



Oklo Inc.

Quality Assurance Program Description (QAPD):

Design and Construction

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Executive Summary

This topical report provides the Oklo Inc. Quality Assurance Program Description (QAPD) for design and construction for the Oklo power reactor (not including operational activities, which will be described in a subsequent QAPD submission). The Quality Assurance Program (QAP) has been prepared in accordance with the requirements of Title 10, Part 50 of the Code of Federal Regulations (10 CFR Part 50), “Domestic Licensing of Production and Utilization Facilities,” Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants” and [ASME NQA-1b-2011 Addenda to ASME NQA-1-2008 \(NQA-1-2008/1b-2011\)](#)~~ASME NQA-1-2008 and NQA-1b-2011 Addenda~~, “Quality Assurance Program Requirements for Nuclear Facilities” as endorsed by Regulatory Guide 1.28, Revision 5, “Quality Assurance Program Criteria (Design and Construction).” This plan was informed by the guidance in NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants” and the Nuclear Energy Institute (NEI) 11-04A, Revision 0, “Quality Assurance Program Description (QAPD)” template.

The topical report is divided into the following parts: 1.0 - Introduction; 2.0 - Quality Assurance Program Description (QAPD) Details; 3.0 - Nonsafety-Related Structure, System, and Component (SSC) Quality Control; and 4.0 - Regulatory Commitments.

Consistent with common practice, most of the application text is written in the present tense, active voice, including discussions of processes associated with advanced stages of the licensing process. It should be understood, however, that statements regarding these processes typically address activities that may have not yet been performed and will not be performed until it is reasonable and appropriate to do so.

Policy Statement

Oklo Inc. (“Oklo”) shall perform design and construction for nuclear plants in a manner that will ensure the health and safety of the public and workers. These activities shall be performed in compliance with the requirements of the Code of Federal Regulations (CFR), the applicable Nuclear Regulatory Commission (NRC) licensing requirements, and applicable laws and regulations of the state and local governments.

The Oklo 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 Oklo 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 Oklo’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. The executive management team establishes overall expectations for effective implementation of the QAP 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 Oklo QAP.

Signed,

Jacob DeWitte, Ph.D.

Chief Executive Officer and Co-Founder, Oklo Inc.

Part I - Introduction

SECTION 1 - GENERAL

Oklo's Quality Assurance Program Description (QAPD) is the top-level policy document that establishes the quality assurance policy and assigns major functional responsibilities for design and construction conducted by or for Oklo. The QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50, Appendix B and 10 CFR 52. The QAPD is based on the requirements and guidance of ASME NQA-1-2008 and NQA-1b-2011 Addenda ([NQA-1-2008/1b-2011](#)), "Quality Assurance Requirements for Nuclear Facility Applications," Parts I and II, with specific reference to selected Part III sections, as identified in this document.

The QA Program (QAP) is defined by Regulatory Guide 1.28, Revision 5, which endorses NQA-1-2008 with NQA-1b-2011 addenda, which in turn describes the QA elements (i.e., the QAPD), along with the associated implementing documents. Procedures and instructions will be developed prior to commencement of those activities. Policies establish high-level responsibilities and authority for carrying out important administrative functions which are outside the scope of the QAPD. Procedures establish practices for certain activities which are common to all Oklo organizations performing those activities so that the activity is controlled and carried out in a manner that meets QAPD requirements. Procedures specific to an organization or group establish detailed implementation requirements and methods, and may be used to implement policies or be unique to particular functions or work activities.

1.1 Scope/Applicability

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

- Designing,
- Procuring,
- Fabricating,
- Cleaning,
- Inspecting,
- Receiving,
- Handling,
- Shipping,
- Testing, and
- Training.

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

The policy of Oklo is to assure a high degree of availability and reliability of the nuclear plants while ensuring the health and safety of its workers and the public. To this end, selected elements of the QAPD may 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 quality assurance requirements. Implementing documents establish program element applicability.

The definitions provided in ASME NQA-1-2008 and NQA-1b-2011 Addenda, Part I, Section 400, apply to select terms as used in this document.

Part II – Quality Assurance Program Description Details

SECTION 1 - ORGANIZATION

This section describes the Oklo organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying QAPD implementation. The organizational structure includes corporate/support functions 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.

The Oklo Quality Assurance Manager is responsible to size the Quality Assurance staff commensurate with the duties and responsibilities assigned.

Design, engineering and testing services are provided to Oklo by qualified contractors in accordance with their QAPs, or by contractors working under the Oklo QAP. These contractors are evaluated and approved prior to performing safety-related work.

The following sections describe the reporting relationships, functional responsibilities, and authorities for organizations implementing and supporting the Oklo QA Program. The Oklo organization is shown in Figure 1-1 Oklo Organization.

1.1 Chief Executive Officer

The Oklo Chief Executive Officer (CEO) is responsible for all aspects of design of the Oklo power reactor. The CEO is also responsible for all technical and administrative support activities provided by Oklo and its contractors. The CEO directs the Oklo management team in fulfillment of their responsibilities. The CEO reports to the Oklo Board of Directors with respect to all matters.

The CEO has overall responsibility for Oklo QA Program and delegates the necessary responsibility and authority to his direct reports to ensure quality is achieved and maintained by those who have been assigned the responsibility for performing the work and quality achievement is verified by persons not directly performing the work.

1.2 Chief Operating Officer

The Oklo Chief Operating Officer (COO) is responsible for project management consistent with regulatory requirements and procedural guidance. The COO is responsible for all operational aspects of the company including safety, quality, engineering, environmental stewardship, regulatory affairs, and information technology. The COO also reports to the Oklo Board of Directors.

1.3 Director of Policies and Procedures

The Oklo Director of Policies and Procedures is responsible for all matters regarding quality and Oklo

policy. The Director of Policies and Procedures is responsible and delegates the necessary responsibility and authority for ensuring that project managers understand the implementing procedures, that their direct reports are adequately trained to those procedures, and that those direct reports develop their respective work products consistent with the requirements established by those procedures. The Director of Policies and Procedures is responsible for integrating all quality requirements as defined in the QAPD across the internal and external organization, and reports to the COO and CEO.

