UNITED STATES
**NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

April 17, 2000

MEMORANDUM TO: FILE

FROM: R. Skelton for
Richard P. Rosano, Chief
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 10, 2000, PUBLIC MEETING WITH STAKEHOLDERS REGARDING REACTOR SAFEGUARDS PERFORMANCE CRITERIA AT NUCLEAR POWER PLANTS

On February 10, 2000, NRC staff held a public meeting with stakeholders regarding reactor safeguards performance criteria at nuclear power plants. This meeting was part of a series of public meetings conducted to discuss and integrate industry and public interests, concerns, and activities into safeguards-related areas of the NRC Revised Reactor Oversight Program and the risk informing of 10 CFR Part 73. The meeting attendees included representatives from Nuclear Energy Institute(NEI), industry, and Nuclear Control Institute(NCI).

Dialogue on the NRC Revised Reactor Oversight Program included discussions on Performance Indicators and the Physical Protection Significant Determination Process (PPSDP). The currently proposed draft of the PPSDP (Attachment 1) and the associated draft of the directions for participation in the PPSDP Feasibility Study (Attachment 2) were presented. "Thinking Paper: Safeguards PI Revision" (Attachment 3) was provided, and NRC also presented and discussed physical protection program performance criteria (Attachment 4). NCI provided a paper , "Essential Elements of the 10 CFR Part 73 Rulemaking on Physical Protection of Nuclear Plants," (Attachment 5) describing elements NCI recommended for considerations in the rulemaking effort. NRC provided preliminary comments on NEI's working draft of NEI 97-07, "Security Contingency Response Self Assessment Program" dated December 2, 1999. These preliminary comments are in Attachment 6.

CONTACTS: Jesse Arildsen, NRR
301-415-1026

Brad Baxter, NRR
301-415-1088

The information in Attachments 1- 6 and the information above are not intended as verbatim record of this meeting. Attachment 7 lists attendees of the February 10, 2000, public meeting.

Attachments: As stated

cc: R. Beedle, NEI
R. Enkeboll, NEI
J. Brons, NEI
J. Davis, NEI
E. Lyman, NCI

The information in Attachments 1- 6 and the information above are not intended as verbatim record of this meeting. Attachment 7 lists attendees of the February 10, 2000, public meeting.

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Attachment 3
Physical Protection
Significance Determination Process

The objective of this cornerstone is to provide assurance that the safeguards systems can effectively protect against the design basis threat (DBT). The attributes of this cornerstone are based on defense in depth and are intended to provide protection against both internal and external threats.

Licensee performance in this cornerstone is assessed by considering both performance indicators and findings. This Physical Protection Significance Determination Process (PPSDP) consists of a logic flow chart that will allow individual findings to be categorized into one of the four response bands: GREEN - Licensee Response Band; WHITE - Increased Regulatory Response Band; YELLOW - Required Regulatory Response Band; or RED - Loss of Confidence Response Band. This PPSDP is the tool with which NRC inspectors will assess the risk significance of findings.

The input to this logic chart is a finding that has some significance. The source of the finding may be either licensee's problem identification systems, events, or NRC inspector observations, for example. In order to enter the PPSDP, an observation must pass any one of the following tests:

(1) Does the issue have an actual or credible potential impact on safety?;
(2) Is the issue an immediate precursor to a more significant issue?;
(3) If no action is taken, will the condition worsen?;
(4) Will recurrence of the issue result in a more significant concern?

Once defined, the finding will be evaluated using the attached chart and definitions. The following assumptions are necessary to understand and efficiently utilize this evaluation tool.

- Substantive reduction in the effectiveness of security performance produces some increased risk, even without an actual event.
- Operational solutions are relevant in determining risk significance of a completed or the substantial potential for the successful completion of an act of radiological sabotage.
- Both the insider and external elements of the DBT are considered in the PPSDP.
- Multiple findings at a low level do not necessarily increase risk, unless the repetitiveness or ability to reproduce the problem relate to the capabilities of the design basis threat.

## Logic Block Definitions:

**Access control** - All elements necessary to ensure that access of vehicles, material and personnel into the protected area and vital areas are properly implemented.

**BOP** - Behavioral Observation Program as defined in the licensee's plan.

**DBT** - Design Basis Threat. This includes the Adversary Design Characteristics (ADC as defined. [ADC currently under construction]

**Evaluated exercise** - A planned evolution used to evaluate the plant's integrated response to a contingency event or defend against the Design Basis Threat (DBT) or a component thereof.

The exercise is judged against a set of criteria to determine if required capabilities or training objectives have been met.

**Exploitable** - A condition in which a potential adversary is able to capitalize on equipment, system or procedural deficiencies for which inadequate compensation has been provided.

**Finding** - An output/result of using the MC 0610* minimum threshold process for evaluating an observation.

**Green** - Acceptable performance - Licensee response band. Cornerstone objectives fully met. Normal Risk/Nominal Deviation from expected performance (Secy-99-007)

**Interdict** - Action taken by the licensee's contingency response force to successfully deny an adversarial intrusion from damaging elements of target sets.

**Intrusion** - An act of wrongfully entering a protected or vital area, **during an event or evaluated exercise.**

**Malevolent act** - An attempt to produce harm within the scope of the DBT.

**Performance objectives of protective strategy** - The defined objectives in the licensee's plans or procedures to protect the plant against the design basis threat of radiological sabotage.

**Loss of function** - Incapable of performing its intended purpose.

**Plans** - Licensee documents that detail requirements or processes for implementation of safeguards programs.

**Physical protection systems** - Equipment or systems installed or personnel posted at the perimeter of the protected area and vital areas for intrusion prevention, detection and assessment purposes.

**Predictable** - Based on the manner in which a program was implemented or how equipment or systems were operating, it could be determined in advance that a specific occurrence might be made to happen, e.g., metal detectors, intrusion detection zones could be circumvented or defeated without detection based on the special knowledge obtained beforehand.

**Radiological Sabotage** - [Definition deferred pending NRC evaluation.]

**Red** - Unacceptable Performance - Plants not normally permitted to operate within this band. Plant performance significantly outside design basis. Loss of confidence in ability of plant to provide assurance of public health andsafety with continued operation. Unacceptable margin to safety. (Secy-99-007)

**Repeated deficiency** - A similar deficiency that occurs more than twice in four quarters.

**Safeguards** - The general term that includes the various specific elements of processes, equipment and people that are focused on plant protection. This includes, but is not limited to

physical protection, contingency response, training and qualification, fitness for duty, access authorization, behavior observation, and tactical and operations response to DBT events.

**Safeguards contingency response** - An event or evaluated exercise requiring a § 73.55(h) type of response.

**Significant deficiency** - A deficiency that would likely render a protective strategy ineffective.

**Similar findings** - Findings that could have been prevented by corrective action taken for a like (in substance or essentials) finding in the past.

