SAFETY EVALUATION BY THE OFFICE OF ADVANCED REACTORS REGARDING JAPAN ATOMIC ENERGY AGENCY LICENSING TOPICAL REPORT, "QUALITY ASSURANCE PROGRAM DESCRIPTION FOR FLOATING SEISMIC ISOLATION SYSTEM (FSIS) DESIGN ACTIVITIES," REVISION 1

1.0 INTRODUCTION

By letter dated March 2, 2026 (Reference 1), the Japan Atomic Energy Agency (JAEA), submitted for U.S. Nuclear Regulatory Commission (NRC) staff review and approval of Licensing Topical Report (LTR) DR080302-01, "Quality Assurance Program Description (QAPD) for Floating Seismic Isolation System (FSIS) Design Activities," Revision 0 (proprietary), supporting an application for a standard design approval (SDA). JAEA submitted the public version of the LTR on April 12, 2026 (Reference 2).

The NRC staff held a public meeting/teleconference with JAEA on July 30, 2026 (Reference 3), to discuss information needs items identified as part of its review of QAPD LTR, Revision 0. Following the public meeting, JAEA submitted Revision 1 (Reference 4) of the QAPD LTR by letter dated August 14, 2026 (Reference 5). This safety evaluation (SE) is based on the staff's review of the JAEA QAPD LTR, Revision 1.

JAEA's QAPD LTR addresses design activities that affect the quality and performance of safety-related structures, systems, and components (SSCs) involving the FSIS in support of an SDA for the FSIS paired with a yet-to-be-determined small modular reactor (SMR) design. The JAEA QAPD is based on the applicable portions of appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." Additionally, JAEA's QAPD commits to the applicable requirements of the American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA)-1-2022, "Quality Assurance Requirements for Nuclear Facility Applications," (Reference 6) edition, Parts I, II, and III, as endorsed by the NRC Regulatory Guide (RG) 1.28, Revision 6, "Quality Assurance Program Criteria (Design and Construction)" (Reference 7).

2.0 REGULATORY EVALUATION

Appendix B to 10 CFR Part 50 sets forth the requirements for quality assurance programs (QAPs) for nuclear power plants and establishes quality assurance (QA) requirements for the design, fabrication, construction, and testing of SSCs for the facility. The pertinent requirements of appendix B apply to all activities affecting the safety-related functions of those SSCs, including designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying SSCs.

Consistent with NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition" (SRP), section 17.5, Revision 1, "Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants" (Reference 8), the staff evaluates whether the QAPD's administrative controls for future revisions are consistent with 10 CFR 50.4(b)(7)(ii) for non-licensee QA topical reports

(TRs), and whether the QAPD addresses the regulatory interfaces with 10 CFR Part 21 applicable to nonconformance and corrective action processes within the design-phase scope.

3.0 TECHNICAL EVALUATION

In evaluating the compliance of JAEA QAPD with applicable requirements, the NRC staff utilized the guidance contained in SRP 17.5, Revision 1. Section 17.5 of the SRP outlines an acceptable QAP template for design certification, early site permit, combined license, construction permit, and operating license applicants. It also describes regulatory and industry guidance determined to be acceptable methods for satisfying the requirements of appendix B to 10 CFR Part 50.

3.1 Quality Assurance Program Description Details

3.1.1 Organization

Part II, section 1, "Organization," of the JAEA's QAPD describes the measures that establish independence between the organization that performs oversight functions related to the QAP and the organization responsible for performing the functions to be evaluated. In addition, the JAEA QAPD provides for applicable management to be responsible to size the QA organization commensurate with the duties and responsibilities assigned. The QAPD describes and defines the responsibility and authority for planning, establishing, and implementing an effective overall QAP.

The QAPD describes management and personnel's authority and responsibility to stop work immediately in response to quality problems, including for work performed by suppliers that furnish safety-related materials and services, thereby ensuring independence of verification functions and timely resolution of conditions adverse to quality during design-phase activities.

Part II, section 1.7, "NQA-1 Commitment," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 1 (Organization), without further clarifications or exceptions for organizational responsibilities. As stated in RG 1.28, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the QAPD (1) describes an organizational description that includes the organizational structure, functional responsibilities, levels of authority, and interfaces for establishing, executing, and verifying implementation of the QAP, and (2) conforms to the guidance in SRP section 17.5, Paragraph II.A. As such, the NRC staff determined that the description of JAEA's QAPD regarding IHI Corporation's (IHI's) organization meets the requirements of Criterion I, "Organization," of appendix B to 10 CFR Part 50, and, therefore, is acceptable for the design-phase QA TR scope.

3.1.2 Quality Assurance Program

Part II, section 2, "Quality Assurance Program," of the QAPD states that IHI may delegate all or

part of the activities for which it is responsible to others but retains overall responsibility for QAP effectiveness. The QAPD describes the measures that are established to assess the adequacy of the QAP and to ensure its effective implementation at least once each year or at least once during the life of the activity, whichever is shorter, and allows a 90-day grace period for activities that must be performed on a periodic basis. The JAEA QAPD describes measures that are implemented to establish and maintain formal indoctrination and training programs for personnel performing, verifying, or maintaining activities within the scope of the QAPD to ensure suitable proficiency is achieved and maintained. The QAPD identifies minimum training qualifications for personnel responsible for QAP implementation.

