Enclosure 1

KHNP Quality Assurance Program Description (QAPD) for the APR1400 Design Certification

Revision *5*

NOTE
This Revision *5* supersedes and replaces all previous versions of APR1400-K-Q-TR-11005-NP and its approved version APR1400-K-Q-TR-11005-NP-A, Revision *1*.

Non-Proprietary

April 2016

This Quality Assurance Program Description was prepared using NEI 06-14, Revision 9, "Quality Assurance Program Description," as guidance and incorporates the requirements of ASME NQA-1-2008 and NQA-1a-2009 Addenda as endorsed by the NRC in RG 1.28, Revision 4, dated June 2010.

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Revision History

Revision	Section(s) or page(s)	Reason for Revision
0	All	First Issue
1	All	1. Revised to change the end of the identifier from '-N' to '-NP' according to the NRC topical report guidance.
	1, 2, 4, 8, 9, 10, 11, 14, 18, 21, 26	2. Revised to clarify sentences by adding, deleting, and changing words or punctuation marks.
	2	3. Revised to clarify the APR1400 DC project organization by including the definition of Design Partners.
	2	4. Revised to clarify the responsibilities of the President and Chief Executive Officer.
	2	5. Revised to clarify the responsibilities of the Executive Vice President of Safety & Technology Division.
	2	6. Revised to delete the responsibilities of the Vice President of Technology Policy & Planning Department.
	2	7. Revised to clarify the responsibilities of the Vice President of Quality Assurance Office.
	3	8. Revised to clarify the responsibilities of the Director General of KHNP Central Research Institute.
	3	9. Revised to clarify the responsibilities of the Director of APR1400 Licensing Team.
	3	10. Revised to clarify the responsibilities of the General Manager of KHNP CRI Quality Assurance Team.
	3, 4	11. Revised to include the responsibilities of KEPCO Nuclear Power Group, Design Partners, and Suppliers.
	6	12. Revised to include the figure for KHNP APR1400 Design Partners.
	7	13. Revised to clarify the figure for KHNP APR1400 DC project organization.
	8, 12, 13, 15, 27, 29	14. Revised to make a distinction between Design Partners and suppliers.
	9	15. Revised to the responsibility of the Director General of KHNP CRI in new revisions of the QAPD.
	11, 12, 31	16. Revised to include KHNP's responsibility for design control activities.
	27	17. Revised to change 'licensee' to 'KHNP.'
	33, 34	18. Revised to capitalize a word in regulatory requirements.

Revision	Section(s) or page(s)	Reason for Revision
2	All	1. Revised to change “Design Partners” to “Suppliers” and revision numbers to Revision 2.
	I, VI, 2, 3	2. Revised to change the names of DG, VPQA, and EVPSTD and to describe more clearly the titles.
	VI, VII, VIII	3. Revised to re-arrange the page numbers.)
	VI, VII, 10, 16, 20	4. Revised to add NQA-1a-2009.
	1, 20	5. Revised to delete unnecessary NQA-1-2008.
	2	6. Revised to change the sentence “Designing …on work.”
	2	7. Revised to delete the sentence “The President … technical ... contractors.”
	2, 5	8. Revised to delete and rearrange the numbers of Fig II 1-1 and II 1-2.
	3	9. Revised to delete 1.7, 1.7.1, 1.7.2, 1.7.3 and re-arrange the numbers of later part.
	3	10. Revised to add the title of the Deputy Director General of Advanced Reactor Development Lab.
	4, 8, 11, 12, 14, 19, 21 24, 25, 26, 28	11. Revised to delete unnecessary NQA-1a-2009.
	5	12. Revised to delete the diagram “KHNP APR1400 Design Partners”.
	6 6 6 26 27 29, 30 33	13. Revised to correct editing errors -adding period after “this QAPD” -deleting comma after “Appendix” -deleting D in “supplier’s QAPD” -changing “that ensure” to “to ensure” -adding “Part II” before “Section 7.1” -correcting section numbers from 1.5 to 1.9 -deleting “IV” after “and III”
	7	14. Revised to clarify the correct 10CFRs.

Revision	Section(s) or page(s)	Reason for Revision
2	9	15. Revised to add two sentences “KHNP …interfaces.” and “Design … requirements.”
	10	16. Revised to change two sentences “KHNP normally … function.” and “In establishing … 2.14.”
	13	17. Revised to correct the editing error (c), add (i), and re-arrange the number (j).
	13	18. Revised to add the sentence “Quality …applied.”
	16	19. Revised to add Subpart 2.14.
	21	20. Revised to delete all sentences related to clarification.
	26	21. Revised to add “Non-mandatory Appendix 17A-1”

Revision	Section(s) or page(s)	Reason for Revision
3	VI	1. Revised to change into the new CEO name
	3	2. Revised to add "… the Deputy Director General of Advanced Reactor Development Laboratory, …"
		3. Revised to add "…the DG and the DDG…"
	19	4. Revised to change into "KHNP has established … in the procurement documents."
	21	5. Revised to change into "KHNP has established … in the procurement documents. Tests …"
	22	6. Revised to change into "KHNP has established … in the procurement documents."
	31	7. Revised to change into "KHNP employs ... in the procurement documents."
	31	8. Revised to change into "KHNP employs … in the procurement documents."
	31, 32	9. Revised to change into "KHNP employs … in the procurement documents.

Revision	Section(s) or page(s)	Reason for Revision
4	I, VII, 2, 3, 5, 7	1. Revised to change the position title and name, because of company structure reorganization, from Executive Vice President/Head of Safety and Technology Division to Executive Vice President/Head of Planning and Community Cooperation Division; to describe the titles of DG and DDG more clearly
	19	2. Revised to more clearly describe the activities of KHNP regarding inspection that will be implemented during the APR1400 DC application in Part II

Revision	Section(s) or page(s)	Reason for Revision
5	I, 2, 3, 5, 7	1. Revised to change the position title for CEO, EVPTED, VPQA, VP, DG, PM, and GMQA
	28	2. Revised to correct a typo (licensing , → licensing and)

POLICY STATEMENT

Korea Hydro & Nuclear Power Co., Ltd. (KHNP) shall design the nuclear plants in a manner that will ensure the health and safety of the public and workers. These activities shall be performed in compliance with the requirements of the Code of Federal Regulations (CFR), the applicable Nuclear Regulatory Commission (NRC) licensing requirements, and applicable laws and regulations of the state and local governments.

