Natura Resources

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## NATURA RESOURCES QA POLICY STATEMENT

Natura Resources LLC (Natura) shall design, procure, construct, and operate the nuclear facilities(s) 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) Facility License(s) and applicable laws and regulations of the state and local governments.

The Natura Quality Assurance Program (QAP) is the Quality Assurance Program Description (QAPD) provided in this document and the associated implementing documents. Together they provide for control of Natura 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 Natura'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. Management establishes overall expectations for effective implementation of the quality assurance program and is responsible for obtaining the desired end result. Compliance with the QAPD and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the Natura QAP.

Signed

DOUG ROBISON

Doug Robison

Founder and Chief Executive Officer

Natura Resources

# PART I - INTRODUCTION

## Section 1 – General

The Natura Quality Assurance Program Description (QAPD) is the top-level policy document that establishes the quality assurance policy and assigns major functional responsibilities for licensing, construction, pre-operational and eventual operational activities conducted by or for Natura related to its Liquid-Fueled Molten Salt Reactor (LF-MSR) projects. The QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR Part 50, Appendix B and 10 CFR Part 52. The QAPD is based on the requirements and guidance of ASME NQA-1-2022, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I and II, with specific reference to selected Part III sections, as identified in this document, and has been prepared in accordance with U.S. Nuclear Regulatory Commission (NRC) guidance (consistent with the NEI 11-04A QAPD template).

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 licensing, construction and pre-operational activities will be developed prior to commencement of those activities. Procedures will establish practices for certain activities which are common to all Natura organizations performing those activities so that the activity is controlled and carried out in a manner that meets QAPD requirements. Procedures specific to a site, organization, or group will establish detailed implementation requirements and methods and may be unique to particular functions or work activities. Advanced design features specific to LF-MSRs - for example, liquid fuel and passive safety systems – may result in quality procedures or practices that differ from standard procedures (e.g., those used in light water reactor operations). Any special QA provisions necessary for LF-MSRs will be documented and justified to show that the underlying safety objectives of each criterion are achieved.

### 1.1 Scope and Applicability

The QAPD applies to licensing, construction, and pre-operational activities throughout the lifecycle of the facility affecting the quality and performance of safety-related SSCs, including, but not limited to:

| | | |
|---|---|---|
| Designing | Storing | Operating |
| Siting | Constructing | Maintaining |
| Procuring | Erecting | Repairing |
| Fabricating | Installing | Modifying |
| Cleaning | Inspecting | Refueling |
| Handling | Testing | Training |
| Shipping | Startup | Decommissioning |
| Receiving | Pre-operational activities | |

Safety-related SSCs, under the control of the QAPD, will be identified within 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 Parts 50 and 52 establish QA requirements for activities within their scope.

The policy of Natura is to assure a high degree of availability and reliability of the nuclear facilities while ensuring the health and safety of its workers and the public. To this end, selected elements of the QAPD may also be 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 QA requirements. Implementing documents will establish program element applicability.

The definitions provided in ASME NQA-1–2022 apply to select terms as used in this document.

A graded application of QA requirements will be employed for certain aspects of Natura's advanced reactor projects. While full Appendix B measures are applied to safety-related items without relaxation, a graded approach may be used for items that are not safety-related but still important to safe operation or defense-in-depth. Under this graded approach, the implemented controls are commensurate with the item's risk significance and function. This ensures high standards of quality are maintained where most necessary (e.g. reactor vessel, reactivity control systems, containment or confinement systems), while providing flexibility for less critical items – all without compromising any Appendix B requirements. The graded approach does not dilute regulatory requirements for safety-related SSCs but allows extension of certain QA controls to non-safety SSCs in a proportional manner to enhance overall reliability. The use of a graded approach will be consistent with NRC regulatory guidance for advanced reactors.

## PART II – QAPD DETAILS (QUALITY ASSURANCE CRITERIA)

### Section 1 – Organization

This section describes the current Natura organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying QAPD implementation. The organizational structure includes off- and on-site functions for LF-MSR development activities 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. Management gives careful consideration to the timing, extent, and effects of organizational structure changes.

As a growing enterprise, the organization structure will change with time. Executive management will ensure that the principles assuring quality described below are fully implemented for all organizational changes.

Natura Resources' management is fully committed to the effective implementation of the QA program. The CEO of Natura Resources has overall responsibility for the establishment and execution of the QAPD. Line managers in each functional area (engineering/design, procurement, construction, operations, etc.) are responsible for ensuring that their organizations implement applicable QA procedures and requirements in their work. However, the authority to stop work or withhold approval of activities that do not meet quality requirements lies with the independent QA organization. This independence is maintained even in a streamlined project organization. For instance, in a smaller project some personnel may serve multiple roles, but the independence of the QA function is rigorously preserved – e.g., technical staff might support both design and testing work, but all quality verification, inspection, and audit activities are performed by individuals who do not have direct responsibility for the work being checked. If any combining of roles is necessary due to a small organization, it is minimized and justified to ensure no compromise of QA oversight integrity.

Day-to-day implementation of the QA program is assigned to line managers with support of the Director of Quality, who has the authority and organizational freedom to identify quality problems, initiate solutions, verify implementation of solutions, and report on the status of the QA program. The Director of Quality reports hierarchically to a senior management position independent of those responsible for schedules or costs (avoiding undue pressure or conflicts of interest) and has direct access to the CEO on QA matters. This ensures the required organizational independence for QA oversight as mandated by Appendix B, Criterion I.

All personnel involved in safety-related activities are required to be trained and qualified to perform their work in accordance with established procedures (see Part II, Section 2 for training requirements). Management at all levels fosters a quality-conscious culture where issues can be raised without fear of retribution, encouraging a questioning attitude to identify potential problems. The Director of Quality will periodically brief senior management on the performance of the QA program, including any areas of noncompliance or improvements needed. Senior management will review the status and effectiveness of the QA program at least annually and will direct any necessary adjustments in resources or focus to ensure continuous compliance and improvement. (This management assessment is in addition to independent audits described in Part II, Section 18.)

### 1.1 Chief Executive Officer

The CEO is responsible for all aspects of design, construction, and operation of Natura's nuclear plants. The CEO is also responsible for all technical and administrative support activities provided by Natura and contractors. The CEO directs the Chief Operating Officer in fulfillment of their responsibilities. The CEO reports to the Natura Board of Directors with respect to all matters.

### 1.2 Chief Operating Officer

The Chief Operating Officer reports to the CEO and is responsible for the administration of research, design, engineering, licensing, operations, quality, training under the QAPD and document control support. The Chief Operating Officer is also responsible for managing the overall corporate service organization, including assuring that supply chain management, safety and health, and information technology support activities in accordance with the QAPD.

#### 1.2.1 Chief Engineer

The Chief Engineer provides engineering services for plant design and licensing of Natura reactors. These engineering services include site-specific engineering and design necessary to support development of license applications and preconstruction and construction activities. The Chief Engineer is responsible for establishing and managing contracts that support the design and analysis of Natura reactors. The Chief Engineer reports to the Chief Operating Officer.

#### 1.2.2 Director of Quality

The Director of Quality reports to the COO for new reactor activities and for operations activities, being responsible for developing and maintaining the Natura QAPD, evaluating compliance to QAP requirements, and managing Natura Quality Assurance Organization resources. The Natura Quality Assurance Organization is responsible for independently planning and performing activities to verify the development and effective implementation of the Natura QAPD including but not limited to design, engineering, licensing, document control, corrective action program, and procurement that support new nuclear facilities.

The Director of Quality is responsible for verifying compliance with regulatory requirements and procedures through audits and technical reviews; monitoring organizational processes to ensure conformance to commitments and licensing document requirements; and ensuring that vendors providing quality services, parts, and materials to Natura are meeting the requirements of 10 CFR 50, Appendix B through Nuclear Procurement Issues Committee (NUPIC), Nuclear Industry Assessment Corporation (NIAC), or Natura vendor audits. The Director of Quality has sufficient independence from other Natura priorities to bring forward issues affecting safety and quality and makes judgments regarding quality in all areas regarding Natura's nuclear development activities as appropriate. The Director of Quality may make recommendations to Natura management regarding improving the quality of work processes. If the Director of Quality disagrees with any actions taken by a separate part of the organization and is unable to obtain resolution, the Director of Quality shall inform the COO and bring the matter to the attention of the CEO, who will determine the final disposition.

### 1.2.3 Director of Reactor Operations

The Director of Reactor Operations reports to the COO and is responsible for the overall safe and efficient operation of the operating plants under the Natura's control, delivery of an operational program for any Natura customers, preparation for regulatory oversight, and for the implementation of quality assurance requirements in the operations areas specified by the QAPD. For the purposes of this program, the description of the duties of the Director of Reactor Operations and their staff will be limited to those activities that support the development of new nuclear facilities.

