

**PART 9**

**PHYSICAL PROTECTION OF NUCLEAR POWER PLANTS AND MATERIALS**

**I. GENERAL PROVISIONS**

Section 1. Purpose and Scope

(a) Purpose. The regulations in this Part are issued by the Philippine Atomic Energy Commission pursuant to Section 4(a) in connection with Section 8(3) of Republic Act No. 5207, as amended. This Part prescribes requirements for the establishment and maintenance of a physical protection system which will have the capabilities for the protection of Nuclear Power Plants and special fissionable material in said facilities including those in transit. The following design basis threats, where referenced in ensuing sections of this part shall be used to design physical protection systems to protect against acts of radiological sabotage and to prevent the theft of special fissionable material:

(1) Radiological sabotage by –

(i) A determined violent external assault, attack by stealth, or deceptive actions, of several persons with the following attribute, assistance, and equipment:

(A) Well – trained (including, military training and skills) and dedicated individuals.

(B) Inside assistance which may include a knowledgeable individual who attempts to participate in a passive role (e.g. provide information), an active role (e.g. facilitate entrance and exit, disable alarms and communications, participate in violent attack, or both.

(C) Suitable weapons, up to and including hand – held automatic weapons, equipped with silencers and having effective long range accuracy.

(D) Hand – held equipment, including an employee (in any position)

(2) Theft or Diversion of Special Fissionable Material by –

(i) A determined violent external assault, attack by stealth, or deceptive actions, of several persons with the following attributes, assistance and equipment:

(A) Well – trained (including military training and skills) and dedicated individuals,

(B) Inside assistance which may include a knowledgeable individual who attempts to participate in a passive role (provide information), an active role (e.g. facilitate entrance and exit, disable alarms and communications, participate in violent attack), or both

(C) Suitable weapons, up to and including hand-held automatic weapons, equipped with silencers and having effective long range accuracy,

(D) Hand-carried equipment including incapacitating agents and explosives for use as tools of entry or for otherwise destroying reactor, facility, transporter or container integrity or features of the physical protection system, and

(E) The ability to operate as two or more teams.

- (ii) An individual, including an employee (in any position), and
- (iii) A conspiracy between individuals in any position who may have:
  - (A) Access to and detailed knowledge of nuclear power plants, or
  - (B) Items that could facilitate theft of special fissionable material (e.g. small tools, substitute material, false documents, etc.), or both.

(b) Scope

(1) This Part prescribes requirements for

- (i) The physical protection of nuclear power facilities licensed pursuant to Part 7 of the Code, including special fissionable material (fuel elements) stored thereat;
- (ii) The physical protection of special fissionable material of low strategic significance in transportation by the nuclear installation operator authorized to import; or takes delivery of a single shipment free on board (FOB) where it is delivered to a carrier;
- (iii) The physical protection of the shipment of irradiated reactor fuel in quantities that in a single shipment both exceed 100 grams in net weight of irradiated fuel exclusive of cladding or other structural or packaging material, and have a total radiation dose in excess of 100 rems per hour at a distance of 0.91m (3ft.) from any accessible surface without intervening shielding. (73.1)

Section 2. Definitions – As used in this Part:

The terms defined in Part 7 of the Code have the same meaning when used in this Part:

- (a) “Authorized individual” means any individual, including an employee, consultant or an agent of the nuclear installation operator who has been designated in writing by the said installation operator to have responsibility for surveillance of or control over special fissionable material is used or stored.
- (b) “Guard” means a uniformed individual armed with a firearm whose primary duty is the protection of special fissionable material against theft, the protection of a nuclear installation against radiological sabotage, or both.
- (c) “Watchman” means an individual, not necessarily uniformed or armed with a firearm, who provides protection for a nuclear installation and the special fissionable material therein in the course of performing other duties.
- (d) “Continuous visual surveillance” means an obstructed view at all times of a shipment of special fissionable material, and of all access to a temporary storage area or cargo compartment containing the shipment.
- (e) “Physical barrier” means
  - (1) Fences constructed of No. 11 AWG, or heavier wire fabric, topped by three strands or more of barbed wire or similar material on brackets angled outward between 30° and 45° from the vertical, with an overall height of not less than 2.44m (8ft.) including the barbed topping;
  - (2) Building walls, ceilings and floors constructed of stone, brick, cinder block, concrete, steel or comparable materials (openings in which are secured by grates, doors, or covers of construction and fastening of sufficient strength such that the integrity of the wall is not lessened by any opening, or walls of similar construction, not part of a building provided with barbed topping described in paragraph (f) (1) of this section of a height of not less than 2.44m (8ft.); or
  - (3) Any other physical obstruction constructed in a manner and of materials suitable for the purpose for which the obstruction is intended.

- (f) "Protected area" means an area encompassed by physical barriers and to which access is controlled.
- (g) "Vital area" means any area which contains vital equipment.
- (h) "Vital equipment" means any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Equipment or system which would be required to function to protect public health and safety following such failure, destruction, or release are also considered to be vital.
- (i) "Material access area" means any location which contains special fissionable material, within a vault or a building, the roof, walls, and floor of which each constitute a physical barrier.
- (j) "Isolation zone" means any area adjacent to a physical barrier, clear of all objects which could conceal or shield an individual.
- (k) "Intrusion alarm" means a tamper indicating electrical, electromechanical, electrooptical, electronic or similar device which will detect intrusion by an individual into a building, protected area, vital area, or material access area, and alert guards or watchmen by means of actuated visible and audible signals.
- (l) "Lock" in the case of vaults or vault-type rooms means a three-position, manipulation-resistant, dial type built-in combination lock or combination padlock and in the case of fences, walls, and buildings means an integral door lock or padlock which provides protection equivalent to a six-tumbler cylinder lock. "Lock" in the case of a vault or vault-type room also means any manipulation resistant, electromechanical device which provides the same function as a built-in combination lock or combination padlock, which can be operated remotely by the "reading" or insertion of information, which can be uniquely characterized, and which allows operation of the device. "Lock" means protected by an operable lock.
- (m) "Vault" means a windowless enclosure with walls, floor, roof and door(s) designed and constructed to delay penetration from forced entry.
- (n) "Vault-type room" means a room with one or more doors, all capable of being locked, protected by an intrusion alarm which creates an alarm upon entry of a person anywhere into the room and upon exit from the room or upon movement of an individual within the room.
- (o) "Radiological sabotage" means any deliberated act directed against a nuclear installation or transport in which an activity licensed pursuant to the regulations in Part 7 of the code is conducted, or against a component of such nuclear installation or transport which could directly or indirectly endanger the public health and safety by exposure to radiation.
- (p) "Bullet-resisting" means protection against complete penetration, passage of fragments of projectiles and spalling (fragmentation) of the protective material that could cause injury to a person standing directly behind the bullet-resisting barrier.
- (q) "Armed response personnel" means persons, not necessarily uniformed, whose primary duty in the event of attempted theft of special fissionable material or radiological sabotage shall be to respond, armed and equipped, to prevent or delay such actions.

- (r) "Armed escort" means an armed person, not necessarily uniformed, whose primary duty is to accompany shipments of special fissionable material for the protection of such shipments against theft or radiological sabotage.
- (s) "Security management" means persons responsible for security at the policy and general management level.
- (t) "Security supervision" means persons, not necessarily uniformed or armed, whose primary duties are supervision and direction of security at the day-to-day operating level.
- (u) "Special fissionable material of low strategic significance" means 10,000 grams or more of uranium-235 contained in uranium enriched above natural but less than 10 percent in the U-235 isotope.
- (v) "Controlled access area" means any temporarily or permanently established area which is clearly demarcated access to which is controlled and which affords isolation of the material or persons within it.
- (w) "Transport" means any land, sea, or air conveyance or modules for these conveyance such as rail cars or standardized cargo containers.
- (x) "Incendiary device" means any self-contained device intended to create an intense fire that can damage normally flame-resistant or retardant materials.
- (y) Reserved
- (z) "Force" means violent methods used by adversary to attempt to steal special fissionable material or to sabotage a nuclear installation or violent methods used by response personnel to protect against such adversary actions.
- (aa) "Stealth" means methods used to attempt to gain unauthorized materials, or remove special fissionable material, where the fact of such attempt is concealed or an attempt is made to conceal it.
- (bb) "Deceit" means method used to attempt to gain unauthorized access, introduce unauthorized materials, or remove special fissionable materials, where the attempt involves falsification to present the appearance of authorized access. (73.2)

