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Project No.0782

Reply Required ☐Yes ☒No

**Subject: Submittal of KHNP Response to Request for Additional Information (RAI)  
No. 6834**

**Reference: 1) Letter from NRC Requesting Additional Information No. 6834,  
dated September 28, 2012 (NRC Project 0782)  
2) KHNP Topical Report: Quality Assurance Program Description for  
Design Certification of the APR1400, Revision 1, May 2012  
(APR1400-K-Q-TR-11005-NP (R1))**

KEPCO/KHNP is hereby submitting a response to the Request for Additional Information (RAI) No. 6834, dated September 28, 2012 (Reference 1). The RAI and this response are related to KHNP Topical Report APR1400-K-Q-TR-11005-NP (R1) (Reference 2). Enclosure 1 contains the Responses to specific questions from the RAI.

If you should have any questions or concerns, please direct them to Moon-Ghu Park at 82-42-870-5020 or at [parkmoon@khnp.co.kr](mailto:parkmoon@khnp.co.kr).

Sincerely,

Moon-Ghu Park

Director

APR1400 Licensing Team

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Enclosure 1: KHNP Responses to Request for Additional Information No. 6834

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APR1400-K-Q-RA-12001-NP  
Revision 0

## **Enclosure 1**

# **KHNP Response to Request for Additional Information No. 6834**

**Non-Proprietary**

**November 2012**



**APR1400-K-Q-RA-12001-NP**  
**Revision 0**

## **Enclosure 1**

# **KHNP Response to Request for Additional Information No. 6834**

**Non-Proprietary**

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Enclosure 1

## **KHNP Response to Request for Additional Information No. 6834**

### **Question QAPD-1**

10 CFR 52.47(a)(7) states that an applicant must include the technical qualifications of the applicant to engage in the proposed activities in accordance with the regulations in this chapter.

Section 1, "Organization," of the KHNP QAPD states that "KHNP relies on three primary organizations for support of the APR1400 DC project. These organizations are KEPCO Engineering & Construction Company, Inc. (KEPCO E&C), KEPCO Nuclear Fuel Co., Ltd. (KEPCO NF), and Doosan Heavy Industry & Construction Co., Ltd (Doosan). All support organizations are evaluated and approved prior to performing safety-related work."

Section 1.7, "KEPCO Nuclear Power Group, Design Partners and Suppliers," of the KHNP QAPD states that "[d]esigning, testing, and licensing support services are provided by the Design Partners and other suppliers as needed."

Section 3.1, "Design Verification," of the KHNP QAPD states that "for design documents that it reviews, KHNP normally completes design verification activities before the design outputs are used by other organizations for design work, and before they are used to support other activities such as procurement, manufacture, or construction."

Based on the information provided in the KHNP QAPD above, the NRC staff was unable to conclude that the applicant has the technical qualifications to oversee all design activities.

Please provide additional information to provide assurance that KHNP has the technical qualifications to oversee all design activities.

### **(KHNP Response)**

*KHNP understands that an applicant must have the technical qualifications to engage in the activities discussed in the regulations as described in 10 CFR 52.47(a)(7). KHNP has been leading the full spectrum of nuclear power activities, such as design, manufacturing, construction, and operation, in Korea in accordance with the Korean national energy strategies, so KHNP is more than just a utility company. In the course of developing, licensing, constructing, and operating the APR1400 nuclear plant in Korea, the KHNP technical staff has used their expertise in directing this project. Their expertise has been reviewed, their participation on the project approved, and their qualifications are maintained by proper qualification system. This same technical staff is responsible for the APR1400 NRC DC Project at this moment. They understand and are responsible for implementing QA requirements, which comply with 10CFR50 Appendix B, 10CFR21, and ASME NQA-1-2008 and 1a-2009. The technical staff is verifying selected important design documents and supporting QA activities. In support of the DC process,*