### 1.2.4 Director of Organizational Effectiveness

The Director of Organizational Effectiveness reports to the COO and is responsible for establishing and maintaining enterprise programs that support effective implementation of the QAPD, including the Corrective Action Program, nuclear safety culture, document control and records management frameworks, and the training program for personnel performing activities affecting quality. The Director establishes policies, procedures, and governance structures to implement QAPD requirements and support organizational performance.

## 1.4 Authority to Stop Work

All Natura 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 authority extends to offsite work performed by suppliers that furnish safety-related materials and services to Natura.

## 1.5 NQA-1 Commitment

In establishing its organizational structure, Natura commits to compliance with NQA-1-2022, Requirement 1.

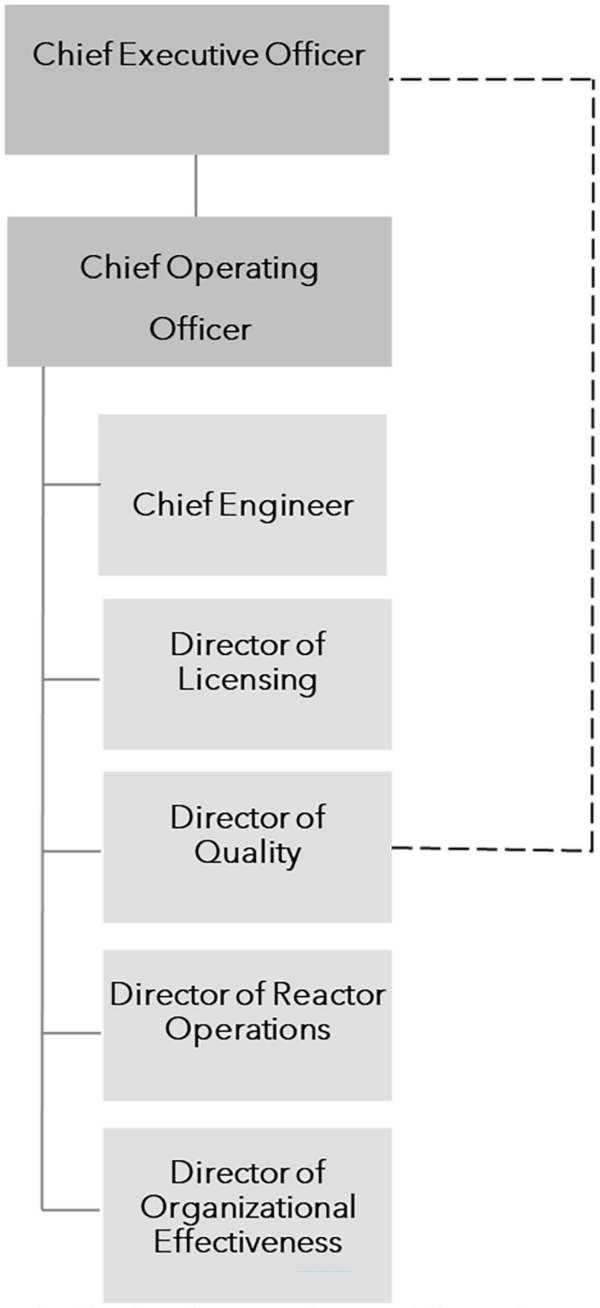


Figure 1-1 Natura Organization for Design, Construction, and Operations

Section 2 - Quality Assurance Program

Natura will establish the necessary measures and governing procedures to implement the QAP as described in the QAPD. Natura is committed to implementing the QAP in all aspects of work that are important to the safety of the nuclear plant(s) as described and to the extent delineated in the QAPD. The QAP will include monitoring activities against acceptance criteria in a manner sufficient to provide assurance that the activities important to safety are performed satisfactorily. Further, Natura will ensure through the systematic process described herein that its suppliers of safety-related equipment or

services meet the applicable requirements of 10 CFR Part 50, Appendix B. Senior management will be regularly apprised of the adequacy of implementation of the QAP through the audit functions described in Part II, Section 18.

The objective of the QAP is to assure that Natura's nuclear facilities are designed and constructed in accordance with governing regulations and license requirements. The program is based on the requirements of ASME NQA-1-2022, "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, fabrication, construction, and testing of the SSCs of the facility and to the managerial and administrative controls to be used to assure safe operations. A list or system that identifies SSCs and activities to which this program applies will be maintained at the appropriate facility. Design basis documents are used as the basis for this list. Cost and scheduling challenges must be addressed; however, they do not prevent proper implementation of the QAP.

Specific program controls may be applied to nonsafety-related SSCs that are significant contributors to plant safety, for which 10 CFR Part 50, Appendix B, is not applicable. The specific program controls will be applied to those items in a select manner, targeted at those characteristics or critical attributes that qualifies the SSC as a significant contributor to plant safety.

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

In general, the program requirements specified herein will be detailed in implementing procedures that are either Natura implementing procedures, or supplier implementing procedures governed by a supplier QAP.

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 Natura are responsible for achieving acceptable quality in the work covered by the QAPD. This includes the activities delineated in Part I, Section 1.1. Natura personnel performing verification activities are responsible for verifying the achievement of acceptable quality. Activities governed by the QAPD will be 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 Director of Quality is responsible for verifying that processes and procedures comply with QAPD and other applicable requirements, that such processes or procedures are implemented, and that management appropriately ensures compliance.

## 2.2 Delegation of Work

Natura retains and exercises the responsibility for the scope and implementation of an effective QAP. Positions identified in Part II, Section 1, 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 appropriate level based upon their nature and effect, with technical advice or review as appropriate.

## 2.3 Site-specific Safety-Related Design Basis Activities

Site-specific safety-related design basis activities are defined as those activities, including sampling, testing, data collection, and supporting engineering calculations and reports, that will be used to determine the bounding physical parameters of the site. Appropriate QA measures are applied.

## 2.4 Periodic Review of the Quality Assurance Program

Management shall assess the adequacy and compliance of the QA program at least once a year or at least once during the life of the activity, whichever is shorter. This review considers audit findings, performance trends, feedback from NRC inspections, and changes in regulatory standards or industry best practices. Adjustments to the QA program (including revisions to this QAPD) are made as necessary, subject to the appropriate review and approval processes. Substantive changes to the QAPD will be approved by the CEO (most senior executive) and, if required, submitted to NRC for acceptance in accordance with regulatory guidance (e.g., per NEI 11-04A guidance on QAPD changes).

## 2.5 Issuance and Revision to Quality Assurance Program

Administrative control of the QAPD will be in accordance with 10 CFR 50.4(b)(7). Changes to the QAPD are evaluated by the Director of Quality to ensure that such changes do not degrade safety for previously approved QA controls specified in the QAPD. This document shall be revised as appropriate to incorporate additional QA commitments that may be established during the application development process. New revisions to the document will be reviewed, at a minimum, by the Natura Director of Quality and approved by the COO.

Regulations require that the Final Safety Analysis Report (FSAR) include, among other things, the managerial and administrative controls to be used to assure safe operation, including a discussion of how the applicable requirements of 10 CFR Part 50, Appendix B will be satisfied. In order to comply with this requirement, the FSAR will reference the QAPD and, as a result, the requirements of 10 CFR 50.54(a) will be satisfied by and apply to the QAPD.

## 2.6 Personnel Training and Qualifications

Personnel assigned to implement elements of the QAPD shall be capable of performing their assigned tasks. Personnel performing activities affecting quality will be trained and indoctrinated in the applicable QA requirements, procedures, and standards prior to commencing work. The indoctrination, training, and qualification programs will be commensurate with scope, complexity, and importance of the activities; and include or address the following, as appropriate:

- Education, experience, and proficiency of the personnel receiving training

- General criteria, technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and QAP requirements
- On-the-job training, if direct hands-on applications or experience is needed to achieve and maintain proficiency.

Training programs will ensure that personnel are knowledgeable about quality objectives, safety culture expectations, and their specific duties. For example, engineers receive training on design control procedures and change control; craft personnel are trained on inspection and testing procedures; and QA auditors receive training on audit techniques and criteria. Natura will maintain training records and require periodic re-training or re-qualification as appropriate to ensure continuous competence. The effectiveness of training may be evaluated via exams, performance evaluations, or observations. Only trained and qualified individuals will be authorized to perform quality-related tasks without direct supervision.

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 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 for the Director of Quality are that they hold 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, and one year of the experience is in performing quality verification activities. Desired qualifications 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 for the individuals responsible for supervising QA or QC personnel is that each has a high school diploma or equivalent and has a minimum of one year of experience performing quality verification activities. Individuals who do not possess these formal education and 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 individuals that are part of the Quality Assurance organization 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.

