REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8409060257 DOC.DATE: 84/08/30 NOTARIZED: YES DOCKET #
FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
AUTH.NAME AUTHOR AFFILIATION
VAN BRUNT,E.E. Arizona Public Service Co.
RECIP.NAME RECIPIENT AFFILIATION
KNIGHTON,G. Licensing Branch 3

SUBJECT: Forwards proposed changes to FSAR Chapter 17.Chapter updated to reflect recent organizational changes & info requested by NRC.

DISTRIBUTION CODE: B001D COPIES RECEIVED:LTR 1 ENCL 40 SIZE: 78
TITLE: Licensing Submittal: PSAR/FSAR Amdts & Related Correspondence

NOTES:Standardized plant. 05000528
Standardized plant. 05000529
Standardized plant. 05000530

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	NRR/DL/ADL		1	0	NRR LB3 BC		1	0
	NRR LB3 LA		1	0	LICITRA,E	01	1	1
INTERNAL:	ADM/LFMB		1	0	ELD/HDS3		1	0
	IE FILE		1	1	IE/DEPER/EPB	36	3	3
	IE/DEPER/IRB	35	1	1	IE/DQASIP/QAB	21	1	1
	NRR/DE/AEAB		1	0	NRR/DE/CEB	11	1	1
	NRR/DE/EHEB		1	1	NRR/DE/EQB	13	2	2
	NRR/DE/GB	28	2	2	NRR/DE/MEB	18	1	1
	NRR/DE/MTEB	17	1	1	NRR/DE/SAB	24	1	1
	NRR/DE/SGEB	25	1	1	NRR/DHFS/HFEB	40	1	1
	NRR/DHFS/LQB	32	1	1	NRR/DHFS/PSRB		1	1
	NRR/DL/SSPB		1	0	NRR/DSI/AEB	26	1	1
	NRR/DSI/ASB		1	1	NRR/DSI/CPB	10	1	1
	NRR/DSI/CSB	09	1	1	NRR/DSI/ICSB	16	1	1
	NRR/DSI/METB	12	1	1	NRR/DSI/PSB	19	1	1
	NRR/DSI/RAB	22	1	1	NRR/DSI/RSB	23	1	1
	REG FILE	04	1	1	RGN5		3	3
	RM/DDAMI/MIB		1	0				
EXTERNAL:	ACRS	41	6	6	BNL(AMDTS ONLY)		1	1
	DMB/DSS (AMDTS)		1	1	FEMA-REP DIV	39	1	1
	LPDR	03	1	1	NRC PDR	02	1	1
	NSIC	05	1	1	NTIS		1	1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 54 ENCL 46

Arizona Public Service Company

August 30, 1984
ANPP-30405 - TFQ/JYM

Director of Nuclear Reactor Regulation
Attention: Mr. George Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Docket Nos. STN-50-528/529/530
File: 84-056-026; G.1.01.10

Dear Mr. Knighton:

Attached are proposed changes to Chapter 17 of the FSAR. Chapter 17 has been updated to reflect recent organizational changes, and also includes information requested by the staff in recent telecons.

Please contact me if you have any further questions.

Very truly yours,

E. E. Van Brunt

E. E. Van Brunt, Jr.
APS Vice President
Nuclear Production
ANPP Project Director

EEVBJr/JYM/sp
Attachment

cc: E. A. Licitra (w/a)
A. C. Gehr "
J. Spraul "

B001
1/40

bcc: T. G. Woods
D. B. Karner
A. C. Rogers
W. E. Ide
W. F. Quinn
T. F. Quan
K. E. Jones
B. S. Kaplan
S. R. Frost
LCTS Coordinator
K. W. Gross
J. E. Kirby
J. M. Allen
J. R. Bynum
O. J. Zeringue
J. D. Houchen
R. Ferguson
W. H. Wilson
W. G. Bingham
D. Keith
S. H. Shepherd
D. R. Canady
J. Donahue
M. J. Winsor
T. D. Shriver

ALL WITH ATTACHMENT

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

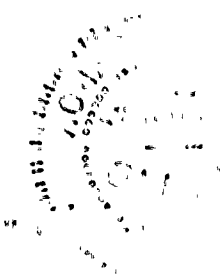
I, A. Carter Rogers, represent that I am Nuclear Engineering Manager of Arizona Public Service Company, that the foregoing document has been signed by me for Edwin E. Van Brunt, Jr., Vice President, Nuclear, on behalf of Arizona Public Service Company with full authority so to do, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true.

A. Carter Rogers

Sworn to before me this 30th day of August, 1984.

Nora E. Meador
Notary Public

My Commission Expires:
My Commission Expires April 6, 1987



for establishing and maintaining the Quality Assurance Program for the PVNGS. Day-to-day responsibilities for design and construction have been delegated to the Vice President, Nuclear. The responsibilities for developing the policies and practices set forth in the APS QA Manual and assuring conformance with the requirements of the APS QA Program are delegated to the Corporate Quality Assurance Manager. The Executive Vice President, ANPP, reserves the authority to conduct, or order, the auditing of any activity at any time to determine the effectiveness of the policies and requirements set forth in the APS QA Manual and to determine compliance with the provisions of the APS QA Manual. The Executive Vice President, ANPP, is responsible for instituting a formal review of the QA Program at least annually.

17.1A.1.2.3 Vice President, Nuclear, and ANPP Project Director

The Vice President, Nuclear, through the Executive Vice President, ANPP has been designated by the Chairman and Chief Executive Officer of APS as the responsible corporate officer, for implementation of QA Program requirements during the performance of activities relating to the engineering, design, procurement and construction of PVNGS. The Vice President, Nuclear's responsibilities for implementing the QA Program are delegated to the Nuclear Engineering Manager, Nuclear Records Management Manager and the Nuclear Construction Manager. The Vice President, Nuclear, is the focal point for all formal communications pertaining to PVNGS.

17.1A.1.2.4 Corporate Quality Assurance Manager

The Corporate QA Manager is responsible for managing the APS QA Program. The Corporate QA Manager reports directly to the Executive Vice President, ANPP. He is responsible for the

implementation of the Quality Assurance Program and for advising the Executive Vice President, ANPP, and the Chairman and Chief Executive Officer of the program's effectiveness. The Corporate QA ~~Manager~~ DIRECTOR has been given the authority by the Chairman and Chief Executive Officer to have stopped by established procedures unsatisfactory work or further processing of unsatisfactory material which is not in conformance with specified quality requirements and/or the provisions of the APS QA Program.

The Corporate QA ~~Manager~~ DIRECTOR is responsible for assuring the adequacy of the APS QA Program and the QA programs of those contractors assigned the obligation of establishing and implementing portions of the APS QA Program. This responsibility will be exercised through periodic surveillance and audits of the QA programs of those organizations performing the work.

The Corporate QA ~~Manager~~ DIRECTOR has the authority and organizational freedom to identify quality problems. He may initiate, recommend, or provide solutions to the Nuclear Engineering Manager, Nuclear Records Management Manager and Nuclear Construction Manager. He verifies implementation of solutions. Specific duties and responsibilities of the Corporate QA ~~Manager~~ DIRECTOR include the following:

Director, Nuclear Operations, Director, Technical Services, Transition Manager and the Nuclear Safety Manager;

A. Develop and implement the APS QA Program.

B. Prepare and control the APS QA Manual including revisions and its distribution.

C. Formulate QA policies for use by APS.

D. Review QA programs of Bechtel and CE for compliance with regulatory requirements and use his delegated authority to ensure that deficiencies in their QA programs are corrected. Changes made to CE's QA Program for editorial or administrative purposes only do not require review.

E. Perform audits and surveillances of Bechtel's and CE's QA programs, advise management of the status of program implementation and take corrective action as deemed necessary.

F. Review specifications, drawings and procedures for conformance to APS quality requirements, applicable industry standards and regulatory requirements. P

G. Manage the QA staff in the performance of their activities and responsibilities.

H. Have audited the permanent QA records.

I. Establish liaison with the Nuclear Engineering Manager, Nuclear Records Management Manager and Nuclear Construction Manager and maintain a current status of quality related and other activities as they pertain to the PVNGS. Director, Nuclear Operations, Director Technical Services, Transition Manager and the Nuclear Safety Manager. 12 P

J. Maintain communication with the QA organizations of Bechtel and CE with respect to QA activities.

K. Review correspondence from the NRC Office of Inspection and Enforcement and direct the preparation of inspection report responses. 12

L. Inform APS management of QA activities through distribution of audit reports and other quality related information. P

M. Report potential significant quality related matters both verbally and in writing to the Vice President Nuclear PRODUCTION. 12

N. Assist in preparation of significant deficiency reports to the NRC in accordance with the provisions of 10CFR50.55(e) and 10CFR Part 21. P

O. Assist the Nuclear Engineering Manager, Nuclear Records Management Manager and Nuclear Construction Manager in Director, Nuclear Operations, Director Technical Services, Transition Manager and the Nuclear Safety Manager 12

H. Review changes to Bechtel's prequalified bidders list and provide concurrence as deemed appropriate.

The Corporate Quality Assurance Department is organized into departments as shown in the organization chart in figure 17.2-1. Responsibilities of ~~Quality Systems and Programs and PVNGS Construction QA/QC~~ THE CORPORATE QUALITY ASSURANCE DEPARTMENT include quality assurance functions relating to engineering, design, procurement and construction of PVNGS. Therefore, ~~these two QA~~ THOSE CORPORATE QUALITY ASSURANCE departments are described below.

INSERT I

17.1A.1.2.5.1 Quality Systems and Programs. The Quality Systems and Programs Department, through the Quality Systems and Programs Manager, has the responsibility to assist the Corporate Quality Assurance Manager, in the implementation of the Quality Assurance Program for home-office activities and in monitoring the implementation of the APS Quality Program by APS Nuclear Construction Department, Nuclear Engineering Department, Nuclear Records Management Department and the PVNGS Construction QA/QC Department as well as the design, engineering and procurement activities of Bechtel and Combustion Engineering. To accomplish this assignment, the Quality Systems and Programs Department reviews design documents to insure the APS quality requirements have been incorporated and plans and conducts audits and surveillance of the organizations listed above to insure the requirements of the APS Quality Program have been fulfilled. The Quality Systems and Programs Manager reports directly to the Corporate Quality Assurance Manager.

INSERT II

17.1A.1.2.5.2 PVNGS Construction QA/QC. The PVNGS Construction QA/QC Department through the PVNGS Construction QA/QC Manager has the responsibility to assist the Corporate Quality Assurance Manager in the implementation of the Quality Assurance Program for site construction activities and in monitoring the implementation of Bechtel's Quality Program for construction activities. To accomplish this assignment, the PVNGS Construction QA/QC Department reviews site engineering and inspection

documents to insure the APS quality requirements have been incorporated and plans and conducts audits of Bechtel's construction activities, including Quality Assurance and Control activities, to insure that construction activities are accomplished in accordance with these quality requirements and provisions of their Quality Assurance Program. The PVNGS Construction QA/QC Manager reports directly to the Corporate Quality Assurance Manager.

INSERT III

17.1A.1.2.6 Nuclear Engineering (NE) Manager

The Nuclear Engineering Manager, through the Vice President, Nuclear has been delegated responsibility for engineering, design and procurement of the PVNGS. The Nuclear Engineering Manager has the assistance of technical units as shown in figure 13.1-2 in fulfilling his responsibilities. The Nuclear Engineering Manager has overall control of work performed on the project including:

A. The right to review and comment on all documents including drawings, specifications, analyses, computations and procurement documents prepared by contractors in performance of all work

B. The acceptance or rejection of all plans which govern the conduct of work, the assignment of responsibilities among and the coordination of activities of Bechtel, CE, the Nuclear Engineering staff, suppliers, subcontractors and consultants employed by Bechtel or APS

C. The right to inspect either directly or through his designated representative all work performed by contractors. The Nuclear Engineering Manager shall have the responsibility and the authority to reject any material or workmanship which does not meet the requirements specified in agreements with contractors

INSERT I

17.1A.1.2.5.1 QUALITY SYSTEMS AND ENGINEERING

The Quality Systems and Engineering Department, through the Quality Systems and Engineering Manager, has the responsibility to assist the Corporate Quality Assurance ~~Manager~~ Director in the implementation of the Quality Assurance Program. The Quality Systems and Engineering Manager reports directly to the Corporate Quality Assurance ~~Manager~~ Director. He is responsible to:

A. Develop, maintain, issue, review and/or control programs and procedures required for the implementation of the APS Quality Assurance Program, including the Operations Quality Assurance Criteria Manual, the Corporate Quality Assurance Department Procedures Manual, and the APS Quality Assurance Manual for Design and Construction;

B. Review quality documents as necessary for incorporation and adequacy of quality requirements.

INSERT II 17.1A.1.2.5.2 PROCUREMENT QUALITY DEPARTMENT

The Procurement Quality Department, through the Procurement Quality Manager, has the responsibility to assist the Corporate Quality Assurance ~~Manager~~ Director in the implementation of the Quality Assurance Program by monitoring the procurement activities of Bechtel and Combustion Engineering. The Procurement Quality Manager reports directly to the Corporate Quality Assurance ~~Manager~~ Director.

