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August 23, 2000

Ms. Annette Vietti-Cook  
Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Ms. Vietti-Cook:

**Subject: Comments on the Re-Evaluation of Power Reactor Physical Protection Regulations and Position on a Definition of Radiological Sabotage (65 Federal Register 36649 dated Wednesday, June 9, 2000)**

Attached please find Arizona Public Service Company's (APS) response to the invitation for comment noticed in 65 Federal Register (FR) 36649, dated Friday, June 9, 2000. The subject notice invited comments regarding proposed changes to the NRC's Power Reactor Physical Protection Regulations and Position on a Definition of Radiological Sabotage. APS is pleased to offer comments on such an important issue.

As a global comment directed at re-evaluation of 10CFR73.55, it is APS' position that the NRC must first re-evaluate the design basis threat (DBT) and the sabotage induced events that DBTs are likely to perpetrate before implementing the performance measures proposed by the Staff. APS also endorses the Nuclear Energy Institute's position on this matter and believes that as the NRC contemplates fundamental changes in the security regulations continued stakeholder input is essential to reaching sound Rulemaking.

APS has also included comments on: the definition of radiological sabotage, the application of critical safety function as a performance criteria for the protective strategy, the elimination of 10 CFR 73.55 (b) through (h) attributes that do not substantially contribute to safety, and the physical protection significance determination process.

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If you have questions regarding our comments, please contact Angela Krainik at 623-393-5421. APS makes no commitments in this letter.

Sincerely,

[Original signed by: Gregg R. Overbeck]

AKK/ras

cc: E. W. Merschoff  
M. B. Fields  
P. H. Harrell  
J. H. Moorman

U. S. Nuclear Regulatory Commission

Comments on the Re-Evaluation of Power Reactor Physical Protection Regulations and  
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## APS' Comments on the Re-Evaluation of the Power Reactor Physical Protection Regulations and Position on a Definition of Radiological Sabotage Program

65 Federal Register 36649, dated June 9, 2000

## **Comments on the Re-Evaluation of the Power Reactor Physical Protection Regulations and Position on a Definition of Radiological Sabotage SECY-00-0063**

The following is APS' response to the invitation for public comment (65 Federal Register 36649, dated June 9, 2000) on the re-evaluation of the power reactor physical protection regulations and position on a definition of radiological sabotage program.

### **Re-Evaluation Methodology**

APS suggests that the Staff direct their resources to complete a top-down re-evaluation of the regulation that will result in more efficient safeguards systems to protect the industry against the malevolent acts of adversaries. That is, initial efforts should be focused on refining the characteristics of potential adversaries, continuing with the re-evaluation and identification of probable sabotage induced events, validation of measurable performance objectives and concluding with appropriate rule changes.

### **Adversary Characteristics**

The first step the NRC must take in re-evaluating the reactor physical protection requirements should be to clearly and precisely define the potential adversaries. APS is aware that the NRC and other subject experts have endeavored to supplement and validate the design basis threat (DBT) as part of the semiannual threat environment review. Similarly, APS understands the NRC continues to update the characteristics of potential nuclear power plant adversaries through the maintenance of the adversary characteristic document (ACD).

However, it is not clear to APS that the NRC has attempted to differentiate or separate from the DBT those adversaries that should be considered "enemies of the state" as called out by 10 CFR 50.13, *Attacks and destructive acts by enemies of the United States; and defense activities*.

APS believes that certain extremist protest groups, organized/sophisticated criminal groups and terrorist groups should be considered enemies of the state and accordingly,

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the protection against acts by these groups should fall within the responsibility of the nation's defense establishment.

In the statements of consideration for 10 CFR 50.13<sup>1</sup>, the Commission stated:

*"The amendments codify the Commission's practice of not requiring applicants of licenses to construct or operate production and utilization facilities to provide for design features or other measures for the specific purpose of protection against (1) the affects of attacks and destructive acts, including sabotage, directed against the facility by an enemy of the United States..."*

It appears to APS that since the late 1970s, the organizational, operational, behavioral and resource characteristics assumed to be possessed by nuclear power plant adversaries has incrementally increased. Likewise, the level of sophistication and weaponry that licensees are expected to guard against has also risen. Whether intended or not, this gradual rise has been implemented through Operation Safeguards Response Evaluations (OSRE). The adversarial forces used to evaluate licensee security program performance have been equipped with more sophisticated weapons and tactics, forcing licensees to continually improve their security program to match the escalating threat. For example, it should not be the responsibility of licensees to protect against adversaries assumed to possess weapons or weapon systems that have not historically been used in terrorist attacks within the United States. Adversaries with the wherewithal to possess and use such weapons should be considered enemies of the state.