*KHNP will delegate all or a part of certain selected activities and related requirements to suppliers through contracts and procurement documents; and the delegated activities and requirements shall be described in those contracts and procurement documents. KHNP will audit supplier QA programs for compliance with KHNP requirements, including the qualifications of supplier personnel, and to ensure that their activities are conducted in accordance with technical and quality assurance requirements. Consequently, the delegated activities shall have the same level of quality as if KHNP performed those activities. Additionally, to assure the quality of design products, KHNP does design verification independent of the suppliers and finally retains full responsibility as the applicant for the APR1400 DC program, even though requirements, which comply with 10CFR50 Appendix B, 10CFR21, and ASME NQA-1-2008 and 1a-2009, are passed to suppliers and sub-suppliers through contracts and procurement documents for certain selected activities.*

*Therefore, the sentence of Section 1 which is referenced in the question is to be revised as follows.*

- Designing, engineering, testing, and licensing services can be delegated to suppliers who conduct activities in accordance with their quality assurance program (QAPs). KHNP reviews supplier QAPs for compliance with KHNP's contractually imposed QA requirements and approves supplier QAPs that meet those requirements. Additionally, KHNP audits suppliers' implementation of their QAPs and executed activities, including technical requirements, to ensure that they comply with the suppliers' QAP and KHNP's QAP requirements (that is, with 10CFR50 Appendix B, 10CFR21, and ASME NQA-1-2008 and 1a-2009). In conducting these implementation reviews, KHNP includes staff with appropriate technical expertise to assess implementation of the technical and QA requirements. Although KHNP imposes these QA requirements through contracts and procurement documents, final responsibility is retained by KHNP. Finally, these suppliers are evaluated and approved prior to performing safety-related work.*

*Further, as the result of the change just described above, the sentence of Section 1.7 referenced in the question will be deleted and section numbers will be revised accordingly. The deleted sentences of Section 1.7 are as follows.*

*- 1.7 KEPCO Nuclear Power Group, Design Partners, and Suppliers*

*The activities necessary to support the APR1400 DC project are accomplished primarily by four organizations. The companies are KHNP, KEPCO Engineering & Construction Company, Inc. (KEPCO E&C), KEPCO Nuclear Fuel Co., Ltd. (KEPCO NF), and Doosan Heavy Industry & Construction Co., Ltd. (Doosan).*

*KHNP, KEPCO E&C, and KEPCO NF are nuclear subsidiaries of KEPCO and are referred to as the KEPCO Nuclear Power Group (KNPG). KEPCO E&C, KEPCO NF, and Doosan are referred to as the Design Partners.*

*KHNP manages and is responsible for the APR1400 DC application. KHNP activities include QA, licensing and engineering activities and the quality and content of the DC application. As discussed above, KHNP performs quality-related activities for the APR1400 DC under this*

QAPD, and the KHNP CRI is responsible for developing and verifying implementation of this QAPD. Designing, testing, and licensing support services are provided by the Design Partners and other suppliers as needed.

All work performed to support the APR1400 DC application shall be performed in accordance with quality assurance programs that comply with 10 CFR 50, Appendix B and applicable regulatory requirements. Suppliers are responsible for implementing the work in accordance with their QA programs, as reviewed and approved by KHNP, or performing quality-related activities under the KHNP QA program. KHNP evaluates the performance of their work in accordance with the requirements of the procurement documents, this QAPD, and its implementing procedures.

#### -1.7.1 KEPCO E&C

KEPCO E&C provides engineering services to KHNP for the nuclear steam supply system (NSSS), structure, and Balance of Plant (BOP) system design for the APR1400 DC project to KHNP. It also provides licensing support for the APR1400 DC project. KEPCO E&C is required to establish its own QA program consistent with this QAPD and in compliance with the applicable requirements of 10 CFR 50, Appendix B for use on the APR1400 DC project. KEPCO E&C shall conduct its functional responsibilities within the scope of the APR1400 DC project under this QA program. The performance of its work is evaluated or audited by KHNP in accordance with the requirements of this QAPD.