The KHNP Quality Assurance Program (QAP) for the APR1400 Design Certification (DC) is the Quality Assurance Program Description (QAPD) provided in this document and the associated implementing documents. Together they provide for control of KHNP activities that affect the quality of safety related nuclear plant structures, systems, and components (SSCs) and include all planned and systematic activities necessary to provide adequate confidence that such SSCs will perform satisfactorily in service. The QAPD may also be applied to certain equipment and activities that are not safety-related, but support safe plant operations, or where other NRC guidance establishes program requirements.

The QAPD is the top-level policy document that establishes the manner in which quality is to be achieved and presents KHNP's overall philosophy regarding achievement and assurance of quality. Implementing documents assign more detailed responsibilities and requirements and define the organizational interfaces involved in conducting activities within the scope of the QAP.

Compliance with the QAPD and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the KHNP QAP.

Signed

Apr. 2. 2016

Cho Seok

President and CEO of KHNP

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PART I INTRODUCTION

SECTION 1 GENERAL

KHNP's Quality Assurance Program Description (QAPD) for the APR1400 Design Certification (DC) is the top-level policy document that establishes the quality assurance policy and assigns major functional responsibilities for nuclear safety-related activities associated with the development and submittal of an application for design certification to the US NRC for the APR1400. The QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50, Appendix B and 10 CFR 52. The QAPD is based on the requirements and recommendations of ASME NQA-1-2008 and NQA-1a-2009 Addenda, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I, II, and III, as specified in this document.

The QA Program (QAP) is defined by the NRC-approved regulatory document that describes the QA elements (i.e., the QAPD), along with the associated implementing documents. Procedures and instructions that control nuclear safety-related activities associated with the APR1400 DC will be developed prior to commencement of those activities.

Policies establish high-level responsibilities and authority for carrying out important administrative functions which are outside the scope of the QAPD.

Procedures establish practices for certain activities which are common to all KHNP organizations performing those activities so that the activity is controlled and carried out in a manner that meets QAPD requirements. Procedures specific to an organization or group establish detailed implementation requirements and methods, and may be used to implement policies or be unique to particular functions or work activities.

1.1 Scope/Applicability

The QAPD applies to the APR1400 DC activities affecting the quality and performance of safety-related structures, systems, and components, including, but not limited to:

Designing Procuring Inspecting Testing Licensing

Safety-related SSCs, under the control of the QAPD, are identified by design documents. The technical aspects of these items are considered when determining program applicability, including, as appropriate, the item's design safety function. The QAPD may be applied to certain activities where regulations other than 10 CFR 50 and 10 CFR 52 establish QA requirements for activities within their scope.

The policy of KHNP is to assure a high degree of availability and reliability of nuclear plants while ensuring the health and safety of its workers and the public. To this end, selected elements of the QAPD are also applied to certain equipment and activities that are not safety-related, but support safe, economic, and reliable plant operations, or where other NRC guidance establishes quality assurance requirements. Implementing documents establish program element applicability.

The definitions provided in ASME NQA-1a-2009 Addenda, Part I, Section 400, apply to select terms as used in this document.

PART II QAPD DETAILS

SECTION 1 ORGANIZATION

This section describes the organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying QAPD implementation for the APR1400 DC project. The organizational structure includes corporate and support functions for the APR1400 DC project including interface responsibilities for multiple organizations that perform quality-related functions. Implementing documents assign more specific responsibilities and duties, and define the organizational interfaces involved in conducting activities and duties within the scope of the QAPD. Project management gives careful consideration to the timing, extent, and effects of organizational structure changes.

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 Addenda). 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 contacts and procurement documents, final responsibility is retained by KHNP. Finally, these suppliers are evaluated and approved prior to performing safety-related work.

The following sections describe the reporting relationships, functional responsibilities and authorities for organizations implementing and supporting the APR1400 DC QA Program. The KHNP APR1400 DC project organization is shown in Figure II. 1-1.

1.1 President and Chief Executive Officer *(CEO)*

The President and Chief Executive Officer *(CEO)* represents the company and is responsible for the management of the company. The *CEO* directs the Executive Vice President/ Head of *Technology & Engineering* Division *(EVPTED)* and the Vice President of Quality Assurance *Department* (*VPQA*).

1.2 Executive Vice President/ Head of *Technology & Engineering* Division (*EVPTED*)

The *EVPTED* is responsible for all aspects of activities associated with the APR1400 DC project. The *EVPTED* directs the *Vice President*/ Head of KHNP Central Research Institute (*VP*) in fulfillment of his or her responsibilities. The *EVPTED* reports to the *CEO* with respect to all important matters associated with the APR1400 DC and approves this QAPD, as does the Vice President of Quality Assurance *Department* (*VPQA*).

1.3 Vice President of Quality Assurance *Department* (VPQA)

The *VPQA* reports to the *CEO*. He or she is responsible for Regulatory Affairs, developing, maintaining and implementing the KHNP QA Program and for verifying that activities are in compliance with applicable regulatory, code, and industry requirements. The VPQA is responsible to size the Quality Assurance staff commensurate with the duties and responsibilities assigned. The VPQA is also responsible for approving this QAPD.

1.4 Vice President/ Head of Central Research Institute (VP)

The VP reports to the EVPTED and is responsible for the administration of the APR1400 QAPD for the DC project. The VP also directs the planning and development of the APR1400 DC project staff and organization resources. The VP is responsible for all contracts related to engineering and licensing activities necessary for the APR1400 DC project. The VP directs the Director General/ Head of Advanced Reactor Development Laboratory (DG), the Director/ Project Manager of the APR1400 Licensing Team (PM), and the General Manager of Quality Assurance Team (GMQA).

1.5 Director General/ Head of Advanced Reactor Development Laboratory (DG)

The DG reports to the VP and is responsible for administrating and supporting the APR1400 DC Project with Laboratory-wide teams and resources. The DG directs the Director/ Project Manager of APR1400 Licensing Team (PM).

1.6 Director/ Project Manager of APR1400 Licensing Team (PM)

The PM reports to the VP and the DG and is responsible for the development of the application for design certification, including administration of engineering and licensing for the APR1400 DC project. The PM provides technical direction, coordination, and problem resolution guidance to the APR1400 DC project organizations and is charged with the design control activities performed by KHNP. The PM also provides technical oversight of the design and engineering activities conducted by suppliers.

