



ANP-10266NP
Revision 0

**AREVA NP Inc. Quality Assurance Plan (QAP) for
Design and Deployment of the
U.S. Evolutionary Power Reactor (U.S. EPR)**

Topical Report

September 2006

AREVA NP Inc.

Non-Proprietary

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Please Read Carefully

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Abstract for ANP-10266NP
AREVA NP Inc. Quality Assurance Plan
For Design and Deployment of the
U.S. Evolutionary Power Reactor (U.S. EPR)

EPR Design Certification and COL Submittals require a Quality Assurance Plan (QAP) to be prepared in accordance with 10 CFR 50, Appendix B, NQA-1-1994, and NUREG-0800; this Topical Report has been prepared to meet the requirements of the aforementioned standards/regulations. The EPR QAP implements the AREVA NP Inc. Quality Management Manual, 56-5015885; AREVA NP Inc. implementing procedures and instructions implement the QAP. The Topical Report is divided into eighteen (18) sections conforming to the requirements noted in 10 CFR 50, Appendix B.

This document describes the Quality Assurance Plan (QAP) for the design and deployment of commercial nuclear operating plants, specifically U.S. EPR, and for products and services supplied by AREVA NP Inc. under nuclear safety related criteria. Addendum A of this Document describes the non-safety related QAP. Further, the QAP contains the following appendices:

- Appendix A, QA Program Implementing Policies, Procedures, and Instructions
- Appendix B, Regulatory Commitments: Compliance with Applicable Regulatory Guides
- Appendix C, Acronyms, Abbreviations, and Definitions

Appendix A contains a listing of AREVA NP Inc. Policies, Procedures, and Instructions that implement the U.S. EPR QAP. Appendix B details how AREVA NP Inc. is compliant with applicable Regulatory Guides. Appendix C is a definitions reference for commonly used terms used in nuclear safety related Quality Programs.

Nature of Changes

Item	Section(s) or Page(s)	Description and Justification
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Contents

	<u>Page</u>
0.0 INTRODUCTION.....	0-1
0.1 Purpose	0-1
0.1.1 Scope	0-1
0.1.2 General	0-1
0.1.3 Responsibility	0-1
0.1.4 Document Revision Policy	0-2
0.1.5 Document Assignments	0-3
1.0 ORGANIZATION.....	1-1
1.1 Purpose	1-1
1.2 AREVA NP Inc. (Exhibit 1A)	1-1
1.3 New Plants Deployment (Exhibit 1A)	1-1
1.4 Nuclear Engineering, I&C, and Electrical (Exhibit 1A)	1-2
1.5 Nuclear Services (Exhibit 1A)	1-2
1.6 Project and BWR Integration (Exhibit 1A)	1-2
1.7 U.S. Region Quality (Exhibit 1B)	1-2
1.8 Human Resources and Facilities (Exhibit 1A)	1-4
1.9 Chief Financial Officer (Exhibit 1A)	1-4
1.10 Sales and Marketing (Exhibit 1A)	1-4
2.0 QUALITY ASSURANCE PROGRAM	2-1
2.1 Purpose	2-1
2.1.1 Scope	2-1
2.1.2 General	2-1
2.1.3 QAP Requirements	2-1
2.1.4 QAP Implementation	2-2
2.1.5 QAP Assessment	2-3
2.1.6 QAP Indoctrination and Training	2-4
3.0 DESIGN CONTROL	3-1
3.1 Purpose	3-1
3.2 General	3-1
3.3 Implementation	3-1
3.4 Design Inputs	3-1
3.5 Design Interfaces	3-2
3.6 Design Verification	3-2
3.6.1 Independent Review of Design Documents	3-2
3.6.2 Design Analyses	3-3
3.6.3 Design Review Boards (DRB)	3-3
3.6.4 Design Verification Testing	3-3
3.7 Design Changes	3-4
3.8 Engineering Assistance/Advice and Consultation	3-4

4.0	PROCUREMENT DOCUMENT CONTROL	4-1
4.1	General	4-1
4.2	Implementation	4-1
4.2.1	Procurement Process.....	4-1
4.2.2	Procurement Document Content.....	4-2
4.2.3	Procurement Document Review.....	4-2
4.2.4	Changes to Procurement Documents	4-3
5.0	INSTRUCTIONS, PROCEDURES AND DRAWINGS.....	5-1
5.1	Purpose	5-1
5.2	General	5-1
5.3	Implementation	5-1
5.3.1	Administrative Policies, Procedures, and Instructions.....	5-1
5.3.2	Drawings and Specifications	5-2
6.0	DOCUMENT CONTROL	6-1
6.1	Purpose	6-1
6.2	General	6-1
6.3	Implementation	6-1
6.3.1	Document Control System	6-1
6.3.2	Document Change Control.....	6-2
6.3.3	Release of Documents.....	6-2
6.3.4	Supplier Prepared Documents	6-2
6.3.5	Customer Prepared Documents.....	6-3
7.0	CONTROL OF PURCHASED MATERIALS, ITEMS, AND SERVICES.....	7-1
7.1	Purpose	7-1
7.2	General	7-1
7.3	Supplier Evaluation and Selection	7-1
7.3.1	Dedication of Commercial Grade Items and/or Services.....	7-2
7.4	Approved Supplier List (ASL).....	7-3
7.5	Procurement Process Monitoring.....	7-3
7.6	Item/Service Verification	7-3
7.6.1	Receiving Inspection	7-3
7.7	Supplier Nonconformances.....	7-4
7.8	Certifications of Conformance (COC/QA Data Packages)	7-4
8.0	IDENTIFICATION AND CONTROL OF ITEMS AND MATERIALS	8-1
8.1	Purpose	8-1
8.2	General	8-1
8.3	Implementation	8-2
9.0	CONTROL OF SPECIAL PROCESSES	9-1
9.1	Purpose	9-1
9.2	General	9-1
9.3	Implementation	9-1
9.3.1	Welding	9-1
9.3.2	Heat Treatment	9-2

9.3.3	Nondestructive Examination (NDE).....	9-3
10.0	INSPECTION.....	10-1
10.1	Purpose	10-1
10.2	Scope.....	10-1
10.3	General	10-1
10.4	Implementation	10-1
10.4.1	Inspection Types	10-1
10.4.2	Inspection Plan.....	10-2
10.4.3	Inspection Result.....	10-2
10.4.4	Review of Completed Inspection Documentation.....	10-2
11.0	TEST CONTROL.....	11-1
11.1	Purpose	11-1
11.2	General	11-1
11.3	Implementation	11-1
12.0	CONTROL OF MEASURING AND TEST EQUIPMENT	12-1
12.1	Purpose	12-1
12.2	General	12-1
12.3	Implementation	12-1
12.3.1	Procedures.....	12-1
12.3.2	Control of M&TE.....	12-1
12.3.3	M&TE Suppliers and M&TE Calibration Services.....	12-2
12.3.4	Customer Furnished M&TE.....	12-3
13.0	HANDLING, STORAGE, AND SHIPPING	13-1
13.1	Purpose	13-1
13.2	General	13-1
13.3	Implementation	13-1
13.3.1	Cleanliness	13-1
13.3.2	Storage	13-2
13.3.3	Packaging	13-2
13.3.4	Handling.....	13-2
13.3.5	Shipping	13-2
14.0	INSPECTION, TEST, AND OPERATING STATUS	14-1
14.1	Purpose	14-1
14.2	General	14-1
14.3	Implementation	14-1
14.3.1	Status Indication by Travelers or Manufacturing/Field Procedures.....	14-1
14.3.2	Status Indication by Tags.....	14-2
15.0	CONTROL OF NONCONFORMING ITEMS	15-1
15.1	Purpose	15-1
15.2	General	15-1
15.3	Internal Nonconformances.....	15-1
15.3.1	Nonconformances	15-1

AREVA NP Inc. Quality Assurance Plan (QAP) for Design and Deployment of
the U.S. Evolutionary Power Reactor (U.S. EPR) Topical Report

Page v

15.3.2 Safety Concerns.....	15-2
15.3.3 Audit Findings (AF)	15-2
15.4 Supplier Nonconformances.....	15-2
15.5 Contract Variation Approval Request (CVAR)	15-3
16.0 CORRECTIVE ACTION	16-1
16.1 Purpose	16-1
16.2 General	16-1
16.3 Implementation	16-1
17.0 QUALITY ASSURANCE RECORDS	17-1
17.1 Purpose	17-1
17.2 General	17-1
17.3 Implementation	17-1
18.0 AUDITS	18-1
18.1 Purpose	18-1
18.2 General	18-1
18.3 Internal Audits	18-2
18.4 Supplier Audits.....	18-2
APPENDIX A QA Program Implementing Policies, Procedures, and Instructions	A-1
APPENDIX B Regulatory Commitments: Compliance with Applicable Regulatory Guides	B-1
APPENDIX C Definitions	C-1
ADDENDUM A Non-Safety Related Products and Services	

Nomenclature
(If applicable)

<u>Acronym</u>	<u>Definition</u>
ADI	Applicable Document Index
ADL	Applicable Documents List
AF	Audit Finding
ANSI	American National Standards Institute
ASL	Approved Suppliers List
ASME	American Society of Mechanical Engineers
CR	Condition Report
CFR	Code of Federal Regulations
CO	Change Order
COC	Certificate of Conformance
COED	Customer Order Entry Document
CVAR	Contract Variation Approval Request
DCF	Document Comment Form
DRB	Design Review Board
DRN	Document Release Notice
U.S. EPR	Evolutionary Power Reactor
FCA	Field Change Authorization
HDL	Historical Document List

<u>Acronym</u>	<u>Definition</u>
I&C	Instrumentation & Control
I&MC	Inspection and Material Control
M&TE	Measuring & Test Equipment
NDE	Non-Destructive Examination
NIAC	Nuclear Industry Assessment Committee
NIST	National Institute of Standards and Technology
NRC	Nuclear Regulatory Commission
OEM	Original Equipment Manufacturer
OI	Operating Instruction
OOC	Out of Commission
PA	Purchasing Authorization
PO	Purchase Order
POPS	Policies and Procedures System
QA	Quality Assurance
QAP	Quality Assurance Program
QC	Quality Control
RDR	Receipt Discrepancy Report
RFQ	Request for Quote
WI	Working Instruction

0.0 INTRODUCTION

0.1 *Purpose*

This document describes the Quality Assurance Plan (QAP) for the design and deployment of commercial nuclear operating plants, specifically U.S. EPR, and for products and services supplied by AREVA NP Inc. under nuclear safety related criteria. ASME Boiler & Pressure Vessel Code items are covered under a separate Quality Assurance Program. Addendum A of this Document describes the non-safety related QAP.

0.1.1 *Scope*

The QAP specified in Section 1 – 18 of this document is mandatory for nuclear safety related activities. Addendum A of this Document describes the requirements for non-safety related activities. Refer to Appendix C for definitions of safety related and non-safety related.

This QAP is in compliance with the regulations, codes, standards, and other requirements listed in Section 2.3. The Document is also written to comply with NQA-1-1994. Each section of this Document describes the controls in place to accomplish compliance. Typical policies, procedures, and instructions which detail how these controls are implemented can be reviewed in Appendix A.

0.1.2 *General*

AREVA NP Inc. has primary locations in Lynchburg, Virginia, Charlotte, North Carolina, and Marlborough, Massachusetts with other satellite offices positioned in the U.S.

0.1.3 *Responsibility*

The President and CEO of AREVA NP Inc. has the overall responsibility for the quality of work. The Vice President, U.S. Region Quality, is responsible for developing this

QAP and for assuring its proper implementation. All personnel are responsible for implementing this QAP when performing work.

0.1.4 Document Revision Policy

The Vice President, U.S. Region Quality is responsible for the preparation, maintenance, and revision of this Document. This document is authorized for use and shall be fully implemented upon release.

This document will be reviewed once each calendar year by the AREVA NP Inc. QA and revised as necessary to assure that it continues to accurately describe the QAP. All revisions will be prepared by QA with input from cognizant, affected department managers. QA's signature on the Table of Contents indicates this input and concurrence has been obtained. Editorial changes in the wording or structure including organizational changes which do not affect programmatic commitments of this document do not require concurrence of other department managers.

As organizational changes occur, the Vice President, U.S. Region Quality, or designee, will notify controlled document holders of any significant changes that affect the QAP. These changes will be incorporated into the document during subsequent revisions.