The Director of Policies and Procedures manages and delegates sufficient responsibility and authority to their direct reports to ensure that appropriate controls have been established and for verifying that activities have been correctly performed. Authority is also provided to access necessary work areas and encourages managers and employees to identify problems, initiate, recommend or provide corrective action and ensure corrective action implementation.

1.4 Quality Assurance Manager

The Oklo Quality Assurance Manager (QAM) reports to the Director of Policies and Procedures and is responsible for the development and verification of implementation of the project Quality Plans described in this document. The QAM is responsible for assuring compliance with regulatory requirements and procedures through audits, assessments and technical reviews; for monitoring organization processes to ensure conformance to commitments and licensing document requirements; and for ensuring that vendors providing quality services, parts and materials to Oklo are meeting the requirements as defined in the QAPD through Oklo vendor evaluations, surveillances, and audits. The QAM has sufficient independence from other priorities to bring forward issues affecting safety and quality and makes judgments regarding quality in all areas necessary regarding Oklo's activities. The QAM has access to bring matters directly to the CEO as well as the COO. [The QAM may make recommendations to the management regarding improving the quality of work practices.](#) If the QAM disagrees with actions taken by the project organization and is unable to obtain resolution, the QAM shall inform the Director of Policies and Procedures and bring the matter to the attention of the COO for final disposition.

1.5 Supplier Organizations

Supplier organizations are responsible for their portion of the execution of the design, fabrication, procurement, construction, and testing of quality-related safety related services. The QAM's responsibilities include interfacing with Engineering and Quality Assurance functions to ensure that suppliers of safety-related services are evaluated prior to award and all applicable technical and quality requirements are effectively communicated through procurement documents. Such supplier organizations are responsible for identifying, implementing and verifying flow-down of quality requirements as applicable and will participate in necessary assessments and inspections as specified in procurement documents.

1.6 Authority to Stop Work

All employees have the right and responsibility to stop work when they encounter an unsafe condition. Additionally, Quality Assurance and Quality Control Inspection personnel have the

authority, and the responsibility, to stop work in progress which is not being done in accordance with approved procedures or where safety may be jeopardized. This authority extends to off-site work performed by suppliers that furnish safety-related materials and services to Oklo.

1.7 Quality Assurance Organizational Independence

Independence shall be maintained between the organization(s) performing the checking (quality assurance and control) functions and the organizations performing the functions. This provision is not applicable to design review/verification.

1.8 NQA-1 Commitment

In establishing its organizational structure, Oklo commits to compliance with NQA-1-2008 with NQA-1b-2011 Addenda, Requirement 1, Sections 100 through 300.

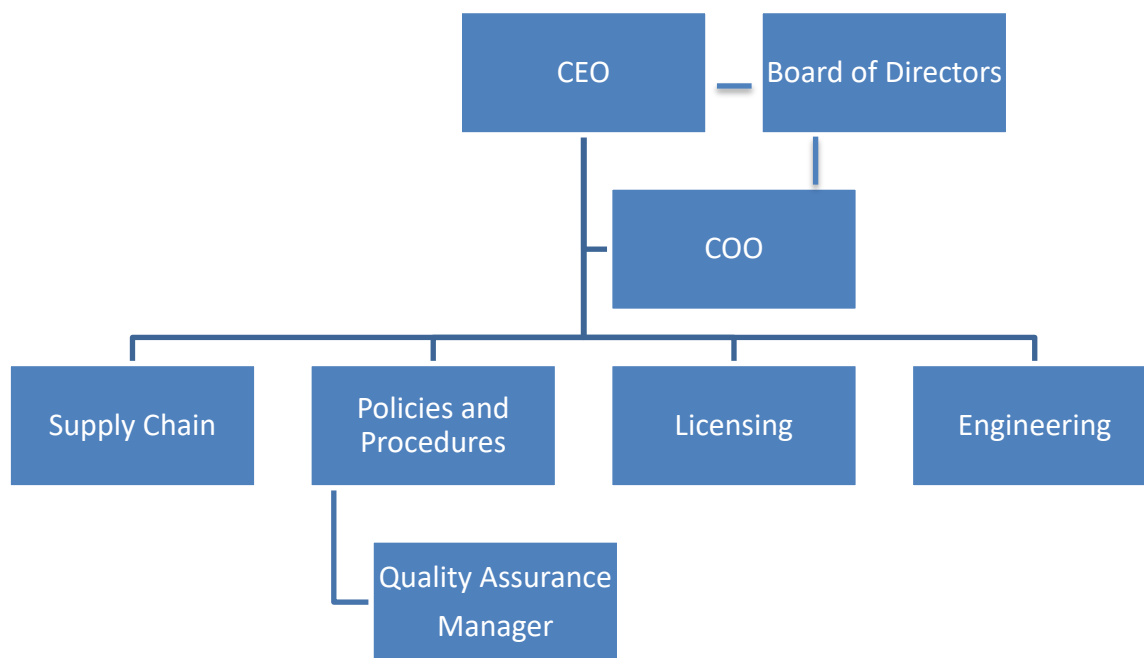


Figure 1-1 Oklo Organization

SECTION 2 - QUALITY ASSURANCE PROGRAM

Oklo has established the necessary measures and governing procedures to implement the QAP as described in the QAPD. Oklo is committed to implementing the QAP in all aspects of work that are important to the safety of the nuclear plants as described and to the extent delineated in this QAPD. The QAP shall include monitoring activities against acceptance criteria in a manner sufficient to provide assurance that the activities important to safety are performed satisfactorily. Further, Oklo ensures through the systematic process described herein that its suppliers of safety-related equipment or services meet the applicable requirements of 10 CFR 50, Appendix B. Senior management is regularly apprised of the adequacy of implementation of the QAP through the audit functions described in Part II, Section 18 of this QAPD.

