Quality Assurance Manual

TruVision Solutions, LLC

NQA-1 Compliant Quality Assurance Program

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1. Introduction

1.1 Purpose

This Quality Assurance Manual (QAM) establishes the policies and framework for TruVision Solutions, LLC's Quality Assurance Program (QAP) to ensure compliance with ASME NQA-1-2008 and NQA-1a-2009, 10 CFR 50 Appendix B, and 10 CFR Part 21. The QAP applies to all safety-related activities, including the design, procurement, fabrication, testing, and supply of components or services for nuclear facilities.

1.2 Scope

This manual applies to all TruVision Solutions, LLC personnel, subcontractors, and suppliers involved in safety-related work for nuclear facilities, including small modular reactors (SMRs), nuclear power plants (NPPs), and fuel processing plants. The QAP covers the lifecycle of activities from design to delivery, ensuring safety, reliability, and regulatory compliance.

1.3 Company Overview

TruVision Solutions, LLC is a provider of safety-related components and services to the nuclear industry, committed to meeting the highest standards of quality and safety.

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2. Quality Assurance Program Requirements

The QAP is structured around the 18 requirements of ASME NQA-1 Part I, as derived from 10 CFR 50 Appendix B. Each requirement is addressed below, with references to implementing procedures.

2.1 Requirement 1: Organization

Policy: TruVision Solutions, LLC maintains an organizational structure that ensures independence of quality assurance functions from cost and schedule pressures.
Implementation: The Quality Assurance Manager reports directly to the CEO and has authority to stop work if quality issues arise.
Procedure: QAP-001 (Organization and Responsibilities)
Details: The organizational chart defines roles, responsibilities, and reporting lines. The QA Department is responsible for audits, inspections, and program oversight.

2.2 Requirement 2: Quality Assurance Program

Policy: The QAP is documented, implemented, and maintained to ensure consistent quality in safety-related activities.
Implementation: This manual and associated procedures are controlled documents, reviewed annually, and updated as needed. Training is provided to all personnel.
Procedure: QAP-002 (Quality Assurance Program Control)
Details: The QAP is graded based on the safety significance of activities, with regular management reviews to assess effectiveness.

2.3 Requirement 3: Design Control

Policy: Design activities are controlled to ensure safety-related components meet specified requirements.
Implementation: Design inputs, outputs, and changes are documented, reviewed, and verified by qualified personnel.
Procedure: QAP-003 (Design Control)
Details: Includes design verification, validation, and interface control processes.

2.4 Requirement 4: Procurement Document Control

Policy: Procurement documents specify quality requirements for purchased items and services.
Implementation: Purchase orders include NQA-1 compliance requirements, technical specifications, and supplier qualification criteria.
Procedure: QAP-004 (Procurement Document Control)
Details: Ensures suppliers are evaluated and approved per QAP-007.

2.5 Requirement 5: Instructions, Procedures, and Drawings

Policy: Activities affecting quality are performed per approved instructions, procedures, and drawings.
Implementation: All procedures are documented, reviewed, and accessible to personnel.

Procedure: QAP-005 (Instructions, Procedures, and Drawings)
Details: Procedures are version-controlled and include acceptance criteria.

2.6 Requirement 6: Document Control

Policy: Documents are controlled to ensure only current, approved versions are used.
Implementation: A document control system manages issuance, revision, and distribution.
Procedure: QAP-006 (Document Control)
Details: Includes electronic and hardcopy document management.

2.7 Requirement 7: Control of Purchased Items and Services

Policy: Purchased items and services meet specified quality requirements.
Implementation: Suppliers are audited and monitored; items are inspected upon receipt.
Procedure: QAP-007 (Control of Purchased Items and Services)
Details: Includes commercial grade dedication processes per NQA-1 Subpart 2.14.

2.8 Requirement 8: Identification and Control of Items

Policy: Items are identified and controlled to prevent use of incorrect or defective materials.
Implementation: Traceability is maintained through labeling, tagging, or marking.
Procedure: QAP-008 (Identification and Control of Items)
Details: Covers material segregation and status indication.