Revisions to this document are made by section. The current document section revision will be indicated on the Table of Contents. When a change is made to this document, the revised section(s), a revised Table of Contents, and a revised Record of revisions page will be issued. The latest changes will be identified by the applicable revision number in the margin opposite the first line of the paragraph changed. Each revised section will have the current revision number on all pages of the section. After each revision, previous revision numbers in the margins opposite of changed paragraphs will be deleted. In the event of a complete document revision, the Table of Contents and Record of Revisions page shall so indicate at the top of the page.

The Record of Revisions page indicates the review, approval, and date for the QAP.

0.1.5 Document Assignments

All copies of this document are issued as either “controlled” or “uncontrolled” on the document cover page.

0.1.5.1 Controlled Document

Controlled copies of this document are distributed to pre-established Manual Stations located within AREVA NP Inc. The official copy of this document will reside on the AREVA NP Inc. Intranet under Policies and Procedures System (POPS). AREVA NP Inc. QA distributes controlled documents to selected employees located within the Company and other individual document holders, including customers. A controlled distribution list is maintained by AREVA NP Inc. QA and recipients are required to return a receipt acknowledgement. Each controlled document is assigned a unique number.

0.1.5.2 Uncontrolled Document

Uncontrolled documents are issued for information only. No receipt acknowledgement is required.

1.0 ORGANIZATION

1.1 *Purpose*

AREVA NP Inc. is the U.S. Regional Division, wholly owned subsidiary of AREVA NP that is headquartered in Paris, France. AREVA NP Inc. hereafter will be identified as AREVA NP Inc. or the “Company.”

AREVA NP Inc. is organized into major business groups and units as shown in Exhibit 1A. The Company’s QAP covers all nuclear safety related activities associated with the design and deployment of commercial nuclear power plants, specifically U.S. EPR, and the supply of products and services.

It is the responsibility of management to ensure that personnel affecting quality related activities are qualified in accordance with written procedures.

The functions and responsibilities of the organizations of the Company which operate under and implement the AREVA NP Inc. QAP are described as follows:

1.2 *AREVA NP Inc. (Exhibit 1A)*

The President and CEO of AREVA NP Inc. reports to the President and CEO of AREVA NP in France; this function is responsible for the management of the Company’s nuclear operations. The business groups and units participating in this QAP are depicted in Exhibit 1A. The business units involved in the design and deployment of nuclear power plants and components are as follows:

1.3 *New Plants Deployment (Exhibit 1A)*

The Senior Vice President of New Plants Deployment reports to the President and CEO of AREVA NP Inc. and to the Plants Sector Executive in France. The organization is responsible for the design, certification, and deployment of commercial nuclear power plants, specifically U.S. EPR; New Plants Deployment is also present at all stages of construction of Nuclear Steam Supply Systems and Nuclear Islands.

1.4 *Nuclear Engineering, I&C, and Electrical (Exhibit 1A)*

The Senior Vice President of the Nuclear Engineering, I&C, and Electrical Organizations reports to the President and CEO of AREVA NP Inc. and to the Plants Sector Executive in France. The organization is responsible for Nuclear Engineering, Instrumentation and Controls, and Electrical Systems Technology activities. Specifically, this organization provides all types of engineering services for existing nuclear installations as well as new plants. The Nuclear Engineering, I&C, and Electrical organization supplies operating and safety Instrumentation and Control systems and the associated power supply for nuclear installations. They are also responsible for providing upgrades of aging analog systems with digital technology.

1.5 *Nuclear Services (Exhibit 1A)*

The Senior Vice President of Nuclear Services reports to the President and CEO of AREVA NP Inc. and to the Services Sector Executive in France. This organization is responsible for inspection and maintenance of all types of PWR and BWR reactors.

1.6 *Project and BWR Integration (Exhibit 1A)*

The Senior Vice President of Projects and BWR Integration reports to the President and CEO of AREVA NP Inc. and to the Equipment Sector Executive in France. This organization consists of project managers and support personnel that manage multiple product line projects within the Company; Project and BWR Integration manages projects associated with the manufacture and installation of heavy nuclear components. This organization also establishes project management processes for AREVA NP Inc. and provides project management related training for the Company.

1.7 *U.S. Region Quality (Exhibit 1B)*

The Vice President of U.S. Region Quality reports to the President and CEO of AREVA NP Inc. and to the Vice President of Sustainable Development and Continuous Improvement in France. Company policy dictates that the Vice President of U.S. Region Quality is responsible for preparation, implementation, and maintenance of this

QAP. Organizational freedom and independence from the activities being regulated is ensured by providing the Vice President of U.S. Region Quality with access to the Senior Vice Presidents, Vice Presidents, managers of the regulated activities, and to the President and CEO of AREVA NP Inc.

The reporting structure provides sufficient authority for QA personnel to:

- Identify problems
- Initiate, recommend, or provide solutions through designated channels,
- Verify implementation of solutions,
- Suspend or control further processing or delivery of nonconforming items until proper disposition of the identified deficiency has been approved and documented.

The Manager of Quality Audits and Programs reports to the Vice President of U.S. Region Quality; the function is responsible for the implementation and maintenance of this QAP and the ASME Section III and XI Quality Assurance Program. The group is also responsible for the implementation and maintenance of the ISO 9001:2000 Program as well as the Corrective Action Program. The Manager of Quality Audits and Programs is also responsible for managing the Internal, Supplier, and Customer Audits Programs for the activities covered by this QAP.

The Manager of Quality Operations also reports to the Vice President U.S. Region Quality and is responsible for providing all levels of quality support to the business units and product lines. Specifically, the Manager of Quality Operations supports New Plants Deployment, the Nuclear Engineering, I&C, and Electrical organization, and Nuclear Services. The function provides quality oversight for field and supplier activities. The organization reports to and works closely with Plants and Services Sectors Quality Managers in order to encourage integration of quality programs and initiatives.

The Manager of Quality NPD and Mechanical Components reports to the Vice President of U.S. Region Quality. The function is responsible for monitoring heavy component work manufactured and delivered to U.S. utilities. The Manager of Quality NPD and

Mechanical Components is also responsible for assisting the Manager of Quality Operations with support of the New Plants Deployment organization.

1.8 *Human Resources and Facilities (Exhibit 1A)*

The Vice President of Human Resources and Facilities reports to the President and CEO of AREVA NP Inc. and to the Human Resources Executive in France. The Manager of Records Management reports within this organization. The Records Management function is responsible for duplication, storage, and retention of quality related records.

1.9 *Chief Financial Officer (Exhibit 1A)*

The Vice President and Chief Financial Officer reports to the President and CEO of AREVA NP Inc. and to the Chief Financial Officer in France. The Director of Purchasing reports to the Chief Financial Officer. The Purchasing organization has the overall responsibility for safety related procurement activities for AREVA NP Inc.

1.10 *Sales and Marketing (Exhibit 1A)*

The Vice President of Sales and Marketing reports to the President and CEO of AREVA NP Inc. and to the Sales and Marketing Executive in France. The organization has the overall responsibility of business marketing, proposal preparation, contract delivery, and customer service relations.

2.0 QUALITY ASSURANCE PROGRAM

2.1 *Purpose*

This section defines the QAP implemented by AREVA NP Inc. for nuclear safety related activities, specifically the U.S. EPR.

2.1.1 *Scope*

The QAP establishes the prerequisites for achieving quality, such as the need for specialized equipment and skills, use of suitable administrative, process, and environmental controls, training and indoctrination of personnel performing activities affecting quality, and the need for verification of quality by reviews, inspection, examination, and test. It also provides for the development, control, and use of computer programs.

2.1.2 *General*

The classification of items and services as safety related is made and documented by the responsible engineering and project management functions for AREVA NP Inc. The criteria for determining this classification is defined in Appendix B and contained in an AREVA NP Inc. procedure based on Regulatory Guide 1.26 which makes allowances for consideration of other criteria that may be specified by contract.

It is the responsibility of the appropriate project management function to specify in writing to the organizations performing work, the scope, technical requirements, safety classification, and the applicability of the QAP when work is to be performed under the provisions of this QAP.

2.1.3 *QAP Requirements*

This QAP is organized and administered to comply with:

- 10 CFR 50, Appendix A, General Design Criteria 1(a), Appendix B, 50:55(a), and 50:55(b)

- 10 CFR 21
- Quality Assurance related NRC Regulatory Guide commitments as described in Appendix B of this Document
- ANSI/ASME N45.2 and its daughter standards and/or ANSI/ASME NQA-1-1994
- 56-5015885, Framatome ANP, Inc. Quality Management Document
- Other quality requirements as may be imposed by contract.

2.1.4 QAP Implementation

This QAP establishes and maintains standards of quality through the development and use of quality engineering and manufacturing practices, which are documented by written policies, procedures, and instructions. These policies, procedures, and instructions are controlled as described in Section 5 and 6 of this QAP; they have been coordinated with and are mandatory for each of the applicable groups within AREVA NP Inc.

Typical policies, quality assurance plans, procedures, and instructions that implement this QAP are referenced in Appendix A. AREVA NP Inc. may add, modify, and/or delete the referenced policies, procedures, and instructions without changing the intent of the QAP. Therefore, the document references should only be considered as representative; these references will be updated as necessary during subsequent revisions of this document. If required by contract, customer originated procedures may be used to implement this QAP provided their use is defined in contract unique Project Management Documents or QA Plans which have been approved by the President and CEO of AREVA NP Inc. (or designee), the AREVA NP Inc. Vice President of U.S. Region Quality, and the responsible project management function.

A QAP may be prepared as needed to address the application of a contract which implies a departure from the general requirements of this QAP; a QAP may also be prepared to address the application of a contract which implies additional processes without departure from the general requirements of this QAP.

QA personnel are charged with escalating to the Vice President of U.S. Region Quality, for resolution, any quality related problems that cannot be resolved at their level. In turn, the Vice President of U.S. Region Quality will escalate to the President and CEO of AREVA NP Inc. any quality related problem that cannot be resolved.

2.1.5 QAP Assessment

Assessments of the scope, status, adequacy, and compliance of this QAP with Appendix B of 10 CFR 50, NQA-1, and other QAP commitments, such as 10 CFR 21, are performed by AREVA NP Inc. staff management in several ways. The Vice President of U.S. Region Quality evaluates this document once every calendar year and updates to incorporate any administrative or operational changes necessary to ensure that it accurately describes the QAP. When changes are desired, the affected staff managers shall provide the Vice President of U.S. Region Quality input as to the status, adequacy, and effectiveness of that part of the QAP for which they have been designated responsibility. In addition, at the direction of the Vice President of U.S. Region Quality, qualified auditors perform an independent audit of the QA/QC organizations once each calendar year. The results of these audits are provided to the President and CEO of AREVA NP Inc., the Vice President of U.S. Region Quality, and the QA/QC Managers.

The President and CEO of AREVA NP Inc. periodically conducts staff meetings where each staff manager presents the status of activities within his group and any problems that require resolutions by AREVA NP Inc. management. In addition, written monthly reports are made by each staff manager describing their significant activities and problems during the month. The President and CEO of AREVA NP Inc. receives copies of the results of internal audits performed by U.S. Region Quality.

The President and CEO of AREVA NP Inc., through customer feedback, personal observations, staff meetings, monthly reports, and audit reports, assures himself of the adequacy and effectiveness of this QAP and implementing procedures.

2.1.6 QAP Indoctrination and Training**2.1.6.1 AREVA NP Inc. Personnel**

Indoctrination and training requirements of this QAP are provided to all personnel engaged in activities covered by this QAP. This indoctrination and training is conducted in accordance with written procedures and includes instruction as to the purpose, scope, and implementation of the quality related documents, policies, procedures, and instructions.

2.1.6.2 AREVA NP Inc. QA/QC Personnel

In addition to the indoctrination and training described above, personnel performing inspection, surveillance, and audit activities are qualified. This qualification is conducted and documented in accordance with the applicable requirements listed in Section 2.3 of this QAP.

3.0 DESIGN CONTROL

3.1 *Purpose*

This section describes the method used to provide control of design, design verification, and analysis activities.

3.2 *General*

AREVA NP Inc. maintains design control during the performance of work activities associated with this QAP. The project management function establishes in writing to the responsible design organizations the scope, objectives, requirements, and safety classification. When design review boards are required, the requirement is identified by the responsible technical manager with concurrence of the responsible project management function.

3.3 *Implementation*

Design control measures are applied to safety related items and services as defined in written procedures and instructions.

3.4 *Design Inputs*

Procedures have been established for the preparation and review of design documents. Design inputs, e.g., the design bases, performance and regulatory requirements and codes and standards, are correctly translated into design outputs, e.g., specifications, drawings, procedures, and instructions.