INSERT III 17.1A.1.2.5.3 QUALITY AUDITS AND MONITORING DEPARTMENT

The Quality Audits and Monitoring Department, through the Quality Audits and Monitoring Manager, has the responsibility to assist the Corporate Quality Assurance ~~Manager~~ DIRECTOR in the implementation of the Quality Assurance Program for home office and site construction activities. He is also responsible for auditing and/or monitoring the implementation of the APS Quality Program by the APS Nuclear Construction Department, Nuclear Engineering Department, and the Nuclear Records Management Department; and the implementation of the Bechtel Quality Program for construction activities; as well as, design and engineering activities by Bechtel and Combustion Engineering. The Quality Audits and Monitoring Manager reports directly to the Corporate Quality Assurance ~~Manager~~ DIRECTOR.

17.1A.1.2.10 Combustion Engineering, Inc. 12

CE is responsible to APS for the engineering, design, and procurement of the Nuclear Steam Supply System (NSSS). The organizational structure for quality assurance within CE and the responsibilities of individuals and groups within that organization are described in section 17.1C. P

17.1A.1.3 Project Quality Assurance Interface Control

APS has overall responsibility for interface control as it applies to the engineering, design, procurement, construction and testing of the PVNGS. This responsibility rests primarily with the Vice President, Nuclear (PRODUCTION) and the APS Corporate QA Manager (DIRECTOR). Additional responsibilities for controlling project interfaces rest with Bechtel and CE. The responsibilities and methods used by these organizations for maintaining effective lines of communication between their QA organizations and the organizations of contractors performing work under their control are described in sections 17.1B and 17.1C respectively. A primary responsibility of the APS Corporate QA Manager (DIRECTOR) is the verification of compliance with these interface measures as well as their effectiveness for controlling project interfaces. 12 P 12

Lines of communication between APS and its contractors shall be primarily through Bechtel. In this regard, the primary communication line between Bechtel and APS shall be between the Bechtel Project Manager and the Vice President, Nuclear (PRODUCTION). The APS Corporate QA Manager (DIRECTOR) shall have direct access to the QA organizations within Bechtel and contractors. In general, however, this access will be through the Bechtel Project QA Manager. P 12 12

P 17.1A.1.4 Personnel Qualifications

12 The Corporate QA ~~Manager~~ DIRECTOR is responsible for managing and directing the APS QA Program. The Corporate QA ~~Manager~~ DIRECTOR shall satisfy the following minimum qualification requirements:

A. Graduate of a four-year accredited engineering or science college or university.

B. Minimum of five (5) years experience in quality assurance, including testing or inspection (or both) of equivalent manufacturing, construction and installation activities. At least two years of this experience should be associated with nuclear facilities; or if not, the individual shall have training sufficient to acquaint him thoroughly with the safety aspects of a nuclear facility.

P C. In lieu of a degree, a high school graduate plus ten (10) years of experience in general quality assurance or engineering of equivalent manufacturing, construction and installation activities. Five (5) years of this experience is required in QA, including testing or inspection (or both) of equivalent manufacturing, construction and installation activities. At least two (2) years of this experience should be associated with nuclear facilities; or if not, the individual shall have training sufficient to acquaint him thoroughly with the safety aspects of a nuclear facility.

12 The Corporate QA ~~Manager~~ DIRECTOR shall have broad experience and formal training in the performance of QA and Quality control activities, including inspection and testing. He must be capable of planning

P and providing supervision to QA personnel who will be engaged in inspecting, testing, reviewing, evaluating and auditing the adequacy of activities to accomplish QA objectives.

The Corporate QA ~~Manager~~ DIRECTOR shall be responsible for having reviewed the qualifications of Bechtel, CE, and their subcontractor personnel, and for the review of indoctrination and training programs established by those contractors for personnel who perform activities affecting quality. 12 P

17.1A.2 QUALITY ASSURANCE PROGRAM

17.1A.2.1 General

APS is responsible under the ANPP Participation Agreement to manage the construction, operation, and maintenance of PVNGS in accordance with the rules and regulations of the NRC, the construction permits, operating licenses and SNM licenses issued for the PVNGS units by NRC, and the applications for such permits and licenses, and in such a manner as to provide for the protection of the health and safety of the public. The importance of QA in contributing to this safety as well as contributing to station reliability is also recognized. 12 P

In accordance with this philosophy, the APS QA Program has been developed and establishes the policies and practices for quality assurance for the engineering, design, procurement, and construction of PVNGS. Disagreements or differences of opinion in quality assurance matters which originate with or are brought to the attention of the Corporate Quality Assurance ~~Manager~~ DIRECTOR are expected to be resolved jointly by him and the Nuclear Engineer Manager, Nuclear Construction Manager or Nuclear Records Management Manager, as appropriate. Where such resolution is not achieved within a reasonable period of time, unresolved differences shall be referred to the Vice President, Nuclear ~~or~~ PRODUCTION Executive Vice President, ANPP, as appropriate. 12

It is the policy of APS to utilize qualified and trained personnel in all responsible project positions and job assignments. Personnel shall receive formal indoctrination in QA, including Director nuclear operations, Director Technical Services, Transition Manager and the Nuclear Safety Manager. P 12

17.1A.2.2.3 Quality Assurance

The quality assurance function consists of review, surveillance and audit. Auditing is assigned to the Corporate Quality Assurance Department, which is independent of the organizations responsible for the work. The Corporate QA Department is responsible for formulating or reviewing general quality policies; review of QA and control activities; monitoring and auditing program activities to assure compliance with established controls and requirements; and for measuring the overall effectiveness of those controls.

17.1A.2.3 Responsibilities

The organization and responsibilities of the principal parties involved in the engineering, design, procurement and construction of the PVNGS are described in section 17.1A.1, "Organization." The responsibilities of these organizations with respect to the elements of the QA program are described below.

17.1A.2.3.1 Arizona Public Service Company

Arizona Public Service Company (APS) has overall responsibility for the QA Program. Responsibility for establishing and implementing a system of administrative controls over quality affecting activities rests with the Nuclear Engineering Manager, Nuclear Records Management Manager, Nuclear Construction Manager and the Corporate QA ~~Manager~~ DIRECTOR. These controls are described in the Nuclear Projects Department Project Procedures Manual, Nuclear Construction Department Project Procedures Manual, Nuclear Projects Records Management Procedures Manual and the APS QA Manual. The Nuclear Projects Department Project Procedures Manual contains the administrative procedures which control the activities of the Nuclear Engineering Department personnel.

Director Nuclear Operations, Director Technical Services, Transition Manager and the Nuclear Safety Manager.

by the APS Corporate QA Department either in conjunction with or independent of Bechtel QA. Bechtel is responsible for performing quality verification for Bechtel activities and QA for Bechtel and supplier activities.

17.1A.2.4 Program Documentation

QA Program policies and practices are contained in the APS QA Manual. The APS QA Manual consists of QADs, listed in table 17.1A-1, which are approved by the Corporate QA ~~Manager~~ DIRECTOR. Requirements for preparation, review, approval, revision and issuance and distribution of QADs are delineated in the APS QA Manual. Table 17.1A-1 includes a cross reference of the requirements of 10CFR Part 50 Appendix B to the QADs contained in the APS QA Manual. More detailed cross references to implementing procedures of APS Nuclear Projects, Bechtel, and CE are incorporated into various QADs in the APS QA Manual. Other documents which include instructions, procedures, and manuals delineating activities to be performed by APS, Bechtel and CE are identified in the APS QA Manual.

The Corporate QA ~~Manager~~ DIRECTOR, Director Nuclear Operations, Director Technical Services, Transition Manager and the Nuclear Engineering Manager and Nuclear Construction Manager have the right to review and comment on all documents, including quality assurance manuals and procedures, drawings, specifications, analyses, computations and procurement documents prepared by Bechtel.

The document control procedures for Bechtel and CE are identified in sections 17.1B and 17.1C, respectively.

17.1A.2.5 Management Reviews

The Executive Vice President, ANPP, reviews the status and adequacy of the APS QA Program at least annually. The Executive Vice President, ANPP, requires the Corporate QA ~~Manager~~ DIRECTOR to make formal recommendations with regard to the adequacy of the policies and practices contained in the APS QA Manual and the compliance with those policies and practices. The recommendations become the formal record of effectiveness of the APS QA Program.

The intent of the management review is to assess the scope, implementation and effectiveness of the QA Program to assure that the program effectively complies with APS policy and the requirements of 10 CFR 50, Appendix B. The review includes results of audits of quality affecting activities to maintain an overall awareness of the effectiveness of the APS QA Program and the implementation of APS policy directives.

Additionally, and on a routine basis, the Executive Vice President, ANPP, reviews appropriate QA records, including but not limited to reports of audits, reports of corrective action, reports of design verification actions, source evaluations, and personnel qualifications.

17.1A.2.6 Applicability of Codes, Standards and Regulatory Guides

The APS QA Program has been developed, to the extent practical, in accordance with approved NRC Regulatory Guides and ANSI Standards. Bechtel is responsible to APS for maintaining control over the list of codes, standards and regulatory guides which are applicable to the engineering, design, procurement and construction of the PVNGS. This list is included in the Project Design Criteria Manual for the PVNGS which is maintained by Bechtel. All changes to this list are reviewed by the APS Corporate QA ~~Manager~~ DIRECTOR and the Nuclear Engineering Manager DIRECTOR TECHNICAL SERVICES prior to implementation in procurement documents.

The Nuclear Engineering Manager has overall responsibility for determining the applicability of codes, standards and regulatory guides and for implementing the provisions of those requirements. The Corporate QA Manager DIRECTOR is responsible for verifying that codes, standards and regulatory guides accepted for use during the design, procurement and construction of the PVNGS are implemented. The Corporate QA Manager DIRECTOR will coordinate this effort with the Bechtel Project QA Manager as necessary to take full

including review and approval by the same organization that performed the original review and approval, unless otherwise designated by Bechtel with concurrence by APS. Design documents and revisions thereto shall be distributed to responsible individuals in a timely manner and controlled to prevent inadvertent use of superseded material. Errors and deficiencies in design that adversely affect safety-related structures, systems and components are documented and appropriate corrective action is taken in accordance with sections 17.1A.15 and 17.1A.16. P 12

Bechtel has been delegated the responsibility for the engineering design, procurement and construction of PVNGS. They have responsibility for the QA audit of the design control measures and their implementation by the NSSS and other contractors performing design work. Bechtel's design control procedures are described in section 17.1B.

CE has responsibility for performing the design of the NSSS and/or review and approval of work performed by their subcontractors. CE's design control procedures are described in section 17.1C. P

APS has overall responsibility for the control of the design of PVNGS. APS will review documents submitted by Bechtel, CE and their subcontractors. This review in conjunction with QA audits will provide assurance that contractors design control measures are in conformance with the requirements of the APS QA Manual FOR DESIGN, PROCUREMENT AND CONSTRUCTION OF PVNGS

17.1A.3.2 Design Control Procedures

Bechtel and CE design organizations have established and implemented design control procedures which delineate the responsibilities, authority, reporting and methods of communication of

C. Design Interface Control

Bechtel Quality Assurance reviews interface control procedures to verify that implementing procedures are being properly used with design documents prepared by Bechtel. Bechtel's design interface control is described in section 17.1B. Bechtel maintains interface control with the subcontractors and with APS. APS Corporate Quality Assurance DEPARTMENT will perform audits to verify that interface controls are maintained between APS and Bechtel and between Bechtel and their subcontractors including CE. P. 12

D. Design Verification

Bechtel and CE are responsible for developing and implementing a design verification or checking method prior to issuance of Bechtel and CE design, engineering and specification documents. This will include design review, alternate calculations where applicable and qualification testing. P.

Bechtel and CE will document significant deficiencies which may adversely affect safety related structures, equipment, systems or components in the design process and shall take appropriate corrective action and document same. When a test program is specified to verify adequacy of the design, qualification testing of a prototype unit subjected to the most adverse design conditions shall be used. Materials, parts, equipment and components which are considered "off the shelf" shall be reviewed and selected based on their suitability of application when such items are employed or related to Quality Class "Q" systems, structures, equipment or components. 12 P 12 P

17.1A.5 INSTRUCTIONS, PROCEDURES AND DRAWINGS

The APS QA Program requires that activities affecting quality be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances, and accomplished in accordance with such documents. These documents include appropriate quantitative and qualitative criteria for determining whether or not an activity has been satisfactorily accomplished. P

A contractor, or supplier, responsible for an activity affecting quality, is required to provide the necessary instructions, procedures, or drawings to appropriately prescribe the activity. These documents must be reviewed and approved by responsible personnel prior to accomplishing the activity.

