



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

September 28, 2018

Mr. Yun-Ho Kim, Project Manager
APR1400 Design Certification
Advanced Reactors Development Laboratory
Korea Hydro and Nuclear Power Co., Ltd.
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Yuseong-Gu, Daejeon
34101 Korea (Republic of)

SUBJECT: STANDARD DESIGN APPROVAL FOR THE ADVANCED POWER
REACTOR 1400

Dear Mr. Kim:

This letter provides the standard design approval (SDA) for the Advanced Power Reactor 1400 (APR1400) standard design (Enclosure 1). This SDA allows the APR1400 design to be referenced in an application for a construction permit or operating license under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," or an application for a combined license or manufacturing license under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." However, this SDA does not constitute a commitment to issue a permit, design certification (DC), or license or in any way affect the authority of the Commission, the Atomic Safety and Licensing Board, or other presiding officers in any proceeding under 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders."

Issuance of this SDA signifies completion of the staff's technical review of the Korea Electric Power Corporation and Korea Hydro & Nuclear Power Co., Ltd (KEPCO/KHNP) APR1400 design. The staff performed its technical review of the APR1400 design control document in accordance with the standards for review of standard design approval applications set forth in 10 CFR 52.139, "Standards for Review of Applications."

On the basis of its evaluation and independent analyses, as described in the final safety evaluation report (ADAMS Accession No. ML18087A364), the staff concludes that KEPCO/KHNP's application for standard design approval meets the applicable portions of 10 CFR 52.137, "Contents of Applications; Technical Information," and the review standards in 10 CFR 52.139.

Y. Kim

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The duration of this SDA is 15 years in accordance with 10 CFR 52.147, "Duration of Design Approval." If the APR1400 design is subsequently certified, then this SDA will be updated, as needed, to conform to any changes resulting from the DC rulemaking.

If you have questions about this approval, please contact William Ward at (301) 415-7038, or via e-mail at William.Ward@nrc.gov.

Sincerely,

/RA/

Frederick D. Brown, Director
Office of New Reactors

Docket No. 52-046

Enclosure:
As stated

cc: w/encl: See next page

SUBJECT: STANDARD DESIGN APPROVAL FOR THE ADVANCED POWER REACTOR 1400 DATED: September 28, 2018

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ADAMS Accession No.: ML18261A187		*via e-mail		NRO-002
OFFICE	PM:DLSE:LB2:	LA:DLSE:LB2*	Tech Ed:ADM*	BC:DLSE:LB2
NAME	WWard	CSmith	JDougherty	MMcCoppin
DATE	09/25/2018	09/25/2018	09/19/2018	09/26/2018
OFFICE	D:DLSE:NRO	OGC:NLO*	D:NRO	
NAME	RTaylor	RWeisman	FBrown	
DATE	09/28/2018	09/20/2018	09/28/2018	

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DOCKET NO. 52-046

ADVANCED POWER REACTOR 1400 STANDARD DESIGN

STANDARD DESIGN APPROVAL

PURSUANT TO SUBPART E OF 10 CFR PART 52

- (1) On December 23, 2014, Korea Electric Power Corporation and Korea Hydro & Nuclear Power Co., Ltd (KEPCO/KHNP) submitted to the U.S. Nuclear Regulatory Commission (NRC), an application for certification of the Advanced Power Reactor 1400 (APR1400) standard design pursuant to Subpart B of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15006A098). The APR1400 is a nuclear power facility of the type described in 10 CFR 50.22, "Class 103 Licenses; for Commercial and Industrial Facilities." On March 8, 2018, KEPCO/KHNP requested final design approval of the APR1400 design (ADAMS Accession No. ML18079A146). On August 13, 2018, KEPCO/KHNP submitted Revision 3 of the design control document (DCD) for the APR1400 (ADAMS Accession No. ML18228A680) and requested approval of the APR1400 standard design pursuant to Subpart E of 10 CFR Part 52, in addition to the request for design certification (DC) under Subpart B of 10 CFR Part 52. Revision 3 of the DCD for the APR1400 describes KEPCO/KHNP's standard design (ADAMS Accession No. ML18228A667).
- (2) The DCD and its references contain design information that Subpart E, "Standard Design Approvals," of 10 CFR Part 52, requires for a standard plant design. The APR1400 standard design is a nuclear power facility with a rated reactor core power level of 3,983 megawatts thermal. Section 1.2 of the DCD describes the scope of this design.
- (3) The staff and the Advisory Committee on Reactor Safeguards (ACRS) reviewed the APR1400 standard design. The final safety evaluation report (FSER) dated September 28, 2018, presents the findings of the staff's evaluation of the APR1400 standard design (ADAMS Accession No. ML18087A364). The ACRS reported on the APR1400 design in a letter dated July 26, 2018 (ADAMS Accession No. ML18206B086).
- (4) On the basis of its review and the findings reported in the FSER, the staff concludes that the information in the DCD about the APR1400 design described in item (2) above, complies with the requirements in Subpart E of 10 CFR Part 52.
- (5) The staff finds the APR1400 standard design acceptable for use as a reference design for a construction permit, operating license, or combined license application for a facility that is located at a site whose characteristics fall within the site parameters specified in the DCD and provided that portions of the facility that are outside the scope of the approved standard design and interface with the approved standard design conform to the interface requirements given in the DCD.
- (6) This standard design approval (SDA) and all applications that reference it are subject to all applicable provisions of the Atomic Energy Act of 1954, as amended, and to the rules, regulations, and orders of the Commission now or hereafter in effect. In addition, an

applicant who references this SDA shall incorporate into its application; the operational requirements specified in the DCD, including the technical specifications.

- (7) This SDA does not constitute a commitment to issue a permit, DC, or license or in any way affect the authority of the Commission, the Atomic Safety and Licensing Board, or other presiding officers in any proceeding under 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders."
- (8) This SDA is effective on September 28, 2018, and will expire on September 28, 2033, unless the staff extends the date. The expiration of the SDA shall not affect its use in applications docketed before such date.

Dated in Rockville, Maryland, this 28th day of September, 2018.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Frederick D. Brown, Director
Office of New Reactors

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09/19/2018

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