March 29, 2000

MEMORANDUM TO: Harold O. Christensen, Acting Chief
Operator Licensing, Human Performance
and Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

FROM: Richard P. Rosano, Chief Original signed by:
Reactor Safeguards Section
Operator Licensing, Human Performance
and Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

SUBJECT: MINUTES OF THE FEBRUARY 24, 2000, PUBLIC MEETING WITH THE NUCLEAR ENERGY INSTITUTE(NEI) IN REGARDS TO THE PROPOSED WORKING DRAFT.

On February 24, 2000, NRC staff held a public meeting with representatives from NEI, industry, and the public. The purpose was to facilitate the stakeholder's concerns and comments in the development of a proposed working draft of 10 CFR Part 73.

NEI representatives presented a revised working draft of industry's Self-Assessment Program (SAP) to assess the effectiveness of Contingency Response Plans. NRC staff discussed its ongoing review of the SAP and provided overall positive remarks in regard to the first draft of the SAP. In addition, NRC staff presented a set of initial, minor comments on the SAP. Attachment 1, containing a topical listing of salient points of discussion between the NRC, NEI representatives, and the public, is not intended as verbatim record of this meeting. Attachment 2 lists attendees of the February 24, 2000, public meeting.

Attachments: As stated

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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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# 1 INTRODUCTION

The Nuclear Regulatory Commission is considering changes to the security requirements that would increase licensee responsibility in assessing nuclear plant contingency response strategies. An industry goal is a process that allows use of performance insights to better focus available resources in those areas that most directly support protection of public health and safety.

This interim guide provides an acceptable approach for licensee evaluation of the physical protection contingency response capability required by the criteria of Appendix C to 10 CFR Part 73. It provides a performance-based program that uses evaluated drills and exercises. Other features of the safeguards defense-in-depth program, such as access authorization, continual behavioral observation, fitness-for-duty, and perimeter intrusion detection systems are considered in other parts of the licensee program.

This is an interim program to be utilized after the NRC has completed its Operational Safeguards Response Evaluation (OSRE) program in mid-2000 until a comprehensive review of requirements in 10 CFR Part 73 and anticipated rule changes are completed (reference Secy-99-241, rulemaking Plan, Physical Security Requirements for Exercising power Reactor Licensees' Capability to Respond to Safeguards Contingency Events, and the November 22, 1999 SRM.). The pilot program is expected to last three years.

# 2 PURPOSE AND SCOPE

This guide provides a pilot program and tools for licensee developed programs to assess the effectiveness of Contingency Response Plans. A standardized self-assessment approach to evaluated drills and exercises used to determine a licensee's ability to protect identified target sets against radiological sabotage is presented in this document.

This program provides a uniform basis for licensee developed target sets—those safety-significant structures, systems and components (SSCs) that if protected will prevent radiological sabotage. The program includes integration of licensee actions that mitigate the consequences of the event. Using these guidelines, licensees perform self-assessments to evaluate their ability to protect the plant against the Design Basis Threat described in 10 CFR § 73.1(a). In drill and exercise scenarios, postulated adversaries who are attempting to commit radiological sabotage should be credited with having equipment, capabilities and characteristics as defined in a safeguards classified Adversary Characteristics Description (ACD).

The program is designed to test each key element of the licensee's contingency response program over a three-year period, with the licensee conducting a fully integrated evaluated exercise once during the three year pilot program. The Nuclear Regulatory Commission (NRC) may observe all evaluated drills and will be invited to observe the evaluated exercise.

Training deficiencies will be corrected through the licensee's ongoing training program. Tracking deficiencies in key program elements that have not been satisfied or implemented will be accomplished through the licensee's Corrective Action Program (CAP).

This interim program guidance is not designed to incorporate all elements of the current rule. For example, target sets are used as evaluation tools, not vital areas as discussed in the 10 CFR 73.55. Licensees will continue to meet the rule requirements not covered by this program until comprehensive rule-making is completed.

## 3 DEFINITIONS

**Adversary Force Capabilities**—Specific equipment, capabilities, and characteristics of a malevolent team of adversaries defined in a safeguards classified Adversary Characteristics Description (ACD).

**Contingency Response**—The plan developed by a licensee that is used to implement the intended actions of the organization's members in response to a DBT event.

**Corrective Action Program (CAP)**—A process used to identify non-conformances, program weaknesses, ascertain causes and action necessary to correct and prevent recurrence.

**Drill**—Activity aimed at perfecting or evaluating the skill, knowledge, and capability of an individual or group.

**Evaluated Drill**—A structured drill that evaluates at least one key element of the contingency response plan.

**Evaluated Exercise**—A structured exercise that evaluates the integrated response to defend against the Design Basis Threat.

**Exercise**—An integrated response aimed at perfecting or demonstration the licensee's capability to defend against the Design Basis Threat (DBT) or components of the DBT. An exercise includes a mock adversary force and would normally demonstrate multiple scenarios.