**Structures, Systems and Components (SSCs)** - The assemblage of equipment and buildings such as valves, pumps, switches, electrical power sources, containment and buildings, piping and electrical busses that make up the Target Set. Target Set SSCs are those SSCs that are specifically designed to keep the core cooled and preserve containment integrity when operated in accordance with the plant operating procedures. [After verification that it is consistent with the maintenance rule.]

**Target set** - A group of structures, systems or components such that all elements must be rendered non-functional to achieve radiological sabotage.

**Vulnerability** - condition of systems or plans being open to attack or damage or to a required function being bypassed within the scope of the DBT, to include predictable or exploitable conditions.

**White** - Acceptable performance - Increased Regulatory Response Band. Cornerstone objectives met with minimal reduction in safety margin. Outside bounds of nominal performance. (Secy-99-007)

**Yellow** - Acceptable Performance - Required Regulatory Response Band. Cornerstone objectives met with significant reduction in safety margin. (Secy-99-007)

## Assumptions for Entering Reactor Safety SDP:

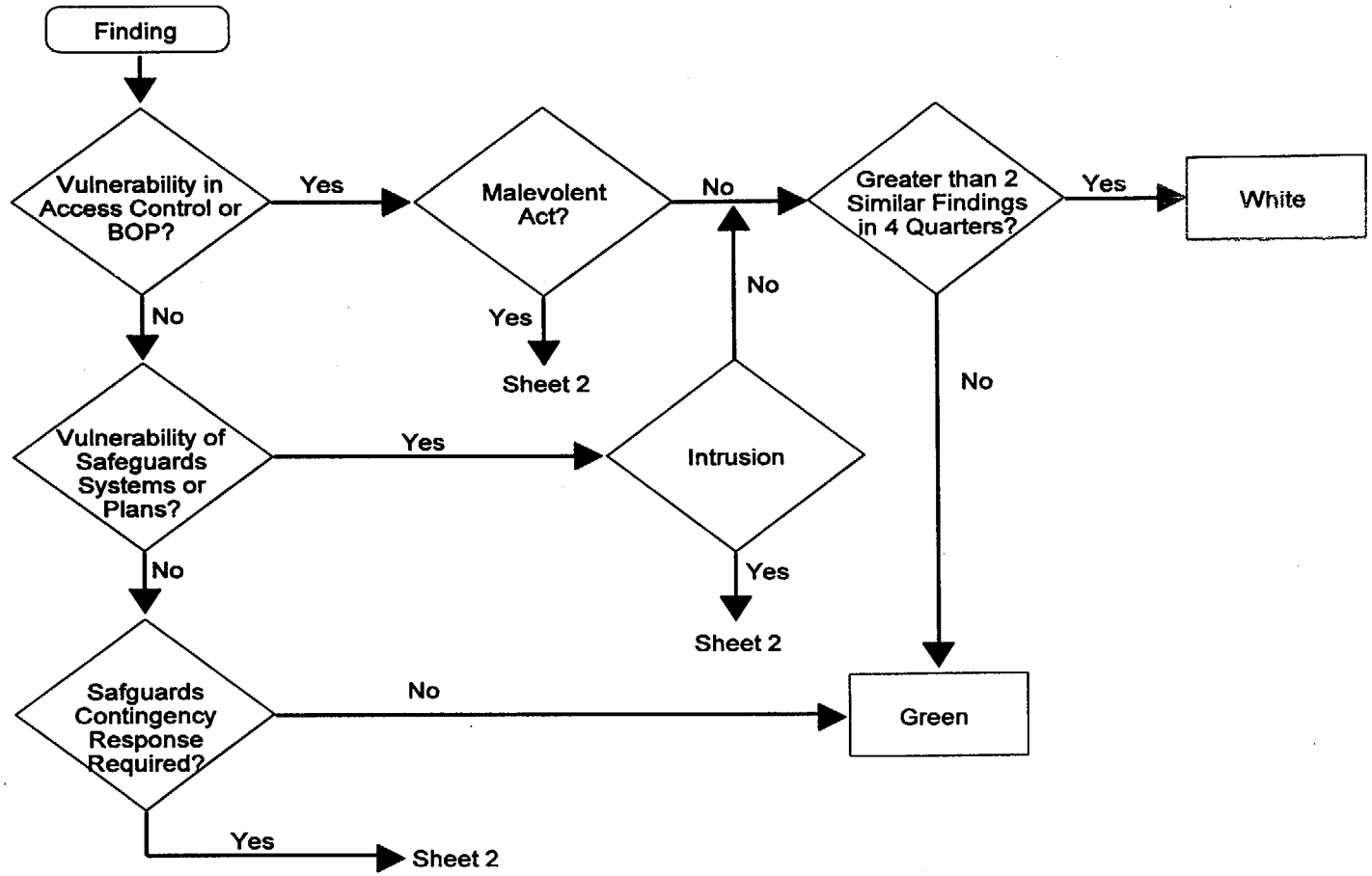
Assumptions must be made prior to entering the Reactor Safety SDP from the PPSDP precipitated by the successful demonstration of a malevolent act(s) that resulted in the loss of function of one or more structures, systems or components of a target set. In order that the Reactor Safety SDP may be used, the following assumptions are given:

- Any assumption made pursuant to the use of the Reactor Safety SDP would be based upon conditions that existed only after the threat is known to have been terminated, neutralized or contained.