1.7 General Manager of Quality Assurance Team (GMQA)

The GMQA receives direction from the VP, reports administratively to the VPQA, and is responsible for the development and verification of implementation of the QAPD described in this document. The GMQA is responsible for assuring compliance with regulatory requirements and procedures through audits and technical reviews; for monitoring organization processes to ensure conformance to commitments and licensing document requirements; for ensuring that vendors providing quality services to KHNP are meeting the requirements of 10 CFR 50, Appendix B through KHNP CRI's vendor audits. The GMQA has sufficient independence from other priorities to bring forward issues affecting safety and quality and to make judgments regarding quality in all areas necessary regarding KHNP's APR1400 DC application. The GMQA may make recommendations to the appropriate APR1400 DC project managers regarding improving the quality of work processes. If the GMQA disagrees with any actions taken by the APR1400 DC application project organization and is unable to obtain resolution, the GMQA shall inform the VPQA who will bring the matter to the attention of the CEO who will determine the final disposition.

1.8 Authority to Stop Work

Quality assurance and inspection personnel have the authority, and the responsibility, to stop work in progress which is not being done in accordance with approved procedures or where safety or SSC integrity may be jeopardized. This extends to work performed by suppliers that furnish safety-related materials and services to KHNP.

1.9 Quality Assurance Organizational Independence

For the APR1400 DC project, independence shall be maintained between the organization or organizations performing the checking (quality assurance and control) functions and the organizations performing the functions. This provision is not applicable to design review/verification.

1.10 NQA-1-2008 Commitment

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

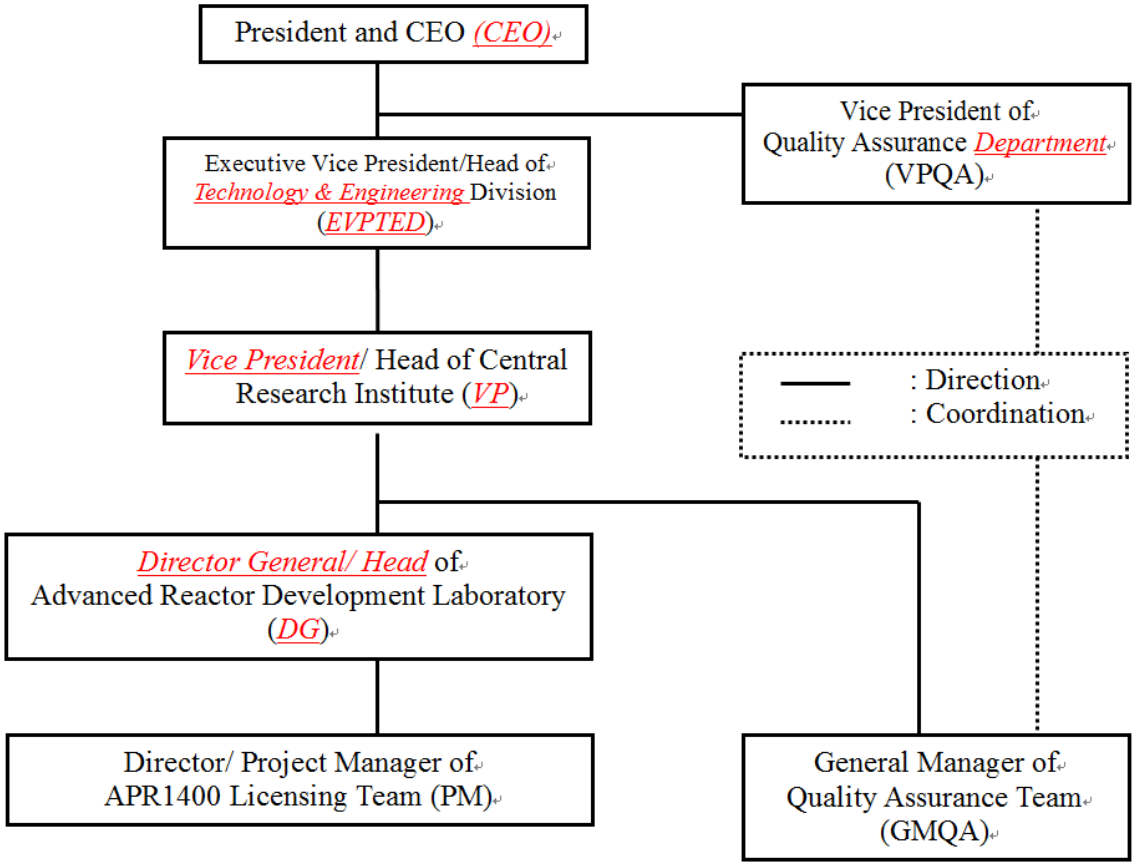

Figure II. 1-1 KHNP APR1400 DC Project Organization

SECTION 2 QUALITY ASSURANCE PROGRAM

KHNP has established the necessary measures and governing procedures to implement the QAP as described in this QAPD. KHNP is committed to implementing the QAP in all aspects of work that are important to the safety of nuclear plants as described and to the extent delineated in this QAPD. Further, KHNP ensures through the systematic process described herein, that suppliers of safety-related equipment or services meet the applicable requirements of 10 CFR 50, Appendix B. Senior management is regularly apprised of the adequacy of implementation of the QAP through the audit functions described in Part II, Section 18 of this QAPD.

The objective of the QAP is to assure that KHNP's nuclear generating plants are designed in accordance with governing regulations and license requirements. The program is based on the requirements of ASME NQA-1-2008 and NQA-1a-2009 Addenda, "Quality Assurance Requirements for Nuclear Facility Applications," as further described in this document. The QAP applies to those quality-related activities that involve the functions of safety-related structures, systems, and components (SSCs) associated with the design and licensing of the new nuclear power plants. A list or system that identifies SSCs and activities to which this program applies is maintained at the appropriate facility. Regulatory Guide 1.26 is used as the basis for this list. Cost and scheduling functions do not prevent proper implementation of the QAP.

As described in PART III of this document, specific program controls are applied to nonsafety-related SSCs that are significant contributors to plant safety, for which 10 CFR 50, Appendix B is not applicable. The specific program controls consistent with applicable sections of the QAPD are applied to those items in a selected manner, targeted at those characteristics or critical attributes that render the SSC a significant contributor to plant safety.

Delegated responsibilities may also be performed by a supplier's QAP, provided that supplier has been approved as a supplier in accordance with the QAP. Periodic audits and assessments of supplier QA programs are performed to assure compliance with the supplier's QAP and implementing procedures. In addition, routine interfaces with supplier's personnel provide added assurance that quality expectations are met.

In general, the program requirements specified herein are detailed in implementing procedures that are either KHNP implementing procedures, or supplier implementing procedures governed by a supplier quality assurance program.