#### -1.7.2 KEPCO NF

KEPCO NF provides reactor core design and fuel engineering services for the APR1400 DC project to KHNP. KEPCO NF is required to establish its own QA program consistent with this QAPD and in compliance with the applicable requirements of 10 CFR 50, Appendix B. KEPCO NF shall conduct its functional responsibilities within the scope of the APR1400 DC project under this QA program. The performance of its work is evaluated or audited by KHNP in accordance with the requirements of this QAPD.

#### -1.7.3 Doosan

Doosan provides engineering services for component design within the NSSS and the turbine generator for the APR1400 DC project to KHNP. Doosan is required to establish its own QA program consistent with this QAPD and in compliance with the applicable requirements of 10 CFR 50, Appendix B. Doosan shall conduct its functional responsibilities within the scope of the APR1400 DC project under this QA program. The performance of its work is evaluated or audited by KHNP in accordance with the requirements of this QAPD.

Similarly, the sentence of Section 3.1 referenced in the question will be revised as follows.

-KHNP procedures encourage the completion of design verification activities before the design outputs are used by other organizations for design work, and before they are used to support other activities such as procurement, manufacture, or construction.

Additionally, the diagram describing design partners, Figure II 1-1 KHNP APR1400 Design Partner, will be deleted.

## **Question QAPD-2**

SRP Section 17.5, paragraph II.A.3 states in part that the QAPD is to contain an organizational description that addresses the organizational structure, functional responsibilities, levels of authority, and interfaces. The organizational description is to include the onsite and offsite organizational elements that function under the cognizance of the QA program.

The KHNP QAPD Section 1.1 states that “the President and CEO is responsible for all technical and administrative support activities provided by KHNP and contractors.”

Please provide clarification on the functional responsibilities for all technical and administrative support activities provided by the Design Partners.

### **(KHNP Response)**

*As the President represents KHNP, he/she shall manage company-wide measures. The President does not control directly the “Design Partners” (from now on suppliers); however, it is done by directing his/her subordinates to support all technical and administrative activities not only of KHNP but also of suppliers as the DC process covers all activities from KHNP to suppliers. As mentioned in the response to QAPD-1, KHNP QA requirements will be passed to suppliers and/or sub-suppliers, through contracts or other procurement document such that they will conform to the KHNP QAPD. From the President, the EVP and VPQA receive the responsibility for technical and administrative support activities for KHNP and suppliers to comply with 10CFR50 Appendix B, 10CFR21, ASME NQA-1-2008, and 1a-2009. Furthermore, KHNP confirms that the first sentence of Section 1.1 which says “the President and CEO represents the company and is responsible for the management of the company” shows already the responsibility of the President and CEO. Accordingly, the EVP and VPQA report back to the CEO to ensure his/her overall responsibilities are fulfilled.*

*Therefore, the next sentence of Section 1.1 will be deleted as follows.*

- The President and CEO is responsible for all technical and administrative support activities provided by KHNP and contractors.*

*Hence, the final description for the responsibility of the President and CEO will be as follows.*

- The President and Chief Executive Officer (CEO) represents the company and is responsible for the management of the company. The President and CEO directs the Executive Vice President of Safety & Technology Division and the Vice President of Quality Assurance Office.*

**Question QAPD-3**

SRP Section 17.5, section A.6 states, in part, that the organizational elements responsible for delegated work are identified and documented and the responsibility for the QA program and the extent of management oversight is established.

Sections 1.7.1, 1.7.2 and 1.7.3, “[Design Partner]” of the KHNP QAPD state that “[Design Partner] is required to establish its own QA program consistent with this QAPD and in compliance with the applicable requirements of 10 CFR 50, Appendix B for use on the APR1400 DC project. [Design Partner] shall conduct its functional responsibilities within the scope of the APR1400 DC project under this QA program.”

Please provide clarification as to whether the Design Partners will work under their own QA program or under KHNP QA program.