The objective of the QAP is to assure that Oklo's nuclear plants are designed in accordance with governing regulations and requirements. The program is based on the requirements of ASME NQA-1-2008 and NQA-1b-2011 Addenda [\(NQA-1-2008/1b-2011\)](#), "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 SSCs associated with the design, fabrication, construction, and testing of the Oklo reactor and to the managerial and administrative controls to be used to assure the Oklo reactor design complies with applicable regulatory requirements. A list or system that identifies SSCs and activities to which this program applies is maintained at the Oklo corporate office. Cost and scheduling challenges must be addressed; however, they do not prevent proper implementation of the QAP.

As described in Part III of this QAPD, specific program controls are applied to nonsafety-related SSCs that are significant contributors to plant safety, for which 10 CFR 50, Appendix B, is not applicable. The specific program controls, consistent with applicable sections of the QAPD, are applied to those items in a 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 QAPD. Periodic audits or assessments of supplier QA programs are performed to ensure compliance with the Oklo QAPD and implementing procedures. In addition, routine interfaces with the supplier's personnel provide added assurance that quality expectations are met.

Audits or assessments may be planned and performed by Oklo qualified assessors or independent contractors or consultants as determined by the QAM.

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

A grace period of 90 days may be applied to provisions that are required to be performed on a periodic basis, unless otherwise noted. Annual evaluations, and audits that must be performed on a triennial basis,

are examples where the 90-day general period could be applied. The grace period does not allow the "clock" for a particular activity to be reset forward. The "clock" for an activity is reset backwards by performing the activity early. [Audit schedules are based on the month in which the audit starts.](#)

2.1 Responsibilities

Personnel who work directly or indirectly for Oklo are responsible for achieving acceptable quality in the work covered by this QAPD. This includes the activities delineated in Part I, Section 1.1, "Scope / Applicability." Oklo personnel performing verification activities are responsible for verifying the achievement of acceptable quality. Activities governed by the QAPD are performed as directed by documented instructions, procedures, and drawings that are of a detail appropriate for the activity's complexity and effect on safety. Instructions, procedures and drawings specify quantitative or qualitative acceptance criteria as applicable or appropriate for the activity, and verification is against these criteria. Provisions are established to designate or identify the proper documents to be used in an activity, and to ascertain that such documents are being used. The QAM is responsible to verify 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

Oklo 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 level appropriate based upon their nature and effect, with technical advice or review as appropriate.

2.3 Periodic Review of the Quality Assurance Program

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

2.4 Issuance and Revision to Quality Assurance Program

Administrative control of the QAPD will be in accordance with 10 CFR 50.55(f). Changes to the QAPD are evaluated by the QAM to ensure that such changes do not degrade previously approved quality assurance controls specified in the QAPD. This document shall be revised as appropriate to incorporate additional QA commitments. New revisions to the document will be reviewed, at a minimum, by the QAM and approved by the Director of Policies and Procedures.

2.5 Personnel Training and Qualifications

Personnel assigned to implement elements of the QAPD shall be capable of performing their assigned tasks. To this end, Oklo establishes and maintains formal indoctrination and training programs for personnel performing, verifying, or managing activities within the scope of the QAPD to ensure suitable proficiency is achieved and maintained. Sufficient managerial depth is provided to cover absences of incumbents. When required by code, regulation, or standard, specific qualification and selection of

personnel is conducted in accordance with those requirements as established in the applicable Oklo procedures. Indoctrination includes training on the administrative and technical objectives and requirements of the applicable codes and standards and the QAPD requirements as necessary. Records of personnel training and qualification shall be maintained. [The indoctrination, training, and qualification programs are 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,](#)
- [Technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and quality assurance program requirements,](#)
- [On-the-job training, if direct hands-on applications or experience is needed to achieve and maintain proficiency.](#)

[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.](#)

2.6 NQA-1 Commitment / Exceptions

In establishing qualification and training programs, Oklo commits to compliance with NQA-1-2008 with NQA-1b-2011 Addenda, Requirement 2, Sections 100 through 500 with the following clarification:

- 1. QA Program (NQA-1 Requirement 2)

a. Audit Participation

(1) Prospective lead auditors, with comparable industry experience, may satisfy the lead auditor qualification requirement of participating in a minimum of five QA audits within a period of 3 years prior to the date of qualification by alternatively demonstrating the ability to properly implement the audit process, effectively organize and report results, and participate in at least one nuclear audit within the year preceding the date of qualification, subject to review and acceptance by the responsible QA organization.

SECTION 3 - DESIGN CONTROL

Oklo has established and implements a process to control the design and design changes of items that are subject to the provisions of the QAPD for this Part I. The design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces within Oklo 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 can be related to the design input in sufficient detail to permit verification. Design change processes and the division of responsibilities for design-related activities are detailed in Oklo and supplier procedures. [Changes to design inputs, final designs, and field changes are subject to design control measures commensurate with those applied to the original design.](#) The design control program includes interface controls necessary to control the development, verification, approval, release, status, distribution, and revision of design inputs and outputs. Design changes and disposition of nonconforming documents are reviewed and approved by the Oklo design organization or by other organizations so authorized by Oklo.

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

3.1 Design Verification

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

Design verifications are performed by competent individuals or groups other than those who performed the original design but who may be from the same organization. The verifier shall not have taken part in the selection of design inputs, the selection of design considerations, or the selection of a singular design approach, as applicable. This verification may be performed by the originator's supervisor provided the supervisor did not specify a singular design approach, rule out certain design considerations, and did not establish the design inputs used in the design, 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 complexity of the design, the degree of standardization, the state-of-the-art, whether the item under consideration is safety-related, and the similarity with previously proven designs. This includes design inputs, design outputs, and design changes. Design verification procedures are established and implemented to assure that an appropriate verification method is used, the appropriate design parameters to be verified are chosen, the acceptance criteria are identified, and the verification is satisfactorily accomplished and documented. Verification methods may include, but are not limited to, design reviews, alternative calculations, and qualification testing. [Testing used to verify the acceptability of a specific design feature demonstrates acceptable performance under](#)

[conditions that simulate the most adverse design conditions expected for the item's intended use.](#)

Oklo normally completes design verification activities before they are used to support other activities such as procurement, manufacture, construction, or testing. Design control measures shall be applied to items such as the following: reactor physics, stress, thermal, and accident analyses; compatibility of materials; accessibility for inservice inspection, maintenance, and repair; and delineation of acceptance criteria for inspections and tests. [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

Oklo maintains records sufficient to provide evidence that the design was properly accomplished. These records include the final design output and any revisions thereto, as well as 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 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 is pre-verified or the results verified with the design analysis for each application. Pre-verified computer programs are controlled using a software configuration management process. Oklo and suppliers are responsible for developing, approving, and issuing procedures, as necessary, to control the use of such computer application and digital equipment software. The procedures require that the application software be assigned a proper quality classification and that the associated quality requirements be consistent with this classification. Each application software and revision thereto is documented and approved by the QAM. 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.