Part II, section 2.7, "NQA-1 Commitment," of the JAEA QAPD states that IHI commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 2 (QAP), for QAP personnel qualification and related program controls. The NRC staff did not evaluate JAEA's stated application of ASME NQA-1-2022, Subpart 3.1-2.3 of Part III, because Part III consists of nonmandatory implementation guidance for Parts I and II of NQA-1-2022, and is not endorsed by Regulatory Guide 1.28, Revision 6. The NRC staff evaluated the exception taken to compliance with ASME NQA-1-2022, Requirement 2, with respect to date of expiration on the qualification record because 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 procedure; therefore, because having both dates on the form is redundant, the NRC staff determined the exception to be acceptable.

Based on the above, the NRC staff determined that the JAEA QAPD conforms to the guidance in SRP section 17.5, (1) Paragraph II.B, for establishing the necessary measures to implement a QAP to assure and achieve quality as it pertains to design-phase activities affecting the quality and performance of safety-related SSCs, and (2) Paragraphs II.S and II.T, for establishing a training and qualification program for those personnel implementing elements of the JAEA QAPD. As such, the NRC staff determined the description in the JAEA QAPD of IHI's QAP meets the requirements of Criterion II, "Quality Assurance Program," of appendix B to 10 CFR Part 50 and, therefore, is acceptable for the design-phase QA TR scope.

3.1.3 Design Control

Part II, section 3, "Design Control," of the JAEA's QAPD describes the measures that establish the necessary measures to control the design of items that are subject to the provisions of the QAPD. The JAEA QAPD describes the design process, which includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces within JAEA and, as applicable, with suppliers, and states that these provisions ensure 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. In addition, the JAEA QAPD describes the design documents to be reviewed by individuals knowledgeable in QA to ensure that the documents contain the necessary QA requirements.

Part II, section 3 of the JAEA QAPD states the design processes provide for design verification to ensure that items and activities subject to the provisions of the QAP are suitable for their intended application and are consistent with their effect on safety. The QAPD states the design changes are subject to these controls, which include verification measures commensurate with those applied to the original design and the extent of design verification required is a function of the importance to safety of the item (or computer program) under consideration, the complexity of the design, the degree of standardization, the state-of-the-art, and the similarity with previously proven designs. The QAPD describes verification methods that may include, but are not limited to, design reviews, alternative calculations, and qualification testing. In addition, the JAEA QAPD states the 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.

Part II, section 3 of the JAEA QAPD states that computer programs used for design analysis shall be verified for use by applying the applicable requirements of ASME NQA-1-2022, Parts I and II prior to use, or the computer program's results shall be independently verified with the design analysis for each application and that the program requires configuration control of software and documentation of application specific verification/validation and acceptance bases.

Part II, section 3.5, "NQA-1 Commitment," of the JAEA QAPD commits to implementing the quality standards described in NQA-1-2022, Part I, Requirement 3 (Design Control), as well as Part II, Subpart 2.7, "Quality Assurance Requirements for Computer Software for Nuclear Facility Applications," without further clarifications or exceptions for the design-phase scope described in the LTR. As stated in RG 1.28, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's design control measures conform to the guidance of SRP section 17.5, Paragraph II.C. As such, the NRC staff determined that Part II, section 3 of the JAEA QAPD meets the requirements of Criterion III, "Design Control," of appendix B to 10 CFR Part 50 and, therefore, is acceptable for the design-phase QA TR scope.

3.1.4 Procurement Document Control

Part II, section 4, "Procurement Document Control," of the JAEA's QAPD describes the measures that establish the governing procedures for preparing and reviewing procurement documents to include or reference applicable regulatory, technical, and QAP requirements. The QAPD further provides that changes to procurement documents are subject to the same degree of control as those used in preparing the original documents.

The QAPD states that applicable technical, regulatory, quality, and reporting requirements (such as those in specifications, codes, standards, tests, inspections, special processes, and 10 CFR Part 21, "Reporting of Defects and Noncompliance") be invoked for the procurement of items and services supporting design activities.

In addition, the QAPD states to the extent necessary, procurement documents may require suppliers to have a documented QAP consistent with the applicable requirements

of the JAEA QAPD; alternatively, the QAPD permits suppliers to work under JAEA's QAP when appropriate, with the applicable controls specified in procurement documents.

Part II, section 4.1, "NQA-1 Commitment / Exceptions," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 4 (Procurement Document Control), for procurement document control, with clarifications and exceptions for the design-phase scope described in the LTR. JAEA's program commitments also identify RG 1.28 (Revision 6) among the regulatory guidance positions supporting QAP implementation.

The NRC staff reviewed the descriptions of the measures and controls that are established to assure that applicable regulatory requirements, design bases, and other requirements are included in procurement documents or referenced in the documents for procurement of material, equipment, and services in Part II, section 4 of the JAEA FSIS QAPD, including a review of exceptions and clarifications taken to compliance with ASME NQA-1-2022, Requirement 4. The NRC staff determined that:

- The exception to section 100 of ASME NQA-1-2022, Requirement 4 is acceptable because the procurement document will require that a supplier work under the JAEA QAP, which based on the conclusions of this SE, meets the requirements of appendix B to 10 CFR Part 50.

- The clarification to section 300 and 400 of ASME NQA-1-2022, Requirement 4 is acceptable because JAEA may satisfy these sections of Requirement 4 through a review of the procurement specification when the specification contains the technical and QA requirements of the procurement.

- The exception to sections 202 and 203 of ASME NQA-1-2022, Requirement 4 is acceptable because JAEA will include technical and quality requirements in procurement documents for the purchase of commercial grade items that will undergo the dedication process per Part II, section 7, "Control Of Purchased Material, Equipment, and Services," of the JAEA FSIS QAPD in order for JAEA to use the commercial grade items as a safety-related item.