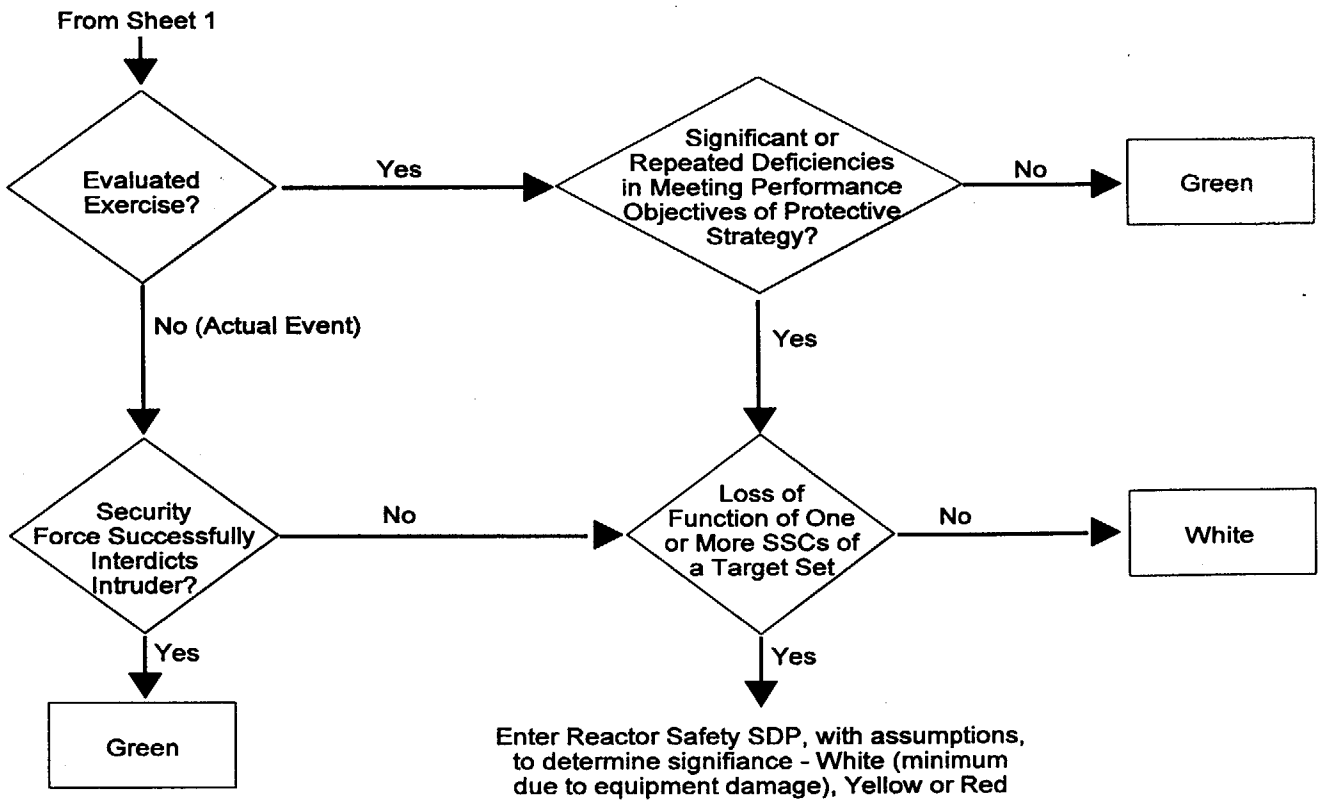
- Undamaged equipment out of service for maintenance during the safeguards contingency response would be considered as initially unavailable (but potentially recoverable under the guidelines established under the Reactor Safety SDP). This presumes that the adversaries used advanced knowledge of plant maintenance conditions to enhance the chance of success to commit radiological sabotage.

- The "exposure time" input needed for the Reactor Safety SDP is the length of time that the plant was being operated or was transitioning to achieve and maintain stable shutdown conditions with equipment degraded due to the attack. The exposure time would presumably not be greater than three days so that the Reactor Safety SDP Table 1, third column would be applicable.

# Physical Protection (Sheet 1)
# Significance Determination Process
(Rev 5, dated Feb 1, 2000)



# Physical Protection (Sheet 2)
# Significance Determination Process
(Rev5, dated Feb 1, 2000)



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Directions for participation in the PPSDP Feasability Study

The purpose of this study is to determine whether the attached revised PPSDP can be used to help inspectors assess findings in terms of risk. The SDP is a simple logic flow chart that is constructed of evaluation elements or filters (blocks) that can screen out less risk important findings and highlight the more risk important findings.

The outputs of this study are: (1) your determinations whether the draft PPSDP, including diagrams, assumptions and definitions are clear enough to use; (2) your identification of any risk-related flaws in the PPSDP that would cause wrong conclusions to be reached. The outcome of the study will be final changes to Attachment 3.

Become familiar with Attachment 3, including the assumptions, definitions and both sheets of the chart. The definitions included are critical to the use of the chart.

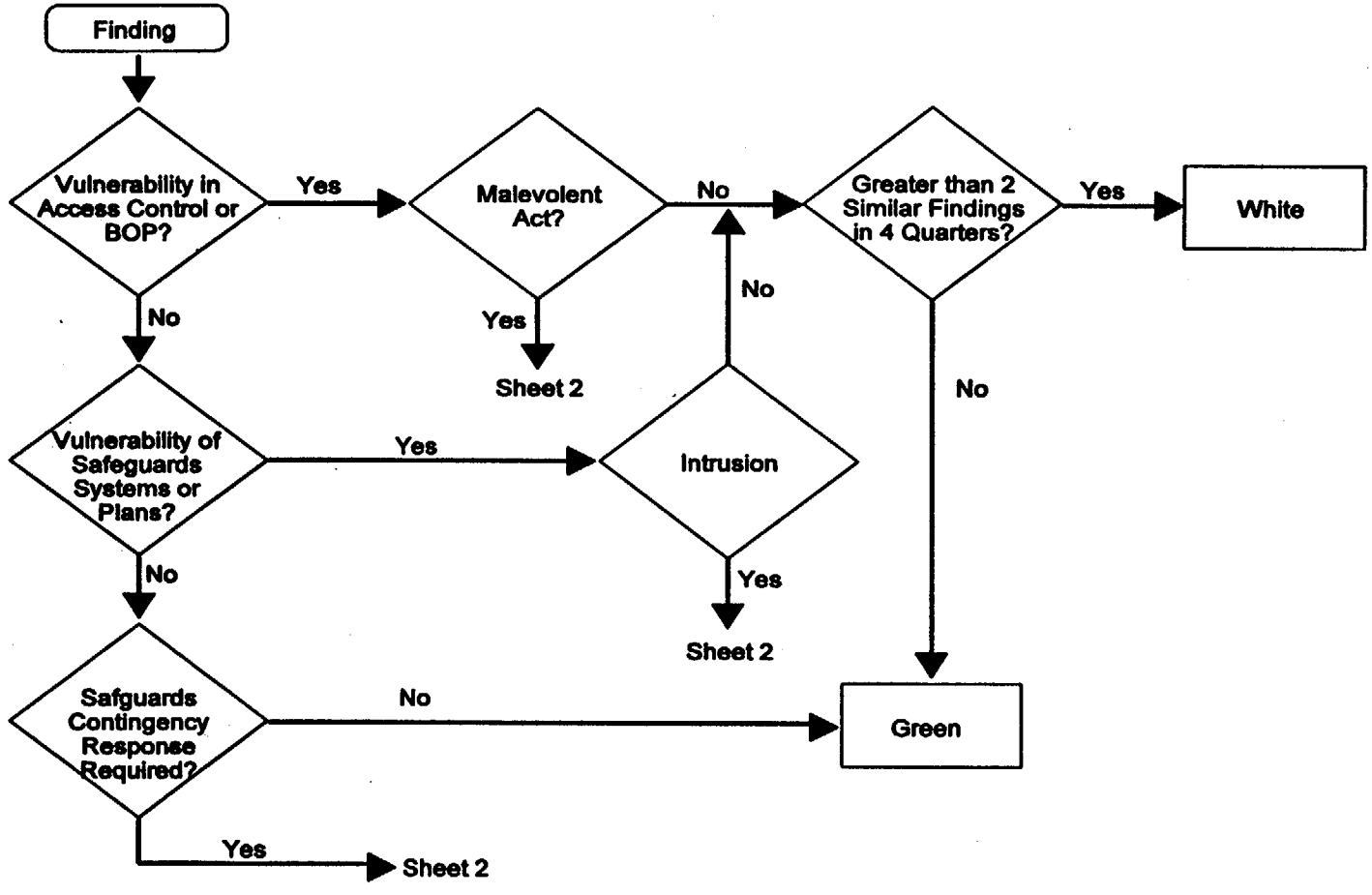
Take each of the attached examples and run them through the charts, using the stated definitions. Identify whether the example reaches the level of a finding, what response band it fits (color) and what problems you encountered along the way.