**Integrated Response**—The planned, organized and controlled actions of plant employees, across disciplines to minimize or mitigate a threat and/or prevent adversarial actions that could result in a greater than 10 CFR Part 100 release. The plant response may be augmented by law enforcement, other government agencies having jurisdiction and off-site licensee resources.

**Key Elements**—Those elements of the plant protection program needed to protect against radiological sabotage.

**Other Elements**—Those elements of the plant protection program, other than key elements, that support protection against radiological sabotage.

**Radiological Sabotage**—Any deliberate act directed against a plant in which an activity licensed pursuant to the regulations in 10 CFR 73 is conducted, or against a compo[illegible] which could directly endanger the public health and safety by exposure to radiation in excess of the release limits described in 10 CFR 100.

**Tabletop Drill**—A drill conducted using appropriate training aids such as site structure models or drawings aimed at perfecting skills and knowledge.

**Target Set**—A licensee defined grouping of structures, systems and components (SSCs) to be protected from radiological sabotage. It should be noted that other equipment outside the Target Set may be used by the licensee to prevent exceeding part 100 release criteria.

**Timeline**—A mechanism for marking elapsed time from initiation of an event through one or more points or activities, For example, the time ticks for an adversary's progress from perimeter alarm until neutralized or to a specific target destruction. Timelines are also used for the armed response force to ensure interdiction is possible.

**Weapons Proficiency**—Successful completion of licensee 10 CFR 73 Appendix B weapons qualification courses or approved plan courses of fire{Need relief for pilot plants from the Appendix B requirement}.

## 4. SELF ASSESSMENT PROGRAM

A clear set of performance objectives must be identified for use in evaluating a licensee's contingency response strategy. These should be the same objectives used by a licensee in developing its security program. Two overarching criteria are provided in 10 CFR 73.55(a), Design Basis Threat and protection of public health and safety by protecting against exposure to radiation in excess of the release limits described in 10 CFR 100.

Public health and safety can be protected by preventing a radiological sabotage. This is consistent with the approach used for other design basis accidents. Analysis identifies target sets that, if all targets within a target set are destroyed, could lead to a radiological release that exceeds design criteria. This provides a basis for evaluating the success of a contingency response using the same evaluation criteria used by the other cornerstone areas in assessing the significance of the risk involved.

The self-assessment program incorporates a plant-wide approach in response to attempts at radiological sabotage. Success is achieved if the adversary is unable to disable all targets within the target set necessary to cause a release in excess of 10 CFR Part 100 release criteria. Full plant capability and personnel response may be included in this success evaluation. For example, if a target set contains six components that must be compromised and an adversary was successful in eliminating five of those components before they were contained or neutralized, then the response strategy would be considered successful. If an entire target set is compromised, integrated licensee response may be considered in determining if a part 100 release would result. If an entire target set is lost and the licensee demonstrates that contingency measures were successful in preventing a release in excess of part 100, then the response strategy would also be considered successful.

Periodic evaluated drills and exercises are used to determine the effectiveness of the contingency response program. To be effective, it must be clear what program elements are being evaluated

in each drill or exercise. The following key elements will be used in developing evaluated drills or evaluated exercises:

- Contingency Response Strategy
- Timelines
- Target Set Protection
- Integrated Plant Response

Other program elements, which may contribute to the successful demonstration of a key element, should be evaluated over the three-year review cycle. These include:

- Coordination and Planning
- Command and Control
- Communications
- Alarm Station Operations
- Individual Responder Tactics
- Team Response Tactics
- Use of Deadly Force
- Alarm Assessment and Intrusion Detection Equipment
- Weapons Handling and Proficiency
- Controller Participation
- Post Drill/Exercise Briefing/Critiques
- Defensive positions
- Deployment of responders and equipment
- Training

Licensees should develop a program of evaluated drills and exercises that provide for review of program elements over a three-year period. The program of integrated security drills and exercises may include table-top drills, limited scope (using no shadow force) shift drills, or exercises.

The adversary characteristics of the Design Basis Threat are used to develop scenarios for the drills and exercises. A range of adversary force capabilities should be used in developing scenarios. Although not required in every evaluated drill, the capabilities described in the Adversary Characteristics Description should be exercised when considering the entire set of evaluated drills and exercises conducted during a three-year cycle.

For each evaluated drill or exercise, the licensee shall develop a scenario that tests some portion of the licensee's capability to defend against radiological sabotage. Each scenario must clearly identify those key elements of the contingency response program being evaluated.

Each licensee shall provide for an evaluation of the plant's response during the drills and exercises and ensure that appropriate actions are taken to address areas where key or other program elements are not met. Assessment of the actions needed and follow up should be through use of the CAP.

Drills conducted for other purposes, such as initial training or familiarization, need not be included as part of the self-assessment program.

## 5 TARGET SET DEVELOPMENT

Clearly defined target sets are key to the evaluation process, providing a basis for determining the effectiveness of contingency response strategies. The target set development process is included here as a basic step in the evaluation process.