Section 3. Interpretation – No interpretation of the meaning of the regulations in this Part other than a written interpretation by the Commission will be recognized to be binding upon the Commission. (73.3)

Section 4. Communications – All communications and reports concerning the regulations in this Part should be addressed to the Commissioner, Philippine Atomic Energy Commission, Don Mariano Marcos Avenue, Diliman, Quezon City, Metro Manila. (73.4)

Section 5. Specific Exemptions – The Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this Part as it determines are authorized by the Act and will not pose undue risk to the health and safety of the public, and are otherwise consistent with the national interest. (73.5)

## **II. PHYSICAL PROTECTION REQUIREMENTS AT NUCLEAR POWER PLANTS**

Section 11. Physical Protection: General Requirements –

- (a) The installation operator shall provide physical protection against radiological sabotage and against theft of special fissionable materials at the fixed sites where licensed activities are conducted. Physical security systems shall be established and maintained by the installation operator in accordance with the physical protection plan approved by the Commission.
- (b) The installation operator shall prepare a physical protection contingency plan in accordance with the criteria set forth in Appendix B to this Part. The contingency plan shall include plans for dealing with threats, thefts and radiological sabotage relating to nuclear installations licensed under Part 7 of the Code. The installation operator shall submit to the Commission for approval the first four categories of information contained in the contingency plan. (The first four categories of information, as set forth in Appendix B to this Part, are Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix. The fifth category of information, Procedures, does not have to be submitted for approval.) The plan shall become effective 30 days after approval by the Commission.
- (c) Prior to the plan becoming effective, the installation operator shall have:
  - (1) All physical protection capabilities specified in his contingency plan available and functional.
  - (2) Detailed procedures developed according to Appendix B to this Part available at the facility site, and
  - (3) All appropriate personnel trained to respond to security incidents as outlined in the plan and specified in the detailed Procedures.
- (d) The installation operator shall provide for the implementation, revision, and maintenance of his physical protection contingency plan. To this end, the installation operator shall provide for a review at least every twelve months of the contingency plan by individuals independent of both security program management and personnel who have direct responsibility for implementation of the security program. The review shall include a review and audit of procedures and practices, and audit of the security system testing and maintenance program, and a test of the security system along with commitments established for response by law enforcement authorities. The results of the review and audit, along with recommendations for improvements, shall be documented, reported to the installation operator's corporate and plant management, and kept available at the plant for inspection for a period of two years. (73.40)

Section 12. Requirements for Physical Protection Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage –

- (a) General Performance Objective and Requirements –

The installation operator shall establish and maintain an onsite physical protection system and security organization which will have as its objective to provide high assurance that activities involving special fissionable material do not constitute an unreasonable risk to the public health and safety. The physical protection system shall be designed to protect against the design basis threat of radiological sabotage as stated in Section 1(a) to this Part. To achieve this general performance objective, the onsite physical protection system and security organization shall include, but not necessarily be limited to, the capabilities to meet the specific requirements contained in paragraph (b) through (h) of this section. The Commission may authorize an applicant or an installation operator to provide measures for protection against radiological sabotage other than those required by this section if the applicant or installation operator demonstrates that the measures have the same high assurance objectives as specified in this paragraph and that the overall level of system performance provides protection against radiological sabotage equivalent to that which would be provided by paragraphs (b) – (h) of this Section and meets the general performance requirements of this

Section. Specifically, in the special cases of licensed operating reactors with adjacent reactor power plants under construction, the installation operator shall provide and maintain a level of physical protection of the operating reactor against radiological sabotage equivalent to the requirements of this Section.

(b) Physical Security Organization

- (1) The installation operator shall establish a security organization, including guards, to protect his facility against radiological sabotage. If a contract guard force is utilized for site security, the installation operator's written agreement with the contractor will clearly show that
  - (i) The installation operator is responsible to the Commission for maintaining physical protection measures in accordance with Commission regulations and the installation operator's security plan.
  - (ii) The Commission may inspect, copy, and take away copies of all reports and documents required to be kept by Commission regulations, orders, or applicable license conditions whether such reports and documents are kept by the installation operator or the contractor.
  - (iii) The requirement in subparagraph (b) (4) of this Section that the installation operator demonstrate the ability of physical security personnel to perform their assigned duties and responsibilities, includes demonstration of the ability of the contractor's physical security personnel to perform their assigned duties and responsibilities in carrying out the provisions of the Security Plan and these regulations, and
  - (iv) The contractor will not assign any personnel to the site who have not first been made aware of these responsibilities.
- (2) At least one full time member of the security organization who has the authority to direct the physical protection activities of the security organization shall be on site at all times.
- (3) The installation operator shall have a management system to provide for the development, revision. Implementation and enforcement of security procedures.
  - (i) Written security procedures which document the structure of the security organization and which detail the duties of guards, watchmen and other individuals responsible for security; and
  - (ii) Provision for written approval of such procedures and any revisions thereto by the individual with overall responsibility for the security functions.
- (4) The installation operator shall not permit an individual to act as a guard, watchman, armed response person, or other member of the security organization unless such individual has been trained, equipped, and qualified to perform each assigned security job in accordance with Appendix A, "General Criteria for Security Personnel", of this Part. Upon the request of an authorized representative of the Commission, the installation operator shall demonstrate the ability of the physical security personnel to carry out their assigned duties and responsibilities. Each guard, watchman, armed response person, and other member of the security organization shall re-qualify in accordance with Appendix A of this Part at least every 12 months. Such requalification shall be documented.

(c) Physical barriers –

- (1) The installation operator shall locate vital equipment only within a vital area, which in turn, shall be located within a protected area such that access to vital equipment requires passage through at least two physical barriers of sufficient

- strength to meet the performance requirements of paragraph (a) of this Section. More than one vital area may be located within a single protected area.
- (2) The physical barriers at the perimeter of the protected area shall be separated from any other barrier designated as a physical barrier for a vital area within the protected area.
  - (3) Isolation zones shall be maintained in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and shall be of sufficient size to permit observation of the activities of people on either side of that barrier in the event of its penetration. If parking facilities are provided for employees or visitors, they shall be located outside the isolation zone and exterior to the protected area barrier.
  - (4) Detection of penetration or attempted penetration of the protected area or the isolation zone adjacent to the protected area barrier shall assure that adequate response by the security organization can be initiated. All exterior areas within the protected area shall be periodically checked to detect the presence of unauthorized persons, vehicles, or materials.
  - (5) Isolation zones and all exterior areas within the protected area shall be provided with illumination sufficient for the monitoring and observation requirements of paragraphs (c) (3), (c) (4), and (h) (4) of this Section, but not less than 0.2 footcandle measured horizontally at the ground level.
  - (6) The walls, doors, ceiling, floor, and any window in the walls and in the doors of the reactor control room shall be bullet-resisting.
- (d) Access requirement –
- (1) The installation operator shall control all points of personnel and vehicle access into a protected area. Identification and search of all individuals shall be made and authorization shall be checked at such points. The search function for detection of firearms, explosives, and incendiary devices shall be conducted either by a physical search or by use of equipment capable of detecting such devices. The individual responsible for the last access control function (controlling admission to the protected area) shall be isolated within a bullet-resisting structure as described in paragraph (c) (6) of this Section to assure their ability to respond or to summon assistance.
  - (2) At the point of personnel and vehicle access into a protected area, all hand carried packages shall be searched for devices such as firearms, explosives, and incendiary devices, or other items which could be used for radiological sabotage.
  - (3) All packages and materials for delivery into the protected area shall be checked for proper identification and authorization and searched for devices such as firearms, explosives and incendiary devices or other items which could be used for radiological sabotage, prior to admittance into the protected area, except those Commission approved delivery and inspection activities specifically designed by the installation operator to be carried out within vital or protected areas for reasons of safety, security or operational necessity.
  - (4) All vehicles, except under emergency conditions, shall be searched for items which could be used for sabotage purposes prior to entry into the protected area. Vehicle areas to be searched shall include the cab, engine compartment, undercarriage, and cargo area. All vehicles, except designated installation operator's vehicles, requiring entry into the protected area shall be escorted by a member of the security organization while within the protected area and, to the extent practicable, shall be off loaded in the protected area at a specific designated materials receiving area that is not adjacent to a vital area. Designated installation operator's vehicles shall be limited in their use to onsite plant functions and shall remain in the protected area except for maintenance, repair, security and emergency purposes, including duly approved operational activities. The installation operator shall exercise positive control over all such

designated vehicles to assure that they are used only by authorized persons and for authorized purposes.