- The descriptions of the procurement document control measures conform to the guidance of SRP section 17.5, Subsection II, item D, "Procurement Document Control."

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's procurement document control program conforms to the guidance of SRP section 17.5, Paragraph II.D. As such, the NRC staff determined that the description in the JAEA QAPD of IHI's procurement document control program meets the requirements of Criterion IV, "Procurement Document Control," of appendix B to 10 CFR Part 50, and, therefore, is acceptable for the design-phase QA TR scope.

3.1.5 Instructions, Procedures, and Drawings

Part II, section 5, "Instructions, Procedures, and Drawings," of the JAEA's QAPD describes the measures and governing procedures that establish that the activities affecting quality are

prescribed by, and performed in accordance with, documented instructions, procedures, or drawings of a type appropriate to the circumstances and that, where applicable, include quantitative or qualitative acceptance criteria to implement the QAP.

The QAPD describes the preparation, review, approval, issuance, and maintenance of procedures and instructions; requires that changes be controlled to the same degree as original issuance; and ensures that controlled instructions of both general/continuing applicability and limited (short-term) applicability are available to personnel performing the work. The QAPD states procedures governing testing, inspections, and other verification activities include as applicable, initial conditions, prerequisites, methods, and acceptance criteria to determine conformance.

Part II, section 5.3, "QA-1 Commitment," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 5 (Instructions, Procedures, and Drawings), without further clarifications or exceptions for the design-phase scope described in the LTR. JAEA's QAPD Part IV, "Regulatory Commitments," also references RG 1.28 (Revision 6) as a supporting regulatory guidance position for QAP implementation. As stated in RG 1.28, Revision 6, NQA-1-2022 is acceptable to the NRC staff and provides an adequate basis for complying with appendix B to 10 CFR Part 50.

Based upon the above, the NRC staff determined that JAEA's description of its Instructions, Procedures, and Drawings controls conforms to the SRP section 17.5, Paragraph II.E. As such, the NRC staff determined that Part II, section 5 of the JAEA QAPD meets the requirements within Criterion V, "Instructions, Procedures, and Drawings," of appendix B to 10 CFR Part 50 and, therefore, is acceptable for the design-phase QA TR scope.

3.1.6 Document Control

Part II, section 6, "Document Control," of the JAEA's QAPD describes the measures and governing procedures that control the preparation, review, approval, issuance of, and changes to documents that specify quality requirements or prescribe how activities affecting quality (including organizational interfaces) are controlled. The QAPD describes the measures provided to ensure that documents, including revisions or changes (other than those defined in implementing procedures as minor changes), are reviewed and approved by the same organization that performed the original review and approval, unless other organizations are specifically designated. The QAPD states that a list of all controlled documents, identifying the current approved revision or date, is maintained so personnel can determine the appropriate document for use.

Part II, section 6.3, "NQA-1 Commitment," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 6 (Document Control), without further clarifications or exceptions. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's document control program conforms to the guidance of SRP section 17.5, Paragraph II.F. As such, the NRC staff determined that the description in the JAEA QAPD of IHI's document control program meets the requirements of Criterion VI, "Document Control," of appendix B to

10 CFR Part 50 and, therefore, is acceptable for the design-phase QA TR scope.

3.1.7 Control of Purchased Material, Equipment, and Services

Part II, section 7, “Control of Purchased Material, Equipment, and Services,” of the JAEA’s QAPD describes the measures and governing procedures that control the procurement of items and services to ensure conformance with specified requirements. The QAPD describes measures for source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services. The QAPD describes how the program establishes and implements measures to assess the quality of purchased items and services at intervals and to a depth commensurate with the items or service’s importance to safety, complexity, quantity, and frequency of procurement.

The QAPD describes measures for evaluating prospective suppliers and selecting only qualified suppliers, as well as auditing and evaluating suppliers to ensure that qualified suppliers continue to provide acceptable products and services. The QAPD states that qualified suppliers are audited on a triennial basis, and JAEA performs and documents annual evaluations of qualified suppliers to confirm continued acceptability.

The QAPD outlines acceptance actions - including source verification, receipt inspection, certificates of conformance, and review of documentation - to ensure that procurement, inspection, and test requirements have been satisfied before relying on the item or service. In addition, the QAPD establishes controls for the dedication and/or acceptance of commercial-grade items and services to assure they will perform satisfactorily in service in safety-related applications. The QAPD states that the requirements of 10 CFR Part 21 apply upon completion of dedicated items and services.

In establishing procurement verification controls and commercial-grade item requirements, Part II, section 7.2, “NQA-1 Commitment / Exceptions,” of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 7 (NQA-1 Commitment / Exceptions), and Part II, Subpart 2.14, “Quality Assurance Requirements for Commercial Grade Items and Services,” for the design-phase scope described in the LTR.

The QAPD also identifies specific provisions applicable to supplier oversight and acceptance of accredited laboratory services:

- Supplier oversight provision (“not required to be evaluated or audited”): QAPD section 7.2 states that certain suppliers, such as 10 CFR Parts 50 and 52 licensees, Authorized Nuclear Inspection Agencies, NIST, and other U.S. State and Federal agencies, are not required to be evaluated or audited. The QAPD clarifies that this provision applies only to circumstances where reliance on the supplier’s existing regulatory framework and oversight provides adequate assurance of quality. This exception does not remove the applicant’s responsibility to ensure that Criterion VII measures remain in place when procurements involve activities requiring in-process oversight. Where procurement activities include work that must be verified during fabrication or manufacturing, the QAPD maintains that appropriate source verification or other applicable controls will still be performed to ensure that quality-affecting activities conform to procurement requirements.