A grace period of 90 days may be applied to provisions that are required to be performed on a periodic basis, unless otherwise noted. Annual evaluations and audits that must be performed on a triennial basis are examples where the 90 day general period could be applied. The grace period does not allow the "clock" for a particular activity to be reset forward. The "clock" for an activity is reset backwards by performing the activity early. Audit schedules are based on the month in which the audit starts.

2.1 Responsibilities

Personnel who work directly or indirectly for KHNP are responsible for achieving acceptable quality in the work covered by the QAPD. This includes the activities delineated in Part I, Section 1.1 in this document. KHNP personnel performing verification activities are responsible for verifying the achievement of acceptable quality. Activities governed by the QAPD are performed as directed by documented instructions, procedures and drawings that are of a detail appropriate for the activity's complexity and effect on safety. Instructions, procedures and drawings specify quantitative or qualitative acceptance criteria as applicable or appropriate for the activity, and verification is

against these criteria. Provisions are established to designate or identify the proper documents to be used in an activity, and to ascertain that such documents are being used. The GMQA is responsible to verify that processes and procedures comply with the QAPD and other applicable requirements, that such processes or procedures are implemented, and that management appropriately ensures compliance.

2.2 Delegation of Work

KHNP retains and exercises the responsibility for the scope and implementation of an effective QAP. Positions identified in Part II, Section 1 in this document, may delegate all or part of the activities of planning, establishing, and implementing the program for which they are responsible to others, but retain the responsibility for the program's effectiveness. Decisions affecting safety are made at the level appropriate for its nature and effect, and with any necessary technical advice or review.

2.3 Periodic Review of the Quality Assurance Program

Management of those organizations implementing the QA program, or portions thereof, assess the adequacy of that part of the program for which they are responsible to assure its effective implementation at least once each year or at least once during the life of the activity, whichever is shorter.

2.4 Issuance and Revision to Quality Assurance Program

Administrative control of the QAPD will be in accordance with 10 CFR 50. 54(a)(3) & 50.71(e) as appropriate. Changes to the QAPD are evaluated by the staff of the Quality Assurance Team to ensure that such changes do not degrade previously approved quality assurance controls specified in the QAPD. This document shall be revised as appropriate to incorporate additional QA commitments that may be established during the DC application development process. New revisions to the document will be prepared by the GMQA, reviewed by the *VP*, and approved by the VPQA and the *EVPTED*.

2.5 Personnel Qualifications

Personnel assigned to implement elements of the QAPD shall be capable of performing their assigned tasks. To this end, KHNP establishes and maintains formal indoctrination and training programs for personnel performing, verifying, or managing activities within the scope of the QAPD to assure that suitable proficiency is achieved and maintained. Sufficient managerial depth is provided to cover absences of incumbents. When required by code, regulation, or standard, specific qualification and selection of personnel is conducted in accordance with those requirements as established in the applicable KHNP procedures. Indoctrination includes the administrative and technical objectives, requirements of the applicable codes and standards, and the QAPD elements to be employed. Records of personnel training and qualification are maintained.

The minimum qualifications of the GMQA are that he or she holds an engineering or related science degree and a minimum of four years of related experience, including two years of nuclear power plant experience, one year of supervisory or management experience with one year of experience in performing quality verification activities. Special requirements shall include management and supervisory skills and experience or training in leadership, interpersonal communication, management responsibilities, motivation of personnel, problem analysis and decision making, and administrative policies and procedures. Individuals who do not possess these

formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

The minimum qualifications of the individuals responsible for planning, implementing, and maintaining the programs for the QAPD are that each has a high school diploma or equivalent and has a minimum of one year of related experience. Individuals who do not possess these formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

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:

• Exception - Section 301 is not applicable to the APR1400 DC application.

SECTION 3 DESIGN CONTROL

KHNP has established and implements a process to control the design and design changes of items that are subject to the provisions of this QAPD. The design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces within suppliers and with other organizations. These provisions assure that design inputs (such as design bases and the performance, regulatory, quality, and quality verification requirements) are correctly translated into design outputs (such as analyses, specifications, drawings, procedures, and instructions) so that the final design output can be related to the design input in sufficient detail to permit verification. Design change processes and the division of responsibilities for design-related activities are detailed in KHNP and suppliers' procedures. The design control program includes interface controls necessary to control the development, verification, approval, release, status, distribution, and revision of design inputs and outputs. Design changes and disposition of nonconforming documents are reviewed and approved by KHNP or by other organizations so authorized by KHNP. 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.

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.

3.1 Design Verification

KHNP design processes provide for design verification to ensure that items and activities subject to the provisions of the QAPD are suitable for their intended application, consistent with their effect on safety. Design changes are subjected to these controls, which include verification measures commensurate with those applied to original plant design.

Design verifications are performed by competent individuals or groups other than those who performed the original design but who may be from the same organization. The verifier shall not have taken part in the selection of design inputs, the selection of design considerations, or the selection of a singular design approach, as applicable. This verification may be performed by the originator's supervisor provided the supervisor did not specify a singular design approach, rule out certain design considerations, and did not establish the design inputs used in the design. The verification may also be performed by the originator's supervisor if the supervisor is the only individual in the organization competent to perform the verification. If the verification is performed by the originator's supervisor, the justification of the need is documented and approved in advance by management.

The extent of the design verification required is a function of the importance to safety of the item under consideration, the complexity of the design, the degree of standardization, the state-of-the art, and the similarity with previously proven designs. This includes design inputs, design outputs, and design changes. Design verification procedures are established and implemented to assure that an appropriate verification method is used, the appropriate design parameters to be verified are chosen, the acceptance criteria are identified, and the verification is satisfactorily accomplished and documented. Verification methods may include, but are not limited to, design reviews, alternative calculations and qualification testing. Testing used to verify the acceptability of a specific design feature demonstrates acceptable performance under conditions that simulate the most adverse design conditions expected for the item's intended use.

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. When such timing cannot be achieved, the design verification is completed before relying on the item to perform its intended design or safety function.

3.2 Design Records

KHNP maintains records sufficient to provide evidence that the design was properly accomplished. These records include the final design output and any revisions thereto, as well as records of the important design steps (e.g., calculations, analyses and computer programs) and the sources of input that support the final output.

Plant design drawings reflect the properly reviewed and approved configuration of the plant.

3.3 Computer Application and Digital Equipment Software

The QAPD governs the development, procurement, testing, maintenance, and use of computer application and digital equipment software when used in safety-related applications and designated nonsafety-related applications. KHNP and suppliers are responsible for developing, approving, and issuing procedures, as necessary, to control the use of such computer application and digital equipment software. The procedures require that the application software be assigned a proper quality classification and that the associated quality requirements be consistent with this classification. Each application software and revision thereto is documented and approved by authorized personnel. The QAPD is also applicable to the administrative functions associated with the maintenance and security of computer hardware where such functions are considered essential in order to comply with other QAPD requirements such as QA records.