- (5) A numbered picture badge identification system shall be used for all individuals who are authorized access to protected areas without escort. An individual not employed by the installation operator but who require frequent and extended access to protected and vital areas may be authorized access to such areas without escort provided that he receives a picture badge upon entrance into the protected area which must be returned upon exit from the protected area and which indicates:
    - (i) Non-employee – no escort required;
    - (ii) Areas to which access is authorized; and
    - (iii) The period for which access has been authorized. Badges shall be displayed by all individuals while inside the protected area.
  - (6) Individuals not authorized by the installation operator to enter protected areas without escort shall be escorted by a watchman, or other individual designated by the installation operator, while in a protected area and shall be badged to indicate that an escort is required. In addition, each such individual shall be required to register his name, date, time, purpose of visit and employment affiliation, citizenship, and name of the individual to be visited.
  - (7) The installation operator shall positively control all points of personnel and vehicle access into vital areas. Access to vital areas shall be limited to individuals who are authorized access to vital equipment and who require such access to perform their duties. Authorization for such individuals shall be provided by the issuance of specially coded numbered badges indicating vital areas to which access is authorized. Access to vital areas for the purpose of general familiarization and other non-work related activities shall not be authorized except for good cause shown to the installation operator. Unoccupied vital areas shall be locked and protected by an active intrusion alarm system.
  - (8) Access to the reactor containment shall be alarmed and have locks of substantial construction to offer penetration resistance and impede both surreptitious and forced entry. Any time frequent access is permitted to containment such as during refueling or major maintenance, positive access control to assure that only authorized personnel and materials are permitted into the containment shall be exercised by the installation operator with a guard or watchman.
  - (9) All keys, locks, combinations, and related equipment used to control access to protected and vital areas shall be controlled to reduce the probability of compromise. Whenever there is evidence that any key, lock, combination, or related equipment may have been compromised it shall be changed. Upon termination of employment of any employee, keys, locks, combinations, and related equipment to which that employee had access, shall be changed.
- (e) Detection aids –
- (1) All alarms required pursuant to this Part shall annunciate in a continuously manned central alarm station located within the protected area and in at least one other continuously manned station, not necessarily on site, such that a single act cannot remove the capability of calling for assistance or otherwise responding to an alarm. The onsite central alarm station shall be considered a vital area and its walls, doors, ceiling, floor, and any windows in the walls and in the doors shall be bullet-resisting. The onsite central alarm station shall be located within a building such that the interior of the central alarm station is not visible from the perimeter of the protected area. This station shall not contain any operational activities that would interfere with the execution of the alarm response function.



- (2) All alarm devices including transmission lines to annunciators shall be tamper indicating and self-checking e.g., an automatic indication is provided when failure of the alarm system or a component occurs, or when the system is on standby power. The annunciation of an alarm at the alarm stations shall indicate the type of alarm (e.g., intrusion alarm, emergency exit alarm, etc.) and location.
  - (3) All emergency exits in each protected area shall be alarmed.
- (f) Communication requirements –
- (1) Each guard, watchman or armed response individual on duty shall be capable of maintaining continuous communication with an individual in each continuously manned alarm station required by paragraph (e)(1) of this Section, who shall be capable of calling for assistance from other guards, watchman, and armed response personnel and from law enforcement authorities.
  - (2) The alarm station required by paragraph (e)(1) of this Section shall have conventional telephone service for communication with the law enforcement authorities as described in paragraph (f)(1) of this Section.
  - (3) To provide the capability of continuous communication, radio or microwave transmitted two-way voice communication, either directly or through an intermediary, shall be established, in addition to conventional telephone service, between law enforcement authorities and the facility and shall terminate in each continuously manned alarm station required by paragraph (e)(1) of this Section.
  - (4) Non-portable communications equipment controlled by the installation operator and required by this Section shall remain operable from independent power sources in the event of the loss of normal power.
- (g) Testing and maintenance – Each installation operator shall test and maintain intrusion alarms, emergency alarms, communications equipment, physical barriers, and other security related devices or equipment utilized pursuant to this Section as follows:
- (1) All alarms, communication equipment, physical barriers, and other related devices or equipment shall be maintained in operable condition. The installation operator shall develop and employ compensatory measures including equipment, additional security personnel and specific procedures to assure that the effectiveness of the security systems is not reduced by failure or other contingencies affecting the operation of the security related equipment or structures.
  - (2) Each intrusion alarm shall be tested for performance at the beginning and end of any period that it is used for security. If the period of continuous use is longer than seven days, the intrusion alarm shall also be tested at least once every seven (7) days.
  - (3) Communications equipment required for communications onsite shall be tested for performance not less frequently than once at the beginning of each security personnel work shift. Communications equipment required for communications offsite shall be tested for performance not less than once a day.
  - (4) The security program shall be reviewed at least every 12 months by individuals independent of both security management and security supervision. The review shall include a review and audit of security procedures and practices, evaluation of the effectiveness of the physical protection system, an audit of the physical protection system testing and maintenance program and an audit of commitments established for response by law enforcement authorities. The results of the review audit and evaluation along with the recommendations for corrections and improvements, if any, shall be documented, reported to the plant management and to corporate management at least one level higher than that

having responsibility for the day to day plant operation. The reports shall be kept available at the plant for inspection for a period of five years.

(h) Response requirement –

- (1) The installation operator shall execute when appropriate, a physical protection contingency plan for dealing with threats, thefts, and radiological sabotage related to the nuclear facilities subject to the provisions of this Section. Contingency plans shall be in accordance with the criteria in Appendix B to this Part.
- (2) The installation operator shall establish and document liaison with law enforcement authorities.
- (3) The total number of guards, and armed, trained personnel immediately available at the facility to fulfill these response requirements shall nominally be ten (10), unless specifically required otherwise on a case by case basis by the Commission; however, this number may not be reduced to less than five (5) guards.
- (4) Upon detection of abnormal presence or activity of persons or vehicles within an isolation zone, a protected area, material access area, or a vital area; or upon evidence or indication of intrusion into a protected area, a material access area, or a vital area, the installation's security organization shall:
  - (i) Determine whether or not a threat exists.
  - (ii) Assess the extent of the threat, if any.
  - (iii) Take immediate concurrent measures to neutralize the threat by:
    - (A) Requiring responding guards or armed response personnel to interpose themselves between vital areas and material access areas and any adversary attempting entry for the purpose of radiological sabotage or theft of special fissionable material and to intercept any person exiting with special fissionable material, and
    - (B) Informing law enforcement agencies of the threat and requesting assistance.
- (5) The installation operator shall instruct every guard and all armed response personnel to prevent or impede attempted acts of theft or radiological sabotage by using force sufficient to counter the force directed at him including the use of deadly force when the guard or other armed response person has a reasonable belief it is necessary in self-defense or in the defense of others.
- (6) To facilitate initial response to detection of penetration of the protected area and assessment of the existence of a threat, capability of observing the isolation zones and the physical barrier at the perimeter of the protected area shall be provided, preferably by means of closed circuit television or by other suitable means which limit exposure of responding personnel to possible attack. (73.55)

**III. PHYSICAL PROTECTION OF SPECIAL FISSIONABLE MATERIAL OF LOW STRATEGIC SIGNIFICANCE AND PHYSICAL PROTECTION OF IRRADIATED REACTOR FUEL**

Section 21. Nuclear Power Plant Site and In-Transit Requirements for the Physical Protection of Special Fissionable Material of Low Strategic Significance –