The staff's current regulatory position regarding this exception is documented in an SE for Tennessee Valley Authority's (TVA) TR, "Quality Assurance Program Description for TVA New Nuclear, Revision 2," (New Nuclear QAPD) dated February 5, 2024 (Reference 9). The NRC staff verified that the JAEA QAPD commitments associated with supplier oversight activities are the same as those provided in the TVA New Nuclear QAPD. Therefore, the NRC staff's position is associated with this exception, as documented in the TVA New Nuclear QAPD SE applies to the JAEA QAPD. As discussed in the TVA New Nuclear SE pertaining to Part 50 and Part 52 power reactor licensees, each of these licensees' QAPDs is approved by the NRC staff and subsequent changes to the QAPD can be made consistent with the requirements in 10 CFR 50.54(a) and 10 CFR 50.55(f), as applicable. Since this reasoning pertains to power reactor licensees, the NRC staff is limiting the proposed exception to other Part 50 and Part 52 power reactor licenses. This is identified as a condition in section 5 of this SE. The NRC staff concludes that the requested exception regarding audit and evaluation is acceptable subject to the applicable limitations described in the TVA New Nuclear QAPD SE, which are included in the Limitations and Conditions section of this SE, for the control of purchased material, equipment, and services.

- Accreditation in lieu of commercial-grade surveys (calibration and testing):

    - For safety-related calibration and testing services, IHI commits to implement Nuclear Energy Institute (NEI) 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services," Revision 1 (Reference 10) in full, as endorsed by the NRC SE (Reference 11).

    - Part II, section 7.2 states that IHI accepts International Organization for Standardization/International Electrotechnical Commission 17025:2017, "General Requirements for the Competence of Testing and Calibration Laboratories," (ISO/IEC 17025:2017) laboratory accreditation by the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) signatories as the only acceptance method in lieu of performing a commercial grade survey as part of the commercial-grade dedication process as follows:

        1. A documented review of the laboratory's accreditation is performed. This review includes verification that the laboratory's accreditation encompasses ISO/IEC 17025:2017; confirmation that the published scope of accreditation covers the required measurement parameters, ranges, uncertainties, methodologies, and tolerances; and verification that accreditation has been achieved through an on-site assessment within the past 48 months and has not been based on two consecutive remote assessments.

        2. Purchase documents specify that (1) services must be performed under the accredited program and within the accredited scope; (2) equipment and standards used in performing calibration activities must be identified; (3) as-found calibration data must be reported when instruments are found out of tolerance; (4) subcontracting of accredited services is prohibited; and (5) the supplier must notify the purchaser of any condition that adversely affects the laboratory's accreditation or its scope.

3. Receipt-based validation measures are provided to confirm that the procured services were performed under the accredited program, within the accredited scope, and in accordance with the purchase order requirements.

4. Prohibit the use of ISO/IEC 17025 accreditation as the basis for acceptance of nondestructive examination or nondestructive testing services; such activities remain subject to the supplier-qualification requirements of appendix B.

The NRC staff reviewed JAEA's commitment to follow NEI-14-05A, Revision 1, and determined that the limitations and conditions imposed in the SE for NEI 14-05A, Revision 1, have been adequately incorporated into the QAPD. As such, the NRC staff determined this clarification is acceptable.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's controls for purchased material, equipment, and services conforms to the guidance of SRP section 17.5, Paragraph II.G. As such, the NRC staff determined that the description in the JAEA QAPD regarding IHI's controls for purchased material, equipment, and services meets the requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," of appendix B to 10 CFR Part 50 and is acceptable for the design-phase QA TR scope subject to the limitations identified in the final SE for TVA New Nuclear QAPD TR, Revision 2, section 3.1.7, "Control of Purchased Material, Equipment, and Services."

3.1.8 Identification and Control of Materials, Parts, and Components

Part II, section 8 of the QAPD states that identification and control of materials, parts, and components is not applicable. Based on the stated scope in the QAPD that the activities governed by this QAPD only encompasses design-phase controls (e.g., design verification and document control), the NRC staff agrees that Criterion VIII, "Identification and Control of Materials, Parts, and Components" of appendix B to 10 CFR Part 50 is not applicable.

3.1.9 Control of Special Processes

Part II, section 9, "Control of Special Processes," of the QAPD states that control of special processes is not applicable. Based on the stated scope in the QAPD that the activities governed by this QAPD only encompasses design-phase controls (e.g., design verification and document control), the NRC staff agrees that Criterion IX, "Control of Special Processes," of appendix B to 10 CFR Part 50 is not applicable.

3.1.10 Inspection

Part II, section 10, "Inspection," of the JAEA's QAPD describes the measures and governing procedures that implement inspections that provide assurance that items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. The QAPD states these inspections are performed by properly qualified personnel independent of those who performed or directly supervised the work, and the inspection results are documented.

In addition, JAEA's QAPD states the inspection program establishes requirements for planning inspections, including, as appropriate, (1) the characteristics to be inspected, (2) the method of inspection, and (3) the acceptance criteria. Inspection records identify the item inspected, the date of inspection, the inspector's identity, the type of observation, and the inspection results and acceptability, with references to information on actions taken in connection with nonconformances; inspection results are reviewed by authorized personnel. For the design-phase scope described in the QAPD, inspection activities are limited to verification functions supporting design (e.g., design verification inspections, supplier oversight inspections applicable to design inputs) and do not include installation-phase inspections.