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.

SECTION 4 PROCUREMENT DOCUMENT CONTROL

KHNP has established the necessary measures and governing procedures to assure that purchased items and services are subject to appropriate quality and technical requirements. Procurement document changes shall be subject to the same degree of control as utilized in the preparation of the original documents. These controls include provisions such that:

- Where original technical or quality assurance requirements cannot be determined, an engineering evaluation is conducted and documented by qualified staff to establish appropriate requirements and controls to assure that interfaces, interchangeability, safety, fit and function, as applicable, are not adversely affected or contrary to applicable regulatory requirements.

- Applicable technical, regulatory, administrative, quality and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR 21) are invoked for procurement of items and services. 10 CFR 21 requirements for posting, evaluating, and reporting will be followed and imposed on suppliers when applicable. Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services. To the extent necessary, procurement documents shall require and suppliers to have a documented QA program that is determined to meet the applicable requirements of 10 CFR 50, Appendix B, as appropriate to the circumstances of procurements (or the supplier may work under KHNP's approved QA program).

Reviews of procurement documents shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.

4.1 NQA-1-2008 Commitment

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

SECTION 5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

KHNP has established the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by and performed in accordance with instructions, procedures or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria to implement the QAP as described in this document. Such documents are prepared and controlled according to Part II, Section 6 in this document. In addition, means are provided to disseminate to the staff instructions of both general and continuing applicability, as well as those of short-term applicability. Provisions are included for reviewing, updating, and canceling such procedures.

5.1 Procedure Adherence

KHNP's policy is that procedures are followed, and the requirements for use of procedures have been established in administrative procedures. Where procedures cannot be followed as written, provisions are established for making changes in accordance with Part II, Section 6 in this document. Requirements are established to identify the manner in which procedures are to be implemented, including identification of those tasks that require: (1) the written procedure to be present and followed step-by-step while the task is being performed, (2) the user to have committed the procedure steps to memory, (3) verification of completion of significant steps, by initials or signatures or use of check-off lists. Procedures that are required to be present and referred to directly are those developed for extensive or complex jobs where reliance on memory cannot be trusted, tasks that are infrequently performed, and tasks where steps must be performed in a specified sequence.

5.2 Procedure Content

The established measures address the applicable content of procedures as described in the introduction to Part II of NQA-1-2008. In addition, procedures governing tests and inspections will include, as applicable, initial conditions and prerequisites for the performance of the activity.

5.3 NQA-1-2008 Commitment

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

SECTION 6 DOCUMENT CONTROL

KHNP has established the necessary measures and governing procedures to control the preparation of, issuance of, and changes to documents that specify quality requirements or prescribe how activities affecting quality, including organizational interfaces, are controlled to assure that correct documents are being employed. The control systems (including electronic systems used to make documents available) are documented and provide for the following:

(a) identification of documents to be controlled and their specified distribution;

(b) a method to identify the correct document (including revision) to be used and control of superseded documents;

(c) identification of assignment of responsibility for preparing, reviewing, approving, and issuing documents;

(d) review of documents for adequacy, completeness, and correctness prior to approval and issuance;

(e) a method for providing feedback from users to improve procedures and work instructions; and

(f) coordinating and controlling interface documents and procedures.

The types of documents to be controlled include:

(a) drawings such as design;

(b) engineering calculations;

(c) design specifications;

(d) purchase orders and related documents;

(e) Supplier-supplied documents;

(f) audit, surveillance, and quality verification/inspection procedures;

(g) inspection and test reports;

(h) instructions and procedures for activities covered by this QAPD;

(i) technical specifications; and

(j) nonconformance reports and corrective action reports.

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. Prior to issuance or use, documents including revisions thereto, are approved by the designated authority. A listing of all controlled documents identifying

the current approved revision, or date, is maintained so personnel can readily determine the appropriate document for use.

6.2 Changes to Documents

Changes to documents, other than those defined in implementing procedures as minor changes, are reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated. The reviewing organization has access to pertinent background data or information upon which to base their approval. Minor changes to documents, such as inconsequential editorial corrections, do not require that the revised documents receive the same review and approval as the original documents. To avoid a possible omission of a required review, the type of minor changes that do not require such a review and approval and the persons who can authorize such a classification shall be clearly delineated in implementing procedures.

6.3 NQA-1-2008 Commitment

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

SECTION 7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

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 evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services.

7.1 Acceptance of Item or Service

KHNP establishes and implements measures to assess the quality of purchased items and services, whether purchased directly or through suppliers, at intervals and to a depth consistent with the item's or service's importance to safety, complexity, quantity, and the frequency of procurement. Verification actions include testing, as appropriate, during design activities. Verifications occur at the appropriate phases of the procurement process, including, as necessary, verification of activities of suppliers below the first tier.

Measures to assure the quality of purchased items and services include the following, as applicable:

- Items are inspected, identified, and stored to protect against damage, deterioration, or misuse.

- Prospective suppliers of safety-related items and services are evaluated to assure that only qualified suppliers are used. Qualified suppliers are audited on a triennial basis. In addition, if a subsequent contract or a contract modification significantly enlarges the scope of, or changes the methods or controls for, activities performed by the same supplier, an audit of the modified requirements is conducted, thus starting a new triennial period. KHNP may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet KHNP requirements. Documented annual evaluations are performed for qualified suppliers to assure they continue to provide acceptable products and services. Industry programs, such as those applied by ASME, are used as input or the basis for supplier qualification whenever appropriate. The results of the reviews are promptly considered for effect on a supplier's continued qualification and adjustments made as necessary (including corrective actions, adjustments of supplier audit plans, and input to third party auditing entities, as warranted). In addition, results are reviewed periodically to determine if, as a whole, they constitute a significant condition adverse to quality requiring additional action.

- Provisions are made for accepting purchased items and services, such as source verification, receipt inspection, certificates of conformance, and document reviews (including Certified Material Test Report/Certificate). Acceptance actions/documents should be established by the Purchaser with appropriate input from the supplier and be completed to ensure that procurement, inspection, and test requirements, as applicable, have been satisfied before relying on the item to perform its intended safety function.

- Controls are imposed for the selection, determination of suitability for intended use (critical characteristics), evaluation, receipt, and acceptance of commercial-grade services or items to assure they will perform satisfactorily in service in safety-related applications.