The use of commercial-grade equipment in safety-related applications shall be reviewed to ensure that it can adequately perform its intended function. Procedures shall be implemented to provide guidance on how to review and evaluate commercial grade items for suitability in applications covered by the QAPD.

3.4 Setpoint Control

Instrument and equipment setpoints that could affect the nuclear safety of safety-related SSCs or safety-related applications 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 originally supplied by Oklo and/or the plant's technical staff.
- 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, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 3, Subpart 2.7 for computer software, ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 3, Subpart 2.14 for Quality Assurance requirements for commercial grade items and services.

SECTION 4 - PROCUREMENT DOCUMENT CONTROL

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

- Where original technical or quality assurance requirements cannot be determined, an engineering evaluation is conducted and documented by qualified staff to establish appropriate requirements and controls to assure that interfaces, interchangeability, safety, fit, and function, as applicable, are not adversely affected or contrary to applicable regulatory requirements.
- Applicable technical, regulatory, administrative, quality, and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR 21) are invoked for procurement of items and services. 10 CFR 21 requirements for posting, evaluating, and reporting will be followed and imposed on suppliers when applicable. Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services. To the extent necessary, procurement documents shall require suppliers to have a documented QA program that is determined to meet the applicable requirements of 10 CFR 50, Appendix B, as appropriate to the circumstances of procurements (or the supplier may work under Oklo's approved QA program). Where suppliers do not or cannot be approved Appendix B suppliers or such parts cannot be procured, Oklo will utilize standards set forth for commercial grade dedication of parts procured for safety-related use.

Legacy technical information that is to be used in safety-related SSC design must meet quality assurance requirements. One method of qualification of historic testing, data, and processes may utilize a process that follows criteria as defined in [NQA-1-2008 and NQA-1b-2011 Addenda NQA-1-2008/1b-2011](#), Part III, subpart 3.3, Appendix 3.1. The performance of this process by a supplier, and the subsequent commercial grade dedication by Oklo of such historical information and the process performed by the supplier is one method which may be utilized in order to make use of legacy technical information for safety-related SSC design and analysis.

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 controls for procurement, Oklo commits to compliance with [NQA-1-2008 and NQA-1b-2011 Addenda NQA-1-2008/1b-2011](#), Requirement 4, Sections 100 through 400, with the following clarifications and exceptions:

- [NQA-1-2008 and NQA-1b-2011 Addenda NQA-1-2008/1b-2011](#), Requirement 4

Regarding services performed by a supplier, Oklo procurement documents may allow the supplier to work under the Oklo 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 QAP requirements of procurement documents prior to award of a contract and for procurement document changes. Oklo may satisfy this requirement through the review of the procurement specification, when the specification contains the technical and quality assurance requirements of the procurement.

Procurement documents for Commercial Grade Items that will be procured by Oklo for use as safety-related items shall contain technical and quality requirements such that the procured item can be appropriately dedicated in accordance with the Oklo QAPD, Section 7, "Control of Purchased Material, Equipment and Services."

SECTION 5 - INSTRUCTIONS, PROCEDURES, AND DRAWINGS

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

5.1 Procedure Adherence

Oklo's policy is that procedures are followed, and the requirements for use of procedures have been established in administrative procedures. Where procedures cannot be followed as written, provisions are established for making changes in accordance with Part II, Section 6. Requirements are established to identify the manner in which procedures are to be implemented, including identification of those tasks that require:

1. the written procedure to be present and followed step-by-step while the task is being performed,
2. the user to have committed the procedure steps to memory,
3. verification of completion of significant steps, by initials or signatures or use of check-off lists.

Procedures that are required to be present and referred to directly are those developed for extensive or complex jobs where reliance on memory cannot be trusted, tasks that are infrequently performed, and tasks where steps must be performed in a specified sequence.

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 are recorded describing the prevailing conditions and reasons for the action taken.

5.2 Procedure Content

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

5.3 NQA-1 Commitment

In establishing procedural controls, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011~~ [Addenda NQA-1-2008/1b-2011](#), Requirement 5, Section 100.

SECTION 6 – DOCUMENT CONTROL

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

1. identification of documents to be controlled and their specified distribution,
2. a method to identify the correct document (including revision) to be used and control of superseded documents,
3. identification of assignment of responsibility for reviewing, approving, and issuing documents,
4. review of documents for adequacy, completeness, and correctness prior to approval and issuance,
- 4.5. a method to ensure the correct documents are being used,
- 5-6.a method for providing feedback from users to continually improve procedures and work instructions, and
- 6-7. coordinating and controlling interface documents and procedures.

The types of documents to be controlled may include:

1. drawings,
2. engineering calculations,
3. design specifications,
4. purchase orders and related documents,
5. vendor-supplied documents,
6. audit, surveillance, and quality verification/inspection procedures,
7. inspection and test reports,
8. instructions and procedures for activities covered by the QAP,
9. technical specifications, and
10. nonconformance reports and corrective action reports.

6.1 Review and Approval of Documents

Documents are reviewed for adequacy by qualified persons other than the preparer. Prior to issuance or use, documents including revisions thereto, are approved by the designated authority. A method to identify the correct document, such as a database or listing, of all controlled documents identifying the current approved revision, or date, is maintained so personnel can readily determine the appropriate document for use.

6.2 Changes to Documents

Changes to documents, other than those defined in implementing procedures as minor changes, are reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated. The reviewing organization has access to pertinent

background data or information upon which to base their approval. Minor changes to documents, such as inconsequential editorial corrections, do not require that the revised documents receive the same review and approval as the original documents. To avoid a possible omission of a required review, the type of minor changes that do not require such a review and approval, and the persons who can authorize such a classification, shall be clearly delineated in implementing procedures.