**(KHNP Response)**

*As noted above, “Design Partners” are now being treated as “Suppliers” under KHNP’s QAP which is actually implemented with Quality Assurance Manual (QAM) of APR1400 DC Project and will not be discussed separately or treated differently than other suppliers. However, the suppliers formerly described as Design Partners have their own QA programs that have been reviewed and approved by KHNP and will be conducting work under their own QA programs*

**Question QAPD-4**

The KHNP QAPD commits to compliance with NQA-1-2008 and NQA-1a-2009 Addenda, Requirements 1, 4, 5, 6, 8, 9, 13 through 18.

NQA-1a-2009 Addenda does not have additional clarifications or information related to Requirement 1, 4, 5, 6, 8, 9, and 13 through 18.

Based on the above, please revise the KHNP QAPD commitments.

**(KHNP Response)**

*KHNP agrees with the NRC statements; and KHNP checked ASME NQA-1 again and now recognizes that the above mentioned requirements do not have clarifications in the NQA-1a-2009 addenda.*

*Therefore, all comments on NQA-1a-2009 addenda for the requirements of 1, 4, 5, 6, 8, 9, and 13 through 18 are to be deleted as follows. And three more requirements also are to be revised as*



same reason on 2.6, 10.3, and 12.1.

-1.9 NQA-1-2008 Commitment

In establishing its organizational structure, KHNP commits to compliance with NQA-1-2008, Requirement 1.

- 2.6 NQA-1-2008 Commitment / Exceptions

In establishing qualification and training programs, KHNP commits to compliance with NQA-1-2008, Requirement 2 with the following exception:

-4.1 NQA-1-2008 Commitment

In establishing controls for procurement, KHNP commits to compliance with NQA-1-2008, Requirement 4.

-5.3 NQA-1-2008 Commitment

In establishing procedural controls, KHNP commits to compliance with NQA-1-2008, Requirement 5.

-6.3 NQA-1-2008 Commitment

In establishing provisions for document control, KHNP commits to compliance with NQA-1-2008, Requirement 6.

-10.3 NQA-1-2008 Commitment

In establishing inspection requirements, KHNP commits to compliance of suppliers with NQA-1-2008, Requirement 10.

-12.1 NQA-1-2008 Commitment

In establishing provisions for control of measuring and test equipment, KHNP commits to compliance of suppliers with NQA-1-2008, Requirement 12.

-15.2 NQA-1-2008 Commitment

In establishing measures for nonconforming materials, parts, or components, KHNP commits to compliance with NQA-1-2008, Requirement 15.

-16.2 NQA-1-2008 Commitment

In establishing provisions for corrective action, KHNP commits to compliance with NQA-1-2008, Requirement 16.

-17.3 NQA-1-2008 Commitment

In establishing provisions for records, KHNP commits to compliance with NQA-1-2008, Requirement 17 and Non-mandatory Appendix 17A-1, Section 200 of ASME NQA-1-2008.

-18.3 NQA-1-2008 Commitment

In establishing the independent audit program, KHNP commits to compliance with NQA-1-2008, Requirement 18.

**Question QAPD-5**

The KHNP QAPD commits to compliance with NQA-1a-2009 Addenda, Requirement 7 which includes Section 700 that states:

When commercial grade items or services are utilized, the requirements of Part II, Subpart 2.14, Quality Assurance Requirements for Commercial Grade Items and Services, shall apply and are an acceptable alternative to sections 200 through 600 of this Requirement, except that Supplier evaluation and selection, where determined necessary by the Purchaser, shall be in accordance with section 200 of this Requirement.

Based on the above, please add Subpart 2.14 to Section 7.2, NQA-1-2008 Commitment.

**(KHNP Response)**

*KHNP agrees with the NRC statements; and KHNP checked again NQA-1 Part II, Subpart 2.14 "Quality Assurance Requirements for Commercial Grade Items and Services" and now recognizes that it is essential to procurement control.*

*Therefore, the sentence of Section 7.2 is to be revised to add Part II, Subpart 2.14 as follows.*

*-7.2 NQA-1-2008 and NQA-1a-2009 addenda Commitment / Exceptions*

*In establishing procurement verification controls, KHNP commits to compliance with NQA-1-2008 and NQA-1a-2009 addenda, Requirement 7 and Part II, Subpart 2.14, with the following clarification and exception:*

**Question QAPD-6**

The KHNP QAPD commits to compliance with NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 3, Subpart 2.7 for computer software which states:

The dedication of commercial grade items or services for use as safety-related applications is a design control activity. Subpart 2.14, "Quality Assurance Requirements for Commercial Grade Items and Services" provides the requirements for commercial-grade items and services and should be committed to in Section 3 of the KHNP QAPD.