Target sets are developed based on a safety-focused approach considering design, operational, and security characteristics of the plant. Target set development is independent of the threats that could lead to radiological sabotage. Each target set is developed to provide reasonable assurance that, if any element is protected, public health and safety will not be endangered by radiological sabotage.

Appendix A provides examples of several processes used for developing target sets.

## 6 ADVERSARY CHARACTERISTICS

The Design Basis Threat described in 10 CFR 73.1 covers a spectrum of adversary capabilities. To develop and evaluate contingency response strategies, precise definition of key factors such as the adversaries' physical capabilities and skills, armament, and understanding of plant systems and operations is needed. These characteristics are defined in the Safeguards Information Adversary Characteristics Description (ACD).

Scenarios are developed to test up to the full capabilities of the adversaries defined in the ACD. Adversary capability for some scenarios may be less than the full capabilities, depending on the program elements being tested. A variety of scenarios should be used to ensure that the full range of adversary characteristics is periodically tested. A combination of the target sets and adversary characteristics provides the basis for evaluating the effectiveness of program elements.

## 7 CONTINGENCY RESPONSE STRATEGY

Because each nuclear plant is unique, it is not possible to develop a generic contingency response strategy. The licensee will develop target sets based on plant design and physical layout. The ACD provides specific adversary characteristics serving as the basis for determining adversary timelines. Using this information, licensees will develop a strategy to defend target sets by ensuring that response timelines place an adequate number of responders in position to defend target sets. The primary goal of this guide is to develop a standardized effectiveness evaluation. To do this certain elements of the response strategy must have been defined and must be available for evaluation. These include:

- Define a timeline for adversaries carrying their required weapons, explosives and equipment to reach and destroy each of the targets in a target set. The composite time line should consider times to:

- breach various points along the Protected Area (PA) perimeter to entrances to buildings and structures that contain parts of the assemblage of SSCs that make up a target set,
- defeat the barrier at that entrance,
- destroy that equipment, and
- reach the next component of a target set.
- Determine the timelines for armed responders from deployment points to response positions where they can engage adversaries during the attack. If responders were required to obtain equipment or complete other activities prior to responding, this would be factored into the timelines.

# 8 EVALUATED DRILLS AND EXERCISES

The purpose of the evaluated drill and exercise program is to demonstrate and evaluate the licensee's ability to meet the key elements of its contingency response program. This is done by providing a standardized approach to developing, planning, conducting, and assessing drills and exercises.

Personnel and plant safety must be the top priority throughout the planning and execution phase of a drill or exercise. Detailed planning is required to ensure that there is no inadvertent use of live weapons, and that drill participants are made aware of licensee safety requirements and the existence of any unsafe conditions.

One acceptable methodology for conducting a drill or exercise is provided in Appendix B.

## 8.1 SCENARIO DEVELOPMENT

Each licensee shall develop scenarios for each evaluated drill or exercise that evaluates key elements of the licensee's contingency response strategy. These scenarios should be credible and realistic to be representative of the ACD. These scenarios should challenge the licensee's contingency response strategy by simulating various adversary assaults to include proper response equipment and integrated licensee response, as appropriate. The scenarios will clearly identify the key elements that are being challenged and the performance criteria for successful demonstration of the key elements.

Some examples of scenario development can be found in Appendix B.

## 8.2 PLANNING

Proper planning and coordination of drills and exercises is required to ensure adequate resources and personnel are available to safely conduct drills or exercises. The first step in planning and coordinating is to determine the objective of the drill or exercise. Is the purpose of the drill to provide training, evaluation or testing, validation of a new strategy or is it a required or prescheduled drill or exercise.

Planning elements that should be considered are included in Appendix B:

## 8.3 CONDUCT OF DRILLS AND EXERCISES

Prior to initiation of a drill or exercise, briefings must be conducted in the following areas:

- Safety plan briefings will be conducted prior to all drills or exercises. Ensure that all safety equipment as necessary is issued. Conduct walk-downs of drill area if necessary. Identify conditions under which the drill may be terminated due to safety concerns
- Verify that all drill participants are briefed on their responsibilities prior to conducting drills or exercises.
- Communicate with plant operations and control room prior to initiating drill.
- If a Shadow Force is used during a drill or exercise, ensure that all participants understand their responsibilities for drill participation.

## 8.4 ASSESSMENT OF A DRILL OR EXERCISE

Critiques should be used both as a tool for training and as a means of program assessment. The critiques should evaluate and document the licensee's performance in each of the key or other elements identified in the scenario.

Post drill or exercise critiques should normally include input from each evaluator, controller, and player to ensure all lessons learned can be incorporated into the final drill report. The Controller will normally facilitate the post drill/exercise critiques.

Examples of information normally found on Critique Forms are located in Appendix B

Post drill/exercise critiques should be formally documented using the standard sites format so that each element of performance is measured and appropriately assessed.