The QAPD describes qualification programs for personnel performing quality inspections, implemented in accordance with ASME NQA-1-2022, Part I, Requirement 2, with use of Part III, Subpart 3.1–2.3 guidance, applied to individuals performing quality inspections regardless of functional assignment. In addition, the QAPD states inspection plans may identify the responsible group/discipline, any applicable hold points, and the frequency of inspections commensurate with item importance to safety, complexity, and technical requirements to be met.

Part II, section 10.3, "NQA-1 Commitment / Exceptions," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 10 (Inspection), without further clarifications or exceptions for the design-phase scope, Subpart 2.5 (installation-related guidance) is not claimed in the QAPD and is outside the stated design-phase scope. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's inspection program conforms to the guidance of SRP section 17.5, Paragraph II.J. As such, the NRC staff determined that the description within the JAEA QAPD regarding IHI's inspection program meets the requirements of Criterion X, "Inspection," of appendix B to 10 CFR Part 50 and, therefore, is acceptable for the design-phase QA TR scope.

3.1.11 Test Control

Part II, section 11, "Test Control," of the JAEA's QAPD describes the measures and governing procedures to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service. The QAPD states test programs include criteria for determining when testing is required to demonstrate that performance is in accordance with design; test procedures include provisions to assure that prerequisites and suitable environmental conditions are met, adequate instrumentation is available and used, appropriate tests and equipment are employed, necessary monitoring is performed, and results are documented and evaluated by responsible authority to ensure that test requirements have been satisfied. In addition, the QAPD states test records are established and maintained to indicate the ability of the item or computer program to satisfactorily perform its intended function or to meet its documented requirements and personnel who perform or evaluate tests are qualified in accordance with the QAPD's personnel qualification provisions applicable to the design-phase scope.

For non-computer program testing, Part II, section 11.2 of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 11 (Test Control), without further clarifications or exceptions. For computer program testing, the QAPD commits to implementing the quality standards described in NQA-1-2022, Part I, Requirement 11 and Part II, Subpart 2.7, without further clarifications or exceptions, consistent with the design-phase scope described in the QAPD. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's test control program conforms to the guidance of SRP section 17.5, Paragraph II.K. As such, the NRC staff determined that the description in JAEA's QAPD of IHI's test control program meets the requirements of Criterion XI, "Test Control," of appendix B to 10 CFR Part 50 and is acceptable for the design-phase QA TR scope.

3.1.12 Control of Measuring and Test Equipment

Part II, section 7, "Control of Measuring and Test Equipment," of the JAEA's QAPD describes the measures and governing procedures to control the calibration, maintenance, and use of measuring and test equipment (M&TE) to accomplish the required measurements for determining conformance to specified requirements.

The QAPD states that M&TE is labeled, tagged, or otherwise controlled to indicate its calibration status and to ensure traceability to calibration test data. M&TE found to be out of calibration is tagged or segregated and not used until recalibrated; when M&TE is found out-of-tolerance, an evaluation is performed and documented to determine the validity of previous inspection or test results and the acceptability of items previously inspected or tested with that equipment. In addition, the QAPD states that if any M&TE is consistently found to be out of calibration, it is repaired or replaced and calibration is performed when accuracy is suspected, and where marking/labeling is impractical due to equipment size or configuration, the QAPD requires that the necessary calibration status information be maintained in documentation traceable to the device.

Part II, section 12.1, "NQA-1 Commitment / Exceptions," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 12 (Control of Measuring and Test Equipment), without further clarifications or exceptions for the design-phase scope described in the LTR. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's MT&E controls conforms to the guidance of SRP section 17.5, Paragraph II.L. As such, the NRC staff determined that the description in the JAEA QAPD of IHI's M&TE controls meets the requirements of Criterion XII, "Control of Measuring and Test Equipment," of appendix B to 10 CFR Part 50 and, therefore, is acceptable for the design-phase QA TR scope.

3.1.13 Handling, Storage, and Shipping

Part II, section 13, "Handling, Storage, and Shipping," of the QAPD states that handling,

storage, and shipping are not applicable. Based on the stated scope in the QAPD that the activities governed by this QAPD only encompasses design-phase controls (e.g., design verification and document control), the NRC staff agrees that Criterion XIII, "Handling, Storage, and Shipping," of appendix B to 10 CFR Part 50 is not applicable.

3.1.14 Inspection, Test, and Operating Status

Part II, section 14, "Inspection, Test, and Operating Status," of the QAPD states that inspection, test, and operating status are not applicable. Based on the stated scope in the QAPD that the activities governed by this QAPD only encompasses design-phase controls (e.g., design verification and document control), the NRC staff agrees that Criterion XIV, "Inspection, Test, and Operating Status," of appendix B to 10 CFR Part 50 is not applicable.

3.1.15 Nonconforming Materials, Parts, or Components

Part II, section 15, "Nonconforming Materials, Parts, or Components," of the JAEA's QAPD describes the measures and governing procedures to control items that do not conform to specified requirements in order to prevent inadvertent installation or use. The QAPD states controls provide for the identification, documentation, evaluation, segregation (when practical), and disposition of nonconforming items, and notification to affected organizations.

