

December 21, 2011

CCN 226152
NRC Project #0748

U.S. Nuclear Regulatory Commission
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SUBJECT: Contract No. DE-AC07-05ID14517 — Next Generation Nuclear Plant Project
Submittal — Response to Nuclear Regulatory Commission Request for Additional
Information Letter No. 06 Regarding the Quality Assurance Program Description
— NRC Project #0748

This letter submits responses to the subject U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) received in NRC RAI Letter Number 06 (Request for Additional Information No. 6047 Revision 3), dated October 25, 2011 regarding the Next Generation Nuclear Plant (NGNP) Project Quality Assurance Program Description (QAPD).

The NGNP QAPD provides a description of the QA requirements that are applicable to all aspects of the NGNP Project. The scope of activities being performed within the project is currently limited to the technology development that is associated with the Very High Temperature Reactor (VHTR) Technology Development Office (TDO), which was created to perform required research and development (R&D) activities in support of the NGNP Project.

As stated in the May 19, 2011 submittal of the NGNP QAPD, Revision 3 (CCN 224107), the NGNP Project's QA requirements are based on Regulatory Guide 1.28, Rev. 4, June 2010, "Quality Assurance Requirements (Design and Construction)," and on Regulatory Guide 1.33, Rev. 2, February 1978, "Quality Assurance Program Requirements (Operation)." Regulatory Guide 1.28, Revision 4 states that Part I and Part II requirements of NQA-1-2008, 1a-2009, "Quality Assurance Requirements for Nuclear Facility Applications," provide an adequate basis for complying with the requirements of 10 CFR Part 50, Appendix B, subject to the additions and modifications identified therein. The QAPD is based on the requirements and guidance of American Society of Mechanical Engineer's NQA-1-2008, 1a-2009, Parts I and II, with specific reference to selected sections of Parts III and IV as identified in the document. Also, it should be noted that the reference to the NEI 11-04 in the QAPD indicates that the NEI 11-04 was used as a template for the development of the NGNP QAPD, but the future NRC endorsement of the NEI document is not relied on for NGNP QAPD implementation.

DOSO
NRO

As stated in our earlier submittal, the NGNP Project is requesting a formal NRC review of the NGNP QAPD, including the changes proposed in the enclosed RAI responses, and subsequent issuance of a Safety Evaluation Report.

If you have any questions, please contact me at (208) 526-6063 or James Kinsey, Director, NGNP Regulatory Affairs at (208) 569-6751.

Sincerely,



Greg Gibbs, Project Director
Next Generation Nuclear Plant Project

JK:jlw

Enclosure:

1. NGNP Response to NRC RAI No. 6047 Revision 3.

References:

- a) PDD-172, Revision 0, "Contract No. DDE-AC07-051D14517-Next Generation Nuclear Plant-Quality Assurance Program Description," CCN 221673, August 3, 2010.
- b) NRC letter, "Next Generation Nuclear Plant – Quality Assurance Program Description Feedback," CCN 22170, November 10, 2010.
- c) PDD-172, Revision 3, "Contract No. DDE-AC07-051D14517-Next Generation Nuclear Plant-Quality Assurance Program Description," CCN 224107, May 19, 2011.
- d) NRC RAI Letter Number 06 (Request for Additional Information No. 6047, Revision 3), October 25, 2011.

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**NGNP Response to NRC RAI Letter No.06
(RAI No. 6047 Revision 3)**

Acronym List

AE	architect engineering
AGR	Advanced Gas Reactor
ASME	American Society of Mechanical Engineers
ATWS	anticipated transient without scram
CFR	Code of Federal Regulations
COL	combined license
HTGR	high temperature gas reactor
INL	Idaho National Laboratory
LWR	light water reactor
M&TE	measuring and test equipment
NEI	Nuclear Energy Institute
NGNP	Next Generation Nuclear Plant
NQA	Nuclear Quality Assurance
NRC	Nuclear Regulatory Commission
QA	quality assurance
QAPD	Quality Assurance Program Description
RAI	request for additional information
RG	regulatory guide
SBO	station blackout
SRP	standard review plan
SSE	safe shutdown earthquake