The initial draft report should be reviewed by the principles participating in the drill and comments gathered through a cross review process. Consideration will be given to comments for inclusion into the report. The final drill/exercise reports will be retained for three years.

## 8.5 FREQUENCY

Drills should be performed regularly enough to demonstrate proficiency for key security personnel. One evaluated drill shall be conducted annually for each shift. An evaluated exercise shall be conducted triennially. An extension of the time interval of evaluated drills and exercises up to 25% is acceptable.

Appendix C provides a method for two new performance indicators that could be used after the self-assessment program had been well established at a facility. The proposal does not specifically address minimum drill and exercise frequency beyond the triennial exercise requirement. Frequency will be determined at each site based on the following factors:

- The number of evaluated drills and exercises needed to meet drill participation goals,
- The number of evaluated drills and exercises needed to establish proficiency in the key elements, and

- Actual performance measured against drill and exercise performance goals.

# 9 CORRECTIVE ACTION

Deficiencies identified during an evaluated drill or exercise should be handled consistent with the site's corrective action, self-assessment or training program. Training deficiencies are normally addressed as part of the training program. Key element deficiencies should be considered for inclusion in a corrective action program.

# APPENDIX A

## Target Set Development Process

There are several acceptable approaches to target set development. There are four general areas that must be considered, as listed below. Tabs to this appendix provide several more detailed procedures that may be used.

### 1. SOURCE

Determine the radiological sources that have the potential to create a release in excess of 10CFR Part 100 limits. Other sources may be eliminated on a plant specific basis using an engineering evaluation of source term to determine if a release in excess of 10CFR Part 100 limits is possible or if sufficient design characteristics exist to mitigate any radiological release to less than 10CFR Part 100 limits.

Examples are:

- Reactor
- Spent Fuel Storage Pool

### 2 BARRIERS

Determine the barriers that must be protected to prevent a radiological release in excess of 10CFR Part 100 limits.

Examples are:

- Fuel cladding
- RCS piping and pressure boundary
- Containment Integrity

### 3 SYSTEMS, STRUCTURES, AND COMPONENTS (SSCs)

Determine SSCs that must be protected to prevent radiological sabotage:

Examples are:

- Reactor Coolant inventory sources (tanks, pools, etc)
- Power sources (electrical, steam, etc)
- Physical barriers (containment, system piping, etc)
- Equipment (Pumps, fans, etc)

Credit for personnel action per normal and emergency procedures or guidelines is assumed for any radiological sabotage event. If protection of SSCs does not provide adequate protection to prevent barrier breech, additional plant personnel action may be considered.

A loss of off-site power would normally be assumed to occur at the onset or during the radiological sabotage event. It is also assumed that personnel action to shutdown the plant by a scram will be effective. No single failure of redundant components is assumed since this is not a design basis event.

## 4 TARGET SETS

A Target Set is defined as a group of SSCs whose failure would lead to a radiological release in excess of 10CFR100 limits. Target Sets are identified by determining the minimum group(s) of targets from the SSCs, based on input from plant personnel experienced in Security, Operations, Engineering, Probabilistic Risk Assessment, etc., that will prevent a radiological release in excess of 10CFR100 limits. This grouping of targets will define an individual Target Set. All targets within any given Target Set must be damaged to the extent they will not function before a radiological sabotage event could be postulated to occur.

# APPENDIX A TAB 1

## Risk Informed Target Set Development

The following six-step process describes one approach to using a risk informed process to develop target sets for a physical security response strategy.

**(TO BE DEVELOPED)**

# APPENDIX A TAB 2

## Sample Target Set Development

### EXPERT PANEL APPROACH

(TO BE DEVELOPED)

# APPENDIX A TAB 3

## Sample Target Set Development

### LOGIC FLOW PATH APPROACH

(TO BE DEVELOPED)

# APPENDIX B

## EXAMPLES EVALUATED DRILL AND EXERCISE

## SCENARIO DEVELOPMENT

Scenarios can be developed for a variety of environmental conditions such as inclement weather or darkness. Plant conditions may range from operating at power to refueling or other major maintenance activities. Drills can also be conducted during various conditions of security readiness such as day, night or, backshifts. Some scenarios should be run involving less than full adversary characteristics. Some examples include:

- unarmed intruder with ecological or media exposure goals,
- a single individual with no special adversary skills and simple tools, weapons and improvised explosive devices,
- threats of adversary actions such as bomb threats or attack. or
- a disgruntled employee who may attempt workplace violence.

Each scenario should be evaluated to validate both the safety of the scenario and ability to assess the desired key elements of the contingency response strategy.

### 1. PLANNING ELEMENTS THAT SHOULD BE CONSIDERED:

The following are Planning Elements that must be considered

- Safety and development of a safety plan
- Adequate simulation equipment
- Communications support for drill participants
- Ensuring security plan commitments are met during the drill
- Drill participant roles defined
- Advance notifications of required personnel

During the planning phase of a specific drill or exercise, key elements to be evaluated must be identified, as well as the success criteria. Planning details will be dictated by whether the purpose is to provide training, evaluation or testing.

