other armed responders shall respond to contain and/or neutralize the adversaries within the delay time that can be demonstrated from alarm activation until the adversaries could complete their adverse actions.

8. CATEGORY II.

- a. Category II quantities of SNM shall be protected from applicable hostile activities under all conditions. Required protection levels shall be defined in the appropriate site safeguards and security plans and/or MSSAs.
- b. Baseline protection requirements for Category II quantities of SNM in use and storage are as follows:
 - (1) Category II quantities of SNM shall be used, processed, and stored in a protected area.
 - (2) Category II quantities of SNM shall be stored in vaults, vault-type rooms, or security containers which are protected with Departmental-approved intrusion alarm systems.
 - (3) Category II quantities of SNM in use or process shall be under material surveillance procedures, in process under Departmental-approved alarm protection, or, with the approval of the responsible Heads of Field Elements, protected by alternative means which can be demonstrated to provide equivalent protection.
 - (4) Any person acting alone who is in a position to steal, divert, or to conceal the diversion of Category II quantities of SNM shall possess a "Q" access authorization.
 - (5) Security inspectors shall respond to verified intrusion alarms as defined in a field element approved site safeguards and security plan and/or MSSA.
 - (6) Access controls, intrusion detection and assessment systems, communications equipment, and testing and maintenance programs shall meet the applicable requirements of paragraph 12 of this Order.

c. Baseline protection requirements for Category II quantities of SNM in transit are as follows:

- (1) Domestic shipments of Category II quantities of SNM, including classified configurations, shall be made by approved transport operated under the auspices of the Albuquerque Operations Office, TSD, under procedures approved by the Albuquerque Operations Office.
- (2) Packages shall be sealed with tamper-indicating seals.
- (3) Movements of Category II quantities of SNM between authorized use or storage areas within the same protected area shall be under material surveillance procedures.
- (4) Movements of Category II quantities of SNM between protected areas at the same site shall be accomplished in accordance with a field element approved security plan and/or MSSA.

9. CATEGORY III.

a. Category III quantities of SNM shall be protected from applicable hostile activities under all conditions. Required protection levels shall be defined in the appropriate site safeguards and security plans and/or MSSAs.

b. Baseline protection requirements for Category III quantities of SNM in use and storage are as follows:

- (1) Category III quantities of SNM shall be used, processed, and stored in a protected area or other security area which meets the following requirements:
 - (a) Clearly defined perimeter barriers.
 - (b) Personnel and vehicle access control at the entrance, administered by a security inspector, guard, receptionist, or other person assigned for that purpose.
 - (c) A personnel identification system meeting the requirements of DOE 5632.9, ISSUANCE, CONTROL, AND USE OF BADGES, PASSES, AND CREDENTIALS.
 - (d) Establishment and maintenance of a visitors' log.
 - (e) Signs prohibiting trespassing shall be posted around the perimeter of and at all entrances to the use or storage area, and reward signs and signs prohibiting the introduction of prohibited

articles and authorizing inspections/searches of vehicles, packages, or persons entering or exiting shall be posted at all entrances to the use or storage areas.

- (2) Search procedures shall be established and documented in an approved site safeguards and security plan and/or MSSA.
 - (3) When unattended, Category III quantities of SNM shall be secured within a locked Departmental-approved security container or within a locked room.
 - (4) When unattended, the container or locked room containing the material shall be under the protection of a Departmental-approved intrusion detection alarm system, or patrolled at intervals not to exceed 2 hours. Alternatively, the security container may be located in a protected area which meets the applicable requirements of paragraph 12 of this Order.
 - (5) Access to the material shall be limited to properly cleared employees in positions which have been specifically designated by management as requiring access to Category III quantities of SNM in the course of assigned duties and to authorized visitors who are under continuous escort of employees in such designated positions.
 - (6) Protective forces shall respond to verified intrusion alarms as defined in a field element approved site safeguards and security plan and/or MSSA.
- c. Baseline protection requirements for Category III quantities of SNM in transit are as follows:
- (1) Domestic shipments of classified configurations of Category III quantities of SNM shall be made by approved transport operated under the auspices of the Albuquerque Operations Office, TSD, under procedures approved by the Albuquerque Operations Office.
 - (2) Domestic shipments of unclassified Category III quantities of SNM may be transported as specified in paragraph 9c(1) above, as deemed prudent and appropriate, by agreements between the Manager, Albuquerque Operations Office, and the respective Heads of Field Elements.
 - (3) Packages shall be sealed with tamper-indicating seals.