Based on the above, please add Subpart 2.14 to Section 3.4, NQA-1-2008 Commitment.

**(KHNP Response)**

*KHNP agrees with the NRC statements; KHNP checked again NQA-1 Part II, Subpart 2.14 "Quality Assurance Requirements for Commercial Grade Items and Services" and now*

*recognizes that it is essential to design control.*

*Therefore, the sentence of Section 3.4 is to be revised to add Part II, Subpart 2.14.*

*-3.4 NQA-1-2008 and NQA-1a-2009 addenda Commitment*

*In establishing its program for design control and verification, KHNP commits to compliance with NQA-1-2008 and NQA-1a-2009 addenda, Requirement 3 and the standards for computer software in NQA-1-2008 and NQA-1a-2009 addenda, Part II, Subpart 2.7 and 2.14.*

## **Question QAPD-7**

Section 17.1, "Record Retention," of the KHNP QAPD states, in part, "the records and retention times are based on Regulatory Position C.1 of Regulatory Guide 1.28, Revision 4, NQA-1-2008 and NQA-1a-2009 Addenda, Non-mandatory Appendix 17A-1, Section 200 as applicable for the development of the design certification."

Based on the above, please include the Non-mandatory Appendix 17A-1, Section 200 inside the NQA-1-2008 Commitment section and delete NQA-1a-2009 Addenda since it does not have additional clarifications or information related to Requirement 17.

## **(KHNP Response)**

*KHNP agrees with the NRC statements; KHNP checked NQA-1 Part III, Subpart 3.1 Non-mandatory Appendix 17A-1 "Guidance on Quality Assurance Records" again and now recognizes that it is necessary for QA record control.*

*Therefore, the sentence of Section 17.1 is to be revised as follows to include the Non-mandatory Appendix 17A-1, Section 200 inside the NQA-1-2008 Commitment section and delete NQA-1a-2009 Addenda.*

*-The records and retention times are based on Regulatory Position C.1 of Regulatory Guide 1.28, Revision 4, Non-mandatory Appendix 17A-1 Section 200 of ASME NQA-1-2008, as applicable for the development of the design certification. In all cases where state, local, or other agencies have more restrictive requirements for record retention, those requirements will be met.*

*-17.3 NQA-1-2008 Commitment*

*In establishing provisions for records, KHNP commits to compliance with NQA-1-2008, Requirement 17 and Non-mandatory Appendix 17A-1, Section 200 of ASME NQA-1-2008.*

## **Question QAPD-8**

KHNP commits to compliance with NQA-1-2008 and NQA-1-2009 Addenda, Requirement 12, with the following clarification:

The out of calibration conditions described in Section 303 refers to when the M&TE is found out of the required accuracy limits (i.e., out of tolerance) during calibration.

The NRC staff was unable to ascertain why this clarification to NQA-1-2008 and NQA-1-2009 Addenda, Requirement 12 Section 303 is necessary for a design certification application, please provide a justification for this exception.

**(KHNP Response)**

*KHNP agrees with the NRC statements; KHNP checked Requirement 12 Section 303 again and now recognizes that there is no need to describe two clarifications because to conform to 303 is mandatory and because it is important and essential to keep and use the correctly and accurately calibrated measuring and test equipment.*

*Therefore, the following clarification sentences of Section 12.1 are to be deleted.*

- *Clarification - The out of calibration conditions described in Section 303 refers to when the M&TE is found out of the required accuracy limits (i.e., out of tolerance) during calibration.*

**Question QAPD-9**

KHNP commits to compliance with NQA-1-2008 and NQA-1-2009 Addenda, Requirement 12, with the following clarification:

Measuring and test equipment are not required to be marked with the calibration status where it is impossible or impractical due to equipment size or configuration (such as the label will interfere with operation of the device) provided the required information is maintained in suitable documentation traceable to the device.