In planning the evaluated drill or exercise, personnel must be specifically identified to fill each of the following roles.

- **Lead Controller** - The drill or exercise leader with overall knowledge of security shift operations. This individual may be selected from the security staff or other organization as appropriate.

- **Controllers**--Individuals with required knowledge of his/her assigned area whose responsibility is to assist the Lead Controller in drill safety and operation. May be selected from the Security Staff or other organization as appropriate.
- **Evaluators**—An individual with knowledge of his assigned area who observes and documents drill participant performance and reports his/her observations to the Lead Controller. May be selected from the Security Staff or other organization as appropriate
- **Adversaries**—Appropriately equipped and trained mock attackers with the required physical abilities to engage the licensee drill players in an armed attack to test their ability to defend against the DBT.
- **Players**
  - **CAS/SAS Players**--Security force members stationed in the alarm stations that will perform CAS/SAS duties as drill players during the drills and exercises. They will be briefed on drill conditions and respond security force players to drill contingency events.
  - **Security Force Players**—Security responders equipped with exercise response gear or equipment that respond to the Security contingency event.
  - **Security Shadow Force**—Non-drill players who are used during a force on force exercise to ensure that all requirements identified in site specific Physical Security Plan and Training and Qualification Plans are met during an exercise.
  - **Plant Operations Personnel**--Single SRO who would normally be assigned to a command and control function.

## 2. EXAMPLES OF INFORMATION NORMALLY ON CRITIQUE FORMS

The following are examples of information normally found on Critique Forms:

- Name of controller/evaluator
- Players evaluated
- Date of drill or exercise
- Quantified evaluation standards for each element
  - Strengths
  - Element demonstrated
  - Demonstrated with conditions
  - Not Demonstrated needs improvement
  - Not observed
  - Contain all performance areas i.e., command and control, communications
- Have a comments or lessons learned section in the document so enhancements or weaknesses can be tracked and documented for further evaluation

## 3. EXAMPLES OF TYPES OF EVALUATED DRILLS

The following are examples of types of evaluated drills:

- Timeline Drills - Conducted for individuals or portions of shift to ensure that responders are knowledgeable of their response strategy and are capable of meeting their response timelines.
- Table Top Drills - Conducted at least annually for each CAS Officer. This is the most valuable planning drill and will be used as an evaluation tool for development and changes to contingency response plans.
- Limited Scope Shift Drills - Conducted as needed for each individual, group or shift to validate/test contingency response plans.

Triennial evaluated exercise will be announced in advance and used to demonstrate the on-site response capability of the licensee against the DBT. This will involve use of a shadow force and involve multiple shifts. Each shift will be involved in an evaluated drill during the three-year cycle.

## 4. DETAILED EVALUATION CRITERIA

Immediately following the drill or exercise, a formal evaluation including the controllers, participants, supervision, and others will occur. The following are measures to be used in determining if overall performance is adequate.

- Adequate Personnel: The required number of licensee personnel necessary to adequately implement the response strategy. This number will vary from plant to plant based on plant design and characteristics.
- Appropriately Equipped: Do licensee personnel implementing the security contingency response plan have the weapons and equipment necessary to execute their responsibilities.
- Responding in a timely manner: Do licensee response personnel have adequate time in their response timelines to get to their response positions in advance of the adversary timelines.
- Does the response plan provide protection for target sets such that the plant is protected against exceeding a Part 100 release?

The post drill/exercise critiques should begin with an overview or re-statement of the drill/exercise scenario describing the purpose, objectives, general observations, and specific results. The Controller should conduct the overview so that the critique is meaningful and orderly. Each evaluator and controller should review their individual observations describing in detail each element of the performance observed and quantify the results.

Each player or participant should be allowed to add clarification for actions demonstrated and be encouraged to asked questions. If safety issues are identified, the lead evaluator should document these findings in the sites corrective actions program. Post drill/exercise critique forms should be collected and combined with the drill package for retention and review. The results constitute the basis for the final drill/exercise report.

A formal post drill critique discussion made up of the evaluators and controllers should take place to thoroughly sift through the drill performance. This review should ensure that the

objectives were met or not met, identify if any key elements were missed that could require immediate actions, review all supporting elements for enhancements or strengths and quantify a consensus overall score. The group should then prepare the initial draft report.

The initial draft report should be reviewed by the principles participating in the drill and comments gathered through a cross review process. Consideration will be given to comments for inclusion into the report. The final drill/exercise reports will be retained for three years.

Licensee Evaluation/Critique Process will involve standards for supervisors and drill controllers to ensure results of tests, drills and exercises are factored into the training process. Controllers and supervisors will provide feedback to individuals, shifts, and management using objective critique criteria for all elements of the exercise from adversary detection through drill completion. Controller critique information will be made a part of the drill and exercise records and be available for NRC review.