Section 3 – Design Control

Natura will establish design control measures to ensure that the design of safety-related SSCs (and other items as specified) is defined, controlled, and verified subject to the provisions of the QAPD. The design process will include provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces within Natura and with suppliers. 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 contains or references appropriate acceptance criteria that can be related to the design input in sufficient detail to permit verification by inspection and test, as required. Design change processes and the division of responsibilities for design-related activities will be detailed in Natura and applicable supplier procedures. Changes to design inputs and final designs will be justified and subject to design control measures commensurate with those applied to the original design. The design control program will include 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 items as "use-as-is" or "repair" will be reviewed and approved by the Natura design organization or by other organizations so authorized by Natura.

Design documents will be reviewed by individuals knowledgeable in QA to ensure the documents contain the necessary QA requirements.

## 3.1 Design Verification

Natura design processes will provide for design verification to ensure that items, computer programs, 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 will include verification measures commensurate with those applied to original plant design.

Design verifications will be 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, or 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 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. For each safety-related SSC, a design verification is completed at the appropriate stage. Design verification procedures will be 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. As an example, for complex or first-of-a-kind MSR systems (like the fuel salt processing system), Natura may use a combination of peer review, testing of a scaled mock-up, and independent analysis to validate the design. Verification ensures that design outputs meet design input requirements and acceptable margins. 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.

Natura 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

Natura will maintain sufficient records to provide evidence that the design was properly accomplished. These records will include the final design output and any revisions thereto, as well as record 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 will 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, control, and use of computer applications and digital equipment software when used in safety-related applications and designated nonsafety-related applications. Computer program acceptability will be pre-verified or the results verified with the design analysis for each application. Pre-verified computer programs will be controlled using a software configuration management process. Natura 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 will 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 will be documented and approved by authorized personnel designated by the QA organization. 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 Setpoint Control

Instrument and equipment setpoints that could affect nuclear safety shall be controlled in accordance with written instructions. As a minimum, these written instructions shall:

- Identify responsibilities and processes for reviewing, approving, and revising setpoints and setpoint changes.
- Ensure that setpoints and setpoint changes are consistent with design and accident analysis requirements and assumptions.
- Provide for documentation of setpoints, including those determined operationally.
- Provide for access to necessary setpoint information for personnel who write or revise plant procedures, operate or maintain plant equipment, develop or revise design documents, or develop or revise accident analyses.

3.5 NQA-1 Commitment

In establishing its program for design control and verification, Natura commits to compliance with NQA-1-2022, Requirement 3.

Section 4 – Procurement Document Control

Natura will establish the necessary measures and governing procedures to assure that purchased items, computer programs, 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 will include provisions such that:

- Where original technical or QA 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 Part 21) are invoked for procurement of items and services. 10 CFR Part 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 suppliers to have a documented QA program that is determined to meet the applicable requirements of 10 CFR Part 50, Appendix B, as appropriate to the circumstances of procurements (or the supplier may work under Natura'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 Commitment / Exceptions

In establishing its program for design control and verification, Natura commits to compliance with NQA-1-2022, Requirement 4, with the following exceptions:

- With regard to service performed by a supplier, Natura procurement documents may allow the supplier to work under the Natura QAP, including implementing procedures, in lieu of the supplier having its own QAP.
- Section 300 and 400 of Requirement 4 require the review of technical and Quality Assurance Program requirements of procurement documents prior to award of a contract and for procurement document changes. Natura may satisfy this requirement through the review of the procurement specification, when the specification contains the technical and quality assurance requirements of the procurement.

In some cases, Natura may procure commercial-grade items for safety-related purposes; procurement documents for these items shall contain technical and quality requirements such that the procured item can be appropriately dedicated in accordance with Section 7 of the Natura QAPD.

## Section 5 – Instructions, Procedures, and Drawings

Natura will establish 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 the QAPD. Such documents are prepared and controlled according to Part II, Section 6. In addition, means will be 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

Natura's policy is that procedures are followed, and the requirements for use of procedures are established in administrative procedures. Where procedures cannot be followed as written, provisions are established for making changes in accordance with Part II, Section 6. Requirements will be 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.

In cases of emergency, personnel are authorized to depart from approved procedures when necessary to prevent injury to personnel or damage to the plant. Such departures will be recorded describing the prevailing conditions and reasons for the action taken.

### 5.2 Procedure Content

The established measures will address the applicable content of procedures as described in the Introduction to Part II of NQA-1-2022. In addition, procedures governing tests, inspections, operational activities and maintenance will include as applicable, initial conditions and prerequisites for the performance of the activity.

### 5.3 NQA-1 Commitment

In establishing its program for design control and verification, Natura commits to compliance with NQA-1-2022, Requirement 5.

## Section 6 – Document Control

Natura will establish the necessary measures and governing procedures to control the preparation, issuance, and revision of documents that specify quality requirements or prescribe how activities

affecting quality, including organizational interfaces, to ensure that correct documents are employed. The following controls, including electronic systems used to make documents available, are applied to documents and changes thereto:

- Identification of controlled documents
- Specified distribution of controlled documents for use at the appropriate location
- A method to identify the correct document (including revision) to be used, and control of superseded documents
- Identification of individuals responsible for controlled document preparation, review, approval, and distribution
- Review of controlled documents for adequacy, completeness, and approval prior to distribution
- A method to ensure the correct documents are being used
- A method to provide feedback from users to improve procedures and work instructions
- Coordinating and controlling interface documents and procedures

## 6.1 Review and Approval of Documents

Documents will be reviewed for adequacy by qualified persons other than the preparer. During the construction phase, procedures for design, construction, and installation are also reviewed by the organization responsible for quality verification to ensure QA measures have been appropriately applied. The documented review signifies concurrence.

During the operational phase, documents affecting the configuration or operation of the station as described in the Safety Analysis Report (SAR) are screened to identify those that require independent review prior to implementation as described in Part V, Section 2.2.

To ensure effective and accurate procedures during the operational phase, applicable procedures are reviewed, and updated as necessary, based on the following conditions:

- Following any modification to a system
- Following an unusual incident, such as an accident, significant operator error, or equipment malfunction
- When procedure discrepancies are found
- Prior to use if not used in the previous two years
- Results of QA audits conducted in accordance with Part II, Section 18.1.

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, will be maintained so personnel can readily determine the appropriate document for use.

## 6.2 Changes to Documents

Changes to documents will be reviewed and approved with the same rigor as the originals. Each revision is identified by a revision number or date, and changes are typically indicated (by margin notations, change summaries, or revision bars) to alert users to modifications. Minor editorial changes that do not affect intent or technical content may be processed via streamlined methods, but substantive technical changes require full review and approval. When a document is revised, the document control

system ensures all obsolete versions are either retrieved and destroyed (if hardcopy) or marked as superseded (if electronic) to prevent inadvertent use. Distribution of revised documents mirrors the original distribution, so all users have the update.

### 6.3 NQA-1 Commitment

In establishing its program for design control and verification, Natura commits to compliance with NQA-1-2022, Requirement 6.

## Section 7 – Control of Purchased Material, Equipment, and Services

Natura will establish the necessary measures and governing procedures to control purchased 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

Natura establishes and implements measures to assess the quality of purchased items and services, whether purchased directly or through contractors, at intervals and to a depth consistent with the item or service importance to safety, complexity, quantity, and the frequency of procurement. Verification actions include testing, as appropriate, during design, fabrication, construction, and operation activities. Verifications will 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 will include the following, as applicable:

- Items are inspected, identified, and stored to protect against damage, deterioration, or misuse.
- Prospective safety-related items and service suppliers are evaluated to assure only qualified suppliers are used. Qualified suppliers are audited on a triennial basis. In addition, if a subsequent contract or a contract modification significantly changes the scope, methods, or controls performed by a supplier, an audit of the changes is performed, thus starting a new triennial period.
- Natura may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet Natura 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, NUPIC, or other established utility groups, 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, pre and post-installation tests, 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 Commitment / Exceptions

In establishing controls for purchased items and services, Natura commits to compliance with NQA-1-2022, Requirement 7, with the following clarifications:

- Natura considers that other 10 CFR Parts 50 and 52 licensees, Authorized Nuclear Inspection Agencies, National Institute of Standards and Technology, or other State and Federal agencies which may provide items or services to the Natura plant(s) are not required to be evaluated or audited.
- For Section 501, Natura considers documents that may be stored in approved electronic media under Natura or vendor 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. Following completion of the construction period, sufficient as-built documentation will be turned over to Natura to support operations. The Natura records management system will provide for timely retrieval of necessary records.
- In establishing commercial-grade item requirements, Natura commits to compliance with NQA-1-2022, Section 700 and Subpart 2.14, with the following clarification:
    - For commercial-grade items, quality verification requirements are established and described in Natura documents to provide the necessary assurance an item will perform satisfactorily in service. The Natura documents address determining the critical characteristics that ensure an item is suitable for its intended use, technical evaluation of the item, receipt requirements, and quality evaluation of the item.
    - Natura will assume 10 CFR 21 reporting responsibility for all items that Natura dedicates as safety-related.