Return the marked up forms to me be Email

Jim Creed

Draft

# Physical Protection (Sheet 1)
# Significance Determination Process
(Rev 5, dated Feb 1, 2000)



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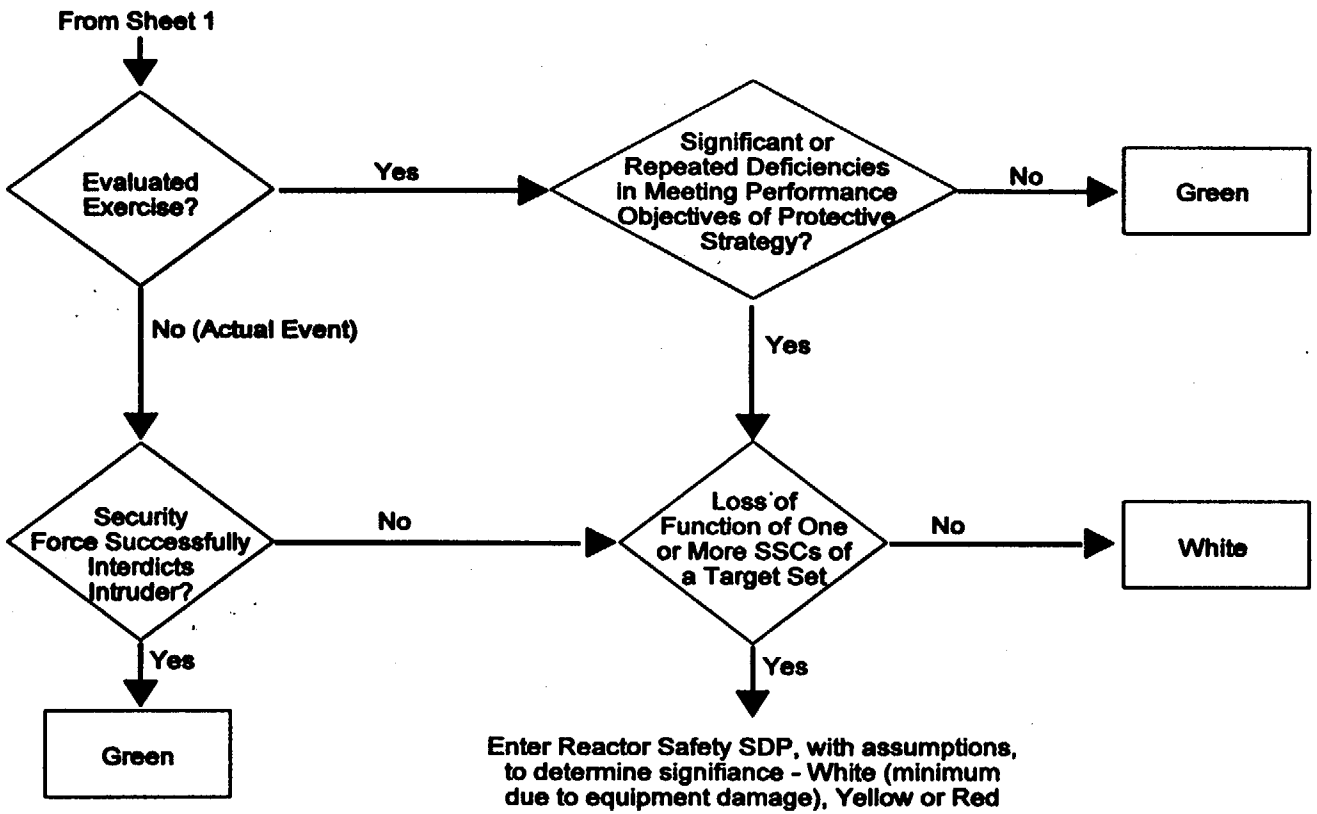
# Physical Protection (Sheet 2)
# Significance Determination Process
(Rev5, dated Feb 1, 2000)

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# List of Examples for Feasibility Study - PPSDP

Failure to conduct complete or adequate background investigation in which: (1) no unauthorized person was granted access or (2) several unauthorized persons were granted access (malevolence not assumed)

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Vehicle gate left open and unattended for: (1) several minutes or (2) several hours (e.g., due to failure to post compensatory measure).

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to adequately search a vehicle in which: (1) no contraband was found, (2) contraband was found (malevolence assumed).

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Reassignment or relief of guard such that onsite response force falls below commitment.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to maintain equipment such that intrusion detection system in three zones is unable to detect intrusion by design basis threat.

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**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure of the intrusion detection system in three zones to detect intrusion by the design basis threat.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to conduct adequate background investigation such that a person who falsified background information gained access.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to control access to Safeguards Information (SGI) such that there were multiple dial-up access capabilities and the SGI was accessible to many individuals.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to control access to SGI such that: (1) the entire Physical Security Plan (PSP) was left unattended onsite, or (2) the entire PSP was left unattended offsite

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to successfully interdict the adversary in 2 out of 4 performance assessment exercises.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

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Failure to make, maintain, or provide log entries in accordance with 10 CFR § 73.71 (c) and (d).

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to conduct a proper search at the access point.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to control access such that an opportunity exists that could allow unauthorized and undetected access into the protected area but which was neither easily nor likely to be exploitable.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to detect reportable behavioral acts by licensed operators or supervisors pursuant to 10 CFR § 26.73.

**Finding:** Yes No
**Response Band:** Green White Other

**Problems or Observations:**

Not enough information in example
Unclear definition - Which one?
Other:

Failure to perform a required background investigation and appropriate evaluation so that information relevant to the access determination was not obtained or considered and, as a result, a person was granted unescorted access by the licensee who would probably not have been granted access if the required investigation or evaluation had been performed.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**

Not enough information in example
Unclear definition - Which one?
Other:

Isolated nonconformance with procedure requirements that are not indicative of a significant performance trend.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**

Not enough information in example
Unclear definition - Which one?
Other:

Protected/vital area barrier, alarm detection, and assessment nonconformance issues that do not impact equipment performance (e.g., recording of test results, documentation for test sources, work request documentation, etc.).