The NRC staff notes that NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 12, Section 303.6, as written, already provides for measuring and test equipment to be “otherwise identified” to indicate calibration status and establish traceability to calibration records. As such, it is not clear to the staff why an alternative to NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 12, Section 303.6 is necessary. Please provide a justification for this clarification.

**(KHNP Response)**

*KHNP has reviewed Requirement 12 and now agrees that no clarification is needed.*

*Therefore, the clarification sentences of Section 12.1 are to be deleted.*

- Clarification - Measuring and test equipment are not required to be marked with the calibration status where it is impossible or impractical due to equipment size or configuration (such as the label will interfere with operation of the device) provided the required information is maintained in suitable documentation traceable to the device.

### **Question QAPD-10**

SRP Section 17.5, Section F.2 states, in part, that “the scope of the document control program is defined.”

Please clarify why technical specifications are not included in KHNP’s types of documents to be controlled.

#### **(KHNP Response)**

*KHNP agrees that technical specifications should be included in the types of documents to be controlled.*

*Therefore, the last part of Section 6 is to be revised to add “(i) technical specifications” and the subsequent section numbering will be revised accordingly.*

### **Question QAPD-11**

SRP 17.5, Section C.1.q, states that quality assurance personnel are included in the documented review and concurrence of quality-related procedures associated with design consistent with the requirements of 10 CFR 50.34(f)(3)(iii)(C).

Please describe how this requirement is being met in the proposed KHNP QAPD.

#### **(KHNP Response)**

*KHNP agrees that quality assurance personnel shall review, approve, and document the quality-related procedures according to the requirements of 10 CFR 50.34(f)(3)(iii)(C).*

*Therefore, the sentences of Section 6.1 are to be revised to add as follows.*

#### **-6.1 Review and Approval of Documents**

Documents are reviewed for adequacy by qualified persons other than the preparer. Quality-related documents are reviewed by the Quality Assurance Team to ensure that quality assurance measures are appropriately applied.

**Question QAPD-12**

SRP 17.5, Section C.1.n, states that the QA role in design and analysis activities is defined. Design documents are reviewed by individuals knowledgeable and qualified in QA to ensure the documents contain the necessary QA requirements consistent with the requirements of 10 CFR 50.34(f)(3)(iii)(H).

Please describe how this requirement is being met in the proposed KHNP QAPD.

**(KHNP Response)**

*KHNP agrees that individuals knowledgeable and qualified in QA shall review, approve, and document the design and analysis activities according to the requirements of 10 CFR 50.34(f)(3)(iii)(H).*

*Therefore, the sentences of Section 3 are to be revised to add as follows.*

*-Design and analysis documents are reviewed by technical individuals who have been educated about QA requirements by the Quality Assurance Team and qualified by the Licensing Team to ensure that the documents contain and implement the necessary QA requirements.*

**Question QAPD-13**

Section 7.1, "Acceptance of Item or Service," of the KHNP QAPD states that, "verification actions include testing, as appropriate during design activities." However, Section 11, "Test Control," of the KHNP QAPD notes that KHNP does not directly perform test activities as part of developing the DC application, except for computer software testing. Instead, testing services will be performed by suppliers.

Please clarify the scope of testing services envisioned for procurement during the KHNP design certification project, as well as the role KHNP will play in testing associated with design verification, including the control of measuring and test equipment (M&TE).