Section 8 – Identification and Control of Items

Natura will establish the necessary measures and governing procedures to identify and control items to prevent the use of incorrect or defective items. This includes controls for consumable materials and items with limited shelf life. The identification of items will be maintained throughout fabrication, erection, installation, and use so that the item can be traced to its documentation, consistent with the item's effect on safety. Identification locations and methods are selected so as not to affect the function or quality of the item.

8.1 NQA-1 Commitment

In establishing provisions for identification and control of items, Natura commits to compliance with NQA-1-2022, Requirement 8.

Section 9 – Control of Special Processes

Natura will establish the necessary measures and governing procedures to assure that special processes that require interim process controls to assure quality, such as welding, heat treating, and nondestructive examination, are controlled. These provisions will include assuring that special processes are accomplished by qualified personnel using qualified procedures and equipment. Personnel will be qualified and special processes are performed in accordance with applicable codes, standards, specifications, criteria or other specially established requirements. Special processes are those where the results are highly dependent on the control of the process or the skill of the operator, or both, and for which the specified quality cannot be fully and readily determined by inspection or test of the final product.

9.1 NQA-1 Commitment

In establishing measures for the control of special processes, Natura commits to compliance with NQA-1-2022, Requirement 9.

Section 10 – Inspection

The QAPD establishes requirements for inspections of activities and items affecting quality to verify conformance with documented instructions, procedures, drawings, and specifications. Inspections will be planned and executed by qualified personnel who are independent of the individuals performing the activity being inspected (to the extent practical), or by personnel from an independent organization (e.g. QA/QC department) so as to maintain objectivity. Inspection results will be documented.

10.1 Inspection Program

Inspections will be identified and planned for various stages of activities. This includes incoming material inspections (receiving inspections), in-process inspections during fabrication or construction, and final inspections or tests upon completion of an activity. Inspection plans or procedures will specify the characteristics or parameters to inspect, the acceptance criteria, the methods or measuring equipment to use, and the points in the process where inspections must occur (hold points).

Inspection activities will be conducted in accordance with written procedures or checklists that detail what is to be inspected and the acceptance criteria. All inspection results will be documented, with clear identification of any nonconforming conditions observed. Records of inspections (e.g., signed inspection reports, completed checklists, NDE test reports) will be maintained as QA records.

10.2 Inspector Qualification

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

10.3 NQA-1 Commitment / Exceptions

In establishing inspection requirements, Natura commits to compliance with NQA-1-2022, Requirement 10 and Subparts 2.5 and 2.8 for establishing appropriate inspection requirements.

## Section 11 – Test Control

Natura will establish the necessary measures and governing procedures to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service, that the plant can be operated safely and as designed, and that the coordinated operation of the plant as a whole is satisfactory. This includes qualification tests of prototype or new designs, production tests, construction tests, pre-operational tests, startup tests, and operational surveillance tests. Testing will be properly planned and documented, and tests will be conducted by qualified personnel using calibrated equipment. Tests will be performed according to applicable procedures that include, consistent with the effect on safety: (1) instructions and prerequisites to perform the tests, (2) use of proper test equipment, (3) acceptance criteria, and (4) mandatory verification points as necessary to confirm satisfactory test completion. Test results will be 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 will be performed as needed to confirm acceptability following correction of the system or equipment deficiencies that caused the failure.

All instruments and equipment used for testing will be controlled under the calibration program (Section 12). Before testing begins, it is verified that all instrumentation (pressure gauges, thermocouples, flowmeters, multimeters, analytical instruments, etc.) have current calibrations with the appropriate ranges and accuracies for the test. If any measuring device is found to be out-of-calibration, an evaluation is made of any tests that relied on that device to determine whether test results remain valid or if re-testing is necessary (in accordance with corrective action processes).

Testing, especially in a nuclear facility environment, is conducted with careful coordination between test personnel, operations, and construction/maintenance personnel (as applicable). For example, during startup testing, test conditions are controlled via an approved test control center or under direct supervision, communications protocols are established among test directors, the control room, and field operators, and hold points are built into test procedures to ensure safety (e.g., certain reactor conditions or power levels not to be exceeded without evaluation and management approval). The QA program requires adherence to these controls and typically includes QA witnessing of critical tests and independent verification of certain data (for instance, verifying that test prerequisites were met and that data sheets are properly completed).

11.1 NQA-1 Commitment for Computer Program Testing

Natura will establish and implement 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 Natura commits to compliance with the requirements of NQA-1-2022, Requirement 11 and Subpart 2.7 to establish the appropriate provisions in addition to the commitment to NQA1-2022, Requirement 3.

11.2 NQA-1 Commitment

In establishing provisions for testing, Natura commits to compliance with NQA-1a-2022, Requirement 11.

Section 12 – Control of Measuring and Test Equipment

Natura will establish the necessary measures and governing procedures to control the calibration, maintenance, and use of measuring and test equipment (M&TE) that provides data to verify acceptance criteria are met or information important to safe plant operation. The provisions of such procedures cover equipment such as indicating and actuating instruments and gauges, tools, reference and transfer standards, and nondestructive examination equipment. The suppliers of commercial-grade calibration services will be controlled as described in Part II, Section 7.

Identification and Control: All M&TE that is used to determine or verify quality characteristics of items (for acceptance, calibration, process monitoring, etc.) will be uniquely identified and listed in a calibration control system. Each instrument or device will be labeled or tagged with an identification number and its calibration status (e.g., a sticker showing the last calibration date and next due date). Tools that do not affect quality decisions (like a carpenter's ruler used for non-critical measurements) need not be in the formal program, but all devices that could impact a quality-related decision will be included.

Calibration Schedule: Calibration intervals will be established for each device based on its stability, usage frequency, manufacturer recommendations, and required accuracy. A calibration schedule or database will be maintained, and devices are recalled for calibration before their due date. If a device is found to be out-of-tolerance during calibration, an evaluation will be performed to determine if previous measurements made with that device may have been invalid. Affected work or items will be identified and evaluated, and re-measurement is done if necessary in accordance with the corrective action process.

Calibration Standards: Calibration will be performed using written procedures and standards traceable to recognized national standards. The accuracy of the calibration standard is at least four times better (where practical) than the instrument being calibrated, or otherwise as recommended by accepted calibration practices. When higher-accuracy standards are not available for a given instrument, we will document the basis for concluding the calibration is adequate. Calibration results will be recorded, including "as-found" and "as-left" data (before and after any adjustments), any adjustments made, and identification of the calibration standard used.

Environment and Handling: Environmental conditions for calibration and use will be controlled when necessary. If an instrument is dropped or suspected to be damaged, it is removed from use and recalibrated before further use.

By maintaining a disciplined calibration and control program for M&TE, we satisfy NQA-1-2022, Requirement 12. This program provides confidence that inspection and test results are valid and that decisions on quality (acceptance or rejection of items) are based on accurate information. It also helps avoid costly rework or safety issues that could arise from using improper or inaccurate measurements.

12.1 NQA-1 Commitment / Exceptions

In establishing provisions for control of M&TE, Natura commits to compliance with NQA-1-2022, 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 are not required to be marked with the calibration status, as described in section 303.6, where it is impossible or impractical due to equipment size or configuration (such as the label will interfere with operation of the device) provided the required information is maintained in suitable documentation traceable to the device. This exception also applies to the calibration labeling requirement stated in NQA-1-2022, Subpart 2.4 (See Section 7.2.1 of ANSI/IEEE Std. 336-1985).

Section 13 – Handling, Storage, and Shipping

Natura will establish the necessary measures and governing procedures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss, and to minimize deterioration. These provisions will include specific procedures, when required to maintain acceptable quality of the items important to the safe operations of the plant. Items will be appropriately marked and labeled during packaging, shipping, handling, and storage to identify, maintain, and preserve the item's integrity and indicate the need for special controls. Special controls (such as containers, shock absorbers, accelerometers, inert gas atmospheres, specific moisture content levels, and temperature levels) will be provided when required to maintain acceptable quality.

Special or additional handling, storage, shipping, cleaning, and preservation requirements will be identified and implemented as specified in procurement documents and applicable procedures. Where special requirements are specified, the items and containers (where used) will be suitably marked.

Special handling tools and equipment will be used and controlled as necessary to ensure safe and adequate handling. Special handling tools and equipment will be inspected and tested in accordance with procedures at specified time intervals or prior to use.

Operators of special handling and lifting equipment will be experienced or trained in the use the equipment. Where required, Natura complies with applicable hoisting, rigging and transportation regulations and codes.

13.1 Housekeeping

Housekeeping practices will be established to account for conditions or environments that could affect the quality of SSCs within the plant. This includes control of cleanliness of facilities and materials, fire

prevention and protection, disposal of combustible material and debris, control of access to work areas, and protection of equipment. Housekeeping practices help assure that only proper materials, equipment, processes, and procedures are used and that the quality of items is not degraded. Necessary procedures or work instructions, such as for electrical bus and control center cleaning, and cleaning of control consoles will be developed and used.