6.3 NQA-1 Commitment

In establishing provisions for document control, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 6, Sections 100 through 300.

SECTION 7 - CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Oklo has established 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, objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services.

7.1 Acceptance of Item or Service

Oklo 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 safety function, complexity, quantity, and the frequency of procurement. Verification actions may include testing, as appropriate, during design, fabrication, and construction activities. Verifications occur at the appropriate phases of the procurement process, including, as necessary, verification of activities of suppliers below the first tier.

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

- Items are inspected, identified, and stored to protect against damage, deterioration, or misuse.
- Prospective 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.
- Oklo may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet Oklo 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, Nuclear Procurement Issues [Corporation](#) (NUPIC), or other established utility groups, may be 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, Oklo commits to compliance with [NQA-1-2008 and NQA-1b-2011 Addenda NQA-1-2008/1b-2011](#), Requirement 7, Sections 100 through 800, with the following clarifications and exceptions:

- NQA-1-2008 and NQA-1b-2011 Sections 200 & 503(f)

Oklo considers that other 10 CFR Parts 50 and 52 licensees, Authorized Nuclear Inspection Agencies, National Institute of Standards and Technology, national laboratories, or other State and Federal agencies which may provide items or services to Oklo are not required to be evaluated or audited.

When purchasing commercial grade calibration services from a calibration laboratory, procurement source evaluation and selection measures need not be performed provided each of the following conditions are met:

- The purchase documents impose any additional technical and administrative requirements, as necessary, to comply with the Oklo QA program and technical provisions. At a minimum, the purchase document shall require that the calibration certificate/report include identification of the laboratory equipment/standard used.
- The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.
- A documented review of the supplier's accreditation will be performed and will include a verification of the following:
 - The calibration laboratory holds a domestic (United States) accreditation by an NRC-approved domestic (United States) accrediting body recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA).
 - The accreditation encompasses ANS/ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."
 - The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, range, and uncertainties.

It is also noted that according to the RG 1.28, Rev. 5, the NRC finds that Nuclear Energy Institute (NEI) 14-05, "Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory Calibration and Test Services," Revision 1 (Ref. 13), provides an acceptable approach for licensees and suppliers subject to the QA requirements of Appendix B to 10 CFR Part 50 for using laboratory accreditation by Accreditation Bodies that are signatories to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) in lieu of performing

commercial-grade surveys as part of the commercial-grade dedication process for procurement of calibration and testing services performed by domestic and international laboratories accredited by signatories to the ILAC MRA. [However, calibration and/or testing services may be procured from domestic and international laboratories accredited to ISO/IEC 17025:2017 in lieu of performing a survey as part of the commercial-grade dedication process in accordance with the NRC's safety evaluation of NEI 14-05 for the transition period provided by ISO, set to expire in November 2020. Per the referenced NRC RAI, the NRC plans to formally endorse the current ISO-17025-2017 standard in the near future as of the time of this writing.](#)

- ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 7, Section 501

For Section 501, Oklo considers documents that may be stored in approved electronic media under Oklo 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 maintained and/or turned over to Oklo to support operations. The Oklo records management system will provide for timely retrieval of necessary records.

- ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 7, Section 700

In establishing commercial grade item requirements, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Section 700 and Subpart 2.14, with the following clarification:

For commercial grade items, quality verification requirements are established and described in Oklo documents to provide the necessary assurance an item will perform satisfactorily in service. The Oklo 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.

Oklo will assume 10 CFR Part 21 reporting responsibility for all items and services that Oklo dedicates for use in safety related applications.

- ~~Regulatory Guide 1.28, Rev. 5, also stipulates other exceptions/clarifications with regard to audits which are mentioned in this section. See Section 18.3 for these additional exceptions/clarifications.~~

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

Oklo has established 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 is 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 with control of items, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~NQA-1-2008/1b-2011, Requirement 8.

SECTION 9 – CONTROL OF SPECIAL PROCESSES

Oklo has established 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 include assuring that special processes are accomplished by qualified personnel using qualified procedures and equipment. Personnel are 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, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 9.

SECTION 10 - INSPECTION

Oklo has established the necessary measures and governing procedures to implement inspections that assure items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. Inspection may also be applied to items, services, and activities affecting plant reliability and integrity. Types of inspections may include those verifications related to procurement, such as source, in-process, final, and receipt inspection, as well as construction activities. Inspections are carried out by properly qualified persons independent of those who performed or directly supervised the work. Inspection results are documented.

If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel shall be provided.

10.1 Inspection Program

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

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

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

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

10.2 Inspector Qualification

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

10.3 NQA-1 Commitment / Exceptions

In establishing inspection requirements, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011~~ [Addenda NQA-1-2008/1b-2011](#), Requirement 10 and Subparts 2.4, 2.5, and 2.8 for establishing appropriate inspection requirements with the following clarifications:

- Subpart 2.4 commits Oklo to IEEE 336-1985 which refers to IEEE 498-1985. Both IEEE 336-1985 and IEEE 498-1985 use the definition of “Safety Systems” from IEEE 603-1980. Oklo does not commit to this definition of “Safety Systems” because these definitions are not exactly relevant to the Oklo reactor [and does not commit to the balance of IEEE 603-1980](#).
- An additional exception to Subpart 2.4 is addressed in Part II, Section 12 of the QAPD.

SECTION 11 - TEST CONTROL

Oklo has established the necessary measures and governing procedures to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service. These measures and governing procedures include criteria for determining when testing is required to demonstrate that performance of plant SSCs is in accordance with design. Tests are 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, and (3) that the test is performed under suitable environmental conditions. Procedures may specify acceptance criteria or verification points as necessary to confirm satisfactory test completion. Test results are documented and evaluated by the organization performing the test, [and reviewed by a responsible authority](#), to assure that the test requirements have been satisfied. If acceptance criteria are not met, re-testing is performed as needed to confirm acceptability following correction of the system or equipment deficiencies that caused the failure.