NGNP Response to Request for Additional Information No. 6047 Revision 3

Introduction

The Next Generation Nuclear Plant (NGNP) Quality Assurance Program Description (QAPD) provides a description of the quality assurance (QA) requirements that are applicable to all aspects of the NGNP Project. The scope of activities being performed within the project is currently limited to the technology development that is associated with the Very High Temperature Reactor (VHTR) Technology Development Office (TDO), which was created to perform required research and development (R&D) activities in support of the NGNP Project.

As stated in the May 19, 2011 submittal of the NGNP QAPD, PDD-172, Revision 3, (CCN 224107), the NGNP Project's QA requirements are based on Regulatory Guide 1.28, Revision 4, June 2010, "Quality Assurance Requirements (Design and Construction)," and on Regulatory Guide 1.33, Revision 2, February 1978, "Quality Assurance Program Requirements (Operation)." Regulatory Guide 1.28, Revision 4 states that Part I and Part II requirements of NQA-1-2008, 1a-2009, "Quality Assurance Requirements for Nuclear Facility Applications," provide an adequate basis for complying with the requirements of 10 CFR Part 50, Appendix B, subject to the additions and modifications identified therein. The QAPD is based on the requirements and guidance of American Society of Mechanical Engineer's NQA-1-2008, 1a-2009, Parts I and II, with specific reference to selected sections of Parts III and IV as identified in the document. Also, it should be noted that the reference to the NEI 11-04 in the QAPD indicates that the NEI 11-04 was used as a template for the development of the NGNP QAPD, but the future NRC endorsement of the NEI document is not relied on for NGNP QAPD implementation.

Therefore, during the next revision to the NGNP QAPD, the NGNP Project will update Section 1 of the document to clarify the intent of referencing the Nuclear Energy Institute (NEI) 11-04, "Nuclear Generation Quality Assurance Program Description," and incorporate changes committed to in our responses. The second paragraph of Section 1.1 of the QAPD will be revised as follows:

"...This QAPD is based on the requirements and guidance of ASME NQA-1-2008, 1a-2009, Parts I and II, with specific reference to selected sections in Parts III and IV as identified in this document, and was developed using NEI 11-04, "Nuclear Generation Quality Assurance Program Description (NG-QAPD)" as a guide. This QAPD also addresses additions and modifications to the regulatory positions included in Regulatory Guide 1.28, Revision 4..."

RAI 17.5-1

The NGNP QAPD commits to implement the quality standards described in NQA-1-2008, Requirement 2, Sections 100 through 500, with the following clarification:

As an alternative to the requirement of NQA-1-2008, Requirement 2, Section 303.3, that prospective lead auditors have participated in a minimum of five audits in the previous three years, the NGNP QAPD states that the following may be used for qualification of experienced individuals: "A prospective lead auditor that has related industry experience and previously demonstrated ability to properly implement the audit process shall participate in one nuclear QA audit within the year prior to qualification."

While the NRC staff recognizes that this exception has been incorporated into the Nuclear Energy Institute (NEI) guidance document NEI 11-04, "Nuclear Generation Quality Assurance Program Description," this document has not yet been fully reviewed and approved by the staff.

NQA-1-2008, Requirement 2, Section 303.3, provides for participation in independent assessments as another means to satisfy the requisite number of quality assurance audits, and supplies the acceptance criteria for use of these activities toward lead auditor qualification. As such, the NRC staff was unable to ascertain why this clarification to NQA-1-2008 is necessary given that NQA-1-2008, Requirement 2, Section 303.3, already contains an alternative means for qualifying prospective lead auditors beyond participation in a minimum of five audits in the previous three years.

Please provide a justification for this clarification specific to NGNP.

Response 17.5-1

During the next revision of the NGNP QAPD, Section 2.2.7 will be revised to reflect full implementation of the quality standards as described in NQA-1-2008, Requirement 2, Sections 100 through 500, without any exceptions.