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**

Not enough information in example
Unclear definition - Which one?
Other:

A failure to protect safeguards information while information is outside the protected area and accessible to those not authorized access to the site.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**

Not enough information in example

Unclear definition - Which one?
Other:

An intrusion into the protected area by an adversary who damages safety equipment.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

A failure of protected area search equipment, that is, metal/explosive detector/x-ray unit that results in the introduction into the protected area of firearms, explosives, or incendiary devices that could assist in radiological sabotage.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

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Failure to maintain control of unsearched packages or material within the protected area.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to report or take action for behavioral acts by non-supervisor plant personnel.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure by a security force member to properly implement a required security plan requirement (willful or careless act).

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

---

XYZ's case involving three occasions within a six month period that security officers compensating for vital area doors and for inactive PA alarm zones fell asleep on post.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

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Failure to notify security of a for cause termination that results in a person who should have had their access pulled not having the access pulled. This person then misaligns a valve and takes a required safety system out of service. The plant does not get into a situation where the safety system is required to be activated.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to meet security plan requirements for the minimum number of armed responders because one gets sick and a conscious decision is made not to call anyone in.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Failure to calibrate a Breathalyzer that results in a false negative for-cause FFD test that allows a person to return to work under the influence of alcohol.

**Finding:** Yes No

**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

---

A licensee receives test results from the HHS approved lab indicating a presumptive positive drug test. An individual in the FFD office notifies the site and the individual's badge is put on temp hold. There is no provision in licensee procedures for these steps to be taken prior to evaluation by the MRO. This has happened six times in the last four quarters.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

A guard willfully allows explosives to enter the protected area. The explosives are retrieved by an insider who uses them to destroy a target set.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

A licensee's procedure is deficient in describing how a search should be conducted. An inspector observes a search that fails to include a vehicle's cab. The guard reports that there have been eight searches conducted in the same manner.

**Finding:** Yes No
**Response Band:** Green White Other
**Problems or Observations:**
Not enough information in example
Unclear definition - Which one?
Other:

Feb 10, 2000

# Thinking Paper: Safeguards PI Revision

by J. R. Creed (630) 829-9857 JRC2@NRC.GOV

This is intended to give body to thoughts that were developed during the External Workshop Meeting Jan 10-13, 2000. The Safeguards PIs were the subject of much discussion. I told Rich Enkeball, that I would be the NRC Safeguards contact point for this effort. The agreed upon report-out of the meeting included the following:

> **Issue #1G/2E**: Inadequate definition and threshold for security equipment compensatory measures.
> **Priority**: Before initial implementation, but with a longer-term component. **Recommended Resolution**: (1) Consider to be developmental for the purposes of historical reporting. (2) Reassess threshold based on historical information. (3) Evaluate alternative approach using unplanned unavailability.
> **Minority view**: IDS PI inappropriate.
>
> **Issue #1i**: Inadequate guidance for use of security-related reportable events.
> **Priority**: After first year of implementation.
> **Recommended Resolution**: (1) Update the guidance to ensure that licensee measurements are consistent with what was intended and (b) the need to better align the thresholds with the intended purpose of the indicator. (2) The working group should undertake a parallel effort to collect data and evaluate alternate PIs.

<u>Solution Assumptions</u> I offer the following assumptions upon which we may chose to base the next actions:

- These issues should be addressed through the public Security Working Group meeting process. The working group's focus should be on addressing the "Recommended Resolution" for both of the issues. Schedule Goal: Revised or new Pis developed Sep 2000. NEI 99-02 revised and implemented April 2001.

- A consolidated, simultaneous approach to addressing all the resolutions is efficient and may prove to be more effective than dealing with them one at a time.

- Terms used throughout must be clearly defined in the guidance, and the definitions should try and match definitions used in other portions of the new NRC assessment process. Definitions should be consistent.

- The outcome of this process will be a revision to NEI 99-02, Section 2.7 "Physical Protection Cornerstone."

- Specific points of contact should be established within NRC, NEI, industry members, and public interest groups to enhance public communication protocols.

- Solutions should be based, to the extent possible, on data that is already maintained by a majority of licensees. New data collection processes should be developed only when necessary.

- The solutions must be able to be applied the same by all licensee's.

**Specific Activity 1:**

**Issue #1G/2E**: Inadequate definition and threshold for security equipment compensatory measures. **Priority**: Before initial implementation, but with a longer-term component. **Recommended Resolution**: (1) Consider to be developmental for the purposes of historical reporting. (2) Reassess threshold based on historical information. (3) Evaluate alternative approach using unplanned unavailability.
**Minority view**: IDS PI inappropriate.

Current Resolution Status:

(1) The "Protect Area Security Equipment Performance Index" (henceforth known as "PA Index") was published as gray, but with the underlying data included in chart form.

(2) Don Hickman and NEI staff have reassessed the historical information and have preliminarily agreed that the GREEN-WHITE PA Index threshold should be .08 rather than the current .05. Changing the number provides continuity with the other 10% - 90% thresholds in other PIs. While we evaluate the alternative approach, continue with no change in reporting or in NRC's response to the Index. We will continue to use what currently exists, until we change it.

(3) We need to begin the process of evaluating the use of "unplanned unavailability.".

- Address the minority view.
- Define the purpose of this PI.
- Develop basic list of equipment that must be included.
- Define unplanned.
- Define unavailability.
- Define performance threshold.
- Evaluate impact on current reporting process.

- - planned maintenance (In procedures and IAW Manufact Specs/ establish Freqs)
  + environmental failures
  + Repairs
  + Define components
    - CCTV
    - IDS
    - Computer
    - Doors
    - Card readers

**Specific Activity 2:**

**Issue #1i**: Inadequate guidance for use of security-related reportable events.
**Priority**: After first year of implementation.
**Recommended Resolution**: (1) Update the guidance to ensure that licensee measurements are consistent with what was intended and (b) the need to better align the thresholds with the intended purpose of the indicator. (2) The working group should undertake a parallel effort to collect data and evaluate alternate PIs.

Current Resolution Status:

(1) The current guidance relating to reportability of events allows diverse definition of what is required to be reported within one hour. Consequently, events may be reported differently.

- Suggest that realigning reporting guidance, licensee procedures, etc. is not a cost effective solution

(b) NEI 99-02 (RevD) states that the purposes of the Personal Screening and FFD PIs are to "verify . . . program . . . implemented . . ." and "to assess the implemented program . . . ."

- The use of events to verify or assess program implementation is contradictory. Events do not measure (or indicate) implementation or performance. They simply communicate an activity.

- There is no explanation, nor logic provided that demonstrates the appropriateness of the threshold of "two" reports as significant.

- Suggest that we discuss the utility of reportable events as measures of performance.

(2) This may be the most effective and, in the long run, most efficient way to develop PIs that are focused on safety, will enhance public confidence, Increase efficiency, and incur no additional regulatory burden.