(a) General Performance Objectives –

- (1) Each installation operator who possesses, uses or transports special fissionable material of low strategic significance shall establish and maintain a physical protection system that will achieve the following objectives:
    - (i) Minimize the possibilities for unauthorized removal of special fissionable material consistent with the potential consequences of such actions; and
    - (ii) Facilitate the location and recovery of missing special fissionable material.
  - (2) To achieve these objectives, the physical protection system shall:
    - (i) Provide early detection and assessment of unauthorized access or activities by an external adversary within the controlled access area containing special fissionable material;
    - (ii) Provide early detection of removal of special fissionable material by an external adversary from a controlled access area;
    - (iii) Assure proper placement and transfer of custody of special fissionable material; and
    - (iv) Respond to indications of an unauthorized removal of special fissionable material and then notify the appropriate response forces of its removal in order to facilitate its recovery.
- (b) In-Transit Requirements for Special Fissionable Material of Low Strategic Significance –
- (1) Each licensee who transports or who delivers to a carrier for transport special fissionable material of low strategic significance shall:
    - (i) Provide advance notification to the receiver of any planned shipments specifying the mode of transport, estimated time of arrival, location of the nuclear material transfer point, name of carrier and transport identification.
    - (ii) Receive confirmation from the receiver prior to commencement of the planned shipment that the receiver will be ready to accept the shipment at the planned time and location and acknowledges the specified mode of transport.
    - (iii) Transport the material in a tamper indicating sealed container.
    - (iv) Check the integrity of the containers and seals prior to shipment, and
    - (v) Arrange for the in-transit physical protection of the material in accordance with the requirements of subparagraph (b)(3) of this Section, unless the receiver is a licensee and has agreed in writing to arrange for the in-transit physical protection.
  - (2) Each licensee who receives quantities and types of special fissionable material of low strategic significance shall:
    - (i) Check the integrity of the containers and seals upon receipt of the shipment,
    - (ii) Notify the shipper of receipt of the material, and
    - (iii) Arrange for the in-transit physical protection of the material in accordance with the requirements of sub-paragraph (b)(3) of this Section, unless the shipper is a licensee and has agreed in writing to arrange for the in-transit physical protection.
  - (3) Each licensee, either shipper or receiver, who arranges for the physical protection of special fissionable material of low strategic significance while in-transit or who takes delivery or such material free on board (f.o.b.) the point at which it is delivered to a carrier for transport shall:
    - (i) Establish and maintain response procedures for dealing with threats of thefts or thefts of such material,

- (ii) Make arrangements to be notified immediately of the arrival of the shipment at its destination, or of any such shipment that is lost or unaccounted for after the estimated time of arrival at its destination, and
  - (iii) Conduct immediately a trace investigation of any shipment that is lost or unaccounted for after the estimated arrival time and report to the Commission, as specified in Section 27 of this Part, the action being taken to trace the shipment, and to the shipper or receiver as appropriate.
- (4) The installation operator who exports special fissionable material of low strategic significance shall comply with the appropriate requirements specified in subparagraph (b)(1) and (b)(3) of this Section.
  - (5) The installation operator who imports special fissionable material of low strategic significance shall:
    - (i) Comply with the requirements specified in subparagraphs (b)(2) and (b)(3) of this Section, and
    - (ii) Notify the person who delivered the material to a carrier for transport of the arrival of such material. (73.7)

Section 22. In-Transit Requirements for Physical Protection of Irradiated Reactor Fuel –

(a) Performance Objectives –

- (1) An installation operator who transports, or delivers to a carrier for transport, in a single shipment, a quantity of irradiated reactor fuel in excess of 100 grams in net weight of irradiated fuel, exclusive of cladding or other structural or packaging material, which has a total external radiation dose rate in excess of 100 rems per hour at a distance of 0.91 m (3 ft.) from any accessible surface without intervening shielding, shall establish and maintain, or make arrangements for, and assure the proper implementation of, a physical protection system for shipments of such material that will achieve the following objectives:
  - a) Minimize the possibilities for radiological sabotage of irradiated reactor fuel shipments, especially within heavily populated areas; and
  - b) Facilitate the location and recovery of irradiated reactor fuel shipments that may have come under the control of unauthorized persons.
- (2) To achieve these objectives, the physical protection shall:
  - a) Provide for early detection and assessment of attempts to gain unauthorized access to, or control over, irradiated reactor fuel shipments;
  - b) Provide for notification to the appropriate response forces of any irradiated reactor fuel shipment sabotage attempts; and
  - c) Impede attempts at radiological sabotage of irradiated reactor fuel shipment within heavily populated areas, or attempts to illicitly move such shipments into heavily populated areas, until response forces arrive.

(b) General requirements – To achieve the performance objectives of paragraph (2) of this Section, a physical protection system established and maintained, or arranged for, by the installation operator shall:

- (1) Provide for notification of the Commission in advance of each shipment, in accordance with Section 28 of this Part.
- (2) Include procedures for coping with circumstances that threaten deliberate damage to an irradiated reactor fuel shipment and with other safeguards emergencies.
- (3) Include instructions for each escort that, upon detection of the abnormal presence of unauthorized persons, vehicles or vessels in the vicinity of an irradiated reactor fuel shipment, or upon detection of a deliberately induced

situation that has the potential for damaging an irradiated reactor fuel shipment, the escort will:

- a) Determine whether or not a threat exists;
  - b) Assess the extent of the threat, if any;
  - c) Inform the law enforcement agencies of the threat and request for assistance; and
  - d) Implement the procedures developed in accordance with paragraph (b)(2) of this Section.
- (4) Include a communications center at a designated location, which will be staffed continuously by at least one individual who will monitor the progress of the irradiated reactor fuel shipment and will notify the appropriate agencies in the event a safeguards emergency should arise.
  - (5) Provide for maintenance of a written log by the escorts and communications center personnel, for each irradiated reactor fuel shipment, which will include information describing the shipment and significant event that occur during the shipment, and will be available for review by authorized Commission personnel for a period of at least one year following completion of the shipment.
  - (6) Provide that arrangement have been made with law enforcement agencies along the routes of road and rail shipments, and Philippine ports where vessels carrying irradiated reactor fuel shipments are docked, for their response to an emergency or a call for assistance.
  - (7) Provide for advance approval by the Commission of the routes used for road and rail shipments of irradiated reactor fuel, and of any Philippine ports where vessels carrying irradiated reactor fuel shipments are scheduled to stop.
  - (8) Provide that shipments are planned so that scheduled intermediate stops are avoided to the extent practicable.
  - (9) Provide that two or more escorts maintain continuous visual surveillance of the shipment during periods when the shipment vehicle is stopped, or shipment vessel is docked.
  - (10) Provide that escorts (other than members of law enforcement agencies, or ship's officers serving as unarmed escorts) have successfully completed the training required by Appendix C of this Part.
  - (11) Provide that shipment escorts make calls to the communications center at least every 2 hours to advise of the status of the shipment for road and rail shipments, and for sea shipments while shipments vessels are docked at the Philippine ports.
- (c) Shipments by road – In addition to the provisions of paragraph (b), the physical protection system for any portion of an irradiated reactor fuel shipment that is by road shall provide that:
- (1) A transport vehicle within a heavily populated area is:
    - a) Occupied by at least two individuals, one of whom serves as escort, and escorted by at least two armed members of the law enforcement agency in a mobile unit of such agency; and
    - b) Led by a separate vehicle occupied by at least one armed escort, and trailed by a third vehicle occupied by at least one armed escort.
  - (2) A transport vehicle not within any heavily populated area is:

- a) Occupied by at least one driver and one other individual who serves as escort; or
  - b) Occupied by a driver and escorted by a separate vehicle occupied by at least two escorts; and
  - c) Escorted as set forth in subparagraph (c)(1) of this Section.
- (3) Escorts have the capability of communicating with the communications center, law enforcement agencies, and one another, through the use of:
- a) A citizens band (CB) radio available in the transport vehicle and in each escort vehicle;
  - b) A radiotelephone or other Commission-approved equivalent means of two-way voice communications available in the transport vehicle or in an escort vehicle committed to travel the entire route; and
  - c) Citizens band (CB) radio and normal law enforcement agency radio communications in any law enforcement agency mobile units used for escort purposes.
- (4) The transport is equipped with Commission-approved features that permit immobilization of the cab or cargo-carrying portion of the vehicle.
- (5) The transport vehicle driver has been familiarized with, and is capable of implementing, transport vehicle immobilization, communications, and other security procedures.
- (d) Shipments by rail – In addition to the provisions of paragraph (b), the physical protection system for any portion of an irradiated reactor fuel shipment that is by rail shall provide that:
- (1) A shipment car within a heavily populated area is accompanied by two or more armed escorts, at least one of whom is stationed at a location on the train that will permit observation of the shipment car while in motion.
  - (2) A shipment car not within any heavily populated area is accompanied by at least one escort stationed at a location on the train that will permit observation of the shipment car while in motion.
  - (3) Escorts have the capability of communicating with the communications center and law enforcement agencies through the use of a radiotelephone, or other Commission-approved equivalent means of two-way voice communications, which shall be available on the train.
- (e) Shipment by sea – In addition to the provisions of paragraph (b), the physical protection system for any portion of an irradiated reactor fuel shipment that is by sea shall provide that:
- (1) A shipment vessel, while docked at a Philippine port within a heavily populated area, is protected by:
    - a) Two armed escorts stationed on board the shipment vessel, or stationed on the dock at a location that will permit observation of the shipment vessel; or
    - b) A member of a law enforcement agency, equipped with normal radio communications, who is stationed on board the shipment vessel, or on the dock at a location that will permit observation of shipment vessel.
  - (2) A shipment vessel, while within Philippine territorial waters, or while docked at a Philippine port not within a heavily populated area, is accompanied by an escort, who may be an officer of the shipment vessel's crew who will assure that the shipment is unloaded only as authorized by the installation operator.
  - (3) Escorts have the capability of communicating with the communications center and law enforcement agencies through the use of a radiotelephone, or other