RAI 17.5-2

The NGNP QAPD commits to implement the quality standards described in NQA-1-2008, Requirement 2, Sections 100 through 500, with the following exception:

NQA-1-2008, Requirement 2, Section 400(a)(8), requires that the date of certification expiration be included on the qualification records for inspection, test, and lead auditor personnel. However, NGNP considers the certification expiration date to be the date from the certification or recertification date plus the certification interval time, and regards its inclusion on the qualification record as optional.

While the NRC staff recognizes that this exception has been incorporated into the draft version of NEI 11-04, this document has not yet been fully reviewed and approved by the staff.

As such, please provide a justification for this exception specific to NGNP that describes why this is an acceptable alternative to NQA-1-2008, Requirement 2, Section 400(a)(8).

Response 17.5-2

The following clarification is provided for NGNP QAPD Section 2.2.7, NQA Commitment/Exceptions. This section states:

“In establishing qualification and training programs, the NGNP Project commits to compliance with NQA-1-2008, 1a-2009, Requirement 2 with the following clarifications and exceptions:

- A. For Section 302, Inspection and Test, the NGNP Project will either adopt nonmandatory Appendix 2A-1 as if it were part of the requirement by following Option 1 below and/or take exception to 2A-1 following Option 2. This determination will be made at a later date, and a different option may be applied during different project phases.”

The above statement regarding NQA-1-2008, Requirement 2, Section 400(a)(8) is discussed in Option 2, D (page 32).

The inclusion of this exception in the NGNP QAPD is a clarification for changes to the NQA-1 Standard as a result of the consolidation of Requirement 2 that introduced data that was slightly different from the individual personnel documentation requirements. The date of certification establishes the expiration date, when combined with the certification interval. The certification interval is normally a function of a code or standard and is identified in the organization’s procedures. Therefore, to have both dates on the form is somewhat redundant.

Additionally, in NQA-1-2008, Part III, Nonmandatory Appendix 2A-3, Figure 2A-3.1 Sample Form for Record of Lead Auditor Qualification, the form does not contain a blank for the inclusion of the certification expiration date. Therefore, if this form were used “as is” it would not be in strict compliance with NQA-1-2008, Requirement 2, Section 400(a)(8). This information has been sent to the NQA Committee by the NEI representative, and the NQA Committee is addressing the issue in a future revision of the Standard.

RAI 17.5-3

The NGNP QAPD commits to implement the quality standards described in NQA-1-2008, Requirement 4, Sections 100 through 400, with the following clarification:

The NGNP QAPD requires that procurement documents for commercial grade items that will be procured by NGNP for use as safety-related items contain technical and quality requirements such that the procured item can be appropriately dedicated.

While the NRC staff recognizes that this exception has been incorporated into the draft version of NEI 11-04, this document has not yet been fully reviewed and approved by the staff. In addition, it is unclear to the NRC staff as to whether the above statement is a clarification or an exception to NQA-1-2008, Requirement 4.

Technical and quality requirements are provided in Sections 202 and 203, respectively, and would be applicable to the dedication of commercial grade items for use as safety-related equipment. In addition, commercial grade items and services are addressed by NQA-1a-2009, Requirement 7, Section 700, and Subpart 2.14, “Quality Assurance Requirements for Commercial Grade Items and Services.”

As such, it is not clear to the staff why an exception or clarification to NQA-1-2008, Requirement 4, Section 203, is necessary given that provisions regarding the information contained in the clarification/exception are contained elsewhere in NQA-1-2008 and its addenda.

Please provide a justification for this clarification specific to NGNP.

Response RAI 17.5-3

The clarification provided in NGNP QAPD Section 2.7.2, NQA Commitment/Exceptions, is to establish proper controls for the commercial grade dedication process that meet the requirements established in NQA-1-2008, 1a-2009, Requirement 7, Section 700 and Subpart 2.14, "Quality Assurance Requirements for Commercial Grade Items and Services," and is not intended to change this Section (i.e., clarification only).