- Examine loggable events to determine their value as performance measures.

- Consider other currently used licensee databases as potential sources of PIs.

Other Potential Indicators:

Failures to implement Comps
Search Drill Failures
Equipment reliability
FFD/AA Program performance failures
Tactical response exercise/Drill failures
NRC Violations

Security call offs
Sec procedures deviations
Training failures
Personnel errors that result in CRs
Improper use of doors
Security terminations
Security force attrition (Turnover)
Overtime violations
Overtime worked
Unsecured doors
Infrared Security event reports (SERs)
Perifeld SERs
Camera SERs
Interior door alarm rates
Self assessments
Watch tour discrepancies
Work Orders
Personal performance indicator
Human errors impact on safeguards
Security condition reports
Testing/Drills
Comp Hours
Loggable Events
Reportable events
Access Authorization Info tracked
    # of badges
    Average entries
    Visitors on tours
    # of non-designated vehicles entering
Staffing levels
Procedure changes
# of tests
# of drills
# of self-assessments
Reportable events
Cited violations
Repeat findings

10 CFR 26.71(d) performance data.

# Program Performance Criteria are:

1. Commensurate with positive verification of malevolent action against the facility, the plant will be maintained and/or placed in a safe condition.

2. An onsite security force capable of protecting against the DBT by means of a sufficient number of personnel in protected positions, appropriately armed, trained and equipped, in place in time.

3. The security system is adequately redundant and diverse to ensure that no single malevolent act prevents an integrated plant response.

4. High assurance of no release in excess of ...

5. Protection of SSCs to counter a malevolent act that could cause ..

6. .....

7. .....

8. .....

And other criteria ....

# Program Performance Criteria

## Discussed in February 10, 2000 Meeting

1. **Commensurate with verification of malevolent action against the facility, the plant will be maintained and/or placed in a safe condition.**

2. **An onsite security force capable of protecting against the design basis threat by means of a sufficient number of personnel in protected positions, appropriately armed, trained and equipped, in place in time.**

3. **The security system is adequately redundant and diverse to ensure that no single malevolent act prevents an integrated plant response.**

4. ***High assurance of no release in excess of ...***

5. ***Protection of structures, systems, and components to counter a malevolent act that could cause ...***

6. Security system designed not to obstruct safe plant operations.

7. Access control.

8. Access authorization (behavior observation).

9. Assessment aids, Intrusion Detection Systems, physical barriers (e.g., VBS)

10. Procedures beyond the Self-Assessment Program (e.g., maintenance & portal – consider incorporation of test and maintenance procedures with the components)

11. Communications requirements

12. Organizational requirements (size driven by target sets)

13. Target sets may replace vital areas.

# Essential Elements of the 10 CFR Part 73 Rulemaking on Physical Protection of Nuclear Plants

Nuclear Control Institute
February 9, 2000

73.1 (a) (1) (i) A determined violent external assault ... with the following attributes ... (B) inside assistance which **includes** a knowledgeable individual or individuals who [attempt to] participate in both passive and active roles ...

(The DBT for radiological sabotage should be no less severe than the DBT for diversion or theft of special nuclear material).

73.2 Definition of radiological sabotage remains unchanged. The term "plant" should be clarified to include on-site spent fuel storage areas.

73.55 ... The physical protection system shall be designed to repel the design basis threat of radiological sabotage as stated in 73.1 (a).

The physical protection system performance criteria are:

(1) Protection of systems, structures and components to prevent a malevolent act that has the potential to cause

[significant] degradation of the level of safety of the plant.

or

damage to the core of the reactor or spent fuel in storage areas, any other damage resulting in a release of radioactivity in excess of plant technical specifications for normal operation, or radiation exposure to personnel in excess of authorized limits for normal operation.

The physical protection system shall be defined to include only personnel whose responsibility is security.

73. *Drills and exercises.*

# NRC-STAFF PRELIMINARY COMMENTS ON NEI'S DRAFT "SELF-ASSESSMENT PROGRAM"

February 10, 2000

**General Comments:**

1. In most cases the objective of a document and its purpose are synonymous. However, in this case they are different. The objective and the purpose of the self-assessment program should be headed as such and clearly stated.

2. The Purpose and Scope would be more definitive if they were captured separately.

3. This self-assessment program does not include a safety/safeguards evaluation.

4. The role of the NRC and its contractors has not been delineated in this self assessment program.

**Self-assessment Program Topic Outline and Specific Comments:**

## 1 INTRODUCTION

**First Paragraph**

Comment 1: The phrase "... that would increase licensee responsibility..." is misleading. Consider revising to read "... that would more clearly define licensee responsibility. ..."

Comment 2: The phrase "... to better focus available resources in those areas that most directly support protection of public health and safety." This infers that the protection of public health an safety is resource driven. Consider deleting the word available.

Question 1: What is meant by "performance insights?"

**Second Paragraph**

Comment 1: The phrase "... program that uses evaluated drills ..." is misleading. Consider revising to read "... program that consists of evaluated drills. ..."

Comment 2: Clarify where "access authorization, continual behavior observation, fitness-for-duty [sic], and perimeter intrusion detection systems are considered in other parts of the licensee program."

**Third Paragraph**

Comment 1: The phrase "... to be utilized after the NRC has completed it Operational Safeguards Response Evaluation (OSRE) program in mid-2000 until ..." is too restrictive. Consider revising to read " to be utilized in lieu of the NRC Operational Safeguards Response Evaluation (OSRE) program until. ..."

Comment 2: Consider revising the last sentence to read "The self-assessment program is expected to last three years."

## 2 PURPOSE AND SCOPE

**Second Paragraph**

Comment 1: The wording in the first sentence is awkward; it suggest that SSCs themselves prevent radiological sabotage. Consider revising it to read "This program provides a uniform basis for licensee-developed target sets -- those safety-significant structures, systems and components (SSCs) that must be protected to prevent radiological sabotage."

Comment 2: To avoid confusion with documents considered classified as National Security Information, consider changing the last sentence to read "... as defined in the Adversary Characteristics Description marked sensitive unclassified Safeguards Information."

Comment 3: Define safety significant structures, systems and components.

**Third Paragraph**

Comment 1: Define key elements of the licensee's contingency response.

Comment 2: Refer to program as self-assessment instead of pilot.

Comment 3: Delete "... all evaluated ..." and "... will be invited to observe the ..." from the last sentence and have it read "The Nuclear Regulatory Commission (NRC) may observe drills and evaluated exercises.

Comment 4: Delete "...be invited to observe. ..." Replace with "evaluate the exercise to ensure that it is a credible, realistic, thorough test of the contingency response capabilities. The evaluated exercise should consist of a sufficient number of separate scenarios toe ensure thoroughness of the evaluation."

Question 1: Should every licensee be completed in the first 2 years to allow time for lessons learned?