The initial start-up test program is planned and scheduled to permit safe fuel loading and start-up; to increase power in safe increments; and to perform major testing at specified power levels if needed. If tests require the variation of operating parameters outside of their normal range, the limits within which such variation is permitted will be prescribed. The scope of the testing demonstrates, insofar as practicable, that the plant is capable of withstanding the design transients and accidents. For new facility construction, the suitability of facility operating procedures is checked to the maximum extent practicable during the pre-operational and initial start-up test programs.

Except for computer program testing, which is addressed in Section 11.1, tests are performed and results documented in accordance with applicable technical and regulatory requirements, including ensuring appropriate retention of test data in accordance with the records requirements of the QAPD. Personnel who perform or evaluate tests are qualified in accordance with the requirements established in Part II, Section 2 of this document.

11.1 NQA-1 Commitment for Computer Program Testing

Oklo establishes and implements provisions to assure that computer software used in applications affecting safety is prepared, documented, verified and tested, and used such that the expected output is obtained and configuration control maintained. To this end Oklo commits to compliance with the requirements of ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 11 and ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#) Subpart 2.7 to establish the appropriate provisions in addition to the commitment to ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 3.

11.2 NQA-1 Commitment

In establishing provisions for testing, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Requirement 11.

SECTION 12 - CONTROL OF MEASURING AND TEST EQUIPMENT

Oklo has established the necessary measures and governing procedures to control the calibration, maintenance, and use of 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 gages, tools, reference and transfer standards, and nondestructive examination equipment. The suppliers of commercial grade calibration services are controlled as described in in Part II, Section 7.

12.1 Installed Instrument and Control Devices

Appropriate documentation will be maintained for these devices to indicate the control status, when the next calibration is due, and identify any limitations on use of the device.

12.2 NQA-1 Commitment / Exceptions

In establishing provisions for control of measuring and test equipment, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~ [NQA-1-2008/1b-2011](#), Requirement 12, Sections 100 through 400, with the following clarification and exception:

- NQA-1-2008, Subpart 2.4 refers to ANSI/IEEE Std. 336-1985 for the installation, inspection, and testing requirements for power, instrumentation, and control equipment at nuclear facilities. Where ANSI/IEEE Std. 336-1985 makes reference to the use of IEEE Std. 498-1985 for measuring and test equipment control, Oklo will implement the QA requirements of NQA-1-2008, Requirement 12.
- 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.
- Measuring and test equipment 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-1-2008, Subpart 2.4 (See Section 7.2.1 of ANSI/IEEE Std. 336-1985).

SECTION 13 – HANDLING, STORAGE, AND SHIPPING

Oklo has established 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 include specific procedures, when required to maintain acceptable quality of the items important to the safe operations of the plant. Items are 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) are provided when required to maintain acceptable quality.

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

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

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

13.1 Housekeeping

Housekeeping practices are 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, as well as, radioactive contamination control, and storage of solid radioactive waste. 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, and radioactive decontamination are developed and used.

13.2 NQA-1 Commitment / Exceptions

In establishing provisions for handling, storage, and shipping, Oklo commits to compliance with [NQA-1-2008 and NQA-1b-2011 Addenda NQA-1-2008/1b-2011](#), Requirement 13. Oklo also commits, during the construction phase of the plant, to compliance with the requirements of NQA-1-2008, Subpart 2.2 and

NQA-1-2008, Subpart 2.3 with the following clarifications and exceptions:

NQA-1-2008, Subpart 2.2

- Subpart 2.2, Section 606, "Storage Records:" This section requires written records be prepared containing information on personnel access. As an alternative to this requirement, Oklo documents establish controls for storage areas that describe those authorized to access areas and the requirements for recording access of personnel. However, these records of access are not considered quality records and will be retained in accordance with the administrative controls of the applicable plant.

SECTION 14 – INSPECTION, TEST, AND OPERATING STATUS

Oklo has established 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, are controlled by procedures that include requirements for appropriate installation and removal, independent/concurrent verifications, and status tracking.

Administrative procedures also describe the measures taken to control altering the sequence of required tests, inspections, and other operations. Review and approval for these actions is 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, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011 Addenda~~ [NQA-1-2008/1b-2011](#), Requirement 14.

SECTION 15 - NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

Oklo has established 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, segregation when practical, disposition of nonconforming items, and for notification to affected organizations. Controls are 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. Nonconformances are corrected or resolved prior to relying on the item to perform its intended safety function.

15.1 Interface with the Reporting Program

Oklo has appropriate interfaces between the QAP for identification and control of nonconforming materials, parts, or components and the non-QA Reporting Program to satisfy the requirements of 10 CFR 52, 10 CFR 50.55, and 10 CFR 21 during COL design and construction.

15.2 NQA-1 Commitment

In establishing measures for nonconforming materials, parts, or components, Oklo commits to compliance with NQA- 1-2008 and NQA-1b-2011 Addenda, Requirement 15, Sections 100 through 400.

SECTION 16 - CORRECTIVE ACTION

Oklo has established the necessary measures and governing procedures to promptly identify and correct conditions adverse to quality. In the case of significant conditions adverse to quality, Oklo procedures assure that corrective actions are documented and initiated in accordance with regulatory requirements and applicable quality standards. Oklo procedures require personnel to identify known conditions adverse to quality. [When complex issues arise where it cannot be readily determined if a condition adverse to quality exists, Oklo documents establish the requirements for documentation and timely evaluation of the issue. Reports of conditions adverse to quality are analyzed to identify trends.](#) The identification of the significant condition [or trend](#) adverse to quality, the cause of the condition [or trend](#), and the corrective action taken shall be documented and reported to appropriate levels of management.

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

16.1 Interface with the Reporting Program

Oklo has appropriate interfaces between the QAP for corrective actions and the non-QA Reporting Program to satisfy the requirements of 10 CFR 52, [10 CFR 50.55](#), and 10 CFR 21 during COL design and construction.

16.2 NQA-1 Commitment

In establishing provisions for corrective action, Oklo commits to compliance with [NQA-1-2008 and NQA-1b-2011 Addenda NQA-1-2008/1b-2011](#), Requirement 16.