However, to remove the ambiguity, the following change will be made to Section 2.7.2, NQA-1 Commitment/Exception, during the next revision of the NGNP QAPD (the last bulleted item, page 44):

- "In establishing commercial grade item requirements, the NGNP Project commits to compliance with NQA-1-2008, 1a-2009, Requirement 7, Section 700 and Subpart 2.14."

RAI 17.5-4

As an alternative to the NQA-1-2008, Requirement 12, Section 303.6, calibration labeling requirements, the NGNP QAPD proposes that 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 when the label will interfere with operation of the device), provided that the required information is maintained in suitable documentation traceable to the device.

While the NRC staff recognizes that this exception has been incorporated into the draft version of NEI 11-04, this document has not yet been fully reviewed and approved by the staff. In addition, the NRC staff notes that NQA-1-2008 and NQA-1a-2009, 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, Requirement 12, Section 303.6 is necessary.

Please provide a justification for this clarification specific to NGNP.

Response RAI 17.5-4

The clarification provided in NGNP QAPD Section 2.12.2, NQA Commitment/Exceptions, is to assure consistent application of NQA-1-2008, 1a-2009, Requirement 12, Section 303.6. The NQA-1 Standard uses an ambiguous term of "otherwise identified" to indicate calibration labeling requirements and to establish traceability for calibration records. Therefore, the NGNP Project provided clarification in NGNP QAPD Section 2.12.2 for those measuring and test equipment items that are not required to be marked with the calibration status where it is impossible or impractical because of equipment size or configuration (such as when the label will interfere with operation of the device), provided the required information is maintained in suitable documentation traceable to the device.

However, to remove the ambiguity, the following change will be made to Section 2.12.2, NQA-1, Commitment/Exception, during the next revision of the NGNP QAPD:

2.12.2 NQA Commitment/Exceptions

In establishing provisions for control of measuring and test equipment (M&TE), NGNP commits to compliance with NQA-1-2008, 1a-2009, Requirement 12, with the following clarification and exception:

- The out of calibration conditions described in Section 303.2 refers to when the M&TE is found out of the required accuracy limits (i.e., out of tolerance) during calibration and not overdue for calibration.
- M&TE will be marked with the calibration status, as described in Section 303.6.

RAI 17.5-5

The NGNP QAPD commits to implement the quality standards described in NQA-1-2008, Requirement 13, Sections 100 through 600, with the following clarification:

As an alternative to NQA-1-2008, with NQA-1a-2009 Addenda, Subpart 2.2, Section 405, "Shipments from Countries Outside the United States," the NGNP QAPD proposes that NGNP may elect to establish additional special shipping requirements to address the appropriate quality issues and applicable United States Customs and Border Protection and Department of Homeland Security requirements.

While the NRC staff recognizes that this exception has been incorporated into the draft version of NEI 11-04, this document has not yet been fully reviewed and approved by the staff. As such, please provide a justification for this clarification specific to NGNP that describes why this is a necessary clarification to NQA-1-2008, with NQA-1a-2009 Addenda, Subpart 2.2, Section 405, and how it will be implemented by NGNP.

Response RAI 17.5-5

The NGNP Project understands that the recent changes in US shipping law may prevent full compliance with NQA-1a-2009 Addenda, Subpart 2.2, Section 405, "Shipments from Countries outside the United States," as written. It also understands that the NRC has brought this topic to the attention of the NQA Committee and a resolution is currently under development by the Committee that may delete or modify Subpart 2.2, Section 405.

During the next revision to the NGNP QAPD Section 2.13.2(B) will therefore be deleted until further resolution is provided by the NQA Committee.