**(KHNP Response)**

*At this moment, there is no specific testing currently to be performed that is under contract, but whenever there is a need, it will be controlled according to the QAPD. On the other hand, the test data, which were generated before this DC project was initiated, shall be evaluated by qualified personnel.*

*If there is a need for additional testing during the NRC evaluation of APR1400, that testing shall*

*be performed KHNP or a supplier in compliance with the QA Requirements in the QAPD.*

*Therefore, KHNP confirms that, as an applicant of APR1400 DC, KHNP shall be responsible for assuring that all nuclear safety related services, including any required testing, will meet the requirements of 10CFR50 Appendix B, 10CFR21, and ASME NQA-1 with testing services whether those services are delegated or not. When they are delegated, the supplier shall meet the above requirements that are necessary to support the APR1400 DC Program with its own quality assurance program approved by KHNP. And KHNP shall require in the contract and procurement documents that suppliers prepare and implement the necessary measures and governing procedures for testing. Such documentation may include test plans, technical requirements, QA requirements, test personnel qualifications, control of measuring and test equipment (M&TE), and test result documentation activities.*

### **Question QAPD-14**

Section 7.1, "Acceptance of Item or Service," of the KHNP QAPD states that provisions are made for accepting purchased items and services, such as source verification, receipt inspection, certificate of conformance (C of C), and document reviews (including certified material test reports/certificate (CMTR)).

Please explain why CMTRs are within the scope of the KHNP QAPD.

### **(KHNP Response)**

*KHNP understands that the CMTRs could be necessary when KHNP does design verification test by itself and purchases materials or test facilities.*

*Therefore, the words related to CMTR in Section 7.1 are to be kept.*

### **Question QAPD-15**

Section 7.1, "Acceptance of Item or Service," of the KHNP QAPD states that, "KHNP has established the necessary measures and governing procedures to control the procurement of items and services to assure conformance with specified requirements. Such control provides for the following as appropriate: ... source inspection, audit and examination of items and services." However, Section 10, "Inspection," of the QAPD notes that KHNP does not directly perform inspection activities as part of developing the APR1400 DC application. Instead, any inspection activities will be performed by suppliers.

Please clarify the scope of inspection activities envisioned for KHNP design certification project.

### **(KHNP Response)**

*The term "source inspection" is broadly used in NQA-1. If KHNP were to review design documents for acceptance at a supplier's facility this is a form of "source inspection" as the term is used in NQA-1. With respect to "inspection activities", KHNP does not intend to perform inspection of hardware, but KHNP will be reviewing design documents at suppliers' facilities. Consequently, KHNP believes it is appropriate to include "source Inspection" in Section 7.1.*

### **Question QAPD-16**

Section 7, "Control of Purchase Material, Equipment and Services," of the KHNP QAPD includes the following clarification:

Clarification - KHNP considers that other 10 CFR 50 licensees, Authorized Nuclear Inspection Agencies, National Institute of Standards and Technology, or other State and Federal agencies which may provide items or services to KHNP during the DC phase are not required to be evaluated or audited.

Please clarify the acceptability of National Institute of Standards and Technology's, or other State and Federal agencies' items or services without performing an audit.

### **(KHNP Response)**

*Based on the discussion during the conference call, KHNP understands that the NRC staff's concern is that the clarification as written could imply that KHNP intends to apply the clarification to state or federal agencies outside of the US, and in particular to state and federal agencies within South Korea. However, KHNP does not have any plan to use this concept to purchase products or services from entities during the design certification application process. Consequently, KHNP will delete the clarification.*

*Therefore, the clarification and exception of Section 7.2 are to be deleted as follows.*

- Clarification - KHNP considers that other 10 CFR 50 licensees, Authorized Nuclear Inspection Agencies, National Institute of Standards and Technology, or other State and Federal agencies which may provide items or services to KHNP during the DC phase are not required to be evaluated or audited.*

### **Question QAPD-17**

Section 3, "Design Control" of the KHNP QAPD states that the design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces within Design Partners and with other organizations.



Please clarify organizational interfaces between KHNP and the Design Partners.