Evaluation Process is against defined performance criteria, will be objective and cover the following as a minimum: CAS Officers, Armed Responders, Command and Control Personnel, Operations Personnel (if involved), and Simulated Adversary Personnel.

- CAS Officers will be evaluated to ensure that they can adequately acknowledge, access and dispatch responders to the threat.
- Armed Responders will be evaluated to ensure that adequate responders are available to respond to protect the required elements of the target sets, with weapons and equipment capable of meeting its intended function and that they are trained to use that equipment under conditions encountered in the plant, and that they have individual response plans for all developed scenarios to include knowledge of target set components.
- Command and Control Personnel will be evaluated to ensure that they can execute and direct a contingency response force.
- Operations Personnel will be evaluated to ensure that they are familiar with security contingency plans and are capable of taking mitigating actions should a direct armed assault occur and/or elements of target sets are destroyed.
- Adversary Personnel will be evaluated to ensure that they are creating a realistic challenge for the response force by simulating the adversary characteristics outlined in the ACD.

# APPENDIX B TAB 1

## Drill Evaluation Considerations

The following guidelines provide factors that should be considered when developing performance assessment checklists for drills and exercises.

### 1 EXERCISE CONTROL

a. Security personnel participation meets expectations?
b. Controllers participation meet expectations?
c. Adversaries participation meet expectations?
d. Pre-exercise briefings meet expectations?
e. Control during drill/exercise meet expectations?
f. De-briefing and evaluation of drill/exercise meet expectations?
g. Overall exercise control and evaluation meet expectations?

### 2 EXERCISE ADMINISTRATION

a. Written scenarios demonstrate key elements?
b. Written drill/exercise plans meet expectations?
c. Drill/exercise guidelines meet expectations?
d. Safety plan meets expectations?
e. Controller checklists meet expectations?
f. Post-exercise documentation meets expectations?
g. De-briefs meet expectations?

### 3 PLANNING

a. Were response plans in place for the security force to deal with this type of scenario?
b. Were these plans demonstrated?
c. Did all personnel understand the plans?
d. Was plant vulnerability properly assessed?
e. Were defensive positions established to meet the plant vulnerability?
f. Were plans and procedures made for defense-in-depth?
g. Were necessary improvised plans rapidly developed?
h. Did CAS/SAS utilize available contingency plans and checklists?
i. Were plans developed to notify/use LLEA?
j. Did adversaries develop plans to challenge the response plans?
k. Did overall plans contribute or detract from the resolution of this scenario?

### 4 COORDINATION, COMMAND, AND CONTROL

a. Were affected portions of the plant notified prior to initiation of the drill/exercise?
b. Was coordination and command within the security force demonstrated?
c. Was coordination between security and LLEA demonstrated?

d. Were security personnel knowledgeable of lines of authority?
e. Did overall command and control contribute or detract from the resolution of this scenario?

## 5 EVALUATE DEFENSIVE STRATEGY

The following are methods to use in evaluating defensive strategy in setting the plant's initial strategy and in response to changing plant conditions or increases in threat levels.

a. Ensure that barriers and perimeter intrusion detection systems, and assessment systems are adequate to delay, detect, and provide capability to assess the adversary.
b. Ensure that communication plans and equipment exist to facilitate a contingency response plan.
c. Ensure that a command and control plan exists to direct a contingency response plan.
d. Ensure that CAS/SAS Officers can acknowledge, assess and dispatch responders to the threat.
e. Ensure that responders are available to respond to protect the required elements of the target sets.
f. Ensure that responders have weapons and equipment capable of meeting its intended function and that they are trained to use that equipment under conditions encountered in the plant.
g. Ensure that responders have response plans for all developed scenarios to include knowledge of target set components.
h. Ensure that Operations personnel are capable of taking mitigating actions should elements of target sets be destroyed.
i. Ensure that response plans contain both initial and follow up plans.
j. Ensure that there is a continuous communications loop between responders in the field, CAS/SAS, Command personnel and Operations.

## 6 COMMUNICATIONS

a. Was alarm acknowledged and information relayed to security force?
b. Was the adversary target identified?
c. Were communications between CAS/SAS and security force demonstrated?
d. Were communications between supervisors and the security force demonstrated?
e. Were communications between security force members demonstrated?
f. Did security force members relay information/intelligence to CAS/SAS?
g. Were communications between adversaries demonstrated?
h. Were communications between CAS/SAS and Operations demonstrated or simulated?
i. Were communications between the site and LLEA demonstrated or simulated?
j. Were radio communications relied on too heavily?
k. Were alternate means of communications used?
l. Was communication security discipline maintained?
m. Were communications understandable?