RAI QAP 17.5-6

The NGNP QAPD commits to implement the quality standards described in NQA-1-2008, with NQA-1a-2009 Addenda, Requirement 17, Sections 100 through 800, as well as the regulatory positions contained Regulatory Guide 1.28, Revision 4, with the following clarifications and exceptions:

In establishing the provisions for a list of records, the NGNP QAPD commits to compliance with Regulatory Position C.1.a.(3) of Regulatory Guide 1.28, Revision 4, with the following clarifications, which are implemented by adopting either Option 1 or Option 2, as appropriate for various phases of the NGNP project:

- a. Option 1: The NGNP QAPD commits to develop a list of typical lifetime records based on NQA-1-2008, Part III, Nonmandatory Appendix 17A-1, Section 200. The QAPD recognizes that the nomenclature of these records may vary and the list may not be all-inclusive. For records not listed in Appendix 17A-1, the type of record that most nearly describes the record in question will be followed with respect to its retention classification. The NGNP QAPD commits to maintain sufficient records to furnish evidence of activities affecting quality.
- b. Option 2: The NGNP QAPD commits to develop a list of lifetime records and to maintain sufficient records to furnish evidence of activities affecting quality.

While the NRC staff recognizes that this exception has been incorporated into the draft version of NEI 11-04, this document has not yet been fully reviewed and approved by the staff. In addition, the staff was unable to ascertain why this clarification to Regulatory Guide 1.28, Revision 4, is necessary given that Regulatory Position C.1.a.(3) states that the list of typical lifetime records in Nonmandatory Appendix 17A-1 should be considered for guidance purposes only.

As such, please provide a justification for this clarification specific to NGNP that describes why this is a necessary clarification to NQA-1-2008, with NQA-1a-2009 Addenda, Requirement 17, and how it will be implemented by NGNP.

Response RAI 17.5-6

During the next revision of the NGNP QAPD, the clarification provided in Section 2.17.3, NQA Commitment/Exceptions for RG 1.28, Revision 4 will be updated to state the following:

"In establishing the provisions for a list of records, the NGNP Project commits to compliance with NQA-1-2008, 1a-2009, Requirement 17 and with regulatory position C.1.a.(3) as stated in Regulatory Guide 1.28, Revision 4, June 2010."

RAI 17.5-7

The NGNP QAPD commits to implement the quality standards described in NQA-1-2008, with NQA-1a-2009 Addenda, Requirement 18, Sections 100 through 800, as well as the regulatory positions contained Regulatory Guide 1.28, Revision 4, with the following clarification:

The NGNP QAPD proposes that the annual evaluation of suppliers in accordance with Regulatory Position C.2.b(4) (a), (b), and (c) of Regulatory Guide 1.28, Revision 4, would only be required to consider activities related to NGNP procurement activities.

While the NRC staff recognizes that this exception has been incorporated into the draft version of NEI 11-04, this document has not yet been fully reviewed and approved by the staff. In addition, the staff was unable to ascertain why this clarification to Regulatory Guide 1.28, Revision 4, is necessary given that the relationship with suppliers, and the related evaluation requirements, is already based on procurement activities and the associated documentation.

As such, please provide a justification for this clarification specific to NGNP that describes why this is a necessary clarification to NQA-1-2008, with NQA-1a-2009 Addenda, Requirement 18, and how it will be implemented by NGNP.

Response 17.5-7

During the next revision of the NGNP QAPD Section 2.18.3 will be updated to state the following (with no clarifications or exceptions):

“In establishing the independent audit program, the NGNP Project commits to compliance with NQA-1-2008, 1a-2009, Requirement 18, and with the regulatory positions stated in Regulatory Guide 1.28, Revision 4, June 2010.”

RAI 17.5-8

The NRC staff noted that there was an additional clarification/exception to NQA-1-2008, with NQA-1a-2009 Addenda, Requirement 18, that simply read “Regulatory Guide 1.28, Rev. 4.”

The staff assumes that inclusion of this statement by NGNP was not intentional. Please verify whether or not this is the case.

Response 17.5-8

The inclusion of this statement was not intentional. During the next revision of the NGNP QAPD Section 2.18.3 will be updated to remove the reference to “Regulatory Guide 1.28, Revision 4.” See change as depicted in response to RAI 17.5-7.