Bechtel, and/or APS, may require the submittal of such documents for review and acceptance, prior to the undertaking of an activity. Such a requirement shall be identified in procurement documents. 12

The Corporate QA Department verifies that activities affecting quality have been performed in accordance with instructions, procedures, or drawings and that required documentation exists for verification.

The APS QA Manual contains an identification of the controlled procedures, instructions, manuals and other documents which delineate activities carried out by APS. P

These documents form the basis for control over the activities which could affect the quality of Quality Class "Q" structures, systems and components of the PVNGS during engineering, design, procurement and construction. 12

The APS QA Manual FOR DESIGN, PROCUREMENT AND CONSTRUCTION OF PVNGS identifies the originating authority; the responsibility for document review for APS QA policy compliance; the responsibility for review, comment and acceptance within APS; and the responsibility for approval, for the controlled documents used by APS. APS Corporate QA Department will perform audits to verify that these documents are being utilized in the proper manner. P 12 P

Bechtel and CE documents are identified in sections 17.1B and 17.1C, respectively.

17.1A.6 DOCUMENT CONTROL

The APS QA Program requires that organizations with responsibility for documents which prescribe activities affecting quality establish and implement document control measures. The procedures which have been established by APS to implement the requirements for document control are identified in the APS QA manual. These procedures identify the format and content requirements for documents; the responsibilities for preparation, review, approval and revision to documents; the document identification systems used by APS; the measures to control issuance and distribution, receipt, filing and storage, use and disposition. Documents include drawings; design specifications, calculations, engineering studies, vendor data, test procedures, design criteria, Q-List, PSAR/FSAR and QA programs and procedures.

The procedures which have been established by Bechtel and CE to implement the requirements for document control are described in section 17.1B and 17.1C.

The Corporate QA ~~Manager~~ DIRECTOR is responsible for the maintenance, issuance and control of the APS QA Manual. The Corporate QA ~~Manager~~ DIRECTOR is also responsible for the issuance of instructions which delineate the performance of activities by APS Corporate QA personnel.

The Nuclear Engineering Manager is responsible for the preparation of document control procedures for the Nuclear Engineering Department, where there is responsibility for the issuance, review, and/or acceptance of documents. Such activities include review and comment on design documents issued by Bechtel; review and comment on procurement documents prepared by Bechtel; review of acceptance and qualification test procedures; and review and comment on changes to previously accepted documents. These

The document control procedures require that an organization prescribe measures to preclude inadvertant use of outdated or superceded documents.

Bechtel is responsible to APS for a comprehensive system of planned and documented audits to verify compliance with all P aspects of the QA program for document control. These audits shall be performed by personnel not having direct responsibilities in the areas being audited.

Bechtel shall conduct internal and external audits to assure that both its document control program and the programs of other organizations including C-E are being implemented and are satisfactory.

12 The APS Corporate QA DIRECTOR is responsible for having conducted surveys and audits to verify compliance with the requirements for P the control of documentation. This includes the audit of the audit programs carried out by each organization as necessary to 12 determine their effectiveness. The Corporate QA DIRECTOR reviews Bechtel's audit schedules and results on a routine basis to verify that appropriate corrective action and timely followup action, including reaudit of deficient areas, is taken where indicated by the audit findings.

17.1A.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

The APS QA Program requires that procedures be implemented P which delineate the methods and responsibilities for assuring that material, equipment, and services, procured by Bechtel, or other suppliers and contractors, conform to the requirements of the procurement documents.

The procurement procedures of Bechtel, its suppliers and contractors, require that quotations to furnish material, equipment and services be solicited only from a prequalified bidders' list which is prepared by Bechtel. Criteria for prequalification are delineated in the procedures, and take into consideration previous experience with the bidder including the bidder's

Items that have been source inspected are examined, upon receipt, for shipping damage, correctness of identification and proper quality documentation. Inspection status is described in section 17.1A.14. Documentary evidence showing that Q-List items or materials conform to procurement requirements shall be available at the site prior to installation of such items or use of such material, except as discussed in sections 17.1A.15 and 17.1A.17. Items found by receiving inspection to be non-conforming shall be segregated and/or controlled as described in section 17.1A.15.

Documentary evidence is sufficient to identify the specific requirements, such as codes, standards and specifications met by the procured item. This requirement can be satisfied by having available at the site, copies of the purchase specification, purchase order and any changes, and written certification of conformance to procurement requirements. These documents shall be maintained by the Project Field Quality Control Engineer. Bechtel QA shall verify by audit the validity of the certifications of conformance.

The procedures which have been established by APS to implement the requirements for procurement control are identified in the APS QA manual. These requirements are based on Appendix B to 10 CFR Part 50. The procedures which have been established by Bechtel and CE to implement the requirements for procurement control are described in sections 17.1B and 17.1C.

The APS Corporate QA ~~Manager~~ DIRECTOR is responsible for having audits conducted to verify compliance with all aspects of the requirements described in the referenced procedures and QA manuals. This includes the audit of the audit programs carried out by each involved organization. The Corporate QA ~~Manager~~ DIRECTOR is responsible for having reviews of Bechtel's audit schedules and results on a routine basis and for verifying that corrective action and followup action, including reaudit of deficient areas, are taken.

17.1A.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

The APS QA Program requires that vendors and contractors establish and implement procedures for the identification and control of materials, parts and components (including partially fabricated subassemblies) to assure the use or installation of only accepted items.

Bechtel is responsible for assuring that onsite procedures exist and are being implemented for the identification and control of materials, parts and components.

Bechtel and C-E shall require in their procurement documents, that equipment be identified at the source, prior to shipping, in accordance with the established plant identification system. In addition, traceability of materials, parts or components to the supplier's quality documentation is specified in the procurement documents. P

Source and receiving inspection planning shall include the verification of the correct identification of items and their records and shall note these as a condition for acceptance.

Physical identification shall be used, to the maximum extent possible, for relating an item at any stage of work to an applicable drawing, specification, and/or other pertinent technical document. Where physical identification is impractical or would affect the function or quality of the item, physical separation, procedural control, or other means shall be employed.

Material storage areas at supplier's shops and at the site shall be controlled to assure identification of materials.

The APS Corporate QA ~~Manager~~ DIRECTOR is responsible for having audits conducted to verify compliance with the procedures and measures for identification and control of materials, parts and components. Audits conducted by the Corporate QA Department will 12 P 12

Documentation of procedures and personnel qualification shall be kept current by the contractor or supplier. The documentation shall be subject to Bechtel QA Audit. Audits of special processes shall include verification that qualified personnel and procedures are used, and that there is compliance with the requirements of applicable codes and standards. P

The APS Corporate QA ~~Manager~~ DIRECTOR shall have audits conducted which evaluate the effectiveness of the control over special processes exercised by Bechtel's QA organization. The specific measures for control over special processes shall be identified prior to commencement of any activities by Bechtel or other contractors or suppliers performing special processes. 12

17.1A.10 INSPECTION

The APS QA Program requires that suppliers establish, prior to manufacture, a specific inspection program for activities affecting quality, which is designed to verify compliance with the quality requirements identified in the procurement documents. P

Bechtel is responsible for establishing and implementing an inspection program which meets the requirements of 10 CFR 50, Appendix B.

Bechtel QA has responsibility for the audit of the Bechtel inspection program and its implementation by Bechtel personnel, and audit of CE and other contractors and suppliers inspection programs relative to Q-List items. 12 P

Audits may be conducted by the APS Corporate QA Department to verify that inspection plans, instructions and procedures have been established, are acceptable, and are being implemented. These audits supplement those audits conducted by Bechtel and C-E QA personnel. 12 P

Inspections shall be performed by individuals other than those who performed the activity and who are qualified. They should

The supplier inspection plans shall include the following as applicable:

A. Identification of materials,

B. Dimensional checks,

C. Material test reports,

D. Fitup of parts,

E. Assembly of components,

F. Process parameters, 12

G. Examination of work,

H. Cleanliness of parts and work area,

I. Use of correct documentation,

J. Monitoring of processes,

K. Handling, cleaning, packaging and storage procedures, and

L. Documenting of activities.

Inspections shall be satisfactorily completed and documented prior to releasing equipment for shipment, or special control established over a part or subassembly which has not completed satisfactory inspection.

Bechtel shall review the integrated manufacturing and inspection plans of suppliers and establish a set of mandatory inspection holdpoints. Required mandatory holdpoints, beyond which work may not proceed without the approval of Bechtel, shall be included in the supplier's inspection plans, or otherwise controlled to insure that work does not proceed without acceptance. P

Inspectors from the Bechtel Procurement Supplier Quality Department monitor supplier's activities as part of the Bechtel overall supplier surveillance plan. APS Corporate QA Department will participate in selected audits performed by Bechtel and/or 12

perform supplier surveillance or audits to monitor Bechtel/CE supplier surveillance or supplier audit activities.

C-E and other suppliers who procure equipment from subsuppliers shall be responsible for assuring that their suppliers establish and implement a satisfactory inspection program. They shall determine that there is compliance with the quality requirements specified in the procurement documents.

Contractors at the site shall be required to establish and implement inspection programs that are in accordance with contract requirements and the applicable codes and standards. These programs are subject to review and acceptance by Bechtel.

A contractor's planned inspections shall be performed by inspection personnel, independent from the individual or group performing the activity being inspected. Bechtel shall review the contractors' inspection plans and establish notification points for their witness. Mandatory holdpoints may be established beyond which work may not proceed without Bechtel release; mandatory holdpoints shall be identified in the contractors' inspection plans.

The work of contractors who do not have inspection responsibility, shall be inspected by Bechtel. Bechtel shall prepare inspection plans based on design document requirements, the applicable codes and standards, and the work procedures adopted by the contractor. They shall provide the contractor with the inspection program to coordinate the scheduled inspection activities. Inspections shall be documented by checklists or reports.

The inspection activities of Bechtel, and all suppliers and contractors, are subject to auditing by APS CORPORATE QA Department to verify compliance with specified requirements.

17.1A.11 TEST CONTROL

The APS QA Program requires that a documented test program be implemented to assure that required testing be identified and properly performed to demonstrate that Q-Listed structures, systems and components will perform satisfactorily in service. Identification of the required testing shall be based on design considerations, and regulatory requirements. Testing will be in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design and procurement documents.

Proof and performance testing of components shall be performed and documented by suppliers as required in procurement documents. Suppliers may also be required to perform prototype qualification tests. The performance of supplier testing may be witnessed by Bechtel and/or APS. Notification and mandatory holdpoints, shall be incorporated in the suppliers manufacturing and test plans. P

The procedures which have been established by Bechtel and CE to implement the requirements for test control are described in sections 17.1B and 17.1C.

The Corporate QA ~~Manager~~ DIRECTOR shall have audits of Bechtel and C-E conducted to verify that documents specify the applicable tests to demonstrate that structures, systems, and components perform satisfactorily in service. Audits of the Bechtel QA Program to ensure that suppliers are satisfactorily performing tests in accordance with design requirements will also be conducted. 12 P

The program for the testing of structures, systems and components, to demonstrate their satisfactory performance in service, is described in chapter 14.

17.1A.12 CONTROL OF MEASURING AND TEST EQUIPMENT

The APS QA Program requires that procedures be implemented for the control, calibration and periodic adjustment of tools, gauges, instruments and other measuring and test equipment used to obtain and/or verify conformance to established quality requirements.

Suppliers and contractors, as part of their QA Program, shall implement written procedures for the control and calibration of tools, measuring and testing equipment. Contractors shall maintain documentation of the calibration status and records of tools and gauges utilized. Assurance of supplier and contractor performance shall be obtained by evaluating their procedures, and during periodic in-process audits of records by both Bechtel and APS CORPORATE QA Department.

Inspection, test and work procedures shall include provisions assuring that tools, gauges, instruments and other inspection, measuring and testing equipment, and devices used in activities affecting quality, are of the proper range, type and accuracy. To assure its accuracy, inspection, measuring and test equipment shall be calibrated, adjusted and maintained, prior to first use, and at prescribed intervals thereafter, with calibration performed against equipment certified to have known valid relationships to nationally recognized standards or performed on some other documented basis. The acceptance criteria for principal contractor's calibrating procedures will include the requirement that the degree of uncertainty of the calibrating standards shall be less than the error of the equipment being calibrated. Control measures shall prevent the use, by unauthorized personnel of calibrated tools, gauges, instruments, and other measuring and test equipment. Special calibration and control measures are not required for devices when normal commercial practices provide adequate accuracy.