- If there is insufficient evidence of implementation of a QA program, the initial evaluation is of the existence of a QA program addressing the scope of services to be provided. The initial audit is performed after the supplier has completed sufficient work to demonstrate that its organization is implementing a QA program.

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:

- Exception - For Section 501, KHNP considers documents that may be stored in approved electronic media under KHNP or supplier control, not physically located on the plant site, but accessible from the respective nuclear facility site as meeting the NQA-1 requirement for documents to be available at the site. The KHNP records management system will provide for timely retrieval of necessary records.

SECTION 8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

This section is not applicable to the APR1400 DC application.

SECTION 9 CONTROL OF SPECIAL PROCESSES

This section is not applicable to the APR1400 DC application.

SECTION 10 INSPECTION

KHNP has established the necessary measures and governing procedures to implement inspections necessary to support the purchase of a test facility and items to be tested in the test facility. The necessary measures and governing procedures developed by KHNP will assure that items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. If KHNP delegates inspection to Suppliers, Suppliers shall establish the necessary measures and governing procedures to implement inspections that assure items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. Inspection may also be applied to items, services, and activities affecting plant reliability and integrity. Types of inspections may include those verifications related to procurement, such as source, in-process, final, and receipt inspection activities. Inspections are carried out by properly qualified persons independent of those who performed or directly supervised the work. Inspection results are documented.

10.1 Inspection Program

The inspection program establishes inspections (including surveillance of processes), as necessary, to verify quality: (1) at the source of supplied items or services, (2) in-process during fabrication at a supplier's facility, (3) for final acceptance of fabricated and/or installed items during construction, (4) upon receipt of items for a facility.

The inspection program establishes requirements for planning inspections, such as the group or discipline responsible for performing the inspection, where inspection hold points are to be applied, determining applicable acceptance criteria, the frequency of inspection to be applied, and identifying of special tools needed to perform the inspection. Inspection planning is performed by personnel qualified in the discipline related to the inspection and includes qualified inspectors or engineers. Inspection plans are based on, as a minimum, the importance of the item to the safety of the facility, the complexity of the item, technical requirements to be met, and design specifications. Where significant changes in inspection activities for the facilities are to occur, management responsible for the inspection programs evaluate the resource and planning requirements to ensure effective implementation of the inspection program.

Inspection program documents establish requirements for performing the planned inspections and documenting required inspection information such as rejection, acceptance, and re-inspection results, and the person(s) performing the inspection.

Inspection results are documented by the inspector, reviewed by authorized personnel qualified to evaluate the technical adequacy of the inspection results, and controlled by instructions, procedures, and drawings.

10.2 Inspector Qualification

Suppliers shall establish qualification programs for personnel performing quality inspections. The qualification program requirements are described in Part II, Section 2 in this document. These qualification programs are applied to individuals performing quality inspections regardless of the functional group where they are assigned.

10.3 NQA-1-2008 Commitment

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

SECTION 11 TEST CONTROL

KHNP has established the necessary measures and governing procedures to demonstrate that tests required for design verification during DC application by regulations, codes, standards, or design requirements are implemented in accordance with testing requirements. These programs include criteria to demonstrate that performance of the test facility is in accordance with design. KHNP may delegate tests, if necessary, to the qualified Suppliers through the contracts in accordance with the requirements in Part II, Section 4 and 7, of this document. For the delegated tests to the Suppliers, the Suppliers shall provide the same level of test control as KHNP does as described in the procurement documents. Tests are performed according to applicable procedures that include, consistent with the effect on safety: (1) instructions and prerequisites to perform the test, (2) use of proper test equipment, (3) acceptance criteria, and (4) mandatory verification points as necessary to confirm satisfactory test completion. Test results are documented and evaluated by the organization performing the test and reviewed by a responsible authority to assure that the test requirements have been satisfied. If acceptance criteria are not met, re-testing is performed as needed to confirm acceptability following correction of the system or equipment deficiencies that caused the failure.

Tests are performed and results documented in accordance with applicable technical and regulatory requirements, including those described in the Technical Specifications and SAR. Test programs ensure appropriate retention of test data in accordance with the records requirements of the QAPD. Personnel that perform or evaluate tests are qualified in accordance with the requirements established in Part II, Section 2 in this document.

11.1 NQA-1a-2009 Addenda Commitment

In establishing provisions for testing, KHNP commits to compliance of suppliers with NQA-1a-2009 Addenda, Requirement 11.

11.2 NQA-1a-2009 Addenda Commitment for Computer Program Testing

KHNP establishes and implements provisions to assure that computer software used in applications affecting safety is prepared, documented, verified and tested, and used such that the expected output is obtained and configuration control maintained. To this end KHNP commits to compliance with the requirements of NQA-1a-2009 Addenda, Requirement 11, Section 400 and Subpart 2.7 to establish the appropriate provisions.

SECTION 12 CONTROL OF MEASURING AND TEST EQUIPMENT

KHNP has established the necessary measures and governing procedures to control the calibration, maintenance, and use of measuring and test equipment (M&TE) that provides information important to safe plant operation or that are necessary to perform the tests according to Part II, Section 11 of this document. KHNP may delegate control of M&TE, if necessary, to the qualified Suppliers through the contracts in accordance with the requirements in Part II, Section 4 and 7, of this document. For the delegated tests to the Suppliers, the Suppliers shall provide the same level of control of M&TE as KHNP does as described in the procurement documents. The provisions of such procedures cover equipment such as indicating and actuating instruments and gages, tools, reference and transfer standards.

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.

SECTION 13 HANDLING, STORAGE, AND SHIPPING

This section is not applicable to the APR1400 DC application.

SECTION 14 INSPECTION, TEST, AND OPERATING STATUS

This section is not applicable to the APR1400 DC application.

SECTION 15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

KHNP has established the necessary measures and governing procedures to control items, including services, which do not conform to specified requirements to prevent inadvertent use. Instructions require that the individual discovering a nonconformance identify, describe, and document the nonconformance in accordance with the requirements of Part II, Section 16 in this document. Controls provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations. Nonconformances are corrected or resolved before relying on the item to perform its intended safety function. Nonconformances are evaluated for impact on operability of quality structures, systems, and components to assure that the final condition does not adversely affect safety, operation, or maintenance of the item or service. Nonconformances to design requirements dispositioned repair or use-as-is are subject to design control measures commensurate with those applied to the original design. Nonconformance dispositions are reviewed for adequacy, analysis of quality trends, and reports provided to the designated management. Significant trends are reported to management in accordance with KHNP procedures, regulatory requirements, and industry standards.