- (4) Domestic shipments of unclassified Category III quantities of SNM not transported by TSD shall be made by one of the following methods:

(a) Truck or Train.

- 1 Category III quantities of SNM (except classified configurations) may be shipped by Government-owned or exclusive-use truck by commercial carrier or by rail, in the custody of at least two escorts, at least one of whom possesses a "Q" access authorization, with the other possessing an "L" access authorization or equivalent.
- 2 Cargo compartments of the trucks shall be locked and sealed.
- 3 Escorts shall maintain frequent periodic communication with a control station which can request appropriate law enforcement agency response.
- 4 All shipments shall be made without any intermediate stops except for emergency reasons, driver relief, meals, refueling, or to transfer cargo.
- 5 There shall be a detailed inspection/search of the transport vehicle prior to loading and shipment to assure that sabotage devices have not been implanted or that sabotage has not been initiated and that unauthorized persons are not aboard.

- (b) Air shipments of Category III quantities of SNM may take place if not otherwise prohibited by statute or implementing instructions. The material must be attended by at least two escorts, at least one of whom possesses a "Q" access authorization, with the other possessing at least "L" access authorization or equivalent. The shipments must be under the direct observation of the escorts during all land movements and loading and unloading operations.

- (5) Movements of Category III quantities of SNM between security areas at the same site shall be accomplished in accordance with a field element approved security plan.

10. CATEGORY IV.

- a. Category IV quantities of SNM shall be protected from applicable hostile activities. The defined level of protection shall be described in appropriate site safeguards and security plans and/or MSSAs.

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- b. Category IV quantities of SNM shall be received, used, processed, and stored in accordance with field element approved security plans.
- c. Baseline requirements for protection of Category IV quantities of SNM in transit are as follows:
 - (1) Domestic shipments of Category IV quantities of SNM, including classified configurations, may be made by approved transport operated under the auspices of the Albuquerque Operations Office, TSD, under procedures approved by the Albuquerque Operations Office, as deemed appropriate and by agreements between the Manager, Albuquerque Operations Office, and the respective Heads of Field Elements.
 - (2) Shipments of all Category IV quantities of SNM not transported by TSD may be made by one of the following methods: truck, rail, air, or water in commercial, for-hire vehicles. (If not otherwise prohibited by statute or implementing instructions, air shipments of Category IV quantities of SNM may take place.)
 - (3) Packages shall be sealed with tamper-indicating seals.
 - (4) Shipments, excepting shipments of laboratory analysis samples or reference materials, shall be made under arrangements which provide the capability to trace and identify, within 24 hours of request, the precise leg of a journey where a shipment went astray in the event of its nonarrival at destination within the prescribed time frame.
 - (5) Advance notification of the estimated time of arrival to be received prior to dispatch, with written confirmation following not later than 48 hours after dispatch, shall be provided by the shipper to the consignee.
 - (6) The consignee shall promptly notify the shipper by telephone upon determination that a shipment has not arrived within a reasonable time, based on shipping method and expected deliver date, and shall provide written confirmation of such notification.
 - (7) Shipments shall be made in accordance with all applicable Federal regulations.

11. VITAL EQUIPMENT.

- a. Vital equipment shall be protected from the applicable hostile activities under all conditions. The site-specific threat and identified protection levels shall be defined in appropriate site safeguards and security plans and/or MSSAs.
- b. All vital equipment shall be contained within defined vital areas, which are located within protected areas.
- c. A sufficient number of security inspectors shall respond to alarms to contain and/or neutralize the adversaries within the delay time that can be demonstrated from alarm activation until adversaries could complete their adverse actions.
- d. Access controls, intrusion detection and assessment systems, communications equipment, and testing and maintenance programs shall meet the applicable requirements of paragraph 12 of this Order.

12. FACILITIES WITH CATEGORY I OR II QUANTITIES OF SNM OR VITAL EQUIPMENT.

a. Access Controls at Security Areas.

- (1) Security areas shall be established to protect SNM and vital equipment as follows:
 - (a) A protected area shall be established to control Category I and II quantities of SNM and to provide protection for vital equipment.
 - (b) Material access areas or controlled and alarmed processes shall be established to control access to areas containing Category I quantities of SNM.
 - (c) Vital areas shall be established to provide protection for vital equipment.
 - (d) Central alarm station access control areas shall be established to protect alarm monitoring and communications capabilities.

(2) Protected Area Access Controls.

- (a) Barriers.