Although the OSREs have resulted in significant improvements in nuclear power plant security programs, now is the appropriate time for the NRC to re-examine 10 CFR 50.13 and decisively establish reasonable and realistic standard design basis threats (DBTs) by which nuclear power plant security programs would be evaluated. Once

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<sup>1</sup> 32 FR 13445, September 26, 1967, Exclusion of Attacks and Destructive acts by Enemies of the U. S. in Issuance of Facility License

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these standards have been established, planning for protection against acts of sabotage by enemies of the state will rightfully be relinquished to the national defense establishment, and licensees will be free to focus security program resources on more probable threats.

Upon completion of this phase of the re-evaluation, licensees should be informed as to the resultant DBTs, which should not be revised in the future without consideration for exclusion under 10 CFR 50.13. If the DBTs are subsequently revised, 10 CFR 50.109, *Backfitting*, should be applied and appropriate time should be afforded to licensees to make necessary changes in their protective strategies prior to implementation by the NRC .

In summation, the NRC should redefine the potential threats to nuclear power plants by updating the study documented in NUREG-0459, *Generic Adversary Characteristics Summary Report*, and upon completion draw a distinction between those threats that are enemies of the state and those threats which should be defended against by licensees. Failure to do so places an unreasonable burden on licensees and prevents the national defense establishment from rightly assuming its protective role.

### **Sabotage Induced Events**

Based on the conclusions reached in the re-evaluation of the adversary characteristics and the subsequent establishment of those DBTs that licensees are responsible for defending against, the next step in the re-evaluation process should be to determine the probable sabotage induced events the various adversaries could conceivably perpetrate. This would require the NRC, FBI, nuclear industry and subject matter experts to analyze which characteristics (organizational, operational, behavioral and resource characteristics) each adversarial group may possess and then determine how these attributes could be used against a nuclear power plant in sabotage induced events.

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APS agrees with the conclusion reached in NUREG-0459 that there is no "high level" composite adversary with the aggregate characteristics that have been observed in real-world malevolent incidents. Similarly, APS agrees that there are distinct adversary groups with some common characteristics but in general with their own unique characteristics, profiles and patterns of behavior.<sup>2</sup> Based on these conclusions, APS suggests that licensee security program effectiveness be evaluated against some of the probable adversarial groups, rather than the single most sophisticated and heavily armed composite of adversary characteristics.

That is, if after analysis it was determined that extremist protest groups were viable threats to nuclear power plants, then licensee should be evaluated against how well they can defend against the organizational, operational, behavioral and resource characteristics assumed to be possessed by this particular adversary. Likewise, licensees may also be expected to demonstrate proficiency in defending against the organizational, operational, behavioral and resource characteristics of an organized criminal group (if they were believed to be credible threats and not enemies of the state). By evaluating security program effectiveness against adversarial groups separately, licensees could focus on, and more quickly remedy, areas of weakness.

Re-evaluation efforts for determining sabotage induced events should be risk-informed to the extent possible, weighing heavily those events which are most credible or which could, if successfully perpetrated, result in the most significant consequences. Given that an overt armed assault is one of the least likely methods of attack, it would be reasonable to focus on more likely scenarios for the purpose of evaluating security program performance.

Upon completion of this phase of the re-evaluation, the NRC should make known the results of the sabotage induced events analysis and a period of time should be granted

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<sup>2</sup> NUREG-0459 GENERIC ADVERSARY CHARACTERISTICS SUMMARY REPORT, section II.D.5, pgs. 46 & 47.

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for licensees to make necessary changes in their protective strategies prior to implementation by the NRC.