## 7 ALARM STATION RESPONSE

a. Did station operators assess the number of Intruders?
b. Were intruders described?
c. Did station operators track intruders?
d. Did station operators identify zone of penetration?
e. Did station operators identify armament or equipment?
f. Were plant notifications made?
g. Did station operators use contingency plans, procedures?
h. Was information gathered from cameras?
i. Was information gathered from response officers?
j. Did station operators utilize station equipment to fullest advantage?

## 8 INDIVIDUAL TACTICS

a. Did the officer respond to the initial alarm tactically?
b. Did the officer notify CAS/SAS of engagement or sighting?
c. Did the officers appropriately defend their positions?
d. Was available cover and concealment used?
e. Were selected firing positions tactically sound?
f. Was minimum exposure maintained?
g. Were danger areas crossed tactically?
h. Did the officer simulate firing the weapon? Reloading?
i. Did the officer shoot properly through smoke?
j. Did the officer respond to adversary tactics/weapons?
k. Did the officer relay adversary intelligence to CAS/SAS?
l. Were terrain and/or the physical plant utilized for cover and concealment or movement?
m. Overall, did individual tactics contribute to or detract from the resolution of this scenario?
n. Did the officers interpose between targets and the adversary force with adequate presence and effective fire/counterforce (situation dependent)?

## 9 TEAM TACTICS

a. Did the security force work together as a team?
b. Did the security force work with operations as a team?
c. Were tactical deployment techniques used? (cover and concealment)
d. Were alternate response routes planned or available?
e. Were correct defensive positions achieved in a timely manner based upon the adversary target and plant vulnerability?
f. Was supporting fire used?
g. Did the security force take action to protect critical plant safety systems?
h. Did the security force maintain control of key targets?
i. Overall, did team tactics contribute to or detract from the resolution of this scenario?
j. Were team tactics effective in denying or otherwise neutralizing the adversary force?

## 10 USE OF DEADLY FORCE /APPLICATION OF FORCE

a. Was the necessary level of force used to prevent radiological sabotage?
b. Was the use of excessive force avoided?
c. Did the force applied minimize danger to security force and plant personnel/equipment?
d. Did security force personnel maintain fire control and discipline, tactics, target acquisition and selective fire?

## 11 RESPONSE TO INTRUDERS WITHOUT IDENTIFIED WEAPONS

a. Did the response team interpose between the intruder and target sets?
b. Did the response team control of the situation?
c. Was a proper distance between the responders and the intruder maintained?
d. Did response team members cover the intruder?
e. Was the intruder contained?
f. Did the response team employ use of handcuffs and non-lethal controls?

## 12 PHYSICAL SECURITY AND EQUIPMENT

a. Did the security force use physical security systems to their advantage?
b. Was security force response sufficient to meet alarm system detection?
c. Did assessment systems provide information about adversaries for security force interdiction?
d. Were communications systems adequate?
e. Were the correct security force weapons used in this scenario?
f. Did barriers provide denial or delay to allow security force interdiction?
g. Did response positions provide protection for security force personnel?
h. Were alternate routes to response positions available?
i. Did overall physical plant and security equipment provide an opportunity for the security force to accomplish its mission?

## 13 CONTROLLER PARTICIPATION

a. Were controllers trained and/or briefed on responsibilities for drill/exercise?
b. Were controllers trained and/or briefed on rules of engagement?
c. Did controllers ensure drill/exercise participants were equipped with appropriate simulated weapons and perform safety inspections and briefings?
d. Were controllers prepared to stop actions for any safety hazards?
e. Did controllers coach or advise drill/exercise participants?
f. Did controllers resolve questionable shots by drill/exercise participants?
g. Did controllers provide objective critique at post-drill/exercise briefing?
h. Did controllers provide feedback to assigned participant?
i. Did controllers evaluate individual and team tactics?

## 14 POST DRILL/EXERCISE BRIEFING

a. Were drill/exercise participants present for briefing?
b. Were notifications made to plant personnel at conclusion of drill/exercises?

c. Were scenarios and expectations explained?
d. Did drill/exercise participants relay their participation and responses?
e. Were drill/exercise deficiencies reviewed in briefing?
f. Were participants responsive in briefing?
g. Was briefing conducted in a professional manner?
h. Did exercise participants maintain a professional attitude?
i. Did overall briefing contribute to or detract from the overall resolution of this scenario?
j. Did the drill/exercise sufficiently evaluate the site's ability to prevent radiological sabotage from occurring during this scenario?

# APPENDIX C

## Physical Protection Effectiveness

The objective of this evaluation tool is to ensure that the licensee is capable of implementing adequate measures to protect the public health and safety during a physical protection emergency. Licensees routinely assess and refine their physical protection plans through Integrated Site Security Organization (ISSO) participation in drills, exercises, actual events, training, and subsequent problem identification and resolution. Employees are trained to ensure that the plan can be effectively implemented during an emergency. Drills, exercises, ISSO participation and reliability of the perimeter detection system all contribute to reasonable assurance that the licensee has an effective physical protection program.