- 1 Clearly defined physical barriers such as fences, walls, and doors shall be utilized to control, impede, or deny access. Permanent barriers shall be used to enclose protected areas except during construction or transient activities, when temporary barriers may be erected.
- 2 Protected area barriers shall direct the flow of personnel and vehicles through designated portals.
- 3 Protected area barriers, supplemented by other systems such as patrols or surveillance, shall deter introduction of prohibited articles or removal of SNM, consistent with site-specific protection objectives.
- 4 Man-made or natural barriers shall deter and/or prevent penetration into the protected area by motorized vehicles where vehicular access would significantly enhance the likelihood of successful theft of SNM or sabotage of SNM or vital equipment. Such barriers may be located at material access area or vital area perimeters with field element approval.

(b) Personnel and Vehicle Access Controls.

- 1 Verification of the identity of persons authorized access to a protected area shall be administered by security inspectors and accomplished at area entrances.
- 2 A visitor log shall be maintained to reflect the name, signature, organization, and citizenship of each uncleared visitor to a protected area, persons visited, escort names and signatures, purpose of visit, and time in and out.
- 3 Access to protected areas shall be controlled to limit entry to appropriately cleared or escorted individuals who require admittance to perform their official duties. Escorts, when required, shall be cleared and authorized persons knowledgeable of facility operations and safeguards and security procedures.
- 4 Private use vehicles shall be excluded from protected areas. Government-owned or Government-leased vehicles shall be admitted only when on official business and when operated by properly cleared and authorized drivers or those who are under escort by properly cleared and

authorized personnel. Service and delivery vehicles shall be admitted to protected areas only when on authorized business and when driven or under escort by properly cleared and authorized personnel. Access by such vehicles shall be kept to a minimum consistent with operational requirements.

- (c) A personnel identification system meeting the requirements of DOE 5632.9 shall be used.
- (d) Inspection/search of personnel, handcarried items, and vehicles shall be provided as follows:
 - 1 Entrance inspections/searches of all personnel and of all vehicles and handcarried items shall be conducted to provide reasonable assurance that explosives, weapons, or other prohibited articles are not introduced without authorization. The inspection/search on entering may be made with Departmental-approved detection equipment designed to assure that explosives, weapons, or other prohibited articles are not introduced.
 - 2 Albuquerque Operations Office Transportation Safeguards Division couriers and vehicles shall be exempt from these requirements when on official business.
 - 3 Exit inspections/searches shall be accomplished to prevent the unauthorized removal of SNM at any protected area that contains Category II or greater quantities of SNM not within a material access area. All personnel, handcarried items (e.g., briefcases, lunch pails, handbags), and all vehicles shall be inspected/searched. Personnel inspections/searches may be accomplished through the use of SNM portal monitors and metal detectors.
 - 4 Specific search procedures (including limitations) and SNM/metal detection level shall be established, justified, and documented in site safeguards and security plans and/or MSSAs.
- (e) Signs prohibiting trespassing shall be posted around the perimeter and at each entrance. Reward signs and signs prohibiting the introduction of contraband articles and authorizing inspections/searches of vehicles, packages, or persons either entering or exiting shall be posted at all entrances.

(3) Material Access Area Access Controls.

- (a) Material access areas shall be contained within protected areas.

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- (b) Material access areas shall have clearly defined barriers sufficient to direct the flow of personnel and vehicles through designated portals and permit effective searches by providing reasonable assurance that prohibited articles are not introduced and SNM cannot be transported outside of the material access area without detection.
 - (c) Access to material access areas shall be controlled to limit entry to appropriately cleared or escorted individuals who require admittance to perform their official duties. Escorts, when required, shall be cleared and authorized persons knowledgeable of facility operations and safeguards and security procedures.
 - (d) The identity of persons authorized access to a material access area shall be verified at area entrances.
 - (e) Signs prohibiting the introduction of contraband articles and authorizing inspections/searches of vehicles, packages, or persons either entering or exiting shall be posted at all entrances to the use or storage area.
 - (f) Material access area records shall be maintained of all admitted persons not directly employed in the area and of all persons who enter such areas during nonoperating hours.
 - (g) Exit inspections/searches of all personnel, vehicles, and handcarried items including packages, briefcases, and lunch pails shall be conducted to prevent unauthorized removal of SNM. Personnel inspections/searches may be accomplished through the use of SNM portal monitors and metal detectors. Specific SNM/metal detection levels shall be established, justified, and documented in site safeguards and security plans and/or MSSAs.
- (4) Vital Area Access Controls.
- (a) Vital areas shall be contained within protected areas.
 - (b) A vital area shall have a clearly defined perimeter.
 - (c) Access to vital areas shall be controlled to limit entry to appropriately cleared or escorted individuals who require admittance to perform their official duties. Escorts, when required, shall be cleared and authorized persons

knowledgeable of facility operations and safeguards and security procedures.