The appropriate engineering organization is responsible for the preparation, review, approval, and verification of design documents for items and services within the respective area of responsibility. Design documents include such documents as plant technical requirements, system design requirements, system descriptions, design drawings, design analyses, computer program documentation, specifications and procedures. These documents specify technical and quality requirements appropriate

to the activities they cover, and are independently reviewed for completeness and technical accuracy. Design documents shall be adequate to support facility design, construction, and operation. Revisions to design documents are subject to the same review and approval process as the original documents.

QA provides an overview during audits of design documents, such as drawings and specifications used as procurement documents or as manufacturing requirements for the inclusion of appropriate QA requirements. Deviations from specified quality standards are identified and controlled in accordance with written procedures.

3.5 *Design Interfaces*

Procedures establish methods for the identification and control of design interfaces, for coordination among participating design organizations, and for review, approval, release, distribution, and revision of documents.

The project management function and responsible technical management establishes design interfaces.

3.6 *Design Verification*

Procedures are established to assure adequacy and accuracy of designs. Verification methods include independent review of design documents, design analyses (calculations), design review boards, and design verification testing. The design organization determines design verification methods to be used.

3.6.1 *Independent Review of Design Documents*

All design documents are independently reviewed for completeness and technical accuracy by a technically qualified individual other than the preparer of the document. In certain instances, the reviewer may be the preparer's supervisor or manager as explained in AREVA NP Inc.'s position on Regulatory Guides 1.28 and 1.64 contained in Appendix B.

3.6.2 *Design Analyses*

Design analyses (calculations) are used to establish design requirements or to verify the design. The analyst is required to document the calculations as to purpose, assumptions, method, design input data, results, and conclusions in such a manner that an independent reviewer can verify its technical accuracy. Design analyses are checked by independent reviewers who are competent in the particular type of analysis. Computer programs used for design analyses are certified or verified and validated as appropriate.

3.6.3 *Design Review Boards (DRB)*

Design Review Boards (DRB) are conducted in accordance with written procedures for new designs and major changes to existing designs as determined by the responsible technical manager and project management functions.

A DRB verifies the adequacy of a design by assuring that it is based on sound technical principles and that it meets specified requirements. DRB's may be conducted at the conceptual, preliminary, and/or final design stages.

Results of DRB's are documented and the responsible technical manager must resolve DRB comments, as necessary, to close out the DRB.

3.6.4 *Design Verification Testing*

Design verification by testing is used whenever engineering judgment leads to the conclusion that design analyses or previous experience cannot substantiate a design or design feature. Verification testing is incorporated using written test procedures which incorporate the requirements of the design documents that establish the design limits of the items or features being tested.

If verification of a design or design feature is solely by test, the testing is conducted under the most adverse design conditions as determined by analysis. Test results are

reviewed by the responsible technical manager to determine if they verify the design or design feature(s) tested.

3.7 *Design Changes*

Design changes, including field changes, are subject to the same design controls and levels of review as were applicable to the original design. Such changes are documented, reviewed, approved and incorporated into the design documents as described in AREVA NP Inc. written procedures.

3.8 *Engineering Assistance/Advice and Consultation*

Certain aspects of AREVA NP Inc. work may include providing engineering manpower assistance or advice and consultation services at a location designated by a customer. In such circumstance, the work will be performed under the provisions of the customer's QAP unless otherwise authorized by contract.

4.0 PROCUREMENT DOCUMENT CONTROL

This section defines procurement document control for safety related items and services.

4.1 *General*

Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services.

4.2 *Implementation*

4.2.1 *Procurement Process*

The technical, manufacturing, quality, regulatory, administrative, reporting, and other requirements prescribed in drawings, specifications, and other documents are transferred into procurement documents by inclusion in or reference on Purchasing Authorizations (PA). Technical requirements are specified in the attachments listed on the PA. PA's are prepared, reviewed, and approved as stipulated in procurement procedures.

The project management function is authorized to procure items and services directly from other AREVA NP Inc. organizations using a PA/PO as the contract with these organizations.

Orders placed with external suppliers are processed through AREVA NP Inc.'s purchasing organization. Purchasing converts the PA into a Purchase Order (PO) or Change Order (CO). The PO/CO is then sent to the supplier.

QA reviews procurement documents to ensure correct documentation of acceptable quality requirements, and to determine the need for QA hold/witness points and surveillance activities.

4.2.2 Procurement Document Content

Procurement documents include or reference the following information and requirements, as applicable:

- Scope – statement of the work to be performed
- Technical requirements – drawings, specifications, codes, standards, regulations, procedures, instructions, test and inspection requirements and equipment, acceptance criteria, and special process instructions for such activities as: fabrication, inspection, cleaning, packaging, handling, shipping, and storage.
- Documentation Requirements – identification of supplier documents and records to be prepared, maintained, submitted, and made available for AREVA NP Inc.'s review and/or approval.
- QA requirements – identification of quality requirements imposed on the supplier.
- Source inspection and audit – identification of source inspection and audit requirements including the right of access to the supplier's facilities and records, and any sub-tier suppliers.
- Sub-tier Procurements – extension of applicable procurement document requirements to lower tier suppliers. AREVA NP Inc. may require the supplier to use a sub-supplier from the AREVA NP Inc. Approved Supplier List (ASL).
- Nonconformances – requirements for supplier reporting of nonconformances, and AREVA NP Inc. approval of nonconformances.
- Date of submission

4.2.3 Procurement Document Review

Procedures are established for the review of procurement documents by AREVA NP Inc. QA to determine the quality requirements are correctly stated, inspectable, and controllable, that there are adequate acceptance and rejection criteria, that the procurement documents have been prepared, reviewed, and approved in accordance

with QAP requirements, and that the supplier has been evaluated as specified in Section 7 of this QAP.

AREVA NP Inc. QA has the responsibility and authority to order termination or suspension of procurement activities when procurement documents conflict with the requirements of the QAP. Such orders will indicate the action to be taken to allow resumption or reinstatement of the procurement activity.

4.2.4 *Changes to Procurement Documents*

Changes to procurement documents are processed in the same manner as the original procurement documents.

Processing and approval of a supplier nonconformance that deviates from the procurement document requirements is described in Section 15 of this QAP.

Changes made as a result of the bid evaluations or pre-contract negotiations are incorporated into the procurement documents. The review of such changes and their effects are completed prior to contract award. Reviews are performed by Purchasing personnel who have access to the pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.

5.0 INSTRUCTIONS, PROCEDURES AND DRAWINGS

5.1 *Purpose*

This section defines the controls established by the Company for the control of procedures, instructions, and drawings that prescribe activities affecting quality.

5.2 *General*

Measures are established and documented to assure that activities affecting the quality of items are established in instructions, procedures, or drawings, and accomplished in accordance with these documents. Instructions, procedures, and drawings shall be prepared, reviewed, approved, and distributed before beginning the activity.

Instructions and procedures may include the following items, as required:

- Activities falling within the scope of the document,
- Individuals, organizations, or functions who perform the activities,
- Sequencing to aid in the performance of complex activities, and,
- Quantitative and qualitative acceptance criteria (or references which contain the criteria) to determine the satisfactory accomplishment of defined activities.

5.3 *Implementation*

5.3.1 *Administrative Policies, Procedures, and Instructions*

The QAP is implemented through this document, and administrative policies, procedures, and instructions. Policies provide written guidance for the control of activities and operations of AREVA NP Inc. Administrative procedures, including Engineering Guidelines, are documents that specify or describe how activities or operations are performed within AREVA NP Inc. Working Instructions (WI) are on the same level hierarchically as administrative procedures in function. Operating Instructions (OI) may be used to describe how activities or operations are performed within a department.

Approved policies and procedures are filed on the AREVA NP Inc. Intranet website on Policies and Procedures System (POPS), at Manual Stations, and distributed to others electronically by Records Management. Approved instructions are controlled, distributed, and maintained current by the issuing organization.

5.3.2 *Drawings and Specifications*

Drawings and specifications are released for use in engineering, procurement, manufacturing, and field activities as described in Section 6 of this QAP.

6.0 DOCUMENT CONTROL

6.1 Purpose

This section defines the system of controls for the preparation, review, approval, revision, distribution, and use of documents that prescribe activities affecting quality.

6.2 General

Company procedures and instructions detail the methods for preparation, review, approval, revision, distribution, and use of documents. The following types of documents are controlled within the document control system:

- Quality Documents – includes administrative documents, AREVA NP Inc. QAP's, nonconformance documents, and procedures describing activities affecting quality (refer to Sections 0, 5 and 15 of this QAP).
- Design Documents – includes calculations, drawings, specifications, analyses, computer codes, and documents related to software (refer to Sections 3 and 5 of this QAP).
- Technical Documents – includes inspection, field, test, and special processes procedures and documents (refer to Sections 5, 9, and 11 of this QAP).
- Procurement Documents (refer to Section 4 of this QAP).
- Manufacturing Documents (refer to Sections 5, 9 and 11 of this QAP).
- Construction Documents (refer to Sections 5, 8, 9, and 11 of this QADP).

6.3 Implementation

6.3.1 Document Control System

Measures are established to assure that documents are reviewed for adequacy and approved for release by authorized personnel to individuals and locations requiring the documents for work activity. The document control function also provides for the following:

- Updating Policies and Procedures System (POPS – Intranet site which contains implementing documents), master document lists, control logs, or other means used to identify the current status and revision level of documents,
- Accumulating, protecting, and storing AREVA NP Inc., supplier, or customer documentation.

6.3.2 Document Change Control

Changes and revisions to the documents listed in Section 6.1 shall have at least the same review and approval as the original document. If the original organization no longer exists or is no longer responsible, another qualified organization may approve changes and revisions.

6.3.3 Release of Documents

Documents such as drawings, specifications, and calculations are released using Document Release Notices (DRN), or Applicable Document Lists (ADL). DRN's and ADL's are prepared and approved by designating personnel as prescribed by administrative procedures. Computer programs are released for use upon completion of their certification process as defined in procedures. Superseded documents are controlled by Records Management. Documents are distributed to and used by personnel performing quality related work.

6.3.4 Supplier Prepared Documents

Documents prepared by suppliers (drawings, design reports, procedures, etc.) are received by Purchasing or the project management function.

The reviewer prepares a Document Comment Form (DCF) indicating the review status of the document. A document number is obtained from the applicable AREVA NP Records Management database by the document owner. If the document is not approved, it is returned to the supplier with an explanation of corrections to be made.

If the document is approved, it is sent to the customer for review and approval when required by contract.

Resolved customer comments are sent to the supplier for document revision.

6.3.5 *Customer Prepared Documents*

For customer originated documents, the cognizant engineer records the comments in a memo and forwards it to the customer via the project management function. On approval of the document, a DCF is prepared by the cognizant engineer and released to Records Management for entry into the Contract Documents List.

7.0 CONTROL OF PURCHASED MATERIALS, ITEMS, AND SERVICES

7.1 Purpose

This section governs the control of purchased safety related materials, items, and services including source evaluation and selection, source inspection, and receiving inspection in accordance with regulatory and contract requirements.

7.2 General

The control of purchased safety related materials, items, and services are in accordance with written procedures and instructions. AREVA NP Inc. QA audits the capability of suppliers of safety related materials, items, and services and maintains a list of approved suppliers.

7.3 Supplier Evaluation and Selection

The acceptability of suppliers of safety related materials, items, or services are based on the following items:

- An evaluation of their QA Program to 10 CFR 50 Appendix B and NQA-1 to determine the capability to supply materials, items, or services meeting all procurement document requirements.
- A survey/audit of the supplier's facility.

Suppliers are required to ensure that their products meet the requirements of the procurement documents. These methods are reviewed by the cognizant Manager/Supervisor with an overview by the QA organization. Additionally, AREVA NP Inc. may verify acceptance of products by independent analysis. Reviews of the vendor quality program, performance of audits, performance of pre-award evaluations and annual evaluations are performed in accordance with Administrative Procedure 1719-22, which is in compliance with Regulatory Guide 1.28 and 1.144; these methods are used to verify the quality of the products and services provided by subcontractors/sub-vendors. As part of this program subcontractors/sub-vendors are required to furnish documents such as QA Data Packages, procedures, source audit

and surveillance reports, and QAP documents. Sub-vendor/subcontractor QAP's are reviewed and accepted during the pre-award evaluation of the sub-vendor/subcontractor prior to placement on the Approved Suppliers Listing (ASL).

Suppliers passing an audit by an AREVA NP Inc. affiliate may be accepted by QA as a supplier of safety related materials, items and/or services. QA will review the audit checklist, auditor qualifications, and audit reports to assure conformance with AREVA NP Inc. requirements. A copy of the audit report, audit checklist, resolution to any deficiencies, and auditor qualification is maintained in the QA audit files.