13.2 NQA-1 Commitment / Exceptions

In establishing provisions for handling, storage, and shipping, Natura commits to compliance with NQA-1-2022, Requirement 13. Natura also commits, during the construction and operational phase of the plant, to compliance with the requirements of NQA-1-2022, Subpart 2.1, Subpart 2.2, and Subpart 2.3.

## Section 14 – Inspection, Test, and Operating Status

Natura will establish the necessary measures and governing procedures to identify the inspection, test, and operating status of items and components subject to the provisions of the QAPD in order to maintain personnel and reactor safety and avoid inadvertent operation of equipment. Where necessary to preclude inadvertent bypassing of inspections or tests, or to preclude inadvertent operation, these measures require the inspection, test, or operating status be verified before release, fabrication, receipt, installation, test or use. These measures also establish the necessary authorities and controls for the application and removal of status indicators or labels.

In addition, temporary design changes (temporary modifications), such as temporary bypass lines, electrical jumpers and lifted wires, and temporary trip-point settings, will be controlled by procedures that include requirements for appropriate installation and removal, independent/concurrent verifications, and status tracking.

Administrative procedures will describe the measures taken to control altering the sequence of required tests, inspections, and other operations. Review and approval for these actions will be subject to the same control as taken during the original review and approval of tests, inspections, and other operations.

14.1 NQA-1 Commitment

In establishing measures for control of inspection, test and operating status, Natura commits to compliance with NQA-1-2022, Requirement 14.

## Section 15 – Nonconforming Materials, Parts, or Components

Natura will establish the necessary measures and governing procedures to control items, including services that do not conform to specified requirements to prevent inadvertent installation or 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. Controls provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations. Controls will be provided to address conditional release of nonconforming items for use on an at-risk basis prior to resolution and disposition of the nonconformance, including maintaining identification of the item and documenting the basis for such

release. Conditional release of nonconforming items for installation will require the approval of the designated management. Nonconformances will be corrected or resolved prior to depending on the item to perform its intended safety function. Nonconformances will be evaluated for impact on operability of quality SSCs 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 will be subject to design control measures commensurate with those applied to the original design. Nonconformance dispositions will be reviewed for adequacy, analysis of quality trends, and reports provided to the designated management. Significant trends will be reported to management in accordance with Natura procedures, regulatory requirements, and industry standards.

15.1 Interface with the Reporting Program

Natura will have 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 21 during design, construction, and operations.

15.2 NQA-1 Commitment

In establishing measures for nonconforming materials, parts, or components, Natura commits to compliance with NQA-1-2022, Requirement 15.

Section 16 – Corrective Action

Natura will establish the necessary measures and governing procedures to promptly identify, control, document, classify, and correct conditions adverse to quality. Natura procedures will 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. Natura procedures will 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, Natura will document 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 will be 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. After the implementation of corrective actions, the QA organization or an independent responsible party will verify that the actions were completed and the issue has been resolved.

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

16.1 Interface with the Reporting Program

Natura will have appropriate interfaces between the QAP for corrective actions and the non-QA Reporting Program to satisfy the requirements of 10 CFR 21 during design, construction, and operations.

16.2 NQA-1 Commitment

In establishing provisions for corrective action, Natura commits to compliance with NQA-1-2022, Requirement 16.

Section 17 – Quality Assurance Records

The QA program will provide for generation, identification, storage, protection, retrieval, and retention of quality assurance records. These records furnish documentary evidence that activities affecting quality have been performed in accordance with the QAPD and procedures, and they provide a historical trail for reviews, audits, and regulatory inspections. QA records will be authenticated, maintained, and their final disposition specified.

Identification and Collection: Procedures will ensure that upon completion of an activity, the relevant records are collected, reviewed for completeness and correctness, and properly indexed or cataloged. Each record will be identified by key information to facilitate retrieval.

Storage and Protection: QA records will be stored in facilities or systems that provide adequate protection from damage, deterioration, or loss. Physical records will be stored in designated record storage areas that are fire-resistant and have environmental controls as needed to prevent excessive humidity or temperature that could degrade records. Access to physical records storage is controlled to prevent tampering or unauthorized removal. For electronic records, we maintain secure servers with regular backups and often duplicate the records in a secondary location for disaster recovery.

Retention Periods: In compliance with regulatory requirements, we will designate records as either lifetime or non-permanent. Lifetime records are retained for the life of the plant (and if the project entity is different from the operating entity, such records will be transferred to the plant operator for continued retention). Non-permanent records are kept for a specified period. We will ensure that retention periods meet or exceed the requirements of 10 CFR 50 Appendix B and other NRC guidance. In general, our policy errs on the side of longer retention for any records that could bear on safety or quality.

By maintaining comprehensive QA records and a secure records management system, we will satisfy Requirement 17. We will provide evidence of activities affecting quality and preserve the historical data needed for safe operation, maintenance, and regulatory oversight of the plant. The records program will ensure that documentation is available to demonstrate compliance at every stage and that important records are not lost or degraded over time.

17.1 NQA-1 Commitment/Exceptions

In establishing provisions for records, Natura commits to compliance with NQA-1-2022, Requirement 17, and regulatory positions stated in Regulatory Guide (RG) 1.28, Rev 6, September 2023, with the following clarifications and exceptions:

- In establishing the provisions for a list of records, Natura commits to comply with RG 1.28, Revision 4, position C.3.a.(2) with the following clarification:
    - Natura commits to develop a list of typical QA records and their retention periods using the guidance of NQA-1-2022, Part III, Subpart 3.1-17.1, Section 200, for the lifetime

records recognizing that the record name may vary and the list may not be all-inclusive. For records not listed, the record that most nearly describes the record in question will be followed regarding retention. Natura commits to maintain sufficient records to furnish evidence of activities affecting quality.

## Section 18 – Audits

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

### 18.1 Performance of Audits

Internal audits of selected aspects of licensing, design, construction and operating phase activities will be 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 Nuclear Development activities, audits will focus on areas including, but not limited to, site investigation, 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 and procedures.

The audits will be scheduled on a formal preplanned audit schedule and in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity. 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 will be 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 management responsible for the day-to-day program as documented in Section 1.

Natura is responsible for conducting periodic internal and external audits. Internal audits will be 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 will determine the adequacy of a supplier or contractor quality assurance program and will be issued to the management of the audited organization and applicable Natura management.

The results of each audit will be reported in writing to the responsible party for the QA program at the Company, or designee, as appropriate. Additional internal distribution will be made to other concerned management levels and to management of the internal audited organizations or activities in accordance with approved procedures.

Management will respond 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 will be conducted to verify implementation of assigned corrective action.

Audits of suppliers of safety-related components and/or services will be conducted as described in Section 7.1.

18.2 Internal Audits

Internal audits of organization and facility activities, conducted prior to placing the facility in operation, 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 of activities conducted after placing the facility in operation, 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 within a period of two years. Internal audit frequencies of well established activities, conducted after placing the facility in operation, may be extended one year at a time beyond the above two-year interval based on the results of an annual evaluation of the applicable functional area and objective evidence that the functional area activities are being satisfactorily accomplished. The evaluation should include a detailed performance analysis of the functional area based upon applicable internal and external source data and due consideration of the impact of any functional area changes in responsibility, resources, or management. However, the internal audit frequency interval should not exceed a maximum of four years. If an adverse trend is identified in the applicable functional area, the extension of the internal audit frequency interval should be rescinded and an audit scheduled as soon as practicable.

During the operational phase audits are performed at a frequency commensurate with the safety significance of the activities and in such a manner to assure audits of all applicable QA program elements are completed within a period of two years. These audits will include, as a minimum, activities in the following areas:

- The conformance of facility operation to provisions contained within the Technical Specifications and applicable license conditions including administrative controls.
- The performance, training, and qualifications of the facility staff.
- The performance of activities required by the QAPD to meet the criteria of 10 CFR 50, Appendix B.
- The Fire Protection Program and implementing procedures. A fire protection equipment and program implementation inspection and audit are conducted utilizing either a qualified offsite licensed fire protection engineer or an outside qualified fire protection consultant.
- Other activities and documents considered appropriate by the COO.

Audits may also be used to meet the periodic review requirements of the code for the Security, Emergency Preparedness, and Radiological Protection programs within the provisions of the applicable code.

Internal audits will 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, re-training, qualification, and performance of personnel performing activities covered by the QAPD; corrective actions taken following abnormal occurrences; and, observation of the performance of construction, fabrication, operating, refueling, maintenance, and modification activities including associated record keeping.

18.3 NQA-1 Commitment

In establishing the independent audit program, Natura commits to compliance with NQA-1-2022, Requirement 18 and the regulatory positions stated in RG 1.28, Rev 6.