The JAEA's QAPD states nonconforming items are evaluated and recommended dispositions proposed; processing, delivery, installation, or use of the item is prevented until an evaluation and approved disposition by authorized personnel has occurred and nonconformances to design requirements that are dispositioned "repair" or "use-as-is" are subject to design control measures commensurate with those applied to the original design. Where applicable, the QAPD addresses conditional release of nonconforming items (e.g., at-risk use before final disposition) by maintaining identification of the item and documenting the basis for such release and required management approvals.

The JAEA QAPD describes the interface with 10 CFR Part 21 for evaluating deviations and defects identified through the nonconformance process.

Part II, section 15.2, "NQA-1 Commitment," of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 15 (Control of Nonconforming Items), without further clarifications or exceptions for the design-phase scope described in the LTR. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's controls for nonconforming materials, parts, or components conforms to the guidance of SRP section 17.5, Paragraph II.O. As such, the NRC staff determined that the description in the JAEA QAPD regarding IHI's controls for nonconforming materials, parts, or components meets the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of appendix B to 10 CFR Part 50 and is acceptable for the design-phase QA TR scope.

3.1.16 Corrective Action

Part II, section 16, “Corrective Action,” of the JAEA’s QAPD describes the measures and governing procedures to promptly identify, document, classify, and correct conditions adverse to quality. The QAPD states procedures are provided to ensure that corrective actions are initiated and documented following the determination of such conditions, consistent with regulatory requirements and applicable quality standards.

The QAPD requires personnel to identify known conditions adverse to quality; reports of conditions are analyzed to identify trends. Significant conditions adverse to quality and significant adverse trends are documented and reported to responsible management. For significant conditions adverse to quality, the cause is determined and actions to preclude recurrence are taken. Where suppliers or contractors perform safety-related activities (or similar situations), the QAPD allows delegation of specific corrective-action responsibilities; however, JAEA retains overall responsibility for the effectiveness of corrective action measures and the corrective action program.

The JAEA QAPD also describes the interface with 10 CFR Part 21 to ensure significant conditions adverse to quality are evaluated for potential reporting, consistent with regulatory requirements.

Part II, section 16.2, “NQA-1 Commitment,” of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 16 (Corrective Action), without further clarifications or exceptions for the design-phase scope described in the LTR. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI’s corrective action program conforms to the guidance of SRP section 17.5, Paragraph II.P. As such, the NRC staff determined that the description in the JAEA QAPD of IHI’s corrective action program, meets the requirements of Criterion XVI, “Corrective Action,” of appendix B to 10 CFR Part 50 and is acceptable for the design-phase QA TR scope.

3.1.17 Quality Assurance Records

Part II, section 17, “Quality Assurance Records,” of the JAEA’s QAPD describes the measures and governing procedures to ensure that records of items and activities affecting quality are identified, generated, authenticated, and maintained, and that their final disposition is specified. The QAPD includes requirements for records administration, including receipt, preservation, retention, storage, safekeeping, retrieval, and classification, to ensure that QA records supporting design-phase activities are complete, accurate, and retrievable.

For electronic records and retrieval systems, the QAPD commits to manage QA records in electronic media consistent with the NRC Generic Letter (GL) 88-18 (optical disk storage) (Reference 12) and Regulatory Issue Summary (RIS) 2000-18 (electronic QA records) (Reference 13), and with Nuclear Information and Records Management Association (NIRMA) Technical Guidelines (TG), including TG-11 (Authentication of Records and Media) (Reference 14), TG-15 (Management of Electronic Records) (Reference 15), TG-16 (Software Configuration Management and Quality Assurance) (Reference 16), and TG-21 (Electronic Records

Protection and Restoration) (Reference 17). These commitments address authentication, configuration control, protection, restoration, and access controls for electronic records systems used during the design phase.

Part II, section 17.3, “NQA-1 Commitment / Exceptions,” of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 17 (Quality Assurance Records). The QAPD’s records retention framework is informed by positions in RG 1.28 (Revision 6) for design-phase QA records (e.g., lifetime vs. nonpermanent records), ensuring that retention times and indexing/retrieval controls are consistent with accepted NRC guidance. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with the requirements of appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI’s QA records controls conforms to the guidance of SRP section 17.5, Paragraph II.Q. As such, the NRC staff determined that the description of IHI’s QA record controls in the JAEA QAPD meets the requirements of Criterion XVII, “Quality Assurance Records,” of appendix B to 10 CFR Part 50 and is acceptable for the design-phase QA TR scope.

3.1.18 Audits

Part II, section 18, “Audits,” of the JAEA’s QAPD describes the measures and governing procedures to implement audits that verify activities covered by the QAP are performed in conformance with established requirements and that performance criteria are met; the audit program is reviewed for effectiveness as part of the overall QA process, and audits are performed with a frequency commensurate with safety significance.

The QAPD describes conducting periodic internal and external audits. The QAPD states internal audits of applicable QAP elements are completed at intervals that ensure coverage of the program during the life of the activity and external audits determine the adequacy of supplier QAPs; suppliers are audited on a triennial basis and are subject to annual evaluations to confirm continued acceptability of products and services.

The JAEA’s QAPD describes how 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 JAEA management. In addition, the QAPD states audit results are documented and reviewed by responsible management; management responds to audit findings and initiates corrective actions when determined necessary, with documented follow-up to verify implementation and effectiveness of assigned corrective actions.

Part II, section 18.3, “NQA-1 Commitment,” of the JAEA QAPD commits to implementing the quality standards described in ASME NQA-1-2022, Part I, Requirement 18, without further clarifications or exceptions for the design-phase scope described in the LTR. As stated in RG 1.28, Revision 6, NQA-1-2022 is considered acceptable to the NRC staff and provides an adequate basis for complying with appendix B to 10 CFR Part 50.