**(KHNP Response)**

*KHNP used "Design Partners" in Revision 1 of KHNP QAPD, but KHNP noticed that it is not appropriate for expressing the organizational structure of the DC project; hence, from Revision 2 the term "Suppliers" will be used instead.*

*As discussed during the conference call with the NRC staff, with the change by KHNP to treat Design Partners as Suppliers, KHNP understands there is no longer a need to clarify the organizational interface between KHNP and the Design Partners.*

*Therefore, the sentences of Section 3 are to be revised to add as follows.*

*-KHNP shall establish and implement a measure to describe that interface control, among internal and external organizations participating in design activities, shall include assignment of responsibility and procedures for review, approval, release, distribution, and revision of documents involving design interfaces.*

**Question QAPD-18**

Section 2.4, "Issuance and Revision to Quality Assurance Program" of the KHNP QAPD states that administrative control of the QAPD being in accordance with 10 CFR 50.55(f), as appropriate. 10 CFR 50.55(f) applies only to construction permits, early site permits, combined licenses, and manufacturing licenses.

Please clarify why the KHNP QAPD is committing to the requirements of 10 CFR 50.55(f).

**(KHNP Response)**

*KHNP agrees that 10 CFR 50.55(f) is not appropriate for DC. On the other hand, KHNP recognizes that 10 CFR 50.54(a)(3) & 50.71(e) are applicable to DC applications.*

*Therefore, the words of Section 2.4 are to be revised from 10 CFR 50.55(f) to 10 CFR 50.54(a)(3) & 50.71(e) as follows.*

*-Administrative control of the QAPD will be in accordance with 10 CFR 50.54(a)(3) & 50.71(e) as appropriate.*

**Question QAPD-19**

Section 1.5, "Control of Purchase Items and Services," of Part III Non-safety Related SSC

Quality Control of the KHNP QAPD states that, “KHNP employs measures, such as inspection of items or documents upon receipt or acceptance testing, to ensure that all purchased items and services conform to appropriate procurement documents.” However, Section 1.11, “Test Control,” of Part III Non-safety Related SSC Quality Control of the KHNP QAPD notes that KHNP does not directly perform test activities as part of developing the DC application. Instead, testing services will be performed by suppliers.

Please clarify the scope of testing services envisioned for procurement of non-safety related SSC during the KHNP design certification project, as well as the role KHNP will play in testing associated with design verification, including the control of measuring and test equipment (M&TE).

### **(KHNP Response)**

*At this moment, there is no specific testing to be performed that is under contract, but whenever there is a need, it will be controlled according to QAPD Part III. On the other hand, the test data, which were generated before this DC project was initiated, shall be evaluated by qualified personnel.*

*Similar to the response QAPD-13, if there is a need for additional testing during the NRC evaluation of APR1400, that testing shall be performed by KHNP or a supplier in compliance with the QA Requirements in the QAPD.*

*Therefore, KHNP confirms that, as an applicant of APR1400 DC, KHNP shall be responsible for assuring that all non-nuclear safety related services, including any required testing, will meet the requirements the requirements of QAPD Part III with testing services whether those services are delegated or not. When they are delegated, the supplier shall meet the above requirements that are necessary as much extent as to support the APR1400 DC Program with its own quality assurance program approved by KHNP. And KHNP shall require in the contract and procurement documents that suppliers prepare and implement the necessary measures and governing procedures for testing. Such documentation may include test plans, technical requirements, QA requirements, test personnel qualifications, control of measuring and test equipment (M&TE), and test result documentation activities.*

### **Question QAPD-20**

Section 1.5, “Control of Purchase Items and Services,” of Part III Non-safety Related SSC Quality Control of the KHNP QAPD states that, “KHNP employs measures, such as inspection of items or documents upon receipt or acceptance testing, to ensure that all purchased items and services conform to appropriate procurement documents.” However, Section 1.10, “Inspection,” of Part III Non-safety Related SSC Quality Control of the KHNP QAPD notes that KHNP does not directly perform inspection activities as part of developing the APR1400 DC application. Instead, any inspection activities will be performed by suppliers.

Please clarify the scope of inspection activities envisioned for KHNP design certification project.

**(KHNP Response)**

*KHNP considers that the response to Question QAPD-15 applies to this question also. Please consult that response.*