## PART III – NONSAFETY-RELATED SSC QUALITY CONTROL

Section 1 – Nonsafety-Related SSCs – Significant Contributors to Plant Safety

Specific program controls will be 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 Natura line organization. The QA organization described in Part II is not required to perform these functions.

1.2 QA Program

Natura 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. A new or separate QA program is not required.

1.3 Design Control

Natura will have 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 Natura will 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

Natura will provide documents such as, but not limited to, written instructions, plant procedures, drawings, vendor 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

Natura will control 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

Natura will employ 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

Natura will employ measures where necessary, to identify purchased items and preserve their functional performance capability. Storage controls take into account appropriate environmental, maintenance, or shelf-life restrictions for the items.

1.9 Control of Special Processes

Natura will employ process and procedure controls for special processes, including welding, heat treating, and nondestructive testing. These controls are based on applicable codes, standards, specifications, criteria, or other special requirements for the special process.

1.10 Inspection

Natura will use documented instructions to ensure necessary inspections are performed 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.

1.11 Test Control

Natura will employ 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.

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

Natura will employ measures to control M&TE use, and calibration and adjustment at specific intervals or prior to use.

1.13 Handling, Storage, and Shipping

Natura will employ measures to control the handling, storage, cleaning, packaging, shipping, and preservation of items to prevent damage or loss and to minimize deterioration. These measures include appropriate marking or labels, and identification of any special storage or handling requirements.

1.14 Inspection, Test, and Operating Status

Natura will employ measures to identify items that have satisfactorily passed required tests and inspections and to indicate the status of inspection, test, and operability as appropriate.

1.15 Control of Nonconforming Items

Natura will employ measures to identify and control items that do not conform to specified requirements to prevent their inadvertent installation or use.

1.16 Corrective Action

Natura will employ measures to ensure that failures, malfunctions, deficiencies, deviations, defective components, and nonconformances are properly identified, reported, and corrected.

1.17 Records

Natura will employ 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

Natura will employ 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 – Non-Safety-Related SSCs Credited for Regulatory 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;

- Natura will implement quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in RG 1.189, "Fire Protection for Nuclear Power Plants" as identified in FSAR Chapter 1.

- Natura will implement the quality requirements for ATWS equipment in accordance with Part III, Section1.
- Natura will implement quality requirements for SBO equipment in accordance with Part III, Section1.

## APPENDIX A – TYPICAL PROCEDURES AND INSTRUCTIONS (OPERATIONS PHASE)

Appendix A provides a representative list of the types of procedures and instructions to be developed for plant operations and support, consistent with RG 1.33, Appendix A. This list is tailored to a MSR plant, substituting MSR-specific procedures for ones not applicable.

Administrative and General Procedures:

- Conduct of Operations: Defines the administrative control of operations, covering shift routines, communications protocols, log keeping, authorities and responsibilities for operational decisions, and responses to alarms or abnormal events.
- Equipment Tagout/Lockout: Controls the isolation of equipment for maintenance or testing to ensure safety of personnel and equipment (mechanical and electrical isolation procedures, consistent with lockout/tagout regulations).
- Shift Turnover and Shift Briefing: Ensures effective transfer of responsibilities at shift change. Includes requirements for outgoing crew to brief incoming crew on plant status, any equipment out of service, and ongoing work, and for documentation of turnover information.
- Configuration Management: Governs how changes to plant configuration are made and tracked, including 10 CFR 50.59 screenings/evaluations for design changes, temporary modifications, and updating drawings and documents.
- Problem Reporting and Corrective Action: Describes how personnel identify and document conditions adverse to quality or safety (initiating Condition Reports/Corrective Action Reports), including immediate actions, significance level classification, root cause analysis for significant issues, and tracking of corrective actions (aligns with Requirement 16).
- Records Management: Details the handling, indexing, storage, and retention of QA records generated during operations, complementing Section 17. (e.g., how completed surveillance test reports are sent to records storage, how long shift logs are kept, etc.)
- Audit and Self-Assessment: Outlines how internal audits (by QA) and management self-assessments are planned and conducted during operations, and how findings are documented and addressed.

Operations Procedures (Normal and Off-Normal):

- Reactor Startup: Step-by-step instructions for bringing the reactor from cold shutdown to criticality and power operation. Includes prerequisites (systems lineups, interlock checks), approach to criticality (with hold points), low-power physics testing (if applicable), and power ascension in stages.
- Normal Power Operation: Guidance for steady-state power operation and any load following maneuvers (if the design allows load changes). Describes how to adjust reactor power or heat removal in a controlled manner, how to respond to routine load demands, and monitoring of key parameters during power operation.
- Reactor Shutdown (Normal): Instructions for safely shutting the reactor down from power to a subcritical, cooled state. Includes steps for power reduction, insertion of shutdown rods (if any), adjustments to cooling systems for cooldown, and verifying the reactor is subcritical and cooling as intended.
- Reactor Heatup and Cooldown: Controls the rate of heating up the reactor and coolant/fuel salt from ambient to operating temperature, and cooldown after shutdown, to protect

equipment from thermal stresses. Specifies maximum temperature ramp rates and soak times, monitoring points, and what to do if limits are approached.

- Fuel Salt Charging (Loading): Procedure for initial loading of fuel salt into the reactor primary loop from storage tanks. Includes ensuring the system is at proper temperature and inert cover gas atmosphere, controlling the fill rate, monitoring nuclear and process parameters to achieve initial criticality safely, and actions to terminate or adjust the fill if needed.
- Fuel Salt Drain (Unloading): Procedure for draining the reactor's fuel salt into the drain tank system, whether for planned maintenance shutdown or as part of an emergency response. Includes verifying conditions for safe drain (reactor subcritical, decay heat removal available), steps to initiate drain (e.g., or open drain valves), monitoring the drain, and confirming completion (e.g., all salt in drain tank, temperatures in safe range).
- Salt Chemistry Control: Instructions for routine sampling of the fuel salt (and secondary coolant salt, if applicable) and analyzing its chemical and isotopic composition. Describes frequency of sampling, sample taking method, lab analysis (for impurities, redox indicators, fission product buildup if any, etc.), and how to adjust chemistry – for example, by operating the salt cleanup system (to remove impurities or adjust redox state), adding conditioning agents (like a beryllium addition if moderator ratio needs tweaking), or makeup salt. Ensures salt chemistry remains within specified limits for corrosivity and nuclear reactivity control.
- Secondary Loop Operation: (If the design has an intermediate coolant loop or a power conversion system.) Procedure for operating the secondary coolant system (e.g., a secondary molten salt loop transferring heat to a steam generator or air cooler). Includes startup and shutdown of secondary loop pumps, maintaining secondary salt temperature to avoid freezing or excessive thermal stress, monitoring heat exchangers, and any interactions with the power conversion system or heat sink.
- Off-Gas and Cover Gas System: Procedure for operating systems that manage gaseous fission products and cover gas (the inert gas space above salt in tanks or reactor). Covers starting/stopping gas circulators or blowers, adjusting flow rates, operation of filters or decay tanks for off-gas, and monitoring radiation levels in off-gas to ensure proper removal of radioactive gases (like xenon, krypton) and decay before release.
- Alarm Response (Annunciator Response): A compendium of short procedures for each alarm on the control panels. For each alarm (e.g., "High Fuel Salt Temperature" or "Reactor Building Radiation High" alarm), provides likely causes and the immediate and follow-up actions operators must take to diagnose and mitigate the condition.
- Annunciator Testing: A procedure to periodically test that all alarm annunciators and indicators in the control room are functional (e.g., periodic lamp tests, logic tests to ensure alarms trigger when their setpoints are exceeded).

Emergency and Abnormal Operating Procedures (EOPs/AOPs):

- Abnormal Operating Procedures (AOPs): Procedures for off-normal events that do not rise to the level of reactor emergencies but require prompt operator action. Examples include:
    - Loss of Offsite Power: Actions to respond to a station blackout scenario, ensuring decay heat removal via passive systems or standby generators, load shedding, etc.
    - Loss of Primary Salt Pump: Response to loss of forced circulation in the primary loop – verifying natural circulation is establishing, reducing reactor power or shutting down if needed, etc.
    - Minor Fuel Salt Leak: If a small salt leak is detected in a cell or secondary containment, steps to isolate the section, ensure salt drains to catch basins, initiate salt cleanup systems, and monitor radiation.