**Fourth Paragraph**

Comment 1: All deficiencies should be tracked. Therefore, delete "... that have not been satisfied or implemented. ..."

**Fifth Paragraph**

Comment 1: For clarification on intent, consider revising the first sentence to add: "This interim program guidance is not designed to incorporate all elements of the current rule,

but will test concepts to be included in the new rule, such as using target sets as evaluation tools rather than vital areas."

Comment 2: Explain what is meant by "target sets are used as evaluation tools."

## 3 DEFINITIONS

**Adversary Force Capabilities**

Comment 1: Delete "classified."

**Drill**

Comments 1: Consider adding "Like a tabletop drill, this method is also used to validate the protective strategy."

**Evaluated Exercise**

Comment 1: Consider adding "and that tests/evaluates the protective strategy."

**Exercise**

Comment 1: Change "demonstration" to "demonstrating."

Comment 2: Explain how "multiple scenarios" will be demonstrated.

**Integrated Response**

Comment 1: This initial reference and all subsequent references to a 10 CFR Part 100 release criterion has not been established by the Commission.

**Radiological Sabotage**

Comment 1: The definition of radiological sabotage will be determined by a staff recommendation and Commission approval, and may not necessarily be based on Part 100 criteria.

Comment 2: A "deliberate act" needs to be more definitive.

"**Safety-significant Structures, Systems and Components**" need to be added and defined here.

**Tabletop Drill**

Comment 1: Tabletop drills are also used to validate the protective strategy.

Comment 2: The definition needs to be more definitive. Consider adding "... skills and knowledge pertaining to tactical response strategy. ..."

**Target Set**

Comment 1: The last sentence is confusing. Target sets are supposed to be sets of equipment which, if totally defeated, would result in a successful radiological sabotage. If there is any equipment that is necessary to prevent sabotage, it should be included in the target set.

Comment 2: Consider adding "If all targets within a set are destroyed, it would lead to a radiological release that exceeds design criteria."

**Weapons Proficiency**

Comment 1: Appendix B achieves minimum qualification. Drills should go beyond minimum qualification and demonstrate the ability to carry out the protective strategy.

## 4 SELF ASSESSMENT PROGRAM

**First Paragraph**

Comment 1: It is not correct to state that the Part 100 release limits "are provided in 10 CFR 73.55(a)."

**Third Paragraph**

Comment 1: The second sentence should begin with "Licensee success is achieved if ..." to distinguish from adversary success. Also, the sentence should end with "necessary to cause radiological sabotage," leaving open the standard until the term is better defined.

Comment 2: The last two sentences refer to Part 100 releases. This should be changed to refer to radiological sabotage.

Comment 3: The last sentence is confusing, downplays security measures, and is internally inconsistent or the target set is wrong.

Comment 4: Consider deleting the last sentence which infers that a security failure is acceptable, and, therefore, no corrective action is necessary.

**Fourth Paragraph**

Comment 1: The "key elements" are not discrete. They are all the same thing or included in each other. Further, the OSRE program already uses four key elements that adequately, clearly evaluate exercises (i.e., sufficient number, protected positions, appropriately armed, timeliness).

**Sixth Paragraph**

Comment 1: Consider changing opening sentence to read "Licensees must develop a program of evaluated drills and exercises. ..."

Comment 2: The integrated security drills and exercises must as opposed to "may" include table-top drills.

**Seventh Paragraph**

Comment 1: Although not required for every drill, an acceptable number of drills featuring the adversary Characteristics Description (ACD) should be quantified.

Comment 2: The ACD will be as opposed to "should be" exercised when considering the entire set of evaluated drills and exercises.

**Eighth Paragraph**

Comment 1: An evaluated exercise should be a complete test that features a scenario that is not limited to only a portion of the licensee's capabilities.

**Tenth Paragraph**

Question 1: Other than initial training or familiarization, what are the other purposes for conducting drills that need not be included in the self-assessment program?

## 5 TARGET SET DEVELOPMENT

**Second Paragraph**

Comment 1: This characterization of target sets is not consistent with other sections of the document.

Comment 2: Change "security characteristics" to "physical layout of the facility." This is consistent with Section 7 of this document.

## 6 ADVERSARY CHARACTERISTICS

No specific comment

## 7 CONTINGENCY RESPONSE STRATEGY

**First Paragraph**

Comment 1: The phrase "... place an adequate number of responders in position to defend the target ..." is not sufficient. Consider adding language to indicate that

responders will respond: (1) to protected positions; (2) in time; (3) in sufficient numbers; and (4) with appropriate weapons and equipment.

Comment 2: Consider deleting or replacing "adequate."

**First Bullet**

Comment 1: Consider replacing "define" with "establish."

**Third Bullet**

Comment 1: Consider adding "and along the paths to the equipment."

**Fifth Bullet**

Comment 1: Consider adding "successfully" before "engage," or replacing "engage" with "interdict."

## 8 EVALUATED DRILLS AND EXERCISES

**First Paragraph**

Comment 1: After "response program" in the first sentence, consider adding "and assess the effectiveness of its response strategy and the quality of the testing program."

### 8.1 SCENARIO DEVELOPMENT

Comment 1: After "ACD" in the second sentence, consider adding "with respect to target set selection and attack scenario."

### 8.2 PLANNING

Comment 1: Consider adding "Realism and credibility are critical, both with respect to adversary (target selection, tactics, equipment, physical ability, etc.) and response (tactics, positioning, equipment, barriers, etc.) characteristics."

### 8.3 CONDUCT OF DRILLS AND EXERCISES

No specific comment.

### 8.4 ASSESSMENT OF A DRILL OR EXERCISE

**First Paragraph**

Comment 1: Since there is no distinction between a drill and an exercise in this paragraph, the critique for a drill is more elaborate than expected.

**Last Paragraph**

Question 1: What happens next to the report?

Question 2: What is the mechanism for using the report and incorporating lessons learned?

## 8.5 FREQUENCY

**First Paragraph**

Question 1: How does the frequency relate to each security force member?

Comment 1: An acceptable frequency is yet to be determined.

Comment 2: Extensions of up to 25 percent are acceptable as they provide flexibility in scheduling, as long as they don't become additive. For example, if the licensee adds 25 percent to the second round of drills/exercises, it cannot use the new date as the starting point to add another 25 percent to the third round, and so on.

**Second Paragraph**

Comment 1: Drills should be force-on-force.

**First Bullet**

Question 1: What are "drill participation goals?"

Question 2: Who establishes the goals?

Question 3: How are meeting and measuring goals determined?

**Third Bullet**

Question 1: What are "performance goals?"

## 9 CORRECTIVE ACTION

Comment 1: Be more definitive than "should" and "are normally." Revise paragraph to read "Deficiencies identified during an evaluated drill or exercise will be handled consistent with the site's corrective action, self-assessment or training program. Training deficiencies will be addressed as part of the training program. Training deficiencies will be addressed as part of the training program. Key-element deficiencies will be included in the corrective action program."