Commission-approved equivalent means of two-way voice communications.  
(73.37)

#### IV. RECORDS, REPORTS AND NOTICES

Section 26. Records – The nuclear installation operator shall keep the following records:

- (a) Names and addresses of all individuals who have been designated as authorized individuals.
- (b) Names, addresses, and badge numbers of all individuals authorized to have access to vital equipment or special fissionable material, and the vital areas to which authorization is granted.
- (c) A register of visitors and other individuals not employed by the installation operator.
- (d) A log indicating name, badge number, time of entry, reason for entry, and time of exit of all individuals granted access to a normally unoccupied vital area.
- (e) Documentation of all routine security tours and inspections, and all tests, inspections, and maintenance performed on physical barriers, intrusion alarms, communications equipment, and other security related equipment used pursuant to the requirements of this Part.
- (f) A record at each onsite alarm annunciation location of each alarm, alarm check, and tamper indication that identifies the type of alarm, location, alarm circuit, date, and time. In addition, details of response by facility guards and watchmen to each alarm, intrusion or other security incident shall be recorded.
- (g) Shipment of special fissionable material subject to the requirements of this Part, including names of carriers, major roads to be used, flight numbers in the case of air shipments, dates expected times of departure and arrival of shipments, verification of communication equipment on board the transfer vehicle, names of individuals who are to communicate with the transport vehicle, container seal descriptions and identification. Such information shall be recorded prior to shipment. Information obtained during the course of the shipment such as reports of all communications, change of shipping plan including monitor changes, trace investigations and others shall also be recorded.
- (h) Procedures for controlling access to protected areas and for controlling access to keys for locks used to protect special fissionable material. (73.70)

Section 27. Reports of Unaccounted for Shipments, Suspected Thefts, Unlawful Diversion, Radiological Sabotage, or Events which significantly Threaten or Lessen the Effectiveness of Physical Protection –

- (a) The installation operator who conducts a trace investigation of a lost or unaccounted shipment pursuant to Section 21 (b)(3)(iii) of this Part shall immediately communicate to the Commission the details and results of his trace investigation and shall file within a period of fifteen (15) days a written report thereon to the Commission.
- (b) The installation operator shall report immediately to the Commission by telephone or by the fastest means of available communication, any incident in which an attempt has been made or is believed to have been made, to commit a theft or unlawful diversion of special fissionable material which he is licensed to possess, or to commit an act of radiological sabotage against his facility or transportation system. The initial report shall be followed within a period of (15) days by a written report required by this paragraph, the installation operator shall immediately inform the Commission by means of a written report of any substantive additional information which becomes available concerning the incident.
- (c) The installation operator shall report to the Commission, by telephone or by the fastest means of available communication, any event which significantly threatens or lessens the effectiveness of the physical security system as established by the regulations of the

Code or by the installation operator's approved physical security contingency, and security personnel qualification and training plans, or by both. This report shall be made within the time period specified in the Table of Appendix B of this Part. The time period begins upon discovery of the event by any member of the security organization or any other employee of the installation operator. A written report shall be submitted to the Commission describing the event in detail within 5 days of the time of discovery. Such notification and reports satisfy the notification requirements of Section 83 (a)(4) of Part 7 of the Code, if applicable. A separate log shall be maintained to record events reportable under this Section. Any event which is designated as not reportable in the security or contingency plans need not be reported. (73.71)

Section 28. Requirement for Advance Notice of Shipment of Special Fissionable Material and Irradiated Reactor Fuel – The installation operator who plans to import, export, transport, deliver to a carrier for transport in a single shipment, or take delivery at the point where it is delivered to a carrier, special fissionable material of low strategic significance or irradiated reactor fuel required to be protected under the provisions of Sections 21 and 22 of this Part, shall notify the Commission at least 7 days in advance of the shipping date. The following information shall be furnished in the advance notice: shipper, receiver, carrier(s), estimated date and time of departure and arrival, transfer point(s), and mode(s) of shipment. The Commission shall be notified in advance of any changes to the shipment itinerary prior to the shipment date. (73.72)

#### **V. ENFORCEMENT; VIOLATIONS; EFFECTIVITY**

Section 31. Violation – Any person who willfully violates or attempts to violate any provision of this Part or any order issued thereunder by the Commission, shall be punished in accordance with the penal provision of the Act.

Section 32. Effectivity – This Part shall take effect after fifteen (15) days following the publication in the Official Gazette, except that if the Commission finds that the health and safety of the public or the national interest requires, it may be made effective immediately upon furnishing copies thereof to the persons affected.

Quezon City, 8 February 1983

Approved:

Signed  
ZOILO M. BARTOLOME, Ph. D.  
Commissioner

Signed  
Lt/ Col. A. VER ALBANO (CWS) PA  
Deputy Commissioner



## APPENDIX A – GENERAL CRITERIA FOR SECURITY PERSONNEL

### TABLE OF CONTENTS

Introduction  
Definitions  
Criteria

- I. Employment suitability and qualification
  - A. Suitability
  - B. Physical and Mental qualifications
  - C. Physical fitness qualifications
  - D. Contact security personnel
  - E. Physical requalifications
  - F. Documentation
- II. Training and qualification
  - A. Training Requirements
  - B. Qualification requirements
  - C. Contract security personnel
  - D. Physical requalification
  - E. Documentation
- III. Weapons training and qualification
- IV. Weapons qualification and requalification program
- V. Guard, armed response personnel and armed escort equipment
  - A. Fixed Site
  - B. Transportation

## INTRODUCTION

Pursuant to Part 7 of the Code and to the provisions of Section 12 of this Part, each installation operator is required to establish a security organization, including trained and equipped guards to physically protect special fissionable materials in their possession and their facilities against theft and radiological sabotage.

Further pursuant to the provision of Section 22 of this Part certain shipments of special fissionable materials are required to be accompanied by armed escorts.

Security personnel who are responsible for the protection of special fissionable material on site and in transit and for the protection of the facility or shipment vehicle against radiological sabotage should, like other elements of the physical security system, be required to meet minimum criteria to assure that they will effectively perform their assigned security related job duties. In order to assure that those individuals responsible for security are properly equipped and qualified to execute the job duties prescribed for them, the Commission has developed general criteria which specified security personnel qualification requirements.

The general criteria established requirements for the selection, training, equipping, testing, and qualification of the individuals who will be responsible for protecting special fissionable materials, nuclear facilities, and nuclear shipments, in addition to the relevant provisions of Republic Act, 5487, as amended, and of other existing laws.

## DEFINITIONS

Terms defined in Part 7, Part 8, and Part 9 of the Code have the same meaning when used in this Appendix.