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### **Definition of Radiological Sabotage**

APS supports the Nuclear Energy Institute's (NEI) comments in this area. That is, in other areas of plant design, the need to protect the public is ultimately addressed by preventing a release that exceeds 10 CFR Part 100 limits. There are several initiating events that are considered in the design and evaluation process. Attempted radiological sabotage can be considered as another initiating event, with the consequences analyzed on the same bases as the rest of the plant.

To provide a safety margin, performance criteria must be set at some level below the level of successful radiological sabotage. In developing contingency response programs, significant core damage is currently being used as the performance criteria by both the NRC Staff and the industry and it is considered an appropriate basis for future discussions on performance criteria.

APS believes that for radiological sabotage to be successful, the malevolent activities would have to lead to a radiological release that exceeds 10 CFR Part 100 limits. APS' understanding of radiological sabotage is supported by that expressed in NUREG-1178<sup>3</sup>:

*"Successful radiological sabotage results in doses in excess of those defined in 10 CFR 100. The 10 CFR 100 criteria are intended to serve as a benchmark for the analysis of major events, that is, those events that pose a potential health hazard (a significant release of radioactivity as a result of a major accident or radiological sabotage)."*

To provide a margin of safety, NUREG 1178 also states in its analysis assumptions that: *"Any transient or event that causes significant core damage will result in an attendant 10 CFR 100 release."* As such, "significant core damage" has been the basis

<sup>3</sup> NUREG 1178 ("Vital Equipment/Area Guidelines Study," page 4-1

<sup>4</sup> NEI letter from J. Davis to Administrative Points of Contact, dated August 18, 2000

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for the industry's protection strategy and the NRC OSRE oversight program.<sup>4</sup>

In summary, it is APS' position that radiological sabotage and its relationship to public protection does not need to be redefined.

**Critical Safety Functions:**

APS does not agree with the Staff proposal to use critical safety functions as the performance criteria to be used as the basis for the new physical protection regulations.

The industry's contingency response programs have been designed to prevent significant core damage during acts of radiological sabotage. Protection strategies have been based on specifically identified target sets (groupings of structures, systems and components or SSCs). A target set is a group of SSCs that, if one component function were maintained, no core damage would result. The performance standard then would involve the protection of necessary functions in order to prevent significant core damage and to preserve containment integrity.

If critical safety functions are used as the basis for physical protection regulation, the resultant rule would be a move backward to the previous vital island concept, with series of "protected target sets" to be defended. This concept reduces flexibility and ignores licensees' ability to use other available resources to fulfill safety functions.

In SRM-99-241, the Commission asked that, "In developing the rule, the staff should pay particular attention to the degree to which risk insights can be used to develop target sets, and to the integration of security inspections and performance indicators into the new oversight process. The rule should provide for flexibility in implementing its provisions, and, most importantly, it should not unnecessarily burden operational safety at nuclear power plants."

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<sup>4</sup> NEI letter from J. Davis to Administrative Points of Contact, dated August 18, 2000

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In summary, APS does not agree that the use of "critical safety functions" as the rule's ultimate performance criteria would result in a performance-based, risk-informed rule. Similarly, APS does not agree that the proposal meets the Commission's direction<sup>5</sup> to provide for the use of risk insights and to provide for flexibility in performance criteria implementation.

**10CFR73.55 attributes (b)–(h)**

It is APS' position that certain security program attributes required by 10CFR73.55 (b)–(h) should be re-evaluated and the regulation should be revised to eliminate features that do not substantially contribute to safety. APS believes that re-evaluation of minimum lighting requirements, delivery vehicle escort requirements, alarm assessments and nitrate detection will reveal that they do not substantially contribute to safety and should be eliminated.

**Physical Protection Significance Determination Process**

It is APS' position that the dynamic state of physical security program regulation is reasonable justification for allowing flexibility in the application of the Physical Protection Significance Determination Process (PPSDP)<sup>6</sup> for certain inspection findings. APS requests that the current PPSP be reviewed and revised to correspond with proposed regulation changes at the earliest opportunity.

<sup>5</sup> SRM-SECY-99-241 Rulemaking Plan, Physical Security Requirements for Exercising Power Reactor Licensees' Capability to Respond to Safeguards Contingency Events, November 22, 1999.

<sup>6</sup> NRC INSPECTION MANUAL, Manual Chapter 0609, Appendix E, pgs. E-1 through E-6