QA also participates in a shared audit program through the Nuclear Industry Assessment Committee (NIAC). NIAC shares the results of supplier audits among industry companies, reducing the supplier's number of external audits. Audit checklists, auditor qualifications, resolution to any deficiencies, and audit reports are reviewed to assure conformance to AREVA NP Inc. requirements.

7.3.1 *Dedication of Commercial Grade Items and/or Services*

Commercial grade items and/or services for safety related applications may be procured from suppliers where specific quality controls for nuclear applications cannot be imposed in a practical manner. In these instances, an evaluation of the suitability of the item or service for nuclear applications is performed by the responsible technical manager and quality organization. The critical characteristics of the item or service are also determined and documented as part of this evaluation. Special methods shall be established by the responsible technical manager and quality organization to provide assurance that the item or service specified is the item or service received. If needed, these special quality verification methods may include inspections, tests, commercial grade surveys, or evaluations of the supplier. Suppliers of commercial grade items and/or services need not appear on the ASL.

7.4 *Approved Supplier List (ASL)*

Procedures control the maintenance of the ASL. Suppliers meeting the criteria described in Section 7.2 are included in the ASL issued by the Manager of Quality Audits and Programs for safety related items and services.

Procurement selects suppliers from this list for placement of orders that impose safety related requirements and are capable of providing the types of items/services in accordance with the requirements of the procurement documents. With Project Management and QA approval, suppliers not on the ASL may be selected in situations where unique products or services are needed. Requirements to perform surveillance are determined by QA and/or the responsible technical manager.

On an individual basis and at the direction of the customer, AREVA NP Inc. will use a customer approved supplier; however, the supplier will not be placed on the ASL.

Suppliers of items and/or services remain on this list as long as they maintain acceptable quality performance standards and they continue to satisfy the audit criteria.

7.5 *Procurement Process Monitoring*

Procurement documents are reviewed by QA as described in Section 4 of this QAP.

7.6 *Item/Service Verification*

Source inspections or surveillances are performed as required by the written criteria of the procurement documents. The inspection/surveillance requirements in the procurement documents indicate the AREVA NP Inc. inspection, witness, and/or hold points, as well as any customer designated hold and/or witness points.

7.6.1 *Receiving Inspection*

Incoming items received by AREVA NP Inc. at its own facilities or at a plant site for use in safety related applications undergo receiving inspection by inspection personnel prior to the release of such items for further processing. Receipt inspectors shall perform

receipt inspections of material in accordance with Working and Operating Instructions to ensure compliance with procurement documents. Receiving inspections may be conducted on an individual item or sampling basis.

Concurrent with the receiving inspection, QA verifies that all supplier documentation required by the procurement documents has been reviewed by the appropriate organizations for completeness and compliance with requirements. The inspection status of accepted items and material is identified per Section 8.

7.7 *Supplier Nonconformances*

Nonconformances detected during an inspection or surveillance are processed in Section 15.3 of this QAP. The inspection report notes nonconformances dispositioned as repair or use-as-is. The supplier submits a written request to AREVA NP Inc. for disposition approval as required by Section 15.4 (A) of this QAP.

7.8 *Certifications of Conformance (COC/QA Data Packages)*

For items designed by AREVA NP Inc. and manufactured within AREVA NP Inc. or by suppliers, the project management function furnishes the customer with a QA Data Package that provides objective evidence that the materials and items meet the requirements of the customer's order. As a minimum, the QA Data Package consists of a COC signed by the responsible QA representative. Other supporting documentation may be included as required by the customer's order.

COC's for the assembly, repair, modification, or testing of safety related items are processed as described in written procedures. COC's are signed by the Vice President of U.S. Region Quality or designee.

8.0 IDENTIFICATION AND CONTROL OF ITEMS AND MATERIALS

8.1 *Purpose*

This section defines the measures used to ensure the preparation and use of written procedures for identification and control of safety related materials and items, and to ensure that only correct and accepted items are used or installed.

8.2 *General*

Procedures are established by AREVA NP Inc. for the identification and control of items to assure that:

- Only correct and accepted items are used. Nonconforming items are identified and segregated from acceptable items.
- Identification and traceability of items is maintained from receipt through storage, processing, and assembly to final acceptance of complete items.
- Correct identification of items is verified and documented prior to release for fabrication, assembly, or shipment.
- Identification of items can be traced to applicable documentation such as drawings, specifications, procurement documents, manufacturing and inspection documents, nonconformance reports, and mechanical and chemical test reports.
- Items are identified by heat number, part number, serial number, lot number, or other unique identifiers as applicable, either on the item or on records traceable to the item.
- Identification methods used are not detrimental to the item.
- Physical identification is used whenever possible. Where physical identification is either impractical or insufficient, physical separation, procedural controls, or other means are employed.
- Identification markings are transferred to each piece or lot prior to subdivision.

Specific identification such as task, group, sequence numbers, or part numbers are assigned as applicable by the responsible AREVA NP Inc. organizations to safety

related items supplied by AREVA NP Inc. These numbers are used to identify the items and for the association of documents to the items for which they are applicable.

8.3 *Implementation*

The identification of items manufactured by AREVA NP Inc. is established using the identification requirements contained in drawings, specifications, customer orders, and/or internal procedures. Control and traceability are maintained by procedures covering the manufacturing, inspection, and field operations in accordance with the requirements of Section 8.1 of this QAP. Suppliers may use the AREVA NP Inc. assigned identification numbers in conjunction with their own identification system during design, procurement, fabrication and shipping. Suppliers using their own identification and control systems must be able to demonstrate traceability to the AREVA NP Inc. assigned identification number.

9.0 CONTROL OF SPECIAL PROCESSES

9.1 Purpose

This section defines the manner in which AREVA NP Inc. ensures that procedures are established and used to control special processes for safety related items.

9.2 General

Special processes include but are not limited to welding, heat treating, and nondestructive examination (NDE). Cleaning is considered to be a special process with exceptional and unusual care in cleaning is necessary as defined in the applicable drawings and specifications. Written procedures establish the requirements for the control of special processes used by AREVA NP Inc

9.3 Implementation

Special processes may be subcontracted to qualified suppliers (refer to Sections 4 and 7) or performed by AREVA NP Inc.

AREVA NP Inc. special processes are controlled to ensure the following:

- Special processes are performed in accordance with qualified, approved procedures using approved methods and materials, utilizing personnel and equipment qualified in accordance with applicable codes and/or standards.
- Records of procedures, processes, operators, and equipment qualifications and approvals are maintained and available for review.
- Special processes are accomplished with written process sheets, shop procedures, checklists, travelers, computerized tracking, or equivalent that provide adequate methodologies for recording evidence of verification.

9.3.1 Welding

Written procedures or instructions govern the methods used to qualify welding procedures and personnel in accordance with applicable codes and standards. The

cognizant welding engineer is responsible for the qualification of welding procedures, welders, and welding operators.

After qualification, welding procedures are released for use as described in Section 6 of this QAP. In addition, they are released for specific applications by reference in travelers, fabrication routing documents, manufacturing procedures, or field procedures as discussed in Section 6 of this QAP.

The assignment of qualified welders and welding operators to specific jobs is the responsibility of the welding supervisors. The welding supervisors assure that the specified welding procedures are available, that the welding personnel are properly qualified, and that welding is performed as specified in written procedures or instructions.

All welded joints are traceable to the welder(s) or welding operators who performed the welding operations via at least one of these methods: traveler, manufacturing procedure, field procedure, or weld control record. The initiating and dating of the traveler, fabrication routing document, or procedures (at the appropriate sequences) and the weld control record by welding personnel or welding supervisor provides this traceability.

9.3.2 *Heat Treatment*

Heat treatment of base material and welds is subcontracted to qualified personnel or may be performed by AREVA NP Inc. (refer to Sections 4 and 7).

Preheat, interpass, and post weld heat temperature requirements for welding processes performed are specified in the welding procedures discussed in Sections 9.2.1 of this QAP.

Post-weld heat treatments performed by AREVA NP Inc. are controlled by procedures prepared by the responsible engineering organization. These procedures are released for use as described in Section 6 of this QAP. In addition, they are released for specific

AREVA NP Inc. shop or field applications by reference in travelers, manufacturing procedures, or field procedures as discussed in Section 5 of this QAP.

9.3.3 *Nondestructive Examination (NDE)*

9.3.3.1 *NDE Personnel Qualification*

Personnel performing NDE are qualified to written practices (applicable NDE Personnel Qualification Procedure) in accordance with the ASME Code and SNT-TC-1A/CP-189 (latest version accepted by the ASME Code) by the appropriate Company NDE Certification Administrator. Records of personnel qualification including the Level III certifications are maintained by AREVA NP Inc. NDE Services.

NDE personnel and equipment may be contracted from AREVA NP Inc. approved NDE suppliers.

9.3.3.2 *NDE Procedures*

NDE procedures used by AREVA NP Inc. in the examination of items are reviewed and approved by an appropriate AREVA NP Inc. Level III and are qualified by demonstrating that the technique detailed in the procedure is capable of detecting the targeted discontinuities.

NDE procedures are released for use as described in Section 6 of this QAP. They are released for specific AREVA NP Inc. shop or field applications by reference in travelers, fabrication routing documents, manufacturing procedures, or field procedures as described in Section 5 of this QAP.

The results of nondestructive examinations, as required by the applicable codes and standards, are recorded on inspection records or other related documents as defined in written procedures or instructions.

10.0 INSPECTION

10.1 *Purpose*

This section establishes the elements of the QAP required for inspection activities affecting safety related items.

10.2 *Scope*

This section applies to all safety related items requiring inspection. Inspections required to verify conformance of an item or activity to specified requirements shall be planned and executed. For Nondestructive Examination (NDE) inspections, refer to Section 9.

10.3 *General*

Inspections shall be performed by qualified personnel in accordance with standards and AREVA NP Inc. written procedures. Inspection personnel are independent from the individual or group performing the activity being inspected. Inspection procedures, applicable drawings, travelers, and specifications define inspection criteria, identify mandatory inspection hold and witness points, and verify acceptable calibration equipment status. Inspection results are documented, evaluated, and accepted based on the acceptance criteria specified in the applicable document.

10.4 *Implementation*

10.4.1 *Inspection Types*

Source and receiving inspections are covered in Section 7 of this QAP.

In-process and final inspections are, when necessary, performed in accordance with instructions, procedures, drawings, checklists, travelers, or other appropriate means. Inspection requirements may also be identified in surveillance requirement documents or procurement specifications for AREVA NP Inc. or suppliers' shops and to designate customer hold or witness points.

10.4.2 *Inspection Plan*

Planning for inspection activities shall be accomplished and documented. The documentation shall identify characteristics, methods, and acceptance criteria, and shall provide for recording objective evidence of inspection results.

Indirect control (by monitoring processing methods, equipment and personnel), is provided when direct inspection of processed items is impractical or dangerous. Both inspections and process monitoring are provided when control is inadequate without both.

10.4.3 *Inspection Result*

Inspection records include the following information: identification of item inspected, date, inspection, type of observation, results, acceptability, and reference to actions taken on nonconformances. An inspector's initials (or signature) and date at the inspection sequence on the traveler, in the manufacturing/field procedure, or the surveillance/QC inspection report, with the item's status (accepted or rejected), are used to document the results of inspections. Inspection status is discussed in Section 14 of this QAP and used by inspection personnel to verify completion of the inspection operations. Nonconforming conditions require completion of a Condition Report (CR) as described in Section 15 of this QAP.

10.4.4 *Review of Completed Inspection Documentation*

QA reviews completed inspection documents and verifies the following information: all sequences were properly certified and signed off, Condition Reports were reviewed, dispositioned, and resolved, and required inspections were documented.

11.0 TEST CONTROL

11.1 *Purpose*

This section applies to the testing of safety related items that are required to demonstrate compliance with regulatory and contract requirements.

11.2 *General*

When engineering judgment, codes, standards, regulations, or specifications indicate that testing is required, a written test program is established via test requirement documents by the responsible technical manager to ensure conformance with those requirements. In those cases where design is the responsibility of the AREVA NP Inc. suppliers, the requirements for written test programs are imposed on those suppliers through procurement documents.

The test program describes required tests, such as prototype qualification tests or design verification tests, to demonstrate that the item will perform satisfactorily in service. Whenever engineering judgment leads to the conclusion that design analysis or previous experience cannot substantiate a design or design feature, design verification testing is conducted as described in this section and Section 3.5 of this QAP.