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI’s internal audit program conforms to the guidance of SRP section 17.5, Paragraph II.R. As such,

the NRC staff determined that the description of IHI's internal audit program in the JAEA QAPD meets the requirements of Criterion XVIII, "Audits," of appendix B to 10 CFR Part 50 and is acceptable for the design-phase QA TR scope.

3.2 Nonsafety-Related SSC Quality Control

3.2.1 Nonsafety-Related SSCs - Significant Contributors to Plant Safety

Part III, "Nonsafety-Related SSC Quality Control," of the JAEA's QAPD describes the measures and governing procedures to be applied to nonsafety-related SSCs that are significant contributors to plant safety, for which the requirements of appendix B to 10 CFR Part 50 are not applicable. The QAPD applies specific program controls in a selected manner targeted toward the characteristics or critical attributes that render the SSC a significant contributor to plant safety, consistent with the applicable sections of the QAPD (Part III).

Based on the above, the NRC staff determined that the description in the JAEA QAPD of IHI's control of nonsafety-related SSC program conforms to the guidance of SRP section 17.5, Paragraph II.U.1, for establishing necessary measures and governing procedures to be applied to nonsafety-related SSCs that are significant contributors to plant safety, for which the requirements of appendix B to 10 CFR Part 50 are not applicable. As such, the NRC staff determined that this approach, as described in the JAEA QAPD is acceptable for the design-phase QA TR scope.

3.3 Regulatory Commitments

The JAEA QAPD follows the guidance of SRP section 17.5, Paragraph II.V, for establishing QAP commitments. The QAPD's Part IV, "Regulatory Commitments," lists regulatory guides, standards, and technical guidelines that supplement and support implementation of the QAP for design-phase activities.

JAEA commits to comply with the following NRC guidance and QA standards, as applicable to the design-phase scope:

- RG 1.28, Revision 6 - staff-endorsed methods for implementing appendix B to 10 CFR Part 50; cited in the QAPD as a governing commitment for the program.

- ASME NQA-1-2022, Part I and Part II (and Part III, where noted) - QA requirements and software QA for nuclear facility applications, referenced throughout the QAPD sections for organization, program, design control, inspection and test control, records, and audits.

- RG 1.234, Revision 1, "Evaluating Deviations and Reporting Defects and Noncompliance Under 10 CFR Part 21" (Reference 18) - guidance for Part 21 screening, evaluation, and reporting interfaces.

- RG 1.231, Revision 0, "Acceptance of Commercial-Grade Design and Analysis Computer Programs Used in Safety-Related Applications for Nuclear Power Plants" (Reference 19) - guidance for acceptance/dedication of commercial-grade software used in design analyses.

- RG 1.164, Revision 1, “Dedication of Commercial-Grade Items for Use in Nuclear Power Plants” (Reference 20) - guidance supporting commercial-grade dedication of items/services used in safety-related applications.

- RG 1.29, Revision 6, “Seismic Design Classification for Nuclear Power Plants” (Reference 21) - cited as part of the program’s regulatory commitments in the QAPD.

- NRC GL 88-18 and RIS 2000-18 - NRC guidance for electronic records programs referenced in the QAPD.

- NIRMA TGs - TG-11, TG-15, TG-16, and TG-21 - cited to support electronic QA records administration.

Because JAEA states that conformances and exceptions to RG 1.28, Revision 6; RG 1.29, Revision 6; RG 1.164, Revision 1; RG 1.231, Revision 0; and RG 1.234, Revision 1 will be identified in applicable license applications, an application for an SDA that references the QAPD must provide information on conformances with and exceptions to these RGs. This is plant-specific action item (PSAI) 5.1 (in SE section 5.0).

Based on the above, the NRC staff determined that the description in JAEA QAPD of IHI’s regulatory commitments are consistent with SRP section 17.5, Paragraph II.V, and therefore acceptable for the design-phase QA TR scope.

4.0 CONCLUSION

The NRC staff concludes that the JAEA QAPD, Revision 1, delineates the policies, processes, controls, and implementing documents associated with JAEA’s design-phase activities that affect the quality of safety-related nuclear plant SSCs, and includes planned and systematic measures necessary to provide confidence that such SSCs will perform satisfactorily in service when relied upon in subsequent licensing stages.

The QAPD may also be applied, in a selected manner, to certain nonsafety-related SSCs that are significant contributors to plant safety, consistent with the program provisions described in Part III of the QAPD.

Subject to the satisfaction of PSAI 5.1, the NRC staff determined that the JAEA QAPD follows the NRC guidance contained within, and conforms to the format of, SRP section 17.5. The staff used the acceptance criteria of SRP section 17.5 as the basis for evaluating the acceptability of the JAEA QAPD in conformance with the applicable portions of appendix B to 10 CFR Part 50. Based on its review of the JAEA QAPD, the NRC staff concludes the following:

- The JAEA QAPD adequately describes the authority and responsibility of management and supervisory personnel, performance and verification personnel, and self-assessment personnel, in relation to activities to which the JAEA QAP is applicable.

- The JAEA QAPD adequately provides for organizational independence and personnel authority to perform verification and self-assessment functions related to design-phase activities that affect the quality of safety-related nuclear plant SSCs, with organizations

and personnel having the independence to conduct activities without undue influence from those directly responsible for cost and schedule.

- The JAEA QAPD adequately applies to activities and items important to safety within the design-phase scope.