RAI 17.5-9

In establishing the quality requirements for non safety-related structures, systems, and components credited for regulatory events, the NGNP QAPD commits to providing an evaluation of conformance with the guidance contained in the applicable NRC regulatory guides in effect six months before the submittal date of the application. The QAPD further specifies that the evaluation will include an identification and description of deviations from the guidance in the regulatory guides, as well as suitable justifications for any alternative approaches proposed by NGNP.

The NRC staff notes that in order for this approach to be consistent with the guidance of SRP Section 17.5, Paragraph II.V.2, NGNP must commit to implement the following regulatory guidance documents, or provide a suitable evaluation of alternatives:

- The quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in Regulatory Guide 1.189, Revision 2, "Fire Protection for Operating Nuclear Power Plants," dated October 2009.
- The quality requirements for anticipated transient without scram (ATWS) equipment in accordance with NRC Generic Letter 85-06, "Quality Assurance Guidance for ATWS Equipment That Is Not Safety Related," dated January 16, 1985.
- The quality requirements for station blackout (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, "Station Blackout," dated August 1988.

Please provide a confirmatory statement as to whether these are the "applicable NRC regulatory guides" referenced above.

Response 17.5-9

The NGNP Project confirms that the following regulatory documents are included in the scope Section 3.2, Nonsafety-Related SSCs Credited for Regulatory Events:

1. Regulatory Position 1.7, "Quality Assurance," in Regulatory Guide 1.189, Revision 2, "Fire Protection for Operating Nuclear Power Plants," dated October 2009,
2. NRC Generic Letter 85-06, "Quality Assurance Guidance for ATWS Equipment That Is Not Safety Related," dated January 16, 1985, and
3. 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, "Station Blackout," dated August 1988.

RAI 17.5-10

The NGNP QAPD states that the current NRC regulatory guides related to quality assurance activities apply specifically to light water reactors, and that the applicable regulatory guides for NGNP will be identified at the appropriate licensing stage.

The NRC staff noted that this approach is not consistent with the guidance of SRP Section 17.5, Paragraph II.U, for establishing QA program commitments. Although the staff recognizes that not all aspects of the NRC regulatory guides related to quality assurance activities will be applicable to the NGNP project, there are portions that will apply to NGNP throughout the various phases of the project.

Accordingly, NGNP should, at a minimum, evaluate the following NRC regulatory guides, identify the aspects applicable to the NGNP project, and commit to comply with those portions of the regulatory guide, or provide an acceptably justified alternative:

- Regulatory Guide 1.8, Revision 3, "Qualification and Training of Personnel for Nuclear Power Plants," dated May 2000. Regulatory Guide 1.8 provides guidance regarding qualifications and training for nuclear power plant personnel.
- Regulatory Guide 1.26, Revision 4, "Quality Group Classification and Standards for Water, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," dated March 2007. Regulatory Guide 1.26 defines classification of systems and components.
- Regulatory Guide 1.29, Revision 4, "Seismic Design Classification," dated March 2007. Regulatory Guide 1.29 defines systems required to withstand a safe shutdown earthquake (SSE).

The current statement in the NGNP QAPD regarding regulatory commitments is not acceptable to the staff. Please address the above concerns as stated and provide the appropriate revision to Part IV of the NGNP QAPD.

Response 17.5-10

To clarify Section 4, Part IV – Regulatory Commitments, the NGNP Project will update the QAPD section to state the following:

“The Nuclear Generation Nuclear Plant (NGNP) Quality Assurance Program Description (QAPD) Program provides a description of the Quality Assurance (QA) requirements that are applicable to all aspects of the NGNP Project. The scope of the project is currently limited to technology development. The required research and development (R&D) activities in support of the NGNP Project is performed through the Very High Temperature Reactor (VHTR) Technology Development Office (TDO). Therefore, the scope and applicability of the NGNP QAPD will be limited to those quality requirements that support technology development of the VHTR TDO. The QAPD is based on the requirements and guidance of American Society of Mechanical Engineer’s NQA-1-2008, 1a-2009, Parts I and II, with specific reference to selected sections of Parts III and IV as identified in the document.”