  - Instrument or Power Supply Malfunctions: e.g., how to recognize and respond to a failed thermocouple giving spurious readings, or loss of a critical instrument channel (shift to backup instrumentation).
- Emergency Operating Procedures (EOPs): High-level, event-based or symptom-based procedures for design-basis and beyond-design-basis events. Likely EOPs include:
  - Reactor Scram/Trip Response: (Even if our design doesn't have traditional control rods, assume an analogous rapid shutdown system.) This EOP guides operators through confirming the reactor is subcritical after an automatic trip or manual scram, ensuring all shutdown systems (including the drain system as a backup shutdown means) have actuated if needed, stabilizing the plant in a safe condition, and monitoring for any escalation.
  - Fuel Salt Spill or Major Leak: Actions for a significant breach causing salt to spill outside the primary system. Steps might include triggering emergency salt drain if not already drained, activating fire suppression if it's a high temperature spill causing fire, ensuring personnel evacuation from affected areas, and starting confinement ventilation filters. Coordination with the Emergency Plan (for possible site area emergency if radioactive material is released outside containment) would be noted.
  - Overcooling/Freezing Accident: If an event leads to inadvertent overcooling of the primary salt (for instance, an uncontrolled increase in secondary heat removal that might freeze salt in the primary loop), this EOP would instruct how to respond: e.g., throttling heat removal, heating trace activation, or in worst case, preparations for draining salt if circulation cannot be restored.
  - Fire in Reactor Cell: In case of a fire or high temperature event in areas containing the core or primary salt (perhaps due to electrical fault or chemical fire), actions include activating fire suppression systems (if available, e.g., inert gas flooding), isolating ventilation to that cell, verifying reactor shutdown, and ensuring cooling is maintained.
  - Radiation Release/High Radiation: If monitors detect unexpectedly high radiation (which might indicate a boundary leak or off-gas system failure), steps to identify the source, isolate ventilation, activate filtration, account for personnel, etc.
  - Fuel Salt Drain as Emergency: Although draining fuel salt is a safety mechanism, an inadvertent or emergency drain could be treated as an emergency scenario. This EOP covers communication with authorities if there's any release associated.
- Emergency Plan Implementing Procedures (EPIPs): A set of procedures that detail how to implement the site Emergency Plan. These include classifying the emergency (Unusual Event/Alert/Site Area/General Emergency) based on conditions, notification of local/state authorities and the NRC, protective actions for site personnel (evacuation or shelter), activation of the Emergency Operations Facility, and recovery and re-entry steps. While these are typically separate from the QAPD, we list them to ensure completeness of operational documentation (QA will ensure they exist and are controlled, even if the Emergency Planning group owns them).

Surveillance Test and Inspection Procedures:

- Surveillance Test Procedures: Recurring tests required by Technical Specifications or regulatory commitments. Examples:
  - Reactor Shutdown System Test: If there are control/shutdown rods or scram systems, periodic testing of their insertion times and logic.
  - Drain System Operability Test: Periodic test of the drain valves heaters (without actually draining fuel).

  - Decay Heat Removal Natural Circulation Test: Demonstrating that passive cooling loops function as intended by measuring temperature distribution under test conditions (possibly done at startup testing and then on some interval).
  - Backup Power Generator Test: If backup diesel or gas generators exist, test them monthly (start and carry load for a period).
  - Radiation Monitor Functional Checks: Calibration and source checks of area radiation monitors, stack effluent monitors, etc., on a routine basis.
  - Containment/Confinement Isolation Valve Tests: Stroke testing any isolation valves in systems penetrating the containment or confinement barriers.
  - Instrumentation Channel Calibration: Periodic calibration checks and functional tests of key instrumentation channels (neutron flux monitors, temperature sensors, pressure transducers, level detectors, etc.).
  - Fire Protection System Tests: Pump flow tests for fire water, fire detector functional tests, and so on.
- In-Service Inspection (ISI) Procedures: If required by code or regulation, procedures for periodic inspection of critical components. For example, visual and NDE of the reactor vessel welds, periodic ultrasonic thickness measurements on salt piping, inspection of heat exchanger tubes for corrosion or fouling. Given MSRs operate at high temperature, ISI may focus on creep or corrosion-prone areas. We would adapt ASME Section XI (the code for ISI of light water reactors) to our MSR as applicable, and have procedures accordingly.

Maintenance and Work Control Procedures:

- Work Control and Planning: The administrative procedure for initiating, planning, approving, and closing work orders or work packages. Ensures each maintenance or modification activity is reviewed for safety impact, tagged out properly, has appropriate QA hold points, and post-work testing identified. Interfaces with operations (for clearances), radiation protection (for dose planning), engineering (for design implications), and QA.
- Preventive Maintenance (PM) Procedures: Specific instructions for periodic maintenance tasks on equipment, such as lubrication schedules for pumps and motors, replacement of filters, exercising of valves, cleaning heat exchanger strainers, etc. These ensure that PM is done at specified intervals to preclude equipment failures.
- Corrective Maintenance (Repair) Procedures: General guidance or expectations for performing troubleshooting and repairs. These may reference vendor manuals or internal procedures for specific equipment repair. Emphasis on restoring to original specification and doing post-maintenance testing.
- Maintenance Welding/Brazing: If maintenance activities involve welding or brazing on safety-related components, a procedure ensures that only qualified welding procedures and certified welders are used, and that required NDE and stress relief are done after the weld, in accordance with code (likely ASME Section IX for weld qualifications, Section XI or other applicable code for acceptance).
- Pipe Cutting and Repair: Controls for maintenance that involves cutting into fluid systems and repairing them. Addresses draining and purging systems before opening, maintaining cleanliness (FME), performing the repair or replacement (welding, flange installation, etc.), and pressure testing after repair (hydrostatic or leak test) before returning to service.
- Instrumentation Calibration Procedures: Detailed step-by-step instructions for calibrating specific instruments or classes of instruments (pressure transmitters, thermocouples, level floats, radiation monitors, etc.). Many calibrations will be done in-situ or in an instrument

shop. These procedures ensure instruments meet their accuracy requirements and that as-found/as-left data are recorded.

- Decontamination Procedure: How to decontaminate components or areas that have become contaminated with radioactive material (e.g., solidified salt spills, surfaces in a cell). Includes what solutions or mechanical methods to use, protective equipment for workers, handling of any secondary waste (contaminated cleaning materials or removed material).
- Fuel Handling Equipment Maintenance: (If applicable) Procedure for maintaining any equipment used to handle fuel salt or any solid fuel elements (if the design had any experimental or removable fuel components). This might include draining and cleaning salt transfer lines, servicing freeze valve mechanisms, etc., or maintenance of any remote handling tools for core internals.

Radiation Protection and Chemistry Procedures:

- Radiation Protection (RP) Procedure: Covers access control to radiation areas, use of dosimetry, ALARA (As Low As Reasonably Achievable) practices, contamination control measures, and radiation work permit process. Ensures that any work in radiation areas or contamination areas follows approved RP controls to minimize dose to personnel.
- Radiation Monitoring and Surveying: Procedure for operation of continuous area radiation monitors, process radiation monitors (like off-gas radiation monitor), and for performing routine radiological surveys around the plant. Includes smear surveys for contamination, direct dose rate measurements, air sampling if needed, etc., at prescribed frequencies.
- Personnel and Environmental Dosimetry: Procedure describing how personnel dosimeters (e.g., TLDs or electronic dosimeters) are issued, worn, processed, and records maintained. Also covers environmental monitoring TLDs around the site and environmental sample analyses, and how results are tracked and reported.
- Radioactive Waste Handling: Procedure for handling any radioactive waste generated. For an MSR, solid radwaste might include spent filters, resins from any cleanup system, activated components, etc., and potentially solidified salt if any disposal of used salt is needed. Describes packaging, labeling, and storage of radwaste, and compliance with 10 CFR 61 and Department of Transportation (DOT) requirements for waste shipment offsite.
- Chemistry Control (General): Procedure for general plant chemistry controls, such as water chemistry in any secondary loops or cooling water systems, or cover gas composition (ensuring cover gas such as helium has low oxygen/moisture). Even though an MSR doesn't have reactor water, any support systems (cooling water, boiler water if steam system exists) will have chemistry requirements to prevent corrosion. Also covers the handling of any chemicals on site (acids, bases for cleanup systems, etc.).
- Airborne Monitoring: If MSRs have potential airborne radioactivity (from cover gas or off-gas), procedures to monitor and control airborne radioactivity are included. This might involve periodic sampling of noble gas concentrations, iodine or particulate monitoring, ensuring the off-gas holdup and filtration system is working, etc.

Security Procedures: (While not typically part of QA, it's often mentioned for completeness.) Procedures covering physical security and cyber security measures – controlling access to the plant, key control, badge protocols, cyber security for digital systems – ensuring these do not conflict with QA (for example, security lockdowns still allow QA inspections as needed). Security equipment maintenance and testing might be included to ensure security systems themselves are reliable.

(Note: The above list is representative and will be finalized based on the specific design and regulatory requirements. It demonstrates that all areas listed in RG 1.33 Appendix A are addressed by analogous procedures for MSRs. Procedures not applicable to our design (such as those for refueling solid fuel assemblies or for emergency core cooling systems that an MSR may not have) are replaced with relevant MSR procedures (fuel salt handling, drain system operation, etc.), thereby meeting the intent of having complete procedural coverage of operations. Likewise, any unique MSR operations have corresponding procedures even if they were not part of a typical LWR procedure list.)