11.3 *Implementation*

Tests may be conducted by AREVA NP Inc. or by qualified, approved suppliers. The requirements for such tests are included in test requirements documents prepared by the responsible technical manager. These test requirement documents include, as appropriate, the requirements of this section, scope of the test, technical requirements, and QA requirements.

The test requirement documents require testing to be performed in accordance with written test plans and/or procedures that incorporate or reference the design requirements and acceptance limits contained in the applicable design documents. The

test plans and/or procedures for tests performed by AREVA NP Inc. are prepared by the responsible technical manager and those for tests at suppliers are prepared by the supplier and approved by the responsible technical manager as defined in Section 6 of this QAP.

These plans or procedures provide instructions for performing the test(s) and include provisions for ensuring that prerequisites for the given are complied with, hold and witness points are included, testing methods are provided, acceptance and rejection criteria is defined, adequate and calibrated instrumentation is used, testing is performed under suitable environmental conditions by trained personnel, necessary monitoring is performed, and provisions are provided for data acquisition, collection and storage.

Test results are documented, evaluated, and their acceptability determined by the responsible technical manager to ensure that the test requirements have been met.

12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

12.1 Purpose

This section establishes the elements of measuring and test equipment (M&TE) control as required by regulatory requirements.

12.2 General

Measures are established and documented to assure that tools, gages, instruments, and other M&TE used in construction, fabrication, testing, examination, or inspection activities affecting quality are of the range, type, and accuracy to verify conformance to established requirements. These measures are based upon the requirements of MIL-STD 45662A, "Calibration System Requirements," and ANSI/NCSL Z540-1, "Calibration Laboratories and M&TE General Requirements."

12.3 Implementation

12.3.1 Procedures

Calibration procedures are prepared to define the method of calibration, means of identification, recalibration frequency, reference and transfer standards, and recall of subject or damaged M&TE.

Procedures concerning suspect M&TE are also generated to describe removal from service, methods for tagging and segregating, and requirements for recalibration. If the M&TE is found to be out of tolerance, an evaluation of previous inspection or test results shall be performed and documented to determine the acceptability of items inspected and tested using the defective equipment.

12.3.2 Control of M&TE

M&TE is controlled through an identification system traceable to calibration records. Calibration records indicate that last calibration date and the due date. The calibration due date is displayed on or attached to each piece of M&TE or on records traceable to

each item. These calibration requirements do not imply a need for special calibration and control measures of rulers, tape measures, levels, and other devices where commercial accuracy is adequate. These devices shall be visually inspected to assure that damage or deterioration has not impaired their accuracy.

Reference standards are either marked with calibration labels to indicate the next due date for calibration, or the calibration information is contained in records traceable to the reference standard.

User organizations shall be responsible for assuring that M&TE used in activities affecting quality are properly controlled and calibrated to maintain accuracy within necessary limits. User organizations shall also assure that proper procedures are followed for gages, measuring devices, and inspection fixtures used to verify and certify item conformance with specified requirements. Production tooling or fixtures used as an acceptance inspection method are also subject to the M&TE control program.

12.3.3 *M&TE Suppliers and M&TE Calibration Services*

Suppliers of M&TE and calibration services for M&TE and reference standards are required by the procurement documents to have an effective system for the calibration of M&TE. Suppliers of calibration services used to calibrate M&TE or reference standards are audited and approved by AREVA NP Inc. QA as described in Sections 7 and 18 of this QAP. State and federal agencies such as the National Institute of Standards and Technology (NIST) are exempted from this requirement. Other methods, such as NAVLAP and A2LA, may be used to approve M&TE suppliers provided that conditions required by the Nuclear Regulatory Commission (NRC) are satisfied.

Alternatively, the acceptability of calibration services performed by an unaudited supplier may be confirmed/verified by performing surveillance while the item is being calibrated. The supplier must show traceability to NIST or to a nationally recognized standard when no NIST standard exists. If the supplier finds the item to be within calibration, then the item is acceptable for use. The calibration is documented by

AREVA NP Inc. QA/QC; the supplier does not need to be audited by AREVA NP Inc.

QA.

12.3.4 *Customer Furnished M&TE*

Customer furnished M&TE may be used by AREVA NP Inc. in performing measurements/tests provided that the customer provides written authorization and supplies a copy of the calibration certification.

13.0 HANDLING, STORAGE, AND SHIPPING

13.1 *Purpose*

This section describes the methods for handling, storing, and shipping safety related items.

13.2 *General*

Operations concerning special handling, storage, cleaning, packaging, and shipping requirements shall be in accordance with AREVA NP Inc. procedures. These procedures shall contain accepted practices to prevent damage or deterioration of components. Special protective environments, such as inert gas atmospheres, specific moisture content levels, and temperature levels are specified and provided, as necessary. Customer and supplier specified requirements shall be used as a basis for AREVA NP Inc. handling, storage, and protection requirements.

13.3 *Implementation*

13.3.1 *Cleanliness*

Cleaning operations at AREVA NP Inc. divisions are performed by appropriately trained personnel in accordance with written procedures which incorporate the requirements of applicable standards, drawings, or specifications. Measures are taken during fabrication and storage to preclude damage, loss, or deterioration.

Final assembly operations are performed in areas which permit the attainment of the final cleanliness level specified in the applicable drawings and specifications. After completing final inspections, the cleanliness of accepted items is maintained to ensure compliance with the applicable cleanliness requirements.

13.3.2 Storage

Acceptable items are tagged and placed, as necessary, in designated storage areas. Items in long term storage areas are periodically inspected for damage to the item or its packaging.

13.3.3 Packaging

Packaging of acceptable items for shipment from AREVA NP Inc. divisions is performed as required by the applicable drawings or specifications.

13.3.4 Handling

Major items are handled in such a manner as to preclude damage. Handling devices used for lifting or transporting major items must undergo periodic load test as prescribed in written procedures.

13.3.5 Shipping

Items shall be transported according to the proper protection classification and packaging methods.

14.0 INSPECTION, TEST, AND OPERATING STATUS

14.1 *Purpose*

This section defines methods ensuring that measures are taken to indicate the inspection, test, and operation status of safety related items.

14.2 *General*

Systems are established and implemented via AREVA NP Inc. procedures for the control of inspection, test, and operating status of items. The systems contain provisions for:

- Documenting and identifying items that have satisfactorily passed required inspections and tests.
- Precluding inadvertent bypassing of inspection and test requirements.
- Providing inspection and test status indicators such as stamps, tags, labels, route cards, and shop travelers.
- Controlling the application and removal of status indicators and identifying the source of authority required for such actions.
- Controlling and documenting the bypassing of required inspections, tests, or other critical operations when dictated by circumstances.
- Ensuring that personnel concerned with production or cost control will not exercise control over the application or removal of status indicators.

14.3 *Implementation*

14.3.1 *Status Indication by Travelers or Manufacturing/Field Procedures*

The status of fabrication, assembly, inspection, test or field operations for items processed by AREVA NP Inc. at its facilities or in the field are indicated on travelers or in manufacturing/field procedures.

Inspection sign-offs on travelers, fabrication routing documents, or manufacturing/field procedures are as described in Section 10 of this QAP. Inspectors also verify that

operations subsequent to the last inspection operation have been properly initialed and completed.

Completed travelers, fabrication routing documents, or manufacturing/field procedures are reviewed by QA as specified in Section 10 of this QAP.

14.3.2 *Status Indication by Tags*

Tags are attached, as described in AREVA NP Inc. instructions and procedures, by the inspector(s) to items or their containers indicating successful completion of receipt or final inspection. Items not in compliance and rejected items are tagged and segregated from conforming items. Items found to be acceptable during in-process inspection are noted on the traveler, fabrication routing document, or manufacturing/field procedure and tags are not used.

15.0 CONTROL OF NONCONFORMING ITEMS

15.1 Purpose

This section applies to safety related materials and items, and their supporting documentation. It addresses characteristics, documentation, or procedure deficiencies that render an item or activity unacceptable or indeterminate.

15.2 General

Measures are established to control documentation and items that do not conform to specified requirements. Specific requirements include procedures for controlling the identification, documentation, and segregation of nonconforming items pending notification of affected individuals and/or organizations, review of the nonconformance, and approval of disposition. Internal and external Condition Report positions are submitted for customer approval as required by the contract or purchase order.

15.3 Internal Nonconformances

Certain nonconformances may be generated with AREVA NP Inc. as a result of inspections, internal audits, customer audits, customer problems/complaints, or other deficiencies. These nonconformances are documented and resolved through the use of the following reports:

15.3.1 Nonconformances

Nonconforming items detected during receiving, in-process, or final inspections at AREVA NP Inc. facilities or in the field are tagged as described in Section 14 and documented on a Condition Report (CR).

Condition Reports are submitted as necessary to the responsible engineering organization for review and determination of cause, corrective action, and disposition. Disposition and subsequent actions may be rework, repair, use-as-is, or scrap and replace. Definitions of rework, repair, and scrap are contained in Appendix C.

Rework/repair activities are performed in accordance with approved methods or procedures and re-inspected to the original criteria or to criteria established for the acceptability of rework or repair.

Condition Reports are issued also when a significant condition adverse to quality exists, a quality deficiency is recurring and/or where other means of obtaining corrective action have proved ineffective in resolving a problem; these Condition Reports are considered a Significance Level 1 or 2. Level 1 and 2 Conditions Reports are used to emphasize that the cause of a problem be determined and action taken to preclude its recurrence.

15.3.2 *Safety Concerns*

Nonconformances which may constitute potential significant deficiencies or substantial safety hazards are processed as preliminary safety concerns in accordance with written procedures. Safety concerns are processed to the requirements of 10 CFR 21.

15.3.3 *Audit Findings (AF)*

Internal and external audits may result in audit findings as described in Section 18 of this QAP.

15.4 *Supplier Nonconformances*

Supplier nonconformances enter the AREVA NP Inc. system in one of three ways:

- By the submittal of a written request by a supplier for approval of nonconformances that violate requirements of AREVA NP Inc. procurement documents or AREVA NP Inc. approved supplier drawings, specifications, or procedures and the supplier wishes to repair the nonconforming item or use-as-is. This request takes the form of a Contract Variation Approval Request (CVAR) as described in Section 15.4 of this QAP.
- By audit findings initiated by QA to identify nonconformances found during supplier audits as described in Section 18 of this QAP.

- By Condition Reports issued by quality representatives to document nonconformances detected during source inspection or surveillance as described in Section 7 of this QAP.

15.5 *Contract Variation Approval Request (CVAR)*

CVAR's may result from supplier nonconformances as discussed in Section 15.3 of this QAP. The CVAR (or equivalent supplier document) is prepared by the supplier and includes the determination of cause, corrective action, and recommended disposition, i.e., repair or use-as-is. Repair dispositions must be accompanied with a repair procedure or indicate the repair will be performed in accordance with an AREVA NP Inc. approved repair procedure. The supplier transmits the CVAR to AREVA NP Inc. for evaluation by the responsible technical manager.

CVAR's which affect interface, function, or interchangeability are evaluated by the responsible engineer. CVAR's which affect these parameters are also evaluated by the project management function for possible notification to the customer or submittal for acceptance as prescribed in the customer's contract.

AREVA NP Inc.'s disposition of a CVAR may be either approved or disapproved. Approval of use-as-is dispositions must be justified by the responsible technical manager either by attaching to or referencing on the CVAR such justification. Disapproved CVAR's may indicate the reasons for disapproval or alternate dispositions.

Upon receipt of the dispositioned CVAR, the supplier will initiate appropriate actions consistent with the AREVA NP Inc. disposition.

The dispositioned CVAR is entered into the Records Management System and returned to the supplier.

16.0 CORRECTIVE ACTION

16.1 Purpose

This section defines the elements of the corrective action generation, implementation and verification system for safety related items or services.

16.2 General

Procedures are established by AREVA NP Inc. to ensure prompt identification and correction of conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances during the design, procurement, fabrication, inspection, and testing of items. These procedures require the cognizant function assure that:

Nonconformances and failures are evaluated to determine the need for corrective action, and that such action is taken as necessary.

The cause of the nonconformance or failure is determined and action is taken to preclude recurrence.

Appropriate levels of management are informed of significant conditions adverse to quality, the cause of the conditions, the corrective action taken, and the preventive action taken to preclude recurrence.

Follow-up is conducted to verify proper implementation of both corrective and preventive actions and to close out the corrective action documentation.