The calibration status, date of calibration, and recalibration date, shall be displayed prominently on each device, whenever possible, or on records traceable to the device. The records shall contain all elements necessary for control and verification of past calibration activities.

Inspection, test and work procedures shall include the requirement that, whenever inspection, test, or measuring equipment is found to be out of calibration, the acceptability of all items inspected, tested, or measured since the last documented calibration must be evaluated. P

The APS Corporate QA ~~Manager~~ DIRECTOR shall be responsible for having audits conducted to verify compliance with the procedures and measures for controlling measuring and test equipment. These measures shall be identified prior to commencement of any activities by suppliers or contractors which require the use of measuring and test equipment. 12 P

17.1A.13 HANDLING, STORAGE AND SHIPPING

The APS QA Program requires that procedures be established and implemented, to control the handling, storage and shipping (including cleaning, packaging and preservation of material and equipment) to assure the maintenance of quality from source through installation or use. 12

Bechtel shall review procurement documents to assure that they either provide, or require that suppliers provide, instructions on handling, storage, shipping, cleaning and preservation for the product supplied. Instructions shall be provided for marking, labeling, packaging, shipping and storing of items. Marking shall identify the shipment, and special handling or storage requirements, including indications of the presence of special environments, or the need for special control. P

Bechtel shall establish a surveillance plan to assess and document onsite compliance with handling, storage, cleaning and preservation procedures.

C-E is responsible for verifying that requirements of procurement documents are satisfied, prior to release of an NSSS component for shipment to the site.

Bechtel shall review CE's requirements and procedures for handling, storage and shipping.

Bechtel has responsibility for handling, storing and preserving materials and equipment at the site. The responsibility may be delegated to a responsible contractor, e.g., electrical equipment and materials to the electrical contractor.

Special coverings, equipment, and protective environments (such as inert gas atmosphere), specific moisture content levels, and temperature levels, shall be provided and maintained for given materials and components as specified in manufacturers' instructions, supplemented by additional requirements as specified by Bechtel. P

Special handling tools and equipment necessary to assure safe and adequate handling of critical, sensitive, or perishable items, shall be provided and controlled. Special handling tools and equipment shall be inspected and tested by qualified personnel in accordance with written procedures, at specified times, to verify that the tools and equipment are maintained and suitable for the intended task.

Cleaning of components or systems at the site shall be performed in accordance with procedures prepared by the supplier of the equipment. The procedures shall be reviewed by Bechtel. Cleaning operations may be monitored by Bechtel. APS CORPORATE QA will conduct audits to verify that handling, storage and shipping procedures are being implemented. These audits may be conducted through Bechtel's QA Department. 12

12 During construction testing, written procedures shall be implemented for controlling abnormal electrical or mechanical arrangements such as bypassed interlocks, installed jumpers, and piping bypasses.

Identification of abnormal operating status shall always include placing such identification at control locations where the system or component can be actuated, started or controlled.

P Items whose status is nonconforming, inoperative or malfunctioning, shall be so indicated, as required by section 17.1A.15.

Bechtel is responsible for audits which assure that the foregoing requirements are complied with by all responsible organizations. APS CORPORATE QA DEPARTMENT is responsible for audits of delegated activities, and for internal audits for compliance by APS

12 groups participating in acceptance testing.

17.1A.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

The APS QA Program requires that procedures be prepared and implemented which describe the methods of controlling material, parts or components which do not conform to defined requirements, to prevent their inadvertent use or installation.

P All suppliers, contractors and subcontractors who furnish, fabricate, erect or install materials or equipment shall implement, as part of their QA Program, acceptable procedures for the control of nonconforming items. These procedures shall include methods for identification, segregation, documentation, evaluation and disposition of items which do not conform to the requirements of the design or procurment documents, including the pertinent QA Programs.

Upon identification of a nonconformance, the supplier or contractor shall suspend the affected work until the nonconformance has been evaluated if:

A. The continuance of the work would conceal the nonconformance and make corrective action difficult or impossible.

Bechtel has responsibility for the disposition of nonconformances identified by Bechtel and APS and the review of nonconformance reports of contractors including CE. Procedures developed to implement nonconformance systems require that appropriate levels of engineering, quality assurance, and project management are authorized to approve nonconformances. Resolutions of nonconformances requiring "repair" or "accept as is" must be approved by the engineering organization that specified the original criteria. The procedures established by Bechtel include requirements to keep APS CORPORATE QA DEPARTMENT informed as to the nature and status of identified nonconformances. APS requires that BPC and other contractors notify the APS Corporate QA ~~Manager~~ DIRECTOR immediately when a condition adverse to quality is discovered and appears to be reportable. This shall include immediate notification of all Deficiency Evaluation Reports initiated by BPC.

APS has the ultimate responsibility to determine if a nonconformance initiated by APS or by any contractor borders on or meets conditions stated in 10CFR Part 50.55(e) or 10CFR Part 21. APS management, including the Nuclear Engineering Manager, Nuclear Construction Manager, Corporate QA DIRECTOR and Vice President Nuclear PRODUCTION shall decide what action is to be taken with regard to formally notifying the NRC and resolving the nonconformance or deficiency.

APS CORPORATE QA DEPARTMENT shall periodically review the log of nonconforming reports maintained by Bechtel. This review shall concentrate on the types of nonconformances which are occurring on the project to detect trends, and timely disposition of nonconformances by Bechtel.

APS CORPORATE QA DEPARTMENT shall conduct audits to verify that established procedures are being complied with in the disposition of nonconforming items.

program and the programs of other organizations including C-E are being implemented and are satisfactory. P

The APS Corporate QA ~~Manager~~ DIRECTOR shall be responsible for having audits conducted to verify compliance with the requirements for the management and control of the QA records. This shall include the audit of the audit programs carried out by each responsible organization to determine their effectiveness. The Corporate QA ~~Manager~~ DIRECTOR shall review Bechtel's audit schedules and results on a routine basis and verify that corrective action and follow-up action, including reaudit of deficient areas, have been taken where indicated by the audit findings. 12 P 12

17.1A.18 AUDITS

The APS QA Program requires that a comprehensive system of planned and documented audits be established and implemented to verify compliance with all aspects of the QA Program, and to assess its effectiveness. P

All organizations which are required to have and implement a QA Program are required to conduct audits of their program and the programs of their subcontractors.

Bechtel has the responsibility for audits of vendors and contractors during the design, procurement and construction phases of the project, as well as for internal audits of its own activities as described in section 17.1B.18. 12

APS shall monitor the implementation of the audit program by Bechtel by informal observation and by documented periodic audits. As part of the auditing of Bechtel, APS shall participate in a sampling of the audits conducted by Bechtel. In addition, APS will audit its own project activities, including the QA function itself. P

The Corporate QA ~~Manager~~ DIRECTOR is responsible for keeping APS management informed on QA matters and for necessary action to correct deficiencies when action by management is needed. He discharges 12 P

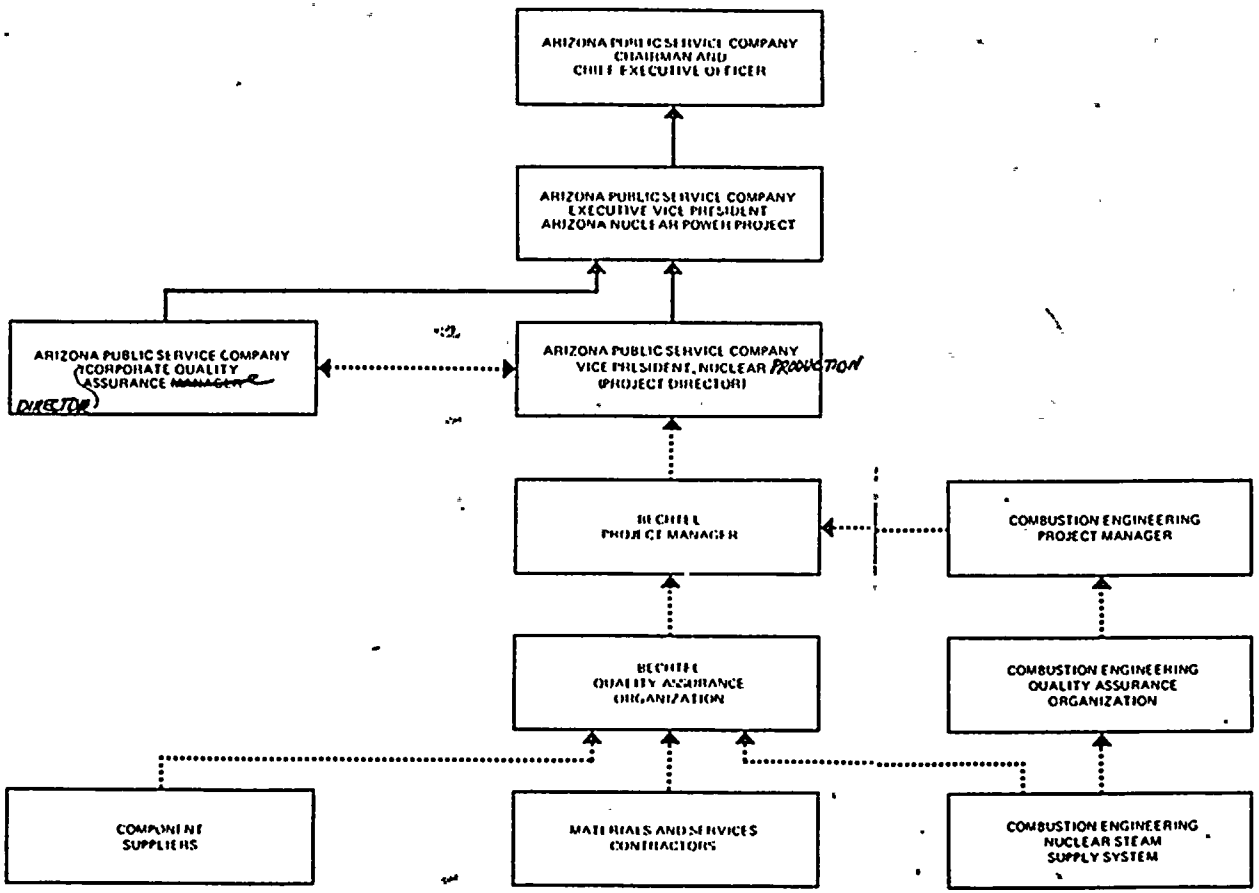
P 12 his responsibilities by conducting independent periodic audits of the APS QA Program, and by reporting his findings to: management, the Vice President, Nuclear Production, the Executive Vice President, ANPP and others who have corporate responsibility for the areas audited.

P Audits shall be performed in accordance with written procedures, or checklists, by trained personnel having no direct responsibilities in the area audited. Audits may be conducted by QA Engineers and/or other qualified personnel, such as technical specialists from other departments, designated by the Corporate 12 QA Director.

P The purpose of audits is the evaluation of work areas, activities, processes, items and documentation, to provide an objective evaluation of compliance with established requirements, 12 methods or procedures; to assess progress in assigned tasks; to determine adequacy of QA Program performance; and to verify implementation of recommended corrective action. Audit results shall be documented and reviewed with management responsible P for the area audited, who shall take necessary action to correct reported deficiencies.

Audits shall be conducted at either planned, periodic intervals, 12 or on a random unscheduled basis. The Corporate QA Director shall maintain a schedule for the audits. Audits will selectively cover each of the various elements of APS and Bechtel QA P Programs, at the beginning of the project activity involving those elements, and at regular intervals thereafter. The 12 scheduled frequency of audits may be changed by the Corporate QA Director as circumstances dictate; e.g., changes in level of activity, importance of activity, previous findings, changes in organization or procedures, or occurrence of problems.

P Audits may be used to determine the acceptability of suppliers' or contractors' QA Programs prior to awarding of a purchase order or contract; follow-up audits shall be used to assure



12

Palo Verde Nuclear Generating Station
FSAR

INTERFACE ORGANIZATION CHART

Figure 17.1A-1

Important elements of the procedure include requirements for:

A. Tagging and segregation whenever practical due to size, quantity, and complexity of the item

B. Determination of interim disposition by Project Engineering and field QC

C. Approval by Project Engineering of "repair" or "use as is" dispositions prior to correcting significant or unique nonconformances

D. Advising Project Engineering after implementation of standard approved repair procedures

E. Monthly review of completed nonconformance reports by QA to trend analysis requirements established by the PQPM, which prescribes conditions significant to quality that require corrective action

F. Participation of ASME authorized inspector for nonconformance disposition on code covered items

G. Providing APS CORPORATE DIRECTOR QA Manager copies of all "repair" or "use as is" nonconformance reports

Repair and reinspection instructions must be prepared and submitted for Project Engineering approval before repair may proceed. These repair and reinspection instructions will be reviewed to assure that the acceptability of repair is verified by field QC reinspection of the item as originally inspected or by a method at least equivalent. Suppliers are contacted when necessary to provide input to the reinspection instructions as required. Quality Assurance will audit for compliance.

