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

# SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

# RELATED TO

# EXEMPTION FROM CERTAIN REQUIREMENTS OF 10 CFR PART 73

# COMMONWEALTH EDISON COMPANY

# ZION NUCLEAR POWER STATION, UNITS 1 AND 2

# DOCKET NOS. 50-295 AND 50-304

## 1.0 INTRODUCTION

By letter dated July 30, 1999, Commonwealth Edison Company (ComEd or licensee) requested that the Nuclear Regulatory Commission (NRC) grant an exemption from certain physical security requirements contained in 10 CFR 73.55. Based on the the permanently shutdown and defueled status of the Zion Nuclear Power Station, Unit Nos. 1 and 2 (ZNPS), ComEd has concluded that certain aspects of the operating power reactor security plan could be discontinued.

## 2.0 BACKGROUND

ZNPS was shut down permanently in February 1997. ComEd certified the permanent shutdown on February 13, 1998, and on March 9, 1998, certified that all fuel had been removed from the reactor vessels. In accordance with 10 CFR 50.82(a)(2), upon docketing of the certifications, the facility operating license no longer authorizes ComEd to operate the reactor or to load fuel into the reactor vessel. All the spent fuel from operation of the ZNPS is being stored in the site's spent fuel pool. The requirements of 10 CFR 73.55 and the existing ZNPS physical security plan are based on reactor operation at 100 percent power. In its permanently shutdown condition, ComEd states that certain requirements of 10 CFR 73.55 are no longer necessary to maintain the effectiveness of physical security of the site. An exemption is required from portions of 10 CFR 73.55(a), (c)(6), (e)(1), (f)(4) and (h)(3) to allow the licensee to implement a revised defueled physical security plan (DPSP) that is appropriate for the permanently shutdown and defueled ZNPS.

## 3.0 EVALUATION

Pursuant to 10 CFR 73.5, "The Commission may, upon application of any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest."

In addition, Section 73.55(a) of Title 10 of the Code of Federal Regulations, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage," states that "The licensee shall establish and maintain an onsite physical protection system and security organization which will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety." Section 73.55 allows the Commission to authorize a licensee to provide alternative measures for protection against radiological sabotage, provided the licensee demonstrates that the proposed measures meet the general performance requirements of the regulation and that the overall level of system performance provides protection against radiological sabotage equivalent to that provided by the regulation.

As a result of the permanently shutdown and defueled status of the Zion Nuclear Power Station, ComEd has concluded that the effectiveness of the physical protection systems and security organization can be maintained with the changes proposed in its defueled physical security plan. Because of the permanently defueled condition at ZNPS, the spectrum of postulated targets associated with design basis threat scenarios of radiological sabotage has been significantly reduced. In addition, with more than 31 months of radiological and heat decay of the spent fuel from the last ZNPS cores offloaded into the spent fuel pool, the potential radiological hazards from sabotage of the remaining targets have been greatly diminished.

In this regard, the following exemptions to 10 CFR 73.55 have been evaluated for ZNPS.

1. 10 CFR 73.55(a) - Exemption from the requirement, at a minimum, that a licensed senior operator approve the suspension of safeguards measures in an emergency.

ComEd proposes to transfer the authority to suspend safeguards measures to a certified fuel handler. A certified fuel handler has the authority to depart from a technical specification or license condition involving an emergency situation to protect public health and safety and provide equivalent protection for the site. Although the certified fuel handler is not an individual licensed by the NRC as is the licensed senior reactor operator, this individual's responsibilities are part of the licensee's certification process and training program that the NRC has reviewed and approved through amendment of the technical specifications. The certified fuel handler at Zion is the most senior individual on shift with knowledge about protecting the fuel from situations that may occur at the site. The staff finds this alternative to be equivalent to the existing regulations and the requested exemption is acceptable.

2. 10 CFR 73.55(c)(6) - Exemption from the requirements that the control room be bullet-resisting.

The staff agrees that the reactor control room does not have to be bullet resistant, since the site is no longer an operating reactor site and the issue of safe reactor shutdown has been eliminated. Because the reactors have been permanently shut down, the control room contains no equipment that could be used to immediately affect any spent fuel pool parameter that might impact the public health and safety. The staff finds that this change does not degrade the physical security of the site and the requested exemption is acceptable.

3. 10 CFR 73.55(e)(1) - Exemption from the requirements: (a) that the central alarm station be classified as a vital area; (b) that the onsite secondary power supply system for alarm annunciator equipment and non-portable communication equipment be located in a vital area; (c) that the central alarm station be located in a protected area; (d) and the need to have a secondary alarm station.

