



KHNP

KOREA HYDRO & NUCLEAR POWER CO., LTD

70-1312-gil, Yuseong-daero, Yuseong-gu, Daejeon, 305-343, KOREA

Tel: +82-42-870-5400 / Fax: +82-42-870-5449

<http://www.khnp.co.kr>

March 19, 2018
Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. William Ward
Division of New Reactor Licensing

Docket No. 52-046
MKD/NW-18-0039L

Subject: Submittal of Technical Reports for the APR1400 Design Certification

References:

- 1. KHNP Letter MKD/NW-17-0071L, Submittal of Revised Technical Reports for APR1400, dated March 17, 2017**
- 2. KHNP Letter MKD/NW-15-0346L, Response to RAI 233-8244, December 11, 2015**

The purpose of this letter is to transmit ten (10) sets of technical reports regarding safety analysis, mechanical design and I&C design of the APR1400.

Nine sets are recently updated technical reports and their prior versions had been submitted under the Reference 1. All the responses to relevant RAIs, officially transmitted before December 31, 2017, have been incorporated into these revisions.

The last one, dealing with the APR1400 overpressure protection design and PZR sizing, has been newly issued in order to support the response to RAI 233-8244 Question No.05.02.02-1 (See the Reference 2) in more detail as discussed through several conference calls on that issue and is herewith transmitted.

Enclosure 1 contains a copy of the associated affidavit. Enclosures 2 to 21 provide electronic copies of either proprietary or non-proprietary version of each set of the technical reports.

If additional information or clarification required, please contact Daegeun Ahn, Director of KHNP Washington DC Center, at ahn.daegeun@khnp.co.kr or 703-388-0592.

Sincerely,

Han-gon Kim
Project Manager
Advanced Reactors Development Laboratory
Korea Hydro and Nuclear Power Co., Ltd

Enclosures:

1. Affidavit KAW-18-0039
2. Criticality Analysis of New and Spent Fuel Storage Racks (Proprietary) (APR1400-Z-A-NR-14011-P, Rev.2)
3. Criticality Analysis of New and Spent Fuel Storage Racks (Non-Proprietary) (APR1400-Z-A-NR-14011-NP, Rev.2)
4. ATWS Evaluation (Proprietary) (APR1400-Z-A-NR-140114-P, Rev.2)
5. ATWS Evaluation (Non-Proprietary) (APR1400-Z-A-NR-14014-NP, Rev.2)
6. Safety I&C System (Proprietary) (APR1400-Z-J-NR-14001-P, Rev.2)
7. Safety I&C System (Non-Proprietary) (APR1400-Z-J-NR-14001-NP, Rev.2)
8. Software Program Manual (Proprietary) (APR1400-Z-J-NR-14003-P, Rev.2)
9. Software Program Manual (Non-Proprietary) (APR1400-Z-J-NR-14003-NP, Rev.2)
10. Setpoint Methodology for Safety-Related Instrumentation (Proprietary) (APR1400-Z-J-NR-14005-P, Rev.2)
11. Setpoint Methodology for Safety-Related Instrumentation (Non-Proprietary) (APR1400-Z-J-NR-14005-NP, Rev.2)
12. Control System CCF Analysis (Proprietary) (APR1400-Z-J-NR-14012-P, Rev.2)
13. Control System CCF Analysis (Non-Proprietary) (APR1400-Z-J-NR-14012-NP, Rev.2)
14. Response Time Analysis of Safety I&C System (Proprietary) (APR1400-Z-J-NR-14013-P, Rev.2)
15. Response Time Analysis of Safety I&C System (Non-Proprietary) (APR1400-Z-J-NR-14013-NP, Rev.2)
16. Pressure-Temperature Limits Methodology for RCS Heatup and Cooldown (Proprietary) (APR1400-Z-M-NR-14008-P, Rev.1)
17. Pressure-Temperature Limits Methodology for RCS Heatup and Cooldown (Non-Proprietary) (APR1400-Z-M-NR-14008-NP, Rev.1)
18. Leak-Before-Break Evaluation of the Surge Line (Proprietary) (APR1400-Z-M-NR-14016-P, Rev.1)
19. Leak-Before-Break Evaluation of the Surge Line (Non-Proprietary) (APR1400-Z-M-NR-14016-NP, Rev.1)
20. Pressurizer Sizing and Overpressure Protection Evaluation (Proprietary) (APR1400-Z-A-NR-14020-P, Rev.0)
21. Pressurizer Sizing and Overpressure Protection Evaluation (Non-Proprietary) (APR1400-Z-A-NR-14020-NP, Rev.0)

Enclosure 1

Affidavit KAW-18-0039

I, Yun-ho Kim, state the following:

1. I am the General Manager of Korea Hydro & Nuclear Power Co., Ltd. (KHNP), and as such I am authorized to request withholding the information transmitted with this letter from public disclosure and to execute this affidavit.
2. I am familiar with the criteria applied by KHNP to determine whether certain information is proprietary, and with the policies established by KHNP to ensure the proper application of these criteria.
3. The information, APR1400-E-I-NR-14001-P, APR1400-E-I-NR-14002-P, APR1400-E-I-NR-14003-P, APR1400-E-I-NR-14004-P, APR1400-E-I-NR-14006-P, APR1400-E-I-NR-14007-P, APR1400-E-I-NR-14008-P, APR1400-E-I-NR-14010-P, APR1400-E-I-NR-14011-P, APR1400-E-I-NR-14012-P, and APR1400-E-P-NR-14003-P, transmitted with this letter has been classified by KHNP as proprietary in accordance with the policies for the control and protection of proprietary and confidential information. The information regarded as proprietary is identified and marked consistent with the requirements of 10 CFR 2.390, § (b)(1)(i). Accordingly, the proprietary information is enclosed within brackets and the right-hand bracket carries a notation of “TS” to indicate that the trade secret nature of the information claimed to be proprietary is the basis for proposing that the information so identified be withheld from public disclosure.
4. Pursuant to the considerations set forth in 10 CFR Section 2.390(a), KHNP considers the information classified as proprietary to be “trade secret” information since it is design, analysis, or test information that would be difficult for a competitor to reproduce and hence provides an economic and competitive advantage to KHNP.
5. The need for designating the information as proprietary has been raised within KHNP. The information is being treated proprietary and confidential and has not been disclosed by KHNP to the public.
6. Nondisclosure of the proprietary information transmitted with this letter is vital to the competitiveness held by KHNP and, hence, disclosure of the proprietary information transmitted in with this letter would have negative commercial impacts on the competitive position of KHNP in the U.S. nuclear market.
7. In accordance with KHNP policy, proprietary information contained in this document may be, or may have been, made available on a limited basis to regulatory bodies,



customers, potential customers, and their agents, suppliers, and licensees, and others under suitable agreements providing for nondisclosure and limited use of the information.

I declare that the foregoing statements are true and correct to the best of my knowledge, information and belief.

Executed on March 19, 2018

Yun-ho Kim
General Manager
APR1400 Licensing Team
Central Research Institute
Korea Hydro and Nuclear Power Co., Ltd

Enclosure 2

APR1400-E-I-NR-14001-P, Rev.2

Human Factors Engineering Program Plan

(Proprietary)

Enclosure 3

APR1400-E-I-NR-14001-NP, Rev.2

Human Factors Engineering Program Plan

(Non-proprietary)

Enclosure 4

APR1400-E-I-NR-14002-P, Rev.2

Operating Experience Review Implementation Plan

(Proprietary)

Enclosure 5

APR1400-E-I-NR-14002-NP, Rev.2

Operating Experience Review Implementation Plan

(Non-proprietary)

Enclosure 6

APR1400-E-I-NR-14003-P, Rev.2

Functional Requirements Analysis and Function Allocation
Implementation Plan

(Proprietary)

Enclosure 7

APR1400-E-I-NR-14003-NP, Rev.2

Functional Requirements Analysis and Function Allocation
Implementation Plan

(Non-proprietary)

Enclosure 8

APR1400-E-I-NR-14004-P, Rev.2

Task Analysis Implementation Plan

(Proprietary)

Enclosure 9

APR1400-E-I-NR-14004-NP, Rev.2

Task Analysis Implementation Plan

(Non-proprietary)

Enclosure 10

APR1400-E-I-NR-14006-P, Rev.2

Treatment of Important Human Actions Implementation Plan

(Proprietary)

Enclosure 11

APR1400-E-I-NR-14006-NP, Rev.2

Treatment of Important Human Actions Implementation Plan

(Non-proprietary)

Enclosure 12

APR1400-E-I-NR-14007-P, Rev.2

Human-System Interface Design Implementation Plan

(Proprietary)

Enclosure 13

APR1400-E-I-NR-14007-NP, Rev.2

Human-System Interface Design Implementation Plan

(Non-proprietary)

Enclosure 14

APR1400-E-I-NR-14008-P, Rev.2

Human Factors Verification and Validation Implementation Plan

(Proprietary)

Enclosure 15

APR1400-E-I-NR-14008-NP, Rev.2

Human Factors Verification and Validation Implementation Plan

(Non-proprietary)

Enclosure 16

APR1400-E-I-NR-14010-P, Rev.2

Human Factors Verification and Validation Scenarios

(Proprietary)

Enclosure 17

APR1400-E-I-NR-14010-NP, Rev.2

Human Factors Verification and Validation Scenarios

(Non-proprietary)

Enclosure 18

APR1400-E-I-NR-14011-P, Rev.2

Basic Human-System Interface

(Proprietary)

Enclosure 19

APR1400-E-I-NR-14011-NP, Rev.2

Basic Human-System Interface

(Non-proprietary)

Enclosure 20

APR1400-E-I-NR-14012-P, Rev.2

Style Guide

(Proprietary)

Enclosure 21

APR1400-E-I-NR-14012-NP, Rev.2

Style Guide

(Non-proprietary)