



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

July 5, 2023

Alfred Meeden  
Vice President, Nuclear Engineering  
Palo Verde Nuclear Generating Station  
P.O. Box 52034, MS 7602  
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION INDEPENDENT SPENT  
FUEL STORAGE INSTALLATION — ISSUANCE OF EXEMPTION

Dear Alfred Meeden:

This is in response to your letter dated May 23, 2023 (Agencywide Documents Access and Management System (ADAMS) No. ML23143A391), requesting an exemption under Title 10 of the *Code of Federal Regulations* (10 CFR) 72.7 to load and store spent fuel in MAGNASTOR® storage casks with lids that were not designed and fabricated in accordance with Technical Specification A4.2 as specified in Amendment No. 7 of the NAC International (NAC) Certificate of Compliance No. 1031 for the MAGNASTOR® storage system. Specifically, Arizona Public Service Company (APS) requested an exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), 10 CFR 72.214, and the portion of 10 CFR 72.212(b)(11) that requires compliance with the terms and conditions set forth in the certificate of compliance for each spent fuel cask used by an independent spent fuel storage installation (ISFSI) general licensee. These provisions require storage of spent nuclear fuel under a general license in dry storage casks approved under 10 CFR Part 72.

APS uses NAC's MAGNASTOR® storage cask utilizing Certificate of Compliance No. 1031, Amendment No. 7 for dry storage of spent fuel assemblies at the Palo Verde ISFSI. APS stated that it has 10 casks to be loaded using storage cask lids fabricated by NAC that do not meet the requirement in Technical Specification, Appendix A, A4.2 to be designed and fabricated in accordance with the American Concrete Institute Specifications (ACI) 349, "Code Requirements for Nuclear Safety Related Concrete Structures," and ACI 318, "Building Code Requirements for Structural Concrete," which according to the technical specifications govern the concrete cask design and construction, respectively.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed APS's exemption request for the Palo Verde ISFSI. The details of the review are included in the enclosed safety evaluation report. Based upon the staff's evaluation, the NRC has determined that, pursuant to 10 CFR 72.7, the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the NRC is granting APS an exemption from the requirements in 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), 10 CFR 72.214, and the portion of 10 CFR 72.212(b)(11) that requires compliance with terms, conditions, and specifications of the Certificate of Compliance No. 1031, Amendment No. 7 to load and store spent fuel in storage casks with vertical concrete cask numbers 176 through 185 at the Palo Verde ISFSI with storage cask lids that have not been shown to be fabricated in accordance with ACI 349 and ACI 318. In addition, this exemption is

conditioned to include the following controls for the concrete used in the concrete cask lid from Technical Specification A4.2:

- The concrete shall, at minimum, be a commercial grade ready-mix type that can develop a density of 140 pounds per cubic foot (pcf).
- The concrete mix and batching should meet the purchaser's requirement for density and any additional purchaser-indicated attributes, such as air content, as allowed by the ASTM International, Standard ASTM C94, "Standard Specification for Ready-Mixed Concrete."
- The density of the concrete can be verified by either test method ASTM C138, "Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete," or an approved shop fabrication procedure by following the equation for density, where density is equal to weight divided by volume. The shop procedure shall include steps to weigh the lid before and after concrete placement and in calculating the actual volume of the cavity to be filled with a record of the weight of concrete placed into the cavity.
- The concrete placement shall be in a dry and clean cavity or form with procedures and equipment that ensure the concrete placed is thoroughly consolidated and worked around any reinforcement and/or embedded fixtures and into the corners of the cavity or form.
- The concrete shall be protected from the environment during curing to minimize development of cracks by one or more of various methods such as moist cure or liquid membrane forming chemicals. Type II Portland cement may be substituted by an alternate cement type for the concrete if the above density requirement can be met.

In accordance with 10 CFR Part 2 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room (PDR) or from the publicly available records component of the NRC's document system, ADAMS. ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>. The PDR is open by appointment. To make an appointment to visit the PDR, please send an email to [PDR.Resource@nrc.gov](mailto:PDR.Resource@nrc.gov) or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

A. Meeden

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If you have any questions, please contact me at 301-415-8064, or Nishka Devaser of my staff, at 301-415-5196.

Sincerely,



White, Bernard signing on behalf  
of Diaz-Sanabria, Yaira  
on 07/05/23

Yaira K. Diaz-Sanabria, Chief  
Storage and Transportation Licensing Branch  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

CAC No. 001028  
Docket Nos.: 72-1031, 72-44  
EPID No.: L-2023-LLE-0015

Enclosure:  
Safety Evaluation Report

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION INDEPENDENT SPENT FUEL STORAGE INSTALLATION — ISSUANCE OF EXEMPTION

DOCUMENT DATE: July 5, 2023

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Closes out EPID L-2023-LLE-0015

**ADAMS Accession Nos.: ML23166B082 (PKG), ML23166B083 (LTR), ML23166B084 (SER), ML23166B085 (FRN)**

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