SMUD

SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION

QUALITY ASSURANCE PROGRAM

QUALITY ASSURANCE CLASSIFICATION

QUALITY ASSURANCE
PROCEDURE NUMBER: 3 Rev. 0

EFFECTIVE DATE: July 3, 1984

APPROVED: _____ MANAGER QUALITY ASSURANCE

CONCURRED: _____ EXECUTIVE DIRECTOR NUCLEAR

PURPOSE: To establish a procedure for classifying systems, structures, subassemblies, components, and design characteristics so as to establish the degree of quality assurance activity related to their manufacture, erection, installation, maintenance, or in-service inspection.

GENERAL REQUIREMENTS:

1. Classification of systems, subsystems, components, and design characteristics shall be confined to two categories, defined as follows:

   QA Class I: Those plant structures, systems, subsystems, and equipment which are necessary to assure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safely shutdown condition, or the capability to prevent or mitigate the consequences of accidents which could result in offsite exposures in excess of 10 CFR Part 100. The system may be redundant or nonredundant in nature (i.e., reactor coolant system) and includes such things as structures, containments, and control systems used to meet regulatory requirements.

   QA Class II: Those plant structures, systems, subsystems, components or equipment, which are not QA Class I, that as a result of being defective could cause a safety hazard, an unscheduled reduction in unit output or major equipment damage. These systems are normally located in the balance of plant (BOP).

2. Nuclear Engineering shall determine the classification of systems, subsystems, components, or design characteristics set forth in drawings and specifications.

3. All QA Class I systems must meet the applicable provisions

of the Nuclear Regulatory Commission (NRC) Quality Assurance Criteria for Nuclear Power Plants. Criteria are set forth in the Federal Register, Vol. 40, No. 13, January 20, 1975 (10 CFR Part 50, Appendix B).

4. Quality Assurance participation on Rancho Seco Unit No. 1 is required on those items that have QA Class I designation.

5. All materials and work which come under the regulations of ASME Codes will be subject to the quality assurance requirements of this manual as follows:

   a. **Modification to Existing Systems**:

      1) All ASME Section III Nuclear Vessels Class A&B, USAS B31.7 Class I, and Pump and Valve Code Class I materials will be subjected to QA Class I requirements.

      2) All Section III Nuclear Vessels Class C materials will be subjected to QA Class II requirements as a minimum.

      3) All piping under B31.7 will be subjected to QA Class II requirements as a minimum.

      4) All items coming under the Nuclear Pump and Valve Code will be QA Class II as a minimum.

   b. **Installation of New Systems**:

      The QA Class will be determined by Nuclear Engineering.

PROCEDURE:

1. In conjunction with design review, as noted in Quality Assurance Procedure No. 3, the Manager of Quality Assurance will audit the quality classification listing.

2. Classification of characteristics must be accomplished on all classified systems, subsystems, and components. This classification shall be based on:

   a. An assessment of each design characteristic in a failed or defective condition to determine whether the resulting effect is Class I or Class II in nature.

b. An analysis of specified ASME Code requirements.

This determination is made by the engineer based on his knowledge of the material or equipment and represents his judgment of what design dimensions, performance requirements, or special tests are critical from the standpoint of the quality class definitions.

3. Classification of characteristics will be indicated in specifications and purchase requisitions. The General Requirements for Quality Assurance, Figure 3-1, will be used as guidance for assigning the minimum desired quality requirements.

4. Commercial Grade Items will exist under the classification of QA Class I provided they fall under the following conditions:

   a. Manufactured for use by general industry, and

   b. Normally manufactured prior to receipt of a purchase order by the supplier, and

   c. Manufactured to national standards or by processes that are highly repetitive or automated, and

   d. Can be ordered from the original manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (sales catalog), and

   e. Will be handled and stored in conformance to QA Class I at the Rancho Seco site.

5. The quality classification of each major component will be identified on the Master Equipment List maintained by Nuclear Operations.

   a. Nuclear Engineering is responsible for determining the quality classification of all major components based upon the General Requirements of this Quality Assurance Procedure. The classification does not require that every part comprising a portion of the major component be classified at that level. As allowed by the Code, the classification rules permit evaluations to be made regarding component failure, pressure

boundary limitations and similar types of criteria for electrical components to determine their safety significance in determining their classification.

b. Nuclear Engineering uses various informational aids to determine the proper classification of individual components and circuits. The classification of an individual part within a major component requires judgment on the part of the Nuclear Engineering and Quality Assurance Departments to define the critical nature of the component within a particular system.

GENERAL REQUIREMENTS FOR QUALITY ASSURANCE

The Quality Assurance requirements for the various quality assurance classes represent recommended requirements. Additional requirements will be included as necessary to satisfy any special design considerations.

Quality Assurance Activity	Responsibility	Class I	Class II	Commercial Grade Items
1. An effective quality assurance system	SMUD	X	X	X
	Supplier	X		
2. Procedures describing the quality assurance program	SMUD	X	X	
	Supplier	X		
3. Submittal of drawings for SMUD review	SMUD	N/A		
	Supplier	X		X
4. Design review by an independent design group, as required	SMUD	X		
	Supplier	X		
5. Subcontract and purchase order review to assure incorporation of quality assurance requirements	SMUD	X		
	Supplier	X		
6. Bidder QA evaluation prior to award of contract or PO	SMUD	X		
	Supplier	X		
7. Prepare formalized inspection planing for items inspected at source	SMUD	X		
	Supplier	X		
8. Prepare formalized inspection planing for items received at site	SMUD	X		X
	Supplier	N/A	N/A	

Figure 3-1

Quality Assurance Activity		Responsibility		
		Class I	Class II	Commercial Grade Items
9. Prepare formalized inspection planning construction activities	SMUD Supplier	X	X	X
10. Inspection planning for maintenance activities	SMUD Supplier	X	X	X
11. Control specifications, drawings, and engineering changes	SMUD Supplier	X X	X	X
12. Inspection at source	SMUD Supplier	X X		
13. Receiving Inspection	SMUD Supplier	X X	X	X
14. Identification and Control	SMUD Supplier	X X	X	X
15. Control of special processes (construtionand inspection)	SMUD Supplier	X X	X	
16. In-process inspection (construction or manufacturing)	SMUD Supplier	X	X	
17. Calibration of measurement and test equipment	SMUD Supplier	X X	X	X
18. Preservation, handling, storage, and shipping inspection	SMUD Supplier	X X	X	X

Figure 3-1

Quality Assurance Activity		Responsibility		
		Class I	Class II	Commercial Grade Items
19. Indication of inspection status through tags, stamps, etc.	SMUD	X	X	X
	Supplier	X		
20. Segregation of nonconforming material	SMUD	X	X	X
	Supplier	X		
21. SMUD buyoff of nonconformance	SMUD	X	X	X
	Supplier	X		
22. Corrective action system	SMUD	X	X	X
	Supplier	X		
23. Maintenance of backup records for quality assurance	SMUD	X		X
	Supplier	X		
24. Performance of system audits	SMUD	X	X	
	Supplier	X		

NOTE: Items 9, 10, 13, 15, 16, 18, 19, 21 and 22 for Class II equipment, special circumstances may dictate deletion of recommended requirements.

Figure 3-1