- The JAEA QAPD adequately establishes QA controls that, when properly implemented, and subject to the limitations and conditions in section 5.0 of this SE, comply with the applicable portions of appendix B to 10 CFR Part 50 and the interfaces to 10 CFR Part 21, consistent with the criteria contained in SRP section 17.5, as well as the relevant regulatory guidance cited in the QAPD commitments.

Based on its review, the NRC staff has determined that the JAEA QAPD, Revision 1, adequately describes the IHI's QAP for FSIS design-phase activities. Accordingly, subject to the limitations and conditions in section 5.0 of this, the NRC staff concludes that the JAEA QAPD complies with applicable NRC regulations and conforms with applicable industry standards and can be used by JAEA for design-phase activities affecting the quality and performance of safety-related SSCs in support of an SDA.

5.0 LIMITATIONS AND CONDITIONS

This JAEA QAPD is specific to design-phase activities affecting the quality and performance of safety-related SSCs in support of an SDA under 10 CFR Part 52. Any application referencing the approved revision of the JAEA QAPD shall provide a description in the JAEA QAPD that meets appendix B to 10 CFR Part 50 and associated regulatory requirements.

The following condition on the use of this QAPD apply:

- The exception to not perform audits or evaluations for procurements from other Parts 50 and 52 licensees only applies when IHI procures from other Parts 50 and 52 power reactor licensees.

As referenced in section 3.3 of this SE, the following PSAI apply:

- PSAI 5.1: An application for an SDA that references the FSIS QAPD must provide information on conformance with and exceptions to RG 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 4 (Reference 22); RG 1.28; RG 1.29, RG 1.54, "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants," Revision 3 (Reference 23); RG 1.164; RG 1.189, "Fire Protection for Nuclear Power Plants," Revision 5 (Reference 24); RG 1.231; and RG 1.234.

6.0 REFERENCES

1. Letter from Xing Yan, Japan Atomic Energy Agency, to the NRC Document Control Desk, "Submittal of Licensing Topical Report (Rev. 0) on Quality Assurance Program Description (QAPD) for Floating Seismic Isolation System (FSIS) Design Activities," LR080302-01, dated March 2, 2026 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML26061A025).

2. Licensing Topical Report on Quality Assurance Program Description for Floating Seismic isolation System (FSIS) Design Activities Supporting Application for a Standard Design Approval from the U.S. Nuclear Regulatory Commission, Revision 0, DR080302-05 (ML26103A025).

3. NRC Public Meeting with JAEA conducted on July 30, 2026 (ML26218A182).

4. Licensing Topical Report on Quality Assurance Program Description for Floating Seismic isolation System (FSIS) Design Activities Supporting Application for a Standard Design Approval from the U.S. Nuclear Regulatory Commission, Revision 1, DR080814-01NP (ML26226A007).

5. Letter from Xing Yan, Japan Atomic Energy Agency, to the NRC Document Control Desk, “Submittal of LTR Revision 1 on QAPD for FSIS Design Activities,” LR080814-01, dated August 14, 2026 (ML26226A004).

6. American Society of Mechanical Engineers (ASME) NQA-1-2022 “Quality Assurance Program Requirements for Nuclear Facilities Applications,” dated June 30, 2022.

7. RG 1.28, “Quality Assurance Program Criteria (Design and Construction),” Revision 6, dated September 2023 (ML23177A002).

8. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 17.5, “Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants," dated August 2015 (ML15037A441).

9. Final Safety Evaluation for Tennessee Valley Authority Topical Report, NNP-TR-001-NP, “Quality Assurance Program Description for TVA New Nuclear, Revision 2” dated February 5, 2024 (ML24037A144).

10. Revision 1 of NEI 14-05A, “Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services,” dated September 2020 (ML20259B731).

11. SE by the Office of Nuclear Reactor Regulation Regarding NEI 14-05A, “Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services,” dated November 23, 2020 (ML20322A019).

12. NRC GL 88-18, “Plant Record Storage on Optical Disks,” dated October 20, 1988.

13. NRC RIS 2000-18, “Guidance on Managing Quality Assurance Records in Electronic Media,” dated October 2000 (ML003739359).

14. Nuclear Information and Records Management Association (NIRMA), “Authentication of Records and Media,” TG 11-2011, New York, NY.

15. NIRMA, “Management of Electronic Records,” TG 15-2011, Windham, NH.

16. NIRMA, “Software Configuration Management and Quality Assurance,” TG 16-2011, Windham, NH.

17. NIRMA, “Electronic Records Protection and Restoration,” TG 21-2011, Windham, NH.

18. RG 1.234, Revision 1, “Evaluating Deviations and Reporting Defects and Noncompliance Under 10 CFR Part 21,” dated March 2024 (ML240038A311).

19. RG 1.231, Revision 0, “Acceptance of Commercial-Grade Design and Analysis Computer Programs used in Safety-Related Applications for Nuclear Power Plants,” dated January 2017 (ML16126A183).

20. RG 1.164, Revision 1, “Dedication of Commercial-Grade Items for Use in Nuclear Power Plants,” April 2024 (ML24038A310).

21. RG 1.29, Revision 6, "Seismic Design Classification for Nuclear Power Plants," dated July 2021 (ML21155A003).

22. RG 1.8, “Qualification and Training of Personnel for Nuclear Power Plants,” Revision 4, dated June 2019 (ML19101A395).

23. RG 1.54, “Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants,” Revision 3, dated April 2017 (ML17031A288).

24. RG 1.189, Revision 5, “Fire Protection for Nuclear Power Plants,” dated October 2023 (ML23214A287).