16.3 Implementation

Condition Reports are generated/received by AREVA NP Inc. as described in Section 15 of this QAP. They are analyzed by QA to determine whether more extensive actions are required in addition to any corrective action applied to the specific nonconformance. The stated cause of the nonconformance is reviewed by QA to determine the following:

- Whether there have been previous occurrences,

- Whether the root cause may result in subsequent nonconformances if not corrected,
- Whether the cause indicates a defect or a correctable trend in design, fabrication, processing, personnel training, etc.
- Potential problems identified by QA's review are reported to the responsible organization for further corrective action. Subsequent review and follow-up is accomplished by QA to determine the effectiveness of the corrective action taken.

17.0 QUALITY ASSURANCE RECORDS

17.1 Purpose

This section defines the requirements for the collection, retention and retrievability of QA records for safety related items or services.

17.2 General

AREVA NP Inc. procedures are established to provide requirements and responsibilities for record generation, identification, transmittal, retention, and maintenance. QA records are filed and maintained for the durations defined in the Corporate Records Management Manual 1E1. This records program meets or exceeds the requirements of ANSI N45.2.9 (Reg. Guide 1.88). QA records include the following documents:

- Procurement Documents
- Procedures and Instructions
- Drawings
- Specifications
- Design Analysis Calculations and Review
- Contract Agreements
- Audit Records (internal and external)
- Personnel Qualifications
- Inspection and Test Records
- Nonconformance Records
- Corrective Action Records
- Receiving Inspection Records

17.3 Implementation

Records Management maintains and controls QA records generated by AREVA NP Inc. and/or submitted by suppliers/customers. Records Management procedures provide record identification and control, and address protection and retrieval of records to prevent deterioration, damage, or loss. Entities not located near the home office will

submit QA records to Records Management on a frequency determined in appropriate procedures.

At the completion of a contract, the QA records for the contract will be stored by AREVA NP Inc. and/or provided to the customer as specified in the contractual agreements.

18.0 AUDITS

18.1 Purpose

This section describes the elements of quality auditing.

18.2 General

The AREVA NP Inc. audits program is defined by written procedures providing program definition as well as direction and guidance for audits and the supporting activities concerned. These procedures establish the scheduling, preparation, execution, reporting, and follow-up methods to be used in implementing the audits program. The audits conducted under the QA audits program include:

- An objective evaluation of quality related practices, procedures, and instructions
- The effectiveness of implementation
- Conformance with policies and procedures
- Indoctrination and training programs
- Interfaces within AREVA NP Inc. and with the customer
- Corrective action, calibration, and nonconformance control systems
- Design Control, calculations and associated computer codes
- Review of documents and records

Audits are regularly scheduled based upon the status and safety related importance of the activities being performed and are initiated early enough to assure effective QA during design, procurement, fabrication, inspection, and testing. Audits are performed in accordance with pre-established written procedures or checklists and conducted by personnel having no direct responsibilities in the areas being audited. Personnel who perform audits are qualified to the requirements of ASME NQA-1 and ANSI N45.2.23. Certification files are maintained in the AREVA NP Inc. QA Department and Records Management.

18.3 *Internal Audits*

Internal audits of AREVA NP Inc. activities are used to evaluate compliance with, and the effectiveness of, the QAP. These audits are scheduled to cover the quality program elements once each calendar.

Audit results of AREVA NP Inc. activities are provided to the managers of the organizations audited, the President and CEO of AREVA NP Inc., and the Vice President, U.S. Region Quality for review, analysis, and direction. Managers of the audited organizations investigate audit findings, determine cause, schedule corrective action, including measures to prevent recurrence, and provide written responses to the findings of the audit. Follow-up is conducted by QA to ensure implementation of appropriate corrective and preventive actions. When necessary, follow-up will include an audit of deficient areas.

18.4 *Supplier Audits*

Suppliers of safety related items and services are evaluated or audited by AREVA NP Inc. QA to determine compliance with procurement document requirements and the effectiveness of their quality programs.

Audit frequency is based upon written criteria that incorporate the safety classification, importance, complexity, and quality requirements of the items or services being procured. Reports of findings from these audits are provided to the audited supplier, and responses (which address cause and corrective action) to the findings are required. The findings are closed when the supplier can demonstrate effective corrective actions in the areas of the findings. The audit reports, supplier responses, and their evaluation provide input for the maintenance of the ASL (refer to Section 7 of this QAP).

Appendix A**QA Program Implementing Policies, Procedures, and Instructions**

<u>Document Number</u>	<u>Document Title</u>	<u>Applicable QA Document Section</u>
Policy 0401	Reporting of Defects and Noncompliances Concerning Substantial Safety Hazards	15, 4, 7
Policy 0402	Quality Assurance Program	1,2
Policy 0501	Policies, Procedures, Working Instructions and Operating Instructions	5, 6
0199-01	Framatome ANP, Inc. Organization Charts	1
0303-09	Customer Order Entry Document	2, 3
0310-03	Authorization of Contract Work	2, 3
0310-05	Product Numbering	8
0310-38	Historical Documents List (HDL)	6, 17
0313-01	Nuclear parts Center Contract Administration	4, 6, 7
0402-01	Preparing and Processing FANP Inc. Calculations	3, 6
0402-02	Peer Review	3, 6
0402-03	Preparing and Processing Framatome ANP, Inc. Non-Safety Calculations	3, 6
0403-11	Technical Document Signatures	3, 6
0405-01	Design Control Process	3,6
0405-03	Plant Technical Requirements Document	3, 6
0405-04	System Design Requirements Document	3, 6
0405-05	Contract Variation Approval Requests	15, 16
0405-06	Design Change Control	3, 6
0405-07	SSC Design Bases	3, 6
0405-08	SSC Safety Classification	3, 6
0405-09	System Description Document	3, 6
0405-10	Design Interface Control	3, 6
0405-11	General Design Text Documents	3, 6
0405-12	General Design Drawings	3, 5, 6
0405-13	Project Design Guideline and Directives	2, 3
0405-22	Design Review Boards	3
0405-30	Design Verification Testing	3-6, 11

<u>Document Number</u>	<u>Document Title</u>	<u>Applicable QA Document Section</u>
0405-37	Professional Engineer Certification Maintenance	3
0408-08	Material Review and Consultation	3
0411-08	Revising and Processing Product Documentation Prepared by Suppliers	3, 6
0412-55	Design Specifications/Requirements	3-6, 11, 13
0412-57	Preparing FANP Detail Design Documents	3-6, 11, 13
0412-58	Processing FANP Prepared Detail Design Documents	3-6, 11, 13
0412-59	Engineering Information Record/Technical Data Record	3, 5, 6, 11
0412-63	FANP Technical Document Format	3, 5, 6
0412-66	Release of Product Documentation	3-6
0412-67	Processing Technical Documents from Suppliers and Customers	3-7
0412-70	Qualification Plan Preparation Procedure	3, 6, 11
0412-76	Dedication (10 CFR Part 21)	4, 7, 15
0413-05	Owners Agent (FANP) Review of Design (Stress) Reports for ASME Code Components	3, 6
0414-12	Preparation and Processing of Licensing Documents	3, 6
0418-01	Preparation and Control of Design Control Documents	3, 6
0503-07	Field Change Authorization (FCA)	3, 6
0503-19	Transmittal of Deliverable Safety Related Product Documentation to Customers	3, 6
0503-21	Transmittal of Deliverable Non-safety Related Documentation to Customers	Addendum A
0504-12	Preparing and Processing Customer Service Bulletins	16
0504-14	FANP Prepared Site Support Documents	3, 6, 11
0504-15	Preparing and Processing Operating Guidelines	3, 6
0504-16	Nuclear Products Advisory Bulletins (NPAB)	16
0902-06	Software Certification	3, 6
0902-10	Software Development	3, 6
0902-12	Certification File Access Control System for Computers Using a UNIX-Based Operating	3

<u>Document Number</u>	<u>Document Title</u>	<u>Applicable QA Document Section</u>
	System	
0902-13	Production System Software and Hardware changes	3
0902-15	Software Release Process	3
0902-18	Internally Developed Software 7 Software obtained from Unapproved Suppliers	3, 4
0902-19	Engineering Software Error Reporting and Evaluation	3
0902-20	Engineering Software Obtained from Approved Suppliers	3, 4, 18
0902-21	Use of Engineering Computer Software on the Computer Software Index	3
0903-03	Development and Control of Software Documentation	3, 6
1005-01	Inspection and Material Control's Operation	7, 13
1117-01	Business Development Document	1, 2
1212-12	Purchasing Documents	4
1303-07	Control of Administrative Procedures, Forms, and Working Instructions	5, 6
1303-17	Operating Instructions	5, 6
1303-28	Projects manual and Project management Guidelines	5, 6
0303-29	Development and Control of Engineering Guidelines	5, 6
1702-22	Employee Training	2
1702-25	Assignment of Nuclear Safety Classification to Products and Services	2
1703-01	Restraint Order	15, 16
1705-03	Quality Assurance Data Packages and Certificates of Conformance	7
1705-16	QA Review of Procurement Packages	4
1707-01	Evaluation and Reporting of Safety Significant Issues	15, 16
1708-08	Quality Control Surveillance	7
1710-01	Appointment of Level III NDE Examiner	9
1710-02	Appointment of Level III Quality Control Inspection	7, 10

<u>Document Number</u>	<u>Document Title</u>	<u>Applicable QA Document Section</u>
	and Surveillance (QCI&S) Examiner	
1710-03	Process management	5
1717-06	Corrective Action program (WebCAP)	15, 16
1719-21	Quality Assurance Audits of Internal Activities	18
1719-22	Quality Assurance Audits of FANP Suppliers	7, 18
1719-23	Qualification of Quality Assurance Audit Personnel	2, 18
1719-32	Self-Assessment	15, 16
1721-01	QE Surveillance of Engineering Activities	2, 3
WI-01	Quality Control Activities	7
WI-02	Quality Trend Analysis	15, 16
WI-11	FANP Equipment Calibration	12
56-5015885	Framatome ANP, Inc. Quality Management Manual (Higher tiered document)	All
56-1151178	Framatome ANP, Inc. ASME Section III and XI Quality Assurance Manual (higher tiered document)	All
1E1	Records Management Program Manual	17
55-WELD Document	Framatome ANP, Inc. Welding Document	9
105- 5017274	Projects Manual	2, 3
EG-01	Plants U.S. Training Program	1
EG-02	Customer Feedback Survey Process	16
EG-03	Customer Feedback Evaluation Process	16
EG-04	External Communications	3
EG-05	Tracking Customer Deliverables	3
EG-06	Engineering Task Plans	3
56-5058967	U.S. EPR Design Certification Project Quality Assurance Plan	All
54-ISI-24	Administrative Procedure for the Written Practice of Personnel in Eddy Current Examination	9
54-ISI-30	Written Practice for the Qualification and Certification of NDE Personnel	9

APPENDIX B**Regulatory Commitments: Compliance with Applicable Regulatory Guides**

- I. AREVA NP Inc.'s position with respect to the NRC Regulatory Guides pertaining to Quality Assurance as they apply to the AREVA NP Inc. scope of supply is as follows:
 - a. Regulatory Guide 1.26, Quality Guide Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants, Revision 3 – AREVA NP Inc. complies with the provisions of this Guide. AREVA NP Inc. generally classifies nuclear core components as safety related.
 - b. Regulatory Guide 1.28, Quality Assurance Program Requirements (Design & Construction, Revision 2 – this Guide endorses ANSI N45.2-1977, "Quality Assurance Program Requirements for Nuclear Power Plants," as an appropriate basis for compliance with Appendix B of 10 CFR 50, Appendix B. AREVA NP Inc. complies with the provisions of this Guide.
 - c. Regulatory Guide 1.28, Quality Assurance Program Requirements (Design & Construction), Revision 3 – this Guide endorses ANSI/ASME NQA-1 as an appropriate basis for compliance with 10 CFR 50, Appendix B. AREVA NP Inc. complies with the provisions of this Guide with the following clarifications:
 - i. Regulatory Guide 1.28, Section C.1: Qualification of Inspection and Test Personnel – AREVA NP Inc. follows the regulatory position provided in Regulatory Guide 1.28, Section C.1 with the clarifications supplied for Regulatory Guide 1.58 in this Appendix.
 - ii. Regulatory Guide 1.28, Section C. 2: Quality Assurance Records – AREVA NP Inc. follows the regulatory position provided in Regulatory Guide 1.28, Section C.2 with the clarification supplied for Regulatory Guide 1.88 in this Appendix.