Comment 2: All deficiencies should go into the CAP or training.

## APPENDIX A: Target Set Development Process

### 1 SOURCE

Comment 1: Remove references to "a release in excess of 10 CFR Part 100 limits" and insert "radiological sabotage."

### 2 BARRIERS

Comment 1: Remove references to "a release in excess of 10 CFR Part 100 limits" and insert "radiological sabotage."

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

**Second Paragraph**

Comment 1: This assumes perfect operator action. History indicated otherwise.

Comment 2: The last sentence reads "... it is a design basis event." No, it is typically beyond a design basis accident.

Question 1: What is meant by "No single failure or redundant components is assumed since this is not a design basis event?"

Question 2: Will operators performance be tested (e.g. on the simulator) comparable to the testing of performance for security officers?

### 4 TARGET SETS

Comment: Remove references to "a release in excess of 10 CFR Part 100 limits" and insert "radiological sabotage." Change last sentence to read "... before a radiological event would occur."

## APPENDIX B: EXAMPLES EVALUATED DRILL AND EXERCISE SCENARIO DEVELOPMENT

### 1 PLANNING ELEMENTS THAT SHOULD BE CONSIDERED

**CAS/SAS Players**

Question 1: To what extent will the CAS or SAS be briefed on drill conditions?

**Security Shadow Force**

Comment 1: The description is for the drill players. The players "shadow" the on-duty officer -- since, like a "shadow," the players aren't really there for a real event.

## 2 EXAMPLES OF INFORMATION NORMALLY ON CRITIQUE FORMS

No specific comment.

## 3 EXAMPLES OF TYPES OF EVALUATED DRILLS

**Title**

Comment 1: Rename to "Examples of Types of Evaluated Drills and Exercises" and include a paragraph or two on evaluated exercises in this section.

**Timeline Drills**

Question 1: What is the periodicity for these drills?

**Table Top Drills**

Comment 1: These drills should not be limited to CAS officers.

**Second Paragraph**

Question 1: Will each security force member be involved in an evaluated drill?

## 4 DETAILED EVALUATION CRITERIA

**First Paragraph, First Bullet**

Comment 1: In deciding this issue, attention must also be paid to whether the licensee's physical security plan commits to an adequate number of responders.

**First Paragraph, Fourth Bullet**

Comment 1: Change to read "... is protected against radiological sabotage."

**Fourth Paragraph**

Comment 1: Clarify "consensus overall score."

**Seventh Paragraph, First Bullet**

Comment 1: Include SAS officers, since they serve as backup to the CAS officers. Revise sentence as follows: "CAS/SAS Officers will be evaluated. ..." [NOTE: In other places where CAS is mentioned in the document, it is "CAS/SAS."]

## APPENDIX B TAB 1: Drill Evaluation Considerations

### 1 EXERCISE CONTROL

No specific comment.

### 2 EXERCISE ADMINISTRATION

Comment 1: Consider adding language to ensure that target sets are reviewed and determined to be adequate.

Comment 2: Scenarios should focus on adversary characteristics and target sets. Overall performance should be measured against the scenario.

### 3 PLANNING

**e. Were defensive positions established to meet the plant vulnerability?**

Comment 1: Consider revising to read "Were defensive positions established and integrated with response plan to meet the plant vulnerability?"

**i. Were plans developed to notify/use LLEA?**

Comment 1: Notification of LLEA is already supposed to be a part of the contingency plan. Therefore, plans should have long been developed. Consider revising to read "Were plans carried out to notify/use LLEA?"

### 4 COORDINATION, COMMAND, AND CONTROL

Comment 1: Consider adding language to ensure the safety of drill participants and other plant personnel.

### 5 EVALUATE DEFENSIVE STRATEGY

**Title, First Paragraph**

Comment 1: Consider "protective" to describe the strategy as opposed to "defensive."

**j. Ensure that there is a continuous communications loop between responders in the field, CAS/SAS, Command personnel and Operations.**

Comment 1: This bullet is what the entire program is about, and it seems inappropriate to bury it at the end of an attachment. This ought to be a new Section 15, with several sub-bullets.

## 6 COMMUNICATIONS

No specific comment.

## 7 ALARM STATION RESPONSE

No specific comment.

## 8 INDIVIDUAL TACTICS

No specific comment.

## 9 TEAM TACTICS

No specific comment.

## 10 USE OF DEADLY FORCE/APPLICATION OF FORCE

No specific comment.

## 11 RESPONSE TO INTRUDERS WITHOUT IDENTIFIED WEAPONS

No specific comment.

## 12 PHYSICAL SECURITY AND EQUIPMENT

**a. Did the security force use physical security systems to their advantage?**

Comment 1: Consider rewording this bullet to make it less subjective.

## 13 CONTROLLER PARTICIPATION

No specific comment.

## 14 POST DRILL/EXERCISE BRIEFING

No specific comment.

# APPENDIX C: Physical Protection Effectiveness

## 1 DRILL/EXERCISE PERFORMANCE

### 1.1 PURPOSE

No specific comment.

## 1.2 INDICATOR DEFINITION

No specific comment.

## 1.3 DATA COLLECTION ELEMENTS

**Second Bullet**

Comment 1: Define "successfully." The definition offered in Section 1.5 is unclear.

## 1.4 CALCULATION

Comment 1: The calculation method needs to be more definitive and should include examples.

Comment 2: This section provides a formula for the calculation, but not the standard for judging success. It is assumed that this standard would be developed when more experience is gained in using the program.

## 1.5 DEFINITION OF TERMS

No specific comment.

# 2 PHYSICAL PROTECTION ORGANIZATION DRILL PARTICIPATION

## 2.1 PURPOSE

Comment 1: Change "Physical Protection Program (ISSO) members" to "Integrated Site Security Organization (ISSO) members."

## 2.2 INDICATOR DEFINITION

No specific comment.

## 2.3 DATA COLLECTION ELEMENTS

No specific comment.

## 2.4 CALCULATION

Comment 1: This section provides a formula for the calculation, but not the standard for judging success. It is assumed that this standard would be developed when more experience is gained in using the program.

## 2.5 DEFINITION OF TERMS

No specific comment.

## 2.6 CLARIFYING NOTES

No specific comment.

# ATTENDANCE LIST
# NRC PUBLIC MEETING
# FEBRUARY 10, 2000

ON FEBRUARY 10, 2000, THE FOLLOWING INDIVIDUALS ATTENDED THE NUCLEAR REGULATORY COMMISSION PUBLIC MEETING ON REACTOR SAFEGUARDS HELD IN ROCKVILLE, MARYLAND.

| Name | Organization | Phone |
|---|---|---|
| SANDRA FRATTALI | NRC, NRR | 301-415-3703 |
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