{The term ISSO needs to be clearly defined in this section.}

The protection of public health and safety is assured by a defense in depth philosophy that relies on: safe reactor design and operation, the operation of mitigation features and systems, a multi-layered barrier system to prevent fission product release, and a defensive strategy.

The onsite performance indicators monitored by this section are:

- Drill/Exercise performance
- ISSO Drill Participation
- Perimeter Detection System Reliability

The performance indicators do not specifically address minimum drill and exercise frequency beyond the triennial requirement. It is assumed that some drill and/or exercise activity will be conducted quarterly. Actual frequency will be determined at each site based on the following factors:

- The number of drills and exercises needed to meet key ISSO drill participation goals,
- The number of drills and exercises needed to establish proficiency in the key elements, and
- Actual performance measured against drill and exercise performance goals.

### 1 DRILL/EXERCISE PERFORMANCE

### 1.1 PURPOSE

This indicator monitors timely and accurate licensee performance in drills and exercises when presented with opportunities to demonstrate the defensive strategy, implementation of timelines, target set denial and/or firearms proficiency.

### 1.2 INDICATOR DEFINITION

The percentage of all drills and exercises that were performed successfully during the previous twelve quarters.

### 1.3 DATA COLLECTION ELEMENTS

The following data is required to calculate this indicator:

- The number of drills and exercises during the previous quarter.
- The number of drills and exercises performed successfully during the previous quarter.

The indicator is calculated quarterly

### 1.4 CALCULATION

The site average values for this indicator are calculated as follows:

(# of successful drills and exercises during the previous12 quarters) times 100
(Total number of drills and exercises during previous 12 quarters)

### 1.5 DEFINITION OF TERMS

Opportunities should include multiple or singular events during a single drill or exercise as follows:

- Demonstration of the appropriate defensive strategy
- Implementation of a time line for the appropriate defensive strategy
- Demonstration that a target set has been denied to an adversary
- Firearms proficiency during a course of fire

Successful means the pre-established criteria has been met for an opportunity during a drill, exercise or actual event.

## 2 PHYSICAL PROTECTION ORGANIZATION DRILL PARTICIPATION

### 2.1 PURPOSE

This indicator measures the percentage of key Physical Protection Program (ISSO) members who have participated in drills, exercises, or training opportunities.

## 2.2 INDICATOR DEFINITION

The percentage of key ISSO members that have participated in a drill, exercise, or actual event during the previous twelve quarters, as measured on the last calendar day of the quarter.

## 2.3 DATA COLLECTION ELEMENTS

The following data are required to calculate this indicator:

- Total number of key ISSO members
- Total key ISSO members that have participated in a drill or exercise, in the previous twelve quarters

The indicator is calculated, based on participation over the previous twelve quarters.

## 2.4 CALCULATION

The site indicator is calculated as follows:

$$\frac{\text{(\# of Key ISSO Members that have participated in a drill or exercise, during the previous 12 quarters) times 100}}{\text{Total number of Key ISSO Members}}$$

## 2.5 DEFINITION OF TERMS

Key ISSO members are those who fulfill the following functions:

- Control Room
  - Shift Manager—Supervision of reactor operation, responsible for plant operational response to physical threats
- Security
  - Response Force Leader—Management of plant security response and defensive strategy implementation
  - CAS and SAS
  - Armed Responders

## 2.6 CLARIFYING NOTES

Evaluated simulator training evolutions that contribute to the drill or exercise performance indicator statistics could be considered as opportunities for key ISSO member participation and may be used for this indicator. However, there is no intent to disrupt ongoing operator qualification programs. Appropriate operator training evolutions should be included in this indicator only when physical protection aspects are consistent with training goals.

If a key ISSO member or operating crew member has participated in more than one drill during the twelve quarter evaluation period, the most recent participation should be used in the indicator statistics.

If a change occurs in the number of key ISSO members, this change should be reflected in both the numerator and denominator of the indicator calculation.

Participation may be as a participant, mentor, coach, evaluator, or controller, but not as an observer. Multiple assignees to a given key ISSO position could take credit for the same drill if their participation is a meaningful opportunity to gain proficiency in the assigned position.

The meaning of "drill" in this usage, is intended to include proficiency enhancing evolutions (table top drills, mini drills, etc.) that reasonably simulate the interactions between appropriate organizations and/or individuals that would be expected to occur during security events. For example, control room interaction with security could be simulated by a controller performing security functions.

# ATTENDANCE LIST
# NRC AND NEI MEETING
# FEBRUARY 24 2000

ON FEBRUARY 24, 2000, THE FOLLOWING INDIVIDUALS ATTENDED THE MEETING BETWEEN THE NUCLEAR REGULATORY COMMISSION AND NUCLEAR ENERGY INSTITUTE HELD IN ROOM O11B-2 OF ONE WHITE FLINT BUILDING, ROCKVILLE, MARYLAND.

| Name | Organization | Phone |
|---|---|---|
| FRANK GILLESPIE | NRC,NRR | 301-415-1004 |
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