## APPENDIX B – APPLICABILITY OF NQA-1 STANDARDS

Appendix B describes how the ASME NQA-1 standard is applied in our QAPD, identifying which parts and subparts of NQA-1 are adopted and any that are not applicable, consistent with RG 1.28 commitments.

Natura Resources commits to comply with ASME NQA-1-2022 (Quality Assurance Requirements for Nuclear Facility Applications), as endorsed by NRC RG 1.28 Rev. 6, for the establishment and execution of our QA program. The following clarifications and applicability determinations are provided:

- NQA-1 Part I (Basic Requirements 1–18): Adopted in Full. The 18 Basic Requirements of NQA-1 Part I correspond directly to the 18 criteria of 10 CFR 50 Appendix B. Our QAPD Part II (Sections 1–18) serves as the policy-level document addressing each Basic Requirement. We take no exceptions to any Part I requirements. The Part II text of this QAPD demonstrates how each Basic Requirement is implemented through programmatic controls and procedures. Detailed implementation is in lower-tier procedures, consistent with the role of the QAPD as a top-level description.
- NQA-1 Part II (Supplementary Requirements): We adopt the applicable Part II Subparts of NQA-1-2015 as part of our QA program. In particular:
    - Subpart 2.1, Quality Assurance Requirements for Software: Applicable. We implement Subpart 2.1 for the control of software used in design, analysis, monitoring, or operation that can affect safety. Our Software QA procedure (see Part II, Section 9 and Appendix A references) includes software classification, development of Software Quality Assurance Plans, V&V processes, configuration management for software, and user controls, all consistent with NQA-1 Subpart 2.1.
    - Subpart 2.2, Quality Assurance Requirements for Services: Applicable. We apply Subpart 2.2 to the procurement and acceptance of services (e.g., engineering consulting, calibration services, NDE services). This means we extend QA controls to contracted services by specifying QA program requirements for service suppliers, verifying personnel qualifications, and evaluating service outputs for quality.
    - Subpart 2.3, QA Requirements for Housekeeping and Cleanliness: Applicable. Implemented via our procedures for housekeeping and FME (Section 13 and operational procedures).
    - Subpart 2.5, QA Requirements for Installation, Inspection, and Testing: Applicable. We implement provisions for ensuring that installation activities (during construction or modification), as well as ISI and testing, follow written procedures and meet specified requirements. Our construction and maintenance procedures incorporate hold points and inspections consistent with this subpart.
    - Subpart 2.7, QA Requirements for Computer Software for Nuclear Facility Applications: Applicable. (Note: In NQA-1-2015, Subpart 2.7 addresses Computer Software QA, complementing Subpart 2.1.) We treat Subpart 2.7 as part of our Software QA program. We have controls for V&V of analysis software (e.g., neutronics and thermal-fluid simulation codes) used for design and safety analysis. These controls include requirements for checking software outputs against benchmarks and maintaining configuration control of input files and models.
    - Subpart 2.14, QA Requirements for Commercial-Grade Item Dedication: Applicable. We adopt Subpart 2.14 for dedicating CGIs. As described in Part II, Section 7, our commercial-grade dedication process follows EPRI NP-5652 and NEI 14-05A

guidelines, which satisfy NQA-1 Subpart 2.14. Critical characteristics are identified and verified to dedicate an item for safety-related use.

Other Part II subparts – such as those addressing fabrication of nuclear fuel, or subsurface investigations, etc. – are not applicable to Natura projects. For example, Subpart 2.4 (welding requirements) is covered by our welding program via code compliance; Subpart 2.11 (transportation of nuclear materials) is handled by complying with DOT and NRC transport regs, though not a direct QA issue. Any Part II subparts that do not apply to an MSR project or our scope of activities are considered "not applicable" rather than "exceptions," meaning they are not invoked because that work scope does not exist in our projects. This ensures no reduction in QA coverage, as we have alternative controls or the scope is irrelevant.

Any portions of NQA-1 that are not applicable to our projects are noted in our program documents to avoid confusion. We ensure that for each quality-related activity, either an NQA-1 requirement or an appropriate alternative control is in place so that no aspect of quality is left unaddressed. By framing our program around NQA-1-2022, we demonstrate alignment with an NRC-endorsed national standard, which provides confidence in the completeness and rigor of our QA program.

In summary, QAPD Appendix B shows that our QA program meets all Basic Requirements of NQA-1 Part I without exception and implements the necessary Supplementary Requirements from NQA-1 Part II that pertain to our design and activities (software, services, housekeeping, installation, CGD, etc.). This comprehensive adoption of NQA-1-2022 (with clarifications on applicability) aligns our program with industry standards and NRC expectations, replacing earlier design-specific QA details with a solid standards-based foundation for QA.

## APPENDIX C – REGULATORY GUIDE COMMITMENTS

Appendix C provides a concise summary of commitments to NRC RGs and related regulatory documents as they pertain to the QA program, and cross-references where in the QAPD those commitments are implemented.

The table below lists key NRC RG and other regulatory requirements relevant to quality assurance, indicates our commitment status, and notes where in this QAPD or our implementing procedures the guidance is implemented:

- RG 1.8, Rev. 4 – “Personnel Selection and Training” – Committed (applicable portions). We apply RG 1.8 for qualifications of key personnel (e.g., Director of Quality, RP, operators). Operator training aligns with RG 1.8 via accredited programs and 10 CFR 55 licensing. No exceptions; any differences due to reactor design are covered by equivalent measures (Part IV, training).
- RG 1.26, Rev. 6 – “Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants” – Committed (applicable portions). The classifications in RG 1.26 are linked to light water reactor specific systems and definitions (such as "reactor coolant pressure boundary" and ECCS). Therefore, with respect to RG 1.26, these quality group standards will only be applied where they are applicable to supporting systems containing water or steam, or to those water- or steam-systems that portions of may contain radioactive material. The systems these standards apply to will depend on technology-specific features that may or may not be present in an MSR design.
- RG 1.28, Rev. 6 – “Quality Assurance Program Criteria (Design & Construction)” – Committed. QA program is based on ASME NQA-1-2022 with no exceptions (see Appendix B). This meets the guidance of RG 1.28 Rev. 6.
- RG 1.29, Rev. 6 – “Seismic Design Classification for Nuclear Power Plants” – Committed (applicable portions). QA program applies 10 CFR 50 Appendix B to all activities affecting the safety-related functions of seismic Category I SSCs.
- RG 1.33, Rev. 3 – “Quality Assurance Program Requirements (Operations)” – Committed. We follow RG 1.33 for the operational phase. All required procedure areas per RG 1.33 Appendix A are covered by our procedures (the list in Appendix A of this QAPD), adapted for MSR technology. Independent review committees (Plant Operations Review Committee (PORC) and Nuclear Safety Review Board (NSRB)) are instituted as described in Part IV. No exceptions to intent; only minor adaptations in form. Implemented via Part IV and plant administrative procedures.
- 10 CFR 21 – “Reporting of Defects and Noncompliance” – Committed. Implemented via Regulatory Commitments section and our corrective action and notification procedures. We evaluate deviations for Part 21 reportability and report to NRC as required. Supplier contracts impose Part 21 flow-down as well, and we audit suppliers for 10 CFR 21 compliance.
- NEI 14-05A (Rev. 1) – “Dedication of Commercial-Grade Items” – Committed (if applicable). We utilize NEI 14-05A / EPRI NP-5652 methodology for commercial-grade dedication (see Section 7 and NQA-1 Subpart 2.14 commitments). This ensures our dedication process meets 10 CFR 21 and NRC-endorsed guidelines. If no CGIs are used, this program remains available. No exceptions.
- Industry Standards (ANSI/ANS & ANSI N45.2 series): Committed as applicable. We implement the relevant ANSI standards referenced by the above RGs. For example, ANSI N45.2, N45.2.2, N45.2.3, etc., for QA during construction, are followed via our program (as

evidenced in Section 13, etc.). ANSI/ANS-3.2 for operational QA (administrative controls) is met via our independent review committees and procedural controls in Part IV. No explicit exceptions; we use the guidance or equivalent measures throughout.

(Note: We have taken no exceptions to any of the above RGs. Minor differences in implementation – due to our molten salt reactor technology – achieve the same objectives as the RG guidance. These adaptations are discussed in the QAPD text (Parts II and IV) and do not reduce any commitments. Any future changes to these commitments would be handled via NRC notification or approval as required.)

This summary provides a quick reference for NRC reviewers or auditors to see each QA-related regulatory guide and requirement, our commitment status, and where the guidance is addressed in our QA program. The detailed narrative of how we comply can be found in the referenced sections of this QAPD and in our implementing procedures.

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