15.1 Interface with the Reporting Program

KHNP has appropriate interfaces between the QAP for identification and control of nonconforming materials, parts, or components and the non-QA Reporting Program to satisfy the requirements of 10 CFR 52 and 10 CFR 21 during the DC application phase.

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.

SECTION 16 CORRECTIVE ACTION

KHNP has established the necessary measures and governing procedures to promptly identify, control, document, classify and correct conditions adverse to quality. KHNP procedures assure that corrective actions are documented and initiated following the determination of conditions adverse to quality in accordance with regulatory requirements and applicable quality standards. KHNP procedures require personnel to identify known conditions adverse to quality. When complex issues arise where it cannot be readily determined if a condition adverse to quality exists, KHNP documents establish the requirements for documentation and timely evaluation of the issue. Reports of conditions adverse to quality are analyzed to identify trends. Significant conditions adverse to quality and significant adverse trends are documented and reported to responsible management. In the case of a significant condition adverse to quality, the cause is determined and actions to preclude recurrence are taken.

In the case of suppliers working on safety-related activities, or other similar situations, KHNP may delegate specific responsibilities for corrective actions but KHNP maintains responsibility for the effectiveness of corrective action measures.

16.1 Interface with the Reporting Program

KHNP has appropriate interfaces between the QAP for corrective actions and the non-QA Reporting Program to satisfy the requirements of 10 CFR 52 and 10 CFR 21 during the design certification.

16.2 NQA-1-2008 Commitment

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

SECTION 17 QUALITY ASSURANCE RECORDS

KHNP has the necessary measures and governing procedures to ensure that sufficient records of items and activities affecting quality are developed, reviewed, approved, issued, used, and revised to reflect completed work. The provisions of such procedures establish the scope of the records retention program for KHNP and include requirements for records administration, including receipt, preservation, retention, storage, safekeeping, retrieval, access controls, user privileges, and final disposition.

17.1 Record Retention

Measures are established to ensure that sufficient records of completed items and activities affecting quality are appropriately stored. Records of activities for design, engineering, procurement, manufacturing, inspection, test, and audits and their retention times are defined in appropriate procedures. 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.

17.2 Electronic Records

When using optical disks for electronic records storage and retrieval systems, KHNP complies with the NRC guidance in Generic Letter 88-18, "Plant Record Storage on Optical Disks." KHNP will manage the storage of QA Records in electronic media consistent with the intent of RIS 2000-18 and associated NIRMA Guidelines TG 11-1998, TG15-1998, TG16-1998, and TG21-1998.

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.

SECTION 18 AUDITS

KHNP has established the necessary measures and governing procedures to implement audits to verify that activities covered by the QAPD are performed in conformance with the requirements established. The audit programs are themselves reviewed for effectiveness as a part of the overall audit process.

18.1 Performance of Audits

Internal audits of selected aspects of *licensing and* design phase activities are performed with a frequency commensurate with safety significance and in a manner which assures that audits of safety-related activities are completed. During the early portions of the APR1400 DC activities, audits will focus on areas including, but not limited to, design control, procurement, and corrective action. Functional areas of an organization's QA program for auditing include, at a minimum, verification of compliance and effectiveness of implementation of internal rules, procedures (e.g., design, procurement, surveillance, and test), regulations, programs for training, retraining, qualification, and corrective actions, including associated record keeping.

The audits are scheduled on a formal preplanned audit schedule. The audit system is reviewed periodically and revised as necessary to assure coverage commensurate with current and planned activities. Additional audits may be performed as deemed necessary by management. The scope of the audit is determined by the quality status and safety importance of the activities being performed. These audits are conducted by trained personnel not having direct responsibilities in the area being audited and in accordance with preplanned and approved audit plans or checklists, under the direction of a qualified lead auditor and the cognizance of the GMQA.

KHNP is responsible for conducting periodic internal and external audits. Internal audits are conducted to determine the adequacy of programs and procedures (by representative sampling), and to determine if they are meaningful and comply with the overall QAPD. External audits determine the adequacy of supplier quality assurance program.

The results of each audit are reported in writing to the Director General of KHNP Central Research Institute, or designee, as appropriate. Additional internal distribution is made to other concerned management levels in accordance with approved procedures.

Management responds to all audit findings and initiates corrective action where indicated. Where corrective action measures are indicated, documented follow-up of applicable areas through inspections, review, re-audits, or other appropriate means is conducted to verify implementation of assigned corrective action.

Audits of suppliers of safety-related components and/or services are conducted as described in Part II, Section 7.1 in this document.

18.2 Internal Audits

Internal audits should be performed in such a manner as to assure that an audit of all applicable QA program elements is completed for each functional area at least once each year or at least once during the life of the activity, whichever is shorter.

Internal audits include verification of compliance and effectiveness of the administrative controls established for implementing the requirements of the QAPD; regulations and license provisions; provisions for training, retraining, qualification, and performance of personnel performing activities

covered by the QAPD; corrective actions taken following abnormal occurrences; and observation of the performance of activities including associated record keeping.

18.3 NQA-1-2008 Commitment

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

PART III NONSAFETY-RELATED SSC QUALITY CONTROL

SECTION 1 NONSAFETY-RELATED SSCS - SIGNIFICANT CONTRIBUTORS TO PLANT SAFETY

Specific program controls are applied to nonsafety-related SSCs, for which 10 CFR 50, Appendix B is not applicable, that are significant contributors to plant safety. The specific program controls consistent with applicable sections of the QAPD are applied to those items in a selected manner, targeted at those characteristics or critical attributes that render the SSC a significant contributor to plant safety.

The following clarify the applicability of the QA Program to the nonsafety-related SSCs and related activities, including the identification of exceptions to the QA Program described in Part II, Sections 1 through 18 taken for nonsafety-related SSCs.

1.1 Organization

The verification activities described in this part may be performed by the KHNP line organization. The QA organization described in Part II is not required to perform these functions.

1.2 QA Program

KHNP QA requirements for nonsafety-related SSCs are established in the QAPD and appropriate procedures. Suppliers of these SSCs or related services describe the quality controls applied in appropriate procedures. These suppliers do not need a new or separate QA program.

1.3 Design Control

KHNP has design control measures to ensure that the contractually established design requirements are included in the design. These measures ensure that applicable design inputs are included or correctly translated into the design documents and deviations from those requirements are controlled. Design verification is provided through the normal supervisory review of the designer's work.