- (d) Vital area records shall be maintained of all admitted persons not directly employed in the area and of all persons who enter such areas during nonoperating hours.

(5) Central Alarm Station Access Controls.

- (a) Facility central alarm stations shall be located within or established as security areas and constantly attended, even when located within a security area.
- (b) Separate access controls and hardened barriers shall also be provided to restrict admittance to persons requiring access in the performance of official duties on a need-to-know basis.

b. Intrusion Detection and Assessment Systems.

(1) Intrusion detection systems shall be provided as follows:

- (a) A reliable and continuous Departmental-approved intrusion alarm system sufficient to provide timely detection of intrusion into the protected area shall be provided. Perimeter protection provided during times when alarms are not in operation, or at temporary locations where an alarm system is not practical or cost-effective, shall be defined in approved site-specific security plans and/or MSSAs.
- (b) Rooms, buildings, or portions of a building within a material access area or controlled and alarmed process containing unattended Category I quantities of in-process SNM shall be equipped with Departmental-approved intrusion alarm systems or other equally effective means of detection approved by the responsible field element.
- (c) Doors to vaults and vault-type rooms used to store Category I or II quantities of SNM shall be protected with a Departmental-approved intrusion alarm system.
- (d) Vault-type rooms used to store Category I or II quantities of SNM shall be equipped with an interior intrusion detection system sufficient to detect unauthorized intrusion.

- (e) Unoccupied rooms or buildings (or a portion of a building) within a vital area containing vital equipment shall be equipped with a Departmental-approved intrusion alarm system or other equally effective means of detection approved by the responsible field element.
 - (f) All unmanned exits from protected areas, material access areas, or vital areas shall be equipped with Departmental-approved intrusion alarms.
- (2) Electronic detection systems shall be designed to meet site-specific protection needs and as a minimum meet the following criteria:
- (a) All detection/alarm devices shall be connected to monitor/display panels in the hardened central alarm station (and protective force communications center).
 - (b) An alternative alarm annunciation point to the central alarm station (or a comparable alternate capability) shall be provided in a location which is continuously manned by cleared personnel and which provides a second indication of an alarm such that a response can be initiated in the event the primary station is compromised.
 - (c) When used, devices and equipment for interior intrusion detection systems required for storage of SNM shall meet Federal specification W-A-450-B, "Alarm Systems, Protective, Interior," or be approved by the field element.
 - (d) Exterior sensors that serve as the primary means of detection at a security area perimeter shall be designed to provide assurance that a person crossing the perimeter will be detected whether walking, running, jumping, crawling, rolling, or climbing at any point in the detection zone.
 - (e) All detection/alarm devices, including transmission lines to annunciators, shall be failure- and tamper-indicating in both the access and secure modes.
 - (f) Alarm lines shall be continuously supervised so as to detect any attempts to short, open, or substitute a bogus signal for the legitimate "no alarm" signal in a surreptitious attempt to bypass the alarm system.

- (g) Intrusion alarm systems have a primary and auxiliary power source. Switch over to the auxiliary power source shall be automatic upon failure of the primary power source. An alarm condition shall be indicated at the monitor upon failure of all power sources.
 - (h) Personnel testing, maintaining, servicing, or responding to alarm systems shall have clearances consistent with the highest classification levels and Category of SNM being protected, unless such testing and maintenance is performed as bench services away from the protected location or is performed under the supervision of an appropriately cleared and knowledgeable custodian of the alarm protected location. Alarms bench tested or maintained by uncleared personnel away from the protected location shall be inspected and tested prior to installation.
- (3) Protective force personnel, or an automated system, shall record each nonscheduled alarm, showing the date and time the signal was received, the time protective or other responsible personnel arrived at the alarmed area, action taken, and the cause of the alarm if known, or probable cause if not definitely established. The name of the recorder and date of recording shall appear in each record. Recording of such alarms by automatic means is permissible if the automatic system records the identity of the operator on duty.
 - (4) Copies of each nonscheduled alarm report shall be furnished to the facility security officer and appropriate field element personnel as specified in approved security plans.
 - (5) All security-related detection equipment and components shall have a regularly applied test, maintenance, and quality assurance program to assure an effective operable system. Required frequency of testing and maintenance activities shall be established and documented in field element approved security plans.
 - (6) Protective illumination shall be provided to permit detection and assessment of adversaries, reveal unauthorized persons, and, at pedestrian and vehicular entrances, to permit examination of credentials and vehicles.
 - (7) The protection program shall have an effective means to assess alarms and intrusion activities. The assessment capability shall be effective under day and night conditions. The assessment system shall provide assurance that:

- (a) Alarms can be assessed reliably, accurately, and in a timely manner, so that an appropriate response can be initiated,
- (b) Activities of intruders can be assessed so that response can be directed, and
- (c) False and nuisance alarms can be rapidly assessed with minimal effort so that the response is not degraded.

c. Communications Equipment.

- (1) Security inspectors at fixed posts shall have both normal telephone services and two-way communications with central alarm stations and with alternate positions from which backup forces will be dispatched.
- (2) Security inspectors at mobile and fixed posts shall be provided with duress systems. This requirement may be met with hand-held radios equipped with a duress feature.
- (3) The hardened central alarm station (and protective force communications center) shall be provided with radio and telephone channels of communication with local law enforcement agencies. An emergency alternate communications capability from a secondary station shall be provided for use in the event the primary station is compromised. Radio communications equipment shall remain operable in the event of a loss of primary electrical power.
- (4) Special Response Teams, as defined in DOE 5632.7, shall be equipped with voice privacy or digital encryption two-way radio communications meeting the requirements of DOE 5300.3B, TELECOMMUNICATIONS: COMMUNICATIONS SECURITY.
- (5) Communications equipment shall be tested daily.
- (6) Communications equipment shall allow rapid, reliable, and protected information exchange between on-site protective forces and between on-site protective forces and the central alarm stations and secondary communications station.
- (7) Communications equipment should allow rapid, reliable information exchange between the central alarm stations, secondary communications stations, and local law enforcement agencies.

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d. Maintenance and Testing Programs.

- (1) Security system components and/or systems shall be tested and maintained to assure continuing operability and reliability as specified in approved security plans.
- (2) The test and quality assurance programs must include an evaluation of security system effectiveness and validation of continuing system operability to ensure compliance with vendor or field element established standards.
- (3) Records must be provided and retained to support maintenance and test activities.
- (4) Corrective action shall be initiated immediately upon indication of security system or component failure, including provision for appropriate compensatory measures to provide equivalent protection until maintenance and testing is completed and the system is back in service.

BY ORDER OF THE SECRETARY OF ENERGY:



LAWRENCE F. DAVENPORT
Assistant Secretary
Management and Administration

NUCLEAR MATERIAL SAFEGUARDS CATEGORIES

	Attractiveness Level	Pu/U-233 Category				Contained U-235 ($\geq 20\%$) Category				Category IV
		I	II (Quantities in kg)	III	IV(1)	I	II (Quantities in kg)	III	IV(1)	
Weapons Assembled Weapons and Test Devices	A	All Quantities	N/A	N/A	N/A	All Quantities	N/A	N/A	N/A	
Pure Products Pits, Major Components, Buttons, Ingots, Recastable Metal, Directly Convertible Materials	B	≥ 2	$\geq 0.4 < 2$	$\geq 0.2 < 0.4$	< 0.2	≥ 5	$\geq 1 < 5$	$\geq 0.4 < 1$	< 0.4	
High-Grade Material Carbides, Oxides, Solutions (> 25 g/l) Nitrates, Etc., Fuel, Elements and Assemblies, Alloys and Mixtures, UF_4 or UF_6 ($\geq 50\%$ E)	C	≥ 6	$\geq 2 < 6$	$\geq 0.4 < 2$	< 0.4	≥ 20	$\geq 6 < 20$	$\geq 2 < 6$	< 2	
Low-Grade Material Solutions (1.25 g/l), Recyclable Process Residues, Moderately Irradiated Material, Pu^{238} (Except Waste), UF_4 Or UF_6 ($\geq 20\%$, $< 50\%$ E)	D		≥ 16	$\geq 3 < 16$	< 3		≥ 50	$\geq 8 < 50$	< 8	
All Other Materials Highly Irradiated Forms, Solutions (≤ 1 g/l), Uranium Containing Less Than 20% U-235 (Any form or Quantity)	E									Reportable Quantities

(1) The lower limit for Category IV is equal to reportable quantities specified in DOE 5633 3.