SECTION 17 - QUALITY ASSURANCE RECORDS

Oklo has the necessary measures and governing procedures to ensure that sufficient records of activities affecting quality are maintained. The provisions of such procedures establish the scope of the records retention program for Oklo and include requirements for records administration, including receipt, preservation, retention, storage, safekeeping, retrieval, access controls, user privileges, and final disposition.

17.1 Record Retention

Measures are established that ensure that sufficient records of completed items and activities affecting quality are appropriately stored. Records of activities such as design, engineering, procurement, manufacturing, construction, inspection and test, and audits and their retention times are defined in appropriate procedures. The records and retention times are based on guidance in Regulatory Guide 1.28, Revision 5 as applicable for design and construction. In all cases where state, local, or other agencies have more restrictive requirements for record retention, those requirements will be met.

17.2 Electronic Records

For guidance to establish the appropriate quality controls that incorporates the implementation of enterprise content management systems, web-based technologies, and higher capacity LAN/WAN networks, Oklo will utilize The Nuclear Information and Records Management Association (NIRMA) technical guides (TGs), as listed below:

- NIRMA TG 11, 2011, "Authentication of Records and Media";
- NIRMA TG 15, 2011, "Management of Electronic Records";
- NIRMA TG 16, 2011, "Software Configuration Management and Quality Assurance"; and
- NIRMA TG 21, 2011, "Electronic Records Protection and Restoration".

17.3 NQA-1 Commitment / Exceptions

In establishing provisions for records, Oklo commits to compliance with ~~NQA-1-2008 and NQA-1b-2011~~ [Addenda NQA-1-2008/1b-2011](#), Requirement 17, Sections 100 through 800, with the following exceptions or clarifications provided in RG 1.28, Rev. 5:

- Lifetime and Nonpermanent Records

(1) Paragraph 400, "Classification," of Requirement 17, "Quality Assurance Records," provides guidance on the retention of "lifetime" and "nonpermanent" records. Paragraph 401, "Lifetime Records," discusses the scope and responsibilities related to these records. The owner or an authorized agent must maintain lifetime records for the life of the particular item while it is installed in the plant or stored for future use.

(2) Paragraph 402, "Nonpermanent Records," identifies nonpermanent records as those records that "...show evidence that an activity was performed in accordance with the applicable requirements..." The owner or an authorized agent does not need to retain these records for the

life of the item, because they do not meet the criteria for lifetime records. However, Paragraph 700, "Retention," specifies that document retention periods be documented and records maintained for their retention period.

NQA-1 Part III, Nonmandatory Subpart 3.1-17.1, "Guidance on Quality Assurance Records," Paragraph 200, "List of Typical Lifetime Records," lists typical lifetime records containing information that meets Requirement 17 of Part I. The list of typical lifetime records in Nonmandatory Subpart 3.1-17.1 should be considered for guidance purposes only. Note that the nomenclature of these records may vary. For records not listed in Subpart 3.1-17.1, the type of record that most nearly describes the record in question should be followed with respect to its retention classification. The applicant or licensee should be cognizant that the list is not considered to be all-inclusive. The applicant or licensee itself is responsible for ensuring, in accordance with Criterion XVII, "Quality Assurance Records," of Appendix B to 10 CFR Part 50, that it maintains sufficient records to furnish evidence of activities affecting quality.

- Managing Quality Assurance Records in Electronic Media

For the management of electronic records, appropriate controls on quality assurance include the following:

- (a) No deletion or modification of records unless authorized pursuant to the record retention rule
- (b) Redundancy (system backup, dual storage, etc.) is provided
- (c) Legibility is required of each record
- (d) Records media are properly maintained
- (e) Inspections to ensure no degradation of records
- (f) Records are acceptably converted into any new system before the old system is taken out of service

SECTION 18 - AUDITS

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

18.1 Performance of Audits

Internal audits of selected aspects of licensing, design, and construction activities are performed with a frequency commensurate with safety and in a manner which assures that audits of safety-related activities are completed. During the early portions of licensing 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, procedures (e.g., design, procurement, surveillance, test); regulations; programs for training, retraining, and personnel qualification; and corrective actions, including associated record keeping.

The audits are 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 are conducted by trained personnel not having direct responsibilities in the area being audited and in accordance with preplanned and approved audit plans or checklists, under the direction of a qualified lead auditor and the cognizance of the QAM.

Oklo is responsible for conducting periodic internal and external audits. Internal audits are conducted to determine the adequacy of programs and procedures (by representative sampling), and to determine if they are meaningful and comply with the overall QAPD. External audits determine the adequacy of a supplier or contractor quality assurance program and are issued to the management of the audited organization and applicable Oklo management.

The results of each audit are reported in writing to the COO, or designee, as appropriate. Additional internal distribution is provided to responsible management levels [and to management of the internal audited organizations or activities in accordance with approved procedures](#).

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

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

18.2 Internal Audits

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

Internal audits include verification of compliance and effectiveness of the administrative controls established for implementing the requirements of the QAPD. These include regulations; provisions for training, retraining, qualification, and performance of personnel performing activities covered by the QAPD; and observation of the performance of construction and fabrication activities including associated record keeping.

18.3 NQA-1 Commitment

In establishing the independent audit program, Oklo commits to compliance with NQA-1-2008, Requirement 18, Sections 100 through 800, and regulatory positions stated in Regulatory Guide 1.28, Rev. 5.

Part III – Nonsafety-Related SSC Quality Control

SECTION 1 – NONSAFETY-RELATED STRUCTURE SYSTEM AND COMPONENTS - SIGNIFICANT CONTRIBUTORS TO PLANT SAFETY

Specific program controls are applied to nonsafety-related SSCs, for which 10 CFR 50, Appendix B is not applicable, that are significant contributors to plant safety. The specific program controls consistent with applicable sections of the QAP 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 QAP described in Part II Sections 1 through 18 in this document taken for nonsafety-related SSCs.

1.1 Organization

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

1.2 Quality Assurance Program

Oklo 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

Oklo has design control measures to ensure that the 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 Oklo 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

Oklo provides 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

Oklo controls the issuance and change of documents that specify quality requirements or prescribe activities affecting quality to ensure that correct documents are used. These controls may 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

Oklo employs measures, such as inspection of items or documents upon receipt or acceptance testing, to ensure that purchased items and services conform to appropriate procurement documents.