1.4 Procurement Document Control

Procurement documents for items and services obtained by or for KHNP include or reference documents describing applicable design bases, design requirements, and other requirements necessary to ensure component performance. The procurement documents are controlled to address deviations from the specified requirements.

1.5 Instructions, Procedures, and Drawings

KHNP provides documents such as, but not limited to, written instructions, plant procedures, drawings, supplier technical manuals, and special instructions in work orders, to direct the performance of activities affecting quality. The method of instruction employed provides an appropriate degree of guidance to the personnel performing the activity to achieve acceptable functional performance of the SSC.

1.6 Document Control

KHNP controls the issuance and change of documents that specify quality requirements or prescribe activities affecting quality to ensure that correct documents are used. These controls include review and approval of documents, identification of the appropriate revision for use, and measures to preclude the use of superseded or obsolete documents.

1.7 Control of Purchased Items and Services

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.

1.8 Identification and Control of Purchased Items

This section is not applicable to the APR1400 DC application.

1.9 Control of Special Processes

This section is not applicable to the APR1400 DC application.

1.10 Inspection

KHNP employs documented instructions to ensure necessary inspections are performed, for the tests of 1.11, Section 1, Part III of this document, to verify conformance of an item or activity to specified requirements or to verify that activities are satisfactorily accomplished. These inspections may be performed by knowledgeable personnel in the line organization. Knowledgeable personnel are from the same discipline and have experience related to the work being inspected.

KHNP may delegate inspection, if necessary, to the qualified Suppliers through the contracts in accordance with the requirements in 1.4 and 1.7, Section 1, Part III of this document. For the delegated tests to the Suppliers, the Suppliers shall provide the same level of inspection as KHNP does as described in the procurement documents.

1.11 Test Control

KHNP employs measures to identify required testing that demonstrates that equipment conforms to design requirements. These tests are performed in accordance with test instructions or procedures. The test results are recorded, and authorized individuals evaluate the results to ensure that test requirements are met.

KHNP may delegate tests, if necessary, to the qualified Suppliers through the contracts in accordance with the requirements in 1.4 and 1.7, Section 1, Part III of this document. For the delegated tests to the Suppliers, the Suppliers shall provide the same level of test control as KHNP does as described in the procurement documents.

1.12 Control of Measuring and Test Equipment (M&TE)

KHNP employs measures to control M&TE use, and calibration and adjustment at specific intervals or prior to use.

KHNP may delegate control of M&TE, if necessary, to the qualified Suppliers through the contracts in accordance with the requirements in 1.4 and 1.7, Section 1, Part III of this document. For the delegated tests to the Suppliers, the Suppliers shall provide the same level of control of M&TE as KHNP does as described in the procurement documents.

1.13 Handling, Storage, and Shipping

This section is not applicable to the APR1400 DC application.

1.14 Inspection, Test, and Operating Status

This section is not applicable to the APR1400 DC application.

1.15 Control of Nonconforming Items

KHNP employs measures to identify and control items that do not conform to specified requirements to prevent their inadvertent installation or use.

1.16 Corrective Action

KHNP employs measures to ensure that failures, malfunctions, deficiencies, deviations, defective components, and nonconformances are properly identified, reported, and corrected.

1.17 Records

KHNP employs measures to ensure records are prepared and maintained to furnish evidence that the above requirements for design, procurement, document control, inspection, and test activities have been met.

1.18 Audits

KHNP employs measures for line management to periodically review and document the adequacy of the process, including taking any necessary corrective action. Audits independent of line management are not required. Line management is responsible for determining whether reviews conducted by line management or audits conducted by any organization independent of line management are appropriate. If performed, audits are conducted and documented to verify compliance with design and procurement documents, instructions, procedures, drawings, and inspection and test activities. Where the measures of this part (Part III) are implemented by the same programs, processes, or procedures as the comparable activities of Part II, the audits performed under the provisions of Part II may be used to satisfy the review requirements of this Section (Part III, Section 1.18).

SECTION 2 NONSAFETY-RELATED SSCS – CREDITED FOR REGULATED EVENTS

The following criteria apply to fire protection (10 CFR 50.48), anticipated transients without scram (ATWS) (10 CFR 50.62), the station blackout (SBO) (10 CFR 50.63) SSCs that are not safety-related;

- KHNP will implement quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in Regulatory Guide 1.189, Revision 2, October 2009, "Fire Protection for Operating Nuclear Power Plants."

- KHNP will implement the quality requirements for ATWS equipment in accordance with Generic Letter 85-06 “Quality Assurance Guidance for ATWS Equipment that Is Not Safety Related.”

- KHNP will implement quality requirements for SBO equipment in accordance with Regulatory Position 3.5, “Quality Assurance and Specific Guidance for SBO Equipment That Is Not Safety Related,” and Appendix A, “Quality Assurance Guidance for Non-Safety Systems and Equipment,” in Regulatory Guide 1.155, Revision 0, August 1988, “Station Blackout.”

PART IV REGULATORY COMMITMENTS

NRC Regulatory Guides and Quality Assurance Standards

This section identifies the NRC Regulatory Guides (RG) and the other quality assurance standards which have been selected to supplement and support the KHNP QAPD. KHNP complies with these standards to the extent described or referenced. Commitment to a particular RG or standard does not constitute a commitment to other RGs or standards that may be referenced therein.

Regulatory Guides:

Regulatory Guide 1.26, Revision 4, March 2007, Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants

Regulatory Guide 1.26 defines classification of systems and components.

KHNP identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide for the APR1400 DC.

Regulatory Guide 1.28, Revision 4, June 2010, "Quality Assurance Program Requirements (Design and Construction)."

Regulatory Guide 1.28 describes a method acceptable to the NRC staff for complying with the provisions of Appendix B with regard to establishing and implementing the requisite quality assurance program for the design and construction of nuclear power plants.

KHNP identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide in for the APR1400 DC.

Regulatory Guide 1.29, Revision 4, March 2007, "Seismic Design Classification Regulatory Guide 1.29 defines systems required to withstand a safe shutdown earthquake (SSE)."

KHNP identifies conformance and exceptions for the applicable regulatory position guidance provided in this regulatory guide for the APR1400 DC.

Standards:

ASME NQA-1-2008 Edition, and NQA-1a-2009 Addenda - Quality Assurance Requirements for Nuclear Facility Applications

KHNP commits to NQA-1-2008 and NQA-1a-2009 Addenda, Parts I, II, and III, as described in Part II of this document.

Nuclear Information and Records Management Association, Inc. (NIRMA) Technical Guides (TGs)

KHNP commits to NIRMA TGs as described in Part II, Section 17.