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- iii. Regulatory Guide 1.28, Section C.3: Audits – AREVA NP Inc.
follows the regulatory position provided in Regulatory Guide 1.28, Section C.3 with the clarifications supplied in Regulatory Guide 1.144 in this Appendix.
 - iv. ANSI/ASME NQA-1, Section 4.0, Design Verification – the clarifications noted for Regulatory Guide 1.64 in this Appendix, regarding the use of managers or supervisors as independent reviewers, applies.
 - d. Regulatory Guide 1.29, Seismic Design Classification, Revision 3 – AREVA NP Inc. complies with the provisions of this Guide.
 - e. Regulatory Guide 1.30, Quality Assurance Requirements for Installation, Inspection, and Testing of Instrumentation and Electrical Equipment, Revision 0 – this Guide endorses ANSI N.45.2.4 – 1972 (IEEE Standard 336 – 1971), “Installation, Inspection, and Testing Requirements of Instrumentation and Electrical Equipment During the Construction of Nuclear Power Generating Stations,” as an adequate basis for compliance with 10 CFR 50, Appendix B. This standard applies to on-site installation, inspection, and testing of safety related instrumentation and electrical equipment. This function is normally the responsibility of the plant owner, and this standard is reflected in the owner’s procedures applicable to the work. AREVA NP Inc. provides appropriate drawings, instructions, and consultation to aid the owner in compliance with this Guide.
 - f. Regulatory Guide 1.37, Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants, Revision 0 –this Guide endorses ANSI N45.2.1 – 1973, “Cleaning of Fluid Systems and Associated Components During Construction Phase of Nuclear Power Plants,” as an adequate basis for compliance with 10 CFR 50, Appendix B for on-site cleaning. This function is normally the responsibility of the plant owner, and this standard is reflected in the owner’s procedures applicable to this work. AREVA NP Inc. specifies cleanliness requirements during the fabrication and

shipment of safety related components to ensure that these components arrive at the site in satisfactory condition. These cleanliness requirements include consideration of chemical compounds that are known to contribute to intergranular cracking or stress corrosion cracking of stainless steel or nickel alloys. In addition to ASTM A-262, AREVA NP Inc. A-393 (previously ASTM A-708) to be a valid test for the detection of sensitization of austenitic stainless steel.

- g. Regulatory Guide 1.58*, Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel, Revision 1 – this Guide endorses ANSI N45.2.6 – 1978, “Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants,” for use in compliance with 10 CFR 50, Appendix B. Although ANSI N.45.2.6 – 1978 is applicable only to the construction phase of a nuclear power plant, this Regulatory Guide states that the provisions of ANSI N45.2.6 – 1978 are “generally applicable... during fabrication prior to receipt of items at the construction site.” AREVA NP Inc. satisfies this Guide through ensuring that off-site inspection, examination, or testing is performed and/or monitored by AREVA NP Inc. QA representatives qualified to meet the applicable requirements of ANSI N45.2.6. AREVA NP Inc. ensures that nondestructive examinations are performed by personnel certified to SNT-TC-1A in compliance with Section 2 of this Guide, and those other inspections, examinations, or testing is performed by personnel qualified in accordance with applicable requirements.
- h. Regulatory Guide 1.64*, Quality Assurance Requirements for the Design of Nuclear Power Plants, Revision 2 – this Guide endorses ANSI N45.2.11 – 1974, “Quality Assurance Requirements for the Design of Nuclear Power Plants,” as acceptable for compliance with 10 CFR 50, Appendix B with noted amplifications.

The following AREVA NP Inc. clarification is identified with respect to Section C.2 of this Guide regarding the use of managers or supervisors as independent reviewers:

All design documents are independently reviewed for completeness and technical accuracy. The reviewer may be:

1. Any competent individual other than the preparer of the document as determined by the cognizant manager.
 2. The preparer's immediate supervisor provided the supervisor did not prescribe or limit the techniques or inputs used in the design document. The use of supervisors as reviewers is approved in each instance by the cognizant manager.
 3. The preparer's manager provided the manager is the only technically qualified individual available. In this case, the need is documented and approved by the next higher level of management on each occasion.
- i. Regulatory Guide 1.74, Quality Assurance Terms and Definitions, Revision 0 – this Guide endorses ANSI N45.2.10 – 1973, "Quality Assurance Terms and Definitions," for use in describing and implementing quality assurance programs. AREVA NP Inc. uses the appropriate definitions of ANSI N45.2.10 – 1973 and supplements these terms with others considered necessary to provide a common interpretation of the AREVA NP Inc. QAP. These provisions satisfy this Regulatory Guide.
 - j. Regulatory Guide 1.88*, Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records, Revision 2 – this Guide endorses ANSI N45.2.9 – 1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants," for use in compliance with criterion XVII of 10 CFR 50, Appendix B. The AREVA NP Inc. Records Management Manual complies with this Regulatory Guide, effective June 16, 1975.

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- k. Regulatory Guide 1.123*, Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants, Revision 1 - this Guide endorses ANSI N45.2.13 – 1976, “Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants,” AREVA NP Inc. complies with the provisions of this Guide.
 - l. Regulatory Guide 1.144*, Auditing of Quality Assurance Programs for Nuclear Power Plants, Revision 1 – this Guide endorses ANSI N45.2.12-1977, “Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants.” The standard establishes requirements for conducting audits of quality assurance programs both internally and externally (suppliers). AREVA NP Inc. satisfies the requirement for internal audits by auditing each applicable element of its Quality Assurance Program at least once during a calendar year. External (Supplier) audits are regularly scheduled on the basis of supplier performance and importance to safety of the activities being performed. Audit frequency of suppliers, normally between one and three years, may be altered (increased or decreased) based on an annual evaluation of the supplier’s quality assurance program, history of performance, and implementation of that program. This evaluation considers the complexity of the system or component concerned and the degree of quality and process control required by the manufacturing effort.
 - m. Regulatory Guide 1.146*, Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants, Revision 0 – this Guide endorses N45.2.23 – 1978, “Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants.” AREVA NP Inc. complies with the provisions of this Guide.
- II. AREVA NP Inc.’s review and analysis of the following QA related regulatory guides indicate that they are applicable to the AREVA NP Inc. scope of supply if invoked by a customer.

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- a. Regulatory Guide 1.8, Personnel Selection and Training, Revision 2 – this Guide endorses ANSI N18.1 – 1971, “Selection and Training of Nuclear Power Plant Personnel.”
 - b. Regulatory Guide 1.39, Housekeeping Requirements for Water-Cooled Nuclear Power Plants, Revision 0 – this guide endorses ANSI N45.2.3-1973, “Housekeeping During Construction Phase of Nuclear Power Plants.”
- III. AREVA NP Inc.’s review and analysis of the following QA related regulatory guides indicate that they are not applicable to the AREVA NP Inc. scope of supply.
- a. Regulatory Guide 1.94, Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Steel During the Construction Phase of Nuclear Power Plants, Revision 1

NOTE: The asterisk (*) indicates regulatory guides which were withdrawn by the NRC. They are included in this Document because selected utilities were licensed to these requirements.

APPENDIX C

Definitions

Acceptance Criteria

Specified limits placed on characteristics of an item, process, or service defined in codes, standards, or other requirements documents and used to determine whether an item, process, or service is satisfactory.

Annual

Defined as occurring within a calendar year, performance of duties shall not be less than 10 months or more than 14 months. Individual procedures may be more restrictive.

Approval

The act of endorsing or assigning positive authorization, or both.

As-Built Data

Documented data that describes the condition actually in an item.

Audit

A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

Certificate of Conformance (COC)

A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services comply with specified requirements.

Characteristic

Any property or attribute of an item, process, or service that is distinct, describable, and measurable.

Cleanliness

A state of being clean in accordance with predetermined standards, and usually implies freedom from dirt, dust, rust, oil, or other contaminating impurities.

Critical Characteristic

Those characteristics that are essential for performance of an item's safety related function(s). Typical critical characteristics are attributes such as form, fit, dimensions, material including physical, mechanical, and chemical properties, electrical, thermal, or other functional parameters.

Commercial Grade Item

When applied to nuclear power plants licensed pursuant to 10 CFR 50, commercial grade item means a structure, system or component, or part thereof that affects its safety function, that was not designed and manufactured as a basic component. Commercial grade items do not include items where the design and manufacturing process require in-process require in-process inspections and verifications to ensure that defects or failures to comply are identified and corrected, i.e., one or more critical characteristics of the item cannot be verified.

Computer Program (Code Software)

A sequence of instructions suitable for processing by a computer. Processing may include the use of an assembler, a compiler, and interpreter, or a translator to prepare the program for execution as well as to execute it.

Condition Adverse to Quality

An all inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances. A significant condition adverse to quality is one which, if uncorrected, could have a serious effect on safety and operability.

Corrective Action

Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

Document

Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results.

Document Master Lists

Lists of documents to which an individual may refer to determine the current revisions of documents applicable to an activity, project, or contract. Includes such lists as: applicable documents list, contract documents list, historical documents list, procedure document table of contents or plan list, etc.

Documentation

A compilation of those documents concerning a specific function, activity or project.

Examination

An element of inspection consisting of investigation of materials, components, supplies, or services to determine conformance to those specified requirements which can be determined by such investigations. Examination is usually nondestructive and includes visual, simple physical manipulation, gauging, measurement and written documentation.

Handling

An act of physically moving and/or lifting items by hand or mechanical means.

Hold

An action by a quality organization wherein an item is withheld and segregated from further processing until a disposition has been defined and imposed.

Hold Point

A point at which witnessing of examinations is required by the quality organization or customer and beyond which point work shall not proceed without consent of the quality organization or customer representative respectively.

Inspection

Examination or measurement to verify whether an item or activity conforms to specified requirements.

Inspection and Test Records

Documents that furnish evidence of the completion of inspection and tests. They contain the following, where applicable: a description of type of observation, the date and results of the inspection or tests, inspector or data recorder identification, evidence of acceptability of the item inspected or tested, and action taken to resolve any nonconformances noted.

Inspector

A qualified individual whose duties include verification of quality related activities and who is independent of the activity being verified.

Item

An all-inclusive term used in place of any of the following: appurtenance, assembly, component, equipment, material, module, part, structure, sub-assembly, sub-system, system, or unit.

Measuring & Test Equipment

Devices or systems used to calibrate, measure, gauge, test, or inspect in order to control or to acquire data to verify conformance to specified requirements.

Nonconformance

A deficiency in characteristic, documentation, performance, or procedure which renders the quality of an item unacceptable or indeterminate.

Non-Destructive Examination

A method of detecting indications of discrepancies without destroying the usefulness of the item or material.

Non-Safety Related

Any item or service that has quality requirements greater than commercial, but less than safety related as defined by specific customer procurements.

Objective Evidence

Any statement of fact, information, or record, either quantitative or qualitative pertaining to the quality of an item or service which can be verified by records of tests, examinations, inspections, measurements, or observations.

Out Of Commission

An item of equipment that is not able to perform its intended function.

Procedure

A document which specifies instructions for performance of a particular task. It includes methods to be employed, description of equipment or material to be used, sequence of operations, etc.

Process

One or more operations, methods, functions, procedures, or other specified actions which result in the desired item or result.

Purchasing Authorization

A document used to transmit procurement information/documents to purchasing for the purpose of obtaining bids, placing orders and change orders, etc.

Purchasing Document

A contractually binding document identifying and defining the requirements which items or services must meet prior to acceptance. Also includes purchasing authorizations, purchase requisitions, purchase orders, contracts, drawings, specifications, or instructions.

Project Management Function

An individual responsible for technical contract, quality, budget, schedule or delivery of a product or service.

Qualification (Personnel)

The characteristics or abilities of an individual, gained through training and/or experience that enables him to perform specific functions.

Qualified Equipment

Equipment which has been evaluated by sufficient testing to assure performance within specified parameters.

Qualified Party or Individual

A person or organization competent and recognized as knowledgeable to perform certain functions.

Qualified Procedure

A procedure which incorporates all applicable code and standard requirements, manufacturing parameters, and specifications, which has been proven adequate for the intended purpose.

Quality

The properties or characteristics constituting those prerequisites or specifications, codes, standards, industrial practices, other recognized methods and/or acceptance criteria by which an item is judged.

Quality Assurance

All those planned and systematic actions, including quality administration and quality control, which provide adequate confidence that an item will perform satisfactorily in service.

Quality Assurance Plan

The application of a contract which implies a departure from the general requirements of the QA Program may be addressed in a Quality Assurance Plan. It may also reflect additions that a customer invokes in a contract.

Quality Assurance Record

A completed document that furnishes evidence of the quality of items and/or activities affecting quality. Records must be validated by stamps, initials, or signatures of authorized personnel or otherwise authenticated.