## CRITERIA

- I. Employment suitability and qualification.
  - A. Suitability:
    - 1) Prior to employment, or assignment to the security organization, an individual shall meet the following suitability criteria:
      - a) Educational development – Possess a high school diploma and shall pass a performance examination designed to measure basic job-related mathematical, language, and reasoning skills, ability, and knowledge, required to perform security job duties.
      - b) Felony conviction – Have no felony convictions involving the use of a weapon and no felony convictions that reflect on the individual's reliability.
    - 2) Prior to employment or assignment to the security organization in armed capacity, the individual, in addition to (a) and (b) above, must be 21 years of age or older.
  - B. Physical and mental qualifications
    - 1) Physical qualifications
      - a) Individuals whose security tasks and job duties are directly associated with the effective implementation of the installation operator's physical security and contingency plans shall have no physical weaknesses or abnormalities that would adversely affect their performance of assigned security job duties.

b) In addition to (a) above, guards, armed response personnel, armed escorts, and central alarm station operators shall successfully pass a physical examination administered by a competent licensed physician. The examination shall be designed to measure the individual's physical ability to perform assigned security and contingency plans. Armed personnel shall meet the following additional physical requirements:

(1) Vision:

(a) For each individual distant visual acuity in each eye shall be correctable to 20/30 in the better eye and 20/40 in the other eye with eye-glasses or contact lenses. If uncorrected distance vision is not at least 20/40 in the better eye, the individual shall carry an extra pair of corrective lenses. Near visual acuity, corrected or uncorrected, shall be at least 20/40 in the better eye. Field of vision must be at 70° horizontal meridian in each eye. The ability to distinguish red, green and yellow colors is required. Loss of vision in one eye is disqualifying. Glaucoma shall be disqualifying unless controlled by acceptable medical or surgical means provided such medications as may be used for controlling glaucoma do not cause undesirable side effects which adversely affect the individual's ability to perform assigned security job duties, and provided the visual acuity and field vision requirements stated above are met. On-the-job evaluation shall be used for individuals who exhibit a mild color vision defect.

(b) Where corrective eyeglasses are required, they shall be of the safety type.

(c) The use of corrective eyeglasses or contact lenses shall not interfere with an individual's ability to effectively perform assigned security job duties during normal or emergency operations.

(2) Hearing:

(a) Individuals shall have no hearing loss in better ear greater than 30 decibels average at 500 Hz., 1,000 Hz and 2,000 Hz with no level greater than 40 decibels at any one frequency.

(b) A hearing aid is acceptable provided suitable testing procedures demonstrate auditory acuity equivalent to the above stated requirement.

(c) The use of a hearing aid shall not decrease the effective performance of the individual's assigned security job duties during normal or emergency operations.

(3) Diseases – Individuals shall have no established medical history or medical diagnosis of epilepsy or diabetes, or where such a condition exists, the individual shall provide medical evidence that the condition can be controlled with proper medication so that the individual will not lapse into a coma or unconscious state while performing assigned security job duties.

- (4) Addiction – Individuals shall have no established medical history or medical diagnosis of habitual alcoholism or drug addiction, or where such a condition has existed, the individual shall provide certified documentation of having completed rehabilitation program which would give a reasonable degree of confidence that the individual would be capable of performing assigned security job duties.
  - (5) Other physical requirements – An individual who has been incapacitated due to a serious illness, injury, disease, or operation, which could interfere with the effective performance of assigned security job duties shall, prior to resumption of such duties, provide medical evidence of recovery and ability to perform such security job duties.
- 2) Mental qualifications:
- a) Individuals whose security tasks and job duties are directly associated with the effective implementation of the licensee physical security and contingency plans shall demonstrate mental alertness and the capability to exercise good judgment, implement instructions, assimilate assigned security tasks, and possess the acuity of senses and ability of expression sufficient to permit accurate communication by written, spoken, audible, visible or other signals required by assigned job duties.
  - b) Armed individuals and central alarm station operators, in addition to meeting the requirement stated in paragraph (a) shall have no emotional instability that would interfere with the effective performance assigned security job duties. The determination shall be made by a competent psychologist or psychiatrist.
  - c) The installation operator shall arrange for continued observation of security personnel and for appropriate corrective measures by responsible supervisors for indications of emotional instability of individuals in the course of performing assigned security job duties. Identification of emotional instability by responsible supervisors shall be subject to verification by a competent psychologist or psychiatrist.
- C. Physical fitness qualifications – Subject to a medical examination conducted within the preceding 30 days and to a determination and written certification by a licensed physician that there are no medical contraindications to participation by the individual as disclosed by the medical examination, guards, armed response personnel and armed escorts shall demonstrate physical fitness for assigned security job duties by performing a practical physical exercise program within a specific time period. The exercise program performance objectives shall be described in the installation operator's training and qualification plan, and consider such job related functions as strenuous activity, physical exertion, levels of stress, and exposure to the elements as they pertain to each individual's assigned security job duties for both normal and emergency operations. The physical fitness qualification of each guard, armed response person and armed escort shall be documented and attested by the plant security supervisor.
- D. Contract security personnel – Contract security personnel shall be required to meet the suitability, physical, and mental requirements as appropriate to their assigned security job duties in accordance with Section I of this Appendix.
- E. Physical requalification – At least every 12 months, central alarm stations operators shall be required to meet the physical requirements of Paragraph B of

this Section and guards, armed response personnel and armed escorts, shall be required to meet the physical requirements of paragraph B(1) and (2) and C of this Section.

- F. Documentation – the results of suitability, physical and mental qualifications data and test results shall be documented by the installation operator.

## II. Training and qualifications

- A. Training requirements – Each individual who requires training to perform assigned security related job tasks or job duties as identified in the plant physical security or contingency plans, shall prior to assignment, be trained to perform such tasks and duties in accordance with the installation operator's documented training and qualifications plan.
- B. Qualification requirements – Each individual who performs security related job tasks and job duties required to implement the physical security or contingency plans, shall prior to being assigned to such tasks or duties, be qualified in accordance with the training and qualification plan approved by the Commission. The qualifications of each individual shall be documented and attested by the plant security supervisor.
- C. Contract personnel – Contract personnel shall be trained, equipped and qualified as appropriate to their assigned security related job tasks or job duties, in accordance with Sections II, III, IV and V of this Appendix. The qualifications of each individual shall be documented and attested by the plant security supervisor.
- D. Security knowledge, skills, and ability in accordance with the specified standards for each task as stated in the training and qualifications plan are as follows:
  - 1. Protection of nuclear facilities, transport vehicles and special fissionable material.
  - 2. Regulatory requirements and guidance for physical security at nuclear facilities and transportation.
  - 3. The private security guard's role in providing physical protection for the nuclear industry.
  - 4. The authority of private guards.
  - 5. The use of nonlethal weapons.
  - 6. The use of deadly force.
  - 7. Power of arrest and authority to detain individuals.
  - 8. Authority to search individuals and seize property.
  - 9. Adversary group operations.
  - 10. Motivation and objectives of adversary groups.
  - 11. Tactics and force that might be used by adversary groups to achieve their objectives.
  - 12. Recognition of sabotage related devices and equipment that might be used against the facility or shipment vehicle.
  - 13. Facility security organization and operation.
  - 14. Types of physical barriers.
  - 15. Weapons, lock and key control system operation.
  - 16. Location of special fissionable material and/or vital areas within a facility.
  - 17. Protected area security and vulnerability.
  - 18. Types of alarm system used.
  - 19. Response and assessment to alarm annunciations and other indications of intrusion.
  - 20. Familiarization with types of special fissionable material processed.
  - 21. General concepts of fixed site security systems.
  - 22. Vulnerabilities and consequence of theft of special fissionable material or radiological sabotage of a facility.
  - 23. Protection of security system information.

24. Personal equipment use and operation for normal and contingency operations.
25. Surveillance and assessment systems and techniques.
26. Communications system operation, fixed site.
27. Access control systems and operation for individuals, packages, and vehicles.
28. Contraband detection systems and techniques.
29. Barriers and other delay systems around material access or vital areas.
30. Exterior and interior alarm systems operation.
31. Duress alarm operation.
32. Alarm stations operation.
33. Response force organization.
34. Response force mission.
35. Response force operation.
36. Response force engagement.
37. Security command and control system during normal operation.
38. Security command and control system during contingency operation.
39. Transportation system security organization and operation.
40. Types of special fissionable material transport vehicles.
41. Types of special fissionable material escort vehicle.
42. Modes of transportation for special fissionable material.
43. Road transport security system command and control structure.
44. Use of weapon.
45. Communication systems operation for transportation, shipment to control center and intraconvoy.
46. Vulnerabilities and consequences of theft of special fissionable material or radiological sabotage of a transport vehicle.
47. Protection of transport system security information.
48. Control of area around transport vehicle.
49. Normal convoy techniques and operations.
50. Familiarization with types of special fissionable materials shipped.
51. Fixed post station operations.
52. Access control system operation.
53. Search techniques and systems for individuals packages and vehicles.
54. Escort and patrol responsibilities and operation.
55. Contingency response to confirmed intrusion or attempted intrusion.
56. Security system operation after component failure.
57. Fixed site security information protection.
58. Security coordination with law enforcement agencies.
59. Security and situation reporting, documentation and report writing.
60. Contingency duties.
61. Self defense.
62. Use of and defense against incapacitating agents.
63. Security equipment testing.
64. Contingency procedures.
65. Night vision devices and systems.
66. Mechanics of detention.
67. Basic armed and unarmed defensive tactics.
68. Response force deployment.
69. Security alert procedures.
70. Security briefing procedures.
71. Response force tactical movement.
72. Response force withdrawal.
73. Response force use of support fire.
74. Response to bomb and attack threats.
75. Response to civil disturbances (e.g., strikes, demonstrators).