Quality Assurance periodically reviews and monitors supplier, onsite subcontractor, and Bechtel nonconformance reports for the identification of significant conditions adverse to quality, the cause of the condition, and corrective action taken.

17.2.1.1 Corporate Organization

12 Figures 17.2-1, 13.1-1 and 13.1-2 show the organizational structure and relationships to corporate management of individuals and groups within APS with management responsibility for activities related to the startup and operation of the PVNGS and responsibility for management of the quality assurance program.

17.2.1.1.1 Chairman of Board of Directors and Chief Executive Officer

11 The Chairman and Chief Executive Officer of APS has the overall responsibility for the engineering, design, procurement, construction, and operation of PVNGS. Execution of these responsibilities is delegated to the Executive Vice President Arizona Nuclear Power Project, including the responsibility for developing and ensuring the implementation of the Operations Quality Assurance Program.

17.2.1.1.2 Executive Vice President for the Arizona Nuclear Power Project (ANPP)

11 The Executive Vice President, ANPP, is responsible for the engineering, design, construction, and operation of PVNGS. He is responsible for QA matters relating to PVNGS. As such, he has the authority to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material. The Executive Vice President, ANPP, reviews the status and adequacy of the quality assurance program by reviewing reports prepared by the Corporate Quality Assurance ~~Manager~~ DIRECTOR at least annually. Responsibility for startup and operation of the PVNGS, engineering and design support, construction of major modifications, records management during the operations phase and proper implementation of the quality assurance program for these activities is delegated to the Vice President Nuclear PRODUCTION.

The responsibility to establish, maintain, and assure proper implementation of the Operations Quality Assurance Program is delegated to the Corporate Quality Assurance ~~Manager.~~ DIRECTOR The Executive Vice President, ANPP, shall retain the responsibility for assuring that the authority and independence of the Corporate Quality Assurance ~~Manager~~ DIRECTOR are such that he can effectively assure the conformance to quality requirements and is independent of undue influences and responsibilities for schedules and costs. 9

17.2.1.1.3 APS Vice President, ~~Nuclear~~ PRODUCTION

The Vice President, ~~Nuclear~~ PRODUCTION, AS ASSISTED BY THE ASSISTANT VICE PRESIDENT, NUCLEAR PRODUCTION is responsible for startup and operation of the PVNGS, engineering and design support, construction of major modifications, and records management, and proper implementation of the Operations Quality Assurance Program for these activities. The Vice President, ~~Nuclear~~ PRODUCTION shall be informed of significant problems and occurrences relating to safety and quality assurance and will participate directly in their resolution, when appropriate. The Vice President, ~~Nuclear~~ PRODUCTION has the authority to stop PVNGS activities which are not accomplished in compliance with applicable license and/or regulatory requirements. Day-to-day responsibilities for Prerequisite and Phase I startup testing have been delegated to the Startup Manager, including responsibility for proper implementation of the quality assurance program. Day-to-day responsibilities for the operation of the PVNGS, commencing with Phase II startup testing, have been delegated to the ~~Manager~~ DIRECTOR of Nuclear Operations, including the responsibility for proper implementation of the quality assurance program. Day-to-day responsibility for engineering and design support is delegated to the Nuclear Engineering Manager. Responsibility for activities related to construction of major modifications is delegated to the Nuclear Construction Manager. Responsibility for records management activities is delegated to the Nuclear Records Management Manager.

12 4 12 9 12 9

12 17.2.1.1.4 Deleted

12 17.2.1.1.5 Nuclear Safety Group (NSG)

12 The organizational structure, administrative requirements,
9 responsibilities, and authorities of the Nuclear Safety Group will be detailed in the Facility Technical Specifications.

17.2.1.1.6 Corporate Quality Assurance ~~Manager~~ DIRECTOR

4 The Corporate Quality Assurance ~~Manager~~ DIRECTOR is responsible for development of the Operations Quality Assurance Program and to verify effective implementation of the Operations Quality Assurance Program. He reports directly to the Executive Vice
11 President, ANPP AND IS ASSISTED IN DISPATCHING LINE RESPONSIBILITY BY THE ASSISTANT CORPORATE QUALITY ASSURANCE MANAGER.

4 The Corporate Quality Assurance ~~Manager~~ DIRECTOR directs the activities
9 of the Corporate Quality Assurance Department. The Corporate Quality Assurance ~~Manager~~ DIRECTOR has overall responsibility for the
4 quality assurance program including audits and quality verification.

The Corporate Quality Assurance ~~Manager~~ DIRECTOR has been given the authority, by the Chairman and Chief Executive Officer, to maintain open lines of communication with individuals and groups having responsibilities related to the startup and operation of the PVNGS to ensure that policies and requirements of the Operations Quality Assurance Program are properly interpreted and adequately implemented, and to determine the effectiveness of the Operations Quality Assurance Program. He has the authority to cross organizational lines to identify quality problems, to initiate, recommend, or provide solutions and to verify implementation of solutions. The Corporate Quality Assurance ~~Manager~~ DIRECTOR has been given the authority, by the Chairman and Chief Executive Officer ~~to have stopped~~, by established procedures, of activities and/or the use or further processing of materials that are not in conformance with specified quality requirements and/or the provisions of the Operations Quality Assurance Program. The Corporate Quality Assurance ~~Manager~~ DIRECTOR shall satisfy the following minimum qualification requirements:

A. Graduate of a 4-year accredited engineering or science college or university.

B. At least 2 years of management or supervisory experience.

C. Minimum of 5 years experience in quality assurance, including testing or inspection (or both) of equivalent manufacturing, construction, and installation activities. At least 1 year of this experience shall be associated with nuclear facilities.

D. In lieu of a degree, a high school graduate with a minimum of 1 year related technical or academic training and 10 years of experience in general quality assurance or engineering of equivalent manufacturing, construction, and installation

activities is acceptable. At least 2 years of this experience shall be associated with nuclear facilities.

The Corporate Quality Assurance ~~Manager~~ DIRECTOR shall have broad experience and formal training in the performance of quality assurance (QA) and quality control activities, including inspection and testing. He shall be capable of planning and providing supervision to QA personnel who may be engaged in inspecting, testing, reviewing, evaluating and auditing the adequacy of activities to accomplish QA objectives.

17.2.1.2 Corporate Quality Assurance Department

The Corporate Quality Assurance Department is under the supervision and direction of the Corporate Quality Assurance ~~Manager~~ DIRECTOR. The quality assurance organization is shown in figure 17.2-1. General responsibilities of the department with regard to the quality assurance program for the PVNGS include, but are not limited, to the following:

A. Develop the Operations Quality Assurance criteria.

B. Prepare and control the Operations Quality Assurance Criteria Manual.

C. Verify the implementation of the quality assurance program.

D. Verify that adequate quality training programs are developed and implemented for each organizational unit performing a quality-related function.

E. Review, as required, quality-related procurement documents, procedures, and instructions, and other quality-related documents to provide assurance that QA requirements are being incorporated and/or adhered to.

F. Maintain awareness of QA requirements, practices, and experiences throughout the nuclear power industry.

G. Develop and implement an audit and monitoring program for quality-related activities within the scope of the Operations Quality Assurance ~~Program~~ CRITERIA MANUAL and advise management of the status of program implementation. Initiate and/or verify corrective action as necessary to resolve significant implementation problems. 4

H. Review the QA programs of suppliers for compliance with regulatory requirements and the requirements of the Operations Quality Assurance ~~Program~~ CRITERIA MANUAL when a program is required to be submitted by the procurement document. Ensure that QA program deficiencies are corrected. 4 4

I. Verify, through audits or surveys conducted by APS, Coordinating Agency for Supplier Evaluation (CASE) or others, that the activities of suppliers are in compliance with the requirements of their QA programs. 4

J. Maintain an awareness of quality-related activities as they pertain to the operation of PVNGS by reviewing audit reports, corrective action reports and other selected documents. 4

K. Review correspondence from the NRC and review inspection report responses.

L. Inform APS management of QA activities through reports developed at least annually and other quality-related information.

M. Report potentially significant quality-related matters, both orally and in writing, to the organizational unit concerned, the Vice President, Nuclear and the Executive Vice President ANPP, as appropriate.

N. Review reports of significant conditions adverse to quality and verify results of corrective actions.

O. Assist, as requested by the ~~Manager~~ Director of Nuclear Operations, in the preparation of quality-related procedures controlling the activities of PVNGS personnel.

P. Assist in the development of procedures to assure quality in offsite activities related to the startup and operation of PVNGS.

Q. Review changes to the quality classification assigned to systems, equipment, and components, as identified in table 3.2-1.

R. Verify that events reportable to the NRC are promptly investigated and corrected in a manner which reduces the probability of recurrence of such events.

S. Detect trends adverse to quality which may not be apparent to a day-to-day observer.

INSERT I

~~17.2.1.2.1 Quality Systems and Programs Section~~

~~The Quality Systems and Programs Section is directed by the Quality Systems and Programs Manager who reports to the Corporate QA Manager. The Quality Systems Section assists in the development and implementation of the Operations Quality Assurance Program. The Quality Systems and Programs Section verifies implementation of the Operations Quality Assurance~~

INSERT I

17.2.1.2.1 QUALITY SYSTEMS AND ENGINEERING DEPARTMENT

The Quality Systems and Engineering Department is directed by the Quality Systems and Engineering Manager who reports to the Corporate Quality Assurance ~~Manager.~~ Director. The Quality Systems and Engineering Department is responsible to: Develop, maintain, review, issue and/or control programs and procedures required for the implementation of the APS Quality Assurance Program; Develop inspection plans and procedures; Review Quality documents to verify adequate quality requirements are imposed to meet regulatory requirements; identify conditions that will adversely impact the QA Program and detect trends of conditions adverse to quality which may not be apparent to the day-to-day observer.

Program by offsite organizations within APS performing quality-related activities, PVNGS operations QA/QC, PVNGS Start-up QA/QC and PVNGS Construction QA/QC. The Quality Systems and Programs Section is also responsible for acceptance of vendor's QA programs and audits of vendors' activities. 12 9 4

INSERT II

17.2.1.2.2 PVNGS Construction QA/QC Section

The PVNGS Construction QA/QC Section is directed by the PVNGS Construction QA/QC Manager who reports to the Corporate QA Manager. The PVNGS Construction QA/QC Section is responsible for inspection, review, monitoring, verification, and audit of quality related construction activities during major modifications. 9 4

INSERT III

17.2.1.2.3 PVNGS Start-Up QA/QC Section

The PVNGS Start-Up QA/QC Section is directed by the PVNGS Start-Up QA/QC Manager who reports to the Corporate QA Manager. The PVNGS Start-Up QA/QC Section is responsible for inspection, review, monitoring, verification, and audit of quality related prerequisite and phase I start-up activities. 9 12

INSERT IV

17.2.1.2.4 PVNGS Operations QA/QC Section

The PVNGS Operations QA/QC Section is directed by the PVNGS Operations QA/QC Manager who reports directly to the Corporate QA Manager. The PVNGS Operations QA/QC Section ensures that the requirements of the Operations Quality Assurance Program are incorporated in the onsite quality assurance program, and that they are incorporated into plans and procedures for activities affecting quality and are implemented properly. The PVNGS Operations QA/QC Section is responsible for verifying, through inspections, monitoring, and audits, the conformance of on-site quality-related activities to specified requirements and procedures during operations and phase II through phase IV startup. 9 12

INSERT II

17.2.1.2.2 PROCUREMENT QUALITY DEPARTMENT

The Procurement Quality Department is directed by the Procurement Quality Manager who reports to the Corporate Quality Assurance ~~Manager~~ DIRECTOR. The Procurement Quality Department is responsible to: Review procurement documents for quality requirements. Review vendor quality programs and assure proper implementation in accordance with procurement documents; perform receiving inspection and ensure the adequacy of storage of materials, parts and components. Review procurement documentation initiated by other organizations which are delegated procurement responsibilities as necessary to assure quality; and identify adverse deficiencies in Quality-Related procurement that will impact the effectiveness of the Quality Assurance Program.

INSERT III 17.2.1.2.3 QUALITY AUDITS AND MONITORING DEPARTMENT

The Quality Audits and Monitoring Department is directed by the Quality Audits and Monitoring Manager who reports to the Corporate Quality Assurance ~~Manager~~ Director. The Quality Audits and Monitoring Department is responsible to: Plan and prepare an Audit schedule to meet current regulatory commitments; Plan and conduct periodic audits of all aspects of the Quality Assurance Program and to conduct unscheduled audits as deemed necessary to appraise quality affecting activities.