Quality Control

Those quality assurance actions which provide a means to control and measure the characteristics of an item or process to established requirements.

Reject

A disposition which may be imposed on a nonconforming item providing for its withdrawal and isolation from further processing pending an evaluation as to repair, rework, use-as-is, or scrap.

Repair

The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though the item still may not conform to the original requirements in every aspect.

Review/Approval

Acceptance indicated by signature/initials and date.

Rework

The process by which a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though the item still may not conform to the original requirements in every aspect.

Safety Related

Safety related items are those nuclear power plant items that must directly function or must provide the capability for other items to function to:

- Assure the integrity of the reactor coolant pressure boundary.
- Provide the capability to shut down the reactor and maintain it in a safe shutdown.
- Provide the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures of 10 CFR 100.

Scrap

A disposition which may be imposed upon a nonconforming item when it has been established that the discrepancy renders the item unfit for its intended use and it is not economically or otherwise feasible to repair or rework it. Scrap may also be excess material or damaged material remaining from fabrication operations which is unsuitable for further use.

Service

The performance of activities such as engineering, inspection, test, nondestructive examination, destructive examination, qualification of personnel, procedures and equipment, audits, and calibration of measuring and test equipment.

Source Inspection or Surveillance

A review, observation or inspection for the purpose of verifying that an action has been accomplished as specified at the location of item procurement or manufacture.

Special Process

A process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

Specification

A concise statement of a set of requirements to be satisfied by a product, material, or process indicating, whenever appropriate, the means by which it may be determined whether the requirements given are satisfied.

Supplier

Any individual or organization who furnishes items or services in accordance with a procurement document. An all inclusive term used in place of any of the following: vendor, seller, contractor, sub-contractor, fabricator, consultant, and their sub-tier levels.

Surveillance

The act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

Testing

An element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to physical, chemical, environmental, or operating conditions.

Traceability

The ability to trace the history, application, or location of an item and like items or activities by means of recorded identification.

Use-As-Is

A disposition permitted for a nonconforming item when it can be established that the item is satisfactory for its intended use.

Verification

The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements.

Waiver

Documented authorization to depart from some specified requirements.

Witness

To observe a performance.

Witness Point

A step in a process for which the quality organization or customer has requested notification. An organization may proceed past a witness point if the quality organization or customer representative is not present at the appointed time.

ADDENDUM A**Non-Safety Related Products and Services****A-0 INTRODUCTION**

This Document Addendum describes the Quality Assurance Plan (QAP) for the non-safety related products and services supplied by AREVA NP Inc. This excludes safety related products and services as listed in Section 1 – 18 of this document and ASME Boiler & Pressure Vessel Code items and activities which are covered by separate QAP documents.

A-1 ORGANIZATION

Same as Document Section 1.

A-2 QUALITY ASSURANCE PROGRAM**A-2.1 Scope**

This QAP for non-safety related products and services takes into account the prerequisites for achieving quality, such as the need for specialized equipment and skills, use of administrative, process, and environmental controls, training and indoctrination of personnel performing activities affecting quality, and the need for verification of quality by inspection and test.

The classification of items and services as non-safety related is made and documented by the responsible technical manager and project management functions. The criteria for determining this classification is contained in an implementing procedure.

Essentially, any item or service that has quality requirements greater than commercial, but less than safety related as defined by specific customer procurements both internal and external is considered to be non-safety related (refer to Appendix C for definitions).

A-2.2 QAP Requirements

This QAP for non-safety related products and services is organized and administered to comply with the Quality Policy in the front of this document. It also allows for quality requirements as may be imposed by contract. This QAP establishes minimum requirements for non-safety related products and services.

At the discretion of the project management function, their products and services may be processed as safety related per Sections 1 – 18 of this document.

A-2.3 QAP Implementation

The policies, procedures, and instructions identified in Appendix A to this Addendum apply.

A-2.4 QAP Assessment

This Addendum is updated as determined by the Vice President, U.S. Region Quality.

A-2.5 QAP Indoctrination and Training

Same as document Section 2.6 except documentation of qualifications for personnel performing inspection, surveillance, and audit activities are not required.

A-3 DESIGN CONTROL

A-3.1 Scope

Design control measures are applied to non-safety related items and services as defined in written procedures and instructions.

AREVA NP Inc. maintains design control only during the performance of contracted work. Control of design configuration prior to and after completion of a contract is the responsibility of the customer.

A-3.2 Design Documents

The cognizant technical manager is responsible for the preparation, review, and approval of design documents for items and services within their respective areas of expertise. Design documents include such documents as specifications, requirements documents, drawings, and analyses. These documents specify technical and quality requirements appropriate to the activities they cover.

Design documents are reviewed for completeness and technical accuracy. The reviewer may be any technically qualified individual other than the preparer of the document.

Spare or replacement items may be designed and procured to the original or equivalent requirements. The requirements may be defined by the original specifications and/or by AREVA NP Inc., the OEM, or the customer. Product specifications and drawings are prepared, reviewed, and approved as stipulated in written procedures.

A-3.3 Design Interfaces

The preparers/reviewers of design documents are responsible to assure the consideration of design interfaces. The project management function coordinates design interfaces with the customer. The customer may assume responsibility for specifying, reviewing for accuracy, and approving physical and functional interface, with existing customer equipment and systems which affect the performance of AREVA NP Inc. work. Alternatively, the customer may choose to contractually delegate this responsibility to AREVA NP Inc. and, accordingly, furnish AREVA NP Inc. with adequate records and documentation from which such interfaces can be defined.

A-3.4 Design Verification

The responsible technical manager and project management functions determine the need for design verification. Verification methods include design analyses (calculations), design review boards, and design verification testing.

A-3.4.1 Design Analyses

Design analyses (calculations) may be used to establish design requirements or to verify a design. Calculations are documented and reviewed for technical accuracy. The reviewer may be any technically qualified individual other than the preparer of the calculation. Computer programs used for design analyses are verified to the extent necessary to assure that they perform their intended functions.

A-3.4.2 Design Review Boards

Same as Document Section 3.5.3.

A-3.4.3 Testing

Testing is used to demonstrate that designs or design features are suitable for their intended applications. The criteria for such testing is determined and documented in written test procedures by the responsible technical manager. Test results are reviewed by the responsible technical manager against this criterion.

A-3.5 Design Changes

Design changes are subject to the same design controls that were applicable to the original design.

A-3.6 Engineering Assistance/Advice and Consultation

Same as Document Section 3.7.

A-4 PROCUREMENT DOCUMENT CONTROL

A-4.1 General

Controls are established by written procedures to assure that procurement documents contain appropriate quality, technical, and manufacturing requirements

A-4.2 Procurement Process

Purchasing Authorizations (PA) are used to identify the technical, quality, and other requirements applicable to commercial items and/or services to be procured with limited quality scope. PA's are prepared, reviewed, and approved as prescribed in procedures. Other commercial items/services may be purchased using purchase requisitions or electronic requisitioning.

The project management function is authorized to procure items and/or services directly from other AREVA NP Inc. organizations using the PA/PO as the contract with these organizations.

Orders placed with all other suppliers, including other AREVA NP Inc. organizations, are processed through Purchasing. Purchasing converts the PA, Purchase requisition (PR), or electronic requisition into a Purchase Order (PO) or Change Order (CO). The PO/CO is then sent to the supplier.

A-4.3 Procurement Document Review

Procurement documents, at the discretion of the project management function, may be reviewed by QA to determine that requirements are correctly stated and that the procurement is properly classified as non-safety related.

A-4.4 Changes to procurement Documents

Changes to procurement documents are processed in the same manner as the original procurement documents.

A-5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

A-5.1 General

All activities affecting quality are prescribed by instructions, procedures, or drawings appropriate to the circumstances and accomplished accordingly. Instructions,

procedures, and drawings include or reference adequate quantitative or qualitative criteria for determining that important activities have been satisfactorily accomplished.

A-5.2 Administrative Policies, Procedures, and Instructions

This QAP is implemented through this Document Addendum, and written administrative policies, procedures, and instructions. These policies, procedures, and instructions are prepared by responsible personnel, reviewed by other organizations to whom they apply, and then reviewed and approved by QA before they are approved and distributed for use.

A-5.3 Drawings and Specifications

Drawings, specifications, and other documents are released for use in engineering, procurement, manufacturing, and field activities as described in Section A-6.

A-5.4 Manufacturing, Inspection, and Test Plans

The responsible technical manager prescribes the applicable drawings, specifications, and procedures to be used in the manufacture, inspection, and test of non-safety related items.

A-6 DOCUMENT CONTROL

A-6.1 General

Design documents (calculations, drawings, specifications), procurement documents, and instructions are prepared, reviewed, approved, and issued in accordance with procedures or instructions.

Established procedures assure technical adequacy of, and inclusion of, appropriate requirements in the above documents by requiring reviews by qualified reviewers prior to their implementation. Changes to these documents are processed in the same manner as the original documents.

A-6.2 Document Control System

Technical documents including design documents (drawings, instructions, test procedures, customer supplied technical documents, etc.) relating to activities affecting quality are maintained, controlled, and issued in a manner to assure the correct and applicable documents are used at the location where the activity is performed.

Documents are maintained, stored, and released by Records Management.

A-7 CONTROL OF PURCHASED ITEMS AND SERVICES

Same as Document Section 7 with the following exceptions:

- The requirements of document Sections 7.1 – 7.3, 7.5, and 7.8 do not apply unless specifically requested by the organization requesting the product or service. It is the responsibility of the requisitioning organization and/or purchasing to assure that non-safety related items and services are procured from reputable suppliers with known capability of providing the items or services being purchased.
- Incoming items received at AREVA NP Inc. for use in non-safety related applications, at a minimum, undergo a visual inspection for shipping damage and verification that the items received were the items ordered. Additional requirements may be imposed by the responsible technical manager or by contract.
- Certificates of Conformance/QA Data Packages are not furnished for non-safety related items or services unless requested by the customer's purchase order.

However, if required by contract, Certificates of Conformance (COC) are prepared by the responsible Unit Manager or designee for items provided by AREVA NP Inc. to customers for their use. These COC's are signed by the responsible Unit Manager or designee prior to shipment of the items.

A-8 IDENTIFICATION AND CONTROL OF ITEMS

The controls specified in document Section 8 can be applied when these controls are identified by the responsible technical manager in appropriate drawings and design documents.

A-9 CONTROL OF PROCESSES

The controls specified in Document Section 9 are invoked by the responsible technical manager in accordance with the contract.

A-10 INSPECTION

Inspections of non-safety related items for acceptability are performed and documented as specified by the responsible technical manager. Inspections may be performed by any competent individual using measuring and test equipment (M&TE) calibrated and controlled in accordance with Section A-12. Any nonconformances found during inspections are processed as described in Section A-15.

A-11 TEST CONTROL

Tests of non-safety related items are performed and documented as specified in written procedures by the responsible engineering function. M&TE used during the performance of tests is calibrated and controlled as specified in Section A-12.

A-12 CONTROL OF MEASURING AND TEST EQUIPMENT

Same as document Section 12. However, the following exceptions may be utilized provided M&TE for non-safety related items is segregated from M&TE for safety related systems.

- M&TE may be calibrated against reference standards having an accuracy at least that of the M&TE being calibrated.
- Suppliers of calibration services for M&TE need not be QA audited and approved suppliers.

A-13 HANDLING, STORAGE, AND SHIPPING

Same as document Section 13 except tagging of stored items is not required.

A-14 INSPECTION, TEST, AND OPERATING STATUS

Inspection, test, and operating status will be recorded on applicable documentation.

Any competent individual may perform the functions of an inspector (see Section A-10).

A-15 CONTROL OF NONCONFORMANCES

Same as document Section 15.

A-16 CORRECTIVE ACTION

Same as document Section 16

A-17 QUALITY ASSURANCE RECORDS**A-17.1 General**

Procedures are established by AREVA NP Inc. to collect and retain records which provide evidence that design, procurement, fabrication, inspection, testing and field activities are in accordance with quality requirements. Requirements and responsibilities for record generation, identification, accumulation, transmittal, retention, and maintenance are contained in these procedures.

A-18 AUDITS

Audits of a specific project will be done as required by contract or as designated by the Vice President U.S. Region Quality. The following exceptions apply to audits:

- Certification of auditors to audit non-safety related work is not a requirement; however, audits may be performed with the approval of the Manager, Quality Audits and Programs.
- Suppliers for non-safety related applications need not be audited.

Non-safety related suppliers who are audited and certified by other quality organizations
is considered evidence of a quality system, i.e., ISO, DOE, DOD, and ASME.