76. Response to confirmed attempted theft of special fissionable material and/or radiological sabotage of facilities.
77. Response to hostage situations.
78. Site specific armed tactical procedures and operation.
79. Security response to emergency situations other than security incidents.
80. Basic transportation defense response tactics.
81. Armed escort deployment.
82. Armed escort adversary engagement.
83. Armed escort formations.
84. Armed escort use of weapons fire (tactical and combat).
85. Armed escort and shipment movement under fire.
86. Tactical convoying techniques and operations.
87. Armed escort tactical exercises.
88. Armed escort response to bomb and attack threats.
89. Verification of shipment documentation and contents.
90. Continuous surveillance of shipment vehicle.
91. Normal contingency operation for shipment mode transfer.
92. Armed personnel procedures and operation during temporary storage between mode transfers of shipments.
93. Armed escort threat assessment and response.
94. System for and operation of shipment vehicle lock and key control.
95. Techniques and procedures for isolation of shipment vehicle during contingency situation.
96. Transportation coordination with law enforcement agencies.
97. Procedures for verification of shipment lock and seals.
98. Transportation security and situation reporting, documentation, and report writing.
99. Procedures for shipment delivery and pick-up.
100. Transportation security system for escort by road, rail, air, and sea.

- E. Requalification – Security personnel shall be requalified at least every 12 months to perform assigned security job tasks and duties for both normal and contingency operations. Requalification shall be in accordance with the Commission approved training and qualifications plan. The results of requalification shall be documented and attested by the plan security supervisor.

### III. Weapons training

- A. Guards, armed response personnel and armed escorts requiring weapons training to perform assigned security related job tasks or duties shall be trained in accordance with the installation operator's documented weapons training programs. Each individual shall be proficient in the use of his weapon(s) and shall meet prescribed standards in the following areas:
1. Mechanical assembly, disassembly, range penetration capability of weapon, and bullseye firing.
  2. Weapons cleaning and storage.
  3. Combat firing, day and night.
  4. Safe weapon handling.
  5. Clearing, loading, unloading, and reloading.
  6. When to draw and point weapon.
  7. Rapid fire techniques.
  8. Close quarter firing.
  9. Stress firing.
  10. Zeroing assigned weapon(s).

IV. Weapons qualification and requalification program.

Qualification firing for the handgun and the rifle shall be for daylight firing, and each individual shall perform night firing for familiarization with assigned weapon(s). The results of weapon requalification shall be documented by the installation operator.

- A. Handgun – Guards, armed escorts and armed response personnel shall qualify with a revolver or semi-automatic pistol firing in the national police course or an equivalent nationally recognized course. Qualifying score shall be accumulated total of 70 percent of the maximum obtainable score.
- B. Semi-automatic Rifle – Guards, armed escorts and armed response personnel, assigned to use the semi-automatic rifle by the training and qualifications plan shall qualify with a semiautomatic rifle by firing the 100-yard course. Time limits for individuals shall be specified regardless of the course fired. Qualifying score shall be an accumulated total of 80 percent of the maximum obtainable score.
- C. Shotgun – Guards, armed escorts and armed response personnel assigned to use the 12 gauge shotgun by the training and qualifications plan shall qualify with a full choke or improved modified choke 12 gauge shotgun firing the following course:

Range	Position	No. of Rounds <sup>1</sup>	Target <sup>2</sup>
15 yards	Hip fire pt.	4	B-27
25 yards	Shoulder	4	B-27

<sup>1</sup>The 4 rounds shall be fixed at 4 separate targets within 10 seconds using 00 gauge (9 pellet) shotgun shells.

<sup>2</sup>As set forth by the National Rifle Association (NRA) in its official rules and regulations, "NRA Target Manufacturing Index," December 1976.

To qualify the individual shall be required to place 50 percent of all the pellets (36 pellets) within the black silhouette.

- D. Requalification – Individuals shall be weapons requalified at least every 12 months in accordance with the Commission approved training and qualifications plan, and in accordance with the requirements stated in A, B and C of this Section.

V. Guard, armed response personnel and armed escort equipment.

- A. Fixed Site – Fixed site guards and armed response personnel shall either be equipped with or have available the following security equipment appropriate to the individual's assigned contingency security related tasks or job duties as described in the physical security and contingency plan:

- 1. Semiautomatic rifles with the following nominal minimum specifications:
  - (a) .223 caliber.
  - (b) Muzzle velocity, 1980 ft/sec
  - (c) Muzzle energy, 995 foot-pounds.
  - (d) Magazine or clip load of 8 rounds.
  - (e) Magazine reload of 10 seconds.
  - (f) Operable in any environment in which it will be used.
- 2. 12 gauge shotguns with the following capabilities:
  - (a) 4 rounds pump or semiautomatic.
  - (b) Operable in any environment in which it will be used.



- (c) Full or modified choke.
  - 3. Semiautomatic pistols or revolvers with the following nominal minimum specifications:
    - (a) .354 caliber.
    - (b) Muzzle energy, 250 foot-pounds.
    - (c) Full magazine or cylinder reload capability less than 6 seconds.
    - (d) Muzzle velocity, 850 ft./sec.
    - (e) Full cylinder or magazine capacity, 6 rounds.
    - (f) Operable in any environment in which it will be used.
  - 4. Ammunition:
    - (a) For each assigned weapon as appropriate to the individual's assigned contingency security job duties and as readily available as the weapon:
      - (1) 18 rounds per handgun
      - (2) 100 rounds per semiautomatic rifle
      - (3) 12 rounds each per shotgun (00 Buck shot and slug)
    - (b) Ammunition available on site – two (2) times stated in (a) above for each weapon.
  - 5. Personal equipment to be readily available for individuals whose assigned contingency security job duties, as described in the physical security and contingency plans, warrant such equipment:
    - (a) Helmet, combat.
    - (b) Gas mask, full face.
    - (c) Body armor (bullet-resistant vest).
    - (d) Flashlights and batteries.
    - (e) Baton.
    - (f) Handcuffs.
    - (g) Ammunition/equipment belt.
  - 6. Binoculars.
  - 7. Night vision aids, i.e. hand-fired illumination flares or equivalent.
  - 8. Tear gas or other nonlethal gas.
  - 9. Duress alarms.
  - 10. Two-way portable radios (handi-talkie 2 channel minimum, 1 operating and 1 emergency).
- B. Transportation – Armed escorts either be equipped with or have readily available the following security equipment appropriate to the individual's assigned contingency security related tasks or job duties, as described in the physical security and contingency plans:
- 1. Semiautomatic rifles with the following nominal minimum specifications:
    - (a) .223 caliber.
    - (b) Muzzle velocity, 1,980 ft./sec.
    - (c) Muzzle energy, 955 foot-pounds.
    - (d) Magazine or clip of 8 rounds.
    - (e) Reload capability, 10 seconds.
    - (f) Operable in any environment in which it will be used.
  - 2. 12 gauge shotguns
    - (a) 4 round pump or semiautomatic.
    - (b) Operable in any environment in which it will be used.
    - (c) Full or modified choke.

3. Semiautomatic pistols or revolvers with the following nominal minimum specifications:
  - (a) .354 caliber.
  - (b) Muzzle energy, 250 foot-pounds.
  - (c) Full magazine or cylinder reload capability 6 seconds.
  - (d) Muzzle velocity, 850 ft./sec.
  - (e) Full cylinder or magazine capacity, 6 rounds.
  - (f) Operable in any environment in which it will be used.
4. Ammunition for each shipment.
  - (a) For each assigned weapon as appropriate to the individual's assigned contingency security job duties and as readily available as the weapon:
    - 1) 36 rounds per handgun.
    - 2) 120 rounds per semiautomatic rifle.
    - 3) 12 rounds each per shotgun (00 Buck shot and slug).
5. Escort vehicles, bullet resisting, equipped with communication systems, red flares, first aid kit, emergency tool kit, tire changing equipment, battery chargers for radios (where appropriate, for recharging portable radio batteries).
6. Personal equipment to be readily available for individuals whose assigned contingency security job duties as described in the physical security and contingency plans, warrant such equipment:
  - (a) Helmet, combat.
  - (b) Gas mask, full face.
  - (c) Body armor (bullet-resistant vest)
  - (d) Flashlights and batteries.
  - (e) Baton.
  - (f) Ammunition/equipment belt.
  - (g) Pager/duress alarms.
7. Binoculars.
8. Night vision aids, i. e., hand-fired illumination flares or equivalent.
9. Tear gas or other nonlethal gas.