2.9 Requirement 9: Control of Special Processes

Policy: Special processes (e.g., welding, heat treatment) are controlled and performed by qualified personnel.
Implementation: Process specifications and operator qualifications are documented.
Procedure: QAP-009 (Control of Special Processes)
Details: Includes process validation and monitoring.

2.10 Requirement 10: Inspection

Policy: Inspections verify conformance to quality requirements.
Implementation: Inspections are conducted by qualified personnel using approved plans.
Procedure: QAP-010 (Inspection)
Details: Covers in-process and final inspections.

2.11 Requirement 11: Test Control

Policy: Tests demonstrate that items meet design requirements.
Implementation: Test plans specify conditions, acceptance criteria, and documentation.
Procedure: QAP-011 (Test Control)
Details: Includes software and hardware testing.

2.12 Requirement 12: Control of Measuring and Test Equipment

Policy: Measuring and test equipment (M&TE) is calibrated and controlled.
Implementation: M&TE is calibrated against traceable standards and maintained.
Procedure: QAP-012 (Control of Measuring and Test Equipment)
Details: Includes calibration records and out-of-tolerance procedures.

2.13 Requirement 13: Handling, Storage, and Shipping

Policy: Items are handled, stored, and shipped to prevent damage or deterioration.
Implementation: Procedures specify packaging, storage conditions, and handling methods.
Procedure: QAP-013 (Handling, Storage, and Shipping)
Details: Addresses environmental controls and transportation.

2.14 Requirement 14: Inspection, Test, and Operating Status

Policy: The status of inspections, tests, and operations is clearly identified.
Implementation: Tags, labels, or records indicate status (e.g., accepted, rejected).
Procedure: QAP-014 (Inspection, Test, and Operating Status)
Details: Prevents unauthorized use of unverified items.

2.15 Requirement 15: Control of Nonconforming Items

Policy: Nonconforming items are identified, segregated, and dispositioned.
Implementation: Nonconformances are documented and reviewed for corrective action.
Procedure: QAP-015 (Control of Nonconforming Items)
Details: Includes “use-as-is” or “repair” dispositions.

2.16 Requirement 16: Corrective Action

Policy: Conditions adverse to quality are promptly identified and corrected.
Implementation: A corrective action system tracks issues to closure.
Procedure: QAP-016 (Corrective Action)
Details: Addresses root cause analysis and recurrence prevention.

2.17 Requirement 17: Quality Assurance Records

Policy: Records provide evidence of quality and compliance.
Implementation: Records are maintained, stored, and retrievable for the required duration.
Procedure: QAP-017 (Quality Assurance Records)
Details: Includes record retention schedules.

2.18 Requirement 18: Audits

Policy: Audits verify compliance and effectiveness of the QAP.
Implementation: Internal and external audits are conducted annually by qualified auditors.
Procedure: QAP-018 (Audits)
Details: Audit frequency is specified per NQA-1 Part I, Section 18.

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3. Program Implementation

3.1 Training and Qualification

All personnel performing safety-related activities are trained and qualified per QAP-002. Training records are maintained.

3.2 Supplier Management

Suppliers are evaluated and audited per QAP-007. A list of approved suppliers is maintained.

3.3 Management Review

The QAP is reviewed annually by senior management to ensure continued suitability and effectiveness.

3.4 Continuous Improvement

Feedback from audits, inspections, and corrective actions drives program improvements.

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4. References

- ASME NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Applications
- ASME NQA-1a-2009 Addendum
- 10 CFR 50 Appendix B, Quality Assurance Criteria for Nuclear Power Plants

- 10 CFR Part 21, Reporting of Defects and Noncompliance

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5. Appendices

Appendix A: Glossary

Defines terms used in the QAP (e.g., “safety-related,” “commercial grade dedication”).

Appendix B: Document Control Matrix

Lists all controlled documents and their revision status.

Appendix C: Audit Schedule

Specifies audit frequency and scope.