INSERT IV 17.2.1.2.4 QUALITY CONTROL DEPARTMENT

The Quality Control Department is directed by the Quality Control Manager who reports to the Corporate Quality Assurance ~~Manager~~ DIRECTOR. The Quality Control Department is responsible to: Perform inspections to verify conformance of installations with documented instructions, procedures and drawings and to determine that important activities have been satisfactorily accomplished.

17.2.1.3 Nuclear Operations Organization

The Nuclear Operations Organization is shown in figure 13.1-6 and described in section 13.1.2. For phase II through phase IV startup testing, the Nuclear Operations organization is described in section 14.2.

17.2.1.3.1 ~~Manager~~ DIRECTOR of Nuclear Operations

The ~~Manager~~ DIRECTOR of Nuclear Operations has the responsibility for directing station operation and for proper implementation of the quality assurance program at PVNGS. He is responsible for ensuring that criteria contained in the operations quality assurance program are incorporated in plant procedures. He is also responsible for ensuring that periodic reviews are conducted to evaluate plant operations and to plan future activities. The ~~Manager~~ DIRECTOR of Nuclear Operations has the authority to stop PVNGS activities that are not accomplished in compliance with applicable license, regulatory, or QA requirements. The ~~Manager~~ DIRECTOR of Nuclear Operations reports directly to the Vice President, Nuclear & PRODUCTION.

17.2.1.4 Nuclear Engineering

The Nuclear Engineering organization is shown in figure 13.1-4 3D through 3J and described in section 13.1. 12

17.2.1.5 Procurement and Control Department 4

The Procurement and Control Department is directed by the Procurement and Control Manager, who reports to the Vice President, Customer and Administrative Services. The Procurement and Control Department shall have the following responsibilities for quality-related purchases: 11

A. Ensure that requirements of the Purchase Request are accurately transposed to the Purchase Document. 4

B. Ensure that, prior to placing the Purchase Order (P.O.) with the vendor, the P.O. has been reviewed by the Corporate Quality Assurance Department, as required. 11

C. Ensure that the selected vendor is evaluated and approved by the Corporate Quality Assurance Department, as required. 4

D. Place the Purchase Order and be the contact between the vendor and APS regarding legal and binding purchase order/specification changes.

Items B and C above apply to quality-related purchases associated with fire protection or safety-related items only. 4

17.2.1.6 Startup Department Organization

The Startup Department organization is shown in figure 14.2-1 and described in section 14.2. 12

17.2.1.6.1 Startup Manager

The Startup Manager has the responsibility for directing Prerequisite and Phase I startup activities and for proper implementation of the quality assurance program during startup activities. He is responsible for ensuring the requirements of ANSI N45.2-1971 quality assurance program, are incorporated in startup procedures. The Startup Manager reports directly to the ~~Vice President, Nuclear~~ Transition Manager who reports directly to the Vice President Nuclear Production.

17.2.1.7 ~~Administrative and Technical Services~~ PROJECT SERVICES GROUP

12 The ~~Administrative and Technical Services organization~~ PROJECT SERVICES GROUP is shown in figure 13.1-2~~A~~B and described in section 13.1.

17.2.1.8 Nuclear Construction

The Nuclear Construction ~~organization~~ department is shown in figure 13.1-~~4~~3F and described in section 13.1.

17.2.1.9 Nuclear Records Management

The Nuclear Records Management ~~organization~~ department is shown in figure 13.1-~~4~~3G and described in section 13.1.

17.2.2 QUALITY ASSURANCE PROGRAM.

17.2.2.1 General

The management of APS has been delegated the authority and responsibility, under the terms of an Arizona Nuclear Power Project Participation Agreement, to manage the construction of and to operate and maintain PVNGS.

4 APS has established a quality assurance program which meets the requirements of 10CFR Part 50, Appendix B and requirements of applicable Codes, Standards, and Regulatory Guides as described in Section 17.2.2.7. A description

13 of the QA program for prerequisite and Phase I through Phase IV testing and the operational phases, which include operation, maintenance, modification, and refueling, is described herein.

4 It is APS' objective to assure that activities conducted during the operational phase of the PVNGS, including contractors' and suppliers' activities, are conducted:

- Without undue risk to the health and safety of the public
- In compliance with applicable license and regulatory requirements
- In such a manner that the station is capable of fulfilling its intended function.

4 The Operations Quality Assurance Program is designed to accomplish this objective. The quality assurance program requires that quality related activities be performed under suitable environmental conditions using special equipment, skills and processes as necessary. The Operations Quality

11 Assurance Criteria Manual and the PVNGS Station Manual have been developed to implement the QA program. The Operations Quality Assurance Criteria Manual is the method by which the management of Arizona Public Service promulgates the criteria or requirement of the Quality Assurance Program. The manual is used by PVNGS organizations in developing any procedures and instructions to ensure that quality-related activities are in compliance with these management specified criteria,

affecting quality. The second element is quality verification and the third element is quality assurance.

17.2.2.3.1 Administrative Controls

The Operations Quality Assurance Program requires preparation of appropriate documents, including procedures, drawings, and specifications, which prescribe the measures which have been established to control activities affecting quality. This is the responsibility of each and every organization or group with responsibility for performing a quality-related activity. The measures which are established to control work or operations must be detailed to the extent necessary to ensure that adequate controls have been incorporated. This establishes a documented system of controls which will provide confidence in the acceptability or quality of the work activities governed by those documents and the safe and effective operation of the plant.

Prior to and during operation of the PVNGS, many activities are planned and performed that are of importance with regard to meeting the objectives of the Operations Quality Assurance Program. For the most part, these activities are performed by members of the Nuclear Operations Organization under the direction of the ~~Manager~~ DIRECTOR of Nuclear Operations. Responsibility for certain activities is also shared by other groups within APS, including the Nuclear Engineering, Startup and Corporate Quality Assurance Departments, and may be delegated to outside contractors and suppliers as determined by APS.

Quality-related activities include activities that, as a result of not being performed or of being performed improperly, could result in the failure to satisfy, in whole or in part, the objectives of the Operations Quality Assurance Program. Examples of activities that could directly or indirectly affect safety-related items include maintenance and repair, system and equipment testing and operation, plant modification, and in-service inspection.

The ~~Manager~~ DIRECTOR of Nuclear Operations is responsible for the development of a program for onsite administrative control over quality related items and services not specifically controlled by the Startup Department administrative control program. The administrative controls for both the startup and operation of the PVNGS will be included in the PVNGS Station Manual, described in sections 13.1 and 14.2. The Startup Manager is responsible for the onsite implementation of the programs for the startup of PVNGS up to ~~fuel loading~~ SYSTEM ACCEPTANCE. 12

The ~~Manager~~ DIRECTOR of Nuclear Operations is responsible for the onsite implementation of the programs for the operation of PVNGS, and of the programs for startup commencing with ~~fuel loading~~ SYSTEM ACCEPTANCE. Each manager is also responsible for ensuring program compliance by station staff personnel within their jurisdiction. 4

17.2.2.3.2 Quality Verification

Quality is achieved through the use of skilled personnel, adequate planning, use of suitable tools and procedures under appropriate conditions, proper definition of job requirements, and appropriate supervision and technical direction. Quality is verified through monitoring during the activity; inspection and testing, after meeting the required prerequisites; and checking, auditing, and review of work activities and documentation. Attainment of acceptable quality is the basic responsibility of the organization or group performing the activity. Independent inspection is performed, however, by individuals other than those who performed or directly supervised the work. 4 4 4

17.2.2.3.3 Quality Assurance 4

The QA function consists of review, monitoring, and audit. Auditing is performed by personnel not having immediate responsibility for the activities being audited. The

5 Corporate Quality Assurance Department is responsible for auditing program activities to assure compliance with established controls and requirements; and for measuring the overall effectiveness of those controls. This monitoring and audit function shall apply to organizations within and outside of APS which perform quality-related activities.

4 17.2.2.4 Quality Assurance Program Implementation

The quality assurance program (as defined in the Operations Quality Assurance Criteria Manual for prerequisite and Phase I testing and maintenance) is implemented at the jurisdictional transfer of safety-related systems, subsystems, structures, and components from Construction to the Startup Organization on either an interim or final basis.

The quality assurance program (as defined in the Operations Quality Assurance Criteria Manual for Phase II through IV testing and maintenance, and operations activities) is implemented at the jurisdictional acceptance of safety-related systems, subsystems, structures and components by the Nuclear Operations Organization from the Startup Organization.

13

For quality-related activities that are initiated by Nuclear Operations prior to the receipt of an Operating License, including environmental monitoring and baseline inspection, the administrative controls are developed to the extent required to be consistent with regulatory requirements and quality verification program established and implemented for those activities.

4 Implementation of the quality assurance program is gradually expanded during the prerequisite and Phase I activities as additional safety-related structures, systems, and components are turned over and as quality-related activities are begun. Implementation of the Operations Quality Assurance Program will be achieved at least 90 days prior to fuel loading for each unit.

13

4

INSERT V

17.2.2.5 Program Documentation 4

Operations Quality Assurance Program policies and practices are described in this section.

Prior to receipt of the Operating License for the PVNGS, revisions to this operations quality assurance program description will be made in accordance with Nuclear Projects Department procedures for control of the FSAR. 4 4

Following receipt of the Operating License for the PVNGS, revisions to section 17.2 will be made in accordance with Nuclear Operation's procedures for control of the FSAR. Such procedures shall require notification to the NRC (cc: QA Branch) of changes to the QA program, as described in section 17.2, prior to implementation, and organizational changes within 30 days after announcement. Editorial changes and personnel reassignments which are not substantive do not require NRC notification. 5 6 4

Various other documents, including instructions, procedures, and manuals, delineate quality-related activities carried out by various organizations within APS. Requirements for preparation, review, approval, revision, issuance, and distribution are delineated in controlling procedures. Table 17.2-2 is a cross-reference of the requirements of 10CFR50, Appendix B, to the sections of the Operations Quality Assurance Criteria Manual. 4 11

INSERT V

Changes to the quality assurance program description included or referenced in sections ~~17.1A, 17.1B, and 17.1C of this chapter~~ 17.2 shall be submitted to the NRC in accordance with 10 CFR 50.54(a) ~~(f)~~. Changes that do not reduce the commitments in the program are submitted ~~within 90 days after implementation.~~ at least annually. Changes that do reduce the commitments shall be submitted to the appropriate NRC Regional Office, to the Resident Inspector, and to the Document Control Desk, U.S. NRC for approval prior to implementation.

12

17.2.2.6 Management Reviews

The Executive Vice President, ANPP, reviews reports of the status and adequacy of the Operations Quality Assurance Program at least annually. He requires that the Vice President, Nuclear Production, Nuclear Safety Group and Corporate Quality Assurance Director make formal recommendations with regard to the adequacy of and compliance with the policies and practices of the Operations Quality Assurance Program. The recommendations become the formal record of effectiveness of the Operations Quality Assurance Program.

The intent of the management review is to assess the scope, status, implementation, and effectiveness of the Operations Quality Assurance Program to assure that the quality assurance program adequately and effectively complies with APS policy and the requirements of 10CFR50, Appendix B. The review may include reviews and/or audits of quality-affecting activities conducted by or for the Executive Vice President, ANPP, to maintain an overall awareness of the effectiveness of the Operations Quality Assurance Program.

If disputes involving quality matters develop which cannot be resolved within equivalent organizational levels within APS, the matter may be submitted for management review and resolution to the Vice President, Nuclear Production or Executive Vice President, ANPP, as appropriate.

4 17.2.2.7 Applicability of Codes, Standards and Regulatory Guides

The Operations Quality Assurance Program has been developed, to the extent practical, in accordance with approved NRC Regulatory Guides and ANSI Standards. The 4 requirements for the Operations Quality Assurance Program are described in table 17.2-1. Implementation of those requirements for specific quality-related activities is the responsibility of those who are responsible for the activity. Prior to receipt of an Operating License for the PVNGS, changes to conformance with those Quality Assurance Standards and Guides identified in table 17.2-1 must 12 be reviewed and accepted by the Corporate Quality Assurance 4 ~~Manager~~ DIRECTOR. After receipt of an Operating License for the PVNGS, changes to the requirements described in table 17.2-1 must be reviewed in accordance with the requirements of the Technical Specifications. Such changes will be accepted by 4 the Corporate Quality Assurance Department prior to implementation.

4 17.2.2.8 Safety-Related Structures, Systems, and Components Controlled by the Program

Table 3.2-1 identifies the safety-related structures, systems, and components to which the Operations Quality Assurance Program applies. Certain components or parts within the identified envelopes may not be safety-related. Such components or parts will not be identified as safety-related in the detailed list described in the paragraph below.