## APPENDIX B – PHYSICAL PROTECTION CONTINGENCY PLANS

### INTRODUCTION

The physical protection contingency plan is a documented plan to give guidance to plant personnel in order to accomplish specific, defined objectives in the event of threats, thefts, or radiological sabotage relating to specific fissionable material or licensed atomic energy facilities. An acceptable physical protection contingency plan must contain (1) a predetermined set of decision and actions to satisfied stated objectives, (2) an identification of the data, criteria, procedures and mechanisms necessary to effect efficiently the decisions and actions, and (3) a specification of the individual, group, or organizational entity responsible for each decision and action.

The goals of the physical protection contingency plans for dealing with threats, thefts, and radiological sabotage are (1) to organize the response effort at the installation operator level (2) to provide predetermined, structured responses by installation operators to physical protection contingencies, (3) to ensure the integration of the installation operator response with the responses by the other entities, and (4) to achieve a measurable performance in response capability. Physical protection contingency planning should result in organizing the installation operator's resources in such a way that the participants will be identified, their several responsibilities specified, and the responses coordinated. The responses should be timely and internally consistent among themselves.

It is important to note that the physical protection contingency plan is intended to be complementary to any emergency plans developed pursuant to Appendix C of Part 7 of the Code.

### CONTENTS OF THE PLAN

The physical protection contingency plan shall include five categories of information:

1. Background
2. General Planning Base
3. License Planning Base
4. Responsibility Matrix
5. Procedures

Although the implementing procedures (the fifth category plan information) are the culmination of the planning process, and therefore are an integral and important part of the physical protection contingency plan, they entail operating details subject to frequent changes. They need not be submitted to the Commission for approval, but will be inspected on a periodic basis. The installation operator is responsible for ensuring that the implementing procedures reflect the information in the Responsibility Matrix, appropriately summarized and suitability presented for effective use by the responding entities.

The following paragraphs describe the contents of the physical protection contingency plan:

1. Background – Under the following topics, this category of information shall identify and define the perceived dangers and incidents with which the plan will deal and the general way it will handle these:
  - a) Perceived Danger – A statement of the perceived danger to the security of special fissionable material, plant personnel and property, including covert diversion of special fissionable material, radiological sabotage, and overt attacks. The statement of perceived danger should conform with Section 12(a) of Part 9 of the Code.
  - b) Purpose of the plan – A discussion of the general aims and operational concepts underlying implementation of the plan.

- c) Scope of the plan – A delineation of the types of incidents covered in the plan.
  - d) Definition – A list of terms and their definitions used in describing operational and technical aspects of the plan.
2. General Planning Base – Under the following topics, this category of information shall define the criteria for initiation and termination of response to physical protection contingencies together with the specific decisions, actions, and supporting information needed to bring about such responses:
- a) Identification of those events that will be used for signaling the beginning of aggravation of a physical protection contingency according to how they are perceived initially by license personnel. Such events may include alarms or other indications signaling penetration of a protected area, vital area, material access area; material control or material accounting indications of material missing or unaccounted for; or threat indications – either verbal, such as telephoned threats, or implied, such as escalating civil disturbances.
  - b) Definition of the specific objective to be accomplished relative to each identified event. The objective may be to obtain a level of awareness about the nature and severity of the physical protection contingency in order to prepare for further responses; to establish a level of response preparedness; or to successfully nullify or reduce any adverse consequences arising from the contingency.
3. Licensee Planning Base – This category of information shall include the factors affecting contingency planning that are specific for each facility or means of transportation. To the extent that the topics are treated in adequate detail in the licensee's approved physical security plan, they may be incorporated by cross reference to that plan. The following topics should be addressed:
- a) Licensee's Organization Structure for Contingency Responses – A delineation of the organization's chain of command and delegation of authority as these apply to physical protection contingencies.
  - b) Physical Layout – (i) Fixed sites – A description of the physical structures and their location on the site, and a description of the site in relation to nearby towns, roads, and other environmental features important to effective coordination of response operations. Particular emphasis should be placed on main and alternate entry routes for law enforcement assistance forces and the location of control points for marshalling and coordinating response activities.  
(ii) Transportation – A description of the vehicle, shipping routes, preplanned alternate routes, and related features.
  - c) Security System Hardware – A description of the physical security and accounting system hardware that influence how the licensee will respond to the event. Examples of systems to be discussed are communications, alarms, locks, seals, area access, armaments, and surveillance.
  - d) Law Enforcement Assistance – A listing of available law enforcement agencies and description of their response capabilities and their criteria for response; and a discussion of working agreements or arrangements for communicating with these agencies.
  - e) Policy Constraints and Assumptions – A discussion of law, local ordinances, and company policies and practices that govern licensee response to incidents.  
Examples that may be discussed include:
    - Use of deadly force;
    - Use of employee property;
    - Use of off-duty employees;

Site security jurisdictional boundaries.

- f) Administrative and Logistical Considerations – Descriptions of licensee practices that may have an influence on the response to physical protection contingency events. The considerations shall include a description of the procedures that will be used for ensuring that all equipment needed to effect a successful response to a contingency will be easily accessible, in good working order, and in sufficient supply to provide redundancy in case of equipment failure.

4. Responsibility Matrix – This category of information consists of detailed identification of the organizational entities responsible for each decision and action associated with specific responses to contingencies. For each initiating event, a tabulation shall be made for each response entity depicting the assignment of responsibilities for all the decisions and actions to be taken in response to the initiating event. (Not all entities will have assigned responsibilities for any given initiating event). The tabulation in the Responsibility Matrix shall provide an overall picture of the response actions and their interrelationships. Responsibilities shall be assigned in a manner that precludes conflict in duties or responsibilities that would prevent the execution of the plan in any contingency.

In conjunction with the development of the Responsibility Matrix, as referred to in Section 27(c) of Part 9, the following table should be used.

<b>EVENT</b>	<b>REPORTING TIME TO PNRI</b>
Explicit threat	Within 1 hour
Major loss of physical security effectiveness	Within 1 hour
Potential threat	Within 24 hours
Major loss of physical security effectiveness which has been properly compensated	Within 24 hours
Moderate loss of physical security effectiveness	Within 24 hours
Moderate loss of physical security effectiveness which has been properly compensated	No requirement, log in licensee's records

5. Procedures – in order to aid execution of the detailed plan as developed in the Responsibility Matrix, this category of information shall detail the actions to be taken and decisions to be made by each member or unit of the organization as planned in the Responsibility Matrix.

## **APPENDIX C – PHYSICAL PROTECTION OF IRRADIATED REACTOR FUEL IN TRANSIT, TRAINING PROGRAM SUBJECT SCHEDULE**

Pursuant to the provision of Section 22 of this Part, the installation operator who transports or delivers to a carrier for transport irradiated reactor fuel is required to assure that the individuals used as shipment escorts have completed a training program. The subjects that are to be included in this training program are as follows:

### **Security Enroute**

- Route planning and selection
- Vehicle operation
- Procedures at stops
- Detours and use of alternative routes

### **Communications**

- Equipment operation
- Status reporting
- Contacts with law enforcement units
- Communications discipline
- Procedures for reporting incidents

### **Radiological considerations**

- Description of the radioactive cargo
- Function and characteristics of the shipping casks
- Radiation hazards
- Laws and regulations relative to the shipment of radioactive materials
- Responsible agencies

### **Response to Contingencies**

- Accidents
- Severe weather conditions
- Vehicle breakdown
- Communications problems
- Radioactive "spills"
- Use of special equipment (flares, emergency lighting, etc)

### **Response to Threats**

- Reporting
- Calling for assistance
- Use of immobilization features
- Hostage situations
- Avoiding suspicious situations

The installation operator is also required to assure that armed individuals serving as shipment escorts, other than members of law enforcement agencies, have completed a weapons training and qualifications program equivalent to that required of guards, as described in Appendix A of this Part, to assure that each such individual is fully qualified to use weapons assigned him.