The licensee states that vital area protection can be discontinued when the offsite consequences of design basis radiological sabotage threats have only a remote potential of approaching the limits specified in 10 CFR Part 100. The licensee also states that there are no postulated radiological sabotage threats that could result in offsite exposures that exceed the limits of 10 CFR Part 100. In fact, the licensee states that there are no postulated radiological sabotage threats that could exceed the Environmental Protection Agency protective action guidelines for offsite release. Therefore, the need to designate any vital areas at ZNPS is no longer necessary. The staff agrees that there is no longer a need to maintain any vital areas at ZNPS. Devitalization of vital areas is also consistent with previous exemptions processed at permanently shut down and defueled nuclear power plants. There are no known conditions or circumstances at ZNPS that would warrant reconsideration of this practice at this time. Consequently, ZNPS will not be required to maintain the central alarm station (CAS) as a vital area. However, the CAS still must remain bullet resistant to ensure that the security officer can survive an attack and be able to use the existing communication equipment to call for offsite local law enforcement agencies (LLEA) assistance. Should the existing CAS be moved to another location, the new CAS must meet the current Part 73 requirements except for its being a vital or protected area. This staff position on vital areas also applies to the onsite secondary power supply system for alarm annunciator equipment and non-portable communication equipment. The staff therefore finds the ZNPS exemption request to devitalize the CAS and the onsite secondary power supply system for annunciator equipment and non-portable communications equipment acceptable. In addition, the requirement to maintain the CAS within a protected area is based on the designation of the CAS as a vital area. By devitalizing the CAS, the need to provide a protected area for the CAS goes beyond requirements in the current regulations for non-vital areas. Therefore, an exemption from locating the CAS within a protected area is also acceptable.

In support of its request for exemption from requirements for a redundant secondary alarm station (SAS), the licensee states that because of reduced radiological consequences from sabotage at ZNPS, the use of only a single alarm station is sufficient to provide reasonable assurance that an appropriate response to security events and alarms will occur. In evaluating this request, the staff has not identified any design basis radiological sabotage threat at the ZNPS which would endanger public health or safety due to the non-existence of a SAS. Furthermore, the licensee will be maintaining diverse, portable communications equipment (such as cellular phones) that will permit contact with LLEA in locations other than the CAS. Thus, it is the staff's judgment that maintaining a SAS would be an unnecessary regulatory burden for the ZNPS considering that the radiological hazards present from the remaining target sets are judged to be significantly less than at operating reactors. Accordingly, the staff finds the requested exemption to maintaining a SAS acceptable.

4. 10 CFR 73.55(f)(4) - Exemption from the requirement that non-portable communication equipment located in the central alarm station remain operable from independent power sources if normal power is lost.

Having the non-portable communication equipment on the backup power supply is considered essential for continuous contact with local law enforcement agencies should the offsite power be interrupted. Because only a limited number of armed security force members will be on site, this communication link to a predetermined offsite response force is necessary for helping protect the defueled site from an adversary intent on performing an act of radiological sabotage. Since this non-portable communication equipment will be located in the central alarm station, and is not on the backup power supply, the licensee has committed to an alternative communication system to contact the LLEA during an emergency consisting of conventional telephones, cellular telephones and radios. The staff finds that the proposed communications commitments will not result in a reduction in the effectiveness of the security for the site and that the exemption request is acceptable.

5. 10 CFR 73.55(h)(3) - Exemption from the requirement to have five or more guards per shift immediately available to fulfill response commitments.

With the transition from an operating reactor site to a defueled facility, the size of the protected area has been reduced to a single area that needs to be monitored and protected. For the defueled site, the licensee proposes a security program that provides both security related equipment and a security force, some of whom are armed, to protect the spent fuel from acts of radiological sabotage. The armed security force members on site will be trained and qualified, and can react to different scenarios based on preplanned contingency events. In addition, the licensee has coordinated with LLEA to respond to threats against the site through appropriate contingency plans and training of the security force members to adequately protect the site against radiological sabotage. The staff finds this request acceptable. The minimum number of guards will be in accordance with the defueled physical security plan.

## 4.0 CONCLUSION

For the foregoing reasons, the staff has determined that the proposed alternative measures for protection against radiological sabotage meet the same high assurance objectives and the general performance requirements of 10 CFR 73.55 considering the permanently shutdown and defueled conditions at the ZNPS with all fuel located within the spent fuel pool. In addition, the staff has determined that the overall level of the proposed security system's performance, as requested by the licensee, would not result in a reduction in the physical protection capabilities for the protection of special nuclear material. This is because the number of target sets susceptible to sabotage attacks has been reduced and the remaining target sets, even if subject to sabotage attacks, pose a reduced hazard to the public health and safety. The staff also notes that recent evaluation of the decay heat conditions of the spent fuel in the fuel pool has indicated that even if a sabotage attack were to succeed in draining the spent pool, there would not be any significant offsite consequences. Accordingly, the staff has determined that, pursuant to 10 CFR 73.5, these exemptions are authorized by law, will not endanger life or property or the common defense and security, and are otherwise in the public interest.

Principal Contributor: Robert B. Manili

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