1.8 Identification and Control of Purchased Items

Oklo employs 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

Oklo employs process and procedure controls where necessary for special processes, including welding, heat treating, and nondestructive testing. These controls may be based on applicable codes, standards, specifications, criteria, or other special requirements for the special process.

1.10 Inspection

Oklo uses 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 can be from the same discipline and have experience related to the work being inspected.

1.11 Test Control

Oklo employs measures to identify required testing that demonstrates that equipment conforms to design requirements. These tests are performed in accordance with test instructions or procedures. The test results are recorded and evaluated to ensure that test requirements are met.

1.12 Control of Measuring and Test Equipment

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

1.13 Handling, Storage, and Shipping

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

1.14 Inspection, Test, and Operating Status

Oklo employs 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

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

1.16 Corrective Action

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

1.17 Records

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

1.18 Audits

Oklo may employ measures for management to periodically review and document the adequacy of processes, including taking any necessary corrective action. Audits independent of management are not required. Management is responsible for determining whether reviews conducted by 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 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;

- Oklo implements quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants". While the majority of RG 1.189 assumes LWR design, Section 8.5 provides guidance for non-LWRs, specifically:

"FPPs for proposed new non-light-water reactor designs should meet the overall fire protection objectives and guidance in the applicable regulations and this regulatory guide as they relate to safe shutdown and radiological release, as well as the specific fire protection requirements that apply. Fire hazards should be identified and evaluated, and an appropriate level of protection provided to meet these objectives. Design reviews and testing programs should confirm the safe-shutdown capability. SSCs important to safe shutdown should be protected in accordance with the enhanced criteria described above for light-water reactors."

~~However, testing programs may not be necessary for all non light water reactors to confirm safe shutdown capability.~~

- Oklo implements the quality requirements for ATWS equipment in accordance with Part III, Section 1, to the extent that any equipment have been identified to be important to safety in case of ATWS.
- Oklo implements quality requirements for SBO equipment in accordance with Part III, Section 1, to the extent that any equipment have been identified to be important to safety in case of SBO.

Part IV – Regulatory Commitments

SECTION 1 - NUCLEAR REGULATORY COMMISSION REGULATORY GUIDES

This section identifies the NRC Regulatory Guides (RG) and the other quality assurance standards which have been selected to supplement and support the Oklo QAP. [Oklo identifies conformance and exceptions for the applicable regulatory position guidance as indicated in this QAPD.](#) ~~Oklo complies with these standards to the extent described or referenced.~~ Commitment to a particular RG or standard does not constitute a commitment to other RGs or standards that may be referenced therein.

Regulatory Guide 1.28: “Quality Assurance Program Requirements (Design and Construction),” Revision 5, October 2017, ADAMS Accession No. ML17207A293

Oklo identifies conformance and exceptions for the applicable regulatory position guidance as indicated in the Oklo regulatory submissions. Regulatory Guide 1.28 describes a method acceptable to the NRC staff for complying with the provisions of 10 CFR Part 50 Appendix B with regard to establishing and implementing the requisite quality assurance program for the design of nuclear power plants. Oklo commits to the applicable regulatory position guidance as indicated in Oklo regulatory submissions.

Regulatory Guide 1.164: “Dedication of Commercial-Grade Items for Use in Nuclear Power Plants” June 2017, ADAMS Accession No. ML 17041A206

Oklo [commits to RG 1.164 for dedication of commercial grade items.](#) ~~plans to use this recently issued Regulatory Guidance to guide Commercial Grade Dedication as needed.~~

Regulatory Guide 1.231: “Acceptance of Commercial-Grade Design and Analysis Computer Programs Used in Safety-Related Applications for Nuclear Power Plants,” Revision 0 January 2017, ADAMS Accession No. ML17338A072

[Oklo commits to RG 1.231.](#)

Notes on Guidance not committed to:

Regulatory Guide 1.26, “Quality Group Classifications for Water-, Steam, and Radioactive-Waste-Containing Components of Nuclear Power Plants.” Revision 5, February 2017, ADAMS Accession No. ML16082A501

As stated in “Purpose” for the RG 1.26, it is “for components... in light-water-cooled nuclear power plants.” The Oklo reactor is not a light-water-cooled plant and has substantive differences such that the RG cannot be committed to directly, although Oklo is dedicated to incorporating insights from light-water-reactors and other NRC documents and guidance. For instance, RG 1.201, listed in RG 1.26 as related guidance, is written to be relatively technology neutral and also provides insights on acceptable methods for categorization, although it is specifically written for voluntary use of 10 CFR 50.69.

Regulatory Guide 1.29, “Seismic Design Classification for Nuclear Power Plants.” Revision 5, ADAMS Accession No. ML16118A148

As stated in “Purpose” for the RG 1.29, it “describes a method...for use in identifying and classifying those features of light-water-reactor (LWR) nuclear power plants.” The Oklo reactor is not a light-water-reactor so the RG is not being committed to, although Oklo is dedicated to incorporating insights from past designs. It is anticipated that the Oklo application will make use of IAEA Safety Guide NS-G-1.6, “Seismic Design and Qualification for Nuclear Power Plants” to guide Seismic categories for SSCs according to their safety significance.

GL 89-02, “Actions to Improve the Detection of Counterfeit and Fraudulently Marked Products,” and GL 91-05, “Licensee Commercial-Grade Dedication Programs,”

These letters were substantially superseded by the issuance of Regulatory Guide 1.164, committed to by Oklo as indicated above.

SECTION 2 - QUALITY ASSURANCE STANDARDS

ASME NQA-1-2008 Edition and NQA-1b-2011 Addenda - Quality Assurance Requirements for Nuclear Facility Applications

Oklo commits to ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), Parts I and II, as described in Part II of this document with specific identification of exceptions or clarification. Oklo commits to ~~NQA-1-2008 and NQA-1b-2011 Addenda~~[NQA-1-2008/1b-2011](#), and Part III only as specifically noted in Part II of this document.

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

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