The structures, systems, and components listed in table 3.2-1 are further broken down to identify systems and components to which the Operations Quality Assurance Program applies. The classification of safety-related items is developed and maintained by the PVNGS Engineering Department. 6 12

Prior to receipt of an Operating License for the PVNGS, changes to table 3.2-1 must be reviewed and accepted by the Corporate Quality Assurance ~~Manager~~ DIRECTOR and the Nuclear? Engineering Manager / DIRECTOR TECHNICAL SERVICES. 4 9

After receipt of an Operating License for the PVNGS, changes to table 3.2-1 must be reviewed in accordance with the requirements of the Technical Specifications. Such changes will be accepted by the Corporate Quality Assurance Department prior to implementation. 4

17.2.2.9 Suppliers and Contractors 4

APS requires contractors and suppliers of equipment, materials, and services which could affect the quality of safety-related structures, systems, and components or who perform quality-related activities to establish and implement QA programs. These QA programs shall include provisions which are consistent with the Operations Quality Assurance Program. Alternatively, they may be required to perform work in accordance with APS approved procedures. APS responsibilities with respect to these programs will be exercised through review of their QA programs, monitoring verification or audit, as appropriate, by the Corporate Quality Assurance Department to assure compliance with the procurement document and applicable sections of 10CFR Part 50, Appendix B. 4 9

17.2.2.10 Personnel Indoctrination and Training

The Operations Quality Assurance Program provides for the indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. Personnel responsible for performing quality-affecting activities shall receive indoctrination sufficient to acquaint them thoroughly with the purpose, scope, and implementation of the quality-related manuals, instructions and procedures which govern their activities. Personnel verifying activities affecting quality shall be qualified in the principles, techniques, and requirements of the activity being performed. The Corporate Quality Assurance Department Procedures Manual identifies the procedures that have been established by APS for indoctrination and training of Corporate QA Department personnel. The Nuclear Projects Department Project Procedures Manual identifies the procedures that have been developed for indoctrination and training of Nuclear Engineering personnel. The PVNGS Station Manual identifies the procedures that have been established by APS for indoctrination and training of PVNGS startup and operations personnel. The Nuclear Operations Support Department Procedures Manual identifies the procedures that have been developed for indoctrination and training of Nuclear Operations Support Department personnel.

The responsible manager shall assure that the proficiency of personnel performing and verifying activities affecting quality is maintained through periodic training, re-examining, and/or recertifying, as determined appropriate.

The ~~Manager~~ DIRECTOR of Nuclear Operations is responsible to assure that operations personnel are aware of QA requirements and the fact that adherence to these requirements is mandatory. It is the responsibility of the Corporate QA ~~Manager~~ DIRECTOR to assure that Corporate Quality Assurance Department personnel

control of safety-related materials, parts, and components, including partially fabricated subassemblies, to assure the use 4 or installation of only accepted items.

APS requires, in procurement documents, that equipment be identified at the source, prior to shipping, in accordance with the established plant identification system. In addition, traceability of materials, parts, or components to 4 the vendor's quality documentation is specified, when required, in the procurement documents. Procedures utilized by the 4 Corporate Quality Assurance Department and the PVNGS staff for source and receiving inspection planning include provisions for the verification of the correct identification of items. Physical identification is required, as appropriate, for relating an item at any stage of work to an applicable drawing, specification, purchase order, and/or other pertinent document. Where physical identification is impractical or would affect the function or quality of the item, physical separation, procedural control, or other means are employed. Where physical identification is used, however, the location and method of identification must not affect the fit, function, or quality of the item. Identification may either be made on the item or affixed to it, or on records traceable to the item to preclude the use of incorrect or defective items.

12 The ~~Manager~~ DIRECTOR of Nuclear Operations and ~~Startup~~ TRANSITION Manager are responsible for ensuring that station procedures exist and are being implemented for the identification and control of materials, parts and components. These procedures ensure 4 that:

A. Identification of material, parts and components is maintained on the item or on records traceable to the item.

established codes and standards, the procedures for qualifying personnel, procedures or equipment shall be defined in the procurement documents or shall be submitted for review prior to use.

Each department within APS shall be responsible for evaluating each of the processes it performs to determine if they fall under the controls of this section. The determination of whether a process is or is not a special process shall be verified by the Corporate Quality Assurance Department. Each department shall develop its own procedures and qualification requirements in accordance with this section. The Corporate Quality Assurance Department shall review and approve all quality-related special process procedures as required by the ~~onsite operations quality~~ OPERATIONS QUALITY Assurance ~~program~~ CRITERIA MANUAL.

Documentation of procedures and personnel qualification shall be maintained current by the vendor. The ~~Manager~~ DIRECTOR of Nuclear Operations shall be responsible for maintaining such documentation for PVNGS personnel involved in performing special process activities.

17.2.10 INSPECTION

17.2.10.1 General

The Operations Quality Assurance Program requires that an inspection program be developed and implemented to verify conformance of quality-related activities and activities affecting safety-related structures and components with the applicable requirements. This program is accomplished in accordance with written procedures, instructions, or drawings by qualified inspection personnel, when required, other than those performing or directly supervising the activity being inspected, and the results are documented.

The inspection program provides for indirect control by monitoring processing methods, personnel, and equipment when direct inspection is not possible.

testing shall be based on design considerations and regulatory requirements. Testing will be in accordance with written test procedures.

Proof and performance testing of components shall be performed and documented by vendors as required in procurement documents. Vendors may also be required to perform prototype qualification tests. The performance of vendor testing may be witnessed by APS or its authorized agent. Witness/ notification and mandatory hold points shall be incorporated in the vendor's manufacturing and test plans. 4

The ~~Startup Manager~~ Manager, Transition is responsible for Prerequisite and Phase I tests conducted on safety-related structures, system, and components at PVNGS. Responsibility for Phase II through IV testing is assigned to the ~~Manager~~ DIRECTOR of Nuclear Operations. Written administrative procedures have been developed and implemented to control the preparation, review, approval, and evaluation of test results. These administrative procedures include the requirements that test procedures incorporate or reference: 12 4

A. The requirements and acceptance limits contained in applicable design and procurement documents

B. Instructions for performing the test

C. Test prerequisites such as:

- Calibrated instrumentation
- Adequate and appropriate equipment
- Completeness of item and/or system to be tested
- Suitable and controlled environmental conditions
- Provisions for data collection and storage

D. Mandatory inspection hold points for witness by appropriate inspector, when required

E. Acceptance and rejection criteria

audits. Responsibilities within APS for conducting these verification activities are described in section 17.2.10, Inspection. The I&C Superintendent is responsible to the Director of Nuclear Operations through the Maintenance Manager for establishing and implementing administrative and technical procedures for control of calibrated tools and measuring and test equipment used by the PVNGS staff and other support groups within APS in activities affecting the quality of nuclear safety-related items. Department Heads/Section Supervisors are responsible for assuring conformance to the program in applicable activities performed in their respective department/sections. The Corporate Quality Assurance Department ~~The PVNGS Operations QA/QC Manager~~ is responsible for assuring the effectiveness of the controls for the calibration of measuring and test equipment and installed plant equipment. The implementing procedures provide for:

A. Identification and traceability of measuring and test equipment and installed plant equipment to the calibration test data.

B. Labeling, tagging or scheduling/indicies where practical, of the measuring and test equipment to indicate the date of the next calibration.

C. The establishment of specific calibration intervals and tolerances for various pieces of measuring and test equipment and installed plant equipment. These intervals are based on the required accuracy, purpose, degree of usage, stability characteristic, environmental conditions, and past experience.

D. Recording and maintaining a complete status of measuring and test equipment and installed plant equipment.

In addition, inspection, test, and work procedures shall include provisions assuring that tools, gauges, instruments,

of the organization that generated the procurement document or is responsible for the governing document. The responsible group will solicit review and comments from other interfacing groups as necessary. Nonconformances dispositioned as "accept-as-is" or "repair" will receive final approval in accordance with approved procedures. Procedures to coordinate this review and assessment will be developed by the responsible organization.

12 The ~~Startup~~ TRANSITION Manager and the ~~Manager~~ DIRECTOR of Nuclear Operations are responsible for development of procedures that meet the requirements of this section to control the handling of nonconforming material, parts, components, and services under their jurisdiction. These procedures provide for the segregation, if practical, and tagging of nonconforming material, parts, or components. Where such segregation is impossible or impractical, the nonconforming item shall be conspicuously tagged or identified by other means to indicate it is nonconforming and to identify the nonconformance. Installation of nonconforming items will only be considered when an evaluation concludes that the nonconforming condition can be resolved with the item installed. If the item is already installed at the time the nonconforming condition is identified, equipment control measures shall preclude inadvertent use of the item where such use could present a hazard to equipment or personnel. Nonconformances identified prior to the start of a preoperational test will be resolved (i.e., dispositioned) prior to the start of the test. If items of nonconformance are identified during the test they will be documented, evaluated and dispositioned prior to the acceptance of the test results. APS Procedures provide for notification of vendors if materials, parts, components, or services provided by them are found to contain defects or noncompliances which are reportable to NRC.

Nonconforming conditions may be identified by any individual at PVNGS. Reports of nonconformances shall include the

identification of the item, a description of the nonconforming condition, the disposition of the nonconformance, the reinspection requirements, and the signatures of those persons or groups approving the disposition. Reinspection or retest requirements are required to be the same or equivalent to the original inspection method. The inspection, testing, rework, and repair procedures will also be documented.

Dispositions as "accept as is" or "repair" (to less than original design requirements) of nonconformances require the written approval of the applicable engineering organization. Through completion of Phase I testing, Bechtel Engineering is responsible for dispositioning of Startup Nonconformance Reports. 12 4

The Corporate Quality Assurance ~~Quality Control Organization~~ Department is responsible for verification of Startup Nonconformance Report completion and acceptance. Issuance, distribution, and control of Startup Nonconformance Reports is the responsibility of the Startup Organization. 13

Commencing with Phase II Testing, the Corporate Quality Assurance Department is responsible for issuance, distribution, control, and verification of nonconformance report completion and acceptance. 4

The Corporate Quality Assurance Department shall be responsible for analyzing for trends, at least annually, nonconformance reports generated at PVNGS as well as the effectiveness of the nonconformance identification and control system used at PVNGS. The results of this analysis shall be reported in writing to the Startup Manager, Director of Nuclear Operations, Corporate Quality Assurance ~~Manager~~ Director and Nuclear Safety Group, as appropriate. 9 4 13 12

17.2.16 CORRECTIVE ACTION

The Operations Quality Assurance Program requires that procedures be established and implemented to assure that conditions 4

17.2.18 AUDITS

The Operations Quality Assurance Program establishes and implements a comprehensive system of planned and documented audits to verify compliance with requirements of the Operations Quality Assurance Program and to determine the effectiveness of the program. The audit program includes audits of vendors providing quality-related items and services for PVNGS, audits of the Startup and Nuclear Operations organizations, and audits of off-site organizational groups within APS performing quality-related activities. 4 12

The Corporate Quality Assurance ~~Manager~~ DIRECTOR is responsible for the audit program and for ensuring the independence of auditors assigned to conduct audits for the Corporate Quality Assurance Department. 4 9

Audits shall be performed in accordance with written procedures, or checklists, by trained personnel having no direct responsibilities in the area audited. Audits may be conducted by quality assurance or other qualified personnel, such as technical specialists from other departments. 4

The purpose of audits is the evaluation of work areas, activities, processes, items, and documentation, to provide an objective evaluation of compliance with established requirements, methods, and procedures; to assess progress in assigned

tasks; to determine adequacy of QA program performance; and to verify implementation of recommended corrective action. Audit results shall be documented and reviewed with management responsible for the area audited, who shall take necessary action to correct reported deficiencies. Reaudits will be conducted, where necessary, to verify the corrective action.

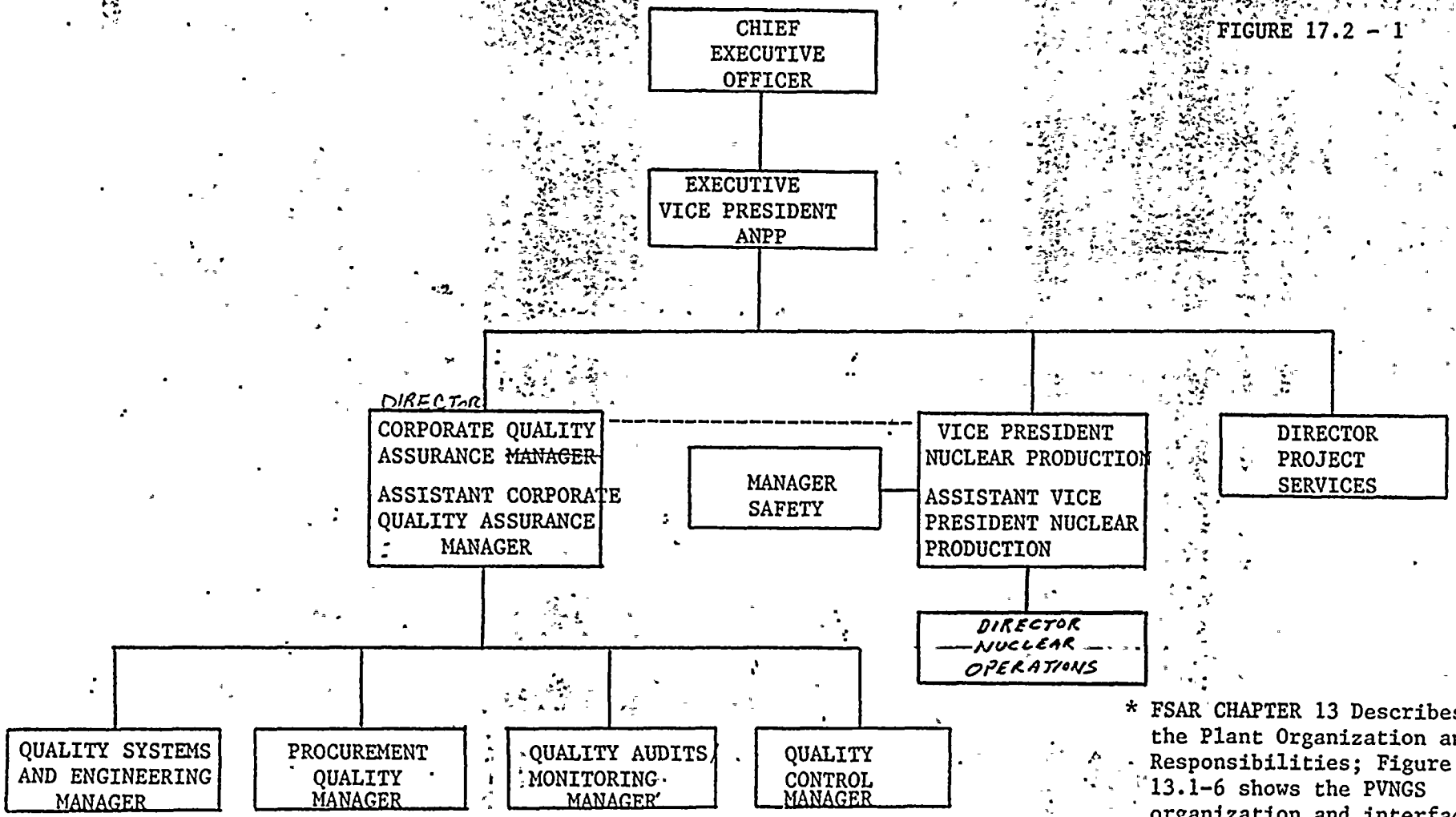
4 The Corporate Quality Assurance ~~Manager~~ DIRECTOR shall ensure that all audit reports are evaluated for indications of quality trends. Adverse quality trends are reported to the Vice 12 President ~~of~~ Nuclear (PRODUCTION) and the Nuclear Safety Group, and the manage- 4 ment of involved or affected organizations.

9 The Corporate Quality Assurance Department will develop and 4 maintain audit schedules. These schedules will be submitted to the Corporate Quality Assurance ~~Manager~~ DIRECTOR on a yearly basis 5 for his review and concurrence.

Audits will selectively cover each of the various elements 4 of the Operations Quality Assurance Program, at the beginning of the project activity involving those elements, and at regular intervals thereafter. The scheduled frequency of 5 audits may be changed with the concurrence of the Corporate Quality Assurance ~~Manager~~ DIRECTOR as circumstances dictate; e.g., changes in level of activity, importance of activity, previous findings, changes in organization or procedures, or occurrence of problems. Regularly scheduled audits will be supplemented by random, unscheduled audits as conditions warrant.

4 Audits may be used to determine the acceptability of vendors' QA programs prior to awarding of a purchase order or contract; 4 follow-up audits shall be used to assure that vendors properly implement their QA programs.

FIGURE 17.2 - 1



* FSAR CHAPTER 13 Describes the Plant Organization and Responsibilities; Figure 13.1-6 shows the PVNGS organization and interfaces.

———— Denotes Lines of Authority/Administration

---------- Denotes Lines of Communication

QUESTION 17A.4 (NRC Question 260.4) (17.2.1 and 13.1.1)

Figure 13.1-4 shows a Site Quality Assurance Supervisor and Site Quality Assurance Personnel reporting to the Quality Assurance Manager. These site personnel are not shown on Figure 17.2.1, and page 17.2-9 indicates the Quality Assurance Department is organized into but two sections. Clarify. Also, discuss the need of the QA Manager to have some full time onsite staff in order to verify effective implementation of the Corporate Operations QA Program.

RESPONSE: Amended sections 17.2.1.2 ~~& and 17.2.1.2.3~~ describe the ~~Quality Systems Section and Construction QA/QC section~~ CORPORATE QUALITY ASSURANCE DEPARTMENT as shown ~~as shown~~ in figures ~~13.1-4~~ and 17.2-1.

The ~~Operations~~ CORPORATE Quality Assurance Managers ~~is~~ are responsible for verifying the effective implementation of the onsite quality assurance program during the operations phase. ~~He~~ they ~~receives functional and technical guidance from the~~ the Corporate Quality Assurance ~~Manager.~~ DIRECTOR The Corporate Quality Assurance ~~Manager~~ DIRECTOR maintains an overview of ~~Operations~~ the CORPORATE Quality Assurance Department activities through a system of audits, monitoring, and reviews.

QUESTION 17A.5 (NRC Question 260.5) (17.2.2)

Section 17.2.2.2:2 states: "Quality verification is the basic responsibility of the organization or group performing the activity." Actually the organization or group performing a quality-related activity (Maintenance, Engineering, Operation, Procurement, etc.) should be responsible for the activity resulting in a quality product, and verification should be the responsibility of an "independent" organization. Discuss the separation of responsibilities by organization for performance of the work activities and for performance of quality control (quality verification).

(2) Purchase requests shall be prepared and controlled by the Nuclear Engineering Department or the PVNGS Operating organization as determined by the type of procurement action. Purchase requests shall be transposed to purchase orders by the Procurement and Control Department. The Procurement and Control Department is responsible for the control of purchase orders. Review and approval of procurement documents is described in section 17.2.4.2.

(3) Selection of vendors is described in amended section 17.2.7.2.

(4) Bid evaluations will be coordinated by the Procurement and Control Department. The bid evaluation process shall include Procurement and Control, the group responsible for preparation of the procurement document, ~~Operations Quality Assurance or~~ Corporate Quality Assurance, and other groups as appropriate. 4

(5) Review and acceptance of vendors QA programs are described in amended section 17.2.4.1.4.

QUESTION 17A.24 (NRC Question 260.24) (17.2.5)

Section 17.2.5 indicates the PVNGS Quality Section reviews and concurs with instructions, procedures, drawings, etc. which govern safety-related work at the site. Verify that this review determines:

(1) the need for inspection, identification of inspection personnel, and documentation of inspection results;

(2) that the inspection requirements, methods, and acceptance criteria are identified.

the measures to be used for acceptance of the item/service. Corporate Quality Assurance ~~or Operations Quality Assurance as appropriate,~~ reviews the procurement document and approves the procurement method being used and the measures to be used for acceptance of the item/service.

QUESTION 17A.32 (NRC Question 260.32) (17.2.7)

Describe how APS evaluates the validity of suppliers' certificates of conformance.

RESPONSE: The response is included in amended section 17.2.7.5.

QUESTION 17A.33 (NRC Question 260.33) (17.2.8) 4

Describe measures which assure the verification of correct material, parts, and components immediately prior to installation.

RESPONSE: The response is included in amended section 17.2.8.

QUESTION 17A.34 (NRC Question 260.34) (17.2.9)

Provide a more nearly complete list of processes that are controlled as special processes by APS.

RESPONSE: The response is included in amended section 17.2.9.

of each. Include such documents as specifications, calculations, computer programs, system descriptions, SAR when used as a design document, and drawings including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single-line diagrams, structural systems for major facilities, site arrangements, and equipment locations.

RESPONSE: Normally, documents such as specifications, calculations, computer programs, system descriptions, SAR when used as design document, and drawings including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single-line diagrams, structural systems for major facilities, site arrangements, and equipment locations will require interdisciplinary review by multiple reviewers. The responsible engineer or supervising engineer will determine the level of review required based upon the importance to safety of the items or systems under consideration, the complexity of the design, and the similarity with previously proven designs. The Corporate Quality Assurance Department ~~or the Operations Quality Assurance Department~~ will verify the effectiveness of design control measures through periodic audits as described in section 17.2.18. 6

QUESTION 17A.56 (NRC Question 260.56) (17.2.6)

The response to NRC Question 260.25 lists a number of documents which are reviewed for conformance to QA program requirements by the Operations or Corporate QA Department. The list omits design specifications; design, manufacturing, construction, and installation drawings; as-built documentation; test procedures; and design changes. Although the list is a "such as" list, the omission of these documents can be interpreted to mean that they will not be so reviewed by an APS QA organization. It is the

staff position that they should be. Commit to meet this position or provide an alternative for our evaluation.

RESPONSE: The response is included in amended section 17.2.6.

QUESTION 17A.57 (NRC Question 260.57) (17.2.6)

The response to NRC Question 260.26 regarding the control of obsolete and superseded documents indicates that changes will be sent with instructions to holders of controlled copies. Describe the follow-up which will be done to assure the instructions are follow.

RESPONSE: The response is included in amended section 17.2.6. In addition, the Corporate Quality Assurance Department ~~and the Operations Quality Assurance Department~~ shall verify the effectiveness of document control measures thorugh periodic audits as described in section 17.2.18. 6

QUESTION 17A.58 (NRC Question 260.58) (17.2.6)

The response to NRC Question 260.27 is not responsive. If different types of documents and different originating organizations may have different methods of identifying the applicable document revision, describe the different methods and the documents to which they apply.

RESPONSE: The response is included in amended section 17.2.6.

QUESTION 17A.59 (NRC Question 260.50) (17.2.7 and 17.2.4)

It is the staff position that the procurement of spare and replacement parts should be subject to the latest pertinent QA program controls; i.e., the approved operational QA program.

Commit to meet this position or provide an alternative for our evaluation (see response to NRC Question 260.29).

RESPONSE: Response is included in amended section 17.2.4.3.

QUESTION 17A.60 (NRC Question 260.60) (17.2.9)

The response to NRC Question 260.35 indicates the Operations QA Department reviews and approves special process procedures developed by APS. It is the staff position that an APS QA Department should also verify (at least on an audit basis) the determination of whether a process is or is not a special process. Commit to meet this position or provide an alternative for our evaluation.

RESPONSE: Amended section 17.2.9 indicates that the ~~Operations~~ CORPORATE QA Department will verify the determination of whether a process is or is not a special process. Such verification will be accomplished through monitoring, inspection, ~~checking,~~ auditing or review. ~~as described in section 17.2.2.3.2.~~ 6

QUESTION 17A.61 (NRC Question 260.61) (17.2.1)

Section 17.2.1.3.2 indicates the Operations QA Manager "receives functional and technical guidance direction from the Corporate QA Manager", and Figure 17.2-1 has a dashed line between these two positions which the legend indicates as "functional and technical guidance." (Emphasis added) It is the staff position that the organization shown is acceptable if "guidance" is eliminated from the first quotation and changed to "direction" in the second. Commit to

meet this position or provide an alternative for our evaluation.

6 RESPONSE: The response is included in amended sections 17.2.1.1.6 ~~and 17.2.1.3.2~~ and figure 17.2-1. These responses more correctly define Arizona Public Service Company's Quality Assurance responsibilities.

QUESTION 17A.62 (NRC Question 260.62) (17.1)

Section 17.1.2.2 of the standard format (Regulatory Guide 1.70) requires the identification of safety-related structures, systems, and components controlled by the QA program. You are requested to supplement and clarify Table 3.2-1 of the Palo Verde FSAR in accordance with the following:

a. The following items do not appear on FSAR Table 3.2-1. Add the appropriate items to the table and provide a commitment that the remaining items are subject to the pertinent requirements of the FSAR operational quality assurance program or justify not doing so.

8 1. Spent fuel pool liner.

2. Cask handling crane.

3. Fuel transfer carriage assembly.

4. Containment building polar crane.

5. CEA change platform.

6. Other special tools and lifting rigs, such as reactor vessel head gear.

7. Third auxiliary feedwater pump (motor driven) and its interconnecting piping and valves.

8. Reactor coolant pump auxiliary components required for lubrication and cooling of pump seals and thrust bearings.