In addition to the clarification provided above, the discussion below provides the NGNP Project’s current perspective for each of the NRC Regulatory Guides referenced in the RAI above:

- Regulatory Guide 1.8, Revision 3, “Qualification and Training of Personnel for Nuclear Power Plants,” dated May 2000. Regulatory Guide 1.8 provides guidance regarding qualifications and training for nuclear power plant personnel. The applicable requirements of the regulatory guide are being applied for the NGNP Project (i.e., Sections 2.1 – 2.4) with no changes or exceptions. As stated above, the scope of the project is currently limited to technology development. Determination of full conformance to Regulatory Guide 1.8 or taking exception to Appendix 2A-1 will be made at the appropriate future licensing stage for which the scope applies.
- Regulatory Guide 1.26, Revision 4, “Quality Group Classification and Standards for Water, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants,” dated March 2007, defines classification of light water reactor (LWR) systems and components. Because of the inherent differences between the LWR and HTGR designs, the majority of the guidance contained in this regulatory guide cannot be directly applied to the classification of HTGR systems and components being developed by the NGNP.

The NGNP Project has previously developed and submitted a licensing white paper that describes its proposed process for the classification of systems and components [1]. The NRC staff has previously performed a review of that proposed process and provided a series of requests for additional information [2], to which the NGNP Project has submitted responses [3]. As described in those submittals, the NGNP Project has identified that the particle fuel currently being fabricated and tested, as a part of the Advanced Gas Reactor (AGR) Program, will be safety-related, because of its required safety function to retain radionuclides. Therefore, the associated QAPD guidance and controls are being applied to the AGR Program covering the qualification of HTGR particle fuel. For other HTGR systems and components, the NGNP Project intends to continue its dialogue with the NRC staff in addressing the objectives identified in the Reference 1 white paper for establishing an acceptable classification approach. That approach will then be applied to the NGNP design as it is developed. The results of those activities will then be summarized, and the alternative approach for addressing the LWR-based Regulatory Guide 1.26 will be provided to the NRC as a part of the license application process.

- Regulatory Guide 1.29, Revision 4, "Seismic Design Classification," dated March 2007, defines systems required to withstand a safe shutdown earthquake (SSE), based on typical LWR plant designs. The systems required in an HTGR will be different, because of fundamental differences in the design concepts. A comprehensive listing of those systems has not yet been developed, because the processes associated with licensing basis event selection for HTGRs have not been fully established with the NRC. The NGNP Project has previously developed and submitted a licensing white paper that describes its proposed process for the establishment of licensing basis events [4], which would include consideration of seismic events. The NRC staff previously performed an initial review of that proposed process and provided a series of requests for additional information [2], to which the NGNP Project has submitted responses [3]. The NGNP Project intends to continue its dialogue with the NRC staff in addressing the objectives identified in the Reference 4 white paper for establishing an acceptable event selection approach. That approach will then be applied to the NGNP design as it is developed. The results of those activities will then be summarized in the NGNP Project's alternative approach description for addressing LWR-based Regulatory Guide 1.29.

References:

1. INL/EXT-10-19509, "Next Generation Nuclear Plant, Plant Structures, Systems, and Components Safety Classification White Paper," CCN 221997, dated September 21, 2010.
2. NRC letter Next Generation Nuclear Plant – Request for Additional Information Letter No. 005 Regarding the Risk-Informed, Performance Based Licensing Approach," dated August 3, 2011.
3. Next Generation Nuclear Plant Project Submittal – Response to Nuclear Regulatory Commission Request for Additional Information Letter No. 005 Regarding the Risk-Informed, Performance-Based Licensing Approach – NRC Project #0748, CCN 225601, dated October 14, 2011.
4. INL/EXT-10-19521, "Next Generation Nuclear Plant Licensing Basis Event Section White Paper," CCN